CHANNEL PROTECTION STANDARD:

THIS CATCHMENT IS ON HSG "D" SOILS PRIMARILY. TREATMENT PRACTICES IS NOT A RUNOFF REDUCTION STP ∴ HYDROLOGIC CONDITION METHOD TO SATISFY CP_v IS NOT POSSIBLE.

USE EXTENDED DETENTION METHOD TO SATISFY CP_v

COMPUTE T_c PER SECTION 2.2.4.3 USING WATERSHED LAG METHOD.

EXISTING CONDITIONS:

DRAWING 4 LINES ON TOPO MAP PERPENDICULAR TO CONTOUR LINES AND DETERMINE WEIGHTED SLOPE.

① slope: $\frac{7}{280} = 0.025$

② slope: $\frac{9.5}{525} = 0.0181$

③ $s = \frac{6.8}{415} = 0.0164$

④ $s = \frac{2.5}{220} = 0.0114$

$\Sigma = 0.0708 \div 4 = 1.77\% = Y$

T_t

$L = 209 A^{0.6}$

$l = 209 (2.8)^{0.6}$

$l = 387.65$ ft

CN' → BASED ON MODEL OF WEIGHTED AREA

CN = 77

$$T_c = \frac{l^{0.8}\left[\left(\frac{1000}{77} - 10\right) + 1\right]^{0.7}}{1140 (1.77)^{0.5}}$$

$T_c = 0.2$ hrs.

CHANNEL PROTECTION:

PROPOSED CONDITIONS: SLOPE OF DEVELOPED WATERSHED.

(A) slope $= \frac{7}{280} = 0.025$

(B) slope $= \frac{6.5}{455} = 0.0143$

(3) $S = \frac{7.25}{485} = 0.0149$

(4) $S = \frac{7.25}{355} = 0.02$

$\Sigma = 0.075 \div 4 = 0.0187$ $\quad Y = 1.87\%$

$L = 209\,A^{0.6}$

$L = 209(2.8)^{0.6}$

$L = 387.65$ ft

CN' → BASED ON WEIGHTED AREA FROM HYDROCAD

CN' = 86

$$T_C = \frac{L^{0.8}\left[\left(\frac{1000}{CN} - 10\right) + 1\right]^{0.7}}{1140(Y)^{0.5}}$$

$$T_C = \frac{387.65^{0.8}\left[\left(\frac{1000}{86} - 10\right) + 1\right]^{0.7}}{1140(1.87)^{0.5}}$$

$T_C = 0.148$ hrs → 8.9 MIN