## TABLE OF WOVEN GEOGRID VALUES

| PROPERTY | | REQUIRED TEST METHOD | MIRAFI MG 2XT | MIRAFI MG 3XT | MIRAFI MG 5XT (Matrex 30) | MIRAFI MG 7XT | MIRAFI MG 8XT | MIRAFI MG 10XT (Matrex 60) | MIRAFI MG 18XT (Matrex 90) | MIRAFI MG 20XT (Matrex 120) | MIRAFI MG 22XT (Matrex 180) | MIRAFI MG 24XT (Matrex 240) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UV Stability (Min. Retained Strength @ 500 hr.) | | ASTM D 4355 | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% |
| Tensile Strength (lb./ft.) | | ASTM D 6637 | | | | | | | | | | |
| Machine Direction | Ultimate ($T_{ult}$) | | 2,000 | 3,150 | 4,300 | 5,700 | 7,000 | 9,500 | 9,360 | 12,420 | 17,760 | 25,380 |
| | 2% Strain | | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| | 5% Strain | | 1,000 | 1,056 | 1,740 | 2,160 | 2,520 | 3,120 | 3,250 | 5,340 | 6,700 | 7,000 |
| Cross Direction | Ultimate | | 2,000 | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| | 2% Strain | | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| | 5% Strain | | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| Strain @ Ultimate Tensile Strength | | ASTM D 6637 | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| Secant Modulus @ (lb./ft.) | 2% Strain | | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| | 5% Strain | | 20,000 | 21,120 | 34,800 | 43,200 | 50,400 | 62,400 | 65,000 | 106,800 | 134,000 | 140,000 |
| | 10% Strain | | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| Junction Strength (lb./ft.) | | GRI : GG2 | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| Soil-Geosynthetic Friction | | ASTM D 6706 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Creep Resistance-$T_{creep}$ (lb./ft.) | | ASTM D 5262 | 1,250 | 1,969 | 2,688 | 3,563 | 4,375 | 5,938 | 5,850 | 7,221 | 10,326 | 14,756 |
| Creep Reduction Factor ($T_{ult}/T_{creep}$) | | | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.72 | 1.72 | 1.72 |
| Installation Damage ($RF_c$) | Sand | GRI : GG4 & GT7 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 |
| | Limestone | | 1.5 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 |
| Durability ($RF_d$) | 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 ($RF_j$) | Mechanical | ASTM D 6637, GRI : GG4 & GT7 | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| | Overlap * | ASTM D 6706 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| 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
4 = Reinforced Embankment
5 = Construction Expedient
* Minimum 3' Overlap

APPROVED GEOSYNTHETIC PRODUCTS
(WOVEN GEOGRID)
APPLICATION AND PROPERTIES

**REVISIONS**

| DATE | BY | DESCRIPTION | DATE | BY | DESCRIPTION |
|---|---|---|---|---|---|
| 01/01/10 | LJ | Correct "MARAFI" to "MIRAFI". | | | |

