Public Notice

U.S. Army Corps of Engineers
Pittsburgh District

In Reply Refer to Notice No. below

US Army Corps of Engineers, Pittsburgh District
1000 Liberty Avenue
Pittsburgh, PA 15222-4186

Application No. N/A Date: March 12, 2010

Notice No: 10-15 Closing Date: April 12, 2010

GUIDANCE ON THE OHIO INTERAGENCY REVIEW TEAM INIATIVES ADMINISTERED IN ACCORDANCE WITH THE 2008 FINAL RULE ON COMPENSATORY MITIGATION FOR LOSSES OF WETLANDS WITHIN THE U.S. ARMY CORPS OF ENGINEERS, BUFFALO, HUNTINGTON AND PITTSBURGH DISTRICTS

JOINT PUBLIC NOTICE: This joint public notice is distributed on behalf of the Ohio Interagency Review Team (IRT), which is composed of the Buffalo, Huntington and Pittsburgh Districts of the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency Region V, U.S. Fish and Wildlife Service, Natural Resource Conservation Service, Ohio Environmental Protection Agency (Ohio EPA), and the Ohio Department of Natural Resources. The purpose of this public notice is to provide you with a draft document which outlines what should be included and considered for wetland mitigation banking proposals in Ohio. The document was developed following the joint federal rule described below.

AUTHORITY: On April 10, 2008, the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency (USEPA) published a joint federal rule which established regulations governing compensatory mitigation for activities authorized by Department of the Army permits issued pursuant to Section 404 of the Clean Water Act and/or sections 9 and 10 of the Rivers and Harbors Act of 1899. The federal regulations associated with this final rule include 33 CFR 325 and 33 CFR 332 (Corps of Engineers) and 40 CFR 230 (USEPA). The Ohio rules that govern wetland compensatory mitigation for Section 401 Water Quality Certifications are found in Ohio Administrative Code 3745-1-50 to 54. In 2001 the Ohio state legislature developed Ohio's Isolated Wetland Statute which regulates compensatory mitigation for impacts to isolated wetlands (Ohio Revised Code 6111.02 to 6111.029).

PURPOSE: The purpose of this document is to provide those interested in mitigation banking in Ohio with the IRT-developed draft document containing statewide criteria which have been developed by the IRT to ensure that wetland mitigation banks established in Ohio will have the greatest likelihood of success. A copy of the draft document is attached to this notice.

SOLICITATION OF COMMENTS: We are seeking public input on the draft document regarding wetland mitigation banking in Ohio. Persons wishing to comment on issues pertaining to the draft document should submit comments in writing setting forth sufficient detail to furnish a clear understanding of the reasons for support or opposition. All comments must be received on or before the close of the comment period listed on page one of this public notice. Comments

and requests for additional information should be submitted to: North Regulatory Section, CELRH-OR-FN, USACE Huntington District, 502 Eighth Street, Huntington, West Virginia 25701-2070. If you have any questions concerning this public notice, please contact: Ms. Denise Marmer of the North Regulatory Section, Cincinnati Regulatory Field Office, at 513-825-2752.

Please note names and addresses of those who submit comments in response to this public notice become part of our administrative record and, as such, are available to the public under provisions of the Freedom of Information Act. Thank you for your interest in our nation's water resources.

FOR THE DISTRICT ENGINEER:

//SIGNED//
Scott A. Hans
Chief, Regulatory Branch

**Draft Document Regarding
Wetland Mitigation Banking for
Ohio**

SECTION 1: PURPOSE AND GOALS

On April 10, 2008, the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency published a joint federal rule which established regulations governing compensatory mitigation for activities authorized by Corps of Engineers permits issued pursuant to Section 404 of the Clean Water Act (CWA) and/or sections 9 and 10 of the Rivers and Harbors Act of 1899. The Ohio Environmental Protection Agency (Ohio EPA) has rules that govern wetland compensatory mitigation for Section 401 Water Quality Certifications since 1998 (Ohio Administrative Code 3745-1-50 to 54). The state legislature developed Ohio's Isolated Wetland Statute in 2001 (Ohio Revised Code 6111.02 to 6111.029), which regulates compensatory mitigation for impacts to isolated wetlands. All these mitigation rules emphasize the need to use a watershed approach when making decisions regarding the best approach for replacing aquatic resource functions lost due to unavoidable impacts permitted through the Section 404/401 and Isolated Wetland permitting programs. The state and federal rules stress the importance of locating mitigation banks on sites that are ecologically appropriate and where aquatic resource restoration will have the highest probability of successfully replacing lost functions and ecological services.

The purpose of this agreement is to provide those interested in mitigation banking with statewide criteria which have been developed by the Interagency Review Team (IRT) to ensure that wetland mitigation banks established in Ohio will have the greatest likelihood of success. The Ohio IRT is composed of the Buffalo, Huntington and Pittsburgh Districts of the Corps of Engineers, U.S. Environmental Protection Agency RegionV, U.S. Fish and Wildlife Service, Natural Resource Conservation Service, Ohio Environmental Protection Agency, and the Ohio Department of Natural Resources.

The criteria outlined in this document have been developed to ensure that mitigation banks meet the fundamental objective of compensatory mitigation which is to offset environmental losses resulting from unavoidable impacts to waters of the United States and the State of Ohio authorized by Department of the Army permits and/or Ohio EPA. These criteria have been developed to help ensure the likelihood for ecological success and sustainability of aquatic resources developed by mitigation banks. In order to meet this goal, mitigation bank sites should be located where

they are most likely to successfully replace lost functions and services using a watershed approach. This will require consideration of watershed scale features such as aquatic habitat diversity, habitat connectivity, hydrologic connectivity, and compatibility with local land uses. This agreement also identifies the financial requirements, defines ecological performance standards, establishes performance monitoring criteria, and outlines a credit release schedule for banks operating in Ohio.

SECTION 2: DEFINITIONS

Note: Where the definitions in Ohio Rule differ from the Federal Rule, both definitions are provided. In this document, the Federal Rule definitions are used.

1. Adaptive Management: The development of a management strategy that anticipates likely challenges associated with compensatory mitigation projects and provides for the implementation of actions to address those challenges, as well as unforeseen changes to those projects. It requires consideration of the risk, uncertainty, and dynamic nature of compensatory mitigation projects and guides modification of those projects to optimize performance. It includes the selection of appropriate measures that will ensure that the aquatic resource functions are provided and involves analysis of monitoring results to identify potential problems of a compensatory mitigation project and the identification and implementation of measures to rectify those problems. (See Section 7)

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

3. Compensatory Mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Ohio Rule Definition- "Compensatory mitigation" refers to the final step in the alternatives analysis and means restoration, creation, enhancement or, in exceptional circumstances, preservation of wetlands expressly for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance

and minimization have been achieved.

4. Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s) but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area. Because impacts associated with individual projects that propose to use bank credits will, in virtually all cases, be permanent, only enhancement that results in permanent improvement of functions and values of aquatic resources will generate credits.

Ohio Rule Definition- "Enhancement" means activities conducted in existing wetlands to improve or repair existing or natural wetland functions and values of that wetland.

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

Ohio Rule Definition-"Creation" means the establishment of a wetland where one did not formerly exist. This would involve wetland construction on non-hydric soils.

6. Ledger: Document to be used in the accounting of credits and debits. A ledger will be maintained by the bank sponsor and audited by the appropriate Corps District on an annual basis.

7. Management: Actions taken within a mitigation bank to establish and maintain desired habitat conditions. Representative management actions include, but are not limited to, water level manipulations, herbicide use, mechanical plant removal, and prescribed burning.

8. Mitigation Bank: A site, or suite of sites, where aquatic resources (e.g., wetlands, streams, riparian areas) are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts authorized by DA permits. In general, a mitigation bank sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor. It is a system of accounting for the loss and compensation of aquatic resources, which can include one or more compensatory mitigation sites.

Ohio Rule Definition- "Mitigation bank" means a site where

wetlands have been restored, created, enhanced or in exceptional circumstances, preserved expressly for the purpose of providing compensatory mitigation generally in advance of authorizing impacts.

9. Mitigation Bank Credits: The unit of measure representing the accrual or attainment of aquatic functions at a compensatory mitigation site. The measure of aquatic functions is based on the aquatic resources restored, established, enhanced or preserved. For the purposes of this document, the unit of measure for bank credit will be acres.

10. Mitigation Bank Instrument: The legal document for the establishment, operation, and use of a mitigation bank.

11.Mitigation Plan: A detailed plan which describes how the bank will be established and operated. The mitigation plan must include the following 12 items: Objectives of the bank; Site selection; Site protection instrument; Baseline information; Determination of credits; Mitigation work plan; Maintenance plan; Performance standards; Monitoring requirements; Long-term management plan; Adaptive management plan; and Financial assurances. The mitigation plan will be incorporated into the bank instrument. (For a more detailed description of these 12 items see Appendix 1)

12. Monitoring: A specific program of data collection which documents the physical, chemical, and biological characteristics of the Mitigation Bank, for the purpose of determining compliance with performance standards established in Section 10.

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

Ohio Rule Definition – "Preservation" means protection of ecologically important wetlands in perpetuity through the implementation of appropriate legal mechanisms to prevent harm to the wetland. Preservation may include protection of adjacent upland areas as necessary to ensure protection of the wetland.

