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	Water Resources Policies and Authorities ECOSYSTEM RESTORATION - SUPPORTING POLICY INFORMATION	
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U.S. Army Corps of Engineers
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[NOTE: Help make this a better guidance document. Submit suggestions for improvement to HQUSACE (CECW-AG), Washington, D.C. 20314-1000.]

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ECOSYSTEM RESTORATION - SUPPORTING POLICY INFORMATION

1. Purpose. This pamphlet provides policy information in support of ER 1165-2-501 to guide Corps of Engineers involvement in ecosystem restoration and protection through Civil Works programs and activities.

2. Applicability. This pamphlet is applicable to all HQUSACE elements and USACE Commands having responsibility for ecosystem restoration programs, authorities, studies and projects within the Civil Works program.

3. References.

a. "Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act," 40 CFR Parts 1500-1508, Council on Environmental Quality, 29 November 1978.

b. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C.)

c. ER 37-2-10, Accounting and Reporting.

d. ER 200-2-2, Procedures for Implementing NEPA.

e. ER 405-1-12, Real Estate Handbook.

f. ER 1105-2-100, Guidance for Conducting Civil Works Planning Studies.

g. ER 1110-2-100, Periodic Inspection and Continuing Evaluation of Completed Civil Works Structures.

h. ER 1110-2-8154, Water Quality and Environmental Management at Corps Civil Works Projects.

i. ER 1130-2-500, Partners and Support (Work Management Policies).

j. ER 1130-2-540, Environmental Stewardship Operations and Maintenance Policies, November 1996.

k. ER 1140-1-211, 22 June 1992, subject: Support for Others: Reimbursable Work.

l. ER 1165-2-28, Corps of Engineers Participation in Improvements for Environmental Quality

m. ER 1165-2-119, Modifications to Completed Projects

n. ER 1165-2-132, Hazardous, Toxic and Radioactive Waste (HTRW) - Guidance for Civil Works Projects.

o. ER 1165-2-400, Recreational Planning, Development, and Management Policies.

p. ER 1165-2-501, Civil Works Ecosystem Restoration Policy.

q. EP 1165-2-1, Digest of Water Resources Policies and Authorities.

r. "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies," (P&G), U.S. Water Resources Council, 1983.

s. Memorandum of Understanding to Foster the Ecosystem Approach, 15 December 1995.

4. Distribution. Approved for public release; distribution unlimited.

5. Authorities. National policy concerning the protection, restoration, conservation and management of ecological resources is provided through numerous Federal laws, executive orders and treaties promulgated in recent decades. These provisions include compliance requirements and emphasize protecting environmental quality. They also endorse Federal efforts to advance environmental goals, and a number of these general statements declare it national policy that full consideration be given to the opportunities which projects afford to ecological resources. Recent water resources authorizations have enhanced opportunities for Corps involvement in studies and projects to specifically address objectives related to the restoration of ecological resources. Specific authorities for new individual studies and projects to restore ecological resources have also been provided in legislation. Examples of legislation that broadly supports Federal involvement in the restoration and protection of ecological resources are provided in Table 1.

Table 1. Examples of legislation which broadly or specifically support Corps Civil Works involvement in ecosystem restoration and protection.

- Fish and Wildlife Coordination Act of 1958, as amended
- Federal Water Project Recreation Act of 1965, as amended
- National Environmental Policy Act of 1969, as amended
- Coastal Zone Management Act of 1972, as amended
- Water Pollution Control Act of 1972, as amended
- Endangered Species Act of 1973, as amended
- Water Resource Development Acts of 1986, 1988, 1990, 1992, 1996
- Coastal Wetlands Planning, Protection and Restoration Act of 1990 (Title III of P.L. 101-646)

a. The authorities through which the Corps can participate in ecosystem restoration and protection studies and project implementation are summarized in Table 2 and discussed below.

Table 2. Authorities through which the Corps can participate in ecosystem restoration and protection.

Study authorities for examining ecosystem restoration needs and opportunities: 1) Congressionally authorized studies, pursued under General Investigations (i.e., new start reconnaissance and feasibility studies for single-purpose ecosystem restoration or multiple purpose projects which include ecosystem restoration as a purpose); 2) General Reevaluation Reports, and reformulation opportunities in conjunction with significant Post-Authorization Change Reports; 3) Section 216, Review of Completed Projects (River and Harbor and Flood Control Act of 1970); 4) major rehabilitation of existing projects; and 5) Section 22, Planning Assistance to States (WRDA 1974, as amended).
Programmatic authorities for study, design and implementation of ecosystem restoration and protection projects: 1) Section 1135, Project Modifications for Improvement of the Environment (Water Resources Development Act (WRDA) of 1986, as amended); 2) Section 206, Aquatic Ecosystem Restoration (WRDA 1996); 3) Section 204 Beneficial Uses of Dredged Material (WRDA 1992, as amended); and, 4) dredging of contaminated sediments under Section 312 of WRDA 1990, as amended.
Additional opportunities for ecosystem restoration and protection may also be pursued through existing project authorities for the management of operating projects; e.g., through water control changes, or as part of natural resources management.

(1) Individually Authorized Studies and Projects. Studies and projects to address objectives related to the restoration of ecological resources may be undertaken in response to either a study-specific authority or a standing authority in the same manner that flood damage reduction and navigation studies and projects are authorized. Study-specific authorizations may be provided in resolutions from the House Committee on Infrastructure and Transportation, or the Senate Committee on Environment and Public Works, or included in a public law. A standing authority to review completed projects is contained in Section 216 of the 1970 River and Harbor and Flood Control Act.

(a) Restoration as Single or Multiple Purpose. Individually authorized studies and projects may be either single purpose or multiple purpose, depending upon the authorization. As such, some projects may be formulated to address only ecosystem restoration objectives, while others may address both ecosystem restoration objectives plus some other purpose, e.g., flood damage reduction, or a suite of purposes. Multipurpose plans, with both economic and environmental tradeoffs and outputs, can be developed and recommended. During a feasibility study, consideration can be given to the integration of environmental features in the project, in accordance with the guidance contained in ER 1105-2-100, rather than proposing separate projects. Ecosystem restoration opportunities may also be considered in conjunction with General

Reevaluation analyses and included as part of Post-Authorization Change Reports. See guidance on Post-Authorization Changes in ER 1105-2-100, Chapter 2, section III.

(b) Cost Sharing. Section 210 of the WRDA 1996 establishes the cost sharing rules for projects authorized after 12 October 1996. Accordingly, the non-Federal share will be 35 percent of the project or separable element implementation costs (pre-construction, engineering and design, and construction), or total implementation costs of a multiple purpose project allocated to ecosystem restoration. Non-Federal sponsors shall provide 100 percent of lands, easements, rights-of-way, utility or public facility relocations, and dredged or excavated material disposal areas (LERRD), and operation, maintenance, repair, rehabilitation, and replacement (OMRR&R). The value of LERRD shall be included in the non-Federal 35 percent share. Where the LERRD exceeds the non-Federal sponsor's 35 percent share, the sponsor will be reimbursed for the value of LERRD which exceeds their 35 percent share. After appropriate accounting for LERRD and required non-Federal sponsor project coordination activities under the terms of the Design Agreement and the Project Cooperation Agreement, any balance of the non-Federal share will be provided in cash during construction. For restoration features located on Corps project lands, there may be instances where it would be more efficient for the Corps to carry out the O&M responsibilities, with sponsor reimbursement as appropriate. Consult HQUSACE (CECW-BC) regarding higher level approval. Table 3 summarizes sponsor funding requirements and information about other contributions for ecosystem restoration projects. Ecosystem restoration projects authorized by WRDA 1996 and prior legislation will be cost shared in accordance with the provisions of the authorizing legislation.

(c) Review of Completed Projects. Section 216 of the 1970 River and Harbor and Flood Control Act authorizes investigations for modification of completed projects or their operation when found advisable due to significantly changed physical or economic conditions and for improving the quality of the environment in the overall public interest. Initial appraisal reports are prepared under Section 216 using operations and maintenance (O&M) funds. The cost of preparing the initial appraisal report is limited to $20,000[1]. Results from this report can be used to support initiation of a reconnaissance study through normal budgetary process. Following the initial appraisal, the 216 study process is that of a normal General Investigations study. A feasibility study under Section 216 authority would be appropriate for large scale ecosystem restoration projects linked to existing Civil Works projects, but whose costs would be too large for Section 1135, Section 206, or Section 204 authorities. Additional guidance can be found in ER 1165-2-119.

(2) Planning Assistance to States (PAS). Section 22 of the Water Resources Development Act of 1974, as amended, authorizes the Chief of Engineers to cooperate with states and Indian tribes in preparing plans for the development, utilization, and conservation of water and related land resources of drainage basins located within the boundaries of the state or Indian country.

[1] If more than $20,000 is required, approval should be requested from HQUSACE, attention CECW-BC, including sufficient information to justify the additional expenditure.

Section 221 of the Water Resources Development Act of 1996 added "watersheds, and ecosystems" providing the opportunity for this authority to be used for watershed studies and ecosystem studies. Districts are encouraged to continue to look for opportunities to assist in these types of studies where appropriate and when identified as a state or tribal priority. The non-Federal cost sharing is 50 percent. Fiscal year appropriations for the program are limited to no more than $10 million, and expenditures are limited to $500,000 per year, per state or Indian tribe.

(2) Programmatic Authorities. There are several authorities similar to the Continuing Authorities Program which authorize the Secretary of the Army, acting through the Chief of Engineers, to plan, design, and construct projects for the purposes of restoring and protecting ecological resources. These projects do not require individual Congressional authorization. The legislative authorities for each of these programs specify annual appropriations limits, non-Federal cost-sharing requirements, and for most, a Federal per project funding limit[2]. A summary of the sponsor funding requirements, and information about other contributions for ecosystem restoration projects can be found in Table 3.

(a) Project Modifications for Improvement of Environment, Section 1135 of WRDA 1986, as amended. This provision authorizes review of water resources projects constructed by the Secretary[3] to determine the need for modifications in the structures or operations of such projects for the purpose of improving the quality of the environment in the public interest. Under this authority, the term "water resources project constructed by the Secretary" includes "a water resources project constructed or funded jointly by the Secretary and the head of any other Federal agency (including the Natural Resources Conservation Service)". This provision also authorizes review to determine if the operation of such projects has contributed to the degradation of the quality of the environment. Recommended structural and operational changes must (1) be feasible and consistent with the authorized project purposes, and (2) improve the quality of the environment in the public interest. In order to be considered for funding under the Section 1135 authority, a proposed project must fit one or more of the following categories.

