Lewis Brook & Finel Hollow Brook

Phase 2 Stream Geomorphic Assessment Report

Rutland Regional Planning Commission
August 20, 2006

Executive Summary

Phase 2 Stream Geomorphic Assessments (SGA) were completed for portions of Lewis Brook and Finel Hollow Brook. Phase 1 SGA data were updated. The Phase 2 portion of this study included Stream Geomorphic Assessments of 9 reaches on the two streams. Valley wall shape files were updated for the Poultney River mainstem and for Lewis Brook and Finel Hollow Brook as part of this project.

Methods for the assessments strictly followed the SGA protocols developed by the VT ANR DEC River Management Program (RMP). Please refer to the protocols for more information at: http://www.anr.state.vt.us/dec/waterq/rivers/htm/rv_geoassesspro.htm.

Overall, the main factors that appeared to affect geomorphic condition on Lewis Brook were heavy sediment loads and planform adjustments. For many reaches, straightening also contributed to lower RGA scores. Some segments were confined by berms on one or both banks, contributing to higher stream power, increased sediment load and limiting or eliminating floodplain access. On Finel Hollow Brook, aggradation and planform appeared to be the main adjustments, although the increase in sediment load of Finel Hollow Brook did not appear to be as high as that of Lewis Brook. Most segments appeared to have "Very High" sensitivities to future disturbance.

Habitat condition along Lewis Brook appeared to be "Fair" for most segments. The main factors that appeared to affect habitat in this area were lack of epifaunal substrate and cover, embedded gravel, cobble and boulder particles, increased sediment deposition, channel alteration, bank instability and reduced riparian buffers. Large sediment deposits were observed along Lewis Brook, signaling a very high sediment load, which appeared to greatly affect habitat condition. Much of Finel Hollow Brook also appeared to have habitat in "Fair" condition. Factors affecting habitat in these reaches were similar: lack of epifaunal substrate and cover, embedded gravel, cobble and boulder particles, increased sediment deposition, bank instability and reduced riparian buffers.

Protecting the stream corridor and planting riparian buffer where lacking are good overall projects to consider for Lewis Brook and Finel Hollow Brook. Removal of berms where possible could help to reduce pressure on downstream segments, reduce sediment inputs from erosion, and to allow for more sediment storage on adjacent floodplains.

Project Overview

The Rutland Regional Planning Commission (RRPC) began assessing stream condition and delineating valley walls to develop a Fluvial Erosion Hazard (FEH) Corridor for planning purposes.

Scope

This report details work from Phase 2 Stream Geomorphic Assessment (SGA) of Lewis Brook and Finel Hollow Brook where feasible. The Phase 2 SGA was completed in 2006 by the RRPC with consulting services by Lisa Godfrey. The Phase 2 study utilized data collected from a Phase 1 study, which delineated the Poultney River watershed, major tributaries and their watersheds, and collected remote sensing data such as slopes, stream type, land use, riparian buffers, soils, and channel modifications.

Through this stream assessment, the RRPC has increased its information base of channel conditions, adjustment, and evolution in the upper watershed, which can now be used to plan and complete other projects in the basin and to guide town planning and zoning in and near the river and riparian areas. Information from this assessment can be used to identify high risk areas and areas in need of restoration. This information base can also be used as an educational tool to help improve land use practices in the watershed and limit losses of infrastructure, houses, agricultural land and habitat, and reduce sedimentation and nutrient loading of Lake Champlain.

Data from the assessment is provided to the VT DEC River Management Program to add to their Data Management System (DMS) of Vermont watersheds.

Background

Geographic Setting

Figure 1 shows the locations of the Lewis Brook and Finel Hollow Brook watersheds.

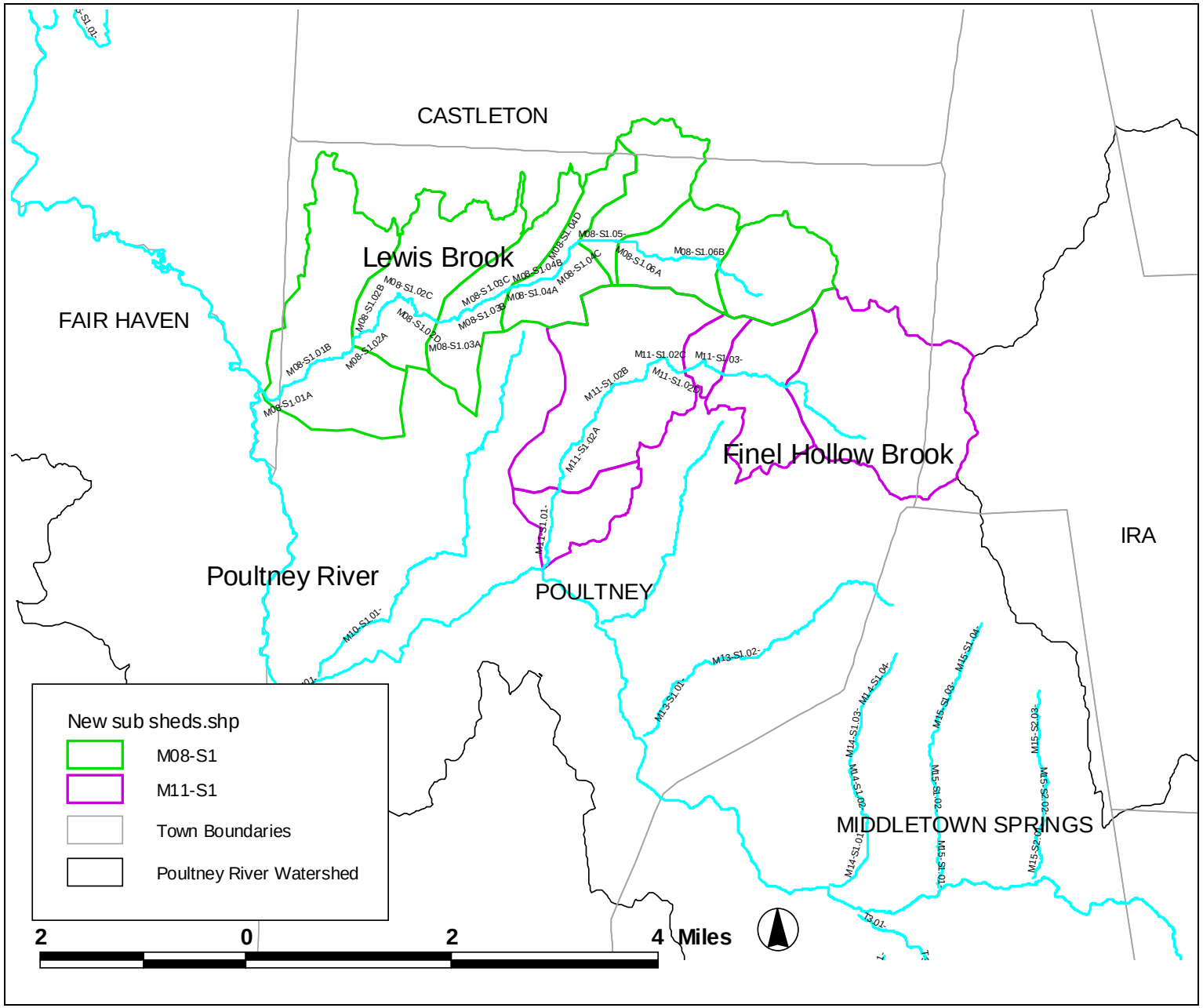

Figure 1. Lewis Brook and Finel Hollow Brook watersheds in the larger Poultney River watershed.

Lewis Brook and Finel Hollow Brook flow into the Poultney River, which directly feeds Lake Champlain. The majority of their watersheds lie in the town of Poultney with small areas in Fair Haven, Castleton, and Ira.

Lewis Brook flows through steep slopes in the upper watershed, then onto a relatively flat valley that winds through farms and slate quarries down to the Poultney mainstem. Lewis Brook has an overall watershed size of 7.9 square miles. The upper watershed was mostly wooded, with newly cleared areas for pasture or residential use. The lower watershed had some wooded slopes, however the valley had little forest and was dominated by farming and residential uses.

Finel Hollow Brook flows through steep valley hill slopes for its length, although the river valley itself alternates between steep and relatively flat. Overall watershed size for Finel Hollow Brook is 6.6 square miles. The uppermost watershed was forested, as were the valley side slopes. The valley itself had farming and residential uses and the stream shared the narrow valley with a road.

Figure 2 shows the reaches on Lewis Brook and Finel Hollow Brook that were included in this study. The lower 6 reaches of Lewis Brook and the lower 3 reaches of Finel Hollow Brook were included in the study.

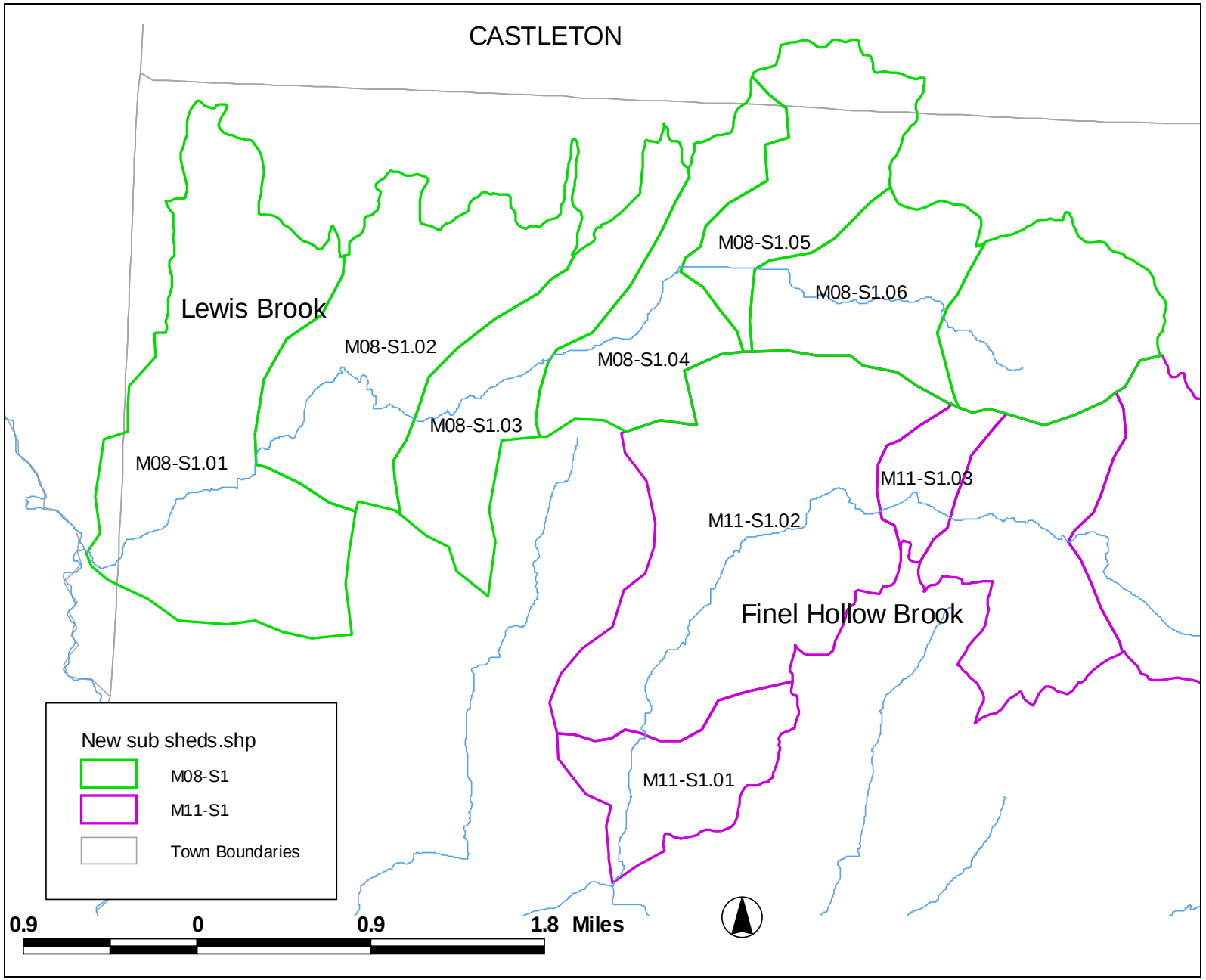

Figure 2. Reaches assessed in the Lewis Brook and Finel Hollow Brook watersheds.

