US Army Corps
of Engineers®

New York District
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ATTN: Regulatory Branch

Special Public Notice

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Draft Compensatory Mitigation Guidelines and Mitigation Checklist For Review of Mitigation Plans For the U.S. Army Corps of Engineers, New York District

The U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency regulations (33 CFR 320-331 and 40 CFR 230) authorize the USACE to require compensatory mitigation for unavoidable impacts to wetlands and other jurisdictional waters of the United States. Moreover, the USACE is aware of problems with past compensatory mitigation sites and is committed to improving the success of future compensatory mitigation projects, as well as achieving the goal of "no net loss" of wetlands functions and values under the regulatory program. As a result, the following attached draft documents have been developed pursuant to the Regulatory Guidance Letter No. 02-2 (December 2002,), the National Wetlands Mitigation Action Plan (December 2002), and the "Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation under the Clean Water Act (CWA) Section 404(b)(1) Guidelines" (May 1990). These documents, which are available on the Internet at: http://www.epa.gov/owow/wetlands/guidance, are intended to improve the success of compensatory mitigation overall with emphasis on a regional watershed approach.

Therefore, the New York District Regulatory Branch is seeking public comment on the attached "Draft Compensatory Mitigation Guidelines" and "Draft Mitigation Checklist". These draft documents would be applied throughout the New York District which encompasses portions of the State of New York and New Jersey (see District Boundary Map, Attachment 3), and would serve to assist the regulated public in the preparation of compensatory mitigation and monitoring plans and provide information to ensure future compensatory mitigation sites successfully replace all lost functions and values associated with the regulated impacts to waters of the United States.

All comments should be submitted to the above address by January 22, 2004. The comments received will be considered in development of the final "Compensatory Mitigation Guidelines" and "Mitigation Checklist", which will be published in the Spring of 2004. This draft document is also available on the Internet at:
http://www.usace.army.mil/inet/functions/cw/cecwo/reg/nw2002dd/index.htm.

Questions pertaining to this notice should be directed to James Cannon, who can be contacted by calling (212)264-0185, or by e-mail at James.H.Cannon@usace.army.mil.

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Attachments

1. Draft Compensatory Mitigation Guidelines
2. Draft Mitigation Checklist
3. New York District Regulatory Boundary Map

Attachment 1

U.S. Army Corps of Engineers, New York District

Regulatory Branch

Compensatory Mitigation Plan Guidelines

INTRODUCTION

Under existing law, the Corps requires compensatory mitigation to replace aquatic resource functions unavoidably lost or adversely affected by authorized activities. The Regulatory Guidance Letter (RGL) No. 02-2 clarifies and supports the national policy for "no overall net loss" of wetlands and reinforces the Corps commitment to protect waters of the United States, including wetlands. Permittees must provide appropriate and practicable mitigation for authorized impacts to aquatic resources in accordance with the laws and regulations. Relevant laws, regulations, and guidance are listed in Appendix A of RGL No. 02-2. This guidance does not modify existing mitigation policies, regulations, or guidance. The Corps will consider the requirements of other Federal programs when implementing this guidance. It should be noted that the guidelines and the following checklist are being developed to improve the overall success of compensatory mitigation with emphasis on a regional watershed approach. The proposed guidelines and checklist are pursuant to the following guidance:

- Regulatory Guidance Letter No. 02-2 (December 2002)
- The National Wetlands Mitigation Action Plan (December 2002)
- The "Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation under the Clean Water Act Section 404(b)(1) Guidelines" (May 1990).

Applicants should contact the Corps prior to initiation of project planning and mitigation plan development, as mitigation requirements are project-specific. The Corps recommends all applicants to hold pre-application meetings with the Corps and other resource agency representatives. During these meetings, the Corps and the resource agencies can evaluate preliminary project designs and discuss mitigation opportunities. It is recommended that the applicant should not purchase sites or finalize plans before the Corps has reviewed and approved of the compensatory mitigation concept. Applicants should also ensure that the mitigation plan is developed in accordance with the most recent Corps checklist. However, the checklist is a guidance document, not policy. This document and the associated checklist are for use when the Corps determines mitigation is appropriate for a particular project.

The checklist is to identify the types and extent of information that agency personnel need to assess the likelihood of success of a mitigation proposal. The checklist provides a basic framework

that will improve predictability and consistency in the development of mitigation plans for permit applicants. It should be noted that the level of information submitted for review would be dependent upon the scale of the mitigation project.

The purpose of this guidance is twofold:

- To provide guidance to the regulated community on the requirements for plans for mitigation required by the Corps of Engineers, New York District.
- To provide a standardized format for Corps use in reviewing mitigation plans and their technical merit.

It is important to note that there is flexibility in the document. When modifications are needed, the plan should so state and should explain the rationale (which may be very simple). The Corps acknowledges that absolutes are rare in mitigation design and that a successful site requires careful design and review as well as common sense oversight during construction by a person well versed in wetland science.

BASIC REQUIREMENTS FOR SUCCESS

The following abbreviated NRC guidelines (full text located in Appendix B of the RGL No. 02-2) should be considered as basic requirements for mitigation success.

1.*Consider the hydrogeomorphic and ecological landscape and climate.* Locate the mitigation site in a setting of comparable landscape position and hydrogeomorphic class. Consider conducting a cumulative impact analysis at the landscape level based on templates for wetland development. Duplicate the features of reference wetlands or enhance connectivity with natural upland landscape elements.

2. *Adopt a dynamic landscape perspective.* Consider both current and future watershed hydrology and wetland location. Select sites that are, and will continue to be, resistant to disturbance from the surrounding landscape. Build on existing wetland and upland systems. Locate the mitigation site to take advantage of refuges, buffers, green spaces, and other preserved elements of the landscape. Design a system that utilizes natural processes and energies, such as the potential energy of streams as natural subsidies to the system.

3. *Restore or develop naturally variable hydrological conditions.* Promote naturally variable hydrology, with emphasis on enabling fluctuations in water flow and level, and duration and frequency of change, representative of other comparable wetlands in the same landscape setting. Natural hydrology should be allowed to become reestablished Try to avoid designing a system dependent on water-control structures or other artificial infrastructure.

4. *Whenever possible, choose wetland restoration over creation.* Select sites where wetlands previously existed or where nearby wetlands still exist. Restoration of wetlands has been observed to be more feasible and sustainable than creation of wetlands. In restored sites the proper substrate

may be present, seed sources may be on-site or nearby, and the appropriate hydrological conditions may exist or may be more easily restored. Restoration should be the first option considered, then enhancement, and, finally, creation as a last resort.

