

**APPENDIX A**

**SARASOTA COUNTY  
STORM WATER UTILITY  
MITIGATION CREDIT POLICY**

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# **Sarasota County Storm Water Utility Mitigation Credit Policy**

## **1.0 INTRODUCTION**

Dyer, Riddle, Mills & Precourt, Inc., (DRMP) and Sarasota County have determined that stormwater mitigation credit can be divided into three (3) distinct components. These components are Quality, Quantity and Rate. Quality refers to acts such as storing the first inch of runoff and other activities which enhance water quality. Quantity-refers to the amount of stormwater runoff stored on-site. Rate is associated with the flow of stormwater off-site. These three categories will be used for mitigation of both non-agricultural and agricultural parcels.

Each of the three components may have a different weighting depending on the stormwater goals in each basin and parcel land use. This percent should be set by the County Commissioners, based on recommendations from County Staff and DRMP.

## **2.0 NON-AGRICULTURAL PROPERTY**

### **2.1 Weighting Factors**

This policy recommends a higher priority be given to the Quality and Quantity aspects than to the Rate aspect. These percentages may vary in the future as needed to achieve the County's objectives for each individual basin. The recommended weighting factors are 40% for Quality, 20% for Rate and 40% for Quantity. Quality and Quantity receive a heavier weighting than Rate since the added impervious area and pollutant loadings associated with development significantly impact these parameters. The Rate aspect slows the flow of water but allows a larger volume to be discharged off-site.

## 2.2 Quality

The Quality reduction is based on Chapter 17-40.420 [transferred to Chapter 62-40.432], State Water Policy as found in Attachment A. This rule states in Section 17-40.420.4.a.1 [now found in Section 62-40.432(5)] that new stormwater management systems shall be designed to achieve at least 80 percent reduction of the average annual load of pollutants that would cause or contribute to violations of state water quality standards. The Quality mitigation curve developed by Dr. M. Wanielista at the University of Central Florida and adapted by DRMP, in Figure 1 and Table 1, identifies one inch (1") of storage over the site as equivalent to an eighty percent reduction in annual runoff. This is true as storm events less than one inch amount to 80 percent of the annual rainfall volume and 90 percent of the annual rainfall events.

## 2.3 Rate

The Rate aspect is based on the amount of attenuation provided. The maximum credit of 100% will be received if the 100-year, 24-hour storm event is attenuated. If smaller storms are attenuated, Figure 2 will be used to compute the reduction. The Rate mitigation credit is based on the attenuation volume in a pond beyond that which is required for water quality.

Table 2 summarized the curve development. The storage volume necessary to attenuate a given storm event, beyond that required for water quality, was computed. If the pond is designed to accommodate a 100-year storm event, full credit is received. Smaller storm events can be attenuated using smaller pond volumes. Therefore, the rate mitigation factors are computed based on the relative pond sizes needed for attenuating the various storm events, such as the 10-year and 25-year storms, versus the pond size which would be needed to attenuate the 100-year storm. Attachment B provides further detail on the Rate mitigation curve development.

Sarasota County

Stormwater Rate Conversion Table

| Existing Credit             | Quality                                     | Rate                      | Quantity                        | Proposed Credit 40-20-40 * |
|-----------------------------|---|---------------------------|---------------------------------|----------------------------|
| <b>Existing Development</b> |   |                           |                                 |                            |
| 12.5%                       | 0 inches of stormwater retained             | 10-year storm attenuated  | 0 inches of stormwater retained | 17%                        |
| 25.0%                       | 1 inch or equivalent of stormwater retained | 25-year storm attenuated  | 0 inches of stormwater retained | 50%                        |
| 37.5%                       | 2 inches of stormwater retained             | 25-year storm attenuated  | 2 inches of stormwater retained | 82%                        |
| <b>Future Development</b>   |   |                           |                                 |                            |
| Wet Detention               | 1 inch or equivalent of stormwater retained | 100-year storm attenuated | 0 inches of stormwater retained | 52%                        |
| Dry Retention               | 1 inch or equivalent of stormwater retained | 100-year storm attenuated | 1 inch of stormwater retained   | 69%                        |

