

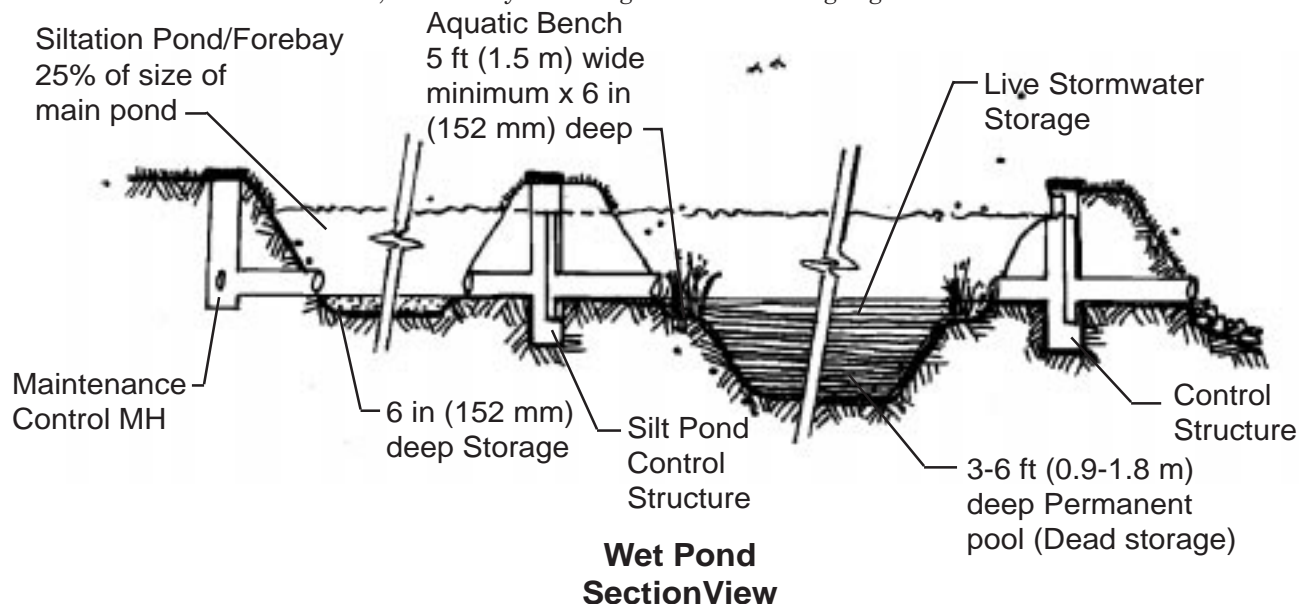
PRIMARY USE: Treat runoff and enhance water quality; to control effluent quantity.
ADDITIONAL USES:

WET POND DESIGN

What is it? A storm water detention facility used to retain a permanent or semipermanent pool of storm water runoff for quantity or quality control of effluent.

Purpose

The principle behind the wet pond is that incoming storm runoff displaces old water, which flows out of the pond. The new runoff is stored in a permanent pool in the pond until the next storm. This creates long detention times and high pollutant removal rates and provides flood protection. The size of the pond is a direct function of the pollutant removal rate; the larger the pond, the greater the removal rate. A unique feature of wet ponds is the presence of aquatic plants and algae that can remove significant amounts of soluble nutrients from stormwater, effectively reducing downstream algal growth.



Limitations

Care must be taken to properly address the design rate of water release from these systems: release rate too great limits their effectiveness for peak volume control; release rate too slow risks decreased performance for subsequent storm events. Good maintenance is critical. Many basins have partially failed or are not meeting design performance due to clogging of inlets or outlets. Wet basins can be unsightly, especially if floating and other debris accumulate in them.

Materials

Suitable land area, earth moving equipment, and proper inlet and overflow plumbing.