14. Prospectus: A plan for a compensatory mitigation bank prepared by a potential bank sponsor and submitted for consideration to the interagency review team. The prospectus provides full discussion of the proposed

mitigation bank and serves as the basis for the public and interagency review comments.

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

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

Ohio Rule Definition- "Restoration" means the re-establishment of a previously existing wetland at a site where it has ceased to exist.

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

16. Service Area: The geographic area within which impacts can be mitigated at a particular mitigation bank; the designated service area of a mitigation bank is the watershed in which it is located, as shown on Appendix 2 of this document.

Ohio Rule Definition- "Mitigation bank service area" means the designated area where a mitigation bank can reasonably be expected to provide appropriate compensation for impacts to wetlands and other aquatic resources.

17. Sponsor: Any public or private entity responsible for establishing and/or operating a compensatory mitigation bank.

18. Watershed: A land area that drains to a common waterway, such as a stream, lake, estuary, wetland, or ultimately the ocean.

Ohio Rule Definition – "Watershed" means a common surface drainage area corresponding to one from the list of thirty-seven adapted from the forty-four cataloging units as depicted on the hydrologic unit map of Ohio, U.S. Geological Survey, 1988, and as described in paragraph (F)(2) of rule

3745-1-54 of the Administrative Code or as otherwise shown on map number 1 found in rule 3745-1-54 of the Administrative Code. Watersheds are limited to those parts of the cataloging units that geographically lie within the borders of the state of Ohio. A map is also available in Appendix 2.

19. Watershed Approach: An analytical process for making compensatory mitigation decisions that support the sustainability or improvement of aquatic resources in a watershed. It involves consideration of watershed needs, and how locations and types of compensatory mitigation projects address those needs. A landscape perspective is used to identify the types and locations of compensatory mitigation projects that will benefit the watershed and offset losses of aquatic resource functions and services caused by activities authorized by Corps of Engineers permits and Ohio EPA.

20. Watershed Plan: A plan developed by federal, tribal, state and/or local government agencies or appropriate non-governmental organizations, in consultation with relevant stakeholders, for the specific goal of aquatic resource restoration, establishment, enhancement, or preservation. A watershed plan addresses aquatic resource conditions in the watershed, multiple stakeholder interests, and land uses. Watershed plans may also identify priority sites for aquatic resource restoration and protection. Examples of watershed plans include special area management plans, advance identification programs, and aquatic resource management plans.

SECTION 3: PROCESS

The mitigation bank review process occurs in three or four steps. The review process, including timeframes, is detailed in 33 CFR 332.8(d) Mitigation Banks and In-Lieu Fee Programs, Review Process. While the mitigation rule does not require the Step 1 draft prospectus, it is highly recommended that Step 1 be initiated for mitigation banking proposals in the State of Ohio. A checklist for the items to be included in each of the steps is located in Appendices 3 - 5. The items required are detailed in 33 CFR 332.8(d); additional items may be provided earlier in the process if the sponsor chooses.

Step 1 (optional but highly recommended): Draft Prospectus - To initiate preliminary coordination, a brief, concept level proposal submitted when just scoping the concept of a bank, contemplating pursuing a bank idea or for those new to the banking process. The preliminary review is optional, but strongly recommended to allow the IRT the opportunity to let the potential banker know if the proposed site would be

a good candidate for a mitigation bank. It should include, at a minimum, all items listed in Appendix 3, 4, and 5. The banker may elect to give a presentation on the proposed site to the IRT prior to submitting a draft prospectus. After review of the draft prospectus, comments will be provided and a site visit may be scheduled if the IRT believes the proposed site has mitigation banking potential.

Step 2: Prospectus - To initiate the formal review process, a complete prospectus must be submitted. A Public Notice will then be issued by the Corps of Engineers. Therefore, figures must be legible, black and white, and submitted on 8.5 x 11-inch paper. The prospectus must provide a summary of the information regarding the proposed mitigation bank at a sufficient level of detail to support informed public and IRT comment (See Appendix 4). The information required is detailed in 33 CFR 332.8(d)(2) Mitigation Banks and In-Lieu Fee Programs, Review Process - Prospectus. To expedite the review process, the IRT highly recommends the potential banker also include a delineation of all aquatic resources on the proposed site. An electronic version of the prospectus shall be provided to the Corps on a CD. At the end of the comment period, a written initial evaluation as to the potential of the proposed mitigation bank to provide successful compensatory mitigation will be provided to the bank sponsor. If it is determined that the proposed mitigation bank has potential for providing appropriate compensatory mitigation, the sponsor may proceed with preparation of a draft instrument.

Step 3: Draft Bank Instrument – After considering comments from the Corps, the IRT, and the public, if the sponsor chooses to proceed with the establishment of the mitigation bank, a complete draft instrument must be submitted. The draft instrument must be based on the prospectus and must describe in detail the physical and legal characteristics of the mitigation bank and how it will be established and operated. The information required is detailed in 33 CFR 332.8(d)(6) Mitigation Banks and In-Lieu Fee Programs, Review Process – Draft Instrument. The document will be distributed to the IRT for comment. At the end of the comment period, any comments will be discussed with the IRT and the sponsor in an effort to resolve any issues. The Corps will inform the sponsor whether the draft instrument is generally acceptable and what changes, if any, are needed. If there are significant unresolved concerns that may lead to a formal objection from one or more IRT members to the final instrument or amendment, the sponsor will be informed of the nature of those concerns. For ease of review and consistency, the template in Appendix 6 (table of contents) should be followed with banking submittals.

Step 4: Final Bank Instrument - To establish a mitigation

bank, a final instrument must be submitted for approval. This must include supporting documentation that explains how the final instrument addresses the comments provided by the IRT. The sponsor must provide the final instrument directly to all members of the IRT. The Corps will notify the IRT members whether or not they intend to approve the instrument. If no IRT member objects, the sponsor will be notified of the final decision and, if the instrument is approved, arrangements will be made for it to be signed by the appropriate parties. If any IRT member initiates the dispute resolution process, the sponsor will be notified. Following conclusion of the dispute resolution process, the sponsor will be notified of the final decision, and if the instrument is approved, arrangements will be made for it to be signed by the appropriate parties. An electronic version of the bank instrument shall be provided to the Corps on a CD.

SECTION 4: SITE SELECTION

Selection of appropriate sites is critical to maximizing the effectiveness of wetland restoration, establishment, or enhancement as well as ensuring long-term ecological sustainability of the bank site. The IRT is only interested in sites with high potential to better ensure that long-term mitigation goals are achieved. The banker should be interested in good sites to improve their ability to most easily develop the types of wetlands desired under the banking program.

In general, wetland mitigation bank sites should contain features that make the site conducive to the development of high quality wetlands that:

- replace the desired type of wetlands (typically the same as what is being lost)
- provide multiple functions
- are appropriate for the landscape
- are compatible with surrounding land use
- can be managed in a relatively easy and sustainable manner
- are ecologically of the highest quality achievable and compatible with current and historic site conditions

Potential bank sites will be evaluated with the criteria listed below. All criteria must be addressed to the satisfaction of the IRT for a bank to be considered. Potential bankers should seriously consider the ability of the site to meet these criteria prior to submitting any information to the IRT. The banker should address these criteria as early in the process as possible, but no later than in the draft prospectus (if provided) or the prospectus.

Ownership The proposed ownership arrangements for the bank site must be provided in the prospectus. The bank site shall be owned or under the full control of the bank sponsor by the time a draft bank instrument is submitted. The sponsor should own the full bundle of rights for the site. In general, the IRT will not consider sites with some property rights (e.g., flowage easements, gas/oil rights, mineral right and other easements, etc.) still outside the control of the bank sponsor. However, the IRT may consider sites where it can be demonstrated that these other rights will not, in any way, negatively impact the ability of the site to be developed and managed as a high quality wetland. Private lands enrolled in publically-funded conservation programs will not be considered for banks as long as the land is still under contract, easement or similar agreement which limits the use of the land. The sponsor shall provide documentation of ownership in the form of deed or agreements between sponsor and legal owner of the property regarding use of the property and protection in perpetuity. If the property was purchased using public grant money, the sponsor is responsible for providing documentation from the grantor showing that a mitigation bank is compatible with the grant agreement.

Relationship to other Programs Except for projects undertaken by federal agencies, or where federal funding is specifically authorized to provide compensatory mitigation, federally-funded aquatic resource restoration or conservation projects undertaken for purposed other than compensatory mitigation, such as the Wetlands Reserve Program Conservation Reserve Program and Partners for Wildlife Program activities, cannot be used for the purpose of generating compensatory mitigation credits for activities authorized by the Corps and/or Ohio EPA permits. However, mitigation credits may be generated by activities undertaken in conjunction with, but supplemental to, such programs in order to maximize the overall ecological benefits of the restoration or conservation project.

Soils At least a majority of the site targeted for wetland re-establishment shall be hydric soils. The presence and extent of hydric soils shall be confirmed in the field based on field verification of soil mapping (if listed as hydric) or use of hydric soil indicators. Soils may have been altered through tillage, oxidation of organic soils or burial under sediment deposits; these changes should be noted to determine their effect on wetland restoration/establishment/enhancement. If earthen structures are to be built as part of the plan, the soils must be clean and suitable for use as fill material. Berms must be constructed so that they are structurally sound and will not be damaged by burrowing wildlife such as muskrats.