\* Quality - Rate - Quantity

$$12.5\% = (0.4)(0) + (0.2)(84) + (0.4)(0) = 17\%$$

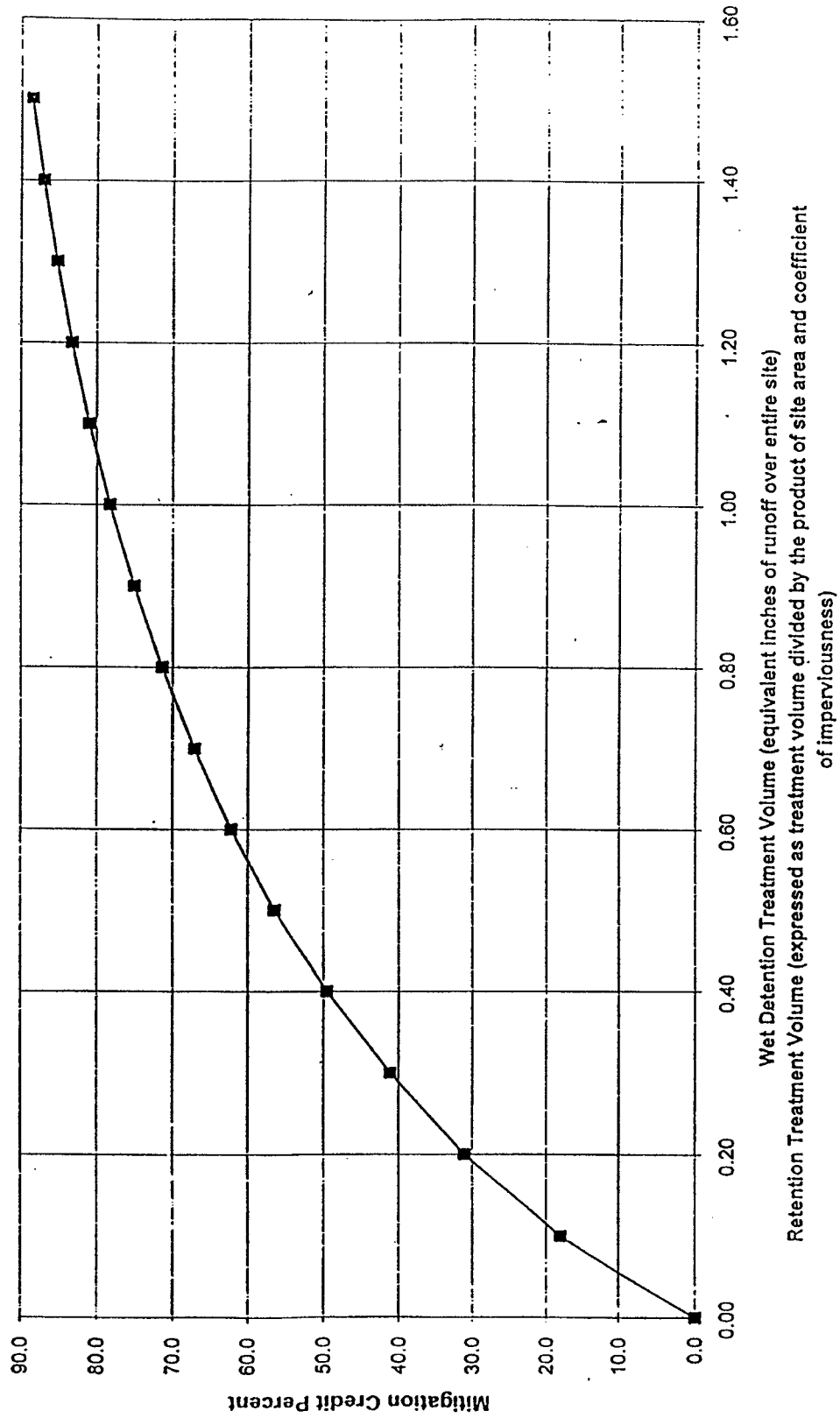
$$25.0\% = (0.4)(80) + (0.2)(90) + (0.4)(0) = 50\%$$

