

Iowa Mitigation Banking

Last revised: February 2011

A mitigation bank is a wetland, stream or other aquatic resource area that has been restored, established, enhanced or (in certain circumstances) preserved for the purpose of providing compensation for unavoidable impacts to aquatic resources permitted under Section 404 or a similar state or local wetland regulation. A mitigation bank may be created when a government agency, corporation, nonprofit organization or other entity undertakes these activities under a formal agreement with a regulatory agency. Mitigation banks are a form of "third-party" compensatory mitigation, in which the responsibility for compensatory mitigation implementation and success is assumed by a party other than the permittee. This transfer of liability has been a very attractive feature for Section 404 permit-holders, who would otherwise be responsible for the design, construction, monitoring, ecological success and long-term protection of the site.

This package contains procedures and information to initiate the development of new mitigation banking proposals in the state of Iowa, as well as all amendments to existing mitigation banks. This package also contains a checklist of requirements for submitting a Prospectus or Banking Instrument ("BI"). The review and approval of mitigation banks is a multi-agency process that involves the following federal and state agencies: the U.S. Army Corps of Engineers ("USACE"), Region VII of the U.S. Environmental Protection Agency ("USEPA"), the U.S. Fish and Wildlife Service, Rock Island Field Office ("USFWS"), Iowa Department of Natural Resources ("IDNR") and Natural Resources Conservation service ("NRCS"). These agencies comprise and are referred to jointly as the Interagency Review Team ("IRT"). The information in this package does not reflect USACE or IRT policy and should only serve as a starting point for prospective mitigation banks. The IRT will work with the Bank Sponsor throughout the Mitigation Bank Approval process and decisions will be made based on best available science and site-specific conditions.

All mitigation banks must have an approved BI signed by the Bank Sponsor and the Rock Island District Engineer prior to being used to provide compensatory mitigation for DA permits. To the maximum extent possible, mitigation bank sites must be planned and designed to be self-sustaining over time, but some active management and maintenance may be required to ensure their long-term viability and sustainability. All mitigation banks must comply with the standards in the April 2008 Mitigation Rule if they are to be used to provide compensatory mitigation for activities authorized by DA permits, regardless of whether they are sited on public or private lands and whether the Bank Sponsor is a governmental or private entity. The April 2008 Mitigation Rule can be found at 33 CFR Part 332 or at the following: http://www.usace.army.mil/CECW/Documents/cecwo/reg/news/final_mitig_rule.pdf. Although all mitigation banks must comply with the same standards, each BI is tailored to the mitigation bank's site-specific conditions.

The Rock Island District utilizes RIBITS (Regulatory In-lieu Fee and Bank Information Tracking System), a web-based application used to track mitigation banking and in-lieu fee sites. RIBITS, which can be accessed by USACE staff, resource agencies and the public, provides information on pending and approved mitigation banks, including BI's, monitoring reports, credit ledgers, contact information, types of credits available and service areas. RIBITS also serves as a repository for information and procedures that relate to mitigation banking. RIBITS provides the necessary tools to track ledger transactions, evaluate and process proposed mitigation banks or in-lieu fee instruments and review and document mitigation bank successes and failures with ecological success criteria. Once the mitigation bank is approved and signed, a RIBITS username and password will be assigned to you and further instructions will be sent. RIBITS can be found at the following: <http://ribits.usace.army.mil>.

Prior to submitting a Prospectus, the Bank Sponsor may elect to submit a Draft Prospectus to the IRT agencies for preliminary review. It is intended to identify potential issues early so that the Bank Sponsor may attempt to address those issues prior to the formal review process. A Prospectus must be submitted by the Bank Sponsor and then reviewed and evaluated by the IRT and the public prior to the Bank Sponsor's submittal of a Draft BI.

The following steps should be utilized from the Prospectus stage forward:

- 1) Check RIBITS to obtain the most current mitigation banking information and templates before beginning the Prospectus or BI preparation
- 2) Submit a Prospectus for review by the IRT
- 3) Once the Prospectus has been deemed complete by the IRT, the Prospectus is put out on Public Notice for public comment
- 4) Check with your IRT Chair for on-site meeting dates and times
- 5) Upon completion of review of the Prospectus by the IRT and public, the USACE will coordinate with the IRT and will provide a letter to the Bank Sponsor informing them whether or not they may begin development of the Draft BI.

33 CFR Part 332.8(d) discusses the Timeline for Bank Approval.

Definitions:

- Bank Sponsor: Any public or private entity responsible for establishing, and in most circumstances, operating a mitigation bank.
- Interagency Review Team (IRT): The interagency group of federal, tribal, state and/or local regulatory and resource agency representatives that reviews documentation for, and advises the district engineer on, the establishment and management of a mitigation bank.
- Draft Prospectus (optional): A brief, concept level proposal submitted when scoping the concept of a mitigation bank, contemplating pursuing a mitigation bank idea or for those new to the mitigation banking process.

- Prospectus (required): A summary of the information regarding the proposed mitigation bank, at a sufficient level of detail to support informed public and IRT comment.
- Draft BI: The complete BI and all Exhibits submitted for IRT review and approval.
- Final BI: The complete BI and all Exhibits, including supporting documentation that explains how the final instrument addresses the comments provided by the IRT.

Please contact Rachel Perrine of the Rock Island District USACE at (309) 794-5329 or Rachel.E.Perrine@usace.army.mil for additional information, questions or concerns.

Iowa Mitigation Banking

Checklist for Proposed Mitigation Bank Sites

Last revised: February 2011

- ☐ Does the site contain existing wetlands or other aquatic resource? Please submit a complete wetland delineation, according to the 1987 Wetland Delineation Manual and Midwest Supplement, or a NRCS wetland determination, if the landowner is a FSA farm program participant. The delineation is not required for the Prospectus phase, but will need to be submitted with the Draft BI. If the site does contain wetlands or other aquatic resources, those areas may be assigned partial credit by the IRT after assessing the quality of the existing aquatic resources and expected enhanced value.
- ☐ Will there be an effect to federally-listed species (or their habitat) covered under the Endangered Species Act of 1987? To guide you through the proper Threatened and Endangered Species consultation procedure, please see the Section 7(a)(2) Technical Assistance webpage (<http://www.fws.gov/midwest/endangered/section7/s7process/index.html>). The webpage provides guidance to help you determine what your action area is, whether endangered species may be found within the action area, and if your project and associated actions may affect listed species. You will also find several products on the site that can streamline the consultation process, including up-to-date county-specific species lists for all of the states in USFWS Region 3 and example letters for documenting your findings related to endangered species. For more information, please contact USFWS, Rock Island Field Office, at (309) 797-5800.
- ☐ Will there be an effect to state-listed threatened or endangered species (or their habitat)? Please request an Environmental Review with the IDNR to determine the potential effect to state-listed species. See attachment: "Environmental Reviews for Iowa's Natural Resources."
- ☐ Are there affected historic properties under Section 106 of the National Historic Preservation Act? A Phase I archeological survey is often required for mitigation bank sites, which is determined during the Prospectus phase of the Bank Approval Process. For additional information, see: <http://www.iowahistory.org/historic-preservation/review-and-compliance/>.
- ☐ The site must not contain toxins and contaminants (including, but not limited to, lead shot, dump sites, chemical waste, etc). Please give a detailed account of past land use and anticipated land use. If the site contains or will contain elements or activities other than natural areas (including, but not limited to, hunting, the use of all-terrain vehicles, etc), describe those components in detail.
- ☐ Are there any geologic or hydrologic factors that would cause the site to be unsuccessful or cause a wetland to drain (sand layers, karst topography, sink holes, etc)? Are there any biological factors, such as existing populations of invasive/aggressive/non-native species, which would prevent the mitigation bank from meeting performance standards?

- ☐ Below are resources the IRT uses to assess the suitability of the site and mitigation work plan:
- NRCS construction standards: All components of the mitigation work plan must meet the attached NRCS standards. If construction will differ from what is listed, please explain why. See attachment: "Natural Resource Conservation Service Conservation Practice Standard, Wetland Restoration"
 - NRCS seeding calculator: The IRT will require an average coefficient of conservation between 4 and 6. Please see: <http://www.ia.nrcs.usda.gov/technical/> for the Seeding Calculator worksheet.
 - Iowa Plant Community Database: Please use this database or a similar (and reliable) method to determine an appropriate seed mix. Please see: <http://www.ia.nrcs.usda.gov/technical/RestorationTools.html>.

