

Great Lakes Basin Program GLRI Project

Buffalo River Watershed Erosion and Sediment Control Project

Size: watershed
Grant Amount: \$180,000
Year awarded: 2011

Sponsor: Erie County Soil & Water Conservation District
Address 1: 50 Commerce Way
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State: NY
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Submitted Project:

Total Grant Amount Requested: \$ 180,000

Match Amount: \$ 90,295 (33%)
 In-Kind: \$ 54,520
 Cash: \$ 35,275

Total Project Soil Savings: 4780 tons over expected 20 year bmp lifespan

Congressional District(s) project is located in: NY- 26, NY-27.

II. Project Background

Sediment Sources

Sediment pollution originating within the Buffalo River watershed was identified during the 1940's as being a serious threat to water quality and water use for the City of Buffalo. Land use studies by the USDA-Soil Conservation Service helped determine that streambank erosion was the primary source of sediment pollution in more than half the documented watershed problem areas.

In 1949, The Erie and Wyoming County Soil and Water Conservation Districts' formed a Joint Watershed Board to function as the local sponsor to complete the Buffalo Creek Watershed Project, a pilot flood control project authorized by the 1944 Flood Control Act with the goal of reducing silt and sedimentation in the Buffalo River portion of the Buffalo Harbor by controlling streambank erosion and by promoting best management practices on farms and riparian properties throughout the watershed. Over 300 Joint Board projects were successfully installed in the Buffalo Creek watershed stabilizing over 57 miles of streambank through various methods including armoring banks with rock, installing beneficial shrubs and sloping and seeding of exposed

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bank areas. Completed in the 1960's, the project reduced sedimentation in the lower Buffalo River by an estimated 40% with a 25% reduction in dredging costs in the Buffalo Harbor.

The Buffalo River watershed consists of 3 main waterbodies/sub-watersheds: Buffalo Creek, Cayuga Creek and Cazenovia Creek along with their smaller tributaries. The Buffalo River begins at the confluence of Cayuga and Buffalo Creeks near the Buffalo city limit. Cazenovia Creek joins the river further downstream within the designated Area of Concern(AOC) identified in the Lake Erie Management Plan. The Buffalo River then empties into Lake Erie at the Buffalo Harbor near the mouth of the Niagara River.

The NYS Department of Environmental Conservation's Priority Waterbodies List(PWL), revised in 2010, states that minor impacts stress aquatic life due to elevated silt/sediments loads in the lower Buffalo Creek from streambank erosion and other nonpoint source inputs. Conversely, the revised PWL indicates no known impacts/use impairments in the upper watersheds of both Buffalo Creek and (East)Cazenovia Creek. These results are contrary to the Erie and Wyoming County Soil and Water Conservation District's erosion inventories which provide direct evidence that erosion problems are still occurring throughout the watershed as sediments from streambank erosion continue to be a major pollutant of concern.

The Erie-Wyoming Joint Watershed Board has the responsibility to annually inspect and maintain the Joint Board sites. While the majority of these streambank stabilization structures are intact and stable, the 2008 erosion inventory report reveals over 70 high priority sites totaling 3,670 linear feet of severely disturbed streambanks actively contributing sediments into Buffalo Creek and subsequently into the Buffalo River. In addition to the erosion inventories, the Erie and Wyoming County Soil and Water Conservation District and USDA Natural Resources Conservation Service staff frequently respond to requests for technical and financial assistance from riparian landowners. These documented field investigations continue to reveal extensive streambank erosion and localized flooding problems in the watershed due in part to damage to the stream system following heavy flood events, excessive runoff and inadequate stormwater management systems. After reviewing the erosion inventory, the Joint Watershed Board has prioritized 8 sites in need of critical restoration. With a yearly appropriation of approximately \$7,000, the cost associated with restoring these high priority sites currently exceeds the dollars available in the operation and maintenance funds. This funding gap potentially allows one project to be addressed every few years at best. With secured funding, a relatively small investment now will allow the Joint Watershed Board and Erie and Wyoming County Soil and Water Conservation District's to continue efforts to improve water quality and aquatic habitat within the Buffalo River watershed through the reduction of ongoing sedimentation.

