## 4.1.4 Broadstreet Hollow Landowner Survey responses.

| Percent response | **Broadstreet Hollow Landowner Survey ~ 2001** |
|---|---|
| | 1. I live in the Broadstreet Hollow valley |
| 50% | Year round |
| 11% | Primarily in the summer season |
| 39% | Mostly on weekends |
| | 2. I enjoy the Broadstreet Hollow on my property for… |
| 82% | walking along the stream |
| 7% | camping along the stream |
| 82% | the view |
| 79% | watching the wildlife, birds |
| 14% | hunting along the stream |
| 36% | fishing |
| 25% | swimming |
| 18% | household water supply |
| 29% | lawn or garden water supply |
| 7% | area to dispose of grass clippings and brush |
| 4% | source of gravel or rock materials |
| 14% | Other |
| | 3. Conditions on the Broadstreet Hollow in my area are… |
| 11% | Excellent, need no change in management |
| 25% | Good, but could use some improved management |
| 29% | Fair, need much more management |
| 29% | Poor, need urgent management |
| 19 | 4. I've lived here ____ years. (total expressed as average) |
| 18% | 5 years or less |
| 7% | 5-10 years |
| 21% | 10-20years |
| 46% | 20 years or more |
| | 5. While I've lived here, flooding along the stream… |
| 46% | has been a frequent problem |
| 32% | has been a relatively minor problem |
| 7% | has never been a problem |
| 21% | has gotten worse |
| 0% | has gotten better |
| | 6. My main concerns about the stream include… |
| 82% | Streambank erosion |
| 50% | Flooding of property |
| 39% | Impaired fishing |
| 21% | Groundwater connection to my well |
| 57% | Pollution from upstream runoff, dumping |
| 14% | Nuisance wildlife (e.g., mosquitoes) |
| 14% | Trespassing |
| 21% | Difficulty obtaining permits for streamwork |
| 25% | Time and money required for proper stream care |
| 21% | Government regulation of private property rights |
| 11% | Getting enough water for my lawn and garden |
| 57% | Washout of roads and bridges |

4% Other

7. I personally have been affected by flooding…

18% never
4% extensively
11% once
61% a number of times
18% - damage to my home/land
39% - washout of road access
36% - washout of bridge access
57% - erosion of stream banks

8. The best way to solve flooding problems is to…

29% clean gravel and cobble out of the stream
25% restore natural channels and floodplains
18% straighten the stream
29% clear trees and brush away from the channel
11% build berms and levees
18% build more flood control structures
18% keep buildings out of the floodplain
14% maintain wetland storage in headwater valleys
21% Other

9. I think rip-rap

32% is the only reliable way to treat bank erosion
4% is rarely a good way to treat bank erosion
32% is the treatment of last resort
21% other

10. Fishing on the Broadstreet Hollow has generally

0% improved in recent years
61% deteriorated in recent years
0% remained consistent
29% Other

11. Decisions about how streams are managed on private property should

18% rest with landowners
21% rest with the County Soil and Water Districts
7% rest with the town highway department
7% rest with the county highway department
54% be shared between landowners and local government
11% rest with the federal government
4% FEMA
7% Army Corps of Engineers
4% Natural Resources Conservation Service
7% U.S. Fish and Wildlife
7% don't know
25% Other

12. The main financial responsibility for management of streams on private property should

11% rest with landowners
25% rest with the County Soil and Water Districts
7% rest with the town highway department

4% rest with the county highway department
25% rest with the federal government
4% FEMA
0% Army Corps of Engineers
4% Natural Resources Conservation Service
7% U.S. Fish and Wildlife
25% be shared between landowners and government
4% don't know
29% Other

13) Interested in participating in Landowners Association

61% Yes
25% No

14) I would be willing to represent my neighbors in on the Project Advisory Committee

