DRAINAGE REPORT SUPPLEMENT

ADJACENT PARCELS 'A' AND 'G'

ARROWHEAD TOWNE CENTER

Prepared by

Val-Tec, Inc.

VT 20-47

October 7, 1994

Registered Professional Engineer (Civil)
CERTIFICATE NO.
9355
DENNIS LEROY
DeWITT
Date Signed 10/7/94
ARIZONA, U.S.A.

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BACKGROUND

The Adjacent Parcels at Arrowhead Towne Center are subject to the City of Glendale's two hour-one hundred year storm detention requirements. This applies to all areas of the City which do not immediately drain to an approved outfall facility.

The Arrowhead Towne Center storm drain connected to Skunk Creek is an approved outfall. However, the bulk of its capacity is allotted to protection of the Mall structure. The Adjacent Parcels may use whatever storm drain capacity remains after the Mall needs are met.

The original storm drain report dated August 23, 1993 was a construction document, loaded with safety factors, to coordinate the onsite and offsites projects through various pipe size and location alternates. The report concluded that the Adjacent Parcels, in mass, could discharge runoff as consistent with a runoff factor "c" of 0.4. Small commercial developments in Glendale typically have a "c" value of 0.8 or higher if landscaping is minimal. The smaller "c" value is a restriction of free runoff.

In addition to project retrains the City of Glendale requested that the hydraulic grade line of the peak 10 year system storm be kept 2below the assumed bottom of a proposed under-crossing of Bell Road.

WORK SUMMARY

This project began with a complete revision of the original report. Redundant safety factors to allow for field revisions were removed, tables of critical depth for the outlet pipe at the junction structure and of draw down curves for the discharge at Skunk Creek were added, and additional controls for partially full pipe flow velocities were added. The updated original report for both 10 and 100 year designs is included in the appendix.

The revised report was then adjusted for an increase in direct runoff from Adjacent Parcels A and G. The runoff factor "c" for each parcel was raised to 0.8 which assumes no onsite retention. The resultant 10 and 100 year computations indicated that both Mall and Bell Road underpass protection requirements are maintained with the increased "c" value. Both 10 and 100 year system designs for the Revised Report are included in the Appendix. The Appendix included a listing of minor loss equations and comments on particular items as well as tables of design data referenced by the program.

CONCLUSIONS

The hydraulic summary spreadsheets for Adjacent Parcel 'A' and Adjacent Parcel 'G' present data for both the peak local and peak system area storms. The peak local 100 year storm begins at a time of concentration of 20 minutes with the Mall storm drain pipes empty. The peak 100 year system storm is simply a test of the system at the storm intensity and outfall hydraulic grade at point of connections as taken from the 100 year system, revised for A and G, included in the Appendix.

These spreadsheets indicate the existing system is adequate to accept all runoff from Adjacent Parcels A and G without onsite detention for either parcel. The pipe sizes indicated for Adjacent Parcels A and G may be assumed to be the minimum required to provide sufficient building protection from 100 year storm runoff highwater. Neither parcel overflows into the adjacent public roads.

DESIGN CRITERIA (ARROWHEAD TOWNE CENTER)

The hydraulic grade line (water surface elevation) for the onsite Mall storm drain cannot exceed 1206.0 adjacent to lower level and 1223.5 adjacent to the upper level of the Mall building for a 100 year 20 minute storm.

Inlet ponding cannot exceed 8 inches above the grate for a 100 year 10 minutes storm.

The 10 year storm hydraulic grade line of the outfall may not exceed the floor of the proposed Bell Road tramway underpass, assumed to be 1188.5.

Rainfall data is per City of Phoenix Rainfall intensity-duration-frequency chart revised June 1975.

DESIGN CRITERIA (ADJACENT PARCELS 'A' AND 'G')

The design hydraulic grade line is the higher of the peak 20 minute or peak system 100 year storm.

Finish floor elevations must exceed the adjacent design hydraulic grade line by a minimum of 18 inches.

Runoff from 100 year storms (or smaller) may not overflow into adjacent right of way.

METHODOLOGY

All computations were made using a Lotus 1-2-3 for Windows spreadsheet broken into three parts: 1.) outfall; 2.) Ring Road mains North of Bell; and 3.) Mall onsite storm drain. Runoff characteristics of the Bell Road and Paradise Lane storm drains and the North Valley Power Center storm drains were taken from those projects without revision.

Flow computations use the manning equation from round pipe:

$$Q = \frac{1.486}{n} R^{2/3} S^{1/2}$$

where n = 0.012 except that the outfall uses n = 0.013 per the City of Peoria's request.

Tailwater elevations provided by the Maricopa County Flood Control were lower than the average of critical depth plus pipe diameter which was used for tailwater elevation control.

All turns and structures were assumed to add 0.1 foot minor head loss except the Mall Ring road structure will use non-uniform flow channel entrance computations and equates the hydraulic grade line with the energy grade line inside the structure.

The project outfall is continuous pipe due to its large diameter. Minor losses are per King's Handbook tables. The outfall draw down curve uses non-uniform flow water-surface profile computations. If the draw down length is less than the length of the run, draw down is ignored.

Partially full pipes are either free flowing and use traditional relative flow graphs for the flow depth and velocity or are subject to down-stream head restraint where depth is not a function of volume and graphs are used for area only with velocity being a separate calculation. The inlet head/crown tables in the summaries generally indicate partially full pipes (negative numbers), however that particular method of solution is not shown.

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCEL G OCT 1994

	ARROWHEAD TOWNE CENTER PARCEL 'G'								FLOW	RAIN				PIPE	PIPE
	FILE:APG100A.WK4				AREA		INLET	TOTAL	TIME	I	FLOW	PIPE		DIA	LENGTH
LINE	INLET	OUTLET	TO	FROM	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo	D	L
No.			No.	No.	ACRE		ACRE	ACRE	(min.)	100YR	C.F.S	Qo	%	IN.	FT
	WEST STORM DRAIN			PEAK 20MIN/100YR STORM											
18	MH-200F	TEE 200		19	0.60	0.80	0.48	4.38	22.4	4.00	18	25	71	24	69
19	MH-200E	MH-200F	18	20	0.67	0.80	0.54	3.90	22.2	4.00	16	11	137	18	85
20	MH-200D	MH-200E	19	21,22	0.60	0.80	0.48	3.36	21.8	4.00	13	11	118	18	210
21	MH-200C	MH-200D	20	START	0.75	0.80	0.60	0.60	21.3	4.15	2	3	74	12	130
22	MH-200B	MH-200D	20	23	1.05	0.80	0.84	2.28	21.0	4.15	9	11	83	18	136
23	MH-200A	MH-200B	22	START	1.80	0.80	1.44	1.44	20.0	4.25	6	6	111	18	205
	MIDDLE STORM DRAIN			PEAK 20MIN/100YR STORM											
25	MH-216	TEE 216		26	0.00	0.80	0.00	2.79	21.6	4.00	11	33	34	24	81
26	MH-216F	MH-216	25	27	1.34	0.80	1.07	2.79	21.3	4.15	12	8	143	18	125
27	CB-216E	MH-216F	26	28	0.66	0.80	0.53	1.72	20.8	4.15	7	5	143	15	152
28	MH-216D	CB-216E	26	29,31	0.00	0.80	0.00	1.19	20.4	4.25	5	5	102	15	114
29	CB-216C	MH-216D	28	START	0.73	0.80	0.58	0.58	20.0	4.25	2	4	64	12	115
30	MH-216B	MH-216D	28	31	0.51	0.80	0.41	1.02	20.0	4.25	4	4	112	12	150
31	MH-216A	MH-216B	30	START	0.76	0.80	0.61	0.61	20.0	4.25	3	3	95	12	187
	EAST STORM DRAIN			PEAK 20MIN/100YR STORM											
33	MH-215	TEE 215		34	0.00	0.80	0.00	3.13	21.6	4.00	13	68	18	24	64
34	MH-215D	MH-215	33	35	0.00	0.80	0.00	3.13	21.5	4.15	13	8	161	18	50
35	CB-215C	MH-215D	34	35,36	0.65	0.80	0.52	3.13	21.3	4.15	13	8	161	18	86
36	CB-215B	CB-215C	35	START	1.00	0.80	0.80	0.80	20.8	4.15	3	3	122	12	126
37	MH-215A	CB-215C	36	START	2.26	0.80	1.81	1.81	20.0	4.25	8	8	96	18	247
	WEST STORM DRAIN			PEAK 100YR SYSTEM STORM											
40	MH-200F	TEE 200		41	0.60	0.80	0.48	4.38	45.9	2.56	11	25	45	24	69
41	MH-200E	MH-200F	40	42	0.67	0.80	0.54	3.90	45.9	2.56	10	11	88	18	85

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCEL G OCT 1994

	ARROWHEAD TOWNE CENTER PARCEL 'G'								FLOW	RAIN				PIPE	PIPE
	FILE:APG100A.WK4				AREA		INLET	TOTAL	TIME	I	FLOW	PIPE		DIA	LENGTH
LINE	INLET	OUTLET	TO	FROM	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo	D	L
No.			No.	No.	ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%	IN.	FT
42	MH-200D	MH-200E	41	43,44	0.60	0.80	0.48	3.36	45.9	2.56	9	11	76	18	210
43	MH-200C	MH-200D	42	START	0.75	0.80	0.60	0.60	45.9	2.56	2	3	45	12	130
44	MH-200B	MH-200D	42	45	1.05	0.8	0.84	2.28	45.9	2.56	6	11	51	18	136
45	MH-200A	MH-200B	44	START	1.80	0.80	1.44	1.44	45.9	2.56	4	6	67	18	205
	MIDDLE STORM DRAIN			PEAK 100YR SYSTEM STORM											
47	MH-216	TEE 216		47	0.00	0.80	0.00	2.79	50.8	2.38	7	33	20	24	81
48	MH-216F	MH-216	47	49	1.34	0.80	1.07	2.79	50.8	2.38	7	8	82	18	125
49	CB-216E	MH-216F	48	50	0.66	0.80	0.53	1.72	50.8	2.38	4	5	82	15	152
50	MH-216D	CB-216E	49	51,52	0.00	0.80	0.00	1.19	50.8	2.38	3	5	57	15	114
51	CB-216C	MH-216D	50	START	0.73	0.80	0.58	0.58	50.8	2.38	1	4	36	12	115
52	MH-216B	MH-216D	50	53	0.51	0.80	0.41	1.02	50.8	2.38	2	4	63	12	150
53	MH-216A	MH-216B	52	START	0.76	0.80	0.61	0.61	50.8	2.38	1	3	53	12	187
	EAST STORM DRAIN			PEAK 100YR SYSTEM STORM											
55	MH-215	TEE 215		56	0.00	0.80	0.00	3.13	49.9	2.40	8	68	11	24	64
56	MH-215D	MH-215	55	57	0.00	0.80	0.00	3.13	49.9	2.40	8	8	93	18	50
57	CB-215C	MH-215D	56	58,59	0.65	0.80	0.52	3.13	49.9	2.40	8	8	93	18	86
58	CB-215B	CB-215C	57	START	1.00	0.80	0.80	0.80	49.9	2.40	2	3	70	12	126
59	MH-215A	CB-215C	57	START	2.26	0.80	1.81	1.81	49.9	2.40	4	8	54	18	247

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCEL G OCT 1994

	FLOW	FULL =	ZERO	DESIGN	DESIGN	Q/Qo	TW+Hf	DESIGN			DESIGN	DESIGN
	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	INLET	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET
LINE	d/D	HEAD	HEAD	VELOCITY	V	CNTRL	WATER	HGL	OUTLET	OUTLET	HGL	HGL
No.	%	FT	FT	CONTROL	FPS	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV
			WEST STORM DRAIN			PEAK 20MIN/100YR STORM						
18	70	-0.6	-0.3	OUTLET	6.66	1193.3	1193.4	TAILWATER	1192.6	NA	(D+Dc)/2+INV	1193.44
19	150	0.7	0.0	PIPE FULL	8.82	1194.6	1195.4	TAILWATER	1193.8	1193.5	FLOW DEPTH	1195.38
20	205	1.6	0.7	PIPE FULL	7.61	1196.8	1198.4	TAILWATER	1194.7	1195.5	TAILWATER	1198.41
21	246	1.5	1.9	PIPE FULL	4.70	1197.2	1199.1	TAILWATER	1196.2	1198.5	TAILWATER	1199.05
22	220	1.8	2.2	PIPE FULL	7.21	1197.8	1200.1	TAILWATER	1196.4	1199.2	TAILWATER	1200.10
23	227	1.9	1.8	PIPE FULL	3.46	1198.9	1200.8	TAILWATER	1198.4	1200.2	TAILWATER	1200.79
			MIDDLE STORM DRAIN			PEAK 20MIN/100YR STORM						
25	38	-1.2	-0.4	OUTLET	3.55	1193.3	1192.8	FLOW DEPTH	1191.8	NA	(D+Dc)/2+INV	1193.27
26	144	0.7	0.0	PIPE FULL	6.56	1194.9	1195.6	TAILWATER	1194.3	1193.4	FLOW DEPTH	1195.56
27	165	0.8	0.0	PIPE FULL	5.82	1195.4	1196.3	TAILWATER	1194.7	1193.4	FLOW DEPTH	1196.25
28	167	0.8	0.8	PIPE FULL	4.13	1196.1	1196.9	TAILWATER	1195.5	1196.4	TAILWATER	1196.95
29	139	0.4	1.1	PIPE FULL	5.16	1196.7	1197.5	TAILWATER	1195.5	1197.0	TAILWATER	1197.52
30	245	1.4	1.1	PIPE FULL	5.50	1196.5	1198.9	TAILWATER	1196.0	1197.0	TAILWATER	1198.93
31	235	1.4	1.4	PIPE FULL	3.29	1198.3	1199.9	TAILWATER	1197.4	1199.0	TAILWATER	1199.86
			EAST STORM DRAIN			PEAK 20MIN/100YR STORM						
33	29	-1.4	-0.4	OUTLET	3.98	1197.6	1193.8	FLOW DEPTH	1192.6	NA	(D+Dc)/2+INV	1197.56
34	127	0.4	0.0	PIPE FULL	7.35	1199.0	1199.4	TAILWATER	1198.7	1197.7	FLOW DEPTH	1199.37
35	146	0.7	0.0	PIPE FULL	7.35	1199.5	1200.2	TAILWATER	1199.1	1197.7	FLOW DEPTH	1200.19
36	234	1.3	1.0	PIPE FULL	4.23	1199.9	1201.2	TAILWATER	1199.3	1200.3	TAILWATER	1201.22
37	215	1.7	1.8	PIPE FULL	5.22	1200.4	1202.4	TAILWATER	1199.2	1201.3	TAILWATER	1202.45
			WEST STORM DRAIN			PEAK 100YR SYSTEM STORM						
40	288	3.8	4.3	PIPE FULL	3.57	1193.0	1197.8	TAILWATER	1192.3	1197.66	TAILWATER	1197.80
41	361	3.9	4.1	PIPE FULL	7.28	1194.2	1198.6	TAILWATER	1193.4	1197.9	TAILWATER	1198.56

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCEL G OCT 1994

LINE No.	FLOW DEPTH d/D %	FULL = ZERO INLET HEAD FT	OUTLET HEAD FT	DESIGN PIPE FLOW VELOCITY CONTROL	DESIGN FLOW V FPS	Q/Qo INLET CNTRL HGL	TW+Hf TAIL-WATER HGL	DESIGN INLET HGL CONTROL	Q/Qo OUTLET HGL	TW+Hm OUTLET HGL	DESIGN OUTLET HGL CONTROL	DESIGN INLET HGL ELEV
42	301	3.0	3.9	PIPE FULL	7.08	1196.3	1199.9	TAILWATER	1194.2	1198.7	TAILWATER	1199.86
43	357	2.6	3.4	PIPE FULL	4.14	1197.1	1200.2	TAILWATER	1196.1	1200.0	TAILWATER	1200.16
44	255	2.3	3.3	PIPE FULL	6.44	1197.6	1200.6	TAILWATER	1196.2	1200.3	TAILWATER	1200.62
45	237	2.1	2.3	PIPE FULL	3.33	1198.3	1200.9	TAILWATER	1197.8	1200.7	TAILWATER	1200.94
			MIDDLE STORM DRAIN			PEAK 100YR SYSTEM STORM						
47	258	3.2	4.5	PIPE FULL	2.11	1193.1	1197.7	TAILWATER	1191.7	1197.61	TAILWATER	1197.67
48	320	3.3	3.5	PIPE FULL	5.12	1194.4	1198.2	TAILWATER	1193.8	1197.8	TAILWATER	1198.19
49	328	2.8	3.1	PIPE FULL	3.33	1195.0	1198.3	TAILWATER	1194.3	1197.8	TAILWATER	1198.29
50	297	2.5	2.8	PIPE FULL	4.15	1195.5	1198.6	TAILWATER	1195.0	1198.4	TAILWATER	1198.57
51	269	1.7	2.7	PIPE FULL	4.42	1196.6	1198.8	TAILWATER	1195.4	1198.7	TAILWATER	1198.82
52	278	1.8	2.7	PIPE FULL	3.07	1196.5	1199.3	TAILWATER	1195.5	1198.7	TAILWATER	1199.26
53	211	1.1	1.8	PIPE FULL	1.84	1198.0	1199.6	TAILWATER	1197.1	1199.4	TAILWATER	1199.62
			EAST STORM DRAIN			PEAK 100YR SYSTEM STORM						
55	74	-0.5	4.3	PARTIAL	2.39	1197.4	1198.4	TAILWATER	1192.5	1198.38	TAILWATER	1198.44
56	92	-0.1	-0.2	PARTIAL	5.24	1198.6	1198.8	FLOW DEPTH	1198.4	1198.5	TAILWATER	1198.84
57	77	-0.3	-0.3	PARTIAL	4.25	1199.2	1199.1	FLOW DEPTH	1198.7	1198.5	FLOW DEPTH	1199.16
58	69	-0.3	0.0	PARTIAL	3.79	1199.5	1199.6	TAILWATER	1198.9	1199.3	TAILWATER	1199.57
59	53	-0.7	0.2	PARTIAL	4.54	1200.0	1200.0	TAILWATER	1198.8	1199.7	TAILWATER	1200.03

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCEL G OCT 1994

LINE No.	DESIGN OUTLET HGL ELEV	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	MAN- -NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM- -HGL FT
		WEST STORM DRAIN					PEAK 20MIN/100YR STORM					
18	1193.09	0.35	5	0.00	0.012	0.0101	1192.04	1191.34	1194.04	8.01	1202.30	8.86
19	1193.79	1.59	1	0.10	0.012	0.0100	1193.14	1192.29	1194.64	7.93	1202.82	7.44
20	1195.48	2.93	1	0.10	0.012	0.0100	1195.34	1193.24	1196.84	4.41	1201.50	3.09
21	1198.51	0.54	1	0.10	0.012	0.0077	1196.59	1195.59	1197.59	3.93	1201.77	2.72
22	1199.15	0.94	1	0.10	0.012	0.0100	1196.80	1195.44	1198.30	4.45	1203.00	2.90
23	1200.20	0.59	1	0.10	0.012	0.0023	1197.38	1196.90	1198.88	3.77	1202.90	2.11
		MIDDLE STORM DRAIN					PEAK 20MIN/100YR STORM					
25	1192.66	0.17	5	0.00	0.012	0.0178	1192.51	1191.07	1194.51	12.24	1207.00	13.73
26	1194.26	1.30	1	0.10	0.012	0.0050	1193.39	1192.76	1194.89	7.46	1202.60	7.04
27	1194.67	1.58	1	0.10	0.012	0.0051	1194.19	1193.42	1195.44	7.71	1203.40	7.15
28	1196.35	0.60	1	0.10	0.012	0.0050	1194.86	1194.29	1196.11	6.94	1203.30	6.35
29	1197.05	0.48	1	0.10	0.012	0.0100	1196.13	1194.98	1197.13	5.12	1202.50	4.98
30	1197.05	1.88	1	0.10	0.012	0.0100	1196.48	1194.98	1197.48	4.67	1202.40	3.47
31	1199.03	0.84	1	0.10	0.012	0.0050	1197.51	1196.58	1198.51	3.69	1202.45	2.59
		EAST STORM DRAIN					PEAK 20MIN/100YR STORM					
33	1193.68	0.17	5	0.00	0.012	0.0769	1196.97	1192.05	1198.97	7.78	1207.00	9.44
34	1198.72	0.65	1	0.10	0.012	0.0050	1197.47	1197.22	1198.97	4.68	1203.90	4.53
35	1199.07	1.12	1	0.10	0.012	0.0050	1198.00	1197.57	1199.50	3.65	1203.40	3.21
36	1200.29	0.93	1	0.10	0.012	0.0050	1198.88	1198.25	1199.88	3.27	1203.40	2.18
37	1201.32	1.13	1	0.10	0.012	0.0050	1199.23	1198.00	1200.73	1.72	1202.70	0.25
		WEST STORM DRAIN				PEAK	100YR SYSTEM STORM					
40	1197.66	0.14	5	0.00	0.012	0.0101	1192.04	1191.34	1194.04	8.01	1202.30	4.50
41	1197.90	0.65	1	0.10	0.012	0.0100	1193.14	1192.29	1194.64	7.93	1202.82	4.26

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCEL G OCT 1994

	DESIGN	HEAD	MINOR	MINOR		PIPE				PIPE	INLET	INLET
	OUTLET	LOSS	HEAD	LOSS	MAN-	SLOPE	INLET	OUTLET	PIPE	COVER	STRUC	RIM-
LINE	HGL	Hf	LOSSES	Hm	-NING	S	INVERT	INVERT	CROWN	@ INLET	RIM	-HGL
No.	ELEV	FT	TYPE	FT	n	ft/ft	ELEV	ELEV	@ INLET	FT	ELEV	FT
42	1198.66	1.20	1	0.10	0.012	0.0100	1195.34	1193.24	1196.84	4.41	1201.50	1.64
43	1199.96	0.21	1	0.10	0.012	0.0077	1196.59	1195.59	1197.59	3.93	1201.77	1.61
44	1200.26	0.36	1	0.10	0.012	0.0100	1196.80	1195.44	1198.30	4.45	1203.00	2.38
45	1200.72	0.22	1	0.10	0.012	0.0023	1197.38	1196.90	1198.88	3.77	1202.90	1.96
		MIDDLE STORM DRAIN				PEAK	100YR SYSTEM STORM					
47	1197.61	0.06	5	0.00	0.012	0.0178	1192.51	1191.07	1194.51	12.24	1207.00	9.33
48	1197.77	0.42	1	0.10	0.012	0.0050	1193.39	1192.76	1194.89	7.46	1202.60	4.41
49	1197.77	0.52	1	0.10	0.012	0.0051	1194.19	1193.42	1195.44	7.71	1203.40	5.11
50	1198.39	0.19	1	0.10	0.012	0.0050	1194.86	1194.29	1196.11	6.94	1203.30	4.73
51	1198.67	0.15	1	0.10	0.012	0.0100	1196.13	1194.98	1197.13	5.12	1202.50	3.68
52	1198.67	0.59	1	0.10	0.012	0.0100	1196.48	1194.98	1197.48	4.67	1202.40	3.14
53	1199.36	0.26	1	0.10	0.012	0.0050	1197.51	1196.58	1198.51	3.69	1202.45	2.83
		EAST STORM DRAIN				PEAK	100YR SYSTEM STORM					
55	1198.38	0.06	5	0.00	0.012	0.0769	1196.97	1192.05	1198.97	7.78	1207.00	8.56
56	1198.54	0.22	1	0.10	0.012	0.0050	1197.47	1197.22	1198.97	4.68	1203.90	5.06
57	1198.73	0.37	1	0.10	0.012	0.0050	1198.00	1197.57	1199.50	3.65	1203.40	4.24
58	1199.26	0.31	1	0.10	0.012	0.0050	1198.88	1198.25	1199.88	3.27	1203.40	3.83
59	1199.67	0.36	1	0.10	0.012	0.0050	1199.23	1198.00	1200.73	1.72	1202.70	2.67

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCEL A OCT 1994

	ARROWHEAD TOWNE CENTER PARCEL 'A'								FLOW	RAIN				PIPE	PIPE
	FILE:APA100A.WK4				AREA		INLET	TOTAL	TIME	I	FLOW	PIPE		DIA	LENGTH
LINE	INLET	OUTLET	TO	FROM	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo	D	L
No.			No.	No.	ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%	IN.	FT
	WEST STORM DRAIN			PEAK 20MIN/100YR		STORM									
18	CB-214	TEE 214		19,22	0.41	0.80	0.33	4.84	21.0	4.15	20	25	82	24	64
19	CB-214H	CB-214	18	20,21	0.56	0.80	0.45	1.37	20.5	4.15	6	4	148	12	190
20	HW-214G	CB-214H	19	START	0.41	0.80	0.33	0.33	20.0	4.25	1	4	36	12	135
21	CB-214F	CB-214H	20	START	0.75	0.80	0.60	0.60	20.0	4.25	3	3	93	12	120
22	CB-214C	CB-214	18	23	0.44	0.80	0.35	3.14	20.9	4.15	13	8	162	18	40
23	CB-214B	CB-214C	22	24	0.51	0.80	0.41	2.79	20.6	4.15	12	8	143	18	125
24	MH-214A	CB-214B	23	START	2.98	0.80	2.38	2.38	20.0	4.25	10	8	125	18	215
	MIDDLE STORM DRAIN			PEAK 20MIN/100YR		STORM									
25	MH-213	TEE 213		28	0.00	0.80	0.00	5.11	21.0	4.15	21	25	86	24	68
26	MH-216H	MH-213	27	29	0.00	0.80	0.00	5.11	21.0	4.15	21	35	61	24	60
27	MH-213G	MH-213H	28	30	0.00	0.80	0.00	5.11	20.4	4.25	22	17	125	24	215
28	MH-213F	MH-213G	29	31	0.00	0.80	0.00	5.11	20.3	4.25	22	17	125	24	70
29	CB-213E	MH-213F	30	32	1.38	0.80	1.10	3.17	20.0	4.25	13	8	167	18	125
30	CB-213D	CB-213E	31	33	1.02	0.80	0.82	2.07	20.0	4.25	9	5	177	15	125
31	CB-213C	CB-213D	32	START	1.56	0.80	1.25	1.25	20.0	4.25	5	5	103	15	165
32	MH-213B	MH-213F	30	35	0.81	0.80	0.65	1.93	20.0	4.25	8	8	102	18	235
33	MH-213A	MH-213B	34	START	1.61	0.80	1.28	1.28	20.0	4.25	5	5	110	15	390
	EAST STORM DRAIN			PEAK 20MIN/100YR		STORM									
33	MH-212	TEE 212		39	0.00	0.80	0.00	2.42	20.9	4.15	10	25	41	24	63
34	CB-215C	MH-212	38	40	1.46	0.85	1.24	2.42	20.8	4.15	10	4	260	12	130
35	CB-212B	CB-212C	39	41	0.82	0.50	0.41	1.18	20.4	4.25	5	4	130	12	135
36	CB-212B	CB-212C	40	START	0.96	0.80	0.77	0.77	20.0	4.25	3	4	85	12	135

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCEL A OCT 1994

	ARROWHEAD TOWNE CENTER PARCEL 'A'								FLOW	RAIN				PIPE	PIPE
	FILE:APA100A.WK4				AREA		INLET	TOTAL	TIME	I	FLOW	PIPE		DIA	LENGTH
LINE	INLET	OUTLET	TO	FROM	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo	D	L
No.			No.	No.	ACRE		ACRE	ACRE	(min.)	100YR	C.F.S	Qo	%	IN.	FT
	WEST STORM DRAIN			PEAK 100YR SYSTEM STORM											
18	CB-214	TEE 214		19,22	0.41	0.80	0.33	4.84	48.3	2.48	12	25	49	24	64
19	CB-214H	CB-214	18	20,21	0.56	0.80	0.45	1.37	48.3	2.48	3	4	88	12	190
20	HW-214G	CB-214H	19	START	0.41	0.80	0.33	0.33	48.3	2.48	1	4	21	12	135
21	CB-214F	CB-214H	20	START	0.75	0.80	0.60	0.60	48.3	2.48	1	3	54	12	120
22	CB-214C	CB-214	18	23	0.44	0.80	0.35	3.14	48.3	2.48	8	8	97	18	40
23	CB-214B	CB-214C	22	24	0.51	0.80	0.41	2.79	48.3	2.48	7	8	86	18	125
24	MH-214A	CB-214B	23	START	2.98	0.80	2.38	2.38	48.3	2.48	6	8	73	18	215
	MIDDLE STORM DRAIN			PEAK 100YR SYSTEM STORM											
25	MH-213	TEE 213		28	0.00	0.80	0.00	5.11	47.2	2.52	13	25	53	24	68
26	MH-216H	MH-213	27	29	0.00	0.80	0.00	5.11	47.2	2.52	13	35	37	24	60
27	MH-213G	MH-213H	28	30	0.00	0.80	0.00	5.11	47.2	2.52	13	17	74	24	215
28	MH-213F	MH-213G	29	31	0.00	0.80	0.00	5.11	47.2	2.52	13	17	74	24	70
29	CB-213E	MH-213F	30	32	1.38	0.80	1.10	3.17	47.2	2.52	8	8	99	18	125
30	CB-213D	CB-213E	31	33	1.02	0.80	0.82	2.07	47.2	2.52	5	5	105	15	125
31	CB-213C	CB-213D	32	START	1.56	0.80	1.25	1.25	47.2	2.52	3	5	61	15	165
32	MH-213B	MH-213F	30	35	0.81	0.80	0.65	1.93	47.2	2.52	5	8	60	18	235
33	MH-213A	MH-213B	34	START	1.61	0.80	1.28	1.28	47.2	2.52	3	5	65	15	390
	EAST STORM DRAIN			PEAK 100YR SYSTEM STORM											
33	MH-212	TEE 212		39	0.00	0.80	0.00	2.42	46.1	2.56	6	25	25	24	63
34	CB-215C	MH-212	38	40	1.46	0.85	1.24	2.42	46.1	2.56	6	4	161	12	130
35	CB-212B	CB-212C	39	41	0.82	0.50	0.41	1.18	46.1	2.56	3	4	78	12	135
36	CB-212B	CB-212C	40	START	0.96	0.80	0.77	0.77	46.1	2.56	2	4	51	12	135

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCEL A OCT 1994

	FULL =	ZERO	DESIGN	DESIGN	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN
	INLET	OUTLET	PIPE FLOW	FLOW	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET
LINE	HEAD	HEAD	VELOCITY	V	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL
No.	FT	FT	CONTROL	FPS	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL
		WEST STORM DRAIN			PEAK 20MIN/100YR STORM						
18	-0.4	-0.2	OUTLET	7.14	1196.9	1196.9	1197.2	TAILWATER	1196.3	NA	(D+Dc)/2+INV
19	2.7	0.4	PIPE FULL	7.26	1198.7	1198.7	1201.4	TAILWATER	1196.8	1197.3	TAILWATER
20	1.5	2.7	PIPE FULL	4.42	1199.6	1199.6	1201.7	TAILWATER	1198.3	1201.5	TAILWATER
21	2.6	2.7	PIPE FULL	3.99	1199.2	1199.2	1202.1	TAILWATER	1198.6	1201.5	TAILWATER
22	0.3	0.0	PIPE FULL	7.38	1197.5	1197.5	1197.9	TAILWATER	1197.3	1197.3	FLOW DEPTH
23	1.0	0.3	PIPE FULL	6.55	1198.3	1198.3	1199.3	TAILWATER	1197.6	1198.0	TAILWATER
24	1.7	1.1	PIPE FULL	5.73	1199.4	1199.4	1201.1	TAILWATER	1198.3	1199.4	TAILWATER
		MIDDLE STORM DRAIN			PEAK 20MIN/100YR STORM						
25	-0.4	-0.2	OUTLET	6.74	1195.8	1195.8	1196.1	TAILWATER	1195.2	NA	(D+Dc)/2+INV
26	-0.9	-0.5	PARTIAL	11.58	1197.0	1197.0	1196.6	FLOW DEPTH	1195.8	1196.2	TAILWATER
27	0.6	0.0	PIPE FULL	6.91	1199.0	1199.0	1199.6	TAILWATER	1198.0	1197.1	FLOW DEPTH
28	0.8	0.6	PIPE FULL	6.91	1199.5	1199.5	1200.3	TAILWATER	1199.1	1199.7	TAILWATER
29	2.5	1.4	PIPE FULL	7.64	1199.6	1199.6	1202.2	TAILWATER	1199.0	1200.4	TAILWATER
30	3.2	1.9	PIPE FULL	7.17	1199.8	1199.8	1204.2	TAILWATER	1200.4	1202.3	TAILWATER
31	3.4	3.3	PIPE FULL	4.34	1201.9	1201.9	1205.3	TAILWATER	1201.0	1204.3	TAILWATER
32	1.3	1.3	PIPE FULL	4.64	1198.8	1198.8	1201.6	TAILWATER	1199.1	1200.4	TAILWATER
33	2.0	1.6	PIPE FULL	4.45	1202.1	1202.1	1204.1	TAILWATER	1200.1	1201.7	TAILWATER
		EAST STORM DRAIN			PEAK 20MIN/100YR STORM						
33	-1.0	-0.4	OUTLET	3.20	1195.5	1195.5	1195.6	TAILWATER	1194.9	NA	(D+Dc)/2+INV
34	7.5	0.0	PIPE FULL	12.78	1197.2	1197.2	1204.7	TAILWATER	1195.9	1195.7	FLOW DEPTH
35	8.5	7.6	PIPE FULL	6.37	1198.5	1198.5	1207.0	TAILWATER	1197.2	1204.8	TAILWATER
36	8.2	8.6	PIPE FULL	5.50	1199.5	1199.5	1208.1	TAILWATER	1198.2	1207.1	TAILWATER

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCEL A OCT 1994

	FULL =	ZERO	DESIGN	DESIGN	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN
	INLET	OUTLET	PIPE FLOW	FLOW	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET
LINE	HEAD	HEAD	VELOCITY	V	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL
No.	FT	FT	CONTROL	FPS	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL
		WEST STORM DRAIN			PEAK 100YR SYSTEM STORM						
18	1.7	2.2	OUTLET	3.82	1196.5	1199.2	1199.3	TAILWATER	1195.9	NA	(D+Dc)/2+INV
19	2.2	2.6	PIPE FULL	5.55	1198.5	1198.5	1200.9	TAILWATER	1196.6	1199.4	TAILWATER
20	0.9	2.2	PIPE FULL	3.68	1199.5	1199.5	1201.1	TAILWATER	1198.2	1201.0	TAILWATER
21	1.8	2.2	PIPE FULL	3.47	1198.9	1198.9	1201.2	TAILWATER	1198.3	1201.0	TAILWATER
22	2.1	2.1	PIPE FULL	5.24	1197.3	1197.3	1199.6	TAILWATER	1197.1	1199.4	TAILWATER
23	1.9	2.1	PIPE FULL	5.16	1197.8	1197.8	1200.2	TAILWATER	1197.2	1199.7	TAILWATER
24	1.5	2.0	PIPE FULL	4.97	1198.8	1198.8	1200.9	TAILWATER	1197.7	1200.3	TAILWATER
		MIDDLE STORM DRAIN			PEAK 100YR SYSTEM STORM						
25	3.7	4.2	OUTLET	4.10	1195.4	1195.4	1200.1	TAILWATER	1194.7	NA	(D+Dc)/2+INV
26	2.5	3.5	PIPE FULL	9.93	1196.7	1196.7	1200.4	TAILWATER	1195.5	1200.2	TAILWATER
27	2.0	2.5	PIPE FULL	4.10	1198.3	1198.3	1201.1	TAILWATER	1197.2	1200.5	TAILWATER
28	1.9	2.0	PIPE FULL	6.01	1198.7	1198.7	1201.4	TAILWATER	1198.4	1201.2	TAILWATER
29	2.5	2.5	PIPE FULL	4.75	1199.6	1199.6	1202.1	TAILWATER	1199.0	1201.5	TAILWATER
30	1.9	1.8	PIPE FULL	4.25	1199.8	1199.8	1202.9	TAILWATER	1200.4	1202.2	TAILWATER
31	1.4	2.0	PIPE FULL	2.57	1201.4	1201.4	1203.3	TAILWATER	1200.5	1203.0	TAILWATER
32	1.6	2.4	PIPE FULL	2.75	1198.8	1198.8	1201.9	TAILWATER	1198.4	1201.5	TAILWATER
33	0.8	1.9	PIPE FULL	2.64	1201.6	1201.6	1202.8	TAILWATER	1199.6	1202.0	TAILWATER
		EAST STORM DRAIN			PEAK 100YR SYSTEM STORM						
33	3.8	4.4	OUTLET	1.97	1195.3	1195.3	1200.4	TAILWATER	1194.7	NA	(D+Dc)/2+INV
34	6.7	4.7	PIPE FULL	7.88	1197.2	1197.2	1203.9	TAILWATER	1195.9	1200.5	TAILWATER
35	6.3	6.8	PIPE FULL	5.40	1198.2	1198.2	1204.8	TAILWATER	1196.8	1204.0	TAILWATER
36	5.4	6.4	PIPE FULL	4.91	1199.4	1199.4	1205.2	TAILWATER	1198.0	1204.9	TAILWATER

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCEL A OCT 1994

LINE No.	DESIGN INLET HGL ELEV	DESIGN OUTLET HGL ELEV	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
			WEST STORM DRAIN					PEAK 20MIN/100YR STORM					
18	1197.18	1196.75	0.43	5	0.00	0.012	0.0100	1195.59	1194.95	1197.59	8.16	1206.00	8.82
19	1201.43	1197.28	4.15	1	0.10	0.012	0.0100	1197.74	1195.84	1198.74	6.01	1205.00	3.57
20	1201.71	1201.53	0.18	1	0.10	0.012	0.0100	1199.19	1197.84	1200.19	4.86	1205.30	3.59
21	1202.05	1201.53	0.52	1	0.10	0.012	0.0050	1198.44	1197.84	1199.44	5.31	1205.00	2.95
22	1197.87	1197.34	0.53	1	0.10	0.012	0.0050	1196.04	1195.84	1197.54	8.11	1205.90	8.03
23	1199.26	1197.97	1.29	1	0.10	0.012	0.0050	1196.77	1196.14	1198.27	6.88	1205.40	6.14
24	1201.06	1199.36	1.70	1	0.10	0.012	0.0050	1197.85	1196.77	1199.35	2.40	1202.00	0.94
			MIDDLE STORM DRAIN					PEAK 20MIN/100YR STORM					
25	1196.06	1195.55	0.51	5	0.00	0.012	0.0100	1194.41	1193.73	1196.41	8.34	1205.00	8.94
26	1196.98	1196.16	0.45	1	0.10	0.012	0.0200	1195.86	1194.66	1197.86	9.29	1207.40	10.42
27	1199.65	1197.96	1.69	1	0.10	0.012	0.0050	1197.04	1195.96	1199.04	6.71	1206.00	6.35
28	1200.29	1199.75	0.55	1	0.10	0.012	0.0050	1197.49	1197.14	1199.49	6.56	1206.30	6.01
29	1202.15	1200.39	1.76	1	0.10	0.012	0.0050	1198.12	1197.49	1199.62	6.98	1206.85	4.70
30	1204.23	1202.25	1.98	1	0.10	0.012	0.0050	1199.75	1199.12	1201.00	5.65	1206.90	2.67
31	1205.28	1204.33	0.95	1	0.10	0.012	0.0055	1200.65	1199.75	1201.90	3.85	1206.00	0.72
32	1201.62	1200.39	1.22	1	0.10	0.012	0.0050	1198.77	1197.59	1200.27	3.48	1204.00	2.38
33	1204.09	1201.72	2.37	1	0.10	0.012	0.0050	1200.82	1198.87	1202.07	2.68	1205.00	0.91
			EAST STORM DRAIN					PEAK 20MIN/100YR STORM					
33	1195.65	1195.54	0.11	5	0.00	0.012	0.0100	1194.61	1193.98	1196.61	8.14	1205.00	9.35
34	1204.66	1195.86	8.80	1	0.10	0.012	0.0100	1196.16	1194.86	1197.16	8.09	1205.50	0.84
35	1207.03	1204.76	2.27	1	0.10	0.012	0.0100	1197.51	1196.16	1198.51	4.24	1203.00	-4.03
36	1208.09	1207.13	0.97	1	0.10	0.012	0.0100	1198.86	1197.51	1199.86	7.49	1207.60	-0.49

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCEL A OCT 1994

LINE No.	DESIGN INLET HGL ELEV	DESIGN OUTLET HGL ELEV	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	MAN- -NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM- -HGL FT
			WEST STORM DRAIN					PEAK 100YR SYSTEM STORM					
18	1199.33	1199.18	0.15	5	0.00	0.012	0.0100	1195.59	1194.95	1197.59	8.16	1206.00	6.67
19	1200.92	1199.43	1.48	1	0.10	0.012	0.0100	1197.74	1195.84	1198.74	6.01	1205.00	4.08
20	1201.08	1201.02	0.06	1	0.10	0.012	0.0100	1199.19	1197.84	1200.19	4.86	1205.30	4.22
21	1201.19	1201.02	0.18	1	0.10	0.012	0.0050	1198.44	1197.84	1199.44	5.31	1205.00	3.81
22	1199.62	1199.43	0.19	1	0.10	0.012	0.0050	1196.04	1195.84	1197.54	8.11	1205.90	6.28
23	1200.18	1199.72	0.46	1	0.10	0.012	0.0050	1196.77	1196.14	1198.27	6.88	1205.40	5.22
24	1200.86	1200.28	0.58	1	0.10	0.012	0.0050	1197.85	1196.77	1199.35	2.40	1202.00	1.14
			MIDDLE STORM DRAIN					PEAK 100YR SYSTEM STORM					
25	1200.11	1199.92	0.19	5	0.00	0.012	0.0100	1194.41	1193.73	1196.41	8.34	1205.00	4.89
26	1200.37	1200.21	0.17	1	0.10	0.012	0.0200	1195.86	1194.66	1197.86	9.29	1207.40	7.03
27	1201.07	1200.47	0.59	1	0.10	0.012	0.0050	1197.04	1195.96	1199.04	6.71	1206.00	4.93
28	1201.36	1201.17	0.19	1	0.10	0.012	0.0050	1197.49	1197.14	1199.49	6.56	1206.30	4.94
29	1202.08	1201.46	0.62	1	0.10	0.012	0.0050	1198.12	1197.49	1199.62	6.98	1206.85	4.77
30	1202.87	1202.18	0.69	1	0.10	0.012	0.0050	1199.75	1199.12	1201.00	5.65	1206.90	4.03
31	1203.31	1202.97	0.34	1	0.10	0.012	0.0055	1200.65	1199.75	1201.90	3.85	1206.00	2.69
32	1201.89	1201.46	0.43	1	0.10	0.012	0.0050	1198.77	1197.59	1200.27	3.48	1204.00	2.11
33	1202.82	1201.99	0.83	1	0.10	0.012	0.0050	1200.82	1198.87	1202.07	2.68	1205.00	2.18
			PEAK 100YR SYSTEM STORM					PEAK 100YR SYSTEM STORM					
33	1200.42	1200.38	0.04	5	0.00	0.012	0.0100	1194.61	1193.98	1196.61	8.14	1205.00	4.58
34	1203.87	1200.52	3.35	1	0.10	0.012	0.0100	1196.16	1194.86	1197.16	8.09	1205.50	1.63
35	1204.79	1203.97	0.82	1	0.10	0.012	0.0100	1197.51	1196.16	1198.51	4.24	1203.00	-1.79
36	1205.24	1204.89	0.35	1	0.10	0.012	0.0100	1198.86	1197.51	1199.86	7.49	1207.60	2.36

VAL-TEC, INC. PROJECT DESIGN SUMMARY

PROJECT NAME_____ PROJECT NUMBER _____

SITE PLAN

OWNER MEETINGS	NO.	DATE	ITEMS	MEMO	ACTION

ARCHICTECT PLAN	TYPE	DATE	ITEMS INCLUDED	STANDARDS	ACTION

SURVEYS	TOPO	DATE	BOUNDARY	DATE	ALTA	DATE

SUBMITTALS	TYPE	DATE	TO	COMMENTS	ACTION

File: DDS9204

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	ARROWHEAD TOWNE CENTER WITH AP A&G @C=0.80						RUN-			FLOW	RAIN			
	FILE:ATC100A.WK4/RPT100A.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%
	OUTFALL TO SKUNK CREEK													
18	MH-45	END		19		NA	NA	0.00	167.03	55.2	2.28	380	188.21	202
19	MH-46	MH-45	18	20	PARADISE LN	1.92	0.85	1.63	167.03	54.7	2.28	380	130.02	292
20	TEE	MH-46	19	21	NVPC SOUTH	28.64	0.80	22.91	165.40	54.6	2.28	376	98.60	382
21	MH-47	TEE	20	22	NVPC NORTH	24.84	0.80	19.87	142.49	53.5	2.33	331	133.36	248
22	MH-48	MH-47	21	23	BELL RD	10.49	0.9	8.92	122.61	52.5	2.35	288	169.28	170
23	JUNC	MH-48	22	24		NA	NA	0.00	113.70	52.0	2.35	270	161.71	167
24	MATCH	JUNC	23	25		NA	NA	0.00	113.70	51.7	2.35	270	89.52	302
25	TEE146A	MATCH	24	26&27		NA	NA	0.00	113.70	51.4	2.38	270	612.81	44
26	CB-146A	TEE146A	25	NA	DA#90	0.06	0.9	0.05	0.05	30.0	3.40	0	41.59	0
27	TEE146	TEE146A	26	28&30		NA	NA	0.00	113.65	51.4	2.38	270	612.92	44
28	CB-146	TEE146	26	NA	DA#89	0.05	0.9	0.04	0.04	30.0	3.40	0	42.50	0
29	EAST 1/2	MALL			ARROWHEAD TOWNE CENTER RING				ROAD TRUNK LINE					
30	STR145	TEE146	27	31,32&97	DA#88	NA	NA	43.26	113.60	51.3	2.38	270	664.00	41
31	CB-144	STR145	30	START	DA#87	0.53	0.85	0.45	0.45	30.0	3.40	2	36.49	4
32	TEE143	STR145	30	33&35		NA	NA	0.00	69.90	51.1	2.38	166	162.73	102
33	CB-142	TEE143	32	34	DA#86	0.17	0.85	0.14	0.37	30.2	3.40	1	67.95	2
34	CB-141	CB-142	33	START	DA#85	0.27	0.85	0.23	0.23	30.0	3.40	1	7.00	11
35	MH-140	TEE143	32	36&149	SHOPS P LL	NA	NA	3.21	69.52	51.0	2.38	165	162.73	101
36	**TEE216**	**MH-140**	**35**	**37**	**AP#G**	**4.31**	**0.80**	**3.45**	**66.31**	**50.8**	**2.38**	**157**	**113.46**	**139**
37	MH-136	TEE216	36	38,39&153	SHOPS P&M UL	NA	NA	3.19	62.86	50.2	2.40	151	115.07	131
38	CB-135	MH-136	37	START	DA#84	0.22	0.85	0.19	0.19	30.0	3.40	1	15.44	4
39	**TEE215**	**MH-136**	**37**	**40**	**AP#G**	**4.32**	**0.80**	**3.46**	**59.49**	**49.9**	**2.40**	**143**	**115.51**	**124**
40	MH-126	TEE215	39	41&42		NA	NA	0.00	56.03	49.1	2.44	137	115.07	119
41	CB-125	MH-126	40	START	DA#83	5.24	0.85	4.45	4.45	30.0	3.40	15	15.88	95
42	**MH-124**	**MH-126**	**40**	**43&166**	**AP#A/M&R LL**	**5.23**	**0.80**	**8.19**	**51.58**	**48.3**	**2.48**	**128**	**115.07**	**111**
43	TEE114	MH-124	42	44&182	SHOPS M&R LL	NA	NA	7.36	43.39	47.9	2.48	108	171.65	63
44	TEE105	TEE114	43	45,46&47		NA	NA	0.00	36.03	47.8	2.48	89	171.65	52

	ARROWHEAD TOWNE CENTER WITH AP A&G @C=0.80						RUN-			FLOW	RAIN			
	FILE:ATC100A.WK4/RPT100A.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%
45	CB-103	TEE105	44	START	DA#82	0.09	0.85	0.08	0.08	30.0	3.40	0	63.65	0
46	CB-104	TEE105	44	START	DA#79	0.49	0.85	0.42	0.42	30.0	3.40	1	46.18	3
47	MH-102	TEE105	44	48,49&50		NA	NA	0.00	35.53	47.5	2.52	90	109.29	82
48	CB-100	MH-102	47	START	DA#81	0.50	0.85	0.43	0.43	30.0	3.40	1	22.12	7
49	CB-101	MH-102	47	START	DA#79	1.75	0.85	1.49	1.49	30.0	3.40	5	15.88	32
50	**TEE213**	**MH-102**	**47**	**51**	**AP#A**	**5.24**	**0.80**	**4.19**	**33.62**	**47.2**	**2.52**	**85**	**171.65**	**49**
51	TEE99	TEE213	50	52,53&54		NA	NA	0.00	29.43	47.1	2.52	74	115.90	64
52	CB-98	TEE99	51	START	DA#80	0.33	0.85	0.28	0.28	30.0	3.40	1	61.74	2
53	CB-97	TEE99	51	START	DA#79	1.75	0.85	1.49	1.49	30.0	3.40	5	27.92	18
54	MH-96	TEE99	51	55		NA	NA	0.00	27.66	46.7	2.52	70	115.90	60
55	**TEE212**	**MH-96**	**54**	**56**	**AP#A**	**5.24**	**0.80**	**4.19**	**27.66**	**46.1**	**2.56**	**71**	**115.90**	**61**
56	MH-95	TEE212	55	57,58,61		NA	NA	0.00	23.47	45.6	2.56	60	89.24	67
57	CB-94	MH-95	56	START	DA#78	0.30	0.85	0.26	0.26	30.0	3.40	1	22.12	4
58	CB-93	MH-95	56	59	DA#77	0.43	0.85	0.37	0.75	30.9	3.34	2	20.69	12
59	CB-92	CB-93	58	60	DA#76	0.34	0.85	0.29	0.38	30.5	3.40	1	4.95	26
60	CB-91	CB-92	59	START	DA#75	0.11	0.85	0.09	0.09	30.0	3.40	0	4.95	6
61	TEE211	MH-95	56	62	AP#B	1.81	0.40	0.72	22.47	44.4	2.64	59	89.24	66
62	MH-90	TEE211	61	63,64,65		NA	NA	0.00	21.74	44.0	2.64	57	89.24	64
63	CB-88	MH-90	62	START	DA#74	0.19	0.85	0.16	0.46	30.0	3.40	2	22.12	7
64	CB-89	MH-90	62	START	DA#73	0.35	0.85	0.30	0.30	30.0	3.40	1	15.88	6
65	TEE210	MH-90	62	66	AP#B	1.81	0.40	0.72	21.28	43.8	2.64	56	67.38	83
66	MH-87	TEE210	65	67&69		NA	NA	0.00	20.56	43.0	2.68	55	67.38	82
67	CB-86	MH-87	66	68	DA#72	0.12	0.85	0.10	0.26	30.5	3.40	1	24.29	4
68	CB-85	CB-86	67	START	DA#71	0.19	0.85	0.16	0.16	30.0	3.40	1	4.95	11
69	MH-84	MH-87	66	70	AP#C	2.61	0.40	1.04	20.30	41.9	2.72	55	67.38	82
70	MH-80	MH-84	69	71,72&192	STORES S&R UL	NA	NA	1.31	19.25	41.3	2.76	53	49.21	108
71	CB-79	MH-80	70	START	DA#70	1.66	0.85	1.41	1.41	30.0	3.40	5	15.88	30
72	TEE208	MH-80	70	72	AP#C	2.62	0.40	1.05	16.54	41.1	2.76	46	49.21	93

	ARROWHEAD TOWNE CENTER WITH AP A&G @C=0.80						RUN-			FLOW	RAIN			
	FILE:ATC100A.WK4/RPT100A.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%
73	MH-78	TEE208	72	74&75		NA	NA	0.00	15.49	40.5	2.76	43	49.21	87
74	CB-77	MH-78	73	START	DA#69	1.33	0.85	1.13	1.13	30.0	3.40	4	15.88	24
75	TEE207	MH-78	73	76	AP#C	4.63	0.40	1.85	14.36	40.1	2.80	40	49.21	82
76	MH-76	TEE207	75	77&80		NA	NA	0.00	12.51	39.7	2.80	35	49.21	71
77	CB-75	MH-76	76	78	DA#68	1.18	0.85	1.00	2.79	30.4	3.40	9	7.00	135
78	CB-74	CB-75	77	79	DA#67	1.90	0.85	1.62	1.79	30.2	3.40	6	13.41	45
79	CB-73	CB-74	78	START	DA#66	0.20	0.85	0.17	0.17	30.0	3.40	1	9.89	6
80	MH-72	MH-76	79	81&83		NA	NA	0.00	9.72	38.1	2.92	28	49.21	58
81	CB-71	MH-72	80	82	DA#65	1.19	0.85	1.01	1.19	30.4	3.40	4	15.84	26
82	CB-70	CB-71	81	START	DA#64	0.21	0.85	0.18	0.18	30.0	3.40	1	5.11	12
83	TEE206	MH-72	80	84	AP#D	13.12	0.10	1.31	8.53	37.5	2.92	25	34.47	72
84	MH-69	TEE206	83	85&86		NA	NA	0.00	7.22	36.9	2.98	22	34.47	62
85	CB-68	MH-69	84	START	DA#63	1.67	0.85	1.42	1.42	30.0	3.40	5	15.88	30
86	MH-67	MH-69	84	87		NA	NA	0.00	5.80	36.4	3.04	18	34.47	51
87	MH-66	MH-67	86	88		NA	NA	0.00	5.80	34.3	3.16	18	47.26	39
88	CB-65	MH-66	87	89	DA#21	1.07	0.85	0.91	5.80	34.1	3.16	18	35.40	52
89	CB-64	CB-65	88	90	DA#20	1.07	0.85	0.91	4.89	33.6	3.16	15	21.77	71
90	CB-63	CB-64	89	91	DA#19	2.15	0.85	1.83	3.98	32.8	3.22	13	21.77	59
91	MH-62	CB-63	90	92&201	STORE S LL	NA	NA	0.61	2.15	31.9	3.28	7	12.00	59
92	CB-60	MH-62	91	93	SW1/4 STORE S	0.34	0.90	0.31	1.54	31.0	3.34	5	5.57	92
93	CB-59	CB-60	92	94	DA #18	0.33	0.90	0.30	1.23	30.3	3.40	4	5.57	75
94	CB-59B	CB-59	93	95	DA #18B	0.32	0.90	0.29	0.94	30.1	3.40	3	3.43	93
95	**PLUG**	**CB-59B**	**97**	**START**	**MALL**	**0.72**	**0.90**	**0.65**	**0.65**	**30.0**	**3.40**	**2**	**3.43**	**64**
96	WEST 1/2	MALL			ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE									
97	TEE59	STR145	30	98,99&100		NA	NA	0.00	43.26	46.2	2.56	111	106.53	104
98	CB-58	TEE59	97	START	DA#62	0.76	0.85	0.65	0.65	30.0	3.40	2	22.12	10
99	CB-57	TEE59	97	START	DA#61	0.27	0.85	0.23	0.23	30.0	3.40	1	15.88	5
100	MH-56	TEE59	97	100&204	SHOPS P&D LL	NA	NA	11.47	42.38	46.0	2.56	109	106.53	102

	ARROWHEAD TOWNE CENTER WITH AP A&G @C=0.80						RUN-			FLOW	RAIN			
	FILE:ATC100A.WK4/RPT100A.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%
101	**TEE200**	**MH-56**	**100**	**102**	**AP #G**	**4.75**	**0.80**	**3.80**	**30.91**	**45.9**	**2.56**	**79**	**106.53**	**74**
102	MH-40	TEE200	101	103,104,105		NA	NA	0.00	27.11	45.0	2.60	70	106.53	66
103	CB-39	MH-40	102	START	DA#60	0.76	0.85	0.65	0.65	30.0	3.40	2	22.12	10
104	CB-38	MH-40	102	START	DA#59	0.43	0.85	0.37	0.37	30.0	3.40	1	15.88	8
105	TEE201	MH-40	102	105	AP#F	2.12	0.40	0.85	26.10	44.1	2.64	69	67.38	102
106	MH-37	TEE201	105	106		NA	NA	0.00	25.25	44.1	2.64	67	67.38	99
107	TEE202	MH-37	106	107	AP #F	2.13	0.40	0.85	25.25	43.8	2.64	67	67.38	99
108	MH-36	TEE202	107	109,110,111		NA	NA	0.00	24.40	43.0	2.68	65	67.38	97
109	CB-35	MH-36	108	110	DA#58	0.15	0.85	0.13	0.26	30.5	3.34	1	4.95	17
110	CB-34	CB-35	109	START	DA#57	0.15	0.85	0.13	0.13	30.0	3.40	0	4.95	9
111	MH-33	MH-36	108	112,113,114		NA	NA	0.00	24.15	42.6	2.68	65	77.82	83
112	CB-32	MH-33	111	START	DA#56	0.30	0.85	0.26	0.26	30.0	3.40	1	22.12	4
113	CB-31	MH-33	111	START	DA#55	0.26	0.85	0.22	0.22	30.0	3.40	1	15.88	5
114	TEE203	MH-33	111	115	AP #E	1.86	0.40	0.74	23.67	42.3	2.72	64	79.36	81
115	TEE204	TEE203	114	116	AP #E	1.85	0.40	0.74	22.93	41.8	2.72	62	79.36	79
116	MH-30	TEE204	115	117,118,229	STORES W&D UL	NA	NA	2.40	22.19	41.6	2.72	60	79.36	76
117	CB-25	MH-30	116	START	DA#54	2.02	0.85	1.72	1.72	30.0	3.40	6	15.68	37
118	TEE205	MH-30	116	119	AP #E	3.71	0.40	1.48	18.07	40.9	2.76	50	79.36	63
119	MH-24	TEE205	118	120&121		NA	NA	0.00	16.58	40.8	2.76	46	73.00	63
120	CB-23	MH-24	119	START	DA#53	2.63	0.85	2.24	2.24	30.0	3.40	8	15.88	48
121	MH-22	MH-24	119	122&125		NA	NA	0.00	14.35	39.7	2.80	40	73.00	55
122	CB-21	MH-22	121	123	DA#52	0.16	0.85	0.14	1.17	30.4	3.40	4	21.00	19
123	CB-20	CB-21	122	124	DA#51	0.17	0.85	0.14	1.04	30.2	3.40	4	4.95	71
124	CB-19	CB-20	123	START	DA#50	1.05	0.85	0.89	0.89	30.0	3.40	3	4.95	61
125	TEE217	MH-22	121	126	AP #D	6.56	0.10	0.66	13.17	39.0	2.86	38	77.82	48
126	MH-18	TEE217	125	127&128		NA	NA	0.00	12.52	38.4	2.92	37	76.24	48
127	CB-17	MH-18	126	START	DA#49	2.14	0.85	1.82	1.82	30.0	3.40	6	15.88	39
128	MH-16	MH-18	126	129-131,235	WARDS LL	NA	NA	0.66	10.70	37.3	2.98	32	76.24	42

	ARROWHEAD TOWNE CENTER WITH AP A&G @C=0.80						RUN-			FLOW	RAIN			
	FILE:ATC100A.WK4/RPT100A.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	**A**	**C**	**CA**	**CA**	**Tc**	IN/HR	**Q**	CAP.	**Q/Qo**
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	**Qo**	%
129	CB-15A	MH-16	128	START	DA#48	0.22	0.85	0.19	0.19	30.0	3.40	1	22.12	3
130	CB-15	MH-16	128	START	DA#47	0.19	0.85	0.16	0.16	30.0	3.40	1	6.91	8
131	TEE-13A	MH-16	128	132&133		NA	NA	0.00	9.69	36.6	2.98	29	76.24	38
132	CB-13A	TEE-13A	131	START	DA#7	0.31	0.85	0.26	0.26	30.0	3.40	1	46.87	2
133	TEE-10	TEE-13A	131	134&135		NA	NA	0.00	9.43	35.4	3.10	29	76.24	38
134	CB-10	TEE-10	133	START	TBA & DA # 6	0.67	0.85	0.57	0.57	30.0	3.40	2	171.37	1
135	MH-09	TEE-10	133	136		NA	NA	0.00	8.86	34.1	3.16	28	76.24	37
136	CB-08	MH-09	135	137&139	DA # 5	4.17	0.85	3.54	8.86	32.8	3.22	29	76.24	37
137	CB-06	CB-08	136	138	DA # 4	0.60	0.85	0.51	2.04	30.4	3.40	7	11.03	63
138	CB-05	CB-06	136	START	DA # 3	1.80	0.85	1.53	1.53	30.0	3.40	5	3.43	152
139	MH-07	CB-08	136	140&142		NA	NA	0.00	3.28	32.2	3.28	11	12.00	90
140	MH-04	MH-07	139	141	1/3 CINEMA	0.30	0.90	0.27	1.24	31.5	3.28	4	3.43	119
141	CB-04A	MH-04	139	START	MALL & DA # 2	1.08	0.90	0.97	0.97	30.0	3.40	3	3.43	96
142	MH-03	MH-07	139	142&144	2/3 CINEMA	0.60	0.90	0.54	2.03	31.8	3.28	7	5.57	120
143	MH-02	MH-03	142	START	E1/2 STORE W	0.64	0.90	0.58	0.58	30.0	3.40	2	3.43	57
144	MH-01	MH-03	142	145&146		NA	NA	0.00	0.92	30.5	3.34	3	3.43	89
145	P-01A	MH-01	144	START	MALL	0.65	0.90	0.59	0.59	30.0	3.40	2	3.43	58
146	**CB-01**	**MH-01**	**144**	**START**	**DA # 1**	**0.37**	**0.90**	**0.33**	**0.33**	**30.0**	**3.40**	**1**	**3.43**	**33**
147	EAST 1/2	MALL			ARROWHEAD TOWNE CENTER ONSITE SYSTEM									
148					PENNEYS LL									
149	CB-139	MH-140	35	150&151	DA#46	0.48	0.85	0.41	3.21	30.7	3.34	11	11.38	94
150	CB-138	CB-139	149	START	DA#45	1.05	0.85	0.89	0.89	30.0	3.40	3	7.00	43
151	CB-137	CB-139	149	START	DA#44	2.25	0.85	1.91	1.91	30.0	3.40	7	7.00	93
152					PENNEYS-MERVYN'S UL									
153	MH-134	MH-136	37	154		NA	NA	0.00	3.19	32.5	3.28	10	25.67	41
154	TEE-81	MH-134	153	155&156		NA	NA	0.00	3.19	32.1	3.28	10	8.04	130
155	CB-81	TEE-81	154	START	DA#43	0.15	0.90	0.14	0.14	30.0	3.40	0	8.57	5
156	MH-133	TEE-81	154	157		NA	NA	0.00	3.05	32.0	3.28	10	8.04	124

