# Mitigation Bank Instrument
# **Review Workbook**

November 2022
EPA-840-B-22005


Prepared by:

Ecosystem Planning & Restoration

**Ecosystem Planning and Restoration, LLC**
8808 Centre Park Drive, Suite 205
Columbia, MD 21045

Prepared for:

EPA
United States
Environmental Protection
Agency

# Acknowledgements

This project was funded by the U.S. Environmental Protection Agency (EPA) through EPA IDIQ contract (EP-C-17-001) to Ecosystem Planning and Restoration (EPR). Erin Knauer, Environmental Scientist with EPR, and Steven Martin, subject matter expert, co-wrote and edited this document with oversight, guidance, and close review by staff from EPA's Office of Wetlands Oceans and Watersheds: Brian Topping, Palmer Hough, and Emily French (former Oak Ridge Institute of Science and Education Fellow). Brian, Palmer, and Emily also led the effort to assemble a steering committee (SC) to solicit input from regulators and industry experts across the nation. The review and individual input from the steering committee members were essential to making this document a more comprehensive and relevant guide for interagency reviewers, federal and state regulators, and industry professionals alike to reference in producing and/or reviewing mitigation instruments and associated documents. The steering committee included the following participants:

Kate Thompson, Washington Department of Ecology
Devin Schenck, The Nature Conservancy
Pam Fetterman, Ecogenesis/Ecological Restoration Business Association
Melissa Scianni, EPA Region IX
Melody Rudenko, Oregon Department of State Lands
Charlotte Kucera, U.S. Fish and Wildlife Service
Stacia Bax, Missouri Department of Natural Resources
Jessi Miller, U.S. Fish and Wildlife Service
Susan-Marie Stedman, NOAA
Donna Collier, Valencia Wetland Trust/National Environmental Banking Association
Andrew D Beaudet, U.S. Army Corps of Engineers Headquarters
Michelle L Mattson, Institute for Water Resources, U.S. Army Corps of Engineers
Valerie L Layne, Institute for Water Resources, U.S. Army Corps of Engineers
Calvin L Alvarez, Alaska District, U.S. Army Corps of Engineers

Special thanks are due to other collaborators including:
Jeanne Richardson, Norfolk District, U.S. Army Corps of Engineers
Sara Johnson, Ecological Restoration Business Association
Stephanie TomCoupe, National Fish and Wildlife Foundation
Timothy Dicintio, National Fish and Wildlife Foundation

Citation:
Knauer, E., Martin, S., Topping, B., Hough, P., and French, E. 2022. Bank Instrument Review Workbook and Checklist. Document No. EPA-840-B-22005

Cover Image:
Erin Knauer – Constructed wetlands at an EPR designed Maryland wetland restoration site.

**Disclaimer**: This document organizes technical and programmatic information to facilitate the efficient review of a draft mitigation bank instrument. It is not intended, nor can it be relied upon, to create any rights enforceable by any party in litigation with the United States. Anyone may decide to use the questions and information provided in this document or not. The statutory provisions and regulations described in this document contain legally binding requirements. This document does not substitute for those provisions or regulations, nor is it a regulation itself. Thus, it does not impose legally binding requirements on EPA, the Corps, States, or the regulated community and may not apply to a particular situation based on the circumstances. Any decisions regarding a particular mitigation bank will be made based on the statute and regulations. Therefore, interested parties are free to raise questions and objections about the substance of these documents and the appropriateness of the application of these documents to a particular situation.

# Table of Contents

# Table of Contents

## Figures



## Tables

# Introduction

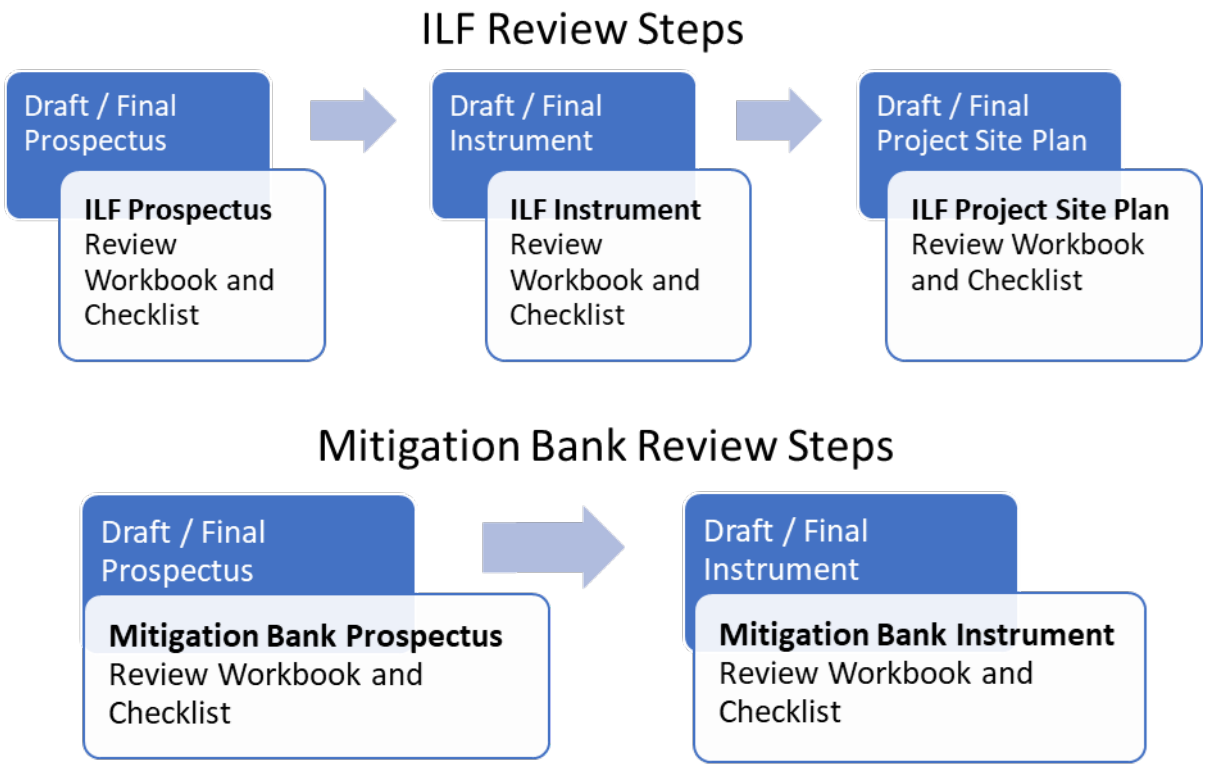
In 2007, the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (EPA) began training federal, state, and tribal members of Interagency Review Teams (IRTs) on the review and approval process for mitigation banks and in-lieu fee (ILF) programs through national and regional courses.[1] In 2008, the Corps and EPA issued joint regulations known as the Mitigation Rule, which standardized the review and approval process for mitigation banks and ILF programs. This review workbook and checklist reflect the lessons learned through more than a decade of teaching and learning from participants across the country. This workbook is one of a series of five review workbooks with one for each of the following: Mitigation Bank Prospectus, Mitigation Bank Instrument, ILF Prospectus, ILF Instrument, and ILF Project Site Plan. Each workbook is accompanied by a checklist that takes the mitigation review elements from each workbook and puts them in a fillable document to help track the IRT members' review progress and comments. Where the review elements are the same for mitigation banks and ILF programs the corresponding workbooks are the same.

The workbooks provide many references and example practices discussed during the trainings and are organized according to the mitigation elements identified in the Mitigation Rule. Each mitigation element includes the relevant regulatory text, examples of how it is addressed from different District templates or instruments, and a series of questions to help IRT members adequately review all the relevant information needed to understand the proposal. The workbooks and checklists are technical resources to provide an organized structure for reviewing mitigation bank and ILF program proposals and ensuring that all aspects of the Mitigation Rule are considered. The checklist includes each review element question in a table for easily identifying what information has been reviewed and where any comments or questions remain after review. Bank and ILF proposals can often be hundreds of pages long and organized as a single or multiple documents The checklists have been designed to help track where the information is and determine if more information or clarification is needed.

The complete set of five workbooks covers each of the major review steps for a mitigation bank and an ILF program development, as shown below (Figure 1). Bank review starts with the workbook and checklist for the mitigation bank prospectus. The bank prospectus workbook covers the eight review elements from the Mitigation Rule associated with a mitigation bank prospectus. Next is the mitigation bank instrument review workbook, which starts by asking if there are any unresolved questions from the bank prospectus review and then focuses on the 18 elements required for mitigation bank instruments. The ILF proposal review is a bit more complicated, with three workbooks and associated checklists. The ILF program prospectus covers the eight review elements from the Mitigation Rule associated with an ILF prospectus (six in common with the Mitigation Bank Prospectus Workbook). The ILF program instrument workbook differs from the bank instrument review workbook because it only covers 11 review elements needed for establishing the program, five in common with bank instruments, and six that only pertain to the ILF program instruments (Figure 1). Lastly, there is the ILF project site plan review workbook that covers 19 review elements including all 18 elements required for a mitigation bank instrument and one additional element specific to establishing ILF sites.

[1] See: https://www.conservationfund.org/our-work/conservation-leadership-network/our-services/training-resources-3rd-party-mitigation-interagency-review-team

*Figure 1. Mitigation bank and ILF workbooks and checklists*




This workbook and checklist are intended for use by members of the IRT to facilitate the review of a bank instrument and other documents associated with establishment and operation of the mitigation bank. Banks are large and often complex projects with many elements required under regulations, local guidelines, and practices. Accordingly, bank instruments are typically large and complex documents, often with multiple supporting attachments or exhibits. The purpose of an IRT instrument review is to determine if a proposed mitigation bank is an ecologically beneficial project that will compensate for lost aquatic resource functions and services. This workbook and the associated checklist were developed to facilitate the IRT review of bank instruments. It can be used to organize the bank instrument review process specified in the Mitigation Rule (33 CFR 332/ 40 CFR 230.92). It describes the elements that make up the bank's mitigation plan and features that are necessary for bank operations. It is not intended to provide local guidelines and policies or to replace any locally developed templates, tools, or guidelines used to prepare and review bank instruments.

**Prospectus Workbook Review Elements**

1. Objectives of the proposed bank
2. How the bank will be established and operated
3. Proposed service area(s)
4. General need and technical feasibility of the proposed bank
5. Proposed ownership arrangements and long-term management strategy for the mitigation bank
6. Qualifications of the Sponsor to successfully complete the type of mitigation project(s) proposed
7. Ecological suitability of the site to achieve the proposed bank's objectives
8. Assurance of sufficient water rights to support long-term sustainability of the proposed bank (33 CFR 332.8(d)(2)/40 CFR 230.98(d)(2))

Before delving into review of the draft bank instrument, the reviewer should examine the mitigation bank prospectus workbook and checklist questions, which are separate documents used to facilitate IRT review of the prospectus. This will aid the IRT reviewers in identifying and evaluating how any concerns of the prospectus have been addressed in the bank instrument. The prospectus workbook and checklist address the following eight elements of a bank proposal:

**Workbook Organization**

This workbook and associated checklist cover 18 separate review elements typically associated with bank instruments. Twelve of these elements are required for all mitigation plans (permittee responsible, mitigation bank, and ILF project proposals), the other six are specific to banks (and must also be addressed in ILF program instruments or project proposals). Taken together, these 18 elements are used to reduce the risk of potential bank failure, such as failure to complete construction, meet its performance standards, or continue long-term management when banking operations cease.

Examples of how these elements function to reduce risk [follow][include]:

- Financial assurances are used to help ensure that a bank has adequate resources available to guarantee a site is constructed, managed, and monitored throughout its operational life.
- The site protection mechanism is used to ensure that incompatible activities are prohibited on a bank site.
- The credit release schedule makes credits available to the Sponsor based on the project meeting performance milestones.

Collectively these and the other elements work to minimize risk of failure. It is important to realize that although risk can be minimized, it can never be completely eliminated.

To organize the 18 elements in these workbooks, they have been grouped into three logical categories that relate to their role in a bank: Bank Establishment (denoted with a *), Bank Operations (denoted with a #), and Performance and Management (denoted with a +). Note that these groupings do not reflect the order in which the Sponsor might undertake them but are instead a suggested logical grouping to facilitate an efficient IRT review of the draft instrument.

| **12 Elements of a Mitigation Plan** | **6 Elements of a Bank Instrument** |
|---|---|
| Goals and objectives* | Service area* |
| Site selection* | Credit release schedule# |
| Site protection* | Accounting procedures# |
| Baseline information* | Reporting protocols# |
| Credit determination* | Assumption of mitigation responsibility# |
| Mitigation work plan* | Deafault & closure provisions# |
| Maintanance plan+ | |
| Performance standards+ | |
| Monitoring requirements+ | |
| Long-term management plan+ | |
| Adaptive management plan+ | |
| Financial assurances* | |

**Bank Establishment** refers to those elements that must be resolved/in-place for the bank site to be identified and constructed. The elements in this grouping include goals and objectives, site selection, baseline information, mitigation work plan, financial assurances, site protection, and service area. Note, the term bank establishment as discussed in this Bank Instrument Review Workbook is NOT the same as what may be used in other district or state guidance or template documents. For example, the California Bank Enabling Instrument (BEI) template refers to bank establishment as once the instrument is signed, financial assurances are in place, and site protection measures are recorded.

**Bank Operations** includes those elements directly related to operations. These elements include credit determination, credit release schedule (schedule of credit availability to the Sponsor), provisions for the Sponsor to assume permittee mitigation responsibility, accounting procedures (for each and all credit transactions), reporting protocols (monitoring reports, ledger accounts, and status of financial assurances and long-term management funding), and provisions related to default (failure to comply with the instrument) and closure of the bank site.

**Performance and Management** includes those elements that ensure the bank meets its ecological targets and develops into the intended resource. It includes performance standards, monitoring requirements (to evaluate attainment of standards), maintenance plan (as part of overall management), adaptive management plan (as necessary to ensure that performance standards are met), and long-term management of the project (to ensure it is sustainable beyond the bank operations phase).

All of the mitigation bank instrument review elements are interrelated and will be referenced repeatedly throughout this workbook. In many cases, one section in a workbook may refer the reader to another section of the workbook. For example, a bank's goals and objectives are the basis for performance standards (performance standards are used to evaluate attainment of goals and objectives), which are themselves evaluated through regular monitoring reports submitted to the IRT.

# Background

For every permit issued by the Corps under Clean Water ACT (CWA) section 404, adverse impacts to wetlands, streams, estuaries, and other aquatic resources must be avoided and minimized to the extent practicable. For those unavoidable impacts, compensatory mitigation is typically required to replace the loss of wetland, stream, and other aquatic resource functions in the watershed.[2] Compensatory mitigation refers to the restoration, establishment (creation), enhancement, or preservation of wetlands, streams, estuaries, or other aquatic resources in order to offset these unavoidable adverse impacts.

In 2008, the Corps and the EPA issued joint regulations known as the Mitigation Rule.[3] These regulations established standards for all compensatory mitigation projects to offset permitted losses under CWA section 404. The Mitigation Rule recognizes three mechanisms for satisfying compensatory mitigation requirements: mitigation banks, ILF programs, and permittee-responsible mitigation (PRM). Equivalent standards are required for all compensatory mitigation projects regardless of the mechanism used to develop that project. This document focuses on reviewing and developing a mitigation bank instrument.

**Organization of the mitigation rule**
(Corps: 33 CFR 332/ EPA 40 CFR 230)

- The mitigation rule is divided into 8 sections:
  1. Purpose and general considerations
  2. Definitions
  3. General compensatory mitigation requirements
  4. Planning and documentation
  5. Ecological performance standards
  6. Monitoring
  7. Management
  8. Mitigation banks and in-lieu fee (ILF) programs
- The first seven sections apply to all forms of compensatory mitigation
- The last section establishes standards that apply only to mitigation banks and ILF programs.

- **Mitigation Bank (bank):** A mitigation bank is a project where aquatic resources have been restored, established, enhanced, or preserved in advance of permitted losses of aquatic resource functions or services. Banks typically provide consolidated compensation for multiple permit actions. With the approval of regulatory agencies, permittees can acquire credits from a bank to[6] meet their permit requirements for compensatory mitigation. The bank Sponsor (not the permittee) is responsible for the success of the bank project. Banks provide off-site compensation, meaning the compensation is at a location not typically on or immediately adjacent to the permitted impacts. Bank operation is governed by an instrument that the Sponsor drafts, often based on district or state-provided templates, and is subject to review and approval by the Corps and its state and federal counterparts who compose the IRT.

[2] For some resource types, it may be preferable to site compensatory mitigation projects using geographic units other than watersheds. For example, for vernal pools, landscape units known as vernal pool regions may be preferable and for coral reefs, tidal wetlands, and other marine and estuarine resources, seascape units such as reef complex or littoral drift cell may be preferable. According to the RIBITS, projects using seascape or landscape units to site compensatory mitigation projects make up less than 5% of ILF projects.
[3] The appropriate citation from the Code of Federal Regulations associated with the Corps is 33 CFR Part 332 and EPA is 40 CFR Part 230, both are included throughout the workbooks.

- **ILF Programs:** ILF programs are established by a public agency or non-profit organization (the ILF Sponsor) and sell credits to permittees. The Sponsor commits to use those funds to perform mitigation activities. Typically, the Sponsor collects funds from multiple permittees in order to pool the financial resources necessary to build and maintain the mitigation site. The ILF Sponsor is responsible for the success of the mitigation. Like banking, ILF mitigation is also typically off-site; however, unlike banking, the mitigation typically occurs after the permitted impacts. Many districts/states require additional compensation to offset this temporal lag (see 33 CFR 332.3(f)(2)/40 CFR 230.93(f)(2)). Like banks, ILF program operation is governed by an instrument drafted by the Sponsor, often based on district or state-provided templates, and is subject to review and approval by the Corps and the IRT.

**Templates:** Many districts have developed prospectus templates to increase review efficacy. These templates are becoming more commonplace and encouraged by many district and state policies and practices. The IRT staff should be aware of language revision constraints and refrain from commenting on prior, approved language within the templates or providing comments that conflict with the approved template.

