Overal Detention Pond Modified Rational **POND A**

Present Conditions **Area 1 - Bypass Area 4**

		By-Pass Acreage	New Acreage
Q=CiA			
A=	**1.290**	**0.190**	**1.10**
C=	**0.35**		
Tc=	**20.00**		
I100=	**8.30**		
Q100=	**3.75**		

Future Conditions		**Offsite Condition**	**ByPass**	**Q Allow**
A=	**1.29**	**0.300**	**0.19**	
A (adj)	**1.10**			
C=	**0.90**	**0.350**	**0.90**	
Tc	**10.00**	**20**	**10.00**	
I100=	**9.80**	**8.30**	**9.80**	
Q100=	**11.38**	**0.872**	**1.68**	**2.94**

Flow for Storm Duration (Developed) **Flow for Storm Durations (Offsite)**

Time	I	C	Q (cfs)	Time	I	C	Q (cfs)
10 min	9.80	0.90	9.702	10 min	9.80	0.35	1.029
15 min	9.00	0.90	8.910	15 min	9.00	0.35	0.945
20 min	8.30	0.90	8.217	20 min	8.30	0.35	0.872
30 min	6.90	0.90	6.831	30 min	6.90	0.35	0.725
40 min	5.80	0.90	5.742	40 min	5.80	0.35	0.609
50 min	5.00	0.90	4.950	50 min	5.00	0.35	0.525
60 min	4.50	0.90	4.455	60 min	4.50	0.35	0.473
70 min	4.00	0.90	3.960	70 min	4.00	0.35	0.420
80 min	3.70	0.90	3.663	80 min	3.70	0.35	0.389
90 min	3.50	0.90	3.465	90 min	3.50	0.35	0.368
100 min	3.40	0.90	3.366	100 min	3.40	0.35	0.357
110 min	3.20	0.90	3.168	110 min	3.20	0.35	0.336

Storage Claculations

10 min			CF
Inflow	6,439	Storage	4,673
Outflow	1,766		
15 min			
Inflow	8,870	Storage	6,662
Outflow	2,207		
20 min			
Inflow	10,906	Storage	8,257
Outflow	2,649		
30 min			
Inflow	13,600	Storage	10,068
Outflow	3,532		
40 min			
Inflow	15,242	Storage	10,828
Outflow	4,415		
50 min			
Inflow	16,425	Storage	11,127
Outflow	5,298		
60 min			
Inflow	17,739	Storage	11,558
Outflow	6,181		
70 min			
Inflow	18,396	Storage	11,332
Outflow	7,064		
80 min			
Inflow	19,447	Storage	11,501
Outflow	7,947		
90 min			
Inflow	20,696	Storage	11,866
Outflow	8,829		
100 min			
Inflow	22,338	Storage	12,626
Outflow	9,712		
110 min			
Inflow	21,024	Storage	10,429
Outflow	10,595		

Overal Detention Pond Modified Rational **POND A**

Present Conditions **Area 1 - Bypass Area 4**

		By-Pass Acreage	New Acreage
Q=CiA			
A=	**1.290**	**0.190**	**1.10**
C=	**0.35**		
Tc=	**20.00**		
I25	**6.30**		
Q100=	**2.84**		

Future Conditions		**Offsite Condition**	**ByPass**	**Q Allow**
A=	**1.29**	**0.300**	**0.19**	
A (adj)	**1.10**			
C=	**0.90**	**0.350**	**0.90**	
Tc	**10.00**	**20**	**10.00**	
I25	**8.30**	**8.30**	**9.80**	
Q100=	**9.64**	**0.872**	**1.68**	**2.04**

Flow for Storm Duration (Developed) **Flow for Storm Durations (Offsite)**

Time	I	C	Q (cfs)	Time	I	C	Q (cfs)
10 min	8.30	0.90	8.217	10 min	8.30	0.35	0.872
15 min	7.50	0.90	7.425	15 min	7.50	0.35	0.788
20 min	6.60	0.90	6.534	20 min	6.60	0.35	0.693
30 min	5.50	0.90	5.445	30 min	5.50	0.35	0.578
40 min	4.60	0.90	4.554	40 min	4.60	0.35	0.483
50 min	4.00	0.90	3.960	50 min	4.00	0.35	0.420
60 min	3.50	0.90	3.465	60 min	3.50	0.35	0.368
70 min	3.30	0.90	3.267	70 min	3.30	0.35	0.347
80 min	3.10	0.90	3.069	80 min	3.10	0.35	0.326
90 min	2.90	0.90	2.871	90 min	2.90	0.35	0.305
100 min	2.70	0.90	2.673	100 min	2.70	0.35	0.284
110 min	2.50	0.90	2.475	110 min	2.50	0.35	0.263