	ARROWHEAD TOWNE CENTER WITH AP A&G @C=0.80						RUN-			FLOW	RAIN			
	FILE:ATC100A.WK4/RPT100A.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%
157	MH-131	MH-133	156	158&159	NW1/4 STORE P	0.46	0.90	0.41	3.05	31.6	3.28	10	8.04	124
158	CB-26	MH-131	157	START	MALL&DA#42&41	0.75	0.90	0.68	0.68	30.0	3.40	2	9.89	23
159	TEE-130A	MH-131	157	160	MALL DA#40	0.49	0.90	0.44	1.96	31.4	3.34	7	8.04	81
160	MH-130	TEE-130A	159	161	MALL DA#39	0.33	0.90	0.30	1.52	30.9	3.34	5	8.04	63
161	TEE-128A	MH-130	160	162&163		NA	NA	0.00	1.22	30.4	3.40	4	8.04	52
162	CB-128A	TEE-128A	161	START	MALL&DA#38&37	0.52	0.90	0.47	1.22	30.0	3.40	4	15.64	27
163	MH-128	TEE-128A	161	164		NA	NA	0.00	0.76	30.1	3.40	3	8.04	32
164	MH-128B	MH-128	163	START	NW1/4 M & DA#36	0.84	0.90	0.76	0.76	30.0	3.40	3	7.55	34
165					MERVYN'S- ROBINSONS	LL								
166	MH-123	MH-124	42	167,168,169		NA	NA	0.00	4.01	41.3	2.76	11	14.70	75
167	CB-122	MH-123	166	START	DA#35	0.35	0.85	0.30	0.30	30.0	3.40	1	4.95	20
168	CB-121	MH-123	166	START	DA#34	0.68	0.85	0.58	0.58	30.0	3.40	2	4.95	40
169	MH-120	MH-123	166	170&172		NA	NA	0.00	3.13	40.8	2.76	9	5.69	152
170	RD-119A	MH-120	169	171	SW1/4 STORE M	0.24	0.90	0.22	0.30	32.7	3.22	1	7.00	14
171	CB-119	RD-119A	169	START	DA#33	0.09	0.90	0.08	0.08	30.0	3.40	0	7.00	4
172	RD-118A	MH-120	169	173	SE1/4 STORE M	0.24	0.90	0.22	2.84	40.4	2.80	8	5.69	140
173	MH-118	RD-118A	172	174		NA	NA	0.00	2.62	40.2	2.80	7	5.69	129
174	MH-117	MH-118	173	&175&176		NA	NA	0.00	2.62	39.7	2.80	7	5.69	129
175	MH-117A	MH-117	174	START	NE1/4 M & DA#32	1.17	0.90	1.05	2.62	30.0	3.40	9	7.00	127
176	MH-116B	MH-117	174	177	SE1/4 STORE R	0.58	0.90	0.52	1.57	38.9	2.86	4	5.69	79
177	RD-116A	MH-116B	176	178	SE1/4 STORE R	0.58	0.90	0.52	1.04	35.3	3.10	3	5.69	57
178	MH-116	RD-116A	177	179		NA	NA	0.00	0.52	34.4	3.16	2	5.69	29
179	ELL-115A	MH-116	178	180		NA	NA	0.00	0.52	30.3	3.40	2	5.69	31
180	PLUG	ELL-115A	179	START	NW1/4 STORE R	0.58	0.90	0.52	0.52	30.0	3.40	2	3.50	51
181					MERVYN'S-ROBINSONS	LL								
182	CB-113	TEE-114	43	183&184	DA#31	1.17	0.85	0.99	7.36	35.6	3.04	22	36.13	62
183	CB-112	CB-113	182	START	DA#30	0.92	0.85	0.78	0.78	30.0	3.40	3	3.50	76
184	CB-111	CB-113	182	185	DA#29	0.91	0.85	0.77	5.58	34.9	3.10	17	22.22	78

	ARROWHEAD TOWNE CENTER WITH AP A&G @C=0.80						RUN-			FLOW	RAIN			
	FILE:ATC100A.WK4/RPT100A.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%
185	CB-110	CB-111	184	186	DA#28	1.41	0.85	1.20	4.81	34.3	3.16	15	12.25	124
186	CB-109	CB-110	185	187	DA#27	1.22	0.85	1.04	3.61	33.4	3.22	12	12.25	95
187	CB-108	CB-109	186	188	DA#26	1.07	0.85	0.91	2.58	32.4	3.28	8	12.25	69
188	CB-107A	CB-108	187	189	DA#25A	0.35	0.85	0.30	1.67	31.3	3.34	6	5.69	98
189	CB-107	CB-107A	188	190	DA#25	0.35	0.85	0.30	1.37	31.0	3.34	5	5.69	80
190	CB-106	CB-107	189	START	DA#24	1.26	0.85	1.07	1.07	30.0	3.40	4	3.50	104
191					FUTURE-ROBINSONS UL									
192	MH-83C	MH-80	70	193		NA	NA	0.00	1.31	31.5	3.34	4	16.18	27
193	MH-83B	MH-83C	192	194		NA	NA	0.00	1.31	31.3	3.34	4	13.99	31
194	TEE-83A	MH-83B	193	195&196		NA	NA	0.00	1.31	31.2	3.34	4	12.12	36
195	CB-83A	TEE-83A	194	NA	DA#23	0.09	0.90	0.08	0.08	30.0	3.40	0	12.12	2
196	MH-83	TEE-83A	194	197		NA	NA	0.00	1.22	30.9	3.34	4	12.12	34
197	RD-82A	MH-83	196	198	NW1/4 STORE R	0.58	0.90	0.52	1.22	30.3	3.40	4	11.06	38
198	MH-82	RD-82A	197	199		NA	NA	0.00	0.70	30.2	3.40	2	5.77	41
199	PLUG	MH-82	198	START	MALL& DA#22	0.78	0.90	0.70	0.70	30.0	3.40	2	11.06	22
200					FUTURE STORE LL									
201	MH-61	MH-62	91	START	N1/2 STORE S	0.68	0.90	0.61	0.61	30.0	3.40	2	3.43	61
202	WEST 1/2 MALL				ARROWHEAD TOWNE CENTER ONSITE SYSTEM									
203					PENNEYS-DILLARDS LL									
204	CB-55	MH-56	100	205&223	DA#17	1.37	0.85	5.87	11.47	32.0	3.28	38	21.77	173
205	CB-41	CB-55	208	206	DA#16	2.38	0.85	2.02	5.59	31.5	3.34	19	12.00	156
206	MH-54	CB-41	206	208		NA	NA	3.57	3.57	30.7	3.34	12	12.00	99
207					PENNEYS LL									
208	MH-53	MH-54	206	209		NA	NA	0.00	0.41	31.4	3.34	1	3.43	40
209	ELL-53B	MH-53	208	210		NA	NA	0.00	0.41	30.1	3.40	1	3.43	41
210	PLUG	ELL-53B	209	START	SE1/4 STORE P	0.46	0.90	0.41	0.41	30.0	3.40	1	8.57	16
211					DILLARDS-PENNEYS LL									
212	RD-52A	MH-54	206	213	W1/2 STORE P	0.92	0.90	0.83	3.16	30.5	3.34	11	5.57	189

	ARROWHEAD TOWNE CENTER WITH AP A&G @C=0.80						RUN-			FLOW	RAIN			
	FILE:ATC100A.WK4/RPT100A.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%
213	MH-52	RD-52A	212	217		NA	NA	1.22	2.33	30.3	3.40	8	5.57	142
214	CB-51	MH-52	213	215	DA#15	0.35	0.90	0.32	1.11	30.1	3.40	4	12.12	31
215	PLUG	CB-51	214	START	MALL	0.88	0.90	0.79	0.79	30.0	3.40	3	22.88	12
216					DILLARDS LL									
217	RD-50	MH-52	213	218	SE1/4 STORE D	0.61	0.90	0.55	1.22	30.7	3.34	4	3.43	119
218	MH-49	RD-50	217	219		NA	NA	0.00	0.68	30.7	3.34	2	3.43	66
219	RD-48	MH-49	218	220	SW1/4 STORE D	0.61	0.90	0.55	0.68	30.3	3.40	2	3.43	67
220	MH-47	RD-48	219	221		NA	NA	0.00	0.13	30.3	3.40	0	3.43	12
221	CB-47	MH-47	220	START	DA#14 DOCK	0.14	0.90	0.13	0.13	30.0	3.40	0	3.43	12
222					DILLARDS LL									
223	CB-46	CB-55	204	224	DA#13	1.02	0.85	0.87	4.71	32.2	3.28	15	12.00	129
224	CB-45	CB-46	223	225	DA#12	0.90	0.85	0.77	3.84	31.5	3.34	13	12.00	107
225	CB-44	CB-45	224	226	DA#11	1.36	0.85	1.16	3.08	30.7	3.34	10	12.00	86
226	CB-43	CB-44	225	227	DA#10	1.13	0.85	0.96	1.92	30.4	3.40	7	45.84	14
227	CB-42	CB-43	226	START	DA#9	1.13	0.85	0.96	0.96	30.0	3.40	3	10.24	32
228					WARDS-DILLARDS UL									
229	MH-29	MH-30	116	230		NA	NA	0.00	2.40	30.9	3.34	8	9.89	81
230	RD-29A	MH-29	229	231	NW1/4STORE D	0.62	0.90	0.56	2.40	30.6	3.34	8	7.00	115
231	RD-28A	RD-29A	230	232	W1/2W&N1/4D	1.27	0.90	1.14	1.85	30.3	3.40	6	7.00	90
232	MH-28	RD-28A	231	233		NA	NA	0.00	0.70	30.3	3.40	2	7.00	34
233	PLUG	MH-28	232	START	MALL & DA#8	0.78	0.90	0.70	0.70	30.0	3.40	2	10.79	22
234					NORTH AC PARCEL									
235	MH-14A	MH-16	128	236		NA	NA	0.00	0.66	33.7	3.16	2	5.57	37
236	MH-14	MH-14A	235	237				0.00	0.66	30.7	3.34	2	5.57	39
237	PLUG	MH-14	236	START	AP #D	6.57	0.10	0.66	0.66	30.0	3.40	2	5.57	40

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	PIPE	LEN-	BACK-	FLOW	FULL = ZERO		DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
			OUTFALL TO SKUNK CREEK													
18	96	823	482	100	0.0	-1.6	OUTLET	7.97	0.0026	0.0030	7.22	8.00	6.44	0.80	7.22	8.8
19	84	314	-0	129	2.0	1.1	PIPE FULL	9.87	-0.0004	0.0000	7.00	7.00	7.00	1.00	7.00	9.9
20	84	42	-0	131	2.2	2.0	PIPE FULL	9.78	-0.0002	0.0000	7.00	7.00	7.00	1.00	7.00	9.8
21	84	574	-0	150	3.5	2.2	PIPE FULL	8.61	-0.0004	0.0000	7.00	7.00	7.00	1.00	7.00	8.6
22	84	456	-0	159	4.1	3.5	PIPE FULL	7.49	-0.0007	0.0000	7.00	7.00	7.00	1.00	7.00	7.5
23	84	203	-0	162	4.3	4.1	PIPE FULL	7.02	-0.0006	0.0000	7.00	7.00	7.00	1.00	7.00	7.0
24	66	183	-0	230	7.1	6.1	PIPE FULL	11.37	-0.0007	0.0000	5.50	5.50	5.50	1.00	5.50	11.4
25	66	216	-0	125	1.4	7.1	PIPE FULL	11.37	-0.0333	0.0000	5.50	5.50	5.50	1.00	5.50	11.4
26	15	23	-0	5	-1.2	1.9	PARTIAL	0.68	-0.3535	0.0000	1.25	0.06	1.25	1.00	0.66	0.1
27	66	13	-0	118	1.0	1.4	PIPE FULL	11.36	-0.0333	0.0000	5.50	5.50	5.50	1.00	5.50	11.4
28	15	22	-0	5	-1.2	2.0	PARTIAL	0.69	-0.3691	0.0000	1.25	0.06	1.25	1.00	0.66	0.1
29			EAST 1/2 MALL				ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE									
30	66	23	-0	128	1.5	1.0	PIPE FULL	12.74	-0.0333	0.0000	5.50	5.50	5.50	1.00	5.50	11.4
31	15	20	-0	15	-1.1	1.3	PARTIAL	11.18	-0.2720	0.0000	1.25	0.18	1.25	1.00	0.72	1.2
32	66	99	-0	133	1.8	1.8	PIPE FULL	6.99	-0.0020	0.0000	5.50	5.50	5.50	1.00	5.50	7.0
33	15	9	-0	10	-1.1	4.0	PARTIAL	5.20	-0.9433	0.0000	1.25	0.13	1.25	1.00	0.69	1.0
34	15	48	-77	23	-1.0	-1.0	PARTIAL	3.52	-0.0096	0.0004	0.77	0.29	0.29	0.23	0.29	3.9
35	66	60	-0	134	1.9	1.9	PIPE FULL	6.95	-0.0020	0.0000	5.50	5.50	5.50	1.00	5.50	6.9
36	**66**	**72**	**-0**	**137**	**2.1**	**2.0**	**PIPE FULL**	**6.63**	**-0.0010**	**0.0000**	**5.50**	**5.50**	**5.50**	**1.00**	**5.50**	**6.6**
37	66	216	-0	142	2.3	2.2	PIPE FULL	6.35	-0.0010	0.0000	5.50	5.50	5.50	1.00	5.50	6.4
38	15	39	-10	15	-1.1	-1.1	PARTIAL	4.73	-0.0484	0.0004	0.72	0.18	0.18	0.15	0.18	6.1
39	**66**	**129**	**-0**	**145**	**2.5**	**2.4**	**PIPE FULL**	**6.01**	**-0.0010**	**0.0000**	**5.50**	**5.50**	**5.50**	**1.00**	**5.50**	**6.0**
40	66	249	-0	149	2.7	2.6	PIPE FULL	5.75	-0.0010	0.0000	5.50	5.50	5.50	1.00	5.50	5.8
41	15	39	-21	77	-0.3	-0.3	PARTIAL	12.34	0.0384	0.0899	1.11	0.96	0.96	0.77	0.96	14.9
42	**66**	**284**	**-0**	**152**	**2.9**	**2.8**	**PIPE FULL**	**5.38**	**-0.0010**	**0.0000**	**5.50**	**5.50**	**5.50**	**1.00**	**5.50**	**5.4**
43	60	111	-0	164	3.2	3.5	PIPE FULL	5.48	-0.0037	0.0000	5.00	5.00	5.00	1.00	5.00	5.5
44	60	20	-0	165	3.3	3.3	PIPE FULL	4.55	-0.0037	0.0000	5.00	5.00	5.00	1.00	5.00	4.6

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
45	15	9	-0	5	-1.2	4.5	PARTIAL	1.04	-0.8278	0.0000	1.25	0.06	1.25	1.00	0.66	0.2
46	18	46	-0	13	-1.3	4.3	PARTIAL	7.37	-0.1648	0.0000	1.50	0.19	1.50	1.00	0.85	0.8
47	60	96	-0	162	3.1	3.4	PIPE FULL	4.56	-0.0015	0.0000	5.00	5.00	5.00	1.00	5.00	4.6
48	15	6	7	17	-1.0	-1.0	PARTIAL	8.94	-0.0982	0.0018	0.73	0.21	0.21	0.17	0.21	10.4
49	15	39	-2	38	-0.8	-0.1	PARTIAL	11.00	-0.0446	0.0069	1.19	0.47	1.12	0.90	0.80	4.4
50	**60**	**69**	**-0**	**160**	**3.0**	**3.2**	**PIPE FULL**	**4.32**	**-0.0037**	**0.0000**	**5.00**	**5.00**	**5.00**	**1.00**	**5.00**	**4.3**
51	60	27	-0	161	3.1	3.1	PIPE FULL	3.78	-0.0017	0.0000	5.00	5.00	5.00	1.00	5.00	3.8
52	15	9	-0	10	-1.1	4.8	PARTIAL	4.73	-0.7789	0.0000	1.25	0.13	1.25	1.00	0.69	0.8
53	15	44	-0	29	-0.9	4.8	PARTIAL	16.61	-0.1593	0.0000	1.25	0.37	1.25	1.00	0.81	4.1
54	60	91	-0	161	3.1	3.2	PIPE FULL	3.55	-0.0017	0.0000	5.00	5.00	5.00	1.00	5.00	3.6
55	**60**	**131**	**-0**	**158**	**2.9**	**2.9**	**PIPE FULL**	**3.61**	**-0.0017**	**0.0000**	**5.00**	**5.00**	**5.00**	**1.00**	**5.00**	**3.6**
56	60	88	-0	159	3.0	3.0	PIPE FULL	3.06	-0.0010	0.0000	5.00	5.00	5.00	1.00	5.00	3.1
57	15	16	6	13	-1.1	-1.1	PARTIAL	5.08	-0.0993	0.0007	0.71	0.16	0.16	0.13	0.16	10.4
58	15	67	-0	24	-0.9	3.1	PARTIAL	10.72	-0.0875	0.0000	1.25	0.30	1.25	1.00	0.78	2.0
59	15	80	-165	35	-0.8	-0.8	PARTIAL	3.31	-0.0039	0.0011	0.84	0.44	0.44	0.35	0.44	3.4
60	15	54	-143	21	-1.0	-0.7	PARTIAL	2.00	-0.0049	0.0001	0.89	0.27	0.54	0.43	0.40	0.7
61	60	217	-0	159	2.9	3.1	PIPE FULL	3.02	-0.0010	0.0000	5.00	5.00	5.00	1.00	5.00	3.0
62	60	74	-0	160	3.0	3.0	PIPE FULL	2.92	-0.0010	0.0000	5.00	5.00	5.00	1.00	5.00	2.9
63	15	5	6	18	-1.0	-1.0	PARTIAL	9.41	-0.0981	0.0019	0.74	0.23	0.23	0.18	0.23	10.4
64	15	39	-4	17	-1.0	-1.0	PARTIAL	6.42	-0.0507	0.0009	0.73	0.21	0.21	0.17	0.21	7.3
65	54	30	-0	168	3.1	3.1	PIPE FULL	3.53	-0.0010	0.0000	4.50	4.50	4.50	1.00	4.50	3.5
66	54	180	-0	169	3.1	3.2	PIPE FULL	3.46	-0.0010	0.0000	4.50	4.50	4.50	1.00	4.50	3.5
67	15	75	-0	13	-1.1	4.8	PARTIAL	5.58	-0.1205	0.0000	1.25	0.16	1.25	1.00	0.71	0.7
68	15	68	-178	23	-1.0	-1.0	PARTIAL	2.49	-0.0048	0.0002	0.77	0.29	0.29	0.23	0.29	2.7
69	54	220	-0	170	3.1	3.2	PIPE FULL	3.47	-0.0010	0.0000	4.50	4.50	4.50	1.00	4.50	3.5
70	48	164	-0	182	3.3	3.2	PIPE FULL	4.23	-0.0010	0.0000	4.00	4.00	4.00	1.00	4.00	4.2
71	15	39	29	38	-0.8	-0.8	PARTIAL	11.00	-0.0375	0.0141	0.86	0.47	0.47	0.38	0.47	11.6
72	48	39	-0	184	3.4	3.4	PIPE FULL	3.63	-0.0010	0.0000	4.00	4.00	4.00	1.00	4.00	3.6

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK-	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
73	48	115	-0	186	3.4	3.5	PIPE FULL	3.40	-0.0010	0.0000	4.00	4.00	4.00	1.00	4.00	3.4
74	15	39	33	31	-0.9	-0.9	PARTIAL	9.71	-0.0420	0.0096	0.82	0.39	0.39	0.31	0.39	12.4
75	48	82	-0	188	3.5	3.5	PIPE FULL	3.20	-0.0010	0.0000	4.00	4.00	4.00	1.00	4.00	3.2
76	48	73	-0	189	3.6	3.6	PIPE FULL	2.79	-0.0010	0.0000	4.00	4.00	4.00	1.00	4.00	2.8
77	15	33	0	122	0.3	0.0	PIPE FULL	7.72	0.0084	0.0184	1.25	1.25	1.25	1.00	1.25	7.7
78	15	83	-0	47	-0.7	0.4	PARTIAL	10.49	-0.0367	0.0000	1.25	0.59	1.25	1.00	0.92	4.9
79	15	51	-28	16	-1.1	-0.6	PARTIAL	3.79	-0.0198	0.0002	0.97	0.20	0.69	0.55	0.44	0.8
80	48	206	-0	188	3.5	3.7	PIPE FULL	2.26	-0.0010	0.0000	4.00	4.00	4.00	1.00	4.00	2.3
81	15	39	18	35	-0.8	-0.8	PARTIAL	10.59	-0.0410	0.0103	0.84	0.44	0.44	0.35	0.44	10.6
82	15	58	-135	23	-1.0	-0.7	PARTIAL	2.58	-0.0051	0.0002	0.89	0.29	0.54	0.43	0.41	1.2
83	42	97	-0	203	3.6	3.6	PIPE FULL	2.59	-0.0010	0.0000	3.50	3.50	3.50	1.00	3.50	2.6
84	42	80	-0	204	3.7	3.7	PIPE FULL	2.23	-0.0010	0.0000	3.50	3.50	3.50	1.00	3.50	2.2
85	15	39	30	38	-0.8	-0.8	PARTIAL	11.00	-0.0373	0.0142	0.86	0.47	0.47	0.38	0.47	11.7
86	42	53	-0	206	3.7	3.8	PIPE FULL	1.83	-0.0010	0.0000	3.50	3.50	3.50	1.00	3.50	1.8
87	42	249	-0	198	3.4	3.8	PIPE FULL	1.90	-0.0019	0.0000	3.50	3.50	3.50	1.00	3.50	1.9
88	36	26	-0	216	3.5	3.5	PIPE FULL	2.59	-0.0024	0.0000	3.00	3.00	3.00	1.00	3.00	2.6
89	30	100	-0	238	3.5	3.6	PIPE FULL	3.15	-0.0024	0.0000	2.50	2.50	2.50	1.00	2.50	3.1
90	30	113	-0	235	3.4	3.6	PIPE FULL	2.61	-0.0024	0.0000	2.50	2.50	2.50	1.00	2.50	2.6
91	24	125	-0	264	3.3	3.5	PIPE FULL	2.24	-0.0024	0.0000	2.00	2.00	2.00	1.00	2.00	2.2
92	18	163	-0	348	3.7	3.8	PIPE FULL	2.91	-0.0024	0.0000	1.50	1.50	1.50	1.00	1.50	2.9
93	18	94	-0	348	3.7	3.8	PIPE FULL	2.37	-0.0024	0.0000	1.50	1.50	1.50	1.00	1.50	2.4
94	15	27	-0	415	3.9	3.9	PIPE FULL	2.59	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	2.6
95	**15**	**15**	**-0**	**422**	**4.0**	**4.0**	**PIPE FULL**	**1.80**	**-0.0024**	**0.0000**	**1.25**	**1.25**	**1.25**	**1.00**	**1.25**	**1.8**
96			WEST 1/2 MALL				ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE									
97	54	94	-0	100	2.8	2.8	PIPE FULL	6.96	-0.0025	0.0000	4.50	4.50	4.50	1.00	4.50	7.0
98	15	7	-0	406	3.8	4.5	PIPE FULL	1.79	-0.1000	0.0000	1.25	1.25	1.25	1.00	1.25	1.8
99	15	39	-0	301	2.5	4.5	PIPE FULL	0.64	-0.0515	0.0000	1.25	1.25	1.25	1.00	1.25	0.6
100	54	79	-0	100	2.9	2.9	PIPE FULL	6.82	-0.0025	0.0000	4.50	4.50	4.50	1.00	4.50	6.8

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	PIPE	LEN-	BACK-	FLOW	FULL = ZERO		DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
101	**54**	**43**	**-0**	**100**	**3.0**	**3.0**	**PIPE FULL**	**4.98**	**-0.0025**	**0.0000**	**4.50**	**4.50**	**4.50**	**1.00**	**4.50**	**5.0**
102	54	232	-0	100	2.7	3.1	PIPE FULL	4.43	-0.0025	0.0000	4.50	4.50	4.50	1.00	4.50	4.4
103	15	6	15	21	-1.0	-1.0	PARTIAL	10.35	-0.0962	0.0038	0.76	0.26	0.26	0.21	0.26	12.6
104	15	39	1	18	-1.0	-1.0	PARTIAL	6.76	-0.0503	0.0012	0.74	0.23	0.23	0.18	0.23	8.3
105	54	226	-0	100	2.8	2.8	PIPE FULL	4.33	-0.0010	0.0000	4.50	4.50	4.50	1.00	4.50	4.3
106	54	15	-0	100	2.9	2.9	PIPE FULL	4.19	-0.0010	0.0000	4.50	4.50	4.50	1.00	4.50	4.2
107	54	65	-0	100	3.0	3.0	PIPE FULL	4.19	-0.0010	0.0000	4.50	4.50	4.50	1.00	4.50	4.2
108	54	206	-0	100	3.1	3.1	PIPE FULL	4.11	-0.0010	0.0000	4.50	4.50	4.50	1.00	4.50	4.1
109	15	75	-168	29	-0.9	-0.9	PARTIAL	2.90	-0.0045	0.0005	0.80	0.36	0.36	0.29	0.36	3.0
110	15	68	-159	20	-1.0	-0.8	PARTIAL	2.21	-0.0049	0.0001	0.85	0.24	0.46	0.37	0.35	1.1
111	48	123	-0	100	2.4	2.5	PIPE FULL	5.15	-0.0025	0.0000	4.00	4.00	4.00	1.00	4.00	5.1
112	15	12	6	13	-1.1	-1.1	PARTIAL	5.08	-0.0993	0.0007	0.71	0.16	0.16	0.13	0.16	10.4
113	15	39	-5	15	-1.1	-1.1	PARTIAL	4.87	-0.0510	0.0005	0.72	0.18	0.18	0.15	0.18	7.2
114	48	68	-0	100	2.4	2.5	PIPE FULL	5.12	-0.0026	0.0000	4.00	4.00	4.00	1.00	4.00	5.1
115	48	175	-0	100	2.3	2.5	PIPE FULL	4.96	-0.0026	0.0000	4.00	4.00	4.00	1.00	4.00	5.0
116	48	37	-0	100	2.3	2.4	PIPE FULL	4.80	-0.0026	0.0000	4.00	4.00	4.00	1.00	4.00	4.8
117	15	38	37	100	-0.7	-0.7	PARTIAL	11.50	-0.0306	0.0197	0.89	0.53	0.53	0.42	0.53	11.9
118	48	164	-0	100	2.2	2.4	PIPE FULL	3.97	-0.0026	0.0000	4.00	4.00	4.00	1.00	4.00	4.0
119	48	29	-0	100	2.3	2.3	PIPE FULL	3.64	-0.0022	0.0000	4.00	4.00	4.00	1.00	4.00	3.6
120	15	39	79	100	-0.7	-0.7	PARTIAL	12.42	-0.0193	0.0322	0.92	0.59	0.59	0.47	0.59	13.4
121	48	219	-0	100	2.0	2.4	PIPE FULL	3.20	-0.0022	0.0000	4.00	4.00	4.00	1.00	4.00	3.2
122	15	73	22	100	-0.9	-0.9	PARTIAL	12.49	-0.0796	0.0105	0.81	0.37	0.37	0.29	0.37	13.5
123	15	57	107	74	-0.3	-0.5	PARTIAL	4.39	0.0028	0.0078	1.01	0.93	0.78	0.62	0.85	4.4
124	15	58	-99	68	-0.4	-0.2	PARTIAL	4.23	-0.0019	0.0031	1.14	0.85	1.03	0.82	0.94	2.8
125	48	128	-0	100	1.9	2.1	PIPE FULL	3.00	-0.0025	0.0000	4.00	4.00	4.00	1.00	4.00	3.0
126	48	91	-0	145	1.8	2.0	PIPE FULL	2.91	-0.0024	0.0000	4.00	4.00	4.00	1.00	4.00	2.9
127	15	39	46	100	-0.7	-0.7	PARTIAL	11.65	-0.0295	0.0221	0.89	0.53	0.53	0.42	0.53	12.6
128	48	177	-0	139	1.6	1.9	PIPE FULL	2.54	-0.0024	0.0000	4.00	4.00	4.00	1.00	4.00	2.5

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
129	15	7	1	12	-1.1	-1.1	PARTIAL	3.39	-0.0996	0.0004	0.70	0.14	0.14	0.12	0.14	8.7
130	15	39	-86	18	-1.0	-1.0	PARTIAL	2.94	-0.0095	0.0002	0.74	0.23	0.23	0.18	0.23	3.7
131	48	92	-0	134	1.4	1.6	PIPE FULL	2.30	-0.0024	0.0000	4.00	4.00	4.00	1.00	4.00	2.3
132	15	26	-0	10	-1.1	2.8	PARTIAL	3.59	-0.4489	0.0000	1.25	0.13	1.25	1.00	0.69	0.7
133	48	165	-0	128	1.1	1.5	PIPE FULL	2.33	-0.0024	0.0000	4.00	4.00	4.00	1.00	4.00	2.3
134	15	10	-0	10	-1.1	2.0	PARTIAL	13.13	-6.0000	0.0000	1.25	0.13	1.25	1.00	0.69	1.6
135	48	182	-0	121	0.8	1.2	PIPE FULL	2.23	-0.0024	0.0000	4.00	4.00	4.00	1.00	4.00	2.2
136	48	169	-0	112	0.5	0.8	PIPE FULL	2.27	-0.0024	0.0000	4.00	4.00	4.00	1.00	4.00	2.3
137	18	186	-30	56	-0.7	-0.2	PARTIAL	6.55	-0.0044	0.0050	1.42	0.84	1.34	0.89	1.09	4.2
138	15	113	0	100	0.0	0.0	PARTIAL	4.24	0.0031	0.0055	1.25	1.25	1.25	1.00	1.25	4.2
139	24	129	-0	177	1.5	1.6	PIPE FULL	3.42	-0.0024	0.0000	2.00	2.00	2.00	1.00	2.00	3.4
140	15	225	-0	130	0.4	0.2	PIPE FULL	3.32	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	3.3
141	15	247	-0	135	0.4	0.5	PIPE FULL	2.69	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	2.7
142	18	95	-0	242	2.1	2.0	PIPE FULL	3.78	-0.0024	0.0000	1.50	1.50	1.50	1.00	1.50	3.8
143	15	200	-0	263	2.0	2.4	PIPE FULL	1.60	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	1.6
144	15	185	-0	284	2.3	2.4	PIPE FULL	2.50	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	2.5
145	15	52	-0	285	2.3	2.4	PIPE FULL	1.62	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	1.6
146	**15**	**15**	**-0**	**289**	**2.4**	**2.4**	**PIPE FULL**	**0.92**	**-0.0024**	**0.0000**	**1.25**	**1.25**	**1.25**	**1.00**	**1.25**	**0.9**
147			ARROWHEAD TOWNE CENTER ONSITE SYSTEM													
148			EAST 1/2 MALL PENNEYS LL													
149	18	85	-0	116	0.2	0.3	PIPE FULL	6.07	-0.0100	0.0000	1.50	1.50	1.50	1.00	1.50	6.1
150	15	181	-0	45	-0.7	0.3	PARTIAL	5.30	-0.0100	0.0000	1.25	0.56	1.25	1.00	0.91	2.5
151	15	210	-0	104	0.0	0.3	PIPE FULL	5.30	-0.0100	0.0000	1.25	1.25	1.25	1.00	1.25	5.3
152			PENNEYS-MERVYN'S UL													
153	18	355	-0	45	-0.8	2.4	PARTIAL	13.51	-0.0509	0.0000	1.50	0.68	1.50	1.00	1.09	5.9
154	18	145	0	133	0.5	0.0	PIPE FULL	5.91	0.0034	0.0084	1.50	1.50	1.50	1.00	1.50	5.9
155	15	75	-0	68	-0.4	0.7	PARTIAL	3.28	-0.0150	0.0000	1.25	0.85	1.25	1.00	1.05	0.4
156	18	32	-0	153	0.8	0.7	PIPE FULL	5.66	-0.0050	0.0000	1.50	1.50	1.50	1.00	1.50	5.7

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	PIPE	LEN-	BACK-	FLOW	FULL = ZERO		DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
157	18	117	-0	181	1.2	0.9	PIPE FULL	5.66	-0.0050	0.0000	1.50	1.50	1.50	1.00	1.50	5.7
158	15	52	-0	76	-0.3	0.9	PARTIAL	6.05	-0.0200	0.0000	1.25	1.15	1.25	1.00	1.20	1.9
159	18	50	-0	128	0.4	0.5	PIPE FULL	3.71	-0.0050	0.0000	1.50	1.50	1.50	1.00	1.50	3.7
160	18	137	-0	73	-0.4	0.0	PARTIAL	4.78	-0.0050	0.0000	1.50	1.09	1.50	1.00	1.30	2.9
161	18	151	-0	97	-0.0	0.5	PARTIAL	4.55	-0.0050	0.0000	1.50	1.46	1.50	1.00	1.48	2.4
162	15	54	-0	35	-0.8	0.1	PARTIAL	10.45	-0.0500	0.0000	1.25	0.44	1.25	1.00	0.84	3.4
163	18	66	-72	60	-0.6	-0.3	PARTIAL	3.87	-0.0041	0.0009	1.35	0.90	1.19	0.80	1.04	1.7
164	12	47	1	38	-0.6	-0.5	PARTIAL	8.17	-0.0331	0.0052	0.75	0.38	0.50	0.50	0.44	6.7
165			MERVYN'S- ROBINSONS LL													
166	24	334	-0	225	2.5	3.0	PIPE FULL	3.52	-0.0036	0.0000	2.00	2.00	2.00	1.00	2.00	3.5
167	15	6	-0	123	0.3	0.3	PIPE FULL	0.82	-0.0050	0.0000	1.25	1.25	1.25	1.00	1.25	0.8
168	15	48	-0	109	0.1	0.3	PIPE FULL	1.60	-0.0050	0.0000	1.25	1.25	1.25	1.00	1.25	1.6
169	18	132	-0	336	3.5	3.1	PIPE FULL	4.89	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	4.9
170	15	4	-0	388	3.6	3.6	PIPE FULL	0.78	-0.0100	0.0000	1.25	1.25	1.25	1.00	1.25	0.8
171	15	37	-0	366	3.3	3.7	PIPE FULL	0.22	-0.0100	0.0000	1.25	1.25	1.25	1.00	1.25	0.2
172	18	115	-0	132	0.5	0.2	PIPE FULL	4.49	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	4.5
173	18	55	-0	335	3.5	3.4	PIPE FULL	4.15	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	4.1
174	18	122	-0	355	3.8	3.6	PIPE FULL	4.15	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	4.1
175	15	82	-0	454	4.4	3.9	PIPE FULL	7.26	-0.0100	0.0000	1.25	1.25	1.25	1.00	1.25	7.3
176	18	116	-0	132	0.5	0.6	PIPE FULL	2.53	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	2.5
177	18	403	-0	356	3.8	4.5	PIPE FULL	1.83	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	1.8
178	18	46	-0	131	0.5	0.6	PIPE FULL	0.93	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	0.9
179	18	249	-0	100	0.0	0.6	PIPE FULL	1.00	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	1.0
180	15	26	-0	97	-0.0	0.0	PARTIAL	1.45	-0.0025	0.0000	1.25	1.21	1.25	1.00	1.23	1.4
181			MERVYN'S-ROBINSONS LL													
182	36	103	907	60	-1.2	-1.3	PARTIAL	5.37	0.0011	0.0036	2.34	1.81	1.68	0.56	1.75	5.5
183	15	294	233	65	-0.4	-0.4	PARTIAL	2.17	0.0015	0.0040	1.03	0.81	0.81	0.65	0.81	3.2
184	30	208	380	79	-0.5	-0.9	PARTIAL	4.98	0.0017	0.0042	2.06	1.99	1.63	0.65	1.81	5.1

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	PIPE	LEN-	BACK-	FLOW	FULL = ZERO		DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
185	24	169	0	111	0.2	0.0	PIPE FULL	4.84	0.0014	0.0039	2.00	2.00	2.00	1.00	2.00	4.8
186	24	188	-0	114	0.3	0.3	PIPE FULL	3.70	-0.0025	0.0000	2.00	2.00	2.00	1.00	2.00	3.7
187	24	169	-0	108	0.2	0.4	PIPE FULL	2.69	-0.0025	0.0000	2.00	2.00	2.00	1.00	2.00	2.7
188	18	200	-0	116	0.2	0.3	PIPE FULL	3.15	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	3.1
189	18	59	-0	119	0.3	0.3	PIPE FULL	2.59	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	2.6
190	15	171	-0	134	0.4	0.4	PIPE FULL	2.97	-0.0025	0.0000	1.25	1.25	1.25	1.00	1.25	3.0
191			FUTURE-ROBINSONS UL													
192	15	46	-0	305	2.6	4.0	PIPE FULL	3.55	-0.0535	0.0000	1.25	1.25	1.25	1.00	1.25	3.6
193	15	104	-0	38	-0.8	2.7	PARTIAL	9.69	-0.0400	0.0000	1.25	0.47	1.25	1.00	0.86	3.6
194	15	69	8	42	-0.7	-0.7	PARTIAL	8.89	-0.0190	0.0110	0.91	0.53	0.57	0.46	0.55	8.1
195	15	87	-21	12	-1.1	-0.6	PARTIAL	1.86	-0.0300	0.0000	0.94	0.14	0.63	0.50	0.38	0.4
196	15	115	-5	38	-0.8	-0.6	PARTIAL	8.39	-0.0207	0.0093	0.94	0.47	0.63	0.50	0.55	6.7
197	15	295	6	42	-0.7	-0.7	PARTIAL	8.11	-0.0150	0.0100	0.91	0.53	0.57	0.46	0.55	7.8
198	15	45	-121	45	-0.7	-0.7	PARTIAL	4.37	-0.0035	0.0033	0.91	0.56	0.57	0.46	0.57	4.5
199	15	64	-20	31	-0.9	-0.6	PARTIAL	6.76	-0.0218	0.0032	0.96	0.39	0.66	0.53	0.52	3.7
200			FUTURE STORE LL													
201	15	137	4875	57	-0.5	-0.6	PARTIAL	2.93	0.0001	0.0025	0.97	0.71	0.70	0.56	0.71	3.0
202			ARROWHEAD TOWNE CENTER ONSITE SYSTEM													
203			WEST 1/2 MALL PENNEYS-DILLARDS LL													
204	30	158	-0	249	3.7	3.0	PIPE FULL	7.66	-0.0024	0.0000	2.50	2.50	2.50	1.00	2.50	7.7
205	24	196	-0	324	4.5	3.8	PIPE FULL	5.95	-0.0024	0.0000	2.00	2.00	2.00	1.00	2.00	5.9
206	24	185	-0	329	4.6	4.6	PIPE FULL	3.80	-0.0024	0.0000	2.00	2.00	2.00	1.00	2.00	3.8
207			PENNEYS LL													
208	15	179	-0	446	4.3	4.7	PIPE FULL	1.13	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	1.1
209	15	90	-0	440	4.2	4.4	PIPE FULL	1.15	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	1.1
210	15	8	-0	438	4.2	4.3	PIPE FULL	1.15	-0.0150	0.0000	1.25	1.25	1.25	1.00	1.25	1.1
211			DILLARDS-PENNEYS LL													
212	18	57	-0	436	5.0	4.7	PIPE FULL	5.96	-0.0024	0.0000	1.50	1.50	1.50	1.00	1.50	6.0

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
213	18	68	0	111	0.2	0.0	PIPE FULL	4.48	0.0024	0.0048	1.50	1.50	1.50	1.00	1.50	4.5
214	15	104	-0	38	-0.8	0.3	PARTIAL	8.39	-0.0300	0.0000	1.25	0.47	1.25	1.00	0.86	3.1
215	15	35	-3	23	-1.0	-0.7	PARTIAL	11.52	-0.1028	0.0042	0.91	0.29	0.57	0.46	0.43	5.0
216			DILLARDS LL													
217	15	116	-0	131	0.4	0.3	PIPE FULL	3.33	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	3.3
218	15	243	630	72	-0.4	-0.5	PARTIAL	2.99	0.0007	0.0031	0.99	0.90	0.74	0.59	0.82	3.0
219	15	74	-477	72	-0.4	-0.3	PARTIAL	2.99	-0.0005	0.0019	1.12	0.89	1.00	0.80	0.94	2.2
220	15	293	-189	24	-0.9	-0.4	PARTIAL	1.78	-0.0023	0.0001	1.03	0.30	0.82	0.65	0.56	0.5
221	15	35	-363	26	-0.9	-0.8	PARTIAL	1.78	-0.0023	0.0001	0.83	0.32	0.40	0.32	0.36	1.3
222			DILLARDS LL													
223	24	305	-0	315	4.3	3.8	PIPE FULL	4.92	-0.0024	0.0000	2.00	2.00	2.00	1.00	2.00	4.9
224	24	181	-0	323	4.5	4.4	PIPE FULL	4.08	-0.0024	0.0000	2.00	2.00	2.00	1.00	2.00	4.1
225	24	162	-0	323	4.5	4.6	PIPE FULL	3.27	-0.0024	0.0000	2.00	2.00	2.00	1.00	2.00	3.3
226	24	143	-0	82	-0.4	4.6	PARTIAL	9.81	-0.0350	0.0000	2.00	1.63	2.00	1.00	1.82	2.1
227	18	123	-37	38	-0.9	-0.3	PARTIAL	4.93	-0.0067	0.0014	1.37	0.57	1.23	0.82	0.90	2.1
228			WARDS-DILLARDS UL													
229	15	350	-16	67	-0.4	-0.4	PARTIAL	9.03	0.0144	0.0344	1.04	0.84	0.84	0.67	0.84	9.2
230	15	118	0	130	0.4	0.0	PIPE FULL	6.54	0.0032	0.0132	1.25	1.25	1.25	1.00	1.25	6.5
231	15	200	14	71	-0.4	-0.3	PARTIAL	6.44	0.0064	0.0164	1.09	0.89	0.94	0.75	0.91	6.4
232	15	74	-0	85	-0.2	0.5	PARTIAL	4.85	-0.0100	0.0000	1.25	1.07	1.25	1.00	1.16	1.9
233	15	135	-3	31	-0.9	-0.1	PARTIAL	6.60	-0.0224	0.0014	1.21	0.39	1.17	0.93	0.78	2.0
234			NORTH AC PARCEL													
235	18	89	-0	131	0.5	0.7	PIPE FULL	1.17	-0.0024	0.0000	1.50	1.50	1.50	1.00	1.50	1.2
236	18	222	-0	108	0.1	0.6	PIPE FULL	1.24	-0.0024	0.0000	1.50	1.50	1.50	1.00	1.50	1.2
237	18	51	-0	102	0.0	0.1	PIPE FULL	1.26	-0.0024	0.0000	1.50	1.50	1.50	1.00	1.50	1.3

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN	DESIGN	DESIGN
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
		OUTFALL TO SKUNK CREEK											
18	8.0	7.6	3.7	NA	1187.7	1187.7	1187.2	FLOW DEPTH	NA	NA	(D+Dc)/2+INV	1187.65	1185.74
19	9.9	9.9	3.4	NA	1186.8	1186.8	1188.8	TAILWATER	1186.7	1187.7	TAILWATER	1188.82	1187.71
20	9.8	9.8	2.6	NA	1186.8	1186.8	1189.0	TAILWATER	1186.8	1188.8	TAILWATER	1188.97	1188.82
21	8.6	8.6	3.5	NA	1187.1	1187.1	1190.5	TAILWATER	1186.8	1189.0	TAILWATER	1190.52	1188.98
22	7.5	7.5	4.4	NA	1187.4	1187.4	1191.5	TAILWATER	1187.1	1190.5	TAILWATER	**1191.47**	1190.54
23	7.0	7.0	4.2	NA	1187.5	1187.5	1191.8	TAILWATER	1187.4	1191.5	TAILWATER	1191.83	1191.47
24	11.4	11.4	3.8	NA	1186.2	1186.2	1193.3	TAILWATER	1186.0	1192.1	TAILWATER	1193.30	1192.12
25	11.4	11.4	24.0	NA	1190.3	1190.3	1194.7	TAILWATER	1183.1	1193.3	TAILWATER	1194.70	1193.30
26	0.3	0.1	0.7	NA	1199.8	1199.8	1194.8	FLOW DEPTH	1191.7	1194.8	TAILWATER	1199.81	1194.80
27	11.4	11.4	24.0	NA	1190.7	1190.7	1194.8	TAILWATER	1190.3	1194.7	TAILWATER	1194.78	1194.70
28	0.2	0.1	0.7	NA	1199.8	1199.8	1194.9	FLOW DEPTH	1191.7	1194.9	TAILWATER	1199.81	1194.88
29		EAST 1/2 MALL				ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE							
30	11.4	11.4	12.7	NA	1196.1	1196.1	1194.9	FLOW DEPTH	1190.7	1194.8	TAILWATER	1196.09	1194.80
31	2.1	1.2	11.2	NA	1199.9	1199.9	1196.9	FLOW DEPTH	1194.5	1196.8	TAILWATER	1199.93	1196.85
32	7.0	7.0	6.8	NA	1195.3	1195.3	1197.1	TAILWATER	1195.1	1196.8	TAILWATER	1197.05	1196.85
33	1.8	1.0	5.2	NA	1200.5	1200.5	1197.2	FLOW DEPTH	1192.0	1197.2	TAILWATER	1200.51	1197.15
34	3.9	0.6	3.5	NA	1201.1	1201.1	1200.7	FLOW DEPTH	1200.7	1200.6	FLOW DEPTH	1201.15	1200.67
35	6.9	6.9	6.8	NA	1195.4	1195.4	1197.3	TAILWATER	1195.3	1197.2	TAILWATER	1197.28	1197.15
36	**6.6**	**6.6**	**4.8**	**NA**	**1195.5**	**1195.5**	**1197.5**	**TAILWATER**	**1195.4**	**1197.4**	**TAILWATER**	**1197.51**	**1197.38**
37	6.4	6.4	4.8	NA	1195.7	1195.7	1198.0	TAILWATER	1195.5	1197.6	TAILWATER	1197.98	1197.61
38	6.1	0.5	4.7	NA	1205.7	1205.7	1203.8	FLOW DEPTH	1203.8	1198.1	FLOW DEPTH	1205.73	1203.83
39	**6.0**	**6.0**	**4.9**	**NA**	**1195.8**	**1195.8**	**1198.3**	**TAILWATER**	**1195.7**	**1198.1**	**TAILWATER**	**1198.28**	**1198.08**
40	5.8	5.8	4.8	NA	1196.1	1196.1	1198.7	TAILWATER	1195.8	1198.4	TAILWATER	1198.73	1198.38
41	14.9	12.3	14.9	NA	1205.1	1205.1	1204.9	FLOW DEPTH	1203.1	1198.8	FLOW DEPTH	1205.13	1203.12
42	**5.4**	**5.4**	**4.8**	**NA**	**1196.3**	**1196.3**	**1199.2**	**TAILWATER**	**1196.1**	**1198.8**	**TAILWATER**	**1199.18**	**1198.83**
43	5.5	5.5	9.2	NA	1194.0	1194.0	1199.4	TAILWATER	1193.6	1199.3	TAILWATER	1199.45	1199.28
44	4.6	4.6	8.7	NA	1193.8	1193.8	1199.6	TAILWATER	1193.7	1199.5	TAILWATER	1199.57	1199.55

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN	DESIGN	DESIGN
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
45	0.4	0.2	1.0	NA	1201.5	1201.5	1199.7	FLOW DEPTH	1194.0	1199.7	TAILWATER	1201.46	1199.67
46	1.4	0.8	7.4	NA	1201.6	1201.6	1199.7	FLOW DEPTH	1194.0	1199.7	TAILWATER	1201.60	1199.67
47	4.6	4.6	6.2	NA	1195.0	1195.0	1199.8	TAILWATER	1194.7	1199.7	TAILWATER	1199.76	1199.67
48	10.4	1.2	8.9	1200.4	1201.0	1201.0	1200.4	FLOW DEPTH	1200.4	1199.9	FLOW DEPTH	1200.97	1200.37
49	6.2	4.1	11.0	NA	1201.2	1201.2	1200.1	FLOW DEPTH	1199.2	1199.9	TAILWATER	1201.23	1199.86
50	**4.3**	**4.3**	**8.4**	**NA**	**1194.3**	**1194.3**	**1199.9**	**TAILWATER**	**1194.0**	**1199.9**	**TAILWATER**	**1199.92**	**1199.86**
51	3.8	3.8	6.2	NA	1194.8	1194.8	1200.0	TAILWATER	1194.7	1200.0	TAILWATER	1200.04	1200.02
52	1.4	0.8	4.7	NA	1201.3	1201.3	1200.1	FLOW DEPTH	1194.3	1200.1	TAILWATER	1201.27	1200.14
53	6.1	4.1	16.6	NA	1201.5	1201.5	1200.4	FLOW DEPTH	1194.5	1200.1	TAILWATER	1201.51	1200.14
54	3.6	3.6	6.2	NA	1194.9	1194.9	1200.2	TAILWATER	1194.8	1200.1	TAILWATER	1200.20	1200.14
55	**3.6**	**3.6**	**6.2**	**NA**	**1195.3**	**1195.3**	**1200.4**	**TAILWATER**	**1195.2**	**1200.3**	**TAILWATER**	**1200.38**	**1200.30**
56	3.1	3.1	4.9	NA	1195.5	1195.5	1200.5	TAILWATER	1195.4	1200.5	TAILWATER	1200.52	1200.48
57	10.4	0.7	5.1	NA	1202.6	1202.6	1201.0	FLOW DEPTH	1201.0	1200.6	FLOW DEPTH	1202.56	1200.96
58	3.1	2.0	10.7	NA	1202.5	1202.5	1200.7	FLOW DEPTH	1196.6	1200.6	TAILWATER	1202.47	1200.62
59	3.4	1.1	3.3	NA	1203.0	1203.0	1202.6	FLOW DEPTH	1202.6	1202.6	FLOW DEPTH	1203.01	1202.61
60	0.9	0.3	2.0	NA	1203.1	1203.1	1203.1	TAILWATER	1202.8	1203.1	TAILWATER	1203.11	1203.11
61	3.0	3.0	4.9	NA	1195.7	1195.7	1200.7	TAILWATER	1195.5	1200.6	TAILWATER	1200.72	1200.62
62	2.9	2.9	4.8	NA	1195.7	1195.7	1200.8	TAILWATER	1195.6	1200.8	TAILWATER	1200.85	1200.82
63	10.4	1.3	9.4	1203.3	1203.8	1203.8	1203.3	FLOW DEPTH	1203.3	1200.9	FLOW DEPTH	1203.81	1203.31
64	7.3	0.8	6.4	NA	1203.8	1203.8	1201.8	FLOW DEPTH	1201.8	1200.9	FLOW DEPTH	1203.80	1201.79
65	3.5	3.5	4.7	NA	1196.4	1196.4	1201.0	TAILWATER	1196.4	1200.9	TAILWATER	1200.97	1200.95
66	3.5	3.5	4.7	NA	1196.6	1196.6	1201.2	TAILWATER	1196.4	1201.1	TAILWATER	1201.19	1201.07
67	1.3	0.7	5.6	NA	1204.4	1204.4	1201.3	FLOW DEPTH	1195.4	1201.3	TAILWATER	1204.40	1201.29
68	2.7	0.4	2.5	NA	1204.9	1204.9	1204.5	FLOW DEPTH	1204.5	1204.5	FLOW DEPTH	1204.87	1204.53
69	3.5	3.5	4.7	NA	1196.8	1196.8	1201.4	TAILWATER	1196.6	1201.3	TAILWATER	1201.44	1201.29
70	4.2	4.2	3.9	NA	1198.5	1198.5	1201.7	TAILWATER	1198.3	1201.5	TAILWATER	1201.73	1201.54
71	11.6	3.9	11.0	NA	1210.2	1210.2	1208.4	FLOW DEPTH	1208.2	1201.8	FLOW DEPTH	1210.20	1208.19
72	3.6	3.6	4.5	NA	1197.6	1197.6	1201.9	TAILWATER	1197.5	1201.8	TAILWATER	1201.86	1201.83

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN	DESIGN	DESIGN
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
73	3.4	3.4	4.4	NA	1197.5	1197.5	1202.0	TAILWATER	1197.3	1202.0	TAILWATER	1202.05	1201.96
74	12.4	3.1	9.7	NA	1208.7	1208.7	1206.8	FLOW DEPTH	1206.7	1202.1	FLOW DEPTH	1208.68	1206.67
75	3.2	3.2	4.4	NA	1197.4	1197.4	1202.2	TAILWATER	1197.3	1202.1	TAILWATER	1202.20	1202.15
76	2.8	2.8	4.3	NA	1197.2	1197.2	1202.3	TAILWATER	1197.2	1202.3	TAILWATER	1202.34	1202.30
77	7.7	7.7	5.7	NA	1203.9	1203.9	1204.2	TAILWATER	1203.6	1202.4	FLOW DEPTH	1204.17	1203.56
78	6.3	4.9	10.5	NA	1206.3	1206.3	1204.9	FLOW DEPTH	1203.2	1204.3	TAILWATER	1206.28	1204.27
79	1.5	0.5	3.8	NA	1206.9	1206.9	1206.4	FLOW DEPTH	1205.9	1206.4	TAILWATER	1206.91	1206.38
80	2.3	2.3	4.0	NA	1197.1	1197.1	1202.5	TAILWATER	1196.9	1202.4	TAILWATER	1202.51	1202.44
81	10.6	3.3	10.6	NA	1207.1	1207.1	1205.2	FLOW DEPTH	1205.1	1202.6	FLOW DEPTH	1207.10	1205.10
82	1.8	0.5	2.6	NA	1207.3	1207.3	1207.2	FLOW DEPTH	1206.9	1207.2	TAILWATER	1207.26	1207.20
83	2.6	2.6	3.9	NA	1197.7	1197.7	1202.7	TAILWATER	1197.6	1202.6	TAILWATER	1202.66	1202.61
84	2.2	2.2	3.8	NA	1197.6	1197.6	1202.8	TAILWATER	1197.5	1202.8	TAILWATER	1202.79	1202.76
85	11.7	3.9	11.0	NA	1207.9	1207.9	1206.0	FLOW DEPTH	1205.8	1202.9	FLOW DEPTH	1207.86	1205.85
86	1.8	1.8	3.6	NA	1197.5	1197.5	1202.9	TAILWATER	1197.4	1202.9	TAILWATER	1202.90	1202.89
87	1.9	1.9	4.4	NA	1197.6	1197.6	1203.1	TAILWATER	1197.2	1203.0	TAILWATER	1203.07	1203.00
88	2.6	2.6	5.0	NA	1198.2	1198.2	1203.2	TAILWATER	1198.2	1203.2	TAILWATER	1203.19	1203.17
89	3.1	3.1	4.8	NA	1199.0	1199.0	1203.4	TAILWATER	1198.8	1203.3	TAILWATER	1203.41	1203.29
90	2.6	2.6	4.6	NA	1199.1	1199.1	1203.6	TAILWATER	1198.8	1203.5	TAILWATER	1203.61	1203.51
91	2.2	2.2	3.9	NA	1199.6	1199.6	1203.8	TAILWATER	1199.3	1203.7	TAILWATER	1203.81	1203.71
92	2.9	2.9	3.6	NA	1200.2	1200.2	1204.2	TAILWATER	1199.8	1203.9	TAILWATER	1204.24	1203.91
93	2.4	2.4	3.5	NA	1200.2	1200.2	1204.5	TAILWATER	1200.0	1204.3	TAILWATER	1204.47	1204.34
94	2.6	2.6	3.2	NA	1200.4	1200.4	1204.6	TAILWATER	1200.3	1204.6	TAILWATER	1204.62	1204.57
95	**1.8**	**1.8**	**2.9**	**NA**	**1200.2**	**1200.2**	**1204.7**	**TAILWATER**	**1200.1**	**1204.7**	**TAILWATER**	**1204.74**	**1204.72**
96		WEST	1/2 MALL		ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE								
97	7.0	7.0	6.7	NA	1194.3	1194.3	1197.1	TAILWATER	1194.1	1196.8	TAILWATER	1197.10	1196.85
98	1.8	1.8	10.3	NA	1192.4	1192.4	1197.2	TAILWATER	1191.7	1197.2	TAILWATER	1197.21	1197.20
99	0.6	0.6	4.9	NA	1193.6	1193.6	1197.2	TAILWATER	1191.6	1197.2	TAILWATER	1197.21	1197.20
100	6.8	6.8	6.7	NA	1194.5	1194.5	1197.4	TAILWATER	1194.3	1197.2	TAILWATER	1197.41	1197.20

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	**DESIGN**			**DESIGN**	**DESIGN**	**DESIGN**
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	**V**	**V**	**V**	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
101	**5.0**	**5.0**	**7.3**	**NA**	**1192.9**	**1192.9**	**1197.6**	**TAILWATER**	**1192.8**	**1197.5**	**TAILWATER**	**1197.56**	**1197.51**
102	4.4	4.4	7.2	NA	1193.3	1193.3	1197.9	TAILWATER	1192.7	1197.7	TAILWATER	1197.92	1197.66
103	12.6	1.8	10.3	1201.3	1201.8	1201.8	1201.2	FLOW DEPTH	1201.2	1198.0	FLOW DEPTH	1201.84	1201.24
104	8.3	1.0	6.8	NA	1201.8	1201.8	1199.8	FLOW DEPTH	1199.8	1198.0	FLOW DEPTH	1201.81	1199.80
105	4.3	4.3	4.2	NA	1195.4	1195.4	1198.3	TAILWATER	1195.2	1198.0	TAILWATER	1198.26	1198.02
106	4.2	4.2	4.7	NA	1195.1	1195.1	1198.4	TAILWATER	1195.1	1198.4	TAILWATER	1198.37	1198.36
107	4.2	4.2	4.7	NA	1195.2	1195.2	1198.5	TAILWATER	1195.1	1198.5	TAILWATER	1198.53	1198.47
108	4.1	4.1	4.8	NA	1195.1	1195.1	1198.8	TAILWATER	1194.9	1198.6	TAILWATER	1198.83	1198.63
109	3.0	0.7	2.9	NA	1204.2	1204.2	1203.8	FLOW DEPTH	1203.8	1198.9	FLOW DEPTH	1204.17	1203.80
110	1.5	0.4	2.2	NA	1204.4	1204.4	1204.3	FLOW DEPTH	1204.1	1204.3	TAILWATER	1204.40	1204.27
111	5.1	5.1	6.9	NA	1195.5	1195.5	1199.1	TAILWATER	1195.2	1198.9	TAILWATER	1199.14	1198.93
112	10.4	0.7	5.1	NA	1204.3	1204.3	1203.1	FLOW DEPTH	1203.1	1199.2	FLOW DEPTH	1204.32	1203.12
113	7.2	0.6	4.9	NA	1204.3	1204.3	1202.3	FLOW DEPTH	1202.3	1199.2	FLOW DEPTH	1204.34	1202.33
114	5.1	5.1	7.1	NA	1195.7	1195.7	1199.4	TAILWATER	1195.5	1199.2	TAILWATER	1199.36	1199.24
115	5.0	5.0	6.9	NA	1196.1	1196.1	1199.7	TAILWATER	1195.6	1199.5	TAILWATER	1199.74	1199.46
116	4.8	4.8	6.9	NA	1196.2	1196.2	1199.9	TAILWATER	1196.1	1199.8	TAILWATER	1199.89	1199.84
117	11.9	4.8	11.5	NA	1207.4	1207.4	1205.8	FLOW DEPTH	1205.5	1200.0	FLOW DEPTH	1207.44	1205.53
118	4.0	4.0	6.6	NA	1196.2	1196.2	1200.2	TAILWATER	1195.8	1200.0	TAILWATER	1200.16	1199.99
119	3.6	3.6	6.1	NA	1196.3	1196.3	1200.3	TAILWATER	1196.2	1200.3	TAILWATER	1200.29	1200.26
120	13.4	6.2	12.4	1207.6	1208.3	1208.3	1206.8	FLOW DEPTH	1206.3	1200.4	FLOW DEPTH	1208.31	1206.30
121	3.2	3.2	6.0	NA	1196.6	1196.6	1200.5	TAILWATER	1196.1	1200.4	TAILWATER	1200.53	1200.39
122	13.5	3.2	12.5	NA	1209.0	1209.0	1202.7	FLOW DEPTH	1202.5	1200.6	FLOW DEPTH	1209.05	1202.47
123	4.0	2.9	4.4	1209.9	1209.7	1209.9	1209.6	FLOW DEPTH	1209.5	1209.1	FLOW DEPTH	1209.90	1209.46
124	3.1	2.5	4.2	NA	1210.0	1210.0	1210.1	TAILWATER	1209.7	1210.0	TAILWATER	1210.11	1210.00
125	3.0	3.0	5.9	NA	1196.7	1196.7	1200.7	TAILWATER	1196.4	1200.6	TAILWATER	1200.71	1200.63
126	2.9	2.9	5.8	NA	1196.9	1196.9	1200.9	TAILWATER	1196.7	1200.8	TAILWATER	1200.86	1200.81
127	12.6	5.0	11.6	1208.9	1210.0	1210.0	1208.3	FLOW DEPTH	1208.0	1201.0	FLOW DEPTH	1210.04	1208.03
128	2.5	2.5	5.6	NA	1197.3	1197.3	1201.0	TAILWATER	1196.9	1201.0	TAILWATER	1201.03	1200.96

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN	DESIGN	DESIGN
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
129	8.7	0.5	3.4	NA	1210.8	1210.8	1210.1	FLOW DEPTH	1210.1	1201.1	FLOW DEPTH	1210.84	1210.14
130	3.7	0.4	2.9	NA	1210.5	1210.5	1210.1	FLOW DEPTH	1210.1	1201.1	FLOW DEPTH	1210.51	1210.13
131	2.3	2.3	5.5	NA	1197.5	1197.5	1201.2	TAILWATER	1197.3	1201.1	TAILWATER	1201.16	1201.13
132	1.3	0.7	3.6	NA	1209.0	1209.0	1201.3	FLOW DEPTH	1197.3	1201.3	TAILWATER	1208.98	1201.26
133	2.3	2.3	5.5	NA	1197.9	1197.9	1201.3	TAILWATER	1197.5	1201.3	TAILWATER	1201.32	1201.26
134	NA	1.6	13.1	NA	1210.3	1210.3	1201.4	FLOW DEPTH	1198.3	1201.4	TAILWATER	1210.33	1201.42
135	2.2	2.2	5.5	NA	1198.3	1198.3	1201.5	TAILWATER	1197.9	1201.4	TAILWATER	1201.48	1201.42
136	2.3	2.3	5.5	NA	1198.8	1198.8	1201.6	TAILWATER	1198.4	1201.6	TAILWATER	1201.64	1201.58
137	5.1	3.9	6.6	NA	1203.0	1203.0	1202.4	FLOW DEPTH	1201.2	1201.7	TAILWATER	1203.02	1201.74
138	4.2	4.2	2.8	NA	1204.0	1204.0	1204.3	TAILWATER	1203.7	1203.1	FLOW DEPTH	1204.30	1203.68
139	3.4	3.4	4.3	NA	1199.9	1199.9	1202.0	TAILWATER	1199.6	1201.7	TAILWATER	1201.99	1201.74
140	3.3	3.3	2.8	NA	1202.5	1202.5	1202.8	TAILWATER	1201.9	1202.1	TAILWATER	1202.85	1202.09
141	2.7	2.7	3.2	NA	1202.8	1202.8	1203.5	TAILWATER	1202.2	1202.9	TAILWATER	1203.50	1202.95
142	3.8	3.8	3.2	NA	1200.3	1200.3	1202.4	TAILWATER	1200.1	1202.1	TAILWATER	1202.41	1202.09
143	1.6	1.6	2.9	NA	1200.0	1200.0	1202.7	TAILWATER	1199.6	1202.5	TAILWATER	1202.67	1202.51
144	2.5	2.5	3.2	NA	1200.2	1200.2	1202.9	TAILWATER	1199.8	1202.5	TAILWATER	1202.87	1202.51
145	1.6	1.6	2.9	NA	1200.1	1200.1	1203.0	TAILWATER	1200.0	1203.0	TAILWATER	1203.01	1202.97
146	**0.9**	**0.9**	**2.4**	**NA**	**1199.8**	**1199.8**	**1203.0**	**TAILWATER**	**1199.8**	**1203.0**	**TAILWATER**	**1202.97**	**1202.97**
147						ARROWHEAD TOWNE CENTER ONSITE SYSTEM							
148				EAST 1/2	MALL			PENNEYS LL					
149	6.1	6.1	7.4	NA	1194.9	1194.9	1195.5	TAILWATER	1194.0	1194.7	TAILWATER	1195.45	1194.70
150	3.2	2.5	5.3	NA	1196.3	1196.3	1195.9	FLOW DEPTH	1194.5	1195.6	TAILWATER	1196.34	1195.55
151	5.3	5.3	6.6	NA	1197.0	1197.0	1197.4	TAILWATER	1194.9	1195.6	TAILWATER	1197.37	1195.55
152								PENNEYS-MERVYN'S UL					
153	7.7	5.9	13.5	NA	1212.7	1212.7	1201.1	FLOW DEPTH	1194.8	1198.1	TAILWATER	1212.66	1198.08
154	5.9	5.9	4.6	NA	1214.2	1214.2	1214.7	TAILWATER	1213.5	1212.8	FLOW DEPTH	1214.70	1213.48
155	0.4	0.4	3.3	NA	1214.2	1214.2	1214.8	TAILWATER	1213.0	1214.8	TAILWATER	1214.81	1214.80
156	5.7	5.7	4.6	NA	1214.4	1214.4	1215.2	TAILWATER	1214.2	1214.9	TAILWATER	1215.15	1214.91