Hydrology The hydrology of the site (whether natural or altered) shall be such that it can be restored or maintained to develop the appropriate conditions for the desired wetland. Sites with some manipulation of the hydrology (surface ditches, subsurface tile, diversions, levees, etc.) are preferred as that provides the best opportunity for re-establishment of appropriate hydrology. The source of hydrology for the site must be documented and be sufficient to provide the desired duration, depth and timing of hydrology. Typically, detailed water budgets are not necessary to determine whether sufficient water quantity exists if simple hydrology restoration techniques are used. More complex hydrology enhancements may require development of data to support the predicted hydrology. Whenever possible, sites should provide water in an energy-efficient manner such as surface flow or naturally-occurring high water tables. Processes that require large amounts of water movement, such as pumping or diversions, should be avoided because of high operation and maintenance expense. In addition, the quality of water to drive the hydrology should be examined. Water sources that could introduce unacceptable levels of pollutants (nutrients, pesticides, etc.), sediment or invasive species shall not be used.

Existing Vegetation To fully recapture wetland functions on the site, existing vegetation should be dominated by non-wetland plant communities. For preservation or rehabilitation sites, a wetland plant community can exist on the site; their extent will be based on verified wetland delineations. The presence and extent of invasive plant species shall be recorded. Significant coverage by invasive plants may make a site unsuitable for use as a bank. If eradication of invasive plants in wetlands is the basis for rehabilitation credits, a plan outlining the short-term and long-term methods for control of the plants must be developed. The IRT will determine if the site is appropriate based on the likelihood of the plan’s success.

Unique Features The presence of unique features such as federally or state-listed endangered species, rare plant communities, dedicated natural areas, and archeologically or culturally significant sites shall be documented. To be consistent with the intent of banking as part of the strategy to conserve wetland resources, special attention should be placed on unique or high quality wetlands on the site. If any such features are present, the development of the site must not adversely affect these features. However, if protected, their presence may improve the value of the site as a mitigation bank.

Hazardous Substance The site shall be free of all state and federal hazardous substances, including but not limited to

underground tanks, pesticides, petroleum spills, commercial/industrial waste or illegal dumps. This will be confirmed by the completion of an approved environmental assessment, such as ASTM E1527 - 05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, conducted by a qualified person.

Adjacent Land Use Land use near the bank site may impact its ability to develop high quality wetlands. Adjacent land use may adversely impact the restoration of hydrology or vegetation on the site or compromise the site's ability to provide functions such as wildlife habitat. Both current and projected land uses should be considered. Sites with adjacent land uses that will have off-site impacts on the bank site should not be considered unless there are means to offset these impacts. Buffers of adequate size (minimum 50 meters) and composition should be included from the boundary of each wetland to reduce impacts of adjacent land use. Natively vegetated open water areas can qualify as buffer in some instances. In addition, the compatibility of the wetland bank site with surrounding use should be considered to improve the public's perception of the site. Adjacent land use may also improve the desirability of a site for wetland mitigation banking. Sites that expand or improve the quality of adjacent aquatic resources are preferred. This is particularly beneficial if the adjacent land is publicly owned or under a conservation easement.

Inclusion in Land Use Plan Preference should be given to sites that have been identified for wetland conservation as part of an approved plan. These plans might include watershed plans, conservancy districts, open space plans, habitat restoration plans or other local or regional land use plans.

Service Area Considerations When selecting a location for a mitigation bank, the bank sponsor should consider applicable State and Federal rules, which specify that mitigation be located where it is most likely to successfully replace lost functions and services using the watershed approach. Therefore, to provide the ecological replacement of lost functions and services, in-kind replacement, watershed approach and the location of the compensation site relative to the impact site will be considered. This will prevent substantial impacts from being mitigated at banks too far removed from the site where the functions and services are lost.

Ohio rule and statute states that, impacts to all jurisdictional and isolated Category 1 wetlands of any size and isolated Category 2 wetlands of 0.5 acre and less may be mitigated at an approved bank located within the Ohio portion of the Corps District Boundary where the impacts

occur. For impacts to other wetland resources (those not described above), the preference is on-site replacement; however, if not practicable the compensation site location is generally restricted to the 8-digit HUC in which the impact occurs. See Appendix 2 for 8-digit HUCs.

In cases where multiple active banks are located within the same service area, in-kind replacement, the watershed approach and the location of the compensation site relative to the impact site will be considered to determine acceptable replacement. Compensatory mitigation should be located within the same sub-watershed as the impacts, if available.

SECTION 5: LONG-TERM MANAGEMENT & MAINTENANCE OF BANK SITES

Wetland mitigation bank sites of all types, be it restoration, establishment, or preservation, represent a consolidation of wetland mitigation into a single location. Thus, a single mitigation bank site can literally represent the loss of hundreds of acres of wetland habitat from across the bank's approved service area. It is with this in mind that the IRT believes special provisions need to be made to help ensure a bank's long-term functionality. A long-term management plan must be provided that describes how the project will be managed after performance standards have been achieved to ensure the long-term sustainability of the resource. This long-term management plan must include the following:

1. The party responsible for ownership and all long-term management of the site: A major factor in a wetland bank site remaining viable as high quality habitat is the long-term manager of the site. Therefore, identification of a long-term manager is necessary for each site. The long-term manager is the person or entity who will assume long-term management and maintenance of the wetland mitigation bank site. Special consideration needs to be given to who will assume long-term management and maintenance of wetland mitigation bank sites. It is strongly encouraged that wetland bankers develop a partnership with a federal, state or local governmental conservation entity with long-term viability and a proven track record in wetland habitat management to provide for the long-term management and maintenance of the bank site. Non-governmental conservation organizations (NGOs) will be considered and approved on a case-by-case basis. Proposed NGOs will be evaluated on their previous record of wetland habitat management, future plans for the site, proximity to the bank site, and organizational long-term viability. The long-term manager should be one that provides opportunities for public access for education or various forms of low-impact recreation.

The long-term manager must be identified at the time the prospectus is submitted to the Corps. The long term manager must be a signatory to the banking agreement. This includes information documenting the agreement between the banker and the long-term manager. The long-term manager is strongly encouraged to be an active participant throughout the design and approval process.

The long-term manager must protect in perpetuity the mitigation bank, and the resources it provides, through an appropriate real estate arrangement such as a conservation easement. A reverter clause is required to ensure the bank is protected should the long-term manager become defunct. Documentation of these agreements must be provided in the instrument.

2. A description of the long-term management needs, the annual cost estimates of those needs, and the funding mechanism used to meet those needs: A wide range of factors can dramatically affect the cost of maintaining a wetland, especially one that relies on dikes and water control structures for its functionality. These include muskrat and beaver damage, flood damage, water control structure failure, vandalism, and invasive species control. Long-term management needs must be described as well as annual cost estimates for those needs and identification of the funding mechanism that will be utilized to meet the needs. Documentation must be provided as proof of financial assurances.

SECTION 6: FINANCIAL ASSURANCES

Short-term Contingency The bank sponsor is responsible for securing financial assurances to cover contingency actions in the event of bank default or failure. In determining the assurance amount for short-term contingency actions, the Corps and Ohio EPA, in consultation with the IRT, will consider (but will not be limited to) the costs of mobilization, construction, operations, and monitoring, as well as past performance of the bank sponsor, project complexity, and likelihood of success. Detailed cost estimates must be presented in the banking instrument, or earlier if the sponsor chooses. Estimates must cover activities for the site design (planning and engineering), purchase (land acquisition), legal fees, construction, grading, re-grading contingency, sediment and erosion control, planting, replanting contingency, invasive plant control, maintenance, and monitoring for all restored (re-established or rehabilitated), established, enhanced or preserved aquatic resources and upland buffers in the bank.

Financial assurances may be in the form of irrevocable

letters of credit, escrow accounts, performance bonds, or other appropriate instruments. Financial assurances shall avoid all foreseeable conflicts of interest. Once deposited, the funds may not be used or withdrawn by the sponsor unless approved by the district engineer and Ohio EPA, in consultation with the IRT. The financial sureties must be maintained until all performance measures have been met, all credits have been sold, and management of the bank has been transferred to the long-term manager. Funds will generally be released, back to the sponsor, incrementally as specified criteria are met but will be forfeited by the sponsor in the event of default (See Default Plan Section 12). A proposed schedule for release of the financial surety following completion of specific tasks associated with the establishment of the bank must be included in the instrument. Financial assurances must be in a form that ensures that the Corps will receive notification at least 120 days in advance of any termination or revocation. For third party assurance providers, this may take the form of a contractual requirement for the assurance provider to notify the Corps at least 120 days before the assurance is revoked or terminated. The Corps cannot accept directly, retain, or draw upon financial assurances. However, financial assurances shall be payable at the discretion of the district engineer to his designee or to a standby trust agreement.

Long-term Management The bank sponsor must provide adequate funds for long-term management of the bank site following transfer to the long-term manager. Appropriate long-term financing mechanisms include non-wasting endowments, trusts, contractual arrangements with future responsible parties, and other appropriate financial instruments. In cases where the long-term management entity is a public authority or government agency, that entity must provide a plan for long-term financing of the site. The banking instrument must include a comprehensive list of long-term management needs and annual cost estimates for those needs. Long-term management needs may include, but are not limited to, invasive plant control, maintenance of water control structures, site access restriction, monitoring, administrative costs, etc. The instrument must also identify the financing mechanism and detail how the mechanism will generate sufficient management funds into perpetuity, including inflationary adjustments and other contingencies. The long-term management fund may be funded fully following the initial credit release or incrementally with each credit release or each credit sale. Transfer of long-term management funds in case of default must also be addressed in the agreement between the sponsor and the long-term manager.