- **Permittee-Responsible Mitigation:** PRM is undertaken by a permittee to compensate for aquatic resource impacts resulting from a specific project. The permittee generally performs the mitigation after the permit is issued but prior to or concurrent with the initiation of permitted impacts. The permittee is responsible (liable) for implementation, success and long-term protection and management of the mitigation project. The permit governs the Permittee-Responsible Mitigation (PRM). There is no IRT involvement or instrument associated with PRM, and PRM may occur at the site of the permitted impacts or an off-site location within the same watershed

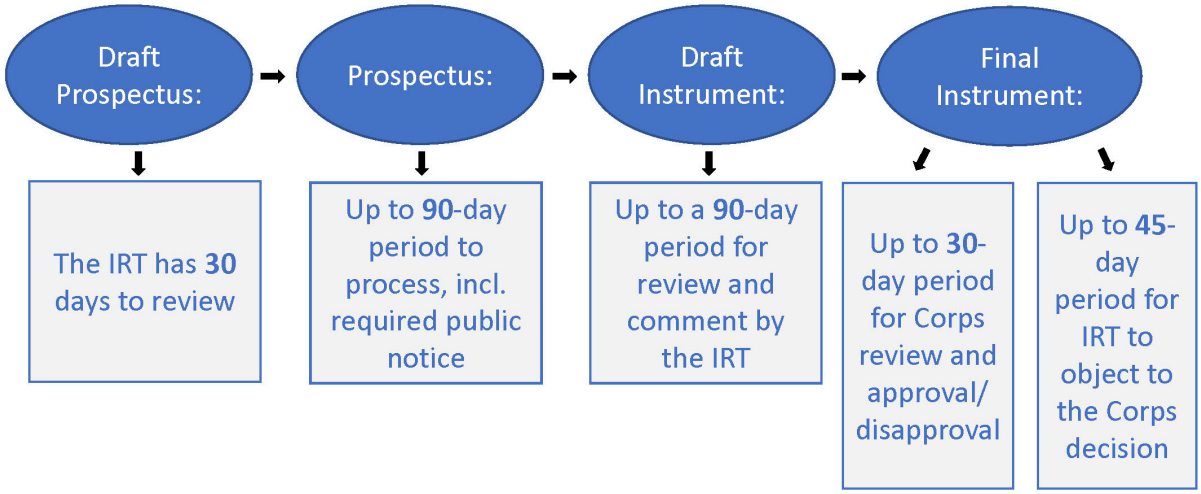
**Mitigation Preference Hierarchy:** The Mitigation Rule established a preference hierarchy for mitigation credits (33 CFR 332.3(b)(2) and (3)/40 CFR 230.93(b)(2) and (3)). Under this hierarchy if the appropriate type (wetland, stream, etc.) of released credits are available from a mitigation bank or an ILF project in a service area that includes the permitted impact, those credits are generally preferred over advance credits from ILF programs or PRM projects that have not been initiated.

Banks are a preferred form of compensatory mitigation under the Mitigation Rule because they implement projects in advance of permitted losses thus reducing temporal losses of functions and uncertainty of project success. Using released credits from banks and ILF projects is generally preferred over PRM or advance credits from an ILF program because credits from each are available only upon implementation and satisfying performance milestones. Additionally, banks consolidate compensatory mitigation projects where ecologically appropriate, combining resources (including financial as well as agency resources), and scientific and technical expertise (this may be more of a challenge or even impractical for small PRM projects). Bank instruments may also be authorized to provide offsets under other regulatory authorities such as state counterparts to CWA section 404, CWA section 402, or the Endangered Species Act.

Bank instrument development follows a four-step approval process (see Figure 2). The Sponsor is responsible for preparing and submitting all documentation associated with the instrument to the IRT for review.[4] The timelines depicted in Figure 2 are contingent upon the submittal of complete documents by the Sponsor at each step in the process.

[4] Development and review of ILF program instruments as well as ILF projects (project sites implemented by an ILF program) follow the same four-step process as development of bank instruments. An ILF project proposal is required to provide the same information as a bank project.

*Figure 2. Bank program development*




**Draft Prospectus** submittal is considered an optional step in the Mitigation Rule, although many districts/states require submittal. The purpose is to allow identification of any potential issues with the project early in the process so the Sponsor can address them prior to start of the formal process.

**Prospectus** submittal is required for all bank proposals. The Corps is required to issue a 30-day public notice for the complete prospectus. All comments received in response to the public notice are shared with the Sponsor and IRT within 15-days of the end of the public notice. The Corps will provide the Sponsor with an initial evaluation letter (IEL), stating the potential suitability of the proposal to provide compensatory mitigation. If the proposal is suitable, the Sponsor may be directed to prepare a draft instrument. If the proposal is deemed unsuitable, the Sponsor may revise the prospectus to address the deficiencies and resubmit. An approved prospectus does NOT guarantee approval of a proposed bank. On a number of occasions, the districts have determined that a proposed bank is not potentially suitable for providing compensatory mitigation regardless of revision. In those cases, districts and/or Sponsors have withdrawn those proposals from further consideration.

**Draft Instrument** is submitted to the IRT by the Sponsor for review and comment. The IRT Chair or co-chairs are responsible for providing all comments to the Sponsor to be addressed in the final instrument, within 90-days of receipt of the complete draft Bank Instrument. Review can be delayed for a number of reasons, including:

- Endangered Species consultation
- Cultural/Historic resources coordination (Section 106 NHRPA)
- Government to Government coordination (tribal coordination)
- Sponsor's failure to provide necessary information
- Necessary information cannot be secured within the specified timeframe

**Final Instrument** is then submitted to the IRT by the Sponsor, along with documentation indicating how the Sponsor addressed previous comments on the draft instrument. Within 30-days of receipt of the complete Bank Instrument, the Corps must notify the rest of the IRT of its intent to approve/disapprove the Final Instrument. If a federal member of the IRT disagrees, he/she may then object to the Corps decision and initiate a formal dispute resolution process. There is no automatic approval of a bank (or ILF program) instrument.

**Delays in Instrument Review**

Delays in the timelines specified in the Mitigation Rule for review and comment on the prospectus and instruments can affect bank planning and feasibility. For example, purchase and sale agreements for land purchases generally allow a limited time period for due diligence/feasibility evaluation. The Sponsor's ability to develop program elements is more difficult when regulatory timelines are not followed.

Review can be delayed for a number of reasons, including:

- Completion of Endangered Species consultation
- Completion of Cultural/Historic resources coordination (Section 106 NHRPA)
- Government to Government coordination (tribal coordination)
- Sponsor's failure to provide necessary information
- The necessary information cannot be secured within specified timeframe
- IRT members failing to provide timely reviews

# Terminology

**Assessment methodology:** The mechanism or tool used to evaluate the loss of functions or services at the permitted impact site as well as the gain in functions or services provided at the compensation site. Assessment methods vary by aquatic resource type (i.e., wetlands, streams) and between districts/states.

**Bank phases:** A separate segment or stage of bank construction or development. In order to separate a bank into Phases, the Sponsor should demonstrate, to the satisfaction of the IRT, that the initial Phase would be ecologically viable and acceptable as a standalone bank if additional Phases are never constructed. Subsequent Phases must build upon the ecological and aquatic resource functions of the initial Phase.

**Compensatory mitigation methods:** There are four compensatory mitigation methods, restoration, establishment, enhancement, and preservation:

- **Restoration** encompasses two types of actions, re-establishment of aquatic resources in a place where those resources formerly occurred (e.g., prior converted cropland) and rehabilitation of degraded aquatic resources. Much of the stream mitigation implemented involves the rehabilitation of degraded streams;
- **Establishment** (creation) is the development of an aquatic resource where one did not previously occur;
- **Enhancement** is the manipulation of one or more characteristics of an aquatic resource to improve or intensify one or more aquatic resource functions; and
- **Preservation** means removing any threat of destruction or adverse modification to an aquatic resource through appropriate physical and legal mechanisms.

**Credit:** a unit of measurement (functional, areal, or other suitable metrics) representing an accrual of aquatic functions at a mitigation site. The measure of credits is based on the resources restored, established, enhanced, or preserved. Credits are the currency that a bank has to trade in.

**District:** refers to an Army Corps of Engineers (Corps) district office.

**Functions:** Functions are the physical, chemical, and/or biological processes that occur in ecosystems (e.g., denitrification or carbon sequestration).

**Hydrologic Unit Codes (HUCs):** A nationwide hierarchical mechanism used to delineate watersheds based on surface hydrologic features. This system first developed by the USGS divides the country into 21 regions (2-digit), 222 subregions (4-digit), 370 basins (6-digit), 2,270 subbasins (8-digit), ~20,000 watersheds (10-digit), and ~100,000 sub watersheds (12-digit). HUCs are often used in the definition of mitigation bank and ILF program service areas.

**In-kind:** a resource of a similar structural and functional type to the impacted resource.

**Instrument:** Refers to the banking instrument and all associated exhibits/attachments. In some cases, the instrument is all-inclusive. In other cases, the instrument is the framework, and the exhibits/attachments provide the detail on each element (monitoring, site selection, etc.). It may also be referred to as a mitigation banking instrument (MBI), banking instrument (BI), or bank enabling instrument (BEI).

**IRT (Interagency Review Team):** An interagency group of federal, tribal, state, and/or local regulatory and resource agency representatives that reviews documentation for and advises the Chair or co-chairs (Corps district and any other agency chairing the IRT) on the establishment and management of a mitigation bank or an ILF program. The reference to the IRT or IRT reviewer in this workbook is a reference to the IRT co-chairs (Corps and any other counterpart state, tribal, or federal agency with independent regulatory authority) as well as other IRT members (other federal, tribal, state, or local agency included on the IRT).

**Multiple authority banks:** Also called "joint banks." These are banks that provide compensatory mitigation for resource impacts under more than one regulatory authority. Examples include banks that provide compensation for resources regulated under CWA section 404 and state law or compensation for impact to resources regulated under CWA section 404 and the Endangered Species Act. Each regulatory agency has authority over credits providing compensation for impacts authorized under its authority.

**Out-of-kind:** A resource of a different structural and functional type than the impacted resource.

**Resource type:** The type of aquatic resource considered. Examples include wetlands, streams, marine habitats, or subsets like vernal pools, pine savannas, tidal marsh, intermittent streams, lagoons, etc.

**RIBITS:** The national web-based application used by a number of federal agencies to track mitigation bank and in-lieu fee activities. Sponsors and regulators use RIBITs for the management of ledger and reporting activities. To access it, go to: https://ribits.ops.usace.army.mil/ords/f?p=107:2

**Service area:** The geographic area within which impacts can be mitigated at a specific bank or ILF Program, as specified in the instrument (33 CFR 332.2/40 CFR 230.92.2).

**Services:** Are the benefits that human populations receive from the functions provided by ecosystems (e.g., flood flow attenuation or water quality improvement).

**Sponsor:** Any public or private entity responsible for establishing and, in most circumstances, operating a bank.

**Subordination agreement (in the context of other interests in property):** In compensatory mitigation, a subordination agreement makes any previously recorded easements, liens or encumbrances take second place in the mitigation site protection instrument. For example, suppose a mitigation site protection instrument was recorded after a deed to secure a debt, and the land was subsequently foreclosed upon to settle the debt. In that case, the site protection instrument could be terminated. Subordination makes the compensatory mitigation interest the primary property interest ("first in right") and allows greater assurance that the mitigation site will withstand adverse actions such as foreclosure.

**Temporal loss:** The time lag between the loss of aquatic resource functions or services and the replacement of aquatic resource functions or services at the compensatory mitigation site.

**Umbrella bank instrument:** Single mitigation banking instrument that may provide for future authorization of additional bank sites. As additional bank sites are selected, they must be included in the mitigation banking instrument as modifications to the original instrument (33 CFR 332.8(h)/40 CFR 230.98(h)). These modifications are subject to the prospectus and public notice requirements associated with any proposed mitigation bank.

**Watershed approach:** An analytical and strategic approach for selecting compensatory mitigation projects that consider the needs of a watershed and how the location and types of compensatory mitigation projects within the watershed address those needs.

# Commonly Used Acronyms

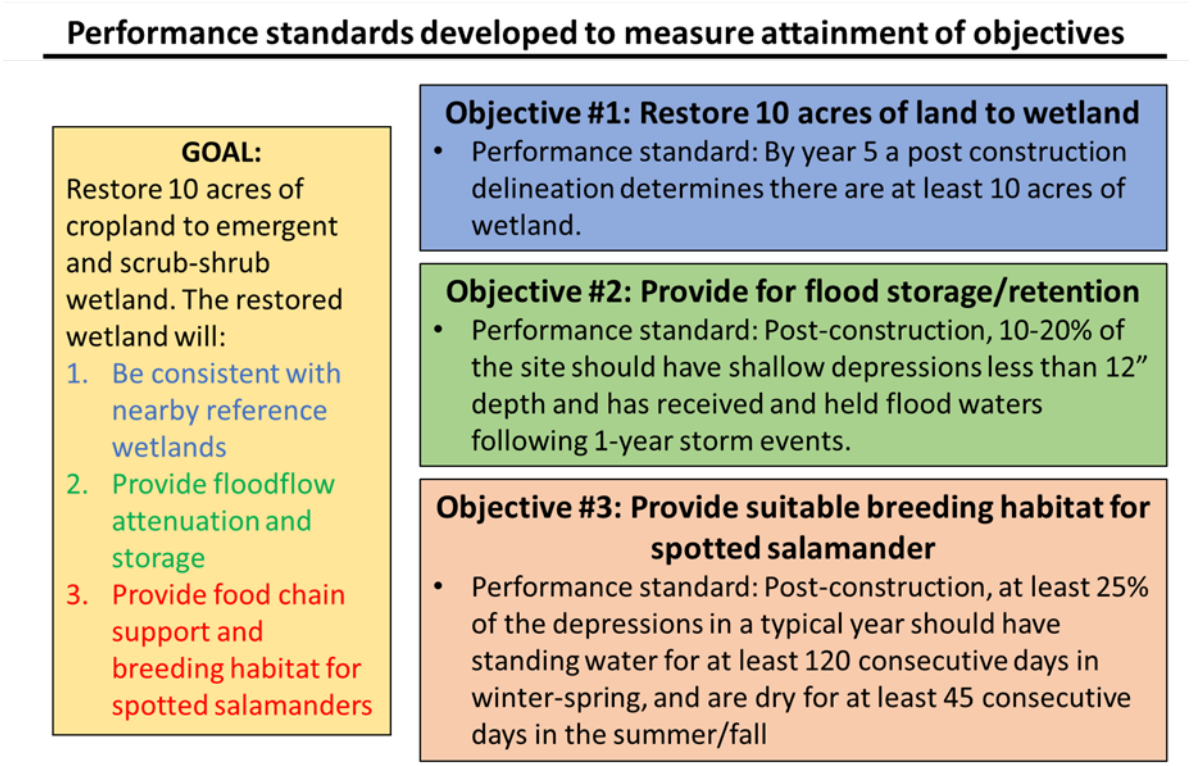
Bank Enabling Instrument (BEI)
Banking Instrument (BI)
Compensatory Planning Framework (CPF)
Environmental Protection Agency (EPA)
Geographic Information Systems (GIS)
Hydrologic Unit Codes (HUCs)
Interagency Review Team (IRT)
Initial Evaluation Letter (IEL)
In-lieu fee (ILF)
Letters of Intent (LOI)
Long-term management (LTM)
Mitigation Banking Instrument (MBI)
Permittee Responsible Mitigation (PRM)
Regulatory In-lieu Fee and Bank Information Tracking System (RIBITS)
United States Army Corps of Engineers (Corps or USACE)

# Bank Establishment

# 1. Bank Goals and Objectives

Goals are the general guidelines that explain what you want to achieve and the rationale (why) for doing a project. Objectives identify a specific element of the goal and may define the strategies or steps needed to attain the stated goals (Ossinger 1999; Figure 3). Goals and objectives reflect the project's purpose and need (goal), functions and services to be addressed (goal), and how the project will meet the defined performance standards (objective – measurable and quantifiable).

*Figure 3. An example of a goal and associated objectives*




## 1a. Does the instrument include a description of the resource type(s) and approximate amount(s) that will be provided?

The type and amount of resource(s) to be provided by the bank must be identified to enable reviewers to evaluate whether resources are consistent with the site's compensatory mitigation potential. On occasion, bank instruments may propose establishing resource types (wetlands or streams) that are not consistent with the landscape setting of the bank site or that would not be sustainable. Those proposals are generally discouraged and should be reviewed carefully. The IRT reviewers can consider whether the desired resource types and amounts specified in the workplan are consistent with the district/state credit determination mechanism.

Each bank site will have its own site plan, which should provide a description of the resource type(s) and amount(s) to be provided by the bank site. An umbrella bank instrument (refer to Terminology element) may have multiple bank sites.

### 1b. Does the instrument identify functions and services to be provided by the bank site?

The functions and services to be provided by the bank/site should be clearly identified to ensure they are relevant to the project and as mitigation required for unavoidable impacts. Descriptions should be focused on the functions and services targeted for improvement or preservation by the project. Seasonal wetlands may perform denitrification, which is a function, the service associated with this function is the resulting water quality improvement. Different resource types provide different functions and services. Seasonal palustrine wetland restoration may not provide the same functions as tidal wetland restoration.

### 1c. Does the instrument include the methods used for compensation?

For each resource type(s) that would be provided on the bank site, the instrument should include the amount of re-establishment, rehabilitation, establishment, enhancement, and preservation (see 33 CFR 332.2/40 CFR 230.92) proposed.

### 1d. Does the bank site address ecological resource needs within the watershed or landscape setting in which the bank site is located?

Does the instrument include a list of ecological resource needs within the watershed or landscape setting and an explanation of how the site will address the needs? The bank site should address identified ecological resource needs in the watershed, such as water quality and quantity issues (e.g., TMDLs, persistent flooding and property damage), at-risk species habitat, lost or diminishing wetland habitat types, and the instrument should explain how the site will address those needs. With respect to federally and state listed species and habitats, the mitigation project should address limiting factors, including habitat, in the respective recovery units such as watersheds, estuaries, and marine basins. This information can be found in documents such as recovery and conservation plans.

# 2. Site Selection

**Site Selection**
A description of the factors considered during the site selection process (33 CFR 332.4(c)(3)/ 40 CFR 230.94(c)(3))

How was the site selected, and is it appropriate for the mitigation type/needs? What does it mean to be an appropriate bank site? Information regarding site selection can be found in multiple locations within the regulations, as it is applicable to many of the elements/components of mitigation. This is because selection of a mitigation site is the single most important factor in determining a mitigation project's future success. Selection of a project site may influence other factors such as the ability to provide durable site protection, the likelihood of meeting ecological performance standards, credit yield from the project, and even potential long-term management needs. To ensure all components of site selection are identified and discussed, citations for the major regulatory components are included below.

