Rockwall, Texas

Detention Computations for 17193 Pond A SWBC Rockwall

		Undeveloped	Developed	Bypass
Area	A(ac)=	7.660	6.760	1.290
Runoff Coeficient	C=	0.350	0.750	0.750
Time of Concentration	Tc(min)=	20.0	10.0	10.0

STORM	I	Qundev	I	Qin	Qbypass	Required Qout	REQUIRED	REQUIRED
YEAR	IN/HR	CFS	IN/HR	CFS	CFS	CFS	AC-FT	CF
5	4.90	13.3	*6.10*	*30.9*	5.9	*7.2*	**0.8365**	**36437.90**
10	5.90	16.0	*7.10*	*36.0*	6.9	*8.9*	**0.8979**	**39112.25**
25	6.60	17.9	*8.30*	*42.1*	8.0	*9.7*	**1.1571**	**50403.15**
50	7.50	20.3	*9.00*	*45.6*	8.7	*11.4*	**1.2890**	**56147.40**
100	8.30	22.5	*9.80*	*49.7*	9.5	*12.8*	**1.4069**	**61284.36**

		Computed Qout	PROVIDED	PROVIDED
Underdeveloped Area consists of:	Areas A1 & A2 off Existing Drainage Area Map	CFS	AC-FT	CF
Developed Area consists of:	Areas A1 - A11 off Proposed Drainage Area Map	**6.1**	**0.9069**	**39502.80**
Bypass Area consists of:	Area A12 off Proposed Drainage Area Map	**6.9**	**1.0332**	**45007.20**
		9.5	**1.1684**	**50896.20**
		11.1	**1.3096**	**57047.40**
		12.5	**1.4274**	**62178.00**

SWBC ROCKWALL

Pond A Required Detention Computations

City of Rockwall

		Undeveloped		Developed		Bypass
Area	A=	7.660	AC	6.760	AC	1.290
Runoff Coeficient	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=	*22.3*	CFS	*49.7*	CFS	9.5
Allowable Outflow	Q100=			*12.8*	CFS	

Tc	I100	Q100	Inflow	Outflow	Storage		Required
MIN	IN/HR	CFS	CF	CF	CF	AC-FT	AC-FT
5	10.70	54.2	16,275	5,747	10,528	0.242	
10	9.80	49.7	29,812	7,662	22,149	0.508	
15	9.00	45.6	41,067	9,578	31,489	0.723	
20	8.30	42.1	50,497	11,494	39,003	0.895	
30	6.90	35.0	62,969	15,325	47,644	1.094	
40	5.80	29.4	70,574	19,156	51,418	1.180	
50	5.00	25.4	76,050	22,987	53,063	1.218	
60	4.50	22.8	82,134	26,819	55,315	1.270	
70	4.00	20.3	85,176	30,650	54,526	1.252	
80	3.70	18.8	90,043	34,481	55,562	1.276	
90	3.50	17.7	95,823	38,312	57,511	1.320	
100	3.40	17.2	103,428	42,144	61,284	1.407	**1.407**
110	3.20	16.2	107,078	45,975	61,104	1.403	

SWBC ROCKWALL

Pond A Required Detention Computations

City of Rockwall

		Undeveloped		Developed		Bypass
Area	A=	7.660	AC	6.760	AC	1.290
Runoff Coeficient	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=	*20.1*	CFS	*45.6*	CFS	8.7
Allowable Outflow	Q50=			*11.4*	CFS	

Tc	I50	Q50	Inflow	Outflow	Storage		Required
MIN	IN/HR	CFS	CF	CF	CF	AC-FT	AC-FT
5	10.00	50.7	15,210	5,130	10,080	0.231	
10	9.00	45.6	27,378	6,840	20,538	0.471	
15	8.10	41.1	36,960	8,550	28,410	0.652	
20	7.50	38.0	45,630	10,260	35,370	0.812	
30	6.10	30.9	55,669	13,680	41,989	0.964	
40	5.20	26.4	63,274	17,100	46,174	1.060	
50	4.50	22.8	68,445	20,520	47,925	1.100	
60	3.90	19.8	71,183	23,940	47,243	1.085	
70	3.70	18.8	78,788	27,360	51,428	1.181	
80	3.50	17.7	85,176	30,780	54,396	1.249	
90	3.30	16.7	90,347	34,200	56,147	1.289	**1.289**
100	3.00	15.2	91,260	37,620	53,640	1.231	

SWBC ROCKWALL

Pond A Required Detention Computations

City of Rockwall

		Undeveloped		Developed		Bypass
Area	A=	7.660	AC	6.760	AC	1.290
Runoff Coeficient	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=	*17.7*	CFS	*42.1*	CFS	8.0
Allowable Outflow	Q25=			*9.7*	CFS	

Tc	I25	Q25	Inflow	Outflow	Storage		Required
MIN	IN/HR	CFS	CF	CF	CF	AC-FT	AC-FT
5	9.30	47.2	14,145	4,349	9,796	0.225	
10	8.30	42.1	25,249	5,799	19,450	0.447	
15	7.50	38.0	34,223	7,248	26,974	0.619	
20	6.60	33.5	40,154	8,698	31,456	0.722	
30	5.50	27.9	50,193	11,597	38,596	0.886	
40	4.60	23.3	55,973	14,497	41,476	0.952	
50	4.00	20.3	60,840	17,396	43,444	0.997	
60	3.50	17.7	63,882	20,295	43,587	1.001	
70	3.30	16.7	70,270	23,194	47,076	1.081	
80	3.10	15.7	75,442	26,094	49,348	1.133	
90	2.90	14.7	79,396	28,993	50,403	1.157	**1.157**
100	2.70	13.7	82,134	31,892	50,242	1.153	
110	2.50	12.7	83,655	34,792	48,863	1.122	