Phase 2 Assessment Methods

A Phase 2 Stream Geomorphic Assessment was completed on the lower 6 reaches of Lewis Brook and the lower 3 reaches of Finel Hollow Brook. This project exclusively used the VT DEC Stream Geomorphic Assessment Protocols (the Protocols) (April 2005) to perform the Phase 2 Assessment and utilized data and information collected in the Phase 1 Assessment.

The following tasks were completed in the Phase 2 Stream Geomorphic Assessments according to the Protocols:

- Notified landowners along study reaches before performing the assessment along their segment of river;
- Used the Phase 1 data, field checked reaches and types identified in Phase I and segmented or modify as necessary;
- Walked the length of each reach to map features and evaluate conditions;
- Photographed and mapped reaches and segments and collected GPS points;
- Identified natural and artificial features of the channel and adjacent valley (watershed zone, channel constraints, floodplain terrace, valley slope, habitat barriers);
- Measured channel dimensions, bankfull and flood elevations and depths, width-to-depth ratio, entrenchment ratio, riffle-step distribution, substrate size and verified stream typing;
- Evaluated stream banks, buffer strips, and riparian corridor;
- Documented flow modifiers such as impoundments, springs, wetlands, drainage ditches, constrictions, and condition of the upper watershed;
- Identified evidence of channel bed and planform changes;
- Conducted a Rapid Habitat Assessment (RHA) using the RHA field form developed by VT ANR;
- Conducted a Rapid Geomorphic Assessment (RGA) using the RGA field form developed by VT ANR;
- Entered all data into ANR Stream Geomorphic Assessment Data Management System.

Please refer to the Vermont DEC River Management Section website for more information about the protocols and methods at:
http://www.anr.state.vt.us/dec/waterq/rivers/htm/rv_geoassesspro.htm.

Rapid Geomorphic Assessment

The RGA is useful in evaluating current stream processes, departures from a reference condition, and stages of channel evolution for a given reach. Three separate RGA forms are used in the Phase 2 SGA, one for unconfined streams, one for confined streams, and one for naturally occurring Plane-Bed streams. Parameters evaluated in the RGA are summarized as follows:

- **Degree of channel degradation or incision** (sharp changes in slope, measured incision and entrenchment ratios, loss of riffle-pool characteristics, floodplain encroachment, historical channel or flow alterations).

- **Degree of channel aggradation** (filling of pools, loss of riffle-pool characteristics, mid-channel or diagonal bars, increases in fine sediments, high width-to-depth ratios, flow alterations, sediment deposition upstream of constrictions).
- **Degree of channel widening** (high width-to-depth ratios, scour on both banks at riffles, mid-channel or diagonal bars, historical channel or flow alterations).
- **Change in channel planform** (bank erosion on outside meander bends, flood chutes or channel avulsions, mid-channel or diagonal bars, additional deposition and scour features, floodplain encroachment, sediment deposition upstream of constrictions).

Please refer to the VT ANR Protocols for more on the RGA (VTANR, April 2005).

According to protocols, once a RGA is completed and a "condition" category selected, a stage of channel evolution is determined. One of two channel evolution models can be used; either the F-stage model or the D-stage model.

In the F-stage model, a channel loses floodplain access either by undergoing degradation or a floodplain build-up (Stage II), due to a disturbance. This degradation is typically followed by channel widening (Stage III), then aggradation and planform adjustments (Stage IV), before then regaining stability with regard to its water and sediment loads (Stage V).

In the D-stage model, aggradation, widening, and planform changes are the main adjustment processes, with degradation being limited, sometimes by resistant bed material or grade controls. The D-stage process can include moderate entrenchment and loss of bed features (Stage IIb), channel widening and/or planform changes (Stage IIc), bed aggradation, bar formation (Stage IId), and regaining a balance similar to reference condition (Stage III).

Please refer to the VT ANR Protocols Appendices for more information on channel evolution models (VTANR, April 2005).

Parameters for the RGA and RHA were scored and assigned to the correlating "condition" category describing departure from a reference condition and degree of adjustment (VTANR, April 2005) as follows:

- Reference – Reaches in dynamic equilibrium, having stream geomorphic processes and habitats found in mostly undisturbed streams.
- Good – Reaches having stream geomorphology or habitat that is slightly impacted by human or natural disturbance, showing signs of minor adjustment, but functioning for the most part.
- Fair – Reaches in moderate adjustment, having major changes in channel form, process or habitat.
- Poor – Reaches experiencing extreme adjustment or departure from their reference (expected) stream type or habitat condition.

In some cases, where a score lies at one end limit of a category, the condition category that best described the reach was selected.

A "Stream Sensitivity Rating" was then generated for each reach or segment according to stream type and geomorphic condition. The range of sensitivity ratings includes: Very Low, Low,

Moderate, High, Very High, and Extreme. These indicate the sensitivity of a reach or segment to ongoing disturbance or stressors.

Rapid Habitat Assessment

The RHA is useful in determining the ability of a given reach to support aquatic biota, the extent to which a given reach is impaired, and potential factors affecting habitat. Two separate RHA forms are used in the Phase 2 SGA, one for low gradient streams and one for high gradient streams. Parameters evaluated in the RHA are summarized as follows:

- Presence of a variety of substrate types suitable for aquatic insect colonization and cover for fish, reptiles and amphibians;
- Degree to which gravel, coble and boulder particles are surrounded by fine sediments;
- Type of bed material in pools;
- Presence of a variety of water speeds and depths to include fast-shallow, fast-deep, slow-shallow, and slow-deep;
- Variety of pool sizes to include large-shallow, large-deep, small-shallow, small-deep;
- Increase in sediment deposition on the channel bed or bars;
- Degree to which the channel bottom is exposed, reference being minimal channel bed exposed;
- Extent of channel alteration including dredging, straightening, berms, or riprap;
- Frequency of riffles or steps along the channel length;
- Channel sinuosity or degree of channel meandering;
- Amount of bank erosion;
- Amount and types of bank vegetation;
- Width of naturally vegetated riparian buffer.

Please refer to the VT ANR Protocols for more on the RHA (VTANR, April 2005).

Bridge and Culvert Assessment

Phase 2 Bridge and Culvert Assessments along Lewis Brook and Finel Hollow Brook were also performed according to the VT ANR Protocols. Bridges and culverts crossing study reaches were assessed and field data entered into the VT ANR Data Management System. Data from these assessments can be used to guide planning for bridge and culvert maintenance or replacement. Refer to the VT ANR Protocols for more on Bridge and Culvert Assessments (VTANR, April 2005).

QAQC Summary

The VT ANR Protocols were followed exclusively in conducting the Phase 2 SGA. The project's consultant had completed the required Phase 2 training conducted by personnel from the Vermont DEC River Management Division. As part of the VT DEC Quality Control program for stream geomorphic assessments, a member of the VT DEC's River Management Division, Shannon Hill, observed assessment procedures in the field to assure the Protocols were followed appropriately. All data entered into the States DMS have been reviewed as part of the quality control program.

Phase 2 Assessment Results

Table 1 presents results for each reach assessed in the Phase 2 SGA. Included in the table are the reach number, stream type, geomorphic condition category from the RGA, stage of channel evolution, stream sensitivity rating, and habitat condition category from the RHA. Please refer to the Appendices for database reports and summaries of each reach according to parameters evaluated during the assessment.

Segments in rock gorges (M08S1.02D, M08S1.03A, M08S1.04B, M08S1.06A, M11S1.02C, and M11S1.03) did not have an RGA or RHA or cross section completed for them as outlined in the Protocols.

Table 1 Summary of results of Phase 2 Stream Geomorphic Assessment

Stream Segment and Name	Stream Type	Geomorphic Condition	Evolution Stage	Sensitivity	Habitat Condition
M08-S1.01_A Lewis Brook	C5 D-R	Fair	IV F	Very High	Fair
M08-S1.01_B Lewis Brook	C4 R-P	Fair	IV F	Very High	Fair
M08-S1.02_A Lewis Brook	C4 R-P	Fair	IV F	Very High	Fair
M08-S1.02_B Lewis Brook	C4 R-P	Good	II F	High	Fair
M08-S1.02_C Lewis Brook	C4 R-P	Fair	IV F	Very High	Fair
M08-S1.02_D Lewis Brook	Gorge	N/A	N/A	N/A	N/A
M08-S1.03_A Lewis Brook	Gorge	N/A	N/A	N/A	N/A
M08-S1.03_B Lewis Brook	C4 R-P	Fair	III F	Very High	Fair
M08-S1.03_C Lewis Brook	C4 PB	Fair	III F	Very High	Poor
M08-S1.04_A Lewis Brook	C4 R-P	Fair	III F	Very High	Fair
M08-S1.04_B Lewis Brook	Gorge	N/A	N/A	N/A	N/A
M08-S1.04_C Lewis Brook	C4 R-P	Fair	III F	Very High	Fair
M08-S1.04_D Lewis Brook	B4 S-P	Fair	II F	High	Fair
M08-S1.05_0 Lewis Brook	B4 S-P	Good	II F	Moderate	Fair
M08-S1.06_A Lewis Brook	Gorge	N/A	N/A	N/A	N/A

M08-S1.06_B Lewis Brook	B4 R-P*	Fair	IV F	Very High	Fair
M11-S1.01_0 Finel Hollow Brook	B4 RP	Good	I F	Moderate	Good
M11-S1.02_A Finel Hollow Brook	C4 R-P	Fair	III F	Very High	Fair
M11-S1.02_B Finel Hollow Brook	C4 PB	Fair	III F	Very High	Fair
M11-S1.02_C Finel Hollow Brook	Gorge	N/A	N/A	N/A	N/A
M11-S1.02_D Finel Hollow Brook	C4 R-P	Fair	III F	Very High	Fair
M11-S1.03_0 Finel Hollow Brook	Gorge	N/A	N/A	N/A	N/A

*Stream Type Departure

Figure 3 shows RGA condition categories for each of the study reaches and segments. Segments M08S1.02B, M08S1.05 and M11S1.01 appeared to be in "Good" condition. Segment M08S1.02B had berms on both banks (Figure 4) and appeared to be transporting all sediment. Incision due to berms, straightening and lack of riffles affected the geomorphic condition. Reaches M08S1.05 and M1S1.01 appeared fairly stable due to resistant boundary conditions and the presence of bedrock. Straightening also appeared to be a factor affecting geomorphic condition in M08S1.05.

