

TVA Kingston Peninsula
SURFACE WATER MANAGEMENT SYSTEM CALCULATIONS
AREAS, AND TIMES OF CONCENTRATION (Tc) CALCULATIONS FOR POST-DEVELOPMENT SUBAREAS

2-year, 24-hr Design Rainfall Depth, R_{24} = 3.40 inches

No.	SUBAREA DESIGNATION in HydroCAD	AREA (acres)	CURVE NUMBER	SHEET FLOW		SHALLOW CONCENTRATED FLOW			BENCH FLOW		DOWNDRAIN (PIPE) FLOW				Travel Times (T) and Tc Calculation		Peak Discharge (cfs)		
				Length (ft)	Surf Desc	Manning n	Slope (ft/ft)	Avg Vel (ft/s)	Length (ft)	Vel (ft/s)	Length (ft)	Vel (ft/s)	Length (ft)	Vel (ft/s)	Ti (Sheet) (min)	Ti (Sh Con.) (hour)		Tt(Bench) (min)	Tt(Pipe) (min)
010	Woods/Grass combination, Poor hydrologic condition	3.37	73	300	GRASS	0.150	0.087	563.27	GRASS	0.153	7.95					17.73	1.1794	13.91	
011	Woods/Grass combination, Poor hydrologic condition	4.18	73	300	GRASS	0.150	0.074	187.53	GRASS	0.146	8.13					13.64	0.36	14.00	
012	Woods/Grass combination, Poor hydrologic condition	9.16	73	300	GRASS	0.150	0.083	576.66	GRASS	0.093	3.97					11.47	2.415	21.09	
013	Woods/Grass combination, Poor hydrologic condition	7.00	73	300	GRASS	0.150	0.062	350.69	GRASS	0.249	10.09					14.53	0.629	15.16	
014	Woods/Grass combination, Poor hydrologic condition	13.31	73	300	GRASS	0.150	0.105	396.56	GRASS	0.064	3.16					11.79	1.281	13.07	
015	Woods/Grass combination, Poor hydrologic condition	8.29	73	300	GRASS	0.150	0.093	571.48	GRASS	0.104	3.84					12.16	4.231	16.58	
016	Woods/Grass combination, Poor hydrologic condition	5.38	73	300	GRASS	0.150	0.117	149.26	GRASS	0.198	9.05					11.30	0.275	11.58	
017	Woods/Grass combination, Poor hydrologic condition	5.08	73	300	GRASS	0.150	0.147	301.67	GRASS	0.043	1.94					16.32	0.112	16.43	
018	Woods/Grass combination, Poor hydrologic condition	2.36	73	300	GRASS	0.150	0.287	210.49	GRASS	0.308	1.28					18.67	0.311	18.98	
019	Woods/Grass combination, Poor hydrologic condition	6.29	73	300	GRASS	0.150	0.091	910	GRASS	0.143	2.52					12.58	6.016	18.40	
020	Woods/Grass combination, Poor hydrologic condition	0.96	73	144.73	GRASS	0.150	0.273									5.23		5.23	
021	Woods/Grass combination, Poor hydrologic condition	4.24	73	289.99	GRASS	0.150	0.236									8.40		8.40	
022	Woods/Grass combination, Poor hydrologic condition	3.69	73	132.05	GRASS	0.150	0.335									4.30		4.30	
023	Woods/Grass combination, Poor hydrologic condition	0.81	73	14.52	GRASS	0.150	0.219									4.14		4.14	
024	Woods/Grass combination, Poor hydrologic condition	1.64	73	233.8	GRASS	0.150	0.134									8.75		8.75	
025	Woods/Grass combination, Poor hydrologic condition	1.68	73	256.33	GRASS	0.150	0.137									8.26		8.26	
026	Woods/Grass combination, Poor hydrologic condition	3.23	73	224.21	GRASS	0.150	0.216									6.34		6.34	
027	Woods/Grass combination, Poor hydrologic condition	2.04	73	600	GRASS	0.150	0.233	58.17	GRASS	0.020	2.97					8.54	0.391	8.93	
028	Woods/Grass combination, Poor hydrologic condition	0.59	73	89.2	GRASS	0.150	0.333									2.31		2.31	
029	Woods/Grass combination, Poor hydrologic condition	1.82	73	300	GRASS	0.150	0.103	95.45	GRASS	0.073	5.50					1.90	0.389	12.19	
030	Woods/Grass combination, Poor hydrologic condition	1.25	73	300	GRASS	0.150	0.127	98.79	GRASS	0.020	2.87					10.94	0.523	11.51	
