Manor Kill Management Unit 1

Town of Conesville – Station 53,637 to Manor Creek Road (Station 45,598)

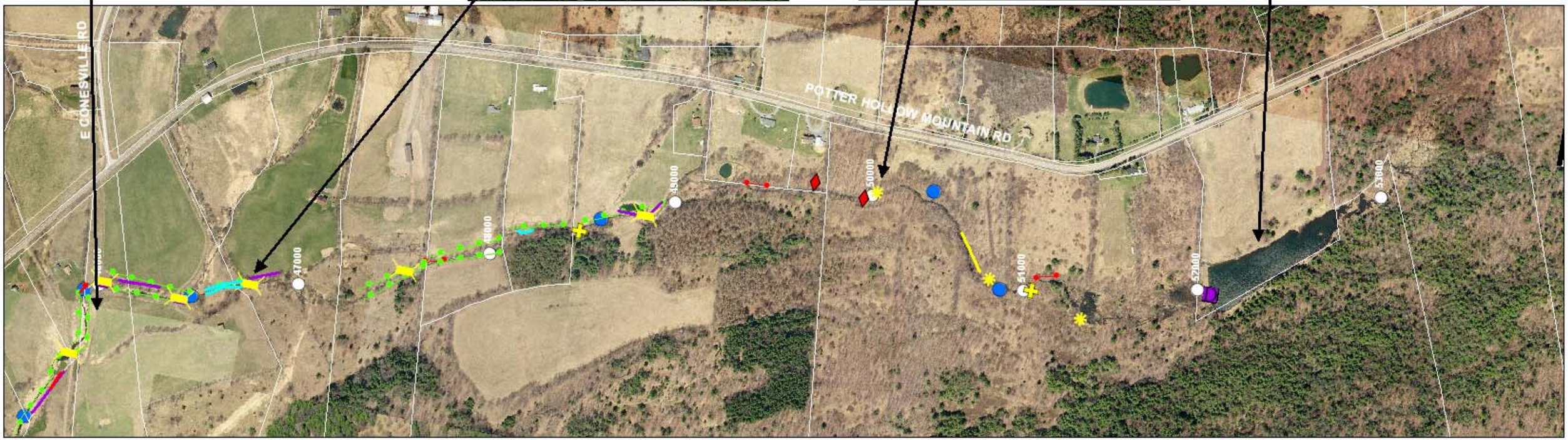
This management unit begins at a large NWI wetland complex, continuing approximately 8,039 ft to Manor Creek Road in the Town of Conesville.

Stream Feature Statistics

3% of streambanks experiencing erosion
2.3% of streambanks have been stabilized
3.6% of streambanks have been bermed
0 feet of clay exposures
57.24 acres of inadequate vegetation
641 feet of road within 300 feet of stream

Management Unit 1 location
see Figure 4.0.1 for more detailed map

Summary of Recommendations Management Unit 1	
Intervention Level	Assisted Self-Recovery
Stream Morphology	No recommendations at this time.
Riparian Vegetation	Monitor for introduction of Japanese knotweed and eradicate new introductions. Plant a buffer of trees and shrubs along proposed planting sites and increase width of riparian buffer in appropriate locations.
Infrastructure	When bridges are replaced, construct with the appropriate height and width to allow conveyance of flood flows.
Aquatic Habitat	Watershed Aquatic Habitat Study
Flood Related Threats	No recommendations at this time.
Water Quality	Removal of dump sites.
Further Assessment	Consider hydraulic analysis of bridge openings.



Legend

- Bank Erosion
- Bank Erosion Monitoring Site (BEMS)
- Bridge
- Bedrock
- Berm
- BMP
- Crossing
- Clay Exposure
- Clay Exposure
- Culvert
- Dam
- Deposition
- Dump Site
- Gage
- Large Woody Debris
- Obstruction
- Planting Site
- Piped Outfall
- Revetment
- 1000ft Stream Stationing
- Tax Parcel
- Tributary
- Utility

