

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE SPECIFICATION**

PONDS

CODE 378

1. SITE PREPARATION

- a. Clearing. All trees, brush, stumps, roots, rocks, and other objectionable materials shall be removed from the entire area of the base of the dam and disposed of beyond the limits of the dam so as not to interfere with construction. Where specified in the plans, trees and brush must be cut from the entire reservoir area.
- b. Foundation Preparation. Following the satisfactory completion of clearing operations, all channel banks and sharp breaks shall be sloped to no steeper than 2:1. All topsoil containing excessive organic matter shall be removed. The surface of the foundation area will be thoroughly scarified before placement of the embankment material.

2. CUT-OFF TRENCH

- a. The cut-off trench excavation shall be to the line and grades shown on the plans.
- b. The backfill material shall come from borrow areas specified on the plans or laid out at the site. The material shall contain sufficient moisture such that a sample taken in the hand and squeezed will remain intact when released. Backfill material shall be select material free from sod, roots, frozen soil, stones over 6 inches in diameter, or other objectionable materials.
- c. Drainfill shall be kept from being contaminated by adjacent soil materials during placement by either placing it in a cleanly excavated trench, or by keeping the drain at least 1 foot above the adjacent earthfill.
- d. Backfill placement shall be in horizontal lifts not exceeding 8.0 inches in thickness before compaction.
- e. Compaction of backfill shall be acceptable when one of the following conditions have

been met:

- (1) Two complete passes are made over the entire surface area of each lift by such equipment as the sheepfoot roller, heavily loaded rubber-tired equipment, or pneumatic rollers.
- (2) Three complete passes are made over the entire surface area of each lift by heavily loaded rubber-tired scrapers.
- (3) Track-type (crawler) tractor equipment may be used provided it is routed so the entire surface area of each lift is traversed by not less than four passes of the tracks.

Each lift shall be compacted before placement of material for the next lift.

3. CONDUIT INSTALLATION

- a. Foundation. The pipe conduit barrel shall be placed on a firm foundation to the lines and grades shown on the plans. The pipe shall be of the type and gauge shown on the drawings.
- b. Trench Condition. The pipe trench shall be free of projecting rocks when pipe is installed, and the trench side slopes shall not be steeper than 1:1.
- c. Joints. All joints shall be watertight.
- d. Drainage Diaphragm. The drainage diaphragm shall be installed at the location specified on the drawings, they shall be of the type and thickness and at the locations shown on the drawings.
- e. Backfill. Selected backfill material shall be placed around the conduit in 6-inch layers, and each layer shall be thoroughly compacted using hand or power driven tampers to a density equaling the undisturbed foundation. All backfill material shall be at the moisture content required for earthfill.

4. EMERGENCY SPILLWAYS

The completed spillway excavation shall conform to the lines and grades, bottom width, and side slopes shown on the plans.

5. EARTHFILL

a. Fill Material. All fill material shall be obtained from the reservoir area or other borrow areas as specified on the plans or approved at the site by the technician. The material placed in the fill shall be free from all sod, roots, frozen soil, stones over 6 inches in diameter, and other objectionable material.

b. Fill Placement. The placing and spreading of fill materials shall be started at the lowest point of the foundation, and the fill shall be brought up in approximately horizontal lifts not exceeding 8 inches in thickness before compaction.

The top shall be maintained essentially as a level surface throughout construction. The distribution and gradation of materials throughout the fill shall be such that there will be no lenses, pockets, streaks, or layers of material differing substantially in texture or gradation from the surrounding material. Where it is necessary to use materials of varying texture and gradation, the more impervious material shall be placed in the upstream and center portions of the fill.

c. Moisture Requirements. Material, when placed, shall contain sufficient moisture so that a sample when taken in the hand and squeezed shall remain intact when released.

d. Compaction. Requirements specified under section 2-e for cut-off trench are to be used for earth embankments.

6. CONSTRUCTION TOLERANCE

Embankments farm ponds shall be constructed within the following tolerance:

a. Section. All cross-sections of the completed embankment shall equal or exceed the neat lines shown on the design.

b. Slide Slopes. All constructed side slopes of the embankment shall be full-bodied; i.e., straight or convex from the edge of

the crest to the toe of the slope. Slopes designed at 2:1 shall have no slope length steeper than 1-1/2:1. Slopes designed at 3:1 shall have no slope length steeper than 2-1/2:1.

c. Spillways. Spillways meet the requirements when the minimum freeboard is attained and the constructed crest elevation is not more than 0.2 foot below the design elevation. In excavated spillways, the bottom width must equal or exceed the design width.

d. Reservoir Depth. Reservoir depth shall equal or exceed the depth shown on the drawings or established in the field.

7. MEASUREMENT

The completed embankment volumes shall be computed within the neat lines or design plus an allowance for settlement and shrinkage, unless a modification of the design has been authorized in a written change order signed and dated by the technician authorizing the change.

8. EXCAVATED PONDS

a. Other items of work and related details of construction required in this specification under the general classification of ponds in the preceding section are to be adhered to when applicable to the construction of excavated ponds.

b. Excavation. The completed excavation shall conform with the lines, grades, and elevations shown on the plans.

c. Spoil Material. The material excavated from the pond shall be uniformly placed or shaped reasonable well with side slopes assuming the natural angle of repose behind a berm width of not less than 12 feet.

d. Construction Tolerances. Excavated ponds shall be constructed within the following tolerance:

The planned cross section, when plotted on the constructed cross section, is such that at least one-half of the elevations checked along the bottom and side slopes of the constructed pond are not higher than the planned elevations, and no elevations are more than 0.2 foot above the planned elevation.

- e. Measurement. The completed excavation volume shall be the computed volume (using the prismatic formula) within design lines, unless a modification of the design has been authorized in a written change order signed and dated by the technician authorizing the change.