



Figure 3.33 Sediment trap detail.

typical principal spillway is designed with a minimum flow of  $0.2 \text{ ft}^3/\text{s}$ , which is equivalent to runoff of 5 in/24 h. Antiseep collars are used in larger basins where berm height exceeds 10 ft or the local soil has a very low clay-to-silt content (unified soil class SM or GM). Settling and sediment storage requirements for basins differ from state to state. Sediment traps are smaller versions of the sediment basin and are used for drainage areas of less than 5 acres (Fig. 3.33).

Dewatering outlets are designed using the formula for flow through an orifice:

$$Q = CA \sqrt{2gh}$$

where  $Q$  = flow,  $\text{ft}^3/\text{s}$

$C$  = coefficient of contraction for an orifice, usually 0.6 (sharp-edged orifice)

$A$  = area of the orifice,  $\text{ft}^2$

$g$  = acceleration of gravity,  $32.2/\text{s}^2$

$h$  = head above orifice, ft

The equation can be used to determine the length of time necessary to dewater a basin:

$$T = \frac{A\sqrt{2h}}{3600TC\sqrt{g}}$$

where  $T$  = time, h

$A$  = surface area of the basin,  $\text{ft}^2$

The formula can also be used to determine the orifice size required to dewater a basin within a required time:

$$A_x = \frac{A\sqrt{2h}}{3600TC\sqrt{g}}$$

## Site management

Construction site managers must ensure that the site complies with local regulations for erosion and sediment control. In addition, they must ensure that the control measures are actually effective in meeting local objectives and be