| **Worksheet 6: Capture Efficiency Method for Full Infiltration, Constant Drawdown BMPs**  |
| --- |
| Part 1: Calculate the design depth and drawdown time |
| 1 | Enter total effective storage depth (sum of values below) | Dtotal\_ effective |  | inches |
| 1a | Ponding storage depth  | Dpond |  | inches |
| 1b | Media effective storage depth (depth \* 0.2) | Dmedia\_ effective |  | inches |
| 1c | Gravel effective storage (depth \* 0.4) | Dgravel\_ effective |  | inches |
| 2a | Calculate design infiltration rate, *Kdesign = Kobserved / Stotal*(See Worksheet 3 and Appendix D) | Kdesign= |  | in/hr |
| 2b | Calculate drawdown time (*Dtotal\_effective / Kdesign*)  | *Tdrawdown*= |  | hours |
| 2c | If using Method 2 for drawdown (Section E.2.5) which accounts for sidewall infiltration, insert result and attach relevant calculations below. | *Tdrawdown*= |  | hours |
| Part 2: Determine the portion of the design storm for the BMP |
| 3 | Using Figure E-4 or the figure within the worksheet below, determine the "fraction of design capture storm depth" at which the BMP drawdown time line intersects with 80% capture efficiency. Trace down to determine X1 | X1= |  |  |
| 4 | Enter capture efficiency corresponding to upstream HSCs and/or upstream Harvest and Use BMPs, Y2. | Y2 = |  | % |
| 5 | Using Figure E-4 or the figure within the worksheet below, determine the fraction of “design capture storm depth” at which the drawdown time of the BMP intersects with the equivalent of the upstream capture efficiency (Y2). Trace down to determine X2 | X2= |  |  |
| 6 | Calculate the fraction of design capture storm depth that must be provided by the BMP, fraction = X1 – X2 | fraction= |  |  |
| 7 | Enter design capture storm depth from N-1, d (inches) | d= |  | inches |
| 8 | Calculate the storm depth to use in sizing calculations, dfraction= fraction × d  | dfraction= |  | inches |
| Part 3 Calculate the DCV (Section E.2.2) |
| 9a | Enter DMA area tributary to BMP (s), *A* (acres) (not including any self-retaining areas) | A= |  | acres |
| 9b | Enter DMA Imperviousness, *imp*  | imp= |  | unitless |
| 9c | Calculate runoff coefficient, *C= (0.75 x imp) + 0.15* | C= |  | unitless |
| 9d | Calculate the DCV*= (C x dfraction x A x 43560 x (1/12))* | DCV= |  | cu-ft |
| Part 3: Check footprint and drawdown times |
| 10 | Footprint required to retain the DCV, DCV/Deffective (ABMP is measured at the mid ponding depth for systems with side slopes) | ABMP |  | sq ft |
| 11a | Infiltrating surface area required to avoid premature clogging (from Section E.4.1), as percent of tributary impervious area | %Amin,clog |  | % |
| 11b | Provided infiltrating surface area as a fraction of the tributary impervious surface (included wetted infiltrating area when BMP is half full) | %Ainfiltration\_surface |  | % |
| Supporting Calculations |
| Provide supporting graphical operations. |