Manor Kill Management Unit 1
Stream Feature Inventory

N W E S

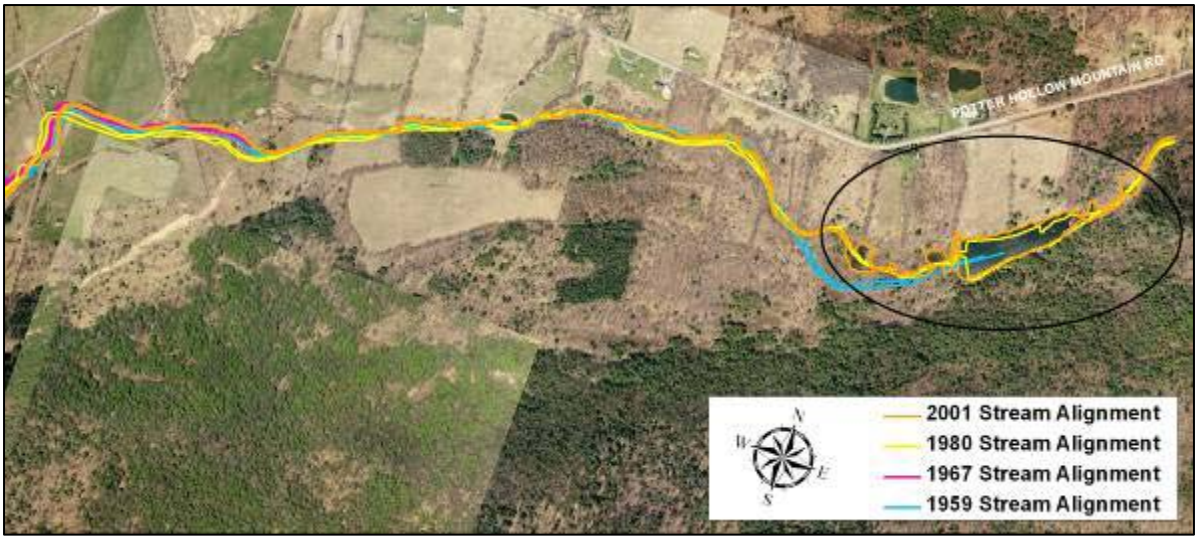
Scale = 1:5,500

0 250 500 1,000 Feet

Stream flow

Figure 4.1.1 Management Unit 1 - 2006 aerial photography with 2008 stream feature inventory.

Historic Conditions



Historic stream channel alignments overlayed with 2006 aerial photograph

As seen from the historical stream alignments (above), the *planform* of the channel has experienced significant changes between 1959 and 1980 (aerial photographs of 1967 did not extend beyond the lower portion of this management unit). This is primarily due to the creation of a private pond. According to the National Inventory of Dams (NID) maintained by the U.S. Army Corps of Engineers (ACOE), a fifteen-foot private dam was built in 1977 for recreational purposes. Just downstream of the private pond, additional areas of open water wetlands also formed between 1980 and 2001. Except for the historical changes due to the formation of the private pond and the downstream open water wetlands, the Manor Kill channel in management unit 1 has remained fairly stable.

Due to its rural nature and headwater location in the watershed, the unit had a lot of beaver activity. While beaver impoundments can sometimes be a nuisance, beavers have historically played a beneficial and ecologically important role in the stream system. Beaver activity adds organic debris (trees, leaves, etc. which provide the base of the food chain), reduces water velocities and flood-related hazards downstream, and creates wetland areas that filter sediment and release water to the stream and groundwater slowly throughout the year.

As of 2008, according to available NYS DEC records dating back to 1998, there have been four stream disturbance permits issued in this management unit. In 1998, a permit was

issued for a culvert replacement. In 1992, a permit was issued for construction of a bridge to provide access over the Manor Kill. In 2007 and 2008, permits were issued to install temporary wooden bridges for logging activity.

