

Rockwall, Texas

Detention Computations for Pond A-UDSSWBC-20000, SWBC ROCKWALL PH. II

		(A-4)		(A1-A10)		(A21-A23)	
		Undeveloped		Developed		Bypass	
Area	A(ac)=	5.143		5.503		1.459	
Runoff Coefficient	C=	0.350		0.750		0.750	
Time of Concentration	Tc(min)=	20.0		10.0		10.0	

YEAR	STORM	I	Qundev	I	Qin	Qbypass	Required		
	IN/HR	CFS	IN/HR	CFS	CFS	CFS	Qout	REQUIRED	REQUIRED
							CFS	AC-FT	CF
5	4.90	8.8	6.10	25.2	6.7	2.1	0.9267	40367.06	
10	5.90	10.6	7.10	29.3	7.8	2.9	1.0347	45071.00	
25	6.60	11.9	8.30	34.3	9.1	2.8	1.3321	58026.63	
50	7.50	13.5	9.00	37.1	9.8	3.7	1.4369	62591.22	
100	8.30	14.9	9.80	40.4	10.7	4.2	1.6690	72703.22	

		Computed	
		Qout	PROVIDED
		CFS	AC-FT
2.1	0.9319	40593.02	
2.2	1.0848	47252.70	
2.6	1.3501	58811.63	
3.2	1.4667	63887.60	
4.1	1.6822	73275.60	

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		Undeveloped		Developed		Bypass	
Area	A=	5.143 AC		5.503 AC		1.459	
Runoff Coefficient	C=	0.35		0.75		0.75	
Time of Concentration	Tc=	20.0 MIN		10.0 MIN		10.0	
Rainfall Intensity	I25=	6.60 IN/HR		8.30 IN/HR		8.30	
Peak Rate of Runoff	Q25=	11.9 CFS		34.3 CFS		9.1	
Allowable Outflow	Q25=	2.8 CFS					

Tc	MIN	I25	Q25	Inflow	Outflow	Storage		Required
		IN/HR	CFS	CF	CF	CF	AC-FT	
5		9.30	38.4	11,515	1,259	10,256	0.235	
10		8.30	34.3	20,554	1,679	18,875	0.433	
15		7.50	31.0	27,859	2,099	25,760	0.591	
20		6.60	27.2	32,688	2,518	30,170	0.693	
30		5.50	22.7	40,860	3,358	37,502	0.861	
40		4.60	19.0	45,565	4,197	41,368	0.950	
50		4.00	16.5	49,527	5,036	44,491	1.021	
60		3.50	14.4	52,003	5,876	46,127	1.059	
70		3.30	13.6	57,204	6,715	50,488	1.159	
80		3.10	12.8	61,413	7,555	53,859	1.236	
90		2.90	12.0	64,633	8,394	56,239	1.291	
100		2.70	11.1	66,861	9,234	57,628	1.323	
110		2.50	10.3	68,100	10,073	58,027	1.332	1.332
120		2.30	9.5	68,347	10,912	57,435	1.319	

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Area	A=	5.143 AC		5.503 AC		1.459	
Runoff Coefficient	C=	0.35		0.75		0.75	
Time of Concentration	Tc=	20.0 MIN		10.0 MIN		10.0	
Rainfall Intensity	I100=	8.30 IN/HR		9.80 IN/HR		9.80	
Peak Rate of Runoff	Q100=	14.9 CFS		40.4 CFS		10.7	
Allowable Outflow	Q100=	4.2 CFS					

Tc	MIN	I100	Q100	Inflow	Outflow	Storage		Required
		IN/HR	CFS	CF	CF	CF	AC-FT	
5		10.70	44.2	13,248	1,898	11,351	0.261	
10		9.80	40.4	24,268	2,530	21,738	0.499	
15		9.00	37.1	33,431	3,163	30,268	0.695	
20		8.30	34.3	41,107	3,795	37,312	0.857	
30		6.90	28.5	51,260	5,060	46,200	1.061	
40		5.80	23.9	57,451	6,325	51,126	1.174	
50		5.00	20.6	61,909	7,590	54,319	1.247	
60		4.50	18.6	66,861	8,855	58,006	1.332	
70		4.00	16.5	69,338	10,120	59,218	1.359	
80		3.70	15.3	73,300	11,385	61,915	1.421	
90		3.50	14.4	78,005	12,650	65,355	1.500	
100		3.40	14.0	84,196	13,915	70,281	1.613	
110		3.20	13.2	87,168	15,180	71,987	1.653	
120		3.00	12.4	89,149	16,445	72,703	1.669	1.669
130		2.80	11.6	90,139	17,710	72,429	1.663	
140		2.60	10.7	90,139	18,975	71,164	1.634	

