

Parcel 1 Drainage

Area Draining West

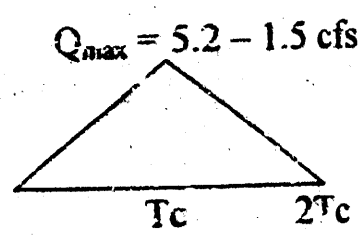
Existing Condition

Area = 34,492 sq. ft. = 0.79 acres
T_c = 15 minutes
Hydrologic Group D Soils, 1 acre lot residential, C₁₀₀ = 0.71
I₁₀₀ = 7.37 in/hr
Q₁₀₀ = CIA = 0.71 (7.37) (0.79) = 4.1 cfs

Developed Condition

Area = 34,492 sq. ft. = 0.79 acres
T_c = 15 minutes
Hydrologic Group D Soils, C₁₀₀ = 0.90
I₁₀₀ = 7.37 in/hr
Q₁₀₀ = CIA = 0.90 (7.37) (0.79) = 5.2 cfs

Volume Required To Store 100 yr. Excess



West Basin will be drained by one 8-inch pipe w/ Q_{max} = 1.5 cfs

$$V_{REQ} = 0.5 (Q_{DEV} - 1.5 \text{ cfs}) 2T_c$$

$$= 0.5 (3.7) (1800)$$

$$= 3330 \text{ cu. ft. required}$$

Volume Provided

Storage area behind southwest building corner
3,689 cf (max water surface = 119.0)

This basin is designed to detain the difference between the existing and developed 100 year conditions.

Parcel 1 Drainage Continued

Area Draining North

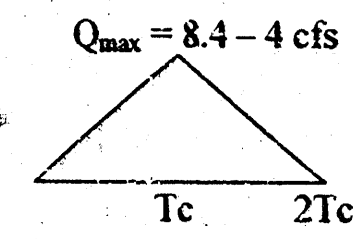
Existing Condition

Area = 58,371 sq. ft. = 1.34 acres
T_c = 15 minutes
Hydrologic Group D Soils, 1 acre lot residential, C₁₀₀ = 0.71
I₁₀₀ = 7.37 in/hr
Q₁₀₀ = CIA = 0.71 (7.37) (1.34) = 7.0 cfs

Developed Condition

Area = 58,371 sq. ft. = 1.34 acres
T_c = 15 minutes
Hydrologic Group D Soils, C₁₀₀ = 0.90
I₁₀₀ = 7.37 in/hr
Q₁₀₀ = CIA = 0.90 (7.37) (1.34) = 8.4 cfs

Volume Required To Store 100 yr. Excess



North Basin will be drained by four 6-inch pipes w/ Q_{max} = 1 cfs each.

$$V_{REQ} = 0.5 (Q_{DEV} - 4 \text{ cfs}) 2T_c$$

$$= 0.5 (4.4) (1800)$$

$$= 3951 \text{ cu. ft. required}$$

Volume Provided

1,260 cf
1,513 cf
1,208 cf
3,981 cf provided

This basin is designed to detain the difference between the existing and developed 100 year conditions.

Parcel 2

Area Draining North

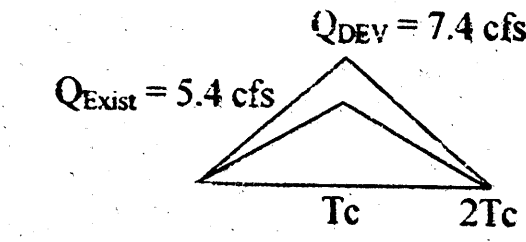
Existing Condition

Area = 44,955 sq. ft. = 1.03 acres
T_c = 15 minutes
Hydrologic Group D Soils, 1 acre lot residential, C₁₀₀ = 0.71
I₁₀₀ = 7.37 in/hr
Q₁₀₀ = CIA = 0.71 (7.37) (1.03) = 5.4 cfs

Developed Condition

Area = 48,205 sq. ft. = 1.11 acres
T_c = 15 minutes
Hydrologic Group D Soils, C₁₀₀ = 0.90
I₁₀₀ = 7.37 in/hr
Q₁₀₀ = CIA = 0.90 (7.37) (1.11) = 7.4 cfs

Volume Required To Store 100 yr. excess



$$V_{REQ} = V_{DEV} - V_{EXIST}$$

$$= 0.5 (7.4) (1800) - 0.5 (5.4) (1800)$$

$$= 6660 - 4860 = 1800 \text{ cu. ft. required}$$

Volume Provided

662 cf
711 cf
52 cf
± 824 cf
2120 cf provided

Basin provides storage volume for runoff difference between existing and developed conditions.

Parcel 2 Drainage Continued

Area Draining South

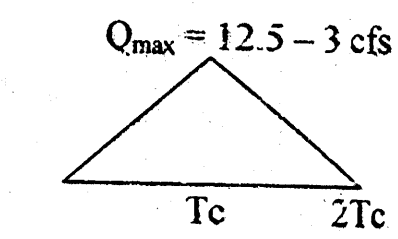
Existing Condition

Area = 85,487 sq. ft. = 1.96 acres
T_c = 15 minutes
Hydrologic Group D Soils, 1 acre lot residential, C₁₀₀ = 0.71
I₁₀₀ = 7.37 in/hr
Q₁₀₀ = CIA = 0.71 (7.37) (1.96) = 10.3 cfs

Developed Condition

Area = 82,237 sq. ft. = 1.89 acres
T_c = 15 minutes
Hydrologic Group D Soils, C₁₀₀ = 0.90
I₁₀₀ = 7.37 in/hr
Q₁₀₀ = CIA = 0.90 (7.37) (1.89) = 12.5 cfs

Volume Required To Store 100 yr. Excess



South Basin will be drained by three 6-inch pipes w/ Q_{max} = 1 cfs each.

$$V_{REQ} = 0.5 (Q_{DEV} - 3 \text{ cfs}) 2T_c$$

$$= 0.5 (9.5) (1800)$$

$$= 8550 \text{ cu. ft. required}$$

Volume Provided

1,945 cf
998 cf
1,140 cf
2,209 cf
2,494 cf
3,790 cf
12,576 cf provided

Basin provides excess storage volume beyond requirement to detain volume in excess of existing conditions.

