

# **Riparian Corridor Management Plan West Kill**

**Valenti / Brewer Property – West Kill, NY**



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**Prepared by:**

**Laura Weyeneth  
Catskill Streams Buffer Initiative Coordinator  
Greene County Soil and Water Conservation District  
Cairo, NY**



**Catskill Streams  
Buffer Initiative**

## Introduction

Maintaining healthy and intact riparian areas is a high priority of the Catskill Streams Buffer Initiative, as is improving the condition of degraded riparian buffers. Through the protection and enhancement of the riparian corridor we are protecting water quality, protecting and increasing habitat diversity and offering some level of stabilization for streambanks through natural biological means. Well vegetated riparian buffers filter upland pollutants, provide rooting mass for bank stability, and lower stream water temperatures. Numerous streams in the Catskills have been walked with detailed mapping of the vegetation conducted within the riparian corridors documenting various stream conditions, need for supplemental vegetation, presence of invasive species, and other conditions impacting the health of the riparian area. While 75% of the West of Hudson Watershed is forested, it is apparent that some riparian areas lack this protective cover.

The overall goal of the Catskill Streams Buffer Initiative is to inform and assist landowners in better stewardship of their riparian (streamside) area through protection, enhancement, management, or restoration. The New York City Department of Environmental Protection and its partners (County Soil & Water Conservation Districts and Cornell Cooperative Extension) will assist private, riparian landowners throughout the West of Hudson Watershed by providing:

- 1) Riparian Corridor Management Plans to create awareness about riparian management issues specific to individual properties
- 2) Best management practice design and/or prescriptive measures and installation to encourage positive riparian stewardship and
- 3) Educational materials and activities as needed by landowners to understand the critical role of their buffer and how to maintain it in optimal functioning condition.

Any watershed landowner with property within the mapped buffer area can receive technical assistance and a Riparian Corridor Management Plan.



*Aerial view of Valenti/Brewer Property on Spruceton Road*

## Site Visit Description / Existing Conditions

The Valenti/ Brewer parcel is adjacent to the West Kill on Spruceton Road, or Route 6, in the Town of Lexington, NY. A site visit was conducted with Mrs. Brewer to evaluate the property's riparian buffer after the landowners attended Healthy Buffers, Healthy Streams: A Landowner Workshop in July 2010. Approximately 600 ft. of the property presents an opportunity for riparian buffer enhancement. The streambanks are stable as revetment has been installed on the right bank, looking downstream. The pasture beyond the rip-rap is separated by a post and wire fence but otherwise, there is no buffer between the pasture and the channel. In November 2005 suitable riparian improvement planting sites were identified through a watershed-wide remote evaluation of current riparian buffer conditions and existing stream channel morphology. The Valenti / Brewer property is one of the sites with inadequate vegetation within the critical buffer zone (75 ft. from the stream channel).

The West Kill is a C (TS) stream suitable for trout spawning.<sup>1</sup> The West Kill is one of the three major sub-basins of the Schoharie Watershed. The streambank on the Valenti / Brewer property is composed of medium sized cobble. The bank height is approximately four feet high and the overbank zone has an herbaceous ground cover with no deep rooted woody vegetation in the project area. There is no active erosion or slumping visible on the right bank while the left bank appears to be stable with a healthy riparian buffer.

The soil type within the project area is identified as Tunkhannock gravelly loam, (TuB) which consists of very deep, well drained soils formed in alluvial deposits derived from acid, reddish sandstone, siltstone and shale. Mean annual air temperature is 45 to 50 degrees F., and mean annual precipitation is 49.6 inches. Depth to high water table is 3 to 6 feet with occasional flooding. Native trees found in this soil type are maple, black cherry, beech, ash, oak, hemlock, and white pine.<sup>2</sup>

The drainage area for this location is 18 mi<sup>2</sup> including runoff from portions of Hunter Mountain, Rusk Mountain, Evergreen Mountain, North Dome, and West Kill Mountain. Approximately 97.5% of the drainage area is covered by forest. According to the current floodplain maps, a portion of the project area is located within the 100-year floodplain.