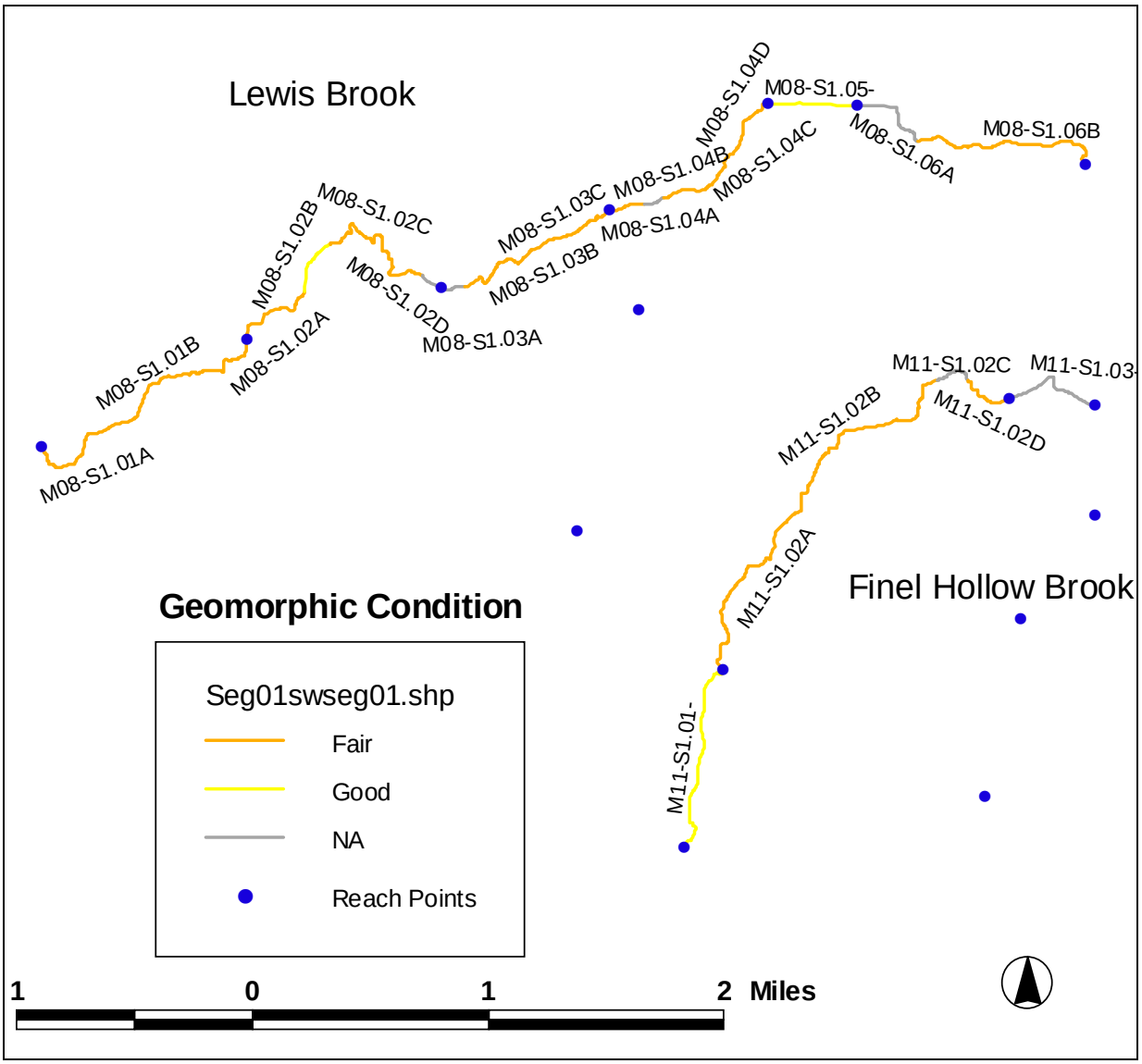

Figure 3. RGA condition scores for Lewis Brook and Finel Hollow Brook.

The remainder of the study reaches assessed under the RGA appeared to be in "Fair" condition. Overall, the main factors that appeared to affect geomorphic condition on Lewis Brook were heavy sediment loads and planform adjustments. For many reaches, past channel straightening also contributed to lower scores.

On Finel Hollow Brook, aggradation and planform appeared to be the main adjustments, although the increase in sediment load of Finel Hollow Brook did not appear to be as high as that of Lewis Brook.

Figure 4. Berms on both banks in Segment M08S1.02B.

Figure 6 shows sediment load alteration indicators identified in Phase 2 for Lewis Brook and Finel Hollow Brook.

In Lewis Brook, many sediment sources along the length of the stream added to the high sediment load. Erosion and channel migration appeared to be the main factors, in part stemming from past channel straightening, highlighted in Appendix A. Gullies and bare pastureland were seen in the upper watershed and were also contributors to the high sediment load in Lewis Brook (Figure 5).

Less sediment production was observed in Finel Hollow Brook. The lower reach of Finel Hollow Brook had many grade controls, highlighted in Figure 7, providing resistance to erosion and further channel incision. A dam on M11S1.02A had trapped a very large amount of sediment upstream, which would be a large sediment source if the dam walls failed.

Both Lewis Brook and Finel Hollow Brook had many areas where roads encroached into their corridors (Figure 7), mainly in the upper reaches where valleys were narrower. This leaves very little room for the stream and any floodplain.

Figure 5. Extreme aggradation in Lewis Brook, resulting in subterranean stream flow.

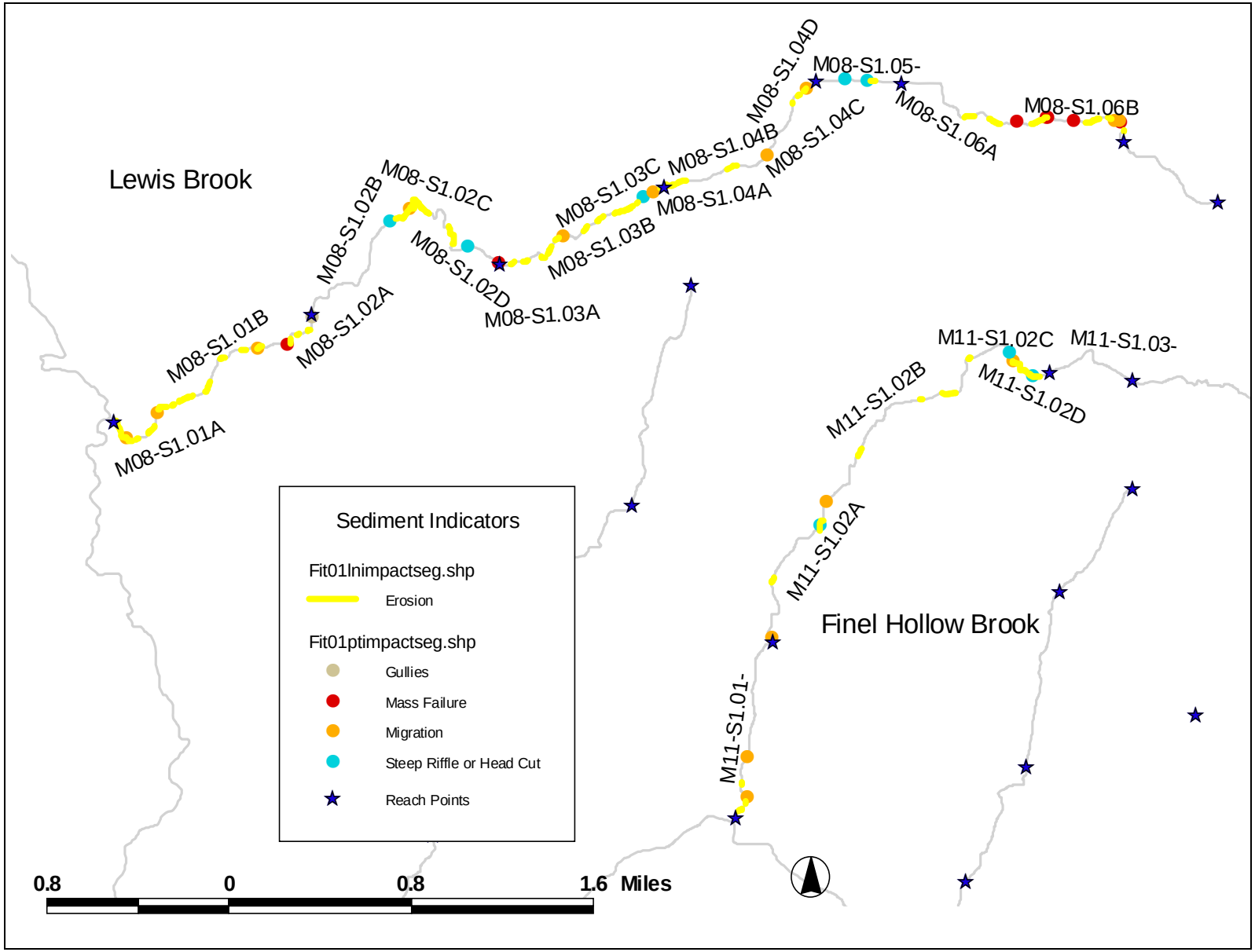

Figure 6. Sediment Load Indicators for Lewis Brook and Finel Hollow Brook.

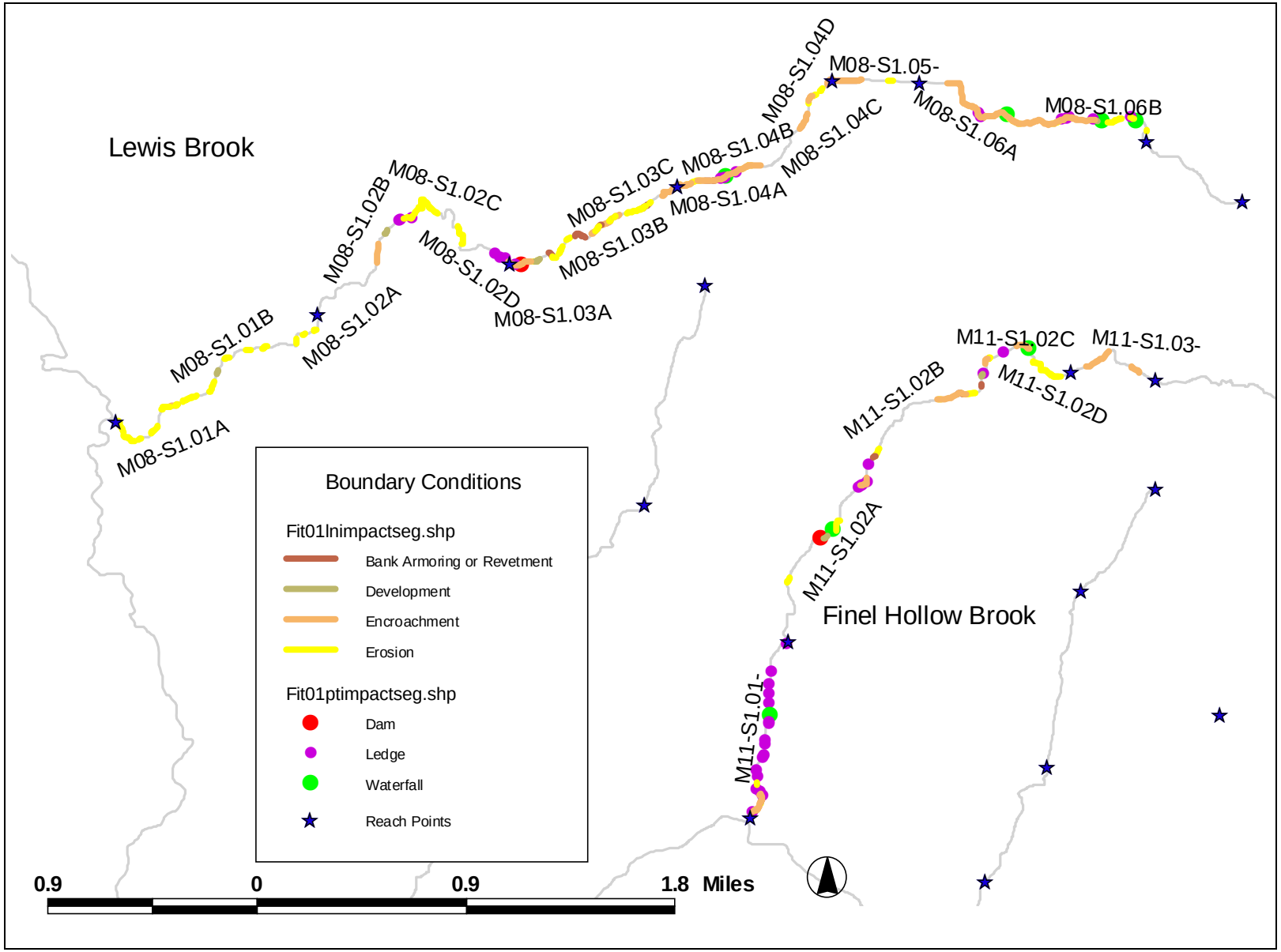

Figure 7. Boundary Conditions for Lewis Brook and Finel Hollow Brook.

Departure and Sensitivity

Accompanying maps show stream type (Figure 8), channel evolution stage (Figure 9), and stream sensitivity to ongoing or future disturbance (Figure 10) in study segments.

