

Drainage Plan
(Drainage)
Kadens

Kadens Hill, Tract A: 2.0 ac. 1/4 Sec. 1, T11N, R10E, S1E
 (Drainage) for SWS
 Use 60' for initial, 100' for major storm
 Assume 11.246' drains to SWS, remainder s. to Mt. Carmel
 (Use minimum to 15 minutes) for all areas
 95% impervious surface
 $C_s = 0.85$ $C_{100} = 2.91$ $I_p = 4.5\%$ $I_m = 7.37\%$
 Use Rational method @ CIA
 Tract A:
 $DA = 2.72$ ac. $Q_s = 0.85(4.5)(2.72) = 2.8$ cfs
 $Q_m = 0.85(7.37)(2.72) = 4.8$ cfs

Tract B: $DA = 2.72$ ac. (equal to Tract A)

Pipe size (for total of Tracts A+B) with slope 1.42%
 using Manning's equation, $n = 0.012$, $Q_s = 2.8$ cfs
 15" RCP @ 1.42% will flow 2.7 cfs > 2.8 cfs
 for 12" RCP @ 2.0%, $Q_s = 2.8$ cfs $\approx 2.8 = Q_s$

Check inlet capacities using manhole formula @ 2.0%
 for 2' x 2' gate, $A = 12.6$ sq ft, assume $h = 0.5'$
 $Q = 0.6(12.6) = 7.56$ cfs per inlet $\times 3 = 22.68$ cfs >> Q_s