USGS StreamStats map showing Drainage Area for Valenti property

<sup>1</sup> All waters of New York State are provided a class and standard designation based on existing or expected best usage of each water or waterway segment. Classification C is for waters supporting fisheries and is suitable for non - contact activities. Classification TS designates trout spawning waters.

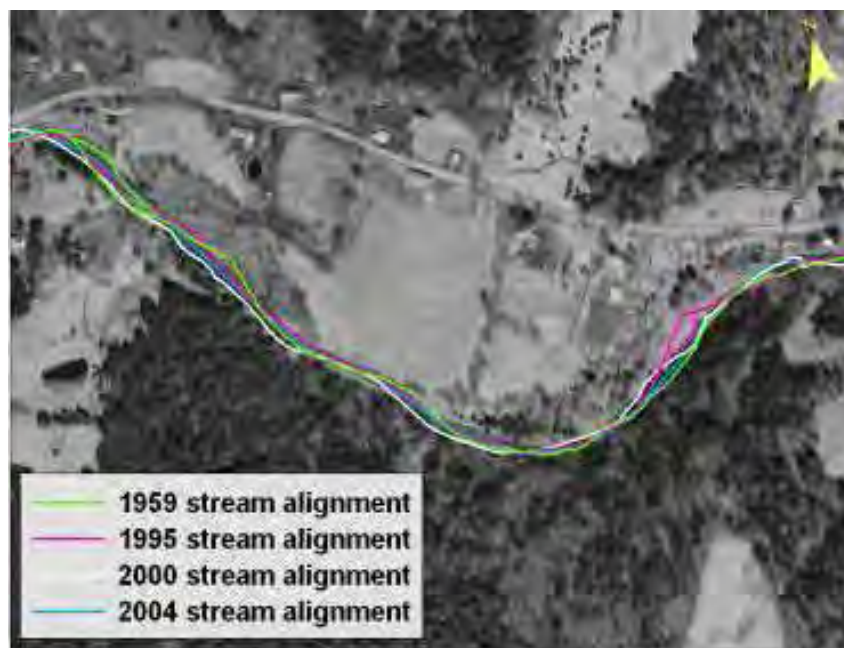
<sup>2</sup> National Cooperative Soil Survey  
Official Series Description – 1999

## Historic Conditions

The Valenti / Brewer property has been owned by the current landowners for 10 years. Previously, the land was a cattle farm. Routine monitoring on the West Kill by DEP indicates good water quality overall, with no chronic water quality problems. However, the West Kill has been identified as a principal contributor of sediment and turbidity to the Schoharie Reservoir.

Greene County Soil and Water Conservation District (GCSWCD) completed the West Kill Stream Management Plan in 2005. The Valenti parcel is located in Management Unit 12. Within this Management Unit, the predominant vegetation type within the 300 foot mapped riparian buffer zone is forest (53%) followed by herbaceous (30%). Areas of herbaceous (non-woody) cover present opportunities to improve the riparian buffer with plantings of native trees and shrubs to promote a more mature vegetative community along the streambank and in the floodplain. Impervious area (3%) within this unit's buffer is primarily the Greene County Route 6, along with private residences and associated roads.

As seen from the historical stream alignments (below), the *planform* of the channel has remained fairly stable since 1959. This may be attributable to the high percentage of stabilized banks and bedrock in the unit. Also, the stream channel is confined to the south by a high glacial terrace.



*Historic stream channel alignments*

The stream morphology, or shape (i.e., slope, width, depth) at the project area is classified as a Rosgen stream type B3c. B3 stream types are moderately entrenched systems with channel gradients of 2-4%. The channel bed is dominated by cobble materials with a few boulders, lesser amounts of gravel and sand. Classification of streams by their form can be helpful to determine management strategies. For example, in a B3 stream type, large woody debris is an important component for fisheries habitat when available.