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Runoff Coefficient	C=	0.35		0.75		0.75	
Time of Concentration	Tc=	20.0 MIN		10.0 MIN		10.0	
Rainfall Intensity	I10=	5.90 IN/HR		7.10 IN/HR		7.10	
Peak Rate of Runoff	Q10=	10.6 CFS		29.3 CFS		7.8	
Allowable Outflow	Q10=	2.9 CFS					

Tc	MIN	I10	Q10	Inflow	Outflow	Storage		Required
		IN/HR	CFS	CF	CF	CF	AC-FT	
5		8.30	34.3	10,277	1,283	8,994	0.206	
10		7.10	29.3	17,582	1,711	15,871	0.364	
15		6.50	26.8	24,144	2,138	22,006	0.505	
20		5.90	24.4	29,221	2,566	26,655	0.612	
30		4.80	19.8	35,659	3,421	32,238	0.740	
40		4.00	16.5	39,622	4,277	35,345	0.811	
50		3.50	14.4	43,336	5,132	38,204	0.877	
60		3.00	12.4	44,574	5,987	38,587	0.886	
70		2.80	11.6	48,536	6,843	41,694	0.957	
80		2.60	10.7	51,508	7,698	43,810	1.006	
90		2.40	9.9	53,489	8,553	44,936	1.032	
100		2.20	9.1	54,480	9,409	45,071	1.035	1.035
110		2.00	8.3	54,480	10,264	44,216	1.015	
120		1.80	7.4	53,489	11,119	42,370	0.973	

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Area	A=	5.143 AC		5.503 AC		1.459	
Runoff Coefficient	C=	0.35		0.75		0.75	
Time of Concentration	Tc=	20.0 MIN		10.0 MIN		10.0	
Rainfall Intensity	I50=	7.50 IN/HR		9.00 IN/HR		9.00	
Peak Rate of Runoff	Q50=	13.5 CFS		37.1 CFS		9.8	
Allowable Outflow	Q50=	3.7 CFS					

Tc	MIN	I50	Q50	Inflow	Outflow	Storage		Required
		IN/HR	CFS	CF	CF	CF	AC-FT	
5		10.00	41.3	12,382	1,643	10,738	0.247	
10		9.00	37.1	22,287	2,191	20,096	0.461	
15		8.10	33.4	30,088	2,739	27,349	0.628	
20		7.50	31.0	37,145	3,287	33,858	0.777	
30		6.10	25.2	45,317	4,383	40,935	0.940	
40		5.20	21.5	51,508	5,478	46,030	1.057	
50		4.50	18.6	55,718	6,574	49,144	1.128	
60		3.90	16.1	57,947	7,669	50,277	1.154	
70		3.70	15.3	64,137	8,765	55,372	1.271	
80		3.50	14.4	69,338	9,861	59,477	1.365	
90		3.30	13.6	73,548	10,956	62,591	1.437	1.437
100		3.00	12.4	74,291	12,052	62,238	1.429	

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Runoff Coefficient	C=	0.35		0.75		0.75	
Time of Concentration	Tc=	20.0 MIN		10.0 MIN		10.0	
Rainfall Intensity	I5=	4.90 IN/HR		6.10 IN/HR		6.10	
Peak Rate of Runoff	Q5=	8.8 CFS		25.2 CFS		6.7	
Allowable Outflow	Q5=	2.1 CFS					

Tc	MIN	I5	Q5	Inflow	Outflow	Storage		Required
		IN/HR	CFS	CF	CF	CF	AC-FT	
5		7.00	28.9	8,667	965	7,702	0.177	
10		6.10	25.2	15,106	1,287	13,819	0.317	
15		5.50	22.7	20,430	1,809	18,621	0.432	
20		4.90	20.2	24,268	1,931	22,337	0.513	
30		4.10	16.9	30,459	2,574	27,885	0.640	
40		3.40	14.0	33,678	3,218	30,460	0.699	
50		2.80	11.6	34,669	3,862	30,807	0.707	
60		2.60	10.7	38,631	4,505	34,126	0.783	
70		2.40	9.9	41,603	5,149	36,454	0.837	
80		2.30	9.5	45,565	5,792	39,772	0.913	
90		2.10	8.7	46,803	6,436	40,367	0.927	0.927
100		1.90	7.8	47,051	7,080	39,971	0.918	

AS-BUILT RECORD DRAWING