**Type and location of compensatory mitigation** (33 CFR 332.3 (b)(1)/40 CFR 230.93(b)(1)):
- Bank sites should be located within the same watershed as the impact site, where they are most likely to replace lost functions, and should take into account the site's watershed scale features
- For marine and estuarine mitigation, bank sites should be located within the same marine ecological system (basin, littoral cell, or bay) where they can replace the same functions and services
- Compensation for impacts to aquatic resources in coastal watersheds should also be located in a coastal watershed where practicable

**Watershed approach** (33 CFR 332.3(c)/40 CFR 230.93(c)). Application of the watershed approach to site selection means that bank sites should take into consideration the following features within the watershed:
- Habitat requirements of important species
- Habitat loss and conversion
- Trends in land use
- Compatibility with adjacent land uses
- Ecological benefits
- Whether the project addresses watershed, estuarine, or marine needs
- The suite of functions to be provided
- Degraded aquatic resources and identification of immediate and long-term aquatic resource needs within the watershed

**Site Selection** (33 CFR 332.3(d)/40 CFR 230.93(d)) considerations:
- Hydrologic conditions, soil characteristics, and other physical and chemical characteristics
- Size and location of the site relative to hydrologic conditions (including water rights)
- Watershed scale features such as aquatic habitat diversity and habitat connectivity
- Whether the bank site may be incompatible with adjacent land use activities (i.e., development around site, bank may pose localized flooding or mosquito issues)
- Reasonably foreseeable effects the compensatory mitigation project will have on ecologically important aquatic or terrestrial resources (e.g., shallow sub-tidal habitat, mature forests), cultural sites, or habitat for federally or state-listed species

- Other relevant factors such as:
  - o Upstream/downstream watershed conditions,
  - o Likely future conditions (i.e., more development proposed or anticipated effects of sea level rise or climate change),
  - o Anticipated land use trends,
  - o local or regional goals for resource restoration or protection,
  - o Re-establishment of corridors or habitat for at-risk species,
  - o Water quality and floodplain management goals, and
  - o Relative potential for chemical contamination of aquatic resources.

**Mitigation Type** (33 CFR 332.3(e)/40 CFR 230.93(e)):

- In general, in-kind mitigation is preferred to-out-of-kind because it is more likely to compensate for functions and services lost at the impact site.
- For difficult-to-replace resources (e.g., bogs, springs, streams, Atlantic white cedar swamps) if further avoidance and minimization is not practicable, then the required compensation should be provided through in-kind rehabilitation, enhancement, or preservation.

**Some additional site selection considerations in other portions of the Mitigation Rule:**

- ***Public and Private lands*** - Banks can be situated on private or public lands, with some different requirements associated with each option (33 CFR 332.3(a)(3)/40 CFR 230.93(a)(3)).

***Private vs. public lands***

- ➢On private land, a bank is required to protect the land through a conservation easement or other protection documents.
- ➢On public lands, the land may already be considered conserved and as such may not require additional protections.

Exceptions to this include federal lands that are subject to uses incompatible with conservation like grazing, timber, and mining activities. These lands may not be the best choice for mitigation projects unless additional protection measures can be put in place (see section on site protection). Intertidal and sub-tidal lands are often state-owned. These areas may require additional measures to ensure their use for mitigation is consistent with the state agency's mission and state code. On a side note, some federal agencies may not allow compensatory mitigation actions on their lands (i.e., Fish and Wildlife Service Final Policy on NWR System and Mitigation, 1991).

- **Preservation** - Incorporating areas of preservation in a bank must comply with the five criteria for preservation discussed in (33 CFR 332.3(h)/40 CFR 230.93(h)).

**Preservation Land Criteria**

All of the following five criteria must be met:

1. Resources to be preserved provide important physical, chemical, or biological functions for the watershed,
2. Resources to be preserved contribute significantly to the ecological sustainability of the watershed, estuary, or marine area,
3. Preservation is determined to be appropriate and practicable,
4. The resources are under threat of destruction or adverse modification, and
5. The preserved site will be permanently protected through an appropriate real estate or other legal instrument (e.g., easement, title transfer to state agency or land trust).

- ***Buffers*** (33 CFR 332.3(i)/40 CFR 230.93(i)) - Both upland buffers and riparian areas may contribute to sustainability and ecological functioning of project sites - consider whether the project would establish or augment a conservation corridor.

- ***Financial assurances*** (33 CFR 332.3(n)(2)/40 CFR 230.93(n)(2) - Factors influencing the amount of short-term assurances required for a project include the size and complexity of the project, likelihood of success, and degree of project completion.

- ***Site protection*** (33 CFR 332.7(n)/40 CFR 230.97(n)) - The ability to provide durable long-term protection of a mitigation project is a key consideration in site selection. Key considerations for site protection include:
    - The potential protection mechanism (easement, declaration of restrictions, title transfer, federal facility management plan, etc.)
    - Whether the mechanism used would prohibit incompatible uses of the property
    - Whether there are any conflicting uses of property itself (i.e., mineral or timber extraction)

- **Sustainability** (33 CFR 332.7(b)/40 CFR 230.97(b)) - The project must, to the maximum extent practicable, be sustainable after performance standards have been met.

- **Long-term management** (33 CFR 332.7(d)/40 CFR 230.97(d)) - The requirement for long-term management of mitigation projects, including associated financing, may influence site selection. For example, foreseeable management needs including structures like gates, fencing, and water controls or ecological management, such as prescribed fire or control of invasive species, may be important considerations in site selection.

The section of the Mitigation Rule devoted to third-party compensatory mitigation also restates some of the site selection factors discussed in earlier sections of the federal regulations. For example, regulations discussing requirements for a prospectus (33 CFR 332.8(d)(2)(vii)(B)/40 CFR 230.98(d)(2)(vii)(B)) state that the prospectus must include consideration of potential ecological benefits that the project may provide as well as the relationship of the proposed bank to hydrologic sources (including availability of sufficient water rights to the long-term sustainability of the project).

In summary, the instrument should include:

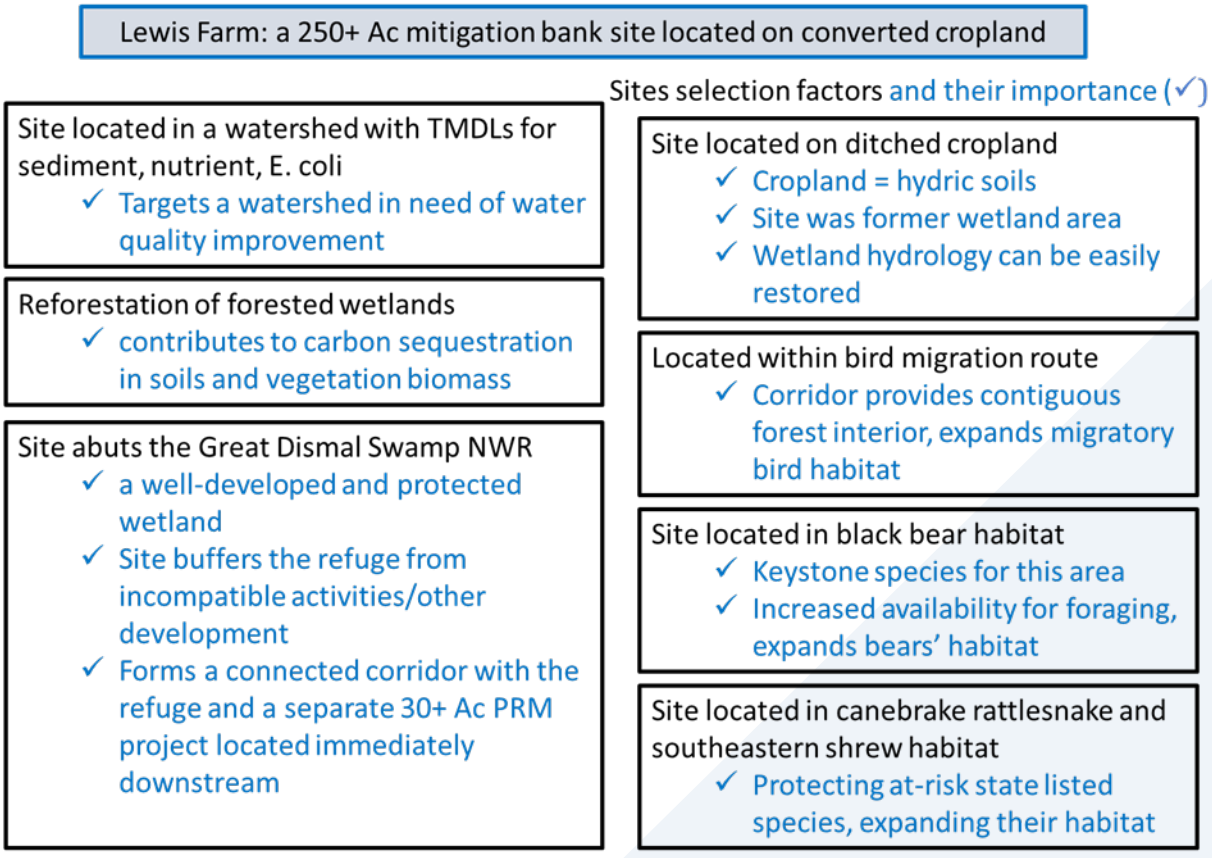
- A brief rationale for how a certain bank site was selected and an explanation for why it is a suitable candidate for fulfilling mitigation needs. The narrative should clearly state the aquatic resource functions/services proposed and identify any supporting information used in site selection, such as State Wildlife Action Plans, watershed plans, water quality improvement plans, conservation plans, recovery plans, etc.

- Discussions on the critical watershed conditions/characteristics (including those mentioned above) that could influence the success of the proposed project goals and objectives. The instrument should provide specific, concrete examples/criteria.

- For banks that include mitigation for state and federally listed species, site selection should take into consideration recovery goals and limiting factors for the target species.

A case example is provided to aid the reviewer (Figure 4). The top lines of black text in each box represent bank site selection factors, and bulleted blue text explains the importance of these factors. While all criteria may not be included, a majority should be included and addressed for a complete proposal.

*Figure 4. A case example of site selection factors*



Evaluating the below questions, the reviewer should consider the extent to which site selection addresses the bank Sponsor's goals and objectives.

### 2a. Is the bank site located within the watershed or landscape position where it is most likely to either replace lost functions and services or enhance existing, compromised functions and services as described in the draft instrument?

This question asks whether the bank site is located where it is likely to provide at least some of the functions and services typically lost as a result of permitted actions in a specific service area (33 CFR 332.3(b)(1)/40 CFR 230.93(b)(1)). These functions and services should be identified in the project's goals and objectives. The IRT reviewers should consider whether those functions and services are likely to be provided at the site. For example, a wetland restoration project located adjacent to existing wetlands may be more likely to contribute to watershed biodiversity (function); restoration of a seasonal wetland in the watershed headwaters may be more likely to support denitrification (function); and floodplain restoration in higher order floodplains may be more likely to contribute to floodwater abatement (service).

### 2b. Does the bank site include areas that were formerly aquatic resources or are currently degraded aquatic resources?

Review the proposed bank site to determine if it is or ever was an aquatic resource. The likelihood of success for a compensatory mitigation project is greater when restoring (re-establishing or rehabilitating) or enhancing degraded aquatic resources than when establishing (creating) an aquatic resource where one did not previously occur. The reviewer should consider if the landscape would support the aquatic habitat (33 CFR 332.3(a)(2)/40 CFR 230.93(a)(2)). Is evidence provided to document former aquatic resource conditions? Such evidence may include historic aerials, historic soil surveys, and/or historic USGS topographic maps. See also Element 3: Baseline Information for more information.

### 2c. Does the bank site include buffers that would protect it from its surroundings? Does it help buffer other conserved aquatic resources from potentially incompatible activities?

Bank sites may also include wetland and/or upland buffers. Buffers may be restored, established, enhanced, or preserved. They may be required to ensure the viability of mitigation sites as well as provide habitat or corridors for ecological functioning of the aquatic resources. Buffers, when proposed, should provide meaningful ecological value and generate compensatory mitigation credit.

The first question refers to whether the project site has adequate buffers to ensure the integrity of the site. The second question addresses whether the site itself is buffering other aquatic resources (i.e., a bank site located adjacent to a national wildlife refuge is buffering the refuge) (33 CFR 332.3(i)/40 CFR 230.93(i)). The IRT reviewers should refer to any local district or state guidelines regarding buffer requirements and crediting.

### 2d. Is the bank site adjacent to other conserved aquatic resources or does it help establish or extend a conserved corridor?

Similar to the above question, the intention is to determine if the bank site is part of a larger network of conserved aquatic resource habitat. Consideration should be given to whether the proposed bank helps to establish or extend a planned conservation corridor or is within areas designated as critical fish and

wildlife habitat, or other state, regional, or local natural resource designations (e.g., National Wild & Scenic rivers, outstanding waters, aquatic reserves, imperiled habitats, etc.). For example, expansion of contiguous protected aquatic resource habitat may provide greater ecological value than an isolated wetland (33 CFR 332.3(d)(3)/40 CFR 230.93(d)(3) and ((33 CFR 332.3 (b)(1)/40 CFR 230.93(b)(1)).

Additionally, the reviewer should consider the proximity of the bank site to protected lands or waters.

2e. Has the proposed bank site addressed ecological needs that have been identified within the project landscape/watershed such as chronic environmental conditions (flooding, impaired water quality, insufficient habitat for important aquatic species, etc.) (33 CFR 332.3(c)(3)/40 CFR 230.93(c)(3))?

Very simply, does the proposed bank address ecological needs for the project site and its surrounding (upstream/downstream) watershed? For example, if the receiving water has a TMDL for sediment, a proposed bank site that includes stream restoration would likely have a goal to reduce sediment input into the system. The same applies for systems that suffer from chronic flooding, low dissolved oxygen levels, or have high nutrient loading; restoration of wetland and/or streams could improve water quality and better manage storm flows, which in turn helps improve downstream conditions (33 CFR 332.3(c)(3)/40 CFR 230.93(c)(3).

Reviewers should also consider the susceptibility of the site to risk factors like climate change or sea level rise. This is particularly relevant for estuarine banks where sea level rise will likely affect design elevations and target habitats.

For proposed banks located in marine or estuarine environments, consideration should be given to whether the bank project is likely to address identified ecological needs within the same ecological system (e.g., same reef complex, estuary, littoral drift cell, embayment, wave climate, etc.) (33 CFR 332.3(c)(2)(v)/40 CFR 230.93(c)(2)(v). For example, has the bank instrument addressed any identified ecological needs within a certain coastal habitat or across a matrix of coastal habitats (e.g., vegetation such as salt marsh, mangroves, or submerged aquatic vegetation, reef structures such as oyster reefs or corals, and/or unvegetated/unstructured intertidal or subtidal areas such as mudflats and sandflats). See also question 7c. in Element 7: Service Area.

2f. Are there any apparent potential constraints and/or limitations to the proposed bank? Are any of these critical to successful bank establishment or operation?

Are there any factors that complicate design, development, and/or implementation of a proposed bank? For example, adjacent development activities or historic districts, which could limit the amount of property available to implement the bank and/or the types of mitigation activities that can occur on the property, existing easements limiting activities on the parcel(s) where the bank is proposed, sensitive fauna/flora species or archaeological/cultural sites, utility crossings, drainage canals, or severed sub-surface rights that could constrain bank viability. Also, proximity to airports may increase risks to aviation by attracting wildlife to areas where aircraft-wildlife strikes may occur (e.g., near airports) (33 CFR 332.3 (b)(1)/40 CFR 230.93(b)(1).

Factors that could be considered critical to bank establishment and operation may include the following:

- Questions/concerns about the adequacy of appropriate water rights to support a wetland project,
- The net effects of the project design and management on federal or state listed species,
- Other interests in the bank site property (e.g., severed mineral rights, drainage easements, prior-recorded easements), or
- Consequences of local/state laws and ordinances (e.g., law or ordinance that restricts conversion of agricultural land to wetlands).

These factors should be addressed in the instrument with supporting documentation provided in the instrument or accompanying exhibits (e.g., title reports or property assessment and warranty documents).

### 2g. Is this bank site ecologically suitable for providing the desired aquatic resource functions/services within the subject watershed or landscape position?

This is a critical question in evaluating site selection. It is all encompassing, tying together all components and considerations discussed in the introduction to this element. To address this question comprehensively, the reviewer should consider each of the criteria in the bulleted list at the introduction to this element (33 CFR 332.3(d)(1)/40 CFR 230.93(d)(1)).

This question builds on the first question in this element (2a), which asks if the site is located where it has the potential to replace lost functions and services. Even though the project may be appropriately located, it may not have the capacity to provide those desired functions and services. Other factors–e.g., adjacent land uses, future development plans, severed oil and gas rights, or limited water rights—could disqualify the site as being suitable to provide the intended functions/services.

Suitability includes many elements such as having an appropriate hydrologic source and regime to support the desired aquatic resource type (i.e., seasonal wetland, intermittent stream). For example, the hydrologic regime for a seasonal wetland may be characterized by seasonal saturation or temporary inundation for a seasonal wetland, and the hydrologic regime of an intermittent stream has flows part of the year but is not supported solely by precipitation. Also refer to Question 3a under Element 3: Baseline Conditions.

# 3. Baseline Information

The baseline condition is needed to evaluate whether a site is appropriate for the type of compensatory mitigation proposed as well as for comparing pre-project (baseline) and post-project conditions. This comparison can then be used to determine degree of change in function or condition (uplift) and the actual credit yield (33 CFR 332.8(o)(3)/40 CFR 230.98(o)(3)).

**Baseline Information**
A description of the ecological characteristics of the proposed compensatory mitigation project site. This may include descriptions of historic and existing plant communities, historic and existing hydrology, soil conditions... should also include a delineation of waters of the United States on the proposed compensatory mitigation project site (33CFR 332.4(c)(5)/ 40 CFR 230.94(c)(5)).

### 3a. Does the bank instrument include a description of the baseline watershed/landscape and ecological characteristics of the proposed bank site?

The bank instrument should have a section or dedicated narrative discussing the watershed and landscape characteristics for a proposed site and its surroundings (upstream and downstream) that provides context of the bank site, such as sources of hydrology and existing topography (33 CFR 332.3(d)(1)/40 CFR 230.93 (d)(1)).

**Types of Information that may be included:**
- Most recent soils mapping and classification
- Historic aerials and soils mapping and classification
- Wetland delineation information (ID per USACE wetland delineation manual criteria)
- USGS topography or LiDAR imagery
- Historic USGS topo maps and USGS or state/local level surrounding land use map
- Watershed scale map showing location of site relevant to other named aquatic features and public/private conservation lands
- Critical habitat for site and surrounding areas
- FEMA floodplain maps
- Natural areas inventory maps of the site and surrounding areas
- Historic extent of shellfish beds, coral reefs, or submerged aquatic vegetation (SAV) areas
- Historic extent of estuarine areas

### 3b. Is the baseline data applicable and comparable to data that will be collected post construction (performance standards)?

The baseline information should include information such as groundwater well data, surface water stage data, estimated or measured hydroperiod data, stream bank stability and channel morphology data, vegetation data, and if applicable water quality data (e.g., temperature, conductivity, oxygen levels) that can be measured consistently to establish the existing condition, pre-construction, and the restored state, post construction. The data collected pre-construction would be considered a benchmark for the degree of change in function the post construction state achieves.

