

**DETAILED PROJECT REPORT AND
DRAFT ENVIRONMENTAL ASSESSMENT
WATAUGA SECTION 206 AQUATIC ECOSYSTEM
RESTORATION PROJECT
TOWN OF BOONE, NORTH CAROLINA**

**APPENDIX F
Correspondence**

**U.S. ARMY ENGINEER DISTRICT, HUNTINGTON
CORPS OF ENGINEERS
HUNTINGTON, WEST VIRGINIA**

May 2008

Cote, Janet LRH

From: Bryan_Tompkins@fws.gov
Sent: Tuesday, May 27, 2008 11:19 AM
To: Cote, Janet LRH
Subject: Endangered Species - Watauga 206 Project

Janet,

Gary Peeples forwarded an email to me regarding the threatened and endangered species analysis for the subject project. I have reviewed the sensitive species section of the EA and concur with your determination that habitat for the eight federally listed species found in Watauga County does not occur within the project area. We believe that no listed species or their habitats occur on the site, therefore the requirements under section 7 of the Act are fulfilled. However, obligations under section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner that was not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

We appreciate your coordination with us and if you have further questions please do not hesitate to contact us.

Thanks,

Bryan Tompkins
U.S. Fish and Wildlife Service
160 Zillicoa Street
Asheville, North Carolina 28805
828/258-3939 ext. 240

"You can't solve problems with the same level of thinking from which they were created."
Albert Einstein



**North Carolina Department of Cultural Resources
State Historic Preservation Office**

Peter B. Sandbeck, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

May 15, 2008

S. Michael Worley
Department of the Army
Huntington District, Corps of Engineers
502 Eighth Street
Huntington, WV 25701-2070

Re: Aquatic Ecosystem Restoration, South Fork New River, Boone, Watauga County, ER 08-1023

Dear Mr. Worley:

Thank you for your letter of April 16, 2008, concerning the above project.

We have conducted a review of the proposed undertaking and are aware of no historic resources that would be affected by the project. Therefore, we have no comment on the undertaking as proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,

Peter B. Sandbeck
MPM

Peter Sandbeck



DEPARTMENT OF THE ARMY
HUNTINGTON DISTRICT, CORPS OF ENGINEERS
502 EIGHTH STREET
HUNTINGTON, WEST VIRGINIA 25701-2070

9/2/08

Planning, Programs and Project Management Division
Planning Branch, Environmental Analysis Section

APR 16 2008

Dr. Jeffery Crow
State Historic Preservation Officer
4610 Mail Service Center
Raleigh, NC 27699-4610

Dear Dr. Crow:

I write today to consult with your office on a Huntington District aquatic ecosystem restoration project proposed in the Town of Boone, Watauga County, North Carolina, along 3,730 feet of the South Fork New River. The proposed restoration work is located adjacent to the recreational property of the Appalachian State University (ASU) on the east side of Boone immediately downstream from an earlier restoration project completed several years ago. The current project builds upon the success of the earlier project and incorporates important lessons learned from the earlier effort. I have enclosed a map and depiction of the project area for your reference.

The selected plan consists of restoration measures including riparian revegetation, creation of wetlands, bank stabilization, bottomland forest creation and other activities and are referenced on the enclosed map by alphanumeric designations. Sections R1 and R4 rehabilitation will include the eradication of invasive species, and replanting with native vegetation in order to restore native vegetation assemblages. Functional wetlands will be created at areas W1, W2 and W3. W4 is currently a wetland. This area will be regraded to allow for stream meander bends and oxbow wetlands and invasive vegetation would be eradicated and native vegetation planted. Currently maintained lawn areas would be restored back to native bottomland hardwood forests at sites B1, B2, B3, B5, B6, B7, B9 and B10. Area B9 requires relocation of the high-mast lights for the intramural fields. To minimize human disturbance, all bottomland areas would be lined with attractive, split-rail fence and signage explaining the ecological importance of riparian and bottomland habitat. Toe-of-slope treatments would be installed on approximately 1,200 feet of bank which is unstable and eroding. Slab bundles will be anchored at the toe of slope with integrated live-logs for stabilization and revegetation. The unstable slopes will be covered with brush mattresses with integrated live staking and seeding which will reduce erosion during flooding to allow vegetation to reestablish. At the two bends in the stream, some stone structures would be prescribed to redirect the thalweg of the river to minimize erosion at the outside bend.

A number of alternatives were considered to provide stream habitat enhancement through bank stabilization, and restoration measures for riparian areas, bottomlands and wetlands. Restoration measures that were considered, but eventually eliminated from consideration include the construction of numerous stone and wooden instream structures that would alter channel hydrodynamics. It was determined that the stream currently fosters a healthy assemblage of smaller, non-game fish, as well as a number of endemic crayfish that may be preyed upon by larger game fish. Because studies indicate that the area may be part of a healthy but sensitive stream ecosystem, the risk of changing the balance by drastically altering channel form with instream structures is considered unacceptable. Additionally, without significantly extending the timeframe and scope of the study, a full hydraulics analysis of the stream channel would not be possible. Performing extensive changes in channel morphology without proper hydraulics information would incur high risk of project failure.

Also considered was the establishment of bottomland forest in the section designated B4. This measure was ultimately rejected because it eliminated an entire field used by the University during athletic events and would necessitate the construction of a pedestrian bridge to allow access to another field. Conversion of section B8 to riparian forest was also eliminated due to low benefit per cost. In order to maintain the usage of an athletic field adjacent to section B8, a parking lot and road would have to be moved. Excavation of a cliff face would be necessary to shift the parking lot and road alignment.

The proposed stream actions will allow natural river behavior, increase water quality and increase quantity and quality of fish and wildlife populations. Bottomland riparian areas will see an increase in the quantity and quality of native trees and shrubs and replacement of meadow-like patches of herbaceous weeds with a more diverse plant assemblage. Development of sloped banks and wetlands will add greatly to the diversity of plants and wildlife and decrease siltation in the river. The more attractive appearance will encourage public access to the riverine ecosystem while focusing access away from sensitive riverbank areas. The District is preparing an Environmental Assessment (EA) for the project, covering all proposed work and alternatives that were considered. The EA is scheduled to be completed and released for public review in mid-April.