Iowa Mitigation Banking Checklist and Outline for Prospectus

Last revised: February 2011

Please refer to the Cover Sheet, revised February 2011, for procedures related to the submission of a mitigation bank proposal. Please provide the following information and a copy of this checklist with the submittal of a Prospectus:

On a cover sheet:

- ☐ Proposed Mitigation Bank Name – Use a short name based on a geographic feature, if possible, and incorporate “Wetland Mitigation Bank” or “Stream Mitigation Bank”
- ☐ Mitigation Bank Location
- ☐ Mitigation Bank Contacts – include name, address, phone number, fax number, and email for: Bank Sponsor, Property Owner and Consultant

In the body of the document:

- ☐ The objectives of the proposed mitigation bank
- ☐ How the mitigation bank will be established and operated
- ☐ The proposed service area
- ☐ The general need for and technical feasibility of the proposed mitigation bank
- ☐ The proposed ownership arrangements and long-term management strategy for the mitigation bank
- ☐ The qualifications of the sponsor to successfully complete the type(s) of mitigation project(s) proposed, including information describing any past such activities by the sponsor
- ☐ The ecological suitability of the site to achieve the objectives of the proposed mitigation bank, including the physical, chemical and biological characteristics of the bank site and how that site will support the planned types of aquatic resources and functions
- ☐ Assurance of sufficient water rights and/or sustainability of the hydrologic source to support the long-term sustainability of the mitigation bank
- ☐ Exhibits
 - General location map
 - Accurate current map of the proposed bank site on USGS topographic maps
 - LIDAR map of the site (found at www.iowadnr.gov/mapping/lidar/index.htm or <http://geotree2.geog.uni.edu/lidar>)
 - Color aerial photographs that reflect current conditions of the proposed bank site and surrounding properties
 - Color aerial photographs that reflect the mitigation work plan for the site
 - Soil maps
 - Proposed service area map
 - Other exhibits, such as NRCS determinations or other relevant documents

Below is a template and additional information for the Prospectus.

Prospectus

Proposed Mitigation Bank Name
County, State
Date

Bank Sponsor Name
Bank Sponsor Address
Bank Sponsor Phone
Bank Sponsor Fax
Bank Sponsor E-Mail

Property Owner Name
Property Owner Address
Property Owner Phone
Property Owner Fax
Property Owner E-Mail

Consultant Name
Consultant Address
Consultant Phone
Consultant Fax
Consultant E-Mail

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Note: Items I-XI are items outlined in the April 2008 Mitigation Rule as being required for a complete Prospectus. The asterisked () items are those that the Iowa IRT recommends the Prospectus include in order to begin the discussion of site suitability and sensitive issues early on. The amount of detail required for each section for the Prospectus phase is described below. Items in italics are notes and suggestions only and are not to be included word-for-word in the Draft Prospectus. Items in "Regular" font are requirements for the Draft Prospectus and should be included word-for-word, if applicable.*

I. Introduction

This section should explain what type of mitigation bank (i.e. general use, single entity, etc) the Sponsor is creating and who it will service (i.e. land owners, public entities, developers, etc) within the wetland mitigation bank service area. Briefly describe how the credits will be developed (creation, restoration, enhancement, preservation). If the site had a NRCS wetland determination completed, please include a short summary of that information in this section (i.e. when the determination was completed and what the determination was – PC, FW, etc with acreages).

Describe the duration of construction (one phase or many) and what the end result will be for creation/restoration acres, enhancement/preservation acres and the required buffer area. Give a short summary of what types of credits will be generated (emergent, forested, stream, etc).

II. Objectives

The April 10, 2008 Mitigation Rule states the following:

"The fundamental objective of compensatory mitigation is to offset environmental losses resulting from unavoidable impacts to waters of the United States authorized by DA permits."

The Bank Sponsor has (NUMBER) objectives for (Bank Name).

- 1.
- 2.
- 3.
- etc.

Environmental objectives must be included in this section (i.e. Support the national goal of no net-loss of wetlands, Enhance or create additional wildlife habitat, Compensate for wetland and other aquatic resource losses in a manner which contributes to the long-term ecological functioning of the Watershed within which the bank is located, Reduce temporal losses of wetland functions, etc). You may also choose to include economic or business objectives (Generate enough income to construct additional phases, Provide affordable and economically efficient opportunities, etc).

III. Establishment and Operation

This section should describe baseline conditions, how the mitigation bank will be established (hydrology restoration, seeding, structures, buffer establishment, etc) and operated (mitigation bank costs, timeline, remedial plans, etc).

A. Legal Description of Bank Site

Please describe the legal description of the site, current ownership and any mortgages or liens that are on the property. If there is a mortgage or lien on the property, a subordination agreement will have to be put into place prior to the approval of the mitigation banking instrument. A subordination agreement

ensures that the interests of the IRT and BI are above those of the mortgage holder.

B. Site Description

Please describe the current land use, adjacent land uses and baseline information, including zoning information. Include any NRCS wetland determinations, existing wetland descriptions, soil information, existing hydrology manipulation, existing natural areas, etc. Describe what the gains of the site will be with the proposed mitigation bank. If the site is currently in crop production or other agricultural activity, baseline information should be sufficient. If the site is currently a natural area (i.e. prairie or deciduous forest), a functional assessment or more detailed information may be necessary to determine the suitability of the site for a wetland mitigation bank.

Please include the language below, ensuring that all is applicable and accurate. Do not just copy and paste; make sure all these items are true for the site. If there are changes to the items below, please let the IRT know so it can be discussed further.

This site is not subject to restoration or enforcement action as a result of an unauthorized activity under Section 404 of the CWA; nor is this site classified as a Converted Wetland under the Wetland Conservation Provisions of the 1985 FSA.

It is our belief that adequate wetland hydrology can be restored permanently (*and explain why*).

A thorough examination and inspection of the entire property has been performed with no areas of hazardous concern being found.

The development of this site will not adversely affect federal or state listed endangered or threatened species or their habitat or other high quality habitats.

This site does not contain any oak groves, prairies, fens or savannas that would be disturbed by the development of this site.

This site is not being developed to satisfy local or regional storm water detention requirements.

This site is currently (*insert land use*). This site is (*distance, i.e. several miles*) away from any development and development in this area is not anticipated in the future (*or explain risk of adjacent development and effect on mitigation bank, if development is anticipated in the future*).

This site does not contain any hydrologic or water quality protection functions that would adversely affect the source, quality, or seasonal distribution of surface of ground water to important habitats.

This site does not contain any important wetlands according to any USACE Special Area Management Plan, USEPA Advanced Identification process, or any areas identified in the Iowa Natural Areas Inventory.

There are no important breeding, foraging, or nesting areas for migratory birds or other wetland-dependent wildlife on site.

The development of this site would not violate any state or federal regulations and would not adversely affect any federally funded wetland conservation projects.

C. Hydrology Restoration

Please describe the proposed methods of hydrology restoration.

D. Construction

Please describe the proposed methods of any and all construction (i.e. berms, water control structures, etc) and the structures themselves.

E. Seeding and Planting

Please describe the proposed methods of seeding and planting. In an appendix, include the proposed seeding list and densities for IRT review.

F. Development Costs

Please outline development costs (i.e. land acquisition, construction, conservation easement, legal fees, etc).

G. Other Mitigation Bank Establishment Costs

Please describe the “other” bank establishment costs (i.e. long term maintenance fund).

H. Annual Mitigation Costs

Please describe the annual mitigation bank costs (i.e. wetland delineation, taxes, maintenance, etc).

I. Establishment Timeline

Please describe the expected establishment timeline.

J. Financial Assurances

According to the April 2008 Mitigation Rule (33 CFR Part 332.3(n)), financial assurances should “ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with applicable performance standards..” and “...must be based on the size and complexity of the compensatory mitigation project, the degree of completion of the project at the time of project approval, the likelihood of success, the past performance of the project sponsor and any other factors the district engineer deems appropriate.”

If all establishment costs are going to be borne by the banker and credits will not be sold prior to the completion of construction, a performance bond will not be necessary. In all other cases, an executed performance bond must be in place

prior to the approval of the BI. The performance bond must equal 100% of the proposed construction costs, determined by the bonding entity or another third party, to ensure the anticipated costs are as accurate as possible.

A long-term maintenance fund equal to at least 125% of the proposed constructions costs, to be used for post-bank closure maintenance and repair, will also be required. Funding will be accomplished as credits are sold, but the fund must be fully funded prior to bank closure, as long-term maintenance is required for post-bank closure. Prior to bank closure, the success of the plant communities and hydrology should be well known and established. The maintenance fund will allow for the holder of the conservation easement, with IRT approval, to provide needed maintenance if the bank sponsor or property owner fails to maintain the restored wetland property under the Conservation Easement. The long-term maintenance fund will be used for maintenance and repair of the mitigation bank ONLY, and not for payment of salaries, real estate taxes, etc.

In this section, please describe proposed financial assurance arrangements (type of account and proposed easement holder). Although 125% of proposed construction cost is the guideline for the long-term maintenance fund, the IRT will determine what amount is necessary for that fund and what percent of each credit sale will be allocated to that fund.

