

Step 3: Calculate Bioretention Infiltrating surface area	
3-1. Enter water quality design volume (ft ³), $SQDV$	$SQDV =$ ft ³
3-2. Enter design percolation rate (in/hr), P_{design}	$P_{design} =$ in/hr
3-3 Enter the required drain time (48 hours), $t_{ponding}$	$t_{ponding} =$ hours
3-3. Calculate the maximum depth of surface ponding that can be infiltrated within the required drain time (ft): $d_{max} = (P_{design} \times t_{ponding})/12$	$d_{max} =$ ft
3-4. Select surface ponding depth (ft), d_p , such that $d_p \leq d_{max}$	$d_p =$ ft
3-5. Select thickness of amended media (ft, 2 feet minimum, 3 preferred), l_{media}	$l_{media} =$ ft
3-6. Enter porosity of amended media (roughly 25% or 0.25 ft/ft), n_{media}	$n_{media} =$ ft/ft
3-7. Select thickness of optional gravel layer (ft), l_{gravel}	$l_{gravel} =$ ft
3-8. Enter porosity of gravel (roughly 30% or 0.3 ft/ft), n_{gravel}	$n_{gravel} =$ ft/ft
3-9. Calculate the total effective storage depth of bioretention facility (ft): $d_{effective} \leq (d_p + n_{media}l_{media} + n_{gravel}l_{gravel})$	$d_{effective} =$ ft
3-10. Check that the entire effective depth infiltrates in required drainage time, 72 hours: $t_{total} = (d_{effective}/P_{design}) \times 12$ If $t_{total} > 72$ hours, reduce surface ponding depth and/or amended media thickness and/or gravel thickness and return to 3-4. If $t_{total} \leq 72$ hours, proceed to 3-11.	$t_{total} =$ hours
3-11. Calculate the required infiltrating surface area (ft ²): $A_{req} = SQDV/d_{effective}$	$A_{req} =$ ft ²
Step 4: Calculate Bioretention Area Total Footprint	
4-1. Calculate total footprint required by including a buffer for side slopes and freeboard (ft ²) [A_{req} is measured at the as the filter bottom area (toe of side slopes)], A_{tot}	$A_{tot} =$ ft ²
Step 5: Provide conveyance capacity for filter clogging	
5-1. The infiltration facility should be placed off-line, but an emergency overflow must still be provided in the event the filter becomes clogged. Design emergency overflow in accordance with applicable standards of the Ventura County Flood Control District or local jurisdiction.	