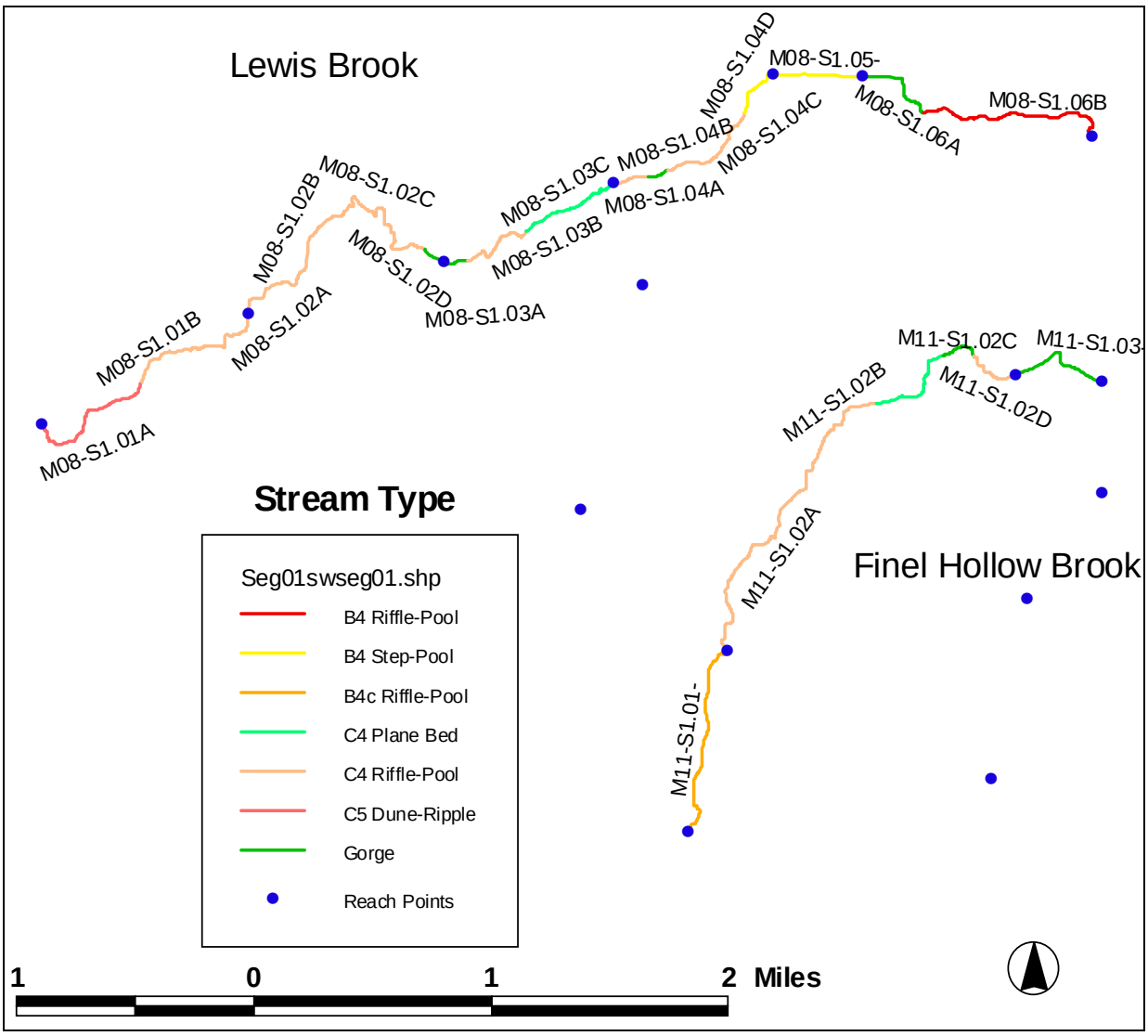

Figure 8. Existing Stream Types for Lewis Brook and Finel Hollow Brook.

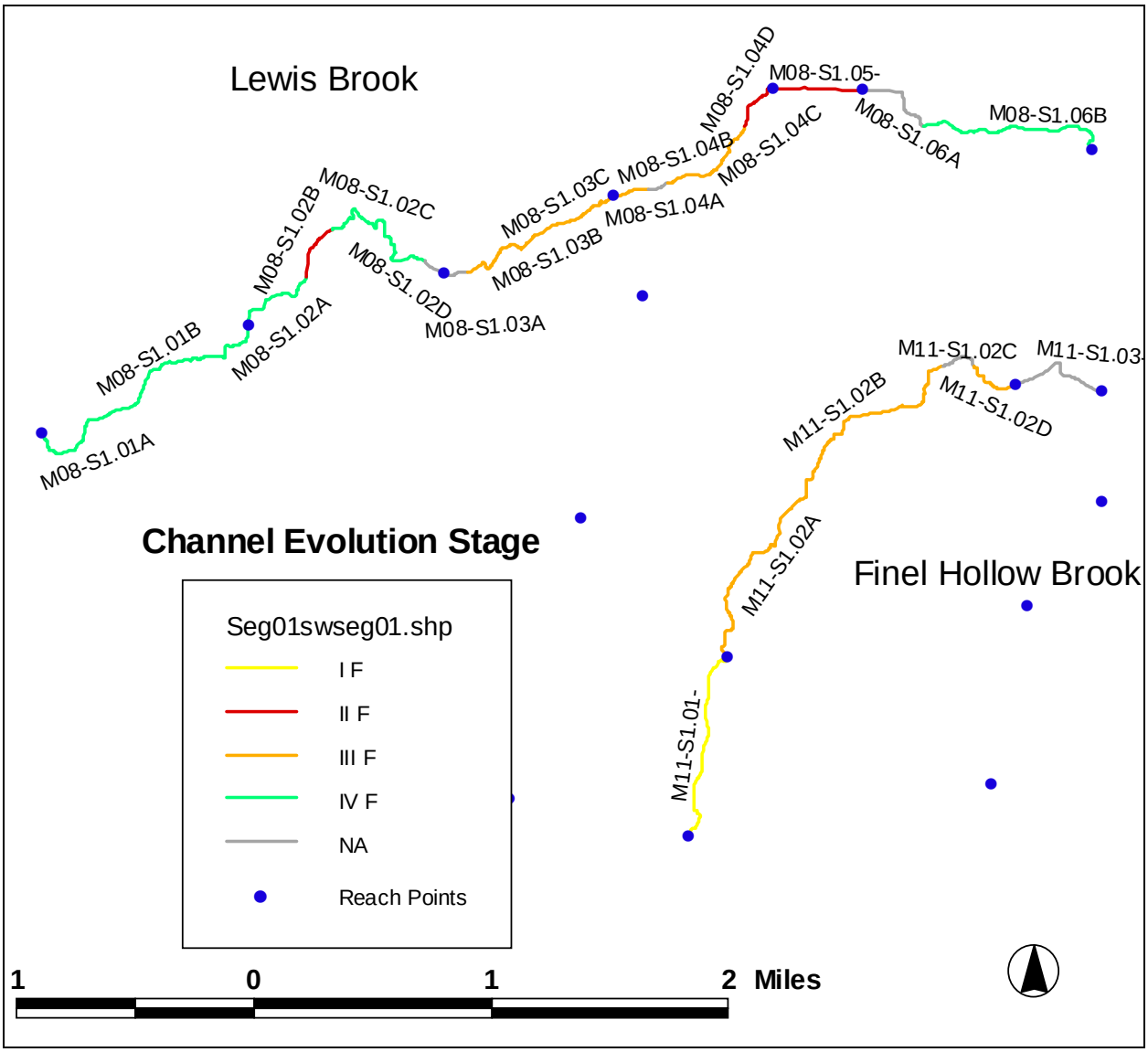

Figure 9. Stage of channel evolution for Lewis Brook and Finel Hollow Brook segments.

Segments M08S1.02B, M08S1.04D, and reach M08S1.05 appeared to be in stage II of the F-stage channel evolution process. M08S1.02B was confined by berms on both banks and appeared straightened and incised due to the presence of the berms. Reach M08S1.05 was in a narrow valley and was further confined by a road and likely straightened as well.

Reach M11S1.01 appeared to be “in regime” and not undergoing channel adjustments. This was likely due to the numerous grade controls providing resistance.

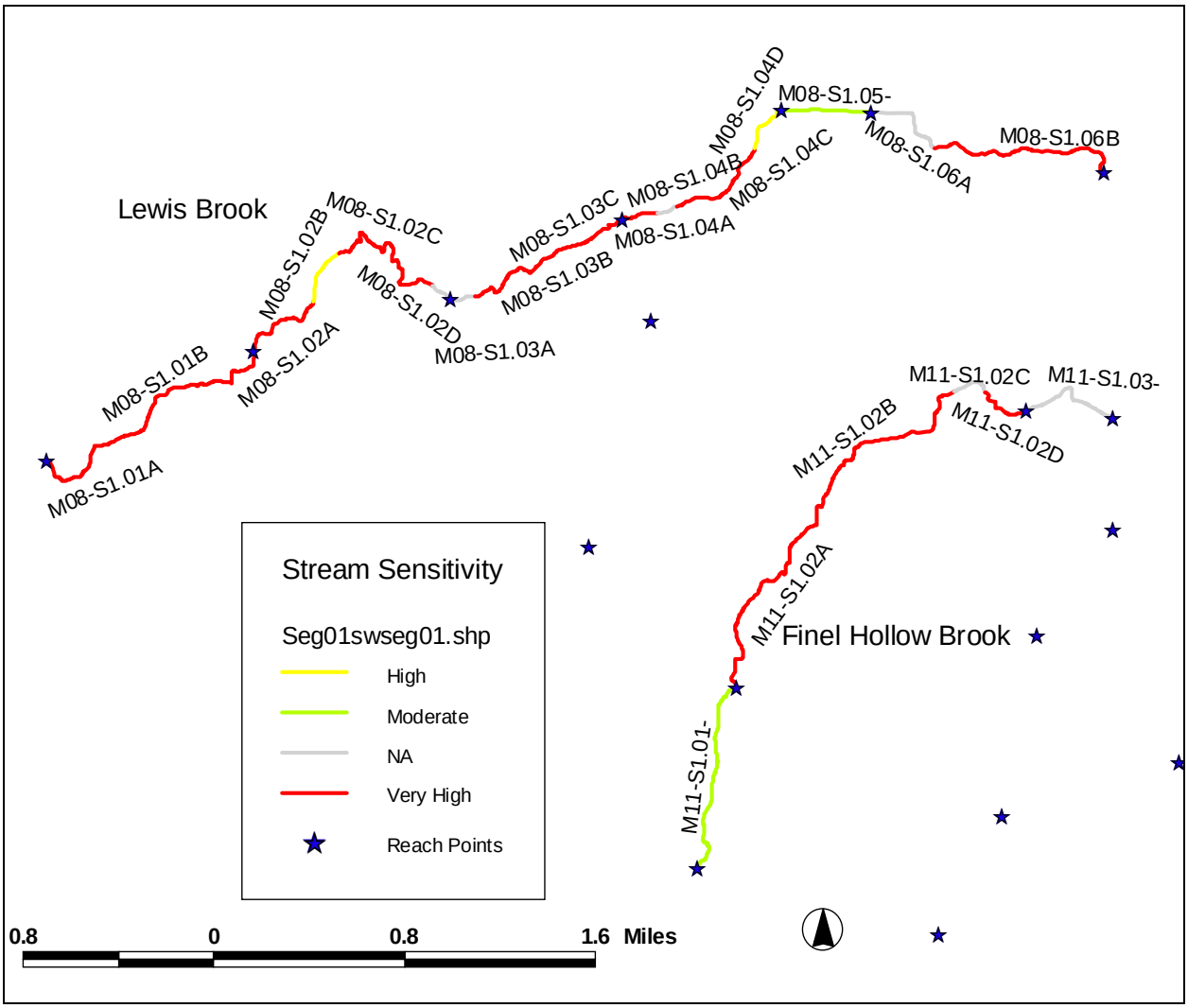

Figure 10. Stream Sensitivity ratings for Lewis Brook and Finel Hollow Brook.

Although many bedrock grade controls are present in Finel Hollow Brook and the upper area of Lewis Brook, most of the stream segments remain very highly sensitive to disturbance. These segments were undergoing adjustment and left with increased sensitivity to further disturbance. Reaches M08S1.05 and M11S1.01 had “moderate” sensitivity due to their “B” stream types and an RGA condition scores of “Good.”