K. Contingency and Remedial Plans

This section should describe the contingency and remedial plans for the proposed mitigation bank. Include remedial plans for invasives and seeding (i.e. cultural burn, chemical control, mechanical control, re-seeding to promote natives and discourage invasives, mowing, armoring, etc). Also include security measures in this section to limit unauthorized motor vehicle access or livestock. Please incorporate the following into this section:

“Should any certified credits that have been debited be deemed as failing during the life of the mitigation bank, every effort will be made to repair those areas within the mitigation bank. If the Bank Sponsor is unable to repair the certified credits that have been debited on-site, an alternative location may be used to replace the failed certified credits that have been debited.”

L. Determination of Credits and Credit Release Schedule

Generally, below is the breakdown of wetland credit determination. It can be changed at the discretion of the IRT after reviewing baseline conditions, establishment of the mitigation bank and anticipated environmental lift.

Restored/created wetlands – 1:1 (1 acre of restored/created wetland = 1 bank credit)

Enhanced wetlands – 2:1 (2 acres of enhanced wetland = 1 bank credit)

Buffer – 4:1 (4 acres of buffer = 1 bank credit)

A buffer will be required around the perimeter of the proposed mitigation bank site. The buffer width depends on the topography of the proposed bank site,

surrounding land use and other factors affecting the success of vegetative establishment. At a minimum, the buffer should be 50 feet in width. This can be changed at the discretion of the IRT, after review of the proposed bank site. Preservation may be used only if the resources are under threat of destruction or adverse modification (further requirements outlined in 33 CFR Part 332.3(h)). The IRT will determine credit value for preserved wetlands after reviewing baseline conditions and methods of preservation.

Generally, below is the credit release schedule. It can be changed at the discretion of the IRT after reviewing anticipated mitigation success and complexity of establishment.

1. Upon Bank Establishment (USACE signing of this BI, recording of an IRT-approved Conservation Easement and acceptable financial assurances as described in paragraph ____ of this BI), 15% of anticipated credits will be made available for sale.
2. Upon Bank Establishment, USACE approval of as-built drawings (for all construction, structures, and complete seeding of approved species) and confirmation of the establishment of the Long-Term Maintenance Fund Account from the Account holder, an additional 15% (a cumulative total of 30%) of anticipated credits will be made available for sale.
3. Upon Bank Establishment, USACE approval of as-built drawings, confirmation of the establishment of the Long-Term Maintenance Fund Account from the Account holder, and USACE-approved documentation indicating the presence of wetland hydrology (including full supporting monitoring well data and delineations completed according to the '87 Manual and its Supplement) for at least one year, an additional 15-20% of anticipated credits (a cumulative total of 45-50%) will be made available for sale.
4. For each following year (beyond the first year that wetland hydrology was documented and approved), when vegetation and hydrology performance standards are met and approved in writing by the USACE, up to 15% of anticipated credits will be approved for sale if unsold, successfully-restored credits are present.
5. After one year has passed from the date of the first credit sale, if wetland hydrology is not present in the majority of years, native plant communities are not developing or if any performance standards are not met on areas that are of sufficient size to cover sold credits, the USACE will require one or more of the following: adaptive management actions, a decrease of credits available for sale, a suspension of credit sales, termination of the BI and/or utilization of financial assurances.

Also, the Long-term Maintenance Fund must be established immediately following the first credit sale. Confirmation of the establishment of the Long-

Term Maintenance Fund Account will be provided to the USACE by the account holder. Credits used by the Banker to mitigate any impacts to wetlands caused by construction of the mitigation bank must be recorded in the ledger.

IV. Proposed Service Area

The service area will be decided by the IRT once a location map of the proposed bank site has been provided.

This section should describe the service area for the bank. The service area is watershed-based, using Hydrologic Unit Codes and Ecological Drainage Units.

V. Needs Assessment

This section should describe why a mitigation bank is needed in the area and what activities are going on (i.e. farming, commercial development, etc) that would need mitigation.

VI. Technical Feasibility

This section should describe why the proposed bank site is suitable for the activities. Describe the soils, hydrology, topography, etc. Explain why the mitigation activities will work on this particular site and why success is anticipated.

VII. Real Estate Ownership

This section should describe the ownership arrangements at the site and if there are any mortgages or liens on the property. Also include the Conservation Easement holder and their role.

VIII. Long-Term Management

This section should describe the Long-Term Management responsibilities and plan.

IX. Sponsor Qualifications

This section should describe the Sponsor of the mitigation bank and their qualifications (i.e. technical abilities, past experience, etc).

X. Ecological Suitability of the Site

This section should describe why the proposed bank site is ecologically suitable and how it fits into the surrounding area. Please include information about positive and adverse impacts from this mitigation bank. Describe how the mitigation bank would contribute to connectivity and ecosystem function.

XI. Assurance of Sufficient Water Rights

This section should describe the water rights in this area, as well as assurance that the hydrologic source will support the long-term sustainability of the mitigation bank.

XII. Signatures

This section should include, at a minimum, the Bank Sponsor's signature(s). If possible, the property owner and consultant, if applicable, should also sign.

XIII. List of Exhibits

Iowa Mitigation Banking
Checklist and Outline for the BI
Last revised: February 2011

Please refer to the Cover Sheet, revised February 2011, for procedures related to the submission of a mitigation bank proposal.

The Draft BI describes, in detail, the physical and legal characteristics of the mitigation bank, including how it will be established, operated and managed. It is from the Draft BI that a Final BI is prepared, incorporating all comments provided by the IRT. The Final BI is the document by which USACE determines whether to approve or deny the establishment of the proposed mitigation bank. If USACE intends to approve the instrument, it is at that time when signatures of IRT agencies will be requested.

Please provide the following information and a copy of this checklist with the submittal of a BI:

On a cover sheet:

- ☐ Proposed Bank Name – Use a short name based on a geographic feature, if possible, and include “Wetland Mitigation Bank” or “Stream Mitigation Bank” in the name
- ☐ Bank Location
- ☐ Bank Contacts – include name, address, phone number, fax number, and email for: Bank Sponsor, Property Owner and Consultant

In the body of the document:

- ☐ Objectives of the proposed mitigation bank
- ☐ Site selection
- ☐ Site protection instrument
- ☐ Baseline information
- ☐ Determination of credits
- ☐ Mitigation work plan
- ☐ Maintenance plan
- ☐ Performance standards
- ☐ Monitoring requirements
- ☐ Long-term management plan
- ☐ Adaptive management plan
- ☐ Financial assurances
- ☐ Proposed service area
- ☐ Accounting procedures
- ☐ A provision stating that legal responsibility for providing the compensatory mitigation lies with the sponsor once a permittee secures credits from the sponsor
- ☐ Default and closure provisions
- ☐ Reporting protocols

☐ Exhibits

- General location map
- Accurate current map of the proposed bank site on USGS topographic maps using 1-foot contours
- LIDAR map of the site (found at www.iowadnr.gov/mapping/lidar/index.htm or <http://geotree2.geog.uni.edu/lidar>)
- Color aerial photographs that reflect current conditions of the proposed bank site and surrounding properties
- Warranty Deed and other Real Estate documents
- Conservation Easement
- Color aerial photographs that reflect the mitigation work plan for the site
- Soil maps
- Seeding lists for wetland, buffer, etc
- Proposed service area map
- Other exhibits, such as NRCS determinations or other relevant documents

Below is a template and additional information for the BIs.

Mitigation Bank Instrument

Proposed Mitigation Bank Name
County, State
Date

Bank Sponsor Name	Property Owner Name	Consultant Name
Bank Sponsor Address	Property Owner	Consultant Address
Bank Sponsor Phone	Address	Consultant Phone
Bank Sponsor Fax	Property Owner Phone	Consultant Fax
Bank Sponsor E-Mail	Property Owner Fax	Consultant E-Mail
	Property Owner E-Mail	

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***Note:** The amount of detail required for each section for the BI is described below. Items in italics are notes and suggestions only and are not to be included word-for-word in the Draft BI. Items in “Regular” font are requirements for the BI and should be included word-for-word, if applicable.*

I. Introduction

This section should explain what type of mitigation bank (i.e. general use, single entity, etc) the Sponsor is creating and who it will service (i.e. land owners, public entities, developers, etc) within the wetland mitigation bank service area. Briefly describe how the credits will be developed (creation, restoration, enhancement, preservation). If the site had a NRCS wetland determination completed, please include a short summary of that information in this section (i.e. when the determination was completed and what the determination was – PC, FW, etc with acreages).

Describe the duration of construction (one phase or many) and what the end result will be for creation/restoration acres, enhancement/preservation acres and the required buffer area. Give a short summary of what types of credits will be generated (emergent, forested, stream, etc).

II. Objectives

The April 10, 2008 Mitigation Rule states the following:

"The fundamental objective of compensatory mitigation is to offset environmental losses resulting from unavoidable impacts to waters of the United States authorized by DA permits."