The West Kill Management Plan recommends that management efforts in this unit should focus on establishing a riparian buffer in appropriate locations such as stream side pasture by planting native trees and shrubs along the streambank and the upland area. Buffer width should be increased by the greatest amount agreeable to the landowners. Increasing the buffer width to at least 100 feet will increase the buffer's functionality and protect the stream from nearby land uses. The risk to bank stability can be minimized by maintaining mature trees

along the stream margin, including a critical buffer zone extending approximately 75 ft. from the centerline of the stream. A dense mat of roots under trees and shrubs bind the soil together, making it much less susceptible to erosion.

### **Landowner Issues / Concerns**

Mrs. Brewer has noticed some erosion and is aware of a small amount of Japanese knotweed at the downstream end of the property. She would like to restore the riparian buffer while maintaining pasture for the two horses present on the property. Planting additional native species can help restore the riparian buffer to stabilize the streambanks. It would be beneficial to remove the knotweed before it spreads and replant the disturbed area with native species.



*2010 site visit photo of horse pasture looking upstream*

### **Landowner Goals**

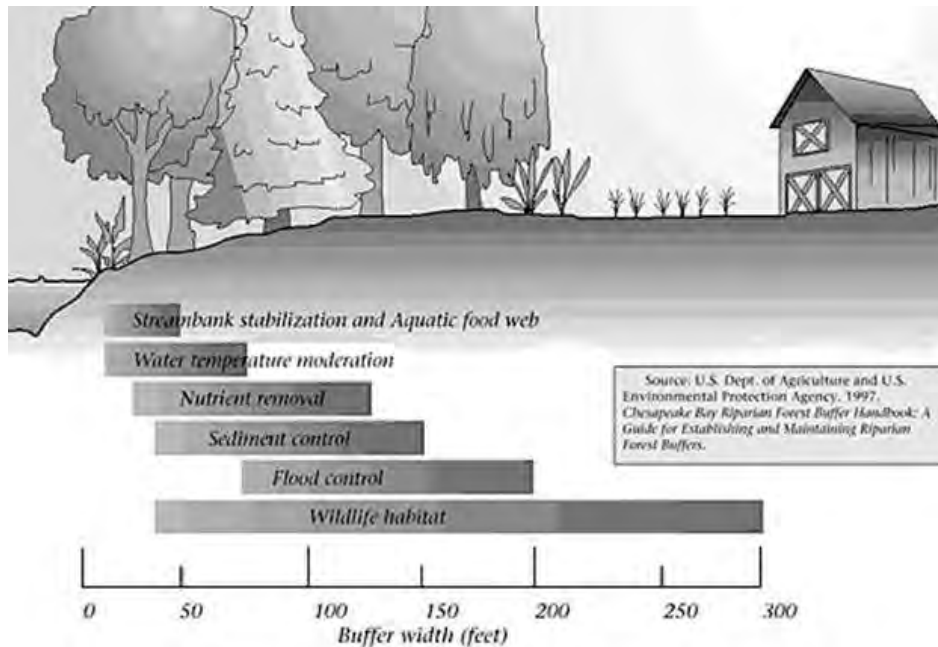
- 1) Restore riparian buffer
- 2) Maintain pasture for horses
- 3) Increase wildlife habitat
- 4) Control invasive species

Mr. Valenti and Mrs. Brewer do not participate in any other watershed programs at this time. After attending the Healthy Buffers, Healthy Streams workshop they applied for a CSBI grant and have indicated their preferred buffer width is 50 feet. Buffer length of 600 ft. has been requested. They have signed a 5 year license agreement, and have indicated their willingness to assist with project installation, maintenance and monitoring.

## Recommendations – Best Management Practices (BMPs)

1) **Apply** to CSBI for funding support to install one or more of the practices below.

