

PRACTICAL HYDRAULICS FOR KOI PONDS

TABLE II — CARRYING CAPACITY AND FRICTION LOSS FOR SCHEDULE 80 THERMOPLASTIC PIPE

(Independent variables: Gallons per minute and nominal pipe size O.D.)

Dependent variables: Velocity, friction head and pressure drop per 100 feet of pipe, interior smooth.)

GALLONS PER MINUTE	1 in.										1½ in.										2 in.										2½ in.										3 in.									
	VELOCITY FEET PER SECOND	FRICTION HEAD FEET	FRICTION LOSS POUNDS PER SQUARE INCH	VELOCITY FEET PER SECOND	FRICTION HEAD FEET	FRICTION LOSS POUNDS PER SQUARE INCH	VELOCITY FEET PER SECOND	FRICTION HEAD FEET	FRICTION LOSS POUNDS PER SQUARE INCH	VELOCITY FEET PER SECOND	FRICTION HEAD FEET	FRICTION LOSS POUNDS PER SQUARE INCH	VELOCITY FEET PER SECOND	FRICTION HEAD FEET	FRICTION LOSS POUNDS PER SQUARE INCH	VELOCITY FEET PER SECOND	FRICTION HEAD FEET	FRICTION LOSS POUNDS PER SQUARE INCH	VELOCITY FEET PER SECOND	FRICTION HEAD FEET	FRICTION LOSS POUNDS PER SQUARE INCH	VELOCITY FEET PER SECOND	FRICTION HEAD FEET	FRICTION LOSS POUNDS PER SQUARE INCH	VELOCITY FEET PER SECOND	FRICTION HEAD FEET	FRICTION LOSS POUNDS PER SQUARE INCH	VELOCITY FEET PER SECOND	FRICTION HEAD FEET	FRICTION LOSS POUNDS PER SQUARE INCH																				
1	1.48	4.02	1.74	0.74	0.86	0.37	0.94	0.88	0.52	0.21	0.09	0.38	0.10	0.041	0.56	0.10	0.040	0.39	0.05	0.022	0.39	0.05	0.022	0.39	0.05	0.022	0.39	0.05	0.022																					
2	2.95	8.03	3.48	1.57	1.72	0.74	1.94	1.76	1.30	0.66	0.29	0.94	0.30	0.126	1.12	0.15	0.065	0.54	0.07	0.032	0.54	0.07	0.032	0.54	0.07	0.032	0.54	0.07	0.032																					
5	7.39	45.23	19.59	3.92	9.67	4.19	2.34	2.75	1.30	0.66	0.29	0.94	0.30	0.126	1.12	0.15	0.065	0.54	0.07	0.032	0.54	0.07	0.032	0.54	0.07	0.032	0.54	0.07	0.032																					
7	10.34	83.07	35.97	5.49	17.76	7.69	3.28	5.04	1.82	1.21	0.53	1.32	0.55	0.24	1.68	0.26	0.11	0.78	0.12	0.052	0.78	0.12	0.052	0.78	0.12	0.052	0.78	0.12	0.052																					
10				7.84	33.84	14.65	4.68	9.61	2.60	2.30	1.00	1.88	1.04	0.45	2.40	0.36	0.15	1.12	0.17	0.065	1.12	0.17	0.065	1.12	0.17	0.065	1.12	0.17	0.065																					
15				11.76	71.70	31.05	7.01	20.36	3.90	4.87	2.11	2.81	1.20	0.95	3.60	0.50	0.20	1.68	0.26	0.11	1.68	0.26	0.11	1.68	0.26	0.11	1.68	0.26	0.11																					
20	0.57	0.04	0.017	9.35	34.68	15.02	5.20	8.30	3.75	3.75	1.62	2.23	1.06	0.46	4.40	0.60	0.25	2.23	0.30	0.12	2.23	0.30	0.12	2.23	0.30	0.12	2.23	0.30	0.12																					
25	0.72	0.06	0.026	11.69	52.43	22.70	6.50	12.55	4.69	5.67	2.46	2.79	1.60	0.69	5.60	0.80	0.30	2.79	0.40	0.16	2.79	0.40	0.16	2.79	0.40	0.16	2.79	0.40	0.16																					
30	0.86	0.08	0.035	14.03	73.48	31.82	7.80	17.59	7.62	5.63	3.44	3.35	2.25	0.97	6.40	1.00	0.35	3.35	0.50	0.20	3.35	0.50	0.20	3.35	0.50	0.20	3.35	0.50	0.20																					
35	1.00	0.11	0.048	16.37	94.53	42.91	9.10	23.40	9.10	10.58	4.58	3.91	2.99	1.29	7.20	1.20	0.45	3.91	0.60	0.24	3.91	0.60	0.24	3.91	0.60	0.24	3.91	0.60	0.24																					
