

**PART B**  
**WATER USE MANAGEMENT SYSTEM**  
**DESIGN AND EVALUATION AIDS**  
**V. SUPPLEMENTAL CROP REQUIREMENT**  
**AND**  
**WITHDRAWAL CALCULATION**

## SUPPLEMENTAL CROP REQUIREMENT AND WITHDRAWAL CALCULATION

### Introduction

The Water Use Division of the South Florida Water Management District uses a modified Blaney-Criddle equation to determine evapotranspiration and the Soil Conservation Service method described below to determine supplemental irrigation needs.

#### 1.0 The Modified Blaney-Criddle Equation

1.1 The Blaney-Criddle equation in its basic form is

$$(1) \quad U = k \sum_{1}^m p t / 100$$

where

U = crop evapotranspiration for a given period

k = an annual, seasonal, or monthly empirical consumptive use coefficient which varies according to the crop (see description below)

p = percent of daytime hours of the year which occur during the period

t = mean temperature for the period, in degrees Fahrenheit

m = month

1.2 The following modification has been made to the above equation:

$$(2) \quad k = k_t \times k_c$$

where

$k_t$  = a climatic coefficient which is related to the mean air temperature;  $k_t = 0.0173t - 0.314$

$k_c$  = a coefficient reflecting the growth stage of the crop; values are shown in Tables SCR-1

RT(M) = average monthly rainfall (Table SCR-2)

F(M) = monthly evapotranspiration factor

T(M) = average monthly temperature (Table SCR-2 )

P(M) = monthly percentage of annual daylight hours (Table SCR-2 )

RE(M) = monthly effective rainfall

RE2(M) = monthly effective rainfall normalized to level of certainty

AKT(M)= kt

AKC(M) = monthly crop growth coefficient (Table SCR-1)

RT1(M) = average monthly effective rainfall factor considering average monthly rainfall

UI(M) = average monthly effective rainfall factor considering average monthly evapotranspiration

D = net depth of application (see Figures SCR-1 through SCR-15)

F1 = soil factor

F2 = ratio of design drought growing-season effective rainfall to average annual rainfall (Table SCR-2 )

The locations of the geographical areas represented by the rainfall stations (Table SCR-2) used to determine the average monthly rainfall RT(M), average monthly temperature T(M), and monthly percentage of annual daylight hours P(M) are shown in Figures SCR-1 through SCR-15.

2.2.2 Equation (3) is solved for each month of the year for perennial crops, or for each month of the growing season for annual crops. The largest monthly difference between evapotranspiration and design drought effective rainfall is the basis of the maximum month allocation and the total of the monthly differences between evapotranspiration and design drought effective rainfall is the basis of the annual allocation. The maximum month and annual differences are multiplied by the Allocation Coefficient Multiplier (BOR Table 2-1) to determine the overall crop requirement then multiplied by the irrigated acreage to give an allocation, equation (4).

### 3.0 Additional information

Additional detail on this method may be found in "Irrigation Water Requirements," Technical Release No. 21, USDA, Soil Conservation Service, Engineering Division, 1970.

2.0 The irrigation water use allocation is calculated as follows:

$$(3) \quad \text{SUP} = U - \text{RE} (d, s)$$

$$(4) \quad Q = \text{SUP} \times \text{ACM} \times A$$

where

SUP = supplemental irrigation requirement for the growing period in inches

RE = effective rainfall, which is normalized to the design drought (d), and the soil type (s)

Q = allocation (acre inches)

ACM = Allocation Coefficient Multiplier (BOR Table 2-1)

A = irrigated acreage (acres)

## 2.1 Growth Coefficients

2.1.1 The crop growth coefficient used in the equations are determined as follows:

- 1) For perennial crops, twelve monthly coefficients are given in Table SCR-1.
- 2) For annual crops, monthly coefficients for growing seasons of three and four months are given in Table SCR-1.

## 2.2 Calculation of Monthly Supplemental Irrigation Requirement and Allocation

2.2.1 The Water Use Division uses a computer program to calculate the supplemental irrigation water requirement used in determining an irrigation water use allocation. The program approximates equations (1) and (2) as follows:

$$(5) \quad F(M) = (T(M) \times P(M)) / 100$$

$$(6) \quad \text{AKT}(M) = (0.0173 \times T(M)) - 0.314$$

$$(7) \quad \text{AKTF}(M) = F(M) \times \text{AKT}(M)$$

$$(8) \quad U(M) = \text{AKTF}(M) \times \text{AKC}(M)$$

$$(9) \quad \text{RTI}(M) = (0.70917 \times (\text{RT}(M))^{0.82416}) - 0.11556$$

$$(10) \quad \text{UI}(M) = 10^{(0.02426 \times U(M))}$$

$$(11) \quad F1 = 0.531747 + 0.295154 \times D - 0.057697 \times D^2 + 0.003804 \times D^3$$

$$(12) \quad \text{RE}(M) = \text{RTI}(M) \times \text{UI}(M) \times F1$$

$$(13) \quad \text{RE2} = \text{RE}(M) \times F2$$

where

M = month of year

U(M) = average monthly evapotranspiration

**TABLE SCR-1: Growth Coefficients for Crops**

**Monthly Coefficients for Perennial Crops**

|                   | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>AVOCADO</b>    | 0.27 | 0.42 | 0.58 | 0.70 | 0.78 | 0.81 | 0.77 | 0.71 | 0.63 | 0.54 | 0.43 | 0.30 |
| <b>CITRUS</b>     | 0.63 | 0.66 | 0.68 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 | 0.70 | 0.68 | 0.67 | 0.64 |
| <b>SUGARCANE</b>  | 0.39 | 0.30 | 0.53 | 0.61 | 0.70 | 0.79 | 0.79 | 0.84 | 0.73 | 0.88 | 0.72 | 0.69 |
| <b>GRAPES</b>     | 0.20 | 0.24 | 0.38 | 0.60 | 0.71 | 0.80 | 0.80 | 0.76 | 0.61 | 0.50 | 0.35 | 0.23 |
| <b>TURF GRASS</b> | 0.49 | 0.57 | 0.73 | 0.85 | 0.90 | 0.92 | 0.92 | 0.91 | 0.87 | 0.79 | 0.67 | 0.55 |
| <b>PASTURE</b>    | 0.46 | 0.60 | 0.63 | 0.68 | 0.70 | 0.53 | 0.56 | 0.58 | 0.52 | 0.53 | 0.49 | 0.44 |

**Monthly Coefficients for Annual Crops**

|                         | <b>Three-Month Growing Season</b> |          |          | <b>Four-Month Growing Season</b> |          |          |          |
|-------------------------|-----------------------------------|----------|----------|----------------------------------|----------|----------|----------|
|                         | Month of Growing Season           |          |          | Month of Growing Season          |          |          |          |
|                         | <b>1</b>                          | <b>2</b> | <b>3</b> | <b>1</b>                         | <b>2</b> | <b>3</b> | <b>4</b> |
| <b>DRY BEANS</b>        | 0.73                              | 1.08     | 0.81     | 0.66                             | 1.02     | 1.06     | 0.75     |
| <b>WINTER WHEAT</b>     | 0.40                              | 0.81     | 1.18     | 0.35                             | 0.65     | 0.97     | 1.22     |
| <b>SURGHUM</b>          | 0.54                              | 1.01     | 0.70     | 0.43                             | 0.99     | 0.93     | 0.65     |
| <b>GREEN BEAN</b>       | 0.61                              | 0.91     | 1.10     | 0.58                             | 0.79     | 1.01     | 1.11     |
| <b>GRAIN CORN</b>       | 0.59                              | 1.02     | 0.96     | 0.54                             | 0.90     | 1.06     | 0.93     |
| <b>SILAGE CORN</b>      | 0.55                              | 0.97     | 1.03     | 0.51                             | 0.81     | 1.06     | 1.02     |
| <b>SWEET CORN</b>       | 0.60                              | 1.02     | 1.04     | 0.55                             | 0.90     | 1.07     | 1.03     |
| <b>MELONS</b>           | 0.56                              | 0.79     | 0.72     | 0.52                             | 0.75     | 0.79     | 0.71     |
| <b>PEAS</b>             | 0.72                              | 1.09     | 1.03     | 0.66                             | 1.01     | 1.11     | 1.01     |
| <b>POTATO</b>           | 0.54                              | 1.18     | 1.32     | 0.46                             | 0.96     | 1.33     | 1.30     |
| <b>SOYBEANS</b>         | 0.33                              | 0.77     | 0.84     | 0.30                             | 0.56     | 0.96     | 0.79     |
| <b>TOMATO</b>           | 0.50                              | 0.93     | 0.84     | 0.47                             | 0.76     | 1.00     | 0.80     |
| <b>SMALL VEGETABLES</b> | 0.54                              | 0.81     | 0.62     | 0.48                             | 0.77     | 0.81     | 0.57     |

**TABLE SCR-2: Rainfall Stations****STATION: ARCHBOLD**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 1.91  | 2.20  | 3.11  | 2.33  | 4.27  | 7.80  | 6.94  | 7.15  | 6.80  | 3.24  | 1.63  | 1.64  |
| <b>Mean Temperature (F)</b> | 60.61 | 61.97 | 66.39 | 70.40 | 75.65 | 79.37 | 80.42 | 80.94 | 79.60 | 74.37 | 68.40 | 62.65 |
| <b>Annual Daylight (%)</b>  | 7.43  | 7.09  | 8.38  | 8.66  | 9.42  | 9.35  | 9.54  | 9.15  | 8.32  | 8.04  | 7.31  | 7.31  |

Temperature based on 29 years of data, rainfall based on 68 years of data

Factor for conversion of average rainfall to drought rainfall = 0.83

**STATION: AVON PARK**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 2.24  | 2.51  | 2.82  | 2.52  | 4.12  | 8.27  | 8.03  | 7.50  | 7.15  | 3.59  | 1.71  | 1.76  |
| <b>Mean Temperature (F)</b> | 61.74 | 63.41 | 67.61 | 72.20 | 77.06 | 80.63 | 81.90 | 82.00 | 80.47 | 74.97 | 68.17 | 63.29 |
| <b>Annual Daylight (%)</b>  | 7.42  | 7.08  | 8.37  | 8.67  | 9.44  | 9.37  | 9.56  | 9.16  | 8.32  | 8.03  | 7.3   | 7.29  |

Temperature based on 67 years of data, rainfall based on 93 years of data

Factor for conversion of average rainfall to drought rainfall = 0.84

**STATION: BELLE GLADE**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 2.20  | 1.89  | 3.02  | 2.85  | 4.85  | 8.65  | 7.81  | 7.95  | 7.98  | 4.34  | 2.22  | 1.72  |
| <b>Mean Temperature (F)</b> | 63.00 | 63.83 | 67.55 | 70.60 | 75.29 | 78.93 | 80.32 | 80.68 | 79.43 | 74.94 | 68.87 | 64.32 |
| <b>Annual Daylight (%)</b>  | 7.46  | 7.11  | 8.38  | 8.65  | 9.4   | 9.32  | 9.52  | 9.13  | 8.32  | 8.05  | 7.33  | 7.34  |