5. *Avoid over-engineered structures in the wetland's design.* Design the system for minimal maintenance. Set initial conditions and let the system develop. Natural systems should be planned to accommodate biological systems. The system of plants, animals, microbes, substrate, and water flows should be developed for self-maintenance and self-design. Avoid manipulating wetland processes using approaches that require continual maintenance. Avoid hydraulic control structures and other engineered structures that are vulnerable to chronic failure and require maintenance and replacement. Use natural features, such as large woody debris, to prevent erosion until the wetland has developed soil stability. Use natural recruitment sources for more resilient vegetation establishment. Take advantage of native seed banks. Use soil and plant material salvage whenever possible. The vegetation selected must be appropriate to the site.

6. *Pay particular attention to appropriate planting elevation, depth, soil type, and seasonal timing.* When the introduction of species is necessary, select appropriate genotypes. Genetic differences within species can affect wetland restoration outcomes. Many sites are deemed compliant once the vegetation community becomes established A successful mitigation plan needs to consider soil type and source, base elevation and water depth, plant adaptability and tolerances, and the timing of water input.

7. *Provide appropriately heterogeneous topography.* The need to promote specific hydroperiods to support specific wetland plants and animals means that appropriate elevations and topographic variations must be present in restoration and creation sites. The proposed development wetland or appropriate example(s) of the target wetland type should provide a model template for incorporating microtopography (e.g., what causes strings and flarks in patterned fens or how hummocks in fens control local nutrient dynamics and species assemblages and subsurface hydrology are poorly known). Plan for elevations that are appropriate to plant and animal communities that are reflected in adjacent or close-by natural systems.

8. *Pay attention to subsurface conditions, including soil and sediment geochemistry and physics, groundwater quantity and quality, and infaunal communities.* Inspect and characterize the soils in some detail to determine their permeability, texture, and stratigraphy. Characterize the general chemical structure and variability of soils, surface water, groundwater, and tides. At a minimum, these should include chemical attributes that control critical geochemical or biological processes, such as pH, redox, nutrients (nitrogen and phosphorus species), organic content and suspended matter.

9. *Consider complications associated with creation or restoration in seriously degraded or disturbed sites.* A seriously degraded wetland, surrounded by an extensively developed landscape, may achieve its maximal function only as an impaired system that requires active management to support natural processes and native species. The functional performance of some degraded sites may be optimized by mitigation, and these considerations should be included if the goal of the

mitigation is water- or sediment-quality improvement, promotion of rare or endangered species, or other objectives best served by locating a wetland in a disturbed landscape position. Reintroducing natural hydrology with minimal excavation of soils often promotes alternative pathways of wetland development.

10. *Conduct early monitoring as part of adaptive management. Develop* a thorough monitoring plan as part of an adaptive management program that provides early indication of potential problems and direction for correction actions. Process monitoring (e.g., water-level fluctuations, sediment accretion and erosion, plant flowering, and bird nesting) is particularly important because it will likely identify the source of a problem and how it can be remedied. Monitoring and control of nonindigenous species should be a part of any effective adaptive management program. Assessment of wetland performance must be integrated with adaptive management.

DEFINITIONS

These definitions were developed for use with this document.

Buffers: Buffers typically consist of native plant communities (i.e., indigenous species) that reflect the local landscape and ecology. Conservation buffers are best described as strips or other areas of land in permanent vegetation that separate wetlands or other aquatic resources from developed Areas. Buffers enhance or provide a variety of aquatic habitat functions including habitat for wildlife and other organisms, runoff filtration, moderation of water temperature changes, and detritus for aquatic food webs.

Compensatory Mitigation: Final step in the mitigation sequencing process to offset the loss of wetland or other aquatic resources if adverse impacts remain after avoidance and minimization.

Enhancement: An increase in one or more functions of an existing wetland by human modification.

Establishment (Creation): The conversion of a persistent upland or open water area into a wetland by human activity at a site where a wetland did not previously exist.

Functional Assessment: Functional scores are determined by using aquatic site assessment techniques generally accepted by experts in the field or the best professional judgment of Federal, tribal, and state agency representatives, fully considering ecological functions included in the 404(b)(1) Guidelines, e.g. Hydrogeomorphic Assessment or Wetland Rapid Assessment Procedure.

Functional Replacement: For wetlands, the objective is to provide, at a minimum, no net loss of functions, with an adequate margin of safety to reflect anticipated success.

In-Lieu-Fee: In-lieu-fee mitigation occurs in circumstances where a permittee provides funds to an in-lieu-fee sponsor instead of either completing project specific mitigation or purchasing credits from a mitigation bank approved under the Banking Guidance.

Invasive species: A non-native species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

Mitigation: Avoiding, minimizing, rectifying, reducing or compensating for resource losses.

Mitigation Bank: A site where wetlands and or other aquatic resources are restored, created or enhanced, or in exceptional circumstances, preserved expressly for the purpose of providing compensatory mitigation in advance of authorized impacts to similar resources.

Native species: With respect to a particular ecosystem, a species that, other than as a result of an

Non-native species: Any species, including its seeds, eggs, spores, or other biological material capable of propagating that species that is not native to that ecosystem.

Practicable: Available and capable of being implemented after taking into account availability of suitable locations, constructability, overall costs, technical requirements, and logistics.

Protection/Maintenance (Preservation): The removal of a threat to, or preventing the decline of, wetland conditions by an action in or near a wetland. This term includes the purchase of land or easements, repairing water control structures or fences, or structural protection such as repairing a barrier island. This term also includes activities commonly associated with the term preservation. Preservation does not result in a gain of wetland acres.

Restoration: Return of a wetland from a disturbed or altered condition by human activity to a previously existing condition.

Watershed approach: A watershed-based approach to aquatic resource protection considers entire systems and their constituent parts. Applicants will be encouraged to provide compensatory mitigation projects that include a mix of habitats such as open water (maybe, but not necessarily), wetlands, and adjacent uplands. When viewed from a watershed perspective, such projects often provide a greater variety of functions.

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

NOTE: The following outline is to be used in conjunction with the USACE New York District Compensatory Mitigation Plan Checklist.

A. MITIGATION JUSTIFICATION

Discussion of mitigation sequencing efforts including evidence that the following steps have been carried out, in the order listed, before they will consider compensatory mitigation:

1) Avoidance and 2) Minimization. Mitigation needs to be provided for all adverse impacts that cannot be avoided or minimized.

In some cases where a Corps-notifying General Permit (Nationwide Permit or Regional General Permit pursuant to 33 CFR 330) applies, the applicant may have to demonstrate avoidance and minimization of aquatic resource impacts. If an applicant is required to notify the Corps regarding authorization under an existing General Permit, it is likely that the Corps' verification letter/notice to proceed will require compensatory mitigation. Clearly, the sequence of avoidance, minimization, and compensatory mitigation specified by the Section 404(b)(1) Guidelines and the Mitigation MOA is fundamental to the administration of the Corps' regulatory program.

B. BASELINE INFORMATION FOR IMPACT SITE (S)

This information will be required in order to assess the relevant functions and values lost at the impact site(s).

Location

To standardize reporting, the watershed(s), as identified using a USGS Hydrologic Unit Code(s) for each mitigation site is required (See Checklist). These codes can be determined using an EPA website:

http://cfpub.epa.gov/surf/locate/index.cfm.

