4.5 WETLANDS

Figure 4.6. Urban wetlands (Source: Department of Civil, Construction, and Environmental Engineering, Iowa State University)

Overview

Description: An important control measure for the removal of sediment, nutrients, and urban pollutants by passing runoff water through a constructed wetland area. Nutrients can be taken up and stored by wetland vegetation on a short-term basis. For a longer period of time, vegetation may remove nutrients and then lose them in the sediment below. Dense wetland vegetation also slows the flow of sediment-laden water. The slower the water, the greater the amount of sediment that sinks to the bottom along with the nutrients that become buried.

Problem identification: Some erosion planning can be used to provide long-term retention of runoff during and after construction for sediment collection and water quality improvement as part of a large-area water runoff control plan.

Design purpose: To effectively remove sediment, nutrients, and urban pollutants and release an improved quality of water from the site.

Associated practices: Built in conjunction with new permanent waterways and ditches for disposal of runoff. Note that natural wetlands should not be altered in any way. Any alterations to existing wetlands for use in construction site erosion control will require the review and approval of the Iowa Department of Natural Resources.

Installation: A successful wetland needs to be about 3% of the size of the drainage area. About 25% of the wetland needs to be 2 to 3 ft deep and the remainder needs to be 1 ft deep. All areas 2 ft deep or deeper will remain open water, while the remaining 1 ft deep areas will support vegetation. A good seal at the bottom of the wetland area is required.

The major concern with wetland treatment is damage that may be done environmentally to a natural wetland. Concern is also present for the large land area required for constructed wetlands.

Note that a permit is required from the Department of Natural Resources.

Maintenance/inspection: Check for excess seepage and water level and repair any damage.

Design life: Twenty-five years or longer, depending on maintenance activities.