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN	DESIGN	DESIGN
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
157	5.7	5.7	4.6	NA	1215.0	1215.0	1216.2	TAILWATER	1214.4	1215.3	TAILWATER	1216.16	1215.25
158	1.9	1.9	6.0	NA	1214.5	1214.5	1215.3	TAILWATER	1213.5	1215.3	TAILWATER	1215.31	1215.25
159	3.7	3.7	5.1	NA	1214.1	1214.1	1215.0	TAILWATER	1213.8	1214.8	TAILWATER	1214.97	1214.80
160	3.1	2.9	4.8	NA	1215.4	1215.4	1215.7	TAILWATER	1214.7	1215.4	TAILWATER	1215.68	1215.41
161	2.4	2.4	4.6	NA	1214.6	1214.6	1215.3	TAILWATER	1213.8	1215.1	TAILWATER	1215.27	1215.07
162	4.8	3.4	10.5	NA	1217.2	1217.2	1215.6	FLOW DEPTH	1214.5	1215.4	TAILWATER	1217.20	1215.37
163	2.0	1.5	3.9	NA	1215.5	1215.5	1215.8	TAILWATER	1215.2	1215.8	TAILWATER	1215.82	1215.78
164	8.0	3.3	8.2	NA	1217.6	1217.6	1216.1	FLOW DEPTH	1215.8	1215.9	TAILWATER	1217.60	1215.92
165								MERVYN'S- ROBINSONS LL					
166	3.5	3.5	5.1	NA	1196.8	1196.8	1200.0	TAILWATER	1195.6	1199.3	TAILWATER	1199.96	1199.28
167	0.8	0.8	3.0	NA	1198.9	1198.9	1200.1	TAILWATER	1198.9	1200.1	TAILWATER	1200.07	1200.06
168	1.6	1.6	3.6	NA	1199.3	1199.3	1200.1	TAILWATER	1199.0	1200.1	TAILWATER	1200.10	1200.06
169	4.9	4.9	3.2	NA	1197.3	1197.3	1200.8	TAILWATER	1197.0	1200.1	TAILWATER	1200.83	1200.06
170	0.8	0.8	3.7	NA	1196.4	1196.4	1200.9	TAILWATER	1196.4	1200.9	TAILWATER	1200.93	1200.93
171	0.2	0.2	1.6	NA	1196.6	1196.6	1201.0	TAILWATER	1196.2	1201.0	TAILWATER	1201.03	1201.03
172	4.5	4.5	3.2	NA	1200.3	1200.3	1200.8	TAILWATER	1200.0	1200.2	TAILWATER	1200.76	1200.20
173	4.1	4.1	3.2	NA	1197.8	1197.8	1201.4	TAILWATER	1197.7	1201.1	TAILWATER	1201.36	1201.13
174	4.1	4.1	3.2	NA	1198.1	1198.1	1202.0	TAILWATER	1197.8	1201.5	TAILWATER	1201.96	1201.46
175	7.3	7.3	5.7	NA	1199.0	1199.0	1203.4	TAILWATER	1198.1	1202.1	TAILWATER	1203.39	1202.06
176	2.5	2.5	3.5	NA	1200.0	1200.0	1201.0	TAILWATER	1199.8	1200.9	TAILWATER	1201.04	1200.86
177	1.8	1.8	3.3	NA	1199.3	1199.3	1203.8	TAILWATER	1198.3	1203.5	TAILWATER	1203.82	1203.49
178	0.9	0.9	2.6	NA	1199.7	1199.7	1201.2	TAILWATER	1199.6	1201.1	TAILWATER	1201.15	1201.14
179	1.0	1.0	2.7	NA	1200.4	1200.4	1201.3	TAILWATER	1199.8	1201.3	TAILWATER	1201.31	1201.25
180	1.5	1.4	2.9	NA	1200.8	1200.8	1201.4	TAILWATER	1200.8	1201.4	TAILWATER	1201.43	1201.41
181								MERVYN'S-ROBINSONS LL					
182	5.3	3.2	5.4	1195.1	1195.0	1195.1	1194.8	FLOW DEPTH	1194.7	1194.7	FLOW DEPTH	1195.09	1194.72
183	3.2	2.2	3.1	NA	1196.6	1196.6	1196.3	FLOW DEPTH	1195.8	1195.2	FLOW DEPTH	1196.58	1195.84
184	4.6	3.5	5.0	1196.3	1195.9	1196.3	1195.7	FLOW DEPTH	1195.4	1195.2	FLOW DEPTH	1196.29	1195.41

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN	DESIGN	DESIGN
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
185	4.8	4.8	3.9	NA	1197.2	1197.2	1197.5	TAILWATER	1196.8	1196.4	FLOW DEPTH	1197.45	1196.80
186	3.7	3.7	4.5	NA	1197.2	1197.2	1198.0	TAILWATER	1196.8	1197.6	TAILWATER	1197.97	1197.55
187	2.7	2.7	4.2	NA	1197.3	1197.3	1198.3	TAILWATER	1196.9	1198.1	TAILWATER	1198.27	1198.07
188	3.1	3.1	3.7	NA	1198.4	1198.4	1198.9	TAILWATER	1197.9	1198.4	TAILWATER	1198.85	1198.37
189	2.6	2.6	3.6	NA	1198.3	1198.3	1199.0	TAILWATER	1198.1	1199.0	TAILWATER	1199.05	1198.95
190	3.0	3.0	2.9	NA	1199.2	1199.2	1199.6	TAILWATER	1198.8	1199.1	TAILWATER	1199.61	1199.15
191								FUTURE-ROBINSONS UL					
192	3.6	3.6	10.8	NA	1199.3	1199.3	1202.6	TAILWATER	1197.6	1202.5	TAILWATER	1202.65	1202.47
193	4.9	3.6	9.7	NA	1203.5	1203.5	1203.2	FLOW DEPTH	1199.3	1202.7	TAILWATER	1203.47	1202.75
194	8.6	3.6	8.9	NA	1205.6	1205.6	1203.8	FLOW DEPTH	1203.5	1203.6	TAILWATER	1205.59	1203.57
195	0.9	0.2	1.9	NA	1207.8	1207.8	1205.7	FLOW DEPTH	1205.2	1205.7	TAILWATER	1207.81	1205.69
196	8.1	3.3	8.4	NA	1209.0	1209.0	1206.1	FLOW DEPTH	1205.5	1205.7	TAILWATER	1208.98	1205.69
197	8.2	3.4	8.1	NA	1216.4	1216.4	1210.1	FLOW DEPTH	1209.0	1209.1	TAILWATER	1216.41	1209.08
198	4.5	1.9	4.4	NA	1209.4	1209.4	1209.1	FLOW DEPTH	1209.1	1209.1	TAILWATER	1209.38	1209.08
199	5.0	1.9	6.8	NA	1210.8	1210.8	1209.6	FLOW DEPTH	1209.2	1209.5	TAILWATER	1210.80	1209.48
200								FUTURE STORE LL					
201	2.9	1.7	2.9	1200.3	1200.3	1200.3	1200.1	FLOW DEPTH	1200.0	0.1	FLOW DEPTH	1200.32	1199.98
202						ARROWHEAD TOWNE CENTER ONSITE SYSTEM							
203							WEST 1/2 MALL						
204	7.7	7.7	4.4	NA	1194.9	1194.9	1198.6	TAILWATER	1194.5	1197.5	TAILWATER	1198.64	1197.51
205	5.9	5.9	3.8	NA	1195.4	1195.4	1199.9	TAILWATER	1194.9	1198.7	TAILWATER	1199.88	1198.74
206	3.8	3.8	4.0	NA	1195.8	1195.8	1200.4	TAILWATER	1195.4	1200.0	TAILWATER	1200.41	1199.98
207								PENNEYS LL					
208	1.1	1.1	2.6	NA	1195.6	1195.6	1200.6	TAILWATER	1195.2	1200.5	TAILWATER	1200.58	1200.51
209	1.1	1.1	2.6	NA	1195.8	1195.8	1200.7	TAILWATER	1195.6	1200.7	TAILWATER	1200.72	1200.68
210	1.1	1.1	5.0	NA	1195.7	1195.7	1200.8	TAILWATER	1195.6	1200.8	TAILWATER	1200.82	1200.82
211								DILLARDS-PENNEYS LL					
212	6.0	6.0	3.2	NA	1196.0	1196.0	1201.0	TAILWATER	1195.8	1200.5	TAILWATER	1201.00	1200.51

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN	DESIGN	DESIGN
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
213	4.5	4.5	3.2	NA	1196.1	1196.1	1196.3	TAILWATER	1196.0	0.1	FLOW DEPTH	1196.30	1195.97
214	4.2	3.1	8.4	NA	1198.5	1198.5	1196.7	FLOW DEPTH	1195.4	1196.4	TAILWATER	1198.49	1196.40
215	7.3	2.2	11.5	NA	1202.0	1202.0	1198.6	FLOW DEPTH	1198.3	1198.6	TAILWATER	1202.04	1198.59
216								DILLARDS LL					
217	3.3	3.3	2.8	NA	1196.4	1196.4	1196.8	TAILWATER	1196.1	1196.4	TAILWATER	1196.79	1196.40
218	2.7	1.8	3.0	1196.6	1196.5	1196.6	1196.1	FLOW DEPTH	1195.9	0.1	FLOW DEPTH	1196.65	1195.90
219	2.3	1.9	3.0	NA	1196.7	1196.7	1196.8	TAILWATER	1196.5	1196.7	TAILWATER	1196.82	1196.75
220	0.8	0.3	1.8	NA	1196.9	1196.9	1196.8	FLOW DEPTH	1196.2	1196.7	TAILWATER	1196.93	1196.75
221	1.5	0.3	1.8	NA	1197.0	1197.0	1197.0	TAILWATER	1196.9	1197.0	TAILWATER	1197.03	1197.03
222								DILLARDS LL					
223	4.9	4.9	3.8	NA	1195.7	1195.7	1199.9	TAILWATER	1194.9	1198.7	TAILWATER	1199.95	1198.74
224	4.1	4.1	3.8	NA	1196.1	1196.1	1200.5	TAILWATER	1195.7	1200.0	TAILWATER	1200.55	1200.05
225	3.3	3.3	4.3	NA	1195.9	1195.9	1200.9	TAILWATER	1195.5	1200.6	TAILWATER	1200.93	1200.65
226	2.2	2.1	9.8	NA	1200.0	1200.0	1201.1	TAILWATER	1195.0	1201.0	TAILWATER	1201.13	1201.03
227	3.0	1.8	4.9	NA	1201.6	1201.6	1201.3	FLOW DEPTH	1200.6	1201.2	TAILWATER	1201.57	1201.23
228								WARDS-DILLARDS UL					
229	9.2	6.5	9.0	NA	1213.0	1213.0	1210.4	FLOW DEPTH	1205.8	1204.3	FLOW DEPTH	1212.96	1205.84
230	6.5	6.5	5.7	NA	1214.6	1214.6	1214.9	TAILWATER	1213.4	1213.1	FLOW DEPTH	1214.92	1213.37
231	6.6	5.1	6.4	NA	1215.0	1215.0	1214.7	FLOW DEPTH	1213.0	1213.1	TAILWATER	1215.01	1213.06
232	2.0	1.9	4.8	NA	1214.5	1214.5	1215.1	TAILWATER	1213.8	1215.0	TAILWATER	1215.11	1215.02
233	3.0	1.9	6.6	NA	1217.6	1217.6	1215.4	FLOW DEPTH	1214.4	1215.2	TAILWATER	1217.64	1215.21
234								NORTH AC PARCEL					
235	1.2	1.2	2.8	NA	1199.8	1199.8	1201.2	TAILWATER	1199.6	1201.1	TAILWATER	1201.16	1201.13
236	1.2	1.2	2.8	NA	1200.4	1200.4	1201.3	TAILWATER	1199.8	1201.3	TAILWATER	1201.34	1201.26
237	1.3	1.3	2.9	NA	1200.6	1200.6	1201.5	TAILWATER	1200.5	1201.4	TAILWATER	1201.46	1201.44

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
		OUTFALL TO SKUNK CREEK											
18	0.1736	1.43	5	0.00	1.72	0.013	0.0004	1179.65	1179.30	1187.65	9.94	1197.84	10.19
19	0.3538	1.11	2	0.06	0.53	0.013	0.0004	1179.78	1179.65	1186.78	8.95	1195.98	7.16
20	0.3469	0.15	3	0.00	0.07	0.013	0.0002	1179.80	1179.79	1186.80	8.93	1195.98	7.01
21	0.2689	1.54	3	0.01	1.11	0.013	0.0004	1180.05	1179.80	1187.05	10.08	1197.38	6.86
22	0.2034	0.93	3	0.01	1.02	0.013	0.0007	1180.37	1180.05	1187.37	14.38	1202.00	10.53
23	0.1787	0.36	3	0.00	0.48	0.013	0.0006	1180.51	1180.38	1187.51	15.49	1203.25	11.42
24	0.6466	1.18	2	0.29	0.27	0.013	0.0007	1180.65	1180.52	1186.15	17.10	1203.50	10.20
25	0.6466	1.40	NA	0.00	0.32	0.013	0.0333	1187.84	1180.65	1193.34	8.91	1202.50	7.80
26	0.0006	0.00	1	0.10	0.57	0.012	0.3535	1199.75	1191.62	1201.00	1.25	1202.50	2.69
27	0.6460	0.08	3(A)	0.00	0.02	0.013	0.0333	1188.27	1187.84	1193.77	8.48	1202.50	7.72
28	0.0004	0.00	1	0.10	0.53	0.012	0.3691	1199.75	1191.63	1201.00	1.25	1202.50	2.69
29		ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE								EAST 1/2 MALL			
30	0.5500	0.13	3(B)	0.02	0.03	0.012	0.0333	1189.06	1188.27	1194.56	7.89	1202.70	6.61
31	0.0479	0.01	4	0.76	0.03	0.012	0.2720	1199.75	1194.31	1201.00	1.25	1202.50	2.57
32	0.2082	0.21	4	0.76	0.24	0.012	0.0020	1189.76	1189.56	1195.26	7.69	1203.20	6.15
33	0.0330	0.00	1	0.10	0.03	0.012	0.9433	1200.38	1191.89	1201.63	1.73	1203.61	3.10
34	0.0124	0.01	1	0.10	0.23	0.012	0.0100	1200.86	1200.38	1202.11	1.25	1203.61	2.46
35	0.2060	0.12	1	0.10	0.14	0.012	0.0020	1189.88	1189.76	1195.38	8.90	1204.53	7.25
36	**0.1874**	**0.13**	**1**	**0.10**	**0.18**	**0.012**	**0.0010**	**1189.95**	**1189.88**	**1195.45**	**9.80**	**1205.50**	**7.99**
37	0.1720	0.37	1	0.10	0.57	0.012	0.0010	1190.17	1189.95	1195.67	12.88	1208.80	10.82
38	0.0083	0.00	1	0.10	0.14	0.012	0.0487	1205.55	1203.65	1206.80	1.75	1208.80	3.07
39	**0.1540**	**0.20**	**1**	**0.10**	**0.36**	**0.012**	**0.0010**	**1190.30**	**1190.17**	**1195.80**	**12.21**	**1208.26**	**9.98**
40	0.1412	0.35	1	0.10	0.72	0.012	0.0010	1190.55	1190.30	1196.05	11.36	1207.66	8.93
41	4.6831	1.83	1	0.10	0.05	0.012	0.0515	1204.17	1202.16	1205.42	1.21	1206.88	1.75
42	**0.1236**	**0.35**	**1**	**0.10**	**0.88**	**0.012**	**0.0010**	**1190.83**	**1190.55**	**1196.33**	**8.88**	**1205.46**	**6.28**
43	0.1454	0.16	1	0.10	0.34	0.012	0.0037	1191.24	1190.83	1196.24	8.01	1204.50	5.05
44	0.1003	0.02	1	0.10	0.07	0.012	0.0037	1191.31	1191.24	1196.31	7.79	1204.35	4.78

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
45	0.0014	0.00	1	0.10	0.14	0.012	0.8278	1201.40	1193.95	1202.65	1.25	1204.15	2.69
46	0.0155	0.01	1	0.10	0.10	0.012	0.1648	1201.40	1193.82	1202.90	1.00	1204.15	2.56
47	0.1007	0.10	1	0.10	0.35	0.012	0.0015	1191.67	1191.31	1196.67	6.78	1203.70	3.94
48	0.0426	0.00	1	0.10	0.01	0.012	0.1000	1200.75	1200.15	1202.00	1.25	1203.50	2.54
49	0.5223	0.20	1	0.10	0.06	0.012	0.0515	1200.75	1198.74	1202.00	1.25	1203.50	2.28
50	**0.0902**	**0.06**	**1**	**0.10**	**0.27**	**0.012**	**0.0037**	**1191.93**	**1191.67**	**1196.93**	**6.89**	**1204.08**	**4.15**
51	0.0691	0.02	1	0.10	0.12	0.012	0.0017	1191.98	1191.93	1196.98	6.86	1204.09	4.05
52	0.0186	0.00	1	0.10	0.03	0.012	0.7789	1201.14	1194.13	1202.39	1.25	1203.89	2.63
53	0.5223	0.23	1	0.10	0.04	0.012	0.1593	1201.14	1194.13	1202.39	1.25	1203.89	2.38
54	0.0610	0.06	1	0.10	0.43	0.012	0.0017	1192.13	1191.98	1197.13	7.08	1204.46	4.26
55	**0.0630**	**0.08**	**1**	**0.10**	**0.61**	**0.012**	**0.0017**	**1192.48**	**1192.35**	**1197.48**	**7.11**	**1204.84**	**4.46**
56	0.0453	0.04	1	0.10	0.48	0.012	0.0010	1192.56	1192.48	1197.56	7.74	1205.55	5.03
57	0.0154	0.00	1	0.10	0.05	0.012	0.1000	1202.40	1200.80	1203.65	1.25	1205.15	2.59
58	0.1275	0.09	1	0.10	0.10	0.012	0.0875	1202.17	1196.31	1203.42	1.89	1205.56	3.09
59	0.0345	0.03	1	0.10	0.40	0.012	0.0050	1202.57	1202.17	1203.82	1.78	1205.85	2.84
60	0.0021	0.00	1	0.10	0.45	0.012	0.0050	1202.84	1202.57	1204.09	1.25	1205.59	2.48
61	0.0442	0.10	1	0.10	1.20	0.012	0.0010	1192.78	1192.56	1197.78	8.20	1206.23	5.51
62	0.0414	0.03	1	0.10	0.42	0.012	0.0010	1192.86	1192.78	1197.86	8.43	1206.54	5.69
63	0.0497	0.00	1	0.10	0.01	0.012	0.1000	1203.58	1203.08	1204.83	1.25	1206.33	2.52
64	0.0209	0.01	1	0.10	0.10	0.012	0.0515	1203.58	1201.57	1204.83	1.25	1206.33	2.54
65	0.0696	0.02	1	0.10	0.14	0.012	0.0010	1193.39	1193.36	1197.89	8.95	1207.09	6.12
66	0.0669	0.12	1	0.10	0.87	0.012	0.0010	1193.57	1193.39	1198.07	9.67	1207.99	6.80
67	0.0164	0.01	1	0.10	0.22	0.012	0.1205	1204.24	1195.20	1205.49	2.05	1207.79	3.39
68	0.0062	0.00	1	0.10	0.45	0.012	0.0050	1204.58	1204.24	1205.83	1.47	1207.55	2.68
69	0.0671	0.15	1	0.10	1.06	0.012	0.0010	1193.79	1193.57	1198.29	11.69	1210.23	8.79
70	0.1166	0.19	1	0.10	0.65	0.012	0.0010	1194.45	1194.29	1198.45	13.82	1212.52	10.79
71	0.4700	0.18	1	0.10	0.06	0.012	0.0515	1209.72	1207.71	1210.97	1.25	1212.47	2.28
72	0.0860	0.03	1	0.10	0.18	0.012	0.0010	1194.49	1194.45	1198.49	12.64	1211.38	9.52

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LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
73	0.0755	0.09	1	0.10	0.56	0.012	0.0010	1194.61	1194.49	1198.61	12.94	1211.80	9.75
74	0.3017	0.12	1	0.10	0.07	0.012	0.0515	1208.29	1206.28	1209.54	1.25	1211.04	2.36
75	0.0667	0.05	1	0.10	0.43	0.012	0.0010	1194.69	1194.61	1198.69	11.47	1210.41	8.21
76	0.0506	0.04	1	0.10	0.44	0.012	0.0010	1194.76	1194.69	1198.76	11.26	1210.27	7.93
77	1.8349	0.61	1	0.10	0.07	0.012	0.0100	1202.64	1202.31	1203.89	5.15	1209.29	5.12
78	0.7522	0.62	1	0.10	0.13	0.012	0.0367	1205.69	1202.64	1206.94	1.71	1208.90	2.62
79	0.0068	0.00	1	0.10	0.22	0.012	0.0200	1206.71	1205.69	1207.96	1.25	1209.46	2.55
80	0.0332	0.07	1	0.10	1.52	0.012	0.0010	1194.97	1194.76	1198.97	10.95	1210.17	7.66
81	0.3343	0.13	1	0.10	0.06	0.012	0.0513	1206.66	1204.66	1207.91	1.25	1209.41	2.31
82	0.0075	0.00	1	0.10	0.38	0.012	0.0053	1206.97	1206.66	1208.22	1.00	1209.47	2.21
83	0.0522	0.05	1	0.10	0.62	0.012	0.0010	1195.57	1195.47	1199.07	10.89	1210.21	7.55
84	0.0389	0.03	1	0.10	0.60	0.012	0.0010	1195.64	1195.57	1199.14	11.41	1210.80	8.01
85	0.4757	0.19	1	0.10	0.06	0.012	0.0515	1207.38	1205.37	1208.63	1.25	1210.13	2.28
86	0.0261	0.01	1	0.10	0.48	0.012	0.0010	1195.70	1195.64	1199.20	11.78	1211.23	8.33
87	0.0282	0.07	1	0.10	2.18	0.012	0.0019	1196.16	1195.70	1199.66	5.00	1204.91	1.84
88	0.0642	0.02	1	0.10	0.17	0.012	0.0024	1196.72	1196.66	1199.72	4.53	1204.50	1.31
89	0.1207	0.12	1	0.10	0.53	0.012	0.0024	1197.46	1197.22	1199.96	4.29	1204.50	1.09
90	0.0830	0.09	1	0.10	0.72	0.012	0.0024	1197.73	1197.46	1200.23	4.02	1204.50	0.89
91	0.0827	0.10	1	0.10	0.93	0.012	0.0024	1198.53	1198.23	1200.53	7.84	1208.62	4.81
92	0.2041	0.33	1	0.10	0.93	0.012	0.0024	1199.02	1198.63	1200.52	4.23	1205.00	0.76
93	0.1357	0.13	1	0.10	0.66	0.012	0.0024	1199.25	1199.02	1200.75	3.00	1204.00	-0.47
94	0.2068	0.06	1	0.10	0.17	0.012	0.0024	1199.44	1199.37	1200.69	3.06	1204.00	-0.62
95	**0.0991**	**0.01**	**1**	**0.10**	**0.14**	**0.012**	**0.0024**	**1199.47**	**1199.44**	**1200.72**	**3.03**	**1204.00**	**-0.74**
96		ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE								WEST 1/2	MALL		
97	0.2702	0.25	NA	NA	0.22	0.012	0.0025	1189.80	1189.56	1194.30	8.54	1203.09	5.99
98	0.0985	0.01	1	0.10	0.07	0.012	0.1000	1192.13	1191.43	1193.38	8.87	1202.50	5.29
99	0.0124	0.00	1	0.10	1.02	0.012	0.0515	1193.44	1191.43	1194.69	7.56	1202.50	5.29
100	0.2594	0.20	1	0.10	0.19	0.012	0.0025	1189.98	1189.80	1194.48	8.71	1203.44	6.03

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
101	**0.1380**	**0.06**	**1**	**0.10**	**0.14**	**0.012**	**0.0025**	**1190.09**	**1189.98**	**1194.59**	**8.99**	**1203.83**	**6.27**
102	0.1095	0.25	1	0.10	0.87	0.012	0.0025	1190.68	1190.09	1195.18	9.10	1204.53	6.61
103	0.0985	0.01	1	0.10	0.01	0.012	0.1000	1201.58	1200.98	1202.83	1.25	1204.33	2.49
104	0.0315	0.01	1	0.10	0.10	0.012	0.0515	1201.58	1199.57	1202.83	1.25	1204.33	2.52
105	0.1046	0.24	1	0.10	0.87	0.012	0.0010	1190.91	1190.68	1195.41	9.87	1205.53	7.27
106	0.0979	0.01	1	0.10	0.06	0.012	0.0010	1190.92	1190.91	1195.42	9.94	1205.61	7.24
107	0.0979	0.06	1	0.10	0.26	0.012	0.0010	1190.99	1190.92	1195.49	10.15	1205.89	7.36
108	0.0942	0.19	1	0.10	0.83	0.012	0.0010	1191.19	1190.99	1195.69	10.72	1206.66	7.83
109	0.0148	0.01	1	0.10	0.43	0.012	0.0050	1203.81	1203.44	1205.06	1.63	1206.94	2.77
110	0.0038	0.00	1	0.10	0.51	0.012	0.0050	1204.15	1203.81	1205.40	1.25	1206.90	2.51
111	0.1729	0.21	1	0.10	0.40	0.012	0.0025	1192.78	1192.47	1196.78	10.17	1207.20	8.06
112	0.0154	0.00	1	0.10	0.04	0.012	0.1000	1204.16	1202.96	1205.41	1.25	1206.91	2.59
113	0.0115	0.00	1	0.10	0.13	0.012	0.0515	1204.16	1202.15	1205.41	1.25	1206.91	2.57
114	0.1712	0.12	1	0.10	0.22	0.012	0.0026	1192.97	1192.78	1196.97	10.69	1207.91	8.55
115	0.1606	0.28	1	0.10	0.59	0.012	0.0026	1193.46	1192.97	1197.46	12.27	1209.98	10.24
116	0.1504	0.06	1	0.10	0.13	0.012	0.0026	1193.57	1193.46	1197.57	12.59	1210.41	10.52
117	0.6959	0.26	1	0.10	0.06	0.012	0.0503	1206.91	1205.00	1208.16	1.25	1209.66	2.22
118	0.1027	0.17	1	0.10	0.69	0.012	0.0026	1193.96	1193.57	1197.96	12.90	1211.11	10.95
119	0.0865	0.03	1	0.10	0.13	0.012	0.0022	1194.02	1193.96	1198.02	12.95	1211.22	10.93
120	1.1797	0.46	1	0.10	0.05	0.012	0.0515	1207.72	1205.71	1208.97	1.22	1210.44	2.13
121	0.0666	0.15	1	0.10	1.14	0.012	0.0022	1194.51	1194.02	1198.51	13.32	1212.08	11.55
122	0.3248	0.24	1	0.10	0.10	0.012	0.0901	1208.68	1202.10	1209.93	1.83	1212.01	2.96
123	0.2539	0.14	1	0.10	0.22	0.012	0.0050	1208.97	1208.68	1210.22	1.59	1212.06	2.16
124	0.1880	0.11	1	0.10	0.23	0.012	0.0050	1209.26	1208.97	1210.51	0.99	1211.75	1.64
125	0.0586	0.08	1	0.10	0.71	0.012	0.0025	1194.83	1194.51	1198.83	13.52	1212.60	11.89
126	0.0552	0.05	1	0.10	0.52	0.012	0.0024	1195.06	1194.83	1199.06	13.71	1213.02	12.16
127	0.7811	0.30	1	0.10	0.06	0.012	0.0515	1209.51	1207.50	1210.76	1.25	1212.26	2.22
128	0.0420	0.07	1	0.10	1.16	0.012	0.0024	1195.48	1195.06	1199.48	13.44	1213.17	12.14

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
129	0.0083	0.00	1	0.10	0.03	0.012	0.1000	1210.70	1210.00	1211.95	1.25	1213.45	2.61
130	0.0062	0.00	1	0.10	0.22	0.012	0.0097	1210.28	1209.90	1211.53	1.25	1213.03	2.52
131	0.0345	0.03	1	0.10	0.67	0.012	0.0024	1195.80	1195.58	1199.80	13.13	1213.18	12.02
132	0.0164	0.00	1	0.10	0.12	0.012	0.4489	1208.85	1197.18	1210.10	2.45	1212.80	3.83
133	0.0353	0.06	1	0.10	1.18	0.012	0.0024	1196.20	1195.80	1200.20	12.53	1212.98	11.66
134	0.0766	0.01	1	0.10	0.00	0.012	6.0000	1210.20	1198.20	1211.45	1.25	1212.95	2.63
135	0.0324	0.06	1	0.10	1.36	0.012	0.0024	1196.64	1196.20	1200.64	7.94	1208.83	7.35
136	0.0336	0.06	1	0.10	1.24	0.012	0.0024	1197.14	1196.74	1201.14	3.11	1204.50	2.86
137	0.3715	0.69	1	0.10	0.47	0.012	0.0094	1202.18	1200.40	1203.68	2.17	1206.10	3.08
138	0.5526	0.62	1	0.10	0.44	0.012	0.0024	1202.70	1202.43	1203.95	1.50	1205.70	1.40
139	0.1922	0.25	1	0.10	0.63	0.012	0.0024	1198.45	1198.14	1200.45	5.86	1206.56	4.57
140	0.3389	0.76	1	0.10	1.13	0.012	0.0024	1201.22	1200.68	1202.47	5.56	1208.28	5.43
141	0.2230	0.55	1	0.10	1.53	0.012	0.0024	1201.81	1201.22	1203.06	3.52	1206.83	3.33
142	0.3437	0.33	1	0.10	0.42	0.012	0.0024	1198.78	1198.55	1200.28	6.57	1207.10	4.69
143	0.0783	0.16	1	0.10	2.09	0.012	0.0024	1199.38	1198.90	1200.63	5.12	1206.00	3.33
144	0.1920	0.36	1	0.10	1.23	0.012	0.0024	1199.32	1198.88	1200.57	2.68	1203.50	0.63
145	0.0808	0.04	1	0.10	0.53	0.012	0.0024	1199.45	1199.32	1200.70	2.55	1203.50	0.49
146	**0.0262**	**0.00**	**1**	**0.10**	**0.27**	**0.012**	**0.0024**	**1199.36**	**1199.32**	**1200.61**	**2.64**	**1203.50**	**0.53**
147		ARROWHEAD TOWNE CENTER ONSITE SYSTEM											
148			EAST 1/2 MALL				PENNEYS LL						
149	0.8894	0.76	1	0.10	0.23	0.012	0.0100	1193.72	1192.87	1195.22	8.03	1203.50	8.05
150	0.1880	0.34	1	0.10	0.57	0.012	0.0100	1195.78	1193.97	1197.03	7.05	1204.33	7.99
151	0.8634	1.81	1	0.10	0.66	0.012	0.0100	1196.07	1193.97	1197.32	5.93	1203.50	6.13
152		PENNEYS-MERVYN'S UL											
153	0.8433	2.99	1	0.10	0.44	0.012	0.0509	1211.98	1194.16	1213.48	7.08	1220.81	8.16
154	0.8433	1.22	1	0.10	0.41	0.012	0.0050	1212.71	1211.98	1214.21	9.21	1223.66	8.96
155	0.0043	0.00	1	0.10	0.38	0.012	0.0150	1213.96	1212.83	1215.21	5.49	1220.95	6.14
156	0.7734	0.25	1	0.10	0.09	0.012	0.0050	1212.87	1212.71	1214.37	9.03	1223.64	8.49

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
157	0.7734	0.90	1	0.10	0.34	0.012	0.0050	1213.45	1212.87	1214.95	8.90	1224.10	7.94
158	0.1076	0.06	1	0.10	0.14	0.012	0.0200	1214.16	1213.12	1215.41	7.84	1223.50	8.19
159	0.3316	0.17	1	0.10	0.22	0.012	0.0050	1213.06	1212.81	1214.56	9.16	1223.96	8.99
160	0.1993	0.27	1	0.10	0.48	0.012	0.0050	1214.59	1213.91	1216.09	7.61	1223.95	8.27
161	0.1337	0.20	1	0.10	0.55	0.012	0.0050	1213.81	1213.06	1215.31	8.47	1224.03	8.76
162	0.3537	0.19	1	0.10	0.09	0.012	0.0500	1216.76	1214.06	1218.01	5.24	1223.50	6.30
163	0.0510	0.03	1	0.10	0.28	0.012	0.0050	1214.92	1214.59	1216.42	7.36	1224.03	8.21
164	0.4435	0.21	1	0.10	0.10	0.012	0.0383	1217.22	1215.42	1218.22	3.13	1221.60	4.00
165		MERVYN'S- ROBINSONS LL											
166	0.2037	0.68	1	0.10	1.58	0.012	0.0036	1195.46	1194.32	1197.46	6.54	1204.25	4.29
167	0.0209	0.00	1	0.10	0.12	0.012	0.0050	1198.53	1198.50	1199.78	4.22	1204.25	4.18
168	0.0789	0.04	1	0.10	0.50	0.012	0.0050	1198.74	1198.50	1199.99	4.01	1204.25	4.15
169	0.5771	0.76	1	0.10	0.45	0.012	0.0025	1195.79	1195.46	1197.29	7.45	1204.99	4.16
170	0.0187	0.00	1	0.10	0.09	0.012	0.0100	1196.08	1196.04	1197.33	7.15	1204.73	3.80
171	0.0015	0.00	1	0.10	2.75	0.012	0.0100	1196.45	1196.08	1197.70	5.55	1203.50	2.47
172	0.4866	0.56	1	0.10	0.43	0.012	0.0025	1198.78	1198.49	1200.28	5.99	1206.52	5.76
173	0.4153	0.23	1	0.10	0.22	0.012	0.0025	1196.34	1196.20	1197.84	8.42	1206.51	5.15
174	0.4153	0.51	1	0.10	0.49	0.012	0.0025	1196.64	1196.34	1198.14	8.18	1206.57	4.61
175	1.6192	1.33	1	0.10	0.19	0.012	0.0100	1197.71	1196.89	1198.96	6.79	1206.00	2.61
176	0.1549	0.18	1	0.10	0.76	0.012	0.0025	1199.07	1198.78	1200.57	5.69	1206.51	5.47
177	0.0809	0.33	1	0.10	3.67	0.012	0.0025	1198.47	1197.46	1199.97	6.40	1206.62	2.80
178	0.0210	0.01	1	0.10	0.82	0.012	0.0025	1199.18	1199.07	1200.68	5.79	1206.72	5.57
179	0.0243	0.06	1	0.10	4.13	0.012	0.0025	1199.81	1199.18	1201.31	5.13	1206.68	5.37
180	0.0643	0.02	1	0.10	0.30	0.012	0.0025	1200.22	1200.16	1201.47	4.28	1206.00	4.57
181		MERVYN'S-ROBINSONS LL											
182	0.0959	0.10	NA	0.00	0.32	0.012	0.0025	1193.28	1193.04	1196.28	6.97	1203.50	8.41
183	0.1444	0.42	1	0.10	2.26	0.012	0.0025	1195.77	1195.03	1197.02	6.54	1203.80	7.22
184	0.1518	0.32	1	0.10	0.70	0.012	0.0025	1194.30	1193.78	1196.80	6.95	1204.00	7.71

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
185	0.3848	0.65	1	0.10	0.58	0.012	0.0025	1195.22	1194.80	1197.22	6.47	1203.94	6.49
186	0.2253	0.42	1	0.10	0.85	0.012	0.0025	1195.69	1195.22	1197.69	5.90	1203.84	5.87
187	0.1188	0.20	1	0.10	1.05	0.012	0.0025	1196.12	1195.69	1198.12	5.64	1204.00	5.73
188	0.2391	0.48	1	0.10	1.06	0.012	0.0025	1197.12	1196.62	1198.62	6.23	1205.10	6.25
189	0.1613	0.10	1	0.10	0.38	0.012	0.0025	1197.26	1197.12	1198.76	6.17	1205.18	6.13
190	0.2708	0.46	1	0.10	0.96	0.012	0.0025	1197.94	1197.51	1199.19	6.25	1205.69	6.08
191		FUTURE-ROBINSONS UL											
192	0.3880	0.18	1	0.10	0.22	0.012	0.0535	1198.83	1197.20	1200.08	14.01	1214.34	11.69
193	0.3880	0.40	1	0.10	0.18	0.012	0.0400	1202.99	1198.83	1204.24	13.56	1218.05	14.59
194	0.3880	0.27	1	0.10	0.13	0.012	0.0300	1205.06	1202.99	1206.31	14.01	1220.57	14.98
195	0.0015	0.00	1	0.10	0.78	0.012	0.0300	1207.67	1205.06	1208.92	11.63	1220.80	12.99
196	0.3413	0.39	1	0.10	0.23	0.012	0.0300	1208.51	1205.06	1209.76	13.40	1223.41	14.43
197	0.3537	1.04	1	0.10	0.61	0.012	0.0250	1215.89	1208.51	1217.14	5.62	1223.00	6.59
198	0.1163	0.05	1	0.10	0.17	0.012	0.0068	1208.82	1208.51	1210.07	12.68	1223.00	13.62
199	0.1163	0.07	1	0.10	0.16	0.012	0.0250	1210.42	1208.82	1211.67	11.08	1223.00	12.20
200		FUTURE STORE LL											
201	0.0884	0.12	1	0.10	0.78	0.012	0.0024	1199.61	1199.28	1200.86	5.32	1206.43	6.11
202					ARROWHEAD TOWNE CENTER ONSITE SYSTEM								
203		WEST 1/2 MALL			PENNEYS-DILLARDS LL								
204	0.7165	1.13	1	0.10	0.34	0.012	0.0024	1192.42	1191.98	1194.92	7.73	1202.90	4.26
205	0.5810	1.14	1	0.10	0.55	0.012	0.0024	1193.39	1192.92	1195.39	7.26	1202.90	3.02
206	0.2367	0.44	1	0.10	0.81	0.012	0.0024	1193.83	1193.39	1195.83	10.62	1206.70	6.29
207		PENNEYS LL											
208	0.0390	0.07	1	0.10	2.65	0.012	0.0024	1195.01	1194.59	1196.26	9.69	1206.20	5.62
209	0.0405	0.04	1	0.10	1.31	0.012	0.0024	1195.23	1195.01	1196.48	9.27	1206.00	5.28
210	0.0405	0.00	1	0.10	0.12	0.012	0.0150	1195.35	1195.23	1196.60	9.15	1206.00	5.18
211		DILLARDS-PENNEYS LL											
212	0.8575	0.49	1	0.10	0.16	0.012	0.0024	1194.47	1194.34	1195.97	10.48	1206.70	5.70

ARROWHEAD TOWNE CENTER 100 YEAR STORM REVISED PARCELS A AND G SEPT 1994

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213	0.4834	0.33	1	0.10	0.25	0.012	0.0024	1194.64	1194.47	1196.14	10.05	1206.44	10.14
214	0.2893	0.30	1	0.10	0.21	0.012	0.0300	1198.01	1194.89	1199.26	6.49	1206.00	7.52
215	0.1481	0.05	1	0.10	0.05	0.012	0.1070	1201.75	1198.01	1203.00	2.75	1206.00	3.96
216		DILLARDS LL											
217	0.3413	0.40	1	0.10	0.58	0.012	0.0024	1195.16	1194.89	1196.41	9.13	1205.79	9.00
218	0.1038	0.25	1	0.10	1.36	0.012	0.0024	1195.75	1195.16	1197.00	8.43	1205.68	9.03
219	0.1076	0.08	1	0.10	0.41	0.012	0.0024	1195.93	1195.75	1197.18	8.35	1205.78	8.96
220	0.0037	0.01	1	0.10	2.75	0.012	0.0024	1196.63	1195.93	1197.88	7.87	1206.00	9.07
221	0.0037	0.00	1	0.10	0.33	0.012	0.0024	1196.71	1196.63	1197.96	5.37	1203.58	6.55
222		DILLARDS LL											
223	0.3972	1.21	1	0.10	1.03	0.012	0.0024	1193.65	1192.92	1195.65	6.40	1202.30	2.35
224	0.2742	0.50	1	0.10	0.74	0.012	0.0024	1194.08	1193.65	1196.08	5.97	1202.30	1.75
225	0.1759	0.28	1	0.10	0.83	0.012	0.0024	1194.47	1194.08	1196.47	6.28	1203.00	2.07
226	0.0710	0.10	1	0.10	0.24	0.012	0.0350	1199.50	1194.47	1201.50	1.25	1203.00	1.87
227	0.0824	0.10	1	0.10	0.42	0.012	0.0081	1201.00	1200.00	1202.50	1.25	1204.00	2.43
228		WARDS-DILLARDS UL											
229	1.3154	4.60	1	0.10	0.65	0.012	0.0200	1212.12	1205.00	1213.37	7.83	1221.45	8.49
230	1.3154	1.55	1	0.10	0.30	0.012	0.0100	1213.30	1212.12	1214.55	8.46	1223.26	8.34
231	0.8036	1.61	1	0.10	0.52	0.012	0.0100	1214.12	1212.12	1215.37	7.65	1223.27	8.26
232	0.1163	0.09	1	0.10	0.25	0.012	0.0100	1214.04	1213.30	1215.29	8.09	1223.63	8.52
233	0.1163	0.16	1	0.10	0.34	0.012	0.0238	1217.25	1214.04	1218.50	4.25	1223.00	5.36
234		NORTH AC PARCEL											
235	0.0333	0.03	1	0.10	1.26	0.012	0.0024	1199.19	1198.98	1200.69	12.62	1213.56	12.40
236	0.0372	0.08	1	0.10	2.98	0.012	0.0024	1199.72	1199.19	1201.22	13.06	1214.53	13.19
237	0.0385	0.02	1	0.10	0.67	0.012	0.0024	1199.94	1199.82	1201.44	12.88	1214.57	13.11

VAL-TEC, INC. PROJECT DESIGN SUMMARY

PROJECT NAME_____ PROJECT NUMBER _____

SITE PLAN

OWNER MEETINGS	NO.	DATE	ITEMS	MEMO	ACTION

ARCHICTECT PLAN	TYPE	DATE	ITEMS INCLUDED	STANDARDS	ACTION

SURVEYS	TOPO	DATE	BOUNDARY	DATE	ALTA	DATE

SUBMITTALS	TYPE	DATE	TO	COMMENTS	ACTION

c: DDS9204

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	ARROWHEAD TOWNE CENTER WITH AP A&G @C=0.80						RUN-			FLOW	RAIN			
	FILE:ATC10A.WK4/RPT10A.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	**A**	**C**	**CA**	**CA**	**Tc**	IN/HR	**Q**	CAP.	**Q/Qo**
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	10YR	C.F.S.	**Qo**	%
		OUTFALL TO SKUNK CREEK												
18	MH-45	END		19		NA	NA	0.00	167.03	63.8	1.32	224	188.21	119
19	MH-46	MH-45	18	20	PARADISE LN	1.92	0.85	1.63	167.03	62.9	1.34	224	130.02	172
20	TEE	MH-46	19	21	NVPC SOUTH	28.64	0.80	22.91	165.40	62.8	1.34	222	98.60	225
21	MH-47	TEE	20	22	NVPC NORTH	24.84	0.80	19.87	142.49	60.9	1.38	197	133.36	147
22	**MH-48**	**MH-47**	**21**	**23**	**BELL RD**	**10.49**	**0.9**	**8.92**	**122.62**	**59.2**	**1.42**	**174**	**169.28**	**103**
23	JUNC	MH-48	22	24		NA	NA	0.00	113.70	58.4	1.44	164	161.71	101
24	MATCH	JUNC	23	25		NA	NA	0.00	113.70	58.0	1.44	164	89.52	183
25	TEE146A	MATCH	24	26&27		NA	NA	0.00	113.70	57.6	1.44	164	612.81	27
26	CB-146A	TEE146A	25	NA	DA#90	0.06	0.9	0.05	0.05	30.0	2.40	0	41.59	0
27	TEE146	TEE146A	26	28&30		NA	NA	0.00	113.65	57.6	1.44	164	612.92	27
28	CB-146	TEE146	26	NA	DA#89	0.05	0.9	0.04	0.04	30.0	2.40	0	42.50	0
29		EAST 1/2 MALL			ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE									
30	STR145	TEE146	27	31,32&97	DA#88	NA	NA	43.26	113.61	57.6	1.44	164	664.00	25
31	CB-144	STR145	30	START	DA#87	0.53	0.85	0.45	0.45	30.0	2.40	1	36.49	3
32	TEE143	STR145	30	33&35		NA	NA	0.00	69.90	57.2	1.46	102	162.73	63
33	CB-142	TEE143	32	34	DA#86	0.17	0.85	0.14	0.37	30.3	2.40	1	67.95	1
34	CB-141	CB-142	33	START	DA#85	0.27	0.85	0.23	0.23	30.0	2.40	1	7.00	8
35	MH-140	TEE143	32	36	SHOPS P LL	NA	NA	3.21	69.52	57.0	1.46	102	162.73	62
36	TEE216	MH-140	35	37	AP#G	4.31	0.80	3.45	66.31	56.7	1.46	97	113.46	85
37	MH-136	TEE216	36	38,39	SHOPS P&M UL	NA	NA	3.19	62.86	55.8	1.48	93	115.07	81
38	CB-135	MH-136	37	START	DA#84	0.22	0.85	0.19	0.19	30.0	2.40	0	15.44	3
39	TEE215	MH-136	37	40	AP#G	4.32	0.80	3.46	59.49	55.3	1.50	89	115.51	77
40	MH-126	TEE215	39	41&42		NA	NA	0.00	56.04	54.2	1.52	85	115.07	74
41	CB-125	MH-126	40	START	DA#83	5.24	0.85	4.45	4.45	30.0	2.40	11	15.88	67
42	MH-124	MH-126	40	43	AP#A/M&R LL	5.23	0.80	8.19	51.58	52.9	1.54	79	115.07	69
43	TEE114	MH-124	42	44	SHOPS M&R LL	NA	NA	7.36	43.39	52.3	1.56	68	171.65	39
44	TEE105	TEE114	43	45,46&47		NA	NA	0.00	36.03	52.2	1.56	56	171.65	33

	ARROWHEAD TOWNE CENTER WITH AP A&G @C=0.80						RUN-			FLOW	RAIN			
	FILE:ATC10A.WK4/RPT10A.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	10YR	C.F.S.	Qo	%
45	CB-103	TEE105	44	START	DA#82	0.09	0.85	0.08	0.08	30.0	2.40	0	63.65	0
46	CB-104	TEE105	44	START	DA#79	0.49	0.85	0.42	0.42	30.0	2.40	1	46.18	2
47	MH-102	TEE105	44	48,49&50		NA	NA	0.00	35.53	51.7	1.56	55	109.29	51
48	CB-100	MH-102	47	START	DA#81	0.50	0.85	0.43	0.43	30.0	2.40	1	22.12	5
49	CB-101	MH-102	47	START	DA#79	1.75	0.85	1.49	1.49	30.0	2.40	4	15.88	22
50	TEE213	MH-102	47	51	AP#A	5.24	0.80	4.19	33.62	51.2	1.58	53	171.65	31
51	TEE99	TEE213	50	52,53&54		NA	NA	0.00	29.43	51.1	1.58	46	115.90	40
52	CB-98	TEE99	51	START	DA#80	0.33	0.85	0.28	0.28	30.0	2.40	1	61.74	1
53	CB-97	TEE99	51	START	DA#79	1.75	0.85	1.49	1.49	30.0	2.40	4	27.92	13
54	MH-96	TEE99	51	55		NA	NA	0.00	27.66	50.4	1.60	44	115.90	38
55	TEE212	MH-96	54	56	AP#A	5.24	0.80	4.19	27.66	49.5	1.60	44	115.90	38
56	MH-95	TEE212	55	57,58,61		NA	NA	0.00	23.47	48.9	1.63	38	89.24	43
57	CB-94	MH-95	56	START	DA#78	0.30	0.85	0.26	0.26	30.0	2.40	1	22.12	3
58	CB-93	MH-95	56	59	DA#77	0.43	0.85	0.37	0.75	31.0	2.35	2	20.69	8
59	CB-92	CB-93	58	60	DA#76	0.34	0.85	0.29	0.38	30.6	2.35	1	4.95	18
60	CB-91	CB-92	59	START	DA#75	0.11	0.85	0.09	0.09	30.0	2.40	0	4.95	5
61	TEE211	MH-95	56	62	AP#B	1.81	0.40	0.72	22.47	47.2	1.69	38	89.24	43
62	MH-90	TEE211	61	63,64,65		NA	NA	0.00	21.74	46.6	1.69	37	89.24	41
63	CB-88	MH-90	62	START	DA#74	0.19	0.85	0.16	0.46	30.0	2.40	1	22.12	5
64	CB-89	MH-90	62	START	DA#73	0.35	0.85	0.30	0.30	30.0	2.40	1	15.88	4
65	TEE210	MH-90	62	66	AP#B	1.81	0.40	0.72	21.28	46.4	1.72	37	67.38	54
66	MH-87	TEE210	65	67&69		NA	NA	0.00	20.56	45.3	1.75	36	67.38	53
67	CB-86	MH-87	66	68	DA#72	0.12	0.85	0.10	0.26	30.5	2.35	1	24.29	3
68	CB-85	CB-86	67	START	DA#71	0.19	0.85	0.16	0.16	30.0	2.40	0	4.95	8
69	MH-84	MH-87	66	70	AP#C	2.61	0.40	1.04	20.30	43.8	1.78	36	67.38	54
70	MH-80	MH-84	69	71,72	STORES S&R UL	NA	NA	1.31	19.25	43.0	1.81	35	49.21	71
71	CB-79	MH-80	70	START	DA#70	1.66	0.85	1.41	1.41	30.0	2.40	3	15.88	21
72	TEE208	MH-80	70	72	AP#C	2.62	0.40	1.05	16.54	42.8	1.81	30	49.21	61

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	ARROWHEAD TOWNE CENTER WITH AP A&G @C=0.80						RUN-			FLOW	RAIN			
	FILE:ATC10A.WK4/RPT10A.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	10YR	C.F.S.	Qo	%
73	MH-78	TEE208	72	74&75		NA	NA	0.00	15.49	42.0	1.84	28	49.21	58
74	CB-77	MH-78	73	START	DA#69	1.33	0.85	1.13	1.13	30.0	2.40	3	15.88	17
75	TEE207	MH-78	73	76	AP#C	4.63	0.40	1.85	14.36	41.5	1.87	27	49.21	55
76	MH-76	TEE207	75	77&80		NA	NA	0.00	12.51	40.9	1.87	23	49.21	48
77	CB-75	MH-76	76	78	DA#68	1.18	0.85	1.00	2.79	30.4	2.40	7	7.00	96
78	CB-74	CB-75	77	79	DA#67	1.90	0.85	1.62	1.79	30.3	2.40	4	13.41	32
79	CB-73	CB-74	78	START	DA#66	0.20	0.85	0.17	0.17	30.0	2.40	0	9.89	4
80	MH-72	MH-76	79	81&83		NA	NA	0.00	9.72	38.8	1.95	19	49.21	39
81	CB-71	MH-72	80	82	DA#65	1.19	0.85	1.01	1.19	30.4	2.40	3	15.84	18
82	CB-70	CB-71	81	START	DA#64	0.21	0.85	0.18	0.18	30.0	2.40	0	5.11	8
83	TEE206	MH-72	80	84	AP#D	13.12	0.10	1.31	8.53	38.0	2.00	17	34.47	49
84	MH-69	TEE206	83	85&86		NA	NA	0.00	7.22	37.2	2.05	15	34.47	43
85	CB-68	MH-69	84	START	DA#63	1.67	0.85	1.42	1.42	30.0	2.40	3	15.88	21
86	MH-67	MH-69	84	87		NA	NA	0.00	5.80	36.6	2.05	12	34.47	34
87	MH-66	MH-67	86	88		NA	NA	0.00	5.80	34.0	2.20	13	47.26	27
88	CB-65	MH-66	87	89	DA#21	1.07	0.85	0.91	5.80	33.8	2.20	13	35.40	36
89	CB-64	CB-65	88	90	DA#20	1.07	0.85	0.91	4.89	33.3	2.25	11	21.77	51
90	CB-63	CB-64	89	91	DA#19	2.15	0.85	1.83	3.98	32.6	2.25	9	21.77	41
91	MH-62	CB-63	90	92	STORE S LL	NA	NA	0.61	2.15	32.0	2.30	5	12.00	41
92	CB-60	MH-62	91	93	SW1/4 STORE S	0.34	0.90	0.31	1.54	31.1	2.35	4	5.57	65
93	CB-59	CB-60	92	94	DA #18	0.33	0.90	0.30	1.23	30.4	2.40	3	5.57	53
94	CB-59B	CB-59	93	95	DA #18B	0.32	0.90	0.29	0.94	30.2	2.40	2	3.43	66
95	**PLUG**	**CB-59B**	**97**	**START**	**MALL**	**0.72**	**0.90**	**0.65**	**0.65**	**30.0**	2.40	**2**	**3.43**	**45**
96		WEST 1/2	MALL		ARROWHEAD TOWNE CENTER RING				ROAD TRUNK LINE					
97	TEE59	STR145	30	98,99&100		NA	NA	0.00	43.26	45.9	1.72	74	106.53	70
98	CB-58	TEE59	97	START	DA#62	0.76	0.85	0.65	0.65	30.0	2.40	2	22.12	7
99	CB-57	TEE59	97	START	DA#61	0.27	0.85	0.23	0.23	30.0	2.40	1	15.88	3
100	MH-56	TEE59	97	100	SHOPS P&D LL	NA	NA	11.47	42.39	45.6	1.72	73	106.53	68

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	ARROWHEAD TOWNE CENTER WITH AP A&G @C=0.80						RUN-			FLOW	RAIN			
	FILE:ATC10A.WK4/RPT10A.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	10YR	C.F.S.	Qo	%
101	TEE200	MH-56	100	102	AP #G	4.75	0.80	3.80	30.92	45.4	1.75	54	106.53	51
102	MH-40	TEE200	101	103,104,105		NA	NA	0.00	27.12	44.1	1.78	48	106.53	45
103	CB-39	MH-40	102	START	DA#60	0.76	0.85	0.65	0.65	30.0	2.40	2	22.12	7
104	CB-38	MH-40	102	START	DA#59	0.43	0.85	0.37	0.37	30.0	2.40	1	15.88	6
105	TEE201	MH-40	102	105	AP#F	2.12	0.40	0.85	26.10	42.8	1.81	47	67.38	70
106	MH-37	TEE201	105	106		NA	NA	0.00	25.26	42.7	1.81	46	67.38	68
107	TEE202	MH-37	106	107	AP #F	2.13	0.40	0.85	25.26	42.4	1.84	46	67.38	69
108	MH-36	TEE202	107	109,110,111		NA	NA	0.00	24.40	41.2	1.87	46	67.38	68
109	CB-35	MH-36	108	110	DA#58	0.15	0.85	0.13	0.26	30.6	2.35	1	4.95	12
110	CB-34	CB-35	109	START	DA#57	0.15	0.85	0.13	0.13	30.0	2.40	0	4.95	6
111	MH-33	MH-36	108	**********		NA	NA	0.00	24.15	40.7	1.87	45	77.82	58
112	CB-32	MH-33	111	START	DA#56	0.30	0.85	0.26	0.26	30.0	2.40	1	22.12	3
113	CB-31	MH-33	111	START	DA#55	0.26	0.85	0.22	0.22	30.0	2.40	1	15.88	3
114	TEE203	MH-33	111	115	AP #E	1.86	0.40	0.74	23.67	40.4	1.90	45	79.36	57
115	TEE204	TEE203	114	116	AP #E	1.85	0.40	0.74	22.93	39.7	1.90	44	79.36	55
116	MH-30	TEE204	115	117&118	STORES W&D UL	NA	NA	2.40	22.19	39.5	1.90	42	79.36	53
117	CB-25	MH-30	116	START	DA#54	2.02	0.85	1.72	1.72	30.0	2.40	4	15.68	26
118	TEE205	MH-30	116	119	AP #E	3.71	0.40	1.48	18.07	38.8	1.95	35	79.36	44
119	MH-24	TEE205	118	120&121		NA	NA	0.00	16.59	38.6	1.95	32	73.00	44
120	CB-23	MH-24	119	START	DA#53	2.63	0.85	2.24	2.24	30.0	2.40	5	15.88	34
121	MH-22	MH-24	119	122&125		NA	NA	0.00	14.35	37.5	2.00	29	73.00	39
122	CB-21	MH-22	121	123	DA#52	0.16	0.85	0.14	1.17	30.5	2.40	3	21.00	13
123	CB-20	CB-21	122	124	DA#51	0.17	0.85	0.14	1.04	30.3	2.40	2	4.95	50
124	CB-19	CB-20	123	START	DA#50	1.05	0.85	0.89	0.89	30.0	2.40	2	4.95	43
125	TEE217	MH-22	121	126	AP #D	6.56	0.10	0.66	13.18	36.9	2.05	27	77.82	35
126	MH-18	TEE217	125	127&128		NA	NA	0.00	12.52	36.5	2.10	26	76.24	34
127	CB-17	MH-18	126	START	DA#49	2.14	0.85	1.82	1.82	30.0	2.40	4	15.88	27
128	MH-16	MH-18	126	129-131	WARDS LL	NA	NA	0.66	10.70	35.6	2.10	22	76.24	29

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	ARROWHEAD TOWNE CENTER WITH AP A&G @C=0.80						RUN-			FLOW	RAIN			
	FILE:ATC10A.WK4/RPT10A.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	**A**	**C**	**CA**	**CA**	**Tc**	IN/HR	**Q**	CAP.	**Q/Qo**
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	10YR	C.F.S.	**Qo**	%
129	CB-15A	MH-16	128	START	DA#48	0.22	0.85	0.19	0.19	30.0	2.40	0	22.12	2
130	CB-15	MH-16	128	START	DA#47	0.19	0.85	0.16	0.16	30.0	2.40	0	6.91	6
131	TEE-13A	MH-16	128	132&133		NA	NA	0.00	9.69	35.2	2.15	21	76.24	27
132	CB-13A	TEE-13A	131	START	DA#7	0.31	0.85	0.26	0.26	30.0	2.40	1	46.87	1
133	TEE-10	TEE-13A	131	134&135		NA	NA	0.00	9.43	34.6	2.15	20	76.24	27
134	CB-10	TEE-10	133	START	TBA & DA # 6	0.67	0.85	0.57	0.57	30.0	2.40	1	171.37	1
135	MH-09	TEE-10	133	136		NA	NA	0.00	8.86	33.9	2.20	19	76.24	26
136	CB-08	MH-09	135	137&139	DA # 5	4.17	0.85	3.54	8.86	33.4	2.25	20	76.24	26
137	CB-06	CB-08	136	138	DA # 4	0.60	0.85	0.51	2.04	30.6	2.35	5	11.03	43
138	CB-05	CB-06	136	START	DA # 3	1.80	0.85	1.53	1.53	30.0	2.40	4	3.43	107
139	MH-07	CB-08	136	140&142		NA	NA	0.00	3.28	32.8	2.25	7	12.00	61
140	MH-04	MH-07	139	141	1/3 CINEMA	0.30	0.90	0.27	1.24	31.4	2.35	3	3.43	85
141	CB-04A	MH-04	139	START	MALL & DA # 2	1.08	0.90	0.97	0.97	30.0	2.40	2	3.43	68
142	MH-03	MH-07	139	142&144	2/3 CINEMA	0.60	0.90	0.54	2.03	32.3	2.30	5	5.57	84
143	MH-02	MH-03	142	START	E1/2 STORE W	0.64	0.90	0.58	0.58	30.0	2.40	1	3.43	40
144	MH-01	MH-03	142	145&146		NA	NA	0.00	0.92	30.7	2.35	2	3.43	63
145	P-01A	MH-01	144	START	MALL	0.65	0.90	0.59	0.59	30.0	2.40	1	3.43	41
146	**CB-01**	**MH-01**	**144**	**START**	**DA # 1**	**0.37**	**0.90**	**0.33**	**0.33**	**30.0**	2.40	**1**	**3.43**	**23**

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d	F/F
			OUTFALL TO SKUNK CREEK												
18	96	823	2213	82	-1.4	-2.2	OUTLET	5.78	0.0009	0.0013	6.92	6.56	5.84	6.20	5.8
19	84	314	0	104	0.3	0.0	PIPE FULL	5.82	0.0008	0.0012	7.00	7.00	7.00	7.00	5.8
20	84	42	-0	104	0.3	0.2	PIPE FULL	5.76	-0.0002	0.0000	7.00	7.00	7.00	7.00	5.8
21	84	574	-0	108	0.6	0.3	PIPE FULL	5.11	-0.0004	0.0000	7.00	7.00	7.00	7.00	5.1
22	**84**	**456**	**-0**	**109**	**0.6**	**0.6**	**PIPE FULL**	**4.52**	**-0.0007**	**0.0000**	**7.00**	**7.00**	**7.00**	**7.00**	**4.5**
23	84	203	-0	109	0.6	0.6	PIPE FULL	4.25	-0.0006	0.0000	7.00	7.00	7.00	7.00	4.3
24	66	183	-0	146	2.5	2.2	PIPE FULL	6.89	-0.0007	0.0000	5.50	5.50	5.50	5.50	6.9
25	66	216	-0	35	-3.6	2.6	PARTIAL	9.66	-0.0333	0.0000	5.50	1.93	5.50	3.71	6.9
26	15	23	-2	5	-1.2	-1.2	PARTIAL	0.68	-0.3535	0.0000	0.66	0.06	0.06	0.06	5.3
27	66	13	-2	39	-3.3	-2.9	PARTIAL	17.25	-0.0208	0.0125	4.03	2.15	2.55	2.35	15.3
28	15	22	-2	5	-1.2	-1.2	PARTIAL	0.69	-0.3691	0.0000	0.66	0.06	0.06	0.06	4.4
29			EAST 1/2 MALL		ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE										
30	66	23	-18	92	-0.4	-2.8	PARTIAL	10.04	-0.0237	0.0096	4.11	5.08	2.72	3.90	14.1
31	15	20	4	12	-1.1	-1.1	PARTIAL	5.59	-0.2710	0.0010	0.71	0.14	0.17	0.16	11.5
32	66	99	-573	87	-0.7	-0.6	PARTIAL	4.64	-0.0009	0.0011	5.21	4.80	4.92	4.86	4.6
33	15	9	-0	10	-1.1	1.5	PARTIAL	5.20	-0.9433	0.0000	1.25	0.13	1.25	0.69	0.7
34	15	48	-83	18	-1.0	-1.0	PARTIAL	2.98	-0.0098	0.0002	0.74	0.23	0.23	0.23	3.7
35	66	60	-597	88	-0.7	-0.6	PARTIAL	4.57	-0.0009	0.0011	5.20	4.82	4.90	4.86	4.5
36	66	72	-19503	89	-0.6	-0.6	PARTIAL	4.28	-0.0000	0.0009	5.21	4.90	4.92	4.91	4.3
37	66	216	-2875	90	-0.6	-0.5	PARTIAL	4.11	-0.0002	0.0008	5.25	4.93	5.00	4.97	4.1
38	15	39	-11	12	-1.1	-1.1	PARTIAL	2.37	-0.0485	0.0002	0.70	0.14	0.14	0.14	6.1
39	66	129	-1841	90	-0.5	-0.5	PARTIAL	3.94	-0.0002	0.0008	5.26	4.97	5.03	5.00	3.9
40	66	249	-1273	90	-0.5	-0.4	PARTIAL	3.76	-0.0003	0.0007	5.29	4.96	5.07	5.02	3.7
41	15	39	-82	59	-0.5	-0.5	PARTIAL	13.85	0.0176	0.0692	0.99	0.74	0.74	0.74	14.2
42	66	284	-1041	89	-0.6	-0.4	PARTIAL	3.51	-0.0004	0.0006	5.28	4.92	5.06	4.99	3.5
43	60	111	-0	93	-0.3	0.0	PARTIAL	3.45	-0.0037	0.0000	5.00	4.67	5.00	4.83	3.4
44	60	20	-70	94	-0.3	-0.2	PARTIAL	2.92	-0.0033	0.0004	4.88	4.71	4.77	4.74	2.9