Storage Claculations

10 min			CF
Inflow	5,453	Storage	4,229
Outflow	1,224		
15 min			
Inflow	7,391	Storage	5,861
Outflow	1,530		
20 min			
Inflow	8,672	Storage	6,836
Outflow	1,836		
30 min			
Inflow	10,841	Storage	8,392
Outflow	2,448		
40 min			
Inflow	12,089	Storage	9,029
Outflow	3,060		
50 min			
Inflow	13,140	Storage	9,468
Outflow	3,672		
60 min			
Inflow	13,797	Storage	9,513
Outflow	4,284		
70 min			
Inflow	15,177	Storage	10,280
Outflow	4,896		
80 min			
Inflow	16,294	Storage	10,785
Outflow	5,508		
90 min			
Inflow	17,148	Storage	11,027
Outflow	6,120		
100 min			
Inflow	17,739	Storage	11,007
Outflow	6,732		
110 min			
Inflow	16,425	Storage	9,080
Outflow	7,345		

Overal Detention Pond Modified Rational **POND A**

Present Conditions **Area 1 - Bypass Area 4**

		By-Pass Acreage	New Acreage
Q=CiA			
A=	**1.290**	**0.190**	**1.10**
C=	**0.35**		
Tc=	**20.00**		
I10	**5.90**		
Q100=	**2.66**		

Future Conditions		**Offsite Condition**	**ByPass**	**Q Allow**
A=	**1.29**	**0.300**	**0.19**	
A (adj)	**1.10**			
C=	**0.90**	**0.350**	**0.90**	
Tc	**10.00**	**20**	**10.00**	
I10	**7.10**	**8.30**	**9.80**	
Q100=	**8.24**	**0.872**	**1.68**	**1.86**

Flow for Storm Duration (Developed) **Flow for Storm Durations (Offsite)**

Time	I	C	Q (cfs)	Time	I	C	Q (cfs)
10 min	7.10	0.90	7.029	10 min	7.10	0.35	0.746
15 min	6.50	0.90	6.435	15 min	6.50	0.35	0.683
20 min	5.90	0.90	5.841	20 min	5.90	0.35	0.620
30 min	4.80	0.90	4.752	30 min	4.80	0.35	0.504
40 min	4.00	0.90	3.960	40 min	4.00	0.35	0.420
50 min	3.50	0.90	3.465	50 min	3.50	0.35	0.368
60 min	3.00	0.90	2.970	60 min	3.00	0.35	0.315
70 min	2.80	0.90	2.772	70 min	2.80	0.35	0.294
80 min	2.60	0.90	2.574	80 min	2.60	0.35	0.273
90 min	2.50	0.90	2.475	90 min	2.50	0.35	0.263
100 min	2.40	0.90	2.376	100 min	2.40	0.35	0.252
110 min	2.30	0.90	2.277	110 min	2.30	0.35	0.242

Storage Claculations

10 min			CF
Inflow	4,665	Storage	3,549
Outflow	1,116		
15 min			
Inflow	6,406	Storage	5,011
Outflow	1,395		
20 min			
Inflow	7,753	Storage	6,079
Outflow	1,674		
30 min			
Inflow	9,461	Storage	7,229
Outflow	2,231		
40 min			
Inflow	10,512	Storage	7,723
Outflow	2,789		
50 min			
Inflow	11,498	Storage	8,150
Outflow	3,347		
60 min			
Inflow	11,826	Storage	7,921
Outflow	3,905		
70 min			
Inflow	12,877	Storage	8,414
Outflow	4,463		
80 min			
Inflow	13,666	Storage	8,645
Outflow	5,021		
90 min			
Inflow	14,783	Storage	9,204
Outflow	5,579		
100 min			
Inflow	15,768	Storage	9,631
Outflow	6,137		
110 min			
Inflow	15,111	Storage	8,417
Outflow	6,694		

Overal Detention Pond Modified Rational **POND A**

Present Conditions **Area 1 - Bypass Area 4**

		By-Pass Acreage	New Acreage
Q=CiA			
A=	**1.290**	**0.190**	**1.10**
C=	**0.35**		
Tc=	**20.00**		
I5	**4.90**		
Q100=	**2.21**		

