MITIGATION PLAN

Project Name
County, North Carolina
EEP Project Identification Number

River Basin
Cataloging Unit

Insert project photo here

Prepared for:

NC Department of Environment and Natural Resources
Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

Month Year

MITIGATION PLAN

Project Name
County, North Carolina
EEP Project Identification Number

River Basin
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Prepared for:

NC Department of Environment and Natural Resources
Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

Prepared by:

Insert consultant logo here

Consulting firm Name
Physical address
City, State Zip Code
Phone Number

Month Year

EXECUTIVE SUMMARY

Consultant must include the following statement:

"This mitigation plan has been written in conformance with the requirements of the following:

- Federal rule for compensatory mitigation project sites as described in the Federal Register Title 33 Navigation and Navigable Waters Volume 3 Chapter 2 Section § 332.8 paragraphs (c)(2) through (c)(14).
- NCDENR Ecosystem Enhancement Program In-Lieu Fee Instrument signed and dated July 28, 2010

These documents govern NCEEP operations and procedures for the delivery of compensatory mitigation."

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RESTORATION PROJECT GOALS AND OBJECTIVES

NOTE: The following Goals and Objectives template is to be used for a project within a Local Watershed Planning Area

The PROJECT NAME Project is located in the LWP NAME Local Watershed planning area (INSERT HYPERLINK). The Project Site watershed includes Hydrologic Unit Code (HUC) 14 DIGIT HUC which was identified as a Targeted Local Watershed (TLW) in EEP's YEAR & RIVER BASIN River Basin Restoration Priority (RBRP) Plans (INSERT HYPERLINK) and is identified in the LWP NAME LWP Project Atlas (Atlas Reference Designation).

EEP developed a local watershed plan (LWP) for the DRAINAGE AREA sq mi drainage area that included land use analysis, water quality monitoring and stakeholder input to identify problems with water quality, habitat and hydrology. The WATERSHED NAME FROM LWP watershed is characterized as primarily AGRICULTURAL/RESIDENTIAL/INDUSTRIAL… and has a history of LIST TYPE(S) OF PROBLEMS problems due to REASONS FOR ISSUES issues. EEP completed the LWP NAME LWP in MONTH & YEAR (INSERT HYPERLINK).

The LWP NAME LWP identified LIST STRESSORS (i.e nutrients, streambank erosion and livestock access to streams) as major stressors within this watershed. The LWP project atlas identified the PROJECT NAME Project (Atlas Reference Designation) as a STREAM/WETLAND/BUFFER restoration opportunity with the potential to improve WATER QUALITY/HABITAT/HYDROLOGY within the WATERSHED NAME FROM LWP watershed. (Watershed plans developed by entities other than EEP, local and regional planning documents and Basinwide Assessment Reports may also by referenced here)

The goals of the PROJECT NAME Project (Atlas Reference Designation) address stressors identified in the LWP and include the following:
• LIST PROJECT GOALS (BULLETED LIST)

The project goals will be addressed through the following project objectives:
• LIST PROJECT OBJECTIVES (BULLETIZED LIST)

RESTORATION PROJECT GOALS AND OBJECTIVES

NOTE: The following Goals and Objectives template is to be used for a project located within EEP Targeted Local Watershed but located outside of an EEP Local Watershed Planning area.

EEP develops River Basin Restoration Priorities to guide its restoration activities within each of the state's 54 cataloging units. RBRPs delineate specific watersheds that exhibit both the need and opportunity for wetland, stream and riparian buffer restoration. These watersheds are called Targeted Local Watersheds (TLWs) and receive priority for EEP planning and restoration project funds.

The YEAR & RIVER BASIN River Basin RBRP identified HUC 14 DIGIT HUC as a Targeted Local Watershed (INSERT HYPERLINK). The watershed is characterized by STATE PERCENTAGE OF PREDOMINATE LAND USE (i.e agriculture…) area with LIST DEGRADED WATERSHED CONDITIONS.

The YEAR & RIVER BASIN River Basin RBRP identified LIST STRESSORS (i.e nutrients, streambank erosion and livestock access to streams) as major stressors within this TLW. The PROJECT NAME Project was identified as a STREAM/WETLAND/BUFFER opportunity to improve WATER QUALITY/HABITAT/HYDROLOGY within the TLW. (Watershed plans developed by entities other than EEP, local and regional planning documents and Basinwide Assessment Reports may also by referenced here)

The project goals address stressors identified in the TLW and include the following:
• LIST PROJECT GOALS (BULLETED LIST)

The project goals will be addressed through the following project objectives:
• LIST PROJECT OBJECTIVES (BULLETIZED LIST)

RESTORATION PROJECT GOALS AND OBJECTIVES

NOTE: The following Goals and Objectives template is to be used for projects located outside of EEP Targeted Local Watersheds and outside of EEP Local Watershed Planning areas.