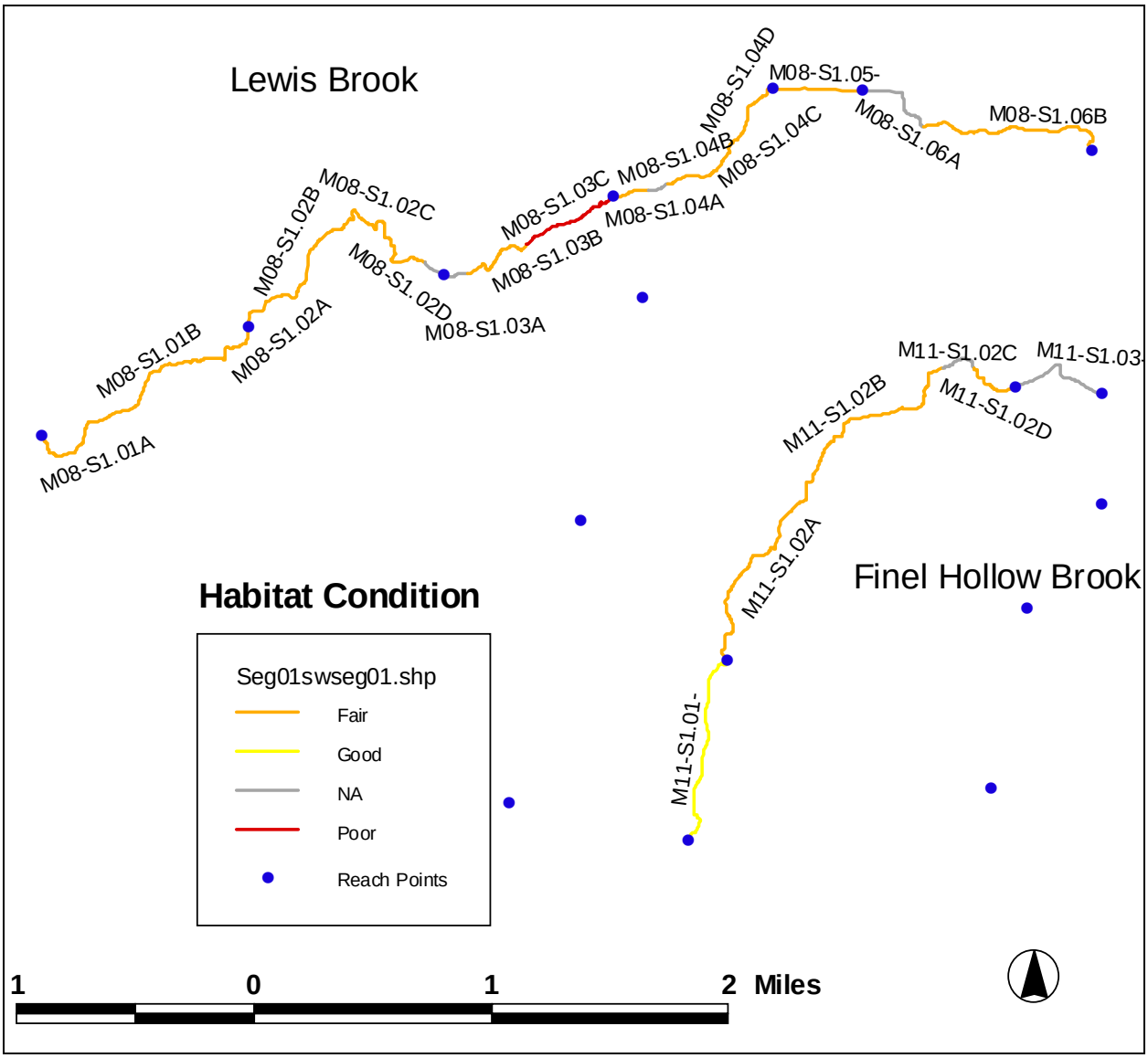

Figure 11. RHA condition scores for Lewis Brook and Finel Hollow Brook.

Habitat condition along Lewis Brook appeared to be “Fair” for most segments. The main factors that appeared to affect habitat in this area were lack of epifaunal substrate and cover, embedded gravel, cobble and boulder particles, increased sediment deposition, channel alteration, bank instability and reduced riparian buffers.

Segments M08S1.03B and M08S1.03C had very little water present in the channel at the time of assessment, further affecting habitat condition.

Habitat condition for the lower reach of Finel Hollow Brook appeared to be in “Good” condition, with good riparian buffer and bank vegetation and little channel alteration. A “Fair” mix of epifaunal substrate and “Poor” embeddedness affected the score.

Other segments of Finel Hollow Brook appeared to have habitat in ”Fair” condition. Factors affecting habitat in these reaches were lack of epifaunal substrate and cover, embedded gravel, cobble and boulder particles, increased sediment deposition, bank instability and reduced riparian buffers.

Planning for the Future

Proper planning now could reduce future disturbances in order to limit damage to land and infrastructure in future flood events. For example, if unchecked, development in the upper watershed, especially the riparian corridor could increase storm runoff and peak stream flows (Dunne and Leopold, 1978). This could result in further stream adjustments such as bank erosion, widening, and channel migration, all contributing to sediment and nutrient loading of the Poultney River and Lake Champlain. In planning for developments, increases in percentage of impervious surfaces and alteration of runoff characteristics created by the developments should be considered as this can greatly affect runoff amounts and therefore erosion, sedimentation, and changes in channel dimensions (widening, incision, migration).

Potential Project Recommendations

The following are recommendations for potential projects or activities that could improve geomorphic and habitat conditions in the assessed reaches.

M08S1.01A – This is a good candidate for corridor protection and bank planting, although the meander migration and beaver activity could prove detrimental to plantings. Planting away from the banks is recommended to reduce losses from channel migration. A small berm on the left bank could be removed to reduce potential sediment inputs to the Poultney River.

M08S1.01B and M08S1.02A – The landowner is apparently working with a program to fence his livestock out of the stream channel. This is a great step, although the channel migration could undermine the fence. Here, the stream could use a wider buffer to accommodate the planform adjustments as the stream recreates its pre-straightening planform and slope.

M08S1.02B - A potential project could be to remove the berms along both banks or move them back away from the channel to provide floodplain access. Berm removal or movement could increase sediment storage in the segment, reducing pressure on downstream reaches.

M08S1.02C - This is a good candidate for corridor protection and buffer planting. Planting away from the banks is recommended to reduce losses from channel migration.

M08S1.03B - Extreme aggradation was evident in this segment. Fine gravel and sand sediments had filled the channel and spilled onto an adjacent field. Trees were buried in sediment. The landowner expressed concern, however we have not yet discussed this segment in detail. Protecting the corridor and moving activity out of the corridor would help by allowing the channel to continue these adjustments. Reducing sediment inputs from upstream is also important to relieve pressures on this segment. A sediment trap at the bridge could be installed so

sediment could be removed at that point before entering this segment. This would not address the overall problem of sediment inputs to the stream however.

M08S1.03C – Removal of the berms in this segment and allowing the stream floodplain access could reduce the sediment load downstream as well as reduce the erosive power of the stream and improve habitat.

M08S1.04A, C and D - These segments would be good candidates for corridor protection and buffer planting.

M08S1.06B – This segment could benefit from stabilization of gullies and bare soil in the upper watershed that supply sediment. Corridor protection could also help by limiting development and cutting activities in the corridor, which would further increase sediment loads.

M11S1.02A – Corridor protection and buffer planting are potential projects for this segment to allow the stream to continue planform adjustments. The dam did not appear to be functioning, making dam removal a potential project. Removal of the sediment upstream of the dam would be important to keep it from moving downstream.

M11S1.02B – This segment could benefit from removal of berms and riprap to allow for the stream to regain its pre-straightening planform and slope. Current land use and investments near the channel may make this difficult.

Corridor protection in any area would be a good project. High priority sites were highlighted here.

Undersized bridges and culverts, and those poorly aligned with stream channels, have resulted in erosion, aggradation, outflanking, loss or damage of infrastructure and personal property, reduced wildlife passage, backup of flood waters, reduction of floodplain function, and debris jam catchers. As bridges and culverts require replacement, sizing new structures according to bankfull and floodprone widths and placing them in proper alignment with stream channels could alleviate these problems.

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Acronym List

DMS – Data Management System (Developed by the DEC)
GIS – Geographic Information System
GPS – Global Positioning System
LWD – Large Woody Debris
PMNRCD – Poultney Mettowee Natural Resources Conservation District
RGA – Rapid Geomorphic Assessment
RHA – Rapid Habitat Assessment
RIT – Reach Indexing Tool
RMP – River Management Program
RRPC – Rutland Regional Planning Commission
SCP – Stream Corridor Plan
SGA - Stream Geomorphic Assessment
SGAT – Stream Geomorphic Assessment Tool
VT ANR DEC – Vermont Agency of Natural Resources Department of Environmental Conservation

Glossary of Terms

Aggradation - The build up of sediment in a streambed.

Avulsion – A change in a river's course; a section of channel that has moved laterally from its bed to create another segment of channel some distance from the previous bed location.

Bankfull width - The width of the channel at a height corresponding to the level of stream flow that would overtop the natural banks in a reference stream system, occurring on average 1.5 to 2 years.

Bankfull maximum depth – The depth of the channel from the bankfull elevation to the thalweg.

Confinement – Referring to the ratio of valley width to channel width. Unconfined channels (confinement of 4 or greater) flow through broader valleys and typically have higher sinuosity and area for floodplain. Confined channels (confinement of less than 4) typically flow through narrower valleys.

Debris jam - A collection of large woody debris that has lodged in a stream channel and spans the channel from bank to bank.

Degradation or incision - Down cutting of the streambed by erosion of bed material.

Embedded – Larger bed substrate particles (gravels, cobbles, boulders) surrounded by fine sediment, reducing the oxygen in the substrata and the ability of organisms to retreat into the substrata for cover.

Entrenched - A state where a channel has lowered significantly and floodwaters can no longer overtop the banks and access the floodplain.

Flood chute - A small side channel crossing the inside of a meander bend where flood waters will bypass the main channel, taking a shorter route through the chute.

Floodprone width - The area outward from the channel that is at an elevation that could be inundated by a flood, measured in Phase 2 SGA as at an elevation of 2 times the bankfull maximum depth.

Grade control – A fixed surface on the streambed that controls the bed elevation at that point, effectively fixing the bed elevation from potential incision, typically bedrock or culverts.

Head-cut – A sharp change in slope, almost vertical, where the streambed is being eroded from downstream to upstream.

High gradient streams - Typically found in steep, narrow valleys, these streams have steep slopes and are usually fast moving with many riffles or steps and low sinuosity.

Impervious surface – A hard surface, such as concrete or a rooftop, which prevents water from infiltrating the soil.

In Regime – Referring to a stream that is in an equilibrium state, one that would be expected given the stream setting.

Large woody debris - Pieces of wood in the active channel (within the bankfull width) usually from trees falling into the channel and with minimum dimensions of 12 inches in diameter (at one end) by 6 feet long.

Low gradient streams – Typically found in wide valleys, these streams have shallow slopes and are usually slow and meandering.

