

## **APPENDIX F**

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### Basin Capacity Calculations and the Storm Drain Plan





# MCR ENGINEERING

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SHEET 1 OF... 1

BY VGD DATE 3/18/02

## BASIN VOLUME CALCULATION

	AREA (ac)	% AREA	COEFF	
Residential	10.64	37.39%	0.30	0.1122
Commercial	16.06	56.43%	0.75	0.4232
Basin	1.76	6.18%	1	0.0618
TOTAL	28.46	AC INTO BASIN		
	WEIGHTED COEFFICIENT			0.60

V=CAR/12

VOLUME FOR BASIN DESIGN

V= VOLUME IN AC-FT

C= WEIGHTED COEFFICIENT 0.60

A= TOTAL AREA INTO BASIN 28.46 Acres

R= RAINFALL IN INCHES 3.56 Inches

Required Volume of Storage (100%) =  ac-ft

## ACTUAL BASIN CAPACITY

HIGH-WATER AREA = 1.42 Acres 61,930 SF  
BASIN BOTTOM AREA = 0.53 Acres 23,000 SF  
AVERAGE AREA = 0.97 Acres  
DEPTH = 5.20 ft  
CAPACITY =  ac-ft

## H.G.L. CALCULATIONS

Use (10 Year, 48 Hour Storm) - (10 Year, 24 Hour Storm) to Find Basin Volume and HWL for HGL

10 Year Storm Volume = 3.73 ac-ft  
Beginning Volume in Basin =  ac-ft

HGL WATER AREA = 0.86 Acres 37,257 SF  
LOW WATER AREA = 0.53 Acres 23,000 SF  
AVERAGE AREA = 0.69 Acres  
DEPTH = 2.00 ft  
CAPACITY =  ac-ft

HGL = Basin Bottom Elevation + Depth

HGL =  ft

## PUMP STATION REQUIREMENTS

Empty Basin in 48 hours

Pump Flow Rate Required =  cfs  
 gpm