21% Yes
54% No

### 4.1.5 Broadstreet Hollow Newsletters and Press Releases

# *Broadstreet Hollow Newsletter ~ May, 2001*

**Broadstreet Hollow Project Staff**

Gary Capella – Executive Director, Ulster County Soil &Water Conservation District (UCSWCD)
Sarah Miller – Project Manager, NYC Department of Environmental Protection
Lori Kerrigan – Project Coordinator, (UCSWCD)

**Riparian Landowner Survey**

We wanted to see what you thought so we sent out a Landowner Survey

- **Sixty-Eight surveys mailed**
- **Twenty-eight returned, to date**
- **40% return rate**

***Overview of the Watershed***

Watershed Area – The Broadstreet Hollow watershed is approximately 5 square miles. As you know the Broadstreet Hollow empties into the Esopus River and flows southeast to the Ashokan reservoir.

Over the years, dating back to the early 1900's and Theodore Roosevelt, there have been many efforts made to protect our waters. The most recent of which is happening in your own watershed community.

The Soil and Water Conservation Districts and the NYC Department of Environmental Protection, Stream Management Program, have teamed up to embark on a comprehensive endeavor to provide for the stewardship of the Broadstreet Hollow.

**Broadstreet Hollow Stream Management Plan**

The stream Management plan is a document: Basic elements of which are the plans to:

- **Reduce Flood Risk and Property Damage**
- **Enhance Fisheries**
- **Improve Water Quality**

How this can help you?

- The document will Provide a framework for dealing with current and future water quality issues and flood control

- By conducting Stream assessments now can provide the information and data needed for easier avenues of permitting and funding in the future

- The Knowledge of basin morphology can also serve to reduce costs and increase productivity down the line.

The Project Advisory Committee

We have begun organizing a team that will represent the watershed community that will serve to council the development of this stream management plan:

- **Town**
- **County**
- **State**

Such as the towns of Lexington and Shandaken Supervisors, Highway Department, Planning Dept, NRCS, DEC, DOT and DWP

- **Landowners**
- **Local Business (Timberlake Camp)**
- **Sports and Anglers Clubs (Trout Unlimited, Phoenicia Fish and Game)**

**Project Advisory Committee-**
**Landowners to Elect a Representative**

Out of the Volunteers determined by the surveys, we'd like you to elect someone from each county to represent you on our Project Advisory Committee.

**Broadstreet Hollow Timeline**

*To begin any operation, you need to set goals and designate a time in which those goals will be accomplished. With this in mind, we've drawn up a descriptive timeline:*

- Fall 2000 – Greene County Soil and Water began to implement the plans for the Demonstration Restoration Project. The Demonstration Project was designed to be a representation of a new way of dealing with issues in a stream
- In November 2000 –Hire the Project Coordinator for the Broadstreet Hollow Stream Management Plan to gather the people and tools needed for a comprehensive look at the stream
- December 2000 – Commence formulation of Project Advisory Committee
- January 2001- Survey mailed to watershed landowners
- February 2001 – Training in Rosgen Fluvial Geomorphic
  - Begin to set up a Geographic Information Systems (GIS) Library
- March 1st and 2nd 2001- Facilitated Planning Session
- April 21st 2001 – 1st Public meeting
- May 2001 – 2nd Public meeting

-Have scanner available for historic maps and photos
-Record landowner experiences and suggestions
-Finalize landowner representatives to PAC

- May 2001 thru September 2001 – Field assessments
- June/July 2001– 2nd PAC meeting to review progress of field assessments
- June 2001 – Demonstration Project bioengineering phase complete
- Begin monitoring phase
- June or July 2001 – Public education
  -Stream walk
  -Informational forum
  -Brochure
- September – October 2001 – Calculate field data
- October 2001 – Public meeting to present field data and discuss writing of the Management Plan draft
- November – January 2002 – Writing of Management Plan draft
- February 2002 – Presentation of Management Plan draft to PAC for review and comment
- February 2002 – Revisions of the Plan
- March 2002 – Public presentation of the Broadstreet Hollow Stream Management Plan
- March/April 2002 – Final revision based on public comment
- April 2002 – Adoption of The Broadstreet Hollow Stream Management Plan

**Watershed-wide Data Collection**

We have already begun in office with preliminary recon in ARCView GIS
Mapping the stream and its tributaries
Field Reconnaissance – May

Our Americorps member has been doing historical research and we have gathered together our old aerial photos have a look at what the stream used to look like.