The PROJECT NAME Project is located in the 8 DIGIT CU Catalogue Unit (CU), in the RIVER BASIN NAME River Basin. LIST CU ASSETS AND PROBLEMS FROM CURRENT RBRP (INSERT HYPERLINK). Restoration goals for CU 8 DIGIT CU as identified in the YEAR & RIVER BASIN River Basin RBRP include LIST GOALS FROM RBRP.

The PROJECT NAME Project was identified as a STREAM/WETLAND/BUFFER opportunity to improve WATER QUALITY/HABITAT/HYDROLOGY within the CU. (Watershed plans developed by entities other than EEP, local and regional planning documents and Basinwide Assessment Reports may also by referenced here)

The project goals address stressors identified in the CU and include the following:
• LIST PROJECT GOALS (BULLETED LIST)

The project goals will be addressed through the following project objectives:
• LIST PROJECT OBJECTIVES (BULLETIZED LIST)

SITE SELECTION

Directions to Site
Provide directions to Project Site

Site Selection
Consultant provides discussion of historical condition, site modifications, evolutionary and/or successional trends of the project site.

NOTE: The Site Selection narrative should not exceed three (3) pages of text.

Project Site Vicinity Map NOTE: map must be in either 8.5”x11” –or- 11”x17” format		
Scale	Site Name, County	North Arrow

Project Site Watershed Map

NOTE: map must be in either 8.5”x11” –or- 11”x17” format

NOTE: USGS topographic map is required

Scale	Site Name	North Arrow

Project Site NRCS Soil Survey Map

NOTE: map must be in either 8.5”x11” –or- 11”x17” format

Scale	Site Name	North Arrow

Project Site Current Condition Plan View

NOTE: figure must be in either 8.5”x11” –or- 11”x17” format

NOTE: Most recent aerial photography is required
Date of Photograph required

Scale	Site Name	North Arrow

Project Site Historical Condition Plan View

NOTE: figure must be in either 8.5”x11” –or- 11”x17” format

NOTE: Provide historical aerials, as is necessary, to depict historical modifications described in the site selection section, date of photograph(s) required

Scale	Site Name	North Arrow

Site Photograph with caption NOTE: caption should provide context for the photo (e.g. channel condition); include date and location of photograph	Site Photograph with caption NOTE: caption should provide context for the photo (e.g. channel condition); include date and location of photograph
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SITE PROTECTION INSTRUMENT

The land required for the construction, management, and stewardship of this mitigation project includes portions of the following parcels. A copy of the land protection instrument(s) is included in the appendices.

	Landowner	PIN	County	Site Protection Instrument	Deed Book and Page Number	Acreage protected
Parcel A						
Parcel B						
Parcel C						
Parcel D, etc.						

When available, the recorded document(s) will be provided. If the recorded document(s) are not available, the template documents will be provided.

All site protection instruments require 60-day advance notification to the Corps and the State prior to any action to void, amend, or modify the document. No such action shall take place unless approved by the State.

Site Protection Instrument Figure

NOTE: figure must be in either 8.5”x11” –or- 11”x17” format

NOTE: Consultant provides plan view of site with parcel boundaries and site protection instrument boundaries; date of photograph required

Scale	Site Name	North Arrow

BASELINE INFORMATION

Project Information			
Project Name			
County			
Project Area (acres)			
Project Coordinates (latitude and longitude)			
Project Watershed Summary Information			
Physiographic Province			
River Basin			
USGS Hydrologic Unit 8-digit		USGS Hydrologic Unit 14-digit	
DWQ Sub-basin			
Project Drainage Area (acres)			
Project Drainage Area Percentage of Impervious Area			
CGIA Land Use Classification			
Reach Summary Information			
Parameters	**Reach 1**	**Reach 2**	**Reach 3**
Length of reach (linear feet)			
Valley classification			
Drainage area (acres)			
NCDWQ stream identification score			
NCDWQ Water Quality Classification			
Morphological Description (stream type)			
Evolutionary trend			
Underlying mapped soils			
Drainage class			
Soil Hydric status			
Slope			
FEMA classification			
Native vegetation community			
Percent composition of exotic invasive vegetation			
Wetland Summary Information			
Parameters	**Wetland 1**	**Wetland 2**	**Wetland 3**
Size of Wetland (acres)			
Wetland Type (non-riparian, riparian riverine or riparian non-riverine)			
Mapped Soil Series			
Drainage class			
Soil Hydric Status			
Source of Hydrology			
Hydrologic Impairment			
Native vegetation community			
Percent composition of exotic invasive vegetation			