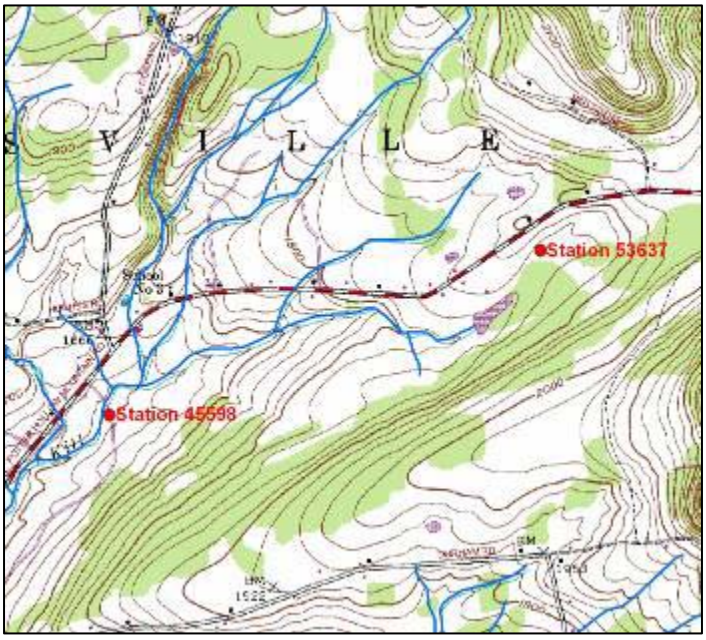
Stream Channel and Floodplain Current Conditions (2008)

Revetment, Berms and Erosion

The 2008 stream feature inventory revealed that 3.0% (472 ft.) of the streambanks exhibited signs of active erosion along the 16,075 ft. of total streambank length in the unit (Fig. 4.1.1). *Revetment* has been installed on 2.3% (376 ft.) of the streambanks. Approximately 3.6% (579.5 ft.) of the streambanks have been bermed.

Stream Channel Conditions (2008)

The following description of stream channel conditions references insets in foldout, Figure 4.1.1. Stream stationing presented on this map is measured in feet and begins at the confluence with the Schoharie Creek in Conesville. "Left" and "right" streambank references are oriented looking downstream, photos are also oriented looking downstream unless otherwise noted. Italicized terms are defined in the glossary. This characterization is the result of an assessment conducted in 2008.



1980 USGS topographic map – Livingstonville Quadrangle contour interval 20ft

Management unit #1 began at a large wetland complex. The drainage area ranged from 0.19 mi^2 at the top of the management unit to 3.36 mi^2 at the bottom of the unit. The valley slope was 2.98%.

Valley morphology in this management unit is unconfined with a broad glacial and *alluvial* valley flat. Generally, stream conditions in this management unit were stable. However, three actively eroding

banks were documented in this management unit. Management efforts in this unit should focus on preservation of existing wetlands and forested areas and improvements to the riparian buffer by planting *herbaceous* areas with native trees and shrubs.

Wetland complex in headwaters of Manor Kill
Approximate wetland boundaries delineated by NWI

The land area at the start of this management unit is owned by the New York City Department of Environmental Protection. This management unit begins (Station 53637) as the stream flows from a wetland complex comprised of several NWI wetlands. Wetlands are important features in the landscape that provide numerous beneficial functions including protecting and improving water quality, providing fish and wildlife habitats, storing floodwaters, and maintaining surface water flow during dry periods.

At the beginning of this management unit, there was a large open water wetland with a beaver dam, which was part of a federally designated wetland complex (near Station 53000) comprised of five wetland types, totaling approximately 10 acres. The wetland types include PEM1E, *palustrine, emergent, persistent, seasonally flooded/saturated,* PUBHh, *palustrine, unconsolidated bottom, permanently flooded, diked/impounded,* PSS1Eh, *palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated, diked/impounded,* PSS1E, *palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated*, and PSS1Eb, *palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated, beaver*.


Wetland (near Station 53000)

Continuing downstream, there was a private earth dam (NY00832, Station 52058) that was completed in 1977 to form a recreational pond (Figure 4.1.1, Inset D, looking downstream, Station 52800-52071). It measures 15 feet high and approximately 230 feet in

Private dam, Station 52058)

length. The drainage area of the dam is 0.05 mi^2. The maximum storage space in the reservoir is 64 acre-feet and the maximum discharge that the dam was designed for is 62 cu ft/sec. According to the National Inventory of Dams, the downstream hazard potential is considered low, which is defined by the ACOEs as a dam "where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property." Bedrock lined much of the left bank of the pond while the right bank was mowed to the edge. The bedrock provides lateral control along the left by limiting bank erosion. The right bank should be planted with trees and shrubs to increase bank stability and habitat. There was a dam spillway along the right bank lined with large rock and maintained herbaceous vegetation. Downstream of the dam, there was a wetland complex with herbaceous and shrubby vegetation and areas of open water with a beaver dam (Station 51344) at the downstream end.