Our district archaeologist, Brantley Jackson, inspected the proposed project area; and looked closely at landforms and stream banks. Mr. Jackson noted several areas of historic cut and fill operations extending to the stream bank, evidence of leveling on portions of the present athletic fields. He did not observe any indications of archaeological remains in the project area. This result mirrors that of a Phase I survey for the earlier project, involving surface inspection, augering and shovel probe excavations in the course of which cut and fill sequences were observed but no cultural resources were found.

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Most of the ground-disturbing work for this project will take place on the stream edge with placement of slope toe protection and grading of slopes. These areas clearly lack any cultural resources. It is the determination of the Corps that no historic properties are at the project location. We ask that you concur with our determination at your earliest

ffad

convenience so that this project may commence. If you have any questions or comments, please contact our district archaeologist, Brantley Jackson, at 304-399-5793.

Sincerely,

KESSINGER PM MK 4-15-08
COTE PM-PD-R K 4-10-08
AYA-AY PM-PD-R AB 4-11-08
BORDA PM-PD AB 4-11-08
WORLEY PM-PD gya 12-11-08

S. Michael Worley
Chief, Planning Branch

Enclosures

MEMORANDUM FOR RECORD

SUBJECT: Watauga Aquatic Restoration Section 206 Project, Partnering Meeting with Jim Byrne and George Santucci

1. On 31 January 2008, a partnering meeting was held on the Watauga Aquatic Restoration Project at the Huntington District Office. The purpose of the meeting was to discuss the restoration alternatives for the project and decide upon a selected plan so the draft report can be finalized and the selected plan be included in the Environmental Assessment. A copy of the meeting's agenda is at Enclosure 1 and attending the meeting were:

Jim Byrne	Asst. Town Manager	Boone, NC
George Santucci	Executive Director	National Comm for the New River
Mike Worley	Chief, Planning Branch	USACE, Huntington District
Ben Borda	Asst Chief, Planning Br	USACE, Huntington District
Mark Kessinger	Project Manager	USACE, Huntington District
Jeff Zylland	Ecological Engineer	USACE, Huntington District
Janet Cote	Biologist	USACE, Huntington District
Elizabeth Cooper	Real Estate Specialist	USACE, Huntington District
Greg Lovins	Program Analyst	USACE, Huntington District

2. Special Presentation to Greta Jackson. Before the meeting began, Jim Byrne presented Greta Jackson a plaque in honor of the late Jonathan Jackson who was the Project Manager for the first Watauga Project.

3. Project Overview. Mark Kessinger opened the meeting by presenting an overview of the project. (See powerpoint presentation at Enclosure 2.) He said that continuing development is causing river instability and stream bank erosion of the South Fork New River. The stream is experiencing severe sediment loading and the proposed project covers about 4,000 feet of stream. He noted the Preliminary Restoration Plan was completed in February 2002, and FY07 funds (\$159,000) were appropriated to complete the feasibility study. The report is now 95% complete with a scheduled completion date of May 2008. The remaining activities are complete the draft feasibility report, conduct a Corps internal technical review, issue the report for Public Review, incorporate public comments if necessary, and submit the final report for Corps Headquarters approval.

Decision 1: Mr. Byrne stated that he did not think a public meeting or public workshop was necessary; therefore, we will just conduct a public review period for the draft report and Environmental Assessment. Action 1: Mark Kessinger will ensure that the Huntington District takes out a legal notice in the local newspaper that the draft report and EA will be placed in the local library and can be found on the Huntington District's website for review.

CELRH-PM-P

SUBJECT: Watauga Aquatic Restoration Section 206 Project, Partnering Meeting with Jim Byrne and George Santucci

4. Agency Coordination. Janet Cote then briefed on the coordination that has taken place with other agencies. She explained that some of the restoration opportunities are to allow natural river behavior, increase the quantity and diversity of fish and wildlife populations, improve water quality for aquatic habitat, decrease siltation in the river and provide public access to riverine ecosystem. She stated that some project constraints are working around existing easements, utilities, bridges and other river crossings, management of upstream fisheries and existing recreational uses may not be adversely affected by project, security issues for the pathway, hydrodynamics of the river channel is not well known, and being aware of sensitive and endemic species in the river with unknown consequences of changing river morphology or species assemblages. She said the project objectives include diversifying riparian, bottomland, and wetland habitats around the stream corridor, improving the riparian corridor by planting native vegetation, widening the riparian corridor to create a buffer for overland flow and bank stabilization, focusing on public access away from sensitive river bank areas to improve riparian bank habitat, reducing accelerated erosion of river banks, minimizing maintenance and maximizing self-sustainability of the system, and providing improved community access to recreational opportunities associated with the South Fork New River. She noted that the Corps has coordinated with the Town of Boone (non-federal sponsor), the National Committee for the New River (an interested party), the Appalachian State University (landowner) which wants to keep their athletic fields, the Fish and Wildlife Service (on subjects such as the Endangered Species Act, the Fish and Wildlife Coordination Act, the Habitat Evaluation Procedure and wetlands), the State Historic Preservation Office (on the Archeological and Historic Preservation Act and the National Historic Preservation Act), the USACE on the Hazardous Toxic and Radioactive Waste (HTRW) survey, the Wilmington District on the Nationwide Permit 27, and other Federal, state, and public coordination as part of the National Environmental Policy Act (NEPA) to address impacts to the human environment. Ms. Cote, who conducted fish studies in 2004, stated there is a big improvement in the number and quantity of fish species now than in 2004. Mr. Byrne said it may be due to the fact that the Town of Blowing Rock spilt caustic soda into the river in 2004 and there was a fish kill. Mr. Santucci said he would like to have a copy of the recent fish data so, ***Action 1: Ms. Cote will provide Mr. Santucci with a copy of the fish data she obtained for this study.***

5. Plan Formulation. Jeff Zylland then presented the formulation of the various plans under consideration. He stated that potential restoration measures include bank stabilization, riparian and bottomland restoration such as invasive vegetation removal and revegetation, wetland restoration and creation, and stream habitat enhancement using habitat structures and riparian vegetation. He noted there are some constraints associated with formulation. For example, the hydrology and hydraulics of the stream has not been quantified and the project needs to minimize impacts to native fish and crawfish. However, he added there are some opportunities such as proven success with biotechnical

CELRH-PM-P

SUBJECT: Watauga Aquatic Restoration Section 206 Project, Partnering Meeting with Jim Byrne and George Santucci

stabilization and toe-of-slope treatment, as well as taking an adaptive, design-build approach to construction and being flexible for field changes. One biotechnical means of stabilizing the stream bank is the use of a brush mattress and anchoring lumber slab bundles. (See Figure 1.)