2) **Establish a riparian buffer** as deep rooted woody vegetation is critical to maintaining bank stability. This site could benefit from enhanced buffer width and establishment of more woody vegetation. Planting and maintaining a healthy buffer of native trees and shrubs along streambanks and floodplains is one of the most cost effective and self-sustaining methods for landowners to protect streamside property. Native species are recommended due to their adaptation to our regional climate and soil conditions and because they typically require less maintenance than exotic species following planting and establishment.



3) **Fence off buffer planting** to ensure horses do not eat or damage newly planted trees and shrubs. Fencing is useful to control grazing in the riparian area where the goal is to establish woody vegetation. Excluding livestock initially from the buffer area will protect vegetation (stems and roots) that might otherwise be trampled and damaged. Fencing is needed to protect high-value plantings especially during establishment.

4) **Maintain root systems that hold soil in place by not mowing right to the stream edge.** Degrading buffer zones can be improved by not mowing in the buffer zone. Keeping a buffer zone of trees and shrubs, especially in the first 50 to 100 feet, along streambanks helps to minimize erosion and protect property, filter pollutants, and increase habitat value.

5) **Use vegetative treatments such as dormant posts and stakes to address minor localized erosion.** Bioengineering, the use of live vegetation to stabilize soils associated with streambanks, can be used at this location. Dormant cuttings from appropriate species, such as willows and dogwoods, quickly establish vegetation on the banks. Live posts and stakes are cut from living willow shrubs when the shrub is dormant (usually during the fall). The stakes, ranging from one to several feet long, are hammered or pushed into the stream bank where they will grow quickly and provide necessary bank stabilization where it is needed most. A dormant post detail drawing is attached. Onsite willows can be used for this treatment.

6) **Remove invasive species such as Japanese Knotweed.** Invasive, non-native species can threaten the ecology of a native plant community. This impact may extend to an alteration of landscape or bank stabilization. Japanese Knotweed is an exotic, invasive species and in recent years has been a serious issue in

the Schoharie Basin. As the name implies it comes from Asia and was originally brought here as an ornamental plant. In an attempt to beautify their homes, residents unknowingly introduced a threatening element to the environment. Knotweed out-competes native plants by growing much faster than its native counterparts. Knotweed can tower over native plants, cut off their light supply and eventually, take over the entire length of a stream. This is especially dangerous, because knotweed does not hold stream banks together as well as native species. Furthermore, it is a very resilient plant. Simply cutting it down without proper disposal can potentially make the problem worse. See the link below (in the Appendix) for tips on controlling Japanese Knotweed.

**7) Continue to monitor reach stability through normal observations.** Take photographs from the same location each year to photo document erosion.

## **Project Proposal**

The scope of the proposed project includes riparian buffer plantings of native trees and shrubs intended to enhance the overall ecological function of the riparian corridor by increasing the buffer width and quality.

The Greene County Soil and Water Conservation District will provide:

1. A Riparian Corridor Management Plan
2. Project Design for the Riparian Buffer Plantings
3. All Native Plant Materials
4. Installation of Plant Materials and Post & Wire Fence
5. A Landowner's Guide to Vegetation Management

# Resources and References

## **West Kill Stream Management Plan**

[http://www.catskillstreams.org/West\\_Kill\\_Stream\\_Management\\_Plan.html](http://www.catskillstreams.org/West_Kill_Stream_Management_Plan.html)

## **West Kill Management Unit 12**

[http://www.catskillstreams.org/pdfs/WKSMP/39\\_MU12.pdf](http://www.catskillstreams.org/pdfs/WKSMP/39_MU12.pdf)

## **Catskill Streams Buffer Initiative**

<http://www.catskillstreams.org/CSBI/>

## **Riparian Buffers**

[http://www.catskillstreams.org/stewardship\\_streamsides\\_rb.html](http://www.catskillstreams.org/stewardship_streamsides_rb.html)

