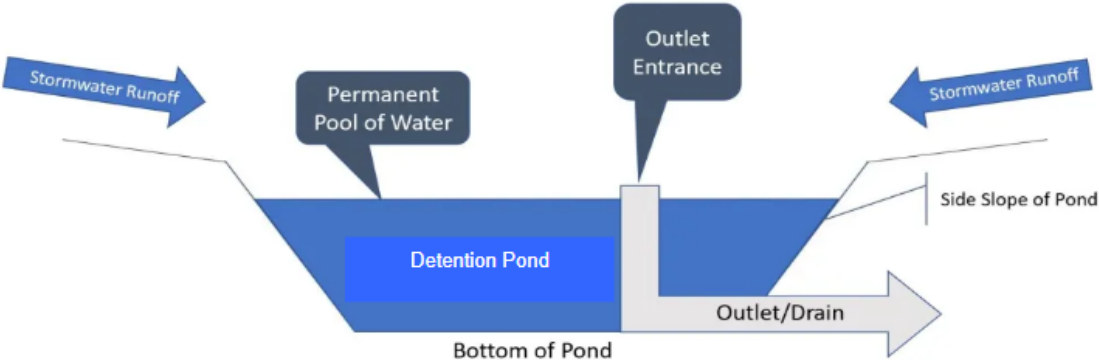
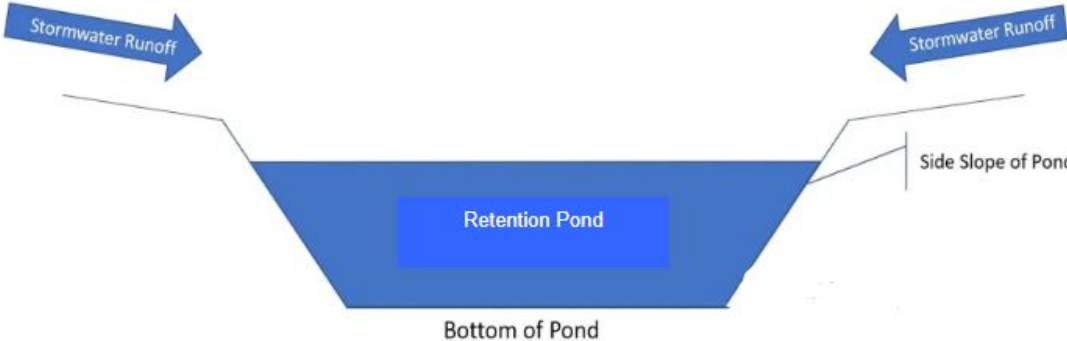


# Hydraulic Management Design Alternatives



Alternative 1:  
Detention Pond



Alternative 2:  
Retention Pond



Alternative 3:  
Underground Storage

### Hydraulic Design Decision Matrix

	<b>Alternative 1: Detention Pond</b>	<b>Alternative 2: Retention Pond</b>	<b>Alternative 3: Underground Storage</b>
Criteria	Ranking	Ranking	Ranking
Space Required	1	0	2
Materials and Cost	1	1	0
Construction Timeline	1	2	0
Health Concerns	0	0	2
Total	3	3	4

### Hydraulic Design Analysis

#### 100-YR Storm Rational Method Data

$$T_c = 10 \text{ minutes}$$

	C	i (in/hr)	A (acres)	Q (cfs)
Impervious	0.95	7.09	0.762	<b>5.13</b>
Pervious	0.54	7.09	0.618	<b>2.37</b>

$$\text{Required Storage} = 4500 \text{ CF}$$

$$\text{Recommended Volume (133\% Required Volume)} = 6000 \text{ CF}$$

Component	Volume (CF)
Chamber with 15" Crushed Stone Base	279.3
End Cap with 15" Crushed Stone Base	121.9

Using **20** Stormtech MC-7200 Chambers and **4** End Caps, with 15" crushed stone base Satisfies the Recommended Volume