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK-	INLET	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d	F/F
45	15	9	-0	5	-1.2	0.9	PARTIAL	1.04	-0.8278	0.0000	1.25	0.06	1.25	0.66	0.1
46	18	46	-0	11	-1.3	0.8	PARTIAL	4.91	-0.1648	0.0000	1.50	0.17	1.50	0.84	0.6
47	60	96	-177	90	-0.5	-0.2	PARTIAL	2.91	-0.0011	0.0004	4.90	4.48	4.81	4.65	2.9
48	15	6	4	15	-1.1	-1.1	PARTIAL	6.78	-0.0991	0.0009	0.72	0.18	0.18	0.18	9.8
49	15	39	25	31	-0.9	-0.9	PARTIAL	9.71	-0.0433	0.0082	0.82	0.39	0.39	0.39	11.5
50	60	69	-124	87	-0.7	-0.4	PARTIAL	2.84	-0.0033	0.0004	4.79	4.35	4.58	4.47	2.8
51	60	27	-408	88	-0.6	-0.6	PARTIAL	2.49	-0.0013	0.0004	4.72	4.41	4.45	4.43	2.5
52	15	9	-0	10	-1.1	1.1	PARTIAL	4.73	-0.7789	0.0000	1.25	0.13	1.25	0.69	0.5
53	15	44	-0	24	-0.9	1.1	PARTIAL	14.47	-0.1593	0.0000	1.25	0.30	1.25	0.78	2.9
54	60	91	-352	88	-0.6	-0.5	PARTIAL	2.41	-0.0014	0.0003	4.76	4.38	4.51	4.44	2.4
55	60	131	-551	83	-0.8	-0.7	PARTIAL	2.46	-0.0013	0.0004	4.63	4.16	4.26	4.21	2.5
56	60	88	-1005	84	-0.8	-0.7	PARTIAL	2.24	-0.0007	0.0003	4.63	4.20	4.26	4.23	2.1
57	15	16	-0	12	-1.1	-1.1	PARTIAL	3.39	-0.0996	0.0004	0.70	0.14	0.14	0.14	8.3
58	15	67	-6	20	-1.0	-0.7	PARTIAL	9.24	-0.0857	0.0018	0.90	0.24	0.55	0.40	3.5
59	15	80	-167	29	-0.9	-0.9	PARTIAL	2.94	-0.0045	0.0005	0.81	0.37	0.37	0.37	3.0
60	15	54	-157	16	-1.1	-0.8	PARTIAL	1.52	-0.0050	0.0000	0.86	0.20	0.47	0.33	0.5
61	60	217	-943	82	-0.9	-0.7	PARTIAL	2.17	-0.0007	0.0003	4.65	4.12	4.30	4.21	2.1
62	60	74	-1045	83	-0.9	-0.8	PARTIAL	2.06	-0.0007	0.0003	4.61	4.15	4.22	4.18	2.1
63	15	5	7	15	-1.1	-1.1	PARTIAL	6.78	-0.0989	0.0011	0.72	0.18	0.18	0.18	10.6
64	15	39	-7	15	-1.1	-1.1	PARTIAL	4.87	-0.0511	0.0005	0.72	0.18	0.18	0.18	6.8
65	54	30	-1377	83	-0.8	-0.8	PARTIAL	2.62	-0.0005	0.0005	4.12	3.73	3.75	3.74	2.6
66	54	180	-1154	82	-0.8	-0.7	PARTIAL	2.53	-0.0006	0.0004	4.16	3.70	3.83	3.76	2.5
67	15	75	-0	12	-1.1	0.9	PARTIAL	3.72	-0.1205	0.0000	1.25	0.14	1.25	0.70	0.5
68	15	68	807	18	-1.0	-1.0	PARTIAL	2.10	-0.0049	0.0001	0.75	0.23	0.24	0.24	17.8
69	54	220	-1225	81	-0.9	-0.7	PARTIAL	2.61	-0.0006	0.0004	4.15	3.64	3.80	3.72	2.5
70	48	164	-4896	79	-0.8	-0.8	PARTIAL	3.19	-0.0001	0.0009	3.62	3.16	3.24	3.20	3.2
71	15	39	20	31	-0.9	-0.9	PARTIAL	9.71	-0.0441	0.0074	0.82	0.39	0.39	0.39	10.9
72	48	39	-1856	81	-0.8	-0.7	PARTIAL	2.74	-0.0004	0.0006	3.63	3.24	3.26	3.25	2.7

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d	F/F
73	48	115	-1366	81	-0.7	-0.7	PARTIAL	2.61	-0.0005	0.0005	3.67	3.26	3.34	3.30	2.6
74	15	39	10	29	-0.9	-0.9	PARTIAL	9.32	-0.0465	0.0050	0.80	0.36	0.36	0.36	9.6
75	48	82	-1167	83	-0.7	-0.6	PARTIAL	2.41	-0.0005	0.0005	3.68	3.30	3.36	3.33	2.4
76	48	73	-892	84	-0.7	-0.6	PARTIAL	2.08	-0.0007	0.0003	3.70	3.35	3.40	3.37	2.1
77	15	33	10	77	-0.3	-0.3	PARTIAL	6.56	0.0076	0.0176	1.11	0.96	0.96	0.96	6.6
78	15	83	-5	38	-0.8	-0.2	PARTIAL	9.29	-0.0311	0.0057	1.16	0.47	1.06	0.77	3.9
79	15	51	-34	15	-1.1	-0.7	PARTIAL	3.03	-0.0199	0.0001	0.91	0.18	0.57	0.38	0.8
80	48	206	-696	82	-0.7	-0.6	PARTIAL	1.66	-0.0008	0.0002	3.72	3.27	3.45	3.36	1.6
81	15	39	11	29	-0.9	-0.9	PARTIAL	9.42	-0.0459	0.0054	0.81	0.37	0.37	0.37	9.7
82	15	58	-147	20	-1.0	-0.8	PARTIAL	2.28	-0.0052	0.0001	0.86	0.24	0.47	0.36	1.0
83	42	97	-1035	80	-0.7	-0.6	PARTIAL	1.99	-0.0006	0.0004	3.18	2.79	2.87	2.83	2.0
84	42	80	-851	81	-0.7	-0.6	PARTIAL	1.77	-0.0007	0.0003	3.20	2.84	2.89	2.86	1.8
85	15	39	20	31	-0.9	-0.9	PARTIAL	9.71	-0.0440	0.0075	0.82	0.39	0.39	0.39	11.0
86	42	53	-683	82	-0.6	-0.6	PARTIAL	1.38	-0.0008	0.0002	3.22	2.88	2.94	2.91	1.4
87	42	249	-305	73	-0.9	-0.5	PARTIAL	1.58	-0.0017	0.0002	3.24	2.56	2.98	2.77	1.5
88	36	26	-473	70	-0.9	-0.8	PARTIAL	2.36	-0.0017	0.0007	2.58	2.11	2.16	2.13	2.4
89	30	100	-843	61	-1.0	-0.8	PARTIAL	3.27	-0.0009	0.0015	2.10	1.53	1.71	1.62	3.1
90	30	113	-642	56	-1.1	-0.9	PARTIAL	2.92	-0.0013	0.0011	2.06	1.40	1.63	1.51	2.7
91	24	125	-1692	45	-1.1	-1.0	PARTIAL	3.34	-0.0005	0.0019	1.50	0.90	1.00	0.95	3.1
92	18	163	541	70	-0.4	-0.6	PARTIAL	2.97	0.0009	0.0033	1.20	1.05	0.90	0.98	3.3
93	18	94	-299	66	-0.5	-0.3	PARTIAL	2.18	-0.0011	0.0013	1.33	0.99	1.15	1.07	2.1
94	15	27	-600	74	-0.3	-0.3	PARTIAL	2.29	-0.0004	0.0020	1.11	0.92	0.97	0.94	2.2
95	**15**	**15**	-139	**80**	**-0.2**	**-0.2**	**PARTIAL**	1.52	-0.0016	0.0008	**1.14**	1.00	1.02	**1.01**	1.5
96			WEST 1/2 MALL			ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE									
97	54	94	-0	100	0.3	0.4	PIPE FULL	4.68	-0.0025	0.0000	4.50	4.50	4.50	4.50	4.7
98	15	7	-0	205	1.3	2.0	PIPE FULL	1.26	-0.1000	0.0000	1.25	1.25	1.25	1.25	1.3
99	15	39	-0	100	0.0	2.0	PIPE FULL	0.45	-0.0515	0.0000	1.25	1.25	1.25	1.25	0.4
100	54	79	-0	100	0.3	0.4	PIPE FULL	4.58	-0.0025	0.0000	4.50	4.50	4.50	4.50	4.6

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d	F/F
101	54	43	-0	100	0.3	0.4	PIPE FULL	3.40	-0.0025	0.0000	4.50	4.50	4.50	4.50	3.4
102	54	232	-0	100	-0.0	0.4	PARTIAL	3.03	-0.0025	0.0000	4.50	4.45	4.50	4.48	3.0
103	15	6	6	18	-1.0	-1.0	PARTIAL	9.41	-0.0981	0.0019	0.74	0.23	0.23	0.23	10.3
104	15	39	-3	16	-1.1	-1.1	PARTIAL	6.08	-0.0509	0.0007	0.72	0.20	0.20	0.20	7.6
105	54	226	-0	100	-0.1	0.1	PARTIAL	2.97	-0.0010	0.0000	4.50	4.43	4.50	4.47	3.0
106	54	15	-0	100	0.0	0.0	PIPE FULL	2.87	-0.0010	0.0000	4.50	4.50	4.50	4.50	2.9
107	54	65	-0	100	0.1	0.1	PIPE FULL	2.92	-0.0010	0.0000	4.50	4.50	4.50	4.50	2.9
108	54	206	-0	100	0.1	0.2	PIPE FULL	2.87	-0.0010	0.0000	4.50	4.50	4.50	4.50	2.9
109	15	75	-178	24	-0.9	-0.9	PARTIAL	2.56	-0.0047	0.0003	0.78	0.30	0.30	0.30	2.6
110	15	68	-170	17	-1.0	-0.8	PARTIAL	2.00	-0.0049	0.0001	0.83	0.21	0.40	0.31	0.9
111	48	123	-448	100	-0.8	-0.6	PARTIAL	4.06	-0.0012	0.0013	3.70	3.20	3.41	3.30	4.0
112	15	12	-0	12	-1.1	-1.1	PARTIAL	3.39	-0.0996	0.0004	0.70	0.14	0.14	0.14	8.3
113	15	39	-9	13	-1.1	-1.1	PARTIAL	3.65	-0.0513	0.0003	0.71	0.16	0.16	0.16	6.4
114	48	68	-517	100	-0.8	-0.7	PARTIAL	4.12	-0.0012	0.0014	3.65	3.17	3.30	3.23	4.1
115	48	175	-520	100	-1.1	-0.7	PARTIAL	4.16	-0.0013	0.0013	3.63	2.91	3.27	3.09	4.0
116	48	37	-796	100	-1.1	-1.0	PARTIAL	4.19	-0.0011	0.0015	3.51	2.93	3.01	2.97	4.2
117	15	38	21	100	-0.8	-0.8	PARTIAL	10.48	-0.0396	0.0107	0.84	0.44	0.44	0.44	10.8
118	48	164	-572	100	-1.3	-1.0	PARTIAL	3.65	-0.0016	0.0010	3.52	2.73	3.03	2.88	3.5
119	48	29	-918	100	-1.2	-1.2	PARTIAL	3.45	-0.0012	0.0010	3.41	2.78	2.83	2.80	3.4
120	15	39	46	100	-0.8	-0.8	PARTIAL	11.00	-0.0339	0.0176	0.86	0.47	0.47	0.47	13.0
121	48	219	-739	100	-1.5	-1.1	PARTIAL	3.20	-0.0014	0.0008	3.44	2.46	2.88	2.67	3.0
122	15	73	16	100	-0.9	-0.9	PARTIAL	11.19	-0.0843	0.0058	0.78	0.31	0.31	0.31	12.4
123	15	57	-280	50	-0.6	-0.6	PARTIAL	4.03	-0.0016	0.0034	0.94	0.63	0.63	0.63	4.1
124	15	58	-186	45	-0.7	-0.5	PARTIAL	3.75	-0.0023	0.0027	0.99	0.56	0.72	0.64	3.0
125	48	128	-828	100	-1.7	-1.4	PARTIAL	3.44	-0.0016	0.0009	3.28	2.28	2.56	2.42	3.2
126	48	91	-1042	54	-1.8	-1.6	PARTIAL	3.56	-0.0014	0.0010	3.19	2.18	2.38	2.28	3.4
127	15	39	26	100	-0.8	-0.8	PARTIAL	10.61	-0.0396	0.0120	0.84	0.44	0.44	0.44	11.4
128	48	177	-991	47	-2.1	-1.7	PARTIAL	3.45	-0.0016	0.0008	3.14	1.89	2.28	2.09	3.1

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK-	INLET	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d	F/F
129	15	7	-5	12	-1.1	-1.1	PARTIAL	3.39	-0.0998	0.0002	0.70	0.14	0.14	0.14	6.1
130	15	39	-91	16	-1.1	-1.1	PARTIAL	2.64	-0.0096	0.0001	0.72	0.20	0.20	0.20	3.4
131	48	92	-1313	42	-2.3	-2.1	PARTIAL	3.83	-0.0015	0.0009	2.95	1.69	1.89	1.79	3.6
132	15	26	-2	10	-1.1	-0.8	PARTIAL	3.59	-0.4486	0.0003	0.83	0.13	0.41	0.27	1.9
133	48	165	-1399	35	-2.6	-2.2	PARTIAL	4.31	-0.0014	0.0010	2.90	1.42	1.79	1.60	3.8
134	15	10	9	5	-1.2	-1.2	PARTIAL	2.79	-5.9979	0.0021	0.66	0.06	0.06	0.06	59.5
135	48	182	-1735	35	-2.6	-2.5	PARTIAL	4.81	-0.0013	0.0011	2.76	1.40	1.52	1.46	4.6
136	48	169	-2103	35	-2.6	-2.6	PARTIAL	5.08	-0.0011	0.0013	2.70	1.40	1.40	1.40	5.1
137	18	186	722	49	-0.8	-0.8	PARTIAL	5.81	0.0005	0.0099	1.09	0.73	0.68	0.70	6.2
138	15	113	0	100	0.0	0.0	PARTIAL	2.99	0.0004	0.0028	1.25	1.25	1.25	1.25	3.0
139	24	129	693	62	-0.8	-0.9	PARTIAL	3.75	0.0010	0.0034	1.56	1.25	1.12	1.18	4.2
140	15	225	182	71	-0.4	-0.4	PARTIAL	2.38	0.0016	0.0040	1.07	0.89	0.89	0.89	3.2
141	15	247	-610	59	-0.5	-0.3	PARTIAL	2.99	-0.0004	0.0020	1.12	0.74	0.99	0.86	2.3
142	18	95	755	85	-0.2	-0.3	PARTIAL	3.04	0.0003	0.0027	1.37	1.28	1.25	1.26	3.0
143	15	200	-0	68	-0.4	0.0	PARTIAL	2.60	-0.0024	0.0000	1.25	0.85	1.25	1.05	1.1
144	15	185	-0	81	-0.2	0.0	PARTIAL	1.93	-0.0024	0.0000	1.25	1.01	1.25	1.13	1.8
145	15	52	-73	80	-0.2	-0.1	PARTIAL	1.26	-0.0019	0.0005	1.18	1.00	1.11	1.06	1.2
146	**15**	**15**	-62	**86**	**-0.2**	**-0.1**	**PARTIAL**	0.72	-0.0022	0.0002	**1.18**	1.07	1.11	**1.09**	0.7

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	**DESIGN**			**DESIGN**	**DESIGN**	**DESIGN**
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
		OUTFALL TO SKUNK CREEK											
18	5.4	4.5	3.7	1186.2	NA	1186.2	1185.6	DRAWDOWN	NA	NA	(D+Dc)/2+INV	1186.21	1185.14
19	5.8	5.8	3.4	NA	1186.8	1186.8	1187.0	TAILWATER	1186.7	1186.2	FLOW DEPTH	1187.04	1186.65
20	5.8	5.8	2.6	NA	1186.8	1186.8	1187.1	TAILWATER	1186.8	1187.0	TAILWATER	1187.09	1187.04
21	5.1	5.1	3.5	NA	1187.1	1187.1	1187.6	TAILWATER	1186.8	1187.1	TAILWATER	1187.63	1187.09
22	**4.5**	**4.5**	**4.4**	**NA**	**1187.4**	**1187.4**	**1188.0**	**TAILWATER**	**1187.1**	**1187.6**	**TAILWATER**	**1187.98**	**1187.64**
23	4.3	4.3	4.2	NA	1187.5	1187.5	1188.1	TAILWATER	1187.4	1188.0	TAILWATER	1188.11	1187.98
24	6.9	6.9	3.8	NA	1186.2	1186.2	1188.7	TAILWATER	1186.0	1188.2	TAILWATER	1188.66	1188.22
25	9.7	6.9	21.2	NA	1189.8	1189.8	1189.3	FLOW DEPTH	1182.6	1188.8	TAILWATER	1189.77	1188.78
26	5.3	0.1	0.7	NA	1199.8	1199.8	1191.7	FLOW DEPTH	1191.7	1189.9	FLOW DEPTH	1199.81	1191.68
27	17.3	6.9	21.2	NA	1190.2	1190.2	1190.4	TAILWATER	1189.8	1190.4	TAILWATER	1190.42	1190.39
28	4.4	0.1	0.7	NA	1199.8	1199.8	1191.7	FLOW DEPTH	1191.7	1190.5	FLOW DEPTH	1199.81	1191.69
29		EAST 1/2 MALL				ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE							
30	9.2	6.9	10.0	NA	1194.1	1194.1	1191.0	FLOW DEPTH	1190.0	1191.0	TAILWATER	1194.14	1190.99
31	13.0	0.9	5.6	NA	1199.9	1199.9	1194.5	FLOW DEPTH	1194.5	1194.5	TAILWATER	1199.89	1194.48
32	4.6	4.3	7.2	NA	1192.8	1192.8	1194.6	TAILWATER	1192.6	1194.5	TAILWATER	1194.56	1194.48
33	1.3	0.7	5.2	NA	1200.5	1200.5	1194.7	FLOW DEPTH	1192.0	1194.7	TAILWATER	1200.51	1194.66
34	3.7	0.4	3.0	NA	1201.1	1201.1	1200.6	FLOW DEPTH	1200.6	1200.6	FLOW DEPTH	1201.09	1200.61
35	4.6	4.3	7.2	NA	1193.0	1193.0	1194.7	TAILWATER	1192.8	1194.7	TAILWATER	1194.70	1194.66
36	4.3	4.1	5.4	NA	1193.9	1193.9	1194.9	TAILWATER	1193.8	1194.8	TAILWATER	1194.85	1194.80
37	4.1	3.9	5.4	NA	1193.9	1193.9	1195.1	TAILWATER	1193.6	1195.0	TAILWATER	1195.10	1194.95
38	6.1	0.4	2.4	NA	1205.7	1205.7	1203.8	FLOW DEPTH	1203.8	1195.2	FLOW DEPTH	1205.69	1203.79
39	4.0	3.8	5.3	NA	1193.9	1193.9	1195.3	TAILWATER	1193.7	1195.2	TAILWATER	1195.27	1195.20
40	3.8	3.6	5.3	NA	1194.0	1194.0	1195.5	TAILWATER	1193.7	1195.4	TAILWATER	1195.51	1195.37
41	14.2	8.7	13.8	NA	1204.9	1204.9	1203.8	FLOW DEPTH	1202.9	1195.6	FLOW DEPTH	1204.91	1202.90
42	3.5	3.3	5.2	NA	1194.1	1194.1	1195.7	TAILWATER	1193.8	1195.6	TAILWATER	1195.75	1195.61
43	3.5	3.4	7.9	NA	1193.3	1193.3	1195.9	TAILWATER	1192.9	1195.8	TAILWATER	1195.91	1195.85
44	2.9	2.9	7.4	NA	1193.2	1193.2	1196.0	TAILWATER	1193.1	1196.0	TAILWATER	1196.02	1196.01

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

LINE No.	FLOW d/D V F/F	FLOW Q/A V F/F	% Q/Qo V F/F	BK-WTR INLET CNTRL HGL	Q/Qo INLET CNTRL HGL	HIGHER FLOW DEPTH HGL	TW+Hf TAIL-WATER HGL	DESIGN INLET HGL CONTROL	Q/Qo OUTLET HGL	TW+Hm OUTLET HGL	DESIGN OUTLET HGL CONTROL	DESIGN INLET HGL ELEV	DESIGN OUTLET HGL ELEV
45	0.3	0.1	1.0	NA	1201.5	1201.5	1196.1	FLOW DEPTH	1194.0	1196.1	TAILWATER	1201.46	1196.12
46	1.0	0.6	4.9	NA	1201.6	1201.6	1196.1	FLOW DEPTH	1194.0	1196.1	TAILWATER	1201.57	1196.12
47	2.9	2.8	5.6	NA	1194.2	1194.2	1196.2	TAILWATER	1193.8	1196.1	TAILWATER	1196.15	1196.12
48	9.8	0.8	6.8	NA	1200.9	1200.9	1200.3	FLOW DEPTH	1200.3	1196.3	FLOW DEPTH	1200.93	1200.33
49	11.5	2.9	9.7	NA	1201.1	1201.1	1199.2	FLOW DEPTH	1199.1	1196.3	FLOW DEPTH	1201.14	1199.13
50	2.9	2.7	7.4	NA	1193.8	1193.8	1196.3	TAILWATER	1193.6	1196.3	TAILWATER	1196.28	1196.25
51	2.5	2.4	5.5	NA	1194.2	1194.2	1196.4	TAILWATER	1194.2	1196.4	TAILWATER	1196.39	1196.38
52	1.0	0.5	4.7	NA	1201.3	1201.3	1196.5	FLOW DEPTH	1194.3	1196.5	TAILWATER	1201.27	1196.49
53	4.5	2.9	14.5	NA	1201.4	1201.4	1196.6	FLOW DEPTH	1194.4	1196.5	TAILWATER	1201.44	1196.49
54	2.4	2.3	5.3	NA	1194.2	1194.2	1196.5	TAILWATER	1194.1	1196.5	TAILWATER	1196.51	1196.49
55	2.5	2.3	5.3	NA	1194.6	1194.6	1196.6	TAILWATER	1194.5	1196.6	TAILWATER	1196.64	1196.61
56	2.2	1.9	4.2	NA	1194.8	1194.8	1196.8	TAILWATER	1194.7	1196.7	TAILWATER	1196.76	1196.74
57	8.3	0.5	3.4	NA	1202.5	1202.5	1200.9	FLOW DEPTH	1200.9	1196.9	FLOW DEPTH	1202.54	1200.94
58	5.4	1.4	9.2	NA	1202.4	1202.4	1196.9	FLOW DEPTH	1196.6	1196.9	TAILWATER	1202.42	1196.86
59	3.0	0.7	2.9	NA	1202.9	1202.9	1202.6	FLOW DEPTH	1202.5	1202.5	FLOW DEPTH	1202.94	1202.54
60	0.9	0.2	1.5	NA	1203.0	1203.0	1203.0	TAILWATER	1202.8	1203.0	TAILWATER	1203.04	1203.04
61	2.2	1.9	4.2	NA	1195.0	1195.0	1196.9	TAILWATER	1194.8	1196.9	TAILWATER	1196.90	1196.86
62	2.1	1.9	4.2	NA	1195.1	1195.1	1197.0	TAILWATER	1195.0	1197.0	TAILWATER	1197.01	1197.00
63	10.6	0.9	6.8	1203.3	1203.8	1203.8	1203.3	FLOW DEPTH	1203.3	1197.1	FLOW DEPTH	1203.76	1203.26
64	6.8	0.6	4.9	NA	1203.8	1203.8	1201.8	FLOW DEPTH	1201.8	1197.1	FLOW DEPTH	1203.76	1201.75
65	2.6	2.3	4.2	NA	1195.6	1195.6	1197.1	TAILWATER	1195.6	1197.1	TAILWATER	1197.12	1197.11
66	2.5	2.3	4.2	NA	1195.8	1195.8	1197.3	TAILWATER	1195.6	1197.2	TAILWATER	1197.27	1197.22
67	0.9	0.5	3.7	NA	1204.4	1204.4	1197.4	FLOW DEPTH	1195.3	1197.4	TAILWATER	1204.38	1197.37
68	2.6	0.3	2.1	1204.5	1204.8	1204.8	1204.5	FLOW DEPTH	1204.5	1204.5	TAILWATER	1204.81	1204.48
69	2.6	2.3	4.2	NA	1196.0	1196.0	1197.4	TAILWATER	1195.8	1197.4	TAILWATER	1197.43	1197.37
70	3.2	2.8	4.3	NA	1196.9	1196.9	1197.6	TAILWATER	1196.8	1197.5	TAILWATER	1197.61	1197.53
71	10.9	2.8	9.7	NA	1210.1	1210.1	1208.2	FLOW DEPTH	1208.1	1197.7	FLOW DEPTH	1210.11	1208.10
72	2.7	2.4	4.1	NA	1196.7	1196.7	1197.7	TAILWATER	1196.7	1197.7	TAILWATER	1197.73	1197.71

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	**DESIGN**			**DESIGN**	**DESIGN**	**DESIGN**
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	**V**	**V**	**V**	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
73	2.6	2.3	4.0	NA	1196.7	1196.7	1197.9	TAILWATER	1196.6	1197.8	TAILWATER	1197.87	1197.83
74	9.6	2.2	9.3	NA	1208.6	1208.6	1206.7	FLOW DEPTH	1206.6	1198.0	FLOW DEPTH	1208.65	1206.64
75	2.4	2.1	3.9	NA	1196.7	1196.7	1198.0	TAILWATER	1196.6	1198.0	TAILWATER	1197.99	1197.97
76	2.1	1.9	3.8	NA	1196.6	1196.6	1198.1	TAILWATER	1196.6	1198.1	TAILWATER	1198.11	1198.09
77	6.6	5.5	6.6	NA	1203.6	1203.6	1203.6	FLOW DEPTH	1203.3	1198.2	FLOW DEPTH	1203.60	1203.27
78	5.5	3.5	9.3	NA	1206.2	1206.2	1204.0	FLOW DEPTH	1203.1	1203.7	TAILWATER	1206.17	1203.70
79	1.3	0.3	3.0	NA	1206.9	1206.9	1206.3	FLOW DEPTH	1205.9	1206.3	TAILWATER	1206.89	1206.27
80	1.7	1.5	3.5	NA	1196.7	1196.7	1198.2	TAILWATER	1196.4	1198.2	TAILWATER	1198.24	1198.21
81	9.7	2.3	9.4	NA	1207.0	1207.0	1205.1	FLOW DEPTH	1205.0	1198.3	FLOW DEPTH	1207.03	1205.03
82	1.5	0.3	2.3	NA	1207.2	1207.2	1207.1	FLOW DEPTH	1206.9	1207.1	TAILWATER	1207.22	1207.13
83	2.1	1.8	3.4	NA	1197.2	1197.2	1198.4	TAILWATER	1197.1	1198.3	TAILWATER	1198.36	1198.34
84	1.8	1.5	3.3	NA	1197.2	1197.2	1198.5	TAILWATER	1197.1	1198.5	TAILWATER	1198.48	1198.46
85	11.0	2.8	9.7	NA	1207.8	1207.8	1205.8	FLOW DEPTH	1205.8	1198.6	FLOW DEPTH	1207.77	1205.76
86	1.4	1.2	3.0	NA	1197.0	1197.0	1198.6	TAILWATER	1197.0	1198.6	TAILWATER	1198.58	1198.58
87	1.6	1.3	4.0	NA	1197.4	1197.4	1198.7	TAILWATER	1196.9	1198.7	TAILWATER	1198.72	1198.68
88	2.4	1.8	4.5	NA	1198.0	1198.0	1198.8	TAILWATER	1197.9	1198.8	TAILWATER	1198.83	1198.82
89	3.3	2.2	4.4	NA	1198.7	1198.7	1199.0	TAILWATER	1198.5	1198.9	TAILWATER	1198.99	1198.93
90	2.9	1.8	4.1	NA	1198.9	1198.9	1199.1	TAILWATER	1198.6	1199.1	TAILWATER	1199.13	1199.09
91	3.4	1.6	3.6	NA	1199.4	1199.4	1199.3	FLOW DEPTH	1199.1	1199.2	TAILWATER	1199.43	1199.23
92	3.0	2.0	3.3	1200.1	1199.9	1200.1	1199.7	FLOW DEPTH	1199.5	1199.5	TAILWATER	1200.07	1199.53
93	2.2	1.7	3.2	NA	1200.0	1200.0	1200.2	TAILWATER	1199.8	1200.2	TAILWATER	1200.24	1200.17
94	2.3	1.8	3.0	NA	1200.2	1200.2	1200.4	TAILWATER	1200.1	1200.3	TAILWATER	1200.36	1200.34
95	**1.5**	**1.3**	**2.7**	**NA**	**1200.1**	**1200.1**	**1200.5**	**TAILWATER**	**1200.0**	**1200.5**	**TAILWATER**	**1200.47**	**1200.46**
96		WEST	1/2 MALL		ARROWI	ARROWHEAD TOWNE CENTER			RING ROAD TRUNK LINE				
97	4.7	4.7	7.2	NA	1192.5	1192.5	1194.6	TAILWATER	1192.2	1194.5	TAILWATER	1194.59	1194.48
98	1.3	1.3	9.4	NA	1192.4	1192.4	1194.7	TAILWATER	1191.7	1194.7	TAILWATER	1194.70	1194.69
99	0.4	0.4	3.6	NA	1193.6	1193.6	1194.7	TAILWATER	1191.6	1194.7	TAILWATER	1194.70	1194.69
100	4.6	4.6	7.2	NA	1192.6	1192.6	1194.8	TAILWATER	1192.5	1194.7	TAILWATER	1194.79	1194.69

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN	DESIGN	DESIGN
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
101	3.4	3.4	6.7	NA	1192.3	1192.3	1194.9	TAILWATER	1192.2	1194.9	TAILWATER	1194.91	1194.89
102	3.0	3.0	6.4	NA	1192.8	1192.8	1195.1	TAILWATER	1192.2	1195.0	TAILWATER	1195.13	1195.01
103	10.3	1.3	9.4	1201.2	1201.8	1201.8	1201.2	FLOW DEPTH	1201.2	1195.2	FLOW DEPTH	1201.81	1201.21
104	7.6	0.7	6.1	NA	1201.8	1201.8	1199.8	FLOW DEPTH	1199.8	1195.2	FLOW DEPTH	1201.78	1199.77
105	3.0	3.0	4.6	NA	1193.7	1193.7	1195.3	TAILWATER	1193.5	1195.2	TAILWATER	1195.34	1195.23
106	2.9	2.9	4.5	NA	1193.6	1193.6	1195.5	TAILWATER	1193.6	1195.4	TAILWATER	1195.45	1195.44
107	2.9	2.9	4.5	NA	1193.6	1193.6	1195.6	TAILWATER	1193.6	1195.6	TAILWATER	1195.58	1195.55
108	2.9	2.9	4.5	NA	1193.8	1193.8	1195.8	TAILWATER	1193.6	1195.7	TAILWATER	1195.78	1195.68
109	2.6	0.5	2.6	NA	1204.1	1204.1	1203.7	FLOW DEPTH	1203.7	1195.9	FLOW DEPTH	1204.11	1203.74
110	1.4	0.2	2.0	NA	1204.4	1204.4	1204.2	FLOW DEPTH	1204.0	1204.2	TAILWATER	1204.37	1204.21
111	4.1	3.6	6.4	NA	1194.9	1194.9	1196.0	TAILWATER	1194.6	1195.9	TAILWATER	1195.98	1195.88
112	8.3	0.5	3.4	NA	1204.3	1204.3	1203.1	FLOW DEPTH	1203.1	1196.1	FLOW DEPTH	1204.30	1203.10
113	6.4	0.4	3.6	NA	1204.3	1204.3	1202.3	FLOW DEPTH	1202.3	1196.1	FLOW DEPTH	1204.32	1202.31
114	4.2	3.6	6.5	NA	1195.1	1195.1	1196.1	TAILWATER	1194.9	1196.1	TAILWATER	1196.14	1196.08
115	4.2	3.5	6.3	NA	1195.5	1195.5	1196.4	TAILWATER	1195.0	1196.2	TAILWATER	1196.37	1196.24
116	4.2	3.4	6.3	NA	1195.6	1195.6	1196.5	TAILWATER	1195.5	1196.5	TAILWATER	1196.50	1196.47
117	10.8	3.4	10.5	NA	1207.3	1207.3	1205.6	FLOW DEPTH	1205.4	1196.6	FLOW DEPTH	1207.35	1205.44
118	3.7	2.8	5.9	NA	1195.8	1195.8	1196.7	TAILWATER	1195.4	1196.6	TAILWATER	1196.69	1196.60
119	3.4	2.6	5.4	NA	1195.8	1195.8	1196.8	TAILWATER	1195.8	1196.8	TAILWATER	1196.80	1196.79
120	13.0	4.4	11.0	1206.9	1208.2	1208.2	1206.4	FLOW DEPTH	1206.2	1196.9	FLOW DEPTH	1208.20	1206.19
121	3.3	2.3	5.2	NA	1196.2	1196.2	1197.0	TAILWATER	1195.7	1196.9	TAILWATER	1196.97	1196.90
122	12.4	2.3	11.2	NA	1209.0	1209.0	1202.5	FLOW DEPTH	1202.4	1197.1	FLOW DEPTH	1208.99	1202.41
123	4.1	2.0	4.0	NA	1209.6	1209.6	1209.4	FLOW DEPTH	1209.3	1209.1	FLOW DEPTH	1209.60	1209.31
124	3.4	1.7	3.7	NA	1209.8	1209.8	1209.7	FLOW DEPTH	1209.5	1209.7	TAILWATER	1209.82	1209.70
125	3.4	2.1	5.3	NA	1196.4	1196.4	1197.1	TAILWATER	1196.0	1197.1	TAILWATER	1197.11	1197.07
126	3.6	2.1	5.2	NA	1196.6	1196.6	1197.2	TAILWATER	1196.4	1197.2	TAILWATER	1197.24	1197.21
127	11.4	3.6	10.6	NA	1209.9	1209.9	1208.1	FLOW DEPTH	1207.9	1197.3	FLOW DEPTH	1209.95	1207.94
128	3.4	1.8	5.0	NA	1196.9	1196.9	1197.4	TAILWATER	1196.5	1197.3	TAILWATER	1197.37	1197.34

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	**DESIGN**			**DESIGN**	**DESIGN**	**DESIGN**
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	**V**	**V**	**V**	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
129	6.1	0.4	3.4	NA	1210.8	1210.8	1210.1	FLOW DEPTH	1210.1	1197.5	FLOW DEPTH	1210.84	1210.14
130	3.4	0.3	2.6	NA	1210.5	1210.5	1210.1	FLOW DEPTH	1210.1	1197.5	FLOW DEPTH	1210.48	1210.10
131	3.9	1.7	5.0	NA	1197.2	1197.2	1197.5	TAILWATER	1197.0	1197.5	TAILWATER	1197.49	1197.47
132	3.4	0.5	3.6	NA	1209.0	1209.0	1197.6	FLOW DEPTH	1197.3	1197.6	TAILWATER	1208.98	1197.59
133	4.3	1.6	5.0	NA	1197.6	1197.6	1197.6	TAILWATER	1197.2	1197.6	TAILWATER	1197.62	1197.59
134	NA	1.1	2.8	NA	1210.3	1210.3	1198.3	FLOW DEPTH	1198.3	1197.7	FLOW DEPTH	1210.26	1198.26
135	4.8	1.6	5.0	NA	1198.0	1198.0	1197.7	FLOW DEPTH	1197.6	1197.7	TAILWATER	1198.04	1197.72
136	5.1	1.6	5.0	NA	1198.5	1198.5	1198.2	FLOW DEPTH	1198.1	1198.1	TAILWATER	1198.54	1198.14
137	6.0	2.7	5.8	1202.9	1202.9	1202.9	1201.4	FLOW DEPTH	1201.1	1198.6	FLOW DEPTH	1202.91	1201.08
138	3.0	3.0	2.8	NA	1204.0	1204.0	1204.0	TAILWATER	1203.7	1203.0	FLOW DEPTH	1203.99	1203.68
139	3.8	2.3	4.0	1199.7	1199.6	1199.7	1199.4	FLOW DEPTH	1199.3	1198.6	FLOW DEPTH	1199.70	1199.26
140	3.2	2.4	3.2	NA	1202.1	1202.1	1202.0	FLOW DEPTH	1201.6	1199.8	FLOW DEPTH	1202.11	1201.57
141	2.6	1.9	3.0	NA	1202.5	1202.5	1202.5	FLOW DEPTH	1202.0	1202.2	TAILWATER	1202.55	1202.21
142	3.0	2.6	3.5	1200.1	1199.8	1200.1	1200.0	FLOW DEPTH	1199.6	1199.8	TAILWATER	1200.06	1199.80
143	1.3	1.1	2.6	NA	1199.9	1199.9	1200.2	TAILWATER	1199.5	1200.2	TAILWATER	1200.23	1200.16
144	1.9	1.8	2.9	NA	1200.0	1200.0	1200.3	TAILWATER	1199.6	1200.2	TAILWATER	1200.33	1200.16
145	1.3	1.1	2.6	NA	1200.0	1200.0	1200.5	TAILWATER	1199.9	1200.4	TAILWATER	1200.45	1200.43
146	**0.7**	**0.7**	**2.1**	**NA**	**1199.7**	**1199.7**	**1200.4**	**TAILWATER**	**1199.7**	**1200.4**	**TAILWATER**	**1200.43**	**1200.43**

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
		OUTFALL TO SKUNK CREEK											
18	0.0602	0.50	5	0.00	2.37	0.013	0.0004	1179.65	1179.30	1187.65	9.94	1197.84	11.63
19	0.1228	0.39	2	0.00	0.90	0.013	0.0004	1179.78	1179.65	1186.78	8.95	1195.98	8.94
20	0.1204	0.05	3	0.00	0.12	0.013	0.0002	1179.80	1179.79	1186.80	8.93	1195.98	8.89
21	0.0947	0.54	3	0.00	1.87	0.013	0.0004	1180.05	1179.80	1187.05	10.08	1197.38	9.75
22	**0.0743**	**0.34**	**3**	**0.00**	**1.68**	**0.013**	**0.0007**	**1180.37**	**1180.05**	**1187.37**	**14.38**	**1202.00**	**14.02**
23	0.0657	0.13	3	0.00	0.80	0.013	0.0006	1180.51	1180.38	1187.51	15.49	1203.25	15.14
24	0.2377	0.44	2	0.11	0.44	0.013	0.0007	1180.65	1180.52	1186.15	17.10	1203.50	14.84
25	0.2377	0.51	NA	0.12	0.37	0.013	0.0333	1187.84	1180.65	1193.34	8.91	1202.50	12.73
26	0.0003	0.00	1	0.10	0.57	0.012	0.3535	1199.75	1191.62	1201.00	1.25	1202.50	2.69
27	0.2375	0.03	3(A)	0.63	0.01	0.013	0.0333	1188.27	1187.84	1193.77	8.48	1202.50	12.08
28	0.0002	0.00	1	0.10	0.53	0.012	0.3691	1199.75	1191.63	1201.00	1.25	1202.50	2.69
29		ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE								EAST 1/2 MALL			
30	0.2022	0.05	3(B)	0.57	0.04	0.012	0.0333	1189.06	1188.27	1194.56	7.89	1202.70	8.56
31	0.0239	0.00	4	0.33	0.06	0.012	0.2720	1199.75	1194.31	1201.00	1.25	1202.50	2.61
32	0.0787	0.08	4	0.33	0.36	0.012	0.0020	1189.76	1189.56	1195.26	7.69	1203.20	8.64
33	0.0165	0.00	1	0.10	0.03	0.012	0.9433	1200.38	1191.89	1201.63	1.73	1203.61	3.10
34	0.0062	0.00	1	0.10	0.27	0.012	0.0100	1200.86	1200.38	1202.11	1.25	1203.61	2.52
35	0.0778	0.05	1	0.10	0.22	0.012	0.0020	1189.88	1189.76	1195.38	8.90	1204.53	9.83
36	0.0708	0.05	1	0.10	0.28	0.012	0.0010	1189.95	1189.88	1195.45	9.80	1205.50	10.65
37	0.0654	0.14	1	0.10	0.88	0.012	0.0010	1190.17	1189.95	1195.67	12.88	1208.80	13.70
38	0.0041	0.00	1	0.10	0.27	0.012	0.0487	1205.55	1203.65	1206.80	1.75	1208.80	3.11
39	0.0602	0.08	1	0.10	0.55	0.012	0.0010	1190.30	1190.17	1195.80	12.21	1208.26	12.99
40	0.0548	0.14	1	0.10	1.10	0.012	0.0010	1190.55	1190.30	1196.05	11.36	1207.66	12.15
41	2.3334	0.91	1	0.10	0.05	0.012	0.0515	1204.17	1202.16	1205.42	1.21	1206.88	1.97
42	0.0477	0.14	1	0.10	1.35	0.012	0.0010	1190.83	1190.55	1196.33	8.88	1205.46	9.71
43	0.0575	0.06	1	0.10	0.54	0.012	0.0037	1191.24	1190.83	1196.24	8.01	1204.50	8.59
44	0.0397	0.01	1	0.10	0.11	0.012	0.0037	1191.31	1191.24	1196.31	7.79	1204.35	8.33

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
45	0.0007	0.00	1	0.10	0.14	0.012	0.8278	1201.40	1193.95	1202.65	1.25	1204.15	2.69
46	0.0077	0.00	1	0.10	0.16	0.012	0.1648	1201.40	1193.82	1202.90	1.00	1204.15	2.58
47	0.0386	0.04	1	0.10	0.55	0.012	0.0015	1191.67	1191.31	1196.67	6.78	1203.70	7.55
48	0.0212	0.00	1	0.10	0.01	0.012	0.1000	1200.75	1200.15	1202.00	1.25	1203.50	2.57
49	0.2603	0.10	1	0.10	0.07	0.012	0.0515	1200.75	1198.74	1202.00	1.25	1203.50	2.36
50	0.0354	0.02	1	0.10	0.40	0.012	0.0037	1191.93	1191.67	1196.93	6.89	1204.08	7.80
51	0.0272	0.01	1	0.10	0.18	0.012	0.0017	1191.98	1191.93	1196.98	6.86	1204.09	7.70
52	0.0093	0.00	1	0.10	0.03	0.012	0.7789	1201.14	1194.13	1202.39	1.25	1203.89	2.63
53	0.2603	0.11	1	0.10	0.05	0.012	0.1593	1201.14	1194.13	1202.39	1.25	1203.89	2.45
54	0.0246	0.02	1	0.10	0.63	0.012	0.0017	1192.13	1191.98	1197.13	7.08	1204.46	7.95
55	0.0246	0.03	1	0.10	0.89	0.012	0.0017	1192.48	1192.35	1197.48	7.11	1204.84	8.20
56	0.0184	0.02	1	0.10	0.65	0.012	0.0010	1192.56	1192.48	1197.56	7.74	1205.55	8.79
57	0.0076	0.00	1	0.10	0.08	0.012	0.1000	1202.40	1200.80	1203.65	1.25	1205.15	2.61
58	0.0631	0.04	1	0.10	0.12	0.012	0.0875	1202.17	1196.31	1203.42	1.89	1205.56	3.15
59	0.0165	0.01	1	0.10	0.45	0.012	0.0050	1202.57	1202.17	1203.82	1.78	1205.85	2.91
60	0.0010	0.00	1	0.10	0.59	0.012	0.0050	1202.84	1202.57	1204.09	1.25	1205.59	2.55
61	0.0181	0.04	1	0.10	1.67	0.012	0.0010	1192.78	1192.56	1197.78	8.20	1206.23	9.33
62	0.0170	0.01	1	0.10	0.60	0.012	0.0010	1192.86	1192.78	1197.86	8.43	1206.54	9.53
63	0.0248	0.00	1	0.10	0.01	0.012	0.1000	1203.58	1203.08	1204.83	1.25	1206.33	2.57
64	0.0104	0.00	1	0.10	0.13	0.012	0.0515	1203.58	1201.57	1204.83	1.25	1206.33	2.57
65	0.0295	0.01	1	0.10	0.19	0.012	0.0010	1193.39	1193.36	1197.89	8.95	1207.09	9.97
66	0.0285	0.05	1	0.10	1.18	0.012	0.0010	1193.57	1193.39	1198.07	9.67	1207.99	10.72
67	0.0078	0.01	1	0.10	0.34	0.012	0.1205	1204.24	1195.20	1205.49	2.05	1207.79	3.41
68	0.0031	0.00	1	0.10	0.54	0.012	0.0050	1204.58	1204.24	1205.83	1.47	1207.55	2.74
69	0.0288	0.06	1	0.10	1.40	0.012	0.0010	1193.79	1193.57	1198.29	11.69	1210.23	12.80
70	0.0501	0.08	1	0.10	0.86	0.012	0.0010	1194.45	1194.29	1198.45	13.82	1212.52	14.91
71	0.2342	0.09	1	0.10	0.07	0.012	0.0515	1209.72	1207.71	1210.97	1.25	1212.47	2.36
72	0.0370	0.01	1	0.10	0.24	0.012	0.0010	1194.49	1194.45	1198.49	12.64	1211.38	13.65

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
73	0.0335	0.04	1	0.10	0.73	0.012	0.0010	1194.61	1194.49	1198.61	12.94	1211.80	13.93
74	0.1503	0.06	1	0.10	0.07	0.012	0.0515	1208.29	1206.28	1209.54	1.25	1211.04	2.39
75	0.0298	0.02	1	0.10	0.57	0.012	0.0010	1194.69	1194.61	1198.69	11.47	1210.41	12.42
76	0.0226	0.02	1	0.10	0.58	0.012	0.0010	1194.76	1194.69	1198.76	11.26	1210.27	12.16
77	0.9143	0.30	1	0.10	0.08	0.012	0.0100	1202.64	1202.31	1203.89	5.15	1209.29	5.69
78	0.3748	0.31	1	0.10	0.15	0.012	0.0367	1205.69	1202.64	1206.94	1.71	1208.90	2.74
79	0.0034	0.00	1	0.10	0.28	0.012	0.0200	1206.71	1205.69	1207.96	1.25	1209.46	2.57
80	0.0148	0.03	1	0.10	2.07	0.012	0.0010	1194.97	1194.76	1198.97	10.95	1210.17	11.93
81	0.1666	0.06	1	0.10	0.07	0.012	0.0513	1206.66	1204.66	1207.91	1.25	1209.41	2.38
82	0.0037	0.00	1	0.10	0.42	0.012	0.0053	1206.97	1206.66	1208.22	1.00	1209.47	2.26
83	0.0245	0.02	1	0.10	0.81	0.012	0.0010	1195.57	1195.47	1199.07	10.89	1210.21	11.85
84	0.0184	0.01	1	0.10	0.75	0.012	0.0010	1195.64	1195.57	1199.14	11.41	1210.80	12.32
85	0.2370	0.09	1	0.10	0.07	0.012	0.0515	1207.38	1205.37	1208.63	1.25	1210.13	2.36
86	0.0119	0.01	1	0.10	0.64	0.012	0.0010	1195.70	1195.64	1199.20	11.78	1211.23	12.65
87	0.0137	0.03	1	0.10	2.63	0.012	0.0019	1196.16	1195.70	1199.66	5.00	1204.91	6.19
88	0.0311	0.01	1	0.10	0.18	0.012	0.0024	1196.72	1196.66	1199.72	4.53	1204.50	5.67
89	0.0612	0.06	1	0.10	0.51	0.012	0.0024	1197.46	1197.22	1199.96	4.29	1204.50	5.51
90	0.0405	0.05	1	0.10	0.65	0.012	0.0024	1197.73	1197.46	1200.23	4.02	1204.50	5.37
91	0.0407	0.05	1	0.10	0.62	0.012	0.0024	1198.53	1198.23	1200.53	7.84	1208.62	9.19
92	0.1010	0.16	1	0.10	0.92	0.012	0.0024	1199.02	1198.63	1200.52	4.23	1205.00	4.93
93	0.0676	0.06	1	0.10	0.72	0.012	0.0024	1199.25	1199.02	1200.75	3.00	1204.00	3.76
94	0.1030	0.03	1	0.10	0.20	0.012	0.0024	1199.44	1199.37	1200.69	3.06	1204.00	3.64
95	**0.0494**	**0.01**	**1**	**0.10**	**0.16**	**0.012**	**0.0024**	**1199.47**	**1199.44**	**1200.72**	3.03	**1204.00**	**3.53**
96			ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE								WEST 1/2 MALL		
97	0.1220	0.11	NA	NA	0.33	0.012	0.0025	1189.80	1189.56	1194.30	8.54	1203.09	8.50
98	0.0491	0.00	1	0.10	0.09	0.012	0.1000	1192.13	1191.43	1193.38	8.87	1202.50	7.80
99	0.0062	0.00	1	0.10	1.45	0.012	0.0515	1193.44	1191.43	1194.69	7.56	1202.50	7.80
100	0.1171	0.09	1	0.10	0.29	0.012	0.0025	1189.98	1189.80	1194.48	8.71	1203.44	8.65

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
101	0.0645	0.03	1	0.10	0.21	0.012	0.0025	1190.09	1189.98	1194.59	8.99	1203.83	8.92
102	0.0513	0.12	1	0.10	1.27	0.012	0.0025	1190.68	1190.09	1195.18	9.10	1204.53	9.40
103	0.0491	0.00	1	0.10	0.01	0.012	0.1000	1201.58	1200.98	1202.83	1.25	1204.33	2.52
104	0.0157	0.01	1	0.10	0.11	0.012	0.0515	1201.58	1199.57	1202.83	1.25	1204.33	2.55
105	0.0492	0.11	1	0.10	1.27	0.012	0.0010	1190.91	1190.68	1195.41	9.87	1205.53	10.19
106	0.0460	0.01	1	0.10	0.09	0.012	0.0010	1190.92	1190.91	1195.42	9.94	1205.61	10.16
107	0.0476	0.03	1	0.10	0.37	0.012	0.0010	1190.99	1190.92	1195.49	10.15	1205.89	10.31
108	0.0459	0.09	1	0.10	1.20	0.012	0.0010	1191.19	1190.99	1195.69	10.72	1206.66	10.88
109	0.0073	0.01	1	0.10	0.49	0.012	0.0050	1203.81	1203.44	1205.06	1.63	1206.94	2.83
110	0.0019	0.00	1	0.10	0.57	0.012	0.0050	1204.15	1203.81	1205.40	1.25	1206.90	2.54
111	0.0842	0.10	1	0.10	0.50	0.012	0.0025	1192.78	1192.47	1196.78	10.17	1207.20	11.22
112	0.0076	0.00	1	0.10	0.06	0.012	0.1000	1204.16	1202.96	1205.41	1.25	1206.91	2.61
113	0.0057	0.00	1	0.10	0.18	0.012	0.0515	1204.16	1202.15	1205.41	1.25	1206.91	2.59
114	0.0835	0.06	1	0.10	0.28	0.012	0.0026	1192.97	1192.78	1196.97	10.69	1207.91	11.77
115	0.0784	0.14	1	0.10	0.70	0.012	0.0026	1193.46	1192.97	1197.46	12.27	1209.98	13.61
116	0.0734	0.03	1	0.10	0.15	0.012	0.0026	1193.57	1193.46	1197.57	12.59	1210.41	13.91
117	0.3468	0.13	1	0.10	0.06	0.012	0.0503	1206.91	1205.00	1208.16	1.25	1209.66	2.31
118	0.0513	0.08	1	0.10	0.75	0.012	0.0026	1193.96	1193.57	1197.96	12.90	1211.11	14.42
119	0.0432	0.01	1	0.10	0.14	0.012	0.0022	1194.02	1193.96	1198.02	12.95	1211.22	14.42
120	0.5878	0.23	1	0.10	0.06	0.012	0.0515	1207.72	1205.71	1208.97	1.22	1210.44	2.24
121	0.0340	0.07	1	0.10	1.14	0.012	0.0022	1194.51	1194.02	1198.51	13.32	1212.08	15.11
122	0.1618	0.12	1	0.10	0.11	0.012	0.0901	1208.68	1202.10	1209.93	1.83	1212.01	3.02
123	0.1265	0.07	1	0.10	0.24	0.012	0.0050	1208.97	1208.68	1210.22	1.59	1212.06	2.47
124	0.0937	0.05	1	0.10	0.26	0.012	0.0050	1209.26	1208.97	1210.51	0.99	1211.75	1.93
125	0.0301	0.04	1	0.10	0.62	0.012	0.0025	1194.83	1194.51	1198.83	13.52	1212.60	15.49
126	0.0286	0.03	1	0.10	0.43	0.012	0.0024	1195.06	1194.83	1199.06	13.71	1213.02	15.78
127	0.3892	0.15	1	0.10	0.06	0.012	0.0515	1209.51	1207.50	1210.76	1.25	1212.26	2.31
128	0.0209	0.04	1	0.10	0.85	0.012	0.0024	1195.48	1195.06	1199.48	13.44	1213.17	15.80

ARROWHEAD TOWNE CENTER 10 YEAR STORM REVISED PARCELS A AND G SEPT 1994

	FRICTION	HEAD	MINOR	MINOF	FLOW		PIPE				PIPE	INLET	INLET
	SLOPE	LOSS	HEAD	LOSS	TIME	MAN-	SLOPE	INLET	OUTLET	PIPE	COVER	STRUC	RIM-
LINE	**Sf**	**Hf**	LOSSES	**Hm**	**T**	-NING	**S**	INVERT	INVERT	CROWN	@ INLET	RIM	-HGL
No.	%	FT	TYPE	FT	(min)	**n**	ft/ft	ELEV	ELEV	@ INLET	FT	ELEV	FT
129	0.0041	0.00	1	0.10	0.03	0.012	0.1000	1210.70	1210.00	1211.95	1.25	1213.45	2.61
130	0.0031	0.00	1	0.10	0.25	0.012	0.0097	1210.28	1209.90	1211.53	1.25	1213.03	2.55
131	0.0179	0.02	1	0.10	0.40	0.012	0.0024	1195.80	1195.58	1199.80	13.13	1213.18	15.69
132	0.0082	0.00	1	0.10	0.12	0.012	0.4489	1208.85	1197.18	1210.10	2.45	1212.80	3.83
133	0.0170	0.03	1	0.10	0.64	0.012	0.0024	1196.20	1195.80	1200.20	12.53	1212.98	15.36
134	0.0381	0.00	1	0.10	0.00	0.012	6.0000	1210.20	1198.20	1211.45	1.25	1212.95	2.69
135	0.0157	0.03	1	0.10	0.63	0.012	0.0024	1196.64	1196.20	1200.64	7.94	1208.83	10.79
136	0.0164	0.03	1	0.10	0.55	0.012	0.0024	1197.14	1196.74	1201.14	3.11	1204.50	5.96
137	0.1775	0.33	1	0.10	0.53	0.012	0.0094	1202.18	1200.40	1203.68	2.17	1206.10	3.19
138	0.2753	0.31	1	0.10	0.63	0.012	0.0024	1202.70	1202.43	1203.95	1.50	1205.70	1.71
139	0.0905	0.12	1	0.10	0.57	0.012	0.0024	1198.45	1198.14	1200.45	5.86	1206.56	6.86
140	0.1740	0.39	1	0.10	1.58	0.012	0.0024	1201.22	1200.68	1202.47	5.56	1208.28	6.17
141	0.1111	0.27	1	0.10	1.38	0.012	0.0024	1201.81	1201.22	1203.06	3.52	1206.83	4.28
142	0.1690	0.16	1	0.10	0.52	0.012	0.0024	1198.78	1198.55	1200.28	6.57	1207.10	7.04
143	0.0390	0.08	1	0.10	1.28	0.012	0.0024	1199.38	1198.90	1200.63	5.12	1206.00	5.77
144	0.0950	0.18	1	0.10	1.59	0.012	0.0024	1199.32	1198.88	1200.57	2.68	1203.50	3.17
145	0.0403	0.02	1	0.10	0.69	0.012	0.0024	1199.45	1199.32	1200.70	2.55	1203.50	3.05
146	**0.0130**	**0.00**	**1**	**0.10**	**0.35**	**0.012**	**0.0024**	**1199.36**	**1199.32**	**1200.61**	2.64	**1203.50**	**3.07**

VAL-TEC, INC. PROJECT DESIGN SUMMARY

PROJECT NAME_____ PROJECT NUMBER _____

SITE PLAN

OWNER MEETINGS	NO.	DATE	ITEMS	MEMO	ACTION

ARCHICTECT PLAN	TYPE	DATE	ITEMS INCLUDED	STANDARDS	ACTION

SURVEYS	TOPO	DATE	BOUNDARY	DATE	ALTA	DATE

SUBMITTALS	TYPE	DATE	TO	COMMENTS	ACTION

File: DDS9204

	ARROWHEAD TOWNE CENTER UPDATE SEPTEMBER 1994						RUN-			FLOW RAIN				
	FILE:ATC100.WK4/RPT100.WK4					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%
	OUTFALL TO SKUNK CREEK													
18	MH-45	END		19		NA	NA	0.00	155.39	56.3	2.25	350	188.21	186
19	MH-46	MH-45	18	20	PARADISE LN	1.92	0.85	1.63	155.39	55.7	2.25	350	130.02	269
20	TEE	MH-46	19	21	NVPC SOUTH	28.64	0.80	22.91	153.76	55.6	2.25	346	98.60	351
21	MH-47	TEE	20	22	NVPC NORTH	24.84	0.80	19.87	130.85	54.4	2.30	301	133.36	226
22	MH-48	MH-47	21	23	BELL RD	10.49	0.9	8.92	110.98	53.3	2.33	258	169.28	152
23	JUNC	MH-48	22	24		NA	NA	0.00	102.06	52.7	2.33	240	161.71	148
24	PLUG	0	23	25		NA	NA	0.00	102.06	52.4	2.35	240	89.52	268
25	TEE146A	PLUG	24	26&27		NA	NA	0.00	102.06	52.1	2.35	240	612.81	39
26	CB-146A	TEE146A	25	NA	DA#90	0.06	0.9	0.05	0.05	30.0	3.40	0	41.59	0
27	TEE146	TEE146A	26	28&30		NA	NA	0.00	102.01	52.1	2.35	240	612.92	39
28	CB-146	TEE146	26	NA	DA#89	0.05	0.9	0.04	0.04	30.0	3.40	0	42.50	0
29	EAST 1/2 MALL				ARROWHEAD TOWNE CENTER RING				ROAD TRUNK LINE					
30	STR145	TEE146	27	31,32&97	DA#88	NA	NA	41.36	101.97	52.0	2.35	240	664.00	36
31	CB-144	STR145	30	START	DA#87	0.53	0.85	0.45	0.45	30.0	3.40	2	36.49	4
32	TEE143	STR145	30	33&35		NA	NA	0.00	60.16	51.7	2.35	141	162.73	87
33	CB-142	TEE143	32	34	DA#86	0.17	0.85	0.14	0.37	30.2	3.40	1	67.95	2
34	CB-141	CB-142	33	START	DA#85	0.27	0.85	0.23	0.23	30.0	3.40	1	7.00	11
35	MH-140	TEE143	32	36&149	SHOPS P LL	NA	NA	3.21	59.79	51.6	2.35	140	162.73	86
36	TEE216	MH-140	35	37	AP#G	4.31	0.40	1.72	56.58	51.4	2.38	134	113.46	118
37	MH-136	TEE216	36	38,39&153	SHOPS P&M UL	NA	NA	3.19	54.85	50.7	2.38	130	115.07	113
38	CB-135	MH-136	37	START	DA#84	0.22	0.85	0.19	0.19	30.0	3.40	1	15.44	4
39	TEE215	MH-136	37	40	AP#G	4.32	0.40	1.73	51.48	50.3	2.40	124	115.51	107
40	MH-126	TEE215	39	41&42		NA	NA	0.00	49.75	49.5	2.44	121	115.07	105
41	CB-125	MH-126	40	START	DA#83	5.24	0.85	4.45	4.45	30.0	3.40	15	15.88	95
42	MH-124	MH-126	40	43&166	AP#A/M&R LL	5.23	0.40	6.10	45.30	48.5	2.48	112	115.07	98
43	TEE114	MH-124	42	44&182	SHOPS M&R LL	NA	NA	7.36	39.19	48.1	2.48	97	171.65	57
44	TEE105	TEE114	43	45,46&47		NA	NA	0.00	31.83	48.0	2.48	79	171.65	46

	ARROWHEAD TOWNE CENTER UPDATE SEPTEMBER 1994						RUN-			FLOW	RAIN			
	FILE:ATC100.WK4/RPT100.WK4					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%
45	CB-103	TEE105	44	START	DA#82	0.09	0.85	0.08	0.08	30.0	3.40	0	63.65	0
46	CB-104	TEE105	44	START	DA#79	0.49	0.85	0.42	0.42	30.0	3.40	1	46.18	3
47	MH-102	TEE105	44	48,49&50		NA	NA	0.00	31.34	47.6	2.48	78	109.29	71
48	CB-100	MH-102	47	START	DA#81	0.50	0.85	0.43	0.43	30.0	3.40	1	22.12	7
49	CB-101	MH-102	47	START	DA#79	1.75	0.85	1.49	1.49	30.0	3.40	5	15.88	32
50	TEE213	MH-102	47	51	AP#A	5.24	0.40	2.10	29.43	47.3	2.52	74	171.65	43
51	TEE99	TEE213	50	52,53&54		NA	NA	0.00	27.33	47.2	2.52	69	115.90	59
52	CB-98	TEE99	51	START	DA#80	0.33	0.85	0.28	0.28	30.0	3.40	1	61.74	2
53	CB-97	TEE99	51	START	DA#79	1.75	0.85	1.49	1.49	30.0	3.40	5	27.92	18
54	MH-96	TEE99	51	55		NA	NA	0.00	25.57	46.7	2.52	64	115.90	56
55	TEE212	MH-96	54	56	AP#A	5.24	0.40	2.10	25.57	46.1	2.56	65	115.90	56
56	MH-95	TEE212	55	57,58,61		NA	NA	0.00	23.47	45.6	2.56	60	89.24	67
57	CB-94	MH-95	56	START	DA#78	0.30	0.85	0.26	0.26	30.0	3.40	1	22.12	4
58	CB-93	MH-95	56	59	DA#77	0.43	0.85	0.37	0.75	30.9	3.34	2	20.69	12
59	CB-92	CB-93	58	60	DA#76	0.34	0.85	0.29	0.38	30.5	3.40	1	4.95	26
60	CB-91	CB-92	59	START	DA#75	0.11	0.85	0.09	0.09	30.0	3.40	0	4.95	6
61	TEE211	MH-95	56	62	AP#B	1.81	0.40	0.72	22.47	44.4	2.64	59	89.24	66
62	MH-90	TEE211	61	63,64,65		NA	NA	0.00	21.74	44.0	2.64	57	89.24	64
63	CB-88	MH-90	62	START	DA#74	0.19	0.85	0.16	0.46	30.0	3.40	2	22.12	7
64	CB-89	MH-90	62	START	DA#73	0.35	0.85	0.30	0.30	30.0	3.40	1	15.88	6
65	TEE210	MH-90	62	66	AP#B	1.81	0.40	0.72	21.28	43.8	2.64	56	67.38	83
66	MH-87	TEE210	65	67&69		NA	NA	0.00	20.56	43.0	2.68	55	67.38	82
67	CB-86	MH-87	66	68	DA#72	0.12	0.85	0.10	0.26	30.5	3.40	1	24.29	4
68	CB-85	CB-86	67	START	DA#71	0.19	0.85	0.16	0.16	30.0	3.40	1	4.95	11
69	MH-84	MH-87	66	70	AP#C	2.61	0.40	1.04	20.30	41.9	2.72	55	67.38	82
70	MH-80	MH-84	69	71,72&192	STORES S&R UL	NA	NA	1.31	19.25	41.3	2.76	53	49.21	108
71	CB-79	MH-80	70	START	DA#70	1.66	0.85	1.41	1.41	30.0	3.40	5	15.88	30
72	TEE208	MH-80	70	72	AP#C	2.62	0.40	1.05	16.54	41.1	2.76	46	49.21	93