Ulster County Soil & Water Conservation District
652 Route 299 Suite 103
**Highland, NY 12528*845-883-7162 or email: lkerrigan@nyhighland.fsc.usda.gov***

# BROADSTREET HOLLOW

**PUBLIC MEETING UPDATE-June 2001**

Part of developing a stream management plan includes finding out what is happening in the stream itself. Some of this information is collected through field surveys. Just as important is the first-hand knowledge of streamside residents.

On June 9, 2001, some of the landowners along the Broadstreet Hollow got together to share questions, photos, art, old newspaper articles and memories of the past of their watershed.

**Some of Broadstreet Hollow's Rich History Shared**

Among other long-time families in Broadstreet Hollow, Ernest M. Rowe Jr. shared details of his family's local history, including generations of Rowes in the valley. Mr. Rowe's father worked on the Shandaken Tunnel when he was 14, when he wasn't attending school in Allaben. He kept time for the other men working underground, as he was too young at the time to be allowed to work in the tunnel itself. He also told stories of the men who died inside the tunnel, crushed under collapsed sections of new construction.

Mr. Rowe's family also included some of the first pilots to fly airplanes into the area. Basil Rowe wrote Under My Wings in 1956, which included the local history of airplane flight. George Rowe had the Sawmill up here, and had pictures of it being torn down and burned.

There were six Rowe siblings originally in the Broadstreet Hollow valley. To honor the Rowe family and its contribution to the history of the valley, Mr. Rowe has proposed the bridge constructed in 2000 be named "Rowe Brothers Bridge".

Christine Baltz brought a painting of the Broadstreet Hollow by V. Swenson, 1944, to the Saturday meeting. She asks, "Can you identify this spot?"

**Broadstreet Hollow's Recent Flooding History**

Among the infamous floods of record, were the torrential rains of January, 1996. Pete Torregrossa Sr. provided a few newspaper articles, and some photos showing the stream behind his and neighboring homes of Bernie and Marie Stutman and Pete Torregrossa, Jr., following the flood, and during subsequent emergency construction by the NRCS in 1997. Photos provided by Christine Baltz show the same site in 1988 as an idyllic summer wading spot, before the combination of hillslope instability, floodplain fill and extreme floods took their toll. Other photos show dramatic road washouts from the flood.

Marie and Marc Foss provided some photos of their section of stream from 1996 and 1998, showing a similar situation to the Torregrossa and Stutman reach. Their erosion problems include a dramatic failing clay hillslope with many downed trees, and a clay-bottomed stream channel that erodes actively each year. This type of erosion problem is quite common throughout the Esopus Creek and its tributaries, and will be one of the primary stream stability issues addressed in the assessment and inventory of stream conditions in Broadstreet Hollow.

## Project Advisory Committee Landowner Representatives Elected

As an exciting addition to landowner involvement in Broadstreet Hollow stream issues and management plan development, votes were cast and tallied for a local representative to the Project Advisory Committee (PAC). Votes cast by mail-in ballot were included in the final accounting. The vote resulted in a tie between Christine Baltz and Debra Spivak. Both have accepted their role as landowner representatives. All PAC meetings are open to the public and all landowners are welcome to join us.
Christine and Debra will be responsible to convey landowner needs and concerns regarding the stream and watershed to the PAC, as well as to bring information back to the community not included in our regular newsletters and mailings.
Participants discussed the possibility of formalizing a Landowner Association to better organize representation of the Broadstreet Hollow beyond the current stream management project. A landowner association is a constructive way to disseminate information, provide a united "voice" for community concerns, and provide a focus for funding and assistance opportunities for stream work and other community projects.