Installation

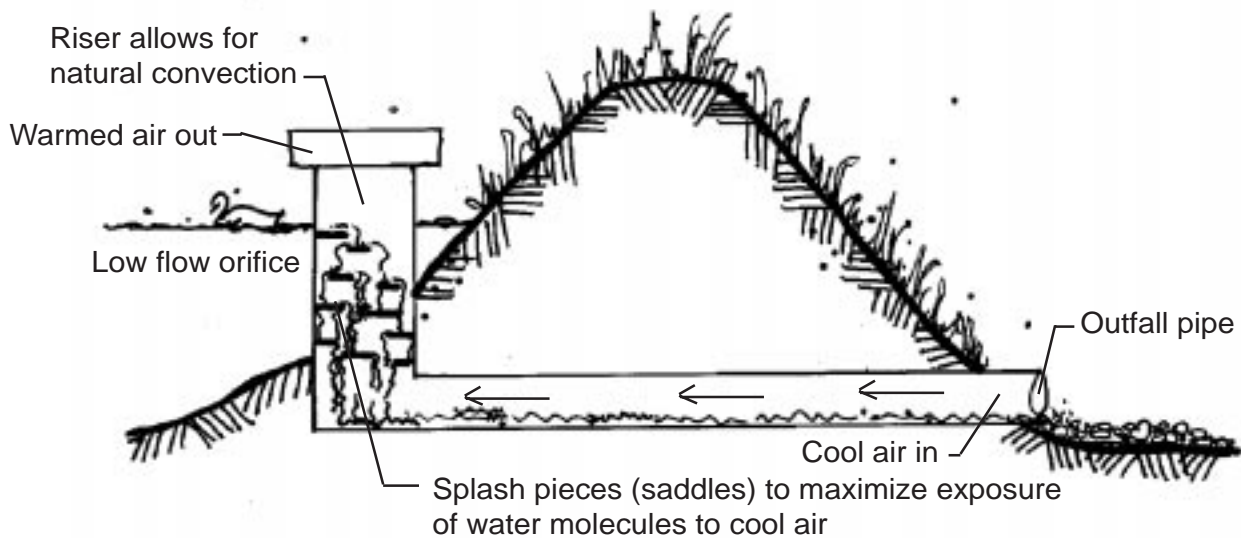
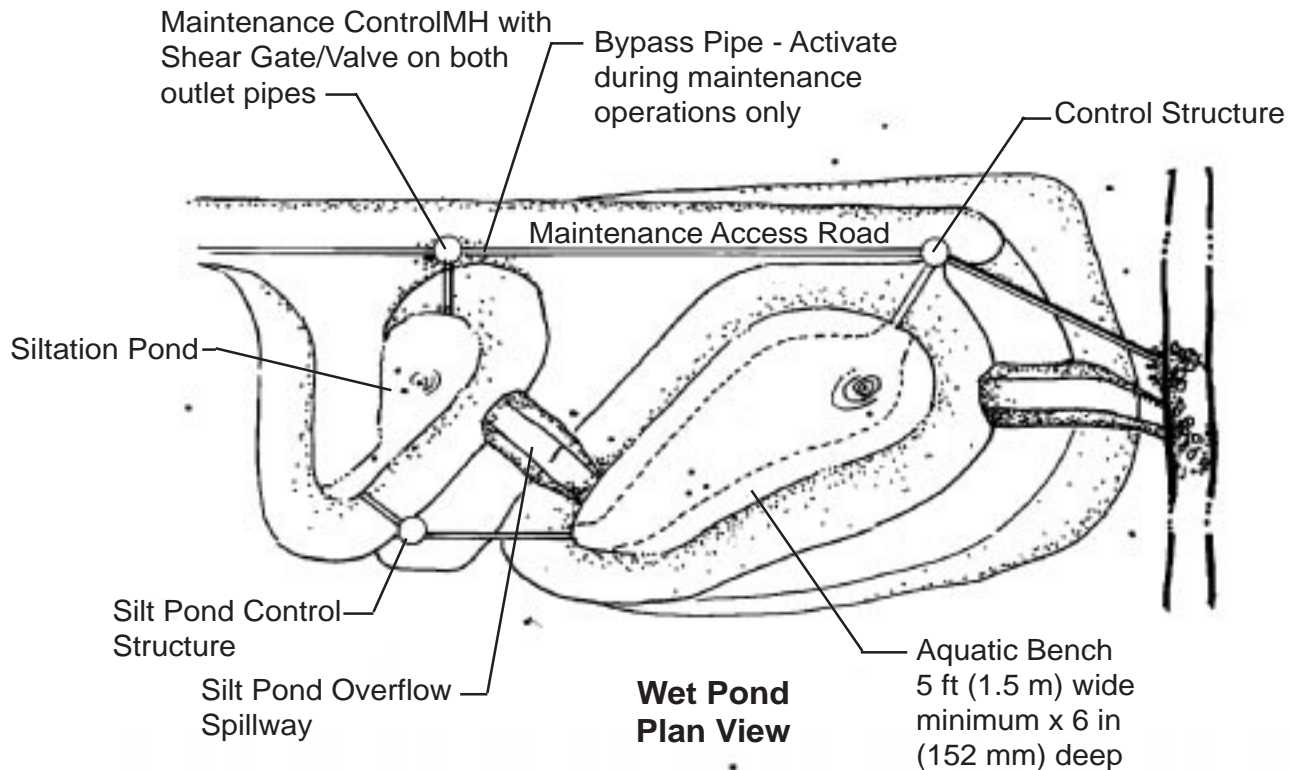
Detention basins intended primarily for flood control should be designed on the basis of severe runoff events (e.g., 25, 50 or 100 year storms). For water quality improvement, basin design should be based on more frequent storm events (e.g. 1.5-year storm or less). Design of detention basins requires: locating proper sites for construction of the basin; calculating the appropriate detention time; treatment of the expected range in volumes of stormwater; and maintenance procedures and schedules.

Source: National Conference on Urban Runoff Management: Enhancing Urban Watershed Management at the Local, Count, and State Levels, March 30 to April 2, 1993. Wayne County Department of Environment, Michigan. Washtenaw County Drain Commission, Michigan. NCSU Water Quality Group, North Carolina State University.

WET POND DESIGN

Installation continued:

The stormwater should be held for at least 24 hours for maximum pollutant removal. The pond can be baffled or shaped to promote mixing of runoff with stored water. A forebay is a section of the basin separated from the main part of the basin by a wall or dike and which receives the incoming stormwater. Forebays help capture debris and sediment, and can help to simplify maintenance.



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