### 3c. Do the baseline conditions support the project's goals and objectives?

Prior to reviewing the designs/improvements proposed, the reviewer should make certain that the selected site(s) has a high likelihood of meeting its goals and objectives. A palustrine forested wetland should not be proposed for a desert environment, as desert conditions (i.e., lack of consistent hydrology, unsuitable soils, etc.) are not suitable for this habitat type. If re-establishment of a vernal pool is proposed where there is not a restrictive soil layer, the mitigation work plan (review Element 4) would have to address this constraint. Similarly, a reviewer should examine the site conditions and compare them with the instrument mitigation goals and objectives to determine if the site is appropriate for the proposed resources.

### 3d. Does the instrument include or reference a delineation of wetlands/waters?

A wetland/waters delineation is a required component of the banking instrument (33 CFR 332.4(c)(5)/230.94(c)(5)). It is an important source of data that, like the example baseline data sources listed in 3b, is used for comparing the baseline wetland/waters condition and extent to its post-mitigation condition and extent (e.g., for any new wetland creation or enhancement of existing wetlands).

Note, a delineation is used to determine whether the project site meets technical criteria for consideration as an aquatic resource (e.g., wetland, stream). Delineations are typically not synonymous with jurisdictional determinations. Whether an aquatic resource is jurisdictional or not is a separate matter from whether a project site meets wetland or stream technical criteria.

### 3e. Does the instrument include information related to at risk fauna and flora species and/or other regulated resources (cultural/archaeological)?

Baseline information should include a review of presence/absence of state and federal rare, threatened, or endangered (RTE) species and regulated state and federal historic and archaeological resources for the proposed project area and its surroundings. If any sensitive fauna/flora species are identified, their associated state/federal regulatory status and habitat requirements should also be included. Part of determining whether a site with sensitive resources is an appropriate mitigation site is to evaluate effects to these resources. Will the site conserve and protect sensitive cultural or archaeological resources or in the case of fauna/flora, will the site provide an opportunity to enhance/expand their current habitat?

### 3f. Does the instrument include the location and extent of any utilities and other infrastructure in the project vicinity?

The presence (or absence), location, and extent of utilities and other infrastructure should be noted, as they may not be compatible with the project's goals and objectives. If a sewer line runs through the middle of a proposed wetland mitigation site, what are the requirements for maintenance access to this sewer line? If the site needs to be graded down to access the water table, will increasing surface hydrology affect the sewer line?

Similarly, for projects in marine or estuarine environments, are underwater utilities present? The banking instrument should identify all existing and proposed infrastructure. The instrument should also consider the potential impacts (direct or indirect) of this infrastructure as well as any proposed measures that could allow for attainment of bank goals and objectives without future impacts to the mitigation site. For more detail, see also Review Element 6: Site Protection Instrument.

### 3g. Does the instrument include the location and information related to any existing easements, rights-of-way (ROW), or other property restrictions?

This question builds on question 3f. and is discussed in greater detail in Review Element 6: site protection. If there are any existing easements (such as utility or drainage), ROW, or other interests in the bank property, such as liens or mortgages, they should be clearly identified and explained, as they may not be compatible with the project's goals and objectives. Mitigation often requires overlay easements, deed restrictions, or even subordination of existing easements to the easement (refer to Terminology and Review Element 6: Site Protection) to better ensure a mitigation site is protected in the long-term; existing easements may allow or prohibit an overlay easement. Any restrictions should not impede or inhibit the design, construction, or the post-construction condition of the proposed mitigation site. If any of these apply, the site is not adequate for conducting mitigation.

Note, if drainage or utility easements or ROW are present, consider whether they have been excluded from the credit calculations. The IRT reviewers should also evaluate these features in the context of the project (whether they have a negative effect on the proposed mitigation project). The presence of ROWs does not necessarily disqualify a site from consideration.

# 4. Mitigation Work Plan

Mitigation Work Plan components may include project boundaries, construction methods and sequence, grading, elevations, slopes, soil and vegetation management, stream planform geometry, channel form, design discharge, etc. (33 CFR 332.4(c)(7)/40 CFR 230.94(c)(7)). The mitigation work plan may be used as an oversight tool; it is a reference that the IRT can use in reviewing construction, reviewing as-builts, and in identifying needs for maintenance, remediation, and/or adaptive management.

**Mitigation Work Plan**
Detailed written specifications and work descriptions for the compensatory mitigation project… (33CFR 332.4 (c)(7)/ 40 CFR 230.94(c)(7)).

Other resources have been developed specifically to support the review of mitigation work plans such as the Natural Channel Design Review Checklist (Harman and Starr 2011) and the Wetlands Engineering Handbook (USACE ERDC 2000). A number of district- or state-specific tools have also been developed, for example: Charleston District's 2010 Mitigation Plan Template, the New Orleans District resource specific template mitigation work plans (Bottomland Hardwood, Swamp, Marsh, and Pine Flatwood), and the New England District's 2016 Compensatory Mitigation Guidance, which includes guidelines to assist in review of mitigation plans for a number of resource types. Other districts/states are in the process of developing mitigation work plan guidelines.

### 4a. Does the instrument or exhibit include the required work plan components? Do these components have detailed specifications and descriptions?

The mitigation work plan should contain detailed written specifications and work descriptions for the project (33 CFR 332.4(c)(7)/40 CFR 230.94(c)(7)). The work plan may include but is 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 proposed plant communities; plans to control invasive plant species; proposed grading plan, including elevations and slopes of the substrate; any berms or water control/water management structures, soil management; and erosion control measures. Refer to local state and/or district guidelines and any established templates for specific components included in a mitigation work plan.

For stream compensatory mitigation projects, the mitigation work plan may also include other relevant information, such as planform geometry, channel form (e.g., typical channel cross-sections), watershed size, design discharge, and riparian area plantings. (33 CFR 332.4(c)(7)/40 CFR 230.94(c)(7)).

### 4b. Are the work plan components reflective of the project's goals and objectives?

For example, it would not be appropriate for a wetland restoration work plan on a mineral flat, where the primary hydrologic inputs are a seasonally high-water table and precipitation, to include elements associated with stream restoration (e.g., cross sections, design discharge). The work plan should reflect the type of aquatic restoration proposed, the functions and services proposed to be provided, and be consistent with the manner of project implementation.

### 4c. Do the work plan components follow established best practices or provide an explanation discussing why the approach is appropriate?

For example, a restoration designer may propose to use a new design or material for temporary bank stabilization during vegetation establishment; this should be supported by an explanation of why the design and/or material is appropriate and how it will work. Additionally, relevant references supporting the work plan approach should be cited in the bank instrument.

Consider whether work plan components are appropriate to the baseline conditions. In the past, some stream restoration projects entailed more extensive work to re-establish channels than the conditions warranted. Relevant references supporting the work plan approach should be cited in the bank instrument.

### 4d. Does the work plan consider the presence of any existing infrastructure (i.e., utilities) or easements?

Existing infrastructure and any easements should be identified in both the baseline and mitigation work plan sections of the instrument and associated exhibits. The mitigation work plan should take this information into consideration because of the potential for incompatibility with the bank's goals and objectives. See Element 3f. and 3g. above for more on this topic.

# 5. Financial Assurances

Financial assurances are a mechanism that helps ensure resources are available to correct or replace unsuccessful projects during a bank's operational phase (covers both construction and monitoring during performance phase of project). Financial assurances are intended to limit but cannot eliminate the risk of project failure. Third party claims on assurances are rare and drawn upon only if a Sponsor is unwilling or unable to correct an issue, also known as default (see section on default). It is an IRT reviewer's responsibility to review the Sponsor's financial assurance estimates and determine if they are accurate/sufficient. With sufficient financial assurances, a reviewer may have greater confidence that the project will be successfully completed and meet its performance standards. Key considerations for financial assurances include estimating the assurance amount, implementing the assurance, and understanding the different type of assurances

**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 completed, in accordance with its performance standards (33 CFR 332.4 (c)(13)/ 40 CFR 230.94 (c)(13)).

The Corps' Institute for Water Resources (IWR) has published a useful reference on financial assurances for compensatory mitigation projects (Scodari et al. 2016). It includes discussion of the requirements for financial assurances, approaches to estimation of the amount of assurances, different types of financial assurance mechanisms, and implications of federal fiscal law.

Estimating Amount of Financial Assurance Needed

Considerations for estimating the amount of financial assurance needed include: size and complexity of a project, degree of completion of a project, the likelihood of success (e.g., if project has low risk of failure such as a preservation project then financial assurance amounts may be low), past performance/experience of mitigation provider/Sponsor, the costs associated with obtaining the land, planning and construction of the project, and monitoring post-construction (33 CFR 332.3(n)(2)/40 CFR 230.93(n)(2)). Districts vary widely in their requirements for financial assurances, with some requiring separate assurances for each stage of bank implementation (separate assurances for construction, monitoring, and maintenance), while others allow a single assurance. Assurances may be reduced (phased release) and/or released at the end of a project's operational life (end of monitoring), or when clearly defined milestones are met such as completion of construction or approval of as-builts. The conditions for reduction/release of assurances will be specified clearly in the instrument.

There are two basic approaches to determining the amount of assurances a Sponsor will provide for their bank site, on-site remediation, and off-site replacement. On-site remediation bases assurances on the amount of resources needed to undertake corrective actions to the existing bank site. These estimates include the cost to complete construction and meet performance standards. On-site estimates are typically itemized by proposed action such as planting, monitoring, or control of invasive species. Off-site replacement bases assurances on the cost of finding and implementing a new, separate mitigation project or purchasing credits from another bank or in-lieu fee program. This is generally a more expensive and

intensive alternative, in part because it may include the cost of securing an alternative project site as well as developing and implementing a mitigation plan for that site. A number of districts may require assurances for a project to be based on the off-site replacement estimate if they have questions regarding the suitability or accessibility of the original site.

Implementing Financial Assurance

Federal fiscal law dictates that, absent explicit statutory authority, federal agencies cannot directly or indirectly receive or use the proceeds from a claim on financial assurances. This would be a violation of the Miscellaneous Receipts statute (31 USC 3302(b)). So how does a federal agency ensure that the proceeds from an assurance may be applied to a project if needed? Assurances must be payable to a non-federal beneficiary (a third party such as a non-profit, government/quasi government, land trust, private entity) who agrees to complete the approved mitigation project. The beneficiary would ideally be an entity that is qualified and has a reputation and/or experience with administering and implementing compensatory mitigation projects. The bank instrument should address how claims on assurances may be made. In the event that a claim is made on the financial assurances, the beneficiary would be responsible for developing a plan of corrective actions (e.g., remediation plan) for review and approval by the Corps in consultation with the rest of the IRT. Finally, the assurance mechanism must require notification to the Corps at least 120 days in advance of expiration/revocation of the assurance. This allows the Corps to take any action necessary (e.g., pursuing a claim on or renewal of the assurance).

Financial Assurance Mechanism

There are a number of acceptable types of financial assurance a Sponsor may use, subject to Corps approval. Each type has its considerations and varies in duration and cost. See Table 1 for more information on and considerations for the most common assurance mechanisms used (information from Scodari et al. 2016).

*Table 1. Types of financial assurance*

| Assurance Mechanism | Duration | Price/ Cost | Collateral | Claims & Performance | Other Considerations |
|---|---|---|---|---|---|
| Cash in Escrow | As long as needed | 100% of assurance amount | No | Provides payment only | Beneficiary necessary |
| Performance Bond | Typically 1-2 yrs, may be renewed | 1.5-5% of bond dollar amount | Yes - up to full bond amount | Payment or performance, is the decision of the bonding company | Designee needed to make claim; potential for disputes with bonding company |
| Letter of Credit | Typically 1-2 yrs, may be renewed | 1-3% of letter amount | Yes – up to full letter amount | Provides payment only | Beneficiary necessary; original unaltered letter must be presented at time of claim |

| Assurance Mechanism | Duration | Price/ Cost | Collateral | Claims & Performance | Other Considerations |
|---|---|---|---|---|---|
| Casualty Insurance | Up to 10 yrs | Often $50K (non-refundable) + 2-4% of policy amount | No | Payment or performance | Insurer conducts evaluation of Sponsor before insuring; multiple claims can be made but total cannot exceed policy limit |
| Appropria-tions | Up to life of project | Up to full cost of implementa-tion | No | Performance | Appropriation by state or local government; in a claim, state or local gov. agency use funds for corrective actions |

Financial Assurance Estimate Case Examples

Below are two examples representing a more general ("Monitoring and Maintenance Phase") and more detailed ("Stream and Wetland Restoration Site Engineer's Estimate") financial assurance estimate.

The "Monitoring and Maintenance Phase" estimate provides total costs and cost breakdown for the monitoring/maintenance actions itemized (Table 2). The list of actions and cost breakdown are generalized, lacking detail on, for example, what kind of monitoring is planned, the type of road maintenance anticipated (patching? grading? repaving?), or quantities for which to better understand the estimated costs. This approach may not be suitable for estimating financial assurance amounts for more technically difficult or complex mitigation projects. For example, a wetland establishment project in a landscape position where wetlands do not occur. A project of this sort might require highly engineered water controls, geotechnical materials, and soil amendments, all of which need to be reflected in the assurance estimate.

*Table 2. Example of financial assurance estimates - Monitoring and Maintenance Phase*

**Monitoring and Maintenance Phase**

| Description | Cost | Cost Breakdown |
|---|---|---|
| Prescribed fire | $144,000 | 4 burns, 1,200 acres @ $30/acre |
| Fire lanes | $64,000 | 4 burns, 8 miles @ $2,000/mile |
| Road maintenance | $8,000 | 10 yrs @ $800/yr |
| Exotic species control | $100,000 | 200 acres/yr @ $50/acre/yr for 10 yrs |
| Monitoring | $50,000 | ($5,000/yr for 10 yrs) |
| Contingencies (10%) | $36,600 | |
| Total | $402,600 | |

The construction assurance estimate, "Stream and Wetland Restoration Site Engineer's Estimate," includes a comprehensive list of construction actions, providing quantities and unit costs along with the total costs that demonstrates the construction process has been well thought out and planned (Table 3).

*Table 3. Example of financial assurance estimates - Stream and Wetland Restoration*

| Stream and Wetland Restoration Site Engineer's Estimate | | | | | |
|---|---|---|---|---|---|
| Description | Quantity | Unit Measure | Pay Unit | Unit Price | Total Fee |
| Construction survey | 1 | LS | LS | $3,500 | $3,500 |
| As-built survey | 1 | LS | LS | $2,500 | $2,500 |
| Temp construction entrance | 2 | LS | LS | $1,500 | $3,000 |
| Grading | 1 | LS | LS | $45,000 | $45,000 |
| Invasive species control | 1 | LS | LS | $5,000 | $5,000 |
| Woody debris structure | 13 | EA | LS | $500 | $6,500 |
| Surface water diversion | 1 | LS | LS | $12,500 | $12,500 |
| Sediment bags | 4 | EA | EA | $200 | $800 |
| Impervious dikes | 5 | EA | EA | $500 | $2,500 |
| Silt fence | 3200 | LF | LF | $2.0 | $6,400 |
| Wattles | 100 | LF | LF | $5.50 | $550 |
| Temp seeding | 36 | AC | AC | $750 | $27,000 |
| Permanent seeding wet/sunny | 0.9 | AC | AC | $1,200 | $1,080 |
| Permanent seeding dry/sunny | 2.6 | AC | AC | $1,200 | $3,120 |
| Bare root seedlings | 2380 | Stem | Stem | $2.25 | $5,355 |
| Fencing | 1200 | LF | LF | $4.0 | $4,800 |
| Clearing and grubbing | 33 | AC | AC | $1,500 | $49,500 |
| Incidental stone | 2 | Ton | Ton | $50.00 | $100.00 |
| **Subtotal** | | | | | |
| Mobilization | 1 | LS | LS | $9,185.25 | $9,185.25 |
| **Total Fee** | | | | | **$192,890.25** |

5a. Does the instrument include the basis for the financial assurance, either corrective action on the bank site, or replacement compensation at another site? Is this consistent with district/state requirements?

Refer to discussion in "Estimating Financial Assurances" above for on-site remediation versus off-site replacement. Refer to local district/state requirements for determining the approach to estimating assurances.

5b. Does the instrument include an itemized list of work associated with construction, monitoring, and maintenance provided in support of the financial assurance estimate? Does the itemized list include all the component parts associated with the project?

Refer to the above case examples for reference. Is the itemized list in the instrument sufficiently detailed to determine whether it is complete relative to the mitigation work proposed and amount of the assurances is sufficient?

5c. Does the instrument include specific conditions for reduction/release of financial assurances?

There may be a single assurance for the life of the project, or there may be separate assurances for different operational stages of the project (e.g., construction, monitoring, and maintenance) or phases/units if the entire bank is not constructed concurrently. The instrument needs to specify under what conditions/circumstances an assurance will be reduced or released.

5d. Do the assurances identify a non-federal beneficiary in the event that a claim is made on the assurances?

Refer to the discussion in the introduction to Review Element 5 above under the heading "Implementing Financial Assurance." The financial assurance mechanism must identify an appropriate beneficiary.

5e. Does the type of assurance provide for payment, performance, or both in the event that a claim is made?

Refer to the Table 1: Types of financial assurance above. Letters of credit and escrow provide for payment only; appropriations provide for performance only, and performance bond and insurance provide for payment and performance.

5f. Does the assurance include notification to the Corps at least 120 days before expiration/revocation of the assurances?

As noted in the introduction to Review Element 5 above under the heading "Implementing Financial Assurance," notification of a change in assurance status must be provided to the Corps at least 120 days in advance.

5g. Does the instrument or associated exhibit specify that the Sponsor will provide a financial assurance mechanism prior to an initial release of credits?

The bank instrument may allow for an initial release of credits (see Review Element 9 for more on credit release) to the Sponsor once the bank instrument and mitigation plan have been approved, bank site has been secured, and financial assurances have been established (33 CFR 332.8(m)/40 CFR 230.98(m)).

# 6. Site Protection Instrument

Site protection instruments are the legal mechanisms that protect a site from encroachment or degradation. The site protection instrument will require coordination with district or state counsel to ensure that the mechanism is adequate and compliant with state law.

**Site Protection Instrument**
A description of the legal arrangements and instrument, including site ownership, that will be used to ensure the long-term protection of the compensatory mitigation project site (33CFR 332.4(c)(4)/ 40 CFR 230.94(c)(4)).

The site protection instrument should identify prohibited and restricted activities as well as those property rights reserved by the landowner (e.g., hunting or fishing, passive recreation, etc.) Both prohibited/restricted uses and reserved rights should be reviewed to ensure that the property has adequate legal protection.

State laws govern real estate and site protection, so it is important to work with an attorney or office of Counsel that is familiar with the laws governing real estate where the bank is located. The IWR publication on site protection for compensatory mitigation (Wood and Martin 2016) provides a good introduction to this topic.