Providing financial assurances for long-term management of

the bank is the responsibility of the banker, including when long-term management responsibility is transferred to a publicly funded entity. Use of public funds for long term maintenance of compensatory mitigation of wetland impacts permitted under sections 401 and 404 of the CWA and Ohio's isolated wetland law is generally not appropriate. Therefore, the responsibility to provide proper financial mechanisms for long-term management of the bank shall be borne by the bank sponsor.

Annual Reporting Documented proof of financial assurances (both short-term contingency and long-term management) shall be submitted to the Corps and the IRT by December 31 of each calendar year. Documentation must show beginning and ending balances, including deposits into and any withdrawals from, the accounts providing funds for short-term contingency and long-term management. Failure to comply with the requirements of this Section may be grounds for suspension and/or revocation of the bank instrument. The reports should also include information on the amount of required financial assurances and the status of those assurances, including their potential expiration.

SECTION 7: ADAPTIVE MANAGEMENT PLANS

The overall goal of adaptive management is to assure the long term viability of the mitigation bank site. The focus of adaptive management should be on taking measures to achieve performance and satisfy the objectives of the mitigation bank. Routine monitoring and minor maintenance tasks are intended to assure the viability of the Bank site in perpetuity. The approach to the management of the Bank site's resources is to conduct annual site investigations and monitoring of selected characteristics to determine stability and ongoing trends of the restored, established, and/or preserved waters of the U.S., including wetlands. While it is not anticipated that major management actions will be needed, an objective of this management plan is to conduct monitoring to identify any issues that arise, and use adaptive management to determine what corrective actions are appropriate.

As part of the banking instrument, the Sponsor must outline a management strategy to address unforeseen changes in site conditions or other components of the mitigation project. An Adaptive Management Plan (AMP) is part of the mitigation plan; it specifies the procedures that will be in place to address potential changes in site conditions or other components of the compensatory mitigation project. The intent of an AMP is to identify a management strategy for corrective action in the event the site does not perform as proposed. In a sense, an AMP can be thought of as a contingency plan that will provide details of what actions

will be taken to correct site specific issues that arise which prevent the site from meeting the performance measures. Adaptive management includes those activities necessary to address the effects of foreseeable and unforeseen circumstances that affect goals, objectives and long term success of the bank. These may include: climate change, fire, flood, other natural or catastrophic events, force majeure, etc. Examples of some adaptive management actions include, but are not limited to, replacing dead or dying plants, changing hydrological regimes, controlling the degree of erosion, repairing and/or maintaining structures to assure appropriate operating conditions and removing invasive or exotic species. Adaptive management plans include information regarding corrective actions that will be taken, as well as the party or parties responsible for implementing adaptive management measures.

Management decisions that deviate from the approved mitigation plan require approval. However, a certain amount of responsiveness to conditions on the ground should be built into the mitigation plan itself. Before considering any adaptive management changes to the mitigation plan, the IRT will consider whether such actions will help ensure the continued viability of Bank's biological resources. Therefore, the sponsor should include the following as part of their AMP:

1) Project Background: state the project objectives, performance standards and methods for monitoring, discuss quality assurance and quality control measures and how monitoring data is used for interpretation and reporting
2) Problem Identification: discuss the rationale for identifying problem areas and/or determining that a site is not meeting the performance criteria and is not likely to meet the performance criteria, unless corrective action is taken
3) Corrective action: identify specific and measurable steps that will be taken to correct problems identified (in step 2), as well as time frame for implementing and monitoring corrective actions. Additional steps to refine corrective actions can also be discussed.

If the banker, Corps or Ohio EPA, in consultation with the IRT, identify site specific issues that are either foreseeable or unforeseen or affecting performance goals, which have not been addressed in the mitigation plan, then the banker will take immediate action to work with the team to receive written approval to implement the appropriate adaptive management actions. If the action is necessary due to performance (i.e. the site or any portion thereof is not on a trajectory towards meeting the performance goals established in the mitigation plan), the banker must develop site specific adaptive management measures to correct the deficiencies. The proposed adaptive management measures must be submitted to the IRT within 3 months of receipt of written notification

of deficiencies from the Corps or Ohio EPA. Within 2 months of receipt of the proposed adaptive management measures, the IRT must provide written acceptance of the submitted plan or a modified plan acceptable to the IRT. The IRT accepted adaptive management measures (as submitted by the banker or as modified by the IRT) will then be returned to the banker, who shall implement the measures specified within 6 months.

SECTION 8 PERFORMANCE STANDARDS

Wetland Criteria Released credits must meet wetland criteria {Corps of Engineers Wetland Delineation Manual (1987) and any subsequent versions/updates and all relevant regional supplements}. Not only must the exterior boundaries of the wetland areas (cells) be delineated but there must also be information from within the delineated boundaries showing that all the included areas are indeed meeting wetland criteria. This demonstration is best accomplished by following the Comprehensive Determination methods or using another similarly inclusive protocol in the 1987 Corps Manual and all relevant regional supplements.

Ecological Condition (IBI Score) Meet or exceed the "Wetland Habitat" Vegetation Index of Biotic Integrity (VIBI) score for an emergent plant community for the appropriate HGM class for the ecoregion where the mitigation bank resides. This score should be determined from the column labeled "WLH (Category 2)" on Table 8 (page 15) of the report entitled "***Addendum to:*** *Integrated Wetland Assessment Program.* ***Part 4:*** *Vegetation Index of Biotic Integrity for Ohio wetlands and* ***Part 7:*** *Amphibian Index of Biotic Integrity for Ohio wetlands*" or subsequent updates. In some instances meeting a Wetland Habitat Amphibian Index of Biotic Integrity (AmphIBI) score may be required in addition to or instead of the VIBI score. Further information on the VIBI and the AmphIBI can be found at:
http://www.epa.state.oh.us/dsw/wetlands/WetlandEcologySection_reports.aspx

In order to demonstrate that this performance goal is being met, following each VIBI monitoring event (see Section 9: Monitoring and Reporting for schedule) VIBI scores will be calculated using data aggregated from all random modules established within each bank sub-area. These bank sub-areas are determined based on hydrologic breaks and major plant community types. Additionally, a VIBI score will be calculated for each fixed plot, as well.

Plant Establishment Wetland credits will have a composition of at least 75% areal coverage of native perennial hydrophytes (FAC, FAC+, FACW(+/-) and OBL) as indicated in National List of Plant Species that Occur in Wetlands [Region 1] (Reed, P.B., Jr. 1988. U.S. Fish Wildl. Serv. Biol. Rep. 88(26.1). 111 pp.).

VIBI field data should be used to demonstrate whether or not this goal is being met. For each aggregated bank sub-area, a percent relative cover of native perennial hydrophytes should be calculated. Additionally, average percent relative cover of native perennial hydrophytes should be calculated as a single value for each fixed plot.

Invasive Species Appendix 7 includes all plant species considered to be potential invasive threats within wetland mitigation banks and their associated buffer areas. This

table is subject to change as new species are determined to be invasive within the Ohio flora. Additionally, site conditions present at each bank may require that the list be expanded to incorporate additional invasive species, depending on the specific upland or wetland habitat(s) being restored. Eradication of these species should be accomplished as soon as possible once they are identified within the mitigation bank. At a minimum, the following performance standards are required:

- Wetland acreage available for credit release will have less than 5% areal coverage of all non-Typha invasive plant species listed in Appendix 7. Due to the difficulty of distinguishing the three species of cattails (*Typha latifolia*, *Typha angustifolia*, and *Typha x glauca*), as well as the likelihood that at least one of these will be present in many types of Ohio wetlands, the total areal coverage of all invasive species, including *Typha spp.*, will be less than 10%.

- Upland areas proposed for buffer credits will also have less than 5% areal coverage of non-native invasive plant species listed on Appendix 7.

In no circumstance shall a predominance of invasive species be more than one continuous acre of areal coverage, even if the overall percent of invasive species is less than five percent. VIBI field data should be used to demonstrate whether or not this goal is being met. For each aggregated bank sub-area, a percent relative cover of *Typha spp.* and a percent relative cover for all other invasive species on Appendix 7 should be calculated. Average percent relative cover for Typha spp, and average percent relative cover for all other invasives should also be calculated as a single value for each fixed plot.

Since invasive species are generally not randomly distributed within a wetland, in addition to the VIBI analysis discussed above, a site map identifying all areas within the bank that are clearly dominated by any invasive species listed on Appendix 7 should be submitted with each monitoring report.

