

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

SEDIMENT BASIN

(No.)

CODE 350

DEFINITION

A basin constructed to collect and store debris or sediment.

PURPOSE

- Preserve the capacity of reservoirs, wetlands, ditches, canals, diversion, waterways, and streams
- Prevent undesirable deposition on bottom lands and developed areas
- Trap sediment originating from construction sites or other disturbed areas
- 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

Sediment basin design and construction shall comply with all applicable federal, state and local laws and regulations.

Federal, State and Local

Design and construction activities shall comply with all federal, state, and local

NRCS, NHCP

September, 2003

laws, rules, and regulations governing activities in or along streams, pollution abatement, health, and safety.

The owner or operator shall be responsible for securing all required permits or approvals and for performing all planned work in accordance with such laws and regulations. NRCS employees are not to assume responsibility for procuring these permits, rights, or approvals, or for enforcing laws and regulations. NRCS may provide the landowner or operator with technical information needed to obtain the required rights or approvals to construct, operate, and maintain the practice.

Permits may be required from the following agencies when obstruction removal is performed within the boundaries of a stream or floodplain or if burning is required:

- 1. U.S. Army Corps of Engineers***
- 2. WV Department of Natural Resources***
- 3. WV Public Lands Corporation***
- 4. US Fish and Wildlife Service***
- 5. Local state and county ordinances***

Work near waters where there is a present or possible presence of endangered or threatened species require notification and collaboration with the USFWS prior to implementation.

Work in or adjacent to "Waters of the US" may require a WV Public Land Corporation Application, a Nation Wide Permit or appropriate Individual Section 404 permit

NRCS, WV

September, 2007

from the USCOE prior to implementation of the project. All required permits will be approved prior to construction implementation.

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 ***plus the basin shall store the runoff from a 2 year-24 hour storm frequency to the top of the riser or principal outlet. The water stored from this storm will be released by a lower stage, non-clogging, dewatering device. The release of the stored water shall be no sooner than 24 hours after the storm and later than 8 days after the storm. The elevation of the low stage shall not be lower than the maximum elevation of the design sediment storage volume.*** If it is determined that periodic removal of sediment will be practicable, the capacity may be proportionately reduced.

The Procedures contained in the Erosion and Sediment Control Handbook for Developing Areas West Virginia will be used to determine sediment yield from disturbed areas.

When the contributing drainage area to the basin consists of 10 ac. or more of undisturbed land, procedures contained in NEH-3, Chapter 8 will be used to determine sediment yield from the undisturbed area. Total sediment volume will be the sum of the yield from both disturbed and undisturbed areas.

Embankments for non-agricultural use that shall follow the CPS 378-Pond or 348-Dam, Diversion standard. If the embankment

- ***exceeds six (6) in height (measured from the stream bottom at the downstream toe) and can impound 50 acre-feet or more of water,***
- ***is 25 feet or higher and can impound 15 acre-feet or more,***

it is required that the owner shall submit an application for certificate of approval from the state of WV.

The design of dams, spillways, and drainage facilities shall be according to NRCS Conservation Practice Standard 378 (Pond), Conservation Practice Standard 410 (Grade Stabilization Structure) or according to the requirements in NRCS TR-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 NRCS Conservation Practice Standard 638 (Water And Sediment Control Basin).

The embankment shall have a minimum top width of 4 (four) feet and side slopes 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 10year-24 hour storm frequency discharge without failure or significant erosion.

All disturbed areas shall be treated as soon as possible after construction ends to control erosion and prevent excess sediment from leaving the site ***in accordance with CPS 342-Critical Area Planting.***

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

Fencing, ***guardrails and signs*** and other safety measures shall be installed as necessary to protect the public. ***Fencing shall meet the CPS 472- Livestock Exclusion or 382- Fencing.***

Due consideration shall be given to good visual resource management.

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.

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.

Provisions for controlling erosion and reducing sediment loss will be included. Specify rates of seed, mulch, and fertilizer, appropriate planting dates, and method(s) of establishment.

The sediment cleanout disposal area shall be located or outlined on the engineering and/or construction plans and disposed of in a non-wetland, prior site.

Plans prepared in conformance with NRCS conservation practice standards shall be developed in accordance with those standards.

Plans designed in accordance with TR-60 shall conform to the National Engineering Handbook Section 20.

OPERATION AND MAINTENANCE

The sediment basin will be inspected after major storms for damage that may affect its function and performance. Any damage will be promptly repaired.

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

SEDIMENT BASIN (350)
OPERATION AND MAINTENANCE PLAN

- ***Sediment removed during intermediate clean out of the basin or at its' design life will be spread uniformly above the pool area or in other areas where it will not enter the stream. Immediately fertilized, limed, seeded and mulched according to CPS 342-Critical Area Planting.***
- ***Sediment shall be periodically removed from the basin to maintain it's capacity. If full, remove material immediately. Spread sediment material in other areas where it will not enter the stream.***
- ***All disturbed land shall be re-vegetated according to the CPS 342-Critical Area Planting. The area will be immediately fertilized, limed, seeded and mulched.***
- ***Provide frequent inspections and remove material as needed.***
- ***Inspect structures, embankments and outlets after every major storm.***
- ***Maintain and repair damage to embankments, spillways, outlets and vegetation or fencing immediately.***
- ***Verify the elevation of the structure before and after sediment removal, when a large amount of material has been removed.***
- ***Properly dispose of materials in an upland area or as designated on the engineering plans.***
- ***Maintain vegetation by liming, seeding, fertilizing and mowing to prevent growth of trees or other woody cover according to typical agronomic practices.***
- ***When infiltration outlets are used, occasional disk or plow the pool area to break up soil compaction and increase aeration.***
- ***Other***