## Local Concerns Discussed

In addition to the concern for streamside property, residents at the meeting addressed the issue of road and bridge safety and access. In particular, participants discussed the following:

Buses and log trucks in the area may have difficulty getting up the road when washouts occur.

Emergency, fire and fuel trucks need to have adequate access without making large traffic a problem or encouraging an increase in traffic in this quiet valley.

An assessment of traffic load and an upgrade of roads and bridges should be a recommendation of the stream management plan.

## The Importance of Streamside Vegetation

Residents concerned about stream stability, fish habitat and water quality, in addition to the beauty of the Broadstreet Hollow, discussed the importance of riparian vegetation in achieving these goals.

Stream tours and walks through the watershed, on a small scale, for anyone interested may generate an educational forum for riparian and stream plants and animals.

## Who's Who in the Project Partnering Agencies

A request was made during the meeting for a complete listing of all project, local and regional staff and agencies involved in natural resource, infrastructure and government issues. This list will be an important component of the stream management plan. In the meantime, concerned residents can contact the project staff or PAC members for specific information.

## Other Flooding-related Concerns

Several valley residents present at Saturday's meeting expressed concern about the actions of neighboring streamside landowners on their property, and other properties both up- and downstream. Some of these concerns are outlined below:

Building in the "floodplain" or along the streamside - Shandaken currently does not have a code to govern building next to streams. The results can include increased flood damage downstream from buildings and debris washing from upstream neighbors.

Jack Isaacs, Fisheries Biologist with the New York State Department of Environmental Conservation and member of the PAC, mentioned recently at a watershed meeting that it is permissible for a landowner to take care of debris in their portion of stream, as long as the work is done without heavy machinery in the stream channel. Members of the Ashokan-Pepacton Chapter of Trout Unlimited have

provided hundreds of volunteer hours in downed tree removal from sensitive areas in the stream throughout the Broadstreet Hollow.

Zoning issues related to streamside activities - Mike Malloy is the new code enforcement officer who can provide information on zoning issues.

Federal Emergency Management Agency (FEMA) Federal Insurance Rate Maps (FIRM) – these maps delineate the 100 and 500 year floodplains, and can assist development in these sensitive zones. Currently, detailed FIRM maps are not available for all areas.

Other FEMA issues - If building codes and floodplain zoning are not enforced, the community may lose its flood insurance, and the opportunity to apply for FEMA funding in the event of a flooding emergency. It is the town's job to enforce these codes in order to enable the community to maintain the insurance.

Floodplain Buyout programs were discussed as one possible option to reduce both damages to homes in the floodplain, as well as to protect neighboring homes from damage during floods.

***Ulster County Soil and Water Conservation District***
***Suite 103 Route 299 Highland, NY 12528***
***Phone: 845 883-7162 Fax: 845 883-7184***
***Email: lkerrigan@nyhighland.fsc.usda.gov***

## *Broadstreet Hollow News~May 2003*

On Friday, May 2, 2003, 2pm at the Shandaken Town Hall, the Broadstreet Hollow Project Advisory Committee (PAC) and the Landowners Watershed Association (LWA) met to discuss the first draft of the Broadstreet Hollow Stream Management Plan.

Sarah Miller, the Project Manager at the Stream Management Program of the Department of Environmental Protection announced that the Stream Management Plan document passes the "drop test" with a wonderful resonance, as the book struck the floor from a height of 3 feet. Yes, this book has nearly 400 pages. Weighing in at 2 and three quarter lbs., it is chock full of information, with something for everyone.


The draft is available for review at the Phoenicia Library, the Shandaken and Lexington Town Halls, the Ulster and Greene County Soil Soil and Water Conservation District Offices, online at the Greene County SWCD website: www.gcswcd.com/stream/broadstreet/smp and through the Shandaken Town web site link at http://town.shandaken.ny.us

Before the official start of the meeting there was a discussion about the logistics of removing an abandoned house that is falling into the stream and has become a hazard, in addition to attracting further refuse dumping. Christine Baltz, one of the Landowner Watershed Association chairs, is pursuing its removal and seeking the help of the NYS DEC and the Town of Lexington where the site is located.

