

Channel Lining Selection Chart

(As per calculated Shear Stress Values)

| | |
|--|--------------------------------|
| | Erosion Control Blanket |
| | Turf Reinforcement Mat, Type 1 |
| | Turf Reinforcement Mat, Type 2 |
| | Riprap |

| Depth (ft) | Slope (ft/ft) | | | | | | | | | | | | | | | | | | | | | | | |
|------------|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 0.001 | 0.002 | 0.003 | 0.004 | 0.005 | 0.006 | 0.007 | 0.008 | 0.009 | 0.010 | 0.012 | 0.014 | 0.016 | 0.018 | 0.020 | 0.025 | 0.030 | 0.035 | 0.040 | 0.045 | 0.050 | 0.055 | 0.060 | 0.065 |
| 0.1 | 0.01 | 0.01 | 0.02 | 0.02 | 0.03 | 0.04 | 0.04 | 0.05 | 0.06 | 0.06 | 0.07 | 0.09 | 0.10 | 0.11 | 0.12 | 0.16 | 0.19 | 0.22 | 0.25 | 0.28 | 0.31 | 0.34 | 0.37 | 0.41 |
| 0.3 | 0.02 | 0.04 | 0.06 | 0.07 | 0.09 | 0.11 | 0.13 | 0.15 | 0.17 | 0.19 | 0.22 | 0.26 | 0.30 | 0.34 | 0.37 | 0.47 | 0.56 | 0.66 | 0.75 | 0.84 | 0.94 | 1.03 | 1.12 | 1.22 |
| 0.5 | 0.03 | 0.06 | 0.09 | 0.12 | 0.16 | 0.19 | 0.22 | 0.25 | 0.28 | 0.31 | 0.37 | 0.44 | 0.50 | 0.56 | 0.62 | 0.78 | 0.94 | 1.09 | 1.25 | 1.40 | 1.56 | 1.72 | 1.87 | 2.03 |
| 0.7 | 0.04 | 0.09 | 0.13 | 0.17 | 0.22 | 0.26 | 0.31 | 0.35 | 0.39 | 0.44 | 0.52 | 0.61 | 0.70 | 0.79 | 0.87 | 1.09 | 1.31 | 1.53 | 1.75 | 1.97 | 2.18 | 2.40 | 2.62 | 2.84 |
| 1 | 0.06 | 0.12 | 0.19 | 0.25 | 0.31 | 0.37 | 0.44 | 0.50 | 0.56 | 0.62 | 0.75 | 0.87 | 1.00 | 1.12 | 1.25 | 1.56 | 1.87 | 2.18 | 2.50 | 2.81 | 3.12 | 3.43 | 3.74 | 4.06 |
| 1.2 | 0.07 | 0.15 | 0.22 | 0.30 | 0.37 | 0.45 | 0.52 | 0.60 | 0.67 | 0.75 | 0.90 | 1.05 | 1.20 | 1.35 | 1.50 | 1.87 | 2.25 | 2.62 | 3.00 | 3.37 | 3.74 | 4.12 | 4.49 | 4.87 |
| 1.4 | 0.09 | 0.17 | 0.26 | 0.35 | 0.44 | 0.52 | 0.61 | 0.70 | 0.79 | 0.87 | 1.05 | 1.22 | 1.40 | 1.57 | 1.75 | 2.18 | 2.62 | 3.06 | 3.49 | 3.93 | 4.37 | 4.80 | 5.24 | 5.68 |
| 1.6 | 0.10 | 0.20 | 0.30 | 0.40 | 0.50 | 0.60 | 0.70 | 0.80 | 0.90 | 1.00 | 1.20 | 1.40 | 1.60 | 1.80 | 2.00 | 2.50 | 3.00 | 3.49 | 3.99 | 4.49 | 4.99 | 5.49 | 5.99 | 6.49 |