Forested Habitats In addition to the other performance standards for bank credits, forested credits (including wetland and upland buffer areas) will only be released when it can be demonstrated, to the satisfaction of the IRT, that all forested areas available for credits are on a trajectory to being forested in the long term. This demonstration is made by graphing basic forestry measures, including frequency, density, dominance per species against time. A minimum of 400 native woody plants per acre must be present at the end of the monitoring period. Additionally, the following performance standards must be demonstrated to document the successful establishment of forested habitat:

1. a minimum of 200 native, free standing, live and healthy (disease and pest free) trees per acre are present at the end of the monitoring period;

2. a minimum of 8 native tree species are growing within the forested area, and each of these 8 species represents at least 5% of the overall tree count at the end of the monitoring period;

3. a minimum of 25% of all live trees present consist of at least 4 species having coefficient of conservatism values from 5 to 10 at the end of the monitoring period (http://www.epa.state.oh.us/portals/35/wetlands/Ohio_FQAI.pdf);

4. a minimum of 200 native, free standing, live and healthy (disease and pest free) shrubs/sub-canopy tree species per acre are present at the end of the monitoring period;

5. a minimum of 8 native shrub/sub-canopy species are growing within the forested area, and each of these 8 species represents at least 5% of the overall shrub/sub-canopy tree count at the end of the monitoring period;

6. a minimum of 25% of all live shrubs/sub-canopy trees present consist of at least 4 species having coefficient of conservatism values from 5 to 10 at the end of the monitoring period (http://www.epa.state.oh.us/portals/35/wetlands/Ohio_FQAI.pdf);

Detailed methodology for documenting a trajectory for standard forestry metrics are included in Section 9: Monitoring and Reporting.

Rehabilitation Areas proposed for rehabilitation credit will need to have baseline vegetation assessments conducted. The resulting VIBI scores will be used to establish the performance goals for the rehabilitation credits. Rehabilitation credits are not eligible for upfront release. All performance goals must be met prior to release of these credits. The goals for rehabilitation are as follows:

- Must meet VIBI score equivalent to or higher than the threshold for Wetland Habitat (mid level of Category 2) or increase VIBI score 10 points from baseline score, whichever is higher.

- Other goals that must be met for all rehabilitation -
  - < 5% areal coverage of invasive species - However, if *Typha* species account for more than 5% areal coverage, then the total of invasive species and *Typha* species must be less than 10% areal coverage
  - > 75% areal coverage of native perennial hydrophytes

SECTION 9: Monitoring and Reporting

Monitoring of mitigation bank sites should occur in a manner that allows the data collected to specifically indicate whether the performance standards and other goals of the bank are being met. The type of monitoring to be undertaken, the number of sample locations, the frequency of sampling and the measurements to be recorded will all vary

with each proposal. Bankers should present a monitoring plan to the IRT that will provide the information necessary to determine if credit releases should be authorized and if and where remedial actions are required. The information collected during monitoring events needs to be presented in the monitoring reports in a format that will allow ease of those determinations.

The parameters monitored at any given bank will vary. However, there will be some monitoring that is common to all banks. The ecologic condition will be required to be established through generation of VIBI scores. Percent areal coverage of native perennial hydrophytes and percent areal coverage of invasive species will also need to be determined. Areas of non-forested wetland, forested wetland, unvegetated open water, upland islands, invasive species dominance and upland buffer will need to be delineated, measured and mapped. For forested credits, basic forestry measures by species will need to be extracted from the VIBI data to demonstrate woody species establishment. Therefore, those attributes need to be recorded. Hydrology measures and soil and water chemistry data will need to be collected for each wetland area.

Some banks, depending on established goals, will have additional monitoring requirements. These may include calculation of Amphibian Index of Biotic Integrity scores, scoring an index for a different taxonomic group, measuring specific ecological services/functions the bank wetlands are performing, or other wetland assessments.

The table below gives the common wetland monitoring items and a time scale of when and how often they should occur and be reported during the ten year monitoring period.

Table 1. Conceptual 10 year schedule for required monitoring and reporting of bank sites

	Years									
Monitoring activity	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Delineation		X		X		X		X			X
Hydrologic monitoring		X	X	X	X	X	X	X	X	X	X
Vegetation sampling		X		X		X		X		X	
Amphibian sampling		X		X		X		X		X	
Soil and water sampling		X		X		X		X		X	
Other taxa group sampling		X		X		X		X		X	
Mapping, % areal coverages		X		X		X		X		X	
Ecological services		X		X		X		X		X	
As built report	X										
Annual report		X	X	X	X	X	X	X	X	X	X

Placement and Number of Monitoring Plots Perhaps the most important decision in the monitoring of bank sites is the selection of adequate numbers and locations of sample plots to provide an accurate characterization of the entire range of conditions generated by the project. Since most bank sites are large it should be understood that capturing the variation across the bank will require numerous sampling locations. More data collection areas will be needed for sites that are larger, have a diversity of wetland communities, or have similar communities in different levels of development or of varying quality. Sampling locations need to be placed in a manner that is representative of all of the site conditions. This will require both targeted and randomly selected monitoring locations. More sampling locations result in data that better-represent site conditions. It is far better to have too many sampling locations than too few. The additional number of samples will more closely represent the true site conditions. The draft instrument should include a site plan which shows where all hydrological monitoring wells and plant sampling locations will be established.

A rough guide for the number of random VIBI monitoring plots that should be established at a bank is one fixed plot for every dominant plant community in a wetland area and one random plot for every 2.5 acres (1 hectare). This is the bare minimum and, as mentioned above, more fixed and random plots may be needed where marked differences exist in the community or communities being monitored. The location of fixed monitoring stations should be shown on the final mitigation work plan included in the banking instrument.

Reporting Monitoring Data: The IRT needs to determine which areas of the bank are performing at a high enough level to warrant credit releases. Making those decisions hinges on the ability of the data presented to accurately reflect that information. Data or statistics averaged across the entire bank site or large portions of it do not provide the type of information needed to make determinations about individual credits. Data should be presented to correspond with the credits the banker is proposing for release. Additionally, all performance standards measured for each random or fixed plot should be reported by plot. Data should reflect how those specific credits are faring in relation to their performance standards. In addition, monitoring reports should include sampling results for previously released credits to assure they are still performing at an acceptable level to warrant additional releases. Data on the remainder of the bank site (i.e., credits not previously released or currently proposed for release) is also critical to allow an overview of how those credits are performing and whether any type of remedial action is needed to increase their likelihood of meeting performance standards.

Monitoring data from multiple years should be presented in a uniform format. This helps the IRT to more easily determine which percentage of the site is actually meeting interim or final performance goals specified in the banking instrument. To properly evaluate the performance of credits the following information should be submitted in table format, for the 1st and all subsequent year monitoring events, with the following information from each individual bank sub-area (based on aggregated random VIBI modules) as well as each fixed plot:

- Sub-area Name/VIBI Fixed Plot #.
- Area represented by each analysis area (in acres).
- Hydrology Criteria (Yes/No) – Indicate whether • 70% of the module meets this criterion.
- Hydric Soil Criteria (Yes/No) – Indicate whether • 70% of the module meets this criterion.
- Hydrophytic Vegetation Criteria (Yes/No) – Indicate whether • 70% of the module meets this criterion.
- VIBI score
- % Relative Cover Native Perennial Hydrophytes.
- % Relative Cover *Typha* spp.
- % Relative Cover all other non-*Typha* Invasive Species listed in Appendix 7.

Plots will be evaluated using the information specified above to determine if they are meeting the interim or final performance goals. To calculate the percent native hydrophytes for each plot, sum the relative cover of all native species having an indicator status of FAC, FAC+, FACW-, FACW, FACW+, or OBL. The percent non-*Typha* Invasive calculation for each plot is made by summing the relative cover for all invasive species from the Appendix 7 list present within each module (with the exception of those in the genus *Typha*). A separate percent *Typha* calculation is made in a similar manner by summing the percent relative cover for *Typha angustifolia*, *T. latifolia*, and *T. x glauca*. When reporting a summary for percent native hydrophytes, percent non-*Typha* invasive species, and percent *Typha* over the entire site, please only use the random VIBI plots, as discussed on pages 23-24 of the Ohio EPA Report "Integrated Wetland Assessment Program. Part 6: Standardized Monitoring Protocols and Performance Standards for Ohio Mitigation Wetlands."
http://www.epa.state.oh.us/portals/35/wetlands/PART6_Std_Mitigation_Protocols.pdf

Forested Habitat. Additionally, for fixed and random plots falling within forested restoration areas, basic forestry metrics of density, dominance, and diversity for each woody species present must be reported by sampling year. These statistics should be calculated for each fixed plot

individually and for bank sub-area based on aggregated random plots and can be derived from the standard woody species VIBI sampling in the following manner:

- Frequency: A measure of species distribution across the site, calculated as the percentage of modules occupied by a given species. Divide the number of modules in which a species occurs by the total number of sample modules (i.e. divide by 10 for each fixed plot, and by the number of random plots).
- Density: The average number of individuals per unit area (i.e. trees per acre or hectare). Simple stem count for each species divided by the area of each fixed plot (0.1 hectare or 0.25 acre) and for all random plots (0.025 acre or 0.01 hectare per random plot).
- Relative Density: The density of one species divided by the total density for all species present.
- Dominance: The average dominance for each species within the study area is estimated by its total basal area per unit area (square feet per acre or square meters per hectare). Basal area (BA) is a unit of tree size that is determined from stem diameter. It is equal to the cross sectional area of a tree stem measured at 4.5 ft (1.37 m) above the ground. This value is normally obtained by measuring diameter and can be calculated using one of the following equations:

  - BA in ft^2 = dbh^2 (inches) x 0.005454
  - BA in m^2 = dbh^2 (cm) x 0.00007854

  Since the VIBI protocol places trees in one of several size classes, assign the midpoint of the size class as the basal area for each woody plant (e.g., a stem in size class "3" [5 – 10 cm], would be assigned a dbh of 7.5 cm).