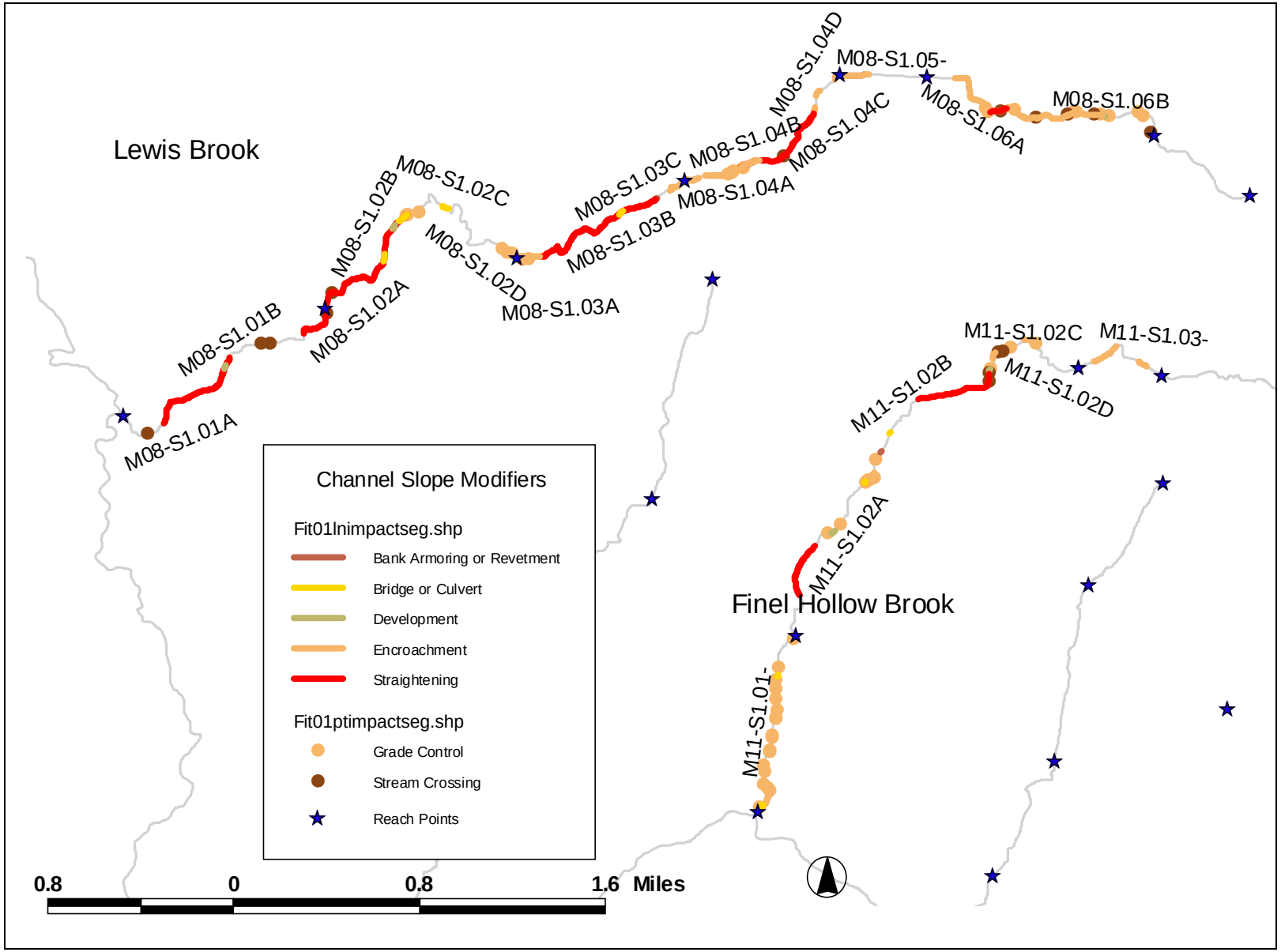
Meander – A bend in a stream, or referring to the way a stream winds down its valley.

Sinuosity – The level of bends or turns in a stream, calculated by dividing the stream length by the valley length.

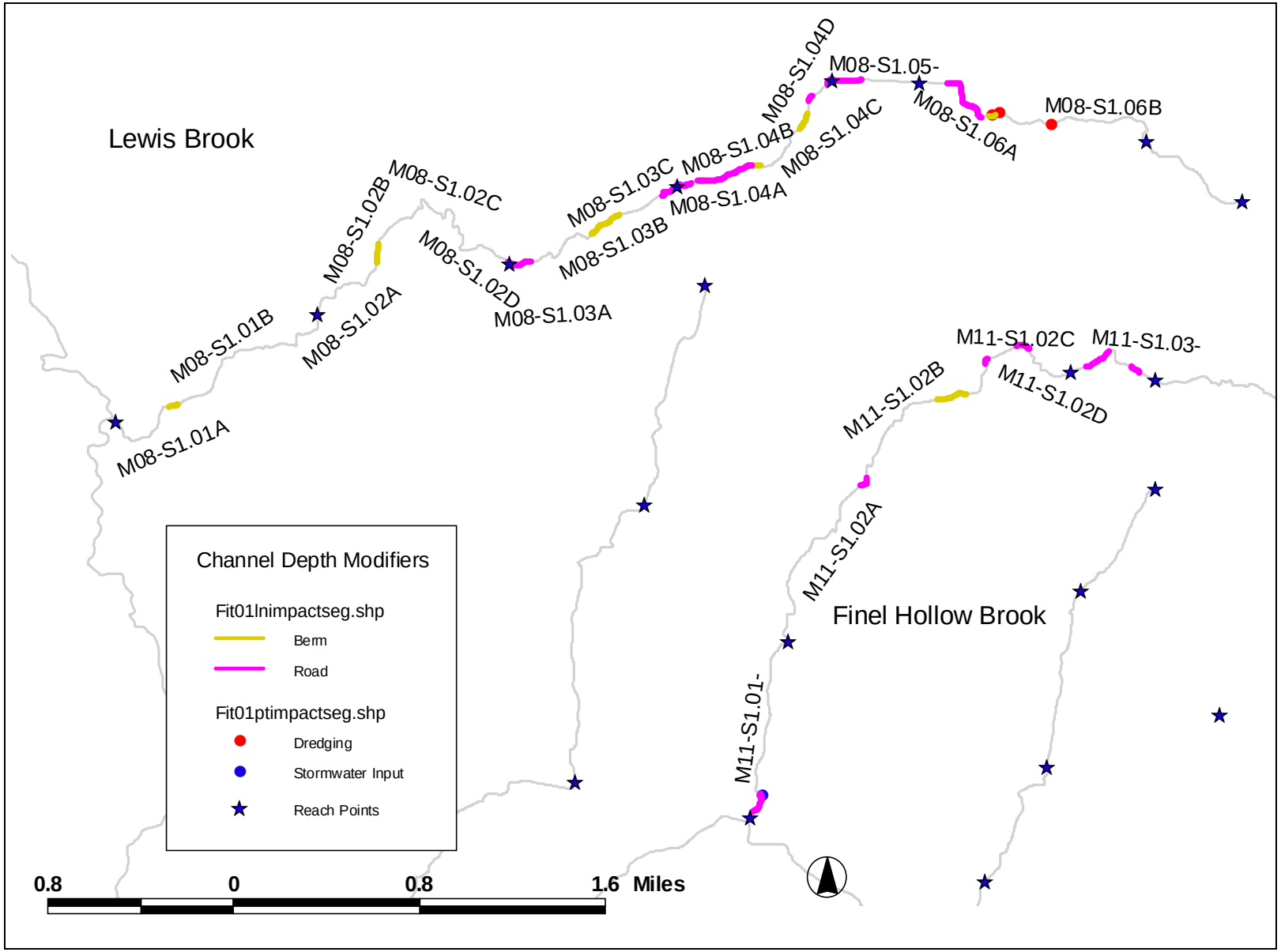
Width/depth Ratio – The ratio of channel bankfull width to the average bankfull depth. An indicator of channel widening or aggradation.

Windrowing - Digging material from the channel bed and piling it on the bank, creating berms.

Appendix A – Channel Modifiers Maps

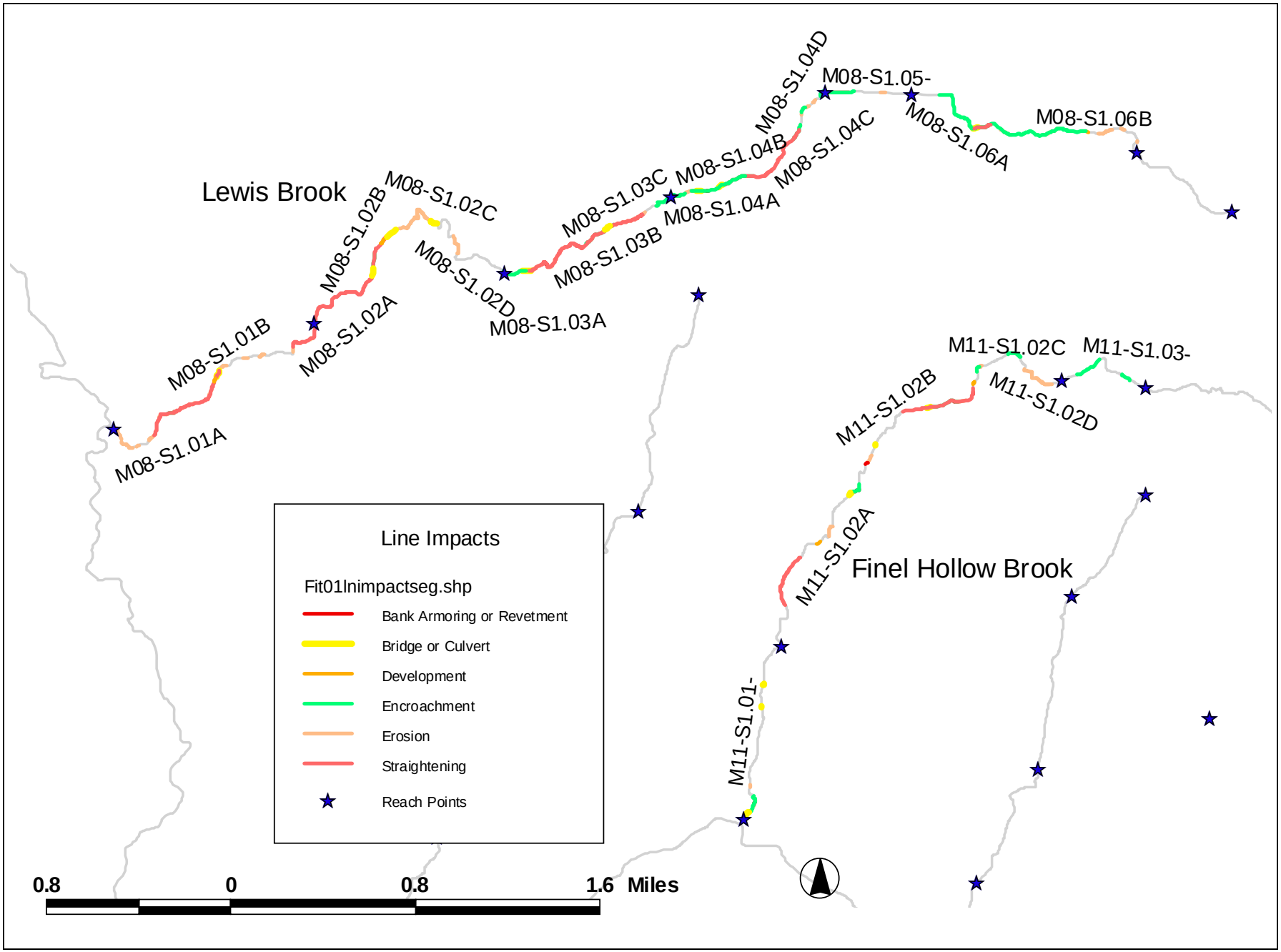


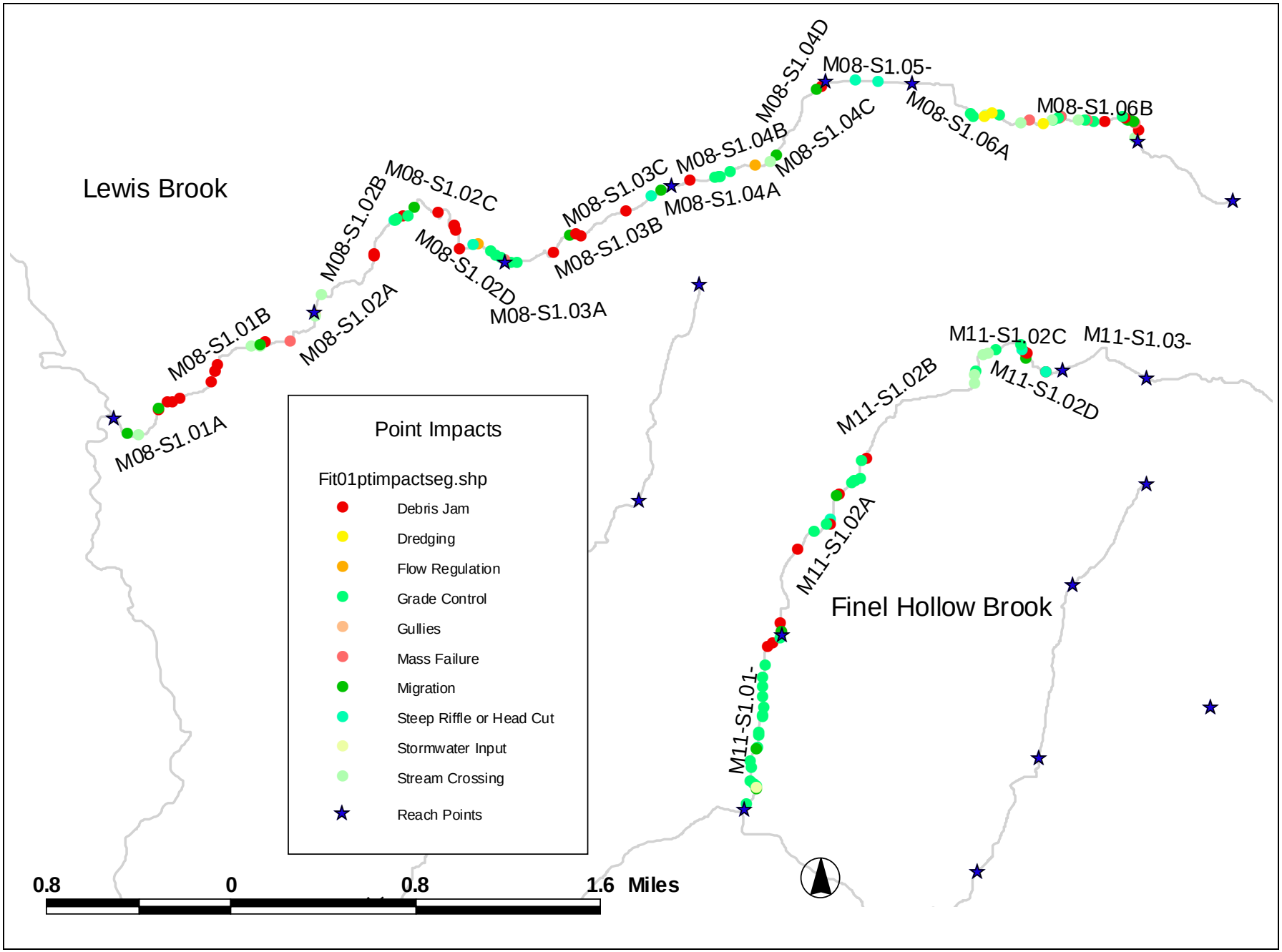
Channel Slope Modifiers for Lewis Brook and Finel Hollow Brook.



