

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD AND SPECIFICATIONS**

**WETLAND CREATION**

(acre)

**CODE 658**

**DEFINITION**

The creation of a wetland on a site that was historically non-wetland.

The soil, hydrology and vegetative characteristics existing on the site and the contributing watershed shall be documented before the wetland is created.

**PURPOSE**

To create wetland functions and values.

Upon completion, the site shall meet the appropriate wetland criteria and provide wetland functions and values as defined in the project's objectives.

**CONDITIONS WHERE PRACTICE APPLIES**

This practice applies to sites where no natural wetlands occurred historically and contain soils that are not hydric.

Sites containing hazardous material shall be cleaned prior to the installation of this practice. Soil testing shall be used to determine appropriate actions to clean sites suspected of containing hazardous wastes.

This practice does not apply to:

- a constructed wetland (656) intended to treat point and non-point sources of water pollution;
- wetland enhancement (659) intended to rehabilitate a degraded wetland where specific functions and/or values are enhanced beyond original conditions; or
- wetland restoration (657) intended to rehabilitate a degraded wetland where the soils, hydrology, vegetative community, and biological habitat are returned to approximate original wetland conditions.

Water rights shall be assured prior to creation.

Disturbance to ground nesting species shall be minimized.

Invasive species, federal/state listed noxious plant species, and nuisance species (e.g., those whose presence or overpopulation jeopardize the effectiveness of the practice) shall be controlled on the site. The establishment and/or use of non-native plant species shall be discouraged, and where possible, controlled.

**CRITERIA**

**General Criteria Applicable to all Purposes**

The landowner shall obtain all necessary local, state and federal permits prior to installation of this practice.

Complete the Wetland Planning Checklist, Appendix A, - Chapter 13, NRCS – Engineering Field Handbook.

The purpose, goals and objectives of the creation shall be clearly defined, including the soils, hydrology and vegetation criteria that are to be met and are appropriate for the site and the project purposes.

The effect of any modification to the existing surface and/or subsurface drainage system on upstream and downstream landowners shall be evaluated. Upstream surface and subsurface drainage shall not be impacted unless appropriate permissions are obtained or mitigation measures are implemented. All applicable state and local laws and regulations pertaining to flooding, surface and subsurface drainage will be followed.

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Excessive nutrient, pesticide, or other pollutant inflows shall be controlled prior to site restoration. Examples of excessive inflows include direct runoff from a feedlot or other obvious pollution source, an actively eroding gully emptying into the site, or a poorly treated watershed that is contributing sediment and its associated pollutants.

**Criteria for Soils**

Created wetlands shall be located in landscape positions and soil types capable of supporting wetland functions and values.

Loosening of compacted soils, addition of organic matter, or other soil preparation activities, shall be accomplished where necessary to establish desired vegetation.

**Criteria for Hydrology**

The site shall be designed to create hydrologic conditions (including the timing of inflow and outflow, duration, and frequency) that provide the desired wetland functions and values.

Wetland micro- and macro-topography shall be created to achieve hydrologic diversity and enhance the desired effect.

The work associated with the wetland shall not adversely affect adjacent properties or other water users unless agreed to by signed written letter, easement or permit.

Engineering structures constructed for wetland creation shall approximate or mimic existing natural topography and micro- and macrotopography.

Existing drainage systems will be utilized, removed or modified as needed to achieve the intended purpose.

If embankments, water control structures, surface or subsurface drainage manipulation, or grade stabilization structures are required, the standards and specifications for WETLAND RESTORATION (657) or STRUCTURE FOR WATER CONTROL (587) will be followed as appropriate.

**Criteria for Vegetation**

Establish hydrophytic vegetation typical for the wetland type(s) being established.

Preference shall be given to native wetland plants.

Where natural colonization of selected species will realistically dominate within 5 years, sites may be left to revegetate naturally. If a site has not become dominated by the targeted species within 5 years, active forms of revegetation may be required. Preference is given to top-dressing at least 50% of the site with soil containing a seed bank of desired native species to a minimum depth of 4 inches. Specific guidelines that consider soil, seed source, and species will be developed from recommendations by MDC or NRCS biologist.

Adequate substrate material and site preparation necessary for proper establishment of the selected plant species shall be included in the design.

If the site was predominantly herbaceous vegetation prior to modification and planting is necessary, then a minimum of two species adapted to the site will be planted. Use soils and site information to determine plants to use. Planting rates and species will be based on recommendations from MDC or NRCS biologist.

