

FLOWS & VELOCITIES



a – Velocities & Flow Capacities for Pipe Sewers

- [10” VC Pipe](#)
 - [12” VC Pipe](#)
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 - [18” RC Pipe](#)
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 - [96” RC Pipe](#)
 - [102” RC Pipe](#)
 - [108” RC Pipe](#)
 - [114” RC Pipe](#)
 - [120” RC Pipe](#)
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Velocity and Capacity for 10" VC Pipe									
N= 0.013		A= 0.545			HR= 0.208				
GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)	GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)
0.1%	1.274	0.695	0.449	312	5.1%	9.096	4.961	3.206	2,227
0.2%	1.801	0.982	0.635	441	5.2%	9.185	5.010	3.238	2,248
0.3%	2.206	1.203	0.778	540	5.3%	9.273	5.058	3.269	2,270
0.4%	2.547	1.389	0.898	624	5.4%	9.360	5.105	3.299	2,291
0.5%	2.848	1.553	1.004	697	5.5%	9.446	5.152	3.330	2,312
0.6%	3.120	1.702	1.100	764	5.6%	9.532	5.199	3.360	2,333
0.7%	3.370	1.838	1.188	825	5.7%	9.617	5.245	3.390	2,354
0.8%	3.603	1.965	1.270	882	5.8%	9.701	5.291	3.419	2,375
0.9%	3.821	2.084	1.347	935	5.9%	9.784	5.336	3.449	2,395
1.0%	4.028	2.197	1.420	986	6.0%	9.866	5.381	3.478	2,415
1.1%	4.225	2.304	1.489	1,034	6.1%	9.948	5.426	3.507	2,435
1.2%	4.412	2.407	1.555	1,080	6.2%	10.029	5.470	3.535	2,455
1.3%	4.593	2.505	1.619	1,124	6.3%	10.110	5.514	3.564	2,475
1.4%	4.766	2.599	1.680	1,167	6.4%	10.190	5.558	3.592	2,494
1.5%	4.933	2.691	1.739	1,208	6.5%	10.269	5.601	3.620	2,514
1.6%	5.095	2.779	1.796	1,247	6.6%	10.348	5.644	3.648	2,533
1.7%	5.252	2.864	1.851	1,286	6.7%	10.426	5.687	3.675	2,552
1.8%	5.404	2.947	1.905	1,323	6.8%	10.504	5.729	3.702	2,571
1.9%	5.552	3.028	1.957	1,359	6.9%	10.581	5.771	3.729	2,590
2.0%	5.696	3.107	2.008	1,394	7.0%	10.657	5.812	3.756	2,609
2.1%	5.837	3.184	2.057	1,429	7.1%	10.733	5.854	3.783	2,627
2.2%	5.974	3.259	2.106	1,462	7.2%	10.808	5.895	3.810	2,646
2.3%	6.109	3.332	2.153	1,495	7.3%	10.883	5.936	3.836	2,664
2.4%	6.240	3.403	2.200	1,527	7.4%	10.957	5.976	3.862	2,682
2.5%	6.369	3.474	2.245	1,559	7.5%	11.031	6.016	3.888	2,700
2.6%	6.495	3.542	2.289	1,590	7.6%	11.104	6.056	3.914	2,718
2.7%	6.619	3.610	2.333	1,620	7.7%	11.177	6.096	3.940	2,736
2.8%	6.740	3.676	2.376	1,650	7.8%	11.249	6.136	3.965	2,754
2.9%	6.859	3.741	2.418	1,679	7.9%	11.321	6.175	3.991	2,771
3.0%	6.977	3.805	2.459	1,708	8.0%	11.393	6.214	4.016	2,789
3.1%	7.092	3.868	2.500	1,736	8.1%	11.464	6.252	4.041	2,806
3.2%	7.205	3.930	2.540	1,764	8.2%	11.534	6.291	4.066	2,823
3.3%	7.317	3.991	2.579	1,791	8.3%	11.604	6.329	4.090	2,841
3.4%	7.427	4.051	2.618	1,818	8.4%	11.674	6.367	4.115	2,858
3.5%	7.536	4.110	2.656	1,845	8.5%	11.743	6.405	4.139	2,875
3.6%	7.642	4.168	2.694	1,871	8.6%	11.812	6.443	4.164	2,891
3.7%	7.748	4.226	2.731	1,897	8.7%	11.881	6.480	4.188	2,908
3.8%	7.852	4.283	2.768	1,922	8.8%	11.949	6.517	4.212	2,925
3.9%	7.955	4.339	2.804	1,947	8.9%	12.016	6.554	4.236	2,941
4.0%	8.056	4.394	2.840	1,972	9.0%	12.084	6.591	4.259	2,958
4.1%	8.156	4.448	2.875	1,996	9.1%	12.151	6.627	4.283	2,974
4.2%	8.255	4.502	2.910	2,021	9.2%	12.217	6.664	4.306	2,991
4.3%	8.352	4.556	2.944	2,045	9.3%	12.284	6.700	4.330	3,007
4.4%	8.449	4.608	2.978	2,068	9.4%	12.349	6.736	4.353	3,023
4.5%	8.545	4.660	3.012	2,092	9.5%	12.415	6.771	4.376	3,039
4.6%	8.639	4.712	3.045	2,115	9.6%	12.480	6.807	4.399	3,055
4.7%	8.732	4.763	3.078	2,138	9.7%	12.545	6.842	4.422	3,071
4.8%	8.825	4.813	3.111	2,160	9.8%	12.609	6.877	4.445	3,087
4.9%	8.916	4.863	3.143	2,183	9.9%	12.674	6.912	4.467	3,102
5.0%	9.007	4.912	3.175	2,205	10.0%	12.737	6.947	4.490	3,118

Velocity and Capacity for 12" VC Pipe									
N= 0.013		A= 0.785			HR= 0.250				
GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)	GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)
0.1%	1.438	1.130	0.730	507	5.1%	10.272	8.068	5.214	3,621
0.2%	2.034	1.598	1.032	717	5.2%	10.372	8.146	5.265	3,656
0.3%	2.491	1.957	1.265	878	5.3%	10.471	8.224	5.315	3,691
0.4%	2.877	2.259	1.460	1,014	5.4%	10.570	8.301	5.365	3,726
0.5%	3.216	2.526	1.633	1,134	5.5%	10.667	8.378	5.414	3,760
0.6%	3.523	2.767	1.788	1,242	5.6%	10.764	8.454	5.463	3,794
0.7%	3.806	2.989	1.932	1,341	5.7%	10.859	8.529	5.512	3,828
0.8%	4.068	3.195	2.065	1,434	5.8%	10.954	8.603	5.560	3,861
0.9%	4.315	3.389	2.190	1,521	5.9%	11.048	8.677	5.608	3,894
1.0%	4.549	3.572	2.309	1,603	6.0%	11.142	8.751	5.655	3,927
1.1%	4.771	3.747	2.421	1,682	6.1%	11.234	8.823	5.702	3,960
1.2%	4.983	3.913	2.529	1,756	6.2%	11.326	8.895	5.749	3,992
1.3%	5.186	4.073	2.632	1,828	6.3%	11.417	8.967	5.795	4,024
1.4%	5.382	4.227	2.732	1,897	6.4%	11.507	9.038	5.841	4,056
1.5%	5.571	4.375	2.828	1,964	6.5%	11.596	9.108	5.886	4,088
1.6%	5.753	4.519	2.920	2,028	6.6%	11.685	9.178	5.931	4,119
1.7%	5.931	4.658	3.010	2,090	6.7%	11.774	9.247	5.976	4,150
1.8%	6.102	4.793	3.097	2,151	6.8%	11.861	9.316	6.020	4,181
1.9%	6.270	4.924	3.182	2,210	6.9%	11.948	9.384	6.065	4,212
2.0%	6.433	5.052	3.265	2,267	7.0%	12.034	9.452	6.108	4,242
2.1%	6.591	5.177	3.346	2,323	7.1%	12.120	9.519	6.152	4,272
2.2%	6.747	5.299	3.424	2,378	7.2%	12.205	9.586	6.195	4,302
2.3%	6.898	5.418	3.501	2,432	7.3%	12.289	9.652	6.238	4,332
2.4%	7.047	5.534	3.577	2,484	7.4%	12.373	9.718	6.280	4,361
2.5%	7.192	5.648	3.650	2,535	7.5%	12.457	9.783	6.323	4,391
2.6%	7.334	5.760	3.723	2,585	7.6%	12.539	9.848	6.365	4,420
2.7%	7.474	5.870	3.794	2,634	7.7%	12.622	9.913	6.406	4,449
2.8%	7.611	5.978	3.863	2,683	7.8%	12.703	9.977	6.448	4,478
2.9%	7.746	6.084	3.932	2,730	7.9%	12.784	10.041	6.489	4,506
3.0%	7.878	6.188	3.999	2,777	8.0%	12.865	10.104	6.530	4,535
3.1%	8.008	6.290	4.065	2,823	8.1%	12.945	10.167	6.571	4,563
3.2%	8.137	6.390	4.130	2,868	8.2%	13.025	10.230	6.611	4,591
3.3%	8.263	6.490	4.194	2,913	8.3%	13.104	10.292	6.651	4,619
3.4%	8.387	6.587	4.257	2,956	8.4%	13.183	10.354	6.691	4,647
3.5%	8.509	6.683	4.319	2,999	8.5%	13.261	10.415	6.731	4,674
3.6%	8.630	6.778	4.381	3,042	8.6%	13.339	10.476	6.771	4,702
3.7%	8.749	6.872	4.441	3,084	8.7%	13.416	10.537	6.810	4,729
3.8%	8.867	6.964	4.501	3,125	8.8%	13.493	10.597	6.849	4,756
3.9%	8.983	7.055	4.559	3,166	8.9%	13.570	10.657	6.888	4,783
4.0%	9.097	7.145	4.617	3,207	9.0%	13.646	10.717	6.926	4,810
4.1%	9.210	7.234	4.675	3,246	9.1%	13.721	10.777	6.965	4,837
4.2%	9.322	7.321	4.732	3,286	9.2%	13.796	10.836	7.003	4,863
4.3%	9.432	7.408	4.788	3,325	9.3%	13.871	10.894	7.041	4,889
4.4%	9.541	7.494	4.843	3,363	9.4%	13.945	10.953	7.078	4,916
4.5%	9.649	7.578	4.898	3,401	9.5%	14.019	11.011	7.116	4,942
4.6%	9.755	7.662	4.952	3,439	9.6%	14.093	11.069	7.153	4,968
4.7%	9.861	7.745	5.005	3,476	9.7%	14.166	11.126	7.191	4,993
4.8%	9.965	7.827	5.058	3,513	9.8%	14.239	11.183	7.227	5,019
4.9%	10.069	7.908	5.111	3,549	9.9%	14.312	11.240	7.264	5,045
5.0%	10.171	7.988	5.162	3,585	10.0%	14.384	11.297	7.301	5,070

Velocity and Capacity for 15" VC Pipe									
N= 0.013		A= 1.227			HR= 0.313				
GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)	GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)
0.1%	1.669	2.048	1.324	919	5.1%	11.920	14.628	9.453	6,565
0.2%	2.360	2.897	1.872	1,300	5.2%	12.036	14.770	9.546	6,629
0.3%	2.891	3.548	2.293	1,592	5.3%	12.151	14.912	9.637	6,692
0.4%	3.338	4.097	2.647	1,839	5.4%	12.265	15.052	9.727	6,755
0.5%	3.732	4.580	2.960	2,056	5.5%	12.378	15.190	9.817	6,817
0.6%	4.088	5.017	3.242	2,252	5.6%	12.490	15.328	9.906	6,879
0.7%	4.416	5.419	3.502	2,432	5.7%	12.601	15.464	9.994	6,940
0.8%	4.721	5.793	3.744	2,600	5.8%	12.711	15.599	10.081	7,001
0.9%	5.007	6.145	3.971	2,758	5.9%	12.820	15.733	10.168	7,061
1.0%	5.278	6.477	4.186	2,907	6.0%	12.929	15.866	10.254	7,121
1.1%	5.536	6.793	4.390	3,049	6.1%	13.036	15.997	10.339	7,180
1.2%	5.782	7.095	4.586	3,184	6.2%	13.142	16.128	10.423	7,238
1.3%	6.018	7.385	4.773	3,314	6.3%	13.248	16.258	10.507	7,296
1.4%	6.245	7.664	4.953	3,440	6.4%	13.353	16.386	10.590	7,354
1.5%	6.464	7.933	5.127	3,560	6.5%	13.457	16.514	10.672	7,411
1.6%	6.676	8.193	5.295	3,677	6.6%	13.560	16.640	10.754	7,468
1.7%	6.882	8.445	5.458	3,790	6.7%	13.662	16.766	10.835	7,524
1.8%	7.081	8.690	5.616	3,900	6.8%	13.764	16.890	10.916	7,580
1.9%	7.275	8.928	5.770	4,007	6.9%	13.864	17.014	10.996	7,636
2.0%	7.464	9.160	5.920	4,111	7.0%	13.964	17.137	11.075	7,691
2.1%	7.649	9.386	6.066	4,213	7.1%	14.064	17.259	11.154	7,746
2.2%	7.829	9.607	6.209	4,312	7.2%	14.163	17.380	11.232	7,800
2.3%	8.005	9.823	6.348	4,409	7.3%	14.261	17.500	11.310	7,854
2.4%	8.177	10.034	6.485	4,503	7.4%	14.358	17.620	11.387	7,908
2.5%	8.345	10.241	6.619	4,596	7.5%	14.455	17.738	11.464	7,961
2.6%	8.511	10.444	6.750	4,687	7.6%	14.551	17.856	11.540	8,014
2.7%	8.673	10.643	6.878	4,777	7.7%	14.646	17.973	11.616	8,066
2.8%	8.832	10.838	7.005	4,864	7.8%	14.741	18.090	11.691	8,119
2.9%	8.988	11.030	7.129	4,950	7.9%	14.835	18.205	11.766	8,171
3.0%	9.142	11.219	7.250	5,035	8.0%	14.929	18.320	11.840	8,222
3.1%	9.293	11.404	7.370	5,118	8.1%	15.022	18.434	11.914	8,273
3.2%	9.442	11.587	7.488	5,200	8.2%	15.114	18.548	11.987	8,324
3.3%	9.588	11.766	7.604	5,281	8.3%	15.206	18.661	12.060	8,375
3.4%	9.732	11.943	7.719	5,360	8.4%	15.297	18.773	12.132	8,425
3.5%	9.874	12.118	7.831	5,438	8.5%	15.388	18.884	12.204	8,475
3.6%	10.014	12.290	7.942	5,516	8.6%	15.478	18.995	12.276	8,525
3.7%	10.153	12.459	8.052	5,592	8.7%	15.568	19.105	12.347	8,574
3.8%	10.289	12.626	8.160	5,667	8.8%	15.657	19.214	12.418	8,623
3.9%	10.423	12.791	8.267	5,741	8.9%	15.746	19.323	12.488	8,672
4.0%	10.556	12.954	8.372	5,814	9.0%	15.834	19.432	12.558	8,721
4.1%	10.687	13.115	8.476	5,886	9.1%	15.922	19.539	12.628	8,769
4.2%	10.817	13.274	8.579	5,957	9.2%	16.009	19.646	12.697	8,817
4.3%	10.945	13.431	8.680	6,028	9.3%	16.096	19.753	12.766	8,865
4.4%	11.071	13.587	8.781	6,098	9.4%	16.182	19.859	12.834	8,913
4.5%	11.197	13.740	8.880	6,167	9.5%	16.268	19.964	12.902	8,960
4.6%	11.320	13.892	8.978	6,235	9.6%	16.354	20.069	12.970	9,007
4.7%	11.443	14.042	9.075	6,302	9.7%	16.438	20.173	13.037	9,054
4.8%	11.564	14.191	9.171	6,369	9.8%	16.523	20.277	13.104	9,100
4.9%	11.684	14.338	9.266	6,435	9.9%	16.607	20.380	13.171	9,147
5.0%	11.802	14.483	9.360	6,500	10.0%	16.691	20.483	13.237	9,193

