

## Appendix 7. Alternative Methods for R<sub>Pv</sub> Compliance

The following tables may be used to compute the Resource Protection event (R<sub>Pv</sub>) surface recharge reductions. The BMP Performance percentage is based on the soil classification of the BMP and the Runoff Volume entering the BMP in the R<sub>Pv</sub> event.

### 1. Bioswale:

R <sub>Pv</sub> Bioswale Performance		
Runoff Volume (in/acre)	BMP performance	
	HSG A/B	HSG C/D
> 1.50 in / acre	44%	21%
0.76 - 1.50 in / acre	47%	23%
0.16 - 0.75 in / acre	57%	27%
0.00 - 0.15 in / acre	95%	95%

### 2. Grassed Channel:

R <sub>Pv</sub> Grassed Channel Performance		
Runoff Volume (in/acre)	BMP performance	
	HSG A/B	HSG C/D
> 1.50 in / acre	16%	8%
0.76 - 1.50 in / acre	18%	9%
0.16 - 0.75 in / acre	22%	11%
0.00 - 0.15 in / acre	100%	100%

### 3. Sheet Flow to Turf Filter Strip:

R <sub>Pv</sub> Turf Filter Strip Performance		
Runoff Volume (in/acre)	BMP performance	
	HSG A/B	HSG C/D
> 1.50 in / acre	21%	8%
0.76 - 1.50 in / acre	23%	9%
0.16 - 0.75 in / acre	28%	11%
0.00 - 0.15 in / acre	100%	100%

## 4. Sheet Flow to Forested Filter Strip:

<b>R<sub>Pv</sub> Forested Filter Strip Performance</b>		
Runoff Volume (in/acre)	BMP performance	
	HSG A/B	HSG C/D
> 1.50 in / acre	34%	16%
0.76 - 1.50 in / acre	37%	18%
0.16 - 0.75 in / acre	45%	22%
0.00 - 0.15 in / acre	95%	95%

## 5. Sheet Flow to Turf Open Space:

<b>R<sub>Pv</sub> Turf Open Space Performance</b>		
Runoff Volume (in/acre)	BMP performance	
	HSG A/B	HSG C/D
> 1.50 in / acre	44%	16%
0.76 - 1.50 in / acre	48%	18%
0.16 - 0.75 in / acre	57%	22%
0.00 - 0.15 in / acre	97%	97%

## 6. Sheet Flow to Forested Open Space:

<b>R<sub>Pv</sub> Forested Open Space Performance</b>		
Runoff Volume (in/acre)	BMP performance	
	HSG A/B	HSG C/D
> 1.50 in / acre	59%	34%
0.76 - 1.50 in / acre	64%	37%
0.16 - 0.75 in / acre	75%	45%
0.00 - 0.15 in / acre	100%	97%

**Effective Curve Number Calculation**

Method to determine effective curve number after Surface Recharge Reductions.

1. Determine R<sub>Pv</sub> inches of runoff entering BMP.

$$\text{R}_{Pv} \text{ for Contributing Area} = \text{Runoff Volume} / \text{BMP Contributing Area} * 12$$

Where: R<sub>Pv</sub> for Contributing Area = Inches of runoff entering BMP (in.)  
 Runoff Volume = Runoff Volume Entering BMP (acre feet)  
 BMP Contributing Area = BMP drainage area (acre)

2. Determine surface recharge BMP R<sub>Pv</sub> runoff reduction per tables above.
3. Determine R<sub>Pv</sub> runoff after BMP reduction:

R<sub>Pv</sub> runoff after reduction = R<sub>Pv</sub> for Contributing Area \* BMP Performance Reduction Percentage

Where:           R<sub>Pv</sub> runoff after reduction = Inches of runoff existing BMP (in.)  
                  R<sub>Pv</sub> for Contributing Area = Inches of runoff entering BMP (in.)  
                  BMP Performance Reduction Percentage = Percentage from tables above.

4. Determine effective Curve Number (CN):

Effective CN = 46.3241 \*  $\sqrt{(\text{R}_{Pv} \text{ runoff after reduction} + 0.025831) + 0.538054}$

Where:           Effective CN = CN after BMP performance reduction  
                  R<sub>Pv</sub> runoff after reduction = Inches of runoff existing BMP (in.)

5. Compare effective CN to Native BMP CN:

NOTE: No additional runoff reduction credit can be taken for surface recharge practices once the equivalent CN for BMP reaches the native soil-cover condition (i.e. for Sheet Flow to Turf Filter Strip on B soils cannot be below a 61 CN.).