TR-55 TIME-OF-CONCENTRATION WORKSHEET

Route:       Project No.:       Location:

Designer:      Date:

Checked By:       Date:

Present [ ]  Developed [ ]

*Tc* [ ]  *Tt* [ ]  Through subarea

A map, schematic, or flow-segments description is attached.

|  |  |  |
| --- | --- | --- |
| Sheet Flow, applies to *Tc* only Segment ID |       |       |
|  1. Surface description, see Figure 202-2B |       |       |
|  2. Manning’s roughness coeff., *n*, see Figure 202-2B |       |       |
|  3. Flow length, *L* (total *L* ≤ 100 ft) |       ft |       ft |
|  4. Two-year 24-h rainfall |       in. |       in. |
|  5. Land slope, *s* |       ft / ft |       ft / ft |
|  6. $T\_{t}=\frac{0.007\left(nL\right)^{0.8}}{\left(P\_{2}\right)^{0.5}\left(s\right)^{0.4}}$ |       h |       h |

Total *Tt* in line 6 for both segments =       h

|  |  |  |
| --- | --- | --- |
| Shallow Concentrated Flow Segment ID |       |       |
|  7. Surface description, paved or unpaved |       |       |
|  8. Flow length, *L* |       ft |       ft |
|  9. Watercourse slope, s |       ft / ft |       ft / ft |
| 10. Average velocity, *V*, see Figure 202-2D |       ft / s |       ft / s |
| 11. $T\_{t}=\frac{L}{3600V}$ |       h |       h |

Total *Tt* in line 11 for both segments =       h

|  |  |  |
| --- | --- | --- |
| Channel Flow Segment ID |       |       |
| 12. Cross-sectional flow area, *a* |       ft2 |       |
| 13. Wetted perimeter, *Pw* |       ft |       ft |
| 14. Hydraulic radius, *r* = *a*/*Pw* |       ft |       ft |
| 15. Channel slope, *s* |       ft / ft |       ft / ft |
| 16. Manning’s roughness coeff., *n*, see Figure 202-2C |       |       |
| 17. $V=\frac{1.49r^{2/3}s^{1/2}}{n}$ |       ft / s |       ft / s |
| 18. Flow length, *L* |       ft |       ft |
| 19. $T\_{t}=\frac{L}{3600V}$ |       h |       h |

Total *Tt* in line 19 for both segments =       h

20. Add *Tt* in lines 6, 11, and 19 to get watershed or subarea *Tc* or *Tt* =       h