Velocity and Capacity for 18" RC Pipe									
N= 0.015		A= 1.767			HR= 0.375				
GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)	GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)
0.1%	1.633	2.887	1.866	1,296	5.1%	11.665	20.615	13.323	9,252
0.2%	2.310	4.082	2.638	1,832	5.2%	11.779	20.816	13.453	9,342
0.3%	2.829	5.000	3.231	2,244	5.3%	11.892	21.015	13.581	9,431
0.4%	3.267	5.773	3.731	2,591	5.4%	12.004	21.212	13.709	9,520
0.5%	3.653	6.455	4.171	2,897	5.5%	12.114	21.408	13.835	9,608
0.6%	4.001	7.071	4.570	3,173	5.6%	12.224	21.601	13.960	9,695
0.7%	4.322	7.637	4.936	3,428	5.7%	12.333	21.793	14.084	9,781
0.8%	4.620	8.165	5.277	3,664	5.8%	12.440	21.984	14.207	9,866
0.9%	4.900	8.660	5.597	3,887	5.9%	12.547	22.172	14.329	9,951
1.0%	5.166	9.128	5.899	4,097	6.0%	12.653	22.360	14.450	10,035
1.1%	5.418	9.574	6.187	4,297	6.1%	12.758	22.545	14.570	10,118
1.2%	5.659	10.000	6.462	4,488	6.2%	12.862	22.729	14.689	10,201
1.3%	5.890	10.408	6.726	4,671	6.3%	12.965	22.912	14.807	10,283
1.4%	6.112	10.801	6.980	4,847	6.4%	13.068	23.093	14.924	10,364
1.5%	6.326	11.180	7.225	5,017	6.5%	13.170	23.273	15.040	10,445
1.6%	6.534	11.546	7.462	5,182	6.6%	13.271	23.451	15.156	10,525
1.7%	6.735	11.902	7.692	5,342	6.7%	13.371	23.628	15.270	10,604
1.8%	6.930	12.247	7.915	5,496	6.8%	13.470	23.804	15.384	10,683
1.9%	7.120	12.582	8.132	5,647	6.9%	13.569	23.978	15.496	10,761
2.0%	7.305	12.909	8.343	5,794	7.0%	13.667	24.151	15.608	10,839
2.1%	7.486	13.228	8.549	5,937	7.1%	13.764	24.323	15.719	10,916
2.2%	7.662	13.539	8.750	6,076	7.2%	13.861	24.494	15.830	10,993
2.3%	7.834	13.844	8.947	6,213	7.3%	13.957	24.663	15.939	11,069
2.4%	8.002	14.141	9.139	6,347	7.4%	14.052	24.832	16.048	11,144
2.5%	8.167	14.433	9.328	6,478	7.5%	14.146	24.999	16.156	11,219
2.6%	8.329	14.719	9.512	6,606	7.6%	14.240	25.165	16.263	11,294
2.7%	8.488	14.999	9.694	6,732	7.7%	14.334	25.330	16.370	11,368
2.8%	8.644	15.275	9.871	6,855	7.8%	14.427	25.494	16.476	11,442
2.9%	8.797	15.545	10.046	6,977	7.9%	14.519	25.657	16.581	11,515
3.0%	8.947	15.811	10.218	7,096	8.0%	14.610	25.819	16.686	11,587
3.1%	9.095	16.072	10.387	7,213	8.1%	14.701	25.979	16.790	11,660
3.2%	9.240	16.329	10.553	7,329	8.2%	14.792	26.139	16.893	11,731
3.3%	9.384	16.582	10.717	7,442	8.3%	14.882	26.298	16.996	11,803
3.4%	9.525	16.832	10.878	7,554	8.4%	14.971	26.456	17.098	11,874
3.5%	9.664	17.077	11.037	7,664	8.5%	15.060	26.613	17.199	11,944
3.6%	9.801	17.320	11.193	7,773	8.6%	15.148	26.769	17.300	12,014
3.7%	9.936	17.559	11.348	7,880	8.7%	15.236	26.925	17.401	12,084
3.8%	10.069	17.794	11.500	7,986	8.8%	15.323	27.079	17.500	12,153
3.9%	10.201	18.027	11.650	8,090	8.9%	15.410	27.232	17.599	12,222
4.0%	10.331	18.257	11.799	8,194	9.0%	15.497	27.385	17.698	12,290
4.1%	10.459	18.483	11.945	8,295	9.1%	15.582	27.537	17.796	12,358
4.2%	10.586	18.707	12.090	8,396	9.2%	15.668	27.687	17.894	12,426
4.3%	10.711	18.929	12.233	8,495	9.3%	15.753	27.837	17.991	12,493
4.4%	10.835	19.148	12.375	8,593	9.4%	15.837	27.987	18.087	12,560
4.5%	10.958	19.364	12.514	8,691	9.5%	15.921	28.135	18.183	12,627
4.6%	11.079	19.578	12.653	8,787	9.6%	16.005	28.283	18.278	12,693
4.7%	11.199	19.790	12.789	8,882	9.7%	16.088	28.430	18.373	12,759
4.8%	11.317	19.999	12.925	8,976	9.8%	16.171	28.576	18.468	12,825
4.9%	11.434	20.206	13.059	9,069	9.9%	16.253	28.721	18.562	12,890
5.0%	11.551	20.411	13.191	9,161	10.0%	16.335	28.866	18.655	12,955

Velocity and Capacity for 21" RC Pipe									
N= 0.015		A= 2.405			HR= 0.438				
GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)	GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)
0.1%	1.810	4.354	2.814	1,954	5.1%	12.928	31.096	20.096	13,956
0.2%	2.560	6.158	3.980	2,764	5.2%	13.054	31.399	20.292	14,092
0.3%	3.136	7.542	4.874	3,385	5.3%	13.179	31.699	20.486	14,227
0.4%	3.621	8.708	5.628	3,908	5.4%	13.303	31.997	20.679	14,360
0.5%	4.048	9.736	6.292	4,370	5.5%	13.425	32.292	20.869	14,493
0.6%	4.434	10.666	6.893	4,787	5.6%	13.547	32.584	21.058	14,624
0.7%	4.790	11.520	7.445	5,170	5.7%	13.667	32.874	21.245	14,754
0.8%	5.120	12.316	7.959	5,527	5.8%	13.787	33.161	21.431	14,883
0.9%	5.431	13.063	8.442	5,863	5.9%	13.905	33.446	21.615	15,010
1.0%	5.725	13.769	8.899	6,180	6.0%	14.022	33.728	21.797	15,137
1.1%	6.004	14.441	9.333	6,481	6.1%	14.139	34.008	21.978	15,263
1.2%	6.271	15.084	9.748	6,769	6.2%	14.254	34.285	22.158	15,387
1.3%	6.527	15.699	10.146	7,046	6.3%	14.369	34.561	22.336	15,511
1.4%	6.773	16.292	10.529	7,312	6.4%	14.482	34.834	22.512	15,633
1.5%	7.011	16.864	10.899	7,569	6.5%	14.595	35.105	22.687	15,755
1.6%	7.241	17.417	11.256	7,817	6.6%	14.707	35.374	22.861	15,876
1.7%	7.464	17.953	11.603	8,057	6.7%	14.818	35.641	23.034	15,996
1.8%	7.680	18.474	11.939	8,291	6.8%	14.928	35.906	23.205	16,115
1.9%	7.891	18.980	12.266	8,518	6.9%	15.037	36.169	23.375	16,233
2.0%	8.096	19.473	12.585	8,739	7.0%	15.146	36.430	23.544	16,350
2.1%	8.296	19.954	12.895	8,955	7.1%	15.254	36.690	23.711	16,466
2.2%	8.491	20.423	13.199	9,166	7.2%	15.361	36.947	23.878	16,582
2.3%	8.682	20.882	13.496	9,372	7.3%	15.467	37.203	24.043	16,697
2.4%	8.869	21.331	13.786	9,574	7.4%	15.573	37.457	24.207	16,811
2.5%	9.051	21.771	14.070	9,771	7.5%	15.678	37.709	24.370	16,924
2.6%	9.231	22.202	14.349	9,964	7.6%	15.782	37.959	24.532	17,036
2.7%	9.407	22.625	14.622	10,154	7.7%	15.885	38.208	24.693	17,148
2.8%	9.579	23.041	14.890	10,341	7.8%	15.988	38.456	24.853	17,259
2.9%	9.749	23.448	15.154	10,524	7.9%	16.090	38.701	25.012	17,369
3.0%	9.915	23.849	15.413	10,704	8.0%	16.192	38.946	25.169	17,479
3.1%	10.079	24.243	15.668	10,880	8.1%	16.293	39.188	25.326	17,588
3.2%	10.241	24.631	15.919	11,055	8.2%	16.393	39.429	25.482	17,696
3.3%	10.399	25.013	16.165	11,226	8.3%	16.492	39.669	25.637	17,803
3.4%	10.556	25.389	16.408	11,395	8.4%	16.592	39.907	25.791	17,910
3.5%	10.710	25.760	16.648	11,561	8.5%	16.690	40.144	25.944	18,017
3.6%	10.862	26.125	16.884	11,725	8.6%	16.788	40.380	26.096	18,122
3.7%	11.012	26.486	17.117	11,887	8.7%	16.885	40.614	26.248	18,227
3.8%	11.159	26.841	17.347	12,046	8.8%	16.982	40.846	26.398	18,332
3.9%	11.305	27.192	17.574	12,204	8.9%	17.078	41.078	26.547	18,436
4.0%	11.449	27.539	17.797	12,359	9.0%	17.174	41.308	26.696	18,539
4.1%	11.591	27.881	18.019	12,513	9.1%	17.269	41.537	26.844	18,642
4.2%	11.732	28.219	18.237	12,665	9.2%	17.364	41.764	26.991	18,744
4.3%	11.871	28.553	18.453	12,814	9.3%	17.458	41.991	27.138	18,845
4.4%	12.008	28.883	18.666	12,963	9.4%	17.551	42.216	27.283	18,947
4.5%	12.144	29.209	18.877	13,109	9.5%	17.644	42.440	27.428	19,047
4.6%	12.278	29.532	19.086	13,254	9.6%	17.737	42.663	27.572	19,147
4.7%	12.411	29.851	19.292	13,397	9.7%	17.829	42.884	27.715	19,246
4.8%	12.542	30.167	19.496	13,539	9.8%	17.921	43.105	27.857	19,345
4.9%	12.672	30.480	19.698	13,679	9.9%	18.012	43.324	27.999	19,444
5.0%	12.801	30.789	19.898	13,818	10.0%	18.103	43.542	28.140	19,542

Velocity and Capacity for 24" RC Pipe									
N= 0.015		A= 3.142			HR= 0.500				
GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)	GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)
0.1%	1.979	6.217	4.018	2,790	5.1%	14.132	44.396	28.692	19,925
0.2%	2.798	8.792	5.682	3,946	5.2%	14.270	44.829	28.972	20,119
0.3%	3.427	10.768	6.959	4,832	5.3%	14.406	45.258	29.249	20,312
0.4%	3.958	12.433	8.035	5,580	5.4%	14.541	45.683	29.524	20,503
0.5%	4.425	13.901	8.984	6,239	5.5%	14.675	46.104	29.796	20,692
0.6%	4.847	15.228	9.841	6,834	5.6%	14.808	46.521	30.065	20,879
0.7%	5.235	16.448	10.630	7,382	5.7%	14.940	46.935	30.333	21,064
0.8%	5.597	17.583	11.364	7,891	5.8%	15.070	47.345	30.598	21,248
0.9%	5.936	18.650	12.053	8,370	5.9%	15.200	47.751	30.860	21,431
1.0%	6.258	19.659	12.705	8,823	6.0%	15.328	48.154	31.121	21,612
1.1%	6.563	20.618	13.325	9,254	6.1%	15.455	48.554	31.379	21,791
1.2%	6.855	21.535	13.918	9,665	6.2%	15.581	48.950	31.635	21,969
1.3%	7.135	22.415	14.486	10,060	6.3%	15.706	49.343	31.889	22,145
1.4%	7.404	23.261	15.033	10,439	6.4%	15.831	49.733	32.141	22,320
1.5%	7.664	24.077	15.560	10,806	6.5%	15.954	50.120	32.391	22,494
1.6%	7.915	24.867	16.071	11,160	6.6%	16.076	50.505	32.640	22,666
1.7%	8.159	25.632	16.565	11,504	6.7%	16.197	50.886	32.886	22,837
1.8%	8.395	26.375	17.046	11,837	6.8%	16.318	51.264	33.131	23,007
1.9%	8.626	27.098	17.513	12,162	6.9%	16.437	51.640	33.373	23,176
2.0%	8.850	27.802	17.968	12,477	7.0%	16.556	52.012	33.614	23,343
2.1%	9.068	28.488	18.411	12,786	7.1%	16.674	52.383	33.853	23,509
2.2%	9.282	29.159	18.845	13,086	7.2%	16.791	52.750	34.091	23,674
2.3%	9.490	29.814	19.268	13,381	7.3%	16.907	53.115	34.327	23,838
2.4%	9.694	30.455	19.682	13,668	7.4%	17.023	53.478	34.561	24,001
2.5%	9.894	31.083	20.088	13,950	7.5%	17.137	53.838	34.794	24,162
2.6%	10.090	31.699	20.486	14,226	7.6%	17.251	54.196	35.025	24,323
2.7%	10.282	32.303	20.876	14,497	7.7%	17.364	54.551	35.255	24,483
2.8%	10.471	32.896	21.259	14,764	7.8%	17.477	54.904	35.483	24,641
2.9%	10.656	33.478	21.636	15,025	7.9%	17.588	55.255	35.710	24,798
3.0%	10.838	34.050	22.006	15,282	8.0%	17.699	55.604	35.935	24,955
3.1%	11.018	34.613	22.369	15,534	8.1%	17.809	55.950	36.159	25,110
3.2%	11.194	35.167	22.727	15,783	8.2%	17.919	56.294	36.381	25,265
3.3%	11.368	35.712	23.080	16,028	8.3%	18.028	56.637	36.603	25,419
3.4%	11.538	36.249	23.427	16,269	8.4%	18.136	56.977	36.822	25,571
3.5%	11.707	36.778	23.769	16,506	8.5%	18.244	57.315	37.041	25,723
3.6%	11.873	37.300	24.106	16,740	8.6%	18.351	57.651	37.258	25,874
3.7%	12.037	37.815	24.438	16,971	8.7%	18.457	57.985	37.474	26,024
3.8%	12.198	38.322	24.767	17,199	8.8%	18.563	58.318	37.689	26,173
3.9%	12.358	38.823	25.090	17,424	8.9%	18.668	58.648	37.903	26,321
4.0%	12.515	39.318	25.410	17,646	9.0%	18.773	58.977	38.115	26,469
4.1%	12.671	39.806	25.726	17,865	9.1%	18.877	59.303	38.326	26,615
4.2%	12.824	40.289	26.037	18,082	9.2%	18.980	59.628	38.536	26,761
4.3%	12.976	40.765	26.346	18,296	9.3%	19.083	59.951	38.745	26,906
4.4%	13.126	41.237	26.650	18,507	9.4%	19.185	60.273	38.953	27,050
4.5%	13.274	41.703	26.951	18,716	9.5%	19.287	60.593	39.159	27,194
4.6%	13.421	42.164	27.249	18,923	9.6%	19.388	60.911	39.365	27,337
4.7%	13.566	42.619	27.544	19,128	9.7%	19.489	61.227	39.569	27,479
4.8%	13.710	43.070	27.835	19,330	9.8%	19.589	61.542	39.773	27,620
4.9%	13.852	43.517	28.124	19,530	9.9%	19.689	61.855	39.975	27,761
5.0%	13.992	43.959	28.409	19,729	10.0%	19.788	62.167	40.177	27,900

