



**US Army Corps
of Engineers**
St Paul District

Public Notice

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DRAFT UPDATE TO THE 2002 INTERAGENCY GUIDELINES FOR WETLAND COMPENSATORY MITIGATION IN WISCONSIN (GUIDELINES)

I. PURPOSE OF THIS PUBLIC NOTICE. The purpose of this public notice is to solicit public comment on the draft compensatory mitigation guidelines for Wisconsin. The draft guidelines are available online at: <http://www.mvp.usace.army.mil/Missions/Regulatory/SpecialNotices.aspx>

II. BACKGROUND. The St. Paul District Corps of Engineers Regulatory Branch (Corps), together with the Wisconsin Department of Natural Resources (WDNR), is proposing to update the 2002 Guidelines for Wetland Compensatory Mitigation in Wisconsin. The United States Environmental Protection Agency (USEPA) Region V, the United States Fish and Wildlife Service (USFWS) Midwest office, and the United States Natural Resources Conservation Service WI office were invited to participate in the preparation of these updated guidelines.

The draft guidelines are intended for agency personnel, mitigation bank sponsors, permit applicants, and others involved in the identification, planning, crediting, and construction of wetland compensatory mitigation sites. The draft guidelines have been developed in accordance with state and federal law are intended to meet or exceed requirements contained in the federal mitigation rule (33 CFR 332), the 404(b)(1) guidelines (40 CFR 230), and WDNR requirements in Section 281.36 of the Wisconsin Statutes, Chapter NR 350 of the Wisconsin Administrative Code, and 2011 State of Wisconsin Act 118.

The objective of the draft guidelines is to provide a clear and predictable framework for planning and implementing wetland compensatory mitigation projects. However, final decisions regarding the suitability of a particular compensatory mitigation proposal are made on a project-by-project basis at the discretion of the permitting agencies with authority over a proposed wetland fill activity. While intended to be a cohesive set of guidelines, each permitting agency must ultimately make these decisions independently to fulfill their specific program needs.

III. ADDITIONAL INFORMATION. Questions may be directed to Mrs. Rebecca Graser in our Waukesha office at (262) 717-9531, extension 3. Inquiries and comments may be mailed to: Regulatory Branch, St. Paul District, Corps of Engineers, 180 Fifth Street East, St. Paul, Minnesota, 55101. To receive a paper copy of the complete public notice by mail, please contact or the wetland permit line at 651-290-5525 or (800) 290-5847, Option 3 (Questions about the St. Paul District), Option 2 (Information on Wetland Permits).

FOR THE DISTRICT ENGINEER:

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Chief, Regulatory

Guidelines for
Wetland Compensatory Mitigation
in Wisconsin

Draft February 2013

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1) INTRODUCTION

The fundamental objective of wetland compensatory mitigation is to offset unavoidable adverse impacts to wetlands authorized by the United States Army Corps of Engineers (USACE) and/or the Wisconsin Department of Natural Resources (WDNR). The USACE and WDNR have drafted this document to update the 2002 Guidelines for Wetland Compensatory Mitigation in Wisconsin. The United States Environmental Protection Agency (USEPA) Region V and the United States Fish and Wildlife Service (USFWS) Midwest office are participating in the preparation of these updated guidelines.

This document establishes guidelines for required compensatory mitigation for permitted wetland impacts in Wisconsin. These guidelines are intended for agency personnel, mitigation bank sponsors, permit applicants, and others in meeting the Department of the Army (DA) requirements of Section 404 of the Clean Water Act including the United States Environmental Protection Agency 404(b)(1) Guidelines at 40 Code of Federal Regulations (CFR) Part 230, and the April 2008 Federal Rule - Compensatory Mitigation for Losses of Aquatic Resources found at 33 CFR Part 332 (Federal Mitigation Rule), Section 10 of the Rivers and Harbors Act, and WDNR requirements in Section 281.36 of the Wisconsin Statutes, Chapter NR 350 of the Wisconsin Administrative Code, 2011 State of Wisconsin Act 118, as well as other applicable federal and state statutes, regulations, guidelines, and ordinances. This document only applies to wetland compensatory mitigation; however, federal law requires consideration of compensatory mitigation for all aquatic resource impacts, not just wetlands – including open water systems such as rivers, streams, ponds, and lakes.

The objective of the wetland compensatory mitigation guidelines is to guide the establishment of successful compensatory mitigation projects. This will be accomplished by describing standards and criteria for development for all types of wetland compensatory mitigation projects. These guidelines are meant to provide consistency to the wetland compensatory mitigation process, but do not supersede established agency rule or law. Final decisions are made on a case-by-case basis at the discretion of the permitting agencies (USACE and/or WDNR) with authority over a given wetland activity.

Further, the guidelines should not be construed to provide opportunities to circumvent other aspects of a permitting agency's review. Both the USACE and WDNR require that all proposed projects avoid and minimize wetland impacts to the maximum extent practicable. Agency regulations presume that most proposed projects (non-water dependent projects) can avoid wetland impacts. To obtain authorization, this presumption must be overcome by the permit applicant. Only after all efforts are made by the permit applicant to avoid and minimize adverse wetland impacts, compensatory mitigation actions are taken to offset unavoidable impacts. These guidelines are focused on this step of permitting agency review.

Federal and state laws direct the agencies to utilize a watershed approach to guide the selection of compensatory mitigation location, and the functions and services the

mitigation should provide. Additionally, permitting agencies will require measurable, consistent, and enforceable ecological performance standards regardless of the type of compensatory mitigation pursued (bank, permittee-responsible, etc).

In Wisconsin, wetland compensatory mitigation may be carried out by one or more of the following five methods: re-establishment of a former wetland, rehabilitation or enhancement of existing wetlands, creation of new wetlands, preservation of ecologically important or threatened wetlands, and establishing vegetated buffers.

State permits and federal authorizations (hereafter referred to as permits) for wetland impacts often require wetland compensatory mitigation. The following two mechanisms may be used to fulfill this requirement: 1) the permittee purchases credits from an approved wetland mitigation bank; or 2) the permittee is responsible for completing a compensatory mitigation project within the watershed or within a half mile of the permitted wetland impacts. State and federal laws additionally describe compensatory mitigation through an in-lieu fee program; however, as of the date of this guidance such a program does not exist in Wisconsin.

2) COMPENSATORY MITIGATION APPROACHES

A. Early Consultation

Those planning to impact wetlands should consult with the USACE, the WDNR, and their local governmental agencies to determine if mitigation is required for the proposed project. Final decisions regarding the suitability of the proposed method, mechanism, and wetland type selected to complete required compensatory mitigation lies with the appropriate permitting agencies.

B. Mechanisms for Providing Wetland Compensatory Mitigation

When considering options for successfully providing compensatory wetland mitigation, consider the options presented in B.1 and B.2 below. In general, compensatory mitigation should be located within the same watershed as the impact site, and should be located where it is most likely to successfully replace lost functions and services, taking into account such watershed scale features as aquatic habitat diversity, habitat connectivity, relationship to hydrologic sources (including the availability of water rights), trends in land use, ecological benefits, and compatibility with adjacent land uses. Finally, implementation of compensatory mitigation should be concurrent with, or in advance of, the activity causing the authorized wetland impacts to limit temporal losses of wetland functions and services which may result from the permitted activity but after the proposed mitigation has been approved by the necessary state and/or federal agencies.

A permittee may choose from the following two options at the discretion of the permitting authorities.

1. *Purchasing Credits from a Mitigation Bank* (see Chapter 3.A for details)

2. *Development of a Permittee-Responsible Mitigation Site* (see Chapters 3.B, 4, and 5 for details)

C. The Watershed Approach

The watershed approach to compensatory mitigation is fundamental to the Federal Mitigation Rule. It serves as the driving principle for compensating unavoidable adverse impacts to wetlands due to authorized activities. A watershed approach considers the importance of landscape position and resource type of compensatory mitigation projects for the sustainability of wetland resource functions and services within the watershed. Mitigation plans should not focus exclusively on specific functions and services (e.g., water quality or habitat for certain species) but should provide, where reasonable, the suite of functions and services typically provided by the affected wetland resource.

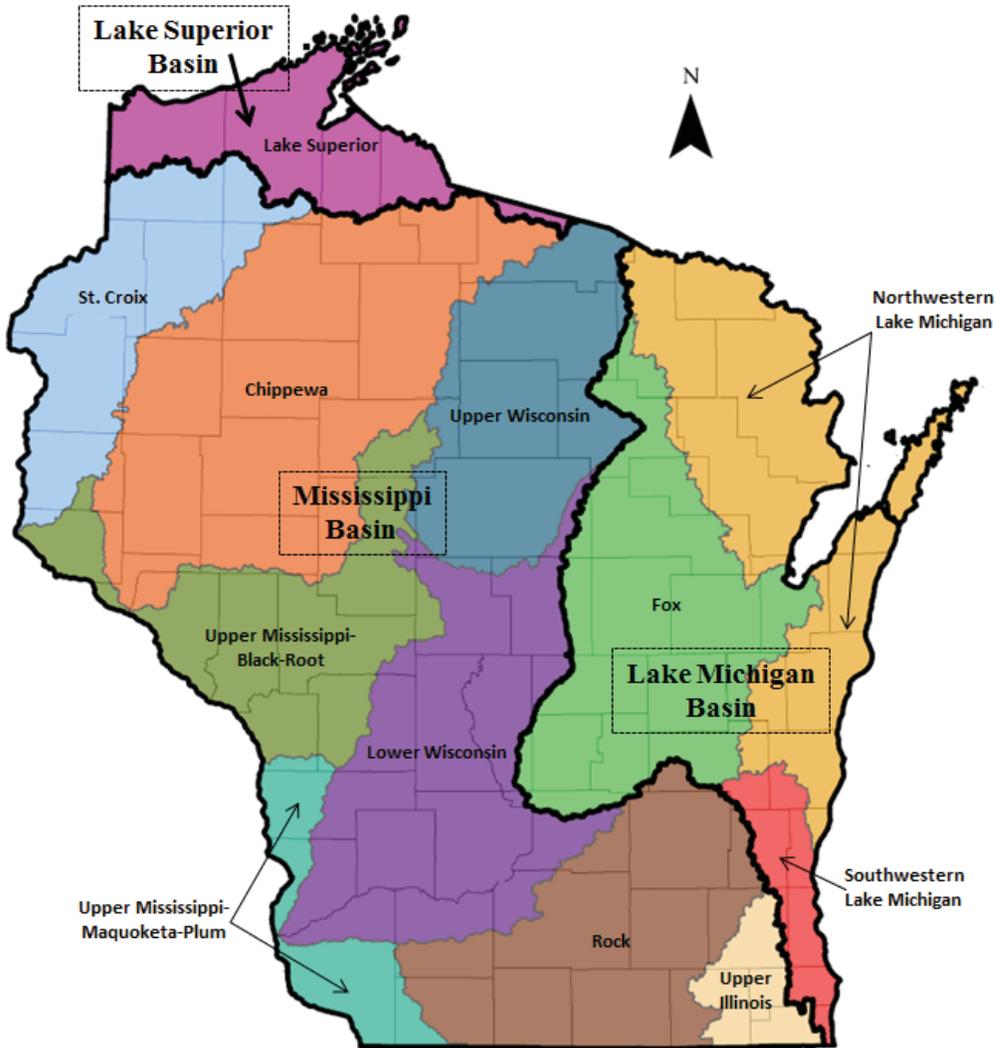
Compensatory mitigation should take into account a variety of factors, including but not limited to: the habitat requirements and presence of target species, sources of watershed impairment, habitat loss or conversion trends, the cumulative impacts of past

development activities, and current development trends. It should also consider site conditions that favor or hinder the success of the mitigation such as chronic environmental problems (e.g., flooding or poor water quality) or the requirements of other regulatory and non-regulatory programs that affect the watershed, such as storm water management or conservation programs.