[2] Detailed implementation and program management guidance for Section 1135, Section 206 and Section 204 is provided in documentation developed separately from this pamphlet by HQUSACE, CECW-PM.

[3] The WRDA noted that "Secretary" meant Secretary of the Army; the authorities of the Secretary of the Army are typically delegated to the Assistant Secretary of the Army (Civil Works) for the Civil Works program.

Table 3. Summary of Sponsor Funding Requirements and Other Contributions for Ecosystem Restoration Projects *

Item	Congressionally Authorized Projects[1]	Section 1135	Section 206	Section 204 and 207
Non-Federal Cost Share	50% - Feasibility study 35% - Implementation costs[2]	25% - Total project costs	35% -Total project costs	25% - Total cost of increment over baseline project
Sponsor Work in-kind [3]	50% of non-Federal share of feasibility study costs (i.e. 25% of feasibility study costs); no work-in-kind for post-feasibility phase design, plans and specifications, materials, or project construction.	No more than 80% of the non-Federal share of total project costs; can include plans and specifications, materials, and project construction.	The entire sponsor share maybe work-in-kind, including plans and specifications, materials, and project construction.	None.
Sponsor provided LERRDs[4]	100%	100% of those not available from existing project.	100%	100% of those not available from existing project.
OMRR&R	100%	100%[5]	100%	100%
Federal Funding Limit per Project	As stated in authorization and subject to Sec. 902 WRDA 86 cap.	$5M	$5M	None
Contributions from Other Federal Agencies	Funds from another Federal agency shall not be used by the non-Federal sponsor to meet its share for the project costs unless the Federal granting agency verifies in writing that the expenditure of such funds is expressly authorized by statute[6] .			
Voluntary contributions[7]	Applied toward total project costs to reduce both Federal and sponsor shares.			

***Specific requirements for each project will be detailed in the PCA decision documents**.

LERRDS: lands, easements, rights-of-way, relocations and disposal; OMRR&R: operations, maintenance, repair, rehabilitation, and replacement.

[1] For ecosystem restoration projects or separable elements, or an environmental part of a multiple purpose project.

[2] *Implementation Costs*: LERRDs, post-feasibility phase design, including plans and specifications, materials, and project construction.

[3] *Work-in-kind* may not result in reimbursement of sponsor when combined with LERRDs for Section 1135 and Section 206. The PCA must be executed before initiation of the work-in- kind for Section 1135 and Section 206. The dollar value of the work-in-kind will be established prior to the initiation of the in-kind effort.

[4] If *LERRD*s are greater than the required non-Federal share, the sponsor may be reimbursed for the increment over its required share.

[5] Where the project is on Corps project lands, there may be instances in which it may be appropriate for the Corps to perform the OMRR&R as part of the current OMRR&R.

[6] Per consultation with the Department of Interior, funds from the following may not be used by states as the non-Federal share: Federal Aid in Wildlife Restoration Act (Pittman-Robertson), Federal Aid in Sport Fisheries Restoration Act (Dingel-Johnson), and North American Wetlands Conservation Act (Mitchell Bill) funds.

[7] Per Section 203 of WRDA 92, *voluntary contributions* of cash, funds, materials, and services may be accepted from sources, including governmental entities, but excluding the project sponsor. Any cash or funds received per this provision are to be deposited into the account in the U.S. Treasury entitled "Contributions and Advances, Rivers and Harbors, Corps of Engineers (8662) and shall be available until expended to carry out the ecosystem restoration project.

- Modification of existing Corps projects. Projects can entail operational or structural modifications, which may include, but are not limited to, existing features such as levees, dams, channels or control structures, on project fee or easement lands; or operations of a permanent Civil Works water resources project. For projects involving direct modification of an existing project, there is no requirement to demonstrate that the Corps project contributed to the degradation.

- Modifications that do not alter an existing Corps project. Projects may be undertaken where it is demonstrated that the construction or operation of an existing Corps project has contributed to the degradation of the quality of the environment. These projects do not need to incorporate features directly modifying the structures or operations of the existing Corps project. The restoration must be in the area where the degradation occurred.

- Joint projects. Where a project was constructed or funded jointly by the Corps and another Federal agency, those elements constructed or funded by the other Federal agency may be modified using the Section 1135 authority. Where it is demonstrated that the construction or operation of the joint project has contributed to the degradation of the quality of the environment, projects may be undertaken which contribute to the restoration of the degraded ecosystem.

- The non-Federal sponsors are responsible for 25 percent of the total project costs of any modifications or measures implemented pursuant to this authority. Cost sharing is applicable to total project costs which include the LERRD areas LERRD, post-feasibility phase design, including plans and specifications, materials, and project construction. Sponsors are responsible for 100 percent of the LERRDs. If LERRDs are greater than the required non-Federal share, the sponsor can be reimbursed for the increment over their required share. Not more than 80 percent of the non-Federal share may be in kind, including a facility, supply, or service that is necessary to carry out the modification or measure. Not more than $5,000,000 in Federal funds may be expended on any single modification or measure undertaken pursuant to this authority. Normally sponsors are responsible for OMRR&R of the restoration project. For those Section 1135 projects implemented entirely on lands for which the Corps has the necessary real estate interest and also is responsible for operation and maintenance (i.e., the land has not been outgranted to another agency for fish and wildlife purposes), the Corps may assume responsibility for the OMRR&R of the Section 1135 project modification. Coordination with the Operations and Natural Resources Management elements in the district is important to assure that any O&M commitments, whether carried out by the Corps or a local sponsor, are reasonable, attainable, and will serve the intended purpose. When annual OMRR&R costs for the proposed project modification exceed $5,000, the MSC commander's approval will be required prior to Corps assumption of this responsibility. Specific requirements will be included in the project cooperation agreement (PCA) based on requirements documented in the decision document.

(b) Aquatic Ecosystem Restoration, Section 206 of the WRDA 1996. This provision authorizes the Secretary to carry out an aquatic ecosystem restoration and protection project if it is determined that the project 1) will improve the quality of the environment and is in the public interest; and 2) is cost-effective. Projects funded using this authority must be for restoration of

aquatic ecosystem structure and function. No relationship to an existing Corps project is required. Not more than $5,000,000 in Federal funds may be expended for a project undertaken pursuant to this authority. The non-Federal share will be 35 percent of the total implementation costs, including provision of all LERRDs, post feasibility design, plans and specifications, materials and construction, and 100 percent of any OMRR&R costs in accordance with the decision document and the PCA. The entire sponsor share may be work-in-kind, including plans and specifications, materials, and project construction.

(c) Beneficial Uses of Dredged Material, Section 204 of the WRDA 1992, as amended, and Section 207 of WRDA 1996.

- Section 204. This provision authorizes projects for the protection, restoration, and creation of aquatic and ecologically related habitats, including wetlands, in connection with dredging in new project construction and maintenance of existing Federal navigation projects, including harbors and inland waterways. The Section 204 cost is the increment above the cost for the base plan for dredged material disposal. (The base plan is the least costly plan which accomplishes the disposal of dredged material from a navigation project, consistent with sound engineering practices and environmental standards.) Non-Federal sponsors are responsible for 25 percent of the project cost and 100 percent of the cost of OMRR&R. There is an annual appropriations limit of $15 million.

- Section 207. This provision authorizes the selection of a disposal method that is not the least cost alternative to achieve environmental benefits. Examples of the application of this authority are benefits to the aquatic environment from creation of wetlands and control of shoreline erosion for the purpose of protecting significant ecological resources using dredged material. Non-Federal sponsors are responsible for 25 percent of the project cost and 100 percent of the cost of OMRR&R associated with the project. Funding of the Federal share of the incremental costs of environmentally beneficial disposal at existing navigation projects under Section 207 authority would be accomplished through the new navigation project construction appropriations in the Construction, General account. Opportunities for applying Section 207 are:

-- New Navigation Projects. Feasibility studies for new navigation projects or modifications to existing navigation projects shall include examination of the feasibility of using dredged material for ecosystem restoration purposes and, if feasible, such environmentally beneficial uses would be specifically authorized as part of the project. When opportunities for environmentally beneficial disposal methods are identified or become available after completion of the feasibility report, but before completion of navigation project construction, the authority of Section 207 can be used without the need to seek additional authorization based on a determination by the Secretary of the Army that the incremental costs are reasonable in relation to the environmental benefits.

-- Maintenance Dredging. Section 207 may be used in conjunction with maintenance dredging of an existing Federal navigation project where the environmentally beneficial disposal method has large incremental costs of which the Federal share could not be funded within the annual appropriation limits of the original Section 204 program. Section 207 authority potentially

allows large incremental costs for environmentally beneficial disposal to be implemented at existing Federal navigation projects without the need for specific authorization.

6. Additional Restoration Opportunities. Opportunities to contribute to ecosystem restoration objectives exist in other areas of the Civil Works program. A number of these opportunities may be addressed through management at existing operating projects. Additionally, dredging of contaminated sediments may be possible through Section 312 of WRDA 1990.

a. Existing Operating Projects. Consideration should be given to ecosystem restoration needs and opportunities at projects that the Corps operates and maintains. Where environmental restoration opportunities involve Corps project lands, input from the project's Operations Manager (OM) and natural resources management staff shall be sought. Early coordination with Corps real estate staff is necessary to determine whether actions being considered are compatible with existing real estate interests or rights held by the government or third parties, e.g. fee, easement, license to other Federal agencies or lease to non-Federal party. Restoration measures that utilize only operational and management changes which can be accomplished without additional cost may be undertaken under existing discretionary operating authority, as opposed to using Section 1135 authority. Other restoration needs and opportunities as part of stewardship efforts may be considered for implementation through the budgetary process.