Velocity and Capacity for 27" RC Pipe

N= 0.013

A= 3.976

HR= 0.563

GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)	GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)
0.1%	2.470	9.820	6.346	4,407	5.1%	17.638	70.129	45.322	31,474
0.2%	3.493	13.888	8.975	6,233	5.2%	17.810	70.813	45.765	31,781
0.3%	4.278	17.009	10.992	7,634	5.3%	17.980	71.491	46.203	32,085
0.4%	4.940	19.640	12.693	8,814	5.4%	18.149	72.162	46.636	32,386
0.5%	5.523	21.958	14.191	9,855	5.5%	18.316	72.827	47.066	32,685
0.6%	6.050	24.054	15.545	10,795	5.6%	18.482	73.486	47.492	32,981
0.7%	6.534	25.981	16.791	11,660	5.7%	18.646	74.140	47.914	33,274
0.8%	6.986	27.775	17.950	12,466	5.8%	18.809	74.787	48.333	33,564
0.9%	7.409	29.460	19.039	13,222	5.9%	18.971	75.429	48.748	33,853
1.0%	7.810	31.054	20.069	13,937	6.0%	19.131	76.066	49.159	34,138
1.1%	8.191	32.569	21.049	14,617	6.1%	19.290	76.697	49.567	34,422
1.2%	8.556	34.018	21.985	15,267	6.2%	19.447	77.323	49.972	34,703
1.3%	8.905	35.407	22.882	15,890	6.3%	19.603	77.944	50.373	34,981
1.4%	9.241	36.743	23.746	16,490	6.4%	19.758	78.560	50.771	35,258
1.5%	9.565	38.033	24.580	17,069	6.5%	19.912	79.172	51.166	35,532
1.6%	9.879	39.280	25.386	17,629	6.6%	20.065	79.778	51.558	35,805
1.7%	10.183	40.489	26.167	18,171	6.7%	20.216	80.380	51.948	36,075
1.8%	10.478	41.663	26.926	18,698	6.8%	20.366	80.978	52.334	36,343
1.9%	10.766	42.805	27.663	19,211	6.9%	20.516	81.571	52.717	36,609
2.0%	11.045	43.917	28.382	19,710	7.0%	20.664	82.160	53.098	36,874
2.1%	11.318	45.001	29.083	20,196	7.1%	20.811	82.745	53.476	37,136
2.2%	11.584	46.060	29.767	20,672	7.2%	20.957	83.326	53.851	37,397
2.3%	11.845	47.095	30.436	21,136	7.3%	21.102	83.902	54.224	37,655
2.4%	12.099	48.108	31.091	21,591	7.4%	21.246	84.475	54.594	37,912
2.5%	12.349	49.100	31.732	22,036	7.5%	21.389	85.044	54.962	38,168
2.6%	12.593	50.073	32.360	22,473	7.6%	21.531	85.609	55.327	38,421
2.7%	12.833	51.026	32.977	22,901	7.7%	21.672	86.170	55.690	38,673
2.8%	13.069	51.963	33.582	23,321	7.8%	21.812	86.728	56.050	38,924
2.9%	13.300	52.882	34.176	23,734	7.9%	21.952	87.282	56.408	39,172
3.0%	13.528	53.787	34.761	24,139	8.0%	22.090	87.833	56.764	39,419
3.1%	13.751	54.676	35.335	24,538	8.1%	22.228	88.380	57.118	39,665
3.2%	13.971	55.550	35.901	24,931	8.2%	22.365	88.924	57.469	39,909
3.3%	14.188	56.412	36.457	25,318	8.3%	22.501	89.465	57.819	40,152
3.4%	14.401	57.260	37.006	25,698	8.4%	22.636	90.002	58.166	40,393
3.5%	14.611	58.096	37.546	26,074	8.5%	22.770	90.536	58.511	40,633
3.6%	14.819	58.920	38.078	26,443	8.6%	22.904	91.067	58.854	40,871
3.7%	15.023	59.733	38.604	26,808	8.7%	23.037	91.595	59.195	41,108
3.8%	15.225	60.535	39.122	27,168	8.8%	23.169	92.120	59.535	41,343
3.9%	15.424	61.326	39.633	27,523	8.9%	23.300	92.642	59.872	41,578
4.0%	15.620	62.107	40.138	27,874	9.0%	23.430	93.161	60.207	41,811
4.1%	15.814	62.879	40.637	28,220	9.1%	23.560	93.677	60.541	42,042
4.2%	16.006	63.641	41.129	28,562	9.2%	23.689	94.190	60.873	42,273
4.3%	16.195	64.394	41.616	28,900	9.3%	23.818	94.701	61.203	42,502
4.4%	16.383	65.139	42.097	29,234	9.4%	23.945	95.209	61.531	42,730
4.5%	16.568	65.875	42.573	29,565	9.5%	24.072	95.714	61.857	42,956
4.6%	16.751	66.603	43.043	29,891	9.6%	24.199	96.216	62.182	43,182
4.7%	16.932	67.323	43.509	30,214	9.7%	24.324	96.716	62.505	43,406
4.8%	17.111	68.035	43.969	30,534	9.8%	24.450	97.213	62.826	43,629
4.9%	17.288	68.740	44.425	30,851	9.9%	24.574	97.708	63.146	43,851
5.0%	17.464	69.438	44.876	31,164	10.0%	24.698	98.200	63.464	44,072

Velocity and Capacity for 30" RC Pipe

N= 0.013

A= 4.909

HR= 0.625

GRA %	VEL. FT/SEC	CAPACITY			GRA %	VEL. FT/SEC	CAPACITY		
		(CFS)	(MGD)	(GPM)			(CFS)	(MGD)	(GPM)
0.1%	2.649	13.006	8.405	5,837	5.1%	18.921	92.879	60.025	41,684
0.2%	3.747	18.393	11.887	8,255	5.2%	19.106	93.785	60.611	42,091
0.3%	4.589	22.526	14.558	10,110	5.3%	19.289	94.683	61.191	42,494
0.4%	5.299	26.011	16.810	11,674	5.4%	19.470	95.572	61.765	42,893
0.5%	5.924	29.082	18.795	13,052	5.5%	19.649	96.453	62.335	43,288
0.6%	6.490	31.857	20.588	14,298	5.6%	19.827	97.326	62.899	43,680
0.7%	7.010	34.410	22.238	15,443	5.7%	20.003	98.191	63.458	44,068
0.8%	7.494	36.786	23.774	16,509	5.8%	20.178	99.048	64.012	44,453
0.9%	7.948	39.017	25.216	17,511	5.9%	20.351	99.898	64.562	44,834
1.0%	8.378	41.128	26.580	18,458	6.0%	20.523	100.742	65.106	45,213
1.1%	8.787	43.135	27.877	19,359	6.1%	20.693	101.578	65.647	45,588
1.2%	9.178	45.053	29.116	20,220	6.2%	20.862	102.407	66.183	45,960
1.3%	9.553	46.893	30.305	21,045	6.3%	21.030	103.229	66.714	46,329
1.4%	9.913	48.663	31.449	21,840	6.4%	21.196	104.045	67.242	46,696
1.5%	10.261	50.371	32.553	22,606	6.5%	21.361	104.855	67.765	47,059
1.6%	10.598	52.023	33.621	23,348	6.6%	21.525	105.659	68.284	47,420
1.7%	10.924	53.624	34.656	24,066	6.7%	21.687	106.456	68.800	47,777
1.8%	11.241	55.178	35.660	24,764	6.8%	21.848	107.248	69.311	48,133
1.9%	11.549	56.690	36.637	25,443	6.9%	22.008	108.033	69.819	48,485
2.0%	11.849	58.163	37.589	26,104	7.0%	22.167	108.813	70.323	48,835
2.1%	12.142	59.599	38.517	26,748	7.1%	22.325	109.588	70.823	49,183
2.2%	12.427	61.002	39.424	27,378	7.2%	22.482	110.357	71.321	49,528
2.3%	12.707	62.373	40.310	27,993	7.3%	22.637	111.121	71.814	49,871
2.4%	12.980	63.715	41.177	28,595	7.4%	22.792	111.879	72.304	50,211
2.5%	13.247	65.028	42.026	29,185	7.5%	22.945	112.632	72.791	50,549
2.6%	13.510	66.316	42.858	29,763	7.6%	23.098	113.381	73.275	50,885
2.7%	13.767	67.579	43.675	30,330	7.7%	23.249	114.124	73.755	51,219
2.8%	14.020	68.820	44.476	30,886	7.8%	23.400	114.863	74.233	51,551
2.9%	14.268	70.038	45.263	31,433	7.9%	23.549	115.597	74.707	51,880
3.0%	14.512	71.235	46.037	31,970	8.0%	23.698	116.326	75.178	52,207
3.1%	14.752	72.413	46.798	32,499	8.1%	23.845	117.051	75.647	52,533
3.2%	14.988	73.571	47.547	33,019	8.2%	23.992	117.771	76.112	52,856
3.3%	15.220	74.712	48.284	33,531	8.3%	24.138	118.487	76.575	53,177
3.4%	15.449	75.835	49.010	34,035	8.4%	24.283	119.199	77.035	53,496
3.5%	15.675	76.943	49.726	34,532	8.5%	24.427	119.906	77.492	53,814
3.6%	15.897	78.034	50.431	35,022	8.6%	24.570	120.610	77.947	54,130
3.7%	16.116	79.110	51.127	35,505	8.7%	24.713	121.309	78.399	54,443
3.8%	16.333	80.172	51.813	35,981	8.8%	24.854	122.004	78.848	54,755
3.9%	16.546	81.220	52.490	36,452	8.9%	24.995	122.695	79.295	55,066
4.0%	16.757	82.255	53.159	36,916	9.0%	25.135	123.383	79.739	55,374
4.1%	16.965	83.277	53.820	37,375	9.1%	25.275	124.066	80.181	55,681
4.2%	17.171	84.286	54.472	37,828	9.2%	25.413	124.746	80.620	55,986
4.3%	17.374	85.284	55.117	38,275	9.3%	25.551	125.422	81.057	56,289
4.4%	17.575	86.270	55.754	38,718	9.4%	25.688	126.095	81.491	56,591
4.5%	17.773	87.245	56.384	39,155	9.5%	25.824	126.764	81.924	56,892
4.6%	17.970	88.209	57.007	39,588	9.6%	25.960	127.429	82.354	57,190
4.7%	18.164	89.162	57.623	40,016	9.7%	26.094	128.091	82.782	57,487
4.8%	18.356	90.106	58.233	40,440	9.8%	26.229	128.750	83.207	57,783
4.9%	18.546	91.040	58.836	40,859	9.9%	26.362	129.405	83.631	58,077
5.0%	18.735	91.964	59.434	41,273	10.0%	26.495	130.057	84.052	58,369

Velocity and Capacity for 36" RC Pipe

N= 0.013

A= 7.069

HR= 0.750

GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)	GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)
0.1%	2.992	21.149	13.668	9,492	5.1%	21.367	151.032	97.608	67,783
0.2%	4.231	29.909	19.329	13,423	5.2%	21.575	152.505	98.560	68,444
0.3%	5.182	36.631	23.673	16,440	5.3%	21.782	153.965	99.503	69,099
0.4%	5.984	42.297	27.336	18,983	5.4%	21.986	155.410	100.437	69,748
0.5%	6.690	47.290	30.562	21,224	5.5%	22.189	156.843	101.363	70,391
0.6%	7.329	51.803	33.479	23,249	5.6%	22.390	158.262	102.280	71,028
0.7%	7.916	55.954	36.162	25,112	5.7%	22.589	159.669	103.190	71,659
0.8%	8.462	59.817	38.658	26,846	5.8%	22.786	161.063	104.091	72,285
0.9%	8.976	63.446	41.003	28,475	5.9%	22.981	162.446	104.984	72,906
1.0%	9.461	66.878	43.221	30,015	6.0%	23.175	163.817	105.870	73,521
1.1%	9.923	70.142	45.331	31,480	6.1%	23.368	165.176	106.749	74,131
1.2%	10.364	73.261	47.347	32,880	6.2%	23.558	166.525	107.620	74,736
1.3%	10.788	76.253	49.280	34,222	6.3%	23.748	167.862	108.485	75,337
1.4%	11.195	79.131	51.140	35,514	6.4%	23.935	169.189	109.342	75,932
1.5%	11.588	81.908	52.935	36,760	6.5%	24.122	170.506	110.193	76,523
1.6%	11.968	84.595	54.671	37,966	6.6%	24.306	171.813	111.038	77,109
1.7%	12.336	87.198	56.354	39,135	6.7%	24.490	173.109	111.876	77,691
1.8%	12.694	89.726	57.988	40,269	6.8%	24.672	174.396	112.707	78,269
1.9%	13.041	92.185	59.576	41,373	6.9%	24.853	175.674	113.533	78,842
2.0%	13.380	94.580	61.124	42,447	7.0%	25.032	176.942	114.353	79,412
2.1%	13.711	96.915	62.634	43,496	7.1%	25.210	178.202	115.167	79,977
2.2%	14.033	99.196	64.108	44,519	7.2%	25.387	179.452	115.975	80,538
2.3%	14.349	101.425	65.548	45,520	7.3%	25.563	180.694	116.778	81,096
2.4%	14.657	103.607	66.958	46,499	7.4%	25.737	181.928	117.575	81,649
2.5%	14.960	105.743	68.339	47,458	7.5%	25.911	183.153	118.366	82,199
2.6%	15.256	107.837	69.692	48,397	7.6%	26.083	184.370	119.153	82,745
2.7%	15.546	109.892	71.020	49,319	7.7%	26.254	185.579	119.934	83,288
2.8%	15.832	111.908	72.323	50,224	7.8%	26.424	186.780	120.711	83,827
2.9%	16.112	113.889	73.603	51,113	7.9%	26.593	187.973	121.482	84,362
3.0%	16.387	115.836	74.862	51,987	8.0%	26.761	189.159	122.248	84,895
3.1%	16.658	117.751	76.099	52,847	8.1%	26.927	190.338	123.010	85,424
3.2%	16.925	119.635	77.317	53,692	8.2%	27.093	191.509	123.767	85,949
3.3%	17.187	121.490	78.515	54,525	8.3%	27.258	192.673	124.519	86,472
3.4%	17.446	123.317	79.696	55,345	8.4%	27.421	193.831	125.267	86,991
3.5%	17.700	125.117	80.860	56,153	8.5%	27.584	194.981	126.011	87,507
3.6%	17.952	126.892	82.007	56,949	8.6%	27.746	196.125	126.750	88,021
3.7%	18.199	128.642	83.138	57,735	8.7%	27.907	197.262	127.485	88,531
3.8%	18.443	130.369	84.254	58,510	8.8%	28.067	198.392	128.215	89,038
3.9%	18.685	132.073	85.355	59,275	8.9%	28.226	199.516	128.942	89,543
4.0%	18.923	133.756	86.443	60,030	9.0%	28.384	200.634	129.664	90,044
4.1%	19.158	135.417	87.517	60,775	9.1%	28.541	201.745	130.382	90,543
4.2%	19.390	137.059	88.577	61,512	9.2%	28.698	202.851	131.097	91,039
4.3%	19.619	138.681	89.626	62,240	9.3%	28.853	203.950	131.807	91,533
4.4%	19.846	140.284	90.662	62,960	9.4%	29.008	205.044	132.514	92,024
4.5%	20.070	141.870	91.686	63,671	9.5%	29.162	206.132	133.217	92,512
4.6%	20.292	143.437	92.699	64,375	9.6%	29.315	207.214	133.916	92,998
4.7%	20.512	144.988	93.702	65,071	9.7%	29.467	208.290	134.612	93,481
4.8%	20.729	146.522	94.693	65,759	9.8%	29.619	209.361	135.304	93,961
4.9%	20.943	148.041	95.674	66,441	9.9%	29.769	210.426	135.993	94,439
5.0%	21.156	149.544	96.646	67,115	10.0%	29.919	211.487	136.678	94,915