### 6a. Does the instrument include a proposed long-term site protection mechanism (conservation easement, declaration of restrictions, etc.)? Is the protection mechanism consistent with current district/state guidelines (including template instruments)?

The reviewer will want to be certain a site is being given long-term protection as required in the regulations (33 CFR 332.7(a)(1)/40 CFR 230.97(a)(1)). The purpose of site protection is to ensure that the functions and services provided by the project will continue after monitoring is completed and the project enters into the period of long-term management.

District/state guidelines (including template instruments) have been developed to be consistent with state laws governing real estate, as well as federal and state regulations governing long-term protection of compensatory mitigation sites.

### 6b. Does the mechanism protect against interests/activities that are incompatible with the project's goals and objectives?

Interests may be financial (liens, mortgages, contracts), drainage/utility/access easements, ingress/egress, conservation/other ownership, or mineral/timber/water rights. These interests have the potential to impede the long-term protection of the site. The regulations (33 CFR 332.7(a)(2)/40 CFR 230.97(a)(2)) state that the mechanism providing long-term protection of the site must, to the extent appropriate and practicable, prohibit incompatible uses, such as timbering or mineral extraction. In many cases, areas under easements or utility rights-of-way that are subject to maintenance may be excluded from the bank acreage utilized to calculate mitigation credits.

### 6c. Does the instrument list any other interests in the property (financial, mineral/timber, water rights)? Does the instrument (or exhibits/attachments to the bank instrument) include an explanation as to how those other interests may affect the bank site?

It is important for the reviewer to conduct an initial screening of the instrument and associated documents to determine whether the Sponsor has identified any other property interests present within the proposal/project site, and if so, to list all of those interests, and whether the holders of those interests have the potential to affect the long-term protection of the site (Table 4). An IRT reviewer should consider surface and subsurface (i.e., groundwater) source inputs and outputs and if the project controls the surface and subsurface (mineral, oil, or gas rights) of the site. Someone exercising these other rights can affect a bank site. In some cases, these other interests may not disqualify a site if areas covered by the interests are not included within the bank acreage used to determine mitigation credits and if exercising those interests would not adversely affect the bank site. These interests should be subordinated/managed prior to execution of the site protection instrument, otherwise these other interests may take precedence over the site protection instrument (i.e., "first in time, first in right").

**Mineral Rights:**
There are many states where mineral interests are separate (severed) from the fee title (or surface) interests. Wood and Martin (2016) identify a number of approaches to address this situation.

- One approach is to consider whether the instrument documents the nature of the mineral ownership, the feasibility of acquiring those interests, and those efforts to acquire the interests. Note, it may not be feasible for the Sponsor to acquire all of the mineral interests within a bank site.
- In some cases, holders of mineral rights have agreed to restrict disturbance within some distance of the bank site ground surface (e.g., within 200 feet of ground surface) in order to limit impacts to the site.
- The bank Sponsor, in conjunction with the owner of the mineral rights, may develop a minerals management plan which assesses the feasibility of mineral extraction and designates areas for access and extraction (most applicable to oil and gas) that will not adversely impact the restored/enhanced/preserved acreage of the bank.
- Another approach used occasionally is for the bank Sponsor to base financial assurances on the cost of full site replacement if the threat posed by unresolved interests in the property cannot be offset or managed.

It may take a combination of these four approaches and/or other approaches to resolve any concerns about mineral rights and the bank site.

*Table 4. Examples of how other interests in property may affect site protection*

| Interests | How interest may affect long-term protection of site |
|---|---|
| Maintaining a drainage easement that crosses a wetland mitigation bank site, which could drain existing wetlands or inhibit wetland restoration. | State and local municipalities are generally responsible for maintaining these drainage easements that manage flows from impervious surfaces/roadways (state and local highway), stormwater flow/transport (public works) and/or mosquito control (public works, health department). |
| A utility company may choose to maintain a right-of-way (easement) crossing a bank site by mechanical (mowing, bush hogging) or chemical (herbicides) means. | This could adversely affect portions of the bank site, for example if the site is intended to develop into forested wetlands. |
| Subsurface (Mineral/oil & gas) rights are often owned separately (severed) from surface rights. | In many states, a site protection document like a conservation easement cannot be recorded unless the owner of the subsurface rights agrees to the easement. In other states the subsurface rights owner is not legally bound by an easement on the surface. Exercising subsurface rights (mineral or oil & gas extraction) could have an adverse effect on the mitigation bank site. |

### 6d. If the site is located on public lands, is the Sponsor proposing additional long-term protection measures? Do they seem adequate?

Public lands, for example many of those held by the U.S. Forest Service and Bureau of Land Management, allow for multiple uses of the land, including mining, timbering, grazing, and other activities. Are these or any other uses of the bank site allowed? If so, is the Sponsor proposing additional mechanisms such as a federal facility management plan or conservation land use agreement that would provide additional long-term protection of the bank site? Site protections for compensatory mitigation projects on public lands is addressed in further detail in the regulations at 33 CFR 332.7(a)(4)/40 CFR 230.97(a)(4) as well as in Wood and Martin, 2016 on pages 9-10.

### 6e. Does the site protection mechanism include the requirement to provide the Corps with 60-days advanced notification if there is a proposed amendment or termination of the site protection mechanism?

Over the life of a bank, there may be proposals to modify the site protection mechanism—e.g., to accommodate a planned pipeline or roadway, to remove land that is unnecessary for compensatory mitigation purposes[5], or to accommodate other uses of the bank land. The real estate instrument, management plan, or other long-term protection mechanism must contain a provision requiring at least 60-day advance notification before any action is taken to void or modify the instrument, management plan, or mechanism, including the transfer of title or establishment of other legal claims over the bank site (see 33 CFR 332.7(a)(3)/40 CFR 230.97(a)(3)). This 60-day requirement enables the Corps and IRT to review the proposal, determine the effect of the action on the bank site, provide feedback to the Sponsor, and determine whether additional action is necessary.

[5] Any request to remove lands from an existing mitigation project (ILF project, bank, or PRM) should be reviewed carefully. When these areas are included in mitigation projects, they are typically either mitigation areas or buffer areas needed to support mitigation functions or services on-site. Areas that have been credited by the regulatory agency for any reason should not be removed from site protection.

# 7. Geographic Service Area

The service area should be appropriately sized to offset permitted impacts and replace lost functions/services.

**Service Area**
The geographic area within which impacts can be mitigated at a specific mitigation bank or ILF program, as designated in its instrument (33CFR 332.2/ 40 CFR 230.92).

The instrument should include the following for all credit types:

- A map or other electronic representation (e.g., shapefile, kmz file, etc.) and a written description identifying the extent of the service area(s),
- Environmental factors (e.g., watershed, resource type, landform, at-risk species) used in determining the service area,
- Any specific district, state, local, or tribal requirements (e.g., law, regulations, policy, management plans, etc.) used to determine the service area,
- Any economic considerations (e.g., expansion of a service area to increase credit availability) factored into the determination of the service areas, and
- Clear documentation of the rationale for the location and extent of the service area.

Refer to the mitigation regulation for additional information on service areas (33 CFR 332.8(d)(6)(ii)(A)/40 CFR 230.98(d)(6)(ii)(A)).

### 7a. Does the bank instrument or associated exhibits include a clearly defined service area(s) for the bank?

Service area boundaries on the ground may not be as precisely defined as depicted on maps. Some service areas are based on ecoregions or on HUCs such as HUC 8 or HUC 6. HUCs are periodically revised, often changing extents in relatively flat areas like coastal plains. So, it is important that the instrument provide both a description of the service area(s) and associated map(s). Where possible, the boundaries of the service area should be clearly defined (i.e., use readily recognizable features for limits like an adjacent roadway, state line or county boundary, or geographic feature like a stream, drainage divide, or mountain chain) to minimize future disputes between the Sponsor, the IRT members, and regulators (non IRT members) over whether proposed permits are within a bank's service area(s).

### 7b. Are there multiple service areas or service area types defined? Is this consistent with district, state, or local requirements?

A bank may have more than one service area. Banks may have different service areas for different credit types, including wetlands versus streams, different types of wetlands, and/or specific to other resource types, including listed species.

Some banks may have a secondary service area adjacent to the primary service area, that can be used to provide compensation in otherwise under-served areas. There are typically restrictions on use of bank credits within the secondary service area. For example, the use of credits within a secondary service area may require higher compensation ratios or be used only for general permits. District, state, or local requirements should be referenced when reviewing a proposal for a secondary service area.

### 7c. Does the bank instrument or associated exhibits specify the watershed or landscape units used to define the service area?

The service area is typically defined by the watershed and/or landscape units (HUC 6, HUC 8, ecoregion, ecological drainage unit, physiographic province, or administrative area) in which it occurs (33 CFR 332.3(b)(1)/40 CFR 230.93(b)(1)). Note, HUCs do not necessarily represent entire watersheds; often they compose a subpart of a watershed. Additionally, in coastal watersheds, compensation for impacts should be located in coastal watersheds or within a legislatively defined coastal zone, which may be subject to additional state regulations (e.g., Louisiana).

Where watershed boundaries do not exist (i.e., marine areas), an appropriate spatial scale should be used to replace functions/services within the same ecological system (marine basin, reef complex, wave climate, embayment, drift cell, etc.).

### 7d. Does the service area comply with local, district, and/or state requirements (scale, size, or resource type)?

Service area requirements differ by agency/government. In many cases, the district and/or local/state government will have laws, regulations, or ordinances shaping the boundaries of a service area. The IRT reviewers should reference these regulations on service area boundaries when reviewing the instrument. Service areas are often regulated by multiple government agencies, making it appropriate to defer to those agencies on matters of compliance. Consider whether the instrument provides adequate service area mapping and descriptions consistent with any local, state, or district requirements.

### 7e. Is the rationale for the location, size, and extent of the service area clearly documented in the instrument and/or exhibits?

The Mitigation Rule requires the Sponsor to justify the location, size, and extent of the service area to ensure the bank is appropriately sized to offset permitted losses. The Mitigation Rule states that "the basis for the proposed service area must be documented in the instrument" (33 CFR 332.8(d)(6)(ii)(A)/ 40 CFR 230.98 (d)(6)(ii)(A)). The size of the service area can be related to the extent of the functions and services provided by the bank. For example, a riparian bank that reconnects a floodplain to its river may merit a larger service area than a riparian bank that does not because of the additional functions/service provided (flood storage, sediment sequestration, fish nursery habitat, etc.).

# Bank Operations

# 8. Credit Determination

**Determination of Credits**
A description of the number of credits to be provided, including a brief explanation of the rationale for this determination. For permittees intending to secure credits from an approved mitigation bank… it should include the number and resource type of credits to be secured and how these were determined (33CFR 332.4 (c)(5)/ 40 CFR 230.94 (c)(5)).

The number of credits a compensation project generates is supposed to reflect the difference between pre- and post-compensatory mitigation project site conditions (33 CFR 332.8(o)(3)/40 CFR 230.98(o)(3)). There are a number of strategies used to determine how much credit a compensation project should receive. Credit determination approaches all use some combination of a unit of measure (typically acres or linear feet), an assessment of change, function, or condition (qualitative or quantitative), and adjustment factors to address policy and ecological priorities (e.g., proximity to impacts, threatened and endangered species, temporal lag). The resulting approaches range from simple based on best professional judgement to more sophisticated approaches based on published assessment methodologies incorporated into credit/ debit quantification tools developed by districts, states, or others. In all cases, credit determination methodologies should be consistently applied to both assess impacts (debits) and compensation (credits) while sensitive enough to reflect the change in aquatic resource functions and services.

### 8a. Is the Sponsor's credit determination methodology consistent with the current district/state standards?

Most districts/states have some form of credit determination methodology whether qualitative, quantitative, or a combination thereof. Those methodologies may range from ratios to standard operating procedures, rapid assessment methods, as well as assessments of function and/or condition. Many districts/states have different credit determination methods for different aquatic resource types (e.g., streams vs. wetlands, or for different types of wetlands).

It is important to determine whether the credit methodology proposed in the instrument is consistent with established standards for that resource type in the district/state. If a Sponsor proposes a credit determination method that differs from the applicable district/state standards it should be discussed by the IRT with the Sponsor.

### 8b. Is the proposed generation of credits consistent with district/state policy, and is it applied accurately?

Is the application of the assessment methodology consistent with district/state policy? Does it yield the credit type/quantity that would be expected as a result of application of the methodology based on documented district/state practices and guidelines?

It is critical that the correct assessment method(s) has been used in credit determination, the resource has been classified appropriately (e.g., stream flow or thermal regime or wetland community type), any applicable incentive factors associated with the methodology have been applied, and the credit calculations are accurate. Incorrect applications of assessment methodologies or incorrect calculations may lead to future disputes between the IRT and Sponsor.

It is important to note whether the approach used for the project is consistent with the regulations as well as current district/state policy and practices.

**Note:** IRT members should strive to speak with one voice regarding the interpretation and application of credit methodologies to limit any conflicting messages provided to the Sponsor. The IRT should also communicate in a timely manner with the Sponsor to ensure all parties come to a common understanding. These principles are applicable to all elements of a bank instrument.

In some cases, district/state assessment methods may not explicitly address or apply to specific mitigation projects. For example, some credit determination methods may be designed to assess single thread channels and may not be directly applicable to multi thread channels. Credit determination methods may not clearly address crediting for the removal of dams or impoundments. The reviewer should recognize these situations and be prepared to discuss them with the IRT and Sponsor.

### 8c. Does the proposed number of credits reflect the difference be tween ba seline an d po st-construction conditions?

In other words, are the number of proposed credits consistent with the proposed amount of uplift, as calculated/determined by the applicable district/state credit determination methodology? The number of credits generated by a project must reflect the difference between pre- and post-compensatory mitigation project conditions as determined by the appropriate assessment method (33 CFR 332.8(o)(3)/40 CFR 230.98(o)(3)).

### 8d. Are any of the proposed credits based solely on preservation?

A higher mitigation ratio should be applied for compensation based on preservation compared to compensation based on restoration, establishment, or enhancement. In other words, a specific amount of preservation (acres or linear feet) should generate fewer credits than the same amount of restoration, establishment, or enhancement acreage or stream length (33 CFR 332.8(o)(6)/40 CFR 230.98(o)(6)).[6] Preservation may be used to provide compensatory mitigation when it satisfies the following conditions:

- Provides important functions for the watershed;
- Contributes substantially to the ecological sustainability of the watershed;
- Is determined to be appropriate and practicable by the Corps;
- Is under threat of destruction or adverse modification*;
- Will be permanently protected; and
- To the extent appropriate and practicable, done in conjunction with restoration, establishment, and/or enhancement of aquatic resources.

(30 CFR 332.3(h)/40 CFR 230.93(h))

*District or state-specific guidelines may clarify what is meant locally by threat of destruction or adverse modification.

[6] In a few districts/states, the credit determination methodology does not convert all mitigation activities into a standardized credit. In those areas, credit types are assigned by mitigation method (e.g., preservation credits, rehabilitation credits, etc.) in-stead.

### 8e. Are credits proposed to be generated through restoration, enhancement, or preservation of riparian areas, buffers, or uplands? If so, are those riparian areas, buffers, or uplands considered necessary to maintain the ecological viability of aquatic resources?

Riparian areas, buffers, and uplands are part of many, if not most, bank proposals. Credits associated with these areas may be specified in acres, linear feet, or other suitable metrics. Riparian areas, buffers, and uplands can be used to generate credit when they are essential to maintaining the ecological viability of aquatic resources (33 CFR 332.8(o)(7)/40 CFR 230.98(o)(7)). For example, riparian buffers are integral to some aquatic resources such as stream systems, and uplands or buffers around vernal pools may be vital to the hydrologic regime of these systems and for supporting important life stages of associated fauna like amphibian species. In estuarine mitigation, buffers can be essential to allow for landward migration of estuarine habitat types in response to sea level rise.

The inclusion of riparian areas, buffers, or uplands should be consistent with regulations and district/state policy.

### 8f. Does the instrument include a table identifying credits that will be generated by resource type, and is there a corresponding map identifying those locations?

Each instrument should include a table specifying the amount of credits to be generated for each resource or credit type (i.e., stream or wetland resource restored, preserved, enhanced, established, or preserved) as well as corresponding maps depicting where these specific mitigation actions will be located on the project site. The table will be used in part to help determine initial and subsequent credit releases and the map(s) will be used to evaluate project performance.

# 9. Credit Release Schedule

The credit release schedule details the release of credits to a Sponsor based on achievement of performance-based milestones (such as construction or attainment of performance standards).

Credits are only released by the Corps in consultation with the IRT and only when the Corps determines that the appropriate milestones have been met. Once credits are released, it is still the district's responsibility to determine whether the credits are appropriate compensation for a specific permit.

Once a debit is incurred from the initial credit release, implementation of the approved mitigation plan must be initiated within one (1) full growing season (approx. 1 year) (33 CFR 332.8(m)/40 CFR 230.98(m)).

### 9a. Does the instrument or associated documents specify a credit release schedule?

The instrument must provide a credit release schedule (33 CFR 332.8(d)(6)(iii)(B)/40 CFR 230.98(d)(6)(iii)(B)), which is often dictated by district/state practices or guidelines.

### 9b. Is the credit release schedule consistent with the mitigation type and resources being proposed? Does the instrument's credit release schedule differentiate between mitigation methods and resource types?

The release schedule may vary by district, mitigation method (restoration vs. preservation, etc.), resource type (stream vs. wetland restoration) and the likelihood of success (preservation is "safer" than restoration). The release schedule may take place over a longer period of time for slower-developing resource types (e.g., forested wetlands vs. emergent wetlands) and for certain mitigation methods (e.g., restoration credits may be released more slowly than preservation credits).

Two example credit release schedules, wetland (Table 5) and stream (Table 6), are provided below.

*Table 5. Example wetland credit release schedule.*

| Release | % of Credits to be Released | Requirements |
|---|---|---|
| Initial release | 15% | • Completion of initial release requirements |
| Construction | 10% | • Approval of as-built by IRT<br>• Funding a minimum of 15% of long-term management funding (LTMF) principal |
| 3rd release | 60% | • Meeting Performance Standards for year monitored<br>• Funding a minimum of 50% of LTMF principal |
| 4th release | 15% | • Meeting Year 5 Performance Standards<br>• Funding a minimum of 100% of LTMF principal |

Source: Norfolk District & Virginia DEQ MBI Template 2018

*Table 6. Example stream credit release schedule.*

| Release | % of Credits to be Released | Requirements |
|---|---|---|
| Initial release | 15% | • Completion of initial release requirements |
| Construction | 10% | • Approval of as-built by IRT |
| 3rd release | 10-20% | • Meeting Performance Standards<br>• Upon the occurrence of a bankfull event<br>• Funding a minimum of 50% of LTMF principal |
| 4th release | 10-20%** | • Meeting Performance Standards<br>• Upon the occurrence of a bankfull event |
| 5th release | 10-20%** | • Meeting Performance Standards<br>• Upon the occurrence of a bankfull event<br>• Funding a minimum of 85% of LTMF principal |
| 6th release | Minimum 15% | • Meeting Performance Standards<br>• Upon the occurrence of a bankfull event<br>• Funding 100% of LTMF principal |

Source: Norfolk District & Virginia DEQ MBI Template 2018
**10% if no bankfull event, 20% if bankfull & channel is stable
Note, some resource types (i.e., forested wetlands) may take longer than 5 years to achieve all required performance standards.