Future Conditions		**Offsite Condition**	**ByPass**	**Q Allow**
A=	**1.29**	**0.300**	**0.19**	
A (adj)	**1.10**			
C=	**0.90**	**0.350**	**0.90**	
Tc	**10.00**	**20**	**10.00**	
I5	**6.10**	**8.30**	**9.80**	
Q100=	**7.08**	**0.872**	**1.68**	**1.41**

Flow for Storm Duration (Developed) **Flow for Storm Durations (Offsite)**

Time	I	C	Q (cfs)	Time	I	C	Q (cfs)
10 min	6.10	0.90	6.039	10 min	9.80	0.35	1.029
15 min	5.50	0.90	5.445	15 min	9.00	0.35	0.945
20 min	4.90	0.90	4.851	20 min	8.30	0.35	0.872
30 min	4.10	0.90	4.059	30 min	6.90	0.35	0.725
40 min	3.40	0.90	3.366	40 min	5.80	0.35	0.609
50 min	2.80	0.90	2.772	50 min	5.00	0.35	0.525
60 min	2.60	0.90	2.574	60 min	4.50	0.35	0.473
70 min	2.40	0.90	2.376	70 min	4.00	0.35	0.420
80 min	2.30	0.90	2.277	80 min	3.70	0.35	0.389
90 min	2.10	0.90	2.079	90 min	3.50	0.35	0.368
100 min	1.90	0.90	1.881	100 min	3.40	0.35	0.357
110 min	1.80	0.90	1.782	110 min	3.20	0.35	0.336

Storage Claculations

10 min			CF
Inflow	4,241	Storage	3,396
Outflow	845		
15 min			
Inflow	5,751	Storage	4,695
Outflow	1,056		
20 min			
Inflow	6,867	Storage	5,600
Outflow	1,267		
30 min			
Inflow	8,610	Storage	6,921
Outflow	1,690		
40 min			
Inflow	9,540	Storage	7,428
Outflow	2,112		
50 min			
Inflow	9,891	Storage	7,357
Outflow	2,534		
60 min			
Inflow	10,967	Storage	8,010
Outflow	2,957		
70 min			
Inflow	11,743	Storage	8,364
Outflow	3,379		
80 min			
Inflow	12,794	Storage	8,993
Outflow	3,802		
90 min			
Inflow	13,211	Storage	8,987
Outflow	4,224		
100 min			
Inflow	13,428	Storage	8,781
Outflow	4,647		
110 min			
Inflow	12,708	Storage	7,639
Outflow	5,069		

Summary Detention Pond A Calculations

			Volume		Elevation
Qallow 100	2.94	cfs	12,626	cf	554.30
Qallow 25	2.04	cfs	11,027	cf	554.25
Qallow 10	1.86	cfs	9,631	cf	554.15
Qallow 5	1.41	cfs	8,993	cf	554.10

ONLY DRAWINGS STAMPED "RELEASED FOR CONSTRUCTION" BY THE CITY OF ROCKWALL TO BE USED FOR CONSTRUCTION.

STATE OF TEXAS
GERALD E. MONK
44583
REGISTERED
PROFESSIONAL ENGINEER
8-31-2020

CASE #: SP2019-047

POND CALCULATIONS POND A

BACON PLUMBING OFFICE

2055 KRISTY LANE
LOT 1-M, BODIN INDUSTRIAL TRACT, 3.54 ACRES
City of Rockwall, Rockwall County, Texas

owner
BACON PROPERTY, LLC
295 RANCH TRAIL
ROCKWALL, TEXAS 75032
CONTACT: BRAD BACON (972)236-5794

prepared by

MONK CONSULTING ENGINEERS, INC.
1200 W. State Street, Garland Texas 75040
972 272-1763 Fax 972 272-8761
REG NO.: F-2567

AS-BUILT
May 12, 2021
Gerald Monk
GERALD E. MONK, P.E.

TO THE BEST OF OUR KNOWLEDGE MONK CONSULTING ENGINEERS, INC HEREBY STATES THAT THIS PLAN IS AS-BUILT. THE INFORMATION PROVIDED IS BASED ON SURVEYING AT THE SITE AND INFORMATION PROVIDED BY THE CONTRACTOR.

date:	scale:	sheet:
8/31/20	1" = 20'	C105A