

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD**

**SEDIMENT BASIN**

(No.)

**CODE 350**

**DEFINITION**

A basin constructed to collect and store debris or sediment.

**PURPOSES**

- To preserve the capacity of reservoirs, wetlands, ditches, canals, diversions, waterways, and streams.
- To prevent undesirable deposition on bottom lands and developed areas.
- To trap sediment originating from construction sites or other disturbed areas.
- To reduce or abate pollution by providing basins for deposition and storage of silt, sand, gravel, stone, agricultural waste solids, and other detritus.

**CONDITIONS WHERE PRACTICE APPLIES**

This practice applies where physical conditions or land ownership preclude treatment of a sediment source by the installation of erosion-control measures to keep soil and other material in place or where a sediment basin offers the most practical solution to the problem.

**CRITERIA**

**General Criteria Applicable to All Purposes**

The design of dams, spillways, and drainage facilities shall be according to Conservation Practice Standard 378, Pond; Conservation Practice Standard 410, Grade Stabilization Structure; or the requirements in Technical Release No. 60, Earth Dams and Reservoirs, as appropriate for the class and kind of structure being considered.

Temporary basins having drainage areas of 5 acres or less and a total embankment height of 5 feet or less may be designed according to Conservation Practice Standard 638, Water and Sediment Control Basin.

Permanent sediment basins that have a settled fill height of 15 feet or less and 10-year frequency, 24-hour storm runoff of 10 acre-feet or less may be designed in accordance with the criteria listed below.

All disturbed area shall be treated as soon as possible after construction ends to control erosion and prevent excess sediment from leaving the site.

Provisions shall be made for dewatering sediment pools (if necessary) for safety and vector control.

Fencing and other safety measures shall be installed as necessary to protect the public.

**Laws, rules, and regulations.** This practice shall conform to all federal, state, and local laws, rules, and regulations. Laws, rules, and regulations of particular concern include those involving water rights, land use, pollution control, property easements, wetlands, preservation of cultural resources, and endangered species.

**Capacity.** The capacity of the sediment basin shall equal the volume of sediment expected to be trapped at the site during the planned useful life of the basin or the improvements it is designed to protect. If it is determined that periodic removal of sediment will be practicable, the capacity may be proportionately reduced. The sediment storage shall not be less than 0.5 acre-inch/acre for waste management systems.

The minimum design storm for sediment basins shall be as follows:

- 10-year, 24-hour for temporary basins with drainage areas of 5 acres or less and total height of 5 feet or less
- 25-year, 24-hour for all others (including waste management systems)

An auxiliary spillway is not required in the design if the combination of storage volume and mechanical spillway discharge will safely handle the design storm.

A minimum of 0.5 foot shall be added to the design height for freeboard. Sediment basins using an auxiliary spillway shall have a minimum of 0.5 foot freeboard above the water surface with the auxiliary spillway flowing at design depth.

Standard floodrouting procedures may be used to determine pipe size and storage requirements. An accepted procedure is in the Kansas Supplement to Chapter 8 of National Engineering Handbook Part 650, Engineering Field Handbook. The Storage Terrace Program (or equivalent) may be used and is found in the electronic Field Office Technical Guide (eFOTG) Section IVB, Tools.

**Cross section.** Vegetated slopes shall not be steeper than 2:1. If the depth of the water impounded is 3 feet or deeper, the front slope shall not be steeper than 3:1. Slopes subject to contact with agricultural wastes shall not be steeper than 3:1. Slopes to be farmed shall not be steeper than 5:1.

**Earth embankment.** The constructed height of the embankment shall be increased 5 percent to allow for settlement. The increased height to allow for settlement shall not exceed 1 foot. The maximum settled height of the embankment shall be 15 feet or less measured from natural ground at centerline of the embankment.

Minimum top width of the embankment shall be as follows:

Fill Height (feet)	Top Width (feet)
0 - 5	4
5 - 10	6
10 - 15	8

Cutoff trenches and wave erosion control measures shall be provided as needed to

ensure safe and proper performance of embankments.

**Outlets.** Sediment basins with underground or soil infiltration outlets shall meet the requirements specified in Conservation Practice Standards 620, Underground Outlet; 634, Manure Transfer; or 600, Terrace (as appropriate).

**Vegetation.** Disturbed areas that are not to be farmed shall be established to grass as soon as practicable after construction ends to control erosion and prevent excess sediment from leaving the site. Non-vegetative means such as mulches or gravel may be used if soil or climatic conditions preclude the use of vegetation. Seedbed preparation, seeding, fertilizing, and mulching shall comply with Conservation Practice Standard 342, Critical Area Planting.

## CONSIDERATIONS

Large sediment basins may have an effect on the peak discharge rate from a watershed. Planners should consider this and take steps to mitigate any potential negative effects this may have on riparian habitat downstream from the structure.

The detention time for basins should be a minimum of 4 hours and a maximum of 48 hours (based on site conditions).

Visual aesthetics may be a concern, especially in urban or suburban areas. To address these concerns, the basin could be designed to blend with the surrounding topography, or plantings could be proposed to screen the view from surrounding homes or buildings.

The nesting success and survival rate of ground-nesting species will increase if mowing is delayed until after the nesting season during operation and maintenance operations.

Using native species for revegetation will increase habitat diversity.

## PLANS AND SPECIFICATIONS

Plans and specifications for installing sediment basins shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

**OPERATION AND MAINTENANCE**

An operation and maintenance plan shall be developed and reviewed with the landowner or individual responsible for operation and maintenance. The plan shall discuss maintenance of the embankment, the design capacity, the vegetative cover, and the outlet.

The sediment basin will be inspected after major storms for damage that may affect its function and performance. Any damage will be promptly repaired. If the storage provided for sediment has been used, basins must be cleaned out or the ridge must be raised to restore capacity.

Mow as needed to maintain adequate vegetative cover and to prevent the establishment of undesirable species.