	ARROWHEAD TOWNE CENTER UPDATE SEPTEMBER 1994						RUN-			FLOW	RAIN			
	FILE:ATC100.WK4/RPT100.WK4					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	**A**	**C**	**CA**	**CA**	**Tc**	IN/HR	**Q**	CAP.	**Q/Qo**
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	**Qo**	%
73	MH-78	TEE208	72	74&75		NA	NA	0.00	15.49	40.5	2.76	43	49.21	87
74	CB-77	MH-78	73	START	DA#69	1.33	0.85	1.13	1.13	30.0	3.40	4	15.88	24
75	TEE207	MH-78	73	76	AP#C	4.63	0.40	1.85	14.36	40.1	2.80	40	49.21	82
76	MH-76	TEE207	75	77&80		NA	NA	0.00	12.51	39.7	2.80	35	49.21	71
77	CB-75	MH-76	76	78	DA#68	1.18	0.85	1.00	2.79	30.4	3.40	9	7.00	135
78	CB-74	CB-75	77	79	DA#67	1.90	0.85	1.62	1.79	30.2	3.40	6	13.41	45
79	CB-73	CB-74	78	START	DA#66	0.20	0.85	0.17	0.17	30.0	3.40	1	9.89	6
80	MH-72	MH-76	79	81&83		NA	NA	0.00	9.72	38.1	2.92	28	49.21	58
81	CB-71	MH-72	80	82	DA#65	1.19	0.85	1.01	1.19	30.4	3.40	4	15.84	26
82	CB-70	CB-71	81	START	DA#64	0.21	0.85	0.18	0.18	30.0	3.40	1	5.11	12
83	TEE206	MH-72	80	84	AP#D	13.12	0.10	1.31	8.53	37.5	2.92	25	34.47	72
84	MH-69	TEE206	83	85&86		NA	NA	0.00	7.22	36.9	2.98	22	34.47	62
85	CB-68	MH-69	84	START	DA#63	1.67	0.85	1.42	1.42	30.0	3.40	5	15.88	30
86	MH-67	MH-69	84	87		NA	NA	0.00	5.80	36.4	3.04	18	34.47	51
87	MH-66	MH-67	86	88		NA	NA	0.00	5.80	34.3	3.16	18	47.26	39
88	CB-65	MH-66	87	89	DA#21	1.07	0.85	0.91	5.80	34.1	3.16	18	35.40	52
89	CB-64	CB-65	88	90	DA#20	1.07	0.85	0.91	4.89	33.6	3.16	15	21.77	71
90	CB-63	CB-64	89	91	DA#19	2.15	0.85	1.83	3.98	32.8	3.22	13	21.77	59
91	MH-62	CB-63	90	92&201	STORE S LL	NA	NA	0.61	2.15	31.9	3.28	7	12.00	59
92	CB-60	MH-62	91	93	SW1/4 STORE S	0.34	0.90	0.31	1.54	31.0	3.34	5	5.57	92
93	CB-59	CB-60	92	94	DA #18	0.33	0.90	0.30	1.23	30.3	3.40	4	5.57	75
94	CB-59B	CB-59	93	95	DA #18B	0.32	0.90	0.29	0.94	30.1	3.40	3	3.43	93
95	**PLUG**	**CB-59B**	**97**	**START**	**MALL**	**0.72**	**0.90**	**0.65**	**0.65**	**30.0**	**3.40**	**2**	**3.43**	**64**
96	WEST 1/2	MALL			ARROWHEAD TOWNE CENTER RING				ROAD TRUNK		LINE			
97	TEE59	STR145	30	98,99&100		NA	NA	0.00	41.36	43.6	2.64	109	106.53	102
98	CB-58	TEE59	97	START	DA#62	0.76	0.85	0.65	0.65	30.0	3.40	2	22.12	10
99	CB-57	TEE59	97	START	DA#61	0.27	0.85	0.23	0.23	30.0	3.40	1	15.88	5
100	MH-56	TEE59	97	100&204	SHOPS P&D LL	NA	NA	11.47	40.48	43.4	2.68	108	106.53	102

	ARROWHEAD TOWNE CENTER UPDATE SEPTEMBER 1994						RUN-			FLOW	RAIN			
	FILE:ATC100.WK4/RPT100.WK4					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%
101	TEE200	MH-56	100	102	AP #G	4.75	0.40	1.90	29.01	43.2	2.68	78	106.53	73
102	MH-40	TEE200	101	103,104,105		NA	NA	0.00	27.11	42.4	2.72	74	106.53	69
103	CB-39	MH-40	102	START	DA#60	0.76	0.85	0.65	0.65	30.0	3.40	2	22.12	10
104	CB-38	MH-40	102	START	DA#59	0.43	0.85	0.37	0.37	30.0	3.40	1	15.88	8
105	TEE201	MH-40	102	105	AP#F	2.12	0.40	0.85	26.10	41.6	2.72	71	67.38	105
106	MH-37	TEE201	105	106		NA	NA	0.00	25.25	41.5	2.72	69	67.38	102
107	TEE202	MH-37	106	107	AP #F	2.13	0.40	0.85	25.25	41.3	2.76	70	67.38	103
108	MH-36	TEE202	107	109,110,111		NA	NA	0.00	24.40	40.5	2.80	68	67.38	101
109	CB-35	MH-36	108	110	DA#58	0.15	0.85	0.13	0.26	30.5	3.34	1	4.95	17
110	CB-34	CB-35	109	START	DA#57	0.15	0.85	0.13	0.13	30.0	3.40	0	4.95	9
111	MH-33	MH-36	108	112,113,114		NA	NA	0.00	24.15	40.1	2.80	68	77.82	87
112	CB-32	MH-33	111	START	DA#56	0.30	0.85	0.26	0.26	30.0	3.40	1	22.12	4
113	CB-31	MH-33	111	START	DA#55	0.26	0.85	0.22	0.22	30.0	3.40	1	15.88	5
114	TEE203	MH-33	111	115	AP #E	1.86	0.40	0.74	23.67	39.9	2.80	66	79.36	84
115	TEE204	TEE203	114	116	AP #E	1.85	0.40	0.74	22.93	39.3	2.86	66	79.36	83
116	MH-30	TEE204	115	117,118,229	STORES W&D UL	NA	NA	2.40	22.19	39.2	2.86	63	79.36	80
117	CB-25	MH-30	116	START	DA#54	2.02	0.85	1.72	1.72	30.0	3.40	6	15.68	37
118	TEE205	MH-30	116	119	AP #E	3.71	0.40	1.48	18.07	38.5	2.86	52	79.36	65
119	MH-24	TEE205	118	120&121		NA	NA	0.00	16.58	38.4	2.92	48	73.00	66
120	CB-23	MH-24	119	START	DA#53	2.63	0.85	2.24	2.24	30.0	3.40	8	15.88	48
121	MH-22	MH-24	119	122&125		NA	NA	0.00	14.35	37.3	2.98	43	73.00	59
122	CB-21	MH-22	121	123	DA#52	0.16	0.85	0.14	1.17	30.4	3.40	4	21.00	19
123	CB-20	CB-21	122	124	DA#51	0.17	0.85	0.14	1.04	30.2	3.40	4	4.95	71
124	CB-19	CB-20	123	START	DA#50	1.05	0.85	0.89	0.89	30.0	3.40	3	4.95	61
125	TEE217	MH-22	121	126	AP #D	6.56	0.10	0.66	13.17	36.6	2.98	39	77.82	50
126	MH-18	TEE217	125	127&128		NA	NA	0.00	12.52	36.1	3.04	38	76.24	50
127	CB-17	MH-18	126	START	DA#49	2.14	0.85	1.82	1.82	30.0	3.40	6	15.88	39
128	MH-16	MH-18	126	129-131,235	WARDS LL	NA	NA	0.66	10.70	35.0	3.10	33	76.24	44

	ARROWHEAD TOWNE CENTER UPDATE SEPTEMBER 1994					RUN-				FLOW	RAIN			
	FILE:ATC100.WK4/RPT100.WK4					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%
129	CB-15A	MH-16	128	START	DA#48	0.22	0.85	0.19	0.19	30.0	3.40	1	22.12	3
130	CB-15	MH-16	128	START	DA#47	0.19	0.85	0.16	0.16	30.0	3.40	1	6.91	8
131	TEE-13A	MH-16	128	132&133		NA	NA	0.00	9.69	34.4	3.16	31	76.24	40
132	CB-13A	TEE-13A	131	START	DA#7	0.31	0.85	0.26	0.26	30.0	3.40	1	46.87	2
133	TEE-10	TEE-13A	131	134&135		NA	NA	0.00	9.43	33.9	3.16	30	76.24	39
134	CB-10	TEE-10	133	START	TBA & DA # 6	0.67	0.85	0.57	0.57	30.0	3.40	2	171.37	1
135	MH-09	TEE-10	133	136		NA	NA	0.00	8.86	33.3	3.22	29	76.24	37
136	CB-08	MH-09	135	137&139	DA # 5	4.17	0.85	3.54	8.86	32.8	3.22	29	76.24	37
137	CB-06	CB-08	136	138	DA # 4	0.60	0.85	0.51	2.04	30.4	3.40	7	11.03	63
138	CB-05	CB-06	136	START	DA # 3	1.80	0.85	1.53	1.53	30.0	3.40	5	3.43	152
139	MH-07	CB-08	136	140&142		NA	NA	0.00	3.28	32.2	3.28	11	12.00	90
140	MH-04	MH-07	139	141	1/3 CINEMA	0.30	0.90	0.27	1.24	31.5	3.28	4	3.43	119
141	CB-04A	MH-04	139	START	MALL & DA # 2	1.08	0.90	0.97	0.97	30.0	3.40	3	3.43	96
142	MH-03	MH-07	139	142&144	2/3 CINEMA	0.60	0.90	0.54	2.03	31.8	3.28	7	5.57	120
143	MH-02	MH-03	142	START	E1/2 STORE W	0.64	0.90	0.58	0.58	30.0	3.40	2	3.43	57
144	MH-01	MH-03	142	145&146		NA	NA	0.00	0.92	30.5	3.34	3	3.43	89
145	P-01A	MH-01	144	START	MALL	0.65	0.90	0.59	0.59	30.0	3.40	2	3.43	58
146	**CB-01**	**MH-01**	**144**	**START**	**DA # 1**	**0.37**	**0.90**	**0.33**	**0.33**	**30.0**	**3.40**	**1**	**3.43**	**33**
147	EAST 1/2	MALL			ARROWHEAD TOWNE CENTER ONSITE SYSTEM									
148					PENNEYS LL									
149	CB-139	MH-140	35	150&151	DA#46	0.48	0.85	0.41	3.21	30.7	3.34	11	11.38	94
150	CB-138	CB-139	149	START	DA#45	1.05	0.85	0.89	0.89	30.0	3.40	3	7.00	43
151	CB-137	CB-139	149	START	DA#44	2.25	0.85	1.91	1.91	30.0	3.40	7	7.00	93
152					PENNEYS-MERVYN'S UL									
153	MH-134	MH-136	37	154		NA	NA	0.00	3.19	32.5	3.28	10	25.67	41
154	TEE-81	MH-134	153	155&156		NA	NA	0.00	3.19	32.1	3.28	10	8.04	130
155	CB-81	TEE-81	154	START	DA#43	0.15	0.90	0.14	0.14	30.0	3.40	0	8.57	5
156	MH-133	TEE-81	154	157		NA	NA	0.00	3.05	32.0	3.28	10	8.04	124

	ARROWHEAD TOWNE CENTER UPDATE SEPTEMBER 1994						RUN-			FLOW	RAIN			
	FILE:ATC100.WK4/RPT100.WK4					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%
157	MH-131	MH-133	156	158&159	NW1/4 STORE P	0.46	0.90	0.41	3.05	31.6	3.28	10	8.04	124
158	CB-26	MH-131	157	START	MALL&DA#42&41	0.75	0.90	0.68	0.68	30.0	3.40	2	9.89	23
159	TEE-130A	MH-131	157	160	MALL DA#40	0.49	0.90	0.44	1.96	31.4	3.34	7	8.04	81
160	MH-130	TEE-130A	159	161	MALL DA#39	0.33	0.90	0.30	1.52	30.9	3.34	5	8.04	63
161	TEE-128A	MH-130	160	162&163		NA	NA	0.00	1.22	30.4	3.40	4	8.04	52
162	CB-128A	TEE-128A	161	START	MALL&DA#38&37	0.52	0.90	0.47	1.22	30.0	3.40	4	15.64	27
163	MH-128	TEE-128A	161	164		NA	NA	0.00	0.76	30.1	3.40	3	8.04	32
164	MH-128B	MH-128	163	START	NW1/4 M & DA#36	0.84	0.90	0.76	0.76	30.0	3.40	3	7.55	34
165					MERVYN'S- ROBINSONS		LL							
166	MH-123	MH-124	42	167,168,169		NA	NA	0.00	4.01	38.1	2.92	12	14.70	80
167	CB-122	MH-123	166	START	DA#35	0.35	0.85	0.30	0.30	30.0	3.40	1	4.95	20
168	CB-121	MH-123	166	START	DA#34	0.68	0.85	0.58	0.58	30.0	3.40	2	4.95	40
169	MH-120	MH-123	166	170&172		NA	NA	0.00	3.13	37.7	2.92	9	5.69	161
170	RD-119A	MH-120	169	171	SW1/4 STORE M	0.24	0.90	0.22	0.30	32.7	3.22	1	7.00	14
171	CB-119	RD-119A	169	START	DA#33	0.09	0.90	0.08	0.08	30.0	3.40	0	7.00	4
172	RD-118A	MH-120	169	173	SE1/4 STORE M	0.24	0.90	0.22	2.84	37.3	2.98	8	5.69	149
173	MH-118	RD-118A	172	174		NA	NA	0.00	2.62	37.1	2.98	8	5.69	137
174	MH-117	MH-118	173	&175&176		NA	NA	0.00	2.62	36.6	2.98	8	5.69	137
175	MH-117A	MH-117	174	START	NE1/4 M & DA#32	1.17	0.90	1.05	2.62	30.0	3.40	9	7.00	127
176	MH-116B	MH-117	174	177	SE1/4 STORE R	0.58	0.90	0.52	1.57	35.9	3.04	5	5.69	84
177	RD-116A	MH-116B	176	178	SE1/4 STORE R	0.58	0.90	0.52	1.04	32.5	3.28	3	5.69	60
178	MH-116	RD-116A	177	179		NA	NA	0.00	0.52	31.7	3.28	2	5.69	30
179	ELL-115A	MH-116	178	180		NA	NA	0.00	0.52	30.2	3.40	2	5.69	31
180	PLUG	ELL-115A	179	START	NW1/4 STORE R	0.58	0.90	0.52	0.52	30.0	3.40	2	3.50	51
181					MERVYN'S-ROBINSONS		LL							
182	CB-113	TEE-114	43	183&184	DA#31	1.17	0.85	0.99	7.36	35.6	3.04	22	36.13	62
183	CB-112	CB-113	182	START	DA#30	0.92	0.85	0.78	0.78	30.0	3.40	3	3.50	76
184	CB-111	CB-113	182	185	DA#29	0.91	0.85	0.77	5.58	34.9	3.10	17	22.22	78

	ARROWHEAD TOWNE CENTER UPDATE SEPTEMBER 1994						RUN-			FLOW	RAIN			
	FILE:ATC100.WK4/RPT100.WK4					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%
185	CB-110	CB-111	184	186	DA#28	1.41	0.85	1.20	4.81	34.3	3.16	15	12.25	124
186	CB-109	CB-110	185	187	DA#27	1.22	0.85	1.04	3.61	33.4	3.22	12	12.25	95
187	CB-108	CB-109	186	188	DA#26	1.07	0.85	0.91	2.58	32.4	3.28	8	12.25	69
188	CB-107A	CB-108	187	189	DA#25A	0.35	0.85	0.30	1.67	31.3	3.34	6	5.69	98
189	CB-107	CB-107A	188	190	DA#25	0.35	0.85	0.30	1.37	31.0	3.34	5	5.69	80
190	CB-106	CB-107	189	START	DA#24	1.26	0.85	1.07	1.07	30.0	3.40	4	3.50	104
191					FUTURE-ROBINSONS UL									
192	MH-83C	MH-80	70	193		NA	NA	0.00	1.31	31.5	3.34	4	16.18	27
193	MH-83B	MH-83C	192	194		NA	NA	0.00	1.31	31.3	3.34	4	13.99	31
194	TEE-83A	MH-83B	193	195&196		NA	NA	0.00	1.31	31.2	3.34	4	12.12	36
195	CB-83A	TEE-83A	194	NA	DA#23	0.09	0.90	0.08	0.08	30.0	3.40	0	12.12	2
196	MH-83	TEE-83A	194	197		NA	NA	0.00	1.22	30.9	3.34	4	12.12	34
197	RD-82A	MH-83	196	198	NW1/4 STORE R	0.58	0.90	0.52	1.22	30.3	3.40	4	11.06	38
198	MH-82	RD-82A	197	199		NA	NA	0.00	0.70	30.2	3.40	2	5.77	41
199	PLUG	MH-82	198	START	MALL& DA#22	0.78	0.90	0.70	0.70	30.0	3.40	2	11.06	22
200					FUTURE STORE LL									
201	MH-61	MH-62	91	START	N1/2 STORE S	0.68	0.90	0.61	0.61	30.0	3.40	2	3.43	61
202	WEST 1/2 MALL				ARROWHEAD TOWNE CENTER ONSITE SYSTEM									
203					PENNEYS-DILLARDS LL									
204	CB-55	MH-56	100	205&223	DA#17	1.37	0.85	5.87	11.47	32.0	3.28	38	21.77	173
205	CB-41	CB-55	208	206	DA#16	2.38	0.85	2.02	5.59	31.5	3.34	19	12.00	156
206	MH-54	CB-41	206	208		NA	NA	3.57	3.57	30.7	3.34	12	12.00	99
207					PENNEYS LL									
208	MH-53	MH-54	206	209		NA	NA	0.00	0.41	31.4	3.34	1	3.43	40
209	ELL-53B	MH-53	208	210		NA	NA	0.00	0.41	30.1	3.40	1	3.43	41
210	PLUG	ELL-53B	209	START	SE1/4 STORE P	0.46	0.90	0.41	0.41	30.0	3.40	1	8.57	16
211					DILLARDS-PENNEYS LL									
212	RD-52A	MH-54	206	213	W1/2 STORE P	0.92	0.90	0.83	3.16	30.5	3.34	11	5.57	189

	ARROWHEAD TOWNE CENTER UPDATE SEPTEMBER 1994						RUN-			FLOW	RAIN			
	FILE:ATC100.WK4/RPT100.WK4					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	100YR	C.F.S.	Qo	%
213	MH-52	RD-52A	212	217		NA	NA	1.22	2.33	30.3	3.40	8	5.57	142
214	CB-51	MH-52	213	215	DA#15	0.35	0.90	0.32	1.11	30.1	3.40	4	12.12	31
215	PLUG	CB-51	214	START	MALL	0.88	0.90	0.79	0.79	30.0	3.40	3	22.88	12
216					DILLARDS LL									
217	RD-50	MH-52	213	218	SE1/4 STORE D	0.61	0.90	0.55	1.22	30.7	3.34	4	3.43	119
218	MH-49	RD-50	217	219		NA	NA	0.00	0.68	30.7	3.34	2	3.43	66
219	RD-48	MH-49	218	220	SW1/4 STORE D	0.61	0.90	0.55	0.68	30.3	3.40	2	3.43	67
220	MH-47	RD-48	219	221		NA	NA	0.00	0.13	30.3	3.40	0	3.43	12
221	CB-47	MH-47	220	START	DA#14 DOCK	0.14	0.90	0.13	0.13	30.0	3.40	0	3.43	12
222					DILLARDS LL									
223	CB-46	CB-55	204	224	DA#13	1.02	0.85	0.87	4.71	32.2	3.28	15	12.00	129
224	CB-45	CB-46	223	225	DA#12	0.90	0.85	0.77	3.84	31.5	3.34	13	12.00	107
225	CB-44	CB-45	224	226	DA#11	1.36	0.85	1.16	3.08	30.7	3.34	10	12.00	86
226	CB-43	CB-44	225	227	DA#10	1.13	0.85	0.96	1.92	30.4	3.40	7	45.84	14
227	CB-42	CB-43	226	START	DA#9	1.13	0.85	0.96	0.96	30.0	3.40	3	10.24	32
228					WARDS-DILLARDS UL									
229	MH-29	MH-30	116	230		NA	NA	0.00	2.40	30.9	3.34	8	9.89	81
230	RD-29A	MH-29	229	231	NW1/4STORE D	0.62	0.90	0.56	2.40	30.6	3.34	8	7.00	115
231	RD-28A	RD-29A	230	232	W1/2W&N1/4D	1.27	0.90	1.14	1.85	30.3	3.40	6	7.00	90
232	MH-28	RD-28A	231	233		NA	NA	0.00	0.70	30.3	3.40	2	7.00	34
233	PLUG	MH-28	232	START	MALL & DA#8	0.78	0.90	0.70	0.70	30.0	3.40	2	10.79	22
234					NORTH AC PARCEL									
235	MH-14A	MH-16	128	236		NA	NA	0.00	0.66	31.6	3.28	2	5.57	39
236	MH-14	MH-14A	235	237				0.00	0.66	30.3	3.40	2	5.57	40
237	PLUG	MH-14	236	START	AP #D	6.57	0.10	0.66	0.66	30.0	3.40	2	5.57	40

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
			OUTFALL TO SKUNK CREEK													
18	96	823	614	100	0.0	-1.6	OUTLET	8.20	0.0022	0.0026	7.18	8.00	6.36	0.79	7.18	8.2
19	84	314	-0	126	1.8	1.0	PIPE FULL	9.09	-0.0004	0.0000	7.00	7.00	7.00	1.00	7.00	9.1
20	84	42	-0	128	1.9	1.8	PIPE FULL	8.99	-0.0002	0.0000	7.00	7.00	7.00	1.00	7.00	9.0
21	84	574	-0	142	3.0	1.9	PIPE FULL	7.82	-0.0004	0.0000	7.00	7.00	7.00	1.00	7.00	7.8
22	84	456	-0	149	3.4	3.0	PIPE FULL	6.70	-0.0007	0.0000	7.00	7.00	7.00	1.00	7.00	6.7
23	84	203	-0	151	3.6	3.4	PIPE FULL	6.23	-0.0006	0.0000	7.00	7.00	7.00	1.00	7.00	6.2
24	66	183	-0	210	6.1	5.3	PIPE FULL	10.10	-0.0007	0.0000	5.50	5.50	5.50	1.00	5.50	10.1
25	66	216	-0	100	-0.0	6.1	PARTIAL	10.10	-0.0333	0.0000	5.50	5.49	5.50	1.00	5.49	10.1
26	15	23	-0	5	-1.2	0.6	PARTIAL	0.68	-0.3535	0.0000	1.25	0.06	1.25	1.00	0.66	0.1
27	66	13	-0	93	-0.4	-0.0	PARTIAL	10.09	-0.0282	0.0051	5.49	5.12	5.49	1.00	5.30	10.1
28	15	22	-0	5	-1.2	0.6	PARTIAL	0.69	-0.3691	0.0000	1.25	0.06	1.25	1.00	0.66	0.1
29			EAST 1/2 MALL				ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE									
30	66	23	-8	119	1.0	-0.3	PIPE FULL	11.99	-0.0282	0.0051	5.33	5.50	5.16	0.94	5.33	10.4
31	15	20	-0	15	-1.1	0.6	PARTIAL	11.18	-0.2720	0.0000	1.25	0.18	1.25	1.00	0.72	1.2
32	66	99	-0	119	1.0	1.1	PIPE FULL	5.95	-0.0020	0.0000	5.50	5.50	5.50	1.00	5.50	6.0
33	15	9	-0	10	-1.1	3.2	PARTIAL	5.20	-0.9433	0.0000	1.25	0.13	1.25	1.00	0.69	1.0
34	15	48	-77	23	-1.0	-1.0	PARTIAL	3.52	-0.0096	0.0004	0.77	0.29	0.29	0.23	0.29	3.9
35	66	60	-0	120	1.1	1.1	PIPE FULL	5.91	-0.0020	0.0000	5.50	5.50	5.50	1.00	5.50	5.9
36	66	72	-0	122	1.2	1.2	PIPE FULL	5.66	-0.0010	0.0000	5.50	5.50	5.50	1.00	5.50	5.7
37	66	216	-0	125	1.4	1.3	PIPE FULL	5.48	-0.0010	0.0000	5.50	5.50	5.50	1.00	5.50	5.5
38	15	39	-10	15	-1.1	-1.1	PARTIAL	4.73	-0.0484	0.0004	0.72	0.18	0.18	0.15	0.18	6.1
39	66	129	-0	127	1.5	1.5	PIPE FULL	5.20	-0.0010	0.0000	5.50	5.50	5.50	1.00	5.50	5.2
40	66	249	-0	129	1.6	1.6	PIPE FULL	5.11	-0.0010	0.0000	5.50	5.50	5.50	1.00	5.50	5.1
41	15	39	-21	77	-0.3	-0.3	PARTIAL	12.34	0.0384	0.0899	1.11	0.96	0.96	0.77	0.96	14.9
42	66	284	-0	131	1.7	1.7	PIPE FULL	4.73	-0.0010	0.0000	5.50	5.50	5.50	1.00	5.50	4.7
43	60	111	-0	141	2.0	2.3	PIPE FULL	4.95	-0.0037	0.0000	5.00	5.00	5.00	1.00	5.00	5.0
44	60	20	-0	142	2.1	2.1	PIPE FULL	4.02	-0.0037	0.0000	5.00	5.00	5.00	1.00	5.00	4.0

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
45	15	9	-0	5	-1.2	3.3	PARTIAL	1.04	-0.8278	0.0000	1.25	0.06	1.25	1.00	0.66	0.2
46	18	46	-0	13	-1.3	3.2	PARTIAL	7.37	-0.1648	0.0000	1.50	0.19	1.50	1.00	0.85	0.8
47	60	96	-0	138	1.9	2.2	PIPE FULL	3.96	-0.0015	0.0000	5.00	5.00	5.00	1.00	5.00	4.0
48	15	6	7	17	-1.0	-1.0	PARTIAL	8.94	-0.0982	0.0018	0.73	0.21	0.21	0.17	0.21	10.4
49	15	39	36	38	-0.8	-0.8	PARTIAL	11.00	-0.0359	0.0156	0.86	0.47	0.47	0.38	0.47	12.3
50	60	69	-0	136	1.8	2.0	PIPE FULL	3.78	-0.0037	0.0000	5.00	5.00	5.00	1.00	5.00	3.8
51	60	27	-0	137	1.9	1.9	PIPE FULL	3.51	-0.0017	0.0000	5.00	5.00	5.00	1.00	5.00	3.5
52	15	9	-0	10	-1.1	3.5	PARTIAL	4.73	-0.7789	0.0000	1.25	0.13	1.25	1.00	0.69	0.8
53	15	44	-0	29	-0.9	3.5	PARTIAL	16.61	-0.1593	0.0000	1.25	0.37	1.25	1.00	0.81	4.1
54	60	91	-0	137	1.8	2.0	PIPE FULL	3.28	-0.0017	0.0000	5.00	5.00	5.00	1.00	5.00	3.3
55	60	131	-0	133	1.7	1.7	PIPE FULL	3.33	-0.0017	0.0000	5.00	5.00	5.00	1.00	5.00	3.3
56	60	88	-0	134	1.7	1.8	PIPE FULL	3.06	-0.0010	0.0000	5.00	5.00	5.00	1.00	5.00	3.1
57	15	16	6	13	-1.1	-1.1	PARTIAL	5.08	-0.0993	0.0007	0.71	0.16	0.16	0.13	0.16	10.4
58	15	67	-0	24	-0.9	1.8	PARTIAL	10.72	-0.0875	0.0000	1.25	0.30	1.25	1.00	0.78	2.0
59	15	80	-165	35	-0.8	-0.8	PARTIAL	3.31	-0.0039	0.0011	0.84	0.44	0.44	0.35	0.44	3.4
60	15	54	-143	21	-1.0	-0.7	PARTIAL	2.00	-0.0049	0.0001	0.89	0.27	0.54	0.43	0.40	0.7
61	60	217	-0	134	1.7	1.8	PIPE FULL	3.02	-0.0010	0.0000	5.00	5.00	5.00	1.00	5.00	3.0
62	60	74	-0	135	1.8	1.8	PIPE FULL	2.92	-0.0010	0.0000	5.00	5.00	5.00	1.00	5.00	2.9
63	15	5	6	18	-1.0	-1.0	PARTIAL	9.41	-0.0981	0.0019	0.74	0.23	0.23	0.18	0.23	10.4
64	15	39	-4	17	-1.0	-1.0	PARTIAL	6.42	-0.0507	0.0009	0.73	0.21	0.21	0.17	0.21	7.3
65	54	30	-0	141	1.8	1.9	PIPE FULL	3.53	-0.0010	0.0000	4.50	4.50	4.50	1.00	4.50	3.5
66	54	180	-0	142	1.9	1.9	PIPE FULL	3.46	-0.0010	0.0000	4.50	4.50	4.50	1.00	4.50	3.5
67	15	75	-0	13	-1.1	3.6	PARTIAL	5.58	-0.1205	0.0000	1.25	0.16	1.25	1.00	0.71	0.7
68	15	68	-178	23	-1.0	-1.0	PARTIAL	2.49	-0.0048	0.0002	0.77	0.29	0.29	0.23	0.29	2.7
69	54	220	-0	142	1.9	2.0	PIPE FULL	3.47	-0.0010	0.0000	4.50	4.50	4.50	1.00	4.50	3.5
70	48	164	-0	151	2.0	2.0	PIPE FULL	4.23	-0.0010	0.0000	4.00	4.00	4.00	1.00	4.00	4.2
71	15	39	29	38	-0.8	-0.8	PARTIAL	11.00	-0.0375	0.0141	0.86	0.47	0.47	0.38	0.47	11.6
72	48	39	-0	153	2.1	2.1	PIPE FULL	3.63	-0.0010	0.0000	4.00	4.00	4.00	1.00	4.00	3.6

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
73	48	115	-0	155	2.2	2.2	PIPE FULL	3.40	-0.0010	0.0000	4.00	4.00	4.00	1.00	4.00	3.4
74	15	39	33	31	-0.9	-0.9	PARTIAL	9.71	-0.0420	0.0096	0.82	0.39	0.39	0.31	0.39	12.4
75	48	82	-0	157	2.3	2.3	PIPE FULL	3.20	-0.0010	0.0000	4.00	4.00	4.00	1.00	4.00	3.2
76	48	73	-0	159	2.3	2.4	PIPE FULL	2.79	-0.0010	0.0000	4.00	4.00	4.00	1.00	4.00	2.8
77	15	33	0	122	0.3	0.0	PIPE FULL	7.72	0.0084	0.0184	1.25	1.25	1.25	1.00	1.25	7.7
78	15	83	-0	47	-0.7	0.4	PARTIAL	10.49	-0.0367	0.0000	1.25	0.59	1.25	1.00	0.92	4.9
79	15	51	-28	16	-1.1	-0.6	PARTIAL	3.79	-0.0198	0.0002	0.97	0.20	0.69	0.55	0.44	0.8
80	48	206	-0	158	2.3	2.4	PIPE FULL	2.26	-0.0010	0.0000	4.00	4.00	4.00	1.00	4.00	2.3
81	15	39	18	35	-0.8	-0.8	PARTIAL	10.59	-0.0410	0.0103	0.84	0.44	0.44	0.35	0.44	10.6
82	15	58	-135	23	-1.0	-0.7	PARTIAL	2.58	-0.0051	0.0002	0.89	0.29	0.54	0.43	0.41	1.2
83	42	97	-0	167	2.4	2.4	PIPE FULL	2.59	-0.0010	0.0000	3.50	3.50	3.50	1.00	3.50	2.6
84	42	80	-0	169	2.4	2.5	PIPE FULL	2.23	-0.0010	0.0000	3.50	3.50	3.50	1.00	3.50	2.2
85	15	39	30	38	-0.8	-0.8	PARTIAL	11.00	-0.0373	0.0142	0.86	0.47	0.47	0.38	0.47	11.7
86	42	53	-0	170	2.5	2.5	PIPE FULL	1.83	-0.0010	0.0000	3.50	3.50	3.50	1.00	3.50	1.8
87	42	249	-0	162	2.2	2.6	PIPE FULL	1.90	-0.0019	0.0000	3.50	3.50	3.50	1.00	3.50	1.9
88	36	26	-0	174	2.2	2.3	PIPE FULL	2.59	-0.0024	0.0000	3.00	3.00	3.00	1.00	3.00	2.6
89	30	100	-0	189	2.2	2.3	PIPE FULL	3.15	-0.0024	0.0000	2.50	2.50	2.50	1.00	2.50	3.1
90	30	113	-0	186	2.1	2.3	PIPE FULL	2.61	-0.0024	0.0000	2.50	2.50	2.50	1.00	2.50	2.6
91	24	125	-0	202	2.0	2.2	PIPE FULL	2.24	-0.0024	0.0000	2.00	2.00	2.00	1.00	2.00	2.2
92	18	163	-0	266	2.5	2.5	PIPE FULL	2.91	-0.0024	0.0000	1.50	1.50	1.50	1.00	1.50	2.9
93	18	94	-0	265	2.5	2.6	PIPE FULL	2.37	-0.0024	0.0000	1.50	1.50	1.50	1.00	1.50	2.4
94	15	27	-0	316	2.7	2.7	PIPE FULL	2.59	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	2.6
95	**15**	**15**	**-0**	**323**	**2.8**	**2.8**	**PIPE FULL**	**1.80**	**-0.0024**	**0.0000**	**1.25**	**1.25**	**1.25**	**1.00**	**1.25**	**1.8**
96			WEST 1/2 MALL				ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE									
97	54	94	-0	100	2.1	2.1	PIPE FULL	6.87	-0.0025	0.0000	4.50	4.50	4.50	1.00	4.50	6.9
98	15	7	-0	348	3.1	3.8	PIPE FULL	1.79	-0.1000	0.0000	1.25	1.25	1.25	1.00	1.25	1.8
99	15	39	-0	243	1.8	3.8	PIPE FULL	0.64	-0.0515	0.0000	1.25	1.25	1.25	1.00	1.25	0.6
100	54	79	-0	100	2.2	2.2	PIPE FULL	6.82	-0.0025	0.0000	4.50	4.50	4.50	1.00	4.50	6.8

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK-	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
101	54	43	-0	100	2.3	2.3	PIPE FULL	4.89	-0.0025	0.0000	4.50	4.50	4.50	1.00	4.50	4.9
102	54	232	-0	100	2.0	2.4	PIPE FULL	4.64	-0.0025	0.0000	4.50	4.50	4.50	1.00	4.50	4.6
103	15	6	15	21	-1.0	-1.0	PARTIAL	10.35	-0.0962	0.0038	0.76	0.26	0.26	0.21	0.26	12.6
104	15	39	1	18	-1.0	-1.0	PARTIAL	6.76	-0.0503	0.0012	0.74	0.23	0.23	0.18	0.23	8.3
105	54	226	-0	100	2.2	2.1	PIPE FULL	4.46	-0.0010	0.0000	4.50	4.50	4.50	1.00	4.50	4.5
106	54	15	-0	100	2.3	2.3	PIPE FULL	4.32	-0.0010	0.0000	4.50	4.50	4.50	1.00	4.50	4.3
107	54	65	-0	100	2.4	2.4	PIPE FULL	4.38	-0.0010	0.0000	4.50	4.50	4.50	1.00	4.50	4.4
108	54	206	-0	100	2.5	2.5	PIPE FULL	4.30	-0.0010	0.0000	4.50	4.50	4.50	1.00	4.50	4.3
109	15	75	-168	29	-0.9	-0.9	PARTIAL	2.90	-0.0045	0.0005	0.80	0.36	0.36	0.29	0.36	3.0
110	15	68	-159	20	-1.0	-0.8	PARTIAL	2.21	-0.0049	0.0001	0.85	0.24	0.46	0.37	0.35	1.1
111	48	123	-0	100	1.7	1.8	PIPE FULL	5.38	-0.0025	0.0000	4.00	4.00	4.00	1.00	4.00	5.4
112	15	12	6	13	-1.1	-1.1	PARTIAL	5.08	-0.0993	0.0007	0.71	0.16	0.16	0.13	0.16	10.4
113	15	39	-5	15	-1.1	-1.1	PARTIAL	4.87	-0.0510	0.0005	0.72	0.18	0.18	0.15	0.18	7.2
114	48	68	-0	100	1.8	1.8	PIPE FULL	5.27	-0.0026	0.0000	4.00	4.00	4.00	1.00	4.00	5.3
115	48	175	-0	100	1.7	1.9	PIPE FULL	5.22	-0.0026	0.0000	4.00	4.00	4.00	1.00	4.00	5.2
116	48	37	-0	100	1.7	1.8	PIPE FULL	5.05	-0.0026	0.0000	4.00	4.00	4.00	1.00	4.00	5.0
117	15	38	37	100	-0.7	-0.7	PARTIAL	11.50	-0.0306	0.0197	0.89	0.53	0.53	0.42	0.53	11.9
118	48	164	-0	100	1.6	1.8	PIPE FULL	4.11	-0.0026	0.0000	4.00	4.00	4.00	1.00	4.00	4.1
119	48	29	-0	100	1.7	1.7	PIPE FULL	3.85	-0.0022	0.0000	4.00	4.00	4.00	1.00	4.00	3.9
120	15	39	79	100	-0.7	-0.7	PARTIAL	12.42	-0.0193	0.0322	0.92	0.59	0.59	0.47	0.59	13.4
121	48	219	-0	100	1.5	1.8	PIPE FULL	3.40	-0.0022	0.0000	4.00	4.00	4.00	1.00	4.00	3.4
122	15	73	22	100	-0.9	-0.9	PARTIAL	12.49	-0.0796	0.0105	0.81	0.37	0.37	0.29	0.37	13.5
123	15	57	107	74	-0.3	-0.5	PARTIAL	4.39	0.0028	0.0078	1.01	0.93	0.78	0.62	0.85	4.4
124	15	58	-99	68	-0.4	-0.2	PARTIAL	4.23	-0.0019	0.0031	1.14	0.85	1.03	0.82	0.94	2.8
125	48	128	-0	100	1.3	1.6	PIPE FULL	3.12	-0.0025	0.0000	4.00	4.00	4.00	1.00	4.00	3.1
126	48	91	-0	131	1.2	1.4	PIPE FULL	3.03	-0.0024	0.0000	4.00	4.00	4.00	1.00	4.00	3.0
127	15	39	46	100	-0.7	-0.7	PARTIAL	11.65	-0.0295	0.0221	0.89	0.53	0.53	0.42	0.53	12.6
128	48	177	-0	125	1.0	1.3	PIPE FULL	2.64	-0.0024	0.0000	4.00	4.00	4.00	1.00	4.00	2.6

	PIPE	LEN-	BACK-	FLOW	FULL = ZERO		DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
129	15	7	1	12	-1.1	-1.1	PARTIAL	3.39	-0.0996	0.0004	0.70	0.14	0.14	0.12	0.14	8.7
130	15	39	-86	18	-1.0	-1.0	PARTIAL	2.94	-0.0095	0.0002	0.74	0.23	0.23	0.18	0.23	3.7
131	48	92	-0	121	0.8	1.0	PIPE FULL	2.44	-0.0024	0.0000	4.00	4.00	4.00	1.00	4.00	2.4
132	15	26	-0	10	-1.1	2.3	PARTIAL	3.59	-0.4489	0.0000	1.25	0.13	1.25	1.00	0.69	0.7
133	48	165	-0	115	0.6	0.9	PIPE FULL	5.46	-0.0024	0.0000	4.00	4.00	4.00	1.00	4.00	2.4
134	15	10	-0	10	-1.1	1.4	PARTIAL	13.13	-6.0000	0.0000	1.25	0.13	1.25	1.00	0.69	1.6
135	48	182	-0	108	0.3	0.7	PIPE FULL	5.46	-0.0024	0.0000	4.00	4.00	4.00	1.00	4.00	2.3
136	48	169	-0	99	-0.0	0.3	PARTIAL	5.46	-0.0024	0.0000	4.00	3.96	4.00	1.00	3.98	2.3
137	18	186	32	56	-0.7	-0.7	PARTIAL	3.92	0.0046	0.0140	1.17	0.84	0.84	0.56	0.84	7.0
138	15	113	0	100	0.0	0.0	PARTIAL	4.24	0.0031	0.0055	1.25	1.25	1.25	1.00	1.25	4.2
139	24	129	-0	150	1.0	1.1	PIPE FULL	3.42	-0.0024	0.0000	2.00	2.00	2.00	1.00	2.00	3.4
140	15	225	0	118	0.2	0.0	PIPE FULL	3.32	0.0010	0.0034	1.25	1.25	1.25	1.00	1.25	3.3
141	15	247	-0	123	0.3	0.3	PIPE FULL	2.69	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	2.7
142	18	95	-0	206	1.6	1.5	PIPE FULL	3.78	-0.0024	0.0000	1.50	1.50	1.50	1.00	1.50	3.8
143	15	200	-0	220	1.5	1.8	PIPE FULL	1.60	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	1.6
144	15	185	-0	241	1.8	1.8	PIPE FULL	2.50	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	2.5
145	15	52	-0	242	1.8	1.9	PIPE FULL	1.62	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	1.6
146	**15**	**15**	**-0**	**246**	**1.8**	**1.9**	**PIPE FULL**	**0.92**	**-0.0024**	**0.0000**	**1.25**	**1.25**	**1.25**	**1.00**	**1.25**	**0.9**
147			EAST 1/2 MALL				ARROWHEAD TOWNE CENTER ONSITE SYSTEM									
148										PENNEYS LL						
149	18	85	11	77	-0.3	-0.3	PARTIAL	6.07	0.0071	0.0171	1.33	1.16	1.16	0.77	1.16	7.3
150	15	181	-31	45	-0.7	-0.2	PARTIAL	5.30	-0.0067	0.0033	1.13	0.56	1.01	0.80	0.78	2.9
151	15	210	18	77	-0.3	-0.2	PARTIAL	5.30	0.0050	0.0150	1.13	0.96	1.01	0.80	0.98	6.2
152			PENNEYS-MERVYN'S UL												0.00	
153	18	355	-0	45	-0.8	1.5	PARTIAL	13.51	-0.0509	0.0000	1.50	0.68	1.50	1.00	1.09	5.9
154	18	145	0	133	0.5	0.0	PIPE FULL	5.91	0.0034	0.0084	1.50	1.50	1.50	1.00	1.50	5.9
155	15	75	-0	68	-0.4	0.7	PARTIAL	3.28	-0.0150	0.0000	1.25	0.85	1.25	1.00	1.05	0.4
156	18	32	-0	153	0.8	0.7	PIPE FULL	5.66	-0.0050	0.0000	1.50	1.50	1.50	1.00	1.50	5.7

	PIPE	LEN-	BACK-	FLOW	FULL = ZERO		DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
157	18	117	-0	181	1.2	0.9	PIPE FULL	5.66	-0.0050	0.0000	1.50	1.50	1.50	1.00	1.50	5.7
158	15	52	-0	76	-0.3	0.9	PARTIAL	6.05	-0.0200	0.0000	1.25	1.15	1.25	1.00	1.20	1.9
159	18	50	-0	128	0.4	0.5	PIPE FULL	3.71	-0.0050	0.0000	1.50	1.50	1.50	1.00	1.50	3.7
160	18	137	-0	73	-0.4	0.0	PARTIAL	4.78	-0.0050	0.0000	1.50	1.09	1.50	1.00	1.30	2.9
161	18	151	-0	97	-0.0	0.5	PARTIAL	4.55	-0.0050	0.0000	1.50	1.46	1.50	1.00	1.48	2.4
162	15	54	-0	35	-0.8	0.1	PARTIAL	10.45	-0.0500	0.0000	1.25	0.44	1.25	1.00	0.84	3.4
163	18	66	-72	60	-0.6	-0.3	PARTIAL	3.87	-0.0041	0.0009	1.35	0.90	1.19	0.80	1.04	1.7
164	12	47	1	38	-0.6	-0.5	PARTIAL	8.17	-0.0331	0.0052	0.75	0.38	0.50	0.50	0.44	6.7
165			MERVYN'S- ROBINSON$ LL													
166	24	334	-0	172	1.4	1.8	PIPE FULL	3.72	-0.0036	0.0000	2.00	2.00	2.00	1.00	2.00	3.7
167	15	6	-155	38	-0.8	-0.7	PARTIAL	3.02	-0.0044	0.0006	0.88	0.47	0.50	0.40	0.49	2.2
168	15	48	-185	42	-0.7	-0.7	PARTIAL	3.63	-0.0028	0.0022	0.89	0.53	0.53	0.42	0.53	4.0
169	18	132	-0	271	2.6	2.0	PIPE FULL	5.18	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	5.2
170	15	4	-0	310	2.6	2.7	PIPE FULL	0.78	-0.0100	0.0000	1.25	1.25	1.25	1.00	1.25	0.8
171	15	37	-0	289	2.4	2.7	PIPE FULL	0.22	-0.0100	0.0000	1.25	1.25	1.25	1.00	1.25	0.2
172	18	115	0	123	0.3	0.0	PIPE FULL	4.78	0.0030	0.0055	1.50	1.50	1.50	1.00	1.50	4.8
173	18	55	-0	272	2.6	2.5	PIPE FULL	4.42	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	4.4
174	18	122	-0	297	2.9	2.7	PIPE FULL	4.42	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	4.4
175	15	82	-0	384	3.6	3.0	PIPE FULL	7.26	-0.0100	0.0000	1.25	1.25	1.25	1.00	1.25	7.3
176	18	116	-0	124	0.4	0.4	PIPE FULL	2.69	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	2.7
177	18	403	-0	301	3.0	3.7	PIPE FULL	1.94	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	1.9
178	18	46	-0	124	0.4	0.5	PIPE FULL	0.97	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	1.0
179	18	249	-0	93	-0.1	0.5	PARTIAL	2.74	-0.0025	0.0000	1.50	1.39	1.50	1.00	1.45	1.0
180	15	26	-62	88	-0.2	-0.1	PARTIAL	2.85	-0.0017	0.0008	1.20	1.09	1.14	0.91	1.12	1.5
181			MERVYN'S-ROBINSONS LL													
182	36	103	907	60	-1.2	-1.3	PARTIAL	5.37	0.0011	0.0036	2.34	1.81	1.68	0.56	1.75	5.5
183	15	294	233	65	-0.4	-0.4	PARTIAL	3.14	0.0015	0.0040	1.03	0.81	0.81	0.65	0.81	3.2
184	30	208	380	79	-0.5	-0.9	PARTIAL	4.98	0.0017	0.0042	2.06	1.99	1.63	0.65	1.81	5.1

	PIPE	LEN-	BACK-	FLOW	FULL = ZERO		DESIGN	DESIGN	NET	BKWTR	BACK-	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
185	24	169	0	111	0.2	0.0	PIPE FULL	4.84	0.0014	0.0039	2.00	2.00	2.00	1.00	2.00	4.8
186	24	188	-0	114	0.3	0.3	PIPE FULL	3.70	-0.0025	0.0000	2.00	2.00	2.00	1.00	2.00	3.7
187	24	169	-0	108	0.2	0.4	PIPE FULL	2.69	-0.0025	0.0000	2.00	2.00	2.00	1.00	2.00	2.7
188	18	200	-0	116	0.2	0.3	PIPE FULL	3.15	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	3.1
189	18	59	-0	119	0.3	0.3	PIPE FULL	2.59	-0.0025	0.0000	1.50	1.50	1.50	1.00	1.50	2.6
190	15	171	-0	134	0.4	0.4	PIPE FULL	2.97	-0.0025	0.0000	1.25	1.25	1.25	1.00	1.25	3.0
191			FUTURE-ROBINSONS UL													
192	15	46	-0	305	2.6	4.0	PIPE FULL	3.55	-0.0535	0.0000	1.25	1.25	1.25	1.00	1.25	3.6
193	15	104	-0	38	-0.8	2.7	PARTIAL	9.69	-0.0400	0.0000	1.25	0.47	1.25	1.00	0.86	3.6
194	15	69	8	42	-0.7	-0.7	PARTIAL	8.89	-0.0190	0.0110	0.91	0.53	0.57	0.46	0.55	8.1
195	15	87	-21	12	-1.1	-0.6	PARTIAL	1.86	-0.0300	0.0000	0.94	0.14	0.63	0.50	0.38	0.4
196	15	115	-5	38	-0.8	-0.6	PARTIAL	8.39	-0.0207	0.0093	0.94	0.47	0.63	0.50	0.55	6.7
197	15	295	6	42	-0.7	-0.7	PARTIAL	8.11	-0.0150	0.0100	0.91	0.53	0.57	0.46	0.55	7.8
198	15	45	-121	45	-0.7	-0.7	PARTIAL	4.37	-0.0035	0.0033	0.91	0.56	0.57	0.46	0.57	4.5
199	15	64	-20	31	-0.9	-0.6	PARTIAL	6.76	-0.0218	0.0032	0.96	0.39	0.66	0.53	0.52	3.7
200			FUTURE STORE LL													
201	15	137	4875	57	-0.5	-0.6	PARTIAL	2.93	0.0001	0.0025	0.97	0.71	0.70	0.56	0.71	3.0
202			ARROWHEAD TOWNE CENTER ONSITE SYSTEM							ARROWHEAD TOWNE CENTER ONSITE SYSTI						
203			WEST 1/2 MALL					PENNEYS-DILLARDS LL								
204	30	158	-0	220	3.0	2.3	PIPE FULL	7.66	-0.0024	0.0000	2.50	2.50	2.50	1.00	2.50	7.7
205	24	196	-0	288	3.8	3.1	PIPE FULL	5.95	-0.0024	0.0000	2.00	2.00	2.00	1.00	2.00	5.9
206	24	185	-0	293	3.9	3.9	PIPE FULL	3.80	-0.0024	0.0000	2.00	2.00	2.00	1.00	2.00	3.8
207			PENNEYS LL													
208	15	179	-0	388	3.6	4.0	PIPE FULL	1.13	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	1.1
209	15	90	-0	382	3.5	3.7	PIPE FULL	1.15	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	1.1
210	15	8	-0	380	3.5	3.6	PIPE FULL	1.15	-0.0150	0.0000	1.25	1.25	1.25	1.00	1.25	1.1
211			DILLARDS-PENNEYS LL													
212	18	57	-0	387	4.3	4.0	PIPE FULL	5.96	-0.0024	0.0000	1.50	1.50	1.50	1.00	1.50	6.0

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	%	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d/D	d	F/F
213	18	68	0	111	0.2	0.0	PIPE FULL	4.48	0.0024	0.0048	1.50	1.50	1.50	1.00	1.50	4.5
214	15	104	-0	38	-0.8	0.3	PARTIAL	8.39	-0.0300	0.0000	1.25	0.47	1.25	1.00	0.86	3.1
215	15	35	-3	23	-1.0	-0.7	PARTIAL	11.52	-0.1028	0.0042	0.91	0.29	0.57	0.46	0.43	5.0
216			DILLARDS LL													
217	15	116	-0	131	0.4	0.3	PIPE FULL	3.33	-0.0024	0.0000	1.25	1.25	1.25	1.00	1.25	3.3
218	15	243	630	72	-0.4	-0.5	PARTIAL	2.99	0.0007	0.0031	0.99	0.90	0.74	0.59	0.82	3.0
219	15	74	-477	72	-0.4	-0.3	PARTIAL	2.99	-0.0005	0.0019	1.12	0.89	1.00	0.80	0.94	2.2
220	15	293	-189	24	-0.9	-0.4	PARTIAL	1.78	-0.0023	0.0001	1.03	0.30	0.82	0.65	0.56	0.5
221	15	35	-363	26	-0.9	-0.8	PARTIAL	1.78	-0.0023	0.0001	0.83	0.32	0.40	0.32	0.36	1.3
222			DILLARDS LL													
223	24	305	-0	279	3.6	3.1	PIPE FULL	4.92	-0.0024	0.0000	2.00	2.00	2.00	1.00	2.00	4.9
224	24	181	-0	287	3.7	3.7	PIPE FULL	4.08	-0.0024	0.0000	2.00	2.00	2.00	1.00	2.00	4.1
225	24	162	-0	287	3.7	3.8	PIPE FULL	3.27	-0.0024	0.0000	2.00	2.00	2.00	1.00	2.00	3.3
226	24	143	-0	45	-1.1	3.8	PARTIAL	9.81	-0.0350	0.0000	2.00	0.91	2.00	1.00	1.45	2.1
227	18	123	-241	38	-0.9	-0.9	PARTIAL	4.93	-0.0021	0.0060	1.03	0.57	0.57	0.38	0.57	5.5
228			WARDS-DILLARDS UL													
229	15	350	-16	67	-0.4	-0.4	PARTIAL	9.03	0.0144	0.0344	1.04	0.84	0.84	0.67	0.84	9.2
230	15	118	0	130	0.4	0.0	PIPE FULL	6.54	0.0032	0.0132	1.25	1.25	1.25	1.00	1.25	6.5
231	15	200	14	71	-0.4	-0.3	PARTIAL	6.44	0.0064	0.0164	1.09	0.89	0.94	0.75	0.91	6.4
232	15	74	-0	85	-0.2	0.5	PARTIAL	4.85	-0.0100	0.0000	1.25	1.07	1.25	1.00	1.16	1.9
233	15	135	-3	31	-0.9	-0.1	PARTIAL	6.60	-0.0224	0.0014	1.21	0.39	1.17	0.93	0.78	2.0
234			NORTH AC PARCEL													
235	18	89	-0	95	-0.1	0.1	PARTIAL	2.84	-0.0024	0.0000	1.50	1.43	1.50	1.00	1.46	1.2
236	18	222	-0	72	-0.4	0.0	PARTIAL	2.93	-0.0024	0.0000	1.50	1.08	1.50	1.00	1.29	1.3
237	18	51	-260	65	-0.5	-0.4	PARTIAL	2.93	-0.0015	0.0009	1.29	0.98	1.08	0.72	1.03	1.6

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	**DESIGN**			**DESIGN**	**DESIGN**	**DESIGN**
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
								OUTFALL TO	SKUNK	CREEK			
18	7.4	7.0	3.7	NA	1187.7	1187.7	1186.9	FLOW DEPTH	NA	NA	(D+Dc)/2+INV	1187.65	1185.66
19	9.1	9.1	3.4	NA	1186.8	1186.8	1188.6	TAILWATER	1186.7	1187.7	TAILWATER	1188.60	1187.66
20	9.0	9.0	2.6	NA	1186.8	1186.8	1188.7	TAILWATER	1186.8	1188.6	TAILWATER	1188.73	1188.60
21	7.8	7.8	3.5	NA	1187.1	1187.1	1190.0	TAILWATER	1186.8	1188.7	TAILWATER	1190.02	1188.74
22	6.7	6.7	4.4	NA	1187.4	1187.4	1190.8	TAILWATER	1187.1	1190.0	TAILWATER	**1190.77**	1190.03
23	6.2	6.2	4.2	NA	1187.5	1187.5	1191.1	TAILWATER	1187.4	1190.8	TAILWATER	1191.06	1190.78
24	10.1	10.1	3.8	NA	1186.2	1186.2	1192.2	TAILWATER	1186.0	1191.3	TAILWATER	1192.22	1191.29
25	10.1	10.1	23.2	NA	1190.2	1190.2	1193.3	TAILWATER	1183.0	1192.2	TAILWATER	1193.33	1192.22
26	0.3	0.1	0.7	NA	1199.8	1199.8	1193.4	FLOW DEPTH	1191.7	1193.4	TAILWATER	1199.81	1193.43
27	10.2	10.1	23.2	NA	1190.6	1190.6	1193.4	TAILWATER	1190.2	1193.3	TAILWATER	1193.39	1193.33
28	0.2	0.1	0.7	NA	1199.8	1199.8	1193.5	FLOW DEPTH	1191.7	1193.5	TAILWATER	1199.81	1193.49
29		ARROWHEAD	TOWNE	CENTER	RING	ROAD	TRUNK	LINE	EAST 1/2	MALL			
30	10.2	10.1	12.0	NA	1195.6	1195.6	1193.5	FLOW DEPTH	1190.6	1193.4	TAILWATER	1195.58	1193.43
31	2.1	1.2	11.2	NA	1199.9	1199.9	1196.1	FLOW DEPTH	1194.5	1196.1	TAILWATER	1199.93	1196.13
32	6.0	6.0	7.7	NA	1193.7	1193.7	1196.3	TAILWATER	1193.5	1196.1	TAILWATER	1196.28	1196.13
33	1.8	1.0	5.2	NA	1200.5	1200.5	1196.4	FLOW DEPTH	1192.0	1196.4	TAILWATER	1200.51	1196.38
34	3.9	0.6	3.5	NA	1201.1	1201.1	1200.7	FLOW DEPTH	1200.7	1200.6	FLOW DEPTH	1201.15	1200.67
35	5.9	5.9	7.7	NA	1193.8	1193.8	1196.5	TAILWATER	1193.7	1196.4	TAILWATER	1196.47	1196.38
36	5.7	5.7	4.8	NA	1195.5	1195.5	1196.7	TAILWATER	1195.4	1196.6	TAILWATER	1196.67	1196.57
37	5.5	5.5	4.8	NA	1195.7	1195.7	1197.0	TAILWATER	1195.5	1196.8	TAILWATER	1197.05	1196.77
38	6.1	0.5	4.7	NA	1205.7	1205.7	1203.8	FLOW DEPTH	1203.8	1197.1	FLOW DEPTH	1205.73	1203.83
39	5.2	5.2	4.9	NA	1195.8	1195.8	1197.3	TAILWATER	1195.7	1197.1	TAILWATER	1197.29	1197.15
40	5.1	5.1	4.8	NA	1196.1	1196.1	1197.7	TAILWATER	1195.8	1197.4	TAILWATER	1197.67	1197.39
41	14.9	12.3	14.9	NA	1205.1	1205.1	1204.9	FLOW DEPTH	1203.1	1197.8	FLOW DEPTH	1205.13	1203.12
42	4.7	4.7	5.5	NA	1195.6	1195.6	1198.0	TAILWATER	1195.3	1197.8	TAILWATER	1198.04	1197.77
43	5.0	5.0	9.0	NA	1193.9	1193.9	1198.3	TAILWATER	1193.5	1198.1	TAILWATER	1198.27	1198.14
44	4.0	4.0	8.4	NA	1193.7	1193.7	1198.4	TAILWATER	1193.6	1198.4	TAILWATER	1198.39	1198.37

LINE No.	FLOW d/D V F/F	FLOW Q/A V F/F	% Q/Qo V F/F	BK-WTR INLET CNTRL HGL	Q/Qo INLET CNTRL HGL	HIGHER FLOW DEPTH HGL	TW+Hf TAIL-WATER HGL	DESIGN INLET HGL CONTROL	Q/Qo OUTLET HGL	TW+Hm OUTLET HGL	DESIGN OUTLET HGL CONTROL	DESIGN INLET HGL ELEV	DESIGN OUTLET HGL ELEV
45	0.4	0.2	1.0	NA	1201.5	1201.5	1198.5	FLOW DEPTH	1194.0	1198.5	TAILWATER	1201.46	1198.49
46	1.4	0.8	7.4	NA	1201.6	1201.6	1198.5	FLOW DEPTH	1194.0	1198.5	TAILWATER	1201.60	1198.49
47	4.0	4.0	6.1	NA	1194.8	1194.8	1198.6	TAILWATER	1194.4	1198.5	TAILWATER	1198.56	1198.49
48	10.4	1.2	8.9	1200.4	1201.0	1201.0	1200.4	FLOW DEPTH	1200.4	1198.7	FLOW DEPTH	1200.97	1200.37
49	12.3	4.1	11.0	NA	1201.2	1201.2	1199.4	FLOW DEPTH	1199.2	1198.7	FLOW DEPTH	1201.23	1199.22
50	3.8	3.8	8.1	NA	1194.2	1194.2	1198.7	TAILWATER	1193.9	1198.7	TAILWATER	1198.71	1198.66
51	3.5	3.5	6.1	NA	1194.6	1194.6	1198.8	TAILWATER	1194.6	1198.8	TAILWATER	1198.83	1198.81
52	1.4	0.8	4.7	NA	1201.3	1201.3	1198.9	FLOW DEPTH	1194.3	1198.9	TAILWATER	1201.27	1198.93
53	6.1	4.1	16.6	NA	1201.5	1201.5	1199.2	FLOW DEPTH	1194.5	1198.9	TAILWATER	1201.51	1198.93
54	3.3	3.3	6.1	NA	1194.8	1194.8	1199.0	TAILWATER	1194.6	1198.9	TAILWATER	1198.97	1198.93
55	3.3	3.3	6.1	NA	1195.1	1195.1	1199.1	TAILWATER	1195.0	1199.1	TAILWATER	1199.14	1199.07
56	3.1	3.1	4.9	NA	1195.5	1195.5	1199.3	TAILWATER	1195.4	1199.2	TAILWATER	1199.28	1199.24
57	10.4	0.7	5.1	NA	1202.6	1202.6	1201.0	FLOW DEPTH	1201.0	1199.4	FLOW DEPTH	1202.56	1200.96
58	3.1	2.0	10.7	NA	1202.5	1202.5	1199.5	FLOW DEPTH	1196.6	1199.4	TAILWATER	1202.47	1199.38
59	3.4	1.1	3.3	NA	1203.0	1203.0	1202.6	FLOW DEPTH	1202.6	1202.6	FLOW DEPTH	1203.01	1202.61
60	0.9	0.3	2.0	NA	1203.1	1203.1	1203.1	TAILWATER	1202.8	1203.1	TAILWATER	1203.11	1203.11
61	3.0	3.0	4.9	NA	1195.7	1195.7	1199.5	TAILWATER	1195.5	1199.4	TAILWATER	1199.48	1199.38
62	2.9	2.9	4.8	NA	1195.7	1195.7	1199.6	TAILWATER	1195.6	1199.6	TAILWATER	1199.61	1199.58
63	10.4	1.3	9.4	1203.3	1203.8	1203.8	1203.3	FLOW DEPTH	1203.3	1199.7	FLOW DEPTH	1203.81	1203.31
64	7.3	0.8	6.4	NA	1203.8	1203.8	1201.8	FLOW DEPTH	1201.8	1199.7	FLOW DEPTH	1203.80	1201.79
65	3.5	3.5	4.7	NA	1196.4	1196.4	1199.7	TAILWATER	1196.4	1199.7	TAILWATER	1199.73	1199.71
66	3.5	3.5	4.7	NA	1196.6	1196.6	1200.0	TAILWATER	1196.4	1199.8	TAILWATER	1199.95	1199.83
67	1.3	0.7	5.6	NA	1204.4	1204.4	1200.1	FLOW DEPTH	1195.4	1200.1	TAILWATER	1204.40	1200.05
68	2.7	0.4	2.5	NA	1204.9	1204.9	1204.5	FLOW DEPTH	1204.5	1204.5	FLOW DEPTH	1204.87	1204.53
69	3.5	3.5	4.7	NA	1196.8	1196.8	1200.2	TAILWATER	1196.6	1200.1	TAILWATER	1200.20	1200.05
70	4.2	4.2	3.9	NA	1198.5	1198.5	1200.5	TAILWATER	1198.3	1200.3	TAILWATER	1200.49	1200.30
71	11.6	3.9	11.0	NA	1210.2	1210.2	1208.4	FLOW DEPTH	1208.2	1200.6	FLOW DEPTH	1210.20	1208.19
72	3.6	3.6	4.5	NA	1197.6	1197.6	1200.6	TAILWATER	1197.5	1200.6	TAILWATER	1200.62	1200.59