(1) Ecosystem restoration needs and opportunities shall be incorporated in Master Plans and Operational Management Plans (OMP) (see ER 1130-2-540) and included, as appropriate, in budget requests (see current Civil Works budget circular). In both of these instances, the restoration measure must be compatible with the purposes of the project. If there is a significant restoration opportunity that is not compatible with existing project purposes, it may be appropriate to examine this potential through Section 216 authority.

(2) Challenge Partnerships Program. The Challenge Partnerships Program, as authorized by Section 225 of the WRDA 1992, provides opportunities for non-Federal public and private groups and individuals to contribute to and participate in the operation and/or management of recreation facilities and natural resources at Corps water resources projects. Challenge partnership agreements at water resource development projects may be used to provide for the operation and/or management and development of natural resources or recreation facilities where such resources and facilities are being maintained at complete Federal expense. These agreements may be used for the identification, protection, improvement, rehabilitation, preservation, management, or interpretation of natural resources, environmental features, recreation areas and facilities, or cultural resources. The participating partner may contribute funds, including cash, materials, personal property, equipment, or services as their portion of the challenge cost-sharing agreement. In addition, the Corps may contribute to work accomplished by the partner. These contributed resources will be combined with regular project resources as a supplement to accomplish the work designated in the agreement. Real estate cannot be accepted as a partner’s contribution under these agreements. Work selected for challenge partnership agreements shall be within current authorities and contained in the annual or five-year plan in the approved OMP, and will generally

be accomplished during one fiscal year. Challenge partnership agreements must be negotiated and executed with non-Federal public and private entities before partnership activities may begin. Guidance on this program, including a sample agreement format may be found in ER 1130-2-500.

(3) Voluntary Contributions. Section 203 of WRDA 1992 authorizes acceptance of contributions of cash, funds, materials, and services from persons, including governmental entities, but excluding the project sponsor, in support of environmental protection and restoration projects. Any cash or funds received per this provision are to be deposited into the account in the U.S. Treasury entitled “Contributions and Advances, Rivers and Harbors, Corps of Engineers (8662) and shall be available until expended to carry out the ecosystem restoration project. At Civil Works operating projects, contributions for the operation and management of recreation facilities and for protection and restoration of natural resources at Civil Works water resource projects may be accepted and used, as provided in ER 1130-2-500, Chapter 11. Opportunities for which this authority allows contributions include projects for the protection, improvement, restoration, rehabilitation, or interpretation of natural resources, environmental features, recreation areas and facilities, or cultural resources. All facilities and work accomplished become the property of the Corps. Projects can involve improving accessibility for disabled persons, providing water safety handouts, rehabilitating existing facilities, improving wildlife habitat, producing interpretive brochures and videos, planting native plants and trees, supporting endangered species recovery plans, and maintaining trails. Real estate cannot be accepted under this program. ER 1130-2-500, Chapter 11, includes details on eligible contributions; specific guidance on accounting and reporting procedures are provided in ER 37-2-10, "Accounting and Reporting." Individuals and groups, including governmental entities but excluding the project sponsor (i.e., the party with whom the water resource project has been jointly created), may make contributions. Contributions received will be available for projects in addition to the allocated project funds.

b. Environmental Dredging, Section 312. Section 312 of WRDA 1990, as amended, provides authority for the Corps to participate in the removal of contaminated sediments (a) outside of the boundaries of and adjacent to Federal navigation projects as part of operations and maintenance, and (b) for the purposes of ecosystem restoration, not related to operations and maintenance of navigation channels. This authority is not to be used to remove or remediate contaminated sediments which are classified as hazardous, toxic and radioactive wastes (HTRW), such as those at sites designated by a state or the Environmental Protection Agency (EPA) for response action under the Comprehensive Environmental Response Compensation and Liability Act, 42 U.S.C. 9601 et seq (CERCLA), or sites which are included on the National Priority List site under CERCLA. Direct assistance to EPA on environmental cleanup activities including cleanup dredging and related studies may, however, continue to be provided on a reimbursable basis.

(1) Removal of Contaminated Sediments Located Outside and Adjacent to Federal Navigation Channels. The Corps can participate in removal and remediation of these contaminated sediments when such sediments contribute to contamination of material in the channel, and it can be demonstrated that the costs of removal and remediation are economically justified based on savings

of future O&M costs[3]. Opportunities for these projects will be identified through dredged material management planning activities. Guidance on development, review, approval, and implementation of Dredged Material Management Plans is contained in ER 1105-2-100. The non-Federal sponsor is responsible for all costs related to the disposal of the contaminated sediments. Recommendations that the Corps participate in the removal of these sediments must demonstrate that the recommended cleanup plan is the most cost effective alternative consistent with sound engineering practices and established environmental standards, and that it maximizes net O&M savings considering both Federal and non-Federal costs.

(2) Removal of Contaminated Sediments from Navigable Waters. The Corps may participate in removal of contaminated sediments from navigable waters of the United States for the purposes of ecosystem restoration if requested by an appropriate non-Federal sponsor and if it is consistent with current program and budget priorities in effect at the time of consideration. The non-Federal sponsor will pay 50 percent of the costs of removal and remediation. In addition, all costs related to the disposal of contaminated sediment are a non-Federal responsibility. Such projects may include removal and disposal of contaminated sediment, removal and remediation of contaminated sediment, or remediation of contaminated sediments in place.

(a) Removal and remediation of contaminated sediments may be one component of comprehensive plans for ecosystem restoration. Creative solutions and financial partnerships involving all levels of government should be sought in developing removal and remediation plans. Duplication of Federal programs should be avoided and plans for sediment removal and remediation should recognize appropriate Federal, state, tribal and local agency roles. Projects will be evaluated and justified consistent with the policy and guidance provided for specifically authorized ecosystem restoration projects, however the cost sharing requirements differ. Total Federal expenditures to carry out sediment removal and remediation under this authority may not exceed $20 million in any fiscal year. Projects may be considered for a reconnaissance phase new start study, with a budget request developed and submitted in accordance with program guidance (Annual Program EC).

(b) Specific Congressional authorization of these projects is not required. Preparation of a feasibility report will meet the Section 312 (c) requirement for development of a joint plan. The feasibility report for the project must be approved by the Assistant Secretary of the Army (Civil Works). Based on report (decision document) approval, construction starts for contaminated sediment removal and remediation projects will be sought through the budget process. More detailed guidance on using this authority can be obtained from CECW-A and from http://www.usace.army.mil/inet/functions/cw/cecwa/branches/guidance/PGLS/pglindex.htm.

[3] Savings in future O&M costs are those associated with reduction in dredging and disposal costs through reduction of contaminated input into the navigation channel. For example, reduction of contaminated sediment may allow continuation or resumption of open water disposal and elimination of the need for more costly confined disposal.

7. Ecosystem Restoration Philosophy and Policy.

a. Ecosystem. An ecosystem is a biotic community together with its physical environment, considered as an integrated unit. Implied within this definition is the concept of a structural and functional whole unified through life processes. An ecosystem may be characterized as a viable unit of community and interactive habitat. Ecosystems are hierarchical and can be viewed as nested sets of open systems in which physical, chemical and biological processes form interactive subsystems. Some ecosystems are microscopic and the largest comprises the biosphere. Ecosystem restoration can be directed at different sized ecosystems within the nested set, and may encompass multiple states, more localized watersheds, or a smaller complex of aquatic habitat.

b. Habitat in the Context of Ecosystem Restoration. Historically, the concept of habitat in animal ecology focused on the environment through the needs of individual species or small groups of species. In this narrow context, habitat represents the location that is or could be occupied by specific populations within a community of populations, often characterized by structural features. In a broader view, habitat is the environmental setting of an entire community of plants, animals and microorganisms. Additionally, habitat can be used in conjunction with indicator species to help assimilate information about various components of ecosystem structure and function. These views of habitat, which emphasize the importance of functional and structural integrity of the community-habitat complex, are supportive of the holistic concept of ecosystem function and structure.

c. Ecosystem Restoration is a primary missions of the Civil Works program. Civil Works ecosystem restoration initiatives attempt to accomplish a return of natural areas or ecosystems to a close approximation of their conditions prior to disturbance, or to less degraded, more natural conditions. In some instances a return to pre-disturbance conditions may not be feasible. However, partial restoration may be possible, with significant and valuable improvements made to degraded ecological resources. The needs for improving or re-establishing both the structural components and the functions of the natural area should be examined. The goal is to partially or fully reestablish the attributes of a naturalistic, functioning, and self-regulating system.

d. Ecosystem Restoration. The purpose of Civil Works ecosystem restoration activities is to restore significant ecosystem function, structure, and dynamic processes that have been degraded[4]. Protection may be included as part of Civil Works ecosystem restoration initiatives, when such measures involve efforts to prevent future degradation of elements of an ecosystem's structure and

[4] The concepts of ecosystem function and structure are closely intertwined, and both include abiotic and biotic elements and processes. Ecosystem structure is the state and spacial distribution of material forms within the ecosystem at a specified time. It includes both microscopic and macroscopic material components in diverse living and non-living assemblages. Ecosystem functions are dynamic processes that can be characterized by rate and direction of change in material and energy flows through time and space. Ecosystem functions redistribute components of structure through abiotic (non-living) and biotic (living) processes.

functions. Such measures are most appropriate if they require the Corps' engineering expertise in accomplishing the protection measure. Protection measures can also be undertaken as part of Civil Works natural resources management and environmental dredging activities. The focus of projects implemented under this guidance is the restoration of ecosystems and ecological resources and not restoration of cultural and historic resources, aesthetic resources, or clean up of hazardous and toxic wastes.

e. Ecosystem Approach. Ecosystem restoration in the Civil Works program uses a systems view in assessing and addressing restoration needs and opportunities. Recognition of the interconnectedness and dynamics of natural systems, along with human activities in the landscape, is integral. The philosophy behind ecosystem restoration promotes consideration of the effects of decisions over the long term and incorporates the ecosystem approach[5]. The goal of the ecosystem approach is to restore and sustain the health, productivity, and biological diversity of ecosystems and the overall quality of life through a natural resources management approach that is fully integrated with social and economic goals. The ecosystem approach recognizes and seeks to address the problems of habitat fragmentation and the piecemeal restoration and mitigation previously applied in addressing the Nation's natural resources. Civil Works studies, projects and activities to meet ecological resource restoration objectives will be conducted using an ecosystem approach, the elements of which have been incorporated into this pamphlet.