Other agency jurisdiction maps relevant to the impact/mitigation site (e.g. Adirondack Park Agency, NYS Department of Environmental Conservation, Hudson River-Black River Regulating District) may also be required.

Classification and Functional Assessment

As part of the Watershed Approach and to assist regulators in the public interest review during the permitting process, an adequate assessment of the current functions and values of the impact site and mitigation site is vital. The ability to identify and determine the relative importance of the specific functions and values of the sites will ultimately define the goals and objectives in the development of the mitigation site.

Several methods exist to classify aquatic resources, which would determine an appropriate compensatory mitigation. There are six categories of special aquatic sites defined by the Environmental Protection Agency in the Clean Water Act Section 404 (b)(1) guidelines (Federal Register 1980). Others include the following:

- HGM Hydrogemorphic Wetland Classification, http://**www.wes.army.mil/el/wetlands/hgmhp.html**

- Cowardin, et. al. (1979) "Classification of wetlands and deepwater habitats of the United States," Office of Biological Services, FWS/OBS-79/31, December 1979

- Rosgen, http://**www.wildlandhydrology.com**

- Natural Resources Conservation Service, http://**www.nrcs.usda.gov**

Several Functional Assessment methods exist, which include, but are not limited to IBI, HGM, Highway Methodology, WET, HEP, IVA, Environmental Concern's EPW.

The New York District is soliciting comments on preferred methods through this public notice.

Existing Hydrology

Water Budget

Include water sources (precipitation, surface runoff, groundwater, stream) and losses. Provide budgets for both wet and dry areas.

Hydroperiod

Provide information on seasonal depth, duration, and timing of inundation and/or saturation, percent open water.

Monitoring Wells

Note that monitoring wells may not be necessary if other data are adequate. Please discuss this issue with Corps staff prior to installation.

Many mitigation plans include monitoring well data. Note that there is an important difference between monitoring wells and piezometers, both of which provide useful information. Details on the uses for and installation of both of these types of wells are available in a document prepared by the Engineers Research and Development Center's Environmental Lab, previously known as the Waterways Experiment Station, entitled, "Installing Monitoring Wells/Piezometers in Wetlands", WRAP Technical Note 00-02 dated July 2000.

It can be found at: http://www.wes.army.mil/el/wrap/pdf/tnwrap00-2.pdf.

Existing Dominant Vegetation

The USACE Waterways Experiment Station document, Wetlands Research Program Technical Report Y-87-1 Wetland Delineation Manual, January 1987, contains information on vegetation sampling definitions and methods.

http://www.usace.army.mil/inet/functions/cw/cecwo/reg/techbio.htm

Canopy stratification

A description (e.g. number of layers and percent cover as opposed to relative cover) of all existing vegetation layers in a particular wetland.

Indicator status

Indicator Status can be found in National List of Plant Species That Occur in Wetlands: Northeast (Region 1), published by the U.S. Fish and Wildlife Service. USFWS Biological Report 88(26.1) May 1988.

It is located at: http://www.nwi.fws.gov/bha/lists.html

Native/non-native/invasive status

New York District is soliciting comments on the attached invasive plant list during this public comment period, as well as any proposed additions to this list. Theses species should not be used in wetland mitigation plans.

Existing Soils

Information pertaining to soil profile, classification, series, structure, texture, organic content, and permeability can be obtained by examining County Soil Surveys or visiting the local NRCS office. Additional information can be obtained at can be obtained at http://soils.usda.gov.

Contaminants

For common contaminants and means of measuring, see http://**www.dec.state.ny.us** and http://**www.state.nj.us/dep**. Sites may contain pollutants within the soil or water profile and these sites could be regulated under RCRA (Resource Conservation Recovery Act) or CERCLA (the Superfund legislation), which are EPA-defined terms. Refer to http://**www.epa.gov** for guidance. Applicants should describe any required remedial activities prior to implementing the mitigation plan.

Site information

Examples of aquatic resource conditions that may occur in the watershed include, but are not limited to flooding, water quality, habitat, and overall watershed and regional functions.

Stream Impacts

If the project involves mitigation in the form of watercourse relocation, creation, or enhancement, the following information should be submitted, depending on the magnitude of the project.

- Plan view and section view drawings of existing conditions, and longitudinal profile
- Assessment of stream (is it aggrading, degrading, migrating excessively, excessive erosion, too much sediment in system, etc)
- Length of project reach
- Total cut and fill needed to reconfigure or create new channel
- Total rock fill used for habitat/stabilization structures,
- Proposed plans, including plan view, section view at riffles and pools, and longitudinal profiles of stream reach
- Location and detail drawings for habitat/stabilization structures
- Radius of curvature, bed material type, sinuosity, valley slope, stream slope, thalweg details, pool to pool spacing, width to depth ratios, and other technical measurements or ranges, including watershed size and discharge of stream
- Drawing outlining buffer around stream and planting plan if necessary
- Plans to control water during construction
- A description of the construction sequence
- Photographs of the stream in its current state, including upstream and downstream areas
- Monitoring includes as-built, going through stream classification measures to ensure it's appropriate type, monitoring conditions up and down stream and in reach, vegetation success, fisheries data when appropriate, etc.

D. BASELINE INFORMATION FOR MITIGATION SITE (S)

This information will be required in order to assess the relevant functions and values gained at the mitigation site(s). Follow the list format in Section (B).

E. MITIGATION GOALS AND OBJECTIVES

For mitigation, the objective is to provide, at a minimum, 1:1 functional replacement, i.e., no net loss of functions, with an adequate margin of safety to reflect anticipated success. In some cases, replacing the functions provided by one wetland area can be achieved by another, and smaller wetland. In other cases, a larger replacement wetland may be needed to replace the functions of those aquatic resources impacted by development.

Applicants should be aware that, when compensation occurs after project commencement (as opposed to advanced mitigation), additional compensation would typically be required to offset temporal losses. Temporal losses occur because of the passage of time between when wetland functions have been lost to the project impact and when they are developed in a compensatory wetland. The amount will depend upon the nature of the wetland proposed and the functions intended. Such compensation may be increased ratios for wetland establishment, restoration, or enhancement, or it may be additional preservation.

In-kind, out-of-kind, or a combination of in-kind and out-of-kind, compensatory mitigation may be required to achieve functional replacement within surrounding watersheds. In-kind compensation for a wetland loss involves replacement of a wetland area by establishing, restoring, enhancing, or protecting and maintaining a wetland area of the same physical and functional type. In-kind replacement generally is required when the impacted resource is locally important. Out-of-kind compensation for a wetland loss involves replacement of a wetland area by establishing, restoring, enhancing, or protecting and maintaining an aquatic resource of different physical and functional type. Out-of-kind mitigation is appropriate when in-kind is not practicable and it provides more environmental or watershed benefit than in-kind compensation (e.g., of greater ecological importance to the region of impact).

