NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

WETLAND ENHANCEMENT

(acre)

CODE 659

DEFINITION

The modification or rehabilitation of an existing or degraded wetland, where specific functions and/or values are modified for the purpose of meeting specific project objectives. Some functions may remain unchanged while others may be degraded.

PURPOSE

This practice may be applied as part of a resource management system to support the following purpose:

To modify the hydrologic condition, hydrophytic plant communities, and/or other biological habitat components of a wetland for the purpose of favoring specific wetland functions or values. For example; managing site hydrology for waterfowl or amphibian use or managing plant community composition for native wetland hay production.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies on any degraded or existing wetland where the objective is to specifically enhance a selected wetland function(s)and/or value(s).

Enhancement should not significantly change the primary wetland functions provided at the site.

Upon completion of the enhancement the site will meet the current NRCS soils, hydrology, and vegetation criteria of a Wetland.

This practice does not apply to: a Constructed Wetland (656) intended to treat point and non-point sources of water pollution; Wetland Restoration (657) intended to rehabilitate a degraded wetland where the soils, hydrology, vegetative community, and biological habitat are returned to original conditions; or Wetland Creation (658) for creating a wetland on a site location which historically was not a wetland or on a site which was formerly a wetland but will be replaced with a wetland type not naturally occurring on the site.

CRITERIA

General Criteria

The landowner shall obtain necessary local, state, and federal permits that apply before wetland enhancement.

Water rights shall be assured prior to enhancement if required.

The design will not back water on neighboring land without an easement.

Document the soil, hydrology, and vegetative characteristics of the site and its contributing watershed before alteration.

The potential for occurrence of threatened or endangered species shall be evaluated for each site. Sites providing habitat for threatened or endangered species will not be enhanced under this standard unless it can be demonstrated that the impact will benefit the

species at risk.

If the presence of hazardous materials in the sediment or fill is suspected, soil samples will be collected and analyzed for the presence of hazardous materials as defined by local, state, or federal authorities. Sites containing hazardous material will not be enhanced under this standard.

Criteria for Hydrology Enhancement

The hydrology of the site (defined as the rate and timing of inflow and outflow, source, duration, frequency, and depth of flooding, ponding or saturation) is modified to meet the project objectives. An adequate source of water must be available to meet designs for increased hydrology.

The Standards and Specifications for the following Conservation Practices, Dike (356), Pond (378), and Structure for Water Control (587) will be used as appropriate. Refer to the Engineering Field Handbook, Chapter 13, "Wetland Restoration, Enhancement, and Creation," and Chapter 6, "Structures," for additional design information. Existing drainage systems will be utilized, removed, or modified as needed and permitted to achieve the intended purpose.

Criteria for Vegetation Enhancement

Where possible, native plant materials shall be used; however, introduced or cultivated plant species can be used to meet specific project objectives. Introduced species may become invasive or detrimental and caution must be exercised.

When using native species, preference shall be given to wetland plants with localized genetic material. Plant materials collected or grown from material collected within the same Major Land Resource Area (MLRA) from the site is considered local.

In soils where seed banks realistically exist, or where natural colonization of targeted species will dominate within 5 years, then natural regeneration can be allowed. . State specific guidelines that consider soil, seed source, and species will be followed.

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

If planting and/or seeding is necessary on sites, which were composed predominantly of herbaceous vegetation prior to modification, the minimum number of native species to be established shall be based upon the number of ecological sites present. Sites restored to only one ecological site shall be established with at least two species adapted to the site. Sites with two or more ecological sites (i.e., wet meadow, shallow marsh, or slough eco-sites), shall be established with at least one native species on each ecological site.

Herbaceous vegetation may be established by a variety of methods including: mechanical or aerial seeding, topsoiling, organic mat placement, wetland sod placement, vegetative sprig planting, etcetera, over the entire site or a portion of the site and at densities and depths appropriate.

Forested wetland plantings and/or seeding will include a minimum of three tree or shrub species on each ecological site such as a low flat, bottom ridge, where appropriate. Tree (and shrub) planting will follow the Standards and Specifications of Conservation Practice Standard Tree/Shrub Establishment(612).

