

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

SEDIMENT BASIN

(no.)

CODE 350

DEFINITION

A basin constructed to collect and store debris or sediment.

SCOPE

This standard applies to the installation of all basins where the primary purpose is to trap and store waterborne sediment and debris.

PURPOSE

To preserve the capacity of reservoirs, ditches, canals, diversion, waterways, and streams; to prevent undesirable deposition on bottom lands and developed areas; to trap sediment originating from construction sites; and to reduce or abate pollution by providing basins for deposition and storage of silt, sand, gravel, stone, agricultural wastes, 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.

PLANNING CONSIDERATIONS

Water Quantity

1. Effects on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, deep percolation, and groundwater recharge.

2. Effects on downstream flows and aquifers that would affect other water uses and users.
3. Effects on volume of discharge flow on the environmental, social, and economic conditions.
4. Effects on the water table downstream and the results of changes of vegetative growth.

Water Quality

1. Effects on erosion, movement of sediment, pathogens, and soluble and sediment-attached substances that could be carried by runoff.
2. Effects on the visual quality of onsite and downstream water resources.
3. Effects of construction and early establishment of protective vegetation on the surface and ground water.
4. Effects on wetlands and water-related wildlife habitats.

DESIGN CRITERIA

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 design of dams, spillways, and drainage facilities shall be according to NRCS standards for ponds (378) and grade stabilization structures (410) or according to the requirements in TR-60, as appropriate for the class and kind of structure being considered.

Temporary basins having drainage areas of 5

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acres or less and a total embankment height of 5 ft or less may be designed with less conservative criteria if conditions warrant. The embankment shall have a minimum top width of 4 ft and side sloped of 2:1 or flatter. An outlet shall be provided of earth, pipe, stone, or other devices adequate to keep the sediment in the trap and to handle the 10-year-frequency discharge without failure or significant erosion.

Provisions shall be made for draining sediment pools if necessary for safety and vector control. Fencing and other safety measures shall be installed as necessary to protect the public from floodwater and soft sediment. Due consideration shall be given to good visual resource management.

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.

SEDIMENT BASIN SPECIFICATIONS

Construction of sediment basins within the scope of the standard for ponds (378) shall have, as a minimum, specifications commensurate with those for ponds (378). Those within the scope of TR-60 shall be in accord with the guide specifications contained in the National Engineering Handbook, Section 20.

SEDIMENT BASIN OPERATION AND MAINTENANCE

This sediment basin was designed and installed to remove, collect, and provide temporary storage of sediment and water. The life of this installation can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require periodic operation to maintain satisfactory performance.

Periodic removal of sediment is necessary to maintain the effectiveness of this installation. The clean-out intervals may vary depending upon the volume of sediment which has accumulated. As a general rule the basin will lose its effectiveness when about 50 percent of the design volume is filled with sediment.

Maintain vigorous growth of desirable vegetative covers. This includes reseeding, fertilization, and controlled application of herbicides when necessary. Periodic mowing may also be needed to control height.

If fences are installed, they shall be maintained to prevent unauthorized or livestock entry.

Remove any debris that may accumulate on trash racks or immediately upstream of the basin.

Immediately repair any vandalism, vehicular, or livestock damage to any earth fills, spillways, or outlets.

Make sure all structure drains are functional and soil is not being transported through the drainage system. The screens and/or rodent guards shall also be kept in place.

Eradicate or otherwise remove all rodents or burrowing animals and repair damage caused by their activity.

Determine and eliminate causes of settlement or cracks in the earthen sections and repair damage.

Replace weathered or displaced rock riprap to constructed grade.