The Bank Sponsor has (NUMBER) objectives for (Bank Name).

- 1.
- 2.
- 3.
- etc.

This section should describe the environmental objectives (i.e. Support the national goal of no net-loss of wetlands, Enhance or create additional wildlife habitat, Compensate for wetland and other aquatic resource losses in a manner which contributes to the long-term ecological functioning of the Watershed within which the bank is located, Reduce temporal losses of wetland functions, etc). You may choose to include economic or business objectives as well (Generate enough income to construct additional phases, Provide affordable and economically efficient opportunities, etc). Specific objectives must identify the resource type(s) and amount(s) that will be provided, the method of compensation (i.e. restoration, establishment, enhancement and/or preservation) and the manner in which the resource functions of the mitigation bank will address the needs of the watershed, ecoregion, physiographic province or other geographic area of interest.

III. Site Selection

Mitigation banks shall be appropriately sited and designed to ensure that natural hydrology and landscape position will support long-term sustainability and function as a self-sustaining system. This section should describe the factors considered during the site

selection process and include consideration of watershed needs and practicability of accomplishing ecologically self-sustaining aquatic resource restoration, establishment, enhancement and/or preservation at the proposed bank. Discuss how the bank site is ecologically suitable for providing the desired aquatic resource functions by describing:

- a. The hydrological conditions, soil properties, native seed source, and other physical and chemical characteristics.*
- b. The watershed-scale features such as aquatic habitat diversity, habitat connectivity, existence of threatened or endangered species related to prior habitat loss, and other landscape scale functions.*
- c. The size and the location of the bank site relative to hydrologic sources (including the availability of water rights) and other ecological features.*
- d. The compatibility with adjacent land uses and any existing watershed management plans.*
- e. The reasonably foreseeable effects the mitigation bank will have on ecologically important aquatic or terrestrial resources, cultural resources, or habitat for federally or state listed threatened and endangered species.*
- f. Other information as available including potential chemical contamination, impacts from land use changes including residential and/or commercial development within the watershed, and the proximity to the location of other mitigation banks, in-lieu fee mitigation project sites, or protected conservation areas within the watershed.*

IV. Site Protection Instrument

This section should describe the ownership, legal arrangements and instrument that will be used to ensure the long-term site protection of the proposed bank site. Include the draft real estate instrument as an appendix to the draft BI. Generally, site protection is accomplished through the use of conservation easements, deed restrictions or restrictive covenants and, where applicable, establishes an appropriate third party (governmental or non-profit resource agency) to enforce site protections and provide the third party the resources necessary to monitor and enforce the site protections.

The long-term site protection instrument, to the extent appropriate and practicable, prohibit incompatible uses that might otherwise jeopardize the objectives of the proposed mitigation bank.

The long-term site protection instrument must contain a provision requiring a 60-day advance notification to the district engineer before any action is taken to void or modify the site protection instrument, including transfer or title or, or establishment or any other legal claims over, the proposed mitigation bank site.

If the site is being held by a mortgage, a Subordination Agreement will need to be put in place. This will ensure that the interests of the IRT and BI are above that of the

mortgage holder. If the land is held free and clear, a Subordination Agreement will not be required.

V. Baseline Information

This section should describe the ecological characteristics of the proposed bank site, which may include historic and existing plant communities, historic and existing hydrology, existing soil conditions and existing hydro-system connectivity between wetlands and other waters, including tributaries connection to receiving waters. This section should also include a delineation of waters of the United States on the proposed bank site, using the 1987 USACE Wetland Delineation Manual and Midwest Supplement.

VI. Determination of Credits

This section should describe the number and types of credits to be provided at the mitigation bank with a brief rationale for this determination. Wetland credit types shall be identified to the Cowardin class and, in the absence of a functional assessment method, determined based on a combination of land area and method of compensation. Required upland buffers next to wetlands that provide habitat connectivity and other ecological functions may also general compensatory mitigation credits because of their contribution to the ecological functions of the overall mitigation bank. Generally, below is the breakdown of credit determination. It can be changed at the discretion of the IRT after reviewing baseline conditions, establishment of the mitigation bank and anticipated environmental lift.

Restored/created wetlands – 1:1 (1 acre of restored/created wetland = 1 bank credit)

Enhanced wetlands – 2:1 (2 acres of enhanced wetland = 1 bank credit)

Buffer – 4:1 (4 acres of buffer = 1 bank credit)

A buffer will be required around the perimeter of the proposed mitigation bank site. The buffer width depends on the topography of the proposed bank site, surrounding land use and other factors affecting the success of vegetative establishment. At a minimum, the buffer should be 50 feet in width. This can be changed at the discretion of the IRT, after review of the proposed bank site.

Preservation may be used only if the resources are under threat of destruction or adverse modification (further requirements outlined in 332.3(h)). The IRT will determine credit value for preserved wetlands after reviewing baseline conditions and methods of preservation.

VII. Credit Release Schedule

This section should describe the credit release schedule, which is tied to achievement of specific milestones. Generally, below is the credit release schedule. It can be changed at the discretion of the IRT after reviewing anticipated mitigation bank success and complexity of establishment.

1. Upon Bank Establishment (USACE signing of this BI, recording of an IRT-approved Conservation Easement and acceptable financial assurances as described in paragraph ____ of this BI), 15% of anticipated credits will be made available for sale.
2. Upon Bank Establishment, USACE approval of as-built drawings (for all construction, structures, and complete seeding of approved species) and confirmation of the establishment of the Long-Term Maintenance Fund Account from the Account holder, an additional 15% (a cumulative total of 30%) of anticipated credits will be made available for sale.
3. Upon Bank Establishment, USACE approval of as-built drawings, confirmation of the establishment of the Long-Term Maintenance Fund Account from the Account holder, and USACE-approved documentation indicating the presence of wetland hydrology (including full supporting monitoring well data and delineations completed according to the '87 Manual and its Supplement) for at least one year, an additional 15-20% of anticipated credits (a cumulative total of 45-50%) will be made available for sale.
4. For each following year (beyond the first year that wetland hydrology was documented and approved), when vegetation and hydrology performance standards are met and approved in writing by the USACE, up to 15% of anticipated credits will be approved for sale if unsold, successfully-restored credits are present.
5. After one year has passed from the date of the first credit sale, if wetland hydrology is not present in the majority of years, native plant communities are not developing or if any performance standards are not met on areas that are of sufficient size to cover sold credits, the USACE will require one or more of the following: adaptive management actions, a decrease of credits available for sale, a suspension of credit sales, termination of the BI and/or utilization of financial assurances.

Also, the Long-term Maintenance Fund must be established immediately following the first credit sale. Confirmation of the establishment of the Long-Term Maintenance Fund Account will be provided to the USACE by the account holder. Bank credits used by the Banker to mitigate any impacts to wetlands caused by construction of the mitigation bank must be recorded in the ledger.

VIII. Mitigation Work Plan

This section should include detailed written specifications and work descriptions for the proposed bank site, including, but not limited to, the geographic boundaries of the project, construction methods and sequence, source(s) of water, including connections to existing waters and uplands, methods for establishing the desired plant community, plans to control invasive plant species, the proposed grading plan, soil management and erosion control measures.

IX. Maintenance Plan

This section should include a description and schedule of maintenance requirements to ensure the continued viability of the resource once initial construction is completed. Please include the invasive species management plan, maintenance of water control structures, vegetation management methods (i.e. mowing, cultural burns) and other management plans. Also, it must be stated that short-term maintenance and management will be at the Bank Sponsor's expense (since the Long-Term Maintenance Fund Account specified in the Financial Assurances section is only to be used for long-term maintenance, or after the mitigation bank has closed).

X. Performance Standards

This section should describe the ecological, administrative, and adaptive management standards that will be used to determine whether the mitigation bank is achieving its objectives. The standards must be based on attributes that are objective and verifiable. They must be based on the best available science that can be measured or assessed in a practicable manner. The standards should take into account the expected stages of the aquatic resource development process in order to allow early detection of potential problems and appropriate adaptive management. The use of reference aquatic resources (least disturbed and exhibits the highest levels of functions in the service area) is encouraged to establish performance standards. This approach can help ensure that the performance standards are reasonably achievable, by reflecting the range of variability exhibited by the regional class of aquatic resources as a result of natural processes and human influences. Generally, below are the performance standards the IRT has used for various habitats. This list is not inclusive and the following items are flexible, depending on site-specific conditions. If there are additional performance standards that apply to your site, add those in, and if there are items below that do not apply or cannot be accomplished, please discuss with the IRT.

Restored wetlands shall meet the minimum requirements for inundation and/or soil saturation as defined in the '87 Manual and Midwest Supplement.