1. Locational Considerations

For the purposes of the Wisconsin compensatory mitigation program, permitting agencies will use modified 6-digit HUC watersheds to delineate the bank service areas (BSAs) and permittee-responsible search areas (portrayed by color blocks in Figure 2.1 below). The modified 6-digit HUC BSAs and permittee-responsible search areas are then grouped into three 4-digit HUC water basins: the Lake Superior Basin, Lake Michigan Basin, and Mississippi Basin.

FIGURE 2.1: Bank Service Area 6-Digit and 4-Digit HUC Watersheds of Wisconsin (map)



2. In-Kind Mitigation is Preferred Over Out-of-Kind

In-kind compensation has the highest potential to replace lost functions and services; therefore, federal and state agencies first strive for in-kind compensation.

The location, acreage and type of wetland that would be impacted by an authorized project inform compensation requirements. Ten wetland types are used when considering what is in-kind. These types are the eight wetland plant communities and two sub-types defined in Eggers and Reed (2011)¹: 1) shallow, open water, 2) marshes, 3) sedge meadows, 4) inland fresh meadows, 5) fens, 6) bogs, 7) shrub swamps, 8) wooded swamps, 9) floodplain forests, and 10) seasonally flooded basins. These communities are described briefly in Figure 2.2 and in detail in Appendix G. The permitting agencies give preference to compensatory mitigation that is of the same type of wetland as the type impacted in the permitted activity. Purchasing or developing credits out-of-kind (with a different wetland cover type than the impacted wetland) may be approved by the permitting agencies but are often subject to a higher replacement ratio (see Chapters 3.A and 3.B). Mitigation bank sponsors are responsible for tracking the number of credits of each of these ten types available for sale and shall provide the USACE updates to load into the RIBITS (Regulatory In-lieu fee and Bank Information Tracking System) website.

FIGURE 2.2: Ten Plant Community Types to Use in Determining In-Kind Mitigation

In-Kind Wetland Types	Wetland Plant Community Types	General Description	Wisconsin Wetland Inventory Classification
1) Shallow, Open Water	Shallow, Open Water	Permanent to semi-permanent water depths to 6.6 feet; submergent floating, and floating-leaved vegetation	Aquatic bed, submergent and floating
2) Marshes	Deep Marsh	Permanent to semi-permanent water depths of 6 inches to 3 feet; Submergent, floating, floating-leaved and emergent vegetation	Aquatic bed, submergent and floating; and persistent and non-persistent, emergent
	Shallow Marsh	Seasonal inundation to 6 inches; emergent aquatic vegetation (e.g., cattails)	Persistent and non-persistent, emergent
3) Sedge Meadows	Sedge Meadow	Saturated soils; dominated by sedges (<i>Cyperaceae</i>)	Narrow-leaved persistent, emergent/wet meadow
4) Inland Fresh Meadows	Fresh (Wet) Meadow	Saturated soils; dominated by forbs and perennial grasses	Broad- and narrow-leaved persistent, emergent/wet meadow
	Wet to Wet-Mesic Prairie	Saturated soils; dominated by prairie grasses and forbs (e.g., prairie cord-grass); rare	Broad- and narrow-leaved persistent, emergent/wet meadow
5) Fens	Calcareous Fen	Organic soils saturated by upwelling, calcareous springs/seepages; calcium-tolerant species are characteristic; rare	Narrow-leaved persistent, emergent/wet meadow; and broad-leaved deciduous, scrub/shrub

¹ Eggers, Steve D., and Donald M. Reed. 2011. Wetland Plants and Communities of Minnesota and Wisconsin, Third Edition. U.S. Army Corps of Engineers, Regulatory Branch St. Paul District. 478 pp.

6) Bogs	Open Bog or Coniferous Bog	Saturated sphagnum moss mat; sedges, evergreen shrubs (e.g., Labrador tea) and/or black spruce and/or tamarack	Moss; broad-leaved evergreen, scrub/shrub; and needle-leaved deciduous and evergreen, forested
7) Shrub Swamps	Shrub-Carr or Alder Thicket	Saturated to seasonally inundated soils; dominated by hydrophytic shrubs (e.g., willows, speckled alder, dogwoods)	Broad-leaved deciduous, scrub/shrub
8) Wooded Swamps	Hardwood Swamp or Coniferous Swamp	Saturated to seasonally inundated soils; dominated by conifers (e.g., northern white cedar) or hardwoods (e.g., black ash)	Broad-leaved deciduous, forested; and needle-leaved deciduous and evergreen, forested
9) Floodplain Forests	Floodplain Forest	Temporarily inundated, alluvial soils of floodplains; dominated by deciduous trees (e.g., silver maple)	Broad-leaved deciduous, forested
10) Seasonally Flooded Basins	Seasonally Flooded Basin	Temporarily inundated flats or basins; often dominated by annuals (e.g., smartweeds)	Flats/unvegetated wet soil; and persistent and non-persistent emergent/wet meadow

3) COMPENSATION REQUIRED TO OFFSET ADVERSE IMPACTS

This chapter identifies the number of credits needed for applicants to satisfy compensatory mitigation requirements. Compensatory mitigation requirements are determined on a project-by-project basis to ensure that wetland functions and services provided by the compensation employs the watershed approach. As a matter of public service, the USACE and WDNR will strive to ensure that the mechanism and methods for providing compensatory mitigation are consistent between the agencies.

A. Debiting Credits from an Approved Bank

If the applicant plans to purchase credits from an approved mitigation bank, the proposal must be approved by the permitting agencies. The WDNR maintains a registry of approved bank sites on its web site (<http://dnr.wi.gov>) and the USACE maintains a list of compensatory mitigation banks and credit ledger information on its RIBITS website (<http://geo.usace.army.mil/ribits/index.html>).

Section 3.A.1 below provides information about the compensation replacement ratio (the method for determining the number of credits needed for an applicant to meet the compensation obligation). The permitting agencies will inform the applicant of the wetland type and number of credits of compensation required. A signed Affidavit of Bank Credit Purchase (see Appendix F) must be provided to the permitting agencies per their program requirements; the affidavit may be required prior to issuance of a permit.

The bank site debited should be located as near as possible to the location of the impacted wetland considering a watershed approach. All banks in Wisconsin have bank service areas (BSAs) that guide decisions regarding the suitability of a bank site relative to the watershed location (see Figure 2.1 for a map of modified 6-digit HUC watersheds utilized as BSAs in Wisconsin). The permitting agencies will usually approve in-kind debits from a bank when the permitted fill impacts are located in the banks BSA. In instances where an applicant proposes to debit from a bank outside its BSA, the permitting agencies will consider the merit of the request, which may be subject to higher debiting ratios if approved. Permitting agencies also retain the discretion to approve or deny the purchase of out-of-kind credits, and any approval may be subject to higher debit ratios than if purchasing in-kind credits. Advance coordination with permitting agencies is necessary for such transactions.

1. Bank Credit Purchase Compensation Replacement Ratio

In general, the base compensation replacement ratio is 1.2:1. This ratio presumes replacement is within the BSA, in-kind, in advance, and that the wetland type compensated for is not rare, subject to historic losses, or difficult to replace. Inability to offset all the factors above results in additions to the base ratio. Typical ratios for credit purchases are given in Figure 3.1 below. Provided the impact lies within the BSA for a bank with an executed MBI and in-kind credit available, a base compensation ratio of

1.2:1 is generally applied. Decisions on which bank is used and the number of credits required are made by the permitting agencies. If the bank is located in a different BSA (see Figure 2.1) the base ratio will be increased by a minimum of 0.25. If the credits approved for purchase are not in-kind (see descriptions of the ten cover types in Chapter 2.C.2.) relative to the impacted wetland, the base credit ratio will generally be increased by 0.25 credits per acre impacted.

Figure 3.1: General Compensation Replacement Ratios for Bank Credit Purchases

Impacted Wetland Cover Type	Base Ratio* (Credits Required : Wetland Acres Impacted)	Adjustments to Base Ratio	
		Outside the BSA	Out-of-Kind Compensation
Herbaceous	1.2 : 1	+ 0.25	+ 0.25
Shrub/Scrub			
Forested			

* Base ratios assume the mitigation is in-kind, in-place, in-advance, and that the wetland impacted is not rare, subject to historic loss, or difficult to replace. If the impacted wetland is located outside of the banks BSA, the permittee will be required to add a minimum of 0.25 to the base ratio. If compensation is out-of-kind, the permittee will be required to add a minimum of 0.25 to the base ratio. In rare cases, debits required by the permitting agencies may exceed the ranges shown.

2. Responsibilities of the Permittee

The permit applicant must obtain approval from the permitting agencies as to the number of credits to be purchased, type of credits to be purchased, and the approved bank to debit credits from. Once the plan to purchase credits is approved by the agencies, the permittee must purchase the required credits and provide a copy of the Affidavit of Bank Credit Purchase signed by the permittee and the bank sponsor to the WDNR Mitigation Coordinator and the USACE Regulatory Project Manager. By debiting from an approved mitigation bank, the permittee transfers responsibility to provide mitigation to the bank sponsor.

B. Determining Permittee-Responsible Mitigation Requirements

Where permitted impacts are not in the same BSA of a mitigation bank that has the appropriate number and in-kind credits available, permittee-responsible mitigation may be the next-best option. Where realistic and likely to be successful and sustainable, the location of the permittee-responsible mitigation should be as close to the permitted loss as possible and shall utilize the principles of the watershed approach as outlined in Chapter 2.C.

Permittee-responsible mitigation must be completed within the same modified 6-digit HUC watershed or within one half mile of the permitted wetland impact (the permittee-responsible search area). Appendix E should be used to guide the applicant in the development of a permittee-responsible compensation site plan (CSP). This plan describes the work and performance standards proposed by the applicant for a given wetland compensatory mitigation site.

Section 3.B.1., below, provides information about the compensation replacement ratio (the method used to determine the number of credits needed for a project applicant to meet the compensation obligation).

1. Permittee-Responsible Mitigation Ratio

The base compensation replacement ratio is 1.2 credits for every 1 acre of impacted wetland communities. Permittee-responsible mitigation almost always requires a ratio higher than the base ratio of 1.2:1 primarily due to landscape position, temporal loss, and site success uncertainties. In cases where appropriate functional or condition assessment methods or other suitable metrics are available, these methods should be used when appropriate to determine how much compensatory mitigation is required, if any, above the minimum ratio.

Federal and state agencies prioritize in-kind compensation. Compensatory mitigation requirements are decided by the permitting agencies on a project-by-project basis to better ensure that wetland functions and services provided meet the watershed approach. If the mitigation is not completed prior to commencing fill activities authorized by the permitting agencies, the base credit ratio will be increased to account for temporal loss by a minimum of 0.25 credits per acre impacted (to 0.5 credits per acre impacted for forested wetlands). If the credits established are not in-kind (see descriptions of the ten cover types in Chapter 2.C.2.) compared to the impacted wetland, the base credit ratio will be increased by a minimum of 0.25 credits per acre impacted.

Figure 3.2: General Compensation Replacement Ratios for Permittee-Responsible Mitigation Projects

		Adjustments to Base Ratio	
Impacted Wetland Cover Type	Base Ratio * (Credits Required : Wetland Acres Impacted)	Temporal Loss	Out-of-Kind Compensation
Herbaceous	1.2 : 1	+ 0.25	+ 0.25
Shrub/Scrub		+ 0.25	
Forested		+ 0.50	

* Base ratios assume the compensation is in-kind, in-place, and in-advance. If compensation is out-of-kind, the applicant will be required to add a minimum of 0.25 to the base ratio. If compensation is not provided in advance of commencing authorized impacts to the wetland (resulting in a temporal loss), the applicant will be required to add a minimum of 0.25 to the base ratio.