Reporting of forestry data should appear in a separate table as follows:

- Sub-Area Name/VIBI Fixed Plot #
- Species (one row per species, including "Total Tree Species" and "Total Sensitive Tree Species" (CofCs > 5) row for each plot)
- Frequency (1^{st} year and all subsequent monitoring years)
- Density (1^{st} year and all subsequent monitoring years)
- Relative Density (1^{st} year and all subsequent monitoring years)
- Dominance (1^{st} year and all subsequent monitoring years)

Once all of this information has been calculated and

reported, the IRT will be able to assess the site conditions and determine if additional credit releases are warranted, and, if so, how many credits should be approved for release. Keep in mind that the interim releases assume that credits are progressing at a reasonable rate.

Delineations Since determination of the number of acres of wetland present is critical, wetland delineations need to be carried out using the comprehensive methods described in the 1987 Army Corps of Engineers Manual and successor documents. Wetland and non-wetland areas need to be clearly delineated to allow an accurate determination of which areas are meeting the "wetland" performance standard. Precise wetland boundaries are also important for determining upland buffer credits and areas of unvegetated open water.

Hydrology Amount and duration of inundation and saturation is a critical factor in developing the amounts and types of wetlands desired. The IRT recommends that automatic recorders be used to provide information on surface and ground water elevations. At least one automatic recorder should be placed within each wetland area at the bank site. Automatic recorders should typically be located near the perimeter of the wetland, where they can provide data on both surface and ground water levels without being overtopped during periods of maximum inundation. In some instances it may be more practical to install two automatic recorders in each wetland area. One placed at the location of deepest inundation and attached to a stake so it just touches the wetland substrates to record surface water levels and another at or near the perimeter, placed two to three feet into the substrate, to record ground water levels. It is recommended that readings be taken twice a day and the data be presented as hydrographs (water depths versus dates). Locations of monitoring wells should be shown on the final site development plans included in the banking instrument.

Additional References The above considerations are basic to developing an effective monitoring and reporting plan. Specifics on monitoring to determine conformance with performance standards as well as additional guidance on essential elements of a monitoring and reporting plan and how monitoring goals can be best achieved is presented in the Mitigation Bank section of the document "Integrated Wetland Assessment Program. Part 6: Standardized Monitoring Protocols and Performance Standards for Wetland Creation, Enhancement and Restoration, Version 1.0 Ohio EPA Technical Report WET/2004-6" available on Ohio EPA's website at:

http://www.epa.state.oh.us/dsw/wetlands/WetlandEcologySection_reports.aspx

The following documents are available at the above web site

and are valuable in establishing and carrying out a monitoring plan and reporting the results:

- Integrated Wetland Assessment Program. Part 4: Vegetation Index of Biotic Integrity (VIBI) and Tiered Aquatic Life Uses (TALUs) for Ohio wetlands. 2004.
- Integrated Wetland Assessment Program. Part 7: Amphibian Index of Biotic Integrity (AmphIBI) for Ohio Wetlands. 2004.
- Addendum to: Integrated Wetland Assessment Program. Part 4: Vegetation Index of Biotic Integrity for Ohio wetlands and Part 7: Amphibian Index of Biotic Integrity for Ohio wetlands. 2006.
- Integrated Wetland Assessment Program. Part 9: Field Manual for the Vegetation Index of Biotic Integrity for Wetlands v. 1.4. 2007.
- Automated Spreadsheets for Calculating and Reporting the Vegetation Index of Biotic Integrity (VIBI) Metrics and Scores v. 1.0.1. 2007.

SECTION 10: CREDIT RELEASE SCHEDULE AND CRITERIA

All credit releases including the first release must be authorized by the Corps in writing to the sponsor before any credits may be sold. Under no circumstance should credits be sold prior to this written authorization. Failure to comply (including over selling), will result in consequences including but not limited to: forfeiture of credits, suspension of future credit sales, etc.

Regional Internet Bank Information Tracking System (RIBITS) RIBITS is an interactive website designed to track the status of mitigation banks in the Corps Districts and to provide up-to-date banking information to bank sponsors and applicants. All credit releases will be loaded into RIBITS by the Corps. The banker will subsequently be required to update the credit sales as they occur to provide accurate and real-time accounting. The banker will need to enter the required fields into the system as directed by the Corps. See Appendix 8 for RIBITS fields.

The First Release of Credits An initial debiting of a percentage of total credits projected at mitigation bank maturity can occur, provided the following conditions are satisfied: the mitigation banking instrument and mitigation plan have been approved (signed by the sponsor, long-term manager and the IRT), the mitigation bank site has been secured, appropriate financial assurances have been established, and any other requirements determined to be necessary by the Corps have been fulfilled prior to the signing of the bank instrument (see 33 CFR 332.8(m)).

All preservation credits and up to 30% of the total anticipated credits, minus any rehabilitation credits, will be released once above conditions are satisfied. Construction, including all proposed plantings, must be completed within one year of the initial release. In order to assure the integrity of the final bank plan, no construction activities shall commence prior to the signing of the banking instrument, which indicates the plan is approved by the IRT. If construction does occur on any part of the plan prior to signing, the instrument will not be effective, and no credits will be released, until the IRT certifies in writing that such construction is in compliance with the final bank plan.

Annual field monitoring of the bank shall commence only once all of the following criteria have been met:

1) Signature of the bank instrument by all IRT agencies,
2) One complete growing season has elapsed since the bank was constructed (including seeding and planting of woody and herbaceous plants).

Additional Credit Releases Credits can be released at any time, in an amount up to the 25% final release holdback, if they are meeting all final performance goals specified in the signed instrument. If the wetland areas within a bank are developing as desired, but do not meet these final goals, the applicant may request interim credit releases according to the following schedule:

Year 3. Following the successful construction of the wetland habitat and submittal of the year 3 monitoring report, up to 15% of the total credits may be released if the following conditions are met:

- The wetland areas representing a minimum of 45% of the entire site (the initial 30% of credits plus 15% requested credits) meet wetland criteria;
- These same wetland areas have less than 15% areal coverage of non-native invasive plant species as defined in Appendix 7, and there has clearly been a reduction in overall invasive species cover between monitoring years 1 and 3. Invasive species coverage can consist of up to 10% of *Typha spp*., and less than 10% areal coverage of all other non-native invasive plant species, but not more than 15% total.
- The same wetland areas have at least 50% areal coverage of native perennial hydrophytes (FAC, FAC+, FACW(+/-), OBL), and there has clearly been an increase in overall coverage between monitoring years 1 and 3.
- The same wetland areas meet 80% of the target VIBI scores.
- All forested wetland performance goals are clearly on a positive trajectory to meet requirements by the end of the monitoring period.

Year 5. Assuming that all necessary requirements described above were met after year 3, up to 15% of the total credits may be requested for release if the following conditions are met:

- The wetland areas representing a minimum of 60% of the entire site meet wetland criteria;
- These same wetland areas have less than 12.5% areal coverage of non-native invasive plant species as defined in Appendix 7 and there has been a clear reduction in invasive species coverage between monitoring years 3 and 5. Invasive species coverage can consist of up to 10% of *Typha spp*., and less than 7.5% of all other non-native invasive plant species, but not more than 12.5% total.

- The same wetland areas have at least 60% areal coverage of native perennial hydrophytes (FAC, FAC+, FACW (+/-), OBL), and there has clearly been an increase in overall coverage between monitoring years 3 and 5.
- The same wetland areas meet 90% of the target VIBI scores.
- All forested wetland performance goals are clearly on a positive trajectory to meet requirements by the end of the monitoring period.

Year 7. Assuming that all necessary requirements described above were met after year 5, up to 15% of the total credits may be requested for release if the following conditions are met:

- The same wetland areas representing a minimum of 75% of the entire site meet wetland criteria;
- These same wetland areas will have less than 10% total areal coverage of invasive species as defined in Appendix 7. This can consist of up to 10% of *Typha spp*., and less than 5% areal coverage of all other non-native invasive plant species, but not more than 10% total.
- The same wetland areas have at least 75% areal coverage of native perennial hydrophytes (FAC, FAC+, FACW (+/-), OBL).
- The same wetland areas meet target VIBI scores.
- All forested wetland performance goals are clearly on a positive trajectory to meet requirements by the end of the monitoring period.

The Final Release of Credits. In all cases, a minimum of 25% of the total credits available at a bank site will be withheld until the final monitoring report has been submitted and evaluated by the IRT. If all performance standards have been met, and any forested wetlands present within the mitigation bank have been clearly shown to be on a positive trajectory (as determined by the IRT) towards the development of a mature ecosystem (i.e., trees and shrubs are alive, healthy, and present in the numbers and diversity described above), the final 25% of credits may be released. Credits will not be released until a final delineation acceptable to the Corps has been submitted and approved. The IRT will make the final recommendation regarding credit release to the Corps and Ohio EPA.

Release Conditions Release of credits requires consensus of the IRT that an additional credit release is warranted based on performance standards described above. Interim releases (3rd, 5th, and 7th years) may occur following submittal of the annual monitoring reports, if all requirements have been met to the satisfaction of the IRT. The banker shall arrange for on-site visits of the IRT at a minimum of years 1, 3, 5, 7 and 10. Determinations on whether credits are meeting performance standards will be decided by the IRT. When consensus cannot be reached by the IRT, credit releases will

require, at a minimum, the approval of both the Corps and Ohio EPA.