Forested wetland plantings will include a minimum of three species adapted to the site. Where appropriate, two of the species will be hard mast producing species. Use TREE/SHRUB ESTABLISHMENT (612).

**Criteria for Wetland Functions**

Created wetland goals and objectives should include targeted wetland functions for the wetland type and site location.

See WETLAND WILDLIFE HABITAT MANAGEMENT (644) or SHALLOW WATER MANAGEMENT (646).

**CONSIDERATIONS**

On sites where woody vegetation will dominate, consider adding 1 or 2 dead snags, tree stumps, or logs per acre, where appropriate, to provide structure and cover for wildlife and a carbon source for food chain support.

The potential for occurrence of threatened or endangered species shall be evaluated for each site proposed for wetland creation.

Consider existing wetland and floodplain functions and/or values that may be adversely impacted.

Consider effect that wetland creation will have on disease vectors such as mosquitoes.

Consider effect of volumes and rates of runoff, infiltration, evaporation and transpiration on the water budget.

Consider effects on downstream flows or aquifers that would affect other water uses or users.

Consider the effect of water control structures on the ability of fish and other aquatic species to move in and out of the wetland.

Consider timing of water control to mimic the natural hydrological regime of a natural wetland in the area, further enhancing the habitat for aquatic species.

Consider linking wetlands by corridors of vegetation or habitat wherever appropriate to enhance the wetland's use and colonization by the native flora and fauna.

Consider establishing vegetative buffers on surrounding uplands to reduce sediment and soluble and sediment-attached substance carried by runoff and/or wind.

Consider effects on temperature of water resources to prevent undesired effects on aquatic and wildlife communities.

Soil disturbance associated with the installation of this practice may increase the potential for invasion by unwanted species.

Consider micro-topography, hydrology and hydroperiod when determining which species of vegetation to plant.

Where visual quality would be impacted by structures (e.g., outlet structures, dikes, etc.), consider using low profile structures, natural screening, and or colors that minimize the impact.

Consider controlling water levels to prevent oxidation of organic soils and inundated organic matter and materials.

Consider the effects that location, installation and management may have on subsurface cultural resources.

Consider applying this practice adjacent to existing wetlands to increase wetland system complexity

and diversity, decrease habitat fragmentation, and ensure colonization of the site by wetland flora and fauna.

Consider nutrients, pesticides, and other pollutants contained in surface and ground water, as well as accumulated sediments, that may have an adverse effect on wetland vegetation. The nutrient and pesticide tolerance of the species planned along with the wetland objectives should be considered where known nutrient and pesticide contamination exists.

Consider use of these areas by reptiles and amphibians. Stacked logs and/or rock piles may be located near the water's edge to provide critical habitat for local reptile and amphibian species.

## PLANS AND SPECIFICATIONS

Plans and specifications for this practice shall be prepared for each site. Plans and specifications shall be recorded using approved specification sheets, job sheets, technical notes, narrative documentation in the conservation plan, or other acceptable documentation.

Plans and specifications for installing structures for water control shall be in keeping with this standard and shall prescribe the requirements for applying the practice to achieve its intended purpose. The plan shall specify the location, grades, dimensions, materials, hydraulic and structural requirements for the individual structure, and the timing or sequence of installation activities. Provisions must be made for necessary maintenance.

NRCS staff is encouraged to work closely with the NRCS Biologist, MDC Wetland Biologist, or other wetland specialist in developing site specific plans and specifications.

## OPERATION AND MAINTENANCE

The purpose of operation and maintenance is to insure that the practice functions as intended over time.

A plan for the operation, maintenance, and management of the area shall be developed and recorded using approved job sheets, technical notes, or other forms of acceptable documentation. The plan shall include monitoring and management of the overall site, as well as structural and vegetative measures. The area should be reviewed annually to see if adjustments

are needed in any water/vegetation management plan.

Repair and upkeep of the practice (maintenance) shall be carried out as needed, such as repair or replacement of vegetative or structural components.

The following activities will be addressed in the plan: (1) timing and level setting of water control structures required for establishment of desired hydrologic conditions or for management of vegetation; (2) inspection schedule of embankments and structures for damage assessment; (3) depth of sediment accumulation allowed before removal is required; (4) management needed to maintain vegetation, including control of unwanted vegetation; and (5)

acceptable uses and timing (e.g. grazing and haying).

Biological control of undesirable plant species and pests (e.g., using predator or parasitic species) shall be implemented where available and feasible.

#### REFERENCES

Cowardin, L.M., V. Carter, F. C. Golet, E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service. FWS/OBS-79-31.

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