Monitoring of hydrology, as specified below, shall apply to all restored wetland areas. Monitoring of vegetation, as specified below, shall apply to all mitigation bank areas (including buffers and restored wetland areas). If at any point before the mitigation bank is closed, the IRT determines that one or more of the following performance standards are not or will not be met, the IRT will terminate credit sales, reduce credit acreages and/or values, or require adaptive management actions.

A. Hydrology

1. Hydrology shall meet the minimum requirements as defined in the '87 Manual and Midwest Supplement. This requirement includes soil saturation (within 12 inches of ground surface), inundation, or a combination of saturation and inundation for at least 14 consecutive days during the growing season in the

majority of years. Hydrology will be monitored by the Banker, utilizing at least six groundwater monitoring wells and the services of someone trained in the use of the '87 Manual and Midwest Supplement, with data provided to the IRT to establish the acreage of wetlands being restored for the purpose of certifying the credits in the bank.

2. The groundwater monitoring wells will be placed along the inside edges of the buffer areas and on the highest areas of the bank site in an attempt to confirm the presence of wetland hydrology at those areas. Additional observation wells may be required if questions arise as to the presence or absence of wetland hydrology in an area.

3. All groundwater monitoring wells will be constructed and installed according to the Corps' "Technical Standard for Water-Table Monitoring of Potential Wetland Sites" technical note (ERDC TN-WRAP-05-2, June 2005).

4. Groundwater hydrology will be strictly determined by the monitoring of groundwater monitoring wells. Wetland credits available for sale will be limited to areas at or below the elevation of the highest well that has confirmed wetland hydrology in the majority of years.

B. Vegetation

1. Plant species and cover will be qualitatively and quantitatively measured in each plant community by a trained wetland delineator.

2. Based upon the national List of Plant Species that Occur in Wetlands: North Central Region, more than 50% of the dominant plant species within each vegetative community of the restored wetland areas of the bank for which credit is sought shall be provided by species designated as obligate (OBL), facultative wetland (FACW), or facultative (FAC). Dominance is defined in the '87 Manual and Midwest Supplement.

3. All restored wetlands will be planted with the seed mix and rate shown in Exhibit ___. An area is said to be vegetated if aerial coverage of vegetation is at least 50%. Prior to bank closure, 75% or greater of the aerial coverage shall be dominated by native hydrophytic plants.

4. Each (acre of emergent wetland/emergent plant community) must contain at least 15 vegetative species. (*Diversity by acre or plant community will be decided based on topography of the land and mitigation work plan.*)

5. Each acre of forested wetland must contain at least 100 trees with live growth above 5 feet. Each acre must contain 5 species, 3 of which are to be hard mast producing and native and 2 of which

are native. Each species must account for at least 10% of the total tree number. *(This may change depending on desired forest type.)*

5. The entire bank site must be enclosed by a ____-foot wide buffer.

6. Buffers must have at least 70% aerial coverage of native perennial species and contain a minimum of 5 species per ½ acre. The buffers will be planted with the seed mix and rate shown in Exhibit ____.

7. Non-native, aggressive, invasive species will account for no more than 20% aerial coverage in any 50-foot by 50-foot area. Non-native, aggressive, invasive species include, but are not limited to, reed canarygrass, phragmites, purple loosestrife, garlic mustard, flowering rush, Canada thistle, purple crown vetch, autumn olive, hairy cupgrass, leafy spurge, glossy buckthorn, amur honeysuckle, morrow's honeysuckle, tatarian honeysuckle, bell's honeysuckle, Eurasian water milfoil, Japanese knotweed, common buckthorn, and multiflora rose, or others determined by the IRT. Any 50-foot by 50-foot areas that have more than 20% aerial coverage of non-native, aggressive, invasive species will receive only 50% of the credit otherwise available for that type of wetland or buffer. Once the Banker provides documentation that the non-native, aggressive, invasive species in a previously infested area have been controlled and subsequently make up less than 20% of that area's coverage, The IRT will restore full wetland credits to that area.

8. If the total aerial coverage of non-native, aggressive, invasive species exceeds 5% of the total restored wetland acreage and/or 5% of the total buffer acreage, all credit sales will cease until the non-native, aggressive, invasive species are effectively controlled.

C. Soils. Due to the time lag between the restoration of wetland hydrology and the development of some hydric soil characteristics, no specific soil measurements, beyond saturation and water table, will be used as performance standards. If visible erosion is present that may adversely affect wetland hydrology or vegetation, credit values will be reduced or credit sales will cease until the erosion is repaired.

XI. Monitoring Requirements

This section should describe the parameters to be monitored and monitoring methods and procedures in order to determine if the proposed mitigation bank is on track to meet performance standards and if adaptive management is needed. A schedule for monitoring and reporting on monitoring results to the district engineer must be included. Monitoring must occur for a period not less than five years after final construction and planting. Extending the monitoring period beyond the five year minimum may be

required depending on resource type or adaptive management measures occurring after initial site work (i.e. planting of additional trees, adjustments/armoring of berms, etc).

XII. Long-Term Management

This section should describe how the mitigation bank will be managed after performance standards have been achieved to ensure the long-term sustainability of the resource, including long-term financing mechanisms and the party responsible for long-term management. If the Bank Sponsor transfers the long-term management responsibilities for the bank to a land stewardship entity, such as a public agency, non-governmental organization or private land manager, it must be approved by the IRT. The USACE and IRT prefer that the land stewardship entity be identified in the instrument, however, the Mitigation Rule provides the prospective sponsor flexibility to identify the entity at a later time. In this instance, the Bank Sponsor will be responsible for long-term management until the Bank Sponsor identifies a long-term stewardship entity and that entity is approved by the USACE and IRT.

XIII. Adaptive Management

This section should describe the management strategy to address unforeseen changes in site conditions or other components of the proposed bank, including the parties responsible for implementing adaptive management measures. The adaptive management plan should guide decisions for revising mitigation work plans and implementing measures to address both foreseeable and unforeseen circumstances that adversely affect bank success. Circumstances that may qualify for adaptive management include an inability to construct the bank in accordance with the approved mitigation work plans, monitoring or other information reveals the bank is not progressing towards meeting its performance standards, possible remedial measures that result in site modifications, design changes, revisions to maintenance requirements, revised monitoring requirements.

XIV. Financial Assurances

This section should describe financial assurances (for construction and long-term management) to be provided and how they are sufficient to ensure a high level of confidence that the mitigation bank will be successfully completed, in accordance with its performance standards. The amount of financial assurances, approved by the district engineer, will be determined by the size and the complexity of the bank site, the degree of completion of the mitigation bank at the time of bank approval, the likelihood of success, the past performance of the Bank Sponsor, and any other factors the USACE deems appropriate. The rationale for determining the amount of the required financial assurances must be documented in the instrument and may include; planning and engineering, legal fees, mobilization, construction, monitoring, and maintenance.

The financial assurances may be in the form of performance bonds, escrow account or other appropriate instruments approved by the district engineer. The financial assurances must be in the form that ensures the district engineer will receive notification at least 120 days in advance of any termination or revocation. For performance bonds or letters of credit a standby trust account must be established. All amounts paid by the financial assurance provider must be paid directly to the standby account for distribution by the account trustee in accordance with USACE instructions.

The instrument must clearly specify the conditions under which the financial assurances are to be released to the Bank Sponsor, and/or other financial assurance provider.

Generally, the IRT requires that the Long-Term Maintenance Fund equals 125% of proposed construction and management costs (including structures, seeding, invasive species management, etc). Depending on how active or passive the management of the mitigation bank is, 10-15% of each credit sale will be required to be placed into the Long-Term Maintenance Fund until it equals 125% of proposed construction costs.

Please include the following in your BI:

All construction must be completed within one year of the first credit sale. The Bank Sponsor may request a deadline extension for delays that are attributable to acts, events, causes or occurrences not within the Bank Sponsor's control. If the Bank Sponsor fails to complete construction within one year and there has been no deadline extension, the USACE may terminate the BI and/or the Grantee of the Conservation Easement may proceed against the Long-Term Maintenance Fund.

If the Bank Sponsor fails to complete the required maintenance and monitoring in any given year or fails to execute the Adaptive Management Plan (as required), the USACE may curtail the credit sales until the Banker provides written evidence of performance of required maintenance and monitoring and the USACE confirms performance. If the Bank Sponsor fails to respond to written USACE notice of deficiencies within 120 days, the IRT may terminate the BI and the Grantee of the Conservation Easement may draw on the Long-Term Maintenance Fund for maintenance and monitoring.

The Bank Sponsor must provide an annual report showing the beginning and ending balances of the Long-Term Maintenance Fund, including deposits into and any withdrawals from, the accounts providing funds for financial assurances. The report should include information on the amount of required financial assurances and status of those assurances, including their potential expiration. This report must be submitted to the USACE and IRT on an annual basis as part of the annual report. The report will serve as part of the administrative record for the mitigation bank.