Regulatory Considerations			
Regulation	**Applicable?**	**Resolved?**	**Supporting Documentation**
Waters of the United States – Section 404			
Waters of the United States – Section 401			
Endangered Species Act			
Historic Preservation Act			
Coastal Zone Management Act (CZMA)/ Coastal Area Management Act (CAMA)			
FEMA Floodplain Compliance			
Essential Fisheries Habitat			

DETERMINATION OF CREDITS

Mitigation credits presented in these tables are projections based upon site design. Upon completion of site construction the project components and credits data will be revised to be consistent with the as-built condition.

Project Name, County
EEP Project Number

Mitigation Credits

	Stream		Riparian Wetland		Non-riparian Wetland		Buffer	Nitrogen Nutrient Offset	Phosphorous Nutrient Offset
Type	R	RE	R	RE	R	RE			
Totals									

Project Components

Project Component -or- Reach ID	Stationing/Location	Existing Footage/Acreage	Approach (PI, PII etc.)	Restoration -or- Restoration Equivalent	Restoration Footage or Acreage	Mitigation Ratio

Component Summation

Restoration Level	Stream (linear feet)	Riparian Wetland (acres)		Non-riparian Wetland (acres)	Buffer (square feet)	Upland (acres)
		Riverine	Non-Riverine			
Restoration						
Enhancement						
Enhancement I						
Enhancement II						
Creation						
Preservation						
High Quality Preservation						

BMP Elements

Element	Location	Purpose/Function	Notes

BMP Elements
BR = Bioretention Cell; SF = Sand Filter; SW = Stormwater Wetland; WDP = Wet Detention Pond; DDP = Dry Detention Pond; FS = Filter Strip; S = Grassed Swale; LS = Level Spreader; NI = Natural Infiltration Area; FB = Forested Buffer

MITIGATION WORK PLAN

Consultant provides:

1. Description of target stream, wetland and plant communities
2. Narrative of design parameters
3. Narrative of data analyses

NOTE: Mitigation Work Plan narrative should not exceed three pages of text

NOTE: Consultant shall reference Appendix C as necessary

MAINTENANCE PLAN

NCEEP shall monitor the site on a regular basis and shall conduct a physical inspection of the site a minimum of once per year throughout the post-construction monitoring period until performance standards are met. These site inspections may identify site components and features that require routine maintenance. Routine maintenance should be expected most often in the first two years following site construction and may include the following:

Component/Feature	**Maintenance through project close-out**
Stream	Routine channel maintenance and repair activities may include chinking of in-stream structures to prevent piping, securing of loose coir matting, and supplemental installations of live stakes and other target vegetation along the channel. Areas where stormwater and floodplain flows intercept the channel may also require maintenance to prevent bank failures and head-cutting.
Wetland	Routine wetland maintenance and repair activities may include securing of loose coir matting and supplemental installations of live stakes and other target vegetation within the wetland. Areas where stormwater and floodplain flows intercept the wetland may also require maintenance to prevent scour.
Vegetation	Vegetation shall be maintained to ensure the health and vigor of the targeted plant community. Routine vegetation maintenance and repair activities may include supplemental planting, pruning, mulching, and fertilizing. Exotic invasive plant species shall be controlled by mechanical and/or chemical methods. Any vegetation control requiring herbicide application will be performed in accordance with NC Department of Agriculture (NCDA) rules and regulations.
Site Boundary	Site boundaries shall be identified in the field to ensure clear distinction between the mitigation site and adjacent properties. Boundaries may be identified by fence, marker, bollard, post, tree-blazing, or other means as allowed by site conditions and/or conservation easement. Boundary markers disturbed, damaged, or destroyed will be repaired and/or replaced on an as needed basis.
Utility Right-of-Way	Utility rights-of-way within the site may be maintained only as allowed by Conservation Easement or existing easement, deed restrictions, rights of way, or corridor agreements.
Ford Crossing	Ford crossings within the site may be maintained only as allowed by Conservation Easement or existing easement, deed restrictions, rights of way, or corridor agreements.
Road Crossing	Road crossings within the site may be maintained only as allowed by Conservation Easement or existing easement, deed restrictions, rights of way, or corridor agreements.
Stormwater Management Device	Storm water management devices will be monitored and maintained per the protocols and procedures defined by the NC Division of Water Quality Storm Water Best Management Practices Manual.