40	1.15	0.14	0.061	18.71	115.58	56.00	10.40	29.97	12.98	13.55	5.87	4.47	3.83	1.66	8.00	1.50	0.55	4.47	0.70	0.28	4.47	0.70	0.28	4.47	0.70	0.28	4.47	0.70	0.28																					
45	1.29	0.17	0.074	21.05	136.63	71.09	11.70	37.27	16.14	16.85	7.30	5.03	4.76	2.07	8.80	1.80	0.65	5.03	0.80	0.32	5.03	0.80	0.32	5.03	0.80	0.32	5.03	0.80	0.32																					
50	1.43	0.21	0.091	23.39	157.68	87.18	13.00	45.30	19.61	20.48	8.87	5.58	5.79	2.51	9.60	2.10	0.75	5.58	0.90	0.36	5.58	0.90	0.36	5.58	0.90	0.36	5.58	0.90	0.36																					
60	1.72	0.30	0.13	27.72	211.22	124.23	15.26	28.70	24.43	28.70	12.43	6.70	8.12	3.52	11.20	2.50	0.95	6.70	1.10	0.40	6.70	1.10	0.40	6.70	1.10	0.40	6.70	1.10	0.40																					
70	2.01	0.39	0.17	32.05	264.77	161.28	17.51	34.65	29.97	34.65	15.96	7.82	10.80	4.68	13.00	2.90	1.10	7.82	1.30	0.48	7.82	1.30	0.48	7.82	1.30	0.48	7.82	1.30	0.48																					
75	2.15	0.45	0.19	34.39	285.77	176.33	18.80	37.27	31.82	37.27	17.61	8.44	16.85	5.87	14.40	3.20	1.20	8.44	1.40	0.50	8.44	1.40	0.50	8.44	1.40	0.50	8.44	1.40	0.50																					
80	2.29	0.50	0.22	36.73	306.77	191.38	20.09	40.00	34.97	40.00	19.61	9.38	20.48	7.30	15.60	3.50	1.30	9.38	1.50	0.55	9.38	1.50	0.55	9.38	1.50	0.55	9.38	1.50	0.55																					
90	2.58	0.63	0.27	41.06	359.27	224.43	22.70	45.30	39.61	45.30	21.61	11.26	28.70	12.43	17.40	3.90	1.40	11.26	1.70	0.60	11.26	1.70	0.60	11.26	1.70	0.60	11.26	1.70	0.60																					
100	2.87	0.76	0.33	45.91	411.77	257.48	25.40	50.53	44.12	50.53	23.44	12.43	34.65	15.96	19.20	4.20	1.50	12.43	1.90	0.65	12.43	1.90	0.65	12.43	1.90	0.65	12.43	1.90	0.65																					
125	3.59	1.16	0.50	54.86	516.27	318.53	31.82	60.00	53.97	60.00	28.70	15.26	42.91	19.61	23.40	4.90	1.70	15.26	2.30	0.75	15.26	2.30	0.75	15.26	2.30	0.75	15.26	2.30	0.75																					
150	4.30	1.61	0.70	63.81	620.77	379.58	37.27	70.00	63.81	70.00	34.97	18.80	50.53	24.43	27.70	5.60	1.90	18.80	2.70	0.85	18.80	2.70	0.85	18.80	2.70	0.85	18.80	2.70	0.85																					
175	5.02	2.15	0.93	72.76	725.27	440.63	42.91	80.00	72.76	80.00	41.06	21.61	60.00	28.70	31.82	6.30	2.10	21.61	3.10	0.95	21.61	3.10	0.95	21.61	3.10	0.95	21.61	3.10	0.95																					
200	5.73	2.75	1.19	81.71	829.77	501.68	48.34	90.00	81.71	90.00	47.21	24.43	70.00	34.97	35.70	7.00	2.30	24.43	3.60	1.10	24.43	3.60	1.10	24.43	3.60	1.10	24.43	3.60	1.10																					
250	7.16	4.16	1.81	100.66	1034.27	622.73	58.00	100.00	100.66	100.00	57.43	28.70	80.00	41.06	42.91	8.00	2.60	28.70	4.30	1.25	28.70	4.30	1.25	28.70	4.30	1.25	28.70	4.30	1.25																					
300	8.60	5.83	2.52	119.61	1238.77	743.78	67.91	110.00	119.61	110.00	66.85	33.91	90.00	49.06	51.63	9.00	2.90	33.91	5.00	1.40	33.91	5.00	1.40	33.91	5.00	1.40	33.91	5.00	1.40																					