Velocity and Capacity for 42" RC Pipe									
N= 0.013			A= 9.621			HR= 0.875			
GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)	GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)
0.1%	3.316	31.901	20.617	14,317	5.1%	23.679	227.820	147.234	102,246
0.2%	4.689	45.115	29.157	20,248	5.2%	23.910	230.043	148.670	103,243
0.3%	5.743	55.255	35.709	24,798	5.3%	24.139	232.245	150.093	104,231
0.4%	6.631	63.802	41.234	28,635	5.4%	24.366	234.425	151.503	105,210
0.5%	7.414	71.333	46.101	32,014	5.5%	24.590	236.586	152.899	106,180
0.6%	8.122	78.142	50.501	35,070	5.6%	24.813	238.727	154.283	107,141
0.7%	8.773	84.403	54.547	37,880	5.7%	25.033	240.849	155.654	108,093
0.8%	9.378	90.230	58.313	40,495	5.8%	25.252	242.953	157.013	109,037
0.9%	9.947	95.704	61.851	42,952	5.9%	25.469	245.038	158.361	109,973
1.0%	10.485	100.881	65.196	45,275	6.0%	25.684	247.106	159.698	110,901
1.1%	10.997	105.804	68.378	47,485	6.1%	25.897	249.157	161.023	111,822
1.2%	11.486	110.509	71.419	49,597	6.2%	26.108	251.191	162.337	112,734
1.3%	11.955	115.022	74.335	51,622	6.3%	26.318	253.208	163.641	113,640
1.4%	12.406	119.364	77.141	53,570	6.4%	26.526	255.210	164.935	114,538
1.5%	12.842	123.553	79.849	55,451	6.5%	26.732	257.196	166.219	115,430
1.6%	13.263	127.605	82.468	57,269	6.6%	26.937	259.167	167.492	116,314
1.7%	13.671	131.532	85.006	59,032	6.7%	27.141	261.123	168.756	117,192
1.8%	14.068	135.346	87.470	60,743	6.8%	27.342	263.064	170.011	118,063
1.9%	14.453	139.054	89.867	62,408	6.9%	27.543	264.992	171.257	118,928
2.0%	14.828	142.667	92.201	64,029	7.0%	27.742	266.905	172.493	119,787
2.1%	15.195	146.190	94.478	65,610	7.1%	27.939	268.805	173.721	120,640
2.2%	15.552	149.630	96.702	67,154	7.2%	28.135	270.691	174.940	121,486
2.3%	15.902	152.993	98.875	68,663	7.3%	28.330	272.564	176.151	122,327
2.4%	16.244	156.284	101.002	70,140	7.4%	28.523	274.425	177.353	123,162
2.5%	16.579	159.506	103.084	71,586	7.5%	28.715	276.273	178.547	123,991
2.6%	16.907	162.665	105.126	73,004	7.6%	28.906	278.109	179.734	124,815
2.7%	17.229	165.764	107.128	74,395	7.7%	29.096	279.932	180.912	125,634
2.8%	17.545	168.806	109.094	75,760	7.8%	29.284	281.744	182.083	126,447
2.9%	17.856	171.793	111.025	77,101	7.9%	29.471	283.544	183.247	127,255
3.0%	18.161	174.730	112.923	78,419	8.0%	29.657	285.333	184.403	128,058
3.1%	18.461	177.619	114.790	79,715	8.1%	29.842	287.111	185.552	128,855
3.2%	18.757	180.461	116.627	80,991	8.2%	30.025	288.878	186.694	129,648
3.3%	19.048	183.259	118.435	82,246	8.3%	30.208	290.634	187.829	130,437
3.4%	19.334	186.015	120.216	83,483	8.4%	30.389	292.380	188.957	131,220
3.5%	19.616	188.730	121.971	84,702	8.5%	30.570	294.115	190.078	131,999
3.6%	19.894	191.407	123.701	85,904	8.6%	30.749	295.840	191.193	132,773
3.7%	20.169	194.048	125.408	87,089	8.7%	30.927	297.555	192.301	133,543
3.8%	20.440	196.652	127.091	88,258	8.8%	31.104	299.260	193.403	134,308
3.9%	20.707	199.223	128.752	89,411	8.9%	31.281	300.956	194.499	135,069
4.0%	20.971	201.761	130.393	90,550	9.0%	31.456	302.642	195.589	135,826
4.1%	21.231	204.268	132.012	91,675	9.1%	31.630	304.318	196.672	136,578
4.2%	21.489	206.744	133.613	92,787	9.2%	31.804	305.986	197.750	137,326
4.3%	21.743	209.190	135.194	93,885	9.3%	31.976	307.644	198.822	138,071
4.4%	21.994	211.609	136.757	94,970	9.4%	32.147	309.294	199.888	138,811
4.5%	22.243	214.000	138.302	96,043	9.5%	32.318	310.935	200.948	139,548
4.6%	22.489	216.365	139.830	97,104	9.6%	32.488	312.567	202.003	140,280
4.7%	22.732	218.704	141.342	98,154	9.7%	32.656	314.191	203.053	141,009
4.8%	22.972	221.018	142.838	99,193	9.8%	32.824	315.806	204.097	141,734
4.9%	23.210	223.309	144.318	100,221	9.9%	32.991	317.413	205.135	142,455
5.0%	23.446	225.576	145.783	101,238	10.0%	33.157	319.012	206.169	143,173

Velocity and Capacity for 48" RC Pipe

N= 0.013

A= 12.566

HR= 1.000

GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)	GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)
0.1%	3.624	45.546	29.435	20,441	5.1%	25.884	325.265	210.210	145,979
0.2%	5.126	64.412	41.628	28,908	5.2%	26.136	328.439	212.261	147,403
0.3%	6.278	78.888	50.983	35,405	5.3%	26.386	331.582	214.292	148,814
0.4%	7.249	91.093	58.871	40,882	5.4%	26.634	334.695	216.304	150,211
0.5%	8.105	101.845	65.819	45,708	5.5%	26.880	337.780	218.298	151,596
0.6%	8.878	111.565	72.101	50,070	5.6%	27.123	340.837	220.273	152,968
0.7%	9.589	120.504	77.878	54,082	5.7%	27.364	343.867	222.231	154,327
0.8%	10.252	128.824	83.256	57,816	5.8%	27.603	346.870	224.172	155,675
0.9%	10.873	136.639	88.306	61,323	5.9%	27.840	349.848	226.097	157,012
1.0%	11.462	144.030	93.083	64,641	6.0%	28.075	352.800	228.005	158,337
1.1%	12.021	151.060	97.626	67,796	6.1%	28.308	355.728	229.897	159,651
1.2%	12.555	157.777	101.967	70,810	6.2%	28.539	358.632	231.774	160,954
1.3%	13.068	164.219	106.130	73,702	6.3%	28.768	361.512	233.635	162,247
1.4%	13.561	170.419	110.137	76,484	6.4%	28.996	364.370	235.482	163,529
1.5%	14.037	176.400	114.002	79,168	6.5%	29.221	367.206	237.315	164,802
1.6%	14.498	182.185	117.741	81,765	6.6%	29.445	370.020	239.133	166,065
1.7%	14.944	187.792	121.365	84,281	6.7%	29.667	372.812	240.938	167,318
1.8%	15.377	193.236	124.883	86,725	6.8%	29.888	375.584	242.730	168,562
1.9%	15.799	198.532	128.305	89,101	6.9%	30.107	378.336	244.508	169,797
2.0%	16.209	203.689	131.639	91,416	7.0%	30.324	381.067	246.273	171,023
2.1%	16.609	208.719	134.889	93,673	7.1%	30.540	383.780	248.026	172,240
2.2%	17.000	213.631	138.064	95,878	7.2%	30.755	386.473	249.767	173,449
2.3%	17.382	218.432	141.167	98,032	7.3%	30.967	389.147	251.495	174,649
2.4%	17.756	223.130	144.203	100,141	7.4%	31.179	391.804	253.212	175,842
2.5%	18.122	227.731	147.176	102,206	7.5%	31.389	394.442	254.917	177,026
2.6%	18.481	232.241	150.091	104,230	7.6%	31.597	397.063	256.611	178,202
2.7%	18.833	236.665	152.950	106,215	7.7%	31.804	399.667	258.294	179,370
2.8%	19.179	241.008	155.757	108,164	7.8%	32.010	402.254	259.965	180,531
2.9%	19.518	245.274	158.514	110,079	7.9%	32.215	404.824	261.626	181,685
3.0%	19.852	249.467	161.224	111,961	8.0%	32.418	407.378	263.277	182,831
3.1%	20.180	253.591	163.889	113,812	8.1%	32.620	409.916	264.917	183,970
3.2%	20.503	257.649	166.511	115,633	8.2%	32.821	412.439	266.548	185,103
3.3%	20.821	261.643	169.093	117,426	8.3%	33.020	414.946	268.168	186,228
3.4%	21.134	265.578	171.636	119,191	8.4%	33.219	417.438	269.779	187,346
3.5%	21.443	269.455	174.141	120,932	8.5%	33.416	419.916	271.380	188,458
3.6%	21.747	273.278	176.612	122,647	8.6%	33.612	422.379	272.972	189,564
3.7%	22.047	277.047	179.048	124,339	8.7%	33.807	424.827	274.554	190,662
3.8%	22.343	280.766	181.451	126,008	8.8%	34.000	427.262	276.127	191,755
3.9%	22.635	284.436	183.823	127,655	8.9%	34.193	429.683	277.692	192,842
4.0%	22.923	288.060	186.165	129,281	9.0%	34.385	432.090	279.248	193,922
4.1%	23.208	291.638	188.478	130,887	9.1%	34.575	434.484	280.795	194,996
4.2%	23.489	295.174	190.762	132,474	9.2%	34.765	436.864	282.333	196,065
4.3%	23.767	298.667	193.020	134,042	9.3%	34.953	439.232	283.864	197,127
4.4%	24.042	302.120	195.252	135,591	9.4%	35.140	441.587	285.386	198,184
4.5%	24.314	305.534	197.458	137,123	9.5%	35.327	443.930	286.900	199,236
4.6%	24.582	308.910	199.640	138,639	9.6%	35.512	446.260	288.406	200,282
4.7%	24.848	312.249	201.798	140,138	9.7%	35.697	448.579	289.904	201,322
4.8%	25.111	315.554	203.934	141,621	9.8%	35.880	450.885	291.394	202,357
4.9%	25.371	318.824	206.047	143,088	9.9%	36.063	453.180	292.877	203,387
5.0%	25.629	322.061	208.139	144,541	10.0%	36.245	455.463	294.353	204,412

Velocity and Capacity for 54" RC Pipe									
N= 0.013		A= 15.904			HR= 1.125				
GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)	GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)
0.1%	3.921	62.353	40.297	27,984	5.1%	27.998	445.292	287.780	199,847
0.2%	5.544	88.181	56.989	39,576	5.2%	28.271	449.636	290.587	201,797
0.3%	6.791	107.999	69.797	48,470	5.3%	28.542	453.939	293.368	203,728
0.4%	7.841	124.707	80.594	55,968	5.4%	28.810	458.201	296.123	205,641
0.5%	8.767	139.426	90.107	62,574	5.5%	29.075	462.425	298.852	207,536
0.6%	9.603	152.734	98.708	68,547	5.6%	29.339	466.609	301.557	209,414
0.7%	10.373	164.971	106.616	74,039	5.7%	29.599	470.757	304.237	211,276
0.8%	11.089	176.362	113.978	79,151	5.8%	29.858	474.869	306.894	213,121
0.9%	11.762	187.060	120.892	83,952	5.9%	30.114	478.945	309.529	214,950
1.0%	12.398	197.178	127.431	88,494	6.0%	30.368	482.987	312.141	216,764
1.1%	13.003	206.803	133.651	92,813	6.1%	30.620	486.995	314.731	218,563
1.2%	13.581	215.998	139.594	96,940	6.2%	30.870	490.970	317.300	220,348
1.3%	14.136	224.818	145.294	100,898	6.3%	31.118	494.914	319.849	222,117
1.4%	14.669	233.305	150.778	104,707	6.4%	31.364	498.826	322.378	223,873
1.5%	15.184	241.493	156.070	108,382	6.5%	31.608	502.708	324.886	225,616
1.6%	15.682	249.413	161.189	111,937	6.6%	31.851	506.561	327.376	227,344
1.7%	16.165	257.089	166.150	115,382	6.7%	32.091	510.384	329.847	229,060
1.8%	16.633	264.543	170.967	118,727	6.8%	32.330	514.179	332.299	230,763
1.9%	17.089	271.792	175.651	121,980	6.9%	32.566	517.945	334.734	232,454
2.0%	17.533	278.852	180.215	125,149	7.0%	32.801	521.685	337.151	234,132
2.1%	17.966	285.739	184.665	128,240	7.1%	33.035	525.398	339.550	235,799
2.2%	18.389	292.463	189.011	131,257	7.2%	33.267	529.085	341.933	237,454
2.3%	18.802	299.036	193.259	134,207	7.3%	33.497	532.747	344.299	239,097
2.4%	19.207	305.468	197.415	137,094	7.4%	33.726	536.383	346.650	240,729
2.5%	19.603	311.767	201.486	139,921	7.5%	33.953	539.995	348.984	242,350
2.6%	19.991	317.941	205.476	142,692	7.6%	34.178	543.584	351.303	243,960
2.7%	20.372	323.997	209.390	145,410	7.7%	34.402	547.148	353.606	245,560
2.8%	20.745	329.943	213.233	148,078	7.8%	34.625	550.690	355.895	247,149
2.9%	21.113	335.783	217.007	150,699	7.9%	34.846	554.208	358.169	248,729
3.0%	21.474	341.523	220.717	153,276	8.0%	35.066	557.705	360.429	250,298
3.1%	21.829	347.169	224.365	155,809	8.1%	35.285	561.180	362.675	251,857
3.2%	22.178	352.724	227.955	158,302	8.2%	35.502	564.633	364.907	253,407
3.3%	22.522	358.192	231.490	160,757	8.3%	35.718	568.066	367.125	254,948
3.4%	22.860	363.579	234.971	163,174	8.4%	35.932	571.478	369.330	256,479
3.5%	23.194	368.887	238.401	165,557	8.5%	36.145	574.869	371.522	258,001
3.6%	23.523	374.120	241.783	167,905	8.6%	36.357	578.241	373.701	259,514
3.7%	23.848	379.280	245.118	170,221	8.7%	36.568	581.593	375.867	261,019
3.8%	24.168	384.372	248.409	172,506	8.8%	36.778	584.926	378.021	262,515
3.9%	24.484	389.396	251.656	174,761	8.9%	36.986	588.240	380.163	264,002
4.0%	24.796	394.357	254.862	176,987	9.0%	37.193	591.535	382.293	265,481
4.1%	25.104	399.256	258.028	179,186	9.1%	37.399	594.813	384.411	266,952
4.2%	25.408	404.096	261.156	181,358	9.2%	37.604	598.072	386.517	268,415
4.3%	25.709	408.878	264.246	183,504	9.3%	37.808	601.314	388.612	269,870
4.4%	26.006	413.605	267.301	185,626	9.4%	38.011	604.538	390.696	271,317
4.5%	26.300	418.279	270.322	187,723	9.5%	38.213	607.745	392.768	272,756
4.6%	26.590	422.901	273.309	189,798	9.6%	38.413	610.935	394.830	274,188
4.7%	26.878	427.473	276.264	191,850	9.7%	38.613	614.109	396.881	275,612
4.8%	27.162	431.996	279.187	193,880	9.8%	38.811	617.266	398.922	277,029
4.9%	27.444	436.473	282.080	195,889	9.9%	39.009	620.408	400.952	278,439
5.0%	27.722	440.904	284.944	197,878	10.0%	39.205	623.533	402.972	279,842