## **Introduction to Riparian Buffers Fact Sheet**

<http://northjerseyrcd.org/upload/uploads/Intro.pdf>

## **Invasive Species Information**

[http://www.catskillstreams.org/stewardship\\_streamsides\\_is.html](http://www.catskillstreams.org/stewardship_streamsides_is.html)

## **Japanese Knotweed Information**

<http://www.catskillstreams.org/pdfs/Knotweed%20webpage%20text%20&%20links.pdf>

## **DEC Environmental Resource Mapper**

<http://www.dec.ny.gov/animals/38801.html>

## **Soils**

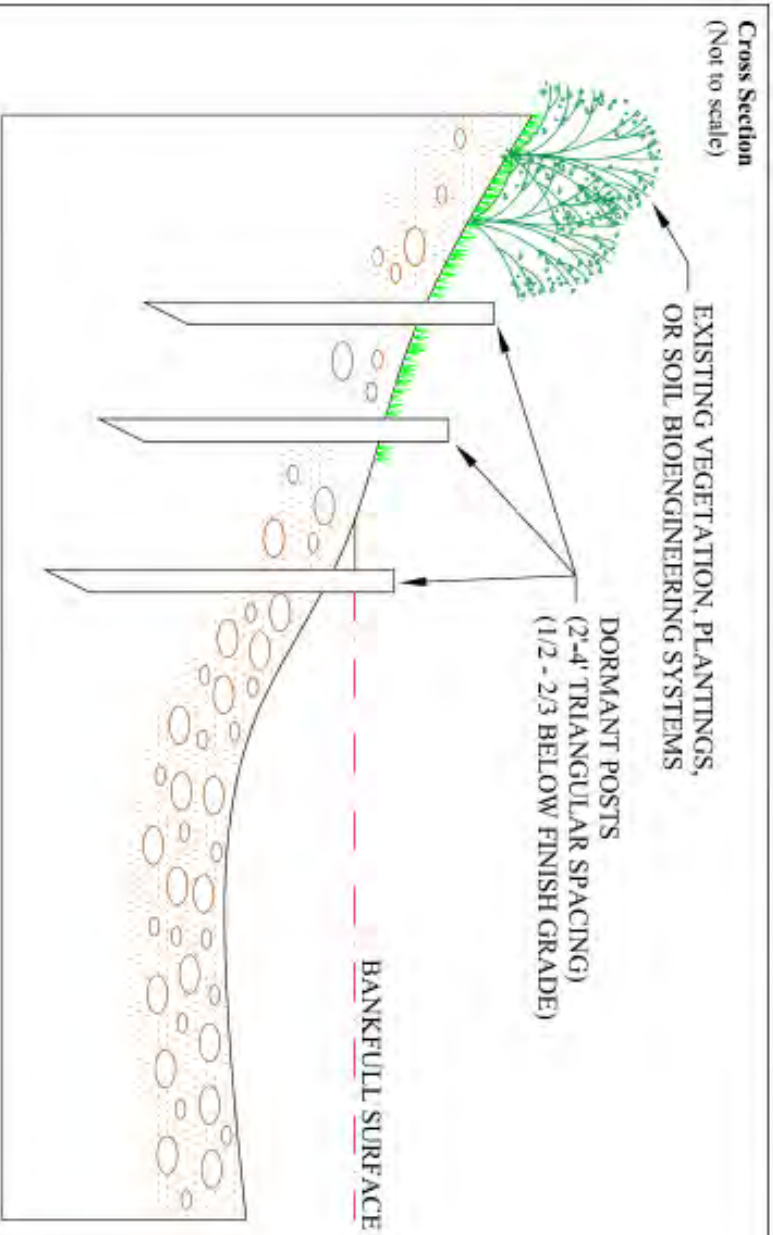
National Cooperative Soil Survey

Official Series Description Series, 1999

<http://soils.usda.gov/technical/classification/osd/index.html>



# DORMANT POST DETAIL (VS-03a)





# Landowner Self-Evaluation Form

CATSKILL STREAMS BUFFER INITIATIVE (CSBI)