Continuing downstream, there was a rock wall (Station 51176 – 51043) along approximately 148 feet of the right bank that started set back from the stream and continued until it was at the edge of the streambank. The rock wall provided lateral control and was further stabilized by herbaceous vegetation and vines that had grown through and along the stacked rock. Just downstream of the rock wall there was a stream channel crossing (Station 51040) that appeared to be maintained for recreational purposes.

Channel Crossing at Station 51040

As the stream meandered to the right, there was bedrock (Station 50763) along the left stream bank and bed, gradually covering the full bed of the stream channel, for approximately 210 feet. The bedrock provides lateral control along the upstream portion of the bedrock by limiting stream bank erosion; and it

Bedrock Stations 50763 - 50553

provides grade control for the channel by preventing *degradation* or *downcutting* of the stream. This is the process by which streambeds and floodplains are lowered in elevation by eroding downward into the stream bed over time. The bedrock channel had multiple drops in elevation with a small waterfall entering a significant pool. At the time of the assessment, multiple trout were observed in the pool.

Continuing downstream, there was a channel *divergence* (Station 50359) where a flood chute split off from the main channel. Flood chutes convey flow through a secondary channel during periods of high flows; this flood chute converges (Station 50253) with the main channel approximately 106 feet downstream. Flow through the channel was intermittent; at the time of the assessment there was subsurface flow with few areas of surface flow. A small intermittent tributary (Station 50319) entered the secondary channel along the right; this tributary appeared to contribute to erosion of the right bank of the secondary channel.

Further downstream there were multiple observations of woody debris, including some fallen trees across the stream (Station 50032, Figure 4.1.1, Inset C). Woody debris is beneficial to a stream system. It provides critical habitat for fish and insects and adds essential organic matter that will benefit organisms downstream. Although the trees did not pose an obstruction at low flow, they may pose a more significant obstruction during higher flows. Unless the woody debris is causing an imminent threat to infrastructure or long-term bank stability (meaning it may cause a mass bank failure) it should be left in the stream.

Dump site at Station 49722

Continuing downstream, there were two dump sites. The first site consisted of a small car along the left bank (Station 49961) that may be in the stream

during high flows. The second dump site (Station 49722) was located in the *floodplain* along the right bank and contained old farm equipment, refrigerators, metal scraps and some glass. The dump did not appear to be actively used or to pose an immediate hazard. During higher flows some of the material at the dump site may be mobilized and brought further downstream. It is recommended that both dump sites be removed to eliminate the potential safety and pollution hazards associated with the dumped material.

Further downstream, set back from the right stream bank, there was a stacked rock wall for approximately 100 feet (Stations 49481 – 49381). The wall appeared to be in good structural and functional condition. There was also a short section of bedrock (Station 49385) providing grade control in the bed of the stream and lateral control along the left bank for approximately five feet.

Rock Wall, Stations 49481 - 49381

From stations 48951 – 48712 there was a well vegetated berm along approximately 239 feet of the right bank. The berm's vegetation was well established with herbaceous and shrubby vegetation and few trees. Berms, while often created with the best of intentions, tend to raise flood elevations and increase the erosive power of the stream. It is recommended that berms be evaluated for their influence on floodplain connectivity and stream entrenchment. In some cases, removal should be considered where there is significant negative impact caused by the berm, and where it is feasible to restore floodplain connectivity. Where removal is feasible, effort should be made to limit the disturbance to shrubby and forested vegetation along the berm.

Bridge at Station 48807

As the stream gently meandered to the right, there was an old wooden foot bridge (Station 48807) in poor structural and functional condition. Starting approximately 400-500 feet upstream of the bridge, flow was subsurface at the time of the assessment. The bridge opening did appear to provide an adequate span for very low flows; however, the bridge may pose an obstruction during higher flows. The bridge appeared to contribute to minor erosion just upstream.