SECTION 11: CREDIT CALCULATION

The IRT will be the final decision maker on all credit ratios for assigned activities. Reestablishment that has a minimum alteration of site conditions is the strongly preferred method for compensatory wetland mitigation. At a minimum, all buffers around wetlands must be 50 m. Buffers may consist of wetland or upland habitats. Regardless of habitat type, buffers will receive a credit ratio of not greater than 1:4. See Credit Release Schedule and Criteria section for timing of credit releases (Section 10). See Appendix 8 for sample ledger and a sample purchase agreement with relative types (including forested and non-forested).

Table 2. Credit ranges based on action proposed at the bank

Type	**Credits**	**Areas > 50 m from Wetland Boundaries**	**Notes**
Re-establishment	1:1	N/A	Preferred
Rehabilitation	Up to 1:2	N/A	No up front release
Establishment	Up to 1:1	N/A	Not the preferred method/up front may be reduced
Preservation	Generally 1:10 Up to 1:4	N/A	Looking for higher quality areas & demonstrated threat
Buffer-restoration	Generally 1:4 within 50m	May be considered for 1:10	
Buffer rehabilitation	Up to 1:4 within 50m	May be considered for 1:10	
Buffer preservation	Generally 1:10	Considered if ecologically compelling reason	Looking for higher quality areas

SECTION 12: DEFAULT PLAN

Should the IRT determine that the Sponsor is in material default of any provision of the Instrument, the IRT, acting through the Corps may notify the Sponsor that the sale or transfer of any credits will be suspended until the appropriate deficiencies have been remedied. Upon notice

of such suspension, the Sponsor agrees to immediately cease all sales or transfers of mitigation credits until the IRT informs the Sponsor that sales or transfers may be resumed. Should the Sponsor remain in default, the IRT, acting through the Corps, may terminate the Mitigation Banking Instrument and any subsequent Bank operations. Upon termination, the Sponsor agrees to perform and fulfill all obligations under the instrument relating to credits that were sold or transferred prior to termination. Should a bank default, all financial assurances are forfeited.

SECTION 13: BANK CLOSURE CRITERIA

Prior to closure of a bank or bank site, the IRT will perform a final compliance inspection to evaluate whether all performance measures have been met. Bank closure will occur upon the Corps and Ohio EPA determining, in consultation with the other members of the IRT and the Sponsor, that:
(1) all applicable performance measures have been achieved;
(2) all available credits for that bank or bank site have been debited;
(3) the Sponsor has prepared a Long-Term Management and Maintenance Plan, that has been approved by the IRT;
(4) the Sponsor has prepared and submitted to the IRT and the appropriate locality a GIS shapefile or similar exhibit depicting the location and extent of the mitigation bank;
(5) the Sponsor has either: (i) assumed responsibilities for accomplishing the Long-Term Management and Maintenance Plan, in which case the Sponsor will fulfill the role of Long-Term Manager, or (ii) has assigned those responsibilities to another Long-Term Manager;
(6) the Catastrophic Event and Long-Term Management Fund has been funded;
(7) the contents of the Catastrophic Event and Long-Term Management Fund have been transferred to the Long-Term Manager;
(8) the bank has complied with all other terms of the Instrument.

Upon bank closure, no further credit transfer shall occur and the period of long-term ownership and preservation will commence. The IRT shall issue a written certification of satisfaction to the Sponsor and the escrow agent and thereafter any remaining monitoring and maintenance fund will be released to the Sponsor.

APPENDIX 1 TWELVE COMPONENTS OF A COMPENSATORY MITIGATION PLAN

Mitigation banks and in-lieu fee programs must prepare a mitigation plan including the 12 components listed below for each mitigation project site.

12 Components of a Compensatory Mitigation Plan

1. Objectives. A description of the resource type(s) and amount(s) that will be provided, the method of compensation (restoration, establishment, preservation etc.), and how the anticipated functions of the mitigation project will address watershed needs.

2. Site selection. A description of the factors considered during the site selection process. This should include consideration of watershed needs, onsite alternatives where applicable, and practicability of accomplishing ecologically self-sustaining aquatic resource restoration, establishment, enhancement, and/or preservation at the mitigation project site.

3. Site production instrument. A description of the legal arrangements and instrument including site ownership, that will be used to ensure the long-term protection of the mitigation project site.

4. Baseline information. A description of the ecological characteristics of the proposed mitigation project site, in the case of an application for a DA permit, the impact site. This may include descriptions of historic and existing plant communities, historic and existing hydrology, soil conditions, a map showing the locations of the impact and mitigation site(s) or the geographic coordinates for those site(s), and other characteristics appropriate to the type of resource proposed as compensation. The baseline information should include a delineation of waters of the United States on the proposed mitigation project site. A prospective permittee planning to secure credits from an approved mitigation bank or in-lieu fee program only needs to provide baseline information about the impact site.

5. Determination of credits. A description of the number of credits to be provided including a brief explanation of the rationale for this determination.
    - For permittee-responsible mitigation, this should include an explanation of how the mitigation project will provide the required compensation for unavoidable impacts to

aquatic resources resulting from the permitted activity.

- For permittees intending to secure credits from an approved mitigation bank or in-lieu fee program, it should include the number and resource type of credits to be secured and how these were determined.

6. Mitigation work plan. Detailed written specifications and work descriptions for the mitigation project, including: the geographic boundaries of the project; construction methods, timing, and sequence; source(s) of water; methods for establishing the desired plant community; plans to control invasive plant species; proposed grading plan; soil management 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.

7. Maintenance plan. A description and schedule of maintenance requirements to ensure the continued viability of the resource once initial construction is completed.

8. Performance standards. Ecologically-based standards that will be used to determine whether the mitigation project is achieving its objectives.

9. Monitoring requirements. A description of parameters monitored to determine whether the mitigation project is on track to meet performance standards and if adaptive management is needed. A schedule for monitoring and reporting monitoring results to the Corps must be included. The monitoring plan should include a site plan which shows where all hydrological monitoring wells and plant sampling locations will be established.

10. Long-term management plan. A description of how the 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.

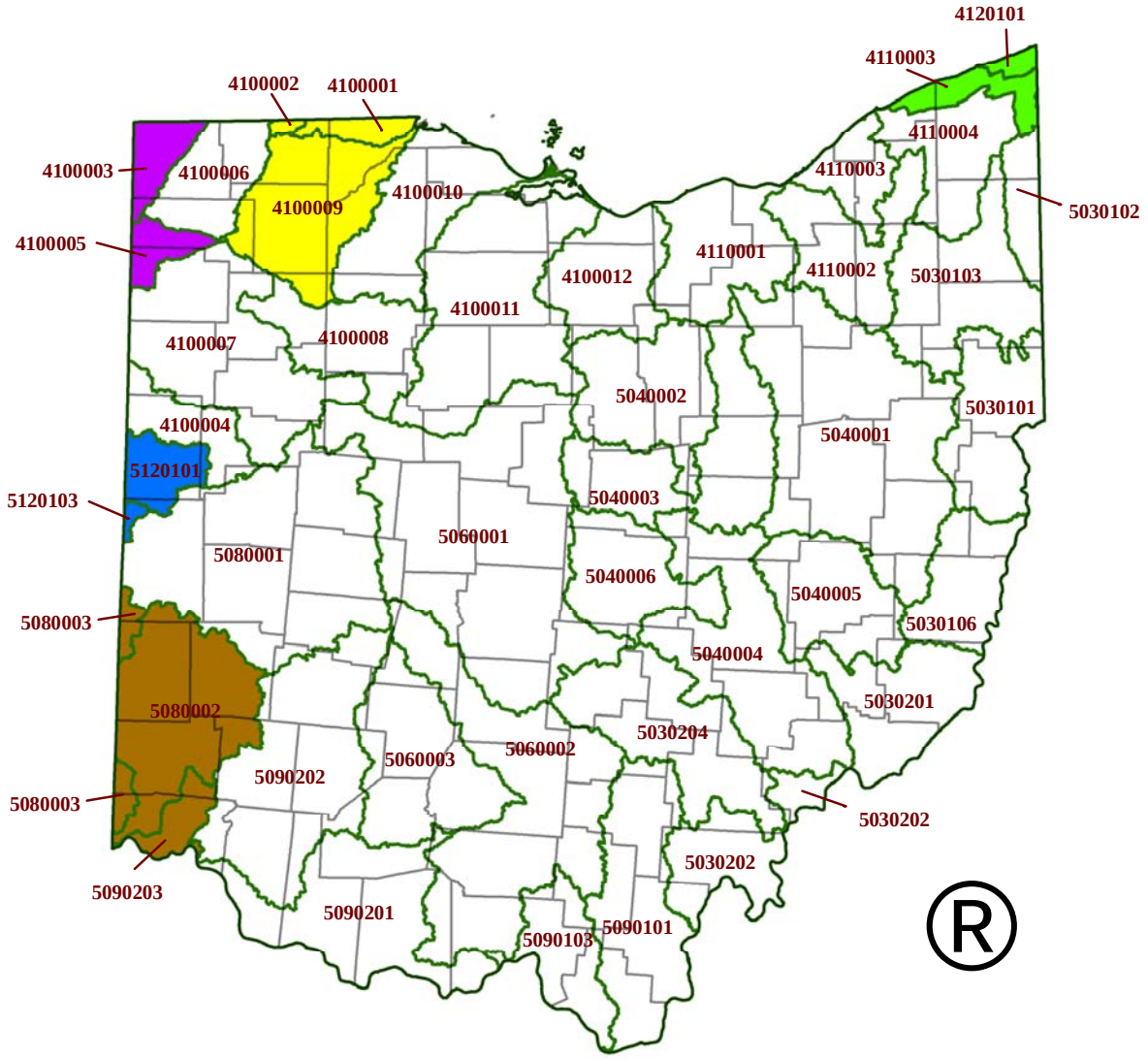
11. Adaptive management plan. A management strategy to address unforeseen changes in site conditions or other components of the mitigation project, including the party or parties responsible for implementing adaptive management measures.

