

# Wetland Enhancement (ACRE)

Code 659

## Alaska Conservation Practice Specification Sheet

### GENERAL SPECIFICATION

Wetland Enhancement shall be planned and installed in accordance with the Field Office Technical Guide (FOTG), Section IV– Practice Standard. This document provides additional parameters, references, recommendations, and requirements for developing site-specific plans for this practice. This document is not a construction specification and cannot be utilized as such. Structural companion practices will have stand-alone construction specifications.

### PURPOSE

The purpose of this practice is the modification of the hydrologic condition, hydrophytic plant communities, and physical habitat components of a wetland for the purpose of favoring specific wetland functions or values.

This information shall be identified on the required AK Wetland Enhancement Job Sheet (AK659-1).

### HYDROLOGY CONDITIONS

An appropriate water supply for the wetland type and functions must be available to provide for the needs of the wetland being enhanced.

The following Field Office Technical Guide (FOTG), Section IV– Practice Standards, Specifications, and Job Sheets will be used as appropriate:

(Code 378) Pond

(Code 356) Dike

(Code 587) Structure for Water Control

(Code 410) Grade Stabilization Structure

(Code 322) Channel Bank Vegetation

(Code 342) Critical Area Planting

(Code 396) Fish Passage

(Code 348) Dam, Diversion

(Code 584) Channel Stabilization

(Code 580) Streambank and Shoreline Protection

(Code 395) Stream Habitat Improvement and Management

(Code 644) Wetland Wildlife Habitat Management

(Code 646) Shallow Water Development and Management



Alaska Wildlife Conservation Center – Wetland Wildlife Enhancement Project

Refer to the Engineering Field Handbook, Chapter 13, “Wetland Restoration, Enhancement, and Creation,” and Chapter 6, “Structures,” for additional design information. Where an influence on the project or site, existing drainage systems surface or subsurface, will be utilized, removed, or modified as needed to achieve the intended purpose.

If the purpose or goal of the practice is other than a deep channel connection or depressional feature to over-winter fish or provide other aquatic species requirements at depths exceeding 6’, the bottom configuration of the enhancement shall be selected from the table below with the attending requirements;

- Shorelines will be irregular in shape appropriate to the landscape and topography. Side-slopes shall range from 9:1 to 20:1 along water surface margins around  $\geq 60\%$  of the impoundment/ excavation perimeter.
- Open water developments shall have a minimum of three distinct zones of water depths. The table below identifies three scenarios that maximize habitat for different species.

Depths				
Scenario	1"-6"	6"-18"	18"-36"	36"-72"
<b>A</b>	65%	25%	10%	
<b>B</b>	40%	30%	20%	10%
<b>C</b>	20%	20%	30%	30%

#### Scenario

**A** – Projects which favor shorebirds (including cranes) over waterfowl and other species.

**B** – Projects which favor shorebirds, wood-frog and dabbling ducks over diving ducks and other species.

**C** - Projects which favor diving ducks, furbearers, fish and other species over shorebirds.

Off-channel floodplain sites, where intended to over-winter or provide high-water sheltering conditions, or which might participate in unintended high-water events must insure hydrologic connection to provide fish passage where resident or anadromous fish populations are identified. Aquatic corridors/connections must have channel depths equal to streambed depths. Stability of connecting areas and corridors will be insured to prevent avulsion or destruction which might entrain aquatic species

### SURFACE DRAINAGE REMOVAL

The fill for channel blocks will be crowned a minimum of one foot above the top of the lowest existing channel bank to account for settlement and to prevent concentrated flow over the channel block.

### GRADE STABILIZATION STRUCTURE and WATER CONTROL STRUCTURE

Any grade stabilization structures or water control structures necessary to facilitate completion of this practice shall be designed in accordance with PS-410 Grade Stabilization Structure, PS-587 Structure for Water Control, or other applicable NRCS practice standards.

### DUGOUTS

Wetland dugouts may be used to enhance wetlands. A wetland dugout is a constructed shallow depression area. Side slopes shall be shaped to a stable grade (see table above). All excavated material shall be spread on non-wetland sites, or will be hauled off-site unless conditional permit allowances are made by regulatory agencies. No spoil will be allowed in any drainage path.