Velocity and Capacity for 60" RC Pipe									
N= 0.013			A= 19.635			HR= 1.250			
GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)	GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)
0.1%	4.206	82.581	53.370	37,062	5.1%	30.035	589.745	381.136	264,678
0.2%	5.948	116.787	75.476	52,414	5.2%	30.329	595.499	384.854	267,260
0.3%	7.285	143.034	92.439	64,194	5.3%	30.619	601.198	388.537	269,818
0.4%	8.412	165.162	106.739	74,125	5.4%	30.906	606.843	392.186	272,351
0.5%	9.404	184.656	119.338	82,874	5.5%	31.191	612.436	395.800	274,861
0.6%	10.302	202.281	130.729	90,784	5.6%	31.473	617.979	399.382	277,349
0.7%	11.128	218.488	141.203	98,058	5.7%	31.753	623.472	402.932	279,814
0.8%	11.896	233.574	150.952	104,828	5.8%	32.030	628.917	406.452	282,258
0.9%	12.617	247.743	160.109	111,187	5.9%	32.305	634.316	409.941	284,681
1.0%	13.300	261.144	168.770	117,201	6.0%	32.578	639.669	413.400	287,083
1.1%	13.949	273.890	177.007	122,922	6.1%	32.848	644.977	416.831	289,466
1.2%	14.569	286.069	184.878	128,388	6.2%	33.117	650.242	420.233	291,829
1.3%	15.164	297.750	192.427	133,630	6.3%	33.383	655.465	423.609	294,173
1.4%	15.737	308.989	199.691	138,674	6.4%	33.646	660.647	426.958	296,498
1.5%	16.289	319.834	206.700	143,542	6.5%	33.908	665.788	430.280	298,806
1.6%	16.823	330.324	213.479	148,249	6.6%	34.168	670.890	433.578	301,096
1.7%	17.341	340.490	220.049	152,812	6.7%	34.426	675.954	436.850	303,368
1.8%	17.844	350.361	226.428	157,242	6.8%	34.682	680.979	440.098	305,624
1.9%	18.333	359.962	232.633	161,551	6.9%	34.936	685.968	443.322	307,863
2.0%	18.809	369.313	238.677	165,748	7.0%	35.188	690.921	446.523	310,085
2.1%	19.273	378.433	244.571	169,841	7.1%	35.439	695.839	449.701	312,292
2.2%	19.727	387.339	250.326	173,838	7.2%	35.687	700.722	452.857	314,484
2.3%	20.170	396.044	255.952	177,745	7.3%	35.934	705.571	455.991	316,660
2.4%	20.604	404.562	261.457	181,567	7.4%	36.180	710.388	459.104	318,822
2.5%	21.029	412.904	266.849	185,311	7.5%	36.423	715.171	462.195	320,969
2.6%	21.446	421.081	272.133	188,981	7.6%	36.665	719.923	465.266	323,102
2.7%	21.854	429.103	277.317	192,581	7.7%	36.906	724.644	468.317	325,220
2.8%	22.255	436.977	282.406	196,115	7.8%	37.145	729.335	471.348	327,325
2.9%	22.649	444.712	287.405	199,587	7.9%	37.382	733.995	474.360	329,417
3.0%	23.036	452.314	292.318	202,999	8.0%	37.618	738.626	477.353	331,495
3.1%	23.417	459.791	297.150	206,354	8.1%	37.852	743.228	480.327	333,561
3.2%	23.792	467.148	301.905	209,656	8.2%	38.085	747.802	483.283	335,613
3.3%	24.161	474.391	306.586	212,907	8.3%	38.317	752.348	486.221	337,654
3.4%	24.524	481.525	311.196	216,108	8.4%	38.547	756.866	489.141	339,682
3.5%	24.882	488.555	315.739	219,264	8.5%	38.776	761.358	492.044	341,697
3.6%	25.235	495.485	320.218	222,374	8.6%	39.003	765.824	494.930	343,702
3.7%	25.583	502.320	324.635	225,441	8.7%	39.229	770.263	497.799	345,694
3.8%	25.926	509.063	328.993	228,467	8.8%	39.454	774.677	500.652	347,675
3.9%	26.265	515.717	333.294	231,454	8.9%	39.678	779.066	503.489	349,645
4.0%	26.600	522.287	337.540	234,403	9.0%	39.900	783.431	506.310	351,604
4.1%	26.930	528.776	341.733	237,314	9.1%	40.121	787.771	509.115	353,552
4.2%	27.257	535.185	345.875	240,191	9.2%	40.341	792.088	511.904	355,489
4.3%	27.579	541.519	349.969	243,034	9.3%	40.559	796.381	514.679	357,416
4.4%	27.898	547.780	354.015	245,843	9.4%	40.777	800.651	517.439	359,332
4.5%	28.213	553.969	358.015	248,621	9.5%	40.993	804.899	520.184	361,239
4.6%	28.525	560.091	361.971	251,369	9.6%	41.208	809.124	522.914	363,135
4.7%	28.834	566.146	365.884	254,086	9.7%	41.422	813.327	525.631	365,021
4.8%	29.139	572.137	369.756	256,775	9.8%	41.635	817.509	528.333	366,898
4.9%	29.441	578.066	373.588	259,436	9.9%	41.847	821.669	531.022	368,765
5.0%	29.740	583.935	377.381	262,070	10.0%	42.058	825.809	533.697	370,623

Velocity and Capacity for 66" RC Pipe									
N= 0.013		A= 23.758			HR= 1.375				
GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)	GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)
0.1%	4.482	106.478	68.814	47,787	5.1%	32.006	760.405	491.429	341,270
0.2%	6.338	150.583	97.317	67,581	5.2%	32.318	767.824	496.223	344,599
0.3%	7.763	184.425	119.189	82,770	5.3%	32.627	775.172	500.972	347,897
0.4%	8.963	212.956	137.628	95,575	5.4%	32.934	782.450	505.676	351,164
0.5%	10.021	238.092	153.872	106,856	5.5%	33.237	789.662	510.337	354,400
0.6%	10.978	260.817	168.559	117,055	5.6%	33.538	796.809	514.955	357,608
0.7%	11.858	281.714	182.064	126,433	5.7%	33.836	803.891	519.533	360,786
0.8%	12.676	301.165	194.635	135,163	5.8%	34.132	810.912	524.070	363,938
0.9%	13.445	319.434	206.441	143,362	5.9%	34.425	817.873	528.569	367,061
1.0%	14.172	336.713	217.608	151,117	6.0%	34.715	824.775	533.029	370,159
1.1%	14.864	353.148	228.229	158,493	6.1%	35.003	831.620	537.453	373,231
1.2%	15.525	368.851	238.378	165,540	6.2%	35.289	838.409	541.840	376,278
1.3%	16.159	383.912	248.112	172,300	6.3%	35.573	845.143	546.192	379,300
1.4%	16.769	398.404	257.478	178,804	6.4%	35.854	851.824	550.510	382,299
1.5%	17.358	412.388	266.515	185,080	6.5%	36.133	858.453	554.794	385,274
1.6%	17.927	425.912	275.255	191,149	6.6%	36.410	865.032	559.046	388,226
1.7%	18.479	439.020	283.726	197,032	6.7%	36.684	871.560	563.265	391,156
1.8%	19.014	451.748	291.952	202,744	6.8%	36.957	878.040	567.453	394,064
1.9%	19.535	464.127	299.952	208,300	6.9%	37.228	884.473	571.610	396,951
2.0%	20.043	476.184	307.745	213,711	7.0%	37.497	890.859	575.737	399,818
2.1%	20.538	487.944	315.344	218,989	7.1%	37.764	897.200	579.835	402,663
2.2%	21.021	499.426	322.765	224,142	7.2%	38.029	903.496	583.904	405,489
2.3%	21.494	510.651	330.019	229,180	7.3%	38.292	909.749	587.945	408,295
2.4%	21.956	521.634	337.117	234,109	7.4%	38.553	915.959	591.958	411,082
2.5%	22.409	532.390	344.069	238,937	7.5%	38.813	922.127	595.945	413,850
2.6%	22.852	542.934	350.883	243,669	7.6%	39.071	928.254	599.904	416,600
2.7%	23.288	553.276	357.567	248,310	7.7%	39.327	934.341	603.838	419,332
2.8%	23.715	563.429	364.128	252,867	7.8%	39.581	940.388	607.747	422,046
2.9%	24.135	573.402	370.573	257,343	7.9%	39.834	946.397	611.630	424,743
3.0%	24.547	583.204	376.909	261,742	8.0%	40.086	952.368	615.489	427,423
3.1%	24.953	592.845	383.139	266,069	8.1%	40.335	958.302	619.324	430,086
3.2%	25.352	602.331	389.269	270,326	8.2%	40.584	964.199	623.135	432,733
3.3%	25.746	611.670	395.305	274,517	8.3%	40.830	970.061	626.923	435,363
3.4%	26.133	620.868	401.250	278,646	8.4%	41.076	975.887	630.689	437,978
3.5%	26.514	629.932	407.108	282,714	8.5%	41.319	981.679	634.432	440,577
3.6%	26.890	638.868	412.883	286,724	8.6%	41.562	987.437	638.153	443,162
3.7%	27.261	647.681	418.578	290,679	8.7%	41.803	993.161	641.852	445,731
3.8%	27.627	656.375	424.197	294,581	8.8%	42.042	998.852	645.530	448,285
3.9%	27.988	664.955	429.742	298,432	8.9%	42.280	1,004.512	649.188	450,825
4.0%	28.345	673.426	435.216	302,234	9.0%	42.517	1,010.139	652.825	453,350
4.1%	28.697	681.792	440.623	305,988	9.1%	42.753	1,015.736	656.441	455,862
4.2%	29.045	690.056	445.964	309,697	9.2%	42.987	1,021.301	660.038	458,360
4.3%	29.389	698.223	451.242	313,363	9.3%	43.220	1,026.837	663.616	460,844
4.4%	29.728	706.295	456.459	316,985	9.4%	43.452	1,032.343	667.174	463,315
4.5%	30.064	714.276	461.617	320,567	9.5%	43.682	1,037.819	670.714	465,773
4.6%	30.397	722.169	466.718	324,109	9.6%	43.912	1,043.267	674.234	468,218
4.7%	30.725	729.977	471.763	327,613	9.7%	44.140	1,048.687	677.737	470,651
4.8%	31.050	737.701	476.756	331,080	9.8%	44.367	1,054.079	681.222	473,070
4.9%	31.372	745.346	481.696	334,511	9.9%	44.593	1,059.443	684.688	475,478
5.0%	31.691	752.913	486.587	337,907	10.0%	44.817	1,064.780	688.138	477,873

Velocity and Capacity for 72" RC Pipe									
N= 0.013		A= 28.274			HR= 1.500				
GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)	GRA %	VEL. FT/SEC	(CFS)	CAPACITY (MGD)	(GPM)
0.1%	4.749	134.286	86.785	60,267	5.1%	33.917	958.991	619.769	430,395
0.2%	6.717	189.909	122.733	85,231	5.2%	34.248	968.347	625.816	434,594
0.3%	8.226	232.589	150.316	104,386	5.3%	34.576	977.614	631.805	438,753
0.4%	9.499	268.571	173.570	120,535	5.4%	34.901	986.794	637.737	442,873
0.5%	10.620	300.272	194.057	134,762	5.5%	35.222	995.889	643.615	446,955
0.6%	11.634	328.931	212.579	147,624	5.6%	35.541	1,004.901	649.440	451,000
0.7%	12.566	355.286	229.612	159,453	5.7%	35.857	1,013.834	655.213	455,009
0.8%	13.433	379.817	245.465	170,462	5.8%	36.170	1,022.689	660.935	458,983
0.9%	14.248	402.857	260.355	180,802	5.9%	36.481	1,031.467	666.608	462,923
1.0%	15.019	424.648	274.438	190,582	6.0%	36.789	1,040.172	672.234	466,829
1.1%	15.752	445.375	287.833	199,884	6.1%	37.094	1,048.804	677.813	470,703
1.2%	16.452	465.179	300.632	208,772	6.2%	37.397	1,057.366	683.346	474,546
1.3%	17.124	484.174	312.908	217,297	6.3%	37.697	1,065.859	688.835	478,358
1.4%	17.771	502.451	324.720	225,500	6.4%	37.995	1,074.285	694.280	482,139
1.5%	18.394	520.086	336.117	233,415	6.5%	38.291	1,082.645	699.683	485,891
1.6%	18.998	537.142	347.140	241,070	6.6%	38.584	1,090.941	705.045	489,615
1.7%	19.582	553.674	357.824	248,489	6.7%	38.875	1,099.175	710.366	493,310
1.8%	20.150	569.726	368.198	255,693	6.8%	39.164	1,107.347	715.648	496,978
1.9%	20.702	585.337	378.287	262,699	6.9%	39.451	1,115.460	720.891	500,618
2.0%	21.240	600.543	388.114	269,524	7.0%	39.736	1,123.514	726.096	504,233
2.1%	21.764	615.374	397.699	276,180	7.1%	40.019	1,131.511	731.264	507,822
2.2%	22.277	629.855	407.058	282,679	7.2%	40.300	1,139.451	736.395	511,386
2.3%	22.777	644.011	416.206	289,032	7.3%	40.579	1,147.337	741.492	514,925
2.4%	23.267	657.862	425.158	295,249	7.4%	40.856	1,155.168	746.553	518,440
2.5%	23.747	671.428	433.925	301,337	7.5%	41.131	1,162.947	751.580	521,931
2.6%	24.217	684.725	442.519	307,305	7.6%	41.404	1,170.675	756.574	525,399
2.7%	24.679	697.768	450.948	313,158	7.7%	41.676	1,178.351	761.536	528,844
2.8%	25.131	710.573	459.223	318,905	7.8%	41.945	1,185.978	766.465	532,267
2.9%	25.576	723.150	467.352	324,550	7.9%	42.213	1,193.557	771.362	535,668
3.0%	26.013	735.513	475.341	330,098	8.0%	42.480	1,201.087	776.229	539,048
3.1%	26.443	747.671	483.199	335,555	8.1%	42.744	1,208.570	781.065	542,406
3.2%	26.867	759.634	490.930	340,924	8.2%	43.007	1,216.008	785.872	545,744
3.3%	27.283	771.412	498.542	346,210	8.3%	43.269	1,223.400	790.649	549,062
3.4%	27.693	783.013	506.039	351,416	8.4%	43.529	1,230.748	795.398	552,360
3.5%	28.098	794.444	513.427	356,547	8.5%	43.787	1,238.052	800.118	555,638
3.6%	28.496	805.714	520.710	361,604	8.6%	44.044	1,245.314	804.811	558,897
3.7%	28.889	816.827	527.893	366,592	8.7%	44.299	1,252.533	809.477	562,137
3.8%	29.277	827.792	534.979	371,513	8.8%	44.553	1,259.711	814.116	565,358
3.9%	29.660	838.613	541.972	376,370	8.9%	44.806	1,266.848	818.728	568,561
4.0%	30.038	849.297	548.877	381,164	9.0%	45.057	1,273.945	823.315	571,747
4.1%	30.411	859.847	555.695	385,900	9.1%	45.306	1,281.003	827.876	574,914
4.2%	30.780	870.270	562.431	390,577	9.2%	45.554	1,288.022	832.413	578,064
4.3%	31.144	880.570	569.087	395,200	9.3%	45.801	1,295.004	836.925	581,198
4.4%	31.504	890.750	575.667	399,769	9.4%	46.047	1,301.947	841.412	584,314
4.5%	31.860	900.815	582.172	404,286	9.5%	46.291	1,308.854	845.876	587,414
4.6%	32.212	910.769	588.605	408,753	9.6%	46.534	1,315.725	850.316	590,497
4.7%	32.560	920.616	594.968	413,172	9.7%	46.776	1,322.560	854.733	593,565
4.8%	32.905	930.358	601.264	417,545	9.8%	47.016	1,329.360	859.128	596,617
4.9%	33.246	939.999	607.495	421,872	9.9%	47.256	1,336.125	863.500	599,653
5.0%	33.583	949.543	613.663	426,155	10.0%	47.494	1,342.856	867.850	602,674

