

## **Chestnut Creek Stream Management Project Sites Detailed Descriptions**

In November 2002, SCSWCD put together a list and description of potential project sites noted during the 2001 Stream Assessment Survey. The Chestnut Creek Project Advisory Committee (PAC) was asked to vote on these sites to determine a Demonstration Restoration Site for the Stream Management Plan 2003. The following information was sent to the PAC and a meeting held to vote on the project site:

### **1. Covered Bridge BIN# 5524660 (abutments reinforced 2003, by Neversink Agricultural Society and Town)**



Crack in downstream right wing wall of Covered Bridge



Crack in upstream right wing wall of Covered Bridge and 14 inch undercut



Split channel with riprap on right bank being undermined upstream of covered bridge, within 20' of Route 55



#### **Description: (See Management Unit 5)**

Built as 1976 bicentennial, historically significant, provides access to Fair Grounds, Scour and erosion along bridge abutment and wingwall (14" undercut)—is this a threat? 1929 map-channel straightened (uncertain when), “cleaned”, moved away from road Upstream trees falling into stream as channel migrates, providing material to constriction flow 1963 aerial photograph shows more sinuous channel than currently 1991 Neversink Agricultural Society gained a permit to repair failed abutment NYSDOT conducts Biennial bridge inspection and Scour report, 2001 bridge failed scour report Runoff from parking lot scouring behind wooden wingwall

#### **Recommendations:**

Complete historical aerial overlay to assess erosion rate and direction, as well as changes in plan form geometry at Covered Bridge, upstream to riprap near tennis courts.  
Begin assessment of the bridge and upstream area to determine changes in meander patterns  
Potential for “assisted” restoration  
Review of existing reports and designs as provided by Town  
A W-weir structure could redirect the stream and protect the bridge from future repairs as well as reduce gravel build-up

## 2. Town Hall Vegetation and Dry Hydrant (*chosen as project site 2003, see Demonstration Project Report*)



Dislodged riprap behind Town Hall



Eroded left bank and lack of vegetation behind Town Hall

### **Description:** (*See Management Unit 6*)

Located on Chestnut Creek

Minor erosion along left bank near Town Hall Parking

Lack of vegetation and parking area “sheeting action” of rain runoff may affect water temperatures and bank stability

Riprap dislodged – may loose some bank along parking lot

Dry Hydrant not functioning; potentially filled with sediment, and lack of accessible water

Is this the best location for the hydrant since the Town Hall addition?

### **Recommendations:**

Potential assisted restoration project (possible cross vane to reduce bank erosion, provide scour pool for dry hydrant.) This could stabilize the bank and make a dry hydrant viable.

Add bioengineering to increase riparian buffer and anchor existing or replaced riprap

### 3. Pepacton Hollow Culvert Overflow (Gaurdrail replaced 2002, newly sized culvert purchased 2003)



Looking upstream at culvert under Pepacton Hollow Rd.



Erosion under guardrail above outlet end of culvert (2001)

#### **Description:** (*See Management Unit 8*)

Located along Pepacton Hollow Road

Town maintained culvert pipe

Potential for floods that continue to damage the roadway and cause stream channel erosion

Flood water has crested the road and has caused substantial damage on several occasions—most recently in 1997 and 2000

FEMA money has been used to replace the guardrail and resurface the road

Culvert has not been upgraded

Logs jam the upstream culvert invert (*Continued next page*)

#### **Recommendations:**

Replace culvert with properly sized and angled culvert to fit the bankfull stage height and direction of stream flow. This could avert future rebuilding and maintenance after every high flow event

#### 4. Box culvert under Rt. 42, (off of South Hill Road, on tributary to Red Brook)



Undercut box culvert and scour pool under Rte 42, on tributary of Red Brook

#### **Description:** (*See Management Unit 9*)

Located on a tributary to Red Brook

Downstream end of undercut culvert with deep scour pool

Potentially limiting fish passage

Possibly installed in 1929, no maintenance records obtained for the structure to date

Stream often goes subsurface in the summer months

Small areas of back eddy scour downstream

Operated by NYSDOT--- are there any immediate plans for work in this area?

Possible threat to Route 42

#### **Recommendations:**

Set up permanent BEHI monitoring station at culvert outlet to determine rate of scour

Monitor cracking in Route 42 pavement over culvert

Determine bankfull width above and below structure to see if the width is adequate

Determine natural slope of stream without structure present and the change caused by the hanging culvert

## 5. Head Cut Erosion/ Debris Jam (above Grey's Woodworks)



Head cutting erosion, center island, debris jam near back lot of Grey's Lumber

### **Description:** (*Management Unit 4*)

Located on Chestnut Creek Along Rt. 55, near Grey's Woodworking  
Severe debris jam in channel, split channel around central gravel bar  
Evidence of head-cut working upstream through left channel  
Flooding issue with upstream landowner, landowner believes area has aggraded

### **Recommendations:**

Begin monitoring the site  
Potential removal of blockage and regrading the slope.