On-site, off-site, or a combination of on-site and off-site mitigation may be required to maintain wetland functional levels within watersheds. Mitigation should be proposed, when practicable, in areas adjacent or contiguous to the discharge site (on-site compensatory mitigation). On-site mitigation generally compensates for locally important functions, e.g., local flood control functions or unusual wildlife habitat. However, off-site mitigation may be used when there is no practicable opportunity for on-site mitigation, or when off-site mitigation provides more watershed benefit than on-site mitigation. Off-site mitigation will be in the same geographic area, i.e., in close proximity to the authorized impacts and, to the extent practicable, in the same watershed. In choosing between on-site or off-site compensatory mitigation, regulators will consider: 1) the practicability of on-site mitigation, 2) likelihood for success, 3) ecological sustainability, 4) practicability of long-term monitoring and maintenance or operation and maintenance, and 5) relative costs of mitigation alternatives.

Mitigation Banking

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

Established site acres for wetland compensation are quantified as "credits" which are available for use by the bank sponsor or by other parties to compensate for adverse wetland impacts from permitted activities (i.e. "debits").

Requirements for compensatory mitigation may be satisfied using mitigation banks only when on-site compensation is not practicable or when use of a mitigation banks environmentally preferable. Prospective bank sponsors should not construe or anticipate participation in the establishment of a mitigation bank as ultimate authorization for specific projects, as exempting such projects from any applicable requirements or as pre-authorizing the use of credits from that bank for any particular project.

For more information on using an existing mitigation bank or developing a new bank, see your local Corps representatives.

In Lieu Fee

As indicated in RGL No. 02-2, compensatory mitigation involving in-lieu fee arrangements should follow the existing in-lieu fee guidance as prescribed in the Federal Register dated November 7, 2000 (65 FR 66914).

F PERFORMANCE STANDARDS

Performance standards are typically codified by Special Conditions in the permit, such as percent invasive plant coverage (e.g. *Phragmites australis* and *Lythrum salicaria*), percent aerial coverage by species, acres of wetland class, and survivability of plantings.

Performance standards are typically quantifiable measures including hydrologic, vegetative, faunal, and soil measures.

Reference wetlands can represent a particular site for which a profile has been developed, or they can represent a population of sites that exhibit a range of variation within a particular functional type. Reference wetlands should be sites similar to the impact areas, which have been tested, measured, and related to corresponding ecosystem functions.

The most crucial criterion for reference wetlands is that they include representatives of natural or quasi-natural wetlands that occur presently in the region. This array of different wetlands needs to be established and protected so they can represent "types" similar to type specimens in herbaria, type localities for geologic formations, and type series of soils.

The reference wetland's baseline information, such as items required in Sections (B) and (C) of the checklist, will need to be collected for comparison purposes with the established, enhanced, or restored wetlands.

G. MITIGATION SITE SELECTION

According to Regulatory Guidance Letter No. 02-2, there are several items, which should be considered when determining if a potential mitigation site is appropriate. When reporting on why sites were or were not selected, the following should be addressed:

- Availability of suitable sites
- Constructability
- Overall costs
- Technical Requirements
- Logistics
- Likelihood for success
- Ecological sustainability
- Practicability for long-term monitoring and maintenance

H. MITIGATION WORK PLAN

Construction

A timeline of the construction process starting with the placement of erosion and sediment controls and ending with the removal of said controls needs to be submitted. All phases of the construction of the mitigation project need to be included.

Planned Vegetation

Planting and seeding may or may not be appropriate for a mitigation site(s), as determined through consultation with the Corps. Plant and seed materials should be native and indigenous to the area of the site(s) as well as be beneficial to wildlife. Information on valuable wildlife plant species can be found through the State Conservation Departments, Cooperative Extension Services, etc. Native planting stock from the immediate vicinity of the project may be ideal. Whenever possible, plants should be salvaged from wetlands and uplands cleared by the project.

Vegetation community types or zones are classified in accordance with Cowardin, et al. (1979) or other similar classification system.

More than 50% of the plantings in each zone should be structural determinants for the community type designated for that zone with emphasis on species unlikely to "volunteer".

A planting plan should be submitted in 'plan view' showing proposed locations of planted stock. A 'section view' plan can also be submitted, that shows representative cross section plans showing vegetative community (e.g., forested, shrub swamp, etc.) zones.
Where uniform coverage is anticipated, herbaceous stock should be proposed in densities not less than the equivalent of 3 feet on center for species which spread with underground stems; 2 feet for species which form clumps.

Use of Mulch:

The use of mulch around woody plantings is strongly encouraged, and may be required, to reduce the need for irrigation and to keep down herbaceous vegetation in the immediate vicinity of each plant for a couple of years. Note that the mulch should not be considered part of the organic content of the topsoil. Suggested specifications for mulching are as follows:

- Mulch balled and burlap or container-grown trees and shrubs in a 3' diameter circle approximately 2" deep.
- Mulch bare-root woody planting in an 18" diameter circle approximately 2" deep.

Planting Densities

Woody planting densities may require adjustment depending upon the goals of the mitigation plan and the 'reference wetland' desired. For example, if the primary goal for a particular creation site is flood storage and there is minimal need for wildlife habitat but there is interest in developing a woody component in the flood storage area, the density may be reduced. Also, if the wetland type desired is a dense thicket, the density may need to be increased.

Woody stock proposed to be planted should be in densities not less than 600 trees and shrubs per acre, including at least 400 trees per acre in forested cover types.

Planned Soils

Topsoil shall consist of a mixture of equal volumes of organic and mineral materials. Clean leaf compost is the preferred soil amendment to achieve these standards. If other soil amendments are more readily available than clean leaf compost, they can be used to meet the requirement for the appropriate percent organic carbon content. Note, however, that compost or other organic matter should be clean and free of weed seeds, as well as alien and invasive species, specifically the seeds of the species listed on the attached list.

It is important to keep in mind the difference between organic *matter* and organic *carbon* both for meeting regulatory guidelines and when classifying the surface horizons in soils as histic (organic soils), mucky modified or mineral. The organic *carbon* content of most upland topsoil is between 1 and 6 percent of dry weight. Soils with more than 20 to 30 percent organic *matter* are known as organic soils or Histosols. The Field Indicators for Identifying Hydric Soils in the United States (United States Department of Agriculture, et. al., December 1996, Ver. 3.3) glossary defines the criteria for these classifications based on their organic *carbon* contents. This checklist recommends a 4 to 12 percent, minimum organic *carbon* content on a dry weight basis for soils in wetland replication areas.

Planned Habitat Features

Planned feature habitats should be incorporated into the mitigation plan providing other habitat features to encourage use by fish and wildlife. Examples of features to be considered include but are not limited to micro-topography, rock mounds, nesting platforms, nest boxes, snags, diverse/dense plantings, berry producing shrubs, structure, undercut banks, etc.