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

2010 Interim Design Standard

# GEOSYNTHETIC REINFORCED SOILS

Interim Date 01/01/10

Sheet No. 5 of 10

Index No. 501

## TABLE OF WOVEN GEOGRID VALUES

| PROPERTY | | REQUIRED TEST METHOD | SYNTEEN SF 11 | SYNTEEN SF 12 | SYNTEEN SF 20 | SYNTEEN SF 35 | SYNTEEN SF 40 | SYNTEEN SF 50 | SYNTEEN SF 55 | SYNTEEN SF 80 | SYNTEEN SF 110 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| UV Stability (Min. Retained Strength @ 500 hr.) | | ASTM D 4355 | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% |
| Tensile Strength (lb./ft.) | | ASTM D 6637 | | | | | | | | | |
| Machine Direction | Ultimate ($T_{ult}$) | | 2,388 | 2,388 | 1,672 | 2,627 | 3,050 | 3,731 | 3,774 | 5,583 | 7,462 |
| | 2% Strain | | 526 | 526 | 370 | 462 | 488 | 791 | 736 | 1,016 | 1,186 |
| | 5% Strain | | 990 | 1,042 | 670 | 725 | 970 | 922 | 1,159 | 1,273 | 1,684 |
| Cross Direction | Ultimate | | 3,870 | 5,268 | 1,630 | 2,556 | 3,050 | 3,933 | 2,499 | 2,206 | 2,179 |
| | 2% Strain | | 578 | 797 | 370 | 399 | 430 | 630 | 604 | 882 | 1,274 |
| | 5% Strain | | 792 | 1,129 | 670 | 583 | 765 | 815 | 796 | 1,563 | 1,581 |
| Strain @ Ultimate Tensile Strength | | ASTM D 6637 | 12.6% | 13.0% | 9.4% | 14.1% | 9.9% | 14.2% | 11.5% | 13.9% | 18.8% |
| Secant Modulus @ (lb./ft.) | 2% Strain | | 26,300 | 26,300 | 18,494 | 23,114 | 24,408 | 39,551 | 36,799 | 50,807 | 59,298 |
| | 5% Strain | | 15,840 | 20,840 | 13,397 | 14,499 | 19,404 | 18,432 | 23,174 | 25,459 | 33,712 |
| | 10% Strain | | ——— | ——— | 15,206 | 15,234 | 22,089 | 18,432 | 27,137 | 37,910 | 27,380 |
| Junction Strength (lb./ft.) | | GRI : GG2 | 354 | 320 | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| Soil-Geosynthetic Friction | | ASTM D 6706 | 1.0 | 1.0 | 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 | 4,029 |
| Creep Reduction Factor ($T_{ult}/T_{creep}$) | | | ——— | ——— | 1.66 | 1.73 | 2.00 | 1.70 | 1.67 | 1.75 | 2.02 |
| Installation Damage ($RF_C$) | Sand | GRI : GG4 & GT7 | 1.18 | 1.06 | 1.05 | 1.15 | 1.15 | 1.08 | 1.08 | 1.08 | 1.08 |
| | Limestone | | 1.31 | 1.20 | 1.75 | 1.70 | 1.60 | 1.55 | 1.55 | 1.55 | 1.35 |
| Durability ($RF_d$) | Chemical | ASTM D 5322 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 |
| | Biological | ASTM D1987, D3083, G21 & G22 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 |
| Joint Strength ($RF_j$) | Mechanical | ASTM D 6637, GRI : GG4 & GT7 | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| | Overlap * | ASTM D 6706 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 |
| Approved Application Usage | | | 2, 5 | 2, 5 | 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
4 = Reinforced Embankment
5 = Construction Expedient

* Minimum 3' Overlap

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

**REVISIONS**

| DATE | BY | DESCRIPTION | DATE | BY | DESCRIPTION |
|---|---|---|---|---|---|
| 01/01/10 | LJ | Added Application Usage 2 for SYNTEEN SF 11 & SF 12. | | | |

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

2010 Interim Design Standard

**GEOSYNTHETIC REINFORCED SOILS**

Interim Date 01/01/10

Sheet No. 6 of 10

Index No. 501

## TABLE OF WOVEN GEOGRID VALUES

| PROPERTY | | REQUIRED TEST METHOD | RAUGRID 3/3 | RAUGRID 4/2 | RAUGRID 6/3 | RAUGRID 8/3 | RAUGRID 10/3 | FORNIT 20 | FORNIT 30 |
|---|---|---|---|---|---|---|---|---|---|
| UV Stability (Min. Retained Strength @ 500 hr.) | | ASTM D 4355 | 95% | 95% | 95% | 95% | 95% | 92% | 92% |
| Tensile Strength (lb./ft.) | | ASTM D 6637 | | | | | | | |
| Machine Direction | Ultimate ($T_{ult}$) | | 2,233 | 2,843 | 4,350 | 5,288 | 6,590 | 1,159 | 1,890 |
| | 2% Strain | | ——— | ——— | ——— | ——— | ——— | 360 | 600 |
| | 5% Strain | | 712 | 767 | 1,144 | 1,165 | 1,582 | 774 | 1,390 |
| Cross Direction | Ultimate | | 2,213 | 1,459 | 1,959 | 2,089 | 2,192 | 1,641 | 2,466 |
| | 2% Strain | | ——— | ——— | ——— | ——— | ——— | 543 | 778 |
| | 5% Strain | | 541 | 356 | 452 | 507 | 521 | 1,111 | 1,719 |
| Strain @ Ultimate Tensile Strength | | ASTM D 6637 | 10.8% | 11.8% | 13.1% | 12.2% | 11.5% | 6% | 6% |
| Secant Modulus @ (lb./ft.) | 2% Strain | | ——— | ——— | ——— | ——— | ——— | 18,000 | 30,000 |
| | 5% Strain | | ——— | ——— | ——— | ——— | ——— | 15,480 | 27,800 |
| | 10% Strain | | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| Junction Strength (lb./ft.) | | GRI : GG2 | N/A | 100% | 100% | 100% | 100% | 30 | 32.2 |
| Soil-Geosynthetic Friction | | ASTM D 6706 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 0.9 |
| Creep Resistance-$T_{creep}$ (lb./ft.) | | ASTM D 5262 | 1,466 | 1,870 | 2,862 | 3,479 | 4,335 | 355 | 588 |
| Creep Reduction Factor ($T_{ult}/T_{creep}$) | | | 1.52 | 1.52 | 1.52 | 1.52 | 1.52 | 3.5 | 3.5 |
| Installation Damage ($RF_c$) | Sand | GRI : GG4 & GT7 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 |
| | Limestone | | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.10 | 1.10 |
| Durability ($RF_d$) | Chemical | ASTM D 5322 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.10 | 1.10 |
| | Biological | ASTM D1987, D3083, G21 & G22 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.0 | 1.0 |
| Joint Strength ($RF_j$) | Mechanical | ASTM D 6637, GRI : GG4 & GT7 | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| | Overlap * | ASTM D 6706 | ——— | ——— | ——— | ——— | ——— | 1.0 | 1.1 |
| Approved Application Usage | | | 2, 5 | 2, 5 | 2, 5 | 2, 5 | 2, 5 | 2, 4, 5 | 2, 4, 5 |