Along both sides of the stream, there were proposed planting sites. Land use changed from forested to maintained herbaceous vegetation. Recommendations for this site include planting native trees and shrubs along the streambank and the upland area (Station 48700). 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 functionality. A vigorous buffer with mature trees is important at these sites because it may also filter nutrients and pollutants, if any, from the adjacent fields. Through the recommended planting site, the channel of a small intermittent tributary (Station 48591) entered along the right; there was no flow at the time of the assessment. The New York State Department of Environmental Conservation classifies streams and rivers based on their "best use" (NYSDEC, 1994). This tributary was classified C by the NYS DEC, indicating that the best uses for this stream are supporting fisheries and other recreational activities. Also along the planting site, there was a recreational stream crossing (Station 48492).

Planting sites near Station 48700

Continuing downstream, there was a proposed planting site (Stations 48413 – 48140) along the right streambank. This site was an active hayfield with a narrow area of unmowed herbaceous vegetation between the hayfield and the stream's edge. This narrow buffer had some shrubs and few trees. As with the previous planting sites, recommendations include 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. Enhancing the quality of the buffer with woody vegetation and increasing the overall buffer width will help to protect water quality through this reach by slowing stormwater runoff and filtering pollutants associated with nearby land use. This site may be eligible for the USDA's Conservation Reserve Enhancement Program.

Planting site, Stations 48413 - 48140

Opposite the planting site, there was minor erosion (Stations 48259 – 48181) along approximately 78 feet of the left streambank. The face of the bank had some exposed roots, with herbaceous vegetation, shrubs and trees at the top of the bank. The area was well vegetated with a forested floodplain. Maintaining the forested cover along this bank is important, and may help the bank to recover naturally over time.

Eroding bank, Stations 48259 -48181

Proposed Planting Sites, Stations 48082 - 47347

As the stream meandered to the left, there was a stacked rock wall (Station 48082) that started along the right streambank and extended perpendicularly into the adjacent fields along a hedgerow. The rock wall was in good structural and functional condition. Just downstream of the rock wall, there were four additional proposed planting sites along approximately 735 feet of stream channel (between Stations 48082 and 47347). Each of the planting sites had a narrow buffer of shrubs and trees. Along the right bank, the first planting site was a mowed field that did not appear to be in agricultural production. There was a stacked rock wall (Stations 47780 – 47685) in good structural and functional condition along the downstream portion of the first planting site. The other planting sites, one on the right bank and two on the left bank, were successional old fields that may be periodically mowed to maintain the open field. Through this stretch of stream, recommendations include augmentation and widening of the existing buffers by 100 feet or more through the planting of additional native trees and shrubs along the streambank and the upland area on both the right and left banks. Along the downstream planting sites, there was a private wooden bridge (Station 47585) that was in poor structural and functional condition. At the time of the assessment, flow continued to be subsurface. This bridge did not appear to be an adequate height or width for most levels of stream flow. If this bridge is replaced in the future, it is recommended that it be constructed with the appropriate bridge width that will provide the capacity to convey flood flows through the opening. Downstream of the bridge flow became surface at the time of the assessment.

Berm at Stations 46900 - 46760

As the stream gently meandered to the right, there was a channel divergence (Station 47139) where a secondary channel split off from the main channel. This channel appears to be a flood chute; it converges (Station

46987) with the main channel approximately 152 feet downstream. Continuing downstream, there was a stone berm (Stations 46900 – 46760) along approximately 140 feet of the right streambank. There was a thin line of trees between the berm and the stream's edge; beyond the berm there was a large mowed lawn. Berms tend to raise flood elevations and increase the erosive power of the stream.

Downstream of the berm, there was a private wooden foot bridge (Figure 4.1.1, Inset B, Station 46755). This bridge was adequate width and height for low flows, but may pose an obstruction during higher flows. At the time of the assessment flow became subsurface downstream of the bridge.