XV. Proposed Service Area

This section should describe the service area for the proposed mitigation bank. The service area is watershed-based, using Hydrologic Unit Codes and Ecological Drainage Units.

XVI. Accounting Procedures

This section should describe the accounting procedures for the proposed mitigation bank. For the use of credits, the USACE will determine the number and type(s) of credits required to compensate for the authorized impacts. The BI must contain a provision requiring the Bank Sponsor to establish and maintain a ledger to account for all credit transactions. Each time a credit transaction occurs, the Bank Sponsor must notify the USACE and IDNR and provide them with a copy of the purchase receipt and updated ledger. The Bank Sponsor must also keep the ledger in RIBITS up to date. The Bank Sponsor must compile an annual ledger report showing the beginning and ending balance of available credits and permitted impacts for each resource type, including types of credits debited, all additions and subtractions of credits, and any other changes in credit availability (e.g., additional credits released, credit sales suspended). This ledger report must be submitted to the USACE and IRT on an annual basis as part of the annual report. The ledger report will serve as part of the administrative record for the mitigation bank.

XVII. Default and Closure Provisions

This section should describe the default and closure provisions. Please include the following in your BI:

If at any time the IRT determines that one or more of the performance standards are not or will not be met, the Bank Sponsor fails to complete the required maintenance and/or monitoring in any given year, the Bank Sponsor fails to implement the Adaptive Management Plan (as required) or the Bank Sponsor fails to respond to written USACE notice of deficiencies within 120 days, the IRT may terminate the BI and the Grantee of the Conservation Easement may draw on the Long-Term Maintenance Fund for maintenance and monitoring.

If termination of the BI becomes necessary, the Bank Sponsor will continue to be responsible for restoring or creating any bank credits that have already been sold.

With 120 days notice, the Bank Sponsor can terminate the BI if enough credits have been successfully restored at the mitigation banks site to cover all sold credits.

XVIII. Reporting Protocols

This section should describe the reporting protocols. Information obtained during monitoring of the bank site must be supplied to each member of the IRT to be used for the certification of the credits available in the bank and to assess the restoration success. Please include the following in your BI:

A. The Bank Sponsor and IRT will jointly inspect the site on an annual basis until all the wetland credits are sold or this BI is terminated. During those years in which, a) all or required portions of the bank site have been determined to have met the required performance standards, and b) the Bank Sponsor has

requested certification of credits, the USACE will prepare a letter stating the credits which are available. This letter will also be used to notify the Bank Sponsor as to the IRT's observations of the site in relation to the performance standards.

B. The Bank Sponsor will prepare a mid-year letter report to each member of the IRT on the status of the bank. This letter report will notify the IRT of any changes to the plan, general status of hydrology and the vegetative communities, and remedial and management measures taken. The mid-year letter report will be submitted to the IRT by July 31 of each year. Photographic documentation at established photo points of the bank's progress will be provided to the IRT in the mid-year report.

C. The Bank Sponsor will prepare an annual report at the end of each year. This report will be submitted to each member of the IRT by December 31st of each year. This report will detail the results of the vegetative and hydrologic monitoring in each vegetative community, a chart showing year-by-year trends with hydrology and vegetation for each vegetative community, concise and effective presentation of the status of the site in relation to each performance standard, the ratios and acreage of each type of vegetative community on the site, data from the groundwater observation wells, representative photos, maps showing all successfully-restored wetlands and all photo locations, the maintenance actions taken by the Bank Sponsor in the previous growing season, and needed maintenance or actions. The first report will also contain a description and plan of all construction, a one-foot contour topography map, the elevation of each monitoring well, planting lists, explanation of any significant deviations from the original design or planting plan, corrective measures, erosion control measures, a map showing the locations of groundwater observation wells, maps showing all areas proposed for buffers and for wetland restoration, and photographs taken at each photo point. The annual report will be completed utilizing the Rock Island District's Standard Mitigation Monitoring Form and according to Regulatory Guidance Letter 08-03: Minimum Monitoring Requirements for Compensatory Mitigation Projects Involving Restoration, Establishment, and/or Enhancement of Aquatic Resources, unless superseded by another USACE-approved preferred method.

D. Once credits will no longer be sold, the Bank Sponsor will submit a final report to the IRT as to the status of the bank and include all items required in the annual report, as well as a statement justifying its closure. If at the end of this period the Bank Sponsor desires to shift the long-term management and/or ownership of this site to another entity, the Bank Sponsor will provide the documentation showing that the new entity accepts the receipt of the site and the Conservation Easement. Any change in long-term management and/or ownership must be approved by the IRT and cannot be made without written approval from the USACE.

XIX. Signatures

This section includes signature and date pages for all signatories. Please include the following signature pages (name for each agency will be provided to you):

Bank Sponsor, Property Owner and Consultant

Colonel, U.S. Army District Engineer

*Director, Water Wetlands and Pesticides Division, U.S. Environmental
Protection Agency*

*Supervisor, Rock Island Ecological Services Field Office, U.S. Fish and
Wildlife Service*

*State Conservationist, USDA Natural Resources Conservation Service
Director, Iowa Department of Natural Resources*

XX. List of Exhibits

ATTACHMENTS

Environmental Reviews for Iowa's Natural Resources

In response to a request for Environmental Review for Natural Resources, the Iowa Department of Natural Resources will search their records for state- and federally-listed endangered or threatened species, rare natural communities, sensitive habitat, and state lands and waters in a proposed project area.

In order to provide a thorough review, a complete request for an environmental review must include:

- ◇ A narrative which describes the proposed project;
- ◇ Current land use details;
- ◇ Legal description (Section, Township, Range) of the project area;
- ◇ A map and/or aerial photo which includes the proposed project area;
- ◇ Additional information such as preliminary plan sets may be helpful in the review process.

To expedite the review of projects with a large physical footprint, such as wind energy developments or pipeline projects, the Iowa Department of Natural Resources recommends that a GIS shape file of the project boundary is included with the request for review. The shape file must be projected in NAD 83, UTM Zone 15N.

The Iowa Department of Natural Resources accepts requests for environmental review via postal mail. Questions about the Environmental Review process may be directed to Ms. Kelly Poole, Program Coordinator, at (515) 281-8967. Please mail the request for an Environmental Review and required information to:

Environmental Review for Natural Resources
Attn: Ms. Kelly Poole
Iowa Department of Natural Resources
502 E. 9th Street
Des Moines, IA 50319-0034

The letter of review does not constitute a permit. Other permits may be required from the Iowa Department of Natural Resources or other state or federal agencies in advance of beginning work on the project.

For more information about state lands and waters, please refer to the Sovereign Lands Construction Permit program webpage www.iowadnr.gov/other/slans.html.

According to Iowa Administrative Code 481A and 481B, a person shall not take, possess, kill, trap or ensnare, transport, import, export, process, sell or offer for sale, buy or offer to buy, nor shall a common carrier transport or receive for shipment, any species plant or animal on the state list.

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

WETLAND RESTORATION

(Ac.)

CODE 657

DEFINITION

The rehabilitation of a degraded wetland or the reestablishment of a wetland so that soils, hydrology, vegetative community, and habitat are a close approximation of the original natural condition that existed prior to modification to the extent practicable.

PURPOSE

To restore wetland function, value, habitat, diversity, and capacity to a close approximation of the pre-disturbance by:

- Restoring hydric soil
- Restoring hydrology (depth, duration, and season of inundation, and/or duration and season of soil saturation)
- Restoring native vegetation (including the removal of undesired species, and/or seeding or planting of desired species)

CONDITIONS WHERE PRACTICE APPLIES

This practice applies only to sites with hydric soil which were natural wetlands that have been previously degraded hydrologically and/or vegetatively, or to sites where hydric soils are covered by fill, sediment, or other deposits.

This practice is applicable only where the natural hydrologic conditions, including the hydroperiods, can be approximated by modifying drainage and/or artificial flooding of a duration and frequency similar to natural conditions.

This practice does not apply to:

- Constructed Wetland (656), intended to treat point and non-point sources of water pollution

- Wetland Creation (658), for creating a wetland on a site which historically was not a wetland
- Wetland Enhancement (659), intended to modify an existing wetland where specific attributes are heightened by management objectives, and/or returning a degraded wetland back to a wetland but to a different type than previously existed on the site

CRITERIA

General Criteria Applicable to all Purposes

The soil, hydrology, and vegetative characteristics existing on the site and the contributing watershed shall be documented before restoration of the site begins.

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

To the extent practicable, upon completion of the restoration, the site shall meet soil, hydrology, vegetation, and habitat conditions of the wetland that previously existed on the site.

The impact of this practice on existing non-degraded wetland functions and/or values will be evaluated.

The water quality of the drainage area shall be suitable for the intended use of the wetland.