$$37.5\% = (.4)(90) + (.2)(90) + (.4)(69) = 82\%$$

$$\text{Wet Detention} = (0.4)(80) + (0.2)(100) + (0.4)(0) = 52\%$$

$$\text{Dry Retention} = (0.4)(80) + (0.2)(100) + (0.4)(43) = 69\%$$

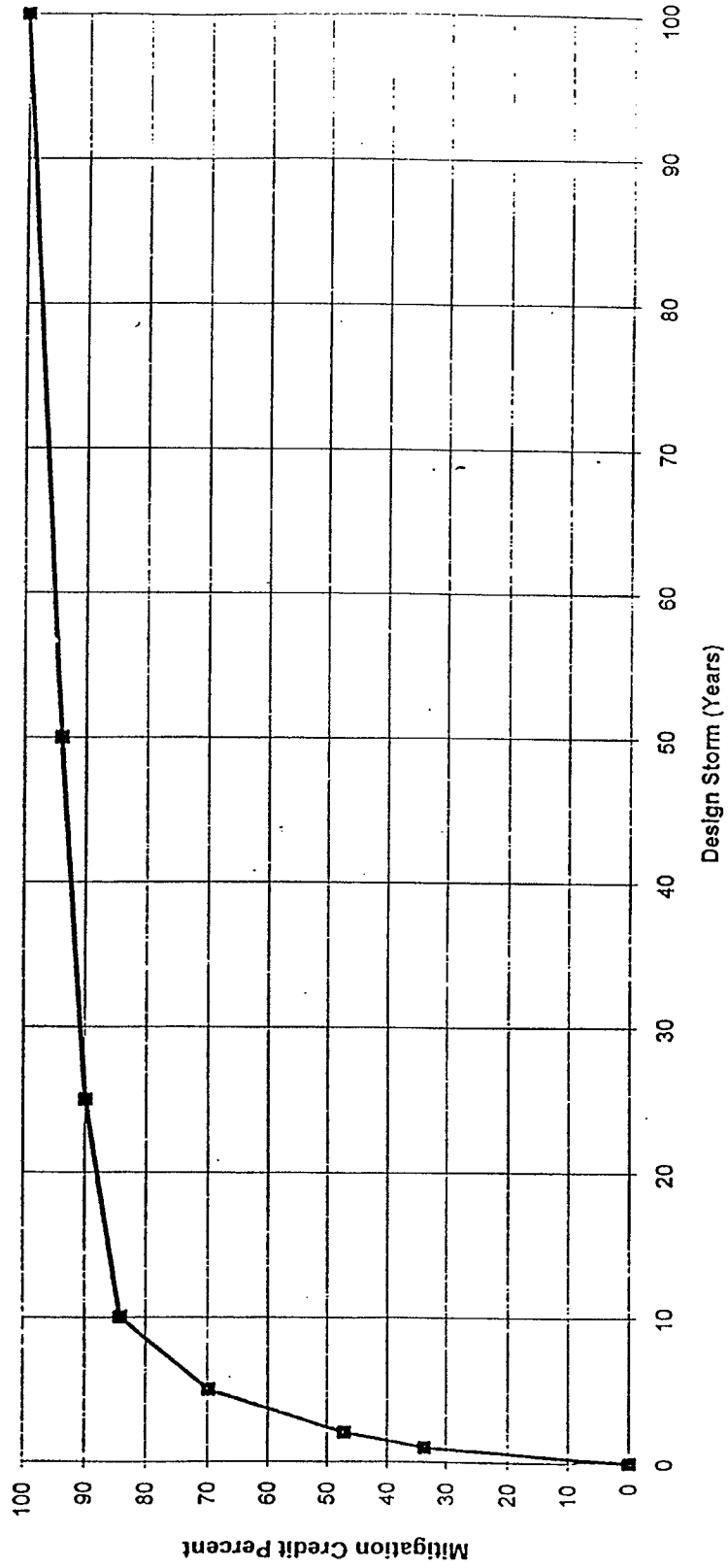
Figure 1  
Quality Mitigation Curve



**Figure 1**  
**Quality Mitigation Curve Development**

| Precipitation Inches | Ni Inches | Vi Inches | Sum Ni Inches | NiVi Inches | Sum NiVi Inches | Vol Inches | Volume (%) Quality/Quantity |
|----------------------|-----------|-----------|---------------|-------------|-----------------|------------|-----------------------------|
| 0.00                 |           | 0         |               |             |                 |            | 0.0                         |
| 0.10                 | 396       | 0.05      | 396           | 19.8        | 19.8            | 125.0      | 18.0                        |
| 0.20                 | 284       | 0.15      | 680           | 42.6        | 62.4            | 216.0      | 31.1                        |
| 0.30                 | 133       | 0.25      | 813           | 33.3        | 95.7            | 286.2      | 41.2                        |
| 0.40                 | 107       | 0.35      | 920           | 37.5        | 133.1           | 344.3      | 49.5                        |
| 0.50                 | 93        | 0.45      | 1013          | 41.9        | 175.0           | 392.5      | 56.4                        |
| 0.60                 | 70        | 0.55      | 1083          | 38.5        | 213.5           | 432.5      | 62.2                        |
| 0.70                 | 46        | 0.65      | 1129          | 29.9        | 243.4           | 466.7      | 67.1                        |
| 0.80                 | 43        | 0.75      | 1172          | 32.3        | 275.6           | 496.4      | 71.4                        |
| 0.90                 | 36        | 0.85      | 1208          | 30.6        | 306.2           | 522.2      | 75.1                        |
| 1.00                 | 36        | 0.95      | 1244          | 34.2        | 340.4           | 544.4      | 78.3                        |
| 1.10                 | 35        | 1.05      | 1279          | 36.8        | 377.2           | 563.1      | 81.0                        |
| 1.20                 | 23        | 1.15      | 1302          | 26.5        | 403.6           | 578.8      | 83.2                        |
| 1.30                 | 18        | 1.25      | 1320          | 22.5        | 426.1           | 592.5      | 85.2                        |
| 1.40                 | 13        | 1.35      | 1333          | 17.6        | 443.7           | 604.7      | 87.0                        |
| 1.50                 | 17        | 1.45      | 1350          | 24.7        | 468.3           | 615.3      | 88.5                        |

Figure 2  
Rate Mitigation Curve



**Figure 2  
Rate Mitigation Curve Development**

| Occurrence Interval*<br>(Year) | Water Quality<br>(ac-ft) | Outflow Hydrograph<br>Volume (ac-ft) | Post Development<br>Pond Volume (ac-ft) | Volume Required for<br>Attenuation (ac-ft) | Mitigation<br>Credit |
|--------------------------------|--------------------------|--------------------------------------|---|--|----------------------|
| 1                              | 6.6                      | 0.3                                  | 26.5                                    | 19.6                                       | 34                   |
| 2                              | 6.6                      | 1.1                                  | 35.1                                    | 27.4                                       | 47                   |
| 5                              | 6.6                      | 5.4                                  | 52.5                                    | 40.6                                       | 70                   |
| 10                             | 6.6                      | 7.0                                  | 62.5                                    | 48.9                                       | 84                   |
| 25                             | 6.6                      | 9.5                                  | 68.3                                    | 52.2                                       | 90                   |
| 50                             | 6.6                      | 9.5                                  | 68.3                                    | 52.3                                       | 90                   |
| 100                            | 6.6                      | 18.0                                 | 82.6                                    | 58.1                                       | 100                  |

\* 24 hour storm event

## 2.4 Quantity and Cisterns

Quantity mitigation refers to the volume of storage on site. A water quantity credit can be received in one of two ways. Individual property owners may install cisterns to collect the rainwater discharging off the roof and then reuse the water for irrigation purposes. Secondly, stormwater devices, mainly ponds, can be constructed such that additional storage is provided.