## 6. Mohr's Bridge/ Route 55 (Across from Maschio's Restaurant)



Concrete crib wall along Rte. 55 attached to failing abutment

View looking upstream at Miller's Bridge

### **Description:** (*Management Unit 5*)

The left bridge abutment is partially undercut and leaning toward the stream channel,  
The upstream wing wall is showing signs of erosion  
This abutment is directly attached to a concrete wall that lines the left bank near Rte 55  
Local NYS DOT is concerned that a bridge failure will affect the highway  
There is only one house accessed by this bridge

### **Recommendations:**

An inspection of the structure by the bridge engineer  
to determine its safety and anticipated design life.  
Possible replacement of structure designed and  
built to accommodate the stream flow and protect the road.

## 7. Scott Brook and Chestnut Confluence



Scott Brook failing bank with fallen trees at Chestnut confluence

### **Description:** (*Management Unit 4 at confluence*)

Located on Scott Brook at the confluence with Chestnut Creek  
Severely eroded high bank with undercut fallen trees  
Potentially large sediment supply available  
On private property – no roads or structures threatened  
SCSWCD has monumented cross section to monitor bank erosion rate

### **Recommendations:**

Determine rate of erosion from cross section monitoring  
Determine if bioengineering can stabilize bank  
Determine cause of erosion

## 8. Davis Lane Bridge *BIN# 3357040* Sewer Crossing



Looking upstream at eroded sewer line structure below Davis Lane Bridge

### **Description:** (*Management Unit 6*)

A double opening bridge crossing Chestnut Creek at Davis Lane

A stone structure, over a DEP sewer line, is scouring the stream bed downstream (+/-5' drop)

Upstream and downstream of the bridge, the Creek is divided into two distinct channels.

The stream appears to be fairly "stable"

There is well-developed streamside vegetation with mature willow stands

Is this a barrier to fish passage?

### **Recommendations** (*Davis Lane Bridge Sewer Crossing Continued*):

Sewer line should be reconstructed the proper under the streambed to be in accordance with current standards

Any stream channel work through this area would be best applied during future efforts to repair the bridge structure

A W-weir could be used to aid in directing stream flow properly through the double chambered bridge during high flow events

## 9. Route 42 Bridge (adjacent to NYC DEP offices)



Route 42 bridge Grahamsville, overwidened channel with cobble filling in (right bank) / bridge abutment in main flow of water (left bank).

### **Description:** (*Management Unit 7*)

Located on Chestnut Creek

Structure had past problems and was re-built in 1991

Landowners reported stream was moved when bridge repaired

Stream thalweg now located along abutment

No current sign of scour or erosion

### **Recommendations:**

Recommend monitoring (use as-built survey to determine aggradation rate)

Model bridge opening with gravel bar for flood risk/damage when maintenance is needed.

## 10. Eroded Bank on NYCDEP property



Looking downstream at high eroding bank DEP property



Looking at eroding bank with BEHI XS



View from Route 55 top of RB looking Downstream

### **Description:** (*Management Unit 7*)

- Located on Chestnut Creek along Route 55
- High bank constructed from tunnel spoils
- Stream causing erosion along several hundred feet portion (+40' in height)
- Highway along the top of the bank is threatened
- Potential source of turbidity/ sediment loading
- Well-established adjacent floodplain
- Appears stable upstream and downstream

### **Recommendations** being conducted by Sullivan County Soil and Water Conservation District:

- Historical aerial overlay to assess erosion rate and direction, as well as changes in plan form geometry
- SCSWCD has 2 monumented cross sections in place to monitor erosion rate

### **Some Possible Solutions:**

- Move meander to historic location, with installation of natural design structures etc.
- Construct a Bankfull bench and use geomorphically-based rock structures to assist channel realignment
- Vegetate high bank; stop mowing to edge of fence

**Chestnut Creek Project Advisory Committee (PAC) Survey Results November 2002  
Demonstration Restoration Site (in order of priority top to bottom):**

1. Covered Bridge
2. Town Hall
3. Pepacton Hollow
4. Debris Jam/ headcut behind Grey's Lumber
5. Mohr's Bridge
6. Scott Brook confluence
7. Davis Lane sewer crossing
8. DEP eroded high bank
9. Route 42 bridge on Chestnut Creek
10. Route 42 box culvert on tributary to Red Brook