12. 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 mitigation project will be successfully completed, in accordance with its performance standards.

Other information. The Corps may require additional information as necessary to determine the appropriateness, feasibility, and practicability of the mitigation project.

APPENDIX 2 MAP OF 8 DIGIT HUCS

Watersheds for Ohio Wetland Water Quality Standards



Wetland Water Quality Standard Watersheds comprised of a single USGS 8-digit Hydrologic Unit

04100004; 04100006; 04100007; 04100008; 04100010; 04100011; 04100012; 04110001; 04110002; 04110003 (Chagrin river watershed only); 04110004; 05030101; 05030102; 05030103; 05030106; 05030201; 05030202; 05030204; 05040001; 05040002; 05040003; 05040004; 05040005; 05040006; 05060001; 05060002; 05060003; 05080001; 05090101; 05090103; 05090201; and 05090202

Wetland Water Quality Standard Watersheds comprised of more than one USGS 8-digit Hydrologic Unit

- 04100001, 04100002, 04100009
- 04100003, 04100005
- 0411003 (minus the Chagrin River watershed), 04120101
- 05080002, 05080003, 05090203
- 05120101, 05120103

0 62.5 125 250 Miles

APPENDIX 3 DRAFT MITIGATION BANK PROSPECTUS CHECKLIST

Please provide the following information and checklist with the submittal of a Draft Prospectus (see 33 CFR 332.8(d)(3) for additional information):

☐ Proposed Bank Name - Use a short name based on a geographic feature if possible and include "Mitigation Bank" in the name

☐ Bank contacts – include the name, address, phone, fax, email, and role in project for at least one contact: the contact may be the Bank Sponsor, Land Owner, Consultant, etc

☐ General location map and address of the proposed bank property

☐ Accurate current map of the proposed bank property on a 7.5 minute USGS map showing boundaries of the site

☐ Aerial photo of the bank site and surrounding properties

☐ Soils map of the bank site and surrounding properties

☐ Map of the proposed bank service area

☐ Current site conditions description including
- o potential wildlife habitats and species known or potentially present
- o photos of the site
- o description of potential wetlands and waters present on site
- o hydrology description
- o approximate acreage of existing wetlands and waters to be restored
- o site history including past land uses
- o surrounding land uses and zoning
- o anticipated future development in the area
- o mineral rights (above & below ground)

☐ Conceptual site plan

APPENDIX 4 MITIGATION BANK PROSPECTUS CHECKLIST

Please provide the following information and checklist with the submittal of a Prospectus (see 33 CFR 332.8(d)(2) for additional information):

☐ For the purposes of the Public Notice, all figures must be legible, black and white, and submitted on 8.5 x 11-inch paper.

☐ Proposed Bank Name - Use a short name based on a geographic feature if possible and include "Mitigation Bank" in the name

☐ Bank contacts – Include the name, address, phone, fax, email, and role in project for: Bank Sponsor, Land Owner if different, Consultants, etc

☐ The qualifications of the sponsor to successfully complete the type(s) of mitigation project(s) proposed, including information describing any past such activities by the sponsor

☐ General location map and address of the proposed bank property

☐ Accurate current map of the proposed bank property on a 7.5 minute USGS map showing boundaries of the bank site

☐ Aerial photo of the site and surrounding properties

☐ Map of the proposed bank service area

☐ Objectives of the proposed mitigation bank

☐ How the mitigation bank will be established and operated

☐ The general need for and technical feasibility of the proposed mitigation bank

☐ The proposed ownership arrangements and long-term management strategy for the mitigation bank site

☐ Site conditions description. This must describe the ecological suitability of the site to achieve the objectives of the proposed mitigation bank, including the physical, chemical, and biological characteristics of the bank site and how that site will support the planned types of aquatic resources and functions and should include: site conditions and habitats, photos of the site, description of wetlands and waters present on site, hydrology description, number of acres of

existing wetlands and waters and what is proposed for reestablishment, rehabilitation, etc., site history including past land uses, surrounding land uses and zoning along with the anticipated future development in the area

☐ Assurance of sufficient water rights to support the long-term sustainability of the mitigation bank

☐ Proposed number and kind of credits (and acres) on the property

☐ Proposed credit release schedule

☐ Delineation of all on-site aquatic resources

☐ Preliminary title report indicating any easements or other encumbrances. Note, any liens and easements on the property that may affect a bank's viability will need to be resolved before a bank can be approved. Provide a written assessment of all easements and encumbrances describing the easement and how it may affect bank operation or habitat values

☐ Any other restrictions on the property

APPENDIX 5 DRAFT AND FINAL MITIGATION BANK INSTRUMENT CHECKLIST

Please provide the following information and checklist with the submittal of a Bank Instrument (see 33 CFR 332.8(d)(6) and (8) and 332.4(c)(2) – (14) for additional information):

☐ Introduction including
- Mitigation bank name
- Mitigation bank sponsor and other contact information
- Mitigation bank location

☐ Definitions

☐ Mitigation bank objectives

☐ Proposed service area

☐ Site selection factors considered

☐ Sponsor's legal responsibility for providing mitigation

☐ Determination of number and types of credits

☐ Accounting procedures

☐ Site protection instrument

☐ Baseline information including
- Ownership
- Soils
- Hydrology
- Existing vegetation
- Unique features
- Hazardous substances
- Adjacent land use
- Watershed plan

☐ Mitigation work plan – detailed written specifications and work descriptions for the site

☐ Maintenance plan – description and schedule of maintenance requirements

☐ Performance standards – ecologically based standards used to determine whether the project is achieving its objectives

☐ Monitoring plan

☐ Long-term management plan – description of mitigation site management after meeting all performance standards to ensure long-term sustainability of the site

☐ Adaptive management plan – a management strategy to address unforeseen changes in site conditions or other aspects of the project

☐ Financial assurances including
- o Construction
- o Monitoring and maintenance
- o Long-term management

☐ Reporting protocols

☐ Credit release schedule and criteria tied to specific milestones

☐ Default provisions

☐ Bank closure plan

☐ Signature page

APPENDIX 6 MITIGATION BANK INSTRUMENT TEMPLATE

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APPENDIX 7 INVASIVE PLANT LIST FOR OHIO MITIGATION BANKS

Scientific Name	**Common Name**
Acer platanoides	Norway Maple
Ailanthus altissima	Tree-of-Heaven

Alliaria petiolata	Garlic Mustard
Alnus glutinosa	European Alder
Berberis thunbergii	Japanese Barberry
Butomus umbellatus	Flowering-rush
Catalpa speciosa	Northern Catalpa
Celastrus orbiculatus	Asian Bittersweet
Cirsium arvense	Canada Thistle
Conium maculatum	Poison Hemlock
Coronilla varia	Crown Vetch
Dipsacus fullonum	Common Teasel
Dipsacus lacineatus	Cut-leaved Teasel
Elaeagnus angustifolia	Russian Olive
Elaeagnus umbellate	Autumn Olive
Epilobium hirsutum	Hairy Willow-herb
Epilobium parviflorum	Small-flowered Willow-herb
Euonymus alatus	Winged Euonymus
Euonymus fortunei	Wintercreeper
Hydrocharis morsus-ranae	Common Frog-bit
Iris pseudacorus	Yellow Flag
Ligustrum vulgare	Common Privet
Lonicera japonica	Japanese Honeysuckle
Lonicera maackii	Amur Honeysuckle
Lonicera morrowii	Morrow Honeysuckle
Lonicera tartarica	Tartarian Honeysuckle
Lythrum salicaria	Purple Loosestrife
Maclura pomifera	Osage Orange
Microstegium viminium	Japanese Stilt Grass
Myriophyllum spicatum	Eurasian Water-milfoil

Najas minor	Lesser Naiad
Nasturtium officianale	Watercress
Phalaris arundinacea	Reed Canary Grass
Phragmites australis	Common Reed
Polygonum cuspidatum	Japanese Knotweed
Potamogeton crispus	Curly Pondweed
Pyrus calleryana	Bradford Pear
Ranunculus ficaria	Lesser Celandine
Rhamnus cathartica	Common Buckthorn
Rhamnus frangula	Glossy Buckthorn
Rosa multiflora	Multiflora Rose
Schoenoplectus mucronatus	Bog Bulrush
Sorghum halepense	Johnson Grass
Typha angustifolia	Narrow-Leaved Cattail
Typha x glauca	Hybrid Cattail
Viburnum opulus var. opulus	European Cranberry-Bush
Vinca minor	Periwinkle

APPENDIX 8 REGIONAL INTERNET BANK INFORMATION TRACKING SYSTEM (RIBITS)

Credit Ledger

Bank Name: _____

Credit Releases:

Date	Credits	Acres/Lin Ft	Credit Classification Type	Release Activity

Credit Sales:

Date	Credits	Acres/Lin Ft	Credit Classification Type	CORPS Impact Permit Number	Other Agency Permit Number	Other Agency Name