SWBC ROCKWALL

Pond A Required Detention Computations

City of Rockwall

		Undeveloped		Developed		Bypass
Area	A=	7.660	AC	6.760	AC	1.290
Runoff Coeficient	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=	*15.8*	CFS	*36.0*	CFS	6.9
Allowable Outflow	Q10=			*8.9*	CFS	

Tc	I10	Q10	Inflow	Outflow	Storage		Required
MIN	IN/HR	CFS	CF	CF	CF	AC-FT	AC-FT
5	8.30	42.1	12,624	4,027	8,597	0.197	
10	7.10	36.0	21,598	5,369	16,229	0.373	
15	6.50	33.0	29,660	6,711	22,948	0.527	
20	5.90	29.9	35,896	8,054	27,842	0.639	
30	4.80	24.3	43,805	10,738	33,066	0.759	
40	4.00	20.3	48,672	13,423	35,249	0.809	
50	3.50	17.7	53,235	16,108	37,127	0.852	
60	3.00	15.2	54,756	18,792	35,964	0.826	
70	2.80	14.2	59,623	21,477	38,146	0.876	
80	2.60	13.2	63,274	24,161	39,112	0.898	**0.898**
90	2.40	12.2	65,707	26,846	38,861	0.892	
100	2.20	11.2	66,924	29,531	37,393	0.858	
110	2.00	10.1	66,924	32,215	34,709	0.797	
120	1.80	9.1	65,707	34,900	30,807	0.707	

SWBC ROCKWALL

Pond A Required Detention Computations

City of Rockwall

		Undeveloped		Developed		Bypass
Area	A=	7.660	AC	6.760	AC	1.290
Runoff Coeficient	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=	*13.1*	CFS	*30.9*	CFS	5.9
Allowable Outflow	Q5=			*7.2*	CFS	

Tc	I5	Q5	Inflow	Outflow	Storage		Required
MIN	IN/HR	CFS	CF	CF	CF	AC-FT	AC-FT
5	7.00	35.5	10,647	3,256	7,391	0.170	
10	6.10	30.9	18,556	4,341	14,215	0.326	
15	5.50	27.9	25,097	5,426	19,670	0.452	
20	4.90	24.8	29,812	6,512	23,300	0.535	
30	4.10	20.8	37,417	8,682	28,734	0.660	
40	3.40	17.2	41,371	10,853	30,518	0.701	
50	2.80	14.2	42,588	13,023	29,565	0.679	
60	2.60	13.2	47,455	15,194	32,261	0.741	
70	2.40	12.2	51,106	17,364	33,741	0.775	
80	2.30	11.7	55,973	19,535	36,438	0.836	**0.836**
90	2.10	10.6	57,494	21,705	35,788	0.822	
100	1.90	9.6	57,798	23,876	33,922	0.779	

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www.mcadamsco.com

McADAMS

SWBC ROCKWALL

SWBC ROCKWALL
Lot 1, Block A
SWBC ROCKWALL ADDITION, PHASE I
21.280 Acres
in the
J.M. ALLEN SURVEY, ABSTRACT NO. 2
CITY OF ROCKWALL
ROCKWALL COUNTY, TEXAS

DETENTION POND A DETENTION CALCULATIONS

AS-BUILT RECORD DRAWING

THE INFORMATION ON THESE PLANS HAS BEEN REVISED TO REFLECT CHANGES TO PUBLIC IMPROVEMENTS MADE DURING CONSTRUCTION. UNLESS OTHERWISE NOTED, THE CONSTRUCTION OF THE PUBLIC IMPROVEMENTS IS IN GENERAL CONFORMANCE WITH THESE PLANS, BASED UPON INFORMATION PROVIDED BY THE CONTRACTOR AND FIELD VERIFICATIONS. THE RESPONSIBILITY FOR ACCURACY AND COMPLETENESS BELONGS TO THE CONTRACTOR.

Matthew G. St. Marie
THE JOHN R MCADAMS COMPANY, INC.

Date: 03/04/2021

STATE OF TEXAS
MATTHEW G. ST. MARIE
110326
LICENSED PROFESSIONAL ENGINEER

MCADAMS
TBPE: 19762

Drawn By:	MD
Date:	12/19/2017
Scale:	N/A
Revisions:	
03/23/2018	AS-BUILTS:
05/16/2018	03/04/2021
07/16/2018	
08/13/2018	
10/12/2018	
11/07/2018	
12/14/2018	
12/26/2018	

17193

C17

OWNER/DEVELOPER
SWBC BUILDERS
5949 SHERRY LANE #750
DALLAS, TX 75225
Ph. (214) 987-6317
Contact: SPENCER BYINGTON

File: Z:\2017\17193\Drawings\As-Built\As-Built Sheets\17193 ASB CALCS
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