Criteria for Wetland Functions

A functional assessment, Hydro-Geomorphic Method (HGM) or similar method shall be performed on the site prior to enhancement.

Enhancement goals and objectives shall include targeted natural wetland functions for the desired wetland type(s) and the site location as determined by the functional assessment and/or reference site data. A post-project assessment will be performed after an adequate period to assess the success of the enhancement.

Project goals and objectives shall minimize adverse impacts to wetland functions not specifically targeted for enhancement.

Where possible, wetland functions not targeted for enhancement should also be maximized.

CONSIDERATIONS

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

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

Consider the potential for a change in rates of plant growth and transpiration because of changes in the volume of available soil water.

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

Consider effects on existing wetlands or water-related resources such as wildlife habitat that would be affected by the practice.

Consider linking wetlands by developing wildlife corridors wherever appropriate to enhance the wetland's use and colonization by the local flora and fauna.

Consider establishing vegetative buffers on surrounding uplands to reduce sediment and soluble and sediment-attached substance carried by runoff and to provide habitat for wildlife..

Consider the utility of microtopographic relief as a mechanism for creating habitat and vegetative diversity, open water areas and interspersion.

Consider adding potholes at the upper portion of an impoundment, to maintain water longer into the summer months.

The nutrient and pesticide tolerance of the species planned should be considered where known nutrient and pesticide contamination exists.

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

PLANS AND SPECIFICATIONS

Development of management options will be based on the use of the Aquatic & Terrestrial Habitat Evaluation Guide (Biology Technical Note 14). This habitat evaluation process will result in a quality rating for habitat based on a Resource Management System (RMS). The RMS must meet the minimum acceptable level as listed in Section III of the Field Office Technical Guide.

Specifications will be developed for each site. The specifications will be prepared in accordance with the criteria for the Standard and shall describe the requirements for applying the Practice to achieve its intended use. Appropriate job sheets, narrative statements in the conservation plan, or other acceptable documentation, will be used to record the items needed to carry out this practice. Requirements for operation and maintenance of the practice will be incorporated into site specifications.

The conservation plan will:

1. Designate the location and amount of wetland enhanced.

2. List the target wetland plant community types such as emergent, scrub/shrub, or forested, and their dominant species.

3. List those practices necessary to retain and manage the enhanced wetland.

4. If water control structures are used, specify the timing and level- required for the establishment of desired hydrologic conditions or for management of vegetation.

5. Where appropriate, haying and/or livestock grazing plans will be developed so as to allow the establishment, development, and management of the enhanced wetland and its associated buffers and upland vegetation.

6. Include an inspection schedule for embankments and structures, if built, to assess condition and functionality.

7. Define the depth of sediment accumulation to be allowed before removal is required.

OPERATION AND MAINTENANCE

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance):

Any use of fertilizers, mechanical treatments, prescribed burning, pesticides and other chemicals to assure the wetland enhancement function shall not compromise the intended purpose. Only a licensed pesticide applicator shall dispense chemicals within the enhanced wetland. Those chemicals must have labels identifying them for use in aquatic environments.

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

Management needed to maintain desired vegetation might include control of unwanted vegetation.

For Dike (356), Pond (378), and Structure for Water Control (587) refer to the Operation and Maintenance Plans located in the Engineering Section of the state web page.

http://www.wa.nrcs.usda.gov/Engineering/TechRef/NRCS/OandM/OandM.htm

REFERENCES

Dring, Timothy, Rachel Maggi, Martha Chaney and Mark Schuller, 2000. Biology Technical Note 14, Aquatic & Terrestrial Habitat Evaluation Guide, NRCS Washington.

Stratman, David, October 2000. USDA-NRCS Indiana Biology Technical Note No. 1, Using Micro and Macrotopography in Wetland Restoration, Indianapolis, Indiana, 7 Pages.

USDA-NRCS NEH (650) Engineering Field Handbook, Chapter 6: Structures, Chapter 13, Wetland Restoration, Enhancement, and Creation.

NRCS, WA
April, 2001