Comfort Homes Forest Trails Lot 78

3 lines

3/4" sch40 = 3×12.5 = 37.5 gpm + 2 (weep hole) = 39.5 ≈ 40 gpm

TDH = FH + PH + EH

2' + 2' + 10.5" = 14.5'

EH = 8' 3.5" → 3' 8.75" (8.5)

4.5' + 6' = 10.5'

8' 3.5"
3. 8'5"

FH = 2" sch 40 3.03/100'

3.03 × .5 = 1.51 + 20% = 1.8' = 2'

Pump spec.

40 gpm @ 14.5'

3 3/4" sch 40 bushings/valve

2' pressure head

FRICTION LOSS, IN FEET, THROUGH 100 FEET OF PLASTIC PIPE

Pipe Diameter (inches)

FLOW (GPM)	1"		1-1/4"		1-1/2"		2"				4"		6"	
	160 PSI	SCH 40	160 PSI	SCH 40	160 PSI	SCH 40	160 PSI	SCH 40	160 PSI	SCH 40	160 PSI	SCH 40	160 PSI	SCH 40
1	.05	.09												
2	.17	.32	.05	.09										
3	.36	.68	.11	.18	.06	.08								
4	.62	1.17	.18	.31	.10	.14								
5	.93	1.76	.28	.46	.14	.22	.05	.06						
6	1.31	2.47	.39	.65	.20	.31	.07	.09						
7	1.74	3.28	.52	.86	.27	.41	.09	.12						
8	2.23	4.20	.66	1.10	.34	.52	.12	.15						
9	2.77	5.22	.83	1.37	.43	.65	.14	.19						
10	3.37	6.35	1.00	1.67	.52	.79	.17	.23						
11	4.01	7.57	1.20	1.99	.62	.94	.21	.28						
12	4.72		1.41	2.34	.73	1.10	.25	.33						
13	5.47		1.63	2.71	.84	1.28	.28	.38						
14	6.27		1.87	3.11	.97	1.47	.33	.43	.05	.06				
15	7.13		2.13	3.54	1.10	1.67	.37	.49	.06	.07				
16			2.39	3.98	1.24	1.88	.42	.56	.06	.08				
17			2.68	4.46	1.39	2.10	.47	.62	.07	.09				
18			2.98	4.95	1.54	2.34	.52	.69	.08	.10				
19			3.29	5.47	1.70	2.58	.57	.77	.09	.11				
20			3.62	6.02	1.87	2.84	.63	.84	.10	.12				
25			5.47		2.83	4.29	.95	1.27	.14	.19				
30			7.67		3.96	6.02	1.34	1.78	.20	.26	.06	.07		
35					5.27		1.78	2.37	.27	.35	.08	.09		
40					6.75		2.27	3.03	.35	.44	.10	.12		
45							2.83	3.77	.43	.55	.13	.15		
50							3.44	4.58	.52	.67	.15	.18		
60							4.81	6.42	.73	.94	.21	.25		
70							6.40		.97	1.25	.29	.33		
80									1.24	1.60	.37	.43	.06	.06
90									1.55	1.99	.45	.53	.07	.07
100									1.88	2.41	.55	.64	.08	.09
125									2.84	3.65	.83	.97	.13	.13
150									3.98	5.11	1.17	1.36	.18	.19
175									5.29	6.80	1.55	1.81	.24	.25
200									6.78		1.99	2.32	.30	.32
225											2.47	2.88	.38	.39
250											3.01	3.50	.46	.48
275											3.59	4.18	.55	.57
300											4.21	4.91	.64	.67
325											4.89	5.69	.74	.77
350											5.60	6.53	.85	.89
375											6.37	7.41	.97	1.01
400											7.17		1.09	1.14
425													1.22	1.27
450													1.36	1.41
475													1.50	1.56
500													1.65	1.72
550													1.97	2.05
600													2.31	2.40
650													2.68	2.79
700													3.07	3.20
750													3.49	3.63
800													3.93	4.09
850													4.40	4.58
900													4.89	5.09
950													5.41	5.63

NOTES: 160 PSI pipe assumed to be SDR 26

Computed by the Hazen Williams Formula, assuming C = 140:

$$h_f = \frac{0.00113\, LQ^{1.85}}{D^{4.87}}$$

h_f = *head loss (feet)*

L = *pipe length (feet)*

Q = *flow (GPM)*

D = *pipe inside diameter (inches)*

PRESSURE MAIN TAP FLOW FOR SCHEDULE 40 PVC PIPE

TAP DIAMETER IN INCHES.