Channel Depth Modifiers for Lewis Brook and Finel Hollow Brook

Appendix B – FIT Maps


Lewis Brook
Finel Hollow Brook
M08-S1.01A
M08-S1.01B
M08-S1.02A
M08-S1.02B
M08-S1.02C
M08-S1.02D
M08-S1.03A
M08-S1.03B
M08-S1.03C
M08-S1.04A
M08-S1.04B
M08-S1.04C
M08-S1.04D
M08-S1.05-
M08-S1.06A
M08-S1.06B
M11-S1.01-
M11-S1.02A
M11-S1.02B
M11-S1.02C
M11-S1.02D
M11-S1.03-
Line Impacts
Fit01lnimpactseg.shp
Bank Armoring or Revetment
Bridge or Culvert
Development
Encroachment
Erosion
Straightening
Reach Points
0.8
0
0.8
1.6 Miles


Lewis Brook
Finel Hollow Brook
M08-S1.01A
M08-S1.01B
M08-S1.02A
M08-S1.02B
M08-S1.02C
M08-S1.02D
M08-S1.03A
M08-S1.03B
M08-S1.03C
M08-S1.04A
M08-S1.04B
M08-S1.04C
M08-S1.04D
M08-S1.05-
M08-S1.06A
M08-S1.06B
M11-S1.01-
M11-S1.02A
M11-S1.02B
M11-S1.02C
M11-S1.02D
M11-S1.03-
Point Impacts
Fit01ptimpactseg.shp
Debris Jam
Dredging
Flow Regulation
Grade Control
Gullies
Mass Failure
Migration
Steep Riffle or Head Cut
Stormwater Input
Stream Crossing
Reach Points
0.8
0
0.8
1.6 Miles

Appendix C - Reach Notes

Lewis Brook

M08S1.01

Segment A

Active flood chutes, signs of old meander bends, old avulsions, and neck cutoffs were seen in this segment. Meander migration appears recent and one bend in particular appears to have moved about 90 feet. Beaver activity and many debris jams were observed in this segment. An old abutment (20 ft wide) constricts the channel at the upstream end of the segment. Much riparian vegetation had been removed. Planting could be a good project here, although the meander migration and beaver activity could prove detrimental to plantings. A small berm could be removed to reduce potential sediment inputs to the Poultney River. Habitat appeared to be in "Fair" condition, affected by channel alteration, sediment deposition and bank instability. The SGA indicated the stream was in "Fair" condition and in stage IV of the F-stage evolution process. Aggradation was the main adjustment process with some widening and planform adjustments as well.

M08S1.01 Segment B

Major aggradation was evident through many depositional bars and sediment deposits on banks. The landowner reports he has seen the channel migrating to the edge of his field and undercutting the fence. Cows were allowed full access to channel here when they are in this pasture. The landowner was working with a grant program to fence along the channel. That may prove difficult to maintain due to the major planform adjustments occurring in this segment. The downstream end of the segment runs through a slate quarry with ponds. Some signs of gravel removal were observed. This segment appeared to need room to migrate and deposit its high sediment load. The segment appeared to have been straightened to improve fields at some point, now the landowner is wrestling with the stream as it attempts adjustment. Habitat condition appeared “Fair” with bank instability, lack of riparian buffer, sediment deposition, and little mix of substrate types as the main factors. Geomorphic condition appeared “Fair” and the main adjustment processes were aggradation and planform (Stage IV).

M08S1.02

Segment A

This segment encompassed a cow pasture. The landowner was digging out channel downstream of the culvert where sediment had deposited. The landowner was enrolled in program to fence cows out of the channel in 4 years. Bulls were in the pasture at the time of assessment, so the segment was observed from the road, adjacent fields, and downstream. The cross section from segment M08S1.01B was used for this segment as well. Cows were allowed full access to channel here when they are in this pasture. Riparian and bank vegetation is absent or minimal in many areas. The landowner was working with a grant program to fence along the channel. That may prove difficult to maintain due to the major planform adjustments occurring in this segment. This segment appeared to need room to migrate and deposit its high sediment load, much of which deposits just downstream of the culvert and the landowner removes it. The segment appeared to have been straightened to improve fields at some point, now the landowner is wrestling with the stream as it attempts adjustment. Habitat condition appeared “Fair” with bank instability, lack of riparian buffer, sediment deposition, and little mix of substrate types as the main factors. Geomorphic condition appeared “Fair” and the main adjustment processes were aggradation and planform (Stage IV).

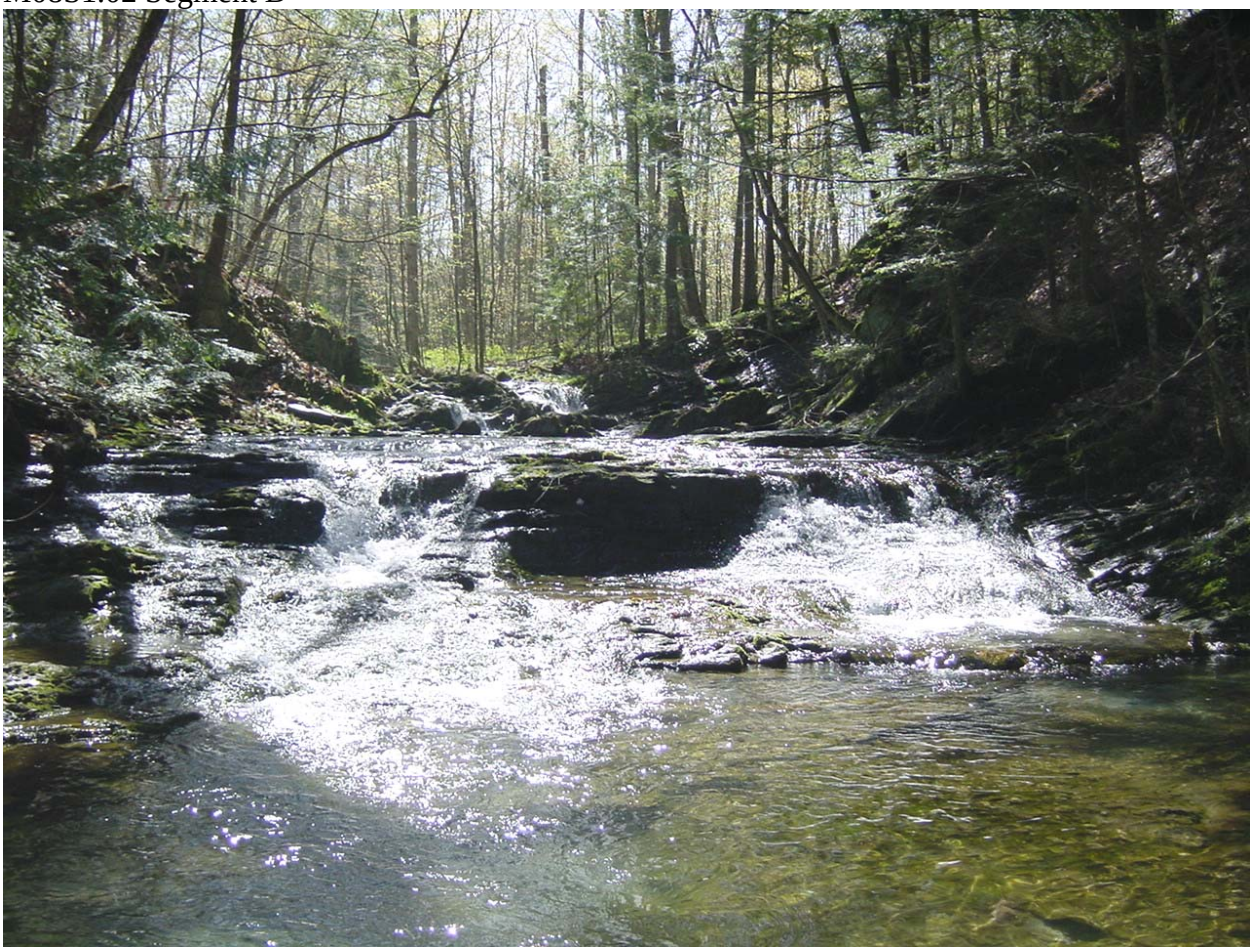
M08S1.02 Segment B

Berms were observed on one or both banks of the channel. Apparently this was an old apple orchard, so the berms were likely constructed to protect the orchard. The orchard was grown over and did not appear to be maintained. The berms appeared to be acting as a sediment supply. A potential project could be to remove the berms or move them back away from the channel to provide floodplain access. This section was segmented due to berms, larger channel substrate and steeper slope. Riffles appeared eroded. No clay was noted. The cross section shows incision, but it was attributed to the berms. The bed and banks appeared fairly stable. One culvert and one bridge constricted the channel. Buffer width was greater than 100 feet on both banks which could provide stability if berms were moved. Overall, the segment appeared to be in “good” condition and in stage II of the F-stage evolution process, due to the berms. The segment appeared fairly stable but it was bermed without floodplain access and therefore transporting all sediment. Berm removal or movement could increase sediment storage in the segment.

M08S1.02 Segment C

This segment encompassed a section of stream with a shallower slope. The segment appeared to be experiencing planform adjustments, and had beaver activity and a large pond. The upstream portion of the segment was aggrading and migrating laterally, fairly highly sinuous, and had floodplain access. The central portion has a large beaver dam and pond. Downstream of the dam appeared to be moderately incised and may have had past beaver dams. The channel appeared to have incised slightly (possibly due to sediment being trapped in a pond and "hungry water" scouring the channel) and was now aggrading and migrating laterally. These sections were included as one segment as the beaver activity could (and likely has) occur anywhere along the segment. Riffles appeared sedimented and a large increase in fine sediments was noted. Riparian buffer width was good, however it was comprised of herbaceous species with some shrubs-saplings. Planting along this segment could be a potential project, if planform adjustments and beaver activity were considered. Overall, this segment appeared in "Fair" condition and in stage IV of the F-stage channel evolution process. Adjustment processes were major planform adjustments with minor aggradation and widening. Stream sensitivity was "Very High."

M08S1.02 Segment D



Segment D and M08S1.03A were considered in a gorge, with multiple bedrock ledges providing grade control. A large slate abutment was in the center of the channel. An old dam was also present, although now lower than its original height. Buffer width was 26-50 ft comprised of deciduous and mixed trees. The riparian corridor was forest with a road on the left and a field on the right. Adjacent valley side slopes were steep.

