

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

DAM, DIVERSION

(No. or Ft.)

CODE 348

DEFINITION

A structure built to divert all or part of the water from a waterway or a stream.

- Adverse environmental impacts resulting from the installation of the practice can be overcome.

PURPOSE

- To divert all or part of the water from a waterway in such a manner that it can be controlled and used beneficially such as irrigation or livestock supply, fire control, municipal or industrial uses, develop renewable energy systems, or recreational.
- To divert periodic damaging flows from one watercourse to another watercourse thereby reducing the damage potential of the flows.

CRITERIA

The installation and operation of this practice shall comply with all applicable federal, state and local laws, rules, and regulations. All required permits must be obtained before construction begins.

All dam-diversion conservation practices require the landowner or agent to apply for and receive U. S. Army Corps of Engineers permit (404), Tennessee Department of Environment and Conservation (TDEC) permit (ARAP), Tennessee Valley Authority permit (26a – if located within the Tennessee River drainage area), and any permits that may be required by local units of government. All conditions listed within the permits shall be followed during the installation of each practice.

CONDITIONS WHERE PRACTICE APPLIES

This standard applies to structures of a permanent nature, constructed of materials having an expected life span consistent with the purpose for which the structure is designed. It does not apply where conservation practice standard Diversion (362), Floodwater Diversion (400), Dam (402), or Grade Stabilization Structure (410) would be used.

Consultation with the appropriate TDEC Environmental Field Office is necessary to determine the applicability of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) coverage for stormwater discharges from land disturbances (clearing, grading or excavation) of more than 1 acre.

This practice applies where:

- A diversion dam is needed as an integral part of an irrigation system or a water-spreading system designed to facilitate the conservation use of soil and water resources,
- Diversion of water from an unstable watercourse to a stable watercourse is desirable,
- The water supply available is adequate for the purpose for which it is to be diverted,

Environmental Impacts. - The impact of a proposed dam on water quality, fish and wildlife habitat, forest, and visual resources shall be evaluated and the techniques and measures necessary to overcome the undesirable effects shall be identified and addressed.

Clearing of trees shall be evaluated and appropriately restricted to the times of the year that will not negatively impact the Indiana Bat.

Materials. - All materials to be used in constructing the diversion dam and appurtenances shall have the strength, durability, and workability required to meet the installation and service conditions of the site.

Structural design. – Appurtenant structures shall be designed to withstand all anticipated loads.

Outlet works. - If part of the flow is to be diverted, the outlet works must provide for positive control of both maximum and minimum flow rates consistent with the purpose for which the diversion is made. The outlet works must provide for safe diversion of all expected flows, considering such hazards as the potential for erosion, cavitation, and reduction in flow capacity due to the buildup of debris and sediment.

Bypass works. - The bypass works must be capable of passing all flows needed to satisfy downstream priorities and all flows in excess of diversion requirements, including expected flood flows. This may require a combination of orifices, weirs, and gates designed to meet the requirements of the site. The bypass works must provide for safe bypass of all expected flows, considering such hazards as the potential for erosion, cavitation, and reduction in flow capacity due to the buildup of debris.

Special-purpose works. - If debris, bed load materials, or sediments are present under flow conditions subject to diversion, provision shall be made to bypass or remove materials that may be detrimental to the functioning of the outlet works, to other parts of the works, or to areas to which diversion is made. This may require the use of settling basins, debris traps, trash guards, or sluiceways, depending on site conditions.

Vegetation. - Disturbed areas, not otherwise covered or protected, shall be vegetated as soon as practicable after construction. If soil or climatic conditions preclude the use of vegetation, and protection is needed, non-vegetative materials, such as mulches, gravel, and rock riprap may be used. As a minimum, seedbed preparation, seeding, fertilizing, and mulching shall comply with instructions in local technical guides. The vegetation shall be maintained and undesirable species controlled.

Renewable Energy. - For detailed criteria where the purpose is to develop renewable energy systems refer to interim conservation

practice standard Renewable Energy Production (716).

CONSIDERATIONS

This practice and/or associated practices may include placement of fill material, the clearing of trees, and/or the construction of ditches or subsurface drainage pipes in low lying and floodplain type situations. The placement of fill material, the clearing of trees, and/or the installation of new ditches or drainage tiles in areas that are potentially wetlands may be a violation of the Swampbuster portion of the Food Security Act, the Clean Water Act, and the Tennessee State Water Quality Control Act. All of these areas should be evaluated for wetland potential thoroughly prior to implementation of this practice and/or other associated practices.

The effects of this practice on water quantity, water quality, and the environment should be considered during the planning process.

Effects to be considered are:

- Effects on the water budget, on volume and rate of runoff, infiltration, evaporation, transpiration, deep percolation, and ground water recharge,
- Effects of the use of diverted waters for irrigation,
- Effects on the original watercourse, on the newly constructed watercourse, and on the area where the water is being diverted to and from,
- Effects on erosion and the movement of sediment, pathogens, and soluble and sediment-attached substances carried by runoff,
- Potential temperature changes in downstream waters resulting from differences in bank shading in different watercourses,
- Potential changes in the amount of soluble substances infiltrating and available for ground water recharge as well as the potential for salt pick-up,
- Potential for introducing new plant or animal species to either the upstream or downstream waters,
- Effects on the natural migration of fish.

PLANS AND SPECIFICATIONS

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

OPERATION AND MAINTENANCE

Provisions shall be made for operation and maintenance requirements and, for larger more complex diversion dams, may include a formal plan. Typical maintenance may include the removal of accumulated trash and debris from the structure and the repair of gates, screens, and other appurtenances.