Where offsite drainage or the presence of invasive species impact the site, the design shall compensate for these landscape changes (e.g.: increased water depth, berms, or microtopography).

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service State Office or visit the electronic Field Office Technical Guide.

**NRCS, IA
March 2008**

Sites suspected of containing hazardous waste shall be tested to identify appropriate remedial measures. Sites containing hazardous material shall be cleaned prior to the installation of this practice.

Invasive species, federal/state listed noxious plant species, and nuisance species (e.g.: those whose presence or overpopulation jeopardize the practice) shall be controlled on the site. This includes, but is not limited to, the manipulation of water levels or topography to control unwanted vegetation. The establishment and/or use of non-native plant species shall be discouraged.

Establish vegetative buffers around the wetlands to reduce the movement of sediment and soluble and sediment-attached substances carried by runoff. Use Filter Strip (393) to determine the minimum width of the vegetative buffer.

Dikes and excavated areas shall be shaped in a manner that is compatible with the existing landscape. For excavated areas leave ground surface as irregular as possible.

Criteria for Hydric Soil Restoration

Restoration sites will be located on hydric soils.

If the hydric soil is covered by fill, sediment, spoil, or other depositional material, the material covering the hydric soil shall, to the extent practicable, be removed.

Criteria for Hydrology Restoration

The hydrology (including the timing of inflow and outflow, duration, and frequency) and hydroperiod of the restored site shall approximate the conditions that existed before alteration. This includes effects to hydrology restoration caused by roads, ditches, drains, terraces, etc., within the watershed.

Any existing surface or subsurface drainage systems that would affect or be affected by the wetland shall be located and measures taken to determine the extent of those systems.

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

The work associated with the wetland shall not adversely affect adjacent properties or other water users, the capacity of drainage systems on other properties, and shall not back surface water onto an adjoining property or restrict the capacity of adjacent subsurface drainage

systems unless authorized through a written easement, permit, or equivalent legal document.

A natural water supply shall be used to reestablish the site's hydrology that approximates the needs of the wetland type. If this is not possible, an artificial water supply can be used to approximate natural hydrology; however, these sources shall not be diverted from other wetland resources (e.g.: prairie pothole wetland complexes or springs).

To the extent practicable, re-establish topographic relief and/or microtopography. Use reference sites within the area to determine desired topographic relief.

Excavations from within the wetland shall remove post-settlement deposition to approximate the original topography and/or microtopography or a water level will be established that will compensate for the sediment that remains.

Criteria for Vegetative Restoration

Hydrophytic vegetation established shall be of species typical for the wetland type(s) being restored. Preference shall be given to native wetland plants with localized genetic material.

Vegetative establishment shall address species, functional, and structural diversity.

Where known nutrient and pesticide contamination exists, the species selected will be tolerant of these conditions.

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

Where planting and/or seeding is necessary, the minimum number of native species to be established shall be based upon the type of vegetative communities present in reference wetlands and the vegetation type planned:

- Where the dominant vegetation will be herbaceous community types, a subset of the original vegetative community shall be established within 5 years; or, a suitable precursor to the original community will be established within 5 years that creates conditions suitable for the establishment of the native community. Species richness and evenness shall be addressed in the planning of herbaceous communities.

- Where the dominant vegetation will be forest or woodland community types, vegetation establishment will include a minimum of six species.

Seeding rates shall be based upon percentage of pure live seed that shall be tested within 6 months of planting.

Ensure that the approved seeding mixture does not include weed species and invasive species (e.g.: reed canarygrass).

Applicable guidelines for hydrophytic vegetation establishment can be found in Iowa Biology Technical Note 9, Iowa Biology Job Sheet 3, Conservation Cover (327), Tree/Shrub Establishment (612), Restoration and Management of Declining Habitats (643), Wetland Wildlife Habitat Management (644), and NEH, Part 650, Chapter 13.

If uplands are planned as part of a wetland creation, then native seedlings shall be used for these areas as well. Refer to Conservation Cover (327) for herbaceous restorations, or Tree/Shrub Establishment (612) and Upland Wildlife Habitat Management (645) if trees and/or shrubs are desired.

Where topsoil will be used as a seedbank, topsoil shall not be stockpiled prior to redistribution during the summer. For other periods, topsoil shall only be stockpiled in a manner that limits deterioration of viable plant parts and seeds. Refer to NEH, Part 650, Chapter 13, for guidance.

To decide if natural revegetation is appropriate, refer to NEH, Part 650, Chapter 13, for natural regeneration decision keys. Where natural revegetation is chosen and pre-identified selected species should dominate within 5 years, sites may be left to revegetate naturally.

Deep tillage or other methods shall be used to expose the buried seedbank or bring the buried seedbank to the surface. If a site has not become dominated by the targeted species within 5 years, active forms of revegetation may be required.

DESIGN CRITERIA

Subsurface Drain Plugging or Removal.

The effects of the subsurface drainage system may be eliminated by one or a combination of the following:

- Removing or rendering inoperable a portion of the drain at the downstream edge of the site
- Modifying the drain with a water control device
- Replacing the drain with non-perforated pipe throughout the wetland site
- Outletting the drain above the wetland area
- Routing the drain around the wetland area

Subsurface drains shall be removed or rendered inoperable throughout the wetland. The maximum spacing between tile breaks can be determined by the following formula:

$$\text{Tile Break Spacing} = \text{Drain Depth} \div (2 \times \text{Grade})$$

Where:

Tile Break Spacing - Distance between subsurface interval breaks (feet)

Drain Depth - Depth of subsurface drain flow line below the ground surface (feet)

Grade - Grade of subsurface drain (feet/foot)

In no case shall the tile break spacing exceed 1500 feet. The minimum length of drain to be removed or rendered inoperable at each tile break is shown in Table 1.

Table 1. Length of Drain Removed, Rendered Inoperable, or Conduit Installed

Permeability** (inches per hour)	Minimum Length (feet)
Greater than 2.0	150
0.6 – 2.0	100
Less than 0.6	50

** Permeability is for the profile above the drain flow line. When the permeability varies throughout the profile, determine the type of drainage system and which layer(s) are critical. Standard values for permeability for each soil map unit can be found in the county soil survey or the Field Office Technical Guide.

Where dikes will be constructed over existing drains, all subsurface drains shall be removed starting at the minimum distance downstream of the dike centerline shown in Table 1, and extending an additional 15 feet upstream from the upstream toe of the dike.

All envelope, filter, or flow enhancing material shall be removed within the length specified for drain removal. If the downstream removal distance is not possible the subsurface drain shall be removed as far downstream as possible and extend upstream the minimum distance as shown in Table 1.

The trench constructed to remove the subsurface drains shall be backfilled in 12-inch lifts and compacted with similar soil so as to obtain a density of not less than the adjacent natural soils.

Disconnected subsurface drains leaving the wetland shall be removed for the distance shown in Table 1 and the ends blocked or connected to a water control structure as provided in the section "Water Control Structures." The ends of remaining disconnected subsurface drains shall be capped.

If the drain is routed around the wetland and perforated tubing or drain tile is used, the drain shall be located so that it has no lateral effect on the wetland area. This minimum offset distance from the wetland shall be determined by scope and effect equations. Refer to NEH, Part 650, Chapter 19.

Shallow Water Excavation. Shallow water excavations may be used to restore irregular ground features and varying inundation periods. Refer to NEH, Part 650, Chapter 13, and Biology Technical Note 24.

To accomplish this, shallow water excavations shall have a variety of depths which range from ground level to a maximum depth of four feet. For shallow water excavations in areas with buried hydric soils the overburden can be removed to the surface of the original hydric soil.

A minimum of 2/3 of the shallow water excavation shall have water depths of 0 to 18 inches. The remainder of the excavation may be deeper if needed to meet the objectives of the restoration.

At least 50 percent of the excavated area shall have side slopes of 6:1 or flatter. The remaining side slope area shall not be steeper than 3:1. Side slope grades may be as gentle as 10:1 or flatter if site conditions allow, based on desired species management goals and objectives. Leave ground surface as irregular as possible.

Shallow water excavations shall be irregularly shaped to increase the edge and provide

additional cover for wildlife utilizing the site. Design shallow water excavations with a variety of shapes and depths. Wetland complexes may be created by linking shallow water excavations with level swales, if their use meets the goals of the restoration. Swales shall have irregular cross sections similar to natural stream channels. Space shallow water excavations from 200 to 800 feet apart. Meander the connecting level swales.

Spoil material shall be placed adjacent to the excavation in low, irregular mounds not more than three feet high. Mounds shall be discontinuous, placed on either side of the swale or shallow water excavation, and shall be done so as to blend with surrounding ground and accentuate irregular ground features. When applicable, either nesting islands or loafing areas may be constructed in shallow water excavation areas. Refer to Iowa Biology Technical Note 19.