PERFORMANCE STANDARDS

Consultant works with EEP to develop project-specific performance standards. The performance standards shall be consistent with the requirements described in Federal rule for compensatory mitigation project sites as described in the Federal Register Title 33 Navigation and Navigable Waters Volume 3 Chapter 2 Section § 332.5 paragraphs (a) and (b).

NOTE: Performance Standards narrative should not exceed three pages of text

NOTE: Consultant shall reference Appendices as necessary

MONITORING REQUIREMENTS

Annual monitoring data will be reported using the EEP monitoring template. The monitoring report shall provide a project data chronology that will facilitate an understanding of project status and trends, population of EEP databases for analysis, research purposes, and assist in decision making regarding project close-out.

Required	Parameter	Quantity	Frequency	Notes
	Pattern	As per April 2003 USACE Wilmington District Stream Mitigation Guidelines	annual	
	Dimension	As per April 2003 USACE Wilmington District Stream Mitigation Guidelines	annual	
	Profile	As per April 2003 USACE Wilmington District Stream Mitigation Guidelines	annual	
	Substrate	As per April 2003 USACE Wilmington District Stream Mitigation Guidelines	annual	
	Surface Water Hydrology	As per April 2003 USACE Wilmington District Stream Mitigation Guidelines	annual	A Crest Gauge and/or Pressure Transducer will be installed on site; the device will be inspected on a quarterly/semi-annual basis to document the occurrence of bankfull events on the project
	Groundwater Hydrology	Quantity and location of gauges will be determined in consultation with EEP	annual	Groundwater monitoring gauges with data recording devices will be installed on site; the data will be downloaded on a monthly basis during the growing season
	Vegetation	Quantity and location of vegetation plots will be determined in consultation with EEP	annual	Vegetation will be monitored using the Carolina Vegetation Survey (CVS) protocols
	Exotic and nuisance vegetation		annual	Locations of exotic and nuisance vegetation will be mapped
	Project boundary		Semi-annual	Locations of fence damage, vegetation damage, boundary encroachments, etc. will be mapped
	Other			
	Other			
	Other			

Note: Design consultant shall identify the monitoring parameters required to demonstrate project objectives have been met. Consultant shall complete table accordingly.

LONG-TERM MANAGEMENT PLAN

Upon approval for close-out by the Interagency Review Team (IRT) the site will be transferred to the insert name of responsible party. This party shall be responsible for periodic inspection of the site to ensure that restrictions required in the conservation easement or the deed restriction document(s) are upheld. Endowment funds required to uphold easement and deed restrictions shall be negotiated prior to site transfer to the responsible party.

NOTE: If NCDENR Division of Natural Resource Planning and Conservation's Stewardship Program insert the following language:

The NCDENR Division of Natural Resource Planning and Conservation's Stewardship Program currently houses EEP stewardship endowments within the non-reverting, interest-bearing Conservation Lands Stewardship Endowment Account. The use of funds from the Endowment Account is governed by North Carolina General Statute GS 113A-232(d)(3). Interest gained by the endowment fund may be used only for the purpose of stewardship, monitoring, stewardship administration, and land transaction costs, if applicable. The NCDENR Stewardship Program intends to manage the account as a non-wasting endowment. Only interest generated from the endowment funds will be used to steward the compensatory mitigation sites. Interest funds not used for those purposes will be re-invested in the Endowment Account to offset losses due to inflation.

NOTE: If other responsible party, insert the following language:

The insert name of responsible party will house the stewardship endowment within a non-reverting, interest bearing account. The account shall be managed as a non-wasting endowment. Interest gained by the endowment fund may be used only for the purpose of stewardship, monitoring, stewardship administration, and land transaction costs (if applicable). Interest funds not used for those purposes will be re-invested in the endowment account to offset losses due to inflation.

ADAPTIVE MANAGEMENT PLAN

Upon completion of site construction EEP will implement the post-construction monitoring protocols previously defined in this document. Project maintenance will be performed as described previously in this document. If, during the course of annual monitoring it is determined the site's ability to achieve site performance standards are jeopardized, EEP will notify the USACE of the need to develop a Plan of Corrective Action. The Plan of Corrective Action may be prepared using in-house technical staff or may require engineering and consulting services. Once the Corrective Action Plan is prepared and finalized EEP will:

1. Notify the USACE as required by the Nationwide 27 permit general conditions.
2. Revise performance standards, maintenance requirements, and monitoring requirements as necessary and/or required by the USACE.
3. Obtain other permits as necessary.
4. Implement the Corrective Action Plan.
5. Provide the USACE a Record Drawing of Corrective Actions. This document shall depict the extent and nature of the work performed.