The application review process is used to determine the credits necessary to offset the proposed impacts. Restoration is the preferred method, but a permittee-responsible compensation site plan can include creation, enhancement, and/or preservation. It is likely that a combination of methods will be required for any given site proposed. The methods of generating credits used for permittee-responsible projects and mitigation banks can be found in Section 5 below.

Permittee-responsible projects are tied to a specific permitted activity. Credits generated by permittee-responsible mitigation are not eligible for sale, transfer, or use for a future proposed project. If a permittee-responsible mitigation site generates more credits than

are needed to meet the requirements for mitigation as required by the given permit, those credits may not be used for a future permit or for sale or transfer unless they are processed as a bank.

2. Responsibilities of the Permittee

The permittee must receive approval from the permitting agencies on the number of credits generated through the permittee-responsible mitigation process. Once the compensation site plan is approved by the agencies and any required financial assurances are in place, the permittee is responsible for making sure the mitigation site is protected through a conservation easement or comparable legal instrument and the mitigation site is constructed and monitored and managed according to the approved CSP. Throughout the monitoring and management period, the permittee is responsible for making sure monitoring reports are submitted within the timeframes stipulated in their permit(s) and /or approved CSP and that all issues with the site are brought to the permitting agencies' attention and dealt with. The permittee is responsible for the long-term management of the mitigation site which must maintain the mitigation site to the level approved in the long-term management plan. In addition, the legal site protections recorded will remain on the site and will restrict land-use in perpetuity.

4) DETERMINING CREDITS GENERATED BY A COMPENSATION SITE

This chapter describes the compensation crediting ratio to determine the credits generated by a compensation site. Generalized ratio information can be found in Table 4.1 below.

A. Methods of Generating Credits

1. Restoration

Restoration is the preferred compensation method, as it tends to be more successful than other methods. This method includes re-establishment or rehabilitation.

Restoration via re-establishment means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former wetland. Re-establishment results in an increase in wetland acreage. This form of restoration may involve: re-establishing historical hydrology and topography on a site by removing fill; re-grading or re-contouring; filling ditches; removing drainage tile; re-establishing wetland plant communities via site preparation, seeding, and planting; and manipulating water levels to restore hydrology. Credit for restoration via re-establishment is often one credit for each acre restored (1:1), as it results in an increase in wetland acreage. Re-establishment of historic hydrology, land contours, and plant communities typically will generate the highest credit.

Restoration via rehabilitation involves the restoration of historic (pre-European settlement) wetland conditions, functions, and services to the maximum extent practicable. Rehabilitation typically occurs in substantially degraded wetlands adversely impacted by drainage, filling, cultivation, grazing, or other disturbances. Rehabilitation does not yield an increase in wetland acreage. Similar restoration techniques may be utilized to rehabilitate a degraded wetland as described above to re-establish a former wetland. Credit ratios may range from no credit to 1:1.

2. Enhancement

Enhancement activities are conducted in existing wetlands, and result in an appreciable increase in one or more targeted wetland functions and values (but yield no increase in wetland acreage). Enhancement of degraded wetlands (such as mowed or cropped wetlands) may involve: altering existing wetland hydrology and topography on a site by removing fill; re-grading or re-contouring; plugging or filling ditches; breaking drainage tile; altering existing wetland plant communities via site preparation, seeding, and planting; and manipulating water levels.

Enhancement involves activities similar to rehabilitation that are conducted on existing, substantially degraded wetlands; however, rehabilitation focuses on establishing historic wetland conditions, whereas enhancement does not. Credit for enhancement can range from no credit to 0.75 acre of credit for each 1 acre enhanced. The appropriate level of

credit will be determined by the permitting agencies based on a comparison of the current functions and services of the site to the projected functions and services of the completed compensation site.

3. Creation

Creation refers to establishment of a wetland where one did not historically exist (based upon geophysical evidence). Mitigation projects primarily centered upon creation are not preferred because they have historically been proven less successful. Creation along the edges of existing wetlands or in landscape settings that are conducive to improving or creating certain wetland functions and services may be more acceptable.

Typically, only creation that is adjacent to existing wetland and/or fits into the natural landscape will be approved for compensation. Although 1:1 credit (1 acre of establishment generates 1 credit) is possible, due to the poor success and length of time creation takes to establish functioning wetlands, credit ratios for establishment/creation, credit ratios may range from no credit to 1:1.

4. Preservation

Preservation may be used to provide compensatory mitigation only when all the following criteria are satisfied: the resources to be preserved provide important physical, chemical, or biological functions and services for the watershed; the resources contribute significantly to the ecological sustainability of the watershed; the preservation is determined to be appropriate and reasonable; the resources are under demonstrable threat of destruction or adverse modifications; and the site will be protected in perpetuity. Where preservation is used to provide compensatory mitigation, to the extent appropriate and reasonable the preservation should be done in conjunction with restoration, enhancement, and/or creation. However, preservation can constitute the sole source of generating compensatory mitigation at a site with unique characteristics. Crediting ratio is often 0.125:1 (0.125 credits for every 1 acre of preservation).

5. Vegetated Buffers

A minimum amount of vegetated buffer adjacent to wetland compensation sites is required to protect and enhance wetland functions and services. Vegetated buffers may generate credits at 0.1:1 for unimproved or non-native vegetative cover and at 0.25:1 when vegetative cover is enhanced to be dominated by native species. The latter involves restoring native buffer plant communities. Maintenance of buffers is required. Vegetated buffers at a bank site or permittee-responsible site shall not exceed 25% of total credits at that site.

Buffers generally receive credits when they are contiguous and at least 100 feet wide, although the Wisconsin Rapid Assessment Methodology indicates a need for over 300 feet of buffer habitat for wildlife purposes. Higher credit ratios are given to buffers that

are not a monoculture and are dominated by a diversity of native, non-invasive plant species. For additional information on maximizing buffer credit ratios, see Chapter 5.C.

6. No Credit for Stormwater or Wastewater Treatment Facilities

Some innovative facilities have been designed for treating stormwater and wastewater, using designs that create the physical, chemical and biological processes that occur in wetlands. These facilities have been referred to as bioretention basins, biofilters, or constructed wetlands and are considered artificial wetlands. While these facilities may serve an important function in alleviating impacts to natural wetlands and waterways by moderating substantially the bounce in water levels and trapping sediment loads, such single-function wetlands do not meet the intent of compensatory mitigation.

B. Credit Ratios

Credits	Acres	Method
Up to 1.0	1.0	Restoration via Re-establishment
Up to 1.0	1.0	Restoration via Rehabilitation
Up to 0.75	1.0	Enhancement
Up to 1.0	1.0	Creation
Up to 0.25	1.0	Buffer
Up to 0.125	1.0	Preservation

*Final credit ratios may deviate from the above ratios as deemed appropriate by the permitting agencies.

5) COMPENSATION SITE PLANNING AND OPERATION

A. Selecting a Suitable Compensation Site

Permittee-responsible mitigation sites must be within one half mile from the permitted wetland impacts or within the same modified 6-digit HUC (a map of these watershed-based bank service areas and permittee-responsible search areas can be found in Figure 2.1). Suitability of a given site is determined by the permitting agencies. Preference will be given to sites located close to the location of the wetland impacts within the same permittee-responsible search area.

Compensation sites that do not rely on structures that require active maintenance and management are preferred. A compensation site that fits the natural landscape should require less management than a created site in an area that was not previously wetland. If man-made structures are included as part of the design and the site’s long-term viability relies on the structures, the permitting agencies may require some form of endowment or other financial assurance to be used for the maintenance and monitoring of the structure in perpetuity.

Though not applicable to all sites, Figure 5.1 lists some general characteristics for a viable compensation site or bank site proposal.

Figure 5.1: General Characteristics for a Viable Compensation Site
Ditches, tiles, and other features which impact hydrology are contained within the property boundaries and can be manipulated without negatively impacting neighboring properties by the bank sponsor or compensation site developer.
The site is not likely to receive continual inputs of undesirable vegetative species (invasive and/or non-native species).
Upland buffers provide adequate wetland protection from adjacent present and future land uses.
The work proposed will not result in an adverse impact to federal or state endangered, threatened, or special concern species.
The work proposed will not threaten or degrade high quality upland habitat, such as prairie remnants and oak savannas.
The site offers the opportunity to provide or enhance wetland functions and services as well as ecological or hydrological functions and services missing in the surrounding landscape or watershed, such as those identified in regional habitat conservation plans.
The site will not require long-term structural maintenance to sustain targeted community types, functions and services.

Federally funded wetland restoration or conservation projects (e.g., Wetland Reserve Program, Conservation Reserve Program, or Partners for Wildlife Program) undertaken for purposes other than compensatory mitigation, may not be used to generate mitigation credits. However, the permitting agencies may allow credit to be generated for activities over and above the scope of a federally funded restoration/ conservation project.

B. Preferred Target Community Types

The Federal Mitigation Rule directs agencies to strive for in-kind compensatory mitigation over out-of-kind as part of the watershed approach. When in-kind compensation is not possible, permitting agencies prefer to see sites restored to vegetative communities that have experienced the greatest loss historically in the impacted watershed. Sedge meadows and forested wetlands have experienced the highest occurrence of loss in the state, so it is particularly important to attempt to restore these communities in areas that have experienced high percentages of this cover type loss. While the site often dictates the type of wetland cover possible, persons developing compensation site proposals that include these communities will be given a higher likelihood of being approved.

C. Include Vegetated Buffers to Protect the Site

Upland buffers protect wetlands and provide habitat and corridors that increase ecological functions and services of compensation sites. Adequate buffers are required as part of approved compensation sites. If no upland buffer is present on site, permitting agencies may require a vegetated wetland buffer of the same width. Site-specific conditions may be considered in determining what constitutes an adequate buffer.

The following general characteristics of successful upland buffers should be considered when selecting a site and planning the compensation site design. An adequate buffer width is at least 100 feet wide or to the edge of the sub-watershed of the wetland, if less than 100 feet. Permitting agencies may require a wider buffer to ensure the upland buffer is large enough to adequately filter run-off entering the site. The buffer area should contain a dense herbaceous ground layer, except when a shrub or forest community is the goal. Rills and gullies due to erosion should not be present inside the buffer area; any area disturbed during construction must be stabilized and vegetated as quickly as possible with an annual grass cover crop. Seed mixes used in the buffer area may not contain reed canary grass (*Phalaris arundinacea*) or giant reed grass (*Phragmites australis*); other invasive species may be restricted on a project-by-project basis. In addition, invasive grasses such as cheat grass/downy brome (*Bromus tectorum*), smooth brome grass (*Bromus inermis*), and quack grass (*Elymus repens*) are discouraged in upland buffer areas because they can make future prairie restoration difficult.

Some additional restoration activities on the adjacent buffer (e.g., restoring appropriate native prairie), if integral to the ecological success of the site, may be appropriate for additional compensatory mitigation credit (see Chapter 4.A.5.). Any buffer restoration

efforts that qualify for the higher (0.25:1) crediting ratio must have developed buffer site goals, objectives, performance standards, and appropriate monitoring and management plans in the CSP. If planting is done in buffer zones, the seed should be local Wisconsin genotype, originated in Wisconsin or the first tier counties from adjoining states.

D. Creation of Ponds or Open-Water Habitats as Compensation are Discouraged

Past experience with compensatory mitigation projects in Wisconsin and elsewhere in the United States has shown that creation of small ponds with a ring of emergent vegetation has had a poor track record in terms of species diversity, nuisance species invasions, and water quality problems. The use of scrapes has also been problematic in Wisconsin; when scrapes are dug too deep they often result in creation of an unvegetated pond. Typically, an area that is found to hold water year-round and is not vegetated will not be given credit.

E. Completing a Compensation Site Plan (CSP)

Once a site has been chosen and approved by the permitting agencies (in consultation with the Interagency Review Team, for banks), the applicant or his/her consultant(s) shall prepare a CSP). An outline of this document can be found in Appendix E; all content listed in Appendix E is mandatory for a CSP to be considered complete.