f. System Context. Restoration projects should be conceived in a systems context, considering aquatic (including marine, estuarine and riverine), wetland and terrestrial complexes, as appropriate, in order to improve their potential for long-term survival as self-sustaining, functioning systems. Fish and wildlife resources are dependent on, and functionally related to, other ecosystem components and therefore interactions among all relevant ecosystem components need to be described and assessed during a ecosystem restoration study. Rather than limiting objectives to habitat for a single species or resource commodity, such as mallard ducks or bass harvest, ecosystem restoration inititatives will consider interrelationships of plant and animal communities and their habitats in a larger ecosystem context. This is a more systemic approach for addressing problems associated with disturbed and degraded ecosystem resources than focusing only on fish and wildlife habitat. When restoration planning focuses on optimizing habitat for a particular species, the framework for evaluating the natural system is limited to those aspects of the habitat for the species being considered.

g. Intended and Unintended Consequences. Consideration should be given to the effects of intended and unintended consequences, both on and off of the project site, when evaluating ecosystem restoration alternatives. Goal achievement requires consideration not only of the project site, but also its connections to the broader landscape or ecosystem setting, and the dynamic nature of ecosystems, including such processes as community succession. Such connections may be important for determining ecosystem functions, structure, self-maintenance

[5] Memorandum of Understanding to Foster the Ecosystem Approach, 15 December 1995. See Appendix A.

and services. Simply reestablishing certain connections may not accomplish the desired ecosystem restoration conditions.

h. Attainable Restoration State. The attainable restoration state will be influenced by human activities and culturally induced changes in the landscape which are likely to persist and influence system conditions after project completion. For example, dams, roads, public and private land use activities may constrain the attainable level of ecosystem restoration. The relative value of the anticipated results of the restoration should be considered in formulating ecosystem restoration goals and objectives.

i. Selection of Assessment Methods. Habitat models developed for individual species may have limitations when used to assess ecosystem restoration problems and objectives. They do not consider communities of organisms and typically consider habitat in isolation from its ecosystem context. Single species habitat models may be limiting if used to optimize for a particular species, but they can be useful when carefully applied in the ecosystem context in which the habitat is situated. They can be helpful in identifying important influential functions or structural components for ecosystem projects to address. The assessment methodology chosen for a study should be governed by how well the technique meets the criteria and level of detail for a given study. The assessment methodology may include habitat models, or information derived from community or ecosystem assessments using other scientifically based methods that are generally accepted by state or Federal resource agencies.

j. Collaboration of Multiple Efforts. Corps restoration projects may not be able to address every functional and structural characteristic, nor may it be necessary where the nature and degree of impairment are limited to only one or a few of these parameters. Some restoration projects may only be able to address the symptoms of the disturbance or degradation, and not the cause(s). However, caution should be exercised in these instances and consideration given as to whether the recommended action is a wise investment. Addressing the symptoms without understanding causes of disturbance or degradation, may reduce the likelihood of achieving long-term success (resilience and persistence), and potentially increase the need for extensive operation and maintenance, rather than a functional, self-regulating system. It will be advantageous to conceive restoration initiatives in the context of broader watershed or regional water resources management programs and objectives, which may involve contributive actions by other Federal and non-Federal agencies and other stakeholders.

k. Watershed Perspective and Ecosystem Restoration. Consideration of ecosystems within (or encompassing) a watershed provides a useful organizing tool to approach ecosystem-based restoration planning. Ecosystem restoration projects that are conceived as part of a watershed planning initiative or other regional resources management strategy are likely to more effectively meet ecosystem management goals than those projects and decisions developed independently. Independently developed ecosystem restoration projects, especially those formulated without a system context, may only partially and temporarily address symptoms of a chronic systemic problem. Some restoration problems may only be addressed effectively through an integrated,

collaborative, systematic, regional or ecosystem approach. Not all restoration studies will be "watershed studies[6]", but all Corps studies should have a watershed perspective. The Corps' watershed perspective takes into account (1) the interconnectedness of water and land resources, (2) the dynamic nature of the economic and environmental factors, and (3) the variability of social interests over time. It recognizes that watershed activities are not static, and that the strategy for managing the resources of the watershed needs to be adaptive.

l. Applying Corps' Expertise. Corps activities in ecosystem restoration should concentrate on engineering and other technical solutions to water and related land resources problems, with emphasis on improving degraded ecosystem function and structure. Those restoration opportunities that are associated with wetlands, riparian and other floodplain and aquatic systems are likely to be most appropriate for Corps involvement. The Corps will focus its restoration efforts on those initiatives most closely tied to Corps missions and areas of expertise. There may be instances where components of ecosystem restoration problems or opportunities are better addressed by other agencies through their missions and programs. Generally, it will not be appropriate for the Corps to implement ecosystem restoration activities on upland, terrestrial sites which are not closely linked to water and related land resources or on Corps project lands.

m. Land Acquisition. Proposals that consist primarily of land acquisition are not appropriate as Civil Works ecosystem restoration investments. There are a number of other Federal and state programs through which land acquisition may be pursued to accomplish restoration or protection. As a general rule, land value should not exceed 25 percent of total project costs. Projects with land costs exceeding 50 percent of total project costs are not likely to be given a high priority.

n. Operational Effectiveness. Because self-regulation is a key goal of ecosystem restoration, it is generally more desirable to pursue ecosystem restoration projects that have limited maintenance requirements. However, because of irreversible cultural modifications in the landscape, there will be instances where O&M measures may be essential to the functioning of the project. Such projects may be pursued if they are justified based on the ecological value of the project outputs, and if the non-Federal sponsor, who will be responsible for the O&M, is willing to commit to these OMRR&R requirements. Operation and maintenance costs should be considered in evaluating the costs and benefits for alternatives for ecosystem restoration projects.

o. Stakeholder and Public Involvement. The involvement of stakeholders, providing opportunities for public involvement, and an increased use of collaborative decision making are important characteristics of the ecosystem approach. The complexity of ecosystem restoration issues and opportunities necessitate that such input be integral to the ecosystem approach.

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[6] "Watershed studies" examine and recommend courses of action to address multiple water resources issues within a study area defined as all or part of a watershed. The investigations and recommendations address multiple purposes and multiple objectives (e.g., restoration of wetland and riparian habitat and flood damage reduction) and include, but are not limited to priority Civil Works environmental and economic objectives. They may also include other water resources management issues.

Stakeholder and public involvement can improve the understanding of problems and the implications of alternatives being considered. Collaborative decision making aides in the evaluation of alternatives where benefits are not monetized. Guidance on public involvement in Civil Works planning studies is provided in ER 1105-2-100.

8. Federal Objectives. The general guidance in the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G), applies to ecosystem restoration activities and will be used in formulating and evaluating ecosystem restoration projects. The Federal objective in water resources planning is to contribute to National Economic Development (NED) in order to alleviate problems and/or realize opportunities related to water and related land resources, consistent with protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. The Principles and Guidelines allow for the formulation of alternative plans which reduce net NED benefits in order to address other Federal, state, tribal, local and international concerns not fully addressed by the NED plan. The P&G state that the NED plan is to be selected unless an exception is granted, by the Secretary of the Army (Civil Works) in the case of the Corps, to selecting the NED plan when there are overriding reasons for selecting another plan. Such overriding reasons include Federal, state, tribal, local and international concerns, as well as the provision of significant environmental outputs such as ecosystem restoration.

a. Plans to address ecosystem restoration should be formulated, and measures for restoring ecological resources may be recommended, consistent with cost effectiveness principles and the analytical framework established by the P&G. Recommended ecosystem restoration measures do not need to exhibit net NED benefits, but will be based on a combination of monetary and non-monetary benefits. Restoration measures and should be viewed on the basis of non-monetary outputs compatible with the P&G selection criteria and be offered for consideration. These criteria are discussed in paragraph 16 of this pamphlet. Multipurpose plans, with both economic and environmental tradeoffs and outputs, can also be developed and recommended. These plans are developed and formulated so that the recommended plan contains positive net contributions to both economic and environmental benefits.

b. When formulating plans for ecosystem restoration, opportunities to contribute to NED may also be considered. Quantifiable economic benefits of these restoration projects stem from changes in economic values associated with ecosystem improvement. Restoration projects which accomplish water quality improvement, habitat restoration, recreation, flood damage reduction, etc., are most likely to possess both NED and environmental quality (EQ) benefits.

9. Environmental Compliance/Consistency. As with other Civil Works studies and projects, ecosystem restoration studies and projects must be in compliance with all applicable Federal environmental statutes and regulations and with applicable state statutes. Guidance on plan formulation and evaluation, including Section 404 (Clean Water Act) and other environmental compliance considerations and requirements, is provided in the Principles and Guidelines and ER 1105-2-100. National Environmental Policy Act (NEPA) compliance will be accomplished in

accordance with ER 200-2-2, and the Council on Environmental Quality regulations (40 CFR, Parts 1500-1508). The documentation and other requirements of NEPA apply to ecosystem restoration initiatives as they would to other water resources development initiatives.

a. Mitigation. Ecosystem restoration studies and projects are carried out for the purposes of protecting or restoring ecological resources as part of a feasibility or reformulation study, reevaluation of an authorized project, or as part of an operations and maintenance (O&M) activity. Mitigation activities address unavoidable adverse environmental effects of new project construction and operation, and are generally planned and implemented concurrently with new project development. Guidance on mitigation of fish and wildlife impacts is found in ER 1105-2-100. Since the purpose of ecosystem restoration is to provide environmental benefits, projects should be formulated and designed to avoid any requirement for compensatory fish and wildlife mitigation. Districts should consider the broader ecosystem and biodiversity implications of impacts to fish and wildlife resources when developing fish and wildlife mitigation alternatives.

b. Mitigation Banking. The objective of a mitigation bank is to provide for the replacement of the chemical, physical and biological functions of wetlands and other aquatic resources which are lost as a result of authorized impacts. Conceptually, there is no net gain in ecological value as a result of the creation and operation of a mitigation bank. Therefore, the Corps' permanent ecosystem restoration authorities under Section 1135 of WRDA 86, as amended; Section 204 of WRDA 92, as amended; and Section 206 of WRDA 96 will not be used for the creation of mitigation banks or mitigation credit for the non-Federal sponsor. However, feasibility studies may consider joint ecosystem restoration and mitigation banking projects, as long as the Corps' financial participation in the project is limited to the ecosystem restoration element, as discussed in PGL 46, "Use of Mitigation Banks for U.S. Army Corps of Engineers Civil Works Projects".

c. Hazardous, Toxic, and Radioactive Waste (HTRW) Concerns. Ecosystem restoration projects should be designed to avoid HTRWs. The guidance contained in ER 1165-2-132, "Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects" is applicable.