Approved Application Usage:
1 = Steepened Slopes
2 = Reinforcement of Foundations over Soft Soils
3 = Both Steepened Slopes & Reinforcement of Foundations over Soft Soils
4 = Reinforced Embankment
5 = Construction Expedient
* Minimum 3' Overlap

APPROVED GEOSYNTHETIC PRODUCTS
(WOVEN GEOGRID)
APPLICATION AND PROPERTIES

**REVISIONS**

| DATE | BY | DESCRIPTION | DATE | BY | DESCRIPTION |
|---|---|---|---|---|---|
| 01/01/10 | LJ | Added FORNIT 30.<br>Added Creep Resistance, Creep Reduction and Application Usage "4" to FORNIT 20. | | | |

2010 Interim Design Standard

GEOSYNTHETIC REINFORCED SOILS

Interim Date 01/01/10



Index No. 501

## TABLE OF WOVEN GEOGRID VALUES

| PROPERTY | | REQUIRED TEST METHOD | STRATAGRID MICROGRID | STRATAGRID SG 150 | STRATAGRID SG 200 | STRATAGRID SG 350 | STRATAGRID SG 500 | STRATAGRID SG 550 | STRATAGRID SG 600 | STRATAGRID SG 700 |
|---|---|---|---|---|---|---|---|---|---|---|
| UV Stability (Min. Retained Strength @ 500 hr.) | | ASTM D 4355 | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% |
| Tensile Strength (lb./ft.) | | ASTM D 6637 | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| Machine Direction | Ultimate ($T_{ult}$) | | 2,000 | 1,875 | 3,400 | 4,800 | 6,300 | 7,800 | 8,700 | 11,750 |
| | 2% Strain | | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| | 5% Strain | | 600 | 450 | 700 | 750 | 1,150 | 1,200 | 1,400 | 1,700 |
| Cross Direction | Ultimate | | 2,000 | 1,875 | ——— | ——— | ——— | ——— | ——— | ——— |
| | 2% Strain | | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| | 5% Strain | | 450 | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| Strain @ Ultimate Tensile Strength | | ASTM D 6637 | 15.0% | 15.0% | 15.0% | 15.0% | 15.0% | 15.0% | 18.0% | 18.0% |
| Secant Modulus @ (lb./ft.) | 2% Strain | | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| | 5% Strain | | 12,000 | 9,000 | 14,000 | 15,000 | 23,000 | 24,000 | 24,000 | 34,000 |
| | 10% Strain | | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| Junction Strength (lb./ft.) | | GRI : GG2 | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| Soil-Geosynthetic Friction | | ASTM D 6706 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Creep Resistance-$T_{creep}$ (lb./ft.) | | ASTM D 5262 | 1,149 | 1,210 | 2,194 | 3,097 | 4,065 | 5,032 | 5,613 | 7,581 |
| Creep Reduction Factor ($T_{ult}/T_{creep}$) | | | 1.74 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 |
| Installation Damage ($RF_C$) | Sand | GRI : GG4 & GT7 | 1.20 | 1.10 | 1.10 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 |
| | Limestone | | 1.90 | 1.20 | 1.20 | 1.20 | 1.15 | 1.15 | 1.15 | 1.15 |
| Durability ($RF_d$) | Chemical | ASTM D 5322 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 |
| | Biological | ASTM D1987, D3083, G21 & G22 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 |
| Joint Strength ($RF_j$) | Mechanical | ASTM D 6637, GRI : GG4 & GT7 | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| | Overlap * | ASTM D 6706 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 |
| Approved Application Usage | | | 3, 4, 5 | 3, 4, 5 | 3, 4 | 3, 4 | 3, 4 | 3, 4 | 3, 4 | 3, 4 |