Readiness to implement project

The Erie County Soil and Water Conservation District actively pursues local, state and federal funding sources for erosion and sediment control, water quality protection and habitat improvement conservation projects. The successfully implemented projects described below, illustrate the Districts' ability to maximize grant funding through a shared cost approach. Where applicable, the District has been able to petition for and utilize private landowner, municipal and county dollars as local match to grant funds.

In early 2011 the District was awarded an agricultural grant for the Upper Buffalo River watershed through the New York State Agricultural Nonpoint Source Abatement and Control Grant for implementation of agricultural best management practices in the Upper Buffalo River Watershed. At a grant total of \$675,631, this partnership with the Wyoming County District will address agricultural water quality concerns across the entire watershed and provides increased benefit of water quality protection to all downstream communities and Lake Erie source water. This project is the third phase of implementation for this watershed and continues the momentum of water quality protection in the agricultural community that has been completed by Soil and Water Conservation District's and the USDA Natural Resources Conservation Service.

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In 2009 the District completed project work on the Buffalo Creek Watershed Riparian Habitat Restoration Project (Partnership Phase II). The project was funded through the NYS Department of Environmental Conservation via the state Environmental Protection Fund/Water Quality Improvement Grant. This project reduced sedimentation and improved water quality and aquatic habitat at 10 sites by stabilizing approximately 2,090 linear feet of eroded streambanks utilizing combined methods of rock riprap where necessary and biotechnical and/or natural stream design restoration techniques. Total grant funds awarded were \$512,826.

In 2010 the District completed the Eighteenmile Creek Streambank Stabilization Partnership Phase I. Nineteen sites of severe streambank erosion were stabilized with bioengineering and rock riprap techniques totaling approximately 4,260 linear feet of restoration. The District will be completing Phase II of this project in 2011 on a total of 9 additional sites. Both Phase I and II of this project are funded through the NYS Department of Environmental Conservation via the state Environmental Protection Fund/Water Quality Improvement Grant. Total grant dollars for Phase I was \$654,146 and \$584,685 for Phase II.

The District also completed the Eighteenmile Creek Streambank Restoration and Erosion Control Project in 2010, which was funded through the Great Lakes Commission/United States Department of Agriculture. This project, which is a highlighted New York state project on the Great Lakes Basin Program website, reduced sediments by stabilizing 400 linear feet of eroded streambank and improved aquatic habitat by reestablishing the riparian stream buffer. Total grant funds awarded was \$30,000.

Is there a state approved watershed plan (or one in development) that includes your designated implementation HUCs? If yes, does the watershed plan denote specific soil/sediment reduction BMPs and list implementation locations for those BMPs?

As required under the Great Lakes Water Quality Agreement, a Remedial Action Plan(RAP) has been completed for the Buffalo River Area of Concern with goals of remediating bottom sediments, continue on-going programs to address nonpoint source pollution, restore fish and wildlife beneficial use and improve and protect habitat. The RAP focuses on the Buffalo River from its' upstream start where Cayuga Creek enters Buffalo Creek to the mouth as it enters Lake Erie near the Niagara River.

The Buffalo River Ecological Restoration Master Plan(ERMP) is currently being developed through regional stakeholder input by the U.S. Environmental Protection Agency/Great Lakes National Program Office. The goals of the ERMP are aimed toward protection and restoration of water and habitat quality within the Buffalo River Corridor and its' tributaries and to help resolve impairments to fish, wildlife and benthos communities (river bottom dwelling plants and animals) including population degradation and habitat loss. The ERMP extends its' focus upstream beyond the Buffalo River AOC to the first impassable fish barrier (low head dams or waterfalls) on each of the main tributaries (Buffalo, Cayuga and Cazenovia Creeks).

While the proposed sites of the Buffalo River Watershed Erosion and Sediment Control Project are located in the upper watershed outside of the AOC, it is appropriate and necessary to consider the effects of the larger watershed for both the RAP and ERMP especially when the restoration goals are consistent for all three projects. The Erie and Wyoming County Soil and Water Conservation District's and Joint Watershed Board have prioritized the need to continue efforts to complement past conservation activities in the Buffalo and Cazenovia Creek watersheds with the understanding that these efforts will also enhance the current and future restoration goals of the greater Buffalo River watershed.