Potholes may be enhanced through blasting, excavation, or by restoring the hydrology to existing depression areas. Blasting is to be done by only experienced personnel in accordance with federal, state, and local regulations.

### VEGETATION RESTORATION

Planning for vegetation must begin early in the overall wetland planning process. Species selection can be effected by many factors of the design, construction, and site.

Preference shall be given to native wetland plants with localized genetic material. Woody vegetation may need protection from beavers until established.

Where needed to meet project objectives, scrape and stock pile topsoil and surface organic matter. Spread this source of vegetative seed bank up to 4" thick, on excavated areas in the pool which will be intermittently exposed to provide a seed source for vegetative re-sprouting.

A vegetative buffer zone will be established in areas surrounding the wetland. The buffer will act as a filter for sediment and debris. The buffer zone must be wide enough to adequately filter overland runoff from the surrounding uplands.

For forested wetland plantings, dormant pole plantings may be used for cottonwood and willow establishment. Seed planting rates and site preparation will meet the criteria of FOTG, Section IV- Practice Standards and Specifications; seed viability will be determined prior to planting.

Maintain sites with natural woody (willow/alder) communities to facilitate use by herons as well as Neotropical migrants. Maintain all woody plants and tall overstory trees and shrubs on peripheral water edges to facilitate nesting and rearing areas for wetland avian arboreal species. However, when waterfowl and shorebird nesting benefits are being optimized, remove standing dead snags or other "perch trees" which would encourage use by raptors or other predaceous birds.

Specify required management of water and/or animals before seeding/planting is implemented.

Changes in management may meet the cooperator's objectives for restoring or enhancing the wetland without implementing accelerating practices such as seeding or planting and should be considered.

Dikes, pond embankments and other engineering structures installed in association with this practice may have non-hydric soil situations and require vegetation. Refer to FOTG, Section IV- Practice Standards and Specifications, Critical Area Planting (Code 342) for vegetation considerations.

## **WETLAND FUNCTIONAL ANALYSIS**

A functional assessment (Hydro-geomorphic—HGM—approach or AK Wetland Functional Assessment) will be performed on the site prior to enhancement. The assessment shall be done to identify expected function changes to determine impacts as well as assess whether project goals will be/ have been achieved. A functional assessment of a reference site indicative of the after project condition could be necessary to identify specific treatment opportunities or conditions which can assist in the planning and design phase.

Enhancement goals and objectives shall include targeted natural wetland functions for the wetland type and the site location as determined by the functional assessment and reference site data.

## **PLANS AND SPECIFICATIONS**

Site specific specification for this practice will be prepared. Specifications shall be recorded using approved specification sheets, job sheets, narrative statements in the conservation plan, or other documentations.

## **OPERATION AND MAINTENANCE**

Structures built to modify the wetland will be inspected each year for the life of the practice. Water control structures will be inspected for wear and damage so that the designed amount of water is retained in the wetland and/or delivered to the wetland. Embankments must maintain designed water levels without leakage. Requirements for the operation and maintenance of the practice shall be incorporated into site specifications.

The functional integrity of the enhanced wetland will be maintained.

Hydrology of the designed wetland must not be altered.

## **REQUIRED PRACTICE DOCUMENTATION**

Additional practice documentation required to complete this practice is:

Wetland Practice Design Worksheet

Alaska Wetland Functional Assessment Worksheet

All structural conservation practice standards specific designs and specifications

Permits necessary to meet any/all state, federal, local or other regulatory requirements.

## **REFERENCES**

Hammer, D.A. 1992. "Creating Freshwater Wetlands." Lewis Publishers, Inc., Chelsea, MI. p. 298.

Mitsch, J.W. and J.G. Grosselink. 1993. Second Edition. Van Nostrand Reinhold, New York. p. 722.

Wetland Science Institute. January 2003.. Wetland Restoration, Enhancement and Management. USDA – Natural Resources Conservation Service.

## **ADDITIONAL SPECIFICATIONS AND NOTES**