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	**DESIGN**			**DESIGN**	**DESIGN**	**DESIGN**
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	**V**	**V**	**V**	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
73	3.4	3.4	4.4	NA	1197.5	1197.5	1200.8	TAILWATER	1197.3	1200.7	TAILWATER	1200.81	1200.72
74	12.4	3.1	9.7	NA	1208.7	1208.7	1206.8	FLOW DEPTH	1206.7	1200.9	FLOW DEPTH	1208.68	1206.67
75	3.2	3.2	4.4	NA	1197.4	1197.4	1201.0	TAILWATER	1197.3	1200.9	TAILWATER	1200.97	1200.91
76	2.8	2.8	4.3	NA	1197.2	1197.2	1201.1	TAILWATER	1197.2	1201.1	TAILWATER	1201.10	1201.07
77	7.7	7.7	5.7	NA	1203.9	1203.9	1204.2	TAILWATER	1203.6	1201.2	FLOW DEPTH	1204.17	1203.56
78	6.3	4.9	10.5	NA	1206.3	1206.3	1204.9	FLOW DEPTH	1203.2	1204.3	TAILWATER	1206.28	1204.27
79	1.5	0.5	3.8	NA	1206.9	1206.9	1206.4	FLOW DEPTH	1205.9	1206.4	TAILWATER	1206.91	1206.38
80	2.3	2.3	4.0	NA	1197.1	1197.1	1201.3	TAILWATER	1196.9	1201.2	TAILWATER	1201.27	1201.20
81	10.6	3.3	10.6	NA	1207.1	1207.1	1205.2	FLOW DEPTH	1205.1	1201.4	FLOW DEPTH	1207.10	1205.10
82	1.8	0.5	2.6	NA	1207.3	1207.3	1207.2	FLOW DEPTH	1206.9	1207.2	TAILWATER	1207.26	1207.20
83	2.6	2.6	3.9	NA	1197.7	1197.7	1201.4	TAILWATER	1197.6	1201.4	TAILWATER	1201.42	1201.37
84	2.2	2.2	3.8	NA	1197.6	1197.6	1201.6	TAILWATER	1197.5	1201.5	TAILWATER	1201.55	1201.52
85	11.7	3.9	11.0	NA	1207.9	1207.9	1206.0	FLOW DEPTH	1205.8	1201.7	FLOW DEPTH	1207.86	1205.85
86	1.8	1.8	3.6	NA	1197.5	1197.5	1201.7	TAILWATER	1197.4	1201.7	TAILWATER	1201.67	1201.65
87	1.9	1.9	4.4	NA	1197.6	1197.6	1201.8	TAILWATER	1197.2	1201.8	TAILWATER	1201.84	1201.77
88	2.6	2.6	5.0	NA	1198.2	1198.2	1202.0	TAILWATER	1198.2	1201.9	TAILWATER	1201.95	1201.94
89	3.1	3.1	4.8	NA	1199.0	1199.0	1202.2	TAILWATER	1198.8	1202.1	TAILWATER	1202.17	1202.05
90	2.6	2.6	4.6	NA	1199.1	1199.1	1202.4	TAILWATER	1198.8	1202.3	TAILWATER	1202.37	1202.27
91	2.2	2.2	3.9	NA	1199.6	1199.6	1202.6	TAILWATER	1199.3	1202.5	TAILWATER	1202.57	1202.47
92	2.9	2.9	3.6	NA	1200.2	1200.2	1203.0	TAILWATER	1199.8	1202.7	TAILWATER	1203.00	1202.67
93	2.4	2.4	3.5	NA	1200.2	1200.2	1203.2	TAILWATER	1200.0	1203.1	TAILWATER	1203.23	1203.10
94	2.6	2.6	3.2	NA	1200.4	1200.4	1203.4	TAILWATER	1200.3	1203.3	TAILWATER	1203.39	1203.33
95	**1.8**	**1.8**	**2.9**	**NA**	**1200.2**	**1200.2**	**1203.5**	**TAILWATER**	**1200.1**	**1203.5**	**TAILWATER**	**1203.50**	**1203.49**
96		WEST	1/2 MALL		ARROWI	ARROWHEAD TOWNE CENTER			RING ROAD TRUNK LINE				
97	6.9	6.9	6.7	NA	1194.3	1194.3	1196.4	TAILWATER	1194.1	1196.1	TAILWATER	1196.38	1196.13
98	1.8	1.8	10.3	NA	1192.4	1192.4	1196.5	TAILWATER	1191.7	1196.5	TAILWATER	1196.48	1196.48
99	0.6	0.6	4.9	NA	1193.6	1193.6	1196.5	TAILWATER	1191.6	1196.5	TAILWATER	1196.48	1196.48
100	6.8	6.8	6.7	NA	1194.5	1194.5	1196.7	TAILWATER	1194.3	1196.5	TAILWATER	1196.68	1196.48

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN	DESIGN	DESIGN
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
101	4.9	4.9	7.3	NA	1192.9	1192.9	1196.8	TAILWATER	1192.8	1196.8	TAILWATER	1196.84	1196.78
102	4.6	4.6	7.2	NA	1193.3	1193.3	1197.2	TAILWATER	1192.7	1196.9	TAILWATER	1197.22	1196.94
103	12.6	1.8	10.3	1201.3	1201.8	1201.8	1201.2	FLOW DEPTH	1201.2	1197.3	FLOW DEPTH	1201.84	1201.24
104	8.3	1.0	6.8	NA	1201.8	1201.8	1199.8	FLOW DEPTH	1199.8	1197.3	FLOW DEPTH	1201.81	1199.80
105	4.5	4.5	4.2	NA	1195.4	1195.4	1197.6	TAILWATER	1195.2	1197.3	TAILWATER	1197.57	1197.32
106	4.3	4.3	4.2	NA	1195.4	1195.4	1197.7	TAILWATER	1195.4	1197.7	TAILWATER	1197.68	1197.67
107	4.4	4.4	4.2	NA	1195.5	1195.5	1197.9	TAILWATER	1195.4	1197.8	TAILWATER	1197.85	1197.78
108	4.3	4.3	4.2	NA	1195.7	1195.7	1198.2	TAILWATER	1195.5	1198.0	TAILWATER	1198.17	1197.95
109	3.0	0.7	2.9	NA	1204.2	1204.2	1203.8	FLOW DEPTH	1203.8	1198.3	FLOW DEPTH	1204.17	1203.80
110	1.5	0.4	2.2	NA	1204.4	1204.4	1204.3	FLOW DEPTH	1204.1	1204.3	TAILWATER	1204.40	1204.27
111	5.4	5.4	7.0	NA	1195.6	1195.6	1198.5	TAILWATER	1195.3	1198.3	TAILWATER	1198.50	1198.27
112	10.4	0.7	5.1	NA	1204.3	1204.3	1203.1	FLOW DEPTH	1203.1	1198.6	FLOW DEPTH	1204.32	1203.12
113	7.2	0.6	4.9	NA	1204.3	1204.3	1202.3	FLOW DEPTH	1202.3	1198.6	FLOW DEPTH	1204.34	1202.33
114	5.3	5.3	7.1	NA	1195.7	1195.7	1198.7	TAILWATER	1195.5	1198.6	TAILWATER	1198.72	1198.60
115	5.2	5.2	7.1	NA	1196.1	1196.1	1199.1	TAILWATER	1195.7	1198.8	TAILWATER	1199.13	1198.82
116	5.0	5.0	6.9	NA	1196.2	1196.2	1199.3	TAILWATER	1196.1	1199.2	TAILWATER	1199.29	1199.23
117	11.9	4.8	11.5	NA	1207.4	1207.4	1205.8	FLOW DEPTH	1205.5	1199.4	FLOW DEPTH	1207.44	1205.53
118	4.1	4.1	6.8	NA	1196.3	1196.3	1199.6	TAILWATER	1195.9	1199.4	TAILWATER	1199.57	1199.39
119	3.9	3.9	6.2	NA	1196.4	1196.4	1199.7	TAILWATER	1196.3	1199.7	TAILWATER	1199.70	1199.67
120	13.4	6.2	12.4	1207.6	1208.3	1208.3	1206.8	FLOW DEPTH	1206.3	1199.8	FLOW DEPTH	1208.31	1206.30
121	3.4	3.4	6.0	NA	1196.6	1196.6	1200.0	TAILWATER	1196.1	1199.8	TAILWATER	1199.97	1199.80
122	13.5	3.2	12.5	NA	1209.0	1209.0	1202.7	FLOW DEPTH	1202.5	1200.1	FLOW DEPTH	1209.05	1202.47
123	4.0	2.9	4.4	1209.9	1209.7	1209.9	1209.6	FLOW DEPTH	1209.5	1209.1	FLOW DEPTH	1209.90	1209.46
124	3.1	2.5	4.2	NA	1210.0	1210.0	1210.1	TAILWATER	1209.7	1210.0	TAILWATER	1210.11	1210.00
125	3.1	3.1	6.2	NA	1196.8	1196.8	1200.1	TAILWATER	1196.5	1200.1	TAILWATER	1200.15	1200.07
126	3.0	3.0	5.8	NA	1196.9	1196.9	1200.3	TAILWATER	1196.7	1200.2	TAILWATER	1200.30	1200.25
127	12.6	5.0	11.6	1208.9	1210.0	1210.0	1208.3	FLOW DEPTH	1208.0	1200.4	FLOW DEPTH	1210.04	1208.03
128	2.6	2.6	5.6	NA	1197.3	1197.3	1200.5	TAILWATER	1196.9	1200.4	TAILWATER	1200.48	1200.40

LINE No.	FLOW d/D V F/F	FLOW Q/A V F/F	% Q/Qo V F/F	BK-WTR INLET CNTRL HGL	Q/Qo INLET CNTRL HGL	HIGHER FLOW DEPTH HGL	TW+Hf TAIL-WATER HGL	DESIGN INLET HGL CONTROL	Q/Qo OUTLET HGL	TW+Hm OUTLET HGL	DESIGN OUTLET HGL CONTROL	DESIGN INLET HGL ELEV	DESIGN OUTLET HGL ELEV
129	8.7	0.5	3.4	NA	1210.8	1210.8	1210.1	FLOW DEPTH	1210.1	1200.6	FLOW DEPTH	1210.84	1210.14
130	3.7	0.4	2.9	NA	1210.5	1210.5	1210.1	FLOW DEPTH	1210.1	1200.6	FLOW DEPTH	1210.51	1210.13
131	2.4	2.4	5.6	NA	1197.6	1197.6	1200.6	TAILWATER	1197.4	1200.6	TAILWATER	1200.62	1200.58
132	1.3	0.7	3.6	NA	1209.0	1209.0	1200.7	FLOW DEPTH	1197.3	1200.7	TAILWATER	1208.98	1200.72
133	2.4	2.4	5.5	NA	1197.9	1197.9	1200.8	TAILWATER	1197.5	1200.7	TAILWATER	1200.78	1200.72
134	NA	1.6	13.1	NA	1210.3	1210.3	1200.9	FLOW DEPTH	1198.3	1200.9	TAILWATER	1210.33	1200.88
135	2.3	2.3	5.5	NA	1198.3	1198.3	1200.9	TAILWATER	1197.9	1200.9	TAILWATER	1200.94	1200.88
136	2.3	2.3	5.5	NA	1198.8	1198.8	1201.1	TAILWATER	1198.4	1201.0	TAILWATER	1201.10	1201.04
137	7.0	3.9	6.6	NA	1203.0	1203.0	1201.9	FLOW DEPTH	1201.2	1201.2	FLOW DEPTH	1203.02	1201.24
138	4.2	4.2	2.8	NA	1204.0	1204.0	1204.3	TAILWATER	1203.7	1203.1	FLOW DEPTH	1204.30	1203.68
139	3.4	3.4	4.3	NA	1199.9	1199.9	1201.4	TAILWATER	1199.6	1201.2	TAILWATER	1201.45	1201.20
140	3.3	3.3	2.8	NA	1202.5	1202.5	1202.7	TAILWATER	1201.9	1201.5	FLOW DEPTH	1202.69	1201.93
141	2.7	2.7	3.2	NA	1202.8	1202.8	1203.3	TAILWATER	1202.2	1202.8	TAILWATER	1203.34	1202.79
142	3.8	3.8	3.2	NA	1200.3	1200.3	1201.9	TAILWATER	1200.1	1201.5	TAILWATER	1201.87	1201.55
143	1.6	1.6	2.9	NA	1200.0	1200.0	1202.1	TAILWATER	1199.6	1202.0	TAILWATER	1202.13	1201.97
144	2.5	2.5	3.2	NA	1200.2	1200.2	1202.3	TAILWATER	1199.8	1202.0	TAILWATER	1202.33	1201.97
145	1.6	1.6	2.9	NA	1200.1	1200.1	1202.5	TAILWATER	1200.0	1202.4	TAILWATER	1202.47	1202.43
146	**0.9**	**0.9**	**2.4**	**NA**	**1199.8**	**1199.8**	**1202.4**	**TAILWATER**	**1199.8**	**1202.4**	**TAILWATER**	**1202.43**	**1202.43**
147		EAST 1/2 MALL				ARROWHEAD TOWNE CENTER ONSITE SYSTEM							
148									PENNEYS LL				
149	7.3	6.1	7.4	NA	1194.9	1194.9	1194.8	FLOW DEPTH	1194.0	1193.3	FLOW DEPTH	1194.88	1194.03
150	3.8	2.5	5.3	NA	1196.3	1196.3	1195.3	FLOW DEPTH	1194.5	1195.0	TAILWATER	1196.34	1194.98
151	6.3	5.3	6.6	NA	1197.0	1197.0	1196.8	FLOW DEPTH	1194.9	1195.0	TAILWATER	1197.03	1194.98
152		PENNEYS-MERVYN'S UL											
153	7.7	5.9	13.5	NA	1212.7	1212.7	1200.1	FLOW DEPTH	1194.8	1197.1	TAILWATER	1212.66	1197.15
154	5.9	5.9	4.6	NA	1214.2	1214.2	1214.7	TAILWATER	1213.5	1212.8	FLOW DEPTH	1214.70	1213.48
155	0.4	0.4	3.3	NA	1214.2	1214.2	1214.8	TAILWATER	1213.0	1214.8	TAILWATER	1214.81	1214.80
156	5.7	5.7	4.6	NA	1214.4	1214.4	1215.2	TAILWATER	1214.2	1214.9	TAILWATER	1215.15	1214.91

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN	DESIGN	DESIGN
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
157	5.7	5.7	4.6	NA	1215.0	1215.0	1216.2	TAILWATER	1214.4	1215.3	TAILWATER	1216.16	1215.25
158	1.9	1.9	6.0	NA	1214.5	1214.5	1215.3	TAILWATER	1213.5	1215.3	TAILWATER	1215.31	1215.25
159	3.7	3.7	5.1	NA	1214.1	1214.1	1215.0	TAILWATER	1213.8	1214.8	TAILWATER	1214.97	1214.80
160	3.1	2.9	4.8	NA	1215.4	1215.4	1215.7	TAILWATER	1214.7	1215.4	TAILWATER	1215.68	1215.41
161	2.4	2.4	4.6	NA	1214.6	1214.6	1215.3	TAILWATER	1213.8	1215.1	TAILWATER	1215.27	1215.07
162	4.8	3.4	10.5	NA	1217.2	1217.2	1215.6	FLOW DEPTH	1214.5	1215.4	TAILWATER	1217.20	1215.37
163	2.0	1.5	3.9	NA	1215.5	1215.5	1215.8	TAILWATER	1215.2	1215.8	TAILWATER	1215.82	1215.78
164	8.0	3.3	8.2	NA	1217.6	1217.6	1216.1	FLOW DEPTH	1215.8	1215.9	TAILWATER	1217.60	1215.92
165								MERVYN'S- ROBINSONS LL					
166	3.7	3.7	5.1	NA	1196.8	1196.8	1198.9	TAILWATER	1195.6	1198.1	TAILWATER	1198.90	1198.14
167	2.3	0.8	3.0	NA	1198.9	1198.9	1199.0	TAILWATER	1198.9	1199.0	TAILWATER	1199.00	1199.00
168	4.0	1.6	3.6	NA	1199.3	1199.3	1199.1	FLOW DEPTH	1199.0	1199.0	FLOW DEPTH	1199.27	1199.03
169	5.2	5.2	3.2	NA	1197.3	1197.3	1199.9	TAILWATER	1197.0	1199.0	TAILWATER	1199.86	1199.00
170	0.8	0.8	3.7	NA	1196.4	1196.4	1200.0	TAILWATER	1196.4	1200.0	TAILWATER	1199.96	1199.96
171	0.2	0.2	1.6	NA	1196.6	1196.6	1200.1	TAILWATER	1196.2	1200.1	TAILWATER	1200.06	1200.06
172	4.8	4.8	3.2	NA	1200.3	1200.3	1200.6	TAILWATER	1200.0	1199.4	FLOW DEPTH	1200.62	1199.99
173	4.4	4.4	3.2	NA	1197.8	1197.8	1200.4	TAILWATER	1197.7	1200.2	TAILWATER	1200.42	1200.16
174	4.4	4.4	3.2	NA	1198.1	1198.1	1201.1	TAILWATER	1197.8	1200.5	TAILWATER	1201.09	1200.52
175	7.3	7.3	5.7	NA	1199.0	1199.0	1202.5	TAILWATER	1198.1	1201.2	TAILWATER	1202.52	1201.19
176	2.7	2.7	3.6	NA	1200.1	1200.1	1200.9	TAILWATER	1199.8	1200.7	TAILWATER	1200.93	1200.72
177	1.9	1.9	3.4	NA	1199.3	1199.3	1203.0	TAILWATER	1198.3	1202.6	TAILWATER	1202.98	1202.62
178	1.0	1.0	2.7	NA	1199.8	1199.8	1201.0	TAILWATER	1199.6	1201.0	TAILWATER	1201.04	1201.03
179	1.0	1.0	2.7	NA	1200.4	1200.4	1201.2	TAILWATER	1199.8	1201.1	TAILWATER	1201.20	1201.14
180	1.5	1.4	2.9	NA	1200.8	1200.8	1201.3	TAILWATER	1200.8	1201.3	TAILWATER	1201.31	1201.30
181								MERVYN'S-ROBINSONS LL					
182	5.3	3.2	5.4	1195.1	1195.0	1195.1	1194.8	FLOW DEPTH	1194.7	1193.3	FLOW DEPTH	1195.09	1194.72
183	3.2	2.2	3.1	NA	1196.6	1196.6	1196.3	FLOW DEPTH	1195.8	1195.2	FLOW DEPTH	1196.58	1195.84
184	4.6	3.5	5.0	1196.3	1195.9	1196.3	1195.7	FLOW DEPTH	1195.4	1195.2	FLOW DEPTH	1196.29	1195.41

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN	DESIGN	DESIGN
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
185	4.8	4.8	3.9	NA	1197.2	1197.2	1197.5	TAILWATER	1196.8	1196.4	FLOW DEPTH	1197.45	1196.80
186	3.7	3.7	4.5	NA	1197.2	1197.2	1198.0	TAILWATER	1196.8	1197.6	TAILWATER	1197.97	1197.55
187	2.7	2.7	4.2	NA	1197.3	1197.3	1198.3	TAILWATER	1196.9	1198.1	TAILWATER	1198.27	1198.07
188	3.1	3.1	3.7	NA	1198.4	1198.4	1198.9	TAILWATER	1197.9	1198.4	TAILWATER	1198.85	1198.37
189	2.6	2.6	3.6	NA	1198.3	1198.3	1199.0	TAILWATER	1198.1	1199.0	TAILWATER	1199.05	1198.95
190	3.0	3.0	2.9	NA	1199.2	1199.2	1199.6	TAILWATER	1198.8	1199.1	TAILWATER	1199.61	1199.15
191								FUTURE-ROBINSONS LL					
192	3.6	3.6	10.8	NA	1199.3	1199.3	1202.6	TAILWATER	1197.6	1202.5	TAILWATER	1202.65	1202.47
193	4.9	3.6	9.7	NA	1203.5	1203.5	1203.2	FLOW DEPTH	1199.3	1202.7	TAILWATER	1203.47	1202.75
194	8.6	3.6	8.9	NA	1205.6	1205.6	1203.8	FLOW DEPTH	1203.5	1203.6	TAILWATER	1205.59	1203.57
195	0.9	0.2	1.9	NA	1207.8	1207.8	1205.7	FLOW DEPTH	1205.2	1205.7	TAILWATER	1207.81	1205.69
196	8.1	3.3	8.4	NA	1209.0	1209.0	1206.1	FLOW DEPTH	1205.5	1205.7	TAILWATER	1208.98	1205.69
197	8.2	3.4	8.1	NA	1216.4	1216.4	1210.1	FLOW DEPTH	1209.0	1209.1	TAILWATER	1216.41	1209.08
198	4.5	1.9	4.4	NA	1209.4	1209.4	1209.1	FLOW DEPTH	1209.1	1209.1	TAILWATER	1209.38	1209.08
199	5.0	1.9	6.8	NA	1210.8	1210.8	1209.6	FLOW DEPTH	1209.2	1209.5	TAILWATER	1210.80	1209.48
200								FUTURE STORE LL					
201	2.9	1.7	2.9	1200.3	1200.3	1200.3	1200.1	FLOW DEPTH	1200.0	0.1	FLOW DEPTH	1200.32	1199.98
202	EM					ARROWHEAD TO		ARROWHEAD	TOWNE	CENTER	ONSITE SYSTEM		
203							WEST 1/2 MALL						
204	7.7	7.7	4.4	NA	1194.9	1194.9	1197.9	TAILWATER	1194.5	1196.8	TAILWATER	1197.92	1196.78
205	5.9	5.9	3.8	NA	1195.4	1195.4	1199.2	TAILWATER	1194.9	1198.0	TAILWATER	1199.15	1198.02
206	3.8	3.8	4.0	NA	1195.8	1195.8	1199.7	TAILWATER	1195.4	1199.3	TAILWATER	1199.69	1199.25
207								PENNEYS LL					
208	1.1	1.1	2.6	NA	1195.6	1195.6	1199.9	TAILWATER	1195.2	1199.8	TAILWATER	1199.86	1199.79
209	1.1	1.1	2.6	NA	1195.8	1195.8	1200.0	TAILWATER	1195.6	1200.0	TAILWATER	1200.00	1199.96
210	1.1	1.1	5.0	NA	1195.7	1195.7	1200.1	TAILWATER	1195.6	1200.1	TAILWATER	1200.10	1200.10
211								DILLARDS-PENNEYS LL					
212	6.0	6.0	3.2	NA	1196.0	1196.0	1200.3	TAILWATER	1195.8	1199.8	TAILWATER	1200.28	1199.79

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN	DESIGN	DESIGN
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
213	4.5	4.5	3.2	NA	1196.1	1196.1	1196.3	TAILWATER	1196.0	0.1	FLOW DEPTH	1196.30	1195.97
214	4.2	3.1	8.4	NA	1198.5	1198.5	1196.7	FLOW DEPTH	1195.4	1196.4	TAILWATER	1198.49	1196.40
215	7.3	2.2	11.5	NA	1202.0	1202.0	1198.6	FLOW DEPTH	1198.3	1198.6	TAILWATER	1202.04	1198.59
216								DILLARDS LL					
217	3.3	3.3	2.8	NA	1196.4	1196.4	1196.8	TAILWATER	1196.1	1196.4	TAILWATER	1196.79	1196.40
218	2.7	1.8	3.0	1196.6	1196.5	1196.6	1196.1	FLOW DEPTH	1195.9	0.1	FLOW DEPTH	1196.65	1195.90
219	2.3	1.9	3.0	NA	1196.7	1196.7	1196.8	TAILWATER	1196.5	1196.7	TAILWATER	1196.82	1196.75
220	0.8	0.3	1.8	NA	1196.9	1196.9	1196.8	FLOW DEPTH	1196.2	1196.7	TAILWATER	1196.93	1196.75
221	1.5	0.3	1.8	NA	1197.0	1197.0	1197.0	TAILWATER	1196.9	1197.0	TAILWATER	1197.03	1197.03
222								DILLARDS LL					
223	4.9	4.9	3.8	NA	1195.7	1195.7	1199.2	TAILWATER	1194.9	1198.0	TAILWATER	1199.23	1198.02
224	4.1	4.1	3.8	NA	1196.1	1196.1	1199.8	TAILWATER	1195.7	1199.3	TAILWATER	1199.82	1199.33
225	3.3	3.3	4.3	NA	1195.9	1195.9	1200.2	TAILWATER	1195.5	1199.9	TAILWATER	1200.21	1199.92
226	2.7	2.1	9.8	NA	1200.0	1200.0	1200.4	TAILWATER	1195.0	1200.3	TAILWATER	1200.41	1200.31
227	5.5	1.8	4.9	NA	1201.6	1201.6	1200.7	FLOW DEPTH	1200.6	1200.5	FLOW DEPTH	1201.57	1200.57
228								WARDS-DILLARDS UL					
229	9.2	6.5	9.0	NA	1213.0	1213.0	1210.4	FLOW DEPTH	1205.8	1203.1	FLOW DEPTH	1212.96	1205.84
230	6.5	6.5	5.7	NA	1214.6	1214.6	1214.9	TAILWATER	1213.4	1213.1	FLOW DEPTH	1214.92	1213.37
231	6.6	5.1	6.4	NA	1215.0	1215.0	1214.7	FLOW DEPTH	1213.0	1213.1	TAILWATER	1215.01	1213.06
232	2.0	1.9	4.8	NA	1214.5	1214.5	1215.1	TAILWATER	1213.8	1215.0	TAILWATER	1215.11	1215.02
233	3.0	1.9	6.6	NA	1217.6	1217.6	1215.4	FLOW DEPTH	1214.4	1215.2	TAILWATER	1217.64	1215.21
234								NORTH AC PARCEL					
235	1.2	1.2	2.8	NA	1199.8	1199.8	1200.6	TAILWATER	1199.6	1200.6	TAILWATER	1200.62	1200.58
236	1.4	1.3	2.9	NA	1200.4	1200.4	1200.8	TAILWATER	1199.9	1200.7	TAILWATER	1200.80	1200.72
237	1.7	1.3	2.9	NA	1200.6	1200.6	1200.9	TAILWATER	1200.5	1200.9	TAILWATER	1200.92	1200.90

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
							OUTFALL TO SKUNK CREEK						
18	0.1469	1.21	5	0.00	1.67	0.013	0.0004	1179.65	1179.30	1187.65	9.94	1197.84	10.19
19	0.2995	0.94	2	0.01	0.58	0.013	0.0004	1179.78	1179.65	1186.78	8.95	1195.98	7.38
20	0.2933	0.12	3	0.00	0.08	0.013	0.0002	1179.80	1179.79	1186.80	8.93	1195.98	7.25
21	0.2219	1.27	3	0.01	1.22	0.013	0.0004	1180.05	1179.80	1187.05	10.08	1197.38	7.36
22	0.1631	0.74	3	0.01	1.13	0.013	0.0007	1180.37	1180.05	1187.37	14.38	1202.00	11.23
23	0.1410	0.29	3	0.00	0.54	0.013	0.0006	1180.51	1180.38	1187.51	15.49	1203.25	12.19
24	0.5101	0.93	2	0.23	0.30	0.013	0.0007	1180.65	1180.52	1186.15	17.10	1203.50	11.28
25	0.5101	1.10	NA	0.00	0.36	0.013	0.0333	1187.84	1180.65	1193.34	8.91	1202.50	9.17
26	0.0006	0.00	1	0.10	0.57	0.012	0.3535	1199.75	1191.62	1201.00	1.25	1202.50	2.69
27	0.5096	0.07	3 (A)	0.00	0.02	0.013	0.0333	1188.27	1187.84	1193.77	8.48	1202.50	9.11
28	0.0004	0.00	1	0.10	0.53	0.012	0.3691	1199.75	1191.63	1201.00	1.25	1202.50	2.69
29		ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE								EAST 1/2 MALL			
30	0.4339	0.10	3 (B)	0.04	0.03	0.012	0.0333	1189.06	1188.27	1194.56	7.89	1202.70	7.12
31	0.0479	0.01	4	0.55	0.03	0.012	0.2720	1199.75	1194.31	1201.00	1.25	1202.50	2.57
32	0.1510	0.15	4	0.55	0.28	0.012	0.0020	1189.76	1189.56	1195.26	7.69	1203.20	6.92
33	0.0330	0.00	1	0.10	0.03	0.012	0.9433	1200.38	1191.89	1201.63	1.73	1203.61	3.10
34	0.0124	0.01	1	0.10	0.23	0.012	0.0100	1200.86	1200.38	1202.11	1.25	1203.61	2.46
35	0.1491	0.09	1	0.10	0.17	0.012	0.0020	1189.88	1189.76	1195.38	8.90	1204.53	8.06
36	0.1364	0.10	1	0.10	0.21	0.012	0.0010	1189.95	1189.88	1195.45	9.80	1205.50	8.83
37	0.1282	0.28	1	0.10	0.66	0.012	0.0010	1190.17	1189.95	1195.67	12.88	1208.80	11.75
38	0.0083	0.00	1	0.10	0.14	0.012	0.0487	1205.55	1203.65	1206.80	1.75	1208.80	3.07
39	0.1153	0.15	1	0.10	0.41	0.012	0.0010	1190.30	1190.17	1195.80	12.21	1208.26	10.97
40	0.1113	0.28	1	0.10	0.81	0.012	0.0010	1190.55	1190.30	1196.05	11.36	1207.66	9.99
41	4.6831	1.83	1	0.10	0.05	0.012	0.0515	1204.17	1202.16	1205.42	1.21	1206.88	1.75
42	0.0953	0.27	1	0.10	1.00	0.012	0.0010	1190.83	1190.55	1196.33	8.88	1205.46	7.42
43	0.1187	0.13	1	0.10	0.37	0.012	0.0037	1191.24	1190.83	1196.24	8.01	1204.50	6.23
44	0.0783	0.02	1	0.10	0.08	0.012	0.0037	1191.31	1191.24	1196.31	7.79	1204.35	5.96

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
45	0.0014	0.00	1	0.10	0.14	0.012	0.8278	1201.40	1193.95	1202.65	1.25	1204.15	2.69
46	0.0155	0.01	1	0.10	0.10	0.012	0.1648	1201.40	1193.82	1202.90	1.00	1204.15	2.56
47	0.0759	0.07	1	0.10	0.40	0.012	0.0015	1191.67	1191.31	1196.67	6.78	1203.70	5.14
48	0.0426	0.00	1	0.10	0.01	0.012	0.1000	1200.75	1200.15	1202.00	1.25	1203.50	2.54
49	0.5223	0.20	1	0.10	0.06	0.012	0.0515	1200.75	1198.74	1202.00	1.25	1203.50	2.28
50	0.0691	0.05	1	0.10	0.30	0.012	0.0037	1191.93	1191.67	1196.93	6.89	1204.08	5.36
51	0.0596	0.02	1	0.10	0.13	0.012	0.0017	1191.98	1191.93	1196.98	6.86	1204.09	5.26
52	0.0186	0.00	1	0.10	0.03	0.012	0.7789	1201.14	1194.13	1202.39	1.25	1203.89	2.63
53	0.5223	0.23	1	0.10	0.04	0.012	0.1593	1201.14	1194.13	1202.39	1.25	1203.89	2.38
54	0.0521	0.05	1	0.10	0.46	0.012	0.0017	1192.13	1191.98	1197.13	7.08	1204.46	5.49
55	0.0538	0.07	1	0.10	0.66	0.012	0.0017	1192.48	1192.35	1197.48	7.11	1204.84	5.70
56	0.0453	0.04	1	0.10	0.48	0.012	0.0010	1192.56	1192.48	1197.56	7.74	1205.55	6.27
57	0.0154	0.00	1	0.10	0.05	0.012	0.1000	1202.40	1200.80	1203.65	1.25	1205.15	2.59
58	0.1275	0.09	1	0.10	0.10	0.012	0.0875	1202.17	1196.31	1203.42	1.89	1205.56	3.09
59	0.0345	0.03	1	0.10	0.40	0.012	0.0050	1202.57	1202.17	1203.82	1.78	1205.85	2.84
60	0.0021	0.00	1	0.10	0.45	0.012	0.0050	1202.84	1202.57	1204.09	1.25	1205.59	2.48
61	0.0442	0.10	1	0.10	1.20	0.012	0.0010	1192.78	1192.56	1197.78	8.20	1206.23	6.75
62	0.0414	0.03	1	0.10	0.42	0.012	0.0010	1192.86	1192.78	1197.86	8.43	1206.54	6.93
63	0.0497	0.00	1	0.10	0.01	0.012	0.1000	1203.58	1203.08	1204.83	1.25	1206.33	2.52
64	0.0209	0.01	1	0.10	0.10	0.012	0.0515	1203.58	1201.57	1204.83	1.25	1206.33	2.54
65	0.0696	0.02	1	0.10	0.14	0.012	0.0010	1193.39	1193.36	1197.89	8.95	1207.09	7.36
66	0.0669	0.12	1	0.10	0.87	0.012	0.0010	1193.57	1193.39	1198.07	9.67	1207.99	8.04
67	0.0164	0.01	1	0.10	0.22	0.012	0.1205	1204.24	1195.20	1205.49	2.05	1207.79	3.39
68	0.0062	0.00	1	0.10	0.45	0.012	0.0050	1204.58	1204.24	1205.83	1.47	1207.55	2.68
69	0.0671	0.15	1	0.10	1.06	0.012	0.0010	1193.79	1193.57	1198.29	11.69	1210.23	10.03
70	0.1166	0.19	1	0.10	0.65	0.012	0.0010	1194.45	1194.29	1198.45	13.82	1212.52	12.03
71	0.4700	0.18	1	0.10	0.06	0.012	0.0515	1209.72	1207.71	1210.97	1.25	1212.47	2.28
72	0.0860	0.03	1	0.10	0.18	0.012	0.0010	1194.49	1194.45	1198.49	12.64	1211.38	10.76

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN--NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM--HGL FT
73	0.0755	0.09	1	0.10	0.56	0.012	0.0010	1194.61	1194.49	1198.61	12.94	1211.80	10.99
74	0.3017	0.12	1	0.10	0.07	0.012	0.0515	1208.29	1206.28	1209.54	1.25	1211.04	2.36
75	0.0667	0.05	1	0.10	0.43	0.012	0.0010	1194.69	1194.61	1198.69	11.47	1210.41	9.44
76	0.0506	0.04	1	0.10	0.44	0.012	0.0010	1194.76	1194.69	1198.76	11.26	1210.27	9.17
77	1.8349	0.61	1	0.10	0.07	0.012	0.0100	1202.64	1202.31	1203.89	5.15	1209.29	5.12
78	0.7522	0.62	1	0.10	0.13	0.012	0.0367	1205.69	1202.64	1206.94	1.71	1208.90	2.62
79	0.0068	0.00	1	0.10	0.22	0.012	0.0200	1206.71	1205.69	1207.96	1.25	1209.46	2.55
80	0.0332	0.07	1	0.10	1.52	0.012	0.0010	1194.97	1194.76	1198.97	10.95	1210.17	8.90
81	0.3343	0.13	1	0.10	0.06	0.012	0.0513	1206.66	1204.66	1207.91	1.25	1209.41	2.31
82	0.0075	0.00	1	0.10	0.38	0.012	0.0053	1206.97	1206.66	1208.22	1.00	1209.47	2.21
83	0.0522	0.05	1	0.10	0.62	0.012	0.0010	1195.57	1195.47	1199.07	10.89	1210.21	8.79
84	0.0389	0.03	1	0.10	0.60	0.012	0.0010	1195.64	1195.57	1199.14	11.41	1210.80	9.25
85	0.4757	0.19	1	0.10	0.06	0.012	0.0515	1207.38	1205.37	1208.63	1.25	1210.13	2.28
86	0.0261	0.01	1	0.10	0.48	0.012	0.0010	1195.70	1195.64	1199.20	11.78	1211.23	9.56
87	0.0282	0.07	1	0.10	2.18	0.012	0.0019	1196.16	1195.70	1199.66	5.00	1204.91	3.07
88	0.0642	0.02	1	0.10	0.17	0.012	0.0024	1196.72	1196.66	1199.72	4.53	1204.50	2.55
89	0.1207	0.12	1	0.10	0.53	0.012	0.0024	1197.46	1197.22	1199.96	4.29	1204.50	2.33
90	0.0830	0.09	1	0.10	0.72	0.012	0.0024	1197.73	1197.46	1200.23	4.02	1204.50	2.13
91	0.0827	0.10	1	0.10	0.93	0.012	0.0024	1198.53	1198.23	1200.53	7.84	1208.62	6.05
92	0.2041	0.33	1	0.10	0.93	0.012	0.0024	1199.02	1198.63	1200.52	4.23	1205.00	2.00
93	0.1357	0.13	1	0.10	0.66	0.012	0.0024	1199.25	1199.02	1200.75	3.00	1204.00	0.77
94	0.2068	0.06	1	0.10	0.17	0.012	0.0024	1199.44	1199.37	1200.69	3.06	1204.00	0.61
95	**0.0991**	**0.01**	**1**	**0.10**	**0.14**	**0.012**	**0.0024**	**1199.47**	**1199.44**	**1200.72**	**3.03**	**1204.00**	**0.50**
96		WEST	1/2 MALL		ARROWHEAD	TOWNE	CENTER	RING ROAD	TRUNK	LINE			
97	0.2627	0.25	NA	NA	0.23	0.012	0.0025	1189.80	1189.56	1194.30	8.54	1203.09	6.71
98	0.0985	0.01	1	0.10	0.07	0.012	0.1000	1192.13	1191.43	1193.38	8.87	1202.50	6.02
99	0.0124	0.00	1	0.10	1.02	0.012	0.0515	1193.44	1191.43	1194.69	7.56	1202.50	6.02
100	0.2594	0.20	1	0.10	0.19	0.012	0.0025	1189.98	1189.80	1194.48	8.71	1203.44	6.76

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
101	0.1332	0.06	1	0.10	0.15	0.012	0.0025	1190.09	1189.98	1194.59	8.99	1203.83	6.99
102	0.1198	0.28	1	0.10	0.83	0.012	0.0025	1190.68	1190.09	1195.18	9.10	1204.53	7.31
103	0.0985	0.01	1	0.10	0.01	0.012	0.1000	1201.58	1200.98	1202.83	1.25	1204.33	2.49
104	0.0315	0.01	1	0.10	0.10	0.012	0.0515	1201.58	1199.57	1202.83	1.25	1204.33	2.52
105	0.1111	0.25	1	0.10	0.84	0.012	0.0010	1190.91	1190.68	1195.41	9.87	1205.53	7.96
106	0.1040	0.02	1	0.10	0.06	0.012	0.0010	1190.92	1190.91	1195.42	9.94	1205.61	7.93
107	0.1070	0.07	1	0.10	0.25	0.012	0.0010	1190.99	1190.92	1195.49	10.15	1205.89	8.04
108	0.1029	0.21	1	0.10	0.80	0.012	0.0010	1191.19	1190.99	1195.69	10.72	1206.66	8.49
109	0.0148	0.01	1	0.10	0.43	0.012	0.0050	1203.81	1203.44	1205.06	1.63	1206.94	2.77
110	0.0038	0.00	1	0.10	0.51	0.012	0.0050	1204.15	1203.81	1205.40	1.25	1206.90	2.51
111	0.1888	0.23	1	0.10	0.38	0.012	0.0025	1192.78	1192.47	1196.78	10.17	1207.20	8.70
112	0.0154	0.00	1	0.10	0.04	0.012	0.1000	1204.16	1202.96	1205.41	1.25	1206.91	2.59
113	0.0115	0.00	1	0.10	0.13	0.012	0.0515	1204.16	1202.15	1205.41	1.25	1206.91	2.57
114	0.1814	0.12	1	0.10	0.21	0.012	0.0026	1192.97	1192.78	1196.97	10.69	1207.91	9.19
115	0.1775	0.31	1	0.10	0.56	0.012	0.0026	1193.46	1192.97	1197.46	12.27	1209.98	10.85
116	0.1663	0.06	1	0.10	0.12	0.012	0.0026	1193.57	1193.46	1197.57	12.59	1210.41	11.12
117	0.6959	0.26	1	0.10	0.06	0.012	0.0503	1206.91	1205.00	1208.16	1.25	1209.66	2.22
118	0.1103	0.18	1	0.10	0.66	0.012	0.0026	1193.96	1193.57	1197.96	12.90	1211.11	11.54
119	0.0968	0.03	1	0.10	0.13	0.012	0.0022	1194.02	1193.96	1198.02	12.95	1211.22	11.52
120	1.1797	0.46	1	0.10	0.05	0.012	0.0515	1207.72	1205.71	1208.97	1.22	1210.44	2.13
121	0.0755	0.17	1	0.10	1.07	0.012	0.0022	1194.51	1194.02	1198.51	13.32	1212.08	12.11
122	0.3248	0.24	1	0.10	0.10	0.012	0.0901	1208.68	1202.10	1209.93	1.83	1212.01	2.96
123	0.2539	0.14	1	0.10	0.22	0.012	0.0050	1208.97	1208.68	1210.22	1.59	1212.06	2.16
124	0.1880	0.11	1	0.10	0.23	0.012	0.0050	1209.26	1208.97	1210.51	0.99	1211.75	1.64
125	0.0636	0.08	1	0.10	0.68	0.012	0.0025	1194.83	1194.51	1198.83	13.52	1212.60	12.45
126	0.0598	0.05	1	0.10	0.50	0.012	0.0024	1195.06	1194.83	1199.06	13.71	1213.02	12.72
127	0.7811	0.30	1	0.10	0.06	0.012	0.0515	1209.51	1207.50	1210.76	1.25	1212.26	2.22
128	0.0454	0.08	1	0.10	1.12	0.012	0.0024	1195.48	1195.06	1199.48	13.44	1213.17	12.69

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN--NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM--HGL FT
129	0.0083	0.00	1	0.10	0.03	0.012	0.1000	1210.70	1210.00	1211.95	1.25	1213.45	2.61
130	0.0062	0.00	1	0.10	0.22	0.012	0.0097	1210.28	1209.90	1211.53	1.25	1213.03	2.52
131	0.0387	0.04	1	0.10	0.63	0.012	0.0024	1195.80	1195.58	1199.80	13.13	1213.18	12.56
132	0.0164	0.00	1	0.10	0.12	0.012	0.4489	1208.85	1197.18	1210.10	2.45	1212.80	3.83
133	0.0367	0.06	1	0.10	0.50	0.012	0.0024	1196.20	1195.80	1200.20	12.53	1212.98	12.20
134	0.0766	0.01	1	0.10	0.00	0.012	6.0000	1210.20	1198.20	1211.45	1.25	1212.95	2.63
135	0.0336	0.06	1	0.10	0.56	0.012	0.0024	1196.64	1196.20	1200.64	7.94	1208.83	7.89
136	0.0336	0.06	1	0.10	0.52	0.012	0.0024	1197.14	1196.74	1201.14	3.11	1204.50	3.40
137	0.3715	0.69	1	0.10	0.79	0.012	0.0094	1202.18	1200.40	1203.68	2.17	1206.10	3.08
138	0.5526	0.62	1	0.10	0.44	0.012	0.0024	1202.70	1202.43	1203.95	1.50	1205.70	1.40
139	0.1922	0.25	1	0.10	0.63	0.012	0.0024	1198.45	1198.14	1200.45	5.86	1206.56	5.11
140	0.3389	0.76	1	0.10	1.13	0.012	0.0024	1201.22	1200.68	1202.47	5.56	1208.28	5.59
141	0.2230	0.55	1	0.10	1.53	0.012	0.0024	1201.81	1201.22	1203.06	3.52	1206.83	3.49
142	0.3437	0.33	1	0.10	0.42	0.012	0.0024	1198.78	1198.55	1200.28	6.57	1207.10	5.23
143	0.0783	0.16	1	0.10	2.09	0.012	0.0024	1199.38	1198.90	1200.63	5.12	1206.00	3.87
144	0.1920	0.36	1	0.10	1.23	0.012	0.0024	1199.32	1198.88	1200.57	2.68	1203.50	1.17
145	0.0808	0.04	1	0.10	0.53	0.012	0.0024	1199.45	1199.32	1200.70	2.55	1203.50	1.03
146	**0.0262**	**0.00**	**1**	**0.10**	**0.27**	**0.012**	**0.0024**	**1199.36**	**1199.32**	**1200.61**	2.64	**1203.50**	**1.07**
147		EAST	1/2 MALL			ARROWHEAD TOWNE CENTER ONSITE SYSTEM							
148							PENNEYS LL						
149	0.8894	0.76	1	0.10	0.23	0.012	0.0100	1193.72	1192.87	1195.22	8.03	1203.50	8.63
150	0.1880	0.34	1	0.10	0.57	0.012	0.0100	1195.78	1193.97	1197.03	7.05	1204.33	7.99
151	0.8634	1.81	1	0.10	0.66	0.012	0.0100	1196.07	1193.97	1197.32	5.93	1203.50	6.47
152		PENNEYS-MERVYN'S UL											
153	0.8433	2.99	1	0.10	0.44	0.012	0.0509	1211.98	1194.16	1213.48	7.08	1220.81	8.16
154	0.8433	1.22	1	0.10	0.41	0.012	0.0050	1212.71	1211.98	1214.21	9.21	1223.66	8.96
155	0.0043	0.00	1	0.10	0.38	0.012	0.0150	1213.96	1212.83	1215.21	5.49	1220.95	6.14
156	0.7734	0.25	1	0.10	0.09	0.012	0.0050	1212.87	1212.71	1214.37	9.03	1223.64	8.49

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
157	0.7734	0.90	1	0.10	0.34	0.012	0.0050	1213.45	1212.87	1214.95	8.90	1224.10	7.94
158	0.1076	0.06	1	0.10	0.14	0.012	0.0200	1214.16	1213.12	1215.41	7.84	1223.50	8.19
159	0.3316	0.17	1	0.10	0.22	0.012	0.0050	1213.06	1212.81	1214.56	9.16	1223.96	8.99
160	0.1993	0.27	1	0.10	0.48	0.012	0.0050	1214.59	1213.91	1216.09	7.61	1223.95	8.27
161	0.1337	0.20	1	0.10	0.55	0.012	0.0050	1213.81	1213.06	1215.31	8.47	1224.03	8.76
162	0.3537	0.19	1	0.10	0.09	0.012	0.0500	1216.76	1214.06	1218.01	5.24	1223.50	6.30
163	0.0510	0.03	1	0.10	0.28	0.012	0.0050	1214.92	1214.59	1216.42	7.36	1224.03	8.21
164	0.4435	0.21	1	0.10	0.10	0.012	0.0383	1217.22	1215.42	1218.22	3.13	1221.60	4.00
165		MERVYN'S- ROBINSONS LL											
166	0.2280	0.76	1	0.10	1.49	0.012	0.0036	1195.46	1194.32	1197.46	6.54	1204.25	5.35
167	0.0209	0.00	1	0.10	0.03	0.012	0.0050	1198.53	1198.50	1199.78	4.22	1204.25	5.25
168	0.0789	0.04	1	0.10	0.22	0.012	0.0050	1198.74	1198.50	1199.99	4.01	1204.25	4.98
169	0.6459	0.85	1	0.10	0.43	0.012	0.0025	1195.79	1195.46	1197.29	7.45	1204.99	5.13
170	0.0187	0.00	1	0.10	0.09	0.012	0.0100	1196.08	1196.04	1197.33	7.15	1204.73	4.77
171	0.0015	0.00	1	0.10	2.75	0.012	0.0100	1196.45	1196.08	1197.70	5.55	1203.50	3.44
172	0.5512	0.63	1	0.10	0.40	0.012	0.0025	1198.78	1198.49	1200.28	5.99	1206.52	5.90
173	0.4704	0.26	1	0.10	0.21	0.012	0.0025	1196.34	1196.20	1197.84	8.42	1206.51	6.09
174	0.4704	0.57	1	0.10	0.46	0.012	0.0025	1196.64	1196.34	1198.14	8.18	1206.57	5.48
175	1.6192	1.33	1	0.10	0.19	0.012	0.0100	1197.71	1196.89	1198.96	6.79	1206.00	3.48
176	0.1750	0.20	1	0.10	0.72	0.012	0.0025	1199.07	1198.78	1200.57	5.69	1206.51	5.58
177	0.0906	0.36	1	0.10	3.47	0.012	0.0025	1198.47	1197.46	1199.97	6.40	1206.62	3.64
178	0.0226	0.01	1	0.10	0.79	0.012	0.0025	1199.18	1199.07	1200.68	5.79	1206.72	5.68
179	0.0243	0.06	1	0.10	1.52	0.012	0.0025	1199.81	1199.18	1201.31	5.13	1206.68	5.48
180	0.0643	0.02	1	0.10	0.15	0.012	0.0025	1200.22	1200.16	1201.47	4.28	1206.00	4.69
181		MERVYN'S-ROBINSONS LL											
182	0.0959	0.10	NA	0.00	0.32	0.012	0.0025	1193.28	1193.04	1196.28	6.97	1203.50	8.41
183	0.1444	0.42	1	0.10	1.56	0.012	0.0025	1195.77	1195.03	1197.02	6.54	1203.80	7.22
184	0.1518	0.32	1	0.10	0.70	0.012	0.0025	1194.30	1193.78	1196.80	6.95	1204.00	7.71

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
185	0.3848	0.65	1	0.10	0.58	0.012	0.0025	1195.22	1194.80	1197.22	6.47	1203.94	6.49
186	0.2253	0.42	1	0.10	0.85	0.012	0.0025	1195.69	1195.22	1197.69	5.90	1203.84	5.87
187	0.1188	0.20	1	0.10	1.05	0.012	0.0025	1196.12	1195.69	1198.12	5.64	1204.00	5.73
188	0.2391	0.48	1	0.10	1.06	0.012	0.0025	1197.12	1196.62	1198.62	6.23	1205.10	6.25
189	0.1613	0.10	1	0.10	0.38	0.012	0.0025	1197.26	1197.12	1198.76	6.17	1205.18	6.13
190	0.2708	0.46	1	0.10	0.96	0.012	0.0025	1197.94	1197.51	1199.19	6.25	1205.69	6.08
191		FUTURE-ROBINSONS UL											
192	0.3880	0.18	1	0.10	0.22	0.012	0.0535	1198.83	1197.20	1200.08	14.01	1214.34	11.69
193	0.3880	0.40	1	0.10	0.18	0.012	0.0400	1202.99	1198.83	1204.24	13.56	1218.05	14.59
194	0.3880	0.27	1	0.10	0.13	0.012	0.0300	1205.06	1202.99	1206.31	14.01	1220.57	14.98
195	0.0015	0.00	1	0.10	0.78	0.012	0.0300	1207.67	1205.06	1208.92	11.63	1220.80	12.99
196	0.3413	0.39	1	0.10	0.23	0.012	0.0300	1208.51	1205.06	1209.76	13.40	1223.41	14.43
197	0.3537	1.04	1	0.10	0.61	0.012	0.0250	1215.89	1208.51	1217.14	5.62	1223.00	6.59
198	0.1163	0.05	1	0.10	0.17	0.012	0.0068	1208.82	1208.51	1210.07	12.68	1223.00	13.62
199	0.1163	0.07	1	0.10	0.16	0.012	0.0250	1210.42	1208.82	1211.67	11.08	1223.00	12.20
200		FUTURE STORE LL											
201	0.0884	0.12	1	0.10	0.78	0.012	0.0024	1199.61	1199.28	1200.86	5.32	1206.43	6.11
202													
203		WEST 1/2 MALL			PENNE	PENNEYS-DILLARDS LL							
204	0.7165	1.13	1	0.10	0.34	0.012	0.0024	1192.42	1191.98	1194.92	7.73	1202.90	4.98
205	0.5810	1.14	1	0.10	0.55	0.012	0.0024	1193.39	1192.92	1195.39	7.26	1202.90	3.75
206	0.2367	0.44	1	0.10	0.81	0.012	0.0024	1193.83	1193.39	1195.83	10.62	1206.70	7.01
207		PENNEYS LL											
208	0.0390	0.07	1	0.10	2.65	0.012	0.0024	1195.01	1194.59	1196.26	9.69	1206.20	6.34
209	0.0405	0.04	1	0.10	1.31	0.012	0.0024	1195.23	1195.01	1196.48	9.27	1206.00	6.00
210	0.0405	0.00	1	0.10	0.12	0.012	0.0150	1195.35	1195.23	1196.60	9.15	1206.00	5.90
211		DILLARDS-PENNEYS LL											
212	0.8575	0.49	1	0.10	0.16	0.012	0.0024	1194.47	1194.34	1195.97	10.48	1206.70	6.42

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
213	0.4834	0.33	1	0.10	0.25	0.012	0.0024	1194.64	1194.47	1196.14	10.05	1206.44	10.14
214	0.2893	0.30	1	0.10	0.21	0.012	0.0300	1198.01	1194.89	1199.26	6.49	1206.00	7.52
215	0.1481	0.05	1	0.10	0.05	0.012	0.1070	1201.75	1198.01	1203.00	2.75	1206.00	3.96
216		DILLARDS LL											
217	0.3413	0.40	1	0.10	0.58	0.012	0.0024	1195.16	1194.89	1196.41	9.13	1205.79	9.00
218	0.1038	0.25	1	0.10	1.36	0.012	0.0024	1195.75	1195.16	1197.00	8.43	1205.68	9.03
219	0.1076	0.08	1	0.10	0.41	0.012	0.0024	1195.93	1195.75	1197.18	8.35	1205.78	8.96
220	0.0037	0.01	1	0.10	2.75	0.012	0.0024	1196.63	1195.93	1197.88	7.87	1206.00	9.07
221	0.0037	0.00	1	0.10	0.33	0.012	0.0024	1196.71	1196.63	1197.96	5.37	1203.58	6.55
222		DILLARDS LL											
223	0.3972	1.21	1	0.10	1.03	0.012	0.0024	1193.65	1192.92	1195.65	6.40	1202.30	3.07
224	0.2742	0.50	1	0.10	0.74	0.012	0.0024	1194.08	1193.65	1196.08	5.97	1202.30	2.48
225	0.1759	0.28	1	0.10	0.83	0.012	0.0024	1194.47	1194.08	1196.47	6.28	1203.00	2.79
226	0.0710	0.10	1	0.10	0.24	0.012	0.0350	1199.50	1194.47	1201.50	1.25	1203.00	2.59
227	0.0824	0.10	1	0.10	0.42	0.012	0.0081	1201.00	1200.00	1202.50	1.25	1204.00	2.43
228		WARDS-DILLARDS UL											
229	1.3154	4.60	1	0.10	0.65	0.012	0.0200	1212.12	1205.00	1213.37	7.83	1221.45	8.49
230	1.3154	1.55	1	0.10	0.30	0.012	0.0100	1213.30	1212.12	1214.55	8.46	1223.26	8.34
231	0.8036	1.61	1	0.10	0.52	0.012	0.0100	1214.12	1212.12	1215.37	7.65	1223.27	8.26
232	0.1163	0.09	1	0.10	0.25	0.012	0.0100	1214.04	1213.30	1215.29	8.09	1223.63	8.52
233	0.1163	0.16	1	0.10	0.34	0.012	0.0238	1217.25	1214.04	1218.50	4.25	1223.00	5.36
234		NORTH AC PARCEL											
235	0.0359	0.03	1	0.10	0.52	0.012	0.0024	1199.19	1198.98	1200.69	12.62	1213.56	12.94
236	0.0385	0.09	1	0.10	1.26	0.012	0.0024	1199.72	1199.19	1201.22	13.06	1214.53	13.73
237	0.0385	0.02	1	0.10	0.29	0.012	0.0024	1199.94	1199.82	1201.44	12.88	1214.57	13.65

VAL-TEC, INC. PROJECT DESIGN SUMMARY

PROJECT NAME_____ PROJECT NUMBER _____

SITE PLAN

OWNER MEETINGS	NO.	DATE	ITEMS	MEMO	ACTION

ARCHICTECT PLAN	TYPE	DATE	ITEMS INCLUDED	STANDARDS	ACTION

SURVEYS	TOPO	DATE	BOUNDARY	DATE	ALTA	DATE

SUBMITTALS	TYPE	DATE	TO	COMMENTS	ACTION

c: DDS9204

	ARROWHEAD TOWNE CENTER UPDATE SEPTEMBER 1994						RUN-			FLOW	RAIN			
	FILE:ATC10.WK4/RPT10.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	10YR	C.F.S.	Qo	%
		OUTFALL TO SKUNK CREEK												
18	MH-45	END		19		NA	NA	0.00	155.40	62.2	1.36	214	188.21	114
19	MH-46	MH-45	18	20	PARADISE LN	1.92	0.85	1.63	155.40	61.2	1.38	214	130.02	165
20	TEE	MH-46	19	21	NVPC SOUTH	28.64	0.80	22.91	153.77	61.1	1.38	212	98.60	215
21	MH-47	TEE	20	22	NVPC NORTH	24.84	0.80	19.87	130.85	59.1	1.42	186	133.36	139
22	**MH-48**	**MH-47**	**21**	**23**	**BELL RD**	**10.49**	**0.9**	**8.92**	**110.98**	**57.3**	**1.46**	**162**	**169.28**	**96**
23	JUNC	MH-48	22	24		NA	NA	0.00	102.07	56.5	1.48	151	161.71	93
24	MATCH	JUNC	23	25		NA	NA	0.00	102.07	56.0	1.48	151	89.52	169
25	TEE146A	MATCH	24	26&27		NA	NA	0.00	102.07	55.6	1.48	151	612.81	25
26	CB-146A	TEE146A	25	NA	DA#90	0.06	0.9	0.05	0.05	30.0	2.40	0	41.59	0
27	TEE146	TEE146A	26	28&30		NA	NA	0.00	102.01	55.6	1.48	151	612.92	25
28	CB-146	TEE146	26	NA	DA#89	0.05	0.9	0.04	0.04	30.0	2.40	0	42.50	0
29		EAST 1/2 MALL			ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE									
30	STR145	TEE146	27	31,32&97	DA#88	NA	NA	41.36	101.97	55.5	1.48	151	664.00	23
31	CB-144	STR145	30	START	DA#87	0.53	0.85	0.45	0.45	30.0	2.40	1	36.49	3
32	TEE143	STR145	30	33&35		NA	NA	0.00	60.16	55.2	1.50	90	162.73	55
33	CB-142	TEE143	32	34	DA#86	0.17	0.85	0.14	0.37	30.3	2.40	1	67.95	1
34	CB-141	CB-142	33	START	DA#85	0.27	0.85	0.23	0.23	30.0	2.40	1	7.00	8
35	MH-140	TEE143	32	36	SHOPS P LL	NA	NA	3.21	59.79	54.9	1.50	90	162.73	55
36	TEE216	MH-140	35	37	AP#G	4.31	0.40	1.72	56.58	54.6	1.50	85	113.46	75
37	MH-136	TEE216	36	38,39	SHOPS P&M UL	NA	NA	3.19	54.85	53.7	1.52	83	115.07	72
38	CB-135	MH-136	37	START	DA#84	0.22	0.85	0.19	0.19	30.0	2.40	0	15.44	3
39	TEE215	MH-136	37	40	AP#G	4.32	0.40	1.73	51.48	53.1	1.54	79	115.51	69
40	MH-126	TEE215	39	41&42		NA	NA	0.00	49.75	52.0	1.56	78	115.07	67
41	CB-125	MH-126	40	START	DA#83	5.24	0.85	4.45	4.45	30.0	2.40	11	15.88	67
42	MH-124	MH-126	40	43	AP#A/M&R LL	5.23	0.40	6.10	45.30	50.6	1.58	72	115.07	62
43	TEE114	MH-124	42	44	SHOPS M&R LL	NA	NA	7.36	39.20	50.1	1.60	63	171.65	37
44	TEE105	TEE114	43	45,46&47		NA	NA	0.00	31.84	49.9	1.60	51	171.65	30

	ARROWHEAD TOWNE CENTER UPDATE SEPTEMBER 1994						RUN-			FLOW	RAIN			
	FILE:ATC10.WK4/RPT10.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	10YR	C.F.S.	Qo	%
45	CB-103	TEE105	44	START	DA#82	0.09	0.85	0.08	0.08	30.0	2.40	0	63.65	0
46	CB-104	TEE105	44	START	DA#79	0.49	0.85	0.42	0.42	30.0	2.40	1	46.18	2
47	MH-102	TEE105	44	48,49&50		NA	NA	0.00	31.34	49.4	1.63	51	109.29	47
48	CB-100	MH-102	47	START	DA#81	0.50	0.85	0.43	0.43	30.0	2.40	1	22.12	5
49	CB-101	MH-102	47	START	DA#79	1.75	0.85	1.49	1.49	30.0	2.40	4	15.88	22
50	TEE213	MH-102	47	51	AP#A	5.24	0.40	2.10	29.43	49.0	1.63	48	171.65	28
51	TEE99	TEE213	50	52,53&54		NA	NA	0.00	27.33	48.8	1.63	45	115.90	38
52	CB-98	TEE99	51	START	DA#80	0.33	0.85	0.28	0.28	30.0	2.40	1	61.74	1
53	CB-97	TEE99	51	START	DA#79	1.75	0.85	1.49	1.49	30.0	2.40	4	27.92	13
54	MH-96	TEE99	51	55		NA	NA	0.00	25.57	48.2	1.66	42	115.90	37
55	TEE212	MH-96	54	56	AP#A	5.24	0.40	2.10	25.57	47.4	1.69	43	115.90	37
56	MH-95	TEE212	55	57,58,61		NA	NA	0.00	23.47	46.8	1.69	40	89.24	44
57	CB-94	MH-95	56	START	DA#78	0.30	0.85	0.26	0.26	30.0	2.40	1	22.12	3
58	CB-93	MH-95	56	59	DA#77	0.43	0.85	0.37	0.75	31.0	2.35	2	20.69	8
59	CB-92	CB-93	58	60	DA#76	0.34	0.85	0.29	0.38	30.6	2.35	1	4.95	18
60	CB-91	CB-92	59	START	DA#75	0.11	0.85	0.09	0.09	30.0	2.40	0	4.95	5
61	TEE211	MH-95	56	62	AP#B	1.81	0.40	0.72	22.47	45.4	1.75	39	89.24	44
62	MH-90	TEE211	61	63,64,65		NA	NA	0.00	21.74	44.9	1.75	38	89.24	43
63	CB-88	MH-90	62	START	DA#74	0.19	0.85	0.16	0.46	30.0	2.40	1	22.12	5
64	CB-89	MH-90	62	START	DA#73	0.35	0.85	0.30	0.30	30.0	2.40	1	15.88	4
65	TEE210	MH-90	62	66	AP#B	1.81	0.40	0.72	21.28	44.7	1.75	37	67.38	55
66	MH-87	TEE210	65	67&69		NA	NA	0.00	20.56	43.7	1.78	37	67.38	54
67	CB-86	MH-87	66	68	DA#72	0.12	0.85	0.10	0.26	30.5	2.35	1	24.29	3
68	CB-85	CB-86	67	START	DA#71	0.19	0.85	0.16	0.16	30.0	2.40	0	4.95	8
69	MH-84	MH-87	66	70	AP#C	2.61	0.40	1.04	20.30	42.5	1.84	37	67.38	55
70	MH-80	MH-84	69	71,72	STORES S&R UL	NA	NA	1.31	19.25	41.8	1.84	35	49.21	72
71	CB-79	MH-80	70	START	DA#70	1.66	0.85	1.41	1.41	30.0	2.40	3	15.88	21
72	TEE208	MH-80	70	72	AP#C	2.62	0.40	1.05	16.54	41.5	1.84	30	49.21	62

