

# STORMWATER RETENTION CALCULATION SHEET

## 1. Determine Percentage of Impervious Coverage

Impervious Coverage:

|                                  |       |                       |
|----------------------------------|-------|-----------------------|
| Foundation/slabs                 | _____ | ft <sup>2</sup>       |
| Decks / Patios                   | _____ | ft <sup>2</sup>       |
| Driveways                        | _____ | ft <sup>2</sup>       |
| Sidewalks                        | _____ | ft <sup>2</sup>       |
| Pool/Deck                        | _____ | ft <sup>2</sup>       |
| Other                            | _____ | ft <sup>2</sup>       |
| <b>Total Impervious Coverage</b> | _____ | <b>ft<sup>2</sup></b> |

$$\frac{\text{_____ ft}^2}{\text{Total Impervious Coverage}} \div \frac{\text{_____ ft}^2}{\text{Total Lot Area}} = \text{_____ \% of Impervious Coverage}$$

## 2. Determine Required Swale Volume:

For a home with **less than 40% Impervious Coverage**, use:

$$\frac{\text{_____ ft}^2}{\text{Total Lot Area}} \times 0.0415 = \frac{\text{_____ ft}^3}{\text{Swale Volume}}$$

For a home with **40% or greater Impervious Coverage and no adjacent water bodies**, use:

$$\frac{\text{_____ ft}^2}{\text{Total Lot Area}} \times 0.104 \times \frac{\text{_____ \%}}{\text{Impervious Coverage}} = \frac{\text{_____ ft}^3}{\text{Swale Volume}}$$

For a home with **40% or greater Impervious Coverage and discharging into Sensitive Receiving Water Bodies**, i.e. Outstanding Florida Waters, bays, estuaries, near shore waters, or canals use the following:

$$\frac{\text{_____ ft}^2}{\text{Total Lot Area}} \times 0.156 \times \frac{\text{_____ \%}}{\text{Impervious Coverage}} = \frac{\text{_____ ft}^3}{\text{Swale Volume}}$$

When only **new impervious area** requires stormwater retention:

$$\frac{\text{_____ ft}^2}{\text{New Impervious Area}} \times 0.080 = \frac{\text{_____ ft}^3}{\text{Swale Volume}}$$

*\* When development occurs within the front or rear setback, the entire property must be brought into compliance with Stormwater Retention Requirements \**

## 3. Determine Swale Length

$$\left( \frac{\text{_____ ft}}{\text{Width}} \times \frac{\text{_____ ft}}{\text{Depth}} \right) \div 2 = \frac{\text{_____ ft}^2}{\text{Cross Sectional Area**}}$$

$$\frac{\text{_____ ft}^3}{\text{Swale Volume}} \div \frac{\text{_____ ft}^2}{\text{Cross Sectional Area**}} = \frac{\text{_____ ft}}{\text{Swale Length}}$$

\*\*For example, a V-shaped swale with 4:1 slopes, 8 feet wide and 1 foot deep has 4 sf of Cross Sectional Area.

Source: Compiled from the adopted Best Management Practices contained in the Monroe County Manual of Stormwater Management Practices, pages 14, 24, 40 and 41, prepared by the South Florida Regional Planning Council. These Formulas are derived from the criteria for Water Quality treatment in paragraphs (a), (d), (2)(a)(b),(f) and (h), (3) and (7) of the Monroe County Stormwater Management Ordinances Section 9.5-293, and FAC 62-25 and 40e.