10. Cooperation with Others. The cooperative efforts of multiple Federal agencies as well as non-Federal interests will often be necessary to achieve ecosystem restoration goals. Successful restoration at the landscape level will depend on program coordination among those agencies responsible for management decisions on the separate ecosystem components. In addition, cooperative efforts which effectively combine Federal investments can potentially achieve greater ecosystem restoration benefits than individual agencies could achieve alone.

a. Corps ecosystem restoration efforts should complement and be complemented by the various authorities of other Federal and state agencies, Indian tribes and private groups, such that common management and restoration objectives are identified early in the study process. To the extent possible, they should be planned in accordance with goals and objectives established as part of ongoing regional or watershed planning and management efforts. The Corps will, in some

instances, lead in the development of alternative restoration plans, and in other instances play only a supporting role. The Corps can provide assistance in planning, project management, engineering, construction, environmental science and analysis, and in economic analysis of plans generated by others.

b. Growing financial pressures on Federal programs have increased the importance of the role of partnerships and cooperative efforts. Cooperative partnerships provide a means to more efficiently utilize limited dollars and resources among the participants. Major Subordinate Commands (MSC) should encourage and develop partnerships with Federal, state, and tribal agencies and non-government organizations in the accomplishment of restoration studies and financing. Cooperative efforts could include, for example, information and data base sharing, cooperative planning efforts, as well as collaboration in implementation, operation and maintenance, and monitoring activities.

c. In the identification of ecosystem restoration opportunities, Corps field offices shall seek the advice and cooperation of Federal, state, and tribal resource agencies, as well as input from interested non-governmental environmental organizations. The assistance of these agencies and other interests should be used in identifying the "boundaries" and parameters of the ecosystem, or portions thereof; prioritizing ecosystem restoration should take into account national and regional priorities; identifying the existing and without project future conditions of selected ecosystem(s), or parts thereof; and in defining the restoration goals and objectives desired.

11. Water Quality. Water quality is an important component of ecosystem structure, and good water quality is generally integral to healthy functioning ecosystems. An important Corps contribution in rehabilitating ecosystems, where water characteristics are a critical structural component of those ecosystems, may involve improvement of water quality characteristics using engineering solutions. Corps restoration and protection projects may involve cost effective solutions to improve aeration, temperature, turbidity, acidity, sedimentation and other water quality parameters. Consideration should be given to whether the water quality improvements will accomplish restoration of the system, because in many instances, other functional or structural ecosystem components may require attention as well. The Corps will not propose, for Civil Works implementation, any restoration projects or activities that would principally result in treating or otherwise abating pollution problems caused by other parties where they have, or are likely to have, a legal responsibility for remediation or other compliance responsibility. For ecosystem restoration and protection opportunities which include water quality issues clearly defined in the missions of other agencies (e.g., non-point source pollutant regulation or removal), it is appropriate to utilize existing agreements or create new arrangements for collaborative use of respective agency authorities and resources in order to implement a more complete and sustainable approach to the restoration. There may also be instances in which it is appropriate for the Corps to play a supporting role or provide assistance through reimbursable arrangements, rather than lead the initiative.

12. Recreation. Ecosystem restoration projects are formulated to restore degraded ecosystem structure, function, and dynamic processes to a less degraded, naturalistic condition. It is important that proposed recreation features are appropriate in scope and scale to the opportunity provided by ecosystem restoration projects, and that the recreation development and anticipated use be compatible with the ecosystem restoration purpose of the project. Recreation development at ecosystem restoration projects should not require additional lands, and should be ancillary to restoration benefits. Recreation facilities may be added to take advantage of the education and recreation potential of the ecosystem project if the separable costs of such facilities are justifiable by the recreation opportunities, but the project cannot be specifically formulated for a recreation purpose. The recreation potential may be satisfied only to the extent that recreation does not diminish the ecosystem restoration purpose. Or, if there is a reduction in ecosystem restoration outputs, the remaining ecosystem restoration benefits must still be sufficient to justify the ecosystem restoration costs of the project. Where an ecosystem restoration project provides critical habitat for a federally listed threatened or endangered species, recreation facilities at that project should be precluded in the critical habitat and limited to only those facilities needed for minimum health and safety and/or natural resources interpretation. Whenever conflicts occur between the ecosystem restoration purpose and recreation, ecosystem restoration shall have priority. More detailed information on policy regarding recreation development at ecosystem restoration projects is provided in Appendix B.

13. Major Rehabilitation. The major rehabilitation program is designed to address reliability and efficiency improvement at Civil Works operated and maintained facilities. The objective of the program is to improve the reliability of the existing structures and, in the case of efficiency improvement, to enhance the operational efficiency of the major project components. It is Corps policy to both comply with environmental statutes and regulations, as well as to pursue ecosystem restoration needs and opportunities in a manner that is cost effective. It is intended that the rehabilitation program be consistent with this policy. A number of authorities are available for implementing these policies, depending upon the circumstances.

a. If an existing environmental feature is experiencing a reliability problem, or if an efficiency improvement will enhance the environmental feature, then the recommended changes can be addressed under the major rehabilitation program. The recommended change must be justified and, like any other feature of the project, will compete with other new start projects.

b. Negative environmental impacts attributable to rehabilitation efforts will be mitigated, and the cost of mitigating those impacts will be included in the alternative's costs and economic evaluation, as part of the major rehabilitation evaluation report.

c. Long recognized environmental problems, either attributable to the project or for which the restoration measure is related to the rehabilitation measure, may be pursued under major rehabilitation. An example of this is turbine aeration schemes which appear to provide cost effective measures for improving dissolved oxygen levels. The cost of such measures must be included in the economic evaluation as part of the major rehabilitation evaluation report.

d. It may not always be appropriate to pursue every restoration opportunity at existing projects as part of major rehabilitation. Environmental restoration needs and opportunities that are independent of rehabilitation efforts can be pursued either under Section 1135 of WRDA 86, as amended, or Section 216 of the River and Harbors and Flood Control Act of 1970. The authority used will depend upon the nature of the problem or opportunity, costs of potential restoration measures, and impacts on existing authorized project purposes.

e. There may be instances where concurrent construction of a rehabilitation measure and an independent restoration measure may provide economic efficiencies. It may be a challenge to coordinate decision documents and pertinent contracts, but such efforts are encouraged, where possible, in order to realize these efficiencies.

f. In the examination of restoration needs and opportunities, priority should be given to problems with longstanding recognition. Examination of other restoration opportunities that are not yet fully developed should not delay impending rehabilitation. Such restoration opportunities can be examined, and if found significant and justified, may be pursued under the authorities noted in subparagraph 13.d above.

14. Remediation and Ecosystem Restoration. Remediation typically differs from ecosystem restoration in terms of goals and decision frameworks. Remediation, or site cleanup of hazardous, toxic and radioactive waste (HTRW), is typically for the purpose of meeting some target criteria for contaminants or regulatory condition related to human health and safety, rather than for ecosystem quality. Once this condition is reached, the site may be used for a variety of purposes depending on the goals of the land owner. In many instances these goals are related to site redevelopment in order to produce regional or local economic benefits. There may be instances where either site assessment and clean up are integral to an ecosystem restoration project, or where the objective of the site remediation is to achieve benefits in the nature of restored ecological resources. Where the principal restoration objective is to restore ecological benefits, and future site plans are consistent with maintaining these benefits, it may be appropriate to apply Civil Works ecosystem restoration authorities. When other remediation authorities are used for site clean up, but the ultimate benefits related to management of the site are ecological, the ecosystem philosophy outlined in this pamphlet will apply. Guidance on HTRW associated with Civil Works projects and facilities is provided in ER 1165-2-132.

a. Formerly Utilized Sites Remedial Action Plan (FUSRAP). The FUSRAP program was created to address radioactive contamination in excess of guidelines at a number of sites throughout the United States. This program was transferred to the Corps Civil Works Program in the Energy and Water Development Appropriations Act for Fiscal Year 1998. Many of the sites in the program were used for processing and storing uranium and thorium ores during the early period of the Nation’s nuclear program. These sites were decontaminated and released for use under regulations in effect at the time. Since then, more stringent standards have been developed and additional cleanup efforts are being performed to bring these sites into compliance with today’s more stringent standards. Activities under the FUSRAP program include assessment of

sites to determine whether further remediation is necessary, and implementation of clean up activities if required. The ultimate use of the site is determined by the local community. There may be instances where the intended future use of the site includes restoration of ecological resources and maintenance of environmental benefits.

b. Brownfields. The Brownfields Cleanup and Redevelopment Initiatives's National Action Agenda is an Administration endeavor intended to revitalize brownfield areas which are often in economically depressed and urban areas. Brownfields are abandoned, idled, or under-utilized industrial or commercial properties where expansion or redevelopment is complicated by real or perceived environmental contamination. They do not qualify as Superfund toxic waste National Priority sites because they do not pose as serious a public health risk to the community. (See ER 1165-2-132 for Civil Works HTRW guidance.) The agenda is designed to focus and give strategic direction to Federal agencies to achieve National environmental goals along with redevelopment that fosters increased property values, stimulates tax revenues, creates job opportunities and revitalizes inner-city neighborhoods. The agenda establishes partnerships to focus Federal and private sector resources on clean up and redevelopment of these sites. Federal agencies are to partner in assisting in the assessment, remediation (as appropriate) and restoration of these properties.

(1) The Corps has not been authorized or funded to address Brownfield redevelopment needs. However, there may be opportunities for the Corps to contribute to Brownfields Cleanup and Redevelopment Initiative goals where assessment and clean up are integral to solving water resources problems related to Civil Works water resources mission areas and existing authorities. For example, if the evaluation of a viable ecosystem restoration or flood damage reduction alternative requires a preliminary Brownfield cleanup assessment, the assessment can be cost shared as part of the feasibility study. Also, if the recommended ecosystem restoration or flood damage reduction alternative requires cleanup of a Brownfield, the costs of cleanup required to make the project functional may be cost shared according to the project purpose. There may also be opportunities to participate on a reimbursable basis as Support for Others.