### 9c. Does the release schedule specify incremental milestones (e.g., construction completion, meeting performance standards) to be achieved for credit releases?

The schedule of releases should be laid out incrementally (timing and amount of credits to be released) in the bank instrument. Refer to the two example credit release schedules above, which specify the release stages and percentage of credits that would be released at that stage if the associated requirements are met. An initial release consisting of a percentage of total potential credits is allowed once the bank instrument and mitigation plan are approved, the site is secured (protected), financial assurances have been established, and any other requirements established by the district have been met (33 CFR 332.8(m)/40 CFR 230.98(m)).

### 9d. Will a significant amount of credits be withheld until all performance standards have been met?

A significant share of total credits are to be reserved (unreleased) until all performance standards are met (33 CFR 332.8(o)(8)/40 CFR 230.98(o)(8)). What is considered a significant share is left to the district to determine.

### 9e. Is the release schedule consistent with current/accepted practices in the district or state?

Refer to local district and/or state practices for consistency.

# 10. Assumption of Mitigation Responsibility

The treatment of mitigation liability is one of the defining factors separating banks from permittee responsible mitigation (PRM). When permittees conduct their own mitigation, they retain full responsibility/liability for the success of the project/mitigation. When permittees purchase credits* from a bank, they are paying to transfer their mitigation responsibility to the bank Sponsor. (This is also true when credits are purchased from an ILF program.)

**Assumption of Mitigation Responsibilities**
A provision stating that legal responsibility for providing the compensatory mitigation lies with the Sponsor once a permittee secures credits from the Sponsor (33 CFR 332.8(d)(6)(ii)(C))/40 CFR 230.98(d)(6)(ii)(C)).

For a successful transfer of mitigation liability, the following regulatory requirements must be satisfied:

- The bank instrument must include a provision stating that the Sponsor assumes the permittee's mitigation liability;
- The permittee has secured a permit that approves the use of a certain amount and type of credits for satisfying their mitigation requirements; and
- The Sponsor has notified the Corps that the appropriate amount and type of credits have been secured by the permittee

***Side Tip:** An applicant has two options for utilizing bank credits as compensation:
1. Credits may be secured/purchased once a permit has been issued
2. Credits may be secured in advance of permit issuance

For both options, the applicant must obtain a permit before liability may be transferred to the bank Sponsor and associated credits may be applied for compensation.

### 10a. Does the instrument include a provision stating that the Sponsor assumes the permittee's mitigation liability?

Refer to the explanation above and the regulatory language on this requirement (33 CFR 332.8(d)(6)(ii)(C)/40 CFR 230.98(d)(6)(ii)(C)).

### 10b. Does the instrument include a provision stating that the Sponsor will notify the district of each transaction?

As stated above, the instrument must specify that the Sponsor will notify the Corps for each approved credit transaction (33 CFR 332.8(p)(1)/40 CFR 230.98(p)(1)).

### 10c. Does the instrument specify the timing at which the district is notified of a transaction?

As stated above, the permittee retains responsibility for the mitigation until the Corps receives documentation confirming the Sponsor has accepted responsibility. Copies of this documentation are retained in the permit and bank file (33 CFR 332.3(l)(3)/40 CFR 230.93(l)(3)). Failure to provide documentation would be considered non-compliance with the instrument.

# 11. Accounting Procedures

Accounting procedures are a mechanism for tracking debit and credit transactions. Credit transactions come in the form of:

- Release of credits (making available) to the Sponsor for sale
- Withdrawal/debit of credits to offset permitted losses

### 11a. Does the document have a credit accounting procedure outlined?

The instrument must include a provision requiring the Sponsor to establish and maintain a credit ledger to account for all credit transactions (33 CFR 332.8(p)/40 CFR 230.98(p)).

Current practices vary between districts. Some use RIBITS as the ledger, and copies of the RIBITS ledger are acceptable; others require the Sponsor to maintain a separate ledger. Additionally, many districts' bank instruments require submittal of annual credit ledger updates with the bank's annual report, as discussed in review Element 17: Reporting Protocols.

**RIBITS credit classifications:**
Instrument credit types do not always correspond directly to credit classifications in RIBITS ledgers. District RIBITS administrators are responsible for translating credit types in bank instruments to credit classifications in RIBITS. It may be helpful for the IRT and Sponsor to coordinate with the district RIBITS administrators to better understand how the credits in the bank instrument translate to the RIBITS ledger. A recommended practice would be to include a table in the instrument that links credit types to RIBITS credit classifications.

### 11b. Does the document indicate when transaction notifications will be provided to the Corps?

Each time a transaction occurs, the Sponsor must notify the Corps (33 CFR 332.8(p)/40 CFR 230.98(p)).

### 11c. Does it indicate what information will be provided in the notification?

Transaction documentation should include date of transaction, permittee name, project, permit number, credit type(s), and amounts of credits.

# 12. Reporting Protocols

The Sponsor is required to submit periodic/annual monitoring and ledger account reports. These reports are then typically posted on RIBITS. The reports provide a mechanism to monitor a project's progress and activity.

The Corps may also require reports on financial assurance and long-term management funding. The need for this type of reporting arose from experience with compensation projects where corrective action was necessary and the resources needed (i.e., financial assurances) were not available. Similarly, past projects were approved without enough funds to manage the closed site long term (see Review Element 18: Long Term Management Plan). Annual/periodic funding reports helps an IRT reviewer evaluate if:

- Short-term financial assurances are still in place for project completion, monitoring, and management in the operation phase, and
- Long-term management finances are funded as identified in the instrument and are sufficient for after bank operations have ceased.

12a. Does the instrument specify requirements for submittal of reports to the Corps, such as:

- Project monitoring reports?

A Sponsor must submit project monitoring reports (often annual) providing the results of monitoring a project's development and potential attainment of performance standards (33 CFR 332.8(q)(2)/40 CFR 230.98(q)(2)). Refer to local district/state monitoring and reporting guidelines and policies, which may specify sampling/analysis methods for specific performance standards.

- Annual ledger account reports or RIBITS ledger updates?

The annual ledger account report must be submitted to the Corps, which distributes it to the IRT, and must also be made available to the public on request (33 CFR 332.8(q)(1)/40 CFR 230.98(q)(1)). Annual ledger account reports should include:

- A listing and summary of all credit and debit activity for the bank – a mechanism of transparency, where the IRT reviews and ensures all ledger activity is clearly documented
- Beginning and ending balances of available credits and permitted losses (debits) based on resource type
- All credit additions and subtractions and other changes (releases, adjustments by the Corps, credit suspensions)

Annual ledger account reports should differentiate data for separate bank sites under umbrella banking instruments and individual bank phases.

- Annual financial assurance and long-term management funding reports?

These reports must include (33 CFR 332.8(q)(3)/40 CFR 230.98(q)(3)):

- Beginning and ending balances of financial assurances and long-term management funding
- All deposits and withdrawals
- Total amounts of required assurances and long-term management funding
- Status of financial assurances including expiration date
- Status of long-term management funding (how close to reaching the desired target; is it fully funded or partially funded?)

Additionally, annual financial assurance and long-term management funding reports should differentiate information for separate bank sites under umbrella banking instruments and potentially individual bank phases.

# 13. Default and Closure Provisions

Default is when a bank Sponsor fails to comply with any aspects of the banking instrument or associated mitigation plan. In general, the presumption is that any non-compliance with the instrument and plan may be considered a default on the instrument. The Corps and IRT will always attempt to resolve any noncompliance issues/situations that arise with the Sponsor and project site prior to undertaking actions to correct a default.

Closure indicates that a bank site has been successful in satisfying its responsibilities laid out in the banking instrument.

### 13a. Does the instrument (or associated exhibits) specify what is meant by default?

A banking instrument must include default provisions (33 CFR 332.8(d)(6)(ii)(D)/40 CFR 230.98(d)(6)(ii)(D)).

### 13b. Does the instrument identify options available to address default?

These are the range of actions that may be implemented in response to default. The actions below are listed in order of easiest to hardest to implement:

1. Delay release of credits;
2. Corrective Action Plan—e.g., repair/replace damaged structure that was not maintained);
3. Additional monitoring—perhaps no monitoring has occurred, a monitoring period was missed, only part of a site was monitored, or portions of the site failed to meet performance standards (33 CFR 332.6(b)/40 CFR 230.96(b));
4. Adaptive management—implementation of the adaptive management plan (33 CFR 332.8(l)(2)/40 CFR 230.98(l)(2));
5. Decrease available credits—decreasing the number of credits available to debit (33 CFR 332.8(l)(2)/40 CFR 230.98(l)(2));
6. Suspend part or all of operations—suspension of credit availability to debit, notice provided via official letter from district (33 CFR 332.8(o)(10)/40 CFR 230.98(o)(10));
7. Direct Sponsor to provide alternative/replacement mitigation—fe.g., use of another bank or an ILF program (33 CFR 332.8(l)(2)/40 CFR 230.98(l)(2));
8. Notice of non-compliance—official notification of non-compliance, opens door to administrative or legal action;
9. Making a claim on financial assurances—only when Sponsor is unable or unwilling to resolve issues; beneficiary/district makes the claim to attempt to resolve issues; and
10. Terminate instrument (most severe option)—When all other actions fail. Chair/co-chair action (33 CFR 332.8(o)(10)/40 CFR 230.98(o)(10)).

13c. Does the instrument (or associated exhibits) define bank closure? In the case of an umbrella banking instrument does it define closure for an individual bank site?

A banking instrument must include closure provisions (33 CFR 332.8(d)(6)(ii)(D)/40 CFR 230.98(d)(6)(ii)(D)).

13d. Does the instrument (or associated exhibits) identify what actions must be completed in order for the bank to close?

Bank closure is generally defined as taking place when all of the below conditions are met for an entire bank site:

- Performance standards are met[7],
- All available credits are debited/relinquished by the Sponsor,
- Long-term management plan is implemented and revised if/when needed to reflect any changes in practice or availability of funding,
- Long-term steward/long-term manager is identified, and
- Long-term management plan is fully funded.

District or state standards may also specify conditions that must be met before a bank may close.

[7] In the course of bank operations, the IRT and the Sponsor may find it necessary to adjust or modify some performance stan-dards as a result of corrective actions in order to accommodate the situation when certain initial performance standards cannot be met. This adjustment or modification of standards may often entail a concurrent adjustment in credits.

# Performance and Management

# 14. Performance Standards

Performance standards are used to evaluate whether a project is evolving into the intended natural resource and providing desired aquatic resource functions/services/conditions. Performance standards must be simple, objective, verifiable, unambiguous, understandable, measurable (quantitative OR qualitative), repeatable, based on best available science, and measured with a reasonable amount of effort.

Additionally, performance standards may be:

- Incremental or interim
- Derived from reference data
- Used to measure development toward reference conditions

**Performance Standards**
Ecologically based standards that will be used to determine whether the compensatory mitigation project is achieving its objectives (33CFR 332.4 (c)(9)/ 40 CFR 230.94 (c)(9)).

Elements of a mitigation project such as hydrologic or vegetation management have associated performance standards to better evaluate the need for project management or maintenance. For example, an observed reduction in fish passage in a restored perennial stream system could indicate obstructions or constrictions in flow inhibiting passage. In a pine flatwood community, tree canopy cover in excess of 15-25% may indicate the need for additional prescribed fire.

Performance standards can be developed for any resource and should include three elements that demonstrate how each project objective will be achieved: attribute measured, level that constitutes success, and time period to achieve success (Table 7).

*Table 7. Examples of performance standards*

| Performance Standard | Attribute Measured | Level that Constitutes Success | Time Period to Achieve Success |
|---|---|---|---|
| **Hydrology of Floodplain Wetlands** | | | |
| Hydrology shall consist of a water table 12" or less to inundation up to 6" for a minimum of 28 consecutive days, during the growing season under normal and wetter than normal hydrological conditions. | Hydrology shallow groundwater level | Hydrology ranging from 12" below ground surface to 6" above ground surface | Minimum of 28 consecutive days OR two periods of 14 or more consecutive days within some specified timeframe following construction |
| **Wetland Soils** | | | |
| Soil has documented evidence of recent redoximorphic features developing by the third year after construction | Redoximorphic features | Evidence of development | Year 3 post-construction |

14a. Does the mitigation plan contain performance standards to evaluate attainment of project objectives?

Are performance standards explicitly stated or included in the instrument's narrative? Performance standards should be clearly identifiable and pertain to the desired aquatic resource outcome (and project's goals and objectives). Many instrument templates have designated performance standards, which may be presented in a template table or narrative.

14b. Does the district have performance standards for the proposed aquatic resource(s)? If the district does not have performance standards, proceed to questions 14d-14h. If the district has performance standards, proceed to questions 14c-14h.

If the district has applicable performance standards, IRT reviewers should refer to these standards when reviewing the instrument.

In districts or states with no performance standard guidance or guidelines, the reviewer will need to determine the suitability of the Sponsor's proposed standards laid out in the instrument. The Sponsor may adapt or incorporate standards from established or existing criteria or create their own set of performance standards. Regardless of how they are developed, performance standards should be relevant to the resource, understandable, measurable, include a timeframe component for evaluation and be compared to a reference site or existing reference data.

14c. Are the standards proposed by the Sponsor consistent with current district practices?

The reviewer will compare the applicable district or state practices and ensure consistency with the standards proposed in the instrument and/or associated exhibits. If any inconsistencies are identified, ensure the Sponsor has provided a robust and logical explanation for any changes, and discuss with members of the IRT.

14d. Are the performance standards ecologically based (e.g., entail comparison to reference sites/data, based on functional or condition assessment methodologies, and/or have measurements of hydrology or vegetation indices)?

Performance standards are intended to provide objective, measurable data that determine if a project is meeting its goals and objectives, typically measured in incremental stages. As such, the performance standards should focus on the relevant ecological conditions of a site, including hydrology/water quality, soils, vegetation, and fauna.

Performance standards should also include multiple assessments post construction, which are compared to the baseline pre-restoration condition, and will track incremental changes over time (bank stabilization, vegetation growth etc.).

14e. Are the standards derived from the project's goals and objectives? Are they verifiable and well-defined? Are the standards clear enough that a third party would understand them?

As mentioned in 8d., the performance standards need to reflect the purpose of the project and the bank site's potential. If a palustrine emergent wetland is proposed, the standards may revolve around

assessments for determining if a site meets the three criteria composing a wetland, generally: wetland vegetation, wetland hydrology presence, and hydric soil condition. However, meeting the technical standards for a wetland (hydrophytic vegetation, hydric soils, and the technical hydrologic standards) is often insufficient to develop the desired wetland type. Instead, performance standards should be tailored to the requirements of the specific wetland type(s) to be provided by the project. This approach is exemplified in Minnesota (St. Paul District Army Corps of Engineers 2019), where hydrologic performance standards differ for a palustrine emergent wetland depending upon whether the wetland is classified as deep marsh, hemi marsh, sedge meadow, or wet meadow. In this case, each marsh type has a different hydrologic regime and thus a different set of hydrologic performance standards. The standards should be repeatable for multiple assessments and use methodologies that are generally recognized and accepted amongst professionals in the industry.

**Case Example: Performance standards for listed species**

Where one of the objectives is to create or enhance habitat for listed species, performance standards may contain requirements regarding the presence and/or a minimum abundance of the target species. For migratory species such as salmonids, minimum abundance targets need to be carefully correlated with the regional abundance of the target species. Performance standards for salmonid habitat are generally based on habitat surrogates such as the removal of dikes, re-establishment of tidal channels, minimum flow, and maximum temperature conditions.

14f. Do the Sponsor's standards include three elements: attribute measured, level that defines success, and time period to achieve success? See example Table 7 above.

The Sponsor should include each of these elements in their performance standards.

The attribute is the indicator being measured in the field (percent cover, water table elevation, duration or frequency of flooding, soil characteristics, etc.), level is the threshold that defines success (range or specific number, presence/absence of the attribute), and time is the interval or period during or following construction that data on the attribute is collected and within which the attribute is reasonably expected to be achieved. For additional information see Ossinger 1999.

14g. Do the standards evaluate incremental progress toward project objectives?

It is important to track a project's incremental progress, as it assists the Sponsor and IRT reviewers in evaluating attainment of its performance standards across the site. Some districts or states also require achievement of incremental standards.

14h. Do the performance standards compare project/site development to reference sites/data?

A site should be compared to one or more reference site(s)/data to accurately evaluate the site's performance. Relevant reference sites (perhaps located upstream or within same watershed) will have the same range of variability that would be expected for the proposed aquatic resource (Sueltenfuss and Cooper 2019).

### 14i. Where applicable, are there separate performance standards for different habitat or resource types?

For example, estuarine/marine compensation may include open water, intertidal habitat, and/or shallow subtidal habitat as part of a matrix of other habitats like salt marsh, SAV, mangrove, etc. These areas may be assigned water quality, sediment quality or fish/biota performance standards specific to the compensation habitat or community type. Note, some districts or states have specific guidelines for estuarine and marine compensation, including performance standards (i.e., eelgrass performance standards, CA; NOAA Fisheries 2014).

# 15. Monitoring Requirements

Monitoring is used to determine if the mitigation project is meeting its performance standards and achieving its objectives. Monitoring is also used to:

- Evaluate compliance with the bank instrument and the work plan,
- Evaluate the outcome of management and maintenance activities,
- Help determine whether a credit release is appropriate (refer to Element 14 for information on credit releases), and
- Help to determine whether adaptive management activities are necessary (e.g., addressing the effects of climate change and sea level rise).

**Monitoring Requirements**
A description of parameters to be monitored in order to determine if the compensatory mitigation project is on track to meet performance standards and if adaptive management is needed (33CFR 332.4 (c)(10)/ 40 CFR 230.94 (c)(10)).

## 15a. How long will the site be monitored?

A site must be monitored for a minimum of five years, though the length of required monitoring can vary depending on the project resource and district protocols. Reviewers should refer to their district/state's standards for monitoring.

## 15b. What parameters/criteria will be monitored? Are they sufficiently detailed to evaluate attainment of performance standards?