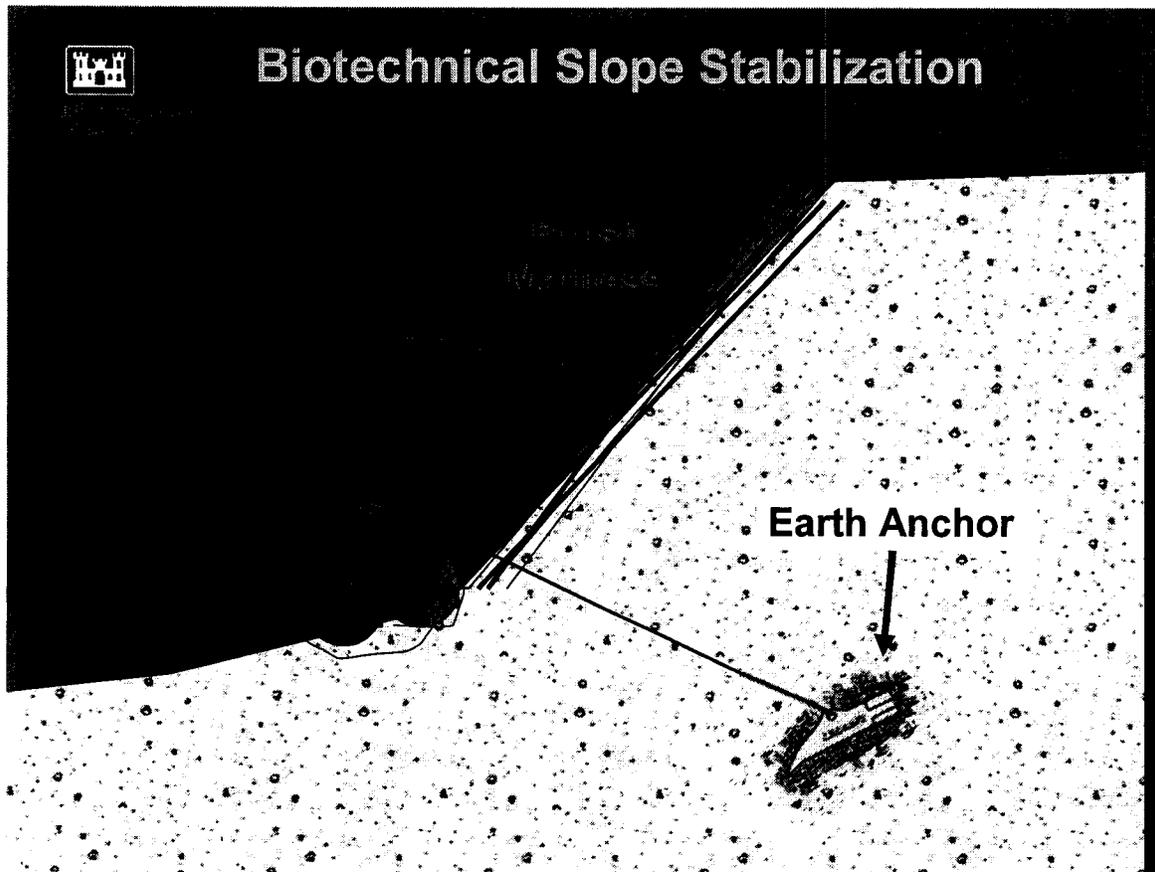


Figure 1. Biotechnical slope stabilization using brush mattress and lumber slab bundles.

Mr. Zylland noted other considerations for the project including relocation of some of the light pole near the intramural fields, portions of the walking path around the bottomland and wetlands, and the field goal storage structures. He said other efforts include the minimal use of stone and bendway weirs in the stream, placement of fencing between the walking path and the restoration features along the river banks, and including recreation access to the river and adding benches and signage.

These restoration measures are shown in Figure 2 on the next page.

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SUBJECT: Watauga Aquatic Restoration Section 206 Project, Partnering Meeting with Jim Byrne and George Santucci

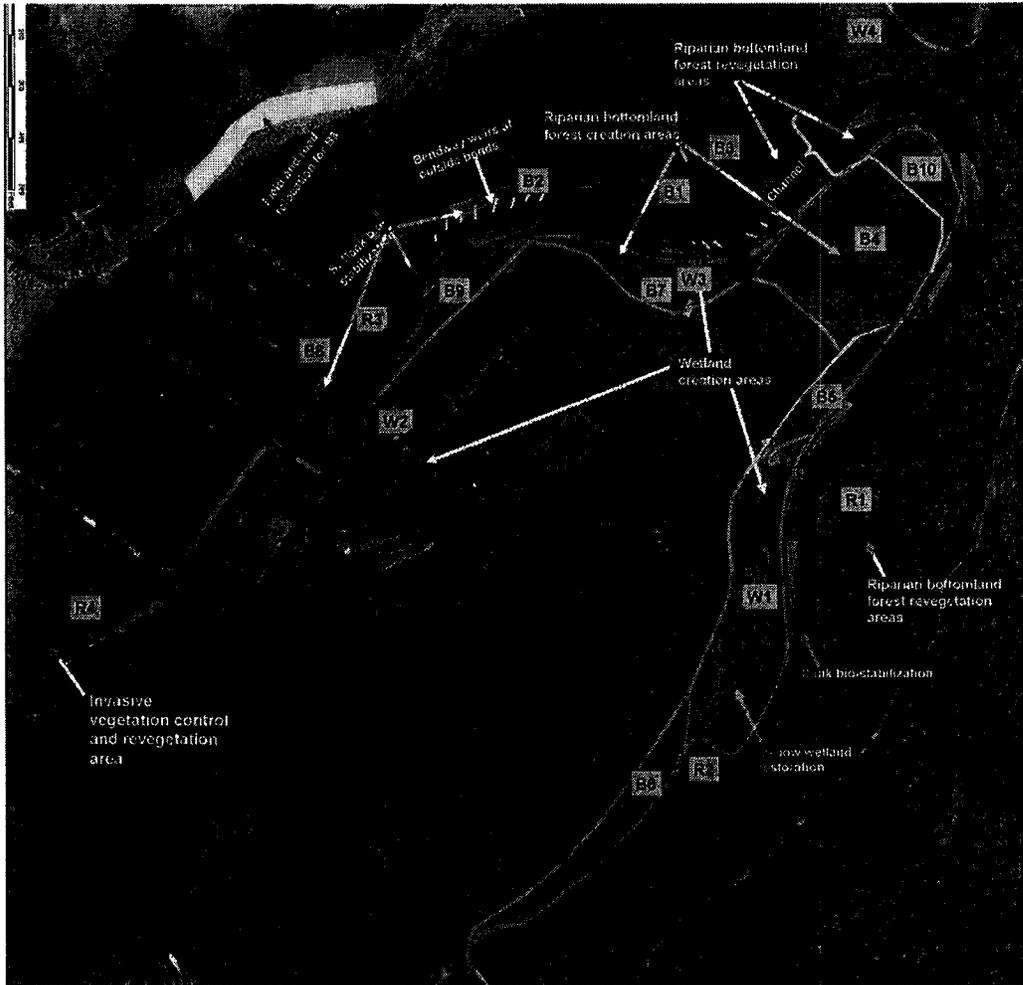


Figure 2. Restoration measures proposed for the South Fork New River .