(2) Assessments during the feasibility phase help verify that hazardous substances on project lands will not necessitate response action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601 et seq), or treatment or disposal of material classified as Resource Conservation and Recovery Act (RCRA) hazardous waste (42 U.S.C. 6901 et seq). If results from such assessments are determined by the EPA or the state to meet either of these conditions, the general Corp policy is that Civil Works project funds are not to be employed for HTRW-related activities. Corps participation in cost-shared clean up as part of water resources development is limited to situations where such participation will not result in the Corps being liable under CERCLA (42 U.S.C. 9607(a)), or require its involvement with RCRA hazardous waste as defined in 42 U.S.C. 6903(a). Detailed guidance on HTRW consideration for Civil Works projects is contained in ER 1165-2-132.

15. Regulatory Program and Ecosystem Restoration.

a. The Corps' Regulatory program not only administers environmental compliance requirements, it also supports broader ecosystem management goals. Opportunities exist for Civil Works regulatory and ecosystem restoration initiatives to be mutually beneficial. The Corps' Regulatory program encourages development of watershed management plans that protect and restore important elements of aquatic ecosystems. Ecosystem restoration planning is done within the context of broader ecosystem management goals, and in support of watershed management plans. Ecosystem restoration planning utilizes broad water resources development and management perspectives which may be useful in regulatory decision making. Regulatory staff may contribute to the formulation and implementation of ecosystem restoration projects by sharing valuable stakeholder contacts and technical expertise. There may be opportunities for the Regulatory program, to encourage compensatory mitigation requirements on priority areas as identified in regional management and restoration plans. Both cost-shared Civil Works ecosystem restoration projects and compensatory mitigation efforts (including wetland mitigation banks (see paragraph 9b.), may support regional restoration objectives and broader ecosystem management goals. Because of these opportunities and in the interest of preventing the two programs from working at cross purposes, close coordination between ecosystem restoration planning and Corps Regulatory staffs is encouraged.

b. There may be instances where non-Federal sponsors who have worked with the Corps to develop ecosystem restoration plans decide to proceed with project implementation on their own. In these instances, the implemented project would not be a Federal project and the implementing entity would need to apply for all necessary Federal, state and local permits that the project activity would require. Pursuant to 33 CFR 320-330, an applicant would need to submit an application to the Corps for any work occurring in waters of the United States, including wetlands. The NEPA documentation and the Section 404(b)(1) analysis completed as part of the earlier conceived Civil Works project may provide information useful to the applicant.

16. Ecosystem Restoration Evaluation. The information used in formulating, evaluating and selecting ecosystem restoration alternatives includes both quantitative and qualitative information about outputs, costs, significance, acceptability, completeness, effectiveness, and reasonableness of costs. This information is summarized below and guidance on developing this information is provided in ER 1105-2-100.

a. Computation of Costs and Benefits. An ecosystem restoration proposal must be justified on the basis of its contribution to restoring the structure or function, or both, of a degraded ecosystem, when considering the cost of the proposal. Ecosystem restoration projects are justified through a determination that the combined monetary and non-monetary benefits of the project are greater than its monetary and non-monetary costs.

(1) As such, plan selection is not based on economic justification in terms of a traditional monetary benefit to cost analysis, since the majority of benefits associated with the primary outputs of ecosystem restoration can rarely be quantified in dollars. Therefore, ecosystem restoration proposals need not have either a benefit-cost ratio greater than 1.0, or positive net economic

benefits. However, any monetary incidental benefits which are anticipated from proposed ecosystem restoration projects, and relevant to the particular circumstances associated with the study, should be displayed to aide in decision making.

(2) Cost effectiveness and incremental cost analyses. An ecosystem restoration plan should represent a cost effective means of addressing the restoration problem or opportunity. It should be determined that a plan's restoration outputs cannot be produced more cost effectively by another alternative plan. Cost effectiveness analysis is performed to identify least cost plans for producing alternative levels of environmental outputs expressed in non-monetary terms. Incremental cost analysis identifies changes in costs for increasing levels of environmental output. It is used to help assess whether it is worthwhile to incur additional costs in order to gain increased environmental outputs.

b. Significance. A recommended ecosystem restoration plan must make a justified contribution to addressing the specified ecosystem restoration problems or opportunities. Information regarding resource significance and the significance of expected restoration outputs is used in conjunction with information from cost effectiveness and incremental cost analyses to help determine whether an alternative is justified. Discussions concerning significance should address the following:

- relevant recognition of the environmental resources in terms of institutional, public, and/or technical importance,

- effects on the resources in terms of differences between estimated future without- and with-plan conditions, and,

- other relevant information concerning duration, frequency, location, magnitude, and other characteristics, such as reversibility, retrievability, and the relationships to long-term productivity (P&G).

(1) Input from partnerships can be important in defining project outputs, scale, or location, as well as other information important to formulation, evaluation and justification. Relevant partnership relationships, interests and input are significant and should be discussed. The roles of the non-Federal sponsor(s) in sharing study and project costs, along with collaboration with any state, tribal, and Federal resource agencies or non-governmental entities should be discussed as part of the material provided for decision making. Any contributions which the project will make to regional or national interagency programs should be noted. Some examples include: the North American Waterfowl Management Plan, the Coastal America Partnership, the Chesapeake Bay Program, the National Estuary Program, American Heritage Rivers, the Clean Water Action Plan (e.g., contributions to state or tribal watershed restoration priorities), the Marine Fish Habitat Restoration Agreement, the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force, and the Brownfields Cleanup and Redevelopment Initiative.

(2) Anadromous fishes and other species of plants and animals recognized by Federal law or treaty, or otherwise considered important by the U.S. Fish and Wildlife Service, National Marine Fisheries Service, or state resource agencies may be considered significant for purposes of ecosystem restoration. Certain ecosystems or habitats may also be significant and may be specified in law and regulation, e.g., remnants of old growth ecosystems, wetlands, and bottomland hardwoods.

c. Acceptability. Acceptability is the workability and viability of the alternative plan with respect to acceptance by Federal, state, tribal and local entities. Public acceptance and compatibility with existing laws, regulations, and public policies are also considered as part of acceptability. Recommendations for ecosystem restoration projects should consider and describe the degrees of acceptability with regard to these different concerns.

d. Completeness. Completeness is the extent to which a given plan provides and accounts for all necessary investments or other actions needed to ensure the realization of the planned ecosystem restoration outputs. This may require relating the plan to other types of public or private plans if these plans are crucial to the outcome of the restoration objective. Real estate, O&M, monitoring, relationships to relevant initiatives undertaken by others, and sponsorship considerations must be addressed.

e. Effectiveness. Effectiveness is the extent to which an alternative ecosystem restoration plan alleviates the specified problems and realizes the specified opportunities. Proposed plans must restore important ecosystem structure or function to some meaningful degree. Information concerning uncertainties with regard to the functioning of restoration measures should be discussed, along with any proposals for monitoring or adaptive management.

f. Efficiency. An ecosystem restoration plan should represent a cost-effective means of addressing the restoration problem or opportunity. It should be determined that a plan's restoration outputs cannot be produced more cost effectively by another alternative plan. See discussion above in paragraph 16.a(1).

g. Reasonableness of Costs. All costs associated with a plan should be considered. Even after tests of cost effectiveness and incremental cost analyses have been satisfied, decision-makers must ascertain that the benefits to be realized are really worth the costs. All relevant information concerning factors described above will be considered, along with information regarding other comparable projects, and consideration of risk and uncertainty. This will almost always be a subjective decision and ultimately must rely on experience, and professional judgement.

h. The annual program circular (published by CECW-B) provides guidance on program requests for Civil Works activities to be included in the President's annual budget. This engineer circular provides information regarding current Civil Works programming philosophy, and includes the latest information regarding new directions for environmental programs that will be useful in decision making.

17. Real Estate Considerations. Because the real estate requirements for a project should be tailored to the particular facts and circumstances of the project, the analysis of the nature and extent of these requirements should be conducted by a district study team that includes Real Estate, Project Management, Planning, Engineering, and other offices as necessary and with appropriate non-Federal sponsor personnel. The analysis must be conducted in accordance with Chapter 12 of ER 405-1-12, including consideration and identification of the specific interests, estates, and acreage required. After coordination and consultation with the non-Federal sponsor, the government must formally determine the lands, easements, rights-of-way, utility or public facility relocations, and dredged or excavated material disposal areas (LERRD) required for the implementation, operation, and maintenance of the project.

a. Regarding the acreage to be required, the district must identify the lands on which an interest in real property must be provided by the non-Federal sponsor to support construction of all project features, to support ongoing operation and maintenance responsibilities (including required monitoring and inspections), and to comply with applicable principles of just compensation as to owners of land affected by the construction, operation, and maintenance of the project. In determining the acreage required to support operation and maintenance, acquisition may be necessary solely to ensure that future development of land not otherwise required for the project does not interfere with the purposes of the project. Except in circumstances involving land owned by the United States that is managed by the Corps, or where the government can properly exercise its navigation servitude rights, all land determined by the government to be required to support the project must be provided by the non-Federal sponsor.

b. Complete and permanent control over the future use of lands required for an environmental project or feature is typically required for the long-term implementation of such project or feature. Therefore, the interest in real property generally necessary to support permanent environmental features is fee simple, using the standard fee simple estates contained in Chapter 5 of ER 405-1-12. However, a lesser interest -- that is, a specific type of permanent easement -- may be appropriate depending upon the operational requirements of the project and other circumstances relevant to project implementation, including landowner preference. The approving authority for an environmental restoration decision document may approve the use of an interest less than fee as coupled with use of an alternative standard estate when a justified proposal therefor is contained in the Real Estate Plan (REP) of such decision document. All other proposals or requests for approval of interests less than fee must be approved by HQUSACE in the manner described in paragraph 12-9 of ER 405-1-12. In addition, all proposals or requests for approval of non-standard estates must be approved by HQUSACE in the manner described in paragraph 12-10 of ER 405-1-12.

c. For projects involving modifications to existing Civil Works projects, where part of the land comprising the existing project is also required for the project modification, the interests and estates acquired or provided for the existing project must be analyzed for sufficiency and availability for project modification purposes. When existing interests or estates are not of sufficient nature or scope, or otherwise cannot be utilized to implement the project modification,

then acquisition of additional interests or estates is required. When existing interests less than fee, or existing non-standard estates, are found to be sufficient and available for the project modification, approval to utilize such existing interests or estates must first be obtained as described in paragraph 17b, above.

d. In determining whether relocation of a utility or public facility is necessary to implement a project, an Attorney's Opinion of Compensability is required. Among other things, the opinion will assess whether the owner of the utility or facility has a compensable property interest, whether the anticipated project impact to the utility or facility is such that just compensation will be owed to the owner, and whether provision of a functionally equivalent facility is the proper measure of such compensation. For additional information on the definition of "relocations"and Attorney's Opinion of Compensability, see Chapter 12 of ER 405-1-12.

e. Value and Credit. For crediting and total project cost calculation purposes, the value for LERRD required to be provided or performed by the non-Federal sponsor for the ecosystem restoration project shall be determined in accordance with the terms of the PCA for the project, Section VII of Chapter 12 of ER 405-1-12, and other applicable guidance.