HEAD (ft.)	1/2 0.622	3/4 0.824	1 1.049	1 1/4 1.380	1 1/2 1.610	2 2.067	2 1/2 2.469	3 3.068
1.5	6.16	10.8	17.5	30.3	41.3	68.0	97.1	150
1.6	6.36	11.2	18.1	31.3	42.6	70.3	100	155
1.7	6.56	11.5	18.7	32.3	43.9	72.4	103	160
1.8	6.75	11.8	19.2	33.2	45.2	74.5	106	164
1.9	6.93	12.2	19.7	34.1	46.4	76.6	109	169
2.0	7.11	12.5	20.2	35.0	47.7	78.5	112	173
2.1	7.29	12.8	20.7	35.9	48.8	80.5	115	177
2.2	7.46	13.1	21.2	36.7	50.0	82.4	118	181
2.3	7.63	13.4	21.7	37.5	51.1	84.2	120	186
2.4	7.79	13.7	22.2	38.4	52.2	86.0	123	190
2.5	7.95	14.0	22.6	39.1	53.3	87.8	125	193
2.6	8.11	14.2	23.1	39.9	54.3	89.6	128	197
2.7	8.26	14.5	23.5	40.7	55.4	91.3	130	201
2.8	8.42	14.8	23.9	41.4	56.4	92.9	133	205
2.9	8.56	15.0	24.4	42.2	57.4	94.6	135	208
3.0	8.71	15.3	24.8	42.9	58.4	96.2	137	212
3.1	8.86	15.5	25.2	43.6	59.3	97.8	140	215
3.2	9.00	15.8	25.6	44.3	60.3	99.4	142	219
3.3	9.14	16.0	26.0	45.0	61.2	101	144	222
3.4	9.27	16.3	26.4	45.7	62.1	102	146	226
3.5	9.41	16.5	26.8	46.3	63.0	104	148	229
3.6	9.54	16.7	27.1	47.0	63.9	105	150	232
3.7	9.67	17.0	27.5	47.6	64.8	107	152	235
3.8	9.80	17.2	27.9	48.3	65.7	108	154	239
3.9	9.93	17.4	28.3	48.9	66.5	110	157	242
4.0	10.1	17.7	28.6	49.5	67.4	111	158	245
4.1	10.2	17.9	29.0	50.1	68.2	112	160	248
4.2	10.3	18.1	29.3	50.7	69.1	114	162	251
4.3	10.4	18.3	29.7	51.3	69.9	115	164	254
4.4	10.5	18.5	30.0	51.9	70.7	117	166	257
4.5	10.7	18.7	30.3	52.5	71.5	118	168	260
4.6	10.8	18.9	30.7	53.1	72.3	119	170	262
4.7	10.9	19.1	31.0	53.7	73.1	120	172	265
4.8	11.0	19.3	31.3	54.2	73.8	122	174	268
4.9	11.1	19.5	31.7	54.8	74.6	123	175	271
5.0	11.2	19.7	32.0	55.4	75.3	124	177	274
5.1	11.4	19.9	32.3	55.9	76.1	125	179	276
5.2	11.5	20.1	32.6	56.5	76.8	127	181	279
5.3	11.6	20.3	32.9	57.0	77.6	128	182	282
5.4	11.7	20.5	33.2	57.5	78.3	129	184	284
5.5	11.8	20.7	33.5	58.1	79.0	130	186	287
5.6	11.9	20.9	33.9	58.6	79.7	131	188	290
5.7	12.0	21.1	34.2	59.1	80.5	133	189	292
5.8	12.1	21.3	34.5	59.6	81.2	134	191	295
5.9	12.2	21.4	34.7	60.1	81.9	135	192	297
6.0	12.3	21.6	35.0	60.6	82.5	136	194	300

EQUATION : $Q = 13.0 d^2 h^{0.5}$

EXAMPLE : 1" SCHEDULE 40 TAP WITH 3.0 FEET OF HEAD
FLOW = 24.8 GPM