DATE 7-25-10

Landowner Name: Linda Brewer/Michael Valenti  
 Mailing Address: P.O. Box 217 West Kill, New York, 12492  
 Project Site Address: 692 Spruceton Road, West Kill, N.Y. 12492  
 Phone #: 518-989-6236 Cell: - Email: threespruces@hughes.net  
 STREAM NAME: West Kill Watershed: Schoharie Tax Parcel(s): 161.00-1-47

How did you hear about the Catskill Streams Buffer Initiative?  
We were contacted by Laura Weyeneth

History of working with GCSWCD, NYCDEP, USACE, Other agencies? (specify)  
Volunteered streamwork on Schuma Shoemaker (sp?) property

Do you participate in any other NYC Watershed Programs? (See below. Describe)  
-

- Catskill Watershed Corporation (CWC)?
- Conservation Reserve Enhancement Program (CREP)?
- Watershed Agricultural Council's (WAC) Forestry or Whole Farm Programs?

Land-use History?  
Former cattle farm

Flooding History?  
not sure

Long-term Goals for the Property?  
would like to restore riparian buffer along the edge of pasture. To maintain pasture for horses.

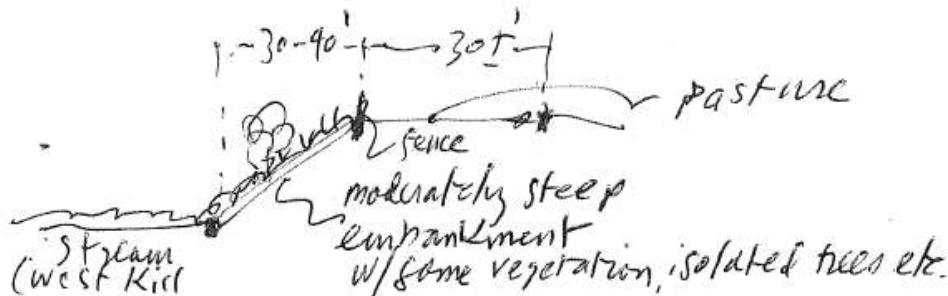
Do you anticipate any major changes on your property within the next 5 years? (explain)  
No

# Landowner Self-Evaluation Form

## CATSKILL STREAMS BUFFER INITIATIVE

Please describe the present conditions of the property/project site, including presence of erosion, invasive species and site dimensions.

Erosion is present, but not significant (yet.)  
Project site would include approx. 600' of ~~stream banks~~  
of pasture approx 30' from fence line, running parallel to  
stream (roughly 50-60' from edge of stream.)  
Small amount of Japanese Knot weed observed.

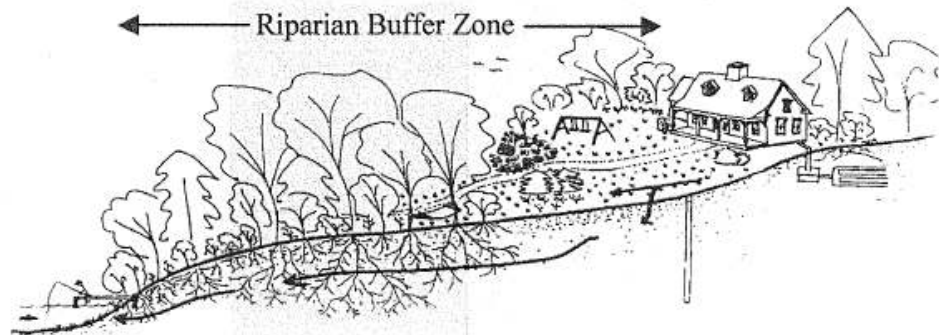


Goals for the proposed project? (Erosion, wildlife habitat, etc.)