What other on-going conservation activities are taking place in the HUCs? Are there any existing project being implemented such as a Section 319 project?

The Buffalo River Watershed Erosion and Sediment Control Project will contribute to ongoing regional efforts within the watershed to plan, prioritize and coordinate a comprehensive approach to address water quality

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impairments and restoration of aquatic habitat. Complementary projects currently being conducted or recently completed within the watershed that are supported by the Erie County Water Quality Committee and outlined in its' Water Quality Strategy are as follows:

- a. *Buffalo Creek Streambank Stabilization Partnership Phase I and II* – ECSWCD, USDA-NRCS, municipalities, private landowners have partnered to rehabilitate eroding streambanks to protect property, restore critical aquatic habitat and improve water quality throughout the watershed.
- b. *Buffalo Creek Agricultural Environmental Management (AEM)* – ECSWCD, WCSWCD, USDA-NRCS and USDA-FSA have and continue to complete planning within the watershed to identify, evaluate and prioritize environmental and natural resources related concerns on agricultural operations throughout the watershed.
- c. *Buffalo Creek Environmental Quality Incentives Program (EQIP)* – USDA-NRCS, USDA-FSA, ECSWCD and WCSWCD have and continue to implement agricultural best management practices on prioritized agricultural operations to reduce and/or eliminate nonpoint source pollution and improve water quality throughout the watershed.
- d. *Comprehensive Nutrient Management Planning (CNMP) Grant* – ECSWCD, USDA-NRCS and USDA-FSA have developed advanced management plans to assist agricultural operations in managing nutrients on prioritized agricultural operations to reduce and/or eliminate nonpoint source pollution and improve water quality throughout the watershed.
- e. *Buffalo Creek Agricultural Implementation Grant* – ECSWCD, WCSWCD, USDA-NRCS and USDA-FSA have implemented agricultural best management practices on prioritized agricultural operations to reduce and/or eliminate nonpoint source pollution and improve water quality throughout the watershed.

Is there an established watershed council or steering committee involved with the project? If yes, briefly describe the mission of the group. When was it established, how often does it meet, what is the average attendance at the meetings?

The Erie County Water Quality Committee (ECWQC) was established in 1992 with a focus of protecting and improving ground and surface waters for their intended uses, primarily through the reduction of nonpoint source pollution. The Cazenovia and Buffalo Creek watersheds have consistently received a ranking of high to medium high importance in the Committee's Water Quality Strategy. The Erie County Soil & Water Conservation District acts as the lead agency for the ECWQC. Meetings take place every other month.

What partnerships (outside of your organization) have you established to help implement this project? List your partners.

Partner agencies involved with the Buffalo River Watershed Erosion and Sediment Control Project include but are not limited to the following:

Wyoming County Soil & Water Conservation District
USDA Natural Resources Conservation Service
NYS Department of Environmental Conservation
U.S. Army Corps of Engineers
Buffalo Audubon Society at Beaver Meadows

Watershed/ Project Work Area

List up to three **12 digit USGS HUC codes** that comprise your watershed implementation area:

- 041201030204
- 041201030202
- 041201030302

Justification for including the 041201030302 HUC code(Site #30L) is due to the fact that this site is severely impacted with high sediment loads entering the stream. The #30L project is considered to be a high priority for stabilization since the erosion will continue to advance and increase in severity if not addressed.

- *Total HUC acres: 57,800*
- *Total HUC agricultural/pasture land use: 14,082*
- *Total HUC forest/brushland land use: 36,992*
- *Total HUC urban, suburban, industrial, commercial, rural residential land use: 6,358*
- The proposed HUC areas are not upstream from a significant dam.

Priority areas of the proposed Buffalo River Watershed Erosion and Sediment Control Project are:

Erie-Wyoming Joint Board Site #4L:

This project site is located on Buffalo Creek on the west side of Michigan Road in the Town of Java, Wyoming County on property owned by Mr. Lee Smith. There are existing land rights and access available. There is a very steep vertical bank with many exposed tree roots in one section of this project site. The proposed project will consist of the installation of approximately 300 linear feet of longitudinal peaked stone bank stabilization and bioengineering methods to repair the original Joint Board site.

Erie-Wyoming Joint Board Site #30L:

This project site is located on the East Branch Cazenovia Creek on the east side of Olean Road in the Town of Holland, Erie County on property owned by Mr. David Blendinger. There are existing land rights and access available. The majority of the existing stabilization structure has been severely damaged leaving the bank raw and exposed with heavy sedimentation occurring. The proposed project will repair the structure and stabilize approximately 225 linear feet of streambank utilizing longitudinal peaked stone and bioengineering methods.

Erie-Wyoming Joint Board Site #62L:

This project site is located on Buffalo Creek on the south side of Route 78 in the Town of Java, Wyoming County on property owned by Mr. William Potter. There are existing land rights and access available. The proposed project will consist of the installation of 100 linear feet of longitudinal peaked stone bank stabilization and bio-engineering methods to repair this original Joint Board site.

Erie-Wyoming Joint Board Site #63R:

This project site is located on Buffalo Creek on the south side of Route 78 in the Town of Java, Wyoming County on property owned by Mr. William Potter. There are existing land rights and access available. The proposed project will consist of the installation of 150 linear feet of rock rip-rap bank stabilization, removal of debris in the stream channel and bioengineering methods to repair the original Joint Board site.

Erie-Wyoming Joint Board Site #64R:

This project site is located on Buffalo Creek on the south side of Route 78 in the Town of Java, Wyoming County on property owned by Mr. Ernest Anderson. There are existing land rights and access available. The

proposed project will consist of debris removal and the installation of 100 linear feet of rock rip-rap bank stabilization with bioengineering to repair the original Joint Board site.

Erie-Wyoming Joint Board Site #87R:

This project site is located on Buffalo Creek on the northwest side of Sanders Road in the Town of Sheldon, Wyoming County on property owned by Mr. Dale Schwab. There are existing land rights and access available. The proposed project will consist of the installation of 75 linear feet of rock rip-rap bank stabilization and bioengineering methods on each side of the mouth of Glade Creek to repair the original Joint Board site.

Beaver Meadow Site #5:

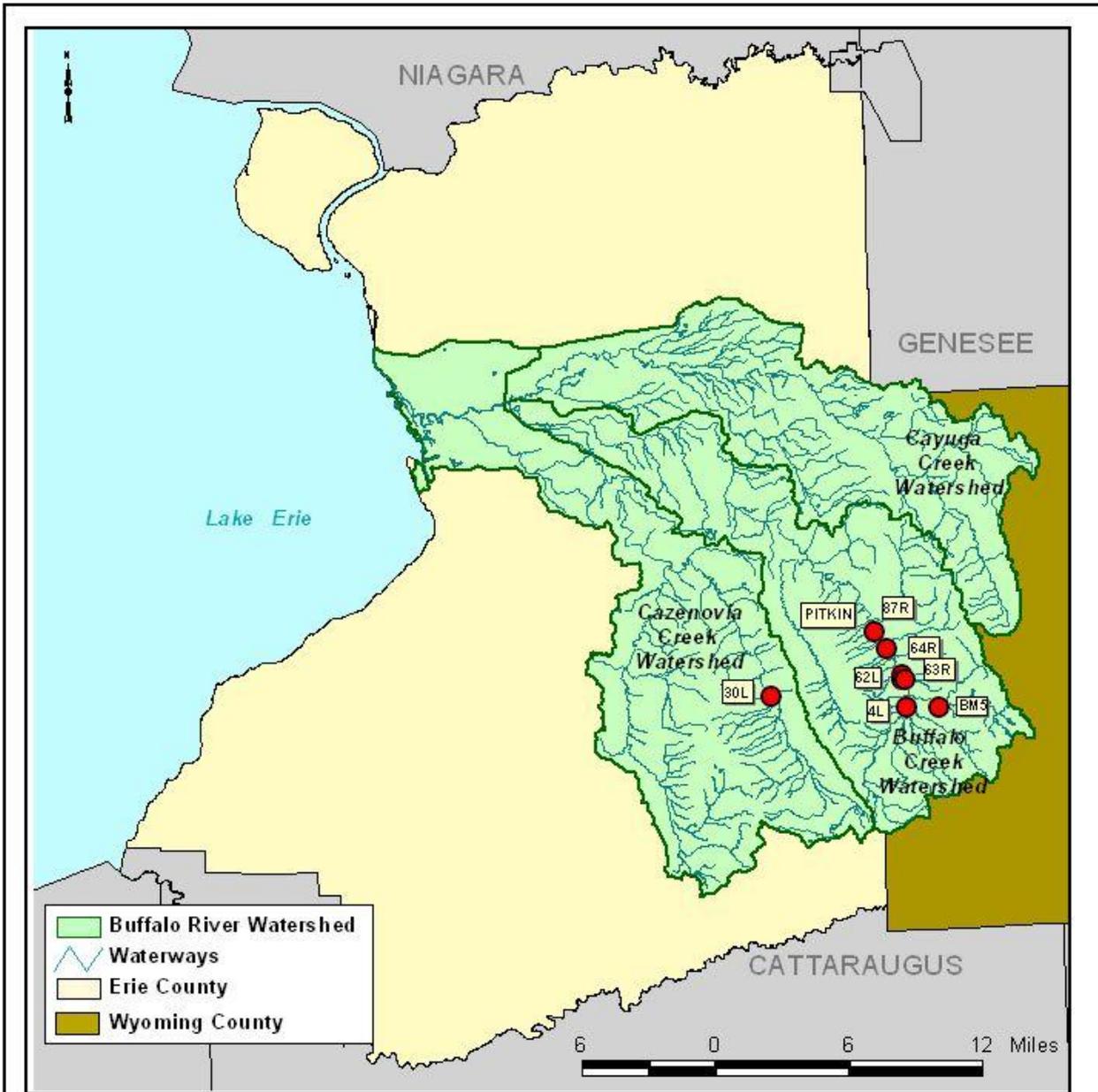
This project site is located on Beaver Meadow Creek at 993 Pit Road in the Town of Java, Wyoming County on the James & Suzanne Wick property. The proposed project will involve the installation of approximately 275 linear feet of rock rip-rap bank stabilization, one rock vane, 200 feet of curtain drain and applicable bio-engineering methods for streambank stabilization at this site.

Pitkin Site:

This project site is located on Buffalo Creek on the south side of Chester Road in the Town of Wales, Erie County on property owned by Mr. Paul Pitkin. There are existing land rights and access available. Severe erosion and bank slumping is occurring along the outside of the meander bend adjacent to active agricultural property. The proposed project will stabilize approximately 200 linear feet of streambank utilizing longitudinal peaked stone and bioengineering methods with a significant reduction in sedimentation anticipated.

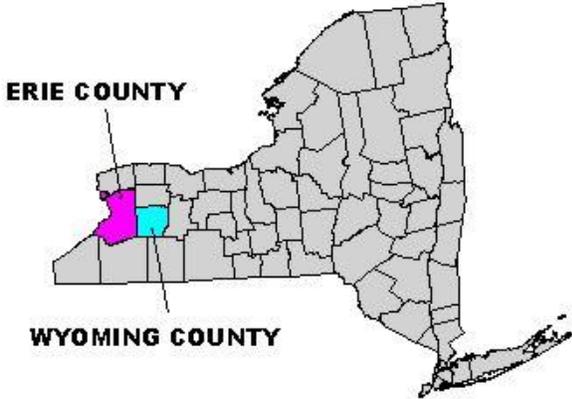
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- Buffalo River Watershed
- Waterways
- Erie County
- Wyoming County

● Proposed Streambank Stabilization Projects



**Buffalo River Watershed
Erosion and Sediment
Control Project**

Scale 1:240,000

Erie and Wyoming County
Soil and Water Conservation Districts
USDA Natural Resources Conservation Service
East Aurora/Warsaw, New York

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Keeping It
On the Land

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Soil Erosion and
Sediment Control
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III. Implementation

Implementation Strategy

Streambank stabilization best management practices shall be installed at all sites for the proposed Buffalo River Watershed Erosion and Sediment Control Project. The Erie County Soil and Water Conservation District performs site surveys and reconnaissance on all project sites. Fluvial geomorphological techniques recognized by the USDA Natural Resources Conservation Service (NRCS) including the Rosgen stream classification system are applied to the site data in developing a project design. The District design procedure follows NRCS Practice Standard 580 for *Streambank and Shoreline Protection* and all designs are approved by the local NRCS or District engineer. Due to the combination of existing severe erosion conditions and the high potential for ice scour in the Buffalo River watershed, it is typically necessary that a streambank designs incorporate some form of rock armoring to ensure the stability of the treatment over the projected lifespan. This may include longitudinal peaked stone toe protection, grade control weirs and stream barbs/vanes. The District also integrates bioengineering practices into every project site as a soft approach to stabilization and to improve riparian vegetation and habitat. Commonly used techniques include live stakes, pole/whip plantings, wattles/fascines, brush layering and live siltation.

Priority areas are identified through several methods including annual Joint Watershed Board erosion inventories of the Buffalo River watershed, technical assistance requests and site visits addressing landowner concerns along riparian properties as well as county and municipal surveys and contacts that identify critical watershed problem areas.

Incentive methods shall not be utilized for the proposed project, however the District anticipates an approximate 33% local match to the requested Great Lakes Restoration Initiative (GLRI) grant funds. This local match will be a combination of District personnel services (project survey, design, contracting and construction inspection), Joint Watershed Board cash appropriations, and private landowner cash and/or in-kind labor. The District anticipates the majority of GLRI grant funds will be used for project construction.

Potential equipment purchases will be limited to items necessary to help improve project efficiency, design, documentation and implementation.

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The timeline for implementation is as follows:

Task	2011											
	Jan	Feb	Marc	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Survey										X	X	
Design										X		
Site Showing/ Contract Letting										X		
Construction on 1 project site										X	X	
Project Evaluation												
Project Close/Administration												

Task	2012											
	Jan	Feb	Marc	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Survey			X	X	X					X	X	
Design	X	X	X		X							X
Site Showing/ Contract Letting						X	X	X	X			
Construction on 3 project sites							X	X	X	X		
Project Evaluation												
Project Close/Administration												

Task	2013											
	Jan	Feb	Marc	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Survey			X	X	X					X	X	
Design	X	X	X		X							X
Site Showing/ Contract Letting						X	X	X	X			
Construction on 2 project sites							X	X	X	X		
Project Evaluation												
Project Close/Administration												

Task	2014											
	Jan	Feb	Marc	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Survey			X	X								
Design	X	X	X		X							
Site Showing/ Contract Letting					X	X	X	X				
Construction on 2 project sites					X	X	X	X				
Project Evaluation								X	X			
Project Close/Administration										X		

BMPS - Fill out all that apply (A-E):

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B. Engineering Practices (BMPEs)

BMPE1: Streambank Stabilization

Description: All 8 proposed project sites will have streambank stabilization bmp's installed. Site surveys need to be completed and analyzed for final streambank stabilization design technique selection. All completed designs shall be approved and signed by the local NRCS or District engineer. Single and/or combined techniques will be installed along the eroded areas of the project sites. Techniques utilizing rock riprap shall be used only where necessary and will potentially include toe and slope rock protection, longitudinal peaked stone toe protection, grade control weirs and stream barbs/vanes. Bioengineering techniques like live stakes, pole/whip plantings, wattles/fascines, brush layering and live siltation will also be installed at each project site in combination with any required rock.

Check the quarters the task is to be started and completed:

Quarter	1	2	3	4	5	6	7	8	9	10	11	12
Start/Complete	1			2	1		1	1			1	1

Number of acres/units of BMP to be installed during project: 8 .

Expected soil savings from BMPE1: 4,780 total tons over the life of the BMPs (20yrs).

Media Campaign

1. You will be required to conduct a kickoff event in the first quarter of the project.

The Erie County Soil and Water Conservation District will host a Buffalo River Watershed Awareness Event which will begin at the District office with a presentation that will highlight past and future stream restoration activities in the watershed. The presentation will be followed by a tour of select project sites that represent the need for continued conservation and protection of the local and regional watershed resources. Invitations to the event will be extended to the NYS chairperson of the Great Lakes Commission, the local congressional, county legislative and municipal representatives, the local media, Erie and Wyoming County Soil and Water Conservation District Board of Directors and Joint Watershed Board as well as all partner agencies.

2. You are also required to establish an on-going outreach campaign.

On-going outreach shall include watershed updates in the District's bi-annual newsletter *Conservation Connections* and through public event displays at various County events held throughout the year.