The nature of the project and associated district protocols will dictate which parameters/criteria should be monitored for a project. These will vary by the aquatic resource type (e.g., bottomland hardwood, intermittent stream, or vernal pool). Due to the diversity of aquatic resources, the reviewer should reference their district/state's protocols to determine what monitoring requirements are appropriate for a given project. The required parameters should relate to the project's performance standards and objectives, and be consistent with district, state, or local policies and guidelines. For example, the monitoring plan should detail sample sizes, monitoring locations, timing, required statistical analyses, etc. Local monitoring guidelines for the intended aquatic resource should be incorporated in the plan.

## 15c. Does the instrument specify the content of the monitoring report?

The reviewer should refer to their district/state's agreed-upon protocols for monitoring report content and submittal frequency when evaluating a Sponsor's monitoring plan. The monitoring plan should identify the content requirements for monitoring reports as well as when those reports need to be submitted. Many districts/states (e.g., Forth Worth, Maryland, Mobile, Rock Island) have developed monitoring report templates or outlines to standardize reporting and monitoring results and to facilitate review of those reports.

Additionally, the Regulatory Guidance Letter (RGL) 08-03 issued by the Corps Headquarters may be of interest to an IRT reviewer as it establishes minimum monitoring requirements for compensatory mitigation project narrative reports. Note, for mitigation banks (and ILF project sites) this RGL may serve only as a supplemental reference to local guidelines/templates. The RGL may not provide sufficient data for a complete IRT reviewer evaluation, particularly if a credit release is being requested and documentation is necessary to demonstrate that the project is meeting performance standards.

### 15d. Does monitoring include the use of reference sites or data to evaluate performance?

Districts/states differ in their performance standards for monitoring requirements. Some depend on technical standards, while others require reference data be used to evaluate a project's performance. The reviewer should ensure that the monitoring plan adheres to their district/state's agreed-upon protocols.

# 16. Maintenance Plan

**Maintenance Plan**
A description and schedule of maintenance requirements to ensure the continued viability of the resource once initial construction is completed (33CFR 332.4 (c)(8)/ 40 CFR 230.94 (c)(8)).

This is the description and schedule of a Sponsor's management requirements for the project that ensures it remains viable once construction is completed and throughout the monitoring period. A maintenance plan may include infrastructure (water control structures, data loggers, fencing, signage, gates) and/or ecological management components (invasive species control) within the project area, and it should identify regular or recurring actions needed for the upkeep of the mitigation bank site until it transitions into long-term management.

The maintenance plan is a component considered in the development of short-term financial assurances, which are used to guarantee effective project management and successful achievement of performance standards. The IRT members can reference the maintenance plan to determine whether the project is appropriately maintained.

16a. Does the instrument contain a description and schedule of maintenance requirements to ensure the project remains viable once it has been constructed and throughout the monitoring period?

The description and schedule of maintenance are required components of the instrument, and they assist the Sponsor and IRT reviewers in identifying what will be needed (e.g., materials, labor, etc.) for maintaining the proposed site until it transitions into long-term management (33 CFR 332.4(c)(8)/40 CFR 230.94(c)(8)).

16b. Does the description cover all relevant aspects of maintenance including ecological and infrastructure maintenance?

The plan should provide a complete list of maintenance measures to ensure that the site is managed to retain its integrity and continue to provide the desired functions and services.

16c. Does the description identify regular or recurring actions?

This might include measures like nuisance/exotic species treatment schedule, fence repair, or prescribed fire. These recurring actions are necessary for the sustainability of the project.

**Includes:**
- Measures to control predation/grazing of mitigation plantings
- Nuisance/exotic invasive species abatement measures and treatment schedule
- Temporary irrigation for plant establishment
- Replacement plan (ex. replacement plantings) and invasive species control
- Structure maintenance/repair and other applicable maintenance plan components

# 17. Adaptive Management Plan

Aquatic resources are complex. The outcome of mitigation project implementation is often uncertain, so management adjustments (i.e., adaptive management) may be necessary to address unforeseen circumstances (e.g., changes in site conditions or other components of the compensatory mitigation project) and better ensure that the project is successfully completed and meets its performance standards. Adaptive management requires coordination between the responsible party, Corps, and IRT to ensure agencies' approval of proposed adaptive measures by the Sponsor or long-term steward. Adaptive management may be necessary at any point in project implementation, including construction, performance phase (monitoring), and during long-term management (33CFR 332.4 (C)(12)/40 CFR 230.94 (C)(12)).

**Adaptive Management Plan**
A management strategy to address unforeseen changes in site conditions or other components of the compensatory mitigation project… The adaptive management plan will guide decisions for revising compensatory mitigation plans and implementing measures to address both foreseeable and unforeseeable circumstances that adversely affect compensatory mitigation success (33CFR 332.4 (c)(12)/ 40 CFR 230.94 (c)(12)).

17a. Does the instrument or associated management plan document(s) include recommended general guidelines for adaptive management?

An adaptive management plan should address each of the components below. This ensures that a Sponsor is more responsive to unforeseen project issues and changes while continuing coordination with the IRT. Does the instrument or associated management plan address:

- Unforeseen circumstances, which may be defined at a national, state, or district level?
- Coordination with the IRT?
- The process for adjusting the project if it cannot be constructed according to plan?
- How the project will be managed if it does not meet its performance standards or long-term management goals?

17b. Do the monitoring and long-term management plans include provisions to determine whether any adaptive measures are needed?

Comprehensive monitoring and long-term management plans will account for possible future revisions based on unforeseen situations (e.g., a stream cuts a new channel, or a salt marsh restoration project erodes following an extreme storm event). See Table 8 for an example from a monitoring plan of how adaptive management can be used to better meet performance standards.

**Unforeseen Circumstances**

Many bank instruments refer to unpredicted events or phenomena negatively affected a bank site by phrases such as "force majeure", "Act of God", "act of nature", or unforeseen circumstances. These terms reflect a recognition that there is a degree of uncertainty associated with implementation of any bank project no matter how well-thought out. Unanticipated events can occur on any bank site, and examples may include population explosion of herbivores, widespread drought, spills of hazardous materials, fire, war, shoreline erosion, radical changes in salinity or water quality constituents etc. These clauses in bank instruments identify how extraordinary events or circumstances beyond the control of the Sponsor to manage may be addressed. What may be considered to be an unforeseen circumstance (or force majeure event) differs widely between districts/states, so it is vital to refer to local guidelines and practices.

*Table 8. Case example of how adaptive management applies to performance standards and monitoring*

| Objectives | Performance Standards | Monitoring | Adaptive Management |
|---|---|---|---|
| Re-establish 78 acres of tidal marsh | Y1: 80% planting survival<br>Y3: Average stem density, by species, is > 75% average reference.<br>Y5: 2 years since last invasive treatment & <5% invasive coverage | Annual: Measure of live, standing dead, & shoot densities or coverage in veg plot transects across entire site. | Additional treatment(s) or changes in chemical treatments may be necessary to control invasive species. |
| | Site elevation ~ reference elevation | Reference/mitigation site elevation surveys. | Adjust elevations due to reworking of sediments |

Consider whether district/state guidelines or practices address adaptive management implementation. If local guidelines, policies, or practices have not been developed, then it may be useful for the bank instrument to specify a process for adaptive management. It is important that discussions take place between the Sponsor and IRT agencies to lay out potential options for addressing unforeseen circumstances and identification of available resources for taking any necessary action as well as monitoring the consequences of any corrective actions.

17c. Do the monitoring, management, or long-term management plans consider the potential for adaptive management as a result of climate change or sea level rise?

Climate change, including changes in the amount or periodicity of precipitation or increase in likelihood of wildland fire, may precipitate future adaptive management actions. Considerations should be given to future sea level rise for projects located in coastal, marine, or estuarine areas. In non-coastal areas, considerations should be given to increased frequency or intensity of flooding events, wildfire, or drought. The instrument should also acknowledge extreme events and sea level rise factors, incorporate sea level rise predictions, and consider potential alternative states for future project condition. For example, does the plan allow for estuarine vegetation migration with sea level rise?

# 18. Long-Term Management Plan

Compensatory mitigation projects are required to be designed, to the maximum extent practicable, to be self-sustaining once performance standards have been achieved (33 CFR 332.7(b)/ 40 CFR 230.97(b)). Merely protecting the land through recordation of a conservation easement or other long-term protection mechanism may not ensure that the functions and services provided by a bank will continue over the long term. Those functions and/or services can be lost due to invasive species, trespass, urban encroachment, changing environmental conditions (sea level rise, changes in precipitation and temperature regimes, etc.), changes in land use within the watershed, increases in non-point source pollution, sedimentation, etc. (see Teresa 2009). Some level of management or maintenance may be required to ensure that the bank site continues to provide the intended resource functions and services.

**Long-term Management Plan**

A description of how the compensatory mitigation project will be managed after performance standards have been achieved to ensure the long-term sustainability of the resource, including long-term financing mechanisms and the party responsible for long-term management (33 CFR 332.4 (c)(11)/40 CFR 230.94(c)(11)).

A long-term management plan (LTMP) is a fundamental element of every mitigation plan (33 CFR 332.4(c)(11)/40 CFR 230.94(c)(11)) and must be part of the bank mitigation plan, instrument, or associated documents. Plans should identify the responsible party and include a description of management needs, annual cost estimates for those needs, and the funding mechanism used to meet those needs.

Responsible Party and Management Activities

Long-term management planning requires the Sponsor and the IRT to consider what management activities on the bank site will be necessary once all performance standards have been met. These management activities are specific to each bank site and depend upon the desired aquatic resource(s) and the intended functions and services to be provided by the bank. Practicability is a consideration in determining what long-term management activities are necessary for a bank. The LTMP should include provisions for periodically reviewing and revising the LTMP over time based on changing resource needs or funding availability and identify the party responsible (Sponsor, long-term steward, etc.) for identifying any necessary modifications to the LTMP.

The Sponsor is responsible for funding the LTMP, and this funding should be identified in the instrument or LTMP (33 CFR 332.7(d)(2)/40 CFR 230.97(d)(2). These long-term management funds are typically invested to generate returns that can be used to help fund future management activities.

Funding Long-term Management

Each long-term management activity entails an expenditure of funds. Recurring activities like fence repair, posting property boundaries, or conducting prescribed fire entail periodic expenditures. The cost associated with a management action is likely to increase over time because of inflation. The LTMP and associated financing should take into account inflation (33 CFR 332.7(d)(3)/40 CFR 230.97(d)(3)). The

rate of inflation over time can be estimated at https://www.bls.gov/data/inflation_calculator.htm. Because of the projected increase in costs of management over time, the bank Sponsor and the IRT should give careful consideration to the necessity of each long-term management task required in the LTMP.

Unforeseeable costs may arise over time as well, such as costs associated with management of recently established invasive species or substantial increases in material costs (like fuel or steel). Funds are often provided in long-term management funding to address contingencies. Contingency rates may vary from 10-30% but 10% is the most common rate.

A number of useful tools have been developed to help estimate long-term management funding such as The Nature Conservancy's (TNC) Long-Term Stewardship Calculator and Accompanying Handbook (2016) and the Center for Natural Lands Management's Property Analysis Record © (2018). LTM costs are included as selection criteria options in the TNC calculator, and an estimation of costs of easement defense and stewardship is discussed in a joint publication by the Environmental Law Institute and the Land Trust Alliance (ELI-LTA 2012).

Note, the actual cost of managing site protection instruments, like conservation easements, may not be identified as a part of long-term management funding, because the cost of managing easements is often negotiated between the Sponsor and the easement holder.

### 18a. Does the instrument include a long-term management plan (LTMP)?

See discussion above.

### 18b. Does the instrument or LTMP identify the party(ies) responsible for long-term management? Can the responsibility for long-term management be transferred to another party?

The instrument or LTMP is required to identify the party(ies) responsible for long-term management. In many districts/states, the Sponsor may be identified in the instrument as initially responsible for implementing the LTMP, but transfer of responsibility to another party is allowable, subject to review by the IRT and approval by the Corps (33 CFR 332.7(d)(1)/40 CFR 230.97(d)(1)).

### 18c. Does the LTMP include a complete itemization of long-term management tasks to be conducted periodically on a permanent basis?

The LTMP should include the bank site's long-term goals and objectives and a complete listing of all anticipated long-term management activities. The long-term management activities should have a clear connection to the bank site's goals and objectives so that future land managers, regulators, landowners, and easement holders understand the intent of the management activities. It is especially useful if the plan identifies the component elements of each management task including labor and materials. For example, periodic repair of fencing might include inspection of the fence and the repair of damaged fence segments including labor hours and materials. This information helps the reviewer confirm that the LTMP has fully considered the requirements for each management task.

### 18d. Are the annual cost estimates for management activities broken down by task? Does the LTMP identify references for cost information used in the plan?

As mentioned above, the LTMP should include a description of long-term management needs and annual cost estimates for those activities (see also 33 CFR 332.7(d)(2)/40 CFR 230.97(d)(2)).

Annual cost estimates are useful for determining the total amount of funding the Sponsor must set aside for long-term management. It is difficult to evaluate whether the cost estimates are complete unless these estimates are broken out by specific management tasks (e.g., replacement of a gate or posting of property boundaries) and their component parts including labor and materials. The assumptions made when preparing specific task-by-task cost estimates should also be articulated. Tools like TNC's Long-Term Stewardship Calculator (2016) and the CNLM's Property Analysis Record© (2018) help to clarify assumptions and to more accurately identify annualized costs of LTM.

Finally, the LTMP should identify the source of information used in these cost estimates (e.g., Bureau of Labor standard rates, Commerce Department data, industry standard cost estimation datasets such as RS Means©, etc.). This will facilitate verification by IRT members.

### 18e. Does the LTMP provide information supporting how the total amount of long-term financing was determined?

This information is critical to ensuring sufficient funds are available for long-term management of the bank site when it reaches the long-term management bank closure phase. The mechanism for Long-Term Management Funding (LTMF) is established when the bank instrument is approved by the IRT Chair or co-chairs and the Sponsor. Any modifications to the funding mechanism require consent by all parties involved in the bank (Sponsor, Corps, IRT, Long-term Manager) and may be challenging to secure. The LTMP should identify how the total amount of long-term financing was determined. An effective way used by many banks is to first sum the total annual cost of all management activities required in the bank (including contingency and estimated administration costs). The example in Table 9 identifies annual management costs for a ten-acre mitigation project abutting a wildlife management area.

The annual cost of management is then divided by the expected earnings from investment of those long-term management funds (adjusted for inflation).

In this example, if the long-term management funds were anticipated to earn an average of 7% annually (gross earnings), inflation is estimated to average 3%/year, and administration (management) of the funds is 0.5%/year then the adjusted or net earning rate of those funds would be 3.5% (7% - [3% + 0.5%]). Dividing this net earning rate (often called a Capitalization or Cap rate) into the annual cost of management provides an estimate of the total amount of the initial funding amount of long-term management funding (or principal amount) the Sponsor must set aside for the LTMP. In this case it is $109,200 or $3,822/0.035.

*Table 9. Case example of LTMP annual management costs*

| Task | Component | Unit | Number | Cost/ Unit | Recurrence Interval | Annual Cost |
|---|---|---|---|---|---|---|
| Signage | Inspect & replace | Hour | 4 | $40 | 1 | $160 |
| Trash | Collect & dump | Hour | 2 | $40 | 1 | $80 |
| Annual Report | Narrative Summary | Hour | 4 | $75 | 1 | $300 |
| Fence | Labor | Hour | 30 | $40 | 1 | $1,200 |
| Fence Installed | 3 strand barbed wire | Lin Ft | 300 | $4 | 1 | $1,200 |
| **Sub-Total** | | | | | | **$2.940** |
| Contingencies | 20% | | | | | $588 |
| Admin | 10% | | | | | $294 |
| **Total** | | | | | | **$3,822** |

The average annual net rate of return or Cap rate for the long-term management funds is important. The lower the cap rate or net rate of return, the greater the initial fund amount the Sponsor must set aside for the LTMP (Table 10). In the table, a Cap rate of 5% would translate into a gross annual earnings rate of 8.5% (5% + 3% inflation + 0.5% administration). To achieve an earning rate that high would require active investment of the LTMP funds in a balanced portfolio including stocks, bonds, mutual funds, and other investment mechanisms. A Cap rate of 0.5% might be achievable through the use of less risky investment mechanisms like Treasury bills and certificates of deposit but would mean that the Sponsor must establish a much larger initial fund amount.

Refer to The Nature Conservancy's Long-term Stewardship Calculator Accompanying Handbook: Section III Making Money for the Long-term (2016), pages 51-58 for more information and examples of calculating LTM funds.

*Table 10. Example cap rates for long-term management funds*

| Annual Cash Needed | Cap Rate | Initial Fund Amount |
|---|---|---|
| $20,000 | 5% | $400,000 |
| $20,000 | 3% | $666,667 |
| $20,000 | 1% | $2,000,000 |
| $20,000 | 0.5% | $4,000,000 |

### 18f. Does the LTMP allow for periodic adjustments in management priorities? Does this include adjustments in spending?

The LTMP should allow the long-term manager to discuss with the IRT during the course of long-term management any revisions to the LTMP necessary to reflect changes in management needs (e.g., management of a previously unknown invasive species that could affect the functions/services by the bank site) or management costs (e.g., additional permitting costs associated with conduct of prescribed fire). Because the amount of LTMP funding is determined at the time of LTMP approval, it may be difficult to secure additional funds during long-term management. So, if there are additional needs or additional expenses associated with long-term management, it may be necessary to reexamine management tasks and costs and prioritize them based on available funding.

### 18g. Does the LTMP describe how the LTMP will be funded (lump sum, installments, prior to credit release, etc.)? Is that consistent with current practices in the district/state?

The instrument and the LTMP should describe the LTMF mechanism including the timing of long-term financing. A number of approaches have been used to finance long-term management. Each of these practices has its own considerations, e.g.:

- **Single payment (or lump sum):** Funding long-term management obligations with a single or lump sum payment can be financially demanding for private sector bank Sponsors.
- **Payment schedule**: Series of payments over time. The challenge with a payment schedule is ensuring the funding obligation is met in accordance with the bank instrument and LTMP.
- **Credit sale proceeds:** Use of credit proceeds is a common practice (e.g., setting aside a portion of proceeds from each credit sale for long-term management), however, full funding may prove difficult if credit demand lags or if credits are sold at discounted rates.
- **Incremental funding of long-term management:** Incremental funding of LTM as a milestone that must be met prior to an incremental credit release. This approach has proved effective in a number of states/districts (e.g., see Section VII Credit Release Schedule in the 2017 California Bank Enabling Instrument Template [California Multi-Agency Project Delivery Team 2017]).
- **Conversion or roll over of financial assurances:** Conversion or roll-over of financial assurances (escrow, letters of credit, etc.) is required in a number of districts/states, but so far there are no examples of this in practice to review.
- **Annual appropriations/Capital improvement budgets and programmatic agreements:** Long-term management of banks undertaken solely by public agencies on public lands are often funded through appropriations or programmatic agreements. It can be challenging to fully fund LTM on an annual basis. Some mitigation projects are undertaken on public lands but administered by the private sector such as non-profit organizations that may be better able to secure appropriate long-term management funding.