| 1.8 | 0.11 | 0.22 | 0.34 | 0.45 | 0.56 | 0.67 | 0.79 | 0.90 | 1.01 | 1.12 | 1.35 | 1.57 | 1.80 | 2.02 | 2.25 | 2.81 | 3.37 | 3.93 | 4.49 | 5.05 | 5.62 | 6.18 | 6.74 | 7.30 |
| 2 | 0.12 | 0.25 | 0.37 | 0.50 | 0.62 | 0.75 | 0.87 | 1.00 | 1.12 | 1.25 | 1.50 | 1.75 | 2.00 | 2.25 | 2.50 | 3.12 | 3.74 | 4.37 | 4.99 | 5.62 | 6.24 | 6.86 | 7.49 | 8.11 |
| 2.2 | 0.14 | 0.27 | 0.41 | 0.55 | 0.69 | 0.82 | 0.96 | 1.10 | 1.24 | 1.37 | 1.65 | 1.92 | 2.20 | 2.47 | 2.75 | 3.43 | 4.12 | 4.80 | 5.49 | 6.18 | 6.86 | 7.55 | 8.24 | 8.92 |
| 2.4 | 0.15 | 0.30 | 0.45 | 0.60 | 0.75 | 0.90 | 1.05 | 1.20 | 1.35 | 1.50 | 1.80 | 2.10 | 2.40 | 2.70 | 3.00 | 3.74 | 4.49 | 5.24 | 5.99 | 6.74 | 7.49 | 8.24 | 8.99 | 9.73 |
| 2.6 | 0.16 | 0.32 | 0.49 | 0.65 | 0.81 | 0.97 | 1.14 | 1.30 | 1.46 | 1.62 | 1.95 | 2.27 | 2.60 | 2.92 | 3.24 | 4.06 | 4.87 | 5.68 | 6.49 | 7.30 | 8.11 | 8.92 | 9.73 | 10.55 |
| 2.8 | 0.17 | 0.35 | 0.52 | 0.70 | 0.87 | 1.05 | 1.22 | 1.40 | 1.57 | 1.75 | 2.10 | 2.45 | 2.80 | 3.14 | 3.49 | 4.37 | 5.24 | 6.12 | 6.99 | 7.86 | 8.74 | 9.61 | 10.48 | 11.36 |
| 3 | 0.19 | 0.37 | 0.56 | 0.75 | 0.94 | 1.12 | 1.31 | 1.50 | 1.68 | 1.87 | 2.25 | 2.62 | 3.00 | 3.37 | 3.74 | 4.68 | 5.62 | 6.55 | 7.49 | 8.42 | 9.36 | 10.30 | 11.23 | 12.17 |
| 3.2 | 0.20 | 0.40 | 0.60 | 0.80 | 1.00 | 1.20 | 1.40 | 1.60 | 1.80 | 2.00 | 2.40 | 2.80 | 3.19 | 3.59 | 3.99 | 4.99 | 5.99 | 6.99 | 7.99 | 8.99 | 9.98 | 10.98 | 11.98 | 12.98 |
| 3.4 | 0.21 | 0.42 | 0.64 | 0.85 | 1.06 | 1.27 | 1.49 | 1.70 | 1.91 | 2.12 | 2.55 | 2.97 | 3.39 | 3.82 | 4.24 | 5.30 | 6.36 | 7.43 | 8.49 | 9.55 | 10.61 | 11.67 | 12.73 | 13.79 |
| 3.6 | 0.22 | 0.45 | 0.67 | 0.90 | 1.12 | 1.35 | 1.57 | 1.80 | 2.02 | 2.25 | 2.70 | 3.14 | 3.59 | 4.04 | 4.49 | 5.62 | 6.74 | 7.86 | 8.99 | 10.11 | 11.23 | 12.36 | 13.48 | 14.60 |
| 3.8 | 0.24 | 0.47 | 0.71 | 0.95 | 1.19 | 1.42 | 1.66 | 1.90 | 2.13 | 2.37 | 2.85 | 3.32 | 3.79 | 4.27 | 4.74 | 5.93 | 7.11 | 8.30 | 9.48 | 10.67 | 11.86 | 13.04 | 14.23 | 15.41 |