031	Woods/Grass combination, Poor hydrologic condition	0.45	73	89.52	GRASS	0.150	0.328									2.85		2.85	
032	Woods/Grass combination, Poor hydrologic condition	4.84	73	300	GRASS	0.150	0.070	149.03	GRASS	0.153	1.94					13.85	0.313	14.17	
033	Woods/Grass combination, Poor hydrologic condition	1.76	73	118.77	GRASS	0.150	0.136	41	GRASS	0.161	8.16					9.34	0.008	9.35	
034	Woods/Grass combination, Poor hydrologic condition	1.64	73	300	GRASS	0.150	0.017	40	GRASS	0.037	0.90					24.43	0.241	25.17	
035	Woods/Grass combination, Poor hydrologic condition	0.79	73	300	GRASS	0.150	0.250									1.66		1.66	
036	Woods/Grass combination, Poor hydrologic condition	0.13	73	40	GRASS	0.150	0.333									12.9		12.9	
200	Grass, Good hydrologic condition	2.76	80	94.58	GRASS	0.150	0.333									1.65		1.65	
201	Grass, Good hydrologic condition	4.49	80	87.44	GRASS	0.150	0.333									2.77		2.77	
202	Grass, Good hydrologic condition	10.06	80	109.55	GRASS	0.150	0.040									3.29		3.29	
203	Grass, Good hydrologic condition	11.71	80	105.85	GRASS	0.150	0.040									3.29		3.29	
204	Grass, Good hydrologic condition	10.36	80	104.41	GRASS	0.150	0.040									3.29		3.29	
205	Grass, Good hydrologic condition	5.33	80	62.34	GRASS	0.150	0.333									2.11		2.11	
206	Grass, Good hydrologic condition	4.87	80	83.52	GRASS	0.150	0.333									0.39		0.39	
207	Grass, Good hydrologic condition	5.86	80	90.08	GRASS	0.150	0.333									2.67		2.67	
208	Grass, Good hydrologic condition	8.33	80	114.29	GRASS	0.150	0.040									2.84		2.84	
209	Grass, Good hydrologic condition	7.41	80	70.9	GRASS	0.150	0.040									3.02		3.02	
210	Grass, Good hydrologic condition	6.50	80	87.26	GRASS	0.150	0.333									1.84		1.84	
100	Grass, Good hydrologic condition	1.09	80	60.1	GRASS	0.150	0.3333									2.77		2.77	
101	Grass, Good hydrologic condition	1.46	80	60	GRASS	0.150	0.3333									2.05		2.05	
102	Grass, Good hydrologic condition	1.60	80	60.83	GRASS	0.150	0.3333									2.07		2.07	
103	Grass, Good hydrologic condition	1.52	80	60.02	GRASS	0.150	0.3333									2.05		2.05	
104	Grass, Good hydrologic condition	1.58	80	60.22	GRASS	0.150	0.3333									2.06		2.06	
105	Grass, Good hydrologic condition	1.40	80	62.52	GRASS	0.150	0.3333									2.12		2.12	
106	Grass, Good hydrologic condition	1.61	80	60.66	GRASS	0.150	0.3333									2.07		2.07	
107	Grass, Good hydrologic condition	1.37	80	60.41	GRASS	0.150	0.3333									2.06		2.06	
108	Grass, Good hydrologic condition	1.13	80	60.03	GRASS	0.150	0.3333									2.05		2.05	
109	Grass, Good hydrologic condition	1.07	80	60.05	GRASS	0.150	0.3333									2.05		2.05	
110	Grass, Good hydrologic condition	0.30	98	60.34	GRASS	0.150	0.3333									2.06		2.06	
ROAD1	Road	0.30	98															1.00	
ROAD2	Road	0.39	98															1.00	
ROAD3	Road	0.40	98															1.00	
ROAD4	Road	0.38	98															1.00	
ROAD5	Road	0.40	98															1.00	
ROAD6	Road	0.36	98															1.00	
ROAD7	Road	0.43	98															1.00	
ROAD8	Road	0.36	98															1.00	
ROAD9	Road	0.29	98															1.00	
ROAD10	Road	0.27	98															1.00	
ROAD11	Road	0.30	98															1.00	
POND1	Stormwater Pond	6.87	98															1.00	