Wetland Dikes. Provisions shall be made to store, pass, or divert the flow from the minimum design storm as shown in Table 2 so that it does not cause erosion or flooding impacts on non-wetland areas.

Dikes shall meet the requirements of Dike (356) and shall only be used to restore original drainage patterns or overcome the effects of sedimentation.

Dikes with an effective height greater than 10 feet shall be designed using the criteria for Pond (378) or Grade Stabilization Structure (410).

Where man-made or man-enhanced drainage features were constructed to drain or to prevent water from entering a wetland, the drainageway will be filled with earth, rendered inoperable, or controlled with a water control structure to restore the wetland hydrologic conditions. Ditch plugs shall be designed and constructed according to criteria established for Dikes (356).

Flow over the top of the ditch plug may be used in limited cases. All of the following conditions must be met for flow over the ditch plug to be allowed:

- Drainage area < 50 acres
- No trickle flow
- Fill height < 5 feet, and

- Stable grade downstream

In these cases, use a minimum top width of 30 feet, 3:1 upstream slopes, and 10:1 or flatter downstream slopes.

Principal Spillway. A principal spillway shall be provided to control the storm as indicated in Table 2 and shall meet the requirements of Structure for Water Control (587). The minimum pipe conduit size is listed in Table 2. The inlet elevation of the principal spillway shall be such that the principal spillway flows at full pipe flow before the vegetated spillway operates. In no case shall the difference in elevation between the principal and vegetated spillway be less than 0.5 foot.

Vegetated Spillway. The vegetated spillway shall be designed to safely control the flow from the storm as shown in Table 2. Use of vegetated spillways in natural low areas without shaping is desirable since established vegetation is not disturbed. A natural or excavated spillway shall have a minimum 10 foot bottom width. Refer to NEH, Part 650, Chapter 11 for design procedures.

Floodplain Wetland Dikes. In addition to the Dike (356) criteria, dikes located on a floodplain where overtopping of the dike by flow from the floodway into the wetland is likely may have the vegetated spillway area on level natural ground, in excavation, or on compacted fill. Vegetated spillways shall be at least 100 feet wide and have a crest length of at least 25 feet.

Compacted fill spillways shall meet the following criteria:

- Height of spillway crest to downstream toe is 2 feet or less
- Design flow depth of 0.5 feet or less
- Inlet and outlet slopes shall be 5:1 or flatter
- Mulching of spillway is required

The dike for a distance of 50 feet on each side of the principal spillway or water control structure shall have an additional 1 foot of overfill added to the constructed height to protect the control structure from damage by the overflow water.

The vegetated spillway shall be located in a position that minimizes the likelihood for flood flows from the stream system to damage the dike, water control structure, and vegetated spillway.

Water Control Structures. Water control structures shall only be used to recreate natural hydrologic patterns or to allow management and maintenance of the desired community. Wetland control structures shall meet the requirements of Structure for Water Control (587).

Mechanical outlets serve the purpose of maintaining a desired water level and reducing damage caused by storm runoff and trickle flow. A water control structure may also include devices for manipulating the water level in the wetland such as stop-logs or valves.

Natural drawdown through evapotranspiration is a natural and often desirable process rather than regulating water levels with water control structures. Drawdown of permanent storage is often necessary or desirable to manage wetlands.

A drawdown pipe shall be designed to accomplish management objectives in a timely manner. Any drawdown device shall be situated so that the entire pool area is not drained down even if the drawdown structure is completely open. For additional information on drawdown timing see Iowa Biology Technical Note 20.

If base flow - which may include seepage, subsurface drainage or spring flow - exists, a trickle tube or water control structure shall be provided. Base flow is designed as the greater of 1) the quick return flow [see NEH, Part 650, Chapter 2] or 2) the capacity of the intercepted subsurface drainage system. A trickle tube shall have a minimum diameter of 4 inches.

Non-perforated conduits shall be used downstream of a water control structure for distances as shown in Table 1 and under any dike. The connections of the water control structure and non-perforated conduit will be watertight for the pressure developed at the maximum pool level.

CONSIDERATIONS

Consider the effect of this practice on pollutant fate and transport in surface and ground water.

It is expected that for wildlife purposes planting density and stocking rates will generally be lower than for production purposes, and that the selection of species will generally be different than those used for production purposes.

Consider adding 1 to 2 dead snags, tree stumps, or logs per acre to provide structure and cover for wildlife. As an additional carbon source for food chain support, detrital material can be spread throughout the basin.

Deep tillage or other methods can be used to expose the buried seedbank or bring the buried seedbank to the surface.

Consider manipulation of water levels to control unwanted vegetation or to enhance desirable vegetation.

Consider impact that water surface draw-downs will have on concentrating aquatic species such as turtles into diminished pool area resulting in increased mortality.

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 the effect restoration 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 aquatic species to move in and out of the wetland.

Consider establishing herbaceous vegetation by a variety of methods over the entire site or a portion of the site and at appropriate densities and depths.

Consider effects on wetlands and water-related resources, including fish and wildlife habitats, which would be associated with the practice.

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.

For discharge wetlands, consider underground upslope water and/or groundwater source availability.

Consider microtopography and hydroperiod when determining which species to plant.

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

PLANS AND SPECIFICATIONS

Plans and specifications for this practice shall be prepared for each site. Specifications for installing structures for water control shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

Specifications shall be recorded using approved specifications sheets, job sheets, narrative statements in the conservation plan, or other documentation.

The following list of Construction Specifications is intended as a guide to selecting the appropriate specifications for each specific project. The list includes most, but may not contain all, of the specifications that are needed for a specific project:

- IA-1 Site Preparation
- IA-3 Structure Removal
- IA-5 Pollution Control
- IA-6 Seeding and Mulching for Protective Cover
- IA-9 Drainage Tile Investigation and Removal
- IA-11 Removal of Water
- IA-13 Sheet Piling
- IA-21 Excavation
- IA-23 Earthfill
- IA-26 Topsoiling
- IA-27 Diversions
- IA-45 Plastic (PVC, PE) Pipe
- IA-46 Tile Drains for Land Drainage
- IA-51 Corrugated Metal Pipe
- IA-52 Steel Pipe Conduits
- IA-61 Loose Rock Riprap
- IA-81 Metal Fabrication and Installation
- IA-83 Timber Fabrication and Installation
- IA-95 Geotextile

OPERATION AND MAINTENANCE

An operation and maintenance (O&M) plan will be prepared for each wetland site.

Specified actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance). If applicable, the

following activities shall be addressed in the plan:

- Timing and level setting of water control structures required for establishment of desired hydrologic conditions or for management of vegetation. Refer to Iowa Biology Technical Note 20
- Inspection schedule of dikes and structures for damage assessment
- Depth of sediment accumulation allowed before removal is required
- Management needed to maintain vegetation, including control of unwanted vegetation in and around the wetland area
- Acceptable uses and timing (e.g.: grazing and haying)

Any use of fertilizers, mechanical treatments, prescribed burning, pesticides, and other chemicals shall assure that the intended purpose of the wetland restoration shall not be compromised.

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

REFERENCES

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Table 2. Wetland Dike Spillway Requirements^{1/}

	Drainage Area (Acres)	Minimum Conduit Diameter (Inches)	Maximum Storage Capacity (Acre-Feet)	Effective Fill Height (Feet)	Minimum Design Frequency (24-hr. Duration Storm)		Minimum Vegetated Spillway Depth (Feet)
					Principal Spillway (Year)	Vegetated Spillway (Year)	
Iowa NRCS Design Criteria	0 – 20	4	≤ 50	0 – 5 5 – 10	--- ^{2/} --- ^{2/}	10 10	1 1
	20 – 80	6	≤ 50	0 – 5 5 – 10	--- ^{2/} 2 ^{3/}	10 10	1 1
	80 – 250	10	≤ 50	0 – 5 5 – 10	--- ^{2/} 2 ^{3/}	25 25	1 1
	0 – 250	12	> 50	0 – 5 5 – 10	2 ^{3/} 5	50 50	1 1
	250 – 1000	15	≤ 50	0 – 5 5 – 10	2 ^{3/} 10	50 50	1 1
	250 – 1000	15	> 50	0 – 5 5 – 10	5 10	50 50	1 1
	≥ 1000	15	-----	0 – 5 5 – 10	5 10	50 50	1 1
IDNR Dams	< 250	12 ^{4/}	-----	-----	10	50	1
	≥ 250	18 ^{4/}	-----	-----	25	50	1
^{1/} If a DNR permit is required, more restrictive criteria may apply. ^{2/} Mechanical Spillway not required unless continuous base flow exists. ^{3/} The principal spillway capacity need not exceed the capacity of the D drainage curve, see NEH, Part 650, Chapter 14. ^{4/} These are guidelines set by IDNR. The NRCS requirement for pipe size is normally acceptable.							