As a flyfisher, I would like to see an optimum riparian situation.

Preferred Buffer Width:

- 5-10 ft
- 10-25 ft
- 50-100 ft
- 100-300 ft
- Other:



# Landowner Self-Evaluation Form

## CATSKILL STREAMS-BUFFER INITIATIVE

Are there any issues with site access for project installation and staging: (explain)

Site is accessible w/4 wheel Drive.

Landowner Participation and Commitment to the Project? (select all that apply)

- Cost share (% of total)
- Project installation assistance
- Project maintenance/monitoring
- Landowner/License agreement (5yr/10yr)
- Attend training on related topics
- Other (identify):

Is site visible from road?

yes

Would you agree to use this as a demonstration project for other landowners interested in the Catskill Streams Buffer Initiative?

yes

Would your neighbors be interested in participating in Catskill Streams Buffer Initiative?  
(Please describe/identify)

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Additional notes, comments or concerns:

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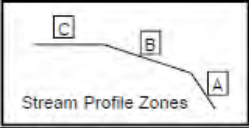
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## Valenti / Brewer Riparian Planting Plan West Kill

Site Details							 Stream Profile Zones
590 ft x 40 ft 23,600 sq ft .54 acre 368 trees and shrubs with 8 x 8 spacing 200 willow stakes with 2 x 2 spacing	Latin Name	Wetland Indicator	Native	Location	Spacing (ft)	Total #	Notes
<b>Evergreen transplants</b>							
White pine	<i>Pinus strobus</i>	FACU	Y	C	8	35	
Eastern hemlock	<i>Tsuga canadensis</i>	FACU	Y	C	8	35	
White spruce	<i>Picea glauca</i>	FACU	Y	C	8	25	
						95	
<b>Hardwoods</b>							
Paper birch	<i>Betula papyrifera</i>	FACU	Y	C	8	10	
Sweet birch	<i>Betula lenta</i>	FACU	Y	C	8	15	
Sugar maple	<i>Acer saccharum</i>	FACU	Y	C	8	20	
White oak	<i>Quercus alba</i>	FACU	Y	C	8	15	
Red oak	<i>Quercus rubra</i>	FACU	Y	C	8	15	
Green ash	<i>Fraxinus pennsylvanica</i>	FACW	Y	B	8	5	
White ash	<i>Fraxinus americana</i>	FACU	Y	C	8	5	
Hornbeam	<i>Ostrya virginiana</i>	FAC	Y	B	8	40	<i>tubelings - use weed mats</i>
						125	
<b>Shrubs</b>							
Allegheny serviceberry	<i>Amelanchier laevis</i>	FAC	Y	B	8	20	
Nannyberry	<i>Viburnum lentago</i>	FAC	Y	B	8	21	
Witch hazel	<i>Hamamelis virginiana</i>	FAC	Y	C	8	27	
Shadblow serviceberry	<i>Amelanchier canadensis</i>	FAC	Y	C	8	20	
Gray dogwood	<i>Cornus racemosa</i>	FAC	Y	C	8	20	
Silky dogwood	<i>Cornus anomum</i>	FACW	Y	A-B	8	20	
Arrowwood	<i>Viburnum dentatum</i>	FAC	Y	C	8	20	
						148	
						368	
							<b>TOTAL PLANTS</b>
<b>Stakes</b>							
Willow sp.	<i>Salix</i>	FACW	Y	A-B	2	200	<i>dormant native</i>
						200	
							<b>TOTAL Stakes</b>

OBL: Obligate Wetland: Occurs almost always (estimated probability 99%) under natural conditions in wetlands.  
 FACW: Facultative Wetland: Usually occurs in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.  
 FAC: Facultative: Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).  
 FACU: Facultative Upland: Usually occurs in non-wetlands (estimated probability 67%-99%), but occasionally found on wetlands (estimated probability 1%-33%).