Looking at 5 alternatives, the “no action” alternative and four others, Mr. Zyland explained that Alternative 1 and 2 were basically equal as shown in the table below:

Alternative	Cost	Benefit	50-Year Annualized cost	Benefit per \$1000	Incremental benefit per \$1000 increment
No Action	\$0	0	0	N/A	N/A
A1	\$974,765	551	\$52,367	10.53	10.5
A2	\$1,008,127	570	\$54,159	10.52	10.3
A3	\$1,298,940	689	\$69,782	9.87	7.60
A4	\$1,890,664	727	\$101,571	7.15	1.20

CELRH-PM-P

SUBJECT: Watauga Aquatic Restoration Section 206 Project, Partnering Meeting with Jim Byrne and George Santucci

After some discussion on each of the alternatives, **Decision 2: Alternative 2 was chosen as the selected plan for the draft report and EA.**

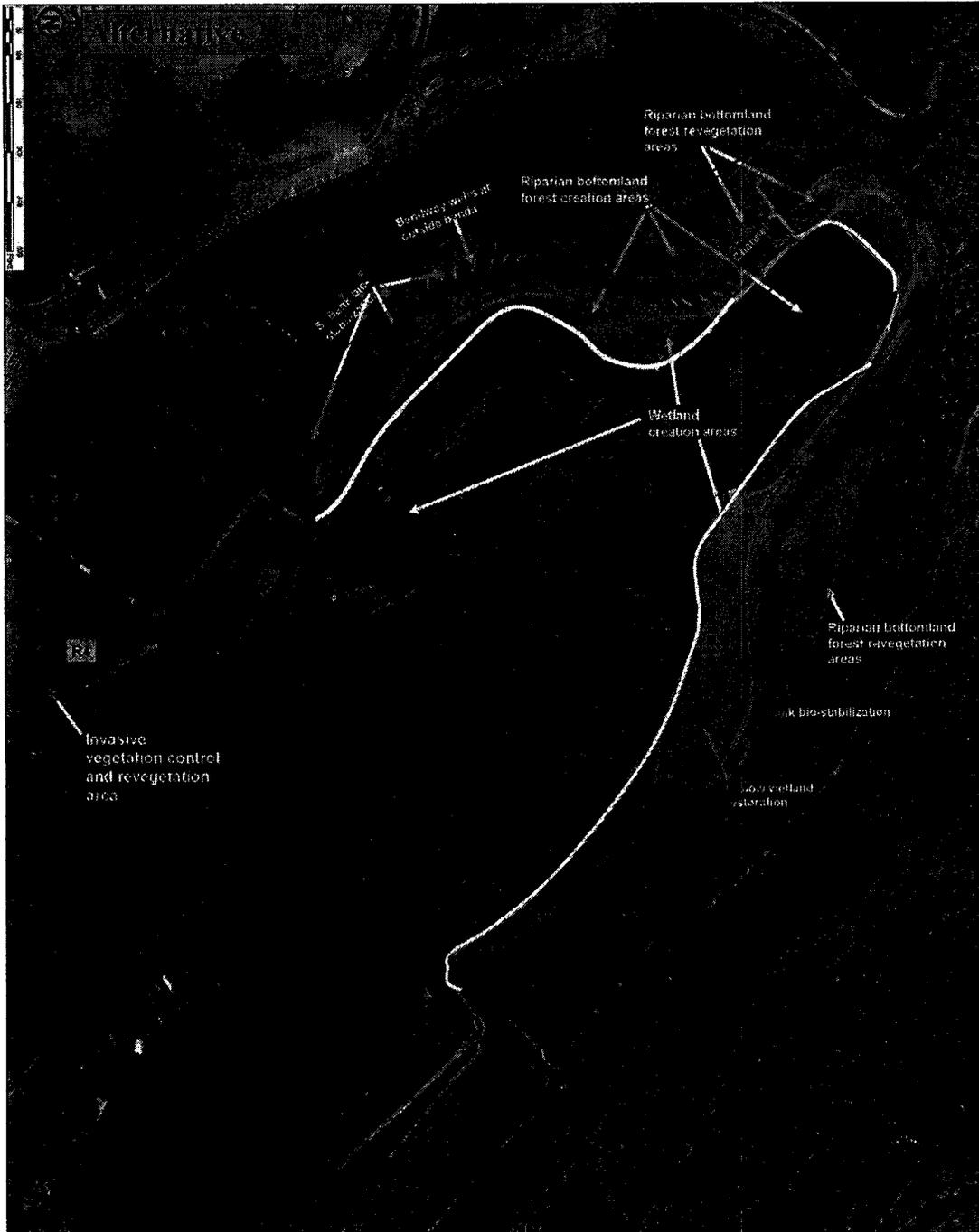


Figure 3. Alternative 2 was chosen as the selected plan for the draft report and EA.

CELRH-PM-P

SUBJECT: Watauga Aquatic Restoration Section 206 Project, Partnering Meeting with Jim Byrne and George Santucci

Action 2: Mr. Kessinger will provide Mr. Byrne and Mr. Santucci with a copy of the Corps' cost estimate for Alternative 2 so that they can develop their own estimates to see what their costs would be to construct the project. They are to treat the Corps' estimate as confidential information and not share it with anyone outside of their agencies.

