

## 4.2 RETENTION POND



**Figure 4.2. Retention pond (Source: Department of Civil, Construction, and Environmental Engineering, Iowa State University)**

### Overview

**Description:** A permanent pool of water that has the capacity to store storm water temporarily until it is released from the structure.

**Problem identification:** A retention pond interrupts the transport phase of sediment and pollutants, store storm water, and improve the quality of water when released.

**Design purpose:** To reduce sediment, improve water quality, and store storm water runoff. Retention ponds are one of the better management practices for the handling of storm water runoff.

**Associated practices:** Used with sediment basins and waterways. With additional planning and design, detention ponds can be used for water quality improvement. Pollutants will be diluted when held or delayed in a retention pond. Retention ponds are also used for silt control and improvement of the runoff water quality.

**Installation:** The site for a retention pond should have suitable soils to prevent excessive seepage. The drainage area for a detention pond must be large enough to provide a permanent pool. Generally, four acres are required for each acre-foot of storage in the pond. Smaller drainage areas function best as a means of sediment control while maintaining a permanent pool. A qualified designer is recommended.

**Maintenance/inspection:** Retention ponds need to be monitored on a regular basis. Look for excessive seepage, the condition of the fill, and the amount of sediment present. Necessary

repairs to the structure should be done as soon as possible. Sediment should be removed when it is 1 to 1.5 ft deep. It should be placed in an area where it will not reenter the system. Grass should be mowed, weeds controlled, eroded areas repaired, and debris removed. Prompt repair action can reduce maintenance costs.

*Design life:* Ten years, based on sediment control.

*Estimated cost:* Variable, depending on the pond's size and effectiveness.