| 4 | 0.25 | 0.50 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 | 2.25 | 2.50 | 3.00 | 3.49 | 3.99 | 4.49 | 4.99 | 6.24 | 7.49 | 8.74 | 9.98 | 11.23 | 12.48 | 13.73 | 14.98 | 16.22 |
| 4.2 | 0.26 | 0.52 | 0.79 | 1.05 | 1.31 | 1.57 | 1.83 | 2.10 | 2.36 | 2.62 | 3.14 | 3.67 | 4.19 | 4.72 | 5.24 | 6.55 | 7.86 | 9.17 | 10.48 | 11.79 | 13.10 | 14.41 | 15.72 | 17.04 |
| 4.4 | 0.27 | 0.55 | 0.82 | 1.10 | 1.37 | 1.65 | 1.92 | 2.20 | 2.47 | 2.75 | 3.29 | 3.84 | 4.39 | 4.94 | 5.49 | 6.86 | 8.24 | 9.61 | 10.98 | 12.36 | 13.73 | 15.10 | 16.47 | 17.85 |
| 4.6 | 0.29 | 0.57 | 0.86 | 1.15 | 1.44 | 1.72 | 2.01 | 2.30 | 2.58 | 2.87 | 3.44 | 4.02 | 4.59 | 5.17 | 5.74 | 7.18 | 8.61 | 10.05 | 11.48 | 12.92 | 14.35 | 15.79 | 17.22 | 18.66 |
| 4.8 | 0.30 | 0.60 | 0.90 | 1.20 | 1.50 | 1.80 | 2.10 | 2.40 | 2.70 | 3.00 | 3.59 | 4.19 | 4.79 | 5.39 | 5.99 | 7.49 | 8.99 | 10.48 | 11.98 | 13.48 | 14.98 | 16.47 | 17.97 | 19.47 |
| 5 | 0.31 | 0.62 | 0.94 | 1.25 | 1.56 | 1.87 | 2.18 | 2.50 | 2.81 | 3.12 | 3.74 | 4.37 | 4.99 | 5.62 | 6.24 | 7.80 | 9.36 | 10.92 | 12.48 | 14.04 | 15.60 | 17.16 | 18.72 | 20.28 |
| 5.5 | 0.34 | 0.69 | 1.03 | 1.37 | 1.72 | 2.06 | 2.40 | 2.75 | 3.09 | 3.43 | 4.12 | 4.80 | 5.49 | 6.18 | 6.86 | 8.58 | 10.30 | 12.01 | 13.73 | 15.44 | 17.16 | 18.88 | 20.59 | 22.31 |
| 6 | 0.37 | 0.75 | 1.12 | 1.50 | 1.87 | 2.25 | 2.62 | 3.00 | 3.37 | 3.74 | 4.49 | 5.24 | 5.99 | 6.74 | 7.49 | 9.36 | 11.23 | 13.10 | 14.98 | 16.85 | 18.72 | 20.59 | 22.46 | 24.34 |
| 6.5 | 0.41 | 0.81 | 1.22 | 1.62 | 2.03 | 2.43 | 2.84 | 3.24 | 3.65 | 4.06 | 4.87 | 5.68 | 6.49 | 7.30 | 8.11 | 10.14 | 12.17 | 14.20 | 16.22 | 18.25 | 20.28 | 22.31 | 24.34 | 26.36 |
| 7 | 0.44 | 0.87 | 1.31 | 1.75 | 2.18 | 2.62 | 3.06 | 3.49 | 3.93 | 4.37 | 5.24 | 6.12 | 6.99 | 7.86 | 8.74 | 10.92 | 13.10 | 15.29 | 17.47 | 19.66 | 21.84 | 24.02 | 26.21 | 28.39 |

$$\tau = \gamma S_0 d$$

(As Per HEC -15, Chapter 2)

$$\tau = 62.4 \text{ lb/ft}^3 * \text{Slope (ft/ft)} * \text{Depth of Design Storm (ft)}$$