Planting Site, Stations 46719 -46540

Both the left and right streambanks were experiencing minor erosion (Stations 46719 – 46540) for approximately 179 feet downstream of the bridge. There was also a proposed planting site (Stations 46719 – 46540) along the right bank. Increasing the buffer width to at least 100 feet will help to stabilize the stream bank and protect water quality. Recommendations for this site include planting native trees and shrubs along the streambank and the upland area. A tributary (Station 46454) entered along the right streambank. This tributary was classified C by the NYS DEC, indicating that the best uses for this stream are supporting fisheries and other recreational activities. Also along this stretch of stream multiple small channels were observed; the braided channel converged with the main channel (Station 46468) downstream of the planting sites.

Bridge and Culverts at Station 46395

Further downstream, a private road crossed the Manor Kill. At this road crossing, there was a bridge with two metal culverts (Station 46395) that convey flow

under the bridge. The bridge and culverts appeared to be in fair structural and functional condition. Sediment deposition and accumulation of woody debris upstream of the bridge was noted. Deposits such as these are commonly caused by inadequate sizing of the bridge opening. An undersized bridge opening causes water to back up upstream of the bridge, reducing stream velocity, which results in sediment deposition. While low flows may flow freely through this bridge, higher flows may backwater, resulting in the upstream aggradation and woody debris accumulation. If this bridge is replaced in the future, it is recommended that a hydraulic analysis be conducted in order to determine the appropriate bridge width that will provide the capacity to convey flood flows through the opening.

Continuing downstream, there was a proposed planting site along both the right and left streambanks (between Stations 46452 and 46035). Each site has a narrow buffer, with trees and shrubs along the right, and herbaceous and shrubby vegetation along the left bank; beyond the narrow buffers are hay fields. For each of these proposed planting sites, recommendations include augmentation and widening of existing buffer with the planting of additional native trees and shrubs along the streambank and the upland area. Buffer width should be increased by the greatest amount agreeable to the landowners.

Planting Sites, Stations 46452 - 46035

Downstream, there was a channel divergence followed by a bridge with two culverts (Station 46033) for conveying stream flow. The bridge was in fair structural and functional condition. On the upstream side of the bridge, there were stacked rock abutments and stacked rock between the culverts. The larger culvert conveys flow from the main channel, while the smaller culvert conveys flow

Bridge and Culverts at Station 46033
Photo looking upstream

from a secondary channel. The two channels converged at the downstream end of the culverts. The culverts appeared to be in good structural and functional condition. While low flows may flow freely through this bridge, higher flows may be constricted, potentially contributing to backwater and excess sediment deposition. If this bridge is replaced in the future, it is recommended that it be constructed with the appropriate bridge width that will provide the capacity to convey flood flows through the opening.

Planting Site, Right Bank, Station 46375

Downstream of the bridge, there were additional proposed planting sites on both the left and right streambanks. Both sides of the stream had herbaceous vegetation to the edge of the stream; primarily old field with some maintained herbaceous vegetation beyond the old field along the left bank. As with previous planting sites, recommendations include planting native trees and shrubs along the streambank and the upland area to provide a buffer at least 100 feet wide, or the greatest width agreeable to the landowners.

Management Unit 1 ended at the Manor Creek Road bridge (Station 45598). One large culvert conveyed flow under the private bridge; it was supported by boulder sized stack rock abutments. There was water ponding upstream and downstream of the bridge at the time of the assessment, with no flow beyond the downstream pond. The pond downstream of the bridge appeared to have been dredged and maintained. While most flows may flow freely through this bridge, flood flows may be constricted, potentially contributing to backwater. If this bridge is replaced in the future, it is recommended that it be constructed with the appropriate bridge width that will provide the capacity to convey flood flows through the opening.

Culvert and Bridge at Station 45598

Sediment Transport

Streams move sediment as well as water. Channel and floodplain conditions determine whether the stream reach aggrades, degrades, or remains in balance over time. If more sediment enters than leaves, the reach aggrades. If more leaves than enters, the stream degrades (See Section 3.2 for more details on Stream Processes).