Velocity and Capacity for 78" RC Pipe									
N= 0.013		A= 33.183			HR= 1.625				
GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)	GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)
0.1%	5.010	166.237	107.434	74,607	5.1%	35.776	1,187.172	767.236	532,803
0.2%	7.085	235.095	151.935	105,511	5.2%	36.125	1,198.754	774.721	538,001
0.3%	8.677	287.931	186.082	129,224	5.3%	36.471	1,210.226	782.135	543,149
0.4%	10.019	332.475	214.869	149,215	5.4%	36.814	1,221.590	789.479	548,249
0.5%	11.202	371.718	240.231	166,827	5.5%	37.153	1,232.849	796.756	553,302
0.6%	12.271	407.197	263.160	182,750	5.6%	37.489	1,244.006	803.966	558,310
0.7%	13.254	439.822	284.245	197,392	5.7%	37.822	1,255.064	811.113	563,273
0.8%	14.170	470.190	303.871	211,021	5.8%	38.153	1,266.025	818.197	568,192
0.9%	15.029	498.712	322.303	223,822	5.9%	38.480	1,276.893	825.220	573,069
1.0%	15.842	525.688	339.738	235,929	6.0%	38.805	1,287.668	832.184	577,906
1.1%	16.615	551.347	356.320	247,444	6.1%	39.127	1,298.355	839.090	582,702
1.2%	17.354	575.863	372.164	258,447	6.2%	39.446	1,308.954	845.940	587,458
1.3%	18.063	599.377	387.361	269,000	6.3%	39.763	1,319.467	852.735	592,177
1.4%	18.745	622.003	401.983	279,155	6.4%	40.078	1,329.898	859.476	596,858
1.5%	19.402	643.834	416.092	288,953	6.5%	40.390	1,340.248	866.165	601,503
1.6%	20.039	664.949	429.738	298,429	6.6%	40.699	1,350.518	872.802	606,112
1.7%	20.656	685.414	442.964	307,614	6.7%	41.006	1,360.711	879.389	610,687
1.8%	21.254	705.285	455.806	316,532	6.8%	41.311	1,370.828	885.928	615,227
1.9%	21.837	724.611	468.296	325,206	6.9%	41.614	1,380.871	892.418	619,735
2.0%	22.404	743.436	480.462	333,654	7.0%	41.914	1,390.841	898.862	624,209
2.1%	22.957	761.795	492.327	341,894	7.1%	42.212	1,400.740	905.259	628,652
2.2%	23.498	779.722	503.912	349,939	7.2%	42.509	1,410.570	911.612	633,064
2.3%	24.026	797.246	515.238	357,804	7.3%	42.803	1,420.332	917.921	637,445
2.4%	24.542	814.393	526.319	365,500	7.4%	43.095	1,430.027	924.187	641,796
2.5%	25.049	831.186	537.172	373,036	7.5%	43.385	1,439.657	930.410	646,118
2.6%	25.545	847.647	547.811	380,424	7.6%	43.674	1,449.223	936.592	650,411
2.7%	26.031	863.794	558.246	387,671	7.7%	43.960	1,458.726	942.734	654,676
2.8%	26.509	879.645	568.490	394,785	7.8%	44.244	1,468.168	948.836	658,914
2.9%	26.978	895.215	578.552	401,773	7.9%	44.527	1,477.549	954.899	663,124
3.0%	27.439	910.519	588.443	408,641	8.0%	44.808	1,486.871	960.923	667,308
3.1%	27.893	925.570	598.170	415,396	8.1%	45.087	1,496.136	966.910	671,466
3.2%	28.339	940.380	607.741	422,043	8.2%	45.365	1,505.343	972.861	675,598
3.3%	28.779	954.960	617.164	428,586	8.3%	45.641	1,514.494	978.775	679,705
3.4%	29.211	969.322	626.445	435,032	8.4%	45.915	1,523.590	984.653	683,787
3.5%	29.638	983.473	635.591	441,383	8.5%	46.187	1,532.632	990.497	687,845
3.6%	30.058	997.424	644.607	447,644	8.6%	46.458	1,541.621	996.307	691,880
3.7%	30.473	1,011.182	653.499	453,818	8.7%	46.727	1,550.558	1,002.082	695,890
3.8%	30.882	1,024.755	662.271	459,910	8.8%	46.995	1,559.444	1,007.825	699,878
3.9%	31.286	1,038.151	670.928	465,922	8.9%	47.261	1,568.279	1,013.535	703,844
4.0%	31.684	1,051.377	679.475	471,858	9.0%	47.526	1,577.065	1,019.213	707,787
4.1%	32.078	1,064.438	687.916	477,720	9.1%	47.790	1,585.803	1,024.860	711,708
4.2%	32.467	1,077.341	696.255	483,511	9.2%	48.051	1,594.492	1,030.476	715,608
4.3%	32.851	1,090.091	704.495	489,233	9.3%	48.312	1,603.134	1,036.061	719,487
4.4%	33.231	1,102.693	712.640	494,889	9.4%	48.571	1,611.730	1,041.616	723,345
4.5%	33.606	1,115.154	720.693	500,481	9.5%	48.829	1,620.281	1,047.142	727,182
4.6%	33.977	1,127.476	728.656	506,011	9.6%	49.085	1,628.786	1,052.639	730,999
4.7%	34.345	1,139.665	736.534	511,482	9.7%	49.340	1,637.247	1,058.107	734,797
4.8%	34.708	1,151.726	744.328	516,894	9.8%	49.594	1,645.665	1,063.547	738,574
4.9%	35.068	1,163.661	752.041	522,251	9.9%	49.846	1,654.040	1,068.960	742,333
5.0%	35.424	1,175.475	759.677	527,553	10.0%	50.097	1,662.373	1,074.345	746,073

Velocity and Capacity for 84" RC Pipe

N= 0.013

A= 38.485

HR= 1.750

GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)	GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)
0.1%	5.263	202.560	130.909	90,909	5.1%	37.588	1,446.570	934.877	649,220
0.2%	7.444	286.463	185.133	128,565	5.2%	37.955	1,460.683	943.998	655,554
0.3%	9.117	350.845	226.741	157,459	5.3%	38.318	1,474.661	953.032	661,828
0.4%	10.527	405.121	261.818	181,818	5.4%	38.678	1,488.508	961.981	668,042
0.5%	11.769	452.939	292.721	203,279	5.5%	39.035	1,502.227	970.847	674,200
0.6%	12.893	496.169	320.660	222,681	5.6%	39.388	1,515.822	979.633	680,301
0.7%	13.926	535.924	346.353	240,523	5.7%	39.738	1,529.296	988.341	686,348
0.8%	14.887	572.927	370.267	257,130	5.8%	40.085	1,542.653	996.973	692,343
0.9%	15.790	607.681	392.727	272,727	5.9%	40.429	1,555.895	1,005.531	698,286
1.0%	16.644	640.552	413.971	287,480	6.0%	40.770	1,569.025	1,014.017	704,178
1.1%	17.457	671.816	434.176	301,511	6.1%	41.109	1,582.046	1,022.432	710,022
1.2%	18.233	701.689	453.482	314,918	6.2%	41.444	1,594.961	1,030.779	715,819
1.3%	18.978	730.341	471.999	327,777	6.3%	41.777	1,607.772	1,039.058	721,568
1.4%	19.694	757.911	489.817	340,150	6.4%	42.107	1,620.482	1,047.272	727,272
1.5%	20.385	784.513	507.008	352,089	6.5%	42.435	1,633.093	1,055.422	732,932
1.6%	21.054	810.241	523.636	363,636	6.6%	42.760	1,645.607	1,063.510	738,549
1.7%	21.702	835.177	539.752	374,828	6.7%	43.083	1,658.027	1,071.537	744,123
1.8%	22.331	859.390	555.400	385,694	6.8%	43.403	1,670.355	1,079.503	749,655
1.9%	22.943	882.940	570.619	396,263	6.9%	43.721	1,682.592	1,087.412	755,147
2.0%	23.539	905.877	585.443	406,558	7.0%	44.037	1,694.741	1,095.263	760,600
2.1%	24.120	928.248	599.901	416,598	7.1%	44.350	1,706.803	1,103.059	766,013
2.2%	24.688	950.092	614.018	426,401	7.2%	44.662	1,718.781	1,110.800	771,389
2.3%	25.242	971.445	627.818	435,984	7.3%	44.971	1,730.676	1,118.487	776,727
2.4%	25.785	992.339	641.321	445,362	7.4%	45.278	1,742.489	1,126.122	782,029
2.5%	26.317	1,012.801	654.545	454,545	7.5%	45.583	1,754.223	1,133.705	787,295
2.6%	26.838	1,032.859	667.508	463,547	7.6%	45.885	1,765.879	1,141.238	792,527
2.7%	27.350	1,052.534	680.223	472,377	7.7%	46.186	1,777.459	1,148.722	797,724
2.8%	27.851	1,071.848	692.705	481,045	7.8%	46.485	1,788.964	1,156.157	802,887
2.9%	28.344	1,090.820	704.967	489,560	7.9%	46.782	1,800.395	1,163.545	808,017
3.0%	28.829	1,109.468	717.018	497,929	8.0%	47.077	1,811.754	1,170.886	813,115
3.1%	29.305	1,127.808	728.871	506,160	8.1%	47.371	1,823.042	1,178.181	818,181
3.2%	29.774	1,145.854	740.533	514,259	8.2%	47.662	1,834.261	1,185.432	823,216
3.3%	30.236	1,163.620	752.015	522,233	8.3%	47.952	1,845.412	1,192.638	828,221
3.4%	30.691	1,181.119	763.324	530,086	8.4%	48.240	1,856.495	1,199.801	833,195
3.5%	31.139	1,198.363	774.468	537,825	8.5%	48.526	1,867.513	1,206.922	838,140
3.6%	31.581	1,215.362	785.454	545,454	8.6%	48.811	1,878.467	1,214.000	843,056
3.7%	32.016	1,232.126	796.289	552,978	8.7%	49.094	1,889.356	1,221.038	847,943
3.8%	32.446	1,248.665	806.977	560,401	8.8%	49.375	1,900.184	1,228.035	852,802
3.9%	32.870	1,264.988	817.527	567,727	8.9%	49.655	1,910.950	1,234.993	857,634
4.0%	33.289	1,281.104	827.941	574,959	9.0%	49.933	1,921.655	1,241.912	862,439
4.1%	33.702	1,297.019	838.227	582,102	9.1%	50.210	1,932.302	1,248.792	867,217
4.2%	34.111	1,312.741	848.387	589,158	9.2%	50.485	1,942.890	1,255.635	871,969
4.3%	34.515	1,328.276	858.428	596,130	9.3%	50.759	1,953.420	1,262.441	876,695
4.4%	34.914	1,343.633	868.352	603,022	9.4%	51.031	1,963.895	1,269.210	881,396
4.5%	35.308	1,358.816	878.164	609,836	9.5%	51.302	1,974.313	1,275.943	886,072
4.6%	35.698	1,373.831	887.868	616,575	9.6%	51.571	1,984.677	1,282.641	890,723
4.7%	36.084	1,388.683	897.467	623,241	9.7%	51.839	1,994.987	1,289.304	895,350
4.8%	36.466	1,403.379	906.964	629,836	9.8%	52.105	2,005.244	1,295.933	899,954
4.9%	36.844	1,417.922	916.363	636,363	9.9%	52.370	2,015.449	1,302.528	904,534
5.0%	37.218	1,432.317	925.667	642,824	10.0%	52.634	2,025.603	1,309.090	909,090

Velocity and Capacity for 90" RC Pipe									
N= 0.013		A= 44.179			HR= 1.875				
GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)	GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)
0.1%	5.511	243.476	157.352	109,272	5.1%	39.358	1,738.766	1,123.716	780,358
0.2%	7.794	344.327	222.529	154,534	5.2%	39.742	1,755.730	1,134.679	787,972
0.3%	9.546	421.713	272.541	189,265	5.3%	40.122	1,772.532	1,145.538	795,512
0.4%	11.022	486.952	314.703	218,544	5.4%	40.499	1,789.176	1,156.294	802,982
0.5%	12.323	544.429	351.849	244,340	5.5%	40.872	1,805.666	1,166.952	810,383
0.6%	13.500	596.392	385.431	267,661	5.6%	41.242	1,822.008	1,177.513	817,717
0.7%	14.581	644.177	416.314	289,107	5.7%	41.608	1,838.204	1,187.979	824,986
0.8%	15.588	688.654	445.058	309,068	5.8%	41.972	1,854.258	1,198.355	832,191
0.9%	16.534	730.428	472.055	327,816	5.9%	42.332	1,870.175	1,208.642	839,334
1.0%	17.428	769.939	497.590	345,549	6.0%	42.689	1,885.957	1,218.841	846,418
1.1%	18.278	807.519	521.877	362,414	6.1%	43.044	1,901.608	1,228.956	853,442
1.2%	19.091	843.426	545.082	378,529	6.2%	43.395	1,917.132	1,238.989	860,409
1.3%	19.871	877.865	567.340	393,986	6.3%	43.744	1,932.531	1,248.941	867,320
1.4%	20.621	911.004	588.756	408,859	6.4%	44.089	1,947.808	1,258.814	874,176
1.5%	21.345	942.979	609.421	423,209	6.5%	44.432	1,962.966	1,268.610	880,979
1.6%	22.045	973.904	629.407	437,088	6.6%	44.773	1,978.008	1,278.331	887,730
1.7%	22.723	1,003.877	648.778	450,540	6.7%	45.111	1,992.937	1,287.979	894,430
1.8%	23.382	1,032.981	667.587	463,602	6.8%	45.446	2,007.755	1,297.556	901,080
1.9%	24.023	1,061.287	685.880	476,306	6.9%	45.779	2,022.464	1,307.062	907,682
2.0%	24.647	1,088.858	703.698	488,679	7.0%	46.110	2,037.066	1,316.499	914,235
2.1%	25.255	1,115.747	721.076	500,747	7.1%	46.438	2,051.565	1,325.869	920,743
2.2%	25.850	1,142.004	738.045	512,531	7.2%	46.764	2,065.962	1,335.174	927,204
2.3%	26.431	1,167.670	754.632	524,050	7.3%	47.087	2,080.260	1,344.414	933,621
2.4%	26.999	1,192.784	770.863	535,321	7.4%	47.409	2,094.460	1,353.591	939,994
2.5%	27.556	1,217.380	786.759	546,360	7.5%	47.728	2,108.564	1,362.706	946,324
2.6%	28.102	1,241.489	802.340	557,180	7.6%	48.045	2,122.575	1,371.761	952,611
2.7%	28.637	1,265.138	817.624	567,794	7.7%	48.360	2,136.493	1,380.756	958,858
2.8%	29.162	1,288.354	832.627	578,213	7.8%	48.673	2,150.322	1,389.693	965,064
2.9%	29.679	1,311.158	847.365	588,448	7.9%	48.984	2,164.062	1,398.573	971,231
3.0%	30.186	1,333.573	861.851	598,508	8.0%	49.293	2,177.716	1,407.397	977,359
3.1%	30.685	1,355.617	876.097	608,401	8.1%	49.601	2,191.284	1,416.166	983,448
3.2%	31.176	1,377.308	890.116	618,136	8.2%	49.906	2,204.769	1,424.880	989,500
3.3%	31.659	1,398.663	903.917	627,720	8.3%	50.209	2,218.172	1,433.542	995,516
3.4%	32.135	1,419.697	917.510	637,160	8.4%	50.511	2,231.494	1,442.152	1,001,495
3.5%	32.605	1,440.423	930.905	646,462	8.5%	50.810	2,244.738	1,450.711	1,007,438
3.6%	33.067	1,460.856	944.110	655,632	8.6%	51.108	2,257.904	1,459.220	1,013,347
3.7%	33.523	1,481.007	957.133	664,676	8.7%	51.405	2,270.993	1,467.679	1,019,222
3.8%	33.973	1,500.887	969.981	673,598	8.8%	51.699	2,284.007	1,476.090	1,025,063
3.9%	34.417	1,520.507	982.661	682,404	8.9%	51.992	2,296.948	1,484.453	1,030,870
4.0%	34.856	1,539.877	995.180	691,097	9.0%	52.284	2,309.816	1,492.770	1,036,646
4.1%	35.289	1,559.007	1,007.543	699,682	9.1%	52.573	2,322.613	1,501.040	1,042,389
4.2%	35.716	1,577.905	1,019.756	708,164	9.2%	52.861	2,335.340	1,509.265	1,048,101
4.3%	36.139	1,596.579	1,031.824	716,545	9.3%	53.148	2,347.998	1,517.445	1,053,781
4.4%	36.557	1,615.037	1,043.753	724,829	9.4%	53.433	2,360.587	1,525.582	1,059,432
4.5%	36.970	1,633.287	1,055.547	733,019	9.5%	53.716	2,373.111	1,533.675	1,065,052
4.6%	37.379	1,651.335	1,067.211	741,119	9.6%	53.998	2,385.568	1,541.726	1,070,643
4.7%	37.783	1,669.187	1,078.749	749,131	9.7%	54.279	2,397.961	1,549.735	1,076,205
4.8%	38.183	1,686.851	1,090.165	757,059	9.8%	54.558	2,410.290	1,557.703	1,081,738
4.9%	38.578	1,704.332	1,101.462	764,904	9.9%	54.835	2,422.556	1,565.630	1,087,243
5.0%	38.970	1,721.635	1,112.645	772,670	10.0%	55.112	2,434.760	1,573.517	1,092,720