### *Amendments to the Management Plan*

A number of useful suggestions were made to improve the plan for the final draft, due June 1st. Dave Channon, Ulster County Landowner Representative, suggested organizing Management Units with reference page numbers and a map in the front of the document for ease of location. Other specific suggestions included page numbers, larger type in certain sections and clearer printing for reference tables.

The plan is going to be revised into two documents to make it easier to handle. The one section will contain all of the history and reference information about the watershed (things that are unlikely to change or need frequent updates) The other section will contain the Management Units and recommendations with summary tables for ease of use when assessing a particular site or project area.

Sarah reviewed uses of the plan as well as how to update the plan as watershed issues and participants evolve. All agreed the Project Advisory Committee (PAC), who has been so instrumental in the formation of this plan, should remain intact and meet once or twice a year to discuss changes or updates to management strategies, or specific projects for implementation. Two representatives, one from the Landowner Watershed Association and one from the Town or County should be elected to take responsibility to call these meetings and keep the Plan current.

### Streamside Clean-up, May 10

Christine announced Saturday May 10, 2003 at 10:30, the LWA will be holding its second annual stream clean-up of the Broadstreet Hollow. Funding for this is being supplied by the Catskill Watershed Corp. The landowners will meet first (at the Baltz's on Broadstreet Hollow Road) to discuss the evolution of their organization, whether they can partner with the Town to provide assistance holding grants for their organization, and the potential for becoming incorporated as a not-for-profit organization. All are welcomed to come participate in these back–to--back watershed events.

### Access to the Demonstration Project Site

One of the first of its kind in this area, the "natural channel design" stream restoration demonstration project has drawn much interest locally and regionally. Property owners along the project site, who have been extremely cooperative throughout the project, are now finding it challenging to preserve their privacy as people continue to come to observe the project site. Their wish to receive advanced notice from groups and passersby for access to the project will be included in the plan, and agencies and groups will be instructed to notify interested parties inquiring about the project. This notification request will also be posted to the GCSWCD and Town websites.

Discussion of speed limit signs and "dead end" status of the Broadstreet Hollow Road focused on non-local traffic using the road. Though the Highway Departments post the road with speed limit signs, and a clear "Dead End" sign at the bottom, there is still traffic that is traveling 3+ miles to only have to turn around and go back. Additional or more prominent signage was discussed as a possibility to decrease traffic through the area and keep vehicle speeds in check, though no formal plan was discussed.

***Ulster County Soil & Water Conservation District***
***Suite 103 Route 299 Highland, NY 12528***
***Phone: 845 883-7162 Fax: 845 883-7184***
***Email: lkerrigan@nyhighland.fsc.usda.gov***
***Or smiller@dep.nyc.gov 845-340-7518***

## *Broadstreet Hollow Stream Management Plan Release Summer, 2003*

With many comments of a job well-done and a few changes to make to the document, the Broadstreet Hollow Stream Management Plan will be forwarded to the Environmental Protection Agency (EPA) June 1, 2003. The document will be reviewed by the Ulster County SWCD and prepared for formal presentation to the towns of Shandaken and Lexington later this summer. Approval and "adoption" of the management plan by the towns may increase potential for additional funding when it becomes available, for –maintenance and stewardship of the Broadstreet Hollow watershed. Various funding sources who make such funds available will be sure to recognize the fact that a comprehensive study and approach provides multiple benefits to the watershed by thoroughly outlining needs and focusing -the available resources.

We wish to extend many thanks for the hours put in by the landowners and the PAC. Without these countless meetings and correspondence, this management plan would not be as impressive as it is.

Thank You All!

KINGSTON – www.midhudsoncentral.com
Daily Freeman
Date 10/8 Page# A3
Ulster County Edition

## District reconfiguring 2-town stream channel

**CAIRO** – The Greene and Ulster County Soil and Water Conservation District is conducting "stream stability restoration work" in the Broadstreet Hollow Stream Corridor located in the towns of Shandaken and Lexington.

