Sizing Worksheet - RWH-1 Rainwater Harvesting

Designer: Project Proponent: Date: Project: Location:		
Outflow Collection:		
Step 1: Determine Rainwater Harvesting Design Volume (RWHDV) required for full capture		
1-1. Determine the design storm required for 80% capture with a 72-hour drawdown time, d_{design}.	d_{design} =	in
1-2. Enter Project area (acres), $A_{project}$ If this BMP captures runoff from a portion of the project area, enter the tributary area	$A_{project}$ =	acres
1-3. Enter Project impervious fraction, *Imp* (e.g. 60% = 0.60)	Imp=	
1-4. Determine pervious runoff coefficient using Table C-1, C_p	C_p =	
1-5. Calculate runoff coefficient, $C = 0.95*imp + C_p (1-imp)$	C =	
1-6. Determine the rainwater harvesting system volume, $RWHDV = C*(d_{design}/12)*A_{project}$	*RWHDV* =	ac-ft
Step 2: Determine the required daily demand		
2-1. Determine the required daily demand to achieve 80% capture of runoff, Demand = [RWHDV/(72/24)] * (325,851)	*Demand* =	gallons
2-2. Enter the project daily demand	*Project daily demand* =	gallons
If the project daily demand is less than the Demand calculated, the project cannot utilize rainwater harvesting as the sole onsite retention BMP. If rainwater harvesting is desired for use for partial retention or if a predetermined daily demand is to be used, refer to Step 3 and Step 4, respectively.		

Step 3: Determine RWHDV required for partial capture (Optional)		
3-1. Enter desired % capture		
3-2. Enter the desired drawdown time (72 hours max), $t_{drawdown}$	$t_{drawdown}$ =	hours
3-3. Determine the design storm required for selected % capture and drawdown time	d_{design} =	in
3-4. Enter Project area (acres), $A_{project}$	$A_{project}$ =	acres

If this BMP captures runoff from a portion of the project area, enter the tributary area		
3-5. Enter Project impervious fraction, *Imp* (e.g. 60% = 0.60)	Imp=	
3-6. Determine pervious runoff coefficient using Table C-1, C_p	C_p =	
3-7. Calculate runoff coefficient, $C = 0.95*imp + C_p\ (1-imp)$	C =	
3-8. Determine the RWHDV for selected combination of % capture and drawdown time, $RWHDV = C*(d_{design}/12)*A_{project}$	*RWHDV* =	ac-ft
3-9. Determine the required daily demand for the selected capture efficiency and/or drawdown time, Demand = [RWHDV/($t_{drawdown}$/24)] * (325,851)	*Demand* =	gallons

Step 4: Determine RWHDV for a predetermined daily demand (Optional)		
4-1. Enter the daily demand requirement	*Demand*	gallons
4-2. Determine the daily demand requirement in acre-feet (1 acre-foot = 325,851 gallons)	*Demand*	ac-ft
4-3. Enter the desired drawdown time (72 hours max), $t_{drawdown}$	$t_{drawdown}$ =	hours
4-4. Calculate the required RWHDV for the desired drawdown time, RWHDV = Demand *($t_{drawdown}$/24)	*RWHDV* =	ac-ft