Velocity and Capacity for 96" RC Pipe

N= 0.013

A= 50.265

HR= 2.000

GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)	GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)
0.1%	5.753	289.201	186.902	129,793	5.1%	41.088	2,065.307	1,334.750	926,910
0.2%	8.137	408.992	264.320	183,555	5.2%	41.489	2,085.456	1,347.772	935,953
0.3%	9.965	500.910	323.724	224,809	5.3%	41.886	2,105.413	1,360.670	944,910
0.4%	11.507	578.402	373.805	259,587	5.4%	42.279	2,125.183	1,373.446	953,782
0.5%	12.865	646.673	417.926	290,227	5.5%	42.669	2,144.770	1,386.105	962,573
0.6%	14.093	708.394	457.815	317,927	5.6%	43.055	2,164.180	1,398.649	971,284
0.7%	15.222	765.153	494.497	343,401	5.7%	43.438	2,183.418	1,411.082	979,918
0.8%	16.273	817.983	528.640	367,111	5.8%	43.817	2,202.487	1,423.406	988,476
0.9%	17.260	867.602	560.707	389,380	5.9%	44.193	2,221.393	1,435.624	996,961
1.0%	18.194	914.533	591.037	410,442	6.0%	44.566	2,240.139	1,447.739	1,005,375
1.1%	19.082	959.170	619.885	430,476	6.1%	44.936	2,258.730	1,459.754	1,013,718
1.2%	19.931	1,001.821	647.449	449,617	6.2%	45.303	2,277.169	1,471.671	1,021,993
1.3%	20.744	1,042.728	673.886	467,976	6.3%	45.667	2,295.460	1,483.491	1,030,202
1.4%	21.527	1,082.090	699.325	485,642	6.4%	46.028	2,313.606	1,495.219	1,038,346
1.5%	22.283	1,120.070	723.870	502,687	6.5%	46.386	2,331.611	1,506.855	1,046,427
1.6%	23.014	1,156.803	747.609	519,173	6.6%	46.741	2,349.478	1,518.402	1,054,446
1.7%	23.722	1,192.405	770.618	535,151	6.7%	47.094	2,367.210	1,529.862	1,062,404
1.8%	24.410	1,226.975	792.960	550,666	6.8%	47.444	2,384.811	1,541.236	1,070,303
1.9%	25.079	1,260.597	814.688	565,756	6.9%	47.792	2,402.282	1,552.528	1,078,144
2.0%	25.730	1,293.345	835.853	580,453	7.0%	48.137	2,419.627	1,563.737	1,085,929
2.1%	26.366	1,325.284	856.494	594,788	7.1%	48.480	2,436.849	1,574.867	1,093,658
2.2%	26.986	1,356.472	876.650	608,785	7.2%	48.820	2,453.950	1,585.919	1,101,333
2.3%	27.593	1,386.958	896.352	622,467	7.3%	49.158	2,470.932	1,596.894	1,108,954
2.4%	28.186	1,416.789	915.631	635,855	7.4%	49.493	2,487.799	1,607.795	1,116,524
2.5%	28.767	1,446.004	934.512	648,967	7.5%	49.826	2,504.552	1,618.622	1,124,043
2.6%	29.337	1,474.640	953.019	661,819	7.6%	50.158	2,521.194	1,629.377	1,131,512
2.7%	29.896	1,502.731	971.173	674,426	7.7%	50.486	2,537.726	1,640.062	1,138,932
2.8%	30.444	1,530.307	988.994	686,802	7.8%	50.813	2,554.152	1,650.677	1,146,303
2.9%	30.983	1,557.394	1,006.500	698,958	7.9%	51.138	2,570.473	1,661.224	1,153,628
3.0%	31.513	1,584.018	1,023.706	710,907	8.0%	51.461	2,586.690	1,671.705	1,160,907
3.1%	32.034	1,610.202	1,040.628	722,659	8.1%	51.781	2,602.807	1,682.121	1,168,140
3.2%	32.547	1,635.967	1,057.279	734,222	8.2%	52.100	2,618.824	1,692.473	1,175,328
3.3%	33.051	1,661.332	1,073.672	745,606	8.3%	52.417	2,634.744	1,702.761	1,182,473
3.4%	33.548	1,686.316	1,089.819	756,819	8.4%	52.731	2,650.569	1,712.988	1,189,575
3.5%	34.038	1,710.935	1,105.729	767,868	8.5%	53.044	2,666.299	1,723.155	1,196,635
3.6%	34.521	1,735.205	1,121.414	778,760	8.6%	53.355	2,681.938	1,733.261	1,203,654
3.7%	34.997	1,759.140	1,136.883	789,502	8.7%	53.665	2,697.485	1,743.309	1,210,631
3.8%	35.467	1,782.753	1,152.143	800,100	8.8%	53.972	2,712.944	1,753.300	1,217,569
3.9%	35.930	1,806.058	1,167.205	810,559	8.9%	54.278	2,728.315	1,763.233	1,224,468
4.0%	36.388	1,829.066	1,182.074	820,885	9.0%	54.582	2,743.599	1,773.111	1,231,327
4.1%	36.840	1,851.788	1,196.759	831,083	9.1%	54.885	2,758.799	1,782.935	1,238,149
4.2%	37.287	1,874.235	1,211.266	841,157	9.2%	55.185	2,773.916	1,792.704	1,244,934
4.3%	37.728	1,896.416	1,225.601	851,112	9.3%	55.484	2,788.951	1,802.421	1,251,681
4.4%	38.164	1,918.341	1,239.770	860,951	9.4%	55.782	2,803.905	1,812.086	1,258,393
4.5%	38.595	1,940.018	1,253.779	870,680	9.5%	56.078	2,818.780	1,821.699	1,265,069
4.6%	39.022	1,961.455	1,267.633	880,301	9.6%	56.372	2,833.577	1,831.262	1,271,709
4.7%	39.444	1,982.661	1,281.338	889,818	9.7%	56.665	2,848.297	1,840.775	1,278,316
4.8%	39.861	2,003.642	1,294.898	899,234	9.8%	56.956	2,862.941	1,850.239	1,284,888
4.9%	40.274	2,024.405	1,308.316	908,553	9.9%	57.246	2,877.511	1,859.655	1,291,427
5.0%	40.683	2,044.958	1,321.599	917,777	10.0%	57.535	2,892.008	1,869.024	1,297,933

Velocity and Capacity for 102" RC Pipe									
N= 0.013		A= 56.745			HR= 2.125				
GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)	GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)
0.1%	5.991	339.946	219.698	152,568	5.1%	42.783	2,427.700	1,568.955	1,089,552
0.2%	8.472	480.756	310.699	215,763	5.2%	43.200	2,451.385	1,584.262	1,100,182
0.3%	10.376	588.804	380.527	264,255	5.3%	43.613	2,474.844	1,599.423	1,110,710
0.4%	11.982	679.892	439.395	305,136	5.4%	44.023	2,498.083	1,614.441	1,121,140
0.5%	13.396	760.142	491.259	341,152	5.5%	44.429	2,521.107	1,629.321	1,131,473
0.6%	14.674	832.694	538.147	373,713	5.6%	44.831	2,543.923	1,644.066	1,141,713
0.7%	15.850	899.413	581.265	403,656	5.7%	45.229	2,566.536	1,658.680	1,151,861
0.8%	16.944	961.512	621.399	431,527	5.8%	45.624	2,588.952	1,673.167	1,161,921
0.9%	17.972	1,019.838	659.093	457,703	5.9%	46.016	2,611.175	1,687.529	1,171,895
1.0%	18.944	1,075.004	694.745	482,462	6.0%	46.404	2,633.210	1,701.770	1,181,785
1.1%	19.869	1,127.473	728.654	506,010	6.1%	46.789	2,655.063	1,715.893	1,191,592
1.2%	20.753	1,177.607	761.055	528,510	6.2%	47.171	2,676.737	1,729.900	1,201,320
1.3%	21.600	1,225.693	792.131	550,091	6.3%	47.550	2,698.238	1,743.796	1,210,969
1.4%	22.415	1,271.961	822.033	570,856	6.4%	47.926	2,719.568	1,757.581	1,220,542
1.5%	23.202	1,316.605	850.885	590,892	6.5%	48.299	2,740.732	1,771.259	1,230,041
1.6%	23.963	1,359.784	878.790	610,271	6.6%	48.669	2,761.734	1,784.832	1,239,466
1.7%	24.701	1,401.633	905.836	629,053	6.7%	49.037	2,782.578	1,798.302	1,248,821
1.8%	25.417	1,442.269	932.098	647,290	6.8%	49.401	2,803.267	1,811.673	1,258,106
1.9%	26.113	1,481.790	957.640	665,027	6.9%	49.763	2,823.804	1,824.945	1,267,323
2.0%	26.792	1,520.285	982.517	682,304	7.0%	50.122	2,844.192	1,838.122	1,276,474
2.1%	27.453	1,557.828	1,006.781	699,153	7.1%	50.479	2,864.436	1,851.205	1,285,559
2.2%	28.099	1,594.488	1,030.473	715,606	7.2%	50.833	2,884.537	1,864.196	1,294,580
2.3%	28.731	1,630.324	1,053.633	731,689	7.3%	51.185	2,904.500	1,877.097	1,303,540
2.4%	29.349	1,665.388	1,076.294	747,426	7.4%	51.534	2,924.326	1,889.910	1,312,438
2.5%	29.954	1,699.730	1,098.488	762,839	7.5%	51.882	2,944.019	1,902.637	1,321,276
2.6%	30.547	1,733.391	1,120.242	777,946	7.6%	52.226	2,963.581	1,915.279	1,330,055
2.7%	31.129	1,766.411	1,141.582	792,765	7.7%	52.569	2,983.014	1,927.838	1,338,777
2.8%	31.700	1,798.825	1,162.530	807,313	7.8%	52.909	3,002.322	1,940.317	1,347,442
2.9%	32.261	1,830.665	1,183.108	821,603	7.9%	53.247	3,021.506	1,952.715	1,356,052
3.0%	32.813	1,861.961	1,203.333	835,648	8.0%	53.583	3,040.569	1,965.035	1,364,608
3.1%	33.355	1,892.739	1,223.224	849,461	8.1%	53.917	3,059.514	1,977.278	1,373,110
3.2%	33.889	1,923.025	1,242.797	863,054	8.2%	54.249	3,078.342	1,989.446	1,381,560
3.3%	34.414	1,952.841	1,262.067	876,435	8.3%	54.578	3,097.055	2,001.540	1,389,958
3.4%	34.932	1,982.209	1,281.046	889,615	8.4%	54.906	3,115.657	2,013.562	1,398,307
3.5%	35.442	2,011.148	1,299.748	902,603	8.5%	55.232	3,134.147	2,025.512	1,406,605
3.6%	35.945	2,039.676	1,318.185	915,407	8.6%	55.556	3,152.530	2,037.392	1,414,855
3.7%	36.440	2,067.811	1,336.368	928,033	8.7%	55.878	3,170.805	2,049.203	1,423,057
3.8%	36.930	2,095.568	1,354.307	940,491	8.8%	56.198	3,188.976	2,060.946	1,431,213
3.9%	37.412	2,122.962	1,372.011	952,785	8.9%	56.517	3,207.044	2,072.623	1,439,321
4.0%	37.889	2,150.007	1,389.490	964,923	9.0%	56.833	3,225.011	2,084.234	1,447,385
4.1%	38.360	2,176.716	1,406.751	976,910	9.1%	57.148	3,242.878	2,095.781	1,455,404
4.2%	38.825	2,203.102	1,423.803	988,752	9.2%	57.461	3,260.648	2,107.265	1,463,379
4.3%	39.284	2,229.175	1,440.653	1,000,454	9.3%	57.773	3,278.321	2,118.687	1,471,310
4.4%	39.738	2,254.947	1,457.309	1,012,020	9.4%	58.083	3,295.899	2,130.047	1,479,199
4.5%	40.187	2,280.427	1,473.776	1,023,456	9.5%	58.391	3,313.384	2,141.347	1,487,047
4.6%	40.631	2,305.626	1,490.062	1,034,765	9.6%	58.697	3,330.777	2,152.588	1,494,853
4.7%	41.071	2,330.552	1,506.171	1,045,952	9.7%	59.002	3,348.080	2,163.770	1,502,618
4.8%	41.505	2,355.215	1,522.110	1,057,020	9.8%	59.306	3,365.294	2,174.895	1,510,344
4.9%	41.935	2,379.622	1,537.883	1,067,974	9.9%	59.607	3,382.420	2,185.963	1,518,030
5.0%	42.361	2,403.781	1,553.497	1,078,817	10.0%	59.908	3,399.460	2,196.976	1,525,678

Velocity and Capacity for 108" RC Pipe

N= 0.013

A= 63.617

HR= 2.250

GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)	GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)
0.1%	6.223	395.919	255.871	177,688	5.1%	44.444	2,827.426	1,827.286	1,268,949
0.2%	8.801	559.914	361.857	251,289	5.2%	44.878	2,855.011	1,845.114	1,281,329
0.3%	10.779	685.752	443.182	307,765	5.3%	45.307	2,882.333	1,862.771	1,293,591
0.4%	12.447	791.838	511.743	355,377	5.4%	45.733	2,909.397	1,880.262	1,305,738
0.5%	13.916	885.301	572.146	397,323	5.5%	46.154	2,936.213	1,897.592	1,317,772
0.6%	15.244	969.799	626.754	435,246	5.6%	46.572	2,962.785	1,914.765	1,329,698
0.7%	16.466	1,047.503	676.972	470,119	5.7%	46.986	2,989.122	1,931.786	1,341,518
0.8%	17.603	1,119.828	723.713	502,579	5.8%	47.396	3,015.228	1,948.657	1,353,234
0.9%	18.670	1,187.757	767.614	533,065	5.9%	47.803	3,041.110	1,965.384	1,364,850
1.0%	19.680	1,252.005	809.136	561,900	6.0%	48.207	3,066.774	1,981.970	1,376,368
1.1%	20.641	1,313.114	848.629	589,326	6.1%	48.607	3,092.225	1,998.418	1,387,791
1.2%	21.559	1,371.503	886.364	615,531	6.2%	49.004	3,117.468	2,014.732	1,399,120
1.3%	22.439	1,427.506	922.557	640,665	6.3%	49.397	3,142.508	2,030.915	1,410,358
1.4%	23.286	1,481.393	957.383	664,849	6.4%	49.788	3,167.351	2,046.970	1,421,507
1.5%	24.103	1,533.387	990.985	688,184	6.5%	50.175	3,192.000	2,062.900	1,432,569
1.6%	24.894	1,583.675	1,023.485	710,753	6.6%	50.560	3,216.460	2,078.708	1,443,547
1.7%	25.660	1,632.415	1,054.984	732,628	6.7%	50.941	3,240.735	2,094.397	1,454,442
1.8%	26.404	1,679.741	1,085.570	753,868	6.8%	51.320	3,264.830	2,109.968	1,465,256
1.9%	27.127	1,725.770	1,115.317	774,526	6.9%	51.696	3,288.749	2,125.426	1,475,990
2.0%	27.832	1,770.603	1,144.291	794,647	7.0%	52.069	3,312.495	2,140.773	1,486,648
2.1%	28.519	1,814.328	1,172.549	814,270	7.1%	52.440	3,336.071	2,156.010	1,497,229
2.2%	29.191	1,857.024	1,200.143	833,432	7.2%	52.808	3,359.483	2,171.140	1,507,736
2.3%	29.847	1,898.760	1,227.115	852,163	7.3%	53.173	3,382.732	2,186.165	1,518,170
2.4%	30.489	1,939.598	1,253.508	870,492	7.4%	53.536	3,405.823	2,201.088	1,528,533
2.5%	31.117	1,979.594	1,279.356	888,442	7.5%	53.897	3,428.758	2,215.910	1,538,826
2.6%	31.733	2,018.798	1,304.693	906,036	7.6%	54.255	3,451.540	2,230.634	1,549,051
2.7%	32.338	2,057.255	1,329.546	923,296	7.7%	54.611	3,474.174	2,245.261	1,559,209
2.8%	32.931	2,095.006	1,353.943	940,238	7.8%	54.964	3,496.660	2,259.794	1,569,301
2.9%	33.514	2,132.088	1,377.909	956,881	7.9%	55.315	3,519.004	2,274.233	1,579,329
3.0%	34.087	2,168.537	1,401.465	973,239	8.0%	55.664	3,541.206	2,288.582	1,589,293
3.1%	34.651	2,204.383	1,424.631	989,327	8.1%	56.011	3,563.270	2,302.841	1,599,195
3.2%	35.205	2,239.655	1,447.426	1,005,157	8.2%	56.356	3,585.198	2,317.013	1,609,037
3.3%	35.751	2,274.381	1,469.868	1,020,742	8.3%	56.698	3,606.992	2,331.098	1,618,818
3.4%	36.289	2,308.584	1,491.973	1,036,092	8.4%	57.039	3,628.656	2,345.099	1,628,541
3.5%	36.818	2,342.287	1,513.755	1,051,219	8.5%	57.377	3,650.191	2,359.016	1,638,206
3.6%	37.341	2,375.513	1,535.228	1,066,130	8.6%	57.714	3,671.600	2,372.852	1,647,814
3.7%	37.856	2,408.280	1,556.404	1,080,836	8.7%	58.048	3,692.885	2,386.608	1,657,367
3.8%	38.364	2,440.608	1,577.296	1,095,345	8.8%	58.381	3,714.048	2,400.285	1,666,865
3.9%	38.865	2,472.512	1,597.915	1,109,664	8.9%	58.712	3,735.091	2,413.885	1,676,309
4.0%	39.361	2,504.011	1,618.272	1,123,800	9.0%	59.041	3,756.016	2,427.408	1,685,700
4.1%	39.850	2,535.117	1,638.375	1,137,761	9.1%	59.368	3,776.825	2,440.856	1,695,039
4.2%	40.333	2,565.847	1,658.235	1,151,552	9.2%	59.693	3,797.520	2,454.231	1,704,327
4.3%	40.810	2,596.213	1,677.860	1,165,181	9.3%	60.017	3,818.103	2,467.533	1,713,565
4.4%	41.282	2,626.228	1,697.258	1,178,651	9.4%	60.339	3,838.576	2,480.764	1,722,753
4.5%	41.748	2,655.904	1,716.437	1,191,970	9.5%	60.659	3,858.939	2,493.925	1,731,892
4.6%	42.209	2,685.252	1,735.403	1,205,141	9.6%	60.977	3,879.196	2,507.016	1,740,983
4.7%	42.666	2,714.283	1,754.165	1,218,170	9.7%	61.294	3,899.348	2,520.040	1,750,028
4.8%	43.117	2,743.006	1,772.728	1,231,061	9.8%	61.609	3,919.396	2,532.996	1,759,025
4.9%	43.564	2,771.432	1,791.099	1,243,819	9.9%	61.923	3,939.343	2,545.887	1,767,977
5.0%	44.006	2,799.569	1,809.283	1,256,447	10.0%	62.235	3,959.188	2,558.713	1,776,884