Cisterns are considered a water quantity improvement as there is no guarantee the “first flush” of runoff is being collected. Therefore, the benefit derived from cisterns is of a water quantity nature. Cisterns are designed to encourage individual property owners to take an active role in stormwater management. A property owner who installs a 2,500 gallon cistern will receive a 28% water quantity credit based on the following calculations and assumptions:

### Assumptions:

- 100% of an ESU’s impervious area is directly connected.
- The cistern size is 2,500 gallons.
- The roof only drains to the cistern.
- The cistern contains 500 gallons when the next storm arrives.

### Calculations:

The annual runoff from an ESU is 9.5 inches without a cistern collection system. Once a cistern is in place, annual stormwater runoff is reduced to 6.8 inches. Of this 6.8 inches, 2.8 inches is attributed to the yard and the driveway. The remaining 4.0 inches is produced by storm events in excess of 1.8 inches which overflow the cistern. The mitigation credit is then 28 percent

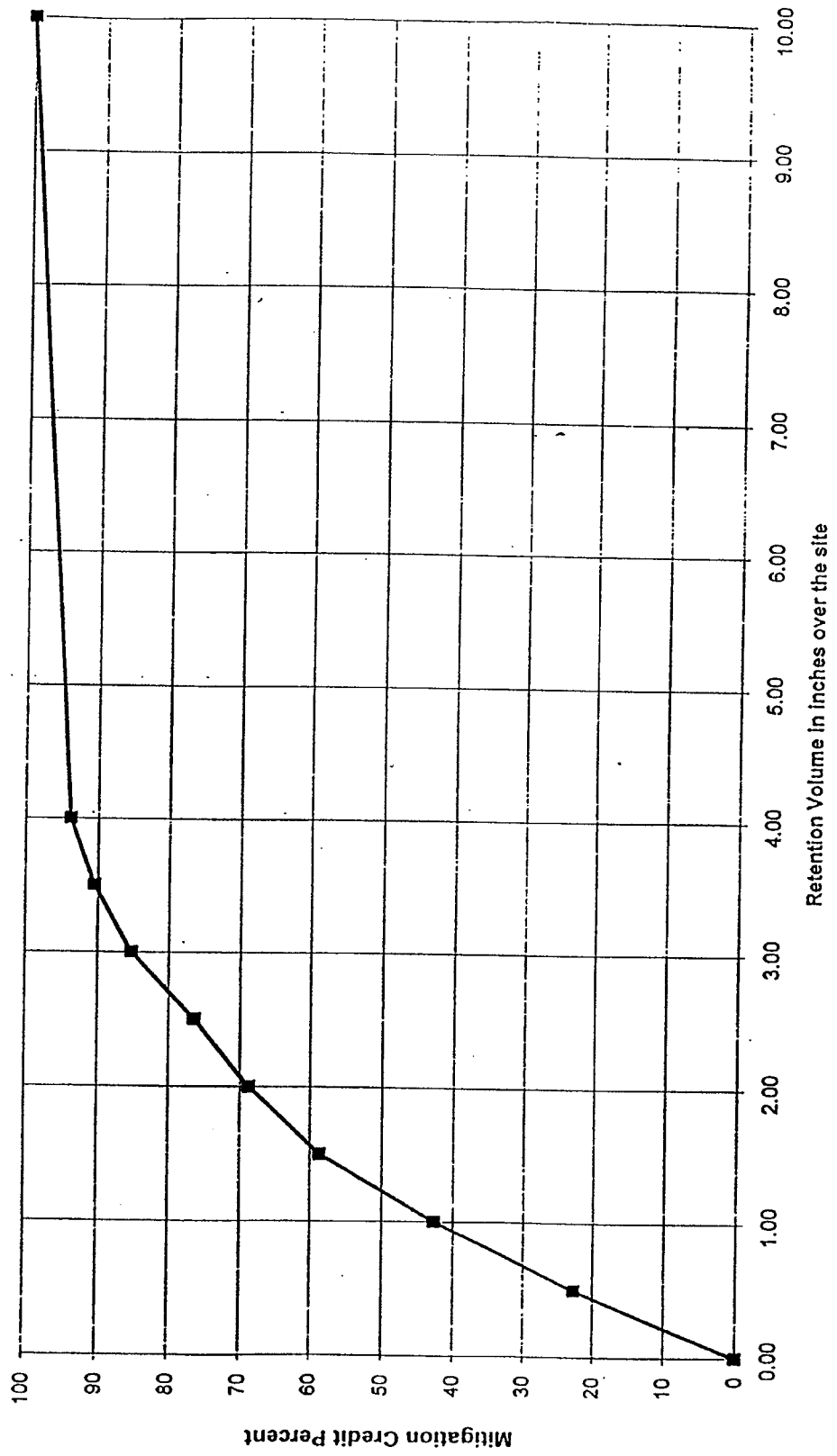
$$\frac{(9.5 - 6.8)}{9.5} \times 100 = 28\%$$

Quantity mitigation credit is also given for retaining stormwater prior to discharging offsite.