(1) Generally, the non-Federal sponsor will be afforded credit against its share of project costs for the value of lands, easements, and rights-of-way it provides, and the value of relocations it performs, that are required for the project as determined by the government. A detailed description of the valuation and crediting process -- including principles regarding the appraisal process, appropriate dates of valuation, and stipulating value and credit amounts in the PCA-- is contained in Chapter 12 of ER 405-1-12.

(2) Not withstanding the general policy discussed above regarding affording of credit, the non-Federal sponsor will not be afforded LERRD credit (and the value will not be included in total project costs for the purposes of cost sharing) in the following circumstances:

(a) for LERRD that has been provided previously as an item of cooperation for another Federal project;

(b) for LERRD that is provided using Federal funds unless the Federal granting agency verifies in writing that credit therefor is expressly authorized by statute;

(c) for Federal lands provided for project use (except for reasonable incidental costs) unless the non-Federal sponsor paid fair market value to the Federal managing agency for the required real property interest; and

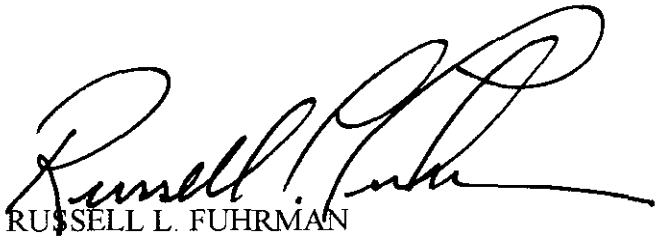
(d) for lands that are available to the project through proper exercise of the government's navigation servitude rights.

f. Real Estate Plan (REP). A comprehensive REP prepared in accordance with the requirements of Chapter 12 of ER 405-1-12 must be included in the feasibility report or other

decision document for the project. Generally, the REP must sufficiently identify all real estate requirements for the implementation, operation, and maintenance of the project, the estimated value thereof, and all other relevant real estate issues.

g. Operation and Maintenance. For ecosystem restoration projects that include existing project lands owned by the United States and managed by the Corps of Engineers, and where the non-Federal sponsor is responsible for the operation and maintenance of the restoration project, an appropriate real estate outgrant must be issued to the non-Federal sponsor. If the area is currently under outgrant, appropriate steps must be taken to allow the new use which includes amendment of the existing outgrant and possible cost-sharing agreement.

FOR THE COMMANDER



2 Appendices
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RUSSELL L. FUHRMAN
Major General, USA
Chief of Staff

Appendix A
15 December 1995
MEMORANDUM OF UNDERSTANDING
TO FOSTER THE ECOSYSTEM APPROACH
between the

COUNCIL ON ENVIRONMENTAL QUALITY
DEPARTMENT OF AGRICULTURE
DEPARTMENT OF THE ARMY
DEPARTMENT OF COMMERCE
DEPARTMENT OF DEFENSE
DEPARTMENT OF ENERGY
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
DEPARTMENT OF THE INTERIOR
DEPARTMENT OF JUSTICE
DEPARTMENT OF LABOR
DEPARTMENT OF STATE
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF SCIENCE AND TECHNOLOGY POLICY

I. DEFINITIONS

An ecosystem is an interconnected community of living things, including humans, and the physical environment within which they interact.

The ecosystem approach is a method for sustaining or restoring ecological systems and their functions and values. It is goal driven, and it is based on a collaboratively developed vision of desired future conditions that integrates ecological, economic, and social factors. It is applied within a geographic framework defined primarily by ecological boundaries.

The goal of the ecosystem approach is to restore and sustain the health, productivity, and biological diversity of ecosystems and the overall quality of life through a natural resource management approach that is fully integrated with social and economic goals.

II. POLICY

The federal government should provide leadership in and cooperate with activities that foster the ecosystem approach to natural resource management, protection, and assistance. Federal agencies should ensure that they utilize their authorities in a way that facilitates, and does not pose barriers to, the ecosystem approach. Consistent with their assigned missions, federal agencies should administer their programs in a manner that is sensitive to the needs and rights of landowners, local communities, and the public, and should work with them to achieve common goals.

III. BACKGROUND

In its June 1995, report entitled, *The Ecosystem Approach: Healthy Ecosystem and Sustainable Economies* the Interagency Ecosystem Management Task Force set forth specific recommendations with respect to how federal agencies could better implement the ecosystem approach. The Task Force recommended that member agency representatives sign a memorandum of understanding affirming their intent to implement the recommendations.

IV. THE ECOSYSTEM APPROACH

Healthy and well functioning ecosystems are vital to the protection of our nation's biodiversity, to the achievement of quality of life objectives, and to the support of economies and communities. The ecosystem approach recognizes the interrelationship between healthy ecosystems and sustainable economies. It is a common sense way for federal agencies to carry out their mandates with greater efficiency and effectiveness. The approach emphasizes:

- Striving to consider all relevant and identifiable ecological and economic consequences (Long term as well as short term).
- Improving coordination among federal agencies.
- Forming partnerships between federal, state, and local governments, Indian tribes, landowners, foreign Governments international organizations, and other stakeholders.
- Improving communication with the general public.
- Carrying out federal responsibilities more efficiently and cost-effective.
- Basing decisions on the best science.
- Improving information and data management.
- Adjusting management direction as new information becomes available.

V. THE COOPERATORS AGREE TO THE FOLLOWING:

A. Each federal agency that is a party to this Memorandum of Understanding shall designate an individual who will be responsible for coordinating the agency's internal and interagency activities in support of this Memorandum of Understanding to implement the recommendations of the Task Force report as appropriate. Such designation shall be reported to the Interagency Ecosystem Management Task Force within 30 days of signature. The collective agency designees will serve as an Implementation Committee. The Committee will meet regularly to share information on progress in implementing this Memorandum of Understanding, problems encountered, and solutions proposed in resolving them. The Committee shall provide reports at meetings of the Interagency Ecosystem Management Task Force. Such reports should include any unresolved issues that may require the attention of the Task Force.

B. Each signatory agency shall examine the specific recommendations made in the report of the Interagency Ecosystem Management Task Force in light of its authorities, policies and procedures, and identify recommendations that may apply to its programs. Based on this review, agencies shall determine what changes or interagency actions are necessary or desirable, undertake appropriate actions, monitor accomplishments, and report their findings and actions through the Implementation Committee to the Interagency Ecosystem, Management Task Force on a schedule to be determined by the Task Force.

C. The Interagency Ecosystem Management Task Force shall encourage regional directors or comparable executives of the federal agencies in the various regions to have regular and systematic exchanges of information about plans, priorities and problems. The purposes are to eliminate inefficiencies and duplication of effort, to keep executives informed about federal government activities outside of their agencies, to clarify the respective contributions to ecosystem activities of federal agencies with varying missions (such as land management, resource management, regulatory, research, infrastructure, technical assistance, and funding), and to strengthen executive-level support for the interagency ecosystem activities of field personnel.

D. Each signatory agency shall participate, as appropriate to its mandates, in ecosystem management efforts initiated by other federal agencies. by state, local or tribal governments, or as a result of local grass-roots efforts. Members of the Implementation Committees shall identify their ongoing ecosystem efforts and other efforts that come to their attention, share information about those efforts, discuss appropriator. agency actions with regard to participating in those efforts, and identify successful and unsuccessful components of those efforts. Signatory agencies shall also look for opportunities is new geographic areas for federal efforts in collaboration with stakeholders.

E. The Interagency Ecosystem Management Task Force will propose as appropriate, new regional ecosystem demonstration initiatives. These initiatives will build upon the knowledge gained from evaluating the seven ecosystems that were the subject of the Task Force reports.

F. The Interagency Ecosystem Management Task Force will evaluate the potential for joint training programs for the approach, in which all signatory agencies could participate, and in which personnel from all signatory parties could receive training. The Implementation Committee members will share information on agency training programs related to the ecosystem approach, and signatory agencies are encouraged to accommodate trainees from other agencies in such courses as appropriate.

VI. IT IS MUTUALLY AGREED AND UNDERSTOOD BY AND AMONG THE COOPERATORS THAT:

A. Specific work projects or activities that involve the transfer of funds, services, or property among the Cooperators will require the execution of separate interagency agreements, contingent upon the availability of funds as appropriated by Congress. Each subsequent agreement or arrangement involving the transfer of funds, services, or property among the Cooperators must comply with all applicable statues and regulations, including those statues and regulations applicable to procurement activities and must be independently authorized by appropriate statutory authority.

B. This memorandum of Understanding in no way, restricts the Cooperators from participating in similar activities or arrangements with other public or private agencies, organizations, or individuals.

C. Nothing in this Memorandum of Understanding shall obligate the Cooperators to expend appropriations or enter into any contract or other obligations.

D. This Memorandum of Understanding may be modified or amended upon written request of any party hereto and the subsequent written concurrence of all of the Cooperators. Cooperator participation in this Memorandum of Understanding may be terminated with the 60-day written notice of any party to the other Cooperators. Unless terminated under the terms of this paragraph, this Memorandum of Understanding will remain in full force and in effect until September 30, 1999.