Whichever practice is used, at a minimum, the initial funding amount for the LTMP should be fully funded before the bank moves into the long-term management phase.

# References

This includes literature referenced in the workbook as well as a sampling of templates, and instructions issued by districts and states across the United States that were reviewed and at times referenced in this review workbook. This list was current as of January 2022; however, bank instruments, templates, and tools will be revised over time.


California Multi-Agency Project Delivery Team. 2017. Bank Enabling Instrument Template (Version Date September 28, 2017). 59pp.
https://ribits.ops.usace.army.mil/ords/f?p=107:27:17115061474550::NO::P27_BUTTON_KEY:10

Center for Natural Lands Management (CNLM). 2018. Property Analysis Record Application. https://www.cnlm.org/par/

Charleston District, USACE. 2010. Guidelines for Preparing a Compensatory Mitigation Plan. https://ribits.ops.usace.army.mil/ords/f?p=107:150:10318356781941::NO::P150_DOCUMENT_ID:47829

Environmental Law Institute and Land Trust Alliance. 2012. Wetland and Stream Mitigation: A Handbook for Land Trusts. 155pp.
https://www.epa.gov/sites/production/files/201508/documents/wetlands_and_stream_mitigation_-_a_handbook_for_land_trusts_0.pdf

Harman, W., and R. Starr. 2011. Natural Channel Design Review Checklist. U.S. Fish and Wildlife Service, Chesapeake Bay Field Office, Annapolis, MD and U.S. Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds, Wetlands Division. Washington, D.C. EPA 843-B-12-005

National Oceanic and Atmospheric Administration (NOAA) Fisheries, Western Region. 2014. California Eelgrass Mitigation Policy and Implementing Guidelines. 48pp. https://www.fisheries.noaa.gov/west-coast/habitat-conservation/seagrass-west-coast

New England District, USACE. 2020. New England District Compensatory Mitigation Standard Operating Procedures. https://www.nae.usace.army.mil/Missions/Regulatory/Mitigation.aspx

New Orleans District, USACE. 2018. Mitigation Work Plan templates for Bottomland Hardwoods, Swamp, Marsh, and Pine Flatwood Savanna. https://ribits.ops.usace.army.mil/ords/f?p=107:27

Norfolk District, U.S. Army Corps of Engineers (USACE). 2018. Mitigation Banking Instrument Template.
https://ribits.ops.usace.army.mil/ords/f?p=107:27:13939249182439::NO::P27_BUTTON_KEY:10

Ossinger, M. 1999. Success standards for wetland mitigation projects – a guideline. Washington State Department of Transportation, Environmental Affairs Office. 31pp

Scodari, P., S. Martin, and A. Willis. 2016. Implementing Financial Assurances for Mitigation Project Success. Institute for Water Resources White Paper. 43pp. https://www.iwr.usace.army.mil/Portals/70/docs/iwrreports/Financial_Assurance.pdf

St. Paul District, USACE. 2019. Regulatory Branch Guidance, Target Hydrology and Performance Standards for Compensatory Mitigation Sites. 22 pp. https://www.mvp.usace.army.mil/Missions/Regulatory/PublicNotices/Article/1789913/st-paul-district-corps-of-engineers-regulatory-branch-guidance-target-hydrology/

Sueltenfuss, J.P., and D.J. Cooper. 2019. A new approach to hydrologic performance standards in wetland mitigation. Journal of Environmental Management. 231:1154-1163.

Teresa, S. 2009. Perpetual stewardship considerations for compensatory mitigation and mitigation banks. Stetson Law Review 38: 337-356.

The Nature Conservancy. 2016. Long-Term Stewardship Calculator and Accompanying Handbook. 115pp. https://www.conservationgateway.org/ConservationPlanning/ToolsData/Pages/stewardshipcalculator.aspx

USACE Engineer Research and Development Center (ERDC). 2000. Wetland Engineering Handbook. Wetlands Research Program. ERDC/EL TR-WRP-RE-21. 719pp. https://www.csu.edu/cerc/researchreports/documents/WetlandsEngineeringHandbookUSACE2000.pdf

U.S. Fish and Wildlife Service. 1991. Final Policy on the National Wildlife Refuge System and Compensatory Mitigation under Section 10/404 Program. Federal Register Vol 64 No 175: 49229-49234.

Wood, C., and S. Martin. 2016. Compensatory Mitigation Site Protection Instrument Handbook for the Corps Regulatory Program. Institute for Water Resources White Paper. 21pp. https://www.iwr.usace.army.mil/Portals/70/docs/iwrreports/Site_Protection_Instrument_Handbook_August_2016.pdf?ver=2016-08-29-082816-237

# APPENDIX A: REVIEW CHECKLIST

# Mitigation Bank Instrument Review Checklist Questions

The Mitigation Bank Instrument Review Checklist reflects the content of each element in the Mitigation Bank Instrument Review Workbook. For each element, the checklist asks whether the question was addressed (yes/no), whether the narrative is complete (yes/no), and the page numbers of the relevant narrative. A comment section for reviewer input is also included.

| **Review Elements** Questions | **Addressed (Yes/No)** | **Complete (Y/N)** | **Page #(s)** | **Reviewer Comments** |
|---|---|---|---|---|
| | | | | |
| **Introduction** | | | | |
| Has the prospectus been reviewed? | | | | |
| Are there any components unresolved or unaddressed from the prospectus? | | | | |
| | | | | |
| **1. Bank Goals and Objectives** | | | | |
| 1a. Does the instrument include a description of the resource type(s) and approximate amount(s) that will be provided? | | | | |
| 1b. Does the instrument identify functions and services to be provided by the bank site? | | | | |
| 1c. Does the instrument include the methods used for compensation? | | | | |
| 1d. Does the bank site address ecological resource needs within the watershed or landscape setting in which the bank site is located? | | | | |
| | | | | |
| **2. Site Selection** | | | | |
| 2a. Is the bank site located within the watershed or landscape position where it is most likely to either replace lost functions and services or enhance existing, compromised functions and services as described in the draft instrument? | | | | |
| 2b. Does the bank site include areas that were formerly aquatic resources or are currently degraded aquatic resources? | | | | |

| Review Elements<br>Questions | Addressed (Yes/No) | Complete (Y/N) | Page #(s) | Reviewer Comments |
|---|---|---|---|---|
| 2c. Does the bank site include buffers that would protect it from its surroundings? Does it help buffer other conserved aquatic resources from potentially incompatible activities? | | | | |
| 2d. Is the bank site adjacent to other conserved aquatic resources or does it help establish or extend a conserved corridor? | | | | |
| 2e. Has the proposed bank site addressed ecological needs that have been identified within the project landscape/watershed such as chronic environmental conditions (flooding, impaired water quality, insufficient habitat for important aquatic species, etc.) (33 CFR 332.3(c)(3)/40 CFR 230.93(c)(3))? | | | | |
| 2f. Are there any apparent potential constraints and/or limitations to the proposed bank? Are any of these critical to successful bank establishment or operation? | | | | |
| 2g. Is this bank site ecologically suitable for providing the desired aquatic resource functions/services within the subject watershed or landscape position? | | | | |
| | | | | |
| **3. Baseline Information** | | | | |
| 3a. Does the bank instrument include a description of the baseline watershed/landscape, and ecological characteristics of the proposed bank site? | | | | |
| 3b. Is the baseline data applicable and comparable to data that will be collected post construction (performance standards)? | | | | |
| 3c. Do the baseline conditions support the project's goals and objectives? | | | | |

| Review Elements<br>Questions | Addressed (Yes/No) | Complete (Y/N) | Page #(s) | Reviewer Comments |
|---|---|---|---|---|
| 3d. Does the instrument include or reference a delineation of wetlands/ waters? | | | | |
| 3e. Does the instrument include information related to at risk fauna and flora species and/or other regulated resources (cultural/archaeological)? | | | | |
| 3f. Does the instrument include the location and extent of any utilities and other infrastructure in the project vicinity? | | | | |
| 3g. Does the instrument include the location and information related to any existing easements, rights-of-way (ROW), or other property restrictions? | | | | |
| | | | | |
| **4. Mitigation Work Plan** | | | | |
| 4a. Does the instrument or exhibit include the required work plan components? Do these components have detailed specifications and descriptions? | | | | |
| 4b. Are the work plan components reflective of the project's goals and objectives? | | | | |
| 4c. Do the work plan components follow established best practices or provide an explanation discussing why the approach is appropriate? | | | | |
| 4d. Does the work plan consider the presence of any existing infrastructure (i.e., utilities) or easements? | | | | |
| | | | | |
| **5. Financial Assurances** | | | | |
| 5a. Does the instrument include the basis for the financial assurance, either corrective action on the bank site, or replacement compensation at another site? Is this consistent with district/state requirements? | | | | |

| Review Elements<br>Questions | Addressed (Yes/No) | Complete (Y/N) | Page #(s) | Reviewer Comments |
|---|---|---|---|---|
| 5b. Does the instrument include an itemized list of work associated with construction, monitoring, and maintenance provided in support of the financial assurance estimate? Does the itemized list include all the component parts associated with the project? | | | | |
| 5c. Does the instrument include specific conditions for reduction/ release of financial assurances? | | | | |
| 5d. Do the assurances identify a non-federal beneficiary in the event that a claim is made on the assurances? | | | | |
| 5e. Does the type of assurance provide for payment, performance, or both in the event that a claim is made? | | | | |
| 5f. Does the assurance include notification to the Corps at least 120 days before expiration/revocation of the assurances? | | | | |
| 5g. Does the instrument or associated exhibit specify that the Sponsor will provide a financial assurance mechanism prior to an initial release of credits? | | | | |
| | | | | |
| **6. Site Protection Instrument** | | | | |
| 6a. Does the instrument include a proposed long-term site protection mechanism (conservation easement, declaration of restrictions, etc.)? Is the protection mechanism consistent with current district/state guidelines (including template instruments)? | | | | |
| 6b. Does the mechanism protect against interests/activities that are incompatible with the project's goals and objectives? | | | | |

| Review Elements<br>Questions | Addressed (Yes/No) | Complete (Y/N) | Page #(s) | Reviewer Comments |
|---|---|---|---|---|
| 6c. Does the instrument list any other interests in the property (financial, mineral/timber, water rights)? Does the instrument (or exhibits/ attachments to the bank instrument) include an explanation as to how those other interests may affect the bank site? | | | | |
| 6d. If the site is located on public lands is the Sponsor proposing additional long-term protection measures? Do they seem adequate? | | | | |
| 6e. Does the site protection mechanism include the requirement to provide the Corps with 60-days advanced notification if there is a proposed amendment or termination of the site protection mechanism? | | | | |
| | | | | |
| **7. Geographic Service Area** | | | | |
| 7a. Does the bank instrument or associated exhibits include a clearly defined service area(s) for the bank? | | | | |
| 7b. Are there multiple service areas or service area types defined? Is this consistent with district, state, or local requirements? | | | | |
| 7c. Does the bank instrument or associated exhibits specify the watershed or landscape units used to define the service area? | | | | |
| 7d. Does the service area comply with local, district, and/or state requirements (scale, size, or resource type)? | | | | |
| 7e. Is the rationale for the location, size, and extent of the service area clearly documented in the instrument and/or exhibits? | | | | |
| | | | | |
| **8. Credit Determination** | | | | |
| 8a. Is the Sponsor's credit determination methodology consistent with the current district/ state standards? | | | | |

| Review Elements<br>Questions | Addressed (Yes/No) | Complete (Y/N) | Page #(s) | Reviewer Comments |
|---|---|---|---|---|
| 8b. Is the proposed generation of credits consistent with district/state policy, and is it applied accurately? | | | | |
| 8c. Does the proposed number of credits reflect the difference between baseline and post-construction conditions? | | | | |
| 8d. Are any of the proposed credits based solely on preservation? | | | | |
| 8e. Are credits proposed for generation through restoration, enhancement, or preservation of riparian areas, buffers, or uplands? If so, are those riparian areas/buffers/uplands considered necessary to maintain the ecological viability of aquatic resources? | | | | |
| 8f. Does the instrument include a table identifying credits that will be generated by resource type, and is there a corresponding map identifying those locations? | | | | |
| | | | | |
| **9. Credit Release Schedule** | | | | |
| 9a. Does the instrument or associated documents specify a credit release schedule? | | | | |
| 9b. Is the credit release schedule consistent with the mitigation type and resources being proposed? Does the instrument's credit release schedule differentiate between mitigation methods and resource types? | | | | |
| 9c. Does the release schedule specify incremental milestones (e.g., construction completion, meeting performance standards) to be achieved for credit releases? | | | | |
| 9d. Will a significant amount of credits be withheld until all performance standards have been met? | | | | |
| 9e. Is the release schedule consistent with current/accepted practices in the district or state? | | | | |
| | | | | |

| Review Elements<br>Questions | Addressed (Yes/No) | Complete (Y/N) | Page #(s) | Reviewer Comments |
|---|---|---|---|---|
| **10. Assumption of Mitigation Responsibilities** | | | | |
| 10a. Does the instrument include a provision stating that the Sponsor assumes the permittee's mitigation liability? | | | | |
| 10b. Does the instrument include a provision stating that the Sponsor will notify the district of each transaction? | | | | |
| 10c. Does the instrument specify the timing at which the district is notified of a transaction? | | | | |
| | | | | |
| **11. Accounting Procedures** | | | | |
| 11a. Does the document have a credit accounting procedure outlined? | | | | |
| 11b. Does the document indicate when transaction notifications will be provided to the Corps? | | | | |
| 11c. Does it indicate what information will be provided in the notification? | | | | |
| | | | | |
| **12. Reporting Protocols** | | | | |
| 12a. Does the instrument specify requirements for submittal to the Corps such as:<br>• Project monitoring reports?<br>• Annual ledger account reports or RIBITS ledger updates?<br>• Annual financial assurance and long-term management funding reports? | | | | |
| | | | | |
| **13. Default and Closure Provisions** | | | | |
| 13a. Does the instrument (or associated exhibits) specify what is meant by default? | | | | |
| 13b. Does the instrument identify options available to address default? | | | | |

| Review Elements<br>Questions | Addressed (Yes/No) | Complete (Y/N) | Page #(s) | Reviewer Comments |
|---|---|---|---|---|
| 13c. Does the instrument (or associated exhibits) define bank closure? In the case of an umbrella banking instrument does it define closure for an individual bank site? | | | | |
| 13d. Does the instrument (or associated exhibits) identify what actions must be completed in order for the bank to close? | | | | |
| | | | | |
| **14. Performance Standards** | | | | |
| 14a. Does the mitigation plan contain performance standards to evaluate attainment of project objectives? | | | | |
| 14b. Does the district have performance standards for the proposed aquatic resource(s)? If the district does not have performance standards, proceed to questions 14d-14h. If the district has performance standards, proceed to question 14c-14h. | | | | |
| 14c. Are the standards proposed by the Sponsor consistent with current district practices? | | | | |
| 14d. Are the performance standards ecologically based (e.g., entail comparison to reference sites/data, based on functional or condition assessment methodologies, and/or have measurements of hydrology or vegetation indices)? | | | | |
| 14e. Are the standards derived from the project's goals and objectives? Are they verifiable and well-defined? Are the standards clear enough that a third party would understand them? | | | | |
| 14f. Do the Sponsor's standards include three elements: attribute measured, level that defines success, and time period to achieve success? See example table above. | | | | |
| 14g. Do the standards evaluate incremental progress toward project objectives? | | | | |

| Review Elements<br>Questions | Addressed (Yes/No) | Complete (Y/N) | Page #(s) | Reviewer Comments |
|---|---|---|---|---|
| 14h. Do the performance standards compare project/site development to reference sites/data? | | | | |
| 14i. Where applicable, are there separate performance standards for different habitat or resource types? | | | | |
| | | | | |
| **15. Monitoring Requirements** | | | | |
| 15a. How long will the site be monitored? | | | | |
| 15b. What parameters/criteria will be monitored? Are they sufficiently detailed to evaluate attainment of performance standards? | | | | |
| 15c. Does the instrument specify the content of the monitoring report? | | | | |
| 15d. Does monitoring include the use of reference sites or data to evaluate performance? | | | | |
| 15e. Does monitoring include the use of reference sites or data to evaluate performance? | | | | |
| | | | | |
| **16. Maintenance Plan** | | | | |
| 16a. Does the instrument contain a description and schedule of maintenance requirements to ensure the project remains viable once it has been constructed and throughout the monitoring period? | | | | |
| 16b. Does the description cover all relevant aspects of maintenance including ecological and infrastructure maintenance? | | | | |
| 16c. Does the description identify regular or recurring actions? | | | | |
| | | | | |

| Review Elements<br>Questions | Addressed (Yes/No) | Complete (Y/N) | Page #(s) | Reviewer Comments |
|---|---|---|---|---|
| **17. Adaptive Management Plan** | | | | |
| 17a. Does the instrument or associated management plan document(s) include general guidelines for adaptive management that encompass:<br>• Unforeseen circumstances, which may be defined at a national, state, or district level.Coordination with IRT?<br>• Coordination with the IRT?<br>• The process for adjusting the project if it cannot be constructed according to plan?<br>• How the project will be managed if it does not meet its performance standards or long-term management goals? | | | | |
| 17b. Do the monitoring and long-term management plans include provisions to determine whether any adaptive measures are needed? | | | | |
| 17c. Do the monitoring, management, or long-term management plans consider the potential for adaptive management as a result of climate change or sea level rise? | | | | |
| | | | | |
| **18. Long-Term Management Plan** | | | | |
| 18a. Does the instrument include a long-term management plan (LTMP)? | | | | |
| 18b. Does the instrument or LTMP identify the party(ies) responsible for long-term management? Can the responsibility for long-term management be transferred to another party? | | | | |
| 18c. Does the LTMP include a complete itemization of long-term management tasks to be conducted periodically on a permanent basis? | | | | |
| 18d. Are the annual cost estimates for management activities broken down by task? Does the LTMP identify references for cost information used in the plan? | | | | |

| Review Elements<br>Questions | Addressed (Yes/No) | Complete (Y/N) | Page #(s) | Reviewer Comments |
|---|---|---|---|---|
| 18e. Does the LTMP provide information supporting how the total amount of long-term financing was determined? | | | | |
| 18f. Does the LTMP allow for periodic adjustments in management priorities? Does this include adjustments in spending? | | | | |
| 18g. Does the LTMP describe how the LTMP will be funded (lump sum, installments, prior to credit release, etc.)? Is that consistent with current practices in the district/state? | | | | |
| | | | | |