F. Legal Requirements

Permitting agencies require that all permittee-responsible and mitigation bank sites be protected with a conservation easement or comparable legal instrument in perpetuity; this instrument will limit land use on the site. Generally the easement should be in place before construction begins. Permitting agency contacts can provide an acceptable conservation easement or comparable instrument template.

In addition, financial assurances are generally required for all mitigation sites. A monitoring and management financial assurance is required for all sites and a construction assurance may be required. The applicant or bank sponsor should work with the permitting agencies to determine if financial assurances are required, what amount the assurance should be for, and for acceptable financial assurance templates. Construction financial assurances are released when the as-built report is approved by the appropriate permitting agencies and monitoring and management assurances are generally released when final performance standards are met as determined by the permitting agencies and in consultation with the IRT for banks.

G. Long-Term Management

The approved CSP (for permittee-responsible mitigation) or the mitigation bank instrument (MBI, for mitigation bank sites) must identify the legal mechanisms and party responsible for long-term management and protection of the mitigation project site. The

responsible party should make adequate provisions for the operation, maintenance, and long-term management of the compensatory mitigation project site. The long-term management plan should include a description of long-term management needs and identify the funding mechanism that will be used to meet those needs. In some cases to ensure the integrity of the site, an endowment for long-term management may be required.

The CSP or MBI may include provisions allowing the permittee or sponsor to transfer the long-term management responsibilities of the mitigation site to a land stewardship entity (e.g. public agency, non-governmental organization, private land manager). The CSP or MBI must address the financial arrangements and timing of any necessary transfer of long-term management funds to the steward.

The CSP or MBI must include a long-term management plan. Where needed, the acquisition and protection of water rights should be secured and documented in the CSP or MBI.

H. Construction and As-Built Approval

Once a CSP has been approved (and an MBI signed for a bank), construction on the site(s) can begin. The permittee or bank sponsor is responsible for providing an as-built report to the permitting agencies (permittee-responsible) or IRT (mitigation bank) by the date stipulated in the CSP, MBI, and/or regulatory permit. This report will summarize the construction activities and note any changes to the construction plan that occurred following the format outlined in Figure 5.2. If immediate corrective actions are needed, these must be identified along with a timeline for when the work will be completed. This document will act as the “Year Zero” monitoring report and will serve as the basis for the construction inspection.

Figure 5.2: Outline for the As-Built Report
1. Identify the site (includes the bank name or permit number if for a permittee-responsible site), designer/consultant, and sponsor. Include a written description of the location, including landmarks, perimeter information, and coordinates (lat/lon, UTM).
2. Identify the construction contractor.
3. Dates of construction (including completion date) and site inspections by a qualified wetland consultant.
4. Describe any changes to the original plan.
5. Describe problems encountered during construction and what was done to correct the problem.
6. List any follow-up corrective actions needed, provide a schedule, and list who is responsible.
7. Provide the as-built plan sheets.
8. Provide photos showing before and after conditions of constructed area.
9. Provide a description of the existing conditions of all wetlands at the completion of construction activities.

An inspection by the permitting agencies is almost always required before the permitting agencies approve the release of the construction financial assurance (if one was required) and bank credits. Permitting agency inspections are conducted to verify that the project was completed in accordance with the approved plans and specifications. At the permitting agencies discretion (in consultation with the IRT for banks), a list of corrective actions may be developed after the inspection. If corrective actions are required, the permitting agencies may not release the construction financial assurance until after the permittee or sponsor demonstrates that all corrective actions have been satisfactorily addressed.

I. Monitoring and Reporting

After the construction as-built report has been approved by the permitting agencies, the permittee or bank sponsor will be required to submit annual monitoring reports to agencies on the post-construction monitoring and management activities. Generally the first monitoring year is considered the first full growing season after construction is completed. The number and dates of required annual monitoring will be outlined in the approved CSP and regulatory permit; generally there are 5 annual monitoring reports required periodically throughout the monitoring period. Monitoring reports are due to the permitting agencies (and all IRT members for banks) by December 31 of each full monitoring year growing season unless otherwise approved by the permitting agencies. Refer to Figure 5.3 for a format outline for monitoring reports. Monitoring reports should inform permitting agencies of the status of the mitigation site, the progress made on the performance standards, and to identify any need for corrective actions.

Figure 5.3: Outline for Monitoring Reports
1. Identify the site (includes the bank name or permit number if for a permittee-responsible site), designer/consultant, and sponsor. Include a written description of the location, including landmarks, perimeter information, and coordinates (lat/lon, UTM).
2. Dates of construction (including completion date) and site inspections.
4. Brief information describing the purpose of the project, acreage and type of wetland resource proposed (if permittee-responsible, also describe by acreage and type the wetland area impacted in the permit).
4. Describe any changes to the original plan.
5. List any follow-up corrective actions needed, provide a schedule, and list who is responsible.
6. Provide site maps showing cover types and sampling data.
7. Provide photos from fixed vantage points showing monitoring areas, problem areas, or other areas of interest.
8. Provide a description of the existing conditions of all wetlands at the completion of annual monitoring activities. Reports should list the performance standards and describe progress toward meeting the standards using quantifiable monitoring data.

Performance standards and post-construction monitoring requirements are established within the CSP on a case-by-case basis; at a minimum, performance standards should include quantifiable standards for wetland vegetation and hydrology. Performance

standards shall be used by agencies to evaluate the success of a compensation site. The performance standards are established prior to implementation of the compensation project and monitoring reports will be used to document progress in meeting performance standards. During the monitoring period, the permitting agencies will provide feedback on site progress. At the end of the monitoring period, the permitting agencies will evaluate whether the compensation project met performance standards. For banks, monitoring reports are often used by permitting agencies in consultation with the IRT to evaluate and respond to a sponsor's request for a release of mitigation bank credits.

J. Site Failure

The permitting agencies (permittee-responsible mitigation) or IRT (mitigation banks) review monitoring reports to determine whether a compensation project is meeting performance standards as defined in the CSP. These standards are measurable objectives set in the project-planning phase. If needed, the permitting agencies will require the permittee or bank sponsor complete corrective actions if the monitoring reports indicate that performance standards are not being met.

If at the end of the monitoring period, the compensation project is determined by the permitting agencies to be unsuccessful in meeting its performance standards, the permitting agencies will opt to pursue one of several options, including, but not limited to the following:

1. The monitoring period may be extended by the permitting agencies while imposing a compliance schedule specifying corrective actions to be taken by the permittee or bank sponsor and deadlines for completing these actions.
2. A third party approved by the permitting agencies may pursue access to the financial assurance funds to complete remedial corrective actions at the site.
3. A third party approved by the permitting agencies may pursue access to the financial assurance funds to develop an alternate site if the permitting agencies determine that the existing site is not a viable compensation site.
4. The number of credits originally estimated to be produced on the site may be reduced to reflect the inability of the site to meet the performance standards. This may reduce the number of credits available for sale (mitigation banks), or may result in insufficient compensation for impacts authorized by permitting agencies (permittee-responsible) – requiring the permittee to provide additional compensation to fulfill permit requirements.

The permitting agencies will determine the course of action on a case-by-case basis. Factors to be used to determine the course of action include: the permittee or bank sponsor's willingness to work with the agencies, past work accomplished on the site, and existing site conditions. The permitting agencies will document the reasons for any course of action selected.

6) ESTABLISHING A MITIGATION BANK

Mitigation banking involves a formal administrative framework in which wetlands are restored, enhanced, preserved, or created expressly for the purpose of providing compensatory mitigation in advance of authorized impacts to similar resources. Banking is characterized by transfer of the legal and financial responsibility for executing compensatory mitigation from the permittee to a third party—the bank sponsor.

Wetland bank credits are quantified using the ratios shown in Figure 4.1. These credits are available for use by the bank sponsor or by other parties to compensate for adverse wetland impacts from permitted activities (i.e. “debits”). Purchase of in-kind credits within the watershed of the permit impact is preferred. Prospective bank sponsors should not construe or anticipate the establishment of a mitigation bank as ultimate authorization for specific projects, as excepting such projects from any applicable requirements, or as pre-authorizing the use of credits from that bank for any particular project.

A. Types of Mitigation Banks

There are two types of banks:

1. *Single Client*— Single client banks are developed to produce credits for sale or use by the bank sponsor or by a single client of the sponsor. The client or sponsor may be an individual, a corporation, a governmental unit, a municipality, or an association.

2. *General Use*— General use banks are developed to produce credits for sale or use by third parties. General use banking results in a transfer of the legal and financial responsibility for executing compensatory mitigation from the permittee to a third party, the bank sponsor.

The sale of credits to be used as compensatory mitigation must always be approved by the permitting agencies. Credits sold outside of the Bank’s BSA are subject to increased ratios as defined in Chapter 3.A. Bank sites should generally consist of a minimum of 25 acres.

B. Roles and Responsibilities

1. *Role of the Bank Sponsor*

The bank sponsor prepares the prospectus, mitigation bank instrument or MBI (Appendix D) and compensation site plan or CSP (Chapter 5.E and Appendix E). See Chapter 6.H. below for the process for developing a mitigation bank.

The bank sponsor is solely responsible for setting the cost of bank credits. The bank sponsor is the entity financially responsible for establishing a bank site (or sites) in accordance with an approved CSP, administration of the accounting of debits and credits and correlating ledgers with permitting agencies, conducting required corrective actions,

providing required monitoring and status reports to the IRT, and assuring long term maintenance and protection of the site(s).

Each time an approved credit transaction occurs, the sponsor must notify the USACE and WDNR by providing a copy of the Affidavit of Bank Credit Purchase (Appendix F) signed by the sponsor and permittee. The sponsor may not sell credits without permitting agencies approval to ensure that debits occur only for agency authorized wetland impacts. Each affidavit shall reference the USACE and/or WDNR permit numbers for which the compensatory mitigation was required, the permittee to whom the credit was sold, and the location of the impact site for which the permit is being issued.

The sponsor must submit an annual credit ledger account to the permitting agencies at the end of each calendar year indicating the year's starting credit amount, all debits and credits, and the ending credit amount; the credit ledger report is due within 30 days after December 31. Annual credit ledger reports are mandatory for every year until all credits have been sold and the bank is formally closed.

2. Role of the Interagency Review Team (IRT)

Representatives of the USACE, U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (FWS), Natural Resources Conservation Service, the WDNR and other state, tribal, or local agencies, as appropriate to a particular site, may comprise the IRT at the discretion of the lead federal agency, USACE.

The primary role of the IRT is to provide the permitting agencies feedback for use when considering whether or not to approve mitigation banks and mitigation bank sites. The IRT reviews the prospectus, CSP, and MBI, and comments on the expected credits the site may produce, and may participate in the execution of an MBI. After site construction, the IRT reviews and provides the permitting agencies comments on the as-built, site monitoring reports, site performance, and proposed credit releases. To accomplish its' duties, members of the IRT visit prospective and existing bank sites during the bank development process, site construction, subsequent monitoring periods, and after monitoring is completed.

The IRT is convened by the lead permitting agency, the USACE. The WDNR may serve as a co-chair if the bank will also be used to satisfy state requirements.

The goal is to reach IRT consensus on the specifics of bank development, the bank instrument, and on preliminary and final credit determinations. However, final decisions are made by the lead permitting agencies.

3. Role of the Permitting Agencies

The permitting agencies determine the appropriate compensation required for a given permit. If purchase of bank credits is the selected approach, the permitting agencies will determine the compensation ratio (see Chapter 3.A) that is appropriate considering the specifics of the wetland impact and the bank site selected. The permitting agencies are

responsible for ensuring that all appropriate documentation is received, including the Affidavit of Bank Credit Purchase. The permitting agencies are responsible for enforcement of the conditions of the permit, including compensation requirements.