Temperature based on 68 years of data, rainfall based on 72 years of data

Factor for conversion of average rainfall to drought rainfall = 0.84

**STATION: CLEWISTON**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 2.08  | 1.98  | 2.37  | 2.39  | 4.27  | 7.20  | 6.28  | 6.38  | 5.92  | 3.46  | 1.93  | 1.67  |
| <b>Mean Temperature (F)</b> | 63.52 | 65.00 | 69.10 | 73.20 | 77.29 | 80.43 | 81.84 | 82.00 | 81.17 | 76.58 | 70.57 | 65.26 |
| <b>Annual Daylight (%)</b>  | 7.45  | 7.1   | 8.38  | 8.66  | 9.4   | 9.33  | 9.52  | 9.13  | 8.32  | 8.04  | 7.33  | 7.33  |

Temperature based on 50 years of data, rainfall based on 46 years of data

Factor for conversion of average rainfall to drought rainfall = 0.83

**TABLE SCR-2: Rainfall Stations****STATION: EVERGLADES**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 1.69  | 1.63  | 0.95  | 2.26  | 4.41  | 9.75  | 8.21  | 7.79  | 9.07  | 4.12  | 1.46  | 1.45  |
| <b>Mean Temperature (F)</b> | 65.10 | 66.03 | 69.39 | 73.17 | 76.94 | 80.30 | 81.77 | 82.00 | 81.50 | 77.29 | 71.23 | 66.74 |
| <b>Annual Daylight (%)</b>  | 7.49  | 7.12  | 8.38  | 8.64  | 9.37  | 9.29  | 9.49  | 9.11  | 8.32  | 8.06  | 7.36  | 7.37  |

Temperature based on 67 years of data, rainfall based on 57 years of data

Factor for conversion of average rainfall to drought rainfall = 0.83

**STATION: FORT DRUM**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 2.05  | 2.72  | 3.39  | 2.16  | 4.67  | 7.52  | 7.46  | 6.80  | 6.48  | 3.92  | 1.79  | 1.78  |
| <b>Mean Temperature (F)</b> | 61.77 | 62.90 | 66.84 | 70.77 | 75.48 | 79.23 | 81.00 | 81.00 | 79.63 | 74.61 | 68.57 | 63.00 |
| <b>Annual Daylight (%)</b>  | 7.41  | 7.08  | 8.37  | 8.67  | 9.44  | 9.37  | 9.56  | 9.16  | 8.32  | 8.03  | 7.29  | 7.29  |

Temperature based on 50 years of data, rainfall based on 50 years of data

Factor for conversion of average rainfall to drought rainfall = 0.85

**STATION: FT. LAUDERDALE**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 2.86  | 2.52  | 2.90  | 4.12  | 6.28  | 9.02  | 6.39  | 6.90  | 8.21  | 8.40  | 3.96  | 2.52  |
| <b>Mean Temperature (F)</b> | 66.81 | 67.62 | 70.71 | 74.27 | 77.94 | 80.90 | 82.00 | 82.26 | 81.37 | 77.77 | 72.63 | 68.42 |
| <b>Annual Daylight (%)</b>  | 7.49  | 7.12  | 8.38  | 8.64  | 9.37  | 9.29  | 9.49  | 9.11  | 8.32  | 8.06  | 7.36  | 7.37  |

Temperature based on 50 years of data, rainfall based on 83 years of data

Factor for conversion of average rainfall to drought rainfall = 0.82

**STATION: FT. MYERS**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 1.90  | 2.00  | 1.50  | 1.90  | 4.10  | 9.40  | 8.70  | 8.60  | 8.40  | 3.50  | 1.50  | 1.50  |
| <b>Mean Temperature (F)</b> | 64.03 | 65.10 | 68.87 | 73.13 | 77.97 | 81.23 | 82.53 | 82.90 | 81.60 | 76.58 | 69.83 | 65.29 |
| <b>Annual Daylight (%)</b>  | 7.46  | 7.11  | 8.38  | 8.65  | 9.4   | 9.32  | 9.52  | 9.13  | 8.32  | 8.05  | 7.33  | 7.34  |

Temperature based on 50 years of data, rainfall based on 57 years of data

Factor for conversion of average rainfall to drought rainfall = 0.84

**TABLE SCR-2: Rainfall Stations****STATION: FT. PIERCE**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 2.48  | 2.77  | 3.23  | 3.08  | 4.29  | 5.98  | 5.66  | 5.82  | 8.03  | 6.72  | 2.95  | 2.07  |
| <b>Mean Temperature (F)</b> | 63.29 | 64.31 | 67.94 | 72.00 | 76.42 | 79.77 | 81.00 | 81.35 | 80.30 | 75.97 | 69.80 | 64.94 |
| <b>Annual Daylight (%)</b>  | 7.42  | 7.09  | 8.38  | 8.66  | 9.43  | 9.36  | 9.55  | 9.15  | 8.32  | 8.03  | 7.3   | 7.3   |

Temperature based on 67 years of data, rainfall based on 96 years of data

Factor for conversion of average rainfall to drought rainfall = 0.83

**STATION: HIALEAH**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 2.28  | 2.11  | 2.70  | 3.70  | 6.37  | 9.31  | 7.07  | 8.25  | 8.98  | 7.39  | 3.52  | 1.85  |
| <b>Mean Temperature (F)</b> | 66.42 | 67.55 | 71.03 | 74.30 | 77.97 | 80.80 | 82.00 | 82.16 | 81.30 | 77.39 | 72.20 | 67.77 |
| <b>Annual Daylight (%)</b>  | 7.49  | 7.12  | 8.38  | 8.64  | 9.37  | 9.29  | 9.49  | 9.11  | 8.32  | 8.06  | 7.36  | 7.37  |

Temperature based on 50 years of data, rainfall based on 56 years of data

Factor for conversion of average rainfall to drought rainfall = 0.81

**STATION: HOMESTEAD**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 1.72  | 1.86  | 2.29  | 3.18  | 6.73  | 9.39  | 7.95  | 8.27  | 10.27 | 7.18  | 2.15  | 1.35  |
| <b>Mean Temperature (F)</b> | 65.77 | 67.45 | 69.81 | 72.50 | 76.52 | 80.03 | 81.45 | 82.00 | 81.07 | 77.45 | 71.93 | 67.29 |
| <b>Annual Daylight (%)</b>  | 7.52  | 7.13  | 8.39  | 8.63  | 9.35  | 9.26  | 9.47  | 9.09  | 8.31  | 8.07  | 7.38  | 7.4   |

Temperature based on 72 years of data, rainfall based on 72 years of data

Factor for conversion of average rainfall to drought rainfall = 0.84

**STATION: HYPOLUXO**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 3.10  | 2.73  | 3.46  | 3.45  | 5.26  | 8.29  | 5.75  | 6.57  | 7.78  | 7.73  | 3.81  | 2.61  |
| <b>Mean Temperature (F)</b> | 65.84 | 66.69 | 70.10 | 73.63 | 77.81 | 80.77 | 82.29 | 82.55 | 81.30 | 77.45 | 71.87 | 67.35 |
| <b>Annual Daylight (%)</b>  | 7.46  | 7.11  | 8.38  | 8.65  | 9.4   | 9.32  | 9.52  | 9.13  | 8.32  | 8.05  | 7.33  | 7.34  |

Temperature and rainfall based on 97 years of data

Factor for conversion of average rainfall to drought rainfall = 0.81

**TABLE SCR-2: Rainfall Stations****STATION: IMMOKALEE**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 2.14  | 2.26  | 3.09  | 2.23  | 4.23  | 8.61  | 7.48  | 7.35  | 6.71  | 2.90  | 1.95  | 1.51  |
| <b>Mean Temperature (F)</b> | 64.03 | 65.24 | 68.77 | 71.87 | 76.74 | 80.10 | 81.26 | 81.74 | 80.67 | 76.00 | 67.20 | 65.45 |
| <b>Annual Daylight (%)</b>  | 7.48  | 7.12  | 8.38  | 8.64  | 9.38  | 9.30  | 9.50  | 9.12  | 9.32  | 8.06  | 7.35  | 7.36  |

Temperature based on 28 years of data, rainfall based on 37 years of data

Factor for conversion of average rainfall to drought rainfall = 0.82

**STATION: JUPITER**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 3.41  | 2.94  | 4.27  | 3.07  | 5.55  | 7.59  | 5.41  | 6.78  | 8.44  | 8.42  | 3.61  | 2.47  |
| <b>Mean Temperature (F)</b> | 64.84 | 65.69 | 69.26 | 72.97 | 76.97 | 80.17 | 81.68 | 82.06 | 81.20 | 76.90 | 71.10 | 66.61 |
| <b>Annual Daylight (%)</b>  | 7.44  | 7.1   | 8.38  | 8.66  | 9.41  | 9.34  | 9.53  | 9.14  | 8.32  | 8.04  | 7.32  | 7.32  |

Temperature based on 50 years of data, rainfall based on 97 years of data

Factor for conversion of average rainfall to drought rainfall = 0.81

**STATION: KISSIMMEE**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 2.12  | 2.67  | 3.31  | 2.49  | 3.90  | 6.97  | 7.46  | 6.76  | 6.49  | 3.27  | 1.96  | 2.08  |
| <b>Mean Temperature (F)</b> | 60.94 | 62.38 | 66.65 | 71.20 | 76.19 | 80.30 | 81.65 | 81.84 | 80.07 | 74.77 | 67.93 | 62.48 |
| <b>Annual Daylight (%)</b>  | 7.39  | 7.06  | 8.37  | 8.68  | 9.47  | 9.4   | 9.59  | 9.18  | 8.32  | 8.01  | 7.27  | 7.26  |

Temperature based on 50 years of data, rainfall based on 94 years of data

Factor for conversion of average rainfall to drought rainfall = 0.83

**STATION: LA BELLE**

|                             | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Mean Rainfall</b>        | 1.95  | 2.11  | 2.02  | 2.54  | 4.57  | 9.38  | 8.19  | 7.85  | 6.82  | 3.80  | 1.73  | 1.72  |
| <b>Mean Temperature (F)</b> | 62.94 | 64.62 | 68.23 | 72.27 | 77.10 | 80.33 | 81.16 | 81.77 | 80.43 | 75.42 | 68.97 | 64.65 |
| <b>Annual Daylight (%)</b>  | 7.45  | 7.1   | 8.38  | 8.66  | 9.4   | 9.33  | 9.52  | 9.13  | 8.32  | 8.04  | 7.33  | 7.33  |

Temperature and rainfall based on 57 years of data

Factor for conversion of average rainfall to drought rainfall = 0.86

**TABLE SCR-2: Rainfall Stations**

**STATION: LOXAHATCHEE**

|                             | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Apr</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> | <b>Aug</b> | <b>Sep</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> |
|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Mean Rainfall</b>        | 2.59       | 2.38       | 3.33       | 2.99       | 5.52       | 8.95       | 7.94       | 7.32       | 9.71       | 6.44       | 3.18       | 2.21       |
| <b>Mean Temperature (F)</b> | 63.00      | 63.83      | 67.55      | 70.60      | 75.29      | 78.93      | 80.32      | 80.68      | 79.43      | 74.94      | 68.87      | 64.32      |
| <b>Annual Daylight (%)</b>  | 7.46       | 7.11       | 8.38       | 8.65       | 9.4        | 9.32       | 9.52       | 9.13       | 8.32       | 8.05       | 7.33       | 7.34       |

Temperature based on 68 years of data, rainfall based on 47 years of data

Factor for conversion of average rainfall to drought rainfall = 0.83

**STATION: MIAMI**

|                             | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Apr</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> | <b>Aug</b> | <b>Sep</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> |
|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Mean Rainfall</b>        | 2.02       | 2.06       | 2.08       | 3.13       | 6.35       | 7.84       | 5.44       | 6.29       | 8.30       | 8.38       | 2.80       | 2.05       |
| <b>Mean Temperature (F)</b> | 67.35      | 68.48      | 71.65      | 75.13      | 78.74      | 81.23      | 82.68      | 82.84      | 81.67      | 78.10      | 73.13      | 68.87      |
| <b>Annual Daylight (%)</b>  | 7.5        | 7.13       | 8.38       | 8.63       | 9.36       | 9.28       | 9.48       | 9.13       | 8.32       | 8.07       | 7.37       | 7.38       |

Temperature based on 50 years of data, rainfall based on 79 years of data

Factor for conversion of average rainfall to drought rainfall = 0.78

**STATION: MOORE HAVEN**

|                             | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Apr</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> | <b>Aug</b> | <b>Sep</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> |
|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Mean Rainfall</b>        | 1.82       | 2.04       | 1.90       | 2.38       | 4.33       | 7.57       | 7.04       | 6.73       | 6.97       | 3.47       | 1.73       | 1.62       |
| <b>Mean Temperature (F)</b> | 62.71      | 63.86      | 67.81      | 71.87      | 76.48      | 80.00      | 81.32      | 81.71      | 80.50      | 75.61      | 69.00      | 64.26      |
| <b>Annual Daylight (%)</b>  | 7.44       | 7.1        | 8.38       | 8.66       | 9.41       | 9.34       | 9.53       | 9.14       | 8.32       | 8.04       | 7.32       | 7.32       |

Temperature based on 67 years of data, rainfall based on 58 years of data

Factor for conversion of average rainfall to drought rainfall = 0.83

**STATION: NAPLES**

|                             | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Apr</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> | <b>Aug</b> | <b>Sep</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> |
|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Mean Rainfall</b>        | 1.88       | 1.93       | 0.96       | 2.05       | 4.42       | 8.17       | 8.36       | 8.18       | 8.69       | 4.09       | 1.56       | 1.32       |
| <b>Mean Temperature (F)</b> | 64.97      | 65.93      | 69.39      | 73.00      | 77.26      | 80.57      | 81.87      | 82.00      | 81.53      | 77.03      | 71.20      | 66.55      |
| <b>Annual Daylight (%)</b>  | 7.49       | 7.12       | 8.38       | 8.64       | 9.37       | 9.29       | 9.49       | 9.11       | 8.32       | 8.06       | 7.36       | 7.37       |

Temperature based on 50 years of data, rainfall based on 55 years of data

Factor for conversion of average rainfall to drought rainfall = 0.83

**TABLE SCR-2: Rainfall Stations**

**STATION: OKEECHOBEE**

|                             | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Apr</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> | <b>Aug</b> | <b>Sep</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> |
|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Mean Rainfall</b>        | 1.76       | 2.19       | 2.89       | 2.78       | 4.29       | 7.35       | 6.55       | 6.65       | 6.37       | 4.10       | 1.91       | 1.58       |
| <b>Mean Temperature (F)</b> | 62.03      | 63.93      | 67.84      | 72.13      | 76.81      | 80.17      | 81.61      | 81.71      | 80.47      | 75.35      | 69.13      | 63.65      |
| <b>Annual Daylight (%)</b>  | 7.43       | 7.09       | 8.38       | 8.66       | 9.42       | 9.35       | 9.54       | 9.15       | 8.32       | 8.04       | 7.31       | 7.31       |

Temperature based on 50 years of data, rainfall based on 73 years of data

Factor for conversion of average rainfall to drought rainfall = 0.82

**STATION: POMPANO BEACH**

|                             | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Apr</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> | <b>Aug</b> | <b>Sep</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> |
|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Mean Rainfall</b>        | 2.94       | 3.60       | 5.98       | 7.75       | 6.41       | 6.73       | 7.99       | 7.71       | 3.60       | 2.30       | 2.71       | 2.14       |
| <b>Mean Temperature (F)</b> | 66.90      | 67.55      | 70.77      | 74.30      | 77.68      | 80.53      | 82.03      | 82.42      | 81.10      | 77.39      | 72.40      | 68.03      |
| <b>Annual Daylight (%)</b>  | 7.48       | 7.12       | 8.38       | 8.64       | 9.38       | 9.3        | 9.5        | 9.12       | 8.32       | 8.06       | 7.35       | 7.36       |

Temperature based on 50 years of data, rainfall based on 55 years of data

Factor for conversion of average rainfall to drought rainfall = 0.82

**STATION: STUART**

|                             | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Apr</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> | <b>Aug</b> | <b>Sep</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> |
|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Mean Rainfall</b>        | 2.40       | 2.72       | 3.57       | 2.76       | 4.95       | 6.58       | 6.53       | 5.71       | 8.05       | 6.69       | 2.83       | 2.56       |
| <b>Mean Temperature (F)</b> | 64.84      | 65.69      | 69.26      | 72.97      | 76.97      | 80.17      | 81.68      | 82.06      | 81.20      | 76.90      | 71.10      | 66.61      |
| <b>Annual Daylight (%)</b>  | 7.44       | 7.1        | 8.38       | 8.66       | 9.42       | 9.35       | 9.54       | 9.14       | 8.32       | 8.04       | 7.32       | 7.31       |

Temperature based on 50 years of data, rainfall based on 60 years of data

Factor for conversion of average rainfall to drought rainfall = 0.81

**STATION: S-65**

|                             | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Apr</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> | <b>Aug</b> | <b>Sep</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> |
|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Mean Rainfall</b>        | 2.18       | 2.91       | 3.05       | 2.20       | 4.39       | 7.90       | 7.70       | 6.58       | 6.30       | 3.30       | 2.14       | 1.84       |
| <b>Mean Temperature (F)</b> | 61.03      | 62.72      | 67.00      | 71.60      | 76.77      | 80.23      | 81.16      | 81.48      | 79.97      | 74.10      | 67.17      | 62.16      |
| <b>Annual Daylight (%)</b>  | 7.41       | 7.08       | 8.37       | 8.67       | 9.44       | 9.37       | 9.56       | 9.16       | 8.32       | 8.03       | 7.29       | 7.29       |

Temperature based on 50 years of data, rainfall based on 30 years of data

Factor for conversion of average rainfall to drought rainfall = 0.85

**TABLE SCR-2: Rainfall Stations**

**STATION: S 140 W**

|                             | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Apr</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> | <b>Aug</b> | <b>Sep</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> |
|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Mean Rainfall</b>        | 2.03       | 1.67       | 2.36       | 2.33       | 4.27       | 8.38       | 5.72       | 6.71       | 5.48       | 2.47       | 1.93       | 1.38       |
| <b>Mean Temperature (F)</b> | 66.71      | 68.34      | 70.45      | 73.73      | 78.16      | 82.07      | 83.90      | 84.00      | 83.37      | 79.23      | 74.00      | 68.65      |
| <b>Annual Daylight (%)</b>  | 7.50       | 7.12       | 8.38       | 8.64       | 9.36       | 9.28       | 9.48       | 9.13       | 8.32       | 8.06       | 7.37       | 7.38       |

Temperature based on 20 years of data, rainfall based on 23 years of data

Factor for conversion of average rainfall to drought rainfall = 0.83

**STATION: TAMIAMI 4**

|                             | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Apr</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> | <b>Aug</b> | <b>Sep</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> |
|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Mean Rainfall</b>        | 1.67       | 1.56       | 1.99       | 2.73       | 5.44       | 9.35       | 8.06       | 7.26       | 8.20       | 4.72       | 2.02       | 1.19       |
| <b>Mean Temperature (F)</b> | 66.94      | 67.72      | 70.65      | 73.53      | 77.48      | 80.93      | 82.77      | 83.06      | 82.23      | 78.55      | 73.00      | 68.23      |
| <b>Annual Daylight (%)</b>  | 7.5        | 7.12       | 8.38       | 8.64       | 9.36       | 9.28       | 9.48       | 9.13       | 8.32       | 8.06       | 7.37       | 7.38       |

Temperature based on 50 years of data, rainfall based on 56 years of data

Factor for conversion of average rainfall to drought rainfall = 0.83

**STATION: WEST PALM BEACH**

|                             | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Apr</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> | <b>Aug</b> | <b>Sep</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> |
|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Mean Rainfall</b>        | 2.77       | 2.54       | 3.38       | 3.52       | 5.65       | 7.97       | 6.32       | 6.73       | 8.81       | 6.86       | 3.90       | 2.52       |
| <b>Mean Temperature (F)</b> | 65.84      | 66.69      | 70.10      | 73.63      | 77.81      | 80.77      | 82.29      | 82.55      | 81.30      | 77.45      | 71.87      | 67.35      |
| <b>Annual Daylight (%)</b>  | 7.47       | 7.11       | 8.38       | 8.65       | 9.39       | 9.32       | 9.51       | 9.12       | 8.32       | 8.05       | 7.34       | 7.34       |

Temperature based on 50 years of data, rainfall based on 58 years of data

Factor for conversion of average rainfall to drought rainfall = 0.80

R35

R36

R37

R38

R39

R40

R41

R42

T48

T49

T50

T51

POMPANO  
BEACH

FORT  
LAUDERDALE

3.60

S140W

HIALEAH

0.80

0.80

0.40

0.20

0.80

0.80

0.80

0.40

0.80

0.20

0.40

3.60

0.80

0.80

2.60

0.20

3.60

0.40

0.80

3.60

0.40

# BROWARD COUNTY

*Pompano Beach, S140W,  
Ft. Lauderdale, and Hialeah  
Rain Stations*

----- Rainfall Polygon Boundary

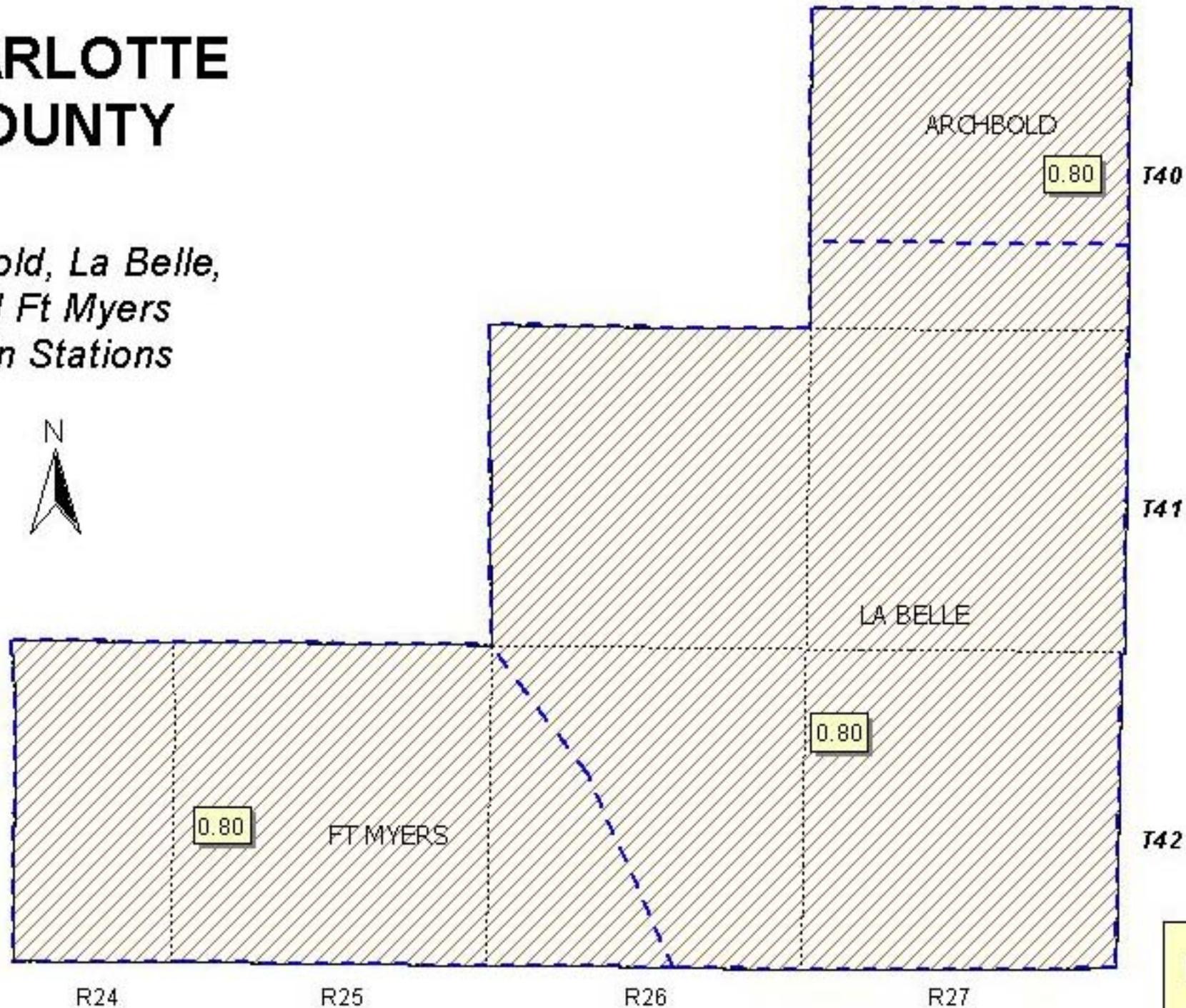


**Net Depth of  
Application**

**Figure SCR-1**

# CHARLOTTE COUNTY

*Archbold, La Belle,  
and Ft Myers  
Rain Stations*



----- Rainfall Polygon Boundary

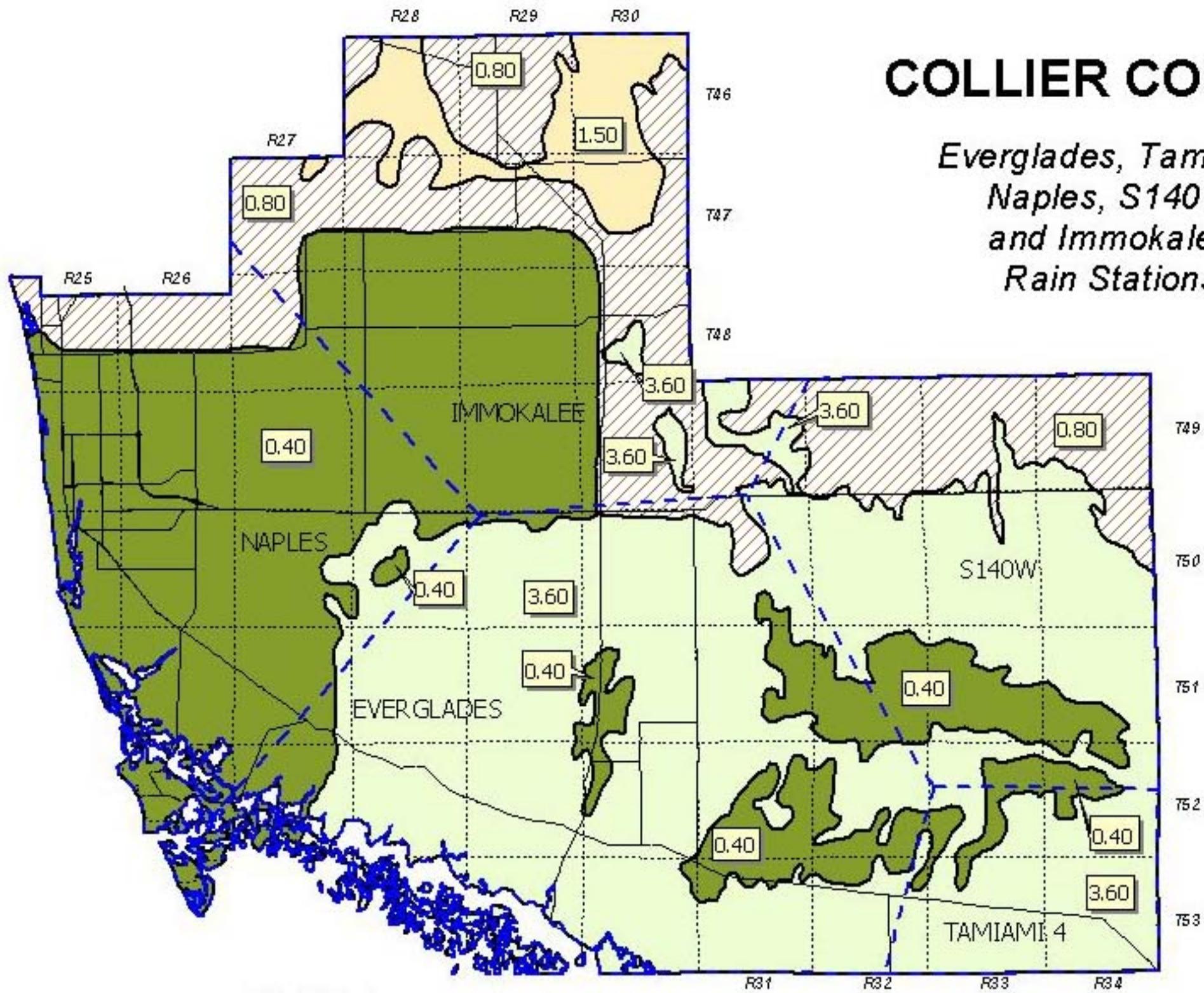


**Net Depth of  
Application**

**Figure SCR-2**

# COLLIER COUNTY

*Everglades, Tamiami, Naples, S140W and Immokalee Rain Stations*



**Net Depth of Application**



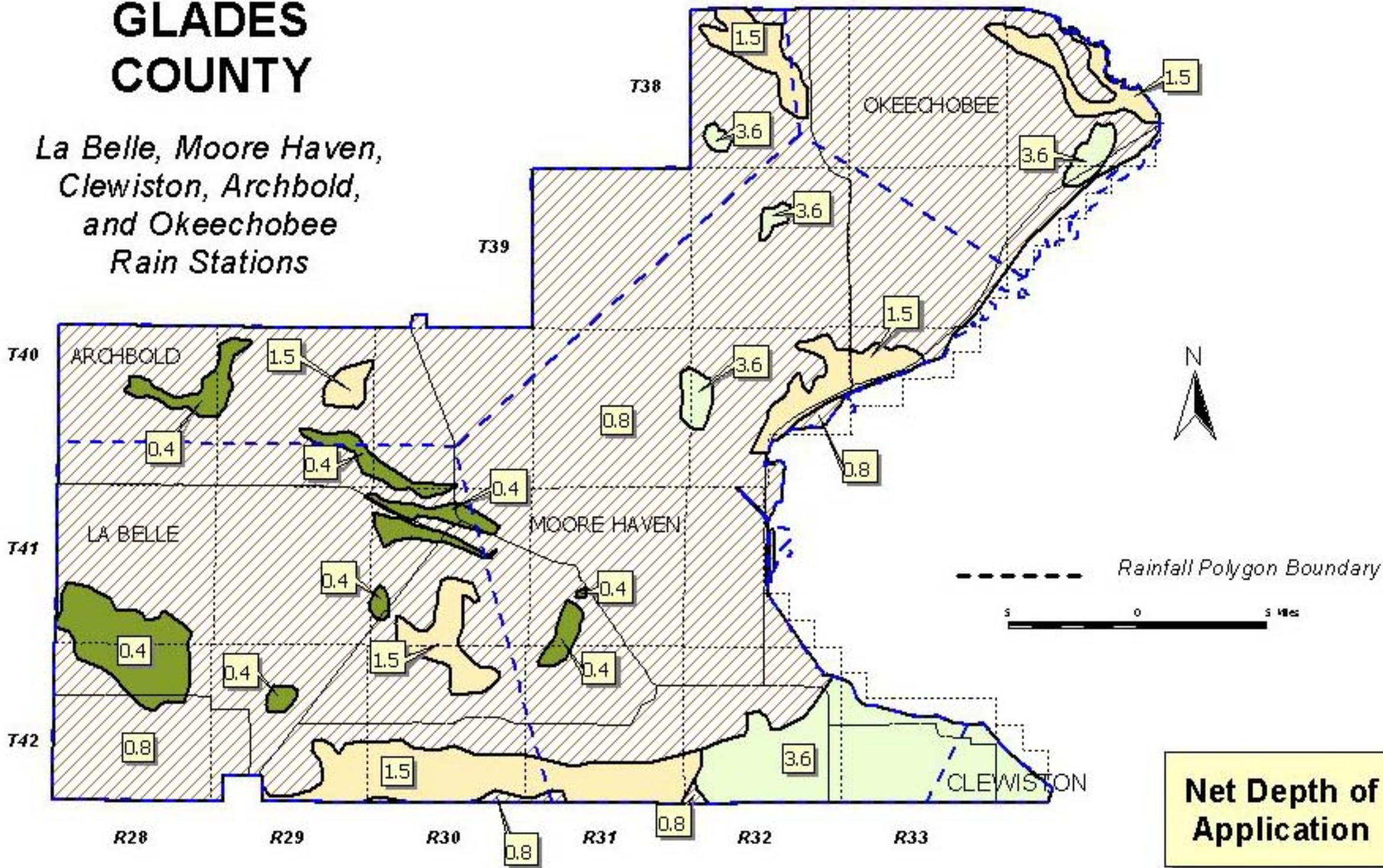
-----  
Rainfall Polygon Boundary

0 3 Miles

**Figure SCR-3**

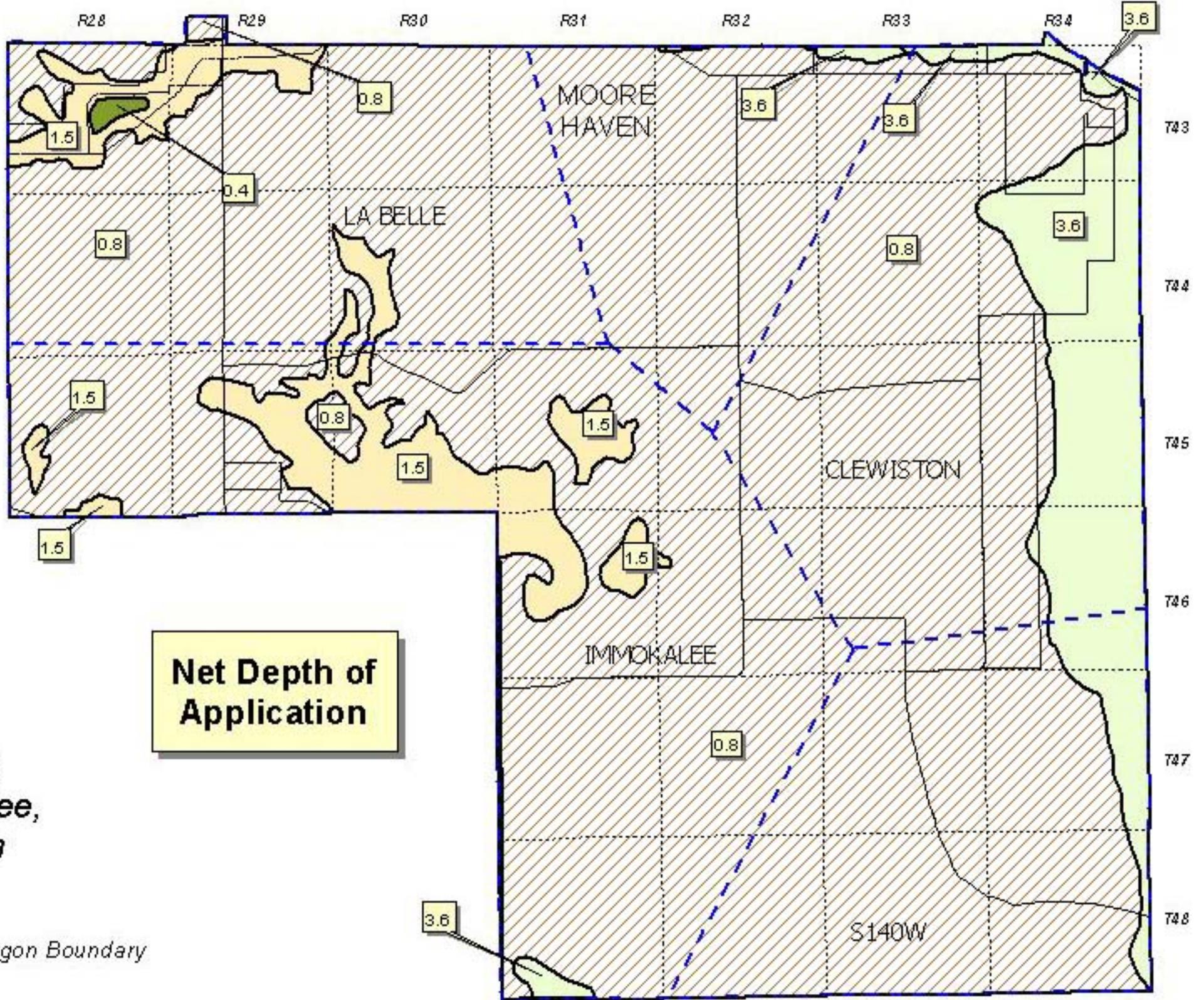
# GLADES COUNTY

*La Belle, Moore Haven, Clewiston, Archbold, and Okeechobee Rain Stations*



**Net Depth of Application**

**Figure SCR-4**



# HENDRY COUNTY

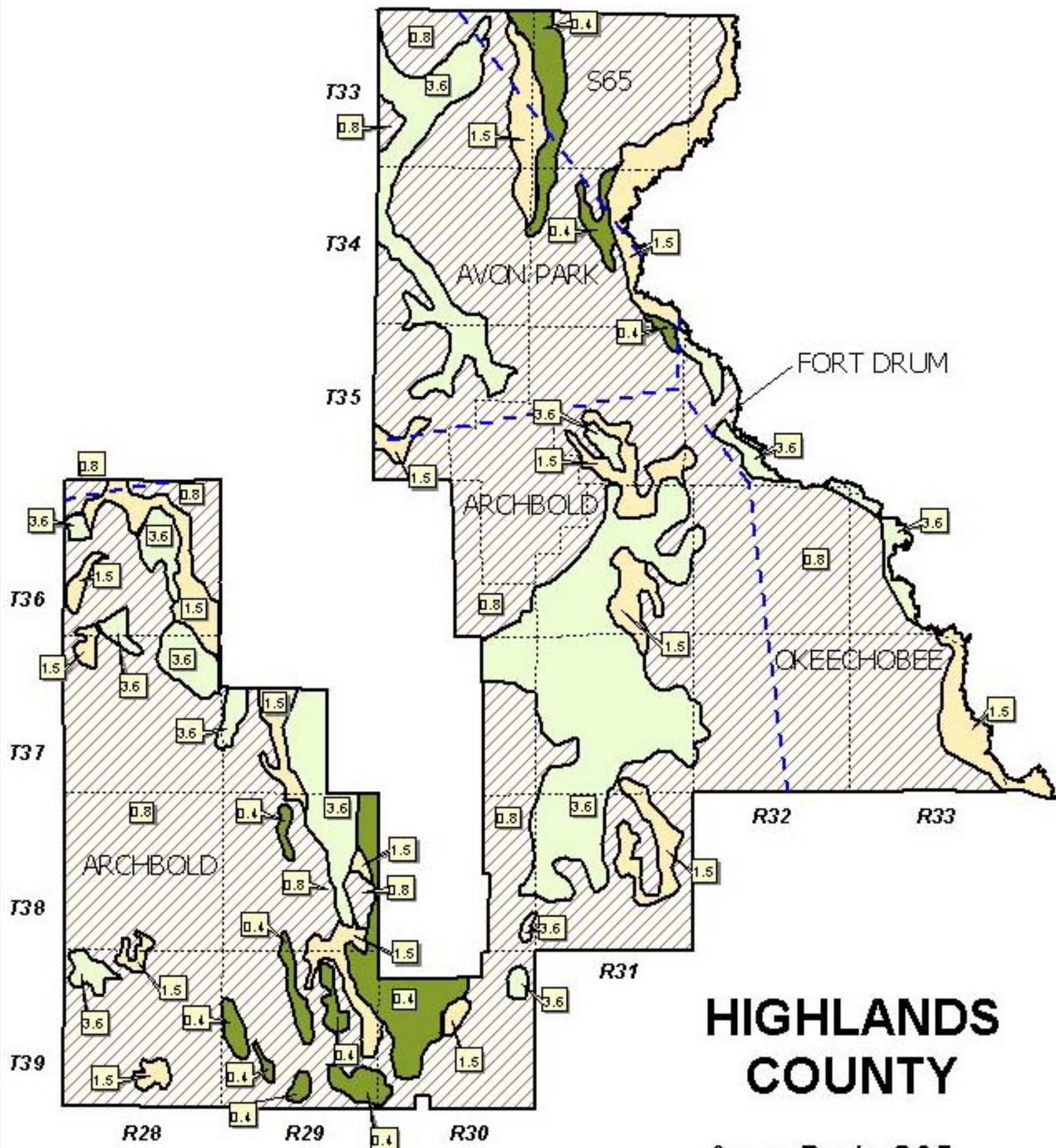
**Net Depth of Application**

*La Belle, S140W, Clewiston, Immokalee, and Moore Haven Rain Stations*

----- Rainfall Polygon Boundary



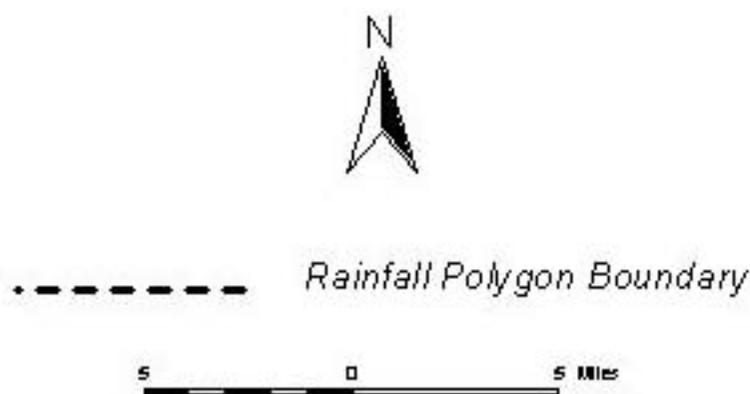
**Figure SCR-5**



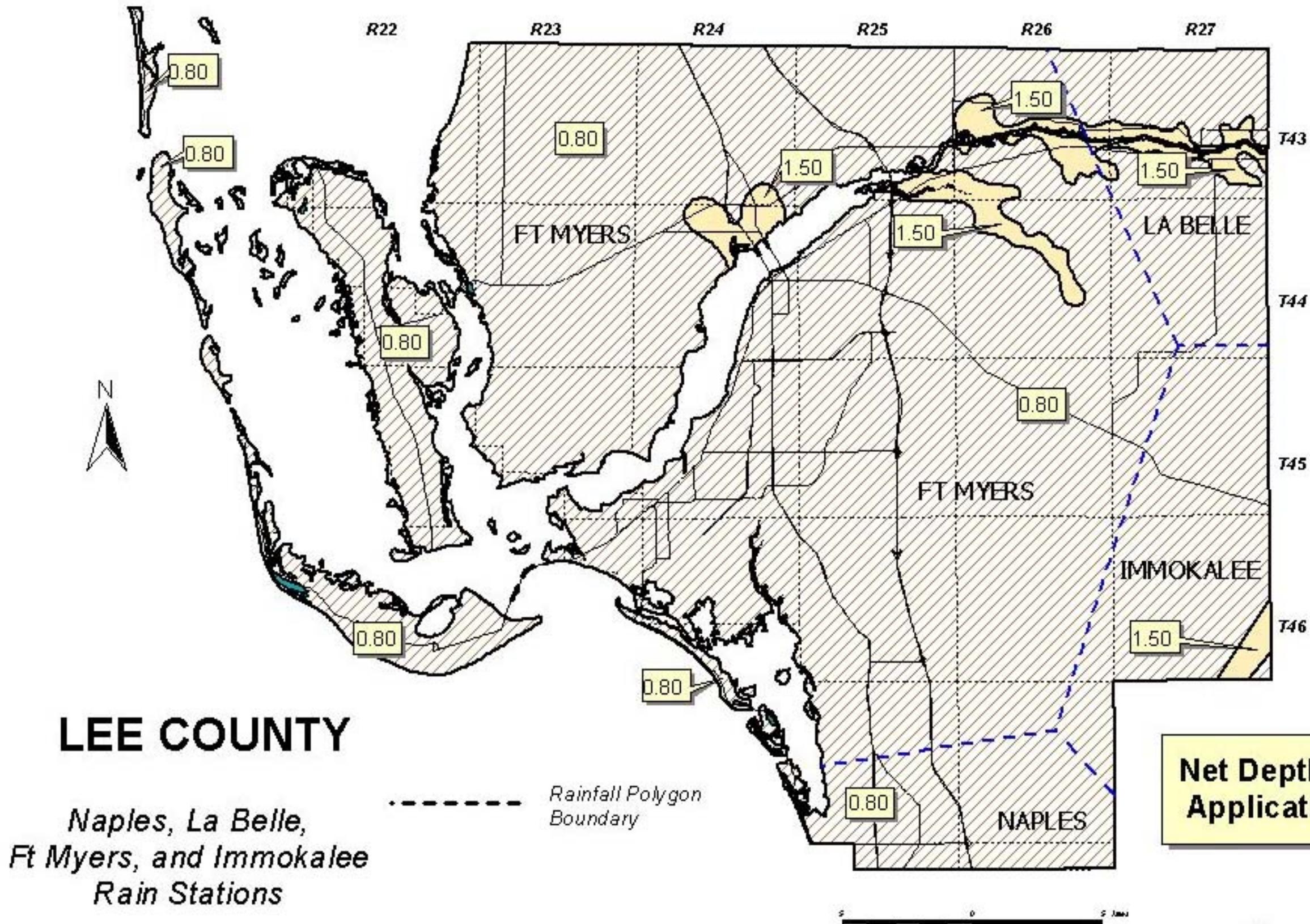
# HIGHLANDS COUNTY

*Avon Park, S65, Fort Drum, Archbold and Okeechobee Rain Stations*

**Net Depth of Application**



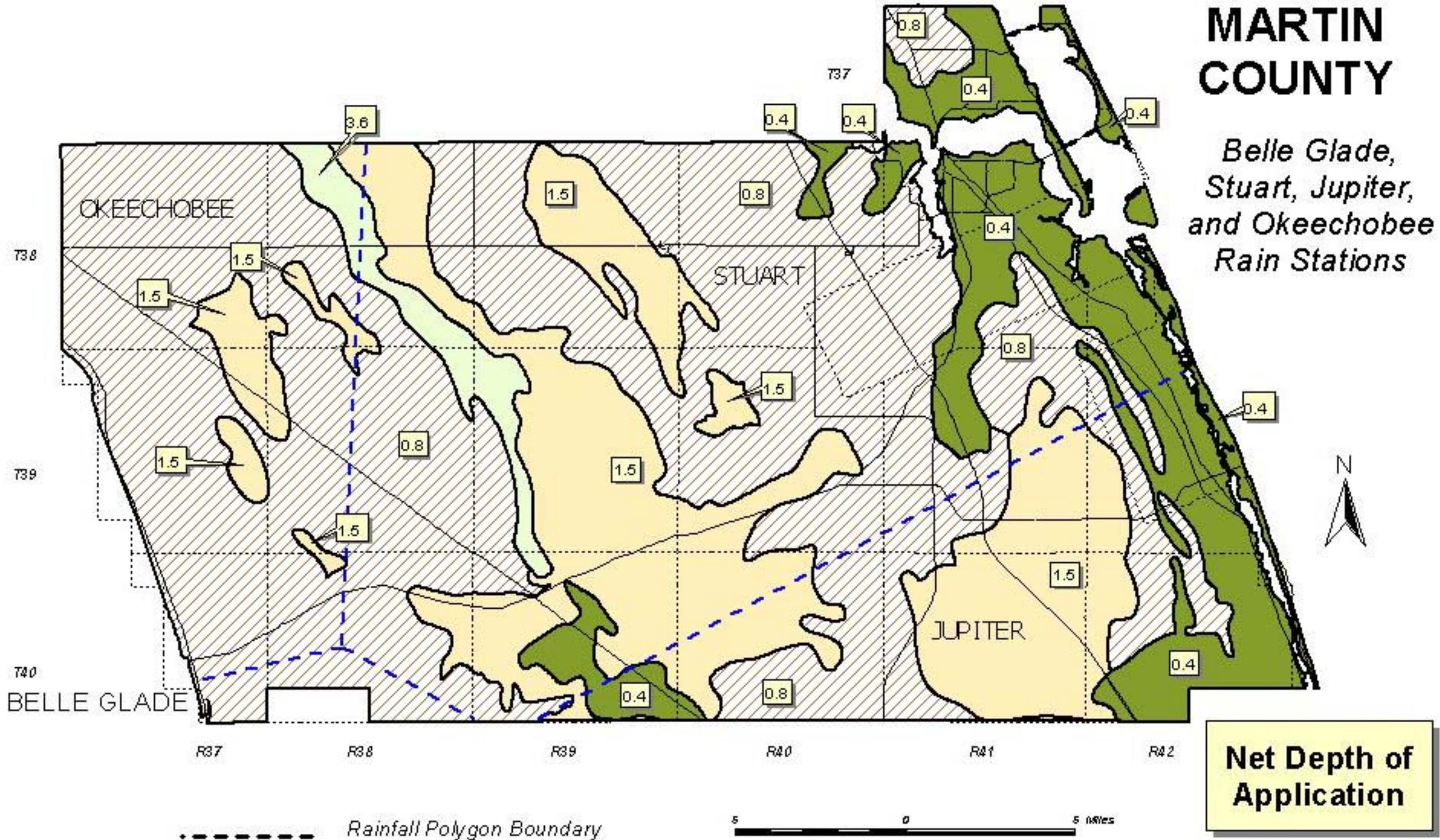
**Figure SCR-6**



**Figure SCR-7**

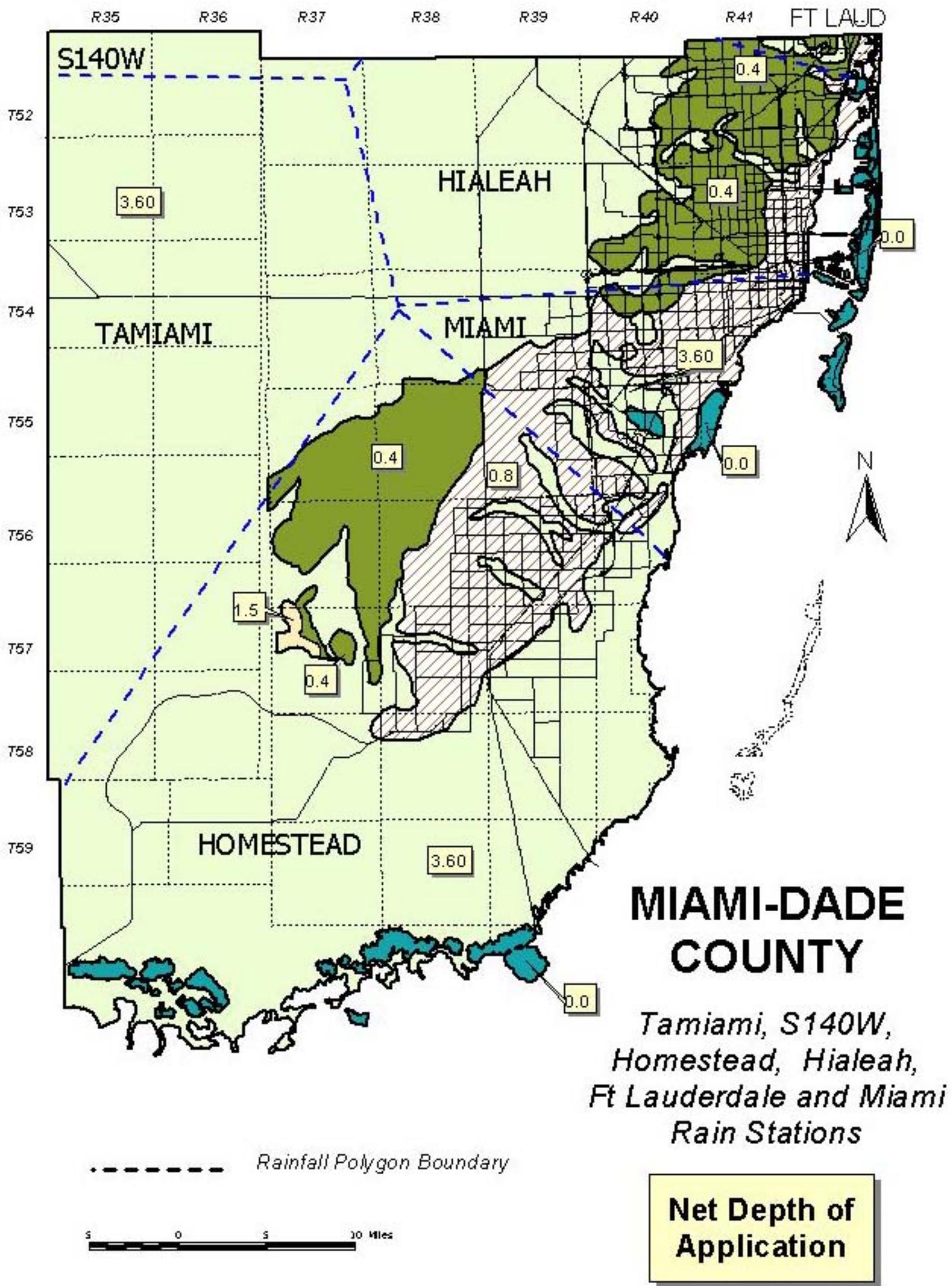
# MARTIN COUNTY

*Belle Glade, Stuart, Jupiter, and Okeechobee Rain Stations*

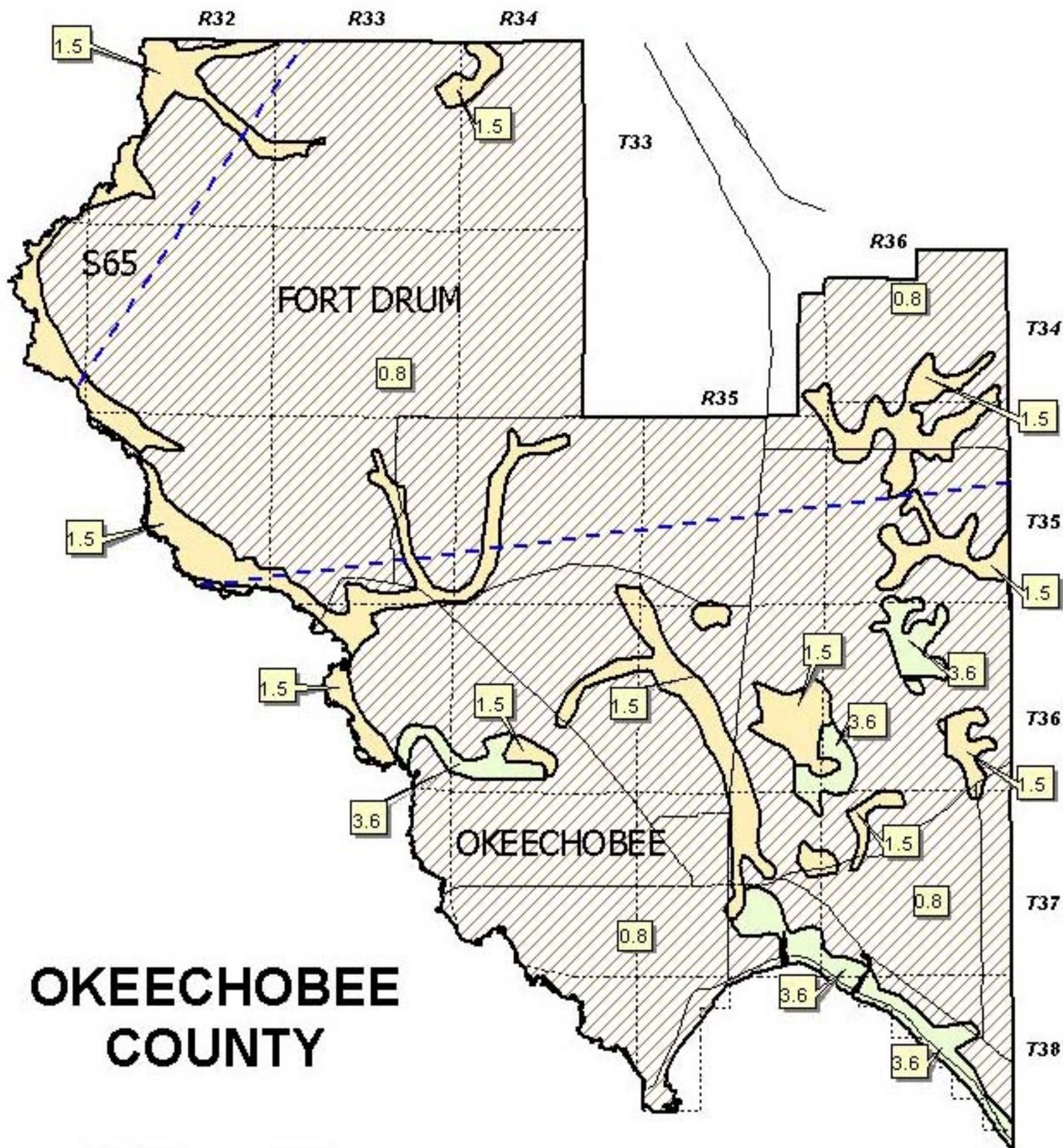


**Net Depth of Application**

**Figure SCR-8**



**Figure SCR-9**



# OKEECHOBEE COUNTY

*Fort Drum, S65,  
and Okeechobee  
Rain Stations*

----- Rainfall Polygon Boundary

5 0 5 Miles

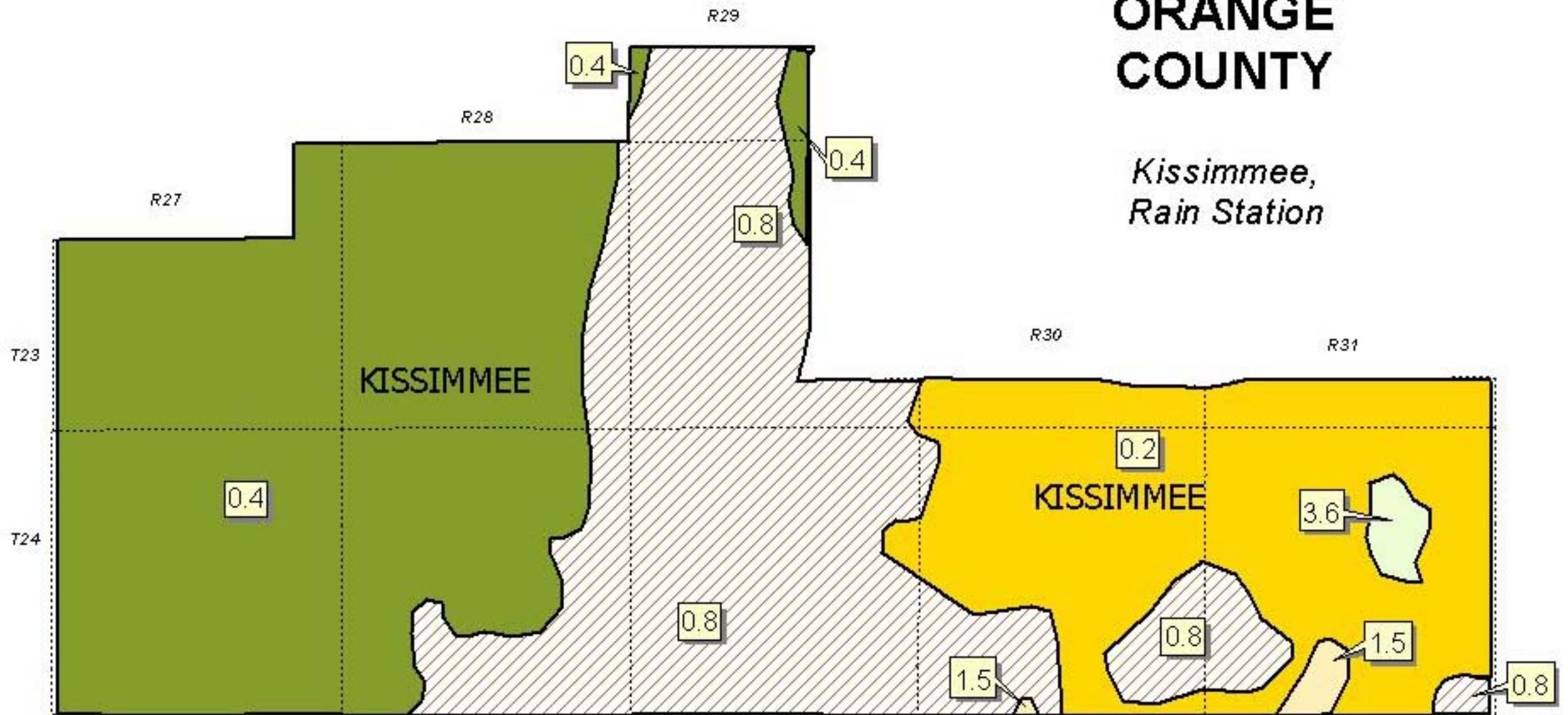


**Net Depth of  
Application**

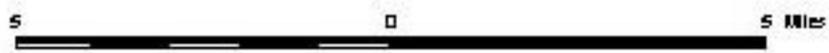
**Figure SCR-10**

# ORANGE COUNTY

*Kissimmee,  
Rain Station*

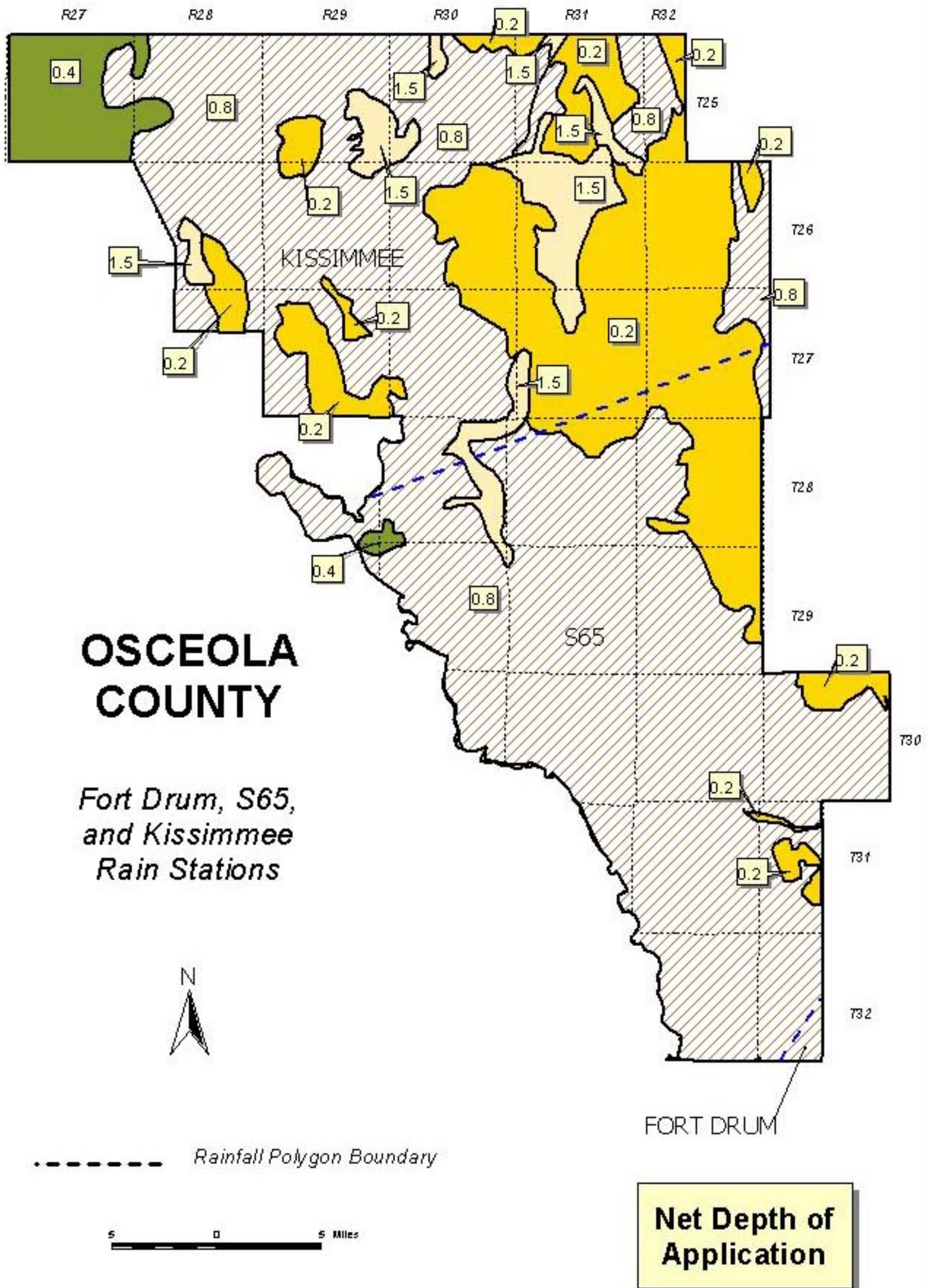


----- Rainfall Polygon Boundary

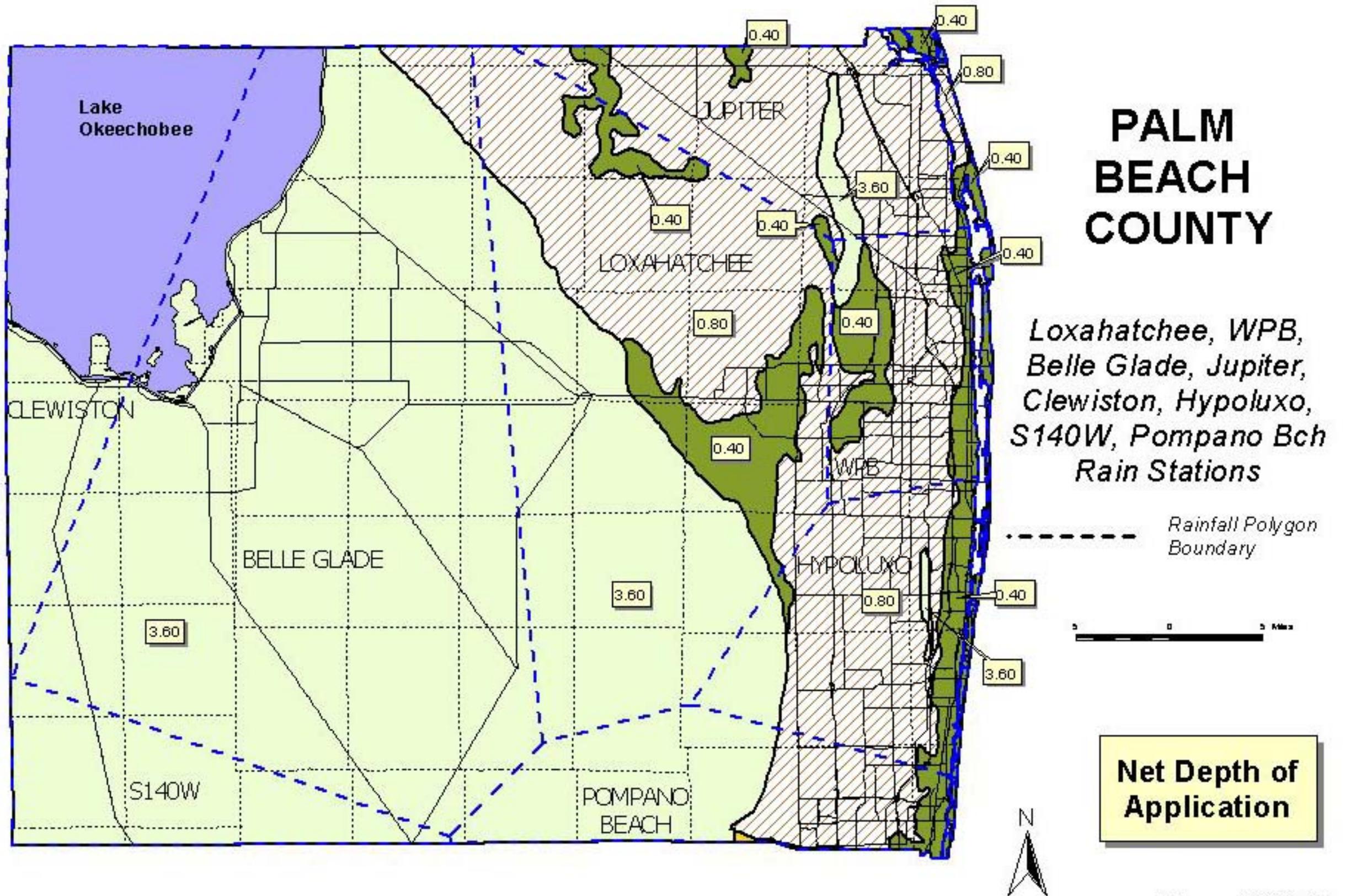


**Net Depth of  
Application**

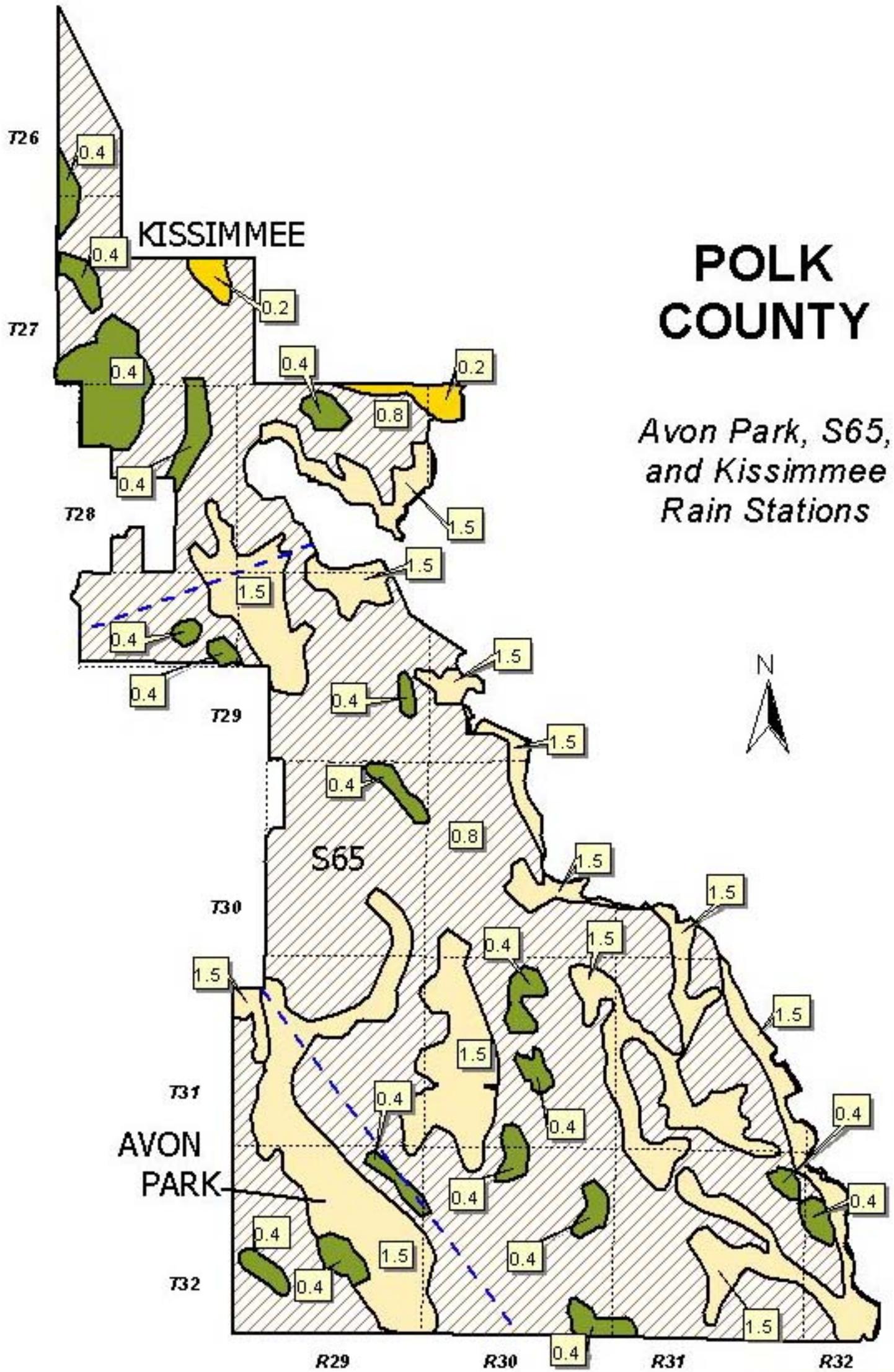
**Figure SCR-11**



**Figure SCR-12**



**Figure SCR-13**

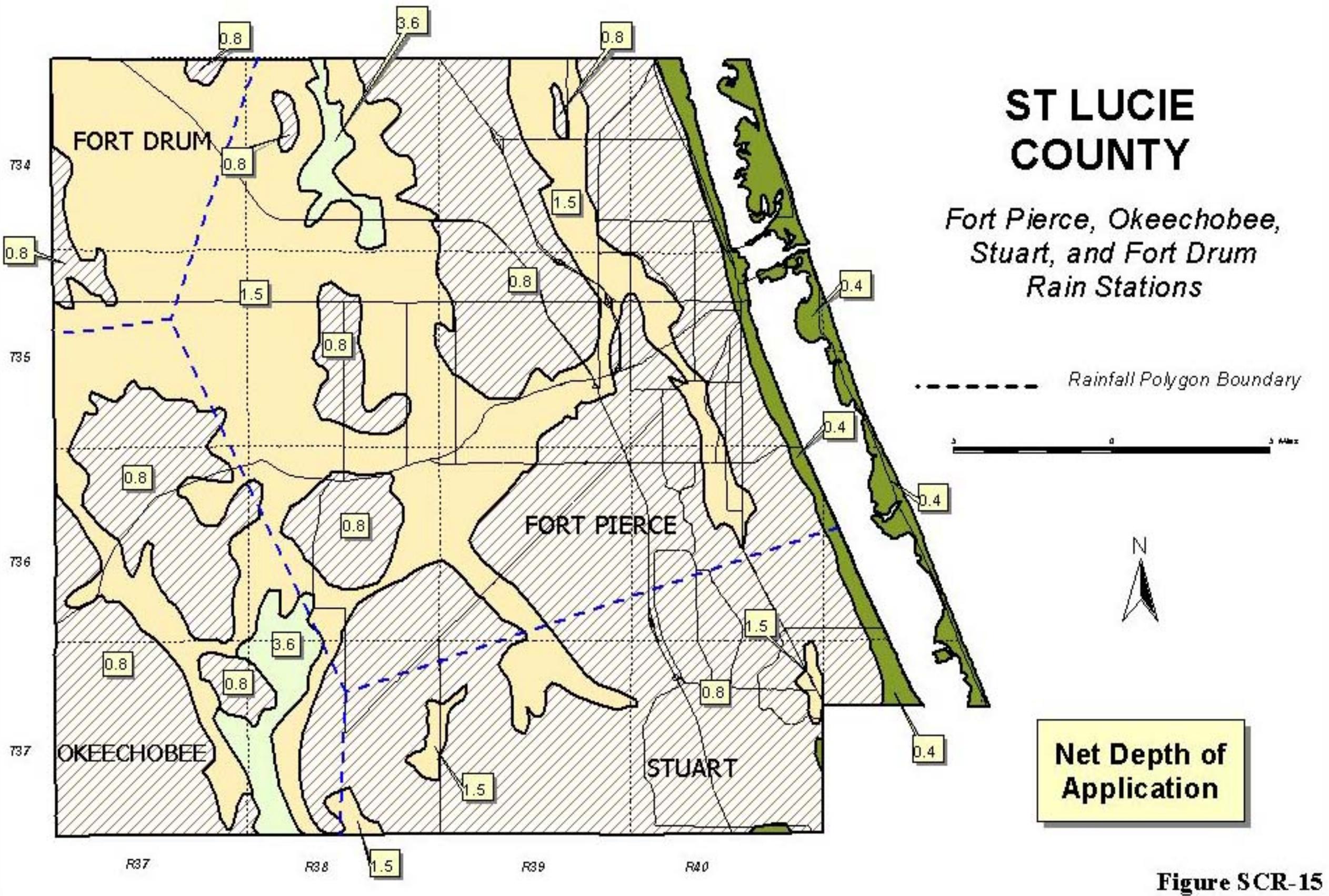


--- Rainfall Polygon Boundary



**Net Depth of Application**

**Figure SCR-14**



**Figure SCR-15**