Approved Application Usage:
1 = Steepened Slopes
2 = Reinforcement of Foundations over Soft Soils
3 = Both Steepened Slopes & Reinforcement of Foundations over Soft Soils
4 = Reinforced Embankment
5 = Construction Expedient
* Minimum 3' Overlap

APPROVED GEOSYNTHETIC PRODUCTS
(WOVEN GEOGRID)
APPLICATION AND PROPERTIES

REVISIONS

| DATE | BY | DESCRIPTION | DATE | BY | DESCRIPTION |
|---|---|---|---|---|---|
| 01/01/10 | LJ | New Sheet Added | | | |

2010 Interim Design Standard

GEOSYNTHETIC REINFORCED SOILS

Interim Date 01/01/10

Sheet No. 8 of 10

Index No. 501

## TABLE OF EXTRUDED GEOGRID VALUES

| PROPERTY | | REQUIRED TEST METHOD | TENSAR BX 4100 | TENSAR BX 4200 | TENSAR BX 1100 | TENSAR BX 1120 | TENSAR BX 1200 | TENSAR BX 1220 | TENSAR BX 1500 |
|---|---|---|---|---|---|---|---|---|---|
| UV Stability (Min. Retained Strength @ 500 hr.) | | ASTM D 4355 | 90% | 90% | 90% | 100% | 90% | 100% | 90% |
| Tensile Strength (lb./ft.) | | ASTM D 6637 | | | | | | | |
| Machine Direction | Ultimate ($T_{ult}$) | | 860 | 1,270 | 850 | 850 | 1,315 | 1,315 | 1,790 |
| | 2% Strain | | 240 | 370 | 280 | 280 | 410 | 410 | 580 |
| | 5% Strain | | 480 | 705 | 580 | 580 | 810 | 810 | 1,200 |
| Cross Direction | Ultimate | | 875 | 1,370 | 1,300 | 1,300 | 1,975 | 1,975 | 2,055 |
| | 2% Strain | | 300 | 500 | 450 | 450 | 670 | 670 | 685 |
| | 5% Strain | | 635 | 960 | 920 | 920 | 1,360 | 1,360 | 1,370 |
| Strain @ Ultimate Tensile Strength | | ASTM D 6637 | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| Secant Modulus @ (lb./ft.) | 2% Strain | | 11,995 | 18,506 | 14,000 | 14,000 | 20,500 | 20,500 | 29,000 |
| | 5% Strain | | 9,596 | 14,092 | 11,600 | 11,600 | 16,200 | 16,200 | 27,400 |
| | 10% Strain | | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| Junction Strength (lb./ft.) | | GRI : GG2 | 90% | 90% | 790/1,210 | 93% | 93% | 93% | 93% |
| Soil-Geosynthetic Friction | | ASTM D 6706 | ——— | 0.95 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Creep Resistance-$T_{creep}$ (lb./ft.) | | ASTM D 5262 | 250 | 420 | 280 | 280 | 425 | 425 | 575 |
| Creep Reduction Factor ($T_{ult}/T_{creep}$) | | | 3.5 | 3.27 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 |
| Installation Damage ($RF_c$) | Sand | GRI : GG4 & GT7 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 |
| | Limestone | | 1.43 | 1.35 | 1.35 | 1.35 | 1.35 | 1.35 | 1.35 |
| Durability ($RF_d$) | Chemical | ASTM D 5322 | 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 |
| Joint Strength ($RF_j$) | Mechanical | ASTM D 6637, GRI : GG4 & GT7 | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| | Overlap * | ASTM D 6706 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Approved Application Usage | | | 3, 4, 5 | 3, 4, 5 | 3, 4, 5 | 3, 4, 5 | 3, 4, 5 | 3, 4, 5 | 3, 4, 5 |

Approved Application Usage:
1 = Steepened Slopes
2 = Reinforcement of Foundations over Soft Soils
3 = Both Steepened Slopes & Reinforcement of Foundations over Soft Soils
4 = Reinforced Embankment
5 = Construction Expedient
* Minimum 3' Overlap

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

**REVISIONS**

| DATE | BY | DESCRIPTION | DATE | BY | DESCRIPTION |
|---|---|---|---|---|---|
| 01/01/10 | LJ | Changed Sheet No. from "8 of 9" to "9 of 10". | | | |