Vegetated Buffers

Buffers are upland or riparian areas that separate wetlands or other aquatic resources from developed areas and agricultural lands. Buffers consist of native plant communities that reflect the local landscape and ecology. In most cases, a protected (preserved) buffer will be required around existing aquatic resources and established, restored, and enhanced mitigation site(s), including stream mitigation as this is of benefit on a local and watershed scale throughout New York. The extent of the buffer will depend upon the landscape position of the site(s) and current and potential surrounding land uses.

Coarse woody debris

Coarse woody debris includes such materials as logs, stumps, smaller branches, and snags. Placement of this material is inappropriate in tidal or floodplain environments. As much as possible, these materials will be in various stages of decomposition and salvaged from natural areas cleared for the other elements of the project.

Stream Restoration

Regulatory Guidance Letter No. 02-02 states that stream functions lost must also be mitigated. In general, this should be on 1:1 linear foot basis unless a functional assessment methodology is provided with detailed analysis.

Potential habitat/stabilization structures that would be constructed in stream/waterway mitigation projects include the following:

- Live stakes (planting)
- Root wads
- Willow wattles
- Cross vanes
- W-weirs
- V-weirs
- Straight weirs
- Rock vanes
- J-hook vanes
- Log vanes
- Rock pool diggers
- Native material revetments
- Rock benches to bankfull
- Check dams
- Boulder clusters
- Gravel traps
- Wing deflectors
- Bank cover structures/shelters
- Migration barriers
- Gravel/sand
- Bars or central bars and wetlands
- Jetties/riprap

- General vegetative cover (willows/shrubs, and shading trees)
- Biostabilization of banks

I. SITE PROTECTION AND FINANCIAL ASSURANCE

The Corps may require in-perpetuity protection for most compensatory mitigation sites. In-perpetuity protection typically occurs through the recordation of a Conservation Easement or a Deed Restriction, or in unusual cases, the recordation of a development's Covenants, Codes, and Restrictions.

The Corps may require the permittee to post a bond for construction and monitoring of the wetland mitigation site(s) and as determined by the Corps of Engineers.

J. MONITORING PLAN AND REPORT

Regular monitoring reports must be provided to the permitting agency (or the MBRT for bank sites). Monitoring of a site must have purpose. The monitoring should be meaningful in the context of the established objectives. The level of the effort should be decided on a site-by-site basis. Keep in mind what you want to know when deciding on a monitoring scheme.

Monitoring should look at not just the actual presence of a given wetland function at the end of monitoring period, but should also consider a trending toward successful establishment of the function. Since most restorations and creations will likely be in an early success state after 5 years, looking at a trend toward a goal community is important.

Monitoring will also indicate need for corrective actions and trigger points for management activities. Mitigation sites will typically have monitoring periods of 5 years. Larger sites, including forested wetlands and all bank sites may have monitoring periods of 5 or more years.

It is impossible to design a standard procedure for monitoring all sites. Each site is different in the resources present and techniques to be used. The applicant must work with the permitting agency to determine what should be included in the monitoring plan. The type of data gathered must allow you to determine if specific objectives have been met. See below for requirements for the monitoring plan.

Monitoring Plan Elements

- A restatement of the goals, objectives and performance standards for the compensation site plan.
- Identification of any structural failures or external disturbances on the site.
- A description of management activities and corrective actions implemented during the past year.
- A summary of and full presentation of the data collected during the past year.
- A site map showing the locations of data collection.

- An assessment of the presence and level of occurrence of invasive species.
- An assessment of the degree to which performance standards are being met.
- Proposed corrective actions to improve attainment of performance standards.
- A narrative summary of the results and conclusions of the monitoring.

Compensatory mitigation plans will identify the party (ies) responsible for accomplishing, maintaining, and monitoring the mitigation. Districts will require monitoring plans with a reporting frequency sufficient for an inspector to determine compliance with performance standards and to identify remedial action. Monitoring will be required for an adequate period, normally 5 to 10 years, to ensure the project meets performance standards. Corps permits will require permanent compensatory mitigation unless otherwise noted in the special conditions of the permit.

As-built Plans

As-built plans are to be submitted in accordance with permit conditions.

Outline for the As-Built Plans

- Identify site, designer, and sponsor.
- Identify the construction contractor.
- Dates of construction (including completion date).
- Describe any changes to the original plan.
- Describe problems encountered during construction and what was done to correct the problem.
- List any follow-up corrective actions needed, provide a schedule, and list who is responsible.
- Provide the as-built plan sheets.

K. MAINTENANCE AND ADAPTIVE MANAGEMENT PLAN

Maintenance activities including inspections for plant replacement, weeding, fertilization, erosion control, herbivore protection, trash and rack removal, and/or any other such activities should be planned in advance based on baseline studies.

Adaptive Management is a technique that involves incorporating new information into all stages of a mitigation project and adjusting plans as needed. It is used to keep the project developing toward a positive outcome. The adaptive management plan should include the identification and solutions to potential challenges that pose a risk to the project's success including, but not limited to, flooding, drought, invasive species, site degradation, structural failure, and excessive sediment and rack deposition.

Invasive and other Unacceptable Plant Species[1]

a. Herbs:

Calystegia sepium	Japanese bindweed
Echinochloa crusgalli	Barnyard grass
Lythrum salicaria	Purple loosestrife
Myriophyllum spicatum	Eurasian water-milfoil
Phalaris arundinacea	Reed canary-grass
Phragmites australis	Reed grass, Phragmites
Polygonum cuspidatum	Japanese knotweed
Trapa natans	Water-chestnut

b. Woody Plants:

Berberis thunbergii	Japanese barberry
Berberis vulgaris	Common barberry
Lonicera tartarica	Tatarian honeysuckle

[1] Scientific names are those used in Gleason, Henry and A. Cronquist, 1991, *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*: Second Edition, The New York Botanical Garden: New York

Attachment 2

NEW YORK DISTRICT
U.S. ARMY CORPS OF ENGINEERS
COMPENSATORY MITIGATION PLAN CHECKLIST

Applicant: _____
Agent: _____
Project Name: _____
Site Address: _____
Town/County/State: _____
Application Number: _____

NOTE: All information included in this checklist is provided as guidance for use during the preparation of mitigation plans. This guidance has been prepared to incorporate as many aspects of a mitigation plan as possible. The level of information required for each mitigation area is project specific, as are the scale and type of mitigation. This document is intended to provide guidance and may not require the use of all information included herein. Where applicable, information should be provided to the extent possible. It is recommended that you consult with the U.S. Army Corps of Engineers New York District prior to finalizing mitigation plans. See the attached guidance document for additional information and more detail on information provided in this checklist.