Table 3 and Figure 3 outline the Quantity mitigation curve development. As retention storage is increased, the amount of runoff collected increases; likewise, the credit allocated increases.

Attachment C provides several examples on calculating the overall mitigation credit.

Figure 3  
Quantity Mitigation Curve



**TABLE 3**  
**Quantity Mitigation Curve Development**

| Precipitation<br>(inches)   | Incremental<br>Runoff<br>(in/yr) | Treatment Volume Over Site |                   |                       |                     |                       |                       |                       |                       |             |  |
|-----------------------------|----------------------------------|----------------------------|-------------------|-----------------------|---------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------|--|
|                             |                                  | 0.5 inches<br>(in/yr)      | 1 inch<br>(in/yr) | 1.5 inches<br>(in/yr) | 2 inches<br>(in/yr) | 2.5 inches<br>(in/yr) | 3.0 inches<br>(in/yr) | 3.5 inches<br>(in/yr) | 4.0 inches<br>(in/yr) |             |  |
| 0.0 - 0.5                   | 2.17                             | 0.00                       | 0.00              | 0.00                  | 0.00                | 0.00                  | 0.00                  | 0.00                  | 0.00                  | 0.00        |  |
| 0.5 - 1.0                   | 1.90                             | 1.90                       | 0.00              | 0.00                  | 0.00                | 0.00                  | 0.00                  | 0.00                  | 0.00                  | 0.00        |  |
| 1.0 - 1.5                   | 1.52                             | 1.52                       | 1.52              | 0.00                  | 0.00                | 0.00                  | 0.00                  | 0.00                  | 0.00                  | 0.00        |  |
| 1.5 - 2.0                   | 0.97                             | 0.97                       | 0.97              | 0.97                  | 0.00                | 0.00                  | 0.00                  | 0.00                  | 0.00                  | 0.00        |  |
| 2.0 - 2.5                   | 0.73                             | 0.73                       | 0.73              | 0.73                  | 0.73                | 0.00                  | 0.00                  | 0.00                  | 0.00                  | 0.00        |  |
| 2.5 - 3.0                   | 0.84                             | 0.84                       | 0.84              | 0.84                  | 0.84                | 0.84                  | 0.00                  | 0.00                  | 0.00                  | 0.00        |  |
| 3.0 - 3.5                   | 0.50                             | 0.50                       | 0.50              | 0.50                  | 0.50                | 0.50                  | 0.50                  | 0.00                  | 0.00                  | 0.00        |  |
| 3.5 - 4.0                   | 0.32                             | 0.32                       | 0.32              | 0.32                  | 0.32                | 0.32                  | 0.32                  | 0.32                  | 0.32                  | 0.00        |  |
| 4.0 - 4.5                   | 0.59                             | 0.59                       | 0.59              | 0.59                  | 0.59                | 0.59                  | 0.59                  | 0.59                  | 0.59                  | 0.59        |  |
| <b>Total Runoff</b>         | <b>9.53</b>                      | <b>7.36</b>                | <b>5.46</b>       | <b>3.94</b>           | <b>2.97</b>         | <b>2.24</b>           | <b>1.40</b>           | <b>0.91</b>           | <b>0.59</b>           | <b>0.59</b> |  |
| <b>Percent Reduction *</b>  | <b>100</b>                       | <b>77</b>                  | <b>57</b>         | <b>41</b>             | <b>31</b>           | <b>24</b>             | <b>15</b>             | <b>10</b>             | <b>6</b>              | <b>6</b>    |  |
| <b>Mitigation Credit **</b> | <b>0</b>                         | <b>23</b>                  | <b>43</b>         | <b>59</b>             | <b>69</b>           | <b>76</b>             | <b>85</b>             | <b>90</b>             | <b>94</b>             | <b>94</b>   |  |

9.53 inches is total annual runoff for an ESU with no mitigation

\* Percent Reduction = (Total Runoff / Total Runoff with no storage) \* 100  
Example = 7.36/9.53 \* 100 = 77%

\*\* Mitigation Credit = (Reduction in quantity retention is excess of 1 inch)/(5.3 inches)\*100  
Example = (9.53-7.36) / 9.53 \*100 = 23%

### 3.0 AGRICULTURAL PROPERTY

#### 3.1 Weighting Factors

The recommended percentages for agricultural parcels in all areas of the County are as follows.

|          |       |
|----------|-------|
| Quality  | = 50% |
| Rate     | = 25% |
| Quantity | = 25% |

Quality is rated more heavily for agricultural parcels, as compared to the weighting recommended for non-agricultural parcels, because the major harm to stormwater receiving water bodies is from the chemicals and fertilizers used and the waste products produced by livestock. Rate and quantity are incorporated to promote flow rate reduction or maintenance as required by the Southwest Florida Water Management District (SWFWMD).