	ARROWHEAD TOWNE CENTER UPDATE SEPTEMBER 1994						RUN-			FLOW	RAIN			
	FILE:ATC10.WK4/RPT10.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	**A**	**C**	**CA**	**CA**	**Tc**	IN/HR	**Q**	CAP.	**Q/Qo**
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	10YR	C.F.S.	**Qo**	%
73	MH-78	TEE208	72	74&75		NA	NA	0.00	15.49	40.9	1.87	29	49.21	59
74	CB-77	MH-78	73	START	DA#69	1.33	0.85	1.13	1.13	30.0	2.40	3	15.88	17
75	TEE207	MH-78	73	76	AP#C	4.63	0.40	1.85	14.36	40.4	1.90	27	49.21	55
76	MH-76	TEE207	75	77&80		NA	NA	0.00	12.51	39.9	1.90	24	49.21	48
77	CB-75	MH-76	76	78	DA#68	1.18	0.85	1.00	2.79	30.4	2.40	7	7.00	96
78	CB-74	CB-75	77	79	DA#67	1.90	0.85	1.62	1.79	30.3	2.40	4	13.41	32
79	CB-73	CB-74	78	START	DA#66	0.20	0.85	0.17	0.17	30.0	2.40	0	9.89	4
80	MH-72	MH-76	79	81&83		NA	NA	0.00	9.72	38.1	2.00	19	49.21	39
81	CB-71	MH-72	80	82	DA#65	1.19	0.85	1.01	1.19	30.4	2.40	3	15.84	18
82	CB-70	CB-71	81	START	DA#64	0.21	0.85	0.18	0.18	30.0	2.40	0	5.11	8
83	TEE206	MH-72	80	84	AP#D	13.12	0.10	1.31	8.53	37.4	2.05	17	34.47	51
84	MH-69	TEE206	83	85&86		NA	NA	0.00	7.22	36.7	2.05	15	34.47	43
85	CB-68	MH-69	84	START	DA#63	1.67	0.85	1.42	1.42	30.0	2.40	3	15.88	21
86	MH-67	MH-69	84	87		NA	NA	0.00	5.80	36.2	2.10	12	34.47	35
87	MH-66	MH-67	86	88		NA	NA	0.00	5.80	33.6	2.20	13	47.26	27
88	CB-65	MH-66	87	89	DA#21	1.07	0.85	0.91	5.80	33.5	2.25	13	35.40	37
89	CB-64	CB-65	88	90	DA#20	1.07	0.85	0.91	4.89	33.1	2.25	11	21.77	51
90	CB-63	CB-64	89	91	DA#19	2.15	0.85	1.83	3.98	32.6	2.25	9	21.77	41
91	MH-62	CB-63	90	92	STORE S LL	NA	NA	0.61	2.15	32.0	2.30	5	12.00	41
92	CB-60	MH-62	91	93	SW1/4 STORE S	0.34	0.90	0.31	1.54	31.1	2.35	4	5.57	65
93	CB-59	CB-60	92	94	DA #18	0.33	0.90	0.30	1.23	30.4	2.40	3	5.57	53
94	CB-59B	CB-59	93	95	DA #18B	0.32	0.90	0.29	0.94	30.2	2.40	2	3.43	66
95	**PLUG**	**CB-59B**	**97**	**START**	**MALL**	**0.72**	**0.90**	**0.65**	**0.65**	**30.0**	2.40	**2**	**3.43**	**45**
96		WEST 1/2	MALL		ARROWHEAD TOWNE CENTER RING				ROAD TRUNK		LINE			
97	TEE59	STR145	30	98,99&100		NA	NA	0.00	41.36	45.0	1.75	72	106.53	68
98	CB-58	TEE59	97	START	DA#62	0.76	0.85	0.65	0.65	30.0	2.40	2	22.12	7
99	CB-57	TEE59	97	START	DA#61	0.27	0.85	0.23	0.23	30.0	2.40	1	15.88	3
100	MH-56	TEE59	97	100	SHOPS P&D LL	NA	NA	11.47	40.49	44.7	1.75	71	106.53	67

	ARROWHEAD TOWNE CENTER UPDATE SEPTEMBER 1994						RUN-			FLOW	RAIN			
	FILE:ATC10.WK4/RPT10.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	A	C	CA	CA	Tc	IN/HR	Q	CAP.	Q/Qo
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	10YR	C.F.S.	Qo	%
101	TEE200	MH-56	100	102	AP #G	4.75	0.40	1.90	29.02	44.5	1.78	52	106.53	48
102	MH-40	TEE200	101	103,104,105		NA	NA	0.00	27.12	43.2	1.81	49	106.53	46
103	CB-39	MH-40	102	START	DA#60	0.76	0.85	0.65	0.65	30.0	2.40	2	22.12	7
104	CB-38	MH-40	102	START	DA#59	0.43	0.85	0.37	0.37	30.0	2.40	1	15.88	6
105	TEE201	MH-40	102	105	AP#F	2.12	0.40	0.85	26.10	42.0	1.84	48	67.38	71
106	MH-37	TEE201	105	106		NA	NA	0.00	25.26	41.9	1.84	46	67.38	69
107	TEE202	MH-37	106	107	AP #F	2.13	0.40	0.85	25.26	41.5	1.84	46	67.38	69
108	MH-36	TEE202	107	109,110,111		NA	NA	0.00	24.40	40.3	1.90	46	67.38	69
109	CB-35	MH-36	108	110	DA#58	0.15	0.85	0.13	0.26	30.6	2.35	1	4.95	12
110	CB-34	CB-35	109	START	DA#57	0.15	0.85	0.13	0.13	30.0	2.40	0	4.95	6
111	MH-33	MH-36	108	112,113,114		NA	NA	0.00	24.15	39.9	1.90	46	77.82	59
112	CB-32	MH-33	111	START	DA#56	0.30	0.85	0.26	0.26	30.0	2.40	1	22.12	3
113	CB-31	MH-33	111	START	DA#55	0.26	0.85	0.22	0.22	30.0	2.40	1	15.88	3
114	TEE203	MH-33	111	115	AP #E	1.86	0.40	0.74	23.67	39.6	1.90	45	79.36	57
115	TEE204	TEE203	114	116	AP #E	1.85	0.40	0.74	22.93	39.0	1.95	45	79.36	56
116	MH-30	TEE204	115	117&118	STORES W&D UL	NA	NA	2.40	22.19	38.9	1.95	43	79.36	55
117	CB-25	MH-30	116	START	DA#54	2.02	0.85	1.72	1.72	30.0	2.40	4	15.68	26
118	TEE205	MH-30	116	119	AP #E	3.71	0.40	1.48	18.07	38.2	2.00	36	79.36	46
119	MH-24	TEE205	118	120&121		NA	NA	0.00	16.59	38.1	2.00	33	73.00	45
120	CB-23	MH-24	119	START	DA#53	2.63	0.85	2.24	2.24	30.0	2.40	5	15.88	34
121	MH-22	MH-24	119	122&125		NA	NA	0.00	14.35	37.1	2.05	29	73.00	40
122	CB-21	MH-22	121	123	DA#52	0.16	0.85	0.14	1.17	30.5	2.40	3	21.00	13
123	CB-20	CB-21	122	124	DA#51	0.17	0.85	0.14	1.04	30.3	2.40	2	4.95	50
124	CB-19	CB-20	123	START	DA#50	1.05	0.85	0.89	0.89	30.0	2.40	2	4.95	43
125	TEE217	MH-22	121	126	AP #D	6.56	0.10	0.66	13.18	36.6	2.05	27	77.82	35
126	MH-18	TEE217	125	127&128		NA	NA	0.00	12.52	36.2	2.10	26	76.24	34
127	CB-17	MH-18	126	START	DA#49	2.14	0.85	1.82	1.82	30.0	2.40	4	15.88	27
128	MH-16	MH-18	126	129-131	WARDS LL	NA	NA	0.66	10.70	35.5	2.15	23	76.24	30

	ARROWHEAD TOWNE CENTER UPDATE SEPTEMBER 1994						RUN-			FLOW	RAIN			
	FILE:ATC10.WK4/RPT10.WK4(HARDCOPY)					AREA	OFF	INLET	TOTAL	TIME	I	FLOW	PIPE	
LINE	INLET	OUTLET	TO	FROM	DRAINAGE AREA	**A**	**C**	**CA**	**CA**	**Tc**	IN/HR	**Q**	CAP.	**Q/Qo**
No.			No.	No.		ACRE		ACRE	ACRE	(min.)	10YR	C.F.S.	**Qo**	%
129	CB-15A	MH-16	128	START	DA#48	0.22	0.85	0.19	0.19	30.0	2.40	0	22.12	2
130	CB-15	MH-16	128	START	DA#47	0.19	0.85	0.16	0.16	30.0	2.40	0	6.91	6
131	TEE-13A	MH-16	128	132&133		NA	NA	0.00	9.69	35.1	2.15	21	76.24	27
132	CB-13A	TEE-13A	131	START	DA#7	0.31	0.85	0.26	0.26	30.0	2.40	1	46.87	1
133	TEE-10	TEE-13A	131	134&135		NA	NA	0.00	9.43	34.6	2.15	20	76.24	27
134	CB-10	TEE-10	133	START	TBA & DA # 6	0.67	0.85	0.57	0.57	30.0	2.40	1	171.37	1
135	MH-09	TEE-10	133	136		NA	NA	0.00	8.86	33.9	2.20	19	76.24	26
136	CB-08	MH-09	135	137&139	DA # 5	4.17	0.85	3.54	8.86	33.4	2.25	20	76.24	26
137	CB-06	CB-08	136	138	DA # 4	0.60	0.85	0.51	2.04	30.6	2.35	5	11.03	43
138	CB-05	CB-06	136	START	DA # 3	1.80	0.85	1.53	1.53	30.0	2.40	4	3.43	107
139	MH-07	CB-08	136	140&142		NA	NA	0.00	3.28	32.8	2.25	7	12.00	61
140	MH-04	MH-07	139	141	1/3 CINEMA	0.30	0.90	0.27	1.24	31.4	2.35	3	3.43	85
141	CB-04A	MH-04	139	START	MALL & DA # 2	1.08	0.90	0.97	0.97	30.0	2.40	2	3.43	68
142	MH-03	MH-07	139	142&144	2/3 CINEMA	0.60	0.90	0.54	2.03	32.3	2.30	5	5.57	84
143	MH-02	MH-03	142	START	E1/2 STORE W	0.64	0.90	0.58	0.58	30.0	2.40	1	3.43	40
144	MH-01	MH-03	142	145&146		NA	NA	0.00	0.92	30.7	2.35	2	3.43	63
145	P-01A	MH-01	144	START	MALL	0.65	0.90	0.59	0.59	30.0	2.40	1	3.43	41
146	**CB-01**	**MH-01**	**144**	**START**	**DA # 1**	**0.37**	**0.90**	**0.33**	**0.33**	**30.0**	2.40	**1**	**3.43**	**23**

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK-	INLET	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d	F/F
			OUTFALL TO SKUNK CREEK												
18	96	823	2533	81	-1.5	-2.2	OUTLET	5.54	0.0008	0.0012	6.90	6.45	5.80	6.13	5.5
19	84	314	0	103	0.2	0.0	PIPE FULL	5.57	0.0007	0.0011	7.00	7.00	7.00	7.00	5.6
20	84	42	-0	104	0.3	0.2	PIPE FULL	5.51	-0.0002	0.0000	7.00	7.00	7.00	7.00	5.5
21	84	574	-0	107	0.5	0.3	PIPE FULL	4.83	-0.0004	0.0000	7.00	7.00	7.00	7.00	4.8
22	**84**	**456**	**-0**	**107**	**0.5**	**0.5**	**PIPE FULL**	4.21	**-0.0007**	**0.0000**	**7.00**	**7.00**	**7.00**	**7.00**	**4.2**
23	84	203	-0	106	0.4	0.5	PIPE FULL	3.93	-0.0006	0.0000	7.00	7.00	7.00	7.00	3.9
24	66	183	-0	141	2.3	2.0	PIPE FULL	6.36	-0.0007	0.0000	5.50	5.50	5.50	5.50	6.4
25	66	216	-0	31	-3.8	2.4	PARTIAL	9.22	-0.0333	0.0000	5.50	1.70	5.50	3.60	6.4
26	15	23	-2	5	-1.2	-1.2	PARTIAL	0.68	-0.3535	0.0000	0.66	0.06	0.06	0.06	5.3
27	66	13	-1	36	-3.5	-3.1	PARTIAL	17.22	-0.0215	0.0118	3.95	2.00	2.40	2.20	15.5
28	15	22	-2	5	-1.2	-1.2	PARTIAL	0.69	-0.3691	0.0000	0.66	0.06	0.06	0.06	4.4
29			EAST 1/2 MALL		ARROWHEAD TOWNE CEN			EAST 1/2 MALL							
30	66	23	-24	89	-0.6	-2.9	PARTIAL	9.80	-0.0245	0.0088	4.05	4.90	2.60	3.75	13.8
31	15	20	8	12	-1.1	-1.1	PARTIAL	5.59	-0.2709	0.0011	0.70	0.14	0.14	0.14	14.7
32	66	99	-714	83	-1.0	-0.8	PARTIAL	4.29	-0.0011	0.0009	5.09	4.55	4.69	4.62	4.2
33	15	9	-0	10	-1.1	1.3	PARTIAL	5.20	-0.9433	0.0000	1.25	0.13	1.25	0.69	0.7
34	15	48	-83	18	-1.0	-1.0	PARTIAL	2.98	-0.0098	0.0002	0.74	0.23	0.23	0.23	3.7
35	66	60	-751	83	-0.9	-0.9	PARTIAL	4.30	-0.0011	0.0009	5.07	4.56	4.65	4.61	4.2
36	66	72	-5558	84	-0.9	-0.8	PARTIAL	4.04	-0.0001	0.0008	5.08	4.63	4.66	4.65	4.0
37	66	216	-3219	84	-0.9	-0.8	PARTIAL	3.93	-0.0002	0.0008	5.12	4.63	4.73	4.68	3.8
38	15	39	-11	12	-1.1	-1.1	PARTIAL	2.37	-0.0485	0.0002	0.70	0.14	0.14	0.14	6.1
39	66	129	-2404	85	-0.8	-0.8	PARTIAL	3.70	-0.0003	0.0007	5.11	4.66	4.73	4.69	3.7
40	66	249	-2099	84	-0.9	-0.7	PARTIAL	3.63	-0.0003	0.0007	5.13	4.62	4.76	4.69	3.6
41	15	39	-82	59	-0.5	-0.5	PARTIAL	13.85	0.0176	0.0692	0.99	0.74	0.74	0.74	14.2
42	66	284	-1755	83	-0.9	-0.8	PARTIAL	3.40	-0.0004	0.0006	5.11	4.55	4.72	4.64	3.3
43	60	111	-109	86	-0.7	-0.3	PARTIAL	3.42	-0.0031	0.0006	4.83	4.30	4.65	4.47	3.3
44	60	20	-181	87	-0.7	-0.6	PARTIAL	2.83	-0.0032	0.0005	4.70	4.33	4.40	4.36	2.8

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK-	INLET	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d	F/F
45	15	9	-0	5	-1.2	0.5	PARTIAL	1.04	-0.8278	0.0000	1.25	0.06	1.25	0.66	0.1
46	18	46	-0	11	-1.3	0.4	PARTIAL	4.91	-0.1648	0.0000	1.50	0.17	1.50	0.84	0.6
47	60	96	-525	82	-0.9	-0.6	PARTIAL	2.94	-0.0011	0.0004	4.72	4.10	4.43	4.27	2.8
48	15	6	4	15	-1.1	-1.1	PARTIAL	6.78	-0.0991	0.0009	0.72	0.18	0.18	0.18	9.8
49	15	39	25	31	-0.9	-0.9	PARTIAL	9.71	-0.0433	0.0082	0.82	0.39	0.39	0.39	11.5
50	60	69	-238	79	-1.0	-0.8	PARTIAL	2.83	-0.0032	0.0005	4.60	3.96	4.20	4.08	2.7
51	60	27	-720	80	-1.0	-0.9	PARTIAL	2.63	-0.0013	0.0004	4.53	4.02	4.06	4.04	2.6
52	15	9	-0	10	-1.1	0.7	PARTIAL	4.73	-0.7789	0.0000	1.25	0.13	1.25	0.69	0.5
53	15	44	-0	24	-0.9	0.7	PARTIAL	14.47	-0.1593	0.0000	1.25	0.30	1.25	0.78	2.9
54	60	91	-648	80	-1.0	-0.9	PARTIAL	2.53	-0.0013	0.0004	4.56	3.99	4.12	4.06	2.5
55	60	131	-881	75	-1.2	-1.1	PARTIAL	2.73	-0.0012	0.0004	4.44	3.77	3.87	3.82	2.7
56	60	88	-1758	76	-1.2	-1.1	PARTIAL	2.53	-0.0006	0.0004	4.44	3.81	3.87	3.84	2.4
57	15	16	-0	12	-1.1	-1.1	PARTIAL	3.39	-0.0996	0.0004	0.70	0.14	0.14	0.14	8.3
58	15	67	1184	20	-1.0	-1.0	PARTIAL	9.24	-0.0850	0.0024	0.75	0.24	0.24	0.24	80.9
59	15	80	-167	29	-0.9	-0.9	PARTIAL	2.94	-0.0045	0.0005	0.81	0.37	0.37	0.37	3.0
60	15	54	-157	16	-1.1	-0.8	PARTIAL	1.52	-0.0050	0.0000	0.86	0.20	0.47	0.33	0.5
61	60	217	-1663	75	-1.3	-1.1	PARTIAL	2.52	-0.0006	0.0004	4.45	3.73	3.91	3.82	2.4
62	60	74	-1762	75	-1.2	-1.2	PARTIAL	2.44	-0.0006	0.0004	4.42	3.76	3.83	3.80	2.4
63	15	5	7	15	-1.1	-1.1	PARTIAL	6.78	-0.0989	0.0011	0.72	0.18	0.18	0.18	10.6
64	15	39	-7	15	-1.1	-1.1	PARTIAL	4.87	-0.0511	0.0005	0.72	0.18	0.18	0.18	6.8
65	54	30	-2919	74	-1.2	-1.1	PARTIAL	3.00	-0.0004	0.0006	3.93	3.34	3.36	3.35	3.0
66	54	180	-2387	74	-1.2	-1.1	PARTIAL	2.92	-0.0004	0.0006	3.97	3.32	3.44	3.38	2.8
67	15	75	-0	12	-1.1	0.5	PARTIAL	3.72	-0.1205	0.0000	1.25	0.14	1.25	0.70	0.5
68	15	68	807	18	-1.0	-1.0	PARTIAL	2.10	-0.0049	0.0001	0.75	0.23	0.24	0.24	17.8
69	54	220	-2656	73	-1.2	-1.1	PARTIAL	3.01	-0.0004	0.0006	3.96	3.26	3.42	3.34	2.9
70	48	164	6019	72	-1.1	-1.1	PARTIAL	3.72	0.0002	0.0012	3.43	2.90	2.86	2.88	3.7
71	15	39	20	31	-0.9	-0.9	PARTIAL	9.71	-0.0441	0.0074	0.82	0.39	0.39	0.39	10.9
72	48	39	-4353	74	-1.0	-1.0	PARTIAL	3.10	-0.0002	0.0008	3.50	2.97	3.00	2.98	3.1

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK-	INLET	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d	F/F
73	48	115	-2682	75	-1.0	-0.9	PARTIAL	2.93	-0.0003	0.0007	3.54	2.99	3.07	3.03	2.8
74	15	39	10	29	-0.9	-0.9	PARTIAL	9.32	-0.0465	0.0050	0.80	0.36	0.36	0.36	9.6
75	48	82	-2107	76	-1.0	-0.9	PARTIAL	2.74	-0.0004	0.0006	3.55	3.04	3.09	3.06	2.6
76	48	73	-1470	77	-0.9	-0.9	PARTIAL	2.34	-0.0006	0.0004	3.57	3.08	3.14	3.11	2.3
77	15	33	10	77	-0.3	-0.3	PARTIAL	6.56	0.0076	0.0176	1.11	0.96	0.96	0.96	6.6
78	15	83	-5	38	-0.8	-0.2	PARTIAL	9.29	-0.0311	0.0057	1.16	0.47	1.06	0.77	3.9
79	15	51	-34	15	-1.1	-0.7	PARTIAL	3.03	-0.0199	0.0001	0.91	0.18	0.57	0.38	0.8
80	48	206	-1109	75	-1.0	-0.8	PARTIAL	1.93	-0.0007	0.0003	3.59	3.01	3.18	3.09	1.8
81	15	39	11	29	-0.9	-0.9	PARTIAL	9.42	-0.0459	0.0054	0.81	0.37	0.37	0.37	9.7
82	15	58	-147	20	-1.0	-0.8	PARTIAL	2.28	-0.0052	0.0001	0.86	0.24	0.47	0.36	1.0
83	42	97	-1853	72	-1.0	-0.9	PARTIAL	2.33	-0.0005	0.0005	3.05	2.53	2.61	2.57	2.3
84	42	80	-1356	74	-0.9	-0.9	PARTIAL	1.94	-0.0006	0.0004	3.07	2.58	2.63	2.60	1.9
85	15	39	20	31	-0.9	-0.9	PARTIAL	9.71	-0.0440	0.0075	0.82	0.39	0.39	0.39	11.0
86	42	53	-1073	75	-0.9	-0.8	PARTIAL	1.58	-0.0008	0.0002	3.09	2.62	2.68	2.65	1.6
87	42	249	-472	66	-1.2	-0.8	PARTIAL	1.66	-0.0016	0.0003	3.11	2.30	2.72	2.51	1.6
88	36	26	-722	61	-1.2	-1.1	PARTIAL	2.84	-0.0014	0.0010	2.45	1.84	1.90	1.87	2.8
89	30	100	-3940	51	-1.2	-1.1	PARTIAL	4.12	-0.0002	0.0022	1.97	1.27	1.44	1.36	3.8
90	30	113	-1271	46	-1.4	-1.1	PARTIAL	3.61	-0.0008	0.0016	1.93	1.14	1.37	1.25	3.3
91	24	125	-6789	45	-1.1	-1.1	PARTIAL	3.55	-0.0001	0.0023	1.45	0.90	0.90	0.90	3.6
92	18	163	541	70	-0.4	-0.6	PARTIAL	3.03	0.0009	0.0033	1.20	1.05	0.90	0.98	3.3
93	18	94	-299	66	-0.5	-0.3	PARTIAL	2.16	-0.0011	0.0013	1.33	0.99	1.15	1.07	2.1
94	15	27	-600	74	-0.3	-0.3	PARTIAL	2.27	-0.0004	0.0020	1.11	0.92	0.97	0.94	2.2
95	**15**	**15**	-139	**80**	**-0.2**	**-0.2**	**PARTIAL**	1.52	-0.0016	0.0008	**1.14**	1.00	1.02	**1.01**	1.5
96			WEST 1/2 MALL			ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE									
97	54	94	-0	100	0.1	0.2	PIPE FULL	4.55	-0.0025	0.0000	4.50	4.50	4.50	4.50	4.6
98	15	7	-0	186	1.1	1.8	PIPE FULL	1.26	-0.1000	0.0000	1.25	1.25	1.25	1.25	1.3
99	15	39	-0	81	-0.2	1.8	PARTIAL	0.45	-0.0515	0.0000	1.25	1.02	1.25	1.13	0.4
100	54	79	-0	100	0.1	0.2	PIPE FULL	4.45	-0.0025	0.0000	4.50	4.50	4.50	4.50	4.5

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d	F/F
101	54	43	-0	100	0.1	0.2	PIPE FULL	3.25	-0.0025	0.0000	4.50	4.50	4.50	4.50	3.2
102	54	232	-0	100	-0.3	0.2	PARTIAL	3.09	-0.0025	0.0000	4.50	4.21	4.50	4.36	3.1
103	15	6	6	18	-1.0	-1.0	PARTIAL	9.41	-0.0981	0.0019	0.74	0.23	0.23	0.23	10.3
104	15	39	-3	16	-1.1	-1.1	PARTIAL	6.08	-0.0509	0.0007	0.72	0.20	0.20	0.20	7.6
105	54	226	-429	100	-0.3	-0.2	PARTIAL	3.02	-0.0004	0.0006	4.41	4.20	4.31	4.25	3.1
106	54	15	-433	100	-0.2	-0.2	PARTIAL	2.92	-0.0005	0.0005	4.40	4.29	4.30	4.29	3.0
107	54	65	-215	100	-0.1	-0.1	PARTIAL	2.92	-0.0005	0.0005	4.45	4.35	4.39	4.37	2.9
108	54	206	-89	100	-0.1	-0.0	PARTIAL	2.92	-0.0005	0.0005	4.48	4.35	4.45	4.40	2.9
109	15	75	-178	24	-0.9	-0.9	PARTIAL	2.56	-0.0047	0.0003	0.78	0.30	0.30	0.30	2.6
110	15	68	-170	17	-1.0	-0.8	PARTIAL	2.00	-0.0049	0.0001	0.83	0.21	0.40	0.31	0.9
111	48	123	-796	100	-1.0	-0.8	PARTIAL	4.49	-0.0009	0.0016	3.59	2.97	3.17	3.07	4.3
112	15	12	-0	12	-1.1	-1.1	PARTIAL	3.39	-0.0996	0.0004	0.70	0.14	0.14	0.14	8.3
113	15	39	-9	13	-1.1	-1.1	PARTIAL	3.65	-0.0513	0.0003	0.71	0.16	0.16	0.16	6.4
114	48	68	-848	100	-1.1	-0.9	PARTIAL	4.47	-0.0010	0.0016	3.53	2.93	3.07	3.00	4.4
115	48	175	-895	100	-1.3	-1.0	PARTIAL	4.73	-0.0010	0.0016	3.52	2.69	3.03	2.86	4.4
116	48	37	-1420	100	-1.3	-1.2	PARTIAL	4.75	-0.0007	0.0019	3.39	2.71	2.79	2.75	4.7
117	15	38	21	100	-0.8	-0.8	PARTIAL	10.48	-0.0396	0.0107	0.84	0.44	0.44	0.44	10.8
118	48	164	-824	100	-1.5	-1.2	PARTIAL	4.17	-0.0013	0.0013	3.40	2.51	2.81	2.66	3.8
119	48	29	-1358	100	-1.4	-1.4	PARTIAL	3.88	-0.0009	0.0013	3.30	2.56	2.61	2.58	3.8
120	15	39	46	100	-0.8	-0.8	PARTIAL	11.00	-0.0339	0.0176	0.86	0.47	0.47	0.47	13.0
121	48	219	-1003	100	-1.8	-1.3	PARTIAL	3.68	-0.0012	0.0010	3.33	2.25	2.66	2.45	3.3
122	15	73	16	100	-0.9	-0.9	PARTIAL	11.19	-0.0843	0.0058	0.78	0.31	0.31	0.31	12.4
123	15	57	-280	50	-0.6	-0.6	PARTIAL	4.03	-0.0016	0.0034	0.94	0.63	0.63	0.63	4.1
124	15	58	-186	45	-0.7	-0.5	PARTIAL	3.75	-0.0023	0.0027	0.99	0.56	0.72	0.64	3.0
125	48	128	-1042	100	-1.9	-1.7	PARTIAL	3.87	-0.0015	0.0010	3.17	2.07	2.35	2.21	3.6
126	48	91	-1338	49	-2.0	-1.8	PARTIAL	4.08	-0.0013	0.0011	3.08	1.96	2.17	2.06	3.8
127	15	39	26	100	-0.8	-0.8	PARTIAL	10.61	-0.0396	0.0120	0.84	0.44	0.44	0.44	11.4
128	48	177	-1245	42	-2.3	-1.9	PARTIAL	4.12	-0.0014	0.0010	3.03	1.68	2.06	1.87	3.6

	PIPE	LEN-	BACK-	FLOW	FULL =	ZERO	DESIGN	DESIGN	NET	BKWTR	BACK	INLET	TW	PIPE	TW
	DIA	GTH	WATER	DEPTH	INLET	OUTLET	PIPE FLOW	FLOW	BKWTR	SLOPE	WTR	HGL	HGL	AVE	d/D
LINE	D	L	L	d/D	HEAD	HEAD	VELOCITY	V	Sf-Sb	Sb	DPTH	DPTH	DPTH	DPTH	V
No.	IN.	FT	FT	%	FT	FT	CONTROL	FPS	%	F/F	d	d	d	d	F/F
129	15	7	-5	12	-1.1	-1.1	PARTIAL	3.39	-0.0998	0.0002	0.70	0.14	0.14	0.14	6.1
130	15	39	-91	16	-1.1	-1.1	PARTIAL	2.64	-0.0096	0.0001	0.72	0.20	0.20	0.20	3.4
131	48	92	-1628	37	-2.5	-2.3	PARTIAL	4.64	-0.0013	0.0011	2.84	1.48	1.68	1.58	4.2
132	15	26	-1	10	-1.1	-1.1	PARTIAL	3.59	-0.4486	0.0003	0.72	0.13	0.20	0.16	5.5
133	48	165	-1741	35	-2.6	-2.4	PARTIAL	4.76	-0.0012	0.0012	2.79	1.40	1.58	1.49	4.5
134	15	10	9	5	-1.2	-1.2	PARTIAL	2.79	-5.9979	0.0021	0.66	0.06	0.06	0.06	59.5
135	48	182	-1778	35	-2.6	-2.5	PARTIAL	4.81	-0.0012	0.0012	2.75	1.40	1.50	1.45	4.6
136	48	169	-2103	35	-2.6	-2.6	PARTIAL	5.08	-0.0011	0.0013	2.70	1.40	1.40	1.40	5.1
137	18	186	722	49	-0.8	-0.8	PARTIAL	5.81	0.0005	0.0099	1.09	0.73	0.68	0.70	6.2
138	15	113	0	100	0.0	0.0	PARTIAL	2.99	0.0004	0.0028	1.25	1.25	1.25	1.25	3.0
139	24	129	693	62	-0.8	-0.9	PARTIAL	3.75	0.0010	0.0034	1.56	1.25	1.12	1.18	4.2
140	15	225	182	71	-0.4	-0.4	PARTIAL	2.38	0.0016	0.0040	1.07	0.89	0.89	0.89	3.2
141	15	247	-610	59	-0.5	-0.3	PARTIAL	2.99	-0.0004	0.0020	1.12	0.74	0.99	0.86	2.3
142	18	95	755	85	-0.2	-0.3	PARTIAL	3.04	0.0003	0.0027	1.37	1.28	1.25	1.26	3.0
143	15	200	-0	68	-0.4	0.0	PARTIAL	2.60	-0.0024	0.0000	1.25	0.85	1.25	1.05	1.1
144	15	185	-0	81	-0.2	0.0	PARTIAL	1.93	-0.0024	0.0000	1.25	1.01	1.25	1.13	1.8
145	15	52	-73	80	-0.2	-0.1	PARTIAL	1.26	-0.0019	0.0005	1.18	1.00	1.11	1.06	1.2
146	**15**	**15**	-62	**86**	**-0.2**	**-0.1**	**PARTIAL**	0.72	-0.0022	0.0002	**1.18**	1.07	1.11	**1.09**	0.7

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	**DESIGN**			**DESIGN**	**DESIGN**	**DESIGN**
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	**V**	**V**	**V**	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
		OUTFALL TO SKUNK CREEK											
18	5.2	4.3	3.7	1186.1	NA	1186.1	1185.6	DRAWDOWN	NA	NA	(D+Dc)/2+INV	1186.10	1185.10
19	5.6	5.6	3.4	NA	1186.8	1186.8	1187.0	TAILWATER	1186.7	1186.1	FLOW DEPTH	1187.00	1186.65
20	5.5	5.5	2.6	NA	1186.8	1186.8	1187.1	TAILWATER	1186.8	1187.0	TAILWATER	1187.05	1187.00
21	4.8	4.8	3.5	NA	1187.1	1187.1	1187.5	TAILWATER	1186.8	1187.1	TAILWATER	1187.54	1187.06
22	**4.2**	**4.2**	**5.1**	**NA**	**1185.8**	**1185.8**	**1187.8**	**TAILWATER**	**1185.4**	**1187.5**	**TAILWATER**	**1187.84**	**1187.55**
23	3.9	3.9	4.8	NA	1185.9	1185.9	1188.0	TAILWATER	1185.8	1187.8	TAILWATER	1187.95	1187.84
24	6.4	6.4	3.8	NA	1186.2	1186.2	1188.4	TAILWATER	1186.0	1188.0	TAILWATER	1188.42	1188.05
25	9.2	6.4	19.3	NA	1189.5	1189.5	1189.0	FLOW DEPTH	1182.4	1188.5	TAILWATER	1189.55	1188.55
26	5.3	0.1	0.7	NA	1199.8	1199.8	1191.7	FLOW DEPTH	1191.7	1189.6	FLOW DEPTH	1199.81	1191.68
27	17.0	6.4	19.3	NA	1190.0	1190.0	1190.3	TAILWATER	1189.5	1190.2	TAILWATER	1190.27	1190.24
28	4.4	0.1	0.7	NA	1199.8	1199.8	1191.7	FLOW DEPTH	1191.7	1190.4	FLOW DEPTH	1199.81	1191.69
29		EAST 1/2 MALL				ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE							
30	8.8	6.4	9.8	NA	1194.0	1194.0	1190.9	FLOW DEPTH	1190.0	1190.9	TAILWATER	1193.96	1190.87
31	14.7	0.9	5.6	NA	1199.9	1199.9	1194.5	FLOW DEPTH	1194.5	1194.2	FLOW DEPTH	1199.89	1194.45
32	4.3	3.8	7.1	NA	1192.7	1192.7	1194.3	TAILWATER	1192.5	1194.2	TAILWATER	1194.31	1194.25
33	1.3	0.7	5.2	NA	1200.5	1200.5	1194.4	FLOW DEPTH	1192.0	1194.4	TAILWATER	1200.51	1194.41
34	3.7	0.4	3.0	NA	1201.1	1201.1	1200.6	FLOW DEPTH	1200.6	1200.6	FLOW DEPTH	1201.09	1200.61
35	4.3	3.8	7.1	NA	1192.8	1192.8	1194.4	TAILWATER	1192.7	1194.4	TAILWATER	1194.44	1194.41
36	4.0	3.6	5.2	NA	1193.4	1193.4	1194.6	TAILWATER	1193.3	1194.5	TAILWATER	1194.58	1194.54
37	3.9	3.5	5.3	NA	1193.6	1193.6	1194.8	TAILWATER	1193.4	1194.7	TAILWATER	1194.80	1194.68
38	6.1	0.4	2.4	NA	1205.7	1205.7	1203.8	FLOW DEPTH	1203.8	1194.9	FLOW DEPTH	1205.69	1203.79
39	3.7	3.3	5.2	NA	1193.5	1193.5	1195.0	TAILWATER	1193.4	1194.9	TAILWATER	1194.96	1194.90
40	3.6	3.3	5.2	NA	1193.8	1193.8	1195.2	TAILWATER	1193.5	1195.1	TAILWATER	1195.17	1195.06
41	14.2	8.7	13.8	NA	1204.9	1204.9	1203.8	FLOW DEPTH	1202.9	1195.3	FLOW DEPTH	1204.91	1202.90
42	3.4	3.0	5.1	NA	1193.9	1193.9	1195.4	TAILWATER	1193.6	1195.3	TAILWATER	1195.38	1195.27
43	3.4	3.2	7.9	NA	1193.3	1193.3	1195.5	TAILWATER	1192.9	1195.5	TAILWATER	1195.54	1195.48
44	2.8	2.6	7.2	NA	1193.1	1193.1	1195.6	TAILWATER	1193.0	1195.6	TAILWATER	1195.64	1195.64

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN	DESIGN	DESIGN
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
45	0.3	0.1	1.0	NA	1201.5	1201.5	1195.7	FLOW DEPTH	1194.0	1195.7	TAILWATER	1201.46	1195.74
46	1.0	0.6	4.9	NA	1201.6	1201.6	1195.7	FLOW DEPTH	1194.0	1195.7	TAILWATER	1201.57	1195.74
47	2.9	2.6	5.3	NA	1194.0	1194.0	1195.8	TAILWATER	1193.7	1195.7	TAILWATER	1195.77	1195.74
48	9.8	0.8	6.8	NA	1200.9	1200.9	1200.3	FLOW DEPTH	1200.3	1195.9	FLOW DEPTH	1200.93	1200.33
49	11.5	2.9	9.7	NA	1201.1	1201.1	1199.2	FLOW DEPTH	1199.1	1195.9	FLOW DEPTH	1201.14	1199.13
50	2.8	2.4	7.2	NA	1193.7	1193.7	1195.9	TAILWATER	1193.4	1195.9	TAILWATER	1195.89	1195.87
51	2.6	2.3	5.3	NA	1194.1	1194.1	1196.0	TAILWATER	1194.0	1196.0	TAILWATER	1196.00	1195.99
52	1.0	0.5	4.7	NA	1201.3	1201.3	1196.1	FLOW DEPTH	1194.3	1196.1	TAILWATER	1201.27	1196.10
53	4.5	2.9	14.5	NA	1201.4	1201.4	1196.2	FLOW DEPTH	1194.4	1196.1	TAILWATER	1201.44	1196.10
54	2.5	2.2	5.3	NA	1194.2	1194.2	1196.1	TAILWATER	1194.1	1196.1	TAILWATER	1196.12	1196.10
55	2.7	2.2	5.3	NA	1194.6	1194.6	1196.3	TAILWATER	1194.5	1196.2	TAILWATER	1196.25	1196.22
56	2.5	2.0	4.2	NA	1194.8	1194.8	1196.4	TAILWATER	1194.7	1196.4	TAILWATER	1196.37	1196.35
57	8.3	0.5	3.4	NA	1202.5	1202.5	1200.9	FLOW DEPTH	1200.9	1196.5	FLOW DEPTH	1202.54	1200.94
58	80.9	1.4	9.2	1196.7	1202.4	1202.4	1196.6	FLOW DEPTH	1196.6	1196.5	FLOW DEPTH	1202.42	1196.56
59	3.0	0.7	2.9	NA	1202.9	1202.9	1202.6	FLOW DEPTH	1202.5	1202.5	FLOW DEPTH	1202.94	1202.54
60	0.9	0.2	1.5	NA	1203.0	1203.0	1203.0	TAILWATER	1202.8	1203.0	TAILWATER	1203.04	1203.04
61	2.5	2.0	4.2	NA	1195.0	1195.0	1196.5	TAILWATER	1194.8	1196.5	TAILWATER	1196.51	1196.47
62	2.4	1.9	4.2	NA	1195.1	1195.1	1196.6	TAILWATER	1195.0	1196.6	TAILWATER	1196.62	1196.61
63	10.6	0.9	6.8	1203.3	1203.8	1203.8	1203.3	FLOW DEPTH	1203.3	1196.7	FLOW DEPTH	1203.76	1203.26
64	6.8	0.6	4.9	NA	1203.8	1203.8	1201.8	FLOW DEPTH	1201.8	1196.7	FLOW DEPTH	1203.76	1201.75
65	3.0	2.3	4.4	NA	1195.8	1195.8	1196.7	TAILWATER	1195.7	1196.7	TAILWATER	1196.73	1196.72
66	2.9	2.3	4.2	NA	1195.8	1195.8	1196.9	TAILWATER	1195.6	1196.8	TAILWATER	1196.89	1196.83
67	0.9	0.5	3.7	NA	1204.4	1204.4	1197.0	FLOW DEPTH	1195.3	1197.0	TAILWATER	1204.38	1196.99
68	2.6	0.3	2.1	1204.5	1204.8	1204.8	1204.5	FLOW DEPTH	1204.5	1204.5	TAILWATER	1204.81	1204.48
69	3.0	2.3	4.4	NA	1196.2	1196.2	1197.1	TAILWATER	1196.0	1197.0	TAILWATER	1197.05	1196.99
70	3.7	2.8	4.3	1197.3	1196.9	1197.3	1197.2	FLOW DEPTH	1196.8	1197.2	TAILWATER	1197.35	1197.15
71	10.9	2.8	9.7	NA	1210.1	1210.1	1208.2	FLOW DEPTH	1208.1	1197.4	FLOW DEPTH	1210.11	1208.10
72	3.1	2.4	4.1	NA	1196.7	1196.7	1197.5	TAILWATER	1196.7	1197.4	TAILWATER	1197.46	1197.45

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	DESIGN			DESIGN	DESIGN	DESIGN
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	V	V	V	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
73	2.9	2.3	4.0	NA	1196.7	1196.7	1197.6	TAILWATER	1196.6	1197.6	TAILWATER	1197.60	1197.56
74	9.6	2.2	9.3	NA	1208.6	1208.6	1206.7	FLOW DEPTH	1206.6	1197.7	FLOW DEPTH	1208.65	1206.64
75	2.7	2.2	4.0	NA	1196.8	1196.8	1197.7	TAILWATER	1196.7	1197.7	TAILWATER	1197.73	1197.70
76	2.3	1.9	3.8	NA	1196.6	1196.6	1197.8	TAILWATER	1196.6	1197.8	TAILWATER	1197.84	1197.83
77	6.6	5.5	6.6	NA	1203.6	1203.6	1203.6	FLOW DEPTH	1203.3	1197.9	FLOW DEPTH	1203.60	1203.27
78	5.5	3.5	9.3	NA	1206.2	1206.2	1204.0	FLOW DEPTH	1203.1	1203.7	TAILWATER	1206.17	1203.70
79	1.3	0.3	3.0	NA	1206.9	1206.9	1206.3	FLOW DEPTH	1205.9	1206.3	TAILWATER	1206.89	1206.27
80	1.9	1.5	3.5	NA	1196.7	1196.7	1198.0	TAILWATER	1196.4	1197.9	TAILWATER	1197.98	1197.94
81	9.7	2.3	9.4	NA	1207.0	1207.0	1205.1	FLOW DEPTH	1205.0	1198.1	FLOW DEPTH	1207.03	1205.03
82	1.5	0.3	2.3	NA	1207.2	1207.2	1207.1	FLOW DEPTH	1206.9	1207.1	TAILWATER	1207.22	1207.13
83	2.3	1.8	3.6	NA	1197.3	1197.3	1198.1	TAILWATER	1197.2	1198.1	TAILWATER	1198.10	1198.08
84	1.9	1.5	3.3	NA	1197.2	1197.2	1198.2	TAILWATER	1197.1	1198.2	TAILWATER	1198.22	1198.20
85	11.0	2.8	9.7	NA	1207.8	1207.8	1205.8	FLOW DEPTH	1205.8	1198.3	FLOW DEPTH	1207.77	1205.76
86	1.6	1.3	3.2	NA	1197.2	1197.2	1198.3	TAILWATER	1197.1	1198.3	TAILWATER	1198.32	1198.32
87	1.7	1.3	4.0	NA	1197.4	1197.4	1198.5	TAILWATER	1196.9	1198.4	TAILWATER	1198.46	1198.42
88	2.8	1.8	4.5	NA	1198.0	1198.0	1198.6	TAILWATER	1197.9	1198.6	TAILWATER	1198.56	1198.56
89	4.1	2.2	4.4	NA	1198.7	1198.7	1198.7	TAILWATER	1198.5	1198.7	TAILWATER	1198.73	1198.66
90	3.6	1.8	4.1	NA	1198.9	1198.9	1198.9	TAILWATER	1198.6	1198.8	TAILWATER	1198.87	1198.83
91	3.6	1.6	3.6	NA	1199.4	1199.4	1199.2	FLOW DEPTH	1199.1	1199.0	FLOW DEPTH	1199.43	1199.13
92	3.0	2.0	3.3	1200.1	1199.9	1200.1	1199.7	FLOW DEPTH	1199.5	1199.5	TAILWATER	1200.07	1199.53
93	2.2	1.7	3.2	NA	1200.0	1200.0	1200.2	TAILWATER	1199.8	1200.2	TAILWATER	1200.24	1200.17
94	2.3	1.8	3.0	NA	1200.2	1200.2	1200.4	TAILWATER	1200.1	1200.3	TAILWATER	1200.36	1200.34
95	**1.5**	**1.3**	**2.7**	**NA**	**1200.1**	**1200.1**	**1200.5**	**TAILWATER**	**1200.0**	**1200.5**	**TAILWATER**	**1200.47**	**1200.46**
96		WEST	1/2 MALL		ARROWI	ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE							
97	4.6	4.6	7.2	NA	1192.5	1192.5	1194.4	TAILWATER	1192.2	1194.2	TAILWATER	1194.35	1194.25
98	1.3	1.3	9.4	NA	1192.4	1192.4	1194.5	TAILWATER	1191.7	1194.5	TAILWATER	1194.46	1194.45
99	0.5	0.4	3.6	NA	1193.6	1193.6	1194.5	TAILWATER	1191.6	1194.5	TAILWATER	1194.46	1194.45
100	4.5	4.5	7.2	NA	1192.6	1192.6	1194.5	TAILWATER	1192.5	1194.5	TAILWATER	1194.54	1194.45

LINE No.	FLOW d/D V F/F	FLOW Q/A V F/F	% Q/Qo V F/F	BK-WTR INLET CNTRL HGL	Q/Qo INLET CNTRL HGL	HIGHER FLOW DEPTH HGL	TW+Hf TAIL-WATER HGL	DESIGN INLET HGL CONTROL	Q/Qo OUTLET HGL	TW+Hm OUTLET HGL	DESIGN OUTLET HGL CONTROL	DESIGN INLET HGL ELEV	DESIGN OUTLET HGL ELEV
101	3.2	3.2	6.4	NA	1192.2	1192.2	1194.7	TAILWATER	1192.1	1194.6	TAILWATER	1194.67	1194.64
102	3.1	3.1	6.4	NA	1192.8	1192.8	1194.9	TAILWATER	1192.2	1194.8	TAILWATER	1194.89	1194.77
103	10.3	1.3	9.4	1201.2	1201.8	1201.8	1201.2	FLOW DEPTH	1201.2	1195.0	FLOW DEPTH	1201.81	1201.21
104	7.6	0.7	6.1	NA	1201.8	1201.8	1199.8	FLOW DEPTH	1199.8	1195.0	FLOW DEPTH	1201.78	1199.77
105	3.1	3.0	4.6	NA	1193.7	1193.7	1195.1	TAILWATER	1193.5	1195.0	TAILWATER	1195.11	1194.99
106	3.0	2.9	4.5	NA	1193.6	1193.6	1195.2	TAILWATER	1193.6	1195.2	TAILWATER	1195.21	1195.21
107	2.9	2.9	4.5	NA	1193.6	1193.6	1195.3	TAILWATER	1193.6	1195.3	TAILWATER	1195.34	1195.31
108	2.9	2.9	4.5	NA	1193.8	1193.8	1195.5	TAILWATER	1193.6	1195.4	TAILWATER	1195.54	1195.44
109	2.6	0.5	2.6	NA	1204.1	1204.1	1203.7	FLOW DEPTH	1203.7	1195.6	FLOW DEPTH	1204.11	1203.74
110	1.4	0.2	2.0	NA	1204.4	1204.4	1204.2	FLOW DEPTH	1204.0	1204.2	TAILWATER	1204.37	1204.21
111	4.5	3.7	6.4	NA	1194.9	1194.9	1195.7	TAILWATER	1194.6	1195.6	TAILWATER	1195.75	1195.64
112	8.3	0.5	3.4	NA	1204.3	1204.3	1203.1	FLOW DEPTH	1203.1	1195.8	FLOW DEPTH	1204.30	1203.10
113	6.4	0.4	3.6	NA	1204.3	1204.3	1202.3	FLOW DEPTH	1202.3	1195.8	FLOW DEPTH	1204.32	1202.31
114	4.4	3.6	6.5	NA	1195.1	1195.1	1195.9	TAILWATER	1194.9	1195.8	TAILWATER	1195.90	1195.85
115	4.7	3.6	6.5	NA	1195.6	1195.6	1196.1	TAILWATER	1195.1	1196.0	TAILWATER	1196.15	1196.00
116	4.8	3.4	6.3	NA	1195.6	1195.6	1196.3	TAILWATER	1195.5	1196.2	TAILWATER	1196.28	1196.25
117	10.8	3.4	10.5	NA	1207.3	1207.3	1205.6	FLOW DEPTH	1205.4	1196.4	FLOW DEPTH	1207.35	1205.44
118	4.1	2.9	6.1	NA	1195.8	1195.8	1196.5	TAILWATER	1195.5	1196.4	TAILWATER	1196.47	1196.38
119	3.9	2.6	5.6	NA	1195.9	1195.9	1196.6	TAILWATER	1195.8	1196.6	TAILWATER	1196.58	1196.57
120	13.0	4.4	11.0	1206.9	1208.2	1208.2	1206.4	FLOW DEPTH	1206.2	1196.7	FLOW DEPTH	1208.20	1206.19
121	3.7	2.3	5.4	NA	1196.3	1196.3	1196.8	TAILWATER	1195.8	1196.7	TAILWATER	1196.76	1196.68
122	12.4	2.3	11.2	NA	1209.0	1209.0	1202.5	FLOW DEPTH	1202.4	1196.9	FLOW DEPTH	1208.99	1202.41
123	4.1	2.0	4.0	NA	1209.6	1209.6	1209.4	FLOW DEPTH	1209.3	1209.1	FLOW DEPTH	1209.60	1209.31
124	3.4	1.7	3.7	NA	1209.8	1209.8	1209.7	FLOW DEPTH	1209.5	1209.7	TAILWATER	1209.82	1209.70
125	3.8	2.1	5.3	NA	1196.4	1196.4	1196.9	TAILWATER	1196.0	1196.9	TAILWATER	1196.90	1196.86
126	4.1	2.1	5.2	NA	1196.6	1196.6	1197.0	TAILWATER	1196.4	1197.0	TAILWATER	1197.02	1197.00
127	11.4	3.6	10.6	NA	1209.9	1209.9	1208.1	FLOW DEPTH	1207.9	1197.1	FLOW DEPTH	1209.95	1207.94
128	4.1	1.8	5.2	NA	1197.0	1197.0	1197.2	TAILWATER	1196.6	1197.1	TAILWATER	1197.16	1197.12

	FLOW	FLOW	%	BK-WTR	Q/Qo	HIGHER	TW+Hf	**DESIGN**			**DESIGN**	**DESIGN**	**DESIGN**
	d/D	Q/A	Q/Qo	INLET	INLET	FLOW	TAIL-	INLET	Q/Qo	TW+Hm	OUTLET	INLET	OUTLET
LINE	**V**	**V**	**V**	CNTRL	CNTRL	DEPTH	WATER	HGL	OUTLET	OUTLET	HGL	HGL	HGL
No.	F/F	F/F	F/F	HGL	HGL	HGL	HGL	CONTROL	HGL	HGL	CONTROL	ELEV	ELEV
129	6.1	0.4	3.4	NA	1210.8	1210.8	1210.1	FLOW DEPTH	1210.1	1197.3	FLOW DEPTH	1210.84	1210.14
130	3.4	0.3	2.6	NA	1210.5	1210.5	1210.1	FLOW DEPTH	1210.1	1197.3	FLOW DEPTH	1210.48	1210.10
131	4.6	1.7	5.0	NA	1197.2	1197.2	1197.3	TAILWATER	1197.0	1197.3	TAILWATER	1197.28	1197.26
132	7.6	0.5	3.6	NA	1209.0	1209.0	1197.4	FLOW DEPTH	1197.3	1197.4	TAILWATER	1208.98	1197.38
133	4.8	1.6	5.0	NA	1197.6	1197.6	1197.4	FLOW DEPTH	1197.2	1197.4	TAILWATER	1197.60	1197.38
134	NA	1.1	2.8	NA	1210.3	1210.3	1198.3	FLOW DEPTH	1198.3	1197.7	FLOW DEPTH	1210.26	1198.26
135	4.8	1.6	5.0	NA	1198.0	1198.0	1197.7	FLOW DEPTH	1197.6	1197.7	TAILWATER	1198.04	1197.70
136	5.1	1.6	5.0	NA	1198.5	1198.5	1198.2	FLOW DEPTH	1198.1	1198.1	TAILWATER	1198.54	1198.14
137	6.0	2.7	5.8	1202.9	1202.9	1202.9	1201.4	FLOW DEPTH	1201.1	1198.6	FLOW DEPTH	1202.91	1201.08
138	3.0	3.0	2.8	NA	1204.0	1204.0	1204.0	TAILWATER	1203.7	1203.0	FLOW DEPTH	1203.99	1203.68
139	3.8	2.3	4.0	1199.7	1199.6	1199.7	1199.4	FLOW DEPTH	1199.3	1198.6	FLOW DEPTH	1199.70	1199.26
140	3.2	2.4	3.2	NA	1202.1	1202.1	1202.0	FLOW DEPTH	1201.6	1199.8	FLOW DEPTH	1202.11	1201.57
141	2.6	1.9	3.0	NA	1202.5	1202.5	1202.5	FLOW DEPTH	1202.0	1202.2	TAILWATER	1202.55	1202.21
142	3.0	2.6	3.5	1200.1	1199.8	1200.1	1200.0	FLOW DEPTH	1199.6	1199.8	TAILWATER	1200.06	1199.80
143	1.3	1.1	2.6	NA	1199.9	1199.9	1200.2	TAILWATER	1199.5	1200.2	TAILWATER	1200.23	1200.16
144	1.9	1.8	2.9	NA	1200.0	1200.0	1200.3	TAILWATER	1199.6	1200.2	TAILWATER	1200.33	1200.16
145	1.3	1.1	2.6	NA	1200.0	1200.0	1200.5	TAILWATER	1199.9	1200.4	TAILWATER	1200.45	1200.43
146	**0.7**	**0.7**	**2.1**	**NA**	**1199.7**	**1199.7**	**1200.4**	**TAILWATER**	**1199.7**	**1200.4**	**TAILWATER**	**1200.43**	**1200.43**

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
		OUTFALL TO SKUNK CREEK											
18	0.0553	0.45	5	0.00	2.48	0.013	0.0004	1179.65	1179.30	1187.65	9.94	1197.84	11.74
19	0.1127	0.35	2	0.00	0.94	0.013	0.0004	1179.78	1179.65	1186.78	8.95	1195.98	8.98
20	0.1103	0.05	3	0.00	0.13	0.013	0.0002	1179.80	1179.79	1186.80	8.93	1195.98	8.93
21	0.0846	0.49	3	0.01	1.98	0.013	0.0004	1180.05	1179.80	1187.05	10.08	1197.38	9.84
22	**0.0643**	**0.29**	**3**	**0.00**	**1.81**	**0.013**	**0.0007**	**1180.37**	**1180.05**	**1187.37**	**14.38**	**1202.00**	**14.16**
23	0.0559	0.11	3	0.00	0.86	0.013	0.0006	1180.51	1180.38	1187.51	15.49	1203.25	15.30
24	0.2023	0.37	2	0.09	0.48	0.013	0.0007	1180.65	1180.52	1186.15	17.10	1203.50	15.08
25	0.2023	0.44	NA	0.13	0.39	0.013	0.0333	1187.84	1180.65	1193.34	8.91	1202.50	12.96
26	0.0003	0.00	1	0.10	0.57	0.012	0.3535	1199.75	1191.62	1201.00	1.25	1202.50	2.69
27	0.2021	0.03	3(A)	0.70	0.01	0.013	0.0333	1188.27	1187.84	1193.77	8.48	1202.50	12.23
28	0.0002	0.00	1	0.10	0.53	0.012	0.3691	1199.75	1191.63	1201.00	1.25	1202.50	2.69
29		ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE								EAST 1/2 MALL			
30	0.1721	0.04	3(B)	0.60	0.04	0.012	0.0333	1189.06	1188.27	1194.56	7.89	1202.70	8.74
31	0.0239	0.00	4	0.29	0.06	0.012	0.2720	1199.75	1194.31	1201.00	1.25	1202.50	2.61
32	0.0615	0.06	4	0.29	0.38	0.012	0.0020	1189.76	1189.56	1195.26	7.69	1203.20	8.89
33	0.0165	0.00	1	0.10	0.03	0.012	0.9433	1200.38	1191.89	1201.63	1.73	1203.61	3.10
34	0.0062	0.00	1	0.10	0.27	0.012	0.0100	1200.86	1200.38	1202.11	1.25	1203.61	2.52
35	0.0608	0.04	1	0.10	0.23	0.012	0.0020	1189.88	1189.76	1195.38	8.90	1204.53	10.09
36	0.0544	0.04	1	0.10	0.30	0.012	0.0010	1189.95	1189.88	1195.45	9.80	1205.50	10.92
37	0.0525	0.11	1	0.10	0.92	0.012	0.0010	1190.17	1189.95	1195.67	12.88	1208.80	14.00
38	0.0041	0.00	1	0.10	0.27	0.012	0.0487	1205.55	1203.65	1206.80	1.75	1208.80	3.11
39	0.0475	0.06	1	0.10	0.58	0.012	0.0010	1190.30	1190.17	1195.80	12.21	1208.26	13.30
40	0.0455	0.11	1	0.10	1.14	0.012	0.0010	1190.55	1190.30	1196.05	11.36	1207.66	12.49
41	2.3334	0.91	1	0.10	0.05	0.012	0.0515	1204.17	1202.16	1205.42	1.21	1206.88	1.97
42	0.0387	0.11	1	0.10	1.39	0.012	0.0010	1190.83	1190.55	1196.33	8.88	1205.46	10.08
43	0.0494	0.05	1	0.10	0.54	0.012	0.0037	1191.24	1190.83	1196.24	8.01	1204.50	8.96
44	0.0326	0.01	1	0.10	0.12	0.012	0.0037	1191.31	1191.24	1196.31	7.79	1204.35	8.71

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
45	0.0007	0.00	1	0.10	0.14	0.012	0.8278	1201.40	1193.95	1202.65	1.25	1204.15	2.69
46	0.0077	0.00	1	0.10	0.16	0.012	0.1648	1201.40	1193.82	1202.90	1.00	1204.15	2.58
47	0.0328	0.03	1	0.10	0.54	0.012	0.0015	1191.67	1191.31	1196.67	6.78	1203.70	7.93
48	0.0212	0.00	1	0.10	0.01	0.012	0.1000	1200.75	1200.15	1202.00	1.25	1203.50	2.57
49	0.2603	0.10	1	0.10	0.07	0.012	0.0515	1200.75	1198.74	1202.00	1.25	1203.50	2.36
50	0.0289	0.02	1	0.10	0.41	0.012	0.0037	1191.93	1191.67	1196.93	6.89	1204.08	8.18
51	0.0249	0.01	1	0.10	0.17	0.012	0.0017	1191.98	1191.93	1196.98	6.86	1204.09	8.09
52	0.0093	0.00	1	0.10	0.03	0.012	0.7789	1201.14	1194.13	1202.39	1.25	1203.89	2.63
53	0.2603	0.11	1	0.10	0.05	0.012	0.1593	1201.14	1194.13	1202.39	1.25	1203.89	2.45
54	0.0226	0.02	1	0.10	0.60	0.012	0.0017	1192.13	1191.98	1197.13	7.08	1204.46	8.34
55	0.0235	0.03	1	0.10	0.80	0.012	0.0017	1192.48	1192.35	1197.48	7.11	1204.84	8.59
56	0.0198	0.02	1	0.10	0.58	0.012	0.0010	1192.56	1192.48	1197.56	7.74	1205.55	9.18
57	0.0076	0.00	1	0.10	0.08	0.012	0.1000	1202.40	1200.80	1203.65	1.25	1205.15	2.61
58	0.0631	0.04	1	0.10	0.12	0.012	0.0875	1202.17	1196.31	1203.42	1.89	1205.56	3.15
59	0.0165	0.01	1	0.10	0.45	0.012	0.0050	1202.57	1202.17	1203.82	1.78	1205.85	2.91
60	0.0010	0.00	1	0.10	0.59	0.012	0.0050	1202.84	1202.57	1204.09	1.25	1205.59	2.55
61	0.0194	0.04	1	0.10	1.43	0.012	0.0010	1192.78	1192.56	1197.78	8.20	1206.23	9.72
62	0.0182	0.01	1	0.10	0.51	0.012	0.0010	1192.86	1192.78	1197.86	8.43	1206.54	9.92
63	0.0248	0.00	1	0.10	0.01	0.012	0.1000	1203.58	1203.08	1204.83	1.25	1206.33	2.57
64	0.0104	0.00	1	0.10	0.13	0.012	0.0515	1203.58	1201.57	1204.83	1.25	1206.33	2.57
65	0.0306	0.01	1	0.10	0.17	0.012	0.0010	1193.39	1193.36	1197.89	8.95	1207.09	10.36
66	0.0295	0.05	1	0.10	1.03	0.012	0.0010	1193.57	1193.39	1198.07	9.67	1207.99	11.10
67	0.0078	0.01	1	0.10	0.34	0.012	0.1205	1204.24	1195.20	1205.49	2.05	1207.79	3.41
68	0.0031	0.00	1	0.10	0.54	0.012	0.0050	1204.58	1204.24	1205.83	1.47	1207.55	2.74
69	0.0307	0.07	1	0.10	1.22	0.012	0.0010	1193.79	1193.57	1198.29	11.69	1210.23	13.18
70	0.0518	0.08	1	0.10	0.73	0.012	0.0010	1194.45	1194.29	1198.45	13.82	1212.52	15.17
71	0.2342	0.09	1	0.10	0.07	0.012	0.0515	1209.72	1207.71	1210.97	1.25	1212.47	2.36
72	0.0382	0.01	1	0.10	0.21	0.012	0.0010	1194.49	1194.45	1198.49	12.64	1211.38	13.92