Workers are reconfiguring the stream channel and taking "structural and vegetative measures," the district says.

The demonstration project's construction should be completed in about a week.

Ulster County Townsman
WOODSTOCK, ULSTER COUNTY, NY 12498
SERVING THE HEART OF THE CATSKILLS
Representing Towns of Olive, Shandaken and Woodstock The Onteora School District and Ulster County

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Page# 1

# Broadstreet Hollow Work Enters Next Phase

by J. Blake Killin

(ALLABEN) - An ambitious project to correct erosion problems along Broadstreet Hollow Stream is entering its next phase now that most of the actual physical stream work has been concluded.

A meeting was held at Shandaken Town Hall Saturday morning to discuss what has been done and what is planned.

Broadstreet Hollow Stream sits within a five square-mile watershed. For much of its journey to the Esopus Creek, the stream behaves as a normal stream should. It carries both water and sediments properly, without forming gravel bars or causing erosion. But in several locations, the stream has serious problems and those problems were apparent downstream.

Portions of Broadstreet Hollow, as well as much of the region, sits atop a deposit of glacial clay. This clay is easily eroded and when it starts to erode, it creates an unstable condition where further erosion and increased turbidity threaten other areas of the stream.

Under the Watershed Memorandum of Agreement between New York City and the upstate communities that supply it with water, $3 million was set aside for streambank stabilization projects for the entire west of Hudson region. This encompasses 1,500 square miles, 3,000 linear miles of stream and 6,000 miles of stream banks. There are 80 towns in five counties making up this watershed. With only $3 million to work with, there is little money available for this kind of work.

While other projects have been on-going, this one appears to be the first to address an entire stream watershed. Being relatively small, this project is expected to provide a model for future projects.

The purpose of the work, which was largely completed last year, was to attempt to return the stream to its normal condition. And while there are many different definitions of a normal stream, this project was designed to return the stream to its natural banks, cut down on erosion and allow the stream to transport both water and sediments.

If a stream is too narrow, it tends to erode its banks. If a stream is too wide, it will allow small rocks and sediments to fall out creating a bar or gravel bank. A poorly placed bar or gravel bank can cause erosion on the opposite side of the stream.

Now that rip-rap, boulders and stones have been strategically placed along the area of concern, vegetation needs to be planted to help hold the material where it was

Please see Broadstreet, page 6

# Broadstreet

Continued from Page 1

placed. Those plantings are slated to begin shortly.

Once the vegetation has been planted it will be maintained and monitored to see how well it does its job. A Stream Management Plan is being established and a Project Advisory Committee is being formed to help monitor the work.

Field assessments will be conducted between May and September. Data will be gathered and analyzed over the winter. The Management Plan should be in place by 2002.

The next meeting will be held sometime on May when more second homeowners will be in town.

In the meantime, a meeting will be held shortly in both Greene and Ulster counties to discuss another project for Stony Clove Creek which also has serious problems with erosion and clay deposits.

The Mountain Eagle

Date 6/15 Page# C8

# Stream Restoration Contract Signed

Commissioner Joel A. Miele, Sr., P.E., of the New York City Department of Environmental Protection (DEP) and Gary M. Capella, District Manager of the Ulster County Soil and Water Conservation District (UCSWCD), announced today that they have signed a contract involving stream restoration in the Broadstreet Hollow in the Towns of Shandaken and Lexington in Ulster and Greene Counties, respectively. Under the $175,000 contract, the UCSWCD will work with partner agencies and neighboring property owners to develop a comprehensive stream management program for the Broadstreet Hollow. Also, under the contract, UCSWCD will partner with the Greene County Soil and Water Conservation District to construct a stream stability restoration project. The Broadstreet Hollow is an important tributary of the Esopus Creek that flows into the City's Ashokan Reservoir.

