

ENGINEERING STANDARD

349 - DAM, MULTIPLE - PURPOSE

Definition

A dam constructed across a stream or natural water course with designed reservoir storage capacity specifically provided for two or more purposes such as floodwater retardation and irrigation water supply, and municipal water supply and recreation.

Scope

This standard applies to dams that have separate storage allocations for two or more of the purposes. (Sediment storage is not considered a separate purpose except as indicated under Sediment Basins (350).)

Purpose

A multiple-purpose dam must provide distinct and specific storage allocations for 2 or more of the following purposes: (1) floodwater retardation, (2) irrigation, (3) fishing, hunting, boating, swimming, or other recreational use, (4) improved environment or habitat for fish or wildlife, (5) municipal, (6) industrial, and (7) other uses. (A reservoir for which multiple use is made of the same storage allocation is not a multiple-purpose dam; however, a dam designed for joint use storage is a multi-purpose dam.)

Conditions Where Practice Applies

This practice applies only to sites meeting all the following criteria:

1. Topographic, geologic, hydrologic, and soil conditions at the proposed site are satisfactory for the development of a feasible dam and reservoir.
2. The watershed is protected from erosion to the extent that the sediment yield will not shorten the planned effective life of the reservoir.
3. Water is available from a single or combined source of surface runoff, base flow, or from subsurface storage in sufficient quantity and adequate quality to satisfy the intended purposes.

Design Criteria

Foundation, Embankment, and Spillway Requirements

All dams designed under this standard shall meet or exceed the foundation, embankment, and spillway criteria called for in SCS Standard for Pond (378) or in Technical Release No. 60 as appropriate.

Floodwater Retarding Pool and Spillway

Dams with a floodwater retarding purpose shall meet or exceed the principle spillway and emergency spillway requirements of SCS Standard for Floodwater Retarding Structure, Code 402.

Outlet Works

Outlet works discharging releases for several purposes shall have adequate capacity to carry the peak flow resulting from the combined demands at any time. Outlet conduits and appurtenances shall be designed to criteria that are equal to or better than that called for in SCS Standard for Pond, Code 378 or in Technical Release No. 60 as appropriate.

Storage

The usable storage capacity shall be adequate for all purposes. Seasonal variations in demand and the expected losses from seepage and evaporation must be considered.

Sediment Storage

The capacity in addition to that required for all other purposes, must offset depletion by sediment accumulation for a period equal to the design life.

Type of Structures

All dams and appurtenances shall be designed to meet applicable SCS standards for the specific type and class of structure.

State Laws

Laws concerning water use and pollution abatement shall be complied with.

Plans and Specifications

Plans and specifications for installation of multiple-purpose dams shall be in keeping with this standard and shall describe the requirements for application of the practice to achieve its intended purpose.

References: Alabama Engineering Field (Design) Manual for Conservation Practices.

National Engineering Field Manual for Conservation Practices
Technical Release No. 60

CONSTRUCTION SPECIFICATION

FOR

349 - DAM, MULTIPLE-PURPOSE

Scope

Construction specifications for dams to which the criteria in the Standard for Ponds (378) applies shall, as a minimum, be commensurate with those for Ponds (378). Construction specifications for dams to which the criteria in Technical Release No. 60 applies, shall be in accordance with the guide specifications contained in the Specifications for Construction Contracts, SCS South.