The following are two ways to obtain agriculture mitigation credit:

#### 3.2 Management and Storage of Surface Waters (MSSW) Permit

Agriculture areas, or portions thereof, with an approved and current Management and Storage of Surface Waters (MSSW) permit from SWFWMD, will receive the reduction on the permitted area based on the curves created for non-agricultural parcels. The property owner will need to provide evidence of an MSSW and that portion of the property covered by the permits. An equivalent ESU will be calculated based on the mitigation area and the non-mitigation area.

Mitigation credit for Rate is based on the recurrence interval of the storm attenuated. This credit is calculated by comparing the detention volume required to attenuate the 100-year, 24-hour storm to the volume required to attenuate lesser storms. Sarasota County currently requires the attenuation of the 100-year, 24-hour storm event; thus, this storm is the benchmark to which all

other storms are compared. A rate mitigation credit curve has been developed to depict the credit for various storm events and is presented as Figure 2 and Table 2. A more rigorous discussion of this approach is presented in Attachment B.

Quantity mitigation credit is based on the amount of pond storage that is provided. Figure 3 and Table 3 outline the development of this credit. Additional information is provided under non-agricultural development.

### 3.3 Range Management Plans

The USDA-Soil Conservation Service has a program which develops Range Management Plans (RMP) for the agricultural community. An RMP is individualized to the specific land use, soil type, elevation, etc. of the parcel. After extensive on-site investigation and discussions with the land owner, an RMP is developed. This plan incorporates any number of over 120 items. Very few are quantitative in regard to treatment volume or attenuation, which are directly related to Quality, Rate and Quantity. Table 4 identifies the possible activities that may be included in an RMP and the area (Quality, Rate, Quantity) that each activity may qualitatively affect. For two years, those with a Range Management Plan (RMP) will receive a mitigation credit of 50 percent based on the portion of their property receiving benefit from the RMP. The 50 percent mitigation credit assumes an 80% reduction in pollutant loadings as mandated by the State for Quality and a 40 percent reduction in Rate. After the first two years, property owners with an RMP will be required to show compliance with County policies in order to retain the 50 percent mitigation credit. This compliance may be shown by producing an RMP that has been updated and approved by the USDA-SCS within the past year. This process must be done yearly in order to maintain the mitigation credit. The percent reduction calculations are presented below. Attachment C provides several examples on calculating the overall mitigation credit.

Quality = 80% based on storing the first inch of runoff  
Rate = 40% based on not adversely affecting neighboring properties  
Quantity = No additional storage

$$\begin{aligned} \text{Total Mitigation Credit} = & (50\%)(80\%) + (25\%)(40\%) + (25\%)(0\%) = 50\% \\ & \text{(Quality Weight)(Percentage)} \\ & + \text{(Rate Weight)(Percentage)} \\ & + \text{(Quantity Weight)(Percentage)} = \text{Mitigation Credit} \end{aligned}$$

**TABLE 4**  
**Range Management Plan Summary**

| Activity                                     | Quality | Rate | Volume |
|--|---------|------|--------|
| <b>Cropland Management Practices</b>         |         |      |        |
| Chiseling and Subsoiling (acre)              | X       | XX   | XX     |
| Conservation Cover (acre)                    | X       | X    | X      |
| Conservation Cropping Sequence (acre)        | X       | X    | X      |
| Conservation Tillage (acre)                  | X       | XX   | XX     |
| Contour Farming (acre)                       | X       | X    | X      |
| Contour Orchard and Other Fruit Areas (acre) | D       | D    | D      |
| Cover and Green Manure Crop (acre)           | X       | X    | X      |
| Crop Residue Use (acre)                      | X       |      |        |
| Field Border (ft)                            | X       |      |        |
| Filter Strip (acre)                          | XX      |      |        |
| Grassed Waterway (acre)                      | X       |      |        |
| Grade Stabilization Structure (no.)          | D       | D    | D      |
| Grasses and Legumes in Rotation (acre)       | X       | X    | X      |
| Hillside Ditch (ft)                          | X       | X    | XX     |
| Land Smoothing (acre)                        | D       |      |        |
| Lined Waterway or Outlet (ft)                | D       | D    | D      |
| Precision Land Forming                       | D       | D    | D      |
| Rock Barrier (ft)                            | X       | X(?) | X(?)   |
| Row Arrangement (acre)                       | D       | D    |        |
| Stripcropping, Contour (acre)                | XX      | XX   | XX     |
| Stripcropping, Field                         | XX      | XX   | XX     |
| Stripcropping, Wind                          | X       |      |        |
| Surface Roughening (acre)                    | D       | D    | D      |
| Terrace                                      | D       | X    | D      |
| Underground Outlet (ft)                      |         |      |        |
| Waste Utilization (acre)                     | X       | D(?) | D      |
| Water and Sediment Control Basin (No.)       | X       | X    |        |
| <b>Grassland Practice</b>                    |         |      |        |
| Brush Management                             | X       | X    | X      |
| Deferred Grazing                             | X       | X    | D      |
| Fencing (ft)                                 | D       |      |        |
| Grazing Land Mechanical Treatment            | X       | X    | D      |
| Livestock Exclusion                          | X       |      |        |
| Pasture and Hayland Management (acre)        | XX      | X    | X      |
| Pasture and Hayland Planting (acre)          | X       | X    | X      |
| Planned Grazing Systems                      | X       | X    | X      |
| Proper Grazing Use                           | X       | X    | X      |