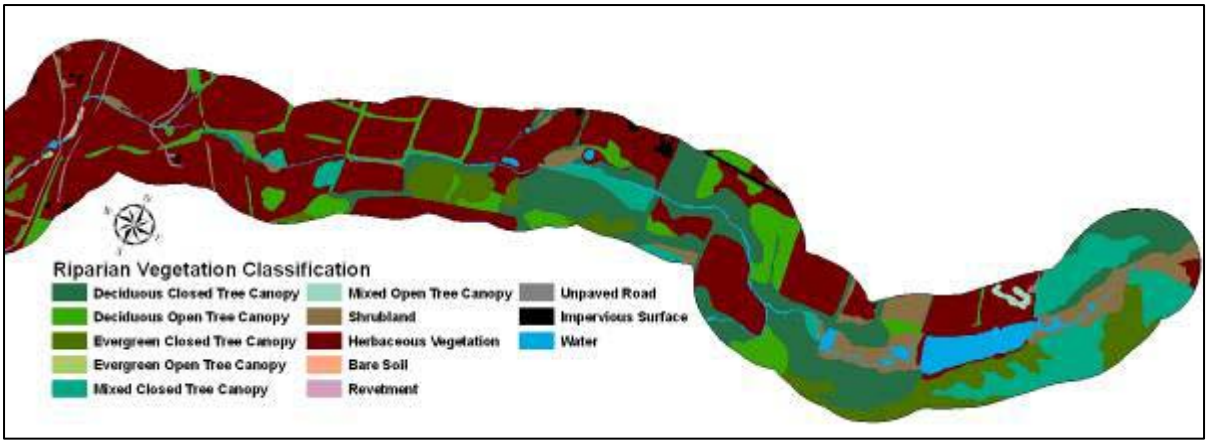
Sediment transport in this unit is influenced by valley morphology and the privately constructed dam, culverts and multiple beaver dams. Except for the bermed areas, the stream channel was well connected to its floodplain and there were no major sediment sources in the unit. Evidenced by lack of significant aggradation or erosion, the stream appeared to be conveying its sediment load effectively throughout most of this management unit. However, sediment transport downstream may be affected by the existing dams. Dams tend to impact stream geomorphology and may cause channel instability when sediment is trapped and stream flow below the dam transports a smaller sediment load than would naturally occur. This may result in the erosion of stream banks to fulfill the sediment carrying capacity of the stream (Koltun et al., 1997).

Riparian Vegetation

One of the most cost-effective and self-sustaining methods for landowners to protect streamside property is to maintain or replant a healthy buffer of trees and shrubs along the banks and floodplains, especially within the first 50 to 100 ft. of the stream. A dense mat of roots under trees and shrubs binds the soil together, making it much less susceptible to erosion. Mowed lawn (grass) does not provide adequate erosion protection on stream banks because it typically has a very shallow rooting system and cannot reduce erosive forces by slowing water velocity as well as trees and shrubs. One innovative solution is the interplanting of revetment with native shrubs which can significantly increase the working life of existing rock rip-rap, while providing additional benefits to water, habitat, and aesthetic quality. *Riparian*, or streamside, forest can buffer and filter contaminants coming from upland sources, shallow groundwater or overbank flows, and slow the velocity of floodwaters causing sediment to drop out and allow for *groundwater recharge*. Riparian plantings can include a great variety of flowering trees, shrubs, and sedges native to the Catskills. Native species are adapted to our regional climate and soil conditions and typically

require less maintenance following planting and establishment. There were 11 riparian improvement planting sites documented within this management unit; proposed planting sites cover approximately 22.2 percent of the streambanks in this unit.

Some plant species that are not native can create difficulties for stream management, particularly if they are invasive. Japanese knotweed (*Fallopia japonica*), for example, has become a widespread problem in recent years. Knotweed shades out other species with its dense canopy structure (many large, overlapping leaves), but stands are sparse at ground level, with much bare space between narrow stems, and without adequate root structure to hold the soil of streambanks. The results can include rapid streambank erosion and increased surface runoff leading to a loss of valuable topsoil. Japanese knotweed locations were documented as part of the stream feature inventory conducted during the summer of 2008 (Riparian Vegetation Mapping, Section 2.7). The first appearance of Japanese knotweed on the Manor Kill mainstem does not occur until management unit #2. The best means for controlling knotweed is prevention of its spread, therefore efforts should be made to ensure that all fill brought into the area is clean and does not have fragments of knotweed or other invasive plants. If Japanese knotweed sprouts or small stands are observed, they should be eradicated immediately to avoid further spread within this unit and downstream management units. Periodic monitoring for knotweed introductions in this unit is recommended.