6. New River Committee Project Capabilities. Mr. Santucci explained that the Committee for the New River Committee done restoration work on over 56 miles of the New River. He said he has done a preliminary cost analysis on this project and believes they could construct it for about \$700,000. ***Action 3: A future meeting will be held at Mr. Santucci's office to discuss the possibility of the New River Committee doing the Watauga Project and to discuss other partnering opportunities. Probably attendees from the Corps will be Mike Worley, Ben Borda, John Preston and Mark Kessinger.***

7. Another Possible Project for Town of Boone. Mr. Byrne then discussed the need for the Town of Boone to dredge its reservoir to restore its water storage capacity and asked if the Corps could assist with that project. Mr. John Yeager explained that the Corps does have authorization to assist local communities with the environmental infrastructure projects and this project sounds like a candidate for that program. ***Action 4: Mr. Yeager and Mr. Byrne will continue to coordinate in regard to this issue.***

8. Closing. Mr. Byrne closed the meeting by saying the Watauga Project Delivery Team "did a great job" and added that it was "what we expected from the Corps."

Respectfully submitted,

/signed/

Mark D. Kessinger
Project Manager

Ms. Denise Moldenhauer
U.S. Fish and Wildlife Service
Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

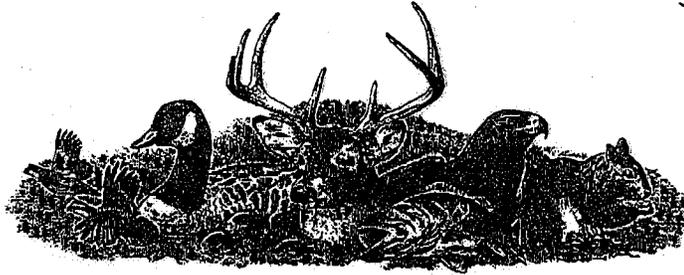
Dear Ms. Moldenhauer:

The Huntington District, Corps of Engineers is currently studying an aquatic restoration project in the Town of Boone, Watauga County, North Carolina, along 4,000 feet of the South Fork of the New River, a National Heritage River. This study is being conducted under the authority of the U.S. Army Corps of Engineers' Section 206, Aquatic Ecosystem Restoration, of the Water Resources Development Act (WRDA) of 1996, as amended. The proposed stream restoration work is adjacent to the recreation property of the Appalachian State University on the east side of Boone.

The overall goal of the Watauga Aquatic Restoration Project is to restore ecosystem functions that are currently lost or degraded on approximately 4,000 feet of the South Fork New River. The restoration would produce aquatic habitat of significantly higher quality than is currently found along this reach of the South Fork. A number of project alternatives have been formulated as described in the Preliminary Draft, Detailed Project Report and Environmental Assessment, dated August 2003. A copy of this document is attached for your information. Of the 3 action alternatives developed for Watauga, Alternative 2 best satisfies the expectations of most of the stakeholders, including the Town of Boone (non-Federal sponsor) and the University, which owns the project real estate.

It is anticipated that a draft Environmental Assessment will be ready for public review in the near future. At this time, we request that the Service review the available draft report in anticipation of the forthcoming submittal. We further request that you furnish a brief letter report (in lieu of a Planning Aid Letter) that includes mention of Threatened and Endangered Species, other fish and wildlife planning considerations, and the like. It is requested that your letter arrive by February 17, 2004 if at all possible. Kindly contact Mr. Barry Passmore, Ecologist, at 304-399-5871 to coordinate this matter more fully.

S. MICHAEL WORLEY



☒ North Carolina Wildlife Resources Commission ☒

Charles R. Fullwood, Executive Director

February 20, 2003

Mr. Barry Passmore
U.S. Army Corps of Engineers
Huntington District
502 Eighth St.
Huntington, West Virginia 25701-2070

RE: Review of the US Army Corps of Engineers "Watauga Aquatic Restoration Project, Boone, North Carolina, Restoration, Opportunities, Objectives, and Array of Alternatives" proposed in the Detailed Project Report (DPR) and Environmental Assessment (EA) for the South Fork New River, Watauga County, North Carolina

Dear Mr. Passmore:

This correspondence is in response to the Detailed Project Report (DPR)/Environmental Assessment (EA) for the South Fork New River, Watauga County, North Carolina prepared by Tetra Tech, Inc. The purpose of the proposed project is to restore approximately 4,000 feet of the South Fork New River corridor in Boone that has been degraded by severe streambank failure, lateral migration of the river channel, loss of riparian vegetation, and increased peak stream flows due to development in the watershed. Proposed improvements include instream habitat improvements, wetland creation, bank biostabilization, recreational access, riparian zone enhancement, and pedestrian path realignment. Personnel with the North Carolina Wildlife Resources Commission (NCWRC) conducted a site visit on February 13, 2003. The NCWRC is authorized to comment and make recommendations that relate to the impacts of this project on fish and wildlife through the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

Based on the site visit and review of the DPR/EA we favor Alternative 4. Alternative 4 provides for a 100' riparian zone, 8 acres of riparian vegetation, converting two sanitary sewer pipe crossings into inverted siphons, constructing a low-flow fish ladder (step pools) downstream of the low head dam at the upstream limit of the previous restoration project, and realigning approximately 3,000 feet of the pedestrian path. Overall we are pleased with the proposed bank stabilization and instream work. However, we are concerned with the use of boulder clusters proposed throughout the project, especially those planned along stations 1+00 - 8+00. Boulder clusters utilized in wide,

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Telephone: (919) 733-3633 ext. 281 • Fax: (919) 715-7643

03/04/03 TUE 06:47 [TX/RX NO 8438]

shallow sections have a tendency not to provide habitat but to development sediment deposits behind them, creating central bars. Care must be taken to insure that boulder clusters are installed properly and placed in appropriate areas so that they will provide habitat. The river is wide and shallow at many locations, especially from stations 0+00 - 16+00. Project designers should consider narrowing the channel at selected locations through this area with the use of single and double wing deflectors. Wing deflectors are used to stabilize eroding banks, create an inner berm or bankfull bench, and narrow and deepen the channel. They also create areas where riparian vegetation can be easily established.

A main project viability consideration should be whether growth and development in Boone will undermine the restoration activities by increasing the river's hydrograph during storm events. The Town of Boone should be encouraged to undertake planning and development measures, including ordinances that maintain present hydrologic conditions. These efforts should avoid elevating the hydrograph and peak flows in order to prevent future destabilization of the river channel. Low Impact Development (LID) techniques may be helpful in this effort. Information on LID methodologies may be found at www.lowimpactdevelopment.org.

