

GULLY EROSION

The soil loss from concentrated flow, gullies, and other similar types of erosion will be determined by calculating the annual volume of soil removed from the eroded area. The annual tons of soil loss can then be determined by multiplying volume by unit weight of the soil. If the time period of the erosion exceeds one year, the quantity should be divided by the number of years the gully has existed to get an annual rate. The following table provides a guide for approximate unit weight of various soils that can be used in the absence of better data.

Approximate Unit Weight <sup>1/</sup>

<u>Soil Textural Class</u>	<u>Dry Density</u> <u>Lbs./Ft.<sup>3</sup></u>
Sands, loamy sands	110 lbs.
Sandy loam	105 lbs.
Fine sandy loam	100 lbs.
Loams, sandy clay loams, sandy clay	90 lbs.
Silt loam	85 lbs.
Silty clay loam, silty clay	80 lbs.
Clay loam	75 lbs.
Clay	70 lbs.
Organic	22 lbs.

<sup>1/</sup> Data and estimates from published soil surveys, laboratory data, and soil interpretation records are to be used where available. Parent materials, soil consistency, soil structure, pore space, soil texture, content of coarse fragments all have influence on unit weight.

Gully formula:

$$\frac{(T+B) \times D \times L \times SW}{4000 \times Yr} = \text{tons/yr}$$

Example of an eroded silty clay channel: 10 ft. top, 2 ft. bottom, 1 ft. deep, 600 ft. long, and was formed in two years.

$$\text{Then } \frac{(10+2) \times 1.0 \times 600 \times 80\#/ft^3}{4000 \times 2} = 72 \text{ tons per year}$$