



WETLAND RESTORATION CONSERVATION RESERVE ENHANCEMENT PROGRAM CREP-CP23

Natural Resources Conservation Service (NRCS)

OCT. 2000



WHAT IS A WETLAND RESTORATION?

The purpose of wetland restoration is to restore the functions and values of wetland ecosystems that have been altered for agricultural uses. Areas that were wetlands in past but are now cropped or pastured are ideal for this practice. This includes areas of hydric soils that have been drained or manipulated for agricultural purposes. Wetlands provide habitat for water dependent wildlife such as migratory shorebirds, waterfowl, reptiles, amphibians and aquatic mammals. Wetlands in Michigan vary tremendously and include open water, marsh, meadow, shrub and forested habitats. The objective of a wetland restoration is to restore the hydrology and vegetation back to their original condition.

Wetlands may provide permanent or seasonal water depending on the objectives of the restoration. Seasonal open water developments are very beneficial for many migratory species. Although there is no minimum size limit for a wetland restoration, areas greater than ¼ of an acre will provide more diverse habitats and be more beneficial for many wildlife species. A complex of wetlands are usually more beneficial for wildlife than a single small wetland.

ELIGIBILITY

To be eligible for this practice with the Conservation Reserve Enhancement Program (CREP), the land must be within the approved watershed, have a cropping history (two out of the last five years), and be a previous wetland that is feasible to restore.

RESTORATION ACTIVITIES

Permits: Wetland restorations are often located in wet areas, depressions or in small drainage areas. Wetland programs such as the Wetland Provisions of the Farm Bills or the Michigan Wetlands Protection Act or local township regulations may apply to private landowners. All necessary permits should be acquired by the landowner before restoration activities begin. Also the impacts of the development on upstream and downstream landowners shall be evaluated.

Tile plugs, Ditch plugs or Impoundments: The first step in wetland restorations is to restore the hydrology or water back to the wetland area. This involves altering the practices that drained the wetland in the first place. Tiles need to be dug up and plugged to prevent subsurface flows from draining the wetland. The length of tile which needs to be made inoperable depends upon the soil type. For sands and organic soil the minimum length is 150 feet, for loams, the minimum is 100 feet and for clay soil the minimum length is 50 feet. Open ditches need to be plugged, if possible, to prevent surface water from leaving the wetland. This plug should have an 8 feet minimum top width for mineral soils and 20 feet top width for organic soils. See the wetland Restoration Standard in the local Field Office Technical Guide for further information. If the wetland has been filled, it may be necessary to remove the fill material by using either a bulldozer, dragline or hydra unit. Water pool areas may be formed from excavations, impounding existing drainage ways, or a combination of both. Sideslopes should range from 8:1 to 16:1 unless muskrat habitat is the objective in which case the sideslopes could be up to 3:1. Shorelines should be irregular in shape. Excavated spoil will be spread on upland areas in a manner that will not block surface water from entering the pond. Topsoil should be re-spread over excavated areas in the pool to provide a seed source for vegetation. Normally it is only necessary to seed the dike or plug area of a wetland restoration. Usually, natural revegetation will occur very quickly.

Spillway: Ditch plugs and excavated ponds that have surface water entering them will have an emergency spillway installed to insure that the water is safely controlled. A mechanical structure such as a drop pipe will be installed when water levels are to be manipulated for moist soil management. See the Conservation Sheet, 646a "Shallow Water Management for Wildlife", for information on moist soil management.

OTHER MANAGEMENT CONSIDERATIONS

Disturbances. Human activities in and around the wetland can have a significant impact on the behavior of wildlife. Activities with loud overwater movement cause the most disturbances, while quiet shoreline activities cause the least. Disturbances cause waterbirds to move to other feeding grounds, and may lower their productivity of nesting or brooding. Limit human disturbances while waterbirds are present. Consider screened buffer zones to separate disturbances (roads) from the site.

Buffers. The shallow water area will benefit from a permanent vegetative buffer around it. **For the Conservation Reserve Enhancement Program, the minimum width of the buffer is 50 feet with a maximum buffer area which is equal to four times the wetland area.** Filter strips can limit sediment from entering the area. A border of grasses and legumes will buffer the area from surrounding land uses and provide additional wildlife habitat.

Disease. Mass die-offs of waterfowl can occur at a particular site due to disease. A common Michigan disease that occurs around shallow water areas is avian botulism. It can be rapidly transmitted from dead birds to healthy birds by infected maggots. Prompt removal and disposal of dead birds and fish can control the spread of the disease. Flooding sites that have been dry for a long time, in summer when temperatures are high, is generally not recommended except for shorebird management. Under these conditions the bacterium that causes botulism can flourish.

OPERATION AND MAINTENANCE

Livestock should not be allowed free access to the restored wetland. Routine maintenance on the impoundment will include mowing and fertilizing the vegetation on the dam and spillway, preventing trees and brush from growing on the dam and spillway, repairing any erosion in the spillway, removing debris from the trashrack, and repairing muskrat or beaver damage.

The United States Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternate means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326W, Whitten Building, 14th and Independence Avenue SW, Washington, DC, 20250-9410, or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

WETLAND RESTORATION DESIGN WORKSHEET

Farm: _____ Field: _____ Shallow Water Unit: _____ Date: _____

Structural Components Required

Restoration Activities: (Check if required and see approved engineering design for site)

<input type="checkbox"/> Tile plug <input type="checkbox"/> Ditch plug <input type="checkbox"/> Shallow Dike <input type="checkbox"/> Removal of Fill	<input type="checkbox"/> Water control structure on tile line, ditch, or dike. <input type="checkbox"/> Other source to be developed <input type="checkbox"/> Surface water diversion (Seasonal flood events and/or surface runoff is usually sufficient)
--	---

Conditions Before :

Planned Conditions: (Wetland type)

Considerations:

Wetland Permits
 Utilities Notified
 Impacts on Upstream and Downstream Landowners
 Impacts on Threatened and Endangered Species

Tile plugs: (see design for site)

Average depth _____ Average length _____ Average width _____ Total cubic yards _____

Dikes required: (see design for site)

Average height _____ Total length _____ Total cubic yards _____

Ditch Plugs: (see design for location)

Diameter _____ Total length _____ Materials _____

Earthen or Mechanical Spillway requirements: (see design for location)

Average width _____ Total length _____ Average Depth _____

Vegetative Buffer:

Width _____ Length _____

Seeding Required:

Acres of seeding on dikes. See Job Sheet 327
 Acres of seeding for buffer strips. See Job Sheet 327.
 Native Grass Seeding Mixture and Establishment Method.



LOCATION AND LAYOUT SKETCH

TYPICAL PROFILE