**Design Criteria**

Minimum Spacing _________________ (ft)

Rock Armoring __________ (Y/N) if yes, see Table 1 below

Volume of Rock Armoring _____________ (yd³)

**Table 1. Rock Armoring Gradation**

<table>
<thead>
<tr>
<th>Size of stone (inches)</th>
<th>Range D₅₀ (inches)</th>
<th>Percent of total weight smaller than the given size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 to 2.0 x D₅₀</td>
<td>8 to 12</td>
<td>100</td>
</tr>
<tr>
<td>1.3 to 1.8 x D₅₀</td>
<td>7 to 10</td>
<td>85</td>
</tr>
<tr>
<td>1.0 to 1.5 x D₅₀</td>
<td>4 to 6</td>
<td>50</td>
</tr>
<tr>
<td>0.3 to 1.5 x D₅₀</td>
<td>2 to 3</td>
<td>15</td>
</tr>
</tbody>
</table>

**Criteria:** (per USDA FS guidance)

1. Rolling dips are best for roads with low or medium use, such as permanent main haul roads. Adjust road grade between dips so there is a constant downslope grade from the crest of the berm of one dip to the bottom of the next dip. Use rolling dips on road grades up to 10 percent and on roads with infrequent surface maintenance.

2. Use where traditional cross-drain pipes are not applicable or desired.

3. Use before stream crossings to direct water into vegetative filters and reduce hydrologic connectivity. Use to divert road drainage only, (not for springs or small streams).

**Notes:**

1. The landowner is responsible for procuring and complying with all permits and easements, including all Federal, State and local requirements. The landowner is also responsible for insuring that all work done on access roads that join state or county roads shall be in compliance with the requirements for these roads.

2. All construction operations shall be carried out in such a manner that potential erosion, air and water pollution are minimized.

3. If road has drainage ditch, extend rolling dips to intercept the runoff.

4. Protect outlet area of rolling dip with riprap, stone, or appropriate vegetative cover.

5. Inspect rolling dips after each major runoff event and provide maintenance as needed to maintain proper drainage.

6. Rolling dips are best for spur or temporary roads that have little traffic and low speeds. Rolling dips function as "stretched out," waterbars. The dip is excavated out of the existing road grade.

7. All rolling dips shall begin at the intersection of the roadbed and cut slope and shall extend the entire width of the roadbed. They shall be installed perpendicular (no skew) to direction of road.

8. Vegetated outlets shall be maintained with adequate cover. Mow and mow as needed per Practice Standard 342, Critical Area Planting.

9. All rolling dips shall have free flowing outlets and shall be armored at outlet.