X = Applicable  
 XX = Recommended  
 D = Depends on Situation  
 Blank = No Effect or Negative Effect

**TABLE 4**  
**Range Management Plan Summary**

| <b>Activity</b>  | <b>Quality</b> | <b>Rate</b> | <b>Volume</b> |
|--|----------------|-------------|---------------|
| Range Seeding  | D              | X           | D             |
| Stock Trails and Walkways                                |                |             |               |
| <b>Irrigation Practices</b>                              |                |             |               |
| Irrigation Canal or Lateral (ft)                         |                |             |               |
| Irrigation Field Ditch (ft)                              |                |             |               |
| Irrigation Land Leveling (acre)                          |                | X           |               |
| Irrigation Pit (No.) – (Reuse)                           | XX             | XX          | XX            |
| Regulating Reservoir (No.)                               | X              | X           | X             |
| Irrigation Storage Reservoir (No. and acre-ft) – (Reuse) | X              | X           | X             |
| Irrigation System, Trickle (No. and acre)                | X              |             |               |
| Irrigation System, Sprinkler (No. and acre)              | X              |             |               |
| Irrigation System, Surface and Subsurface (No. and acre) | X              |             |               |
| Irrigation System, Tailwater Recovery (No.) – (Reuse)    | X              | X           | X             |
| Irrigation Water Conveyance, Ditch and Canal Lining (ft) |                |             |               |
| Irrigation Water Conveyance, Pipeline (ft)               |                |             |               |
| Irrigating Water Management (acre)                       | X              |             | X             |
| Well (No.)   |                |             |               |
| <b>Drainage Practices</b>                                |                |             |               |
| Bedding (acre)   |                |             |               |
| Mole Drain (ft)  |                |             |               |
| Open Channel (ft)  |                |             |               |
| Pumped Well drain (No.)                                  |                |             |               |
| Bedding (acre)   |                |             |               |
| Clearing and Snagging (ft)                               |                |             |               |
| Stream Channel Stabilization (ft)                        | X              |             |               |
| Structure for Water Control (No.)                        | X              | D           | D             |
| Pumping Plant for Water Control (No.)                    |                |             |               |
| Regulating Water in Drainage System (acre)               | D              | D           | D             |
| Spoil Spreading (ft)                                     |                |             |               |
| Streambank and Shoreline Protection (ft)                 | X              |             |               |
| Surface Drainage Main or Lateral (ft)                    |                |             |               |
| Vertical Drain (No.)                                     |                |             | X             |
| Subsurface Drain (ft)                                    | D              |             |               |
| Surface Drainage, Field Ditch                            |                |             |               |
| <b>Fishery and Wildlife Practices</b>                    |                |             |               |
| Commercial Fishponds (acre)                              |                |             |               |
| Fish Raceway or Tank (m, ft and m31s, ft31s)             |                |             |               |

X = Applicable  
 XX = Recommended  
 D = Depends on Situation  
 Blank = No Effect or Negative Effect

**TABLE 4**  
**Range Management Plan Summary**

| <b>Activity</b>  | <b>Quality</b> | <b>Rate</b> | <b>Volume</b> |
|--|----------------|-------------|---------------|
| Water Table Control (acre)                               | D              |             |               |
| Wildlife Upland Habitat Management (acre)                | D              |             |               |
| Wildlife Watering Facility (No.)                         | D              | D           | D             |
| Wildlife Wetland Habitat Management (acre)               | X              | D           | D             |
| Fish Stream Improvement (ft)                             | X              |             |               |
| Fishpond Management (No.)                                | D              |             |               |
| <b>Forestry and Recreation Practices</b>                 |                |             |               |
| Hedgerow Planting (ft)                                   | X              | D           | D             |
| Forest Land Erosion Control System (acre)                | X              |             |               |
| Forest Land Management (acre)                            | D              | D           | D             |
| Livestock Exclusion                                      | X              |             |               |
| Prescribe Burning (acre)                                 | X              |             |               |
| Farmstead and Feedlot Windbreak                          | X              |             |               |
| Field Windbreak  | X              |             |               |
| Firebreak (ft)   |                |             |               |
| Tree Planting  | XX             | X           | X             |
| Windbreak Renovation                                     | X              |             |               |
| Proper Woodland Grazing (acre)                           |                |             |               |
| Recreation Area Improvement (acre)                       | X              | X           | D             |
| Recreation Land Grading and Shaping (acre)               |                |             |               |
| Dam, Diversion (No.)                                     | D              | D           | D             |
| Woodland Direct Seeding (acre)                           | X              | X           | X             |
| Woodland Improved Harvesting (acre)                      |                |             |               |
| Woodland Improvement (acre)                              |                |             |               |
| Woodland Pruning (acre)                                  |                |             |               |
| <b>Water Impoundment Practices</b>                       |                |             |               |
| Irrigation Storage Reservoir (No. and acre-ft) – (Reuse) | X              | X           | X             |
| Dam, Floodwater Retarding                                | X              | XX          | X             |
| Dam, Multiple-Purpose (No. and acre-ft) – (Reuse)        | X              | XX          | X             |
| Waste Storage Pond (No.)                                 | XX             |             |               |
| Pond (No.)   | X              | X           | X             |
| Sediment Basin (No.)                                     | XX             | X           |               |
| Structure for Water Control (No.)                        | D              | D           | D             |
| Water and Sediment Control Basin (No.)                   | XX             | XX          | X             |
| Wildlife Watering Facility (No.)                         | D              | D           | D             |
| Waste Treatment Lagoon (No.)                             | XX             |             |               |
| Water Harvesting Catchment (No.) – (Reuse)               | X              | X           | X             |
| Diversion (ft)   | X              |             |               |