C. Prospectus

Prior to submittal of a draft CSP and MBI, a bank sponsor must submit a prospectus, which is a conceptual plan that summarizes the proposed project. The prospectus must provide information at a sufficient level of detail to facilitate meaningful comments from the permitting agencies, IRT members, and the public. The prospectus must contain the information in Appendix C.

D. Mitigation Bank Instrument (MBI)

The mitigation bank instrument (MBI) is used to address the administrative side of mitigation banking. The MBI is the record regarding the objectives and administration of the bank. The terms and conditions of the MBI may be amended, subject to notification of all IRT members and approval by the lead permitting agencies. The MBI must include the information found in Appendix D.

E. Mitigation Bank Compensation Site Plan (CSP)

In addition to the MBI, bank sponsors must also prepare a mitigation bank compensation site plan (CSP) for each bank site being proposed to address site specifics. In general, the CSP will cover the specifics of bank site development and management and will follow the outline for a CSP as described in Chapter 5.E and Appendix E.

F. Credit Generation for a Bank

The number of credits a bank site may produce is determined by the lead permitting agencies in consultation with the IRT. See Chapter 4 for more information.

The total potential credits will be stated clearly in the bank instrument. No more than 25% of the credits for a mitigation bank site can be the result of creation. Final credit amounts will be subject to a final wetland delineation completed at the end of the monitoring period. Final credit release amounts will take into account the final delineation and if the bank site has met all final performance standards, as determined by permitting agencies in consultation with the IRT. If final performance standards are not being met as proposed by the end of the typical monitoring period, the bank sponsor may opt to pursue one of several options as described in Chapter 5.J. on site failure.

The terms of the credit release schedule must be specified in the MBI. The credit release schedule is proposed by the sponsor and approved by the lead permitting agencies, and may provide for an initial release of a limited number of credits once the instrument is approved and other appropriate milestones are achieved.

G. The Bank Service Area (BSA)

The bank service area of a mitigation bank is the primary area the sponsor may sell credits within and is defined by the modified 6-digit HUC watershed as shown in Figure 2.1. On a case-by-case basis, the permitting agencies may approve a purchase of credits from a bank located in a different BSA at an increased ratio. All bank credit sales, inside or beyond the BSA, require approval from the permitting agencies to be used for compensatory mitigation.

H. Process for Establishing a Bank

Establishing a mitigation bank is a 5-step process involving a variety of actors. Each step in this process is outlined below as required by the Federal Mitigation Rule. All mitigation banks which intend to sell credits to applicants for USACE and WDNR permits must receive notification and/or approval from both permitting agencies at each step of the following process.

Step 1: Draft prospectus and Scoping

It is strongly recommended that prospective bank sponsors complete a draft prospectus (Appendix C) and scoping phase review. This optional process allows the permitting agencies and IRT to review the pending bank site's potential for long-term success at the earliest possible stage. Further, this review allows the permitting agencies and IRT to catch potential problems early before significant time and energy is exerted by the sponsor, and prepares the sponsor to meet federal and state expectations at later stages. A copy of the draft prospectus should be shared with each IRT member. A site visit is typically scheduled, and the USACE is required to submit a written response to the proposed sponsor clarifying whether or not the site shows potential, and summarizes concerns. This process is typically completed in 30 days, but this timeframe may be extended to accommodate seasonal site visits.

Step 2: Prospectus/Concept Review

The bank sponsor prepares and submits a prospectus to all members of the IRT for review. Once submitted to the USACE, the agency will determine if the prospectus is complete and notify the sponsor. If incomplete, the USACE will identify additional materials needed. After the USACE has received a complete prospectus, the USACE will issue a public notice. All comments received from the public notice are shared with the IRT and bank sponsor. During this step, at least one IRT meeting is recommended to discuss the project, and a site visit may be scheduled. The USACE will send the sponsor an initial evaluation letter. If the project shows potential, the USACE will also include requirements for the CSP (see Chapter 5.E and Appendix E), typical performance standards, and a template MBI (Appendix D).

Step 3: CSP Approval and Draft MBI review

The bank sponsor prepares a CSP (including all the information found in Appendix E) and drafts an MBI (including all information found in Appendix D) for IRT review. After submittal, the permitting agencies must determine if the CSP and MBI are complete

and notify the bank sponsor and IRT. Once complete, copies of the MBI are distributed to the IRT. The IRT and sponsor will comment on the draft CSP and MBI after all IRT members have received a copy. A site visit, if proposed, should be completed during this time. The WDNR will provide notice to the public that a draft bank instrument has been submitted and will make copies of any of the plans and other documentation available for review by any person who requests such. Once a complete CSP and MBI are received, the USACE will work to resolve any issues needed to finalize the CSP, determine projected credits by wetland type, provide feedback on the MBI, and decide if the MBI is generally acceptable. If approved by permitting agencies, this is the “go-ahead” for the sponsor to obtain site protections (conservation easement or comparable legal instrument).

Step 4: Final MBI Approval

The sponsor will submit a final MBI and compensation site plan to the IRT. Soon after the final MBI and compensation site plan are provided to the IRT, any member may submit a written request for dispute resolution to the USACE. If no dispute process is initiated, the USACE will inform the sponsor that the signature process for executing the MBI may be initiated, and RIBITS will be updated. WDNR will provide a news release when the MBI is in a semi-final to final draft. Once the MBI has been signed by the permitting agencies and potentially the IRT members, the bank will be added to the Corps’ RIBITS webpage and the statewide registry of approved banks on the WDNR webpage. Potential credit amounts for the bank will be refined by the permitting agencies (in consultation with the IRT); see Chapter 4 for additional crediting information. Once all signatures are obtained, the MBI is considered complete and the bank sponsor may begin construction at the bank site.

Step 5: Credit Release, Monitoring, Report Review and Final Approval

The sponsor will notify the IRT of milestones achieved by submitting reports documenting the as-built, site protections (easement or comparable legal instrument), monitoring, and other documents specified in the MBI. Many of these milestones are tied to credit releases. The IRT will review these documents and provide comments on site progress to meeting performance standards, remedial actions, and regarding release of credits to the USACE. The IRT must provide comments to the USACE within 15 days of information receipt. If a site visit is determined necessary by the USACE, the 15-day comment period begins with the date of the site visit. The USACE will provide the sponsor a letter outlining recommendations and addressing credit releases within 30 days of IRT response. Final credit allocation will be coordinated with the IRT based on monitoring.

Appendix A. DEFINITIONS

For the purposes of this document the following terms are defined below. Those terms including a “*” are verbatim from the USACE regulations at 33 CFR Part 332.2. For purposes of this guidance, these definitions should be applied to wetland aquatic resources.

Adaptive Management* The development of a management strategy that anticipates likely challenges associated with mitigation projects and provides for the implementation of actions to address those challenges, as well as unforeseen changes to the project. It requires consideration of risk, uncertainty, and dynamic nature of compensatory mitigation projects and guides modification of these projects to optimize performance. It includes the selection of appropriate measures that will ensure that aquatic resource functions are provided and involves analysis of monitoring results to identify potential problems of a compensatory mitigation project and the identification and implementation of measures to rectify those problems.

Affidavit of Bank Credit Purchase Legal documentation of proof of credit purchase prepared by the Bank Sponsor and signed by the Sponsor and the Debtor purchasing credits.

Authorization In this document used interchangeably with the term “permit”. Can refer to U.S. Army Corps of Engineers Section 10 Rivers and Harbors Act or Section 404 Clean Water Act authorizations or Wisconsin Department of Natural Resources wetland permits.

Bank Instrument A document that contains specifications pertaining to the establishment, operation, and maintenance of a mitigation bank, identification of the goals, objectives, and procedures for operation of the bank.

Bank Sponsor Any public or private entity responsible for establishing and, in most cases, operating a mitigation bank.

Basin A large region drained by a single lake or river system. There are three basins in Wisconsin: Lake Superior Basin, Lake Michigan Basin, and the Mississippi River Basin. These are also the 4-digit Hydrologic Unit Code (HUC) watersheds as defined by the USGS.

Buffer* An upland, wetland, and/or riparian area that protects and/or enhances aquatic resource functions associated with wetlands, rivers, streams, lakes, marine, and estuarine systems from disturbances associated with adjacent land uses.

Compensation or Compensatory Mitigation* The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse

impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Compensatory Mitigation Project* A project implemented by the permittee as a requirement of a DA [and/or state wetland] permit (i.e. permittee-responsible mitigation), or by a mitigation bank or in-lieu fee program.

Compensation Crediting Ratio The ratio applied per acre to determine the credits generated by a given wetland compensatory mitigation method.

Compensation Replacement Ratio This ratio determines the amount of wetland compensatory mitigation required by the permitting agencies to offset unavoidable adverse impacts to wetlands.

Compensation Site Plan A comprehensive document prepared by a project proponent or bank sponsor that provides a thorough description of a proposed compensation project.

Condition* The relative ability of an aquatic resource to support and maintain a community of organisms having a species composition, diversity, and functional organization comparable to reference aquatic resources in the region.

Creation (establishment*) The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Creation results in a gain in aquatic resource area and functions.

Credit* A unit of measure (e.g. a functional or areal measure of other suitable metric) representing the accrual or attainment of aquatic resource functions at a compensatory mitigation site. The measure of aquatic functions is based on the resources restored, established, enhanced, or preserved. For the purposes of this document, the unit of measurement is an acre.

Days* Calendar days.

Debit* A unit of measure (e.g. a functional or areal measure of other suitable metric) representing the loss of aquatic functions at an impact or project site. The measure of aquatic resource functions is based on the resources impacted by the authorized activity. For purposes of this document, the unit of measurement is an acre.

Degraded Wetland A wetland subjected to deleterious activities such as drainage, grazing, cultivation, increased stormwater input, introduction of non-native and/or invasive species, or partial filling, to the extent that natural wetland characteristics are severely compromised and wetland functions and services are substantially reduced.

Enhancement* The manipulation of physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but

may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment* (creation) The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Creation results in a gain in aquatic resource area and functions.

Functions* The physical, chemical, and biological processes that occur in ecosystems.

Functional Values This term is used by the WDNR to describe the physical, chemical, and biological processes or attributes that occur in a wetland system and how society finds certain functional values beneficial. See definition of functions and services.

In-Kind* A resource of similar structural and functional type to the impacted resource. [For purposes of these guidelines, wetland plant communities are used for the in-kind determination. See definition for wetland cover type.]

Interagency Review Team (IRT)* An 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 or an in-lieu fee program. [Prior to the 2008 federal mitigation rule, this team was known in Wisconsin as the Mitigation Bank Review Team (MBRT).]

Management Actions taken at a compensation site to establish and maintain desired habitat and human use conditions including water level manipulations, herbicide application, mechanical plant removal, prescribed burning, fencing, signage, and vandalism repair.

Mitigation Banking A system of accounting for wetland impacts and compensation that includes sites where wetlands exist in perpetuity. These wetlands provide transferable credits to be subsequently applied to compensate for adverse impacts to other wetlands authorized by State and Federal permits. In general, a bank sells credits to permittees whose compensatory mitigation obligations are then transferred to the bank sponsor. The operation and use of a mitigation bank are governed by a mitigation banking instrument.

Mitigation Banking Instrument* The legal document for the establishment, operation, and use of a mitigation bank. [An “umbrella” mitigation banking instrument is the legal document for the establishment, operation, and use of multiple mitigation bank sites.]

Mitigation Bank* Site A site, or suite of sites, where resources (e.g. wetlands, streams, riparian areas) are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts authorized by DA [and WDNR wetland] permits. In general, a mitigation bank sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor. The operation and use of a mitigation bank are governed by a mitigation bank instrument.

Monitoring Plan A specific program of data collection, conducted, analyzed, and reported by a project proponent or bank sponsor, which documents the physical, biological, hydrological, and human-use characteristics of compensation site wetlands.

Out-of-kind* A resource of different structural and functional type from the impacted resource. [For purposes of these guidelines, out-of-kind refers to a different wetland plant community type than that of the impacted wetland. See definition for wetland cover type.]