	FRICTION	HEAD	MINOR	MINOR	FLOW		PIPE				PIPE	INLET	INLET
	SLOPE	LOSS	HEAD	LOSS	TIME	MAN-	SLOPE	INLET	OUTLET	PIPE	COVER	STRUC	RIM-
LINE	**Sf**	**Hf**	LOSSES	**Hm**	**T**	-NING	**S**	INVERT	INVERT	CROWN	@ INLET	RIM	-HGL
No.	%	FT	TYPE	FT	(min)	**n**	ft/ft	ELEV	ELEV	@ INLET	FT	ELEV	FT
73	0.0346	0.04	1	0.10	0.65	0.012	0.0010	1194.61	1194.49	1198.61	12.94	1211.80	14.20
74	0.1503	0.06	1	0.10	0.07	0.012	0.0515	1208.29	1206.28	1209.54	1.25	1211.04	2.39
75	0.0307	0.03	1	0.10	0.50	0.012	0.0010	1194.69	1194.61	1198.69	11.47	1210.41	12.68
76	0.0233	0.02	1	0.10	0.52	0.012	0.0010	1194.76	1194.69	1198.76	11.26	1210.27	12.43
77	0.9143	0.30	1	0.10	0.08	0.012	0.0100	1202.64	1202.31	1203.89	5.15	1209.29	5.69
78	0.3748	0.31	1	0.10	0.15	0.012	0.0367	1205.69	1202.64	1206.94	1.71	1208.90	2.74
79	0.0034	0.00	1	0.10	0.28	0.012	0.0200	1206.71	1205.69	1207.96	1.25	1209.46	2.57
80	0.0156	0.03	1	0.10	1.78	0.012	0.0010	1194.97	1194.76	1198.97	10.95	1210.17	12.19
81	0.1666	0.06	1	0.10	0.07	0.012	0.0513	1206.66	1204.66	1207.91	1.25	1209.41	2.38
82	0.0037	0.00	1	0.10	0.42	0.012	0.0053	1206.97	1206.66	1208.22	1.00	1209.47	2.26
83	0.0257	0.02	1	0.10	0.70	0.012	0.0010	1195.57	1195.47	1199.07	10.89	1210.21	12.11
84	0.0184	0.01	1	0.10	0.69	0.012	0.0010	1195.64	1195.57	1199.14	11.41	1210.80	12.58
85	0.2370	0.09	1	0.10	0.07	0.012	0.0515	1207.38	1205.37	1208.63	1.25	1210.13	2.36
86	0.0125	0.01	1	0.10	0.56	0.012	0.0010	1195.70	1195.64	1199.20	11.78	1211.23	12.91
87	0.0137	0.03	1	0.10	2.51	0.012	0.0019	1196.16	1195.70	1199.66	5.00	1204.91	6.45
88	0.0326	0.01	1	0.10	0.15	0.012	0.0024	1196.72	1196.66	1199.72	4.53	1204.50	5.94
89	0.0612	0.06	1	0.10	0.40	0.012	0.0024	1197.46	1197.22	1199.96	4.29	1204.50	5.77
90	0.0405	0.05	1	0.10	0.52	0.012	0.0024	1197.73	1197.46	1200.23	4.02	1204.50	5.63
91	0.0407	0.05	1	0.10	0.59	0.012	0.0024	1198.53	1198.23	1200.53	7.84	1208.62	9.19
92	0.1010	0.16	1	0.10	0.90	0.012	0.0024	1199.02	1198.63	1200.52	4.23	1205.00	4.93
93	0.0676	0.06	1	0.10	0.73	0.012	0.0024	1199.25	1199.02	1200.75	3.00	1204.00	3.76
94	0.1030	0.03	1	0.10	0.20	0.012	0.0024	1199.44	1199.37	1200.69	3.06	1204.00	3.64
95	**0.0494**	**0.01**	**1**	**0.10**	**0.16**	**0.012**	**0.0024**	**1199.47**	**1199.44**	**1200.72**	3.03	**1204.00**	**3.53**
96			ARROWHEAD TOWNE CENTER RING ROAD TRUNK LINE								WEST 1/2 MALL		
97	0.1154	0.11	NA	NA	0.34	0.012	0.0025	1189.80	1189.56	1194.30	8.54	1203.09	8.74
98	0.0491	0.00	1	0.10	0.09	0.012	0.1000	1192.13	1191.43	1193.38	8.87	1202.50	8.04
99	0.0062	0.00	1	0.10	1.45	0.012	0.0515	1193.44	1191.43	1194.69	7.56	1202.50	8.04
100	0.1106	0.09	1	0.10	0.30	0.012	0.0025	1189.98	1189.80	1194.48	8.71	1203.44	8.90

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
101	0.0588	0.03	1	0.10	0.22	0.012	0.0025	1190.09	1189.98	1194.59	8.99	1203.83	9.16
102	0.0531	0.12	1	0.10	1.25	0.012	0.0025	1190.68	1190.09	1195.18	9.10	1204.53	9.64
103	0.0491	0.00	1	0.10	0.01	0.012	0.1000	1201.58	1200.98	1202.83	1.25	1204.33	2.52
104	0.0157	0.01	1	0.10	0.11	0.012	0.0515	1201.58	1199.57	1202.83	1.25	1204.33	2.55
105	0.0508	0.11	1	0.10	1.25	0.012	0.0010	1190.91	1190.68	1195.41	9.87	1205.53	10.42
106	0.0476	0.01	1	0.10	0.09	0.012	0.0010	1190.92	1190.91	1195.42	9.94	1205.61	10.40
107	0.0476	0.03	1	0.10	0.37	0.012	0.0010	1190.99	1190.92	1195.49	10.15	1205.89	10.55
108	0.0474	0.10	1	0.10	1.18	0.012	0.0010	1191.19	1190.99	1195.69	10.72	1206.66	11.12
109	0.0073	0.01	1	0.10	0.49	0.012	0.0050	1203.81	1203.44	1205.06	1.63	1206.94	2.83
110	0.0019	0.00	1	0.10	0.57	0.012	0.0050	1204.15	1203.81	1205.40	1.25	1206.90	2.54
111	0.0869	0.11	1	0.10	0.46	0.012	0.0025	1192.78	1192.47	1196.78	10.17	1207.20	11.45
112	0.0076	0.00	1	0.10	0.06	0.012	0.1000	1204.16	1202.96	1205.41	1.25	1206.91	2.61
113	0.0057	0.00	1	0.10	0.18	0.012	0.0515	1204.16	1202.15	1205.41	1.25	1206.91	2.59
114	0.0835	0.06	1	0.10	0.25	0.012	0.0026	1192.97	1192.78	1196.97	10.69	1207.91	12.01
115	0.0826	0.14	1	0.10	0.62	0.012	0.0026	1193.46	1192.97	1197.46	12.27	1209.98	13.83
116	0.0773	0.03	1	0.10	0.13	0.012	0.0026	1193.57	1193.46	1197.57	12.59	1210.41	14.13
117	0.3468	0.13	1	0.10	0.06	0.012	0.0503	1206.91	1205.00	1208.16	1.25	1209.66	2.31
118	0.0539	0.09	1	0.10	0.66	0.012	0.0026	1193.96	1193.57	1197.96	12.90	1211.11	14.64
119	0.0454	0.01	1	0.10	0.12	0.012	0.0022	1194.02	1193.96	1198.02	12.95	1211.22	14.64
120	0.5878	0.23	1	0.10	0.06	0.012	0.0515	1207.72	1205.71	1208.97	1.22	1210.44	2.24
121	0.0357	0.08	1	0.10	0.99	0.012	0.0022	1194.51	1194.02	1198.51	13.32	1212.08	15.32
122	0.1618	0.12	1	0.10	0.11	0.012	0.0901	1208.68	1202.10	1209.93	1.83	1212.01	3.02
123	0.1265	0.07	1	0.10	0.24	0.012	0.0050	1208.97	1208.68	1210.22	1.59	1212.06	2.47
124	0.0937	0.05	1	0.10	0.26	0.012	0.0050	1209.26	1208.97	1210.51	0.99	1211.75	1.93
125	0.0301	0.04	1	0.10	0.55	0.012	0.0025	1194.83	1194.51	1198.83	13.52	1212.60	15.70
126	0.0286	0.03	1	0.10	0.37	0.012	0.0024	1195.06	1194.83	1199.06	13.71	1213.02	16.00
127	0.3892	0.15	1	0.10	0.06	0.012	0.0515	1209.51	1207.50	1210.76	1.25	1212.26	2.31
128	0.0219	0.04	1	0.10	0.72	0.012	0.0024	1195.48	1195.06	1199.48	13.44	1213.17	16.01

LINE No.	FRICTION SLOPE Sf %	HEAD LOSS Hf FT	MINOR HEAD LOSSES TYPE	MINOR LOSS Hm FT	FLOW TIME T (min)	MAN-NING n	PIPE SLOPE S ft/ft	INLET INVERT ELEV	OUTLET INVERT ELEV	PIPE CROWN @ INLET	PIPE COVER @ INLET FT	INLET STRUC RIM ELEV	INLET RIM-HGL FT
129	0.0041	0.00	1	0.10	0.03	0.012	0.1000	1210.70	1210.00	1211.95	1.25	1213.45	2.61
130	0.0031	0.00	1	0.10	0.25	0.012	0.0097	1210.28	1209.90	1211.53	1.25	1213.03	2.55
131	0.0179	0.02	1	0.10	0.33	0.012	0.0024	1195.80	1195.58	1199.80	13.13	1213.18	15.90
132	0.0082	0.00	1	0.10	0.12	0.012	0.4489	1208.85	1197.18	1210.10	2.45	1212.80	3.83
133	0.0170	0.03	1	0.10	0.58	0.012	0.0024	1196.20	1195.80	1200.20	12.53	1212.98	15.38
134	0.0381	0.00	1	0.10	0.00	0.012	6.0000	1210.20	1198.20	1211.45	1.25	1212.95	2.69
135	0.0157	0.03	1	0.10	0.63	0.012	0.0024	1196.64	1196.20	1200.64	7.94	1208.83	10.79
136	0.0164	0.03	1	0.10	0.55	0.012	0.0024	1197.14	1196.74	1201.14	3.11	1204.50	5.96
137	0.1775	0.33	1	0.10	0.53	0.012	0.0094	1202.18	1200.40	1203.68	2.17	1206.10	3.19
138	0.2753	0.31	1	0.10	0.63	0.012	0.0024	1202.70	1202.43	1203.95	1.50	1205.70	1.71
139	0.0905	0.12	1	0.10	0.57	0.012	0.0024	1198.45	1198.14	1200.45	5.86	1206.56	6.86
140	0.1740	0.39	1	0.10	1.58	0.012	0.0024	1201.22	1200.68	1202.47	5.56	1208.28	6.17
141	0.1111	0.27	1	0.10	1.38	0.012	0.0024	1201.81	1201.22	1203.06	3.52	1206.83	4.28
142	0.1690	0.16	1	0.10	0.52	0.012	0.0024	1198.78	1198.55	1200.28	6.57	1207.10	7.04
143	0.0390	0.08	1	0.10	1.28	0.012	0.0024	1199.38	1198.90	1200.63	5.12	1206.00	5.77
144	0.0950	0.18	1	0.10	1.59	0.012	0.0024	1199.32	1198.88	1200.57	2.68	1203.50	3.17
145	0.0403	0.02	1	0.10	0.69	0.012	0.0024	1199.45	1199.32	1200.70	2.55	1203.50	3.05
146	**0.0130**	**0.00**	**1**	**0.10**	**0.35**	**0.012**	**0.0024**	**1199.36**	**1199.32**	**1200.61**	2.64	**1203.50**	**3.07**

VAL-TEC, INC. PROJECT DESIGN SUMMARY

PROJECT NAME_____ PROJECT NUMBER _____

SITE PLAN

OWNER MEETINGS	NO.	DATE	ITEMS	MEMO	ACTION

ARCHICTECT PLAN	TYPE	DATE	ITEMS INCLUDED	STANDARDS	ACTION

SURVEYS	TOPO	DATE	BOUNDARY	DATE	ALTA	DATE

SUBMITTALS	TYPE	DATE	TO	COMMENTS	ACTION

ARROWHEAD TOWNE CENTER STORM DRAIN NOTES AND COMMENTS

FILE:NOTES.WK4

MINOR LOSSES

1. MINOR LOSS No. 1- MANHOLE STRUCTURE, TEE OR BEND Hm=0.10 FT.
2. MINOR LOSS No. 2- SUDDEN ENLARGEMENT V2<V1 Hm=0.1705*(V1-V2)^1.919 FT.
3. MINOR LOSS No. 3- SUDDEN CONTRACTION V1>V2 Hm=0.7*(V1-V2)^2/64.4 FT.
4. MINOR LOSS No. 4- JUNCTION STRUCTURE INLET PIPE V2=nil Hm=V1^2/64.4 FT.
5. MINOR LOSS No. 5- Hm=nil TAILWATER DEPTH=(D*dc)/2
6. (A) INDICATES SUPERCRITICAL FLOW VOLUME RETARDED BY TAILWATER DEPTH
7. (B) INDICATES JUNCTION STRUCTURE OUTLET FLOW PASSES THROUGH CRITICAL DEPTH INLET HEAD LOSS H=Vc^2/64.4 FT.

COMMENTS

1. UPPER LEVEL FIN. FLR (UL) ELEV=1225.0 ex DILLARDS =1225.083. AHW=1223.50.
2. LOWER LEVEL FIN. FLR (LL) ELEV=1207.5 ex DILLARDS =1207.583. AHW=1206.00.
3 VELOCITY CALCULATED BY FLOW DEPTH, VOLUME OR HEAD. MANUAL SELECTION IS REQUIRED FOR PARTIALLY FULLY PIPES.
4. KING'S HANDBOOK REFERENCED IS SIXTH EDITION, McGRAW-HILL, INC.
5. DESIGN CRITERIAL FOR 10 YEAR STORM IS HGL<1188.50 AT BELL ROAD.
6. SKUNK CREEK 100 YEAR FLOW DEPTH <1185.

ARROWHEAD TOWNE CENTER STORM DRAIN INTENSITY CHART 10 YEAR STORM

FILE:RAIN10.WK4
10 YEAR STORM INTENSITY

minutes	in/hr	minutes	in/hr	minutes	in/hr	minutes	in/hr
10	3.80	35	2.15	60	1.40	130	0.74
11	3.70	36	2.10	61	1.38	140	0.70
12	3.60	37	2.05	62	1.36	150	0.67
13	3.50	38	2.00	63	1.34	160	0.63
14	3.40	39	1.95	64	1.32	170	0.60
15	3.30	40	1.90	65	1.30	180	0.57
16	3.20	41	1.87	66	1.28	190	0.55
17	3.10	42	1.84	67	1.26	200	0.53
18	3.00	43	1.81	68	1.24	210	0.51
19	2.95	44	1.78	69	1.22	220	0.49
20	2.90	45	1.75	70	1.20	230	0.47
21	2.85	46	1.72	71	1.19	240	0.45
22	2.80	47	1.69	72	1.18	250	0.44
23	2.75	48	1.66	73	1.17	260	0.42
24	2.70	49	1.63	74	1.16	270	0.41
25	2.65	50	1.60	75	1.15	280	0.40
26	2.60	51	1.58	76	1.14	290	0.39
27	2.55	52	1.56	77	1.13	300	0.38
28	2.50	53	1.54	78	1.12	400	0.30
29	2.45	54	1.52	79	1.11	500	0.25
30	2.40	55	1.50	80	1.10	600	0.22
31	2.35	56	1.48	90	1.00	700	0.19
32	2.30	57	1.46	100	0.91	800	0.17
33	2.25	58	1.44	110	0.85	900	0.16
34	2.20	59	1.42	120	0.78	1000	0.14

ARROWHEAD TOWNE CENTER STORM 100 YEAR INTENSITY CHART

FILE:RAIN100 YEAR
100 YEAR intensity

minutes	in/hr	minutes	in/hr	minutes	in/hr	minutes	in/hr
10	5.60	35	3.10	60	2.15	130	1.18
11	5.40	36	3.04	61	2.12	140	1.10
12	5.30	37	2.98	62	2.09	150	1.05
13	5.10	38	2.92	63	2.06	160	0.99
14	4.95	39	2.86	64	2.03	170	0.95
15	4.85	40	2.80	65	2.00	180	0.90
16	4.70	41	2.76	66	1.97	190	0.86
17	4.55	42	2.72	67	1.94	200	0.82
18	4.45	43	2.68	68	1.91	210	0.80
19	4.35	44	2.64	69	1.88	220	0.77
20	4.25	45	2.60	70	1.85	230	0.75
21	4.15	46	2.56	71	1.84	240	0.72
22	4.00	47	2.52	72	1.82	250	0.70
23	3.95	48	2.48	73	1.81	260	0.68
24	3.85	49	2.44	74	1.79	270	0.66
25	3.80	50	2.40	75	1.78	280	0.64
26	3.70	51	2.38	76	1.76	290	0.62
27	3.60	52	2.35	77	1.75	300	0.60
28	3.50	53	2.33	78	1.73	400	0.47
29	3.45	54	2.30	79	1.72	500	0.40
30	3.40	55	2.28	80	1.70	600	0.34
31	3.34	56	2.25	90	1.55	700	0.30
32	3.28	57	2.23	100	1.45	800	0.27
33	3.22	58	2.20	110	1.35	900	0.24
34	3.16	59	2.18	120	1.25	1000	0.22

ARROWHEAD TOWNE CENTER BACKWATER CURVE TABLE

FILE:KING1.WK4

BACKWATER CURVE TABLE KINGS HANDBOOK TABLE 7-13 Q=K n d^8/3 S^.5

d/D	K	d/D	K	d/D	K	d/D	K
0.01	15.0200	0.26	2.4900	0.51	1.4420	0.76	0.8910
0.02	10.5600	0.27	2.4200	0.52	1.4150	0.77	0.8740
0.03	8.5700	0.28	2.3600	0.53	1.3880	0.78	0.8560
0.04	7.3800	0.29	2.3000	0.54	1.3620	0.79	0.8380
0.05	6.5500	0.30	2.2500	0.55	1.3360	0.80	0.8210
0.06	5.9500	0.31	2.2000	0.56	1.3110	0.81	0.8040
0.07	5.4700	0.32	2.1400	0.57	1.2860	0.82	0.7870
0.08	5.0800	0.33	2.0900	0.58	1.2620	0.83	0.7700
0.09	4.7600	0.34	2.0500	0.59	1.2380	0.84	0.7530
0.10	4.4900	0.35	2.0000	0.60	1.2150	0.85	0.7360
0.11	4.2500	0.36	1.9600	0.61	1.1920	0.86	0.7200
0.12	4.0400	0.37	1.9200	0.62	1.1700	0.87	0.7030
0.13	3.8600	0.38	1.8700	0.63	1.1480	0.88	0.6870
0.14	3.6900	0.39	1.8400	0.64	1.1260	0.89	0.6700
0.15	3.5400	0.40	1.8000	0.65	1.1050	0.90	0.6540
0.16	3.4100	0.41	1.7600	0.66	1.0840	0.91	0.6370
0.17	3.2800	0.42	1.7200	0.67	1.0640	0.92	0.6210
0.18	3.1700	0.43	1.6900	0.68	1.0430	0.93	0.6040
0.19	3.0600	0.44	1.6600	0.69	1.0230	0.94	0.5880
0.20	2.9600	0.45	1.6200	0.70	1.0040	0.95	0.5710
0.21	2.8700	0.46	1.5900	0.71	0.9840	0.96	0.5530
0.22	2.7900	0.47	1.5600	0.72	0.9650	0.97	0.5350
0.23	2.7100	0.48	1.5300	0.73	0.9470	0.98	0.5160
0.24	2.6300	0.49	1.5000	0.74	0.9280	0.99	0.4960
0.25	2.5600	0.50	1.4700	0.75	0.9100	1.00	0.4630

ARROWHEAD TOWNE CENTER CRITICAL DEPTH TABLE

FILE:KING2.WK4

CRITICAL DEPTH TABLE KINGS HANDBOOK TABLE 8-10 Q=K D^5/2

d/D	K	d/D	K	d/D	K	d/D	K
0.01	0.0006	0.26	0.3957	0.51	1.4490	0.76	3.1450
0.02	0.0025	0.27	0.4259	0.52	1.5040	0.77	3.2310
0.03	0.0055	0.28	0.4571	0.53	1.5600	0.78	3.3200
0.04	0.0098	0.29	0.4893	0.54	1.6160	0.79	3.4110
0.05	0.0153	0.30	0.5230	0.55	1.6740	0.80	3.5050
0.06	0.0220	0.31	0.5570	0.56	1.7330	0.81	3.6020
0.07	0.0298	0.32	0.5920	0.57	1.7920	0.82	3.7020
0.08	0.0389	0.33	0.6280	0.58	1.8530	0.83	3.8060
0.09	0.0491	0.34	0.6660	0.59	1.9150	0.84	3.9140
0.10	0.0605	0.35	0.7040	0.60	1.9770	0.85	4.0280
0.11	0.0731	0.36	0.7430	0.61	2.0410	0.86	4.1470
0.12	0.0868	0.37	0.7840	0.62	2.1060	0.87	4.2720
0.13	0.1016	0.38	0.8250	0.63	2.1720	0.88	4.4060
0.14	0.1176	0.39	0.8570	0.64	2.2390	0.89	4.5490
0.15	0.1347	0.40	0.9100	0.65	2.3070	0.90	4.7000
0.16	0.1530	0.41	0.9550	0.66	2.3760	0.91	4.8700
0.17	0.1724	0.42	1.0000	0.67	2.4460	0.92	5.0600
0.18	0.1928	0.43	1.0450	0.68	2.5180	0.93	5.2700
0.19	0.2144	0.44	1.0930	0.69	2.5910	0.94	5.5200
0.20	0.2371	0.45	1.1410	0.70	2.6660	0.95	5.8100
0.21	0.2609	0.46	1.1900	0.71	2.7410	0.96	6.1800
0.22	0.2857	0.47	1.2400	0.72	2.8190	0.97	6.6700
0.23	0.3116	0.48	1.2910	0.73	2.8980	0.98	7.4100
0.24	0.3386	0.49	1.3430	0.74	2.9780	0.99	8.8300
0.25	0.3666	0.50	1.3960	0.75	3.0610	1.00	0.0000

FILE:KING3.WK4 a=C D^2

PARTIALLY FULL CROSS SECTION AREA KINGS HANDBOOK TABLE 7-4

d/D	C	d/D	C	d/D	C	d/D	C
0.01	0.0013	0.26	0.1623	0.51	0.4030	0.76	0.6400
0.02	0.0037	0.27	0.1711	0.52	0.4130	0.77	0.6490
0.03	0.0069	0.28	0.1800	0.53	0.4230	0.78	0.6570
0.04	0.0105	0.29	0.1890	0.54	0.4330	0.79	0.6660
0.05	0.0147	0.30	0.1982	0.55	0.4430	0.80	0.6740
0.06	0.0192	0.31	0.2074	0.56	0.4530	0.81	0.6810
0.07	0.0242	0.32	0.2167	0.57	0.4620	0.82	0.6890
0.08	0.0294	0.33	0.2260	0.58	0.4720	0.83	0.6970
0.09	0.0350	0.34	0.2355	0.59	0.4820	0.84	0.7040
0.10	0.0409	0.35	0.2450	0.60	0.4920	0.85	0.7120
0.11	0.0470	0.36	0.2546	0.61	0.5020	0.86	0.7190
0.12	0.0534	0.37	0.2642	0.62	0.5120	0.87	0.7250
0.13	0.0600	0.38	0.2739	0.63	0.5210	0.88	0.7320
0.14	0.0668	0.39	0.2836	0.64	0.5310	0.89	0.7380
0.15	0.0739	0.40	0.2934	0.65	0.5400	0.90	0.7450
0.16	0.0811	0.41	0.3032	0.66	0.5500	0.91	0.7500
0.17	0.0885	0.42	0.3130	0.67	0.5590	0.92	0.7560
0.18	0.0961	0.43	0.3229	0.68	0.5690	0.93	0.7610
0.19	0.0139	0.44	0.3328	0.69	0.5780	0.94	0.7660
0.20	0.1118	0.45	0.3428	0.70	0.5870	0.95	0.7710
0.21	0.1199	0.46	0.3527	0.71	0.5960	0.96	0.7750
0.22	0.1281	0.47	0.3627	0.72	0.6050	0.97	0.7790
0.23	0.1365	0.48	0.3727	0.73	0.6140	0.98	0.7820
0.24	0.1449	0.49	0.3827	0.74	0.6230	0.99	0.7840
0.25	0.1535	0.50	0.3930	0.75	0.6320	1.00	0.7854

FILE:KING4.WK4 r=C D

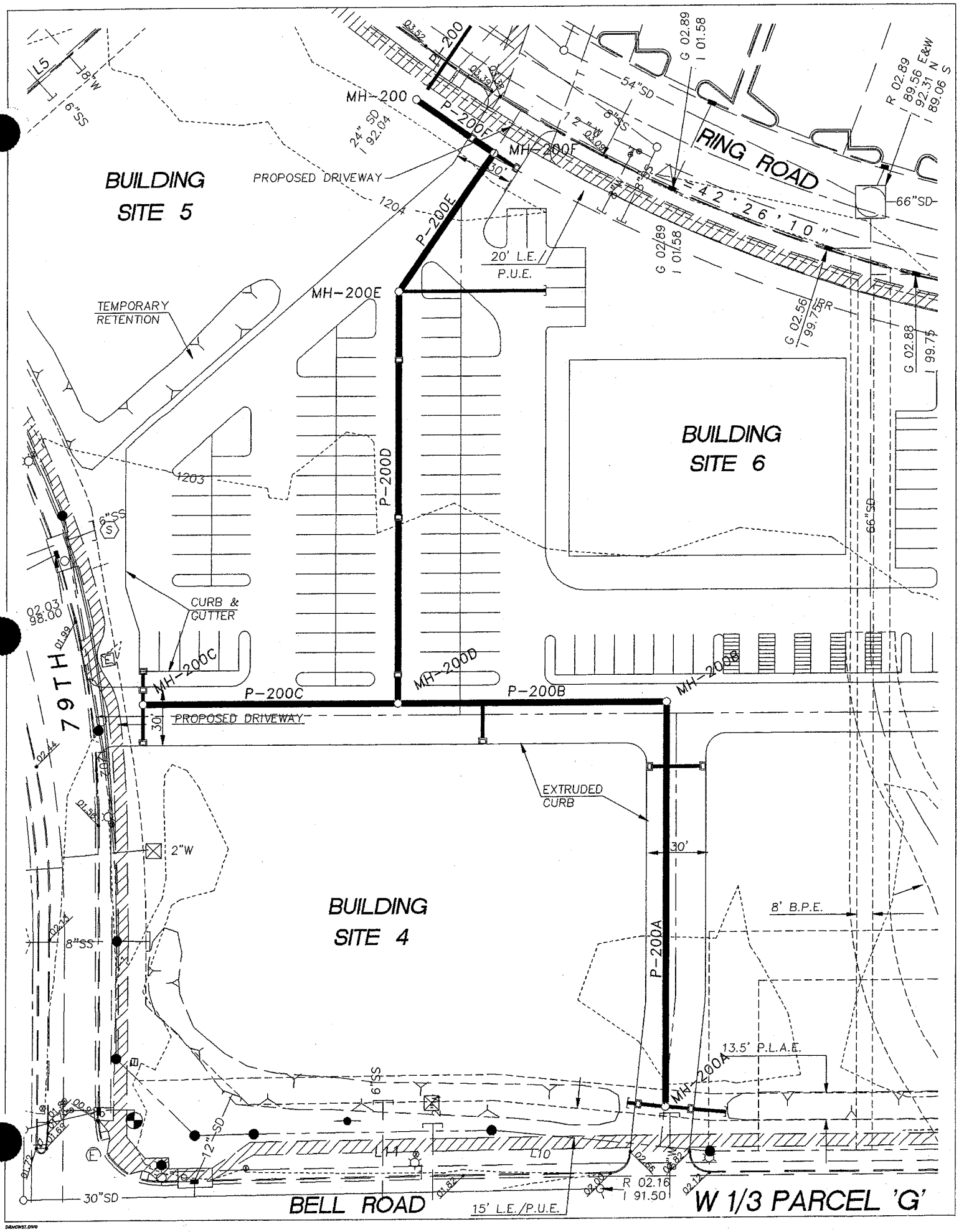
PARTIALLY FULL HYDRAULIC RADIUS TABLE KINGS HANDBOOK TABLE 7-5

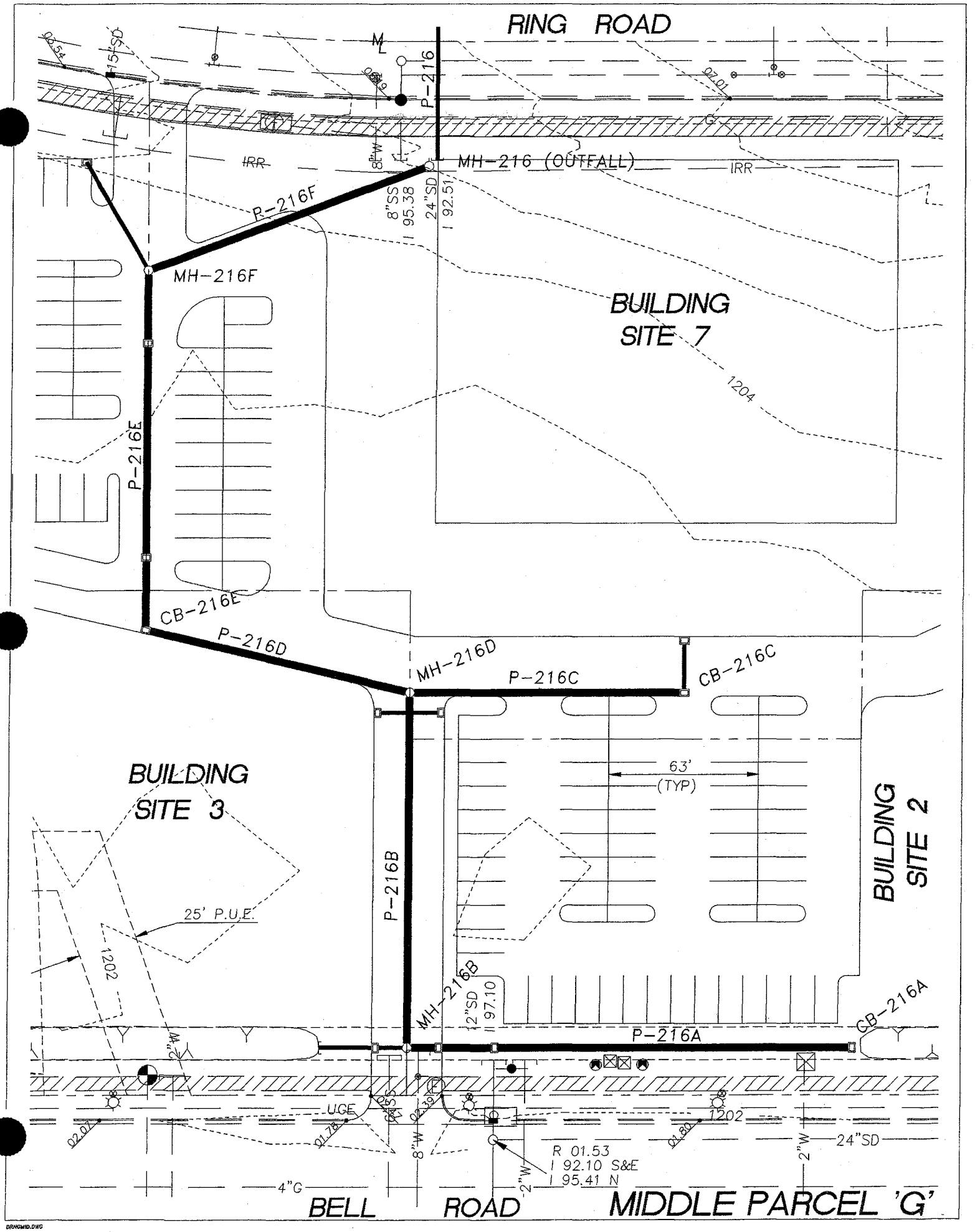
d/D	C	d/D	C	d/D	C	d/D	C
0.01	0.0070	0.26	0.1520	0.51	0.2530	0.76	0.3020
0.02	0.0130	0.27	0.1570	0.52	0.2560	0.77	0.3030
0.03	0.0200	0.28	0.1610	0.53	0.2590	0.78	0.3040
0.04	0.0260	0.29	0.1660	0.54	0.2620	0.79	0.3040
0.05	0.0330	0.30	0.1710	0.55	0.2650	0.80	0.3040
0.06	0.0390	0.31	0.1760	0.56	0.2680	0.81	0.3040
0.07	0.0450	0.32	0.1800	0.57	0.2700	0.82	0.3040
0.08	0.0510	0.33	0.1850	0.58	0.2700	0.83	0.3040
0.09	0.0570	0.34	0.1890	0.59	0.2750	0.84	0.3040
0.10	0.0630	0.35	0.1930	0.60	0.2780	0.85	0.3030
0.11	0.0700	0.36	0.1980	0.61	0.2800	0.86	0.3030
0.12	0.0750	0.37	0.2020	0.62	0.2820	0.87	0.3020
0.13	0.0810	0.38	0.2060	0.63	0.2840	0.88	0.3010
0.14	0.0870	0.39	0.2100	0.64	0.2860	0.89	0.2990
0.15	0.0930	0.40	0.2140	0.65	0.2880	0.90	0.2980
0.16	0.0990	0.41	0.2180	0.66	0.2900	0.91	0.2960
0.17	0.1040	0.42	0.2220	0.67	0.2920	0.92	0.2940
0.18	0.1100	0.43	0.2260	0.68	0.2930	0.93	0.2920
0.19	0.1150	0.44	0.2290	0.69	0.2950	0.94	0.2890
0.20	0.1210	0.45	0.2330	0.70	0.2960	0.95	0.2860
0.21	0.1260	0.46	0.2360	0.71	0.2980	0.96	0.2830
0.22	0.1310	0.47	0.2400	0.72	0.2990	0.97	0.2790
0.23	0.1360	0.48	0.2430	0.73	0.3000	0.98	0.2740
0.24	0.1420	0.49	0.2470	0.74	0.3010	0.99	0.2670
0.25	0.1470	0.50	0.2500	0.75	0.3020	1.00	

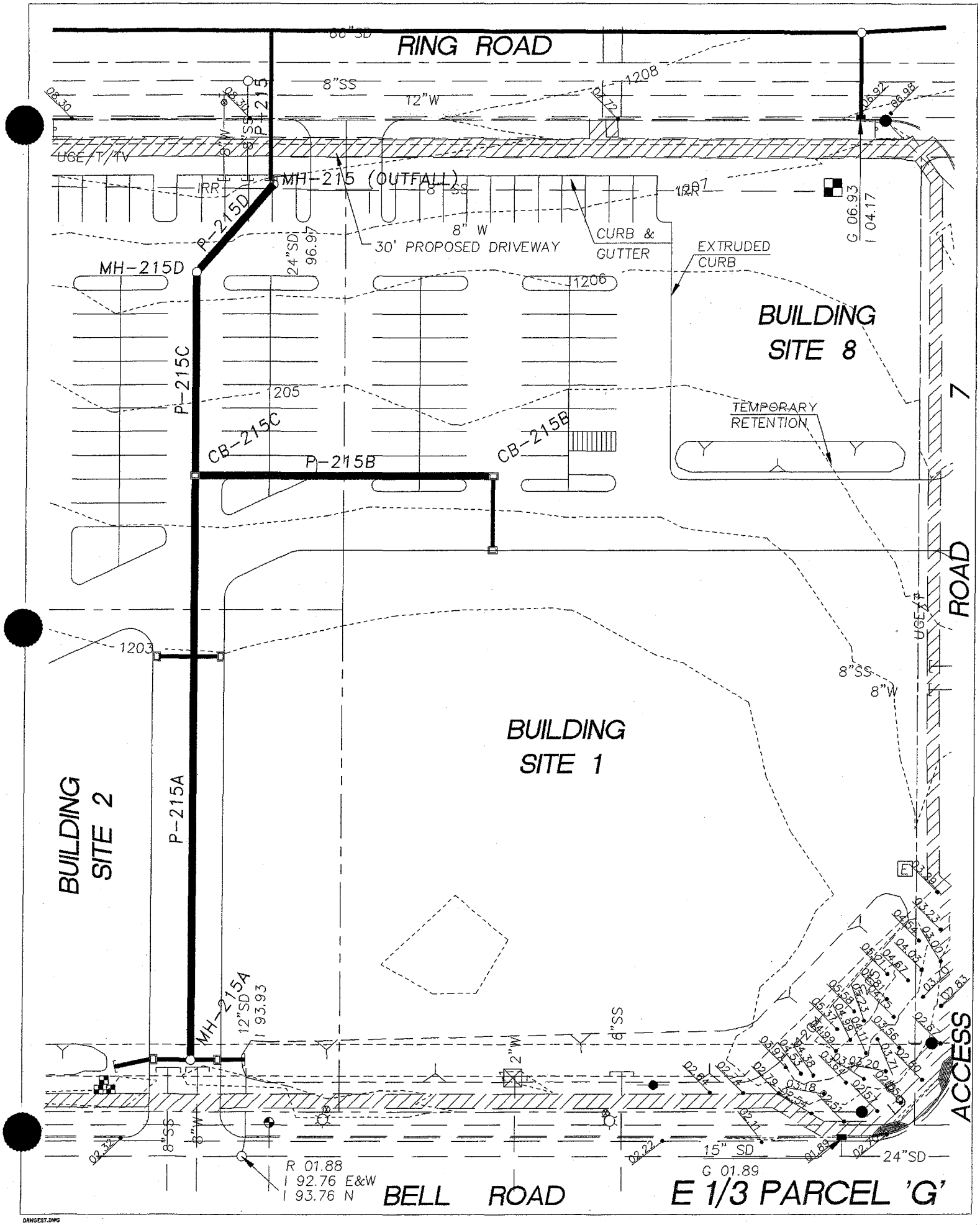
FILE:PIPES.WK4

PARTIAL FLOW- PARTIAL VELOCITY AND DEPTH TABLE

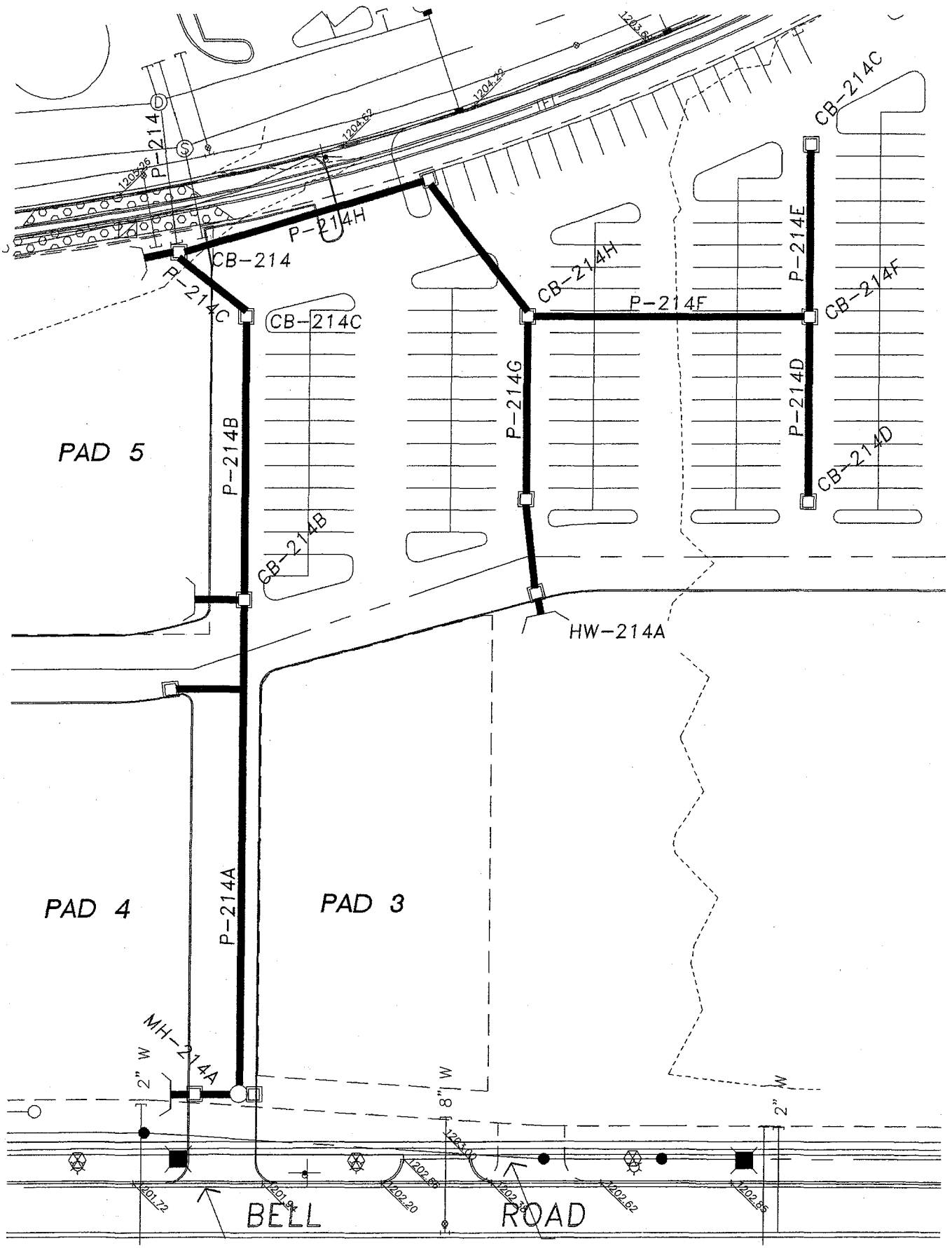
Q/Qo %	V/Vo	D/Do	Q/Qo %	V/Vo	D/Do
1.00	0.09	0.10	25.00	0.82	0.35
2.00	0.19	0.12	30.00	0.85	0.38
3.00	0.28	0.13	35.00	0.90	0.42
4.00	0.38	0.15	40.00	0.93	0.45
5.00	0.47	0.16	45.00	0.96	0.47
6.00	0.50	0.17	50.00	1.00	0.50
7.00	0.52	0.18	55.00	1.03	0.53
8.00	0.55	0.20	60.00	1.05	0.56
9.00	0.57	0.21	65.00	1.07	0.59
10.00	0.60	0.22	70.00	1.09	0.62
11.00	0.62	0.23	75.00	1.10	0.65
12.00	0.64	0.24	80.00	1.12	0.67
13.00	0.65	0.25	85.00	1.13	0.71
14.00	0.67	0.26	90.00	1.14	0.74
15.00	0.70	0.27	92.00	1.15	0.77
16.00	0.71	0.28	96.00	1.15	0.82
17.00	0.72	0.29	97.00	1.14	0.87
18.00	0.73	0.29	98.00	1.12	0.93
19.00	0.74	0.30	99.00	1.04	0.98
20.00	0.75	0.31	100.00	1.00	1.00


BUILDING SITE 5
BUILDING SITE 6
BUILDING SITE 4
RING ROAD
BELL ROAD
W 1/3 PARCEL 'G'
79TH
MH-200
MH-200F
MH-200E
MH-200D
MH-200C
MH-200B
MH-200A
P-200
P-200F
P-200E
P-200D
P-200C
P-200B
P-200A
PROPOSED DRIVEWAY
TEMPORARY RETENTION
CURB & GUTTER
EXTRUDED CURB
20' L.E./P.U.E.
15' L.E./P.U.E.
13.5' P.L.A.E.
8' B.P.E.
30'
54"SD
66"SD
30"SD
12"SD
24" SD
6"SS
8"SS
2"W
42°26'10"


RING ROAD
P-216
MH-216 (OUTFALL)
IRR
P-216F
8"SS
95.38
24"SD
92.51
MH-216F
BUILDING
SITE 7
1204
P-216E
CB-216E
P-216D
MH-216D
P-216C
CB-216C
63'
(TYP)
BUILDING
SITE 3
BUILDING
SITE 2
P-216B
25' P.U.E.
1202
MH-216B
12"SD
97.10
P-216A
CB-216A
UGE
24"SD
R 01.53
92.10 S&E
95.41 N
4"G
BELL ROAD
MIDDLE PARCEL 'G'
DRNGMID.DWG

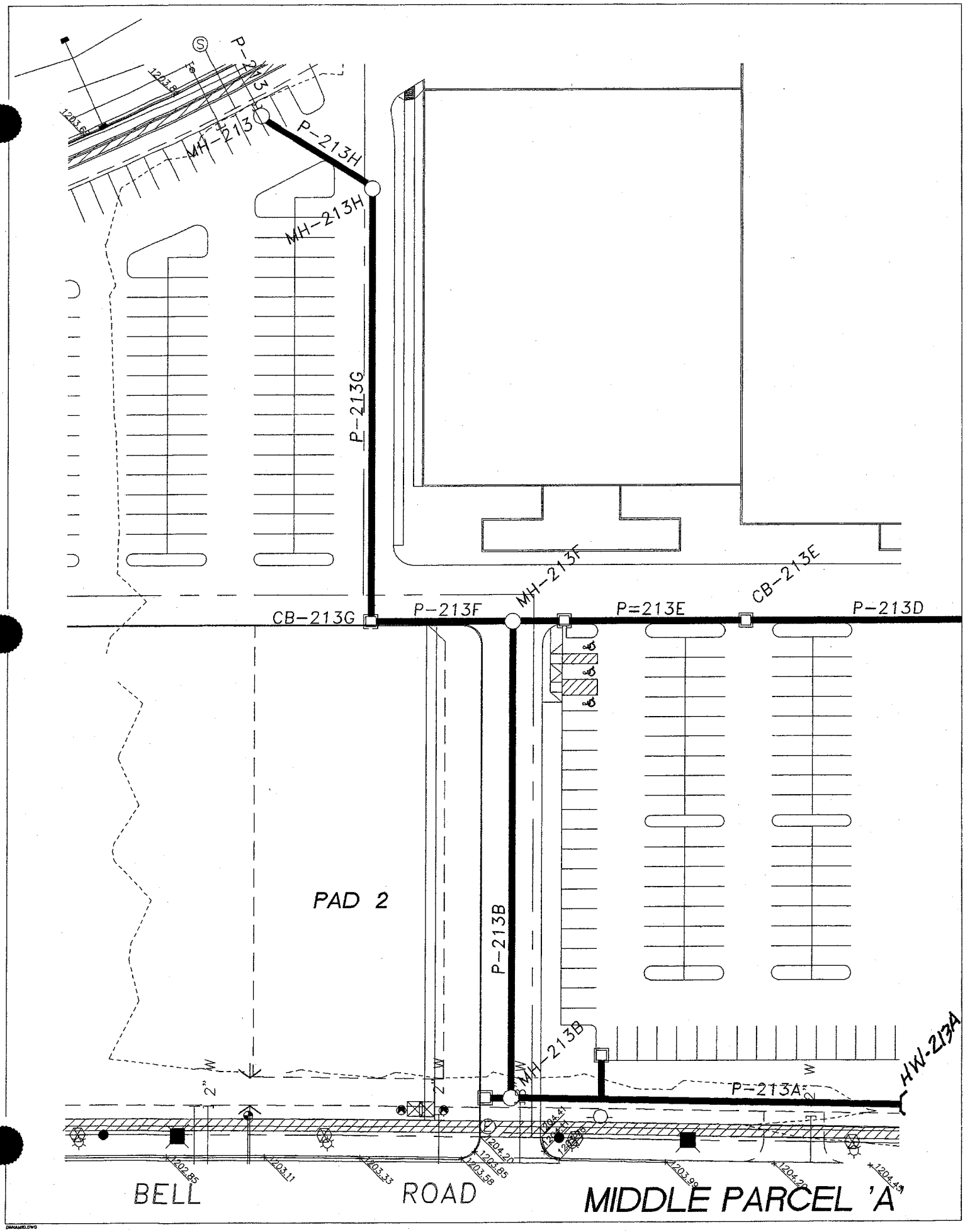

RING ROAD
88"SD
8"SS
12"W
1208
UGE/T/TV
MH-215 (OUTFALL)
IRR
8" SS
8" W
30' PROPOSED DRIVEWAY
CURB & GUTTER
EXTRUDED CURB
P-215D
MH-215D
24"SD
96.97
G 06.93
I 04.17
1206
BUILDING SITE 8
P-215C
205
TEMPORARY RETENTION
CB-215C
CB-215B
P-215B
7
ROAD
1203
8"SS
8"W
BUILDING SITE 1
BUILDING SITE 2
P-215A
MH-215A
12"SD
I 93.93
6"SS
2"W
ACCESS
R 01.88
I 92.76 E&W
I 93.76 N
BELL ROAD
15" SD
G 01.89
24"SD
E 1/3 PARCEL 'G'

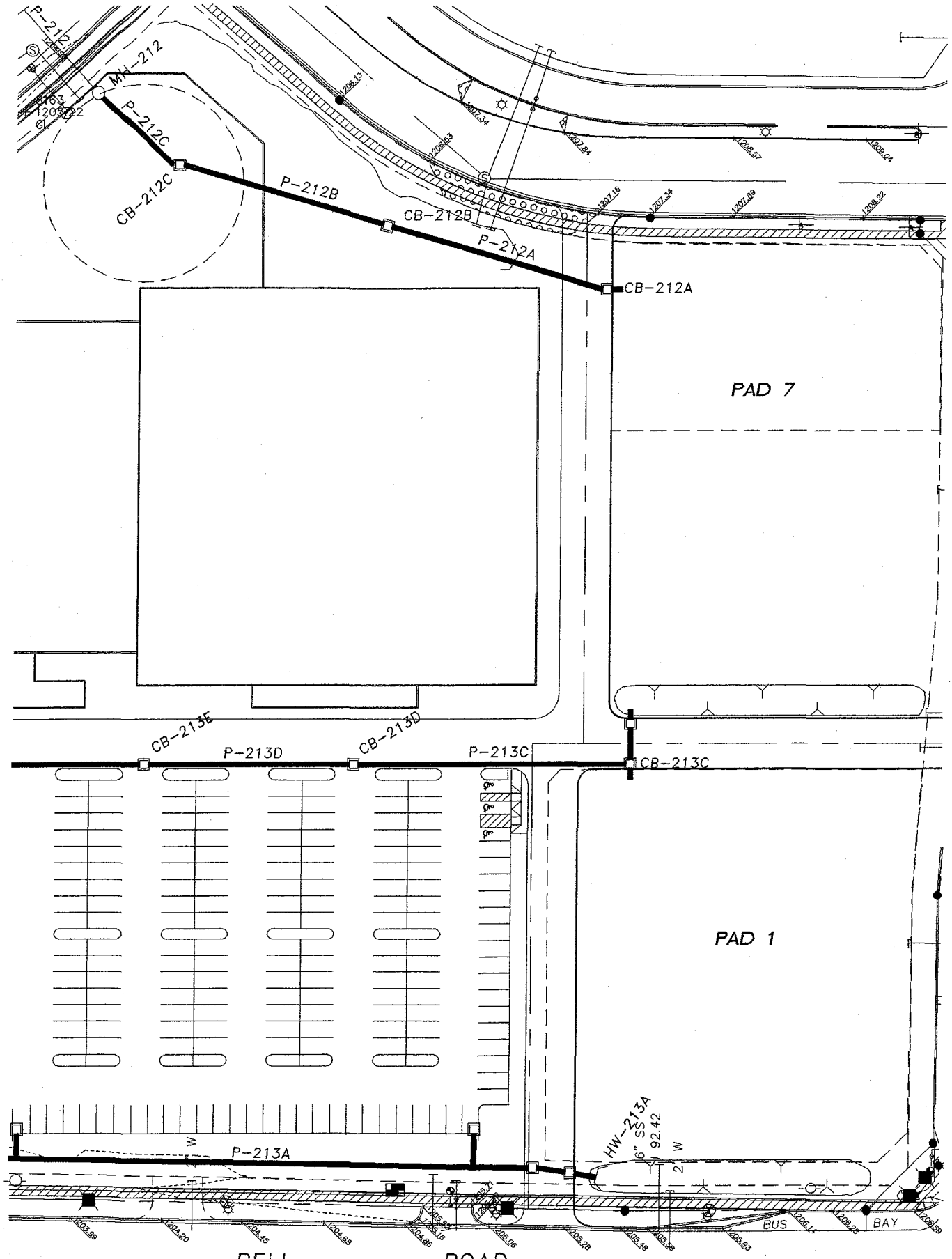
DRNGEST.DWG



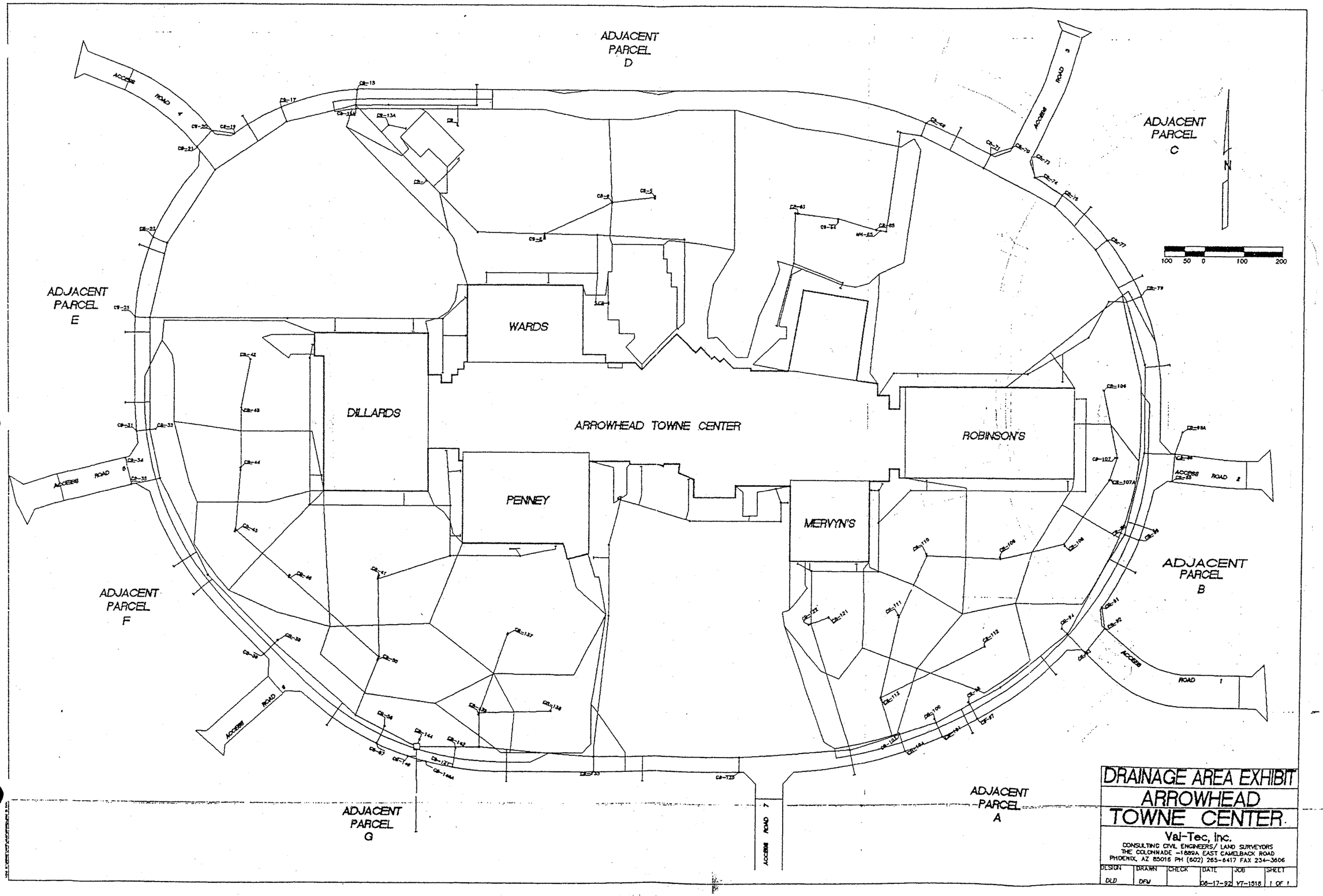
W 1/3 PARCEL 'A'

DRNAWST.DWG


P-213
MH-213
P-213H
MH-213H
P-213G
CB-213G
P-213F
MH-213F
P=213E
CB-213E
P-213D
PAD 2
P-213B
MH-213B
P-213A
HW-213A
BELL
ROAD
MIDDLE PARCEL 'A'


P-212
MH-212
P-212C
CB-212C
P-212B
CB-212B
P-212A
CB-212A
PAD 7
CB-213E
P-213D
CB-213D
P-213C
CB-213C
PAD 1
P-213A
HW-213A
6" SS
92.42
BUS
BAY
75TH AVE
BELL ROAD

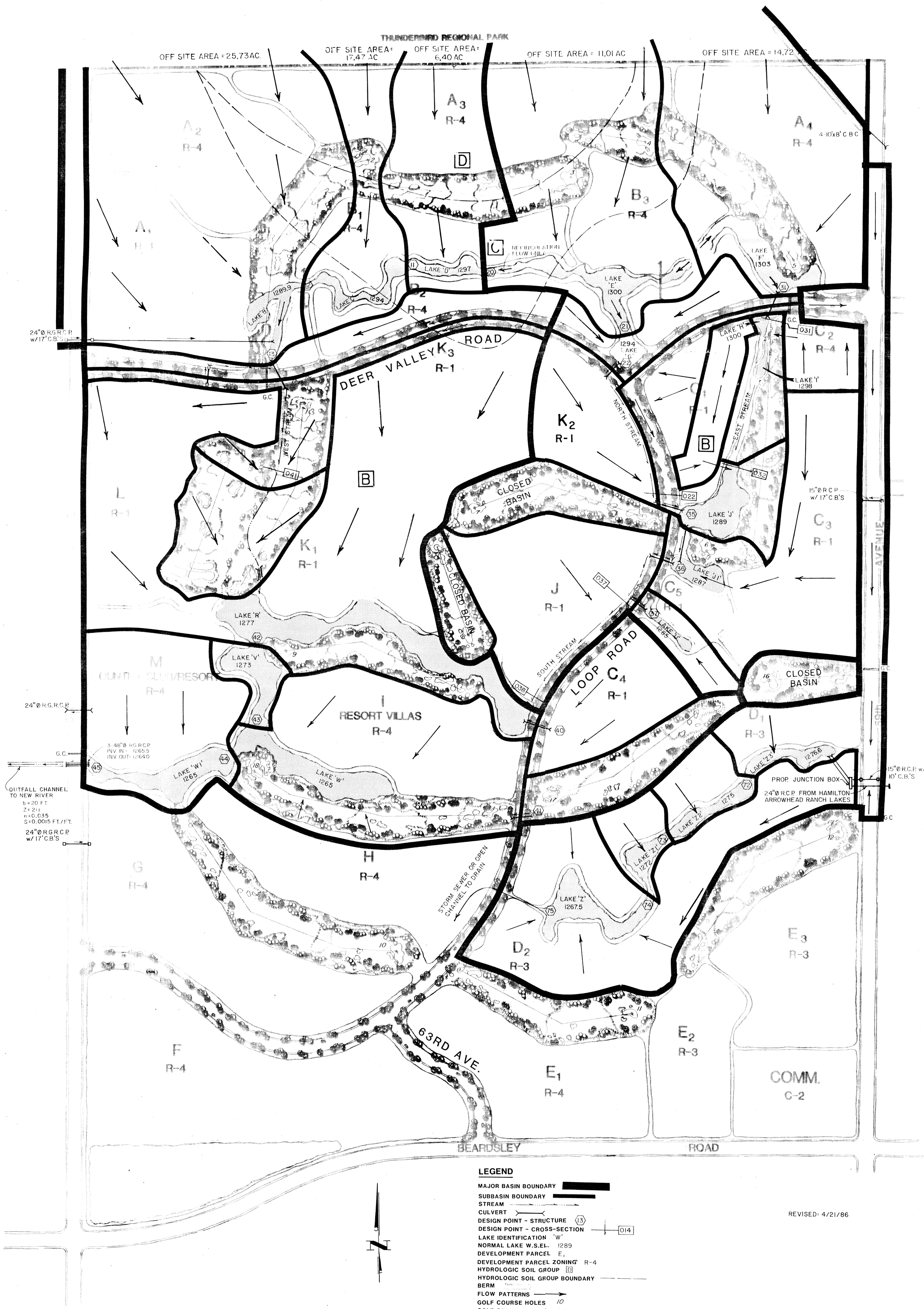
E 1/3 PARCEL 'A'



DRAINAGE AREA EXHIBIT
ARROWHEAD TOWNE CENTER

Val-Tec, Inc.
CONSULTING CIVIL ENGINEERS/ LAND SURVEYORS
THE COLONNADE -1889A EAST CAMELBACK ROAD
PHOENIX, AZ 85016 PH (602) 265-6417 FAX 234-3606

DESIGN	DRAWN	CHECK	DATE	JOB	SHEET
DLD	DFW		06-17-92	VT-1518	1 OF 1



PROPOSED LAKE SYSTEM STORM DRAINAGE MASTER PLAN, BASIN BOUNDARIES AND FLOW PATTERNS

PREPARED BY URS CORP. MARCH 31, 1986

SEE FIGURE 3 AT BACK OF REPORT FOR SCHEMATIC DIAGRAM OF PROPOSED LAKE SYSTEM

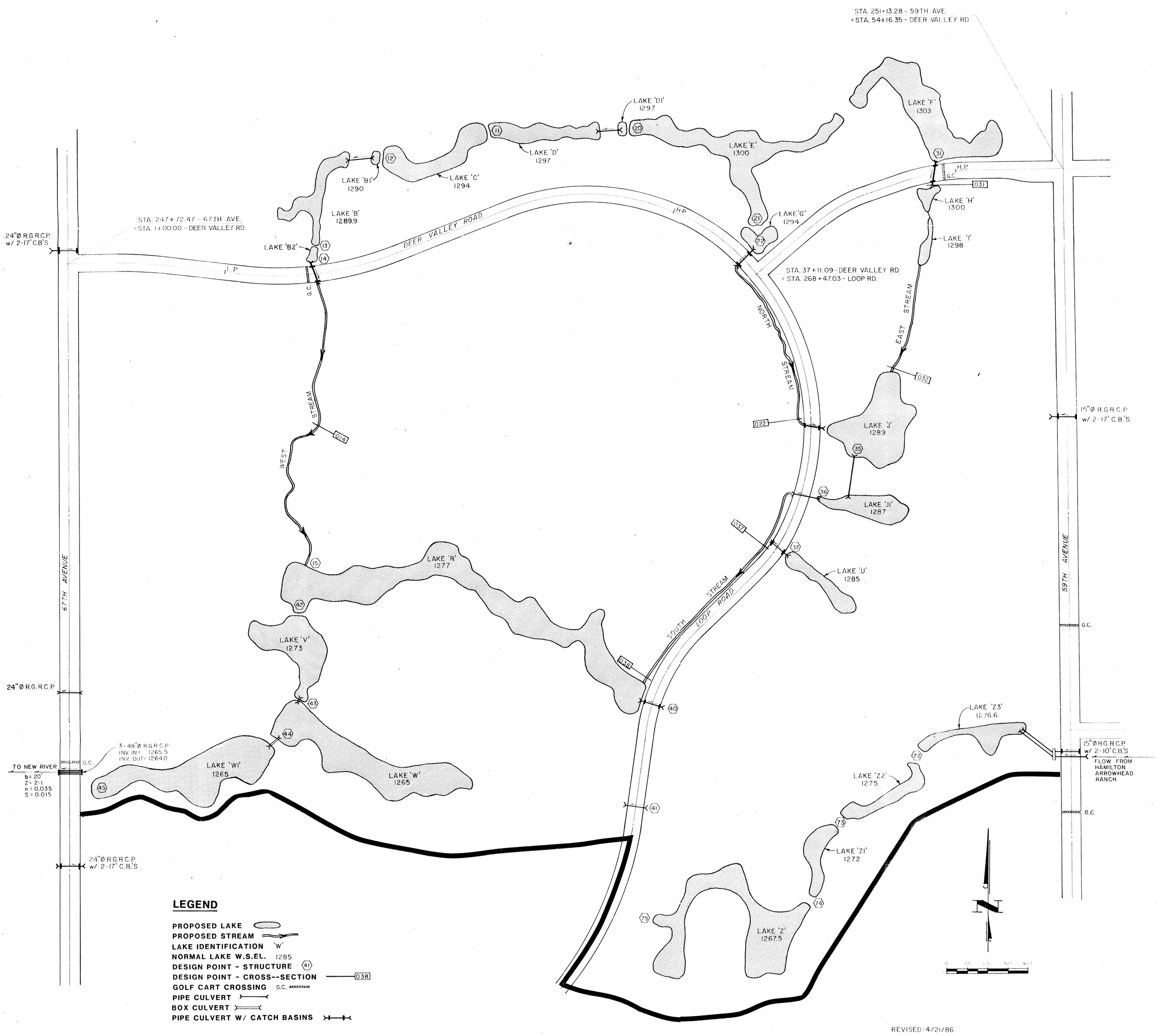
FIGURE 2

ARROWHEAD RANCH - SECTIONS 18 & 19

PALOMA CORPORATION/
HUNT-STEPHENS INVESTMENTS, INC.

BASE MAPPING SOURCE:
DEVELOPMENT PARCEL MAP
PREPARED BY: FLORIAN MARTINEZ ASSOCIATES
7/2/85

FLORIAN MARTINEZ ASSOCIATES



SCHEMATIC DIAGRAM OF PROPOSED LAKE SYSTEM

PREPARED BY URS CORPORATION MARCH 31, 1986

ARROWHEAD RANCH - SECTIONS 18 & 19

PALOMA CORPORATION/
HUNT STEPHENS INVESTMENTS, INC.

FIGURE 3