Based on our review, we have the following recommendations and suggestions that may be beneficial as you complete the DPR/EA and apply for project permits:

1. A reference reach should be utilized to determine if the proposed plan mimics those conditions naturally occurring in similar riverine ecosystems. Reference reach data should be provided with future environmental documents and applications.
2. Typical riffle and pool cross sections should be included with future documents that show existing and proposed channel conditions.
3. Specific structure design plans (rock vanes, J hook vanes, rock weirs, root wads, large woody debris, boulder clusters, luncker boxes, etc.) should be included in future documents.
4. Luncker box locations should be included on the plan view map.
5. Design of the low flow fish ladder (step-pools) should be included in future documents.
6. Native indigenous flora should be utilized for revegetation, habitat, shading, and stabilization efforts. A planting list and schedule for the riparian corridor and associated wetlands plantings would benefit future reviews and permit acquisitions.
7. Areas included in the restoration effort, including buffers, should be provided permanent protection through conservation easements or other permanent restrictions that limit future fill and development.
8. Efforts to minimize impacts to the following fish species should be considered and implemented.

	STATE	FEDERAL
Kanawha darter (<i>Etheostoma kanawhae</i>)	SR	
Kanawha minnow (<i>Phenacobius teretulus</i>)	SC	FSC
Tonguetied minnow (<i>Exoglossum laurae</i>)	SR	

02/20/03

9. Instream work and land disturbance within the 25-foot wide buffer zone should be prohibited during the brown trout spawning season of October 15 through March 31 to protect the egg and fry stages of trout from off-site sedimentation during construction.
10. Any equipment used in the stream should be new and kept in good repair in order to minimize the potential for petroleum spills and releases. Emergency spill containment equipment should be readily available.

Thank you for the opportunity to comment on this project. If you have any questions regarding these comments, please contact me at 336/769-9453 or Joe Mickey at 336/527-1547.

Sincerely



Ron Linville
Regional Coordinator
Habitat Conservation Program

cc: Joe Mickey, WRC
Jim Borawa, WRC

03/04/03 TUE 06:47 TX/RX NO 84381

Allison Kemp-Sullivan
Design & Construction

From: Joe R. Carter 
Director, University Recreation

February 28, 2003

Watauga Aquatic Restoration Project for State Farm Fields

I have reviewed the restoration project plans and we, University Recreation, are more than willing to work with you on this project. We would really like to see the river and river banks cleaned up, restored and more pleasing to the eye. However, after reviewing the drafts, I am concerned about the proposed loss of playing fields. As you are aware, we invested over \$140,000 into the development of the new playing fields and the addition of the new fields will allow us to schedule Intramural and Club Sports more effectively.

We can give up space for staging the project on the old section and part of the new fields during the months of May, June and July, but we cannot do without any of the playing fields for the months of August - April.

Note: We would expect the areas used for staging to be returned to the original condition before August 21st.

Please find attached a copy of the proposed restoration and using the color code below, the areas we are willing to give for staging, plant life and the areas that we must maintain as playable field space (we will need a minimum of 9'-12' of buffer between playing fields and objects):

-  Staging area only (available April - August)
-  Playable playing fields
-  Area proposed and acceptable for plant life
-  Area not requested but can be available for plant life

RECD MAR 14 2003
RECD MAR 14 2003

100
Appalachian
STATE UNIVERSITY

March 4, 2003

Design and Construction
Post Office Box 32050
Boone, North Carolina 28608-2050
(828) 262-4961
(828) 262-6622
(828) 262-6623
Fax: (828) 262-6472

Mr. Barry Passmore, P
Corps of Engineers
502 Eighth Street
Huntington, WV 25701

Barry,

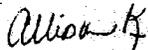
Enclosed are comments received from Mr. Joe Carter, Director of University Recreation and from Mr. Creed, Professor of Biology (also sent via email, February 28, 2003).

~~The Office of Design and Construction endorse the limits of construction as outlined by Mr. Joe Carter and wish to further review the next design phase that will describe in more detail the construction easements, methods and schedules that will impact University property and operations.~~

It is our desire to support the river restoration as noted in Tetra Tech's report, specifically by improving the riparian corridor, establishing wetlands and reducing erosion of the streambanks. ~~The University is not in favor of providing public fishing piers and access ramps or compromising security with any of the proposed stream improvements.~~ In addition, we request an evaluation and response to Professor Creed's concerns regarding impacts on the stream ecology due to the proposed stream alterations.

We appreciate your efforts in preparing a plan that will address the needs of the many competing interests and look forward to your written response.

Sincerely,



Allison Kemp-Sullivan
Project Manager

cc: Dr. Clyde Robbins, Director Design & Construction
Mr. Joe Carter, Director University Recreation
Mr. Robert Creed, Professor, ASU Department of Biology
Mr. Jim Byrnes, Town of Boone

A MEMBER INSTITUTION OF THE UNIVERSITY OF NORTH CAROLINA AN EQUAL OPPORTUNITY EMPLOYER

To: Allison Kemp-Sullivan

From: Robert Creed, Department of Biology

Re: Watauga Aquatic Restoration Project, Boone, North Carolina

Allison:

I have carefully read and evaluated the proposed restoration project plan submitted by the Army Corps of Engineers and the Tetra Tech consulting firm. I feel that the authors have identified a couple of important problems along that stretch of the New River owned by Appalachian State University. These include a narrow or non-existent riparian zone in some places and some steep, eroding banks. I agree with the conclusions that the riparian zone needs to be widened and that some work on some of the stream banks may be necessary.

~~The remainder of the suggested restoration plan seems unnecessary and could actually create a number of ecological problems. Specifically, all of the suggested "improvements" to the stream channel are unnecessary. References to the shallow featureless pools in the reach as being low quality habitat reflect a bias in the perspective of the authors. The New River in North Carolina tends to be a low gradient, shallow, broad river for much of its length. I think it is inappropriate to try and make the river something it is not, i.e., a high gradient, cold water, trout stream. Moreover, the ultimate goal of these "improvements", i.e., rock vanes, boulder clusters, lunger boxes etc., is not for improvement of the habitat for existing species of invertebrates, fish and wildlife but to create a trout fishery for the public. All of the structures I mentioned in the previous sentence are artificial and some will require moving heavy machinery down the banks and through the stream channel to put them in place. This will be harmful to several invertebrates that will not be able to move out of the way of the machinery. In addition, if the above mentioned stream channel improvements are implemented then it will only be a matter of time before someone proposes stocking that section of river with trout to support yet another mountain trout fishery. Introductions of large numbers of trout into that section of stream would be disastrous. There are 3 species of fish (Kanawha minnow, Kanawha darter and the Tongue-tied minnow) that are either listed as significantly rare or of special concern. There are also two species of crayfish (the New River Crayfish (*Cambarus chasmodactylus*) and *Orconectes cristavarius*) that occur in that section of river that have placed on a species Watch List by the State of North Carolina. I should also point out that all but one of these species are endemic to the New River drainage, i.e., they are found in no other watershed on earth. Adding large numbers of trout could jeopardize the populations of these species that occur in the Greenway portion of the South Fork because large trout readily consume smaller species of fish.~~

If the University were to sanction such actions, i.e., turning this section of river into a public trout fishery, I think it would set a poor example for the rest of the High Country. Appalachian State University should set an example of good stewardship of its existing waterways for the rest of the region. We should take all possible steps to protect our

lands and preserve the species that live on these lands. We also need to maintain our lands and streams as living, outdoor classrooms for our students. Few universities have such natural habitats close by their campuses. We should not reduce their value so that a few people can have yet another place to catch large trout. They can go just another mile or two to the Watauga River and fish in the 3 miles of Delayed Harvest trout waters on that river. The Greenway portion of the South Fork is also a valuable outdoor laboratory for me and my students. My students and I have been conducting valuable ecological research on that portion of the river for the last 6 years. We have learned a great deal about that community of organisms and some of our findings are unprecedented. That research has brought considerable attention to Appalachian State University and the New River. The changes to that community brought about by adding trout and the disturbances created by the fisherman would make it impossible for me to continue this research. That section of river is an irreplaceable resource. The university would set a bad precedent if it were to create another trout fishing area out of an area that has yielded so much valuable and interesting ecological information.

In conclusion, I can only support a portion of the proposed restoration objectives. Specifically, these are the recommendations for widening the riparian zone and stabilizing some of the stream banks. I also support the removal of the drains that were put in last year to drain the new soccer fields and replacing them with wetlands. Also, we should move the lights on the older fields away from the river or at least make sure that they do not shine in the river as this will disrupt the activities of nocturnal creatures. I do not support any of the suggested instream modifications. They are not warranted.

I would be happy to discuss any of these comments with anyone from Appalachian State University, the US Army Corps of Engineers or Tetra Tech.



North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

March 26, 2003

Mr. Barry Passmore
US Army Corps of Engineers
Huntington District
502 Eighth St.
Huntington, West Virginia 25701-2070

Re: Response to Dr. Creed's concerns on the South Fork New River restoration project

Dear Mr. Passmore:

This correspondence is in response to a memo that Dr. Robert Creed sent to Allison Kemp-Sullivan, Appalachian State University, concerning the US Army Corps of Engineers planned stream enhancement project on the South Fork New River in Boone. In his memo, Dr. Creed brought up some valid issues. Three major points of concern were the proposed in-stream structures, their impacts on aquatic species of concern and the proposed Wildlife Commission's Delayed Harvest trout management program. We would like to respond to his concerns.

On February 20, 2003, we reviewed the proposed Detailed Project Report and Environmental Assessment for this project. While we had some concerns on the types and placement of enhancement structures, as a broad-spectrum review, we support the technical merits of proposed stream enhancements. Dr. Creed states that he only supports the widening of the riparian zone and some bank improvements. In some instances bank improvement is all that is required, but at locations with severe bank erosion, in-stream structures (rock weirs, rock and log vanes, root wads) are needed to protect the toe of the newly shaped bank and reduce near bank stress during high flows. These structures will not convert the stream from a C channel (low gradient) to a B channel (high gradient) but will provide habitat for a broad range of aquatic species. The goal of the proposed enhancement work is to create a stream corridor that represents a stable river reach in dimension, pattern and profile. Doing so will result in improved sediment transport through the system and enhanced habitat for all aquatic species.

We appreciate Dr. Creed's concern for impacts the project might have on the Kanawha minnow (*Phenacobius teretulus*), Kanawha darter (*Etheostoma kanawhae*) and Tongue-tied minnow (*Exoglossum laurae*), listed as state significantly rare or of special concern. Also present are two species of crayfish, the New River Crayfish (*Cambarus chasmodactylus*) and *Oreonectes cristavarius* that are on the state's Watch List. We have discussed this concern with our Non-game Aquatic Biologist and District Fishery Biologists. It is our opinion that with appropriate precautions and care, the project should have little or no long-term negative impact on these species. While these species may be significant in this reach, they also appear to be distributed in other localities throughout the New River watershed in North Carolina. However, care should be taken during construction to minimize impacts to all aquatic species. Reducing bank erosion and improving instream habitat is a win/win situation. Improving habitat should ultimately have a positive impact on these endemic aquatic species. We also see this as a great opportunity for Dr. Creed to continue his research and monitor the long-term impacts the project will have on the aquatic community. He has years of valuable pre-construction data from this site that can be compared with post-construction data. There is a great need for long-term biological monitoring of stream restoration/enhancement projects.

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Dr. Creed's biggest concern seems to be with the Wildlife Commission's proposed Delayed Harvest trout management program. We consider this a separate issue from the proposed stream enhancement project. We support the merits of the enhancement project whether or not a trout management program is developed at the site. However, the location, public ownership and easy access make it an ideal site to develop a public trout fishery. We would like to stress that a Delayed Harvest trout program will not be initiated at the site unless Appalachian State University and the Town of Boone approve of the program. If a trout management program is developed at this location, it would be another opportunity for Dr. Creed to do research on the impact trout stocking might have on endemic aquatic species.

In summary, we support a properly constructed stream enhancement project and also support angling opportunities. The project will have a positive effect on stream habitat and aquatic species. Because of the ongoing studies Dr. Creed has at the site, it also has the potential for many more research and educational applications. We appreciate the Corps efforts to keep all parties informed on the progress of this project.

Sincerely,



Joe H. Mickey, Jr.

WRC Stream Mitigation Coordinator

Cc: Jim Borawa, WRC
Mallory Martin, WRC
Kin Hodges, WRC
Kevin Hining, WRC
Steve Fraley, WRC
Doug Besler, WRC



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

March 2, 2004

REC'D MAR 15 2004

Mr. S. Michael Worley
Mr. Barry Passmore
U.S. Army Corps of Engineers
Huntington District
502 Eighth Street
Huntington, West Virginia 25701-2070

Gentlemen:

Subject: Preliminary Restoration Plan for 4,000 Linear Feet of the South Fork New River in Boone, Watauga County, North Carolina

We received your request for our comments on the Watauga Aquatic Ecosystem Restoration Project. This project is being initiated by the Huntington District, U.S. Army Corps of Engineers (Corps). The study is being conducted under Section 206 of the Water Resources Development Act of 1996, which authorizes the Corps to carry out aquatic ecosystem restoration. The project is in its preliminary stages, and this letter contains our early scoping comments in accordance with the Fish and Wildlife Coordination Act (FWCA), as amended (16 U.S.C. 661-667e), and section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act). These scoping comments do not constitute the report of the Department of the Interior as required by Section 2(b) of the FWCA.

Project Description - The proposed project area starts adjacent to the recreational property of Appalachian State University on the east side of Boone, North Carolina. The restoration involves 4,000 linear feet of the South Fork New River. The purpose of the project is to restore degraded ecosystem structure, function, and dynamic purposes to a less degraded, more natural condition. Development in the watershed has caused river instability, including severe stream-bank failure and lateral migration of river channels. Stream-bank erosion is common throughout the project area and is caused by an increase in peak discharges, channel realignment, the removal of riparian vegetation, and loss of the floodplain. Three stream restoration alternatives are proposed, and all three include the installation of in-stream features.

enhancement of the riparian zone, shaping of pointbars, creation of wetland benches, use of bank bio-stabilization, relocation of structures outside the floodplain, and installation of recreational amenities.

Federally Listed Species - According to our records, no federally listed species are known from the site, and according to the information provided, no appropriate habitat exists within the project area for federally listed species. Therefore, we believe the requirements under section 7(c) of the Act are fulfilled. However, obligations under section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner that was not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

Our records indicate that two federal species of concern--the Kanawha minnow (*Phenacobius teretulus*) and the green floater mussel (*Lasmigona subviridis*), which is also listed by the state as endangered--occur near the project area. Federal species of concern are not legally protected under the Act and are not subject to any of its provisions, including section 7, unless they are formally proposed or listed as endangered or threatened. We are including these species in our response to ask for your assistance in helping us protect these sensitive species. Since this project is being conducted to restore and improve the quality of the river, we believe it is appropriate and within the scope of the project for the Corps to avoid impacting any green floater mussels and to relocate any mussels discovered within the project impact area; i.e., any area in which a structure will be placed within the stream. Generally, we encourage the avoidance of impacts to fish and wildlife resources and discourage the relocation of aquatic fauna. However, because this is a restoration project, we recommend surveying for mussels 100 meters above and 400 meters below any potential impact area, developing a relocation and monitoring plan for discovered mussels that consists of finding a suitable relocation site, tagging the mussels, handling and transporting individuals, and monitoring survivability once a year for 2 to 3 years. If mussels are discovered and relocated, we, in conjunction with the North Carolina Wildlife Resources Commission, would assist with the development of a relocation and monitoring plan and would want to approve the final plan.

Project Recommendations - We request the opportunity to be involved throughout the restoration process, review all future design plans, and make recommendations about the entire restoration design as more information becomes available. We offer the following preliminary recommendations:

1. **Reference Reach** - We could not find a discussion of the use of a reference reach for the restoration design. Although this restoration work will not involve the construction of a new stream channel, we believe it is important to mimic the restoration design after the slope, riffle slope, pool slope, valley slope, meander geometry, sinuosity, cross-sectional dimensions, entrenchment ratio, bed material (pebble count), and bank-full discharge of a nearby

reference reach of a stable stream of the same classification (Rosgen 1996). We also recommend that you use examples of natural riparian communities in the vicinity of the site. These examples can be important for defining the objectives of the restoration effort and for providing a reference to measure success at the restoration site.

2. In-stream Features - Alternative 2 proposes the installation of cross vanes, V-weirs, J-hooks, boulder clusters, and large woody debris. Alternative 3 proposes the same type of restoration activities as Alternative 2 but increases the quantity of structures. Structures should be placed within the channel to mend specific problems; more structures will not necessarily improve the stability of a river. For example, random boulder placement as deflectors in C1 and C4 streams can reduce sediment deposition but can stress stream banks (Rosgen 1996). We strongly recommend providing an explanation of how each structure will improve a specific problem and ultimately provide the desired restoration. The restoration plan states that the current status of the subject reach of river is a "C" stream type channel (C4 in the upstream portion and C1 in the downstream portion) that is slightly incised throughout and lacking sinuosity in the downstream reach. C1 channels typically have low sediment supply and are very stable. We caution against using in-stream structures within the C1 reach of river to repair sedimentation problems. Instead, we recommend establishing a riparian buffer to reduce sedimentation and storm-water issues associated with urban runoff. If in-stream structures are used within the C1 channel, we would like to review a discussion of how the proposed structures will attempt to restore the current reach to a stable form.
3. Fish Passage - Alternative 4 proposes the installation of a fish passage structure at the low-head dam. We could not find a discussion of this dam structure or a detailed description of the proposed fish passage structure. Before we can provide comments on fish passage improvement, we would like to review a description of the current dam and the proposed fish passage design plans.
4. Forested Stream Buffers - We are pleased that all the alternatives propose a 39-foot riparian buffer zone along the 4,000 linear feet of restoration. We realize that landowner consent can be difficult to obtain; however, because this is a restoration project that is trying to reduce sedimentation and impacts associated with storm-water runoff, we recommend reforesting and protecting the entire floodplain.

We appreciate the opportunity to provide these comments early in your planning effort. Please keep us informed as to the progress of this project. If we can be of further assistance or if you have any questions, please do not hesitate to contact Ms. Denise Moldenhauer of our staff at

828/258-3939, Ext. 226. In any future correspondence concerning this project, please reference our Log Number 4-2-00-292.

Sincerely,

A handwritten signature in black ink, appearing to read "Brian P. Cole", with a stylized flourish at the end.

Brian P. Cole
Field Supervisor

cc:

Mr. Steve Chapin, U.S. Army Corps of Engineers, Asheville Regulatory Field Office, 151 Patton Avenue, Room 208, Asheville, NC 28801-5006

Ms. Becky Fox, U.S. Environmental Protection Agency, 1349 Firefly Road, Whittier, NC 28789

Mr. David McHenry, Mountain Region Coordinator, North Carolina Wildlife Resources Commission, 20830 Great Smoky Mtn. Expressway, Waynesville, NC 28786