TABLE OF CONTENTS

A. Justification for Mitigation:

1. Demonstrated impacts avoided and minimized to maximum extent practicable.
   a. ☐ 404 (B)(1) guidelines met
   b. ☐ Structures over navigable waters

B. Baseline Information for Impact Area:

1. Location
   a. ☐ Coordinates (latitude and longitude)
   b. ☐ Written location description (physical site address, property location)
   c. ☐ Section, block, lot
   d. ☐ Township/City/Village
   e. ☐ County
   f. ☐ Hydrologic Unit Code (HUC) number
2. Maps & Photos
   a. ☐ Detailed Site map with (with contours and wetland delineation)
   b. ☐ Area of proposed impacts indicated on site map (filling/grading/structures)
   c. ☐ Detailed vicinity map
   d. ☐ Map identifying project location and resources within the watershed
   e. ☐ National Wetlands Inventory map (NWI)
   f. ☐ Natural Resources Conservation Service soils map (NRCS)
   g. ☐ Aerial/Satellite photos
   h. ☐ Site photos and photo location map
   i. ☐ State wetland maps
   j. ☐ Other agency jurisdiction maps (e.g. New York City Department of Environmental Protection watershed, Adirondack Park Agency, etc)
3. Classification (as appropriate)
   a. ☐ Hydrogeomorphic
   b. ☐ Cowardin classification
   c. ☐ Rosgen stream type
   d. ☐ NRCS classification
   e. ☐ Special Aquatic Sites
   f. ☐ Other _____
4. Quantify aquatic resources
   a. ☐ Size of impact area (in acres)
   b. ☐ Impacts to stream resources (linear feet, morphological impacts)
5. Functional Assessment Method
   a. ☐ Assessment completed
   b. ☐ Assessment Type _____
6. Existing Hydrology
   a. ☐ Water budget
   b. ☐ Hydroperiod
   c. ☐ Spring High Tide elevation (on tidal waters)
   d. ☐ Mean High Water elevation (on tidal waters)
   e. ☐ Mean Low Water elevation (on tidal waters)
   f. ☐ Location of existing monitoring wells and stream gauges (on site map)
   g. ☐ Historical hydrology of site if different than present conditions

h. ☐ Contributing drainage area (acres)
i. ☐ Data on surface water
j. ☐ Data on groundwater
k. ☐ Data on tides (on tidal waters)
l. ☐ pH
m. ☐ Redox
n. ☐ Nutrients
o. ☐ Total suspended solids (TSS)
p. ☐ Dissolved oxygen
q. ☐ Percent open water
r. ☐ Cross section of existing hydrology
s. ☐ Existing monitoring data
t. ☐ Bank full elevation (streams)
u. ☐ Normal pool elevation (canal/reservoir)

7. Existing dominant vegetation
   a. ☐ Map showing size and location of different plant communities
   b. ☐ Densities (% cover)
   c. ☐ Community structure (e.g. vegetative layers, canopy stratification)
   d. ☐ Wetland indicator status (National List of Plant Species That Occur in Wetlands: Northeast (Region 1), published by the U.S. Fish and Wildlife Service. USFWS Biological Report 88(26.1) May 1988.
   e. ☐ General age and health
   f. ☐ Native/non-native/invasive status
8. Existing soils
   a. ☐ Soil profile description
   b. ☐ Soil survey classification
   c. ☐ Series
   d. ☐ Stream substrate
   e. ☐ Locate soil samples on site map
   f. ☐ Percent organic matter
   g. ☐ Structure
   h. ☐ Texture
   i. ☐ Permeability
9. Site Information:
   a. ☐ Describe type and purpose of work at each impact site
   b. ☐ Describe and quantify the aquatic resource size, type, functions and values that will be impacted at the proposed impact site.
   c. ☐ Describe the proposed temporary and permanent impacts to the aquatic environment
   d. ☐ Surrounding land use
   e. ☐ Impairment status and impairment type of aquatic resources
   f. ☐ Percent agriculture, forested, wetland, developed, etc.
   g. ☐ Size/Width of natural buffers (describe, show on map)

h. ☐ Current owner(s)
i. ☐ Adjacent property owners
j. ☐ Existing wildlife usage
k. ☐ Historic and current land use
l. ☐ Known listed hazardous materials sites
m. ☐ Contaminants in water and sediments (e.g. heavy metals, PCB's)

10. Watershed:
    a. ☐ Description of landscape connectivity
    b. ☐ Describe aquatic resource concerns in the watershed
    c. ☐ Proximity and connectivity of existing aquatic resources and natural upland areas (show on map)
    d. ☐ Amount of aquatic resource area that the impact site represents for the watershed and/or region (i.e., by individual type and overall resources)
    e. ☐ Documentation of local coordination

C. Baseline Information for Mitigation Area(s):

1. Location
    a. ☐ Coordinates (latitude and longitude)
    b. ☐ Written location description (physical site address, property location)
    c. ☐ Section, block, lot
    d. ☐ Township/City/Village
    e. ☐ County
    f. ☐ Hydrologic Unit Code (HUC) number
2. Maps & Photos
    a. ☐ Detailed Site map with (with contours and wetland delineation)
    b. ☐ Area of proposed impacts indicated on site map (filling/grading/structures)
    c. ☐ Detailed vicinity map
    d. ☐ Map identifying project location and resources within the watershed
    e. ☐ National Wetlands Inventory map (NWI)
    f. ☐ Natural Resources Conservation Service soils map (NRCS)
    g. ☐ Aerial/Satellite photos
    h. ☐ Site photos and photo location map
    i. ☐ State wetland maps
    j. ☐ Other agency jurisdiction maps (e.g. New York City Department of Environmental Protection watershed, Adirondack Park Agency, etc.)

3. Classification (as appropriate)
   a. ☐ Hydrogeomorphic
   b. ☐ Cowardin classification
   c. ☐ Rosgen stream type
   d. ☐ NRCS classification
   e. ☐ Special Aquatic Sites
   f. ☐ Other _____
4. Quantify aquatic resources
   a. ☐ Size of impact area (in acres)
   b. ☐ Impacts to stream resources (linear feet, morphological impacts)
5. Functional Assessment Method
   a. ☐ Assessment completed
   b. ☐ Assessment Type _____
6. Existing Hydrology
   a. ☐ Water budget
   b. ☐ Hydroperiod
   c. ☐ Spring High Tide elevation (on tidal waters)
   d. ☐ Mean High Water elevation (on tidal waters)
   e. ☐ Mean Low Water elevation (on tidal waters)
   f. ☐ Location of existing monitoring wells and stream gauges (on site map)
   g. ☐ Historical hydrology of site if different than present conditions
   h. ☐ Contributing drainage area (acres)
   i. ☐ Data on surface water
   j. ☐ Data on groundwater
   k. ☐ Data on tides (on tidal waters)
   l. ☐ pH
   m. ☐ Redox
   n. ☐ Nutrients
   o. ☐ Total suspended solids (TSS)
   p. ☐ Dissolved oxygen
   q. ☐ Percent open water
   r. ☐ Cross section of existing hydrology
   s. ☐ Existing monitoring data
   t. ☐ Bank full elevation (streams)
   u. ☐ Normal pool elevation (canal/reservoir)
7. Existing dominant vegetation
   a. ☐ Map showing size and location of different plant communities
   b. ☐ Densities (% cover)
   c. ☐ Community structure (e.g. vegetative layers, canopy stratification)
   d. ☐ Wetland indicator status (National List of Plant Species That Occur in Wetlands: Northeast (Region 1), published by the U.S. Fish and Wildlife Service. USFWS Biological Report 88(26.1) May 1988.
   e. ☐ General age and health