Performance Standards* Observable or measurable physical (including hydrological), chemical and/or biological attributes that are used to determine if a compensatory mitigation project meets its objectives. [Performance standards are agreed to in advance by the bank sponsor/applicant and permitting agencies.]

Permit For purposes of this document, used interchangeably with the term “authorization”. Can refer to Wisconsin Department of Natural Resources wetland permits or U.S. Army Corps of Engineers wetland authorizations.

Permittee-Responsible Mitigation* An aquatic resource restoration, establishment, enhancement, and/or preservation activity undertaken by the permittee (or an authorized agent or contractor) to provide compensatory mitigation for which the permittee retains full responsibility.

Preservation* The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or function.

Re-establishment* (a form of restoration) The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and function.

Reference Aquatic Resource* A set of aquatic resources that represent the full range of variability exhibited by a regional class of aquatic resources as a result of natural processes and anthropogenic disturbances.

Rehabilitation* (a form of restoration) The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource functions, but does not result in a gain in aquatic resource area.

Release of Credits* A determination by the district engineer [and WDNR], in consultation with the IRT, that credits associated with an approved mitigation plan are

available for sale or transfer, or in the case of an in-lieu fee program, for fulfillment of advance credit sales. A proportion of the projected credits for a specific mitigation bank or in-lieu fee project may be released upon approval of the mitigation plan, with additional credits released as milestones specified in the credit release schedule are achieved.

Restoration* The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

RIBITS (Regulatory In-lieu fee and Bank Information Tracking System) An electronic mitigation bank ledger system developed by the USACE with support from the USEPA and the U.S. Fish and Wildlife Service to provide public information on mitigation banking. RIBITS allows users to access information on the types and numbers of mitigation bank sites, service areas, and available credits.

Riparian Areas* Lands adjacent to streams, rivers, lakes, and estuarine-marine shorelines. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality.

Service Area* The geographic area within which impacts can be mitigated at a specific mitigation bank or in-lieu fee program, as designated in its instrument. [In Wisconsin, service areas are defined by a modified 6-digit HUC watershed, although impacts may be mitigated outside of a designated service area at an increased ratio.]

Services* The benefits that human populations receive from functions that occur in ecosystems. [By definition, services are not equivalent to functional values but will not be separately distinguished within this document. See Functional Values.]

Temporal Loss* The time lag between the loss of aquatic resource functions caused by permitted impacts and the replacement of aquatic resource functions at the compensatory wetland mitigation site. Higher compensation ratios may be required to compensate for temporal loss. When the compensatory mitigation project is initiated prior to, or concurrent with, the permitted impacts, the district engineer [and/or WDNR] may determine that compensation for temporal loss is not necessary, unless the resource has a long development time.

Watershed* A land area that drains to a common waterway, such as a stream, lake, estuary, wetland, or ultimately the ocean. [Used interchangeably with “contributing area.” Sub-watershed refers to a portion of a watershed, and this term is often used to mean a localized area.]

Watershed Approach* An analytical process for making compensatory mitigation decisions that support the sustainability or improvement of aquatic resources in a watershed. It involves consideration of watershed needs, and how locations and types of

compensatory mitigation projects address those needs. A landscape perspective is used to identify the types and locations of compensatory mitigation projects that will benefit the watershed and offset losses of aquatic resource functions and services caused by activities authorized by DA [and WDNR] permits. The watershed approach may involve consideration of landscape scale, historic and potential aquatic resource conditions, past and projected aquatic resource impacts in the watershed, and terrestrial connections between aquatic resources when determining compensatory mitigation requirements for DA [and WDNR] permits.

Wetlands Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation adapted typically for life in saturated soil conditions.

Wetland Cover Type Dominant plant community types used to evaluate in-kind comparisons. For the purposes of this document, all wetlands are arranged in one of eight community types with two additional difficult to replace wetland sub-types broken out as separate categories as described by Eggers and Reed (2011)² for a total of 10 community types: 1) shallow, open water, 2) deep or shallow marshes, 3) sedge meadows, 4) fresh (wet) meadows, wet to wet-mesic prairies, 5) calcareous fens, 6) open or coniferous bogs, 7) shrub-carrs or alder thickets, 8) hardwood or coniferous swamps, 9) floodplain forests, and 10) seasonally flooded basins.

² Eggers, Steve D., and Donald M. Reed. 2011. Wetlands Plants and Communities of Minnesota and Wisconsin, Third Edition. U.S. Army Corps of Engineers, Regulatory Branch St. Paul District. 478 pp.

Appendix B. THE MITIGATION SUMMARY SHEET

The Mitigation Summary Sheet is required for Wisconsin Department of Natural Resources (Department) Wetland Individual Permit (IP) applications. Compensatory wetland mitigation is required for all Department IP projects. The Applicant, or his/her consultant, shall compile a one-page document with the following information. The Mitigation Summary Sheet shall be submitted as a draft prior to the required pre-application meeting. A copy shall then be submitted along with all other required Department IP application materials.

Mitigation Summary Sheet
1. Applicant's name, address, phone number, and email address:
2. Agent or Consultant's name, address, phone number, and email address:
3. Modified 6-digit HUC where proposed wetland impact would occur:
4. Brief project description:
5. Brief description of how project will impact wetlands:
6. Proposed/expected wetland impacts by wetland cover type and delineated acreage: ___ acres of shallow/open water ___ acres of deep/shallow marshes ___ acres of sedge/fresh(wet) meadow ___ acres of wet to wet-mesic prairie ___ acres of calcareous fen ___ acres of open bog/coniferous bog ___ acres of shrub-carr/alder thicket ___ acres of hardwood/coniferous swamp ___ acres of floodplain forest ___ acres of seasonally flooded basin
7. Compensation Approach (if bank credits are not selected, explain why) ___ a. Purchase credits from an approved bank site. -Has a mitigation bank been contacted? If so: -What bank(s) was contacted? -Is the proposed impact in the primary Bank Service Area (BSA) of the bank? -If not in the same BSA, explain why. ___ b. Permittee-responsible mitigation within ½ mile or within the modified 6-digit HUC. -If this option is being pursued, contact the DNR Wetland Mitigation Coordinator for the Compensation Site Plan requirements.

Appendix C. PROSPECTUS FOR MITIGATION BANKS

A scoping document or draft wetland mitigation bank prospectus must include the following information to be deemed complete by the permitting agencies (in consultation with the IRT). Please provide the following information and a copy of this checklist with the Draft Prospectus:

- I. **Owner.** Identify the bank sponsor, landowners, and any agent for the sponsor.
- II. **Agent.** Identify consultants or experts to be involved in design of the compensation site, and list the qualifications of the sponsor’s team to successfully complete the type(s) of mitigation project(s) proposed, including information describing any past such activities by the sponsor.
- III. **Objectives.** Elaborate on the broad purpose and specific objectives of the proposed mitigation bank.
- IV. **Maps.**
 - A. Provide a map of the proposed bank service area that shows the location of the bank site, county boundaries, and major municipalities;
 - B. Provide a plat or land ownership map with the bank site outlined, and adjacent properties;
 - C. Provide soils mapping, topographic mapping and a map with recent aerial imagery with the following information/layers included on each:
 - Boundaries of the proposed compensatory mitigation site;
 - Adjacent county highway information;
 - *Public or utility infrastructure such as pipelines, transmission lines, rail lines;
 - *Floodways or flood risk insurance zones (if applicable);
 - *Hydrologic flow structures on or adjacent to the site including tiles, drainage ditches, berms, weirs, etc.
- V. **Narrative.** Prepare a BRIEF narrative that describes:
 - Existing land use;
 - Proposed areas, by plant community, of wetland and upland that will be restored (by re-establishment and by rehabilitation – list separately), enhanced, established (created), or preserved (*e.g.*, “15 acres of shallow marsh restored by rehabilitation, 10 acres of sedge meadow enhanced, 25 acres of wet prairie restored, 20 acres of tallgrass prairie restored, and 5 acres of southern deciduous forest preserved”). **Do not** propose multiple restoration options for a single piece of land (*e.g.*, **do not** propose to “restore 10 acres to prairie **or** savannah **or** deciduous forest”);
 - How the proposed project will increase specific wetland functions and services above the pre-project levels;

- Ecological suitability of the site to achieve the objectives, as stated above;
- Proposed ownership arrangements and long-term management strategy for the mitigation bank or in-lieu fee project sites (e.g., “DNR, who manages adjacent property, has indicated an interest in owning and managing the site long-term”);
- The technical feasibility of the proposed mitigation bank (e.g., “this kind of restoration has proven successful on XX sites in comparable landscape positions in this ecoregion”).

VI. Hydrology. Include documentation of any existing or anticipated right of the landowner or others to remove water, soil, minerals or biomass from within or adjacent to the site boundary (e.g., irrigation pumps or rights to withdraw surface or groundwater that would otherwise be assumed to provide wetland hydrology for the site). Also include documentation of any existing or anticipated right to drain water through, from, or onto the bank site or impound water on the bank site (e.g., tile outlets onto the property, ditches through the property, flooding easements, flowage easements, drainage easements, maintenance easements). Provide assurance that there are sufficient water rights to support long-term sustainability of the wetland mitigation site.

Appendix D. MITIGATION BANKING INSTRUMENT (MBI) OUTLINE

I. Introduction

- A.** Identity of bank sponsor.
- B.** Identification of consultants or experts to be involved in design of the bank's compensation site.
- C.** Purpose of bank and its relationship to the regulatory program.

II. Bank Specifics

- A.** Type of bank - Is the bank single client or general use?
- B.** A description of the bank service area (BSA). The BSA is the watershed, ecoregion, physiographic province, and/or other geographic area. The basis for the proposed BSA must be documented in instrument.
- C.** Description of Bank Site(s) - A brief description of the site(s) included in the bank. Provide details on the location and ownership of the site(s). Other details will be in compensation site plan(s) (CSP), which shall be attached to the bank instrument.
- D.** Timelines – A proposed schedule that includes, at a minimum, a timeline for finalizing the MBI and CSP, starting construction, project management, and site monitoring.

III. Operation of the Bank

- A.** Number of credits - The draft MBI should propose a figure for proposed total credits, the guidance in Chapter 4 may be used. The permitting agencies will determine the final figures for use in the final MBI.
- B.** Timeline for Release of Credits - Include a schedule for release of credits (see Figure C.1 for general guidelines) agreed to by the permitting agencies and the sponsor. Site conditions and performance will determine the actual schedule to be included in the bank instrument. The release of credits must be tied to performance-based milestones and a significant share of the total credits should not be released until full achievement of the performance standards is demonstrated. Note that this means that the bank sponsor may sell or use some credits before the final number of credits is determined by the permitting agencies.

Figure D.1: General Guidelines for Release of Credits for Sale or Use*

15%	Upon approval of the construction as-built and approval of the monitoring and management financial assurance. If the Sponsor chooses to acquire construction financial assurances, 10% of the estimated credits are eligible for release upon signing of the mitigation bank instrument and approval of construction financial assurance. Another 5% can be released upon approval of the as-built and monitoring and management financial assurance.
15%	Upon meeting the hydrology performance standards by meeting current USACE Wetland Delineation Manual wetland hydrology criterion but with no more than 15% areal cover of standing water.
35%	Upon meeting interim vegetation performance standards.
35%	Ending monitoring year when all final performance standards have been met. At this point the IRT will recommend final adjustments to the final credit amount for approval by the lead agency.

* Predicated upon construction financial assurances are provided upon signing the MBI.

C. Provisions for sale of credits - The bank sponsor should assure that a prospective client has received approval from the permitting agencies to debit credits from their bank to fulfill compensatory mitigation requirements. The bank sponsor is not responsible for applicant compliance with permit conditions. The purchase of credits from a bank is a transaction between the applicant and the bank sponsor and in no way will prejudice the permit decision if such transaction occurs before the permitting agency decision. The bank sponsor may add its own requirements for clients. See Appendix F for a sample “Affidavit of Bank Credit Purchase” document. The MBI will include the agreed to schedule for release of potential credits for sale (see Figure D.1).