M08S1.03

Segment A

Segment A and M08S1.02D were considered in a gorge, with multiple bedrock ledges providing grade control. A large slate abutment was in the center of the channel. An old dam was also present, although now lower than its original height. Buffer width was 26-50 ft comprised of deciduous and mixed trees. The riparian corridor was forest with a road on the left and a field on the right. Adjacent valley side slopes were steep.

M08S1.03 Segment B

Extreme aggradation was evident in this segment through multiple point, side, and diagonal bars with channel avulsions and flood chutes. Fine gravel and sand sediments had filled the channel and spilled onto an adjacent field. Trees were buried in sediment. The landowner expressed concern, however we have not yet discussed this segment in detail. Riffles appeared sedimented, with pool present only where flow has scoured around trees and logs. This channel had been dry in the days before the assessment but this segment had some flow in areas and pools during the assessment due to recent rain. The cross section location was dry. Flow was likely subterranean due to heavy buildup of sediment. The heavy supply of sediment was likely from upstream of the assessment reaches, in an area of clearing in the upper watershed. RGA and RHA conditions were “fair” with aggradation and planform the dominant adjustment processes and minor widening. The segment appeared to be toward the end of stage III of the F-stage model. Segmentation was due to floodplain access and adjustment process.

M08S1.03 Segment C

This segment appeared to have been straightened and had berms on both banks. Erosion was observed on both banks as well, signaling widening. The channel had incised yet retained access to floodplain. Riffles were sedimented and mostly replaced by plane bed features. Increased fine sediments and bar formation were noted. Riparian buffer was limited (5-25 ft) with adjacent land use hay and some crop rotation. The channel had been dry in the days before the assessment but due to rains had some flow. Habitat condition was rated “poor” due to channel alteration, lack of bed diversity, heavy deposits of sediment, bank instability, and limited riparian vegetative zone width. RGA channel adjustment processes were incision (may or may not be “historic”), aggradation, and beginning to widen. Overall RGA condition was assessed in “fair” condition and in the beginning of stage III of the F-stage channel evolution model.
An area of an avulsion and heavy sediment buildup at the upstream end of Segment C was similar to what was observed in Segment B.

M08S1.04

Segments A and C

Segment A encompassed the area from the downstream reach break to just upstream of the bridge on Gorhamtown Road where the bedrock grade controls begin. Erosion noted along right and left banks. Berms on right and left banks stretch from the bridge downstream about 150 feet. Side and diagonal bars signal aggradation. Scour on the right and left banks near the bridge was attributed to the berms.

Segments A and C were similar, separated by an area of bedrock grade controls including ledges and falls. Segments A and C were therefore assessed together and share cross section and field notes data. Dominant channel adjustment processes appeared to be aggradation with some planform adjustment. Overall the segments appeared in “fair” condition and in stage III of the F-stage channel evolution model.

These segments appear to have been straightened at some time in the past. The segments were not incised and had floodplain access. Riparian buffer was limited (5-25 ft). These segments would be good candidates for corridor protection or buffer enhancement if landowners were interested in pursuing funding.

M08S1.04 Segment B

This segment encompassed a gorge with several bedrock ledges and falls providing grade control and was considered a sub-reach. Buffer widths were 51-100 feet, consisting of mixed trees. Riparian corridor land use was forest.

M08S1.04 Segment D

The segment began toward the upstream end of the hayfield and continues to the reach break. Segmentation in this section of stream was due to elevated terraces on both banks, the channel being entrenched and lacking floodplain access. This was a transitional area between the upstream reach (M08S1.05), which was in a confined valley setting with steeper slope and the downstream (M08S1.04C) section with floodplain access and shallower slope. Entrenchment here may be related to the channel cutting through glacial outwash in a post-glaciation alluvial fan. In other words, this may not be a human-induced or recent condition. Two steep riffles were noted in this segment and aggradation was evident. Riparian buffer was limited in this segment as well. Dominant adjustment process was aggradation with historical degradation noted. Overall the RGA condition was “fair” and appeared to be in stage II of the F-stage evolution model.

M08S1.05

This reach did not have grade controls, but bedrock was observed along the banks in some areas. One steep riffle was noted upstream of a constriction created by riprap and a tree stump. Riprap was present on the right bank along the road and this area appeared to have been straightened. Minor incision and aggradation of fine material observed. The channel could have been moved over to increase the size of the field, and then incised. However, it was difficult to determine if the reach had been straightened adjacent to the field. The channel now appeared fairly stable due to bedrock and coarse boundary conditions. The dominant adjustment processes appeared to be minor incision with aggradation of fine sediment. The reach appeared to be in “Good” condition, in stage II of the F-stage channel evolution model, with “Moderate” sensitivity to disturbance.

M08S1.06

Segment A

This segment had many steep ledges and falls providing grade control. This segment was considered a sub-reach of the entire reach. Riparian buffer was greater than 100 feet, comprised of coniferous forest. A road on the right bank encroached in the buffer toward the upstream end of the segment.

M08S1.06 Segment B

Many ledges providing grade control were present in this segment. Sediment was entering upstream end and M08S1.07, likely from clearing in the upper watershed. Berms were observed along the segment and appeared to be from dredging and straightening of the channel. Much of the slope change in this segment is from ledges and falls, leaving the remainder of the segment with a lower slope. Therefore the reference stream type here would likely be a “C.” The segment would have some floodplain access in the absence of the berms. In this case, the stream type departure from C to B resulted from the construction of the berms rather than incision of the channel itself. Therefore the geomorphic condition was rated as “Fair” rather than “Poor.” Some tributary rejuvenation was observed in a localized area of incision downstream of a grade control. Multiple point and side bars were noted. Buffer width was greater than 100 feet, except for a pasture area with a 5-25 foot buffer on the right bank. Riparian corridor land use was forest with some pasture on the right bank. One culvert constricted the channel at the segment break between A and B. Deposition was present above the culvert. Aggradation appeared to be the dominant adjustment process. Overall the segment appeared to be in “Fair” condition and in stage IV of the F-Stage evolution process.

Finel Hollow Brook

M11S1.01

This reach had many grade controls. This reach was not incised (cross section showed some incision, but that was due to a local rise in the floodplain at the site). Some areas were bedrock confined and some areas had small floodplain areas. Some sediment was deposited upstream of constrictions. Pools appeared filled with sediment except just below ledges. Minor aggradation and planform adjustments were noted, but overall the reach appeared to be in regime and in "Good" condition. Riparian buffer appeared to be good and vegetated. This reach appeared to be a Bc by reference. Any C-type conditions (connection to upper terrace) appeared quite long ago, so describing this reach as having experienced a stream type departure from C to B may not be fair.

M11S1.02

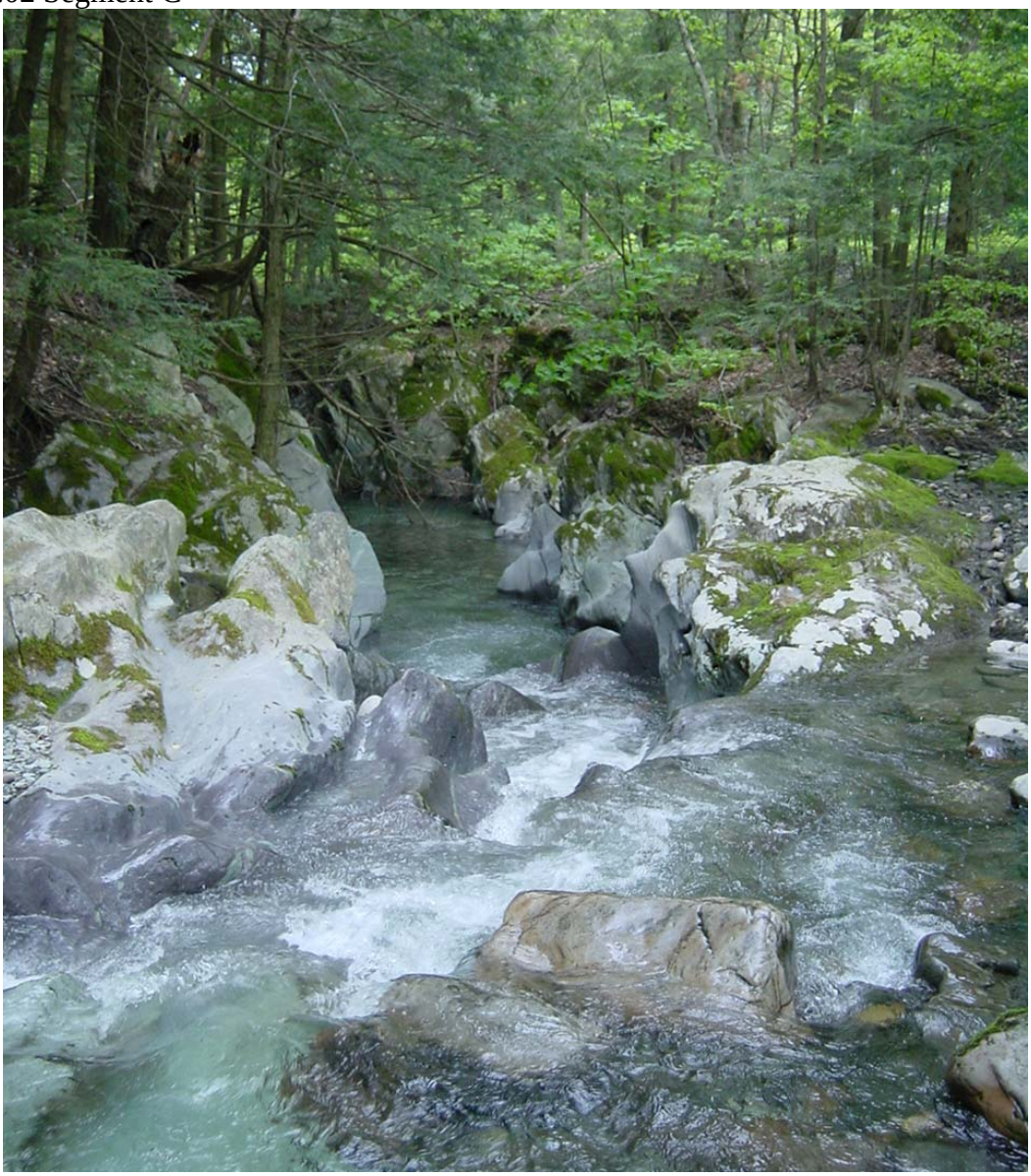
Segment A

The landowner reported that about 8 years ago, the stream was narrow, but then high water “took all the soil” and left the stream wide with gravel deposits. One field now has a large meander bend where it had been straight (likely straightened). Typical buffer width was 26-50 feet. This could be a good segment to allow some adjustment to occur. Some tree planting could help stabilize the banks. Cows were in pastures encompassing the channel in 2 places, so access in those areas was limited. Channel adjustment processes appeared to be aggradation and planform. Overall the segment appeared to be in “Fair” condition and in stage III of the F-stage evolution process.

M11S1.02 Segment B

This segment appeared to have been straightened to improve adjacent farmland. This segment had berms on both banks and some rip-rap was present. Adjacent land use was crop and pasture. Buffer widths were 5-25 feet with some areas less than 5 feet. Several stream fords/animal crossings were evident. The segment appeared to have incised and was now aggrading with planform adjustments. Geomorphic condition appeared “Fair” with the segment in stage III of the F-stage evolution process.

M11S1.02 Segment C



Segment C was in a gorge. Only Steps 1, 3, and 5 were completed. The channel appeared to have a good buffer (>100 ft) of coniferous trees. The right bank buffer was less at 50-100 feet before the road and some residential development. Some aggradation was observed as a side bar and a mid-channel bar. Bedrock was controlling the grade in this segment.

M11S1.02 Segment D

This segment appeared incised, but with access to floodplain at flood stage. Bed materials were mostly cobble. The segment was likely straightened at some point. Bed elevation was bedrock controlled at the upstream and downstream ends by gorges. The segment appeared to be a transporter of sediment, yet some bars and aggradation were observed upstream of debris jams and could signal a high sediment load in this stream. Buffer width was 51-100 feet on the left bank and 5-25 feet on the right bank. The channel appeared to be widening with some aggradation and in “Fair” condition. The segment was in stage III of the F-stage evolution process.

M11S1.03

This segment was in a gorge with vertