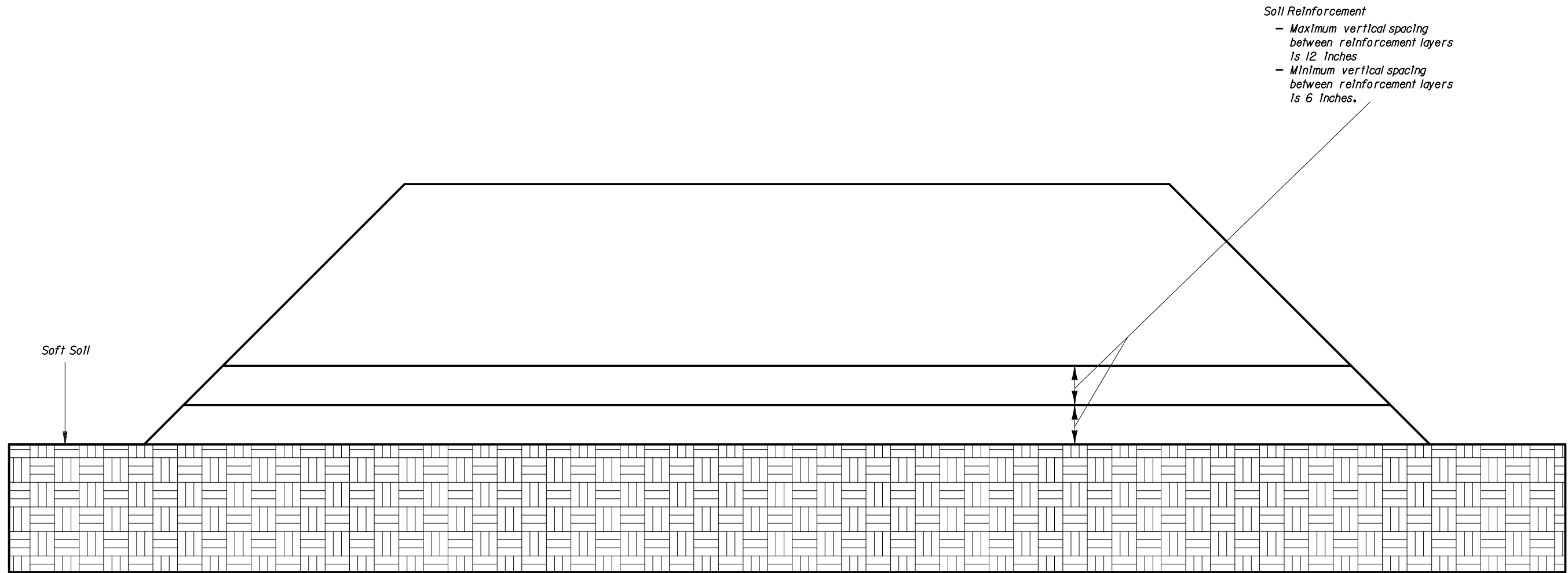


**GENERAL NOTES**

1. All Designs shall meet the requirements shown on this sheet and the contract documents.
2.  $T_{(all)} = T_{(ult)}/RF$  but, not to exceed 19% of  $T_{(ult)}$ .
3. Intermediate reinforcement shall be rolled out parallel to slope face.

**GEOSYNTHETIC REINFORCED SOIL SLOPES**

|   |       |                                      |           |           |
|---|-------|--------------------------------------|-----------|-----------|
| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION |       |                                      |           |           |
| <b>GEOSYNTHETIC REINFORCED SOILS</b>          |       |                                      |           |           |
| Names   | Dates | Approved By <i>W. V. [Signature]</i> |           |           |
| Designed By PDP                               | 07/99 | State Geotechnical Engineer for      |           |           |
| Drawn By SM                                   | 07/99 | Revision                             | Sheet No. | Index No. |
| Checked By FWL                                | 08/99 | 00                                   | 1 of 8    | 501       |



***GEOSYNTHETIC REINFORCED FOUNDATIONS CONSTRUCTED ON SOFT SOILS***

|   |       |       |  |                         |
|---|-------|-------|--|-------------------------|
| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION |       |       |  |                         |
| <b><i>GEOSYNTHETIC REINFORCED SOILS</i></b>   |       |       |  |                         |
|   | Names | Dates | Approved By <i>W. V. [Signature]</i> for |                         |
| Designed By                                   | PDP   | 07/99 | State Geotechnical Engineer              |                         |
| Drawn By                                      | SM    | 07/99 | Revision                                 | Sheet No.               |
| Checked By                                    | PDP   | 08/99 | 00                                       | 2 of 8                  |
|   |       |       |  | Index No.<br><b>501</b> |

TABLE OF WOVEN GEOTEXTILE VALUES

| PROPERTY  | REQUIRED TEST METHOD | MIRAFI HP 370                | MIRAFI HP 470 | MIRAFI HP 570 | MIRAFI HP 670 | MIRAFI HP 770 | MIRAFI HS 400 | MIRAFI HS 600 | MIRAFI HS 800 | MIRAFI HS 1150 |         |
|---|----------------------|------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------|
| Permittivity (0.05 sec <sup>-1</sup> Min.)                      | ASTM D 4491          | 0.52                         | 0.20          | 0.40          | 0.50          | 0.23          | 0.026         | 0.32          | 0.20          | 0.32           |         |
| UV Stability (Retained 50% Strength Min. @ 500 hr.)             | ASTM D 4355          | 70%                          | 70%           | 70%           | 70%           | 70%           | 70%           | 70%           | 70%           | 70%            |         |
| Burst Strength (psi)  | GRI & GSI            | 800                          | 1,200         | 1,200         | 1,200         | 1,200         | —             | —             | —             | —              |         |
| Grab Strength (lb)  | ASTM D 4632          | 400 x 250                    | 380 x 350     | 475 x 440     | 650 x 450     | 600 x 550     | —             | —             | —             | —              |         |
| A.O.S. (in)   | ASTM D 4751          | 0.0236                       | 0.0335        | 0.0236        | 0.0335        | 0.0236        | 0.0118        | 0.0335        | 0.0335        | 0.0236         |         |
| Tensile Strength (lb/ft)  | ASTM D 4595          | Ultimate                     | 3,240         | 3,600         | 4,800         | 6,420         | 7,200         | 4,800         | 7,200         | 9,600          | 13,800  |
|   |                      | 2% Ultimate                  | 540           | 900           | 960           | 1,080         | 1,080         | —             | —             | —              | —       |
|   |                      | 5% Ultimate                  | 1,356         | 1,800         | 2,400         | 2,700         | 3,000         | 1,080         | 2,040         | 3,600          | 4,800   |
|   |                      | Cross Direction Ultimate     | 2,700         | 3,600         | 4,800         | 4,800         | 4,800         | 4,800         | 3,600         | 3,600          | 3,600   |
|   |                      | Cross Direction 2% Ultimate  | 540           | 1,200         | 1,320         | 1,200         | 1,320         | —             | —             | —              | —       |
|   |                      | Cross Direction 5% Ultimate  | 1,356         | 1,800         | 2,400         | 2,700         | 2,400         | 2,400         | —             | —              | —       |
| Strain @ Ultimate Tensile Strength (lb/ft)                      | ASTM D 4595          | 14%                          | 10%           | 10%           | 14%           | 12%           | 15%           | 15%           | 10%           | 12%            |         |
|   |                      | 2% strain                    | 27,000        | 45,000        | 48,000        | 54,000        | 54,000        | —             | —             | —              | —       |
|   |                      | 5% strain                    | 27,200        | 36,000        | 48,000        | 54,000        | 60,000        | 21,600        | 40,800        | 72,000         | 96,000  |
|   |                      | 10% strain                   | 24,000        | 36,000        | 48,000        | 54,000        | 66,000        | 33,600        | 57,600        | 96,000         | 120,000 |
| Seam Breaking Strength (lb/ft)                                  | ASTM D 4884          | 1,440                        | 1,800         | 3,000         | 3,600         | 1,200         | 2,400         | 2,400         | 2,400         | 2,400          |         |
| Puncture Resistance (lb)  | ASTM D 4833          | 180                          | 170           | 190           | 200           | 220           | —             | —             | —             | —              |         |
| Tear Strength (lb)  | Machine Direction    | ASTM D 4833                  | 180           | 130           | 180           | 250           | 250           | —             | —             | —              | —       |
|   | Cross Direction      | ASTM D 4833                  | 110           | 200           | 180           | 200           | 400           | —             | —             | —              |         |
| Soil-Geosynthetic Friction                                      | GRI & GG5, GT7       | 0.8                          | 0.8           | 0.8           | 0.8           | 0.8           | 0.9           | 0.9           | 0.9           | 0.9            |         |
| Creep Resistance - T <sub>creep</sub> (lb/ft)                   | ASTM D 5262          | —                            | —             | —             | —             | —             | 2,880         | 4,320         | 5,760         | 8,280          |         |
| Creep Reduction Factor (T <sub>ult</sub> / T <sub>creep</sub> ) | GRI & GG3 & GT5      | 5.0                          | 5.0           | 5.0           | 5.0           | 5.0           | 1.67          | 1.67          | 1.67          | 1.67           |         |
| Installation Damage (RF <sub>C</sub> )                          | Sand                 | GRI & GG4 & GT7              | 1.25          | 1.25          | 1.15          | 1.15          | 1.15          | 1.3           | 1.25          | 1.2            | 1.15    |
|   | Limestone            |                              | 1.5           | 1.5           | 1.35          | 1.35          | 1.35          | 5             | 3.5           | 1.85           | 1.7     |
| Durability (RF <sub>D</sub> )                                   | Chemical             | ASTM D 5322                  | 1.1           | 1.1           | 1.1           | 1.1           | 1.1           | 1.1           | 1.1           | 1.1            | 1.1     |
|   | Biological           | ASTM D1987, D3083, G21 & G22 | 1.0           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0            | 1.0     |
| Joint Strength (RF <sub>J</sub> )                               | Mechanical           | ASTM D 4595, GRI & GG4 & GT7 | —             | —             | —             | —             | —             | —             | —             | —              | —       |
|   | Overlap              | GRI & GG5 & GT6              | 1.0           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0            | 1.0     |
| Approved Application Usage                                      |                      | 3                            | 3             | 3             | 3             | 3             | 3             | 3             | 3             | 3              |         |

Approved Application Usage: 1 = Steepened Slopes  
 2 = Reinforcement of Foundations over Soft Soils  
 3 = Both Steepened Slopes & Reinforcement of Foundations over Soft Soils

**APPROVED GEOSYNTHETIC PRODUCTS  
 (WOVEN GEOTEXTILES)  
 APPLICATION AND PROPERTIES**

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

**GEOSYNTHETIC REINFORCED SOILS**

|             |       |             |                             |           |           |
|-------------|-------|-------------|-----------------------------|-----------|-----------|
| Names       | Dates | Approved By | W. V. [Signature]           |           |           |
| Designed By | PDP   | 07/99       | State Geotechnical Engineer |           |           |
| Drawn By    | PDP   | 08/99       | Revision                    | Sheet No. | Index No. |
| Checked By  | PWL   | 08/99       | 00                          | 3 of 8    | 501       |

TABLE OF WOVEN GEOTEXTILE VALUES

| PROPERTY  | REQUIRED TEST METHOD | MIRIFI HS 1400 | MIRIFI HS 1715 | MIRIFI HS 2400 | MIRIFI HS 3000 | MIRIFI HS 3600 | AMOCO 2006 | AMOCO 2016 | AMOCO 2044 | COMTRAC 70/70 |
|---|----------------------|----------------|----------------|----------------|----------------|----------------|------------|------------|------------|---------------|
| Permittivity (0.05 sec <sup>-1</sup> Min.)                      | ASTM D 4491          | 0.20           | 0.32           | 0.02           | 0.02           | 0.02           | 0.05       | 0.70       | 0.15       | 0.20          |
| UV Stability (Retained 50% Strength Min. @ 500 hr.)             | ASTM D 4355          | 70%            | 70%            | 70%            | 70%            | 70%            | 70%        | 70%        | 70%        | 70%           |
| Burst Strength (psi)  | GRI & GSI            | —              | —              | —              | —              | —              | 1,000      | 1,100      | 1,500      | —             |
| Grab Strength (lb)  | ASTM D 4632          | —              | —              | —              | —              | —              | 315        | 315        | 600/500    | —             |
| A.O.S. (In)   | ASTM D 4751          | 0.0335         | 0.0335         | 0.0118         | 0.0118         | 0.0118         | 0.0167     | 0.0167     | 0.0236     | 0.0335        |
| Tensile Strength (lb/ft)  |                      |                |                |                |                |                |            |            |            |               |
| Machine Direction   | Ultimate             | 16,800         | 20,580         | 28,800         | 36,000         | 43,200         | 2,100      | 2,400      | 4,800      | 16,800        |
|   | 2% Ultimate          | —              | —              | —              | —              | —              | 156        | 276        | 456        | —             |
|   | 5% Ultimate          | 6,000          | 8,400          | 14,400         | 18,000         | 21,600         | 564        | 744        | 1,452      | 6,000         |
| Cross Direction   | Ultimate             | 3,600          | 3,600          | 3,600          | 3,600          | 3,600          | 2,100      | 2,400      | 4,800      | 3,600         |
|   | 2% Ultimate          | —              | —              | —              | —              | —              | 576        | 660        | 1,380      | —             |
|   | 5% Ultimate          | —              | —              | —              | —              | —              | 1,104      | 1,404      | 2,604      | —             |
| Strain @ Ultimate Tensile Strength                              |                      | 14%            | 14%            | 10%            | 10%            | 10%            | 8%         | 8%         | 8%         | 14%           |
| Modulus @ (lb/ft)   | 2% strain            | —              | —              | —              | —              | —              | 7,800      | 13,800     | 22,800     | —             |
|   | 5% strain            | 120,000        | 168,000        | 288,000        | 360,000        | 432,000        | 11,280     | 14,880     | 29,040     | 120,000       |
|   | 10% strain           | 120,000        | 162,000        | 288,000        | 360,000        | 432,000        | 10,440     | 12,480     | 31,200     | 120,000       |
| Seam Breaking Strength (lb/ft)                                  | ASTM D 4884          | 2,400          | 2,400          | 3,600          | 3,600          | 3,600          | —          | —          | —          | 2,400         |
| Puncture Resistance (lb)  | ASTM D 4833          | —              | —              | —              | —              | —              | 120        | 120        | 170        | —             |
| Tear Strength (lb)  | Machine Direction    | —              | —              | —              | —              | —              | 120        | 120        | 250        | —             |
|   | Cross Direction      | —              | —              | —              | —              | —              | 120        | 120        | 250        | —             |
| Soil-Geosynthetic Friction                                      | GRI & GG5, GT7       | 0.9            | 0.9            | 0.9            | 0.9            | 0.9            | 0.65       | 0.65       | 0.65       | 0.9           |
| Creep Resistance-T <sub>creep</sub> (lb/ft)                     | ASTM D 5262          | 10,080         | 12,348         | 17,280         | 21,600         | 21,600         | 600        | 685        | 1,371      | —             |
| Creep Reduction Factor (T <sub>ult</sub> / T <sub>creep</sub> ) | GRI & GG3 & GT5      | 1.67           | 1.67           | 1.67           | 1.67           | 1.67           | 3.5        | 3.5        | 3.5        | 1.67          |
| Installation Damage (RF <sub>C</sub> )                          | Sand                 | 1.15           | 1.15           | 1.1            | 1.1            | 1.1            | 1.10       | 1.05       | 1.05       | 1.15          |
|   | Limestone            | 1.5            | 1.35           | 1.25           | 1.25           | 1.25           | 1.20       | 1.20       | 1.10       | 1.5           |
| Durability (RF <sub>D</sub> )                                   | Chemical             | 1.1            | 1.1            | 1.1            | 1.1            | 1.1            | 1.1        | 1.1        | 1.1        | 1.1           |
|   | Biological           | 1.0            | 1.0            | 1.0            | 1.0            | 1.0            | 1.0        | 1.0        | 1.0        | 1.0           |
| Joint Strength (RF <sub>J</sub> )                               | Mechanical           | —              | —              | —              | —              | —              | —          | —          | —          | —             |
|   | Overlap              | 1.0            | 1.0            | 1.0            | 1.0            | 1.0            | 1.2        | 1.2        | 1.2        | 1.0           |
| Approved Application Usage                                      |                      | 3              | 3              | 3              | 3              | 3              | 3          | 3          | 3          | 3             |

Approved Application Usage: 1 = Steepened Slopes  
 2 = Reinforcement of Foundations over Soft Soils  
 3 = Both Steepened Slopes & Reinforcement of Foundations over Soft Soils

**APPROVED GEOSYNTHETIC PRODUCTS  
 (WOVEN GEOTEXTILES)  
 APPLICATION AND PROPERTIES**

|   |       |  |           |           |
|---|-------|--|-----------|-----------|
| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION |       |  |           |           |
| <b>GEOSYNTHETIC REINFORCED SOILS</b>          |       |  |           |           |
| Names   | Dates | Approved By <i>W. V. [Signature]</i> for |           |           |
| Designed By PDP                               | 07/99 | State Geotechnical Engineer              |           |           |
| Drawn By PDP                                  | 08/99 | Revision                                 | Sheet No. | Index No. |
| Checked By FWL                                | 08/99 | 00                                       | 4 of 8    | 501       |

TABLE OF WOVEN GEOGRID VALUES

| PROPERTY  |             | REQUIRED TEST METHOD         | MIRIFI MG 2XT   | MIRIFI MG 3XT | MIRIFI MG 5XT<br>(Matrex 30) | MIRIFI MG 7XT | MIRIFI MG 8XT | MIRIFI MG 10XT<br>(Matrex 60) | MIRIFI MG 18XT<br>(Matrex 90) | MIRIFI MG 20XT<br>(Matrex 120) | MIRIFI MG 22XT<br>(Matrex 180) | MIRIFI MG 24XT<br>(Matrex 240) |   |
|---|-------------|------------------------------|-----------------|---------------|------------------------------|---------------|---------------|-------------------------------|-------------------------------|--------------------------------|--------------------------------|--------------------------------|---|
| UV Stability (Retained 50% Strength Min. @ 500 hr.) |             | ASTM D 4355                  | 70%             | 70%           | 70%                          | 70%           | 70%           | 70%                           | 70%                           | 70%                            | 70%                            | 70%                            |   |
| Tensile Strength (lb/ft)                            |             | ASTM D 4595                  |                 |               |                              |               |               |                               |                               |                                |                                |                                |   |
| Machine Direction                                   | Ultimate    |                              | 2,000           | 2,800         | 3,590                        | 4,350         | 6,230         | 8,300                         | 9,360                         | 12,420                         | 17,760                         | 25,380                         |   |
|   | 2% Ultimate |                              | —               | —             | —                            | —             | —             | —                             | —                             | —                              | —                              | —                              |   |
|   | 5% Ultimate |                              | 1,200           | 1,056         | 1,740                        | 2,160         | 2,520         | 3,120                         | 4,400                         | 5,340                          | 7,140                          | 10,020                         |   |
| Cross Direction                                     | Ultimate    |                              | 2,000           | —             | —                            | —             | —             | —                             | —                             | —                              | —                              | —                              | — |
|   | 2% Ultimate |                              | —               | —             | —                            | —             | —             | —                             | —                             | —                              | —                              | —                              | — |
|   | 5% Ultimate | —                            | —               | —             | —                            | —             | —             | —                             | —                             | —                              | —                              | —                              |   |
| Strain @ Ultimate Tensile Strength                  |             | ASTM D 4595                  | 10%             | 10%           | 10%                          | 10%           | 10%           | 10%                           | 10%                           | 10%                            | 10%                            | 10%                            |   |
| Secant Modulus @ (lb/ft)                            | 2% strain   |                              | —               | —             | —                            | —             | —             | —                             | —                             | —                              | —                              | —                              |   |
|   | 5% strain   |                              | —               | 21,120        | 34,800                       | 43,200        | 50,400        | 62,400                        | 88,800                        | 106,800                        | 142,800                        | 200,400                        |   |
|   | 10% strain  |                              | —               | —             | —                            | —             | —             | —                             | —                             | —                              | —                              | —                              |   |
| Junction Strength (lb/ft)                           |             | GRI # GG2                    | —               | —             | —                            | —             | —             | —                             | —                             | —                              | —                              | —                              |   |
| Soil-Geosynthetic Friction                          |             | GRI # GG5, GT7               | 1.0             | 1.0           | 1.0                          | 1.0           | 1.0           | 1.0                           | 1.0                           | 1.0                            | 1.0                            | 1.0                            |   |
| Creep Resistance- $T_{creep}$ (lb/ft)               |             | ASTM D 5262                  | 1,200           | 1,680         | 2,154                        | 2,610         | 3,738         | 4,980                         | 5,616                         | 7,221                          | 10,326                         | 14,756                         |   |
| Creep Reduction Factor ( $T_{ult}/T_{creep}$ )      |             | GRI # GG3 & GT5              | 1.67            | 1.67          | 1.67                         | 1.67          | 1.67          | 1.67                          | 1.67                          | 1.67                           | 1.67                           | 1.67                           |   |
| Installation Damage (RF <sub>C</sub> )              | Sand        | GRI # GG4 & GT7              | 1.25            | 1.20          | 1.15                         | 1.15          | 1.15          | 1.1                           | 1.1                           | 1.1                            | 1.1                            | 1.1                            |   |
|   | Limestone   |                              | Not Recommended | 1.75          | 1.3                          | 1.3           | 1.3           | 1.25                          | 1.25                          | 1.25                           | 1.25                           | 1.25                           |   |
| Durability (RF <sub>D</sub> )                       | Chemical    | ASTM D 5322                  | 1.1             | 1.1           | 1.1                          | 1.1           | 1.1           | 1.1                           | 1.1                           | 1.1                            | 1.1                            | 1.1                            |   |
|   | Biological  | ASTM D1987, D3083, G21 & G22 | 1.0             | 1.0           | 1.0                          | 1.0           | 1.0           | 1.0                           | 1.0                           | 1.0                            | 1.0                            | 1.0                            |   |
| Joint Strength (RF <sub>J</sub> )                   | Mechanical  | ASTM D 4595, GRI # GG4 & GT7 | —               | —             | —                            | —             | —             | —                             | —                             | —                              | —                              | —                              |   |
|   | Overlap     | GRI # GG5 & GT6              | 1.0             | 1.0           | 1.0                          | 1.0           | 1.0           | 1.0                           | 1.0                           | 1.0                            | 1.0                            | 1.0                            |   |
| Approved Application Usage                          |             |                              | 3               | 3             | 3                            | 3             | 3             | 3                             | 3                             | 3                              | 3                              | 3                              |   |

Approved Application Usage: 1 = Steepened Slopes  
 2 = Reinforcement of Foundations over Soft Soils  
 3 = Both Steepened Slopes & Reinforcement of Foundations over Soft Soils

APPROVED GEOSYNTHETIC PRODUCTS  
 (WOVEN GEOGRIDS)  
 APPLICATION AND PROPERTIES

|   |       |  |           |           |
|---|-------|--|-----------|-----------|
| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION |       |  |           |           |
| GEOSYNTHETIC REINFORCED SOILS                 |       |  |           |           |
| Names   | Dates | Approved By <i>W. V. [Signature]</i> for |           |           |
| Designed By PDP                               | 07/99 | State Geotechnical Engineer              |           |           |
| Drawn By PDP                                  | 08/99 | Revision                                 | Sheet No. | Index No. |
| Checked By FWL                                | 08/99 | 00                                       | 5 of 8    | 501       |

TABLE OF WOVEN GEOGRID VALUES

| PROPERTY  |             | REQUIRED TEST METHOD         | SYNTEEN SF 20 | SYNTEEN SF 35 | SYNTEEN SF 40 | SYNTEEN SF 50 | SYNTEEN SF 55 | SYNTEEN SF 80 | SYNTEEN SF 110 | Raugrid 3/13 | Raugrid 4/12 | Raugrid 6/13 | Raugrid 8/13 | Raugrid 10/13 |       |
|---|-------------|------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|--------------|--------------|--------------|--------------|---------------|-------|
| UV Stability (Retained 50% Strength Min. @ 500 hr.) |             | ASTM D 4355                  | 70%           | 70%           | 70%           | 70%           | 70%           | 70%           | 70%            | 95%          | 95%          | 95%          | 95%          | 95%           |       |
| Tensile Strength (lb/ft)                            |             |                              |               |               |               |               |               |               |                |              |              |              |              |               |       |
| Machine Direction                                   | Ultimate    | ASTM D 4595                  | 1,809         | 2,627         | 3,051         | 3,731         | 3,774         | 5,583         | 8,226          | 2,233        | 2,843        | 4,350        | 5,288        | 6,590         |       |
|   | 2% Ultimate |                              | 370           | 462           | 488           | 791           | 736           | 1,016         | 1,186          | —            | —            | —            | —            | —             |       |
|   | 5% Ultimate |                              | 670           | 725           | 970           | 922           | 1,159         | 1,273         | 1,684          | 712          | 767          | 1,144        | 1,165        | 1,582         |       |
| Cross Direction                                     | Ultimate    |                              | 1,809         | 2,556         | 3,051         | 3,933         | 2,499         | 2,206         | 2,176          | 2,213        | 1,459        | 1,959        | 2,089        | 2,192         |       |
|   | 2% Ultimate |                              | 370           | 399           | 488           | 791           | 604           | 882           | 1,274          | —            | —            | —            | —            | —             |       |
|   | 5% Ultimate |                              | 670           | 583           | 970           | 922           | 796           | 1,563         | 1,581          | 541          | 356          | 452          | 507          | 521           |       |
| Strain @ Ultimate Tensile Strength                  |             |                              |               | 9.4%          | 14.1%         | 9.9%          | 14.2%         | 11.5%         | 14.2%          | 18.8%        | 10.8%        | 11.8%        | 13.1%        | 12.2%         | 11.2% |
| Secant Modulus @ (lb/ft)                            | 2% strain   |                              | ASTM D 4595   | 18,494        | 23,114        | 24,408        | 39,551        | 36,799        | 50,807         | 59,298       | —            | —            | —            | —             | —     |
|   | 5% strain   |                              |               | 13,397        | 14,499        | 19,404        | 18,432        | 23,174        | 25,459         | 33,676       | —            | —            | —            | —             | —     |
|   | 10% strain  | 15,206                       |               | 15,234        | 22,089        | 18,432        | 27,137        | 37,910        | 27,380         | —            | —            | —            | —            | —             |       |
| Junction Strength (lb/ft)                           |             | GRI : GG2                    | —             | —             | —             | —             | —             | —             | —              | N/A          | 617          | 1139         | 961          | 833           |       |
| Soil- Geosynthetic Friction                         |             | GRI : GG5, GT7               | 0.8           | 0.8           | 0.8           | 0.8           | 0.8           | 0.8           | 0.8            | —            | —            | —            | —            | —             |       |
| Creep Resistance- $T_{creep}$ (lb/ft)               |             | ASTM D 5262                  | 1,005         | 1,523         | 1,525         | 2,201         | 2,265         | 3,182         | 4,026          | 1,469        | 1,870        | 2,862        | 3,479        | 4,335         |       |
| Creep Reduction Factor ( $T_{ult} / T_{creep}$ )    |             | GRI : GG3 & GT5              | 1.80          | 1.72          | 2.00          | 1.70          | 1.67          | 1.75          | 2.02           | 1.52         | 1.52         | 1.52         | 1.52         | 1.52          |       |
| Installation Damage (RF <sub>C</sub> )              | Sand        | GRI : GG4 & GT7              | 1.05          | 1.15          | 1.15          | 1.08          | 1.08          | 1.08          | 1.08           | 1.10         | 1.10         | 1.10         | 1.10         | 1.10          |       |
|   | Limestone   |                              | 1.75          | 1.70          | 1.60          | 1.55          | 1.55          | 1.55          | 1.35           | 1.14         | 1.14         | 1.14         | 1.14         | 1.14          |       |
| Durability (RF <sub>D</sub> )                       | Chemical    | ASTM D 5322                  | 1.10          | 1.10          | 1.10          | 1.10          | 1.10          | 1.10          | 1.10           | 1.15         | 1.15         | 1.15         | 1.15         | 1.15          |       |
|   | Biological  | ASTM D1987, D3083, G21 & G22 | 1.10          | 1.10          | 1.10          | 1.10          | 1.10          | 1.10          | 1.10           |              |              |              |              |               |       |
| Joint Strength (RF <sub>J</sub> )                   | Mechanical  | ASTM D 4595, GRI : GG4 & GT7 | —             | —             | —             | —             | —             | —             | —              | —            | —            | —            | —            | —             |       |
|   | Overlap     | GRI : GG5 & GT6              | 1.10          | 1.10          | 1.10          | 1.10          | 1.10          | 1.10          | 1.10           | —            | —            | —            | —            | —             |       |
| Approved Application Usage                          |             |                              | 3             | 3             | 3             | 3             | 3             | 3             | 3              | 3            | 3            | 3            | 3            | 3             |       |

Approved Application Usage: 1 = Steepened Slopes  
 2 = Reinforcement of Foundations over Soft Soils  
 3 = Both Steepened Slopes & Reinforcement of Foundations over Soft Soils

**APPROVED GEOSYNTHETIC PRODUCTS  
 (WOVEN GEOGRID)  
 APPLICATION AND PROPERTIES**

|   |       |  |           |           |
|---|-------|--|-----------|-----------|
| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION |       |  |           |           |
| <b>GEOSYNTHETIC REINFORCED SOILS</b>          |       |  |           |           |
| Names   | Dates | Approved By <i>W. V. [Signature]</i> for |           |           |
| Designed By PDP                               | 07/99 | State Geotechnical Engineer              |           |           |
| Drawn By PDP                                  | 08/99 | Revision                                 | Sheet No. | Index No. |
| Checked By FWL                                | 08/99 | 02                                       | 6 of 8    | 501       |

TABLE OF EXTRUDED GEOGRID VALUES

| PROPERTY  |             | REQUIRED TEST METHOD         | TENSAR BX 4100 | TENSAR BX 4120 | TENSAR BX 4200 | TENSAR BX 4220 | TENSAR UX 900 HS | TENSAR UX 1100 HS | TENSAR UX 1400 HS | TENSAR UX 1500 HS | TENSAR UX 1600 HS | TENSAR UX 1700 HS |
|---|-------------|------------------------------|----------------|----------------|----------------|----------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| UV Stability (Retained 50% Strength Min. @ 500 hr.) |             | ASTM D 4355                  | —              | 90%            | 90%            | 90%            | 90%              | 90%               | 90%               | 90%               | 90%               | 90%               |
| Tensile Strength (lb/ft)                            |             | ASTM D 4595                  |                |                |                |                |                  |                   |                   |                   |                   |                   |
| Machine Direction                                   | Ultimate    |                              | 860            | 860            | 1,270          | 1,270          | 3,700            | 3,700             | 4,400             | 6,900             | 9,000             | 10,800            |
|   | 2% Ultimate |                              | 240            | 240            | 370            | 370            | 840              | 840               | 1,000             | 1,800             | 2,330             | 2,740             |
|   | 5% Ultimate |                              | 480            | 480            | 705            | 705            | 1,440            | 1,440             | 2,000             | 3,700             | 4,450             | 5,400             |
| Cross Direction                                     | Ultimate    |                              | 875            | 875            | 1,370          | 1,370          | —                | —                 | —                 | —                 | —                 | —                 |
|   | 2% Ultimate |                              | 300            | 300            | 500            | 500            | —                | —                 | —                 | —                 | —                 | —                 |
|   | 5% Ultimate | 635                          | 635            | 960            | 960            | —              | —                | —                 | —                 | —                 | —                 |                   |
| Strain @ Ultimate Tensile Strength                  |             | ASTM D 4595                  | —              | —              | —              | —              | 10%              | 10%               | 10%               | 10%               | 10%               | 10%               |
| Secant Modulus (lb/ft)                              | 2% strain   |                              | 11,995         | 11,995         | 18,506         | 18,506         | 42,015           | 42,015            | 50,000            | 89,993            | 116,518           | 137,012           |
|   | 5% strain   |                              | 9,596          | 9,596          | 14,092         | 14,092         | 28,800           | 28,800            | 40,000            | 73,996            | 89,006            | 108,005           |
|   | 10% strain  |                              | —              | —              | —              | —              | —                | —                 | —                 | —                 | —                 | —                 |
| Junction Strength (lb/ft)                           |             | GRI : GG2                    | 90%            | 90%            | 90%            | 90%            | 90%              | 90%               | 90%               | 90%               | 90%               | 90%               |
| Soil- Geosynthetic Friction                         |             | GRI : GG5, GT7               | —              | 0.90           | 0.95           | 0.95           | 0.462            | 0.462             | 0.462             | 0.462             | 0.462             | 0.462             |
| Creep Resistance- $T_{creep}$ (lb/ft)               |             | ASTM D 5262                  | 250            | 250            | 420            | 420            | 900              | 1,350             | 1,850             | 2,800             | 3,700             | 4,650             |
| Creep Reduction Factor ( $T_{ult}/T_{creep}$ )      |             | GRI : GG3 & GT5              | 3.5            | 3.5            | 3.27           | 3.27           | 4.12             | 3.65              | 2.381             | 2.46              | 2.43              | 2.33              |
| Installation Damage (RF <sub>C</sub> )              | Sand        | GRI : GG4 & GT7              | 1.10           | 1.10           | 1.10           | 1.10           | 1.10             | 1.10              | 1.10              | 1.10              | 1.10              | 1.10              |
|   | Limestone   |                              | 1.43           | 1.43           | 1.35           | 1.35           | 1.25             | 1.25              | 1.20              | 1.20              | 1.20              | 1.20              |
| Durability (RF <sub>d</sub> )                       | Chemical    | ASTM D 5322                  | 1.1            | 1.1            | 1.1            | 1.1            | 1.1              | 1.1               | 1.1               | 1.1               | 1.1               | 1.1               |
|   | Biological  | ASTM D1987, D3083, G21 & G22 | 1.0            | 1.0            | 1.0            | 1.0            | 1.0              | 1.0               | 1.0               | 1.0               | 1.0               | 1.0               |
| Joint Strength (RF <sub>j</sub> )                   | Mechanical  | ASTM D 4595, GRI : GG4 & GT7 | —              | —              | —              | —              | 1.0              | 1.0               | 1.0               | 1.0               | 1.0               | 1.0               |
|   | Overlap     | GRI : GG5 & GT6              | 1.0            | 1.0            | 1.0            | 1.0            | —                | 1.0               | 1.0               | 1.0               | 1.0               | 1.0               |
| Approved Application Usage                          |             |                              | 3              | 3              | 3              | 3              | 3                | 3                 | 3                 | 3                 | 3                 | 3                 |

Approved Application Usage: 1 = Steepened Slopes  
 2 = Reinforcement of Foundations over Soft Soils  
 3 = Both Steepened Slopes & Reinforcement of Foundations over Soft Soils

**APPROVED GEOSYNTHETIC PRODUCTS  
 (EXTRUDED GEOGRID)  
 APPLICATION AND PROPERTIES**

|   |       |  |           |           |
|---|-------|--|-----------|-----------|
| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION |       |  |           |           |
| <b>GEOSYNTHETIC REINFORCED SOILS</b>          |       |  |           |           |
| Names   | Dates | Approved By <i>W. V. [Signature]</i> for |           |           |
| Designed By PDP                               | 07/99 | State Geotechnical Engineer              |           |           |
| Drawn By PDP                                  | 08/99 | Revision                                 | Sheet No. | Index No. |
| Checked By PWL                                | 08/99 | 00                                       | 7 of 8    | 501       |

TABLE OF EXTRUDED GEOGRID VALUES

| PROPERTY  |             | REQUIRED TEST METHOD         | TENAX MS 220 | TENAX MS 330 |  |  |  |  |  |  |  |
|---|-------------|------------------------------|--------------|--------------|--|--|--|--|--|--|--|
| UV Stability (Retained 50% Strength Min. @ 500 hr.) |             | ASTM D 4355                  | 85%          | 85%          |  |  |  |  |  |  |  |
| Tensile Strength (lb/ft)                            |             |                              |              |              |  |  |  |  |  |  |  |
| Machine Direction                                   | Ultimate    | ASTM D 4595                  | 925          | 1,370        |  |  |  |  |  |  |  |
|   | 2% Ultimate |                              | 300          | 418          |  |  |  |  |  |  |  |
|   | 5% Ultimate |                              | 615          | 925          |  |  |  |  |  |  |  |
| Cross Direction                                     | Ultimate    |                              | 1,400        | 2,100        |  |  |  |  |  |  |  |
|   | 2% Ultimate |                              | 445          | 616          |  |  |  |  |  |  |  |
|   | 5% Ultimate |                              | 890          | 1,340        |  |  |  |  |  |  |  |
| Strain @ Ultimate Tensile Strength                  |             |                              | 12%          | 12%          |  |  |  |  |  |  |  |
| Secant Modulus @ (lb/ft)                            | 2% strain   | ASTM D 4595                  | 15,000       | 20,900       |  |  |  |  |  |  |  |
|   | 5% strain   |                              | 12,330       | 18,500       |  |  |  |  |  |  |  |
|   | 10% strain  |                              | —            | —            |  |  |  |  |  |  |  |
| Junction Strength (lb/ft)                           |             | GRI : GG2                    | 835          | 1,230        |  |  |  |  |  |  |  |
| Soil- Geosynthetic Friction                         |             | GRI : GG5, GT7               | —            | —            |  |  |  |  |  |  |  |
| Creep Resistance- $T_{creep}$ (lb/ft)               |             | ASTM D 5262                  | —            | —            |  |  |  |  |  |  |  |
| Creep Reduction Factor ( $T_{ult} / T_{creep}$ )    |             | GRI : GG3 & GT5              | 5.0          | 5.0          |  |  |  |  |  |  |  |
| Installation Damage (RF <sub>C</sub> )              | Sand        | GRI : GG4 & GT7              | 3.0          | 3.0          |  |  |  |  |  |  |  |
|   | Limestone   |                              | 3.0          | 3.0          |  |  |  |  |  |  |  |
| Durability (RF <sub>D</sub> )                       | Chemical    | ASTM D 5322                  | 2.0          | 2.0          |  |  |  |  |  |  |  |
|   | Biological  | ASTM D1987, D3083, G21 & G22 |              |              |  |  |  |  |  |  |  |
| Joint Strength (RF <sub>J</sub> )                   | Mechanical  | ASTM D 4595, GRI : GG4 & GT7 | —            | —            |  |  |  |  |  |  |  |
|   | Overlap     | GRI : GG5 & GT6              | —            | —            |  |  |  |  |  |  |  |
| Approved Application Usage                          |             |                              | 2            | 2            |  |  |  |  |  |  |  |

Approved Application Usage: 1 = Steepened Slopes  
 2 = Reinforcement of Foundations over Soft Soils  
 3 = Both Steepened Slopes & Reinforcement of Foundations over Soft Soils

**APPROVED GEOSYNTHETIC PRODUCTS  
 (EXTRUDED GEOGRID)  
 APPLICATION AND PROPERTIES**

|   |       |  |           |           |
|---|-------|--|-----------|-----------|
| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION |       |  |           |           |
| <b>GEOSYNTHETIC REINFORCED SOILS</b>          |       |  |           |           |
| Names   | Dates | Approved By <i>W. V. [Signature]</i> for |           |           |
| Designed By PDP                               | 07/99 | State Geotechnical Engineer              |           |           |
| Drawn By PDP                                  | 08/99 | Revision                                 | Sheet No. | Index No. |
| Checked By FWL                                | 08/99 | 00                                       | 8 of 8    | 501       |