Commissioner Miele said, "In response to stream stability problems that were worsened by severe flooding in the Catskill Region during 1996, DEP began working with the Ulster and Greene County Soil and Water Conservation Districts, the State Department of Environmental Conservation, Trout Unlimited and other organizations to address these problems. With GCSWCD, we have been working on stream restoration projects on the Batavia Kill and Schoharie Creek. This contract represents the first step in implementing a program for the Broadstreet Hollow that will address instability and improve fisheries habitat over the long term.

The spring-fed waters of the Broadstreet Hollow have historically supported wild brown, rainbow and brook trout populations, and are a long-time favorite of anglers in the area. The Flooding of 1996 exacerbated erosion in portions of the streambed and banks of the Broadstreet Hollow by mobilizing the soft glacial lake clay deposits that occur naturally throughout the Esopus creek and Schoharie Creek drainage basins. The clay bed and banks make the stream vulnerable to erosion and instability, which can threaten property, water quality and the overall habitat. Under the contract, UCSWCD and GCSWCD will implement a project design that incorporates a "geomorphic" approach to restoring a severely eroding, 1,000-foot section of the stream to the shape and condition of a naturally stable stream reach.

"I consider it an excellent opportunity to address many key issues, such as water quality, stream bank stabilization, and the protection of buildings and other infrastructure, as well as improving trout habitat," said Gary Capella. "Ulster SWCD truly hopes that this joint venture will be counted along with many other future efforts in Ulster County and throughout the watershed."

Funding for the project has come about through a partnership of local and national organizations. The United States Army Corps of Engineers Watershed Environmental Assistance Program (WEAP) has awarded DEP a matching grant of up to $450,000. Additional funding has been leveraged by UCSWCD, DEP, and two local Chapters of Trout Unlimited, from the national Fish and Wildlife Foundation (via the Iroquois Pipeline Settlement Fund), and the National Trout Unlimited Embrace-a Stream Grant Program.

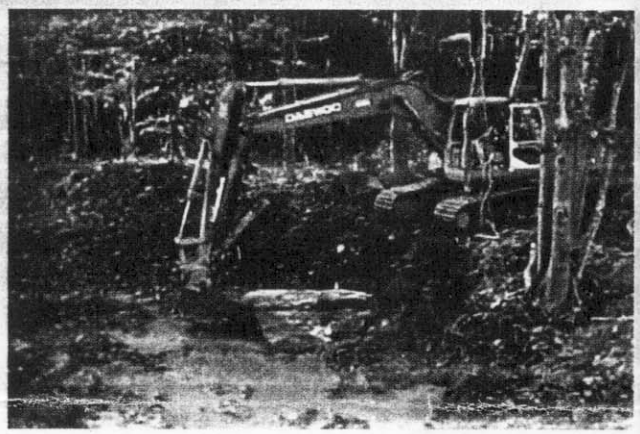
The cooperating agencies will begin working on the development of the Management Plan for the Broadstreet Hollow this summer. The completed plan will identify problem areas and concerns and provide recommendations for improving water quality, enhancing aquatic habitat, mitigating flood hazards, and restoring and maintaining stream channel stability on other stretches of the stream. It is hoped that construction of the stream stability restoration project will also proceed this summer, but is pending approval of a contract between the Army corps of Engineers and UCSWCD for funding a portion of the construction costs.

# County restores degraded streambank

A stream stability demonstration project in Greene County, N.Y., was completed last November, correcting 1,100 feet of degraded stream banks in Broadstreet Hollow. The project was part of a broader plan led by the Ulster County (N.Y.) Soil and Water Conservation District (UCSWCD) to develop a stream management program.

In 1996, the Catskill Region (where Broadstreet Hollow is located) experienced extensive flooding that caused degradation of the stream's clay banks. A flood in 1999 caused the high bank of the stream to slide into the channel, exacerbating the bank erosion and murky water condition of the stream. With 30 to 40 feet of clay piled on top of four to five feet of sand, the pressure created an artesian mud boil, which forced sand and clay to the surface of the stream and clouded the water.