FINANCIAL ASSURANCES

Pursuant to Section IV H and Appendix III of the Ecosystem Enhancement Program's In-Lieu Fee Instrument dated July 28, 2010, the North Carolina Department of Environment and Natural Resources has provided the U.S. Army Corps of Engineers Wilmington District with a formal commitment to fund projects to satisfy mitigation requirements assumed by EEP. This commitment provides financial assurance for all mitigation projects implemented by the program.

OTHER INFORMATION

DEFINITIONS

Morphological description – the stream type; stream type is determined by quantifying channel entrenchment, dimension, pattern, profile, and boundary materials; as described in Rosgen, D. (1996), *Applied River Morphology, 2nd edition*

Native vegetation community – a distinct and reoccurring assemblage of populations of plants, animals, bacteria and fungi naturally associated with each other and their population; as described in Schafale, M.P. and Weakley, A. S. (1990), *Classification of the Natural Communities of North Carolina, Third Approximation*

Project Area - includes all protected lands associated with the mitigation project

Note: Design consultant shall insert additional definitions as necessary

REFERENCES

Faber-Langendoen, D., Rocchio, J., Schafale, M., Nordman, C., Pyne, M., Teague, J., Foti, T., Comer, P. (2006), *Ecological Integrity Assessment and Performance Measures for Wetland Mitigation*. NatureServe, Arlington, Virginia.

Lindenmayer, D.B., and J.F. Franklin. (2002), *Conserving forest biodiversity: A comprehensive multiscaled approach.* Island Press, Washington, DC.

Peet, R.K., Wentworth, T.S., and White, P.S. (1998), *A flexible, multipurpose method for recording vegetation composition and structure*. Castanea 63:262-274

Rosgen, D. (1996), *Applied River Morphology, 2nd edition*, Wildland Hydrology, Pagosa Springs, CO

Schafale, M.P. and Weakley, A. S. (1990), *Classification of the Natural Communities of North Carolina, Third Approximation,* NC Natural Heritage Program, Raleigh, NC

Stream Mitigation Guidelines, April 2003, US Army Corps of Engineers Wilmington District

Young, T.F. and Sanzone, S. (editors). (2002), *A framework for assessing and reporting on ecological condition*. Ecological Reporting Panel, Ecological Processes and Effects Committee. EPA Science Advisory Board. Washington, DC.

Note: Design consultant shall insert additional references as necessary

APPENDIX A
SITE PROTECTION INSTRUMENT(S)

Parcel A Recorded Conservation Easement/Deed Restriction
Parcel B Recorded Conservation Easement/Deed Restriction
Etc.

APPENDIX B
BASELINE INFORMATION DATA

USACE Routine Wetland Determination Forms – per regional supplement to 1987 Manual
NCWAM Forms – for existing wetlands
NCDWQ Stream Classification Forms
FHWA Categorical Exclusion Form
FEMA Compliance -EEP Floodplain Requirements Checklist

APPENDIX C
MITIGATION WORK PLAN DATA and ANALYSES

Channel Morphology (Rosgen Analysis)
HEC-RAS/Surface Water Modeling and Analysis
- Data outputs
- Flood Attenuation Graphic
- NOTE: include model outputs for bankfull, 2x Bkf, 2 yr, 5 yr, 10 yr, 100 yr

Sediment Transport Modeling and Analysis
- Data outputs
- Graphics

Channel Stability (BEHI/NBS)
- Data outputs
- Bank Condition Distribution Graphic

Groundwater Modeling/Hydrologic Budget
- Data outputs
- Graphics

Soil Delineation & Characterization, Fertility
CVS Vegetation Assessment
- Data outputs
- Vegetation distribution graphic

Other

APPENDIX D
PROJECT PLAN SHEETS (11”x17”)

1 Title Page
2 Legend & Symbols Page
3 General Notes and Construction Sequence
4 Typical Cross-sections
5 Detail Page(s)
6 Structure Data
7 Grading Plan Sheet(s)
    Note to Designer: plan and profile must be exhibited on the same sheet from STA to STA with match lines
8 Planting Plan Sheet(s)
9 Boundary Marking Plan Sheet(s)
10 Project Cross Sections