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

2010 Interim Design Standard

**GEOSYNTHETIC REINFORCED SOILS**

Interim Date: 01/01/10

Sheet No.: 9 of 10

Index No.: 501

## TABLE OF EXTRUDED GEOGRID VALUES

| PROPERTY | | REQUIRED TEST METHOD | TENSAR UX 1400 HS<br>UX 1400 MSE<br>UX MESA 3 | TENSAR UX 1500 HS<br>UX 1500 MSE<br>UX MESA 4 | TENSAR UX 1600 HS<br>UX 1600 MSE<br>UX MESA 5 | TENSAR UX 1700 HS<br>UX 1700 MSE<br>UX MESA 6 | TENAX<br>MS 220 | TENAX<br>MS 330 | COMBIGRID<br>30/30 Q1 151 GRK 3 | SECUGRID<br>20/20 Q1 | SECUGRID<br>30/30 Q1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| UV Stability (Min. Retained Strength @ 500 hr.) | | ASTM D 4355 | 90% | 90% | 90% | 90% | 85% | 85% | 90% | 90% | 90% |
| Tensile Strength (lb./ft.) | | ASTM D 6637 | | | | | | | | | |
| Machine Direction | Ultimate ($T_{ult}$) | | 4,790 | 7810 | 9,860 | 11,980 | 925 | 1,370 | 2,055 | 1,646 | 2,055 |
| | 2% Strain | | 1,100 | 1,850 | 2,330 | 2,740 | 300 | 418 | 686 | 549 | 686 |
| | 5% Strain | | 2,130 | 3,560 | 3,980 | 5,140 | 615 | 925 | 1,475 | 1,029 | 1,475 |
| Cross Direction | Ultimate | | ——— | ——— | ——— | ——— | 1,400 | 2,100 | 2,055 | 1,646 | 2,055 |
| | 2% Strain | | ——— | ——— | ——— | ——— | 445 | 616 | 686 | 549 | 686 |
| | 5% Strain | | ——— | ——— | ——— | ——— | 890 | 1,340 | 1,475 | 1,029 | 1,475 |
| Strain @ Ultimate Tensile Strength | | ASTM D 6637 | 10% | 10% | 10% | 10% | 12% | 12% | 8% | 9% | 7.5% |
| Secant Modulus @ (lb./ft.) | 2% Strain | | 55,000 | 92,500 | 116,500 | 137,000 | 15,000 | 20,900 | 34,300 | 27,450 | 34,300 |
| | 5% Strain | | 42,600 | 71,200 | 79,600 | 102,800 | 12,330 | 18,500 | 29,500 | 20,580 | 29,500 |
| | 10% Strain | | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| Junction Strength (lb./ft.) | | GRI : GG2 | 90% | 90% | 90% | 90% | 835 | 1,230 | 337 | 549 | 617 |
| Soil-Geosynthetic Friction | | ASTM D 6706 | 0.462 | 0.462 | 0.462 | 0.462 | ——— | ——— | 0.65 | 0.93 | 0.93 |
| Creep Resistance-$T_{creep}$ (lb./ft.) | | ASTM D 5262 | 1,970 | 3,000 | 3,960 | 4,975 | ——— | ——— | 726 | 581 | 726 |
| Creep Reduction Factor ($T_{ult}/T_{creep}$) | | | 2.43 | 2.60 | 2.49 | 2.41 | 3.5 | 3.5 | 2.83 | 2.83 | 2.83 |
| Installation Damage ($RF_C$) | Sand | GRI : GG4 & GT7 | 1.10 | 1.10 | 1.10 | 1.10 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| | Limestone | | 1.20 | 1.20 | 1.20 | 1.20 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| Durability ($RF_d$) | 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 ($RF_j$) | Mechanical | ASTM D 6637, GRI : GG4 & GT7 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | ——— | ——— | ——— |
| | Overlap * | ASTM D 6706 | 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 | 2, 5 | 2, 5 | 2, 5 | 2, 5 | 2, 5 |

Approved Application Usage:
1 = Steepened Slopes
2 = Reinforcement of Foundations over Soft Soils
3 = Both Steepened Slopes & Reinforcement of Foundations over Soft Soils
4 = Reinforced Embankment
5 = Construction Expedient
* Minimum 3' Overlap

APPROVED GEOSYNTHETIC PRODUCTS
(EXTRUDED GEOGRID)
APPLICATION AND PROPERTIES

**REVISIONS**

| DATE | BY | DESCRIPTION | DATE | BY | DESCRIPTION |
|---|---|---|---|---|---|
| 01/01/10 | LJ | Changed Sheet No. from "9 of 9" to "10 of 10". | | | |

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

2010 Interim Design Standard

GEOSYNTHETIC REINFORCED SOILS

Interim Date 01/01/10

Sheet No. 10 of 10

Index No. 501