Riparian vegetation classification map based on aerial photography from 2006

An analysis of vegetation was conducted using aerial photography from 2006 and field inventories (see above map and Riparian Vegetation Mapping, Section 2.7). In this management unit, the predominant vegetation type within the 300 ft. riparian buffer was forested (46.3 %) followed closely by herbaceous (45.8 %). *Impervious* area (0.65 %) within this unit's buffer was primarily the local and private roadways. Areas of herbaceous (non-woody) cover may present opportunities to improve the riparian buffer with tree plantings in order to promote a more mature vegetative community along the streambank and in the floodplain.

Flood Threats

As part of its National Flood Insurance Program (NFIP), the Federal Emergency Management Agency (FEMA) performs hydrologic and hydraulic studies to produce Flood Insurance Rate Maps (FIRM), which identify areas prone to flooding. The NYS DEC Bureau of Program Resources and Flood Protection has developed new floodplain maps for the Manor Kill on the basis of recent surveys. The new FIRM hardcopy maps are available for viewing at the Schoharie County Soil & Water Conservation District Office.

For this management unit, floodplain map coverage did not include this portion of the Manor Kill. It is recommended that hydraulic analysis be completed to create floodway and floodplain maps from the end point of existing maps upstream to the headwaters wetland complex where the main stem begins. The 100-year floodplain is that area predicted to be inundated by floods of a magnitude that is expected to occur once in any 100-year period, on the basis of a statistical analysis of local flood record. Most communities regulate the type of development that can occur in areas subject to these flood risks.

Aquatic Habitat

Generally, habitat quality appeared to be poor throughout this management unit. Canopy cover was inadequate along a significant portion of both streambanks. For much of this unit, flow was subsurface at the time of the assessment, which eliminates habitat for a variety of aquatic organisms and creates a blockage for fish passage to upstream and downstream portions of the stream that had surface flow. Canopy cover, which provides shading for the stream channel, was absent along a significant portion of the stream which has a negative impact on the quality of habitat where there was surface flow. There were

some areas of woody debris accumulation observed in the unit. Woody debris provides critical habitat for fish and insects, and added essential organic matter that will benefit organisms downstream.

In 2008, researchers from SUNY Cobleskill conducted macroinvertebrate and fish surveys along the Manor Kill, but there were no sampling sites within Management Unit 1. See the macroinvertebrate and fish reports (Appendix F) for more detailed information regarding the surveys and their findings.

It is recommended that an aquatic habitat study be conducted on the Manor Kill with particular attention paid to springs, tributaries and other potential thermal refuge for cold water fish, particularly trout. Once identified, efforts should be made to protect these thermal refugia locations in order to sustain a cold water fishery throughout the summer.

Water Quality

Clay/silt exposures and sediment from stream bank and channel erosion pose a potential threat to water quality in the Manor Kill. Fine sediment inputs into a stream increase *turbidity* and can act as a transport mechanism for other pollutants and pathogens. There were no significant clay exposures in this management unit.

Stormwater runoff can also have a considerable impact on water quality. When it rains, water falls on roadways and parking areas before flowing untreated directly into the Manor Kill. The cumulative impact of oil, grease, sediment, salt, litter and other unseen pollutants found in road runoff can significantly degrade water quality. However, there were no stormwater culverts observed in this management unit in 2008.

Nutrient loading from failing septic systems is another potential source of water pollution. Leaking septic systems can contaminate water with nutrients and pathogens making it unhealthy for drinking, swimming, or wading. There were a few buildings located in close proximity to the stream channel in this management unit. These building owners should inspect their septic systems annually to make sure they are functioning properly. Servicing frequency varies per household and is determined by household size, tank size, and presence of a garbage disposal. Pumping the septic system out every three to five years is recommended for a three-bedroom house with a 1,000-gallon tank; smaller tanks should be pumped more often. To assist watershed landowners with septic system issues, technical and

financial assistance is available through two Catskill Watershed Corporation (CWC) programs, the Septic Rehab and Replacement program and the Septic Maintenance program (See Section 2.12). Through December 2007, no homeowners within the drainage area of this management unit had made use of these programs to replace or repair a septic system.

References

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