

ment must be designed to catch runoff water, the pond must be located so that its drainage basin is large enough to provide sufficient runoff to fill it—and to maintain it in the face of evaporation and seepage losses. Calculate surface runoff according to the area of land draining into the pond, amount of precipitation, and runoff characteristics involving land slope and porosity, vegetation, and human disturbances of the land. For a Michigan pond that depends entirely on runoff water, 8 to 14 acres of runoff

basin land are needed per acre of pond surface.

Clay and silty clay are good soils for impoundment beds. Sandy clay is suitable only if the cost of extra materials for sealing the pond is acceptable. Sites in some areas of limestone or gypsum are especially unsuitable—even hazardous—for impoundments. There may be crevices allowing water to drain from the pond. A fair clue to the success of building impoundments in such areas is the previous experience of nearby pond owners.

Soils for earthen dams should be about 20% clay by weight and contain a wide range of particle sizes, varying from fine sand to coarse sand or gravel. The earth must be compacted to minimize percolation through the dam. To insure proper compaction, soil moisture must be controlled in certain ways during construction.

For the dam's vegetated spillway, clay, sandy clay and silty clay are suitable. Avoid loose sand and other easily erodible soils.