E. This Memorandum of Understanding is intended only to improve the internal management of the executive branch and is not intended to, nor does it create any right, benefit or trust responsibility, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies, its officers, or any person.

F. The terms of this Memorandum of Understanding are not intended to enforceable by any party other than the signatories hereto.

VII. SIGNATURES

KATIE McGINTY, Chair,
Council on Environmental Quality

JAMES R. LYONS, Undersecretary for
Natural Resources and Environment,
Department of Agriculture

JOHN ZIRSCHKY, Assistant Secretary for
Civil Works,
Department of the Army

DOUGLAS HALL, Assistant Secretary for
Oceans and Atmosphere,
Department of Commerce

SHERRI W. GOODMAN, Deputy Under
Secretary for Environmental Security,
Department of Defense

DAN W. REICHER, Acting Assistant
Secretary for Policy, Planning and Program
Evaluation,
Department of Energy

ANDREW M. CUOMO, Assistant Secretary
for Community Planning and Development,
Department of Housing and Urban
Development

BONNIE COHEN, Assistant Secretary for
Policy, Management and Budget,
Department of the Interior

LOIS SCHIFFER, Assistant Attorney General
for Environment and Natural Resources,
Department of Justice

JOSEPH A. DEAR, Assistant Secretary for
Occupational Safety and Health,
Department of Labor

Appendix B
Recreation Development at Ecosystem Restoration Projects

1. Purpose. This appendix provides additional guidance on the planning and development of outdoor recreation facilities at single purpose ecosystem restoration projects. It provides a limited checklist of recreation facilities which may be cost shared at new Corps ecosystem restoration projects, a discussion of locally preferred plans, and presents reporting guidelines for presentation of recreation development.

2. Background. Section 4 of the Flood Control Act of 1944, as amended, authorizes the Chief of Engineers to construct, operate, and maintain recreation facilities at water resources projects under the control of the Department of the Army (16 U.S.C. 460d). Long established policy precludes cost sharing development of new recreation facilities at completed projects. Current budget constraints and the intense competition for Federal funds dictate austerity in the planning and design of recreation facilities at proposed Civil Works projects.

3. Principles for Recreation Development. At many ecosystem restoration projects, the land base provided by the ecosystem restoration project may afford a low cost opportunity for recreation facilities. Recreation facilities to be cost shared at new ecosystem restoration projects must comply with three major criteria: (a) philosophy and inclusion on the checklist in this appendix, (b) economic justification; and, (c) the ten percent limit rule.

a. Philosophy. The Federal interest, for the purpose of Federal investment, is determined from the nature of the benefits derived from a facility or activity. Recreation at ecosystem restoration projects should not only be compatible, but also enhance the visitation experience by taking advantage of the natural values. The social, cultural, scientific, and educational values should be considered within the framework and scope of the ecosystem restoration project purpose. For example, while educational values, through such things as nature study and interpretive signs, can be an integral part of ecosystem restoration projects, this does not mean it is appropriate to build recreation/visitor facilities that overwhelm the natural values. The recreational experience should build upon the ecosystem restoration objective and take advantage of the restored resources rather than detract from them.

(1) Formulation. Recreation development will not influence the formulation of ecosystem restoration projects (ER 1105-2-100). Ecosystem projects and recreation features proposed for construction at existing Corps projects should be consistent with the approved Master Plan (ER 1130-2-550, Recreation Operations and Maintenance Policies).

(2) Vendibility and Stand-alone Principle. If recreation benefits are vendible (type usually provided by private enterprise), then the facility should be provided by others. If a recreation feature could be built at the same location without the ecosystem restoration project and not

lose any of its utility or value, it stands alone. When recreation facilities stand alone, the Corps should not participate in their development (ER 1165-2-400, Appendix B).

(3) Access, health and safety. The Corps may participate in facility development to provide access to and along the project features. The development of these facilities should not involve extensive structural modification of the terrain and may include rest areas and picnic facilities. Ideally, these facilities would be a part of a larger non-Corps recreation plan, such as a regional trail system, or provide access to other non-Federal recreation facilities or areas.

b. Check List of Recreation Facilities. A checklist of recreation facilities which may be cost shared at new ecosystem restoration projects is provided at the end of this appendix. Exceptions to the approved recreation facilities must be fully justified and approved by CECW-P prior to submitting the project report. Facilities to be cost shared are limited to standard designs consistent with the natural environment of the surrounding area but should not include embellishments such as decorative stone work planters, elaborate designs or be ostentatious. Recreation development must be provided on the lands needed and acquired for the basic ecosystem restoration project, except that additional recreation land may be acquired if needed for access, parking, potable water, sanitation and related development for health, safety and public access. Where appropriate, recreation at ecosystem restoration projects should be designed for day use only, precluding the need of extensive night lighting. Plans should seek to optimize public use in harmony with the objectives of the restoration project over the period of analysis. Without a non-Federal sponsor to cost share recreation, ecosystem restoration projects should not encourage public use (ER 1165-2-400, Appendix C).

c. Economic Justification. Reports recommending recreation development will clearly present the formulation and justification of the recreation plan to be recommended for Federal implementation. Federal participation should be limited to support development that capitalizes on the recreation potential afforded by the ecosystem restoration project. Incremental justification of recreation features will be demonstrated in the report. The addition of recreation to the plan will not influence formulation of the basic ecosystem restoration project which must produce monetary and/or non-monetary benefits which justify the monetary and/or non-monetary costs without recreation. The report will include a description of the competing recreation facilities, their existing and expected future use with and without the project, and the unfulfilled demand for the recreation facilities as identified in such documents as the Statewide Comprehensive Outdoor Recreation Plan. Recreation benefits, costs and cost sharing must be shown separately (ER 1105-2-100, Chapters 2 and 4).

d. Ten Percent Limit Rule. The level of financial participation in recreation development by the Corps at an otherwise justifiable project may not increase the Federal cost of the ecosystem restoration project by more than ten percent without prior approval of the Assistant Secretary of the Army (Civil Works). The purpose of this limit is to concentrate scarce Civil Works funds on high priority ecosystem restoration features rather than recreation development. The ten

percent limit should be viewed as an upper limit on Federal cost sharing and not as a goal for expenditures. The cost of recreation facilities to be cost shared would normally be less than the ten percent limit.

4. Cost Sharing. The cost of recreation facility development is shared 50/50 percent between the Government and non-Federal sponsors. Separable lands required for public access, health, and safety, are the responsibility of non-Federal sponsors, with crediting toward the sponsor's 50 percent share of development costs. Any cost in excess of 50 percent will be the responsibility of the non-Federal sponsor and will not be reimbursed to the local sponsor by the Federal government. The cost of lands provided by non-Federal sponsors for the basic project are not included for recreation cost sharing purposes. Established policy permits credit towards recreation cost sharing for incremental costs of increasing the real estate interests in land within the boundary acquired for the basic ecosystem restoration project. Additional guidance is provided in reference ER 1105-2-100. Operation, maintenance, replacement, repair and rehabilitation costs are the responsibility of the local sponsor (ER 1165-2-400, Paragraph 7; ER 1105-2-100, Chapter 4).

5. Locally Preferred Plan. A non-Federal sponsor may desire to include recreation facilities that are not on the enclosed checklist, are more elaborate than permitted, do not meet the "stand alone" principle, exceed the ten percent limit rule, are not on lands required for the basic ecosystem restoration project, or cannot be economically justified. Such facilities may be recommended as the locally preferred plan only if they are compatible with the ecosystem restoration purpose. The costs of planning and implementation of facilities provided as the locally preferred plan must be financed by the non-Federal sponsor, cannot be included in the benefit/cost ratio, and will not be credited against the sponsors share of cost shared facilities. Should a locally preferred ecosystem restoration plan include a greater land base than required by the recommended ecosystem restoration plan, and thus extend the project beyond the real limits of the ecosystem restoration plan, the Federal Government can participate in recreation development of the locally preferred ecosystem restoration plan. However, Federal participation in recreation development will be limited to those facilities shown on the enclosed check list and cannot exceed ten percent of the Federal share of the cost of the recommended ecosystem restoration plan, and all lands must be provided by the non-Federal sponsor.

6. Reporting Guidelines. The scope of the recreation development approved in the project report should be carried through to project completion. Any increase or deviation in the type or scope of cost shared facilities following approval of the project report must be reported to HQUSACE (CECW-P) for approval prior to any expenditure of either Federal or non-Federal funds on that recreation feature.

**Checklist of Facilities
Which May Be Cost Shared
as Part of Recreation Development at
Ecosystem Protection and Restoration Projects**

I. Access and Circulation: Roads; Turnarounds; Trails (multiple-use); Parking; Bridges and Culverts; Walks; Steps/ramps; Footbridges[1].

II. Structures: Sanitation - Vault Toilets, Comfort Stations; Shelters - Picnic, Trail.

III. Utilities: Water Supply - Municipal System[2], Wells, Drinking Fountains and Faucets; Sewage and Waste Water Disposal - Municipal System, Septic Tanks and Tile Fields; Storm Drainage; Public Telephone.

IV. Site Preparation/Restoration: Clearing and Grubbing; Grading and Land Form; Vegetative restoration - includes native trees, shrubs and turf establishment.

V. Park Furniture: Picnic Tables; Trash Receptacles/Holders; Benches.

VI. Signs: Entrance-Directional-Marker; Traffic Control (Vehicular and Pedestrian); Instructional (Includes Fire Danger Notices).

VII. Interpretive Guidance and Media: Display Boards; Interpretive Markers (Natural, Historical, Archeological, etc.); Bulletin Board.

VIII. Protection, Control, Health and Safety: Gates and Barricades; Cattle Guards; Walls and Fencing; Guardrails; Entrance Stations; Lighting; Handrails.

[1] Footbridges are to be austere and used only when other crossings methods are impractical. Footbridges which are the center of recreation experience are to be a non-Federal cost. Pedestrian bridges at highways or railroads are normally a non-Federal cost; however, if they are integral to the recreation feature and the most cost effective alternative, they may be cost shared.

[2] Connection to an existing municipal system.