



DISCLAIMER
 TO THE BEST OF OUR KNOWLEDGE, THE WALLACE GROUP, INC. HEREBY STATES THAT THIS PLAN IS AS-BUILT/RECORD DRAWINGS. THE INFORMATION PROVIDED IS BASED ON SURVEYING CONDUCTED AT THE SITE AND INFORMATION PROVIDED BY THE CONTRACTOR.

LEGEND

LOCATION OF GABION WALLS. CONTRACTOR SHALL SUBMIT ENGINEER STAMPED SHOP DRAWINGS DETAILING CONSTRUCTION OF GABION WALLS FOR REVIEWS AND APPROVAL.

MODIFIED RATIONAL METHOD FOR SIZING DETENTION BASINS

EXISTING CONDITIONS		Q ₁₀₀
Area*	68.53 Acres	
Runoff Coefficient*	0.70	
Time of Concentration*	20.00 Min	
Rainfall Intensity	8.30 in/hr	
Allowable Flow	398.16 cfs	

DEVELOPED CONDITIONS		Q ₁₀₀
Area*	68.53 Acres	
Runoff Coefficient*	0.90	
Time of Concentration (T _{cd})*	10.00 Min	
Rainfall Intensity	9.80 in/hr	
Developed Flows	604.43 cfs	

A	B	C	(A-C)*60	(Cd)/(Tcd-A)/2(60)	Storage
Dur (Min)	Intensity	Flow	Inflow	Outflow	
5.0	10.60	653.78	196,133	184,631	11,502
10.0	9.80	604.43	362,661	246,174	116,487
15.0	9.00	555.09	499,694	307,718	191,866
20.0	8.30	511.52	614,303	369,261	245,042
25.0	7.70	474.07	696,112	430,805	265,307
30.0	7.20	442.57	766,028	492,348	273,680
35.0	6.70	416.20	803,035	553,892	249,143
40.0	6.30	392.73	868,544	615,435	243,109
45.0	6.00	373.05	899,251	676,979	222,272
50.0	5.70	356.39	925,195	738,522	186,633
55.0	5.50	343.88	950,910	800,066	158,846
60.0	5.30	334.25	970,167	861,610	137,558
65.0	5.10	326.13	1,022,296	923,153	99,144
70.0	4.90	319.21	1,036,174	984,696	51,478

Volume required= 273,680 CF
6.28 AC. FT.

Provided Detention Pond Volume

STAGE STORAGE CHART - POND B1				STAGE STORAGE CHART - POND B2			
Elevation (FT)	Area (SF)	Incr. Vol. (CF)	Total Vol. (CF)	Elevation (FT)	Area (SF)	Incr. Vol. (CF)	Total Vol. (CF)
521	0	0	0	521	0	0	0
522	0	0	0	522	1114.84	3112.1552	3112.1552
523	0	0	0	523	22749.78	16932.31	20044.4652
524	0	0	0	524	23810.15	23179.955	43224.4302
525	7984.11	2395.233	2395.233	525	24478.37	24044.26	67268.6902
526	25741.92	16892.115	19267.348	526	25344.44	24918.405	92185.0952
527	27024.41	26382.895	45650.243	527	26238.35	25796.395	117981.4902
528	28325.69	27675.05	73325.293	528	27130.12	26684.235	144665.7252
529	29645.14	28965.415	102290.708	529	28029.73	27579.925	172245.6502
530	0	14622.97	117123.85	530	0	0	186905.5152
531	0	0.00	117123.85	531	0	0	186260.5152
532	0	0.00	117123.85	532	0	0	186260.5152
533	0	0.00	117123.85	533	0	0	186260.5152
534	0	0.00	117123.85	534	0	0	186260.5152

STAGE STORAGE CHART - TOTAL

Elevation (FT)	Area (SF)	Incr. Vol. (CF)	Total Vol. (CF)
521	0	0	0
522	1114.84	3112.1552	3112.1552
523	22749.78	16932.31	20044.4652
524	23810.15	23179.955	43224.4302
525	32462.48	26439.493	69663.9232
526	51095.78	41776.12	111443.0432
527	53992.78	52179.93	163622.9732
528	55455.81	54359.285	217981.5882
529	57674.87	66665.34	274546.9282
530	0	28967.435	303384.3632
531	0	0	303384.3632
532	0	0	303384.3632
533	0	0	303384.3632
534	0	0	303384.3632

DETERMINATION OF WSEL

Elevation (FT)	Total Vol. (CF)	Vol. Req'd (CF)	WSEL (FT)	Note
521	0	0		
522	3112.1552			
523	20044.4652			
524	43224.4302			
525	69663.9232			
526	111443.0432			
527	163622.9732			
528	217981.5882	193660	527.55	10-Year
529	274546.9282	217617	527.99	25-Year
530	303384.3632	291231	528.59	50-Year
531	303384.3632	273680	528.98	100-Year
532	303384.3632			
533	303384.3632			
534	303384.3632			

Discharge at Pond B1 (MAX OUT=78.29)
 Orifice Coefficient = 0.6
 Flowline of Orifice 1 (FT) = 524.5
 Elev of Crest of Orif 1 (FT) = 526.1
 Crest Elevation of Weir = 529.2
 Weir Coefficient = 3.3367
 Area Or 1 (SF) = 9.5

Discharge at Pond B2 (MAX OUT=332)
 Orifice Coefficient = 0.6
 Flowline of Orifice 2 (FT) = 521.44
 Elev of Crest of Orif 2 (FT) = 524.44
 Crest Elevation of Weir = 528.2
 Weir Coefficient = 3.3367
 Area Or 2 (SF) = 25.5
 Length Crest (FT) = 26

DETERMINATION OF POST DEVELOPMENT DISCHARGE

Elevation (FT)	Height above Centroid Pond B1 (FT)	Orifice Discharge (CFS) into 8'x4' RBC Pond B1 (CFS)	Total Discharge (CFS) into 8'x4' RBC (Pond A+Pond B1)	Max Allowable Discharge (CFS) into 8'x4' RBC B2(FT)	Height above Centroid Pond B2 (FT)	Orifice Discharge Pond B2 (CFS)	Weir Discharge Pond B2 (CFS)	Total Discharge Pond B2 (CFS)	Note
527.55	1.45	55.08	199.24	194.84	3.11	216.53	0.00	216.53	10-Year
527.99	1.89	62.86	177.09	215.29	3.55	231.34	0.00	231.34	25-Year
528.59	2.49	72.18	198.93	229.0	4.15	250.13	21.13	271.26	50-Year
528.98	2.88	77.63	247.13	248	4.54	281.61	56.76	328.38	100-Year

EVALUATION OF POND B1+B2 DETENTION

Max Allowable Discharge (CFS)	Post Development Discharge (CFS)	Note
273.43	271.61	10-Year
321.41	294.22	25-Year
354.99	343.44	50-Year
410.29	399.01	100-Year

NOTE: Because Ponds B1 and B2 are interconnected (i.e. water can flow from one pond into the other pond), the ponds must be evaluated together to determine the effectiveness of detention.

REV	DATE	BY	DESCRIPTION

DESIGNED: **RDC**
 DRAWN: **FM**
 CHECKED: **RS**

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3/25/08
 DATE: *Matthew D. Morgan*
 NAME: *Matthew D. Morgan*

ENGINEERS ARCHITECTS

THE WALLACE GROUP INC.

SURVEYORS PLANNERS

THE WOODMONT COMPANY

PLAZA AT ROCKWALL

DETENTION POND PLAN

POND "B"