350	10.03	7.76	3.36	138.56	1443.27	864.83	77.82	120.00	138.56	120.00	75.80	39.61	100.00	57.43	60.00	10.00	3.20	39.61	5.80	1.55	39.61	5.80	1.55	39.61	5.80	1.55	39.61	5.80	1.55																					
400	11.47	9.93	4.30	157.51	1647.77	985.88	87.73	130.00	157.51	130.00	84.75	45.30	110.00	66.85	69.00	11.00	3.50	45.30	6.60	1.70	45.30	6.60	1.70	45.30	6.60	1.70	45.30	6.60	1.70																					
450				176.46	1852.27	1106.93	97.64	140.00	176.46	140.00	93.80	51.63	120.00	75.80	78.00	12.00	3.80	51.63	7.40	1.85	51.63	7.40	1.85	51.63	7.40	1.85	51.63	7.40	1.85																					
500				195.41	2056.77	1227.98	107.55	150.00	195.41	150.00	104.85	57.43	130.00	84.75	86.00	13.00	4.10	57.43	8.00	2.00	57.43	8.00	2.00	57.43	8.00	2.00	57.43	8.00	2.00																					
550				214.36	2261.27	1349.03	117.46	160.00	214.36	160.00	115.90	63.81	140.00	93.80	94.00	14.00	4.40	63.81	8.80	2.15	63.81	8.80	2.15	63.81	8.80	2.15	63.81	8.80	2.15																					
600				233.31	2465.77	1470.08	127.37	170.00	233.31	170.00	127.00	70.00	150.00	104.85	102.00	15.00	4.70	70.00	9.60	2.30	70.00	9.60	2.30	70.00	9.60	2.30	70.00	9.60	2.30																					
750				292.26	3270.27	1844.13	157.28	200.00	292.26	200.00	157.00	84.75	180.00	127.00	126.00	18.00	5.40	84.75	11.60	2.60	84.75	11.60	2.60	84.75	11.60	2.60	84.75	11.60	2.60																					
1000				351.21	4074.77	2218.18	187.19	230.00	351.21	230.00	187.00	100.00	210.00	157.00	156.00	21.00	6.10	100.00	13.60	2.90	100.00	13.60	2.90	100.00	13.60	2.90	100.00	13.60	2.90																					
1250				410.16	4879.27	2592.23	217.10	260.00	410.16	260.00	217.00	115.90	240.00	187.00	186.00	24.00	6.80	115.90	15.60	3.20	115.90	15.60	3.20	115.90	15.60	3.20	115.90	15.60	3.20																					
1500				469.11	5683.77	2966.28	247.01	290.00	469.11	290.00	247.00	131.80	270.00	217.00	216.00	27.00	7.50	131.80	17.60	3.50	131.80	17.60	3.50	131.80	17.60	3.50	131.80	17.60	3.50																					
2000				588.06	7133.27	3740.33	306.92	350.00	588.06	350.00	306.90	161.70	330.00	267.00	266.00	33.00	8.80	161.70	21.60	4.00	161.70	21.60	4.00	161.70	21.60	4.00	161.70	21.60	4.00																					
2500				707.01	8582.77	4514.38	366.83	410.00	707.01	410.00	366.80	191.60	390.00	317.00	316.00	39.00	10.10	191.60	25.60	4.50	191.60	25.60	4.50	191.60	25.60	4.50	191.60	25.60	4.50																					
3000				825.96	10032.27	5288.43	426.74	470.00	825.96	470.00	426.70	221.50	450.00	367.00	366.00	45.00	11.40	221.50	29.60	5.00	221.50	29.60	5.00	221.50	29.60	5.00	221.50	29.60	5.00																					
3500				944.91	11481.77	6062.48	486.65	530.00	944.91	530.00	486.60	251.40	510.00	417.00	416.00	51.00	12.70	251.40	33.60	5.50	251.40	33.60	5.50	251.40	33.60	5.50	251.40	33.60	5.50																					
4000				1063.86	12931.27	6836.53	546.56	590.00	1063.86	590.00	546.50	281.30	570.00	467.00	466.00	57.00	14.00	281.30	37.60	6.00	281.30	37.60	6.00	281.30																										