D. A provision stating that legal responsibility for providing the compensatory mitigation lies with the sponsor once the permittee secures credits from the sponsor.

E. Accounting and reporting procedures - The bank sponsor shall track all debits and credits and provide an annual report of such to the permitting agencies on or before January 15 of each year. Within 30 days of receipt of the accounting report, the lead permitting agencies shall, in writing, acknowledge receipt of the report and identify any discrepancies. The bank sponsor will report sales and credit balance at the bank using the following format:

Figure D.2: Credit Sale Ledger Format

Total Credits Sold	Credits Sold by Wetland Type	Buyer	Date of Sale	Project (include permit numbers)	Location of Project	BSA of Project	County of Project

F. When a bank is closed for business - Upon notification from the bank sponsor that all credits have been used or sold, the lead permitting agency will schedule a meeting with the bank sponsor and will invite members of the IRT. The meeting will allow for concurrence that the site was managed as planned and that no further credits are available. The parties will review previous agreements for post-construction care and long-term protection and ownership of the site. The outcome of the meeting will be a written agreement between the lead agency and the bank sponsor that the bank is closed and that certain long-term measures will occur in accordance with the approved or amended MBI and CSP(s). Identification of the requirements and responsible party for post-construction care will be important at this step.

G. Provisions for site inspections - The bank sponsor shall allow inspection of any bank site to any member of the IRT, as long as reasonable notice is provided. The bank sponsor must allow the permitting agencies access to the compensation site to inspect for compliance with the approvals, permits and other applicable laws.

IV. Long-Term Responsibilities

This section of the MBI will need to be specifically tailored to the bank and bank site(s) involved. The permittee/sponsor must obtain lead permitting agencies approval (in consultation with the IRT) regarding the who's, how's and when's of long-term responsibilities. This section should discuss the persons responsible for management of the bank accounting and ownership of the bank for the long-term. The bank sponsor is responsible for securing adequate funds for the post-construction care of the bank site during its operational life, as well as for the long-term management of the site. This section of the MBI should provide the specific details of the type of assurance and amounts and contingencies for release.

V. Transfer of Bank to Another Entity

A bank sponsor may not sell or otherwise transfer a bank to another entity without the approval of the permitting agencies and MBI signatories.

VI. Amendments to the Bank Instrument

The bank sponsor or any member of the IRT may request, in writing, changes to the bank instrument. Substantive change proposals may require the involvement and input of the IRT prior to permitting agency approval.

VII. Signatures

The instrument will be signed by the bank sponsor and is effective upon signature by the lead agencies and other invited IRT members.

Appendix E COMPENSATION SITE PLAN (CSP) OUTLINE

(Additional or different information may be required by agencies on a project-by-project basis)

All proposed compensatory mitigation plans, mitigation banks and in-lieu fee (ILF) programs must include a discussion of the following items. A compensatory mitigation plan cannot be approved by the permitting agencies until the following items are included. Please provide the following information and a completed copy of this checklist with the submittal of a compensation site plan (CSP):

I. Executive Summary: ONE PAGE summary of the proposed site plan containing the following information:

- Site name
- Location of compensation site: County, Basin, modified 6-Digit HUC, ¼ ¼, Section, Township, Range.
- Is this a bank site? If yes, name of bank sponsor
- Is this project specific? If yes, this is compensation for which project (include permit numbers)?
- General description of design concept for the compensation site.
- Details of upland buffers. Include surrounding land-uses.
- Restoration work planned in buffer zone.
- Planned hydrology (include expected water depth).
- Planned construction date.

Compensation Site Wetland Type	Acres Impacted (for P-R sites)	Acres Restored or Enhanced	Acres Created	Acres Preserved
Shallow or Open Water				
Marshes				
Sedge Meadows				
Inland Fresh Meadows				
Fens				
Bogs				
Shrub Swamps				
Wooded Swamps				
Floodplain Forests				
Seasonally Flooded Basins				
Totals				

II. Introduction and Purpose: Identify the development project for which the compensation effort is required. State if the plan is for development of a bank site or a permittee-responsible site. Provide the projected start and end dates for construction of the development project and the compensation site.

III. Identify Plan Developers and Expertise: In order to develop a high quality wetland compensation project, a significant level of professional expertise and experience is required. Depending on the complexity of the selected site, a team of experts may be

required for planning, design, construction, inspection, monitoring, and maintenance. This interdisciplinary team may include plant ecologists, hydrologists, soil scientists, hydrogeologists, contractors, engineers, and wildlife biologists. The CSP should list the personnel working on the project and include reference to past projects and qualifications. Provide the names and professional experience information for the personnel responsible for investigating the proposed site and preparing the site plan, construction plans, and specifications.

IV. Site Selection: A description of the factors considered during the site selection process. This should include consideration of the watershed needs, on-site alternatives where applicable and the practicability of accomplishing ecologically self-sustaining wetland restoration, establishment, enhancement, and/or preservation at the compensatory mitigation site. Explain why the proposed site was chosen of all the site alternatives considered. Provide the detailed site location by County, Township, Range, and Quarter-Quarter section. Locate the site on the USGS 1:24,000 quadrangle map.

V. Mitigation Objectives: A description of the wetland type(s) and acres that will be restored, created, enhanced and/or preserved. A discussion of the wetland functions and services and how these functions and services address the needs of the watershed. The watershed approach shall be implemented according state and federal law and Chapter 2.C.

VI. Baseline Information: A description of the ecological characteristics of the proposed compensatory mitigation site and, in the case of an application for a federal or state required permit, the impact site. This should include descriptions of historic and existing conditions and other site characteristics appropriate to the wetland resource proposed as compensation.

- survey of current contours;
- summary of historic and current on-site land uses;
- description of current zoning designations;
- description of nearby land uses;
- description of any known historic/archeological resources on the site;
- assessment of the geology and soils on site using the county soil survey and some representative borings;
- description of current hydrology including channelized and un-channelized flows, groundwater, and tiling information;
- description of the present flora;
- description of fauna using the site;
- NRCS and WWI mapping of the site;
- wetland delineation in accordance with the 1987 Corps of Engineers Wetland Delineation Manual and any applicable Regional Supplement(if wetland currently exists on the site);
- wetland functions and services assessment of any wetlands existing on the site;
- floodplain mapping of the site;
- description of any state navigable waters on or near the site;

- description of the site in context of other wetlands, wildlife habitat, and natural areas (corridor concepts); and
- NHI search results.

VII. Site Map: The site map should be at a scale of 1 inch = 400 feet and should show 1 foot contours. A map should also be provided showing a clear outline of the property boundaries, showing the boundaries of all current and proposed vegetative communities, and any other pertinent current or proposed land features.

VIII. Mitigation Work Plan: Detailed written specifications and work descriptions for the compensatory mitigation project, including, but not limited to, the geographic boundaries of the project; construction methods, timing, 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, including elevations and slopes of the substrate; soil management; and erosion control measures. For stream mitigation projects, the mitigation work plan may also include other relevant information, such as plan form geometry, channel form (e.g., typical channel cross-section), watershed size, design discharge, and wetland area plantings.

IX. Determination of Credits: A description of the number of credits to be provided, including a brief explanation of the rationale for this determination (wetland assessment method). For permittee-responsible mitigation, this should include an explanation of how the compensatory mitigation project will provide the required compensation for the unavoidable impacts to aquatic resources resulting from the permitted activity.

X. Performance Standards: Ecologically-based standards (hydrology, plant survival, species composition, habitat features, etc.) that will be used to determine whether the compensatory mitigation project is achieving its objectives. Performance standards are a list of quantifiable objectives that must be met so that the project can be objectively evaluated to determine if the site is developing in to the desired resource type, providing the expected functions and services, and attaining any other applicable metric. Specific requirements and additional guidance for performance standards can be provided by permitting agencies upon request but are often set on a case-by-case basis.

XI. Monitoring Requirements: Provide a description of the parameters to be monitored, a description of the monitoring methods, and a monitoring schedule. The site attributes to be monitored and level of monitoring effort proposed should be sufficient to determine if the compensatory mitigation project is on track to meet the performance standards and provide the functional improvements described in the site objectives. Monitoring will also indicate need for corrective actions and trigger points for management activities; therefore, the monitoring plan should also have provisions for determining whether adaptive management is needed at various points throughout the monitoring period and provide alternatives as discussed in the

adaptive management plan. A schedule for reporting monitoring results to the permitting agencies must also be included. Specific requirements and guidance on site monitoring can be provided by permitting agencies upon request but are often set on a case-by-case basis.

- XII. Maintenance Plan:** A description and schedule of maintenance requirements to ensure the continued viability of the resource once initial construction is completed.
- XIII. Long-Term Management Plan:** Descriptions of how the compensatory mitigation project will be managed after performance standards are achieved to ensure the long-term sustainability of the resource. The party responsible for the long-term management must be identified. In addition, if the nature of the long-term management proposed is sufficient to warrant funding dedicated to that task, a long-term financing mechanism must also be identified.
- XIV. Adaptive Management Plan:** This plan should address strategies to address unforeseen issues associated with site conditions or other components of the compensatory mitigation plan. This plan will guide decisions for revising the original construction plan and implement measures to address both foreseeable and unforeseen circumstances that adversely affect the success of the compensatory mitigation project. The plan must identify the party or parties responsible for implementing the adaptive management plan.
- XV. Implementation Schedule:** Provide details on timelines for the construction work, plantings, inspections, and follow-up monitoring. Identify other permits that may be required for the construction work. Except for cases involving after-the-fact permits, construction of the compensation site must occur before or at the same time as construction of the development project.
- XVI. Site Protection Instrument:** A description of the legal arrangements and documents including verification of site ownership that will be used to ensure the long-term protection of the compensatory mitigation site. Contact the permitting agencies for appropriate templates of conservation easements or comparable legal instruments.
- XVII. Financial Assurances:** A description of financial assurances that will be provided and how they are sufficient to ensure a high level of confidence that the compensatory mitigation project will be successfully completed and managed for the long-term, in accordance with the required ecological performance standard. The financial assurance can be in the form of performance bonds, escrow accounts, or other appropriate instruments approved by the permitting agencies. For government agencies or a public authority, permitting agencies may accept a formal, documented commitment to funding the project or bank program as an acceptable assurance on a case-by-case basis (*e.g.*, documentation that funds allocated by a legislature or from bonding are encumbered for a specific project). Contact the permitting agencies for appropriate templates of acceptable financial assurances.

Appendix G. PLANT COMMUNITY TYPES

The following plant community descriptions shall be used in applying the requirement that mitigation should be in-kind when possible. The permitting agencies have opted to use the wetland community type classifications as defined in the book, “Wetland plants and communities of Minnesota and Wisconsin,” by Steve Eggers and Donald Reed (2011)³. This book arranges all wetlands into one of eight community types; for the purposes of this document, two additional sub-types are broken out as separate categories for a total of 10 plant community types: 1) shallow or open water, 2) marshes, 3) sedge meadows 4) inland fresh meadows, 5) calcareous fens, 6) bogs, 7) shrub swamps, 8) wooded swamps, 9) floodplain forests, and 10) seasonally flooded basins.

Any permitted wetland impacts will be defined by one of the ten community types above when evaluating if the compensation proposed is in-kind. The permittee must attempt to mitigate for these losses by generating wetland compensation-acres or purchasing wetland mitigation bank credits that are of the same type as the impacted wetland. Compensatory mitigation done “out-of-kind” shall be subject to a higher credit ratio as explained in Chapter 3.