f. ☐ Native/non-native/invasive status

8. Existing soils
   a. ☐ Soil profile description
   b. ☐ Soil survey classification
   c. ☐ Series
   d. ☐ Stream substrate
   e. ☐ Locate soil samples on site map
   f. ☐ Percent organic matter
   g. ☐ Structure
   h. ☐ Texture
   i. ☐ Permeability
9. Site Information:
   a. ☐ Describe type and purpose of work at each mitigation site
   b. ☐ Describe and quantify the aquatic resource size, type, functions and values that will be impacted at the proposed impact site.
   c. ☐ Describe the proposed temporary and permanent impacts to the aquatic environment
   d. ☐ Surrounding land use
   e. ☐ Impairment status and impairment type of aquatic resources
   f. ☐ Percent agriculture, forested, wetland, developed, etc.
   g. ☐ Size/Width of natural buffers (describe, show on map)
   h. ☐ Current owner(s)
   i. ☐ Adjacent property owners
   j. ☐ Existing wildlife usage
   k. ☐ Historic and current land use
   l. ☐ Known listed hazardous materials sites
   m. ☐ Contaminants in water and sediments (e.g. heavy metals, PCB's)
10. Watershed:
   a. ☐ Description of landscape connectivity
   b. ☐ Describe aquatic resource concerns in the watershed
   c. ☐ Proximity and connectivity of existing aquatic resources and natural upland areas (show on map)
   d. ☐ Amount of aquatic resource area that the impact site represents for the watershed and/or region (i.e., by individual type and overall resources)
   e. ☐ Documentation of local coordination

D. Mitigation Goals and Objectives:

1. Impact Site
   a. ☐ Describe and quantify the aquatic resource size, type, functions and values that will be impacted at the proposed impact site.
   b. ☐ Describe aquatic resource concerns in the watershed (e.g. flooding, water quality, habitat) and how the impact site contributes to overall watershed/regional functions.
   c. ☐ Identify watershed or other regional plans that describe aquatic resource objectives.
2. Mitigation Site
   a. ☐ Describe and quantify the aquatic resource size, type, functions and values for which the mitigation project is intended to provide.
   b. ☐ Describe the contribution to overall watershed/regional functions that the mitigation site(s) is intended to provide.
   c. ☐ Description of mitigation type(s) and explain why type(s) selected is the environmentally preferred alternative (in-kind, out-of-kind, on-site, off-site).

E. Performance Standards

1. Parameters
   a. ☐ Identify clear, precise, quantifiable parameters that can be used to evaluate the status of desired functions. These may include:
      I. ☐ Hydrological measures
      II. ☐ Vegetative measures
      III. ☐ Faunal measures
      IV. ☐ Soil measures
   b. ☐ Describe how performance standards will be used to verify that objectives identified in D (1) have been attained.
   c. ☐ Reference wetland used

F. Site Specific Selection:

1. Siting Factors
   a. ☐ Description of site selection practicability in terms of cost, existing technology, and logistics.
   b. ☐ Existing mitigation site deed restrictions, easements and rights-of-way.
   c. ☐ Demonstrate how the existence of any such restriction will be addressed, particularly in the context of incompatible uses.
   d. ☐ Explanation of how the design is sustainable and self-maintaining.
   e. ☐ Design constraints.
   f. ☐ Show by means of a water budget that there is sufficient water available to sustain long-term wetland or stream hydrology.

g. ☐ USFWS and/or NOAA Fisheries listed species clearance letter or Biological Opinion (if there is a concern about federally listed endangered species).
h. ☐ SHPO cultural resource clearance letter (if there are known historic or cultural resources in the area).

G. Mitigation Work Plan

1. General
   a. ☐ Maps marking boundaries of proposed mitigation types; include DGPS coordinates.
   b. ☐ Timing of mitigation: before, concurrent or after authorized impacts; if mitigation is not in advance or concurrent with impacts, explain why it is not practicable and describe other measures to compensate for the consequences of temporal losses.
2. Grading plan
   a. ☐ Indicate existing and proposed elevations and slopes.
   b. ☐ Describe plans for establishing appropriate microtopography
   c. ☐ Proposed contours at 1 foot intervals in wetlands
   d. ☐ Scale between 1" = 20' to 1" = 50'
   e. ☐ 8 1/2 by 11 sheets with overview plan and match lines
   f. ☐ 1 Set of full size plans
   g. ☐ Representative cross section(s)
3. Construction
   a. ☐ Description of construction methods (e.g., equipment to be used)
   b. ☐ Construction schedule
      I. ☐ Expected start and end dates of each construction phase
      II. ☐ Expected date for as-built plan
   c. ☐ Water handling plan
   d. ☐ Environmental control measures
   e. ☐ Potential changes to water source from expected future changes in land use.
   f. ☐ Planting/seeding schedule
4. Planned hydrology
   a. ☐ Source of water
   b. ☐ Potential changes to water source from expected future changes in land use.
   c. ☐ Hydroperiod
   d. ☐ Water budget
   e. ☐ High tide elevation
   f. ☐ Mean High Water elevation
   g. ☐ Mean low water elevation
   h. ☐ Cross section showing proposed hydrology

i. ☐ Proposed monitoring data
j. ☐ Location of monitoring wells and stream gauges (on site map)
k. ☐ Stream or other open water geomorphic features (e.g., riffles, pools, bends, deflectors)
l. ☐ Structures requiring maintenance (show on map)

5. Planned vegetation
   a. ☐ List of native hydrophytic vegetation using scientific names and regional indicator status (include seed mix composition)
   b. ☐ Source of native plant species
   c. ☐ Stock type
   d. ☐ Plant age(s)/size(s).
   e. ☐ Plant zonation/location map
   f. ☐ Quantities
   g. ☐ Densities
   h. ☐ Community structure (e.g., vegetative layers, canopy stratification)
   i. ☐ Expected natural regeneration from existing seed bank, plantings, and natural recruitment.
6. Planned soils
   a. ☐ Soil profile description
      I. ☐ Source of soils (e.g., existing soil, imported, impact site, hydric soil)
      II. ☐ Minimum 12 inches of topsoil in all mitigation areas
   b. ☐ Organic content
   c. ☐ Structure
   d. ☐ Texture
   e. ☐ Permeability
   f. ☐ Soil amendments (e.g., organic material, mulch or topsoil)
   g. ☐ Erosion and soil compaction control measures
7. Planned habitat features
   a. ☐ Woody debris
   b. ☐ Rock mounds
   c. ☐ Microtopography
   d. ☐ Wildlife/fisheries structures
   e. ☐ Other _____
8. Planned buffer (identify on map).
   a. ☐ Evaluation of the buffer's expected contribution to aquatic resource functions
   b. ☐ Location
   c. ☐ Dimensions
   d. ☐ Native plant composition
   e. ☐ Spatial and vertical structure
9. Planned stream restoration
   a. ☐ Restoration technique