Velocity and Capacity for 114" RC Pipe

N= 0.013

A= 70.882

HR= 2.375

GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)	GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)
0.1%	6.452	457.322	295.555	205,246	5.1%	46.076	3,265.935	2,110.682	1,465,752
0.2%	9.124	646.751	417.977	290,262	5.2%	46.525	3,297.798	2,131.275	1,480,052
0.3%	11.175	792.106	511.916	355,497	5.3%	46.970	3,329.357	2,151.670	1,494,215
0.4%	12.904	914.645	591.109	410,493	5.4%	47.411	3,360.619	2,171.874	1,508,246
0.5%	14.427	1,022.604	660.880	458,945	5.5%	47.848	3,391.593	2,191.892	1,522,147
0.6%	15.804	1,120.206	723.958	502,749	5.6%	48.281	3,422.287	2,211.728	1,535,922
0.7%	17.070	1,209.961	781.964	543,031	5.7%	48.711	3,452.708	2,231.388	1,549,575
0.8%	18.249	1,293.503	835.955	580,524	5.8%	49.136	3,482.863	2,250.877	1,563,109
0.9%	19.356	1,371.967	886.664	615,739	5.9%	49.558	3,512.760	2,270.198	1,576,526
1.0%	20.403	1,446.180	934.626	649,046	6.0%	49.976	3,542.404	2,289.356	1,589,831
1.1%	21.398	1,516.767	980.244	680,725	6.1%	50.391	3,571.802	2,308.355	1,603,025
1.2%	22.350	1,584.211	1,023.831	710,994	6.2%	50.802	3,600.960	2,327.199	1,616,111
1.3%	23.263	1,648.899	1,065.637	740,026	6.3%	51.210	3,629.884	2,345.892	1,629,092
1.4%	24.141	1,711.144	1,105.864	767,961	6.4%	51.615	3,658.579	2,364.437	1,641,970
1.5%	24.988	1,771.202	1,144.678	794,915	6.5%	52.017	3,687.051	2,382.838	1,654,748
1.6%	25.807	1,829.289	1,182.218	820,985	6.6%	52.415	3,715.304	2,401.097	1,667,429
1.7%	26.602	1,885.588	1,218.603	846,252	6.7%	52.811	3,743.345	2,419.219	1,680,013
1.8%	27.373	1,940.254	1,253.932	870,786	6.8%	53.203	3,771.177	2,437.206	1,692,504
1.9%	28.123	1,993.422	1,288.293	894,648	6.9%	53.593	3,798.805	2,455.061	1,704,904
2.0%	28.854	2,045.208	1,321.760	917,889	7.0%	53.980	3,826.233	2,472.787	1,717,213
2.1%	29.566	2,095.714	1,354.401	940,557	7.1%	54.364	3,853.467	2,490.388	1,729,436
2.2%	30.262	2,145.032	1,386.274	962,690	7.2%	54.746	3,880.509	2,507.864	1,741,572
2.3%	30.942	2,193.241	1,417.430	984,327	7.3%	55.125	3,907.364	2,525.220	1,753,625
2.4%	31.608	2,240.413	1,447.916	1,005,497	7.4%	55.501	3,934.036	2,542.457	1,765,595
2.5%	32.259	2,286.612	1,477.773	1,026,231	7.5%	55.875	3,960.528	2,559.578	1,777,485
2.6%	32.898	2,331.896	1,507.039	1,046,555	7.6%	56.246	3,986.844	2,576.585	1,789,295
2.7%	33.525	2,376.317	1,535.747	1,066,491	7.7%	56.615	4,012.987	2,593.481	1,801,029
2.8%	34.140	2,419.922	1,563.928	1,086,061	7.8%	56.981	4,038.962	2,610.268	1,812,686
2.9%	34.744	2,462.756	1,591.610	1,105,285	7.9%	57.345	4,064.770	2,626.947	1,824,269
3.0%	35.338	2,504.858	1,618.819	1,124,180	8.0%	57.707	4,090.415	2,643.521	1,835,778
3.1%	35.922	2,546.263	1,645.579	1,142,763	8.1%	58.067	4,115.901	2,659.992	1,847,216
3.2%	36.497	2,587.006	1,671.909	1,161,048	8.2%	58.424	4,141.230	2,676.361	1,858,584
3.3%	37.063	2,627.117	1,697.832	1,179,050	8.3%	58.779	4,166.405	2,692.631	1,869,882
3.4%	37.621	2,666.625	1,723.365	1,196,781	8.4%	59.132	4,191.428	2,708.803	1,881,113
3.5%	38.170	2,705.555	1,748.525	1,214,253	8.5%	59.483	4,216.304	2,724.879	1,892,277
3.6%	38.711	2,743.934	1,773.328	1,231,478	8.6%	59.832	4,241.033	2,740.861	1,903,376
3.7%	39.245	2,781.783	1,797.789	1,248,464	8.7%	60.179	4,265.619	2,756.750	1,914,410
3.8%	39.772	2,819.124	1,821.921	1,265,223	8.8%	60.524	4,290.064	2,772.548	1,925,381
3.9%	40.292	2,855.977	1,845.738	1,281,763	8.9%	60.867	4,314.370	2,788.257	1,936,289
4.0%	40.805	2,892.360	1,869.252	1,298,091	9.0%	61.208	4,338.541	2,803.877	1,947,137
4.1%	41.312	2,928.292	1,892.473	1,314,217	9.1%	61.547	4,362.577	2,819.411	1,957,925
4.2%	41.813	2,963.788	1,915.413	1,330,148	9.2%	61.884	4,386.482	2,834.860	1,968,653
4.3%	42.308	2,998.863	1,938.081	1,345,890	9.3%	62.220	4,410.257	2,850.226	1,979,323
4.4%	42.797	3,033.533	1,960.488	1,361,450	9.4%	62.553	4,433.905	2,865.508	1,989,936
4.5%	43.280	3,067.812	1,982.641	1,376,834	9.5%	62.885	4,457.427	2,880.710	2,000,493
4.6%	43.759	3,101.711	2,004.549	1,392,048	9.6%	63.215	4,480.826	2,895.832	2,010,994
4.7%	44.232	3,135.244	2,026.220	1,407,098	9.7%	63.544	4,504.103	2,910.875	2,021,441
4.8%	44.700	3,168.422	2,047.662	1,421,988	9.8%	63.870	4,527.260	2,925.841	2,031,834
4.9%	45.163	3,201.256	2,068.882	1,436,724	9.9%	64.195	4,550.300	2,940.731	2,042,175
5.0%	45.622	3,233.757	2,089.887	1,451,310	10.0%	64.519	4,573.223	2,955.546	2,052,463

Velocity and Capacity for 120" RC Pipe									
N= 0.013		A= 78.540			HR= 2.500				
GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)	GRA %	VEL. FT/SEC	CAPACITY (CFS)	CAPACITY (MGD)	CAPACITY (GPM)
0.1%	6.676	524.356	338.877	235,331	5.1%	47.678	3,744.650	2,420.062	1,680,599
0.2%	9.442	741.551	479.244	332,808	5.2%	48.144	3,781.184	2,443.673	1,696,995
0.3%	11.564	908.211	586.951	407,605	5.3%	48.604	3,817.368	2,467.058	1,713,235
0.4%	13.353	1,048.712	677.753	470,662	5.4%	49.061	3,853.213	2,490.224	1,729,322
0.5%	14.929	1,172.495	757.751	526,216	5.5%	49.513	3,888.727	2,513.176	1,745,261
0.6%	16.354	1,284.404	830.075	576,441	5.6%	49.961	3,923.920	2,535.920	1,761,055
0.7%	17.664	1,387.315	896.583	622,627	5.7%	50.405	3,958.800	2,558.462	1,776,709
0.8%	18.883	1,483.102	958.488	665,616	5.8%	50.845	3,993.375	2,580.807	1,792,227
0.9%	20.029	1,573.068	1,016.630	705,993	5.9%	51.282	4,027.654	2,602.960	1,807,611
1.0%	21.112	1,658.159	1,071.622	744,182	6.0%	51.714	4,061.643	2,624.926	1,822,865
1.1%	22.143	1,739.092	1,123.926	780,504	6.1%	52.144	4,095.350	2,646.710	1,837,993
1.2%	23.127	1,816.422	1,173.903	815,210	6.2%	52.569	4,128.782	2,668.316	1,852,997
1.3%	24.072	1,890.592	1,221.837	848,498	6.3%	52.992	4,161.946	2,689.749	1,867,881
1.4%	24.980	1,961.960	1,267.960	880,528	6.4%	53.410	4,194.847	2,711.012	1,882,647
1.5%	25.857	2,030.822	1,312.463	911,433	6.5%	53.826	4,227.492	2,732.110	1,897,298
1.6%	26.705	2,097.423	1,355.506	941,324	6.6%	54.239	4,259.887	2,753.046	1,911,837
1.7%	27.527	2,161.975	1,397.224	970,294	6.7%	54.648	4,292.038	2,773.824	1,926,267
1.8%	28.325	2,224.654	1,437.731	998,425	6.8%	55.054	4,323.949	2,794.447	1,940,588
1.9%	29.101	2,285.614	1,477.128	1,025,784	6.9%	55.458	4,355.627	2,814.920	1,954,805
2.0%	29.857	2,344.991	1,515.502	1,052,432	7.0%	55.858	4,387.076	2,835.244	1,968,920
2.1%	30.595	2,402.900	1,552.927	1,078,422	7.1%	56.256	4,418.301	2,855.424	1,982,934
2.2%	31.315	2,459.447	1,589.472	1,103,800	7.2%	56.650	4,449.307	2,875.463	1,996,849
2.3%	32.018	2,514.722	1,625.195	1,128,607	7.3%	57.042	4,480.099	2,895.362	2,010,668
2.4%	32.707	2,568.809	1,660.149	1,152,881	7.4%	57.432	4,510.680	2,915.126	2,024,393
2.5%	33.382	2,621.779	1,694.383	1,176,655	7.5%	57.819	4,541.055	2,934.757	2,038,026
2.6%	34.043	2,673.701	1,727.938	1,199,957	7.6%	58.203	4,571.229	2,954.257	2,051,567
2.7%	34.691	2,724.633	1,760.854	1,222,815	7.7%	58.584	4,601.204	2,973.629	2,065,020
2.8%	35.328	2,774.630	1,793.166	1,245,254	7.8%	58.964	4,630.986	2,992.876	2,078,386
2.9%	35.953	2,823.743	1,824.906	1,267,296	7.9%	59.340	4,660.577	3,012.000	2,091,667
3.0%	36.568	2,872.015	1,856.103	1,288,961	8.0%	59.715	4,689.982	3,031.004	2,104,864
3.1%	37.172	2,919.490	1,886.785	1,310,267	8.1%	60.087	4,719.203	3,049.889	2,117,978
3.2%	37.767	2,966.205	1,916.975	1,331,233	8.2%	60.457	4,748.244	3,068.657	2,131,012
3.3%	38.352	3,012.195	1,946.697	1,351,873	8.3%	60.824	4,777.109	3,087.312	2,143,967
3.4%	38.929	3,057.494	1,975.973	1,372,203	8.4%	61.189	4,805.801	3,105.855	2,156,843
3.5%	39.498	3,102.131	2,004.821	1,392,236	8.5%	61.553	4,834.322	3,124.287	2,169,644
3.6%	40.058	3,146.135	2,033.259	1,411,985	8.6%	61.914	4,862.676	3,142.612	2,182,369
3.7%	40.610	3,189.532	2,061.305	1,431,462	8.7%	62.272	4,890.866	3,160.830	2,195,021
3.8%	41.156	3,232.347	2,088.975	1,450,677	8.8%	62.629	4,918.894	3,178.944	2,207,600
3.9%	41.694	3,274.601	2,116.283	1,469,641	8.9%	62.984	4,946.763	3,196.955	2,220,107
4.0%	42.225	3,316.318	2,143.243	1,488,363	9.0%	63.337	4,974.477	3,214.865	2,232,545
4.1%	42.749	3,357.516	2,169.868	1,506,853	9.1%	63.688	5,002.036	3,232.676	2,244,914
4.2%	43.267	3,398.214	2,196.171	1,525,119	9.2%	64.037	5,029.445	3,250.389	2,257,215
4.3%	43.779	3,438.431	2,222.162	1,543,168	9.3%	64.384	5,056.705	3,268.007	2,269,449
4.4%	44.286	3,478.183	2,247.853	1,561,009	9.4%	64.729	5,083.819	3,285.530	2,281,618
4.5%	44.786	3,517.486	2,273.253	1,578,648	9.5%	65.073	5,110.789	3,302.960	2,293,722
4.6%	45.281	3,556.355	2,298.372	1,596,092	9.6%	65.414	5,137.617	3,320.298	2,305,763
4.7%	45.770	3,594.803	2,323.220	1,613,347	9.7%	65.754	5,164.306	3,337.547	2,317,741
4.8%	46.255	3,632.844	2,347.805	1,630,420	9.8%	66.092	5,190.858	3,354.706	2,329,657
4.9%	46.734	3,670.491	2,372.136	1,647,316	9.9%	66.428	5,217.275	3,371.779	2,341,513
5.0%	47.209	3,707.756	2,396.219	1,664,041	10.0%	66.763	5,243.559	3,388.765	2,353,309