1. Shallow or Open Water

Shallow, open water plant communities generally have water depths of less than 6.6 feet. Submergent, floating and floating-leaved aquatic vegetation including pondweeds, water-lilies, water milfoil, coontail, and duckweeds characterize this wetland type. Size can vary from a one-quarter-acre pond, to a long oxbow of a river or shallow bay of a lake. Floating vegetation may or may not be present depending upon the effects of the season, wind, availability of nutrients, and aquatic weed control efforts.

2. Marshes (Deep or Shallow Marshes)

Marshes are characterized by emergent aquatic plants growing in permanent to seasonal, shallow water. Species of shallow, open water communities, as well as those found in sedge meadows and seasonally flooded basins, also occur in marshes. Species characteristic of sedge meadows and seasonally flooded basins also occur in marshes and may colonize muskrat lodges, floating mats, and muck soils exposed during droughts or artificial drawdowns. Emergent aquatic plants typically become established and spread when water levels are low or when the marsh substrate is exposed, and then persist when water levels rise. However, if water levels rise too quickly, or rise to levels higher than normal, emergent vegetation may not survive, or may rise to the water surface as floating mats. Muskrats can eat through emergent vegetation, creating open water areas within the marsh that favor waterfowl use. Unchecked, muskrats can eliminate emergent vegetation, leaving an open water area until the next drought or drawdown allows emergent vegetation to recover.

Deep marsh plant communities have standing water depths of between 6 inches and 3 or more feet during the growing season (Shaw and Fredine, 1971). Herbaceous emergent, floating, floating-

³ Eggers, Steve D., and Donald M. Reed. 2011. Wetlands Plants and Communities of Minnesota and Wisconsin, Third Edition. U.S. Army Corps of Engineers, Regulatory Branch St. Paul District. 478 pp.

leaved, and submergent vegetation compose this community, with the major dominance by cattails, bulrushes, pickerelweed, giant bur-reed, common reed, wild rice, pond weeds and/or water-lilies.

Shallow marsh plant communities have soils that are saturated to inundated, by standing water up to 6 inches in depth, throughout most of the growing season (Shaw and Fredine 1971). Herbaceous emergent vegetation such as cattails, bulrushes, arrowheads, and lake sedges characterize this community. Floating and floating-leaved vegetation strata are typically reduced and the submergent vegetation stratum is absent.

3. Sedge Meadows

Sedge meadows are dominated by the sedges (*Cyperaceae*) growing on saturated soils. Most of the sedges present are in the genus *Carex*, but also present are those of *Eleocharis* (spike-rushes), *Scirpus* (bulrushes), and *Cyperus* (nut-grasses). Grasses (*Poaceae*), especially Canada bluejoint grass, and true rushes (*Juncus*), may also be present.

4. Inland Fresh Meadows (Fresh (Wet) Meadows or Wet to Wet-Mesic Prairies)

Inland fresh meadows are essentially closed wetland communities (nearly 100 percent vegetative cover) composed of perennial forb, grass, and sedge mixtures growing on saturated soils. Woody plants are not dominant and standing water is usually only present during floods and snowmelt. Inland fresh meadows often form a transition zone between aquatic communities and uplands. Peat/muck soils indicate permanent saturation and anaerobic conditions, while communities occurring on hydric mineral soils are frequently saturated for long durations resulting in at least periodic anaerobic conditions. Plants occurring in inland fresh meadows include species found in other communities, such as the annuals of seasonally flooded basins, emergent aquatics of marshes, and invading shrubs or trees, which are present as scattered, small individuals. The forbs, grasses, and sedges of inland fresh meadows can tolerate inundation to a greater degree than most woody species, but they suffer if inundation during the growing season lasts for more than one or two weeks. Because these wetlands lack standing water during most of the growing season, they are often called “dry marshes.”

Fresh (wet) meadows are dominated by grasses, such as redtop grass and reed canary grass, and by forbs such as giant goldenrod, growing on saturated soils. The grass family (*Poaceae*) and aster family (*Asteraceae*) are well represented in fresh (wet) meadows. The forbs and grasses of these meadows tend to be less competitive, more nutrient demanding, and often shorter-lived species than the sedges of the sedge meadow community. Therefore, fresh (wet) meadows may represent younger communities that indicate recent disturbances of other inland fresh meadows by drainage, siltation, cultivation, pasturing, peat fires and/or temporary flooding. Once established, the forbs and grasses of the fresh (wet) meadow community may persist for extended periods of time.

Wet to wet-mesic prairies are open, herbaceous plant communities dominated by native grass and grass-like species; at least half of the vegetative cover is made up of true grasses (Curtis 1971). These communities are similar to fresh (wet) meadows, but are dominated by native grasses and forbs associated with prairies such as prairie cord-grass, big bluestem, switchgrass, narrow reedgrass, gayfeather, New England aster, culver's root, prairie dock and sawtooth sunflower. Wet

to wet-mesic prairie communities predominantly occur south of the vegetation tension zone, however, some prairie communities are found in sandy barrens and wet swales north of the tension zone.

5. Calcareous Fens

Calcareous fens are the rarest wetland plant community in Minnesota and Wisconsin, and probably one of the rarest in North America. These are plant communities of saturated, seepage sites that have an internal flow of groundwater rich in calcium and magnesium bicarbonates, and sometimes calcium and magnesium sulfates as well (Curtis 1971). The calcium and magnesium bicarbonates and sulfates precipitate out at the surface, creating a harsh, alkaline soil condition. Only a select group of calcium-tolerant plants, referred to as calciphiles, can tolerate these conditions. Healthy (unaltered) calcareous fens are sedge-dominated by *Carex* species (e.g. sterile sedge (*C. sterilis*), prairie sedge (*C. prairea*), common stiff sedge (*C. tetanica*), Buxbaum's sedge (*C. buxbaumii*) as well as beaked spike-rush (*Eleocharis rostellata*), twig-rush (*Cladium mariscoides*) and hair beak-rush (*Rhynchospora capillacea*). Characteristic grasses and forbs include wild timothy, Ohio goldenrod, Grass-of-Parnassus, common valerian, brook lobelia, and lesser fringed gentian. Shrubby cinquefoil and sage willow are characteristic shrubs. Included are species disjunct from the tundra, alpine meadows, and salt marshes. Therefore, calcareous fens are described as a hybrid community by Curtis (1971).

6. Bogs (Open or Coniferous Bogs)

Bogs are a specialized wetland community found on saturated, acidic, peat soils that have low concentrations of minerals (e.g. calcium, magnesium) and essential nutrients (phosphorus, nitrogen). They support a unique assemblage of trees, low shrubs, sedges and forbs growing on a mat of *Sphagnum* mosses (Curtis 1971). In Minnesota and Wisconsin, most bogs are found north of the vegetation tension zone.

Open bogs are composed of a carpet of living *Sphagnum* moss growing over a layer of acidic peat. Sedges, forbs and/or the low shrubs of the heath family (*Ericaceae*) colonize the *Sphagnum* moss mat, usually stunted trees of black spruce and/or tamarack may be present. Lack of forest is probably due to: conditions too wet for the tree species; *Sphagnum* moss mat too thin to support trees; recurrent fires; summer frosts; and/or lack of a seed source for the tree species.

Coniferous bogs are similar to open bogs in plant community composition except that mature trees of black spruce and/or tamarack are the dominant canopy species growing on the *Sphagnum* moss mat. *Sphagnum* moss is the dominant groundlayer species. Sedges, orchids, and pitcher plants that have endured the shaded conditions are typically present, along with the heath family (*Ericaceae*) shrubs.

7. Shrubs Swamps (Shrub Carrs or Alder Thickets)

Shrub swamps are wetland plant communities dominated by woody vegetation less than 20 feet in height and with a dbh of less than 6 inches. Shrub swamps in Minnesota and Wisconsin are

categorized as shrub-carrs and alder thickets depending on the dominant shrub species. Both occur on organic soils (peat/muck) as well as on hydric mineral soils.

Shrub-carrs are plant communities composed of tall, deciduous shrubs growing on saturated to seasonally flooded soils. Dominant shrubs are typically willows, red-osier dogwood, silky dogwood, or gray dogwood. Groundlayer species typically include some of the ferns, forbs, grasses, and sedges of sedge meadow and fresh (wet) meadow communities. The diversity of groundlayer species is dependent on degree of shrub canopy cover, degree of disturbance, water source, and other factors. For example, disturbed shrub-carrs may have a groundlayer dominated reed canary grass, an invasive species. Relatively undisturbed shrub-carrs can have a high diversity of groundlayer species.

Alder thickets are a tall, deciduous shrub community similar to shrub-carrs except that speckled alder is dominant. Speckled alder can pioneer exposed peat or alluvial soils because of its tiny seeds and ability to fix nitrogen. Alder thickets are generally found in and north of the vegetation tension zone.

8. Wooded Swamps (*Hardwood or Coniferous Swamps*)

Wooded swamps are forested wetlands dominated by mature conifers and lowland hardwoods. They are usually associated with ancient lake basins and retired riverine oxbows. Wooded swamps include the northern wet-mesic forest and the southern wet and wet-mesic hardwood associations described by Curtis (1971).

Hardwood swamps are dominated by deciduous hardwood trees and have soils that are saturated during much of the growing season, and may be inundated by as much as a foot of standing water (Shaw and Fredine 1971). Hummocky microtopography is a frequent trait. Dominant trees include black ash, red maple, yellow birch balsam poplar, quaking aspen and, south of the vegetation tension zone, silver maple. Northern white cedar can be a sub-dominant species in stands within and north of the vegetation tension zone. American elm is still an important component of this community, although its numbers have been greatly reduced by Dutch elm disease. Soils are often peats or mucks, but can include hydric mineral soils. Vernal pools often occur in wooded swamps. These consist of depressions within upland forests that are ponded early in the growing season, and then dry down for the majority of the growing season. The herb layer may be sparse to absent given the alternating periods of ponding and drawdown.

Coniferous swamps are forested wetlands dominated by lowland conifers, primarily northern white cedar and tamarack, growing on soils that are saturated during much of the growing season, and that may be temporarily inundated by as much as a foot of standing water. Balsam fir is a component in some stands. Soils are usually organic (peat/muck) but not as acidic and not as poor in nutrients and minerals as those of coniferous bogs. Instead, soils vary from somewhat mineral-poor and acidic, to mineral-rich and alkaline. Tamarack typically dominates on the former soils, and northern white cedar on the latter. A continuous *Sphagnum* moss mat is not present. Coniferous swamps occur primarily in and north of the vegetation tension zone. However, several large tamarack swamps occur south of the tension zone.

9. Floodplain Forests

Floodplain forests are wetlands dominated by mature, deciduous hardwood trees growing on alluvial soils associated with riverine systems. The soils are inundated during flood events, but are usually somewhat well-drained for much of the growing season (Shaw and Fredine 1971). The most characteristic feature of floodplains is the alluvial soil that is constantly being deposited in some locations and eroded away in others. Floodplain forests typically include the northern and southern wet-mesic hardwood forest associations described by Curtis (1971). Dominant hardwoods include silver maple, green ash, river birch, swamp white oak, plains cottonwood, American elm, and black willow. The shrub layer is typically sparse to lacking because of frequent flooding. Woody vines are more prevalent in floodplain forests than any other forested wetland community. Examples include wild grape, Virginia creeper and moonseed. The herbaceous groundlayer can be sparse and include jewelweed, nettles, and certain sedges. In some cases, reed canary grass has invaded and formed a monotypic groundlayer.

10. Seasonally Flooded Basins

Seasonally flooded basins are poorly drained, shallow depressions that typically have standing water for a few weeks each year, but are usually dry for much of the growing season. These basins include kettles in glacial deposits (e.g. prairie potholes), low spots in outwash plains, or depressions in floodplains. They are frequently cultivated. However, even when cultivated, wetland vegetation can become established if the planted crop is stressed or drowned out. Typical species include smartweeds, beggarticks, nut-grasses, and wild millet. One unique aspect of seasonally flooded basins is that the alternating periods of flood and drought can eliminate perennial plants so that annual plant species typically dominate the community.