10. Other planned features
    a. ☐ Interpretive signs
    b. ☐ Trails
    c. ☐ Fence(s)
    d. ☐ Other _____

H. Site Protection and Financial Assurances

1. Long-term legal protection
    a. ☐ Conservation easement
    b. ☐ Deed restriction
    c. ☐ Transfer of title
    d. ☐ Other _____
2. Responsible parties and their role
    a. ☐ Site owner
    b. ☐ Easement owner
    c. ☐ Maintenance implementation
    d. ☐ Other _____
3. Financial Assurances
    For each of the following, identify party(ies) responsible to establish and manage the financial assurance, the specific type of financial instrument, the method used to estimate assurance amount, the date of establishment, and the release and forfeiture conditions:
    a. ☐ Construction phase
    b. ☐ Maintenance
    c. ☐ Monitoring
    d. ☐ Remedial measures
    e. ☐ Project success
4. Types and schedules of financial assurances
    a. ☐ Performance bonds
    b. ☐ Irrevocable trusts
    c. ☐ Escrow accounts
    d. ☐ Casualty insurance
    e. ☐ Letters of credit
    f. ☐ Other _____

I. Monitoring Plan

1. Responsible parties and their role
    a. ☐ Site owner
    b. ☐ Easement owner
    c. ☐ Monitor
    c. ☐ Other _____

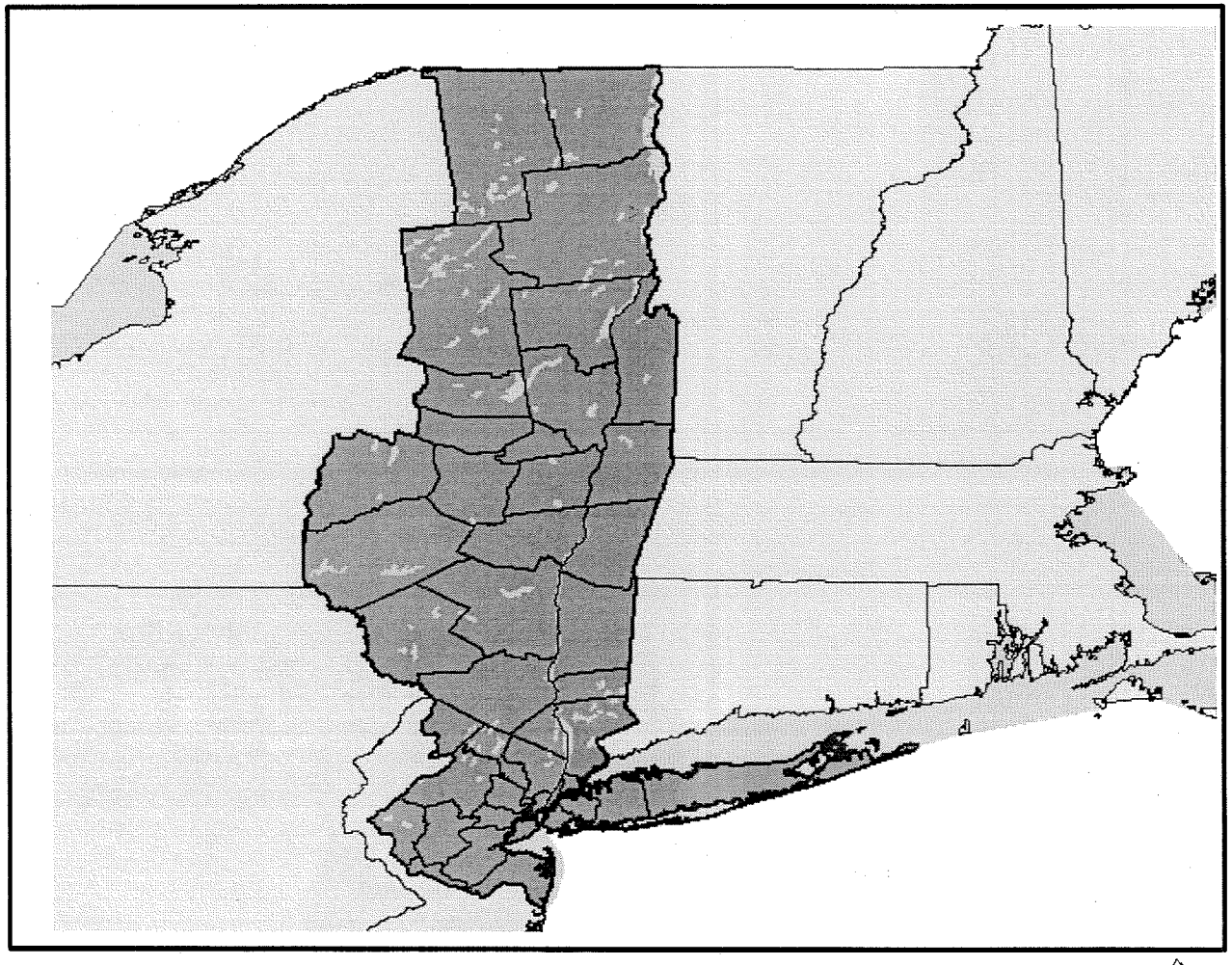
2. Monitoring plan info
   a. ☐ Data to be collected and reported (i.e. as built drawings)
   b. ☐ Frequency
   c. ☐ Duration
   d. ☐ Proposed monitoring stations (including transect locations on map)
   e. ☐ Monitoring schedule
3. Functional Assessment Method
   a. ☐ Assessment completed
   b. ☐ Assessment Type _____
4. Monitoring reports
   a. ☐ Format for reporting monitoring data and assessing mitigation status

J. Maintenance and Adaptive Management Plan

1. Maintenance Plan and Schedule
   a. ☐ Invasive species control plan (plant and animal)
   b. ☐ Measures to control predation/grazing of mitigation plantings
   c. ☐ Replacement planting
   d. ☐ Structure maintenance/repair
   e. ☐ Other _____
2. Adaptive Management Plan
   a. ☐ Responsible Parties
   b. ☐ Identification/solutions to potential challenges that pose a risk to project success
   c. ☐ Discussion of potential remedial measures in the event mitigation does not meet performance standards in specified time frame.

ESRI ArcExplorer 2.0

Attachment 3. New York District's Regulatory Boundary



Regulatory Boundary
State Boundary
Baltimore District
Buffalo District
New England District
Philadelphia District
County Line
Water
New York District

N

Thursday, Dec 18 2003