X = Applicable  
 XX = Recommended  
 D = Depends on Situation  
 Blank = No Effect or Negative Effect

**TABLE 4  
Range Management Plan Summary**

| Activity                                 | Quality | Rate | Volume |
|--|---------|------|--------|
| Floodwater Diversion (ft)                |         |      |        |
| Channel Vegetation (acre)                | X       | D    |        |
| Dike (ft)                                | D       | D    | D      |
| Streambank and Shoreline Protection (ft) | X       |      |        |
| Stream Channel Stabilization (ft)        | X       |      |        |
| Floodway (ft)                            | X       |      |        |
| Pumped Well Drain (No.)                  |         |      |        |
| Pumping Plant for Water Control (No.)    |         |      |        |
| Spring Development (No.)                 |         |      |        |
| Heavy Use Area Protection (acre)         | D       |      |        |
| <b>Miscellaneous Practices</b>           |         |      |        |
| Land Clearing (acre)                     |         |      |        |
| Mulching (acre)                          | X       | D    | D      |
| Access Road (ft)                         | D       |      |        |
| Critical Area Planting (acre)            | X       |      |        |
| Pond Sealing or Lining (No.)             |         |      |        |
| Flexible Membrane                        |         |      |        |
| Recreation Area Improvement (acre)       | D       | D    | D      |
| Recreation Land Grading and Shaping      |         |      |        |
| Obstruction Removal (acre)               |         |      |        |
| Pipeline (ft)                            | X       | D    | D      |
| Spoil Spreading (ft)                     | D       |      |        |
| Spring Development (No.)                 |         |      |        |
| Trough or Tank (No.)                     | X       |      |        |
| Waste Management System (No.)            | XX      | D    | D      |
| Recreation Trail and Walkway (ft)        |         |      |        |
| Roof Runoff Management (No.)             | X       | X    | D      |
| Runoff Management System (No. and acre)  | X       | X    | X      |
| Well (No.)                               |         |      |        |
| Waste Storage Pond (No.)                 | XX      |      |        |
| Waste Storage Structure (No.)            | XX      |      |        |
| Waste Treatment Lagoon (No.)             | XX      | X    | X      |
| Waste Utilization (acre)                 | X       |      |        |
| Water Spreading (acre)                   | X       | X    | X      |

X = Applicable  
 XX = Recommended  
 D = Depends on Situation  
 Blank = No Effect or Negative Effect

## Definitions

1. **Agricultural Development:** Land and ancillary facilities utilized in farming, ranching and raising horticultural plants is referred to as natural state, pasture/meadow, groves, orchards and tilled agriculture. DOR codes 5000 through 6999, inclusively, indicate Agricultural Development.
2. **Attenuation:** The act or process of maintaining or decreasing the rate of water flow from the pre-development to the post-development condition.
3. **Cistern:** A large receptacle for storing water, normally a tank, above ground or below ground, in which rainwater is collected for future use. The minimum size for establishment of mitigation credit is 2,500 gallons.
4. **Detention:** The storage and slow release of stormwater runoff to effect a reduction in flow rate through a structure or from a site.
5. **First Flush:** That portion of a storm event in which the pollutants in the runoff are generally considered to be at the highest concentration, generally accepted to be the first inch of rainfall for retention systems and the first inch of runoff for wet detention systems.
6. **Non-Agricultural Development:** Lands associated with development including, but not limited to, single family developed parcels, mobile homes, condominiums, duplexes and General Parcels. All DOR codes, except 5000 through 6999, inclusively, indicate Non-Agricultural Development.

7. **Quality:** The aspect of stormwater runoff related to pollutant levels in the receiving water bodies.
8. **Quantity:** The aspect of stormwater runoff related to the total volume of water generated by a storm event and evacuated through a structure or from a parcel of land.
9. **Rate:** The aspect of stormwater runoff related to the volume of stormwater and the time required to evacuate it through a structure or from a parcel of land, expressed as cubic feet per second (cfs).
10. **Retention:** The storage of stormwater runoff on-site with volume recovery only through infiltration into the ground, or through evaporation.
11. **Wet Detention:** The storage of stormwater runoff on-site such that it is gradually released to downstream drainage systems, allowing the cleansing of the stormwater runoff through contact with planted wetland vegetation.