In June 2000, the Greene County Soil and Water Conservation District (GCSWCD) partnered with UCSWCD, the New York City Department of Environmental Protection (NYCDEP), the U.S. Army Corps of Engineers (ACOE) and the Catskill Mountain chapter of Arlington, Va.-based Trout Unlimited to analyze the entire Broadstreet Hollow. The agencies helped GCSWCD address changes in the channel path that were caused by construction, investigate the artesian mud boil and examine ways to prevent further erosion.



**Greene County excavated more than 2,700 cubic feet of clay from the Broadstreet Hollow streambank to restore the stream's natural flow.**

Prior to designing a new stream path, GCSWCD conducted a flood analysis of the existing conditions. Using data from an assessment by the NYCDEP and historical aerial photos, GCSWCD identified stable areas and mapped a new path for the stream.

In September, the district began the stream restoration. During the project, water was diverted from the area in two stages with a 10-foot electric pump and several hundred feet of aluminum piping moving the upstream flow around the work area.

About one-third of the stream was moved one-and-a-half stream widths away from its previous location. The district excavated and relocated more than 2,700 cubic yards of pure clay material from the streambed and stream banks. A coarse cobble/gravel material was placed in the bottom of the new streambed, and a finer material was placed on the banks and flood prone areas.

The district constructed a 90-foot steel, sheet pile wall along part of the stream to protect a nearby private residence from future floods. Additionally, a drilling rig was set up to complete three wells that relieved the artesian condition. Willow trees and other plant materials were introduced to the area to help stabilize the banks.

The majority of the restoration project was completed in six weeks, for a total cost of $355,000. The project was funded by the NYCDEP Stream Management Program and the Army Corp of Engineers Water Resource Development Act. ☆

## 4.1.6 Broadstreet Hollow Historical Information Resource List

(**Note**: Broadstreet Hollow in the past has also been called Forest Valley, Bradstreet Hollow, Bradstreet Bush Kill)

Kudish, Michael. *The Catskill Forest: A History*. Fleischmanns: Purple Mountain Press, Ltd., 2000.

Rich, John Lyon. *Glacial Geology of the Catskills*. Albany: The University of the State of New York, 1934.

New York State Library, Albany:

- Land Use and Natural Resources Inventory and Land Related Information System Land Use Overlay Maps, 1968-1977. (overlay 7.5'USGS topographic maps)
- Topographic maps from early 1900's and on
- 9"x 9" prints of 1968 aerial photography, 1" = 2000'

County Soil and Water Districts:

- FEMA and FIRM maps
- Aerial photographs from various years

Shandaken Town Historian:
Charles Zimmerman
845-688-5286

Lexington Town Historian:
Karen Deeter
518-989-6027

**Other Resources availale at Ulster County Soil and Water Conservation District, Highland & NYC DEP SMP, Kingston**:

- 1930 glacial geology map (hard copy and digital format, georeferenced)
- 1900 15' Phoenicia quad (photocopy of original and digital format of copy, georeferenced)
- 1903 15' Phoenicia quad (2 versions – one has been hand colored in according to land use, by whom is unknown) (digital format, georeferenced)
- FEMA and FIRM maps
- current topograhic maps and doqq's (digital and hard copy)
- 2001 BSH aerial photography

**GIS Coverages**:
geo_bed
sfgeo250
fema_uls (no greene county?)
nwipnt24woh (wetlands)
nwipol24woh (wetlands)

forest100
lu_th_woh (landuse)
parcel_woh (landuse)
public_woh (public land)
parcel_grn & uls
parcel_history
hse24woh (houses)
stlnd24woh (state land)
woh_towns
road24uls &grn
climatewoh
precip_ny
siteclim
sitebiom
sitehyd (stream sampling locations)
hydric24woh (hydric soils)
soil24woh

**Available at Albany State Library**:

- Land use maps, 1968-1977, which overlay 7.5' USGS quads.
- Topographic maps from early 1900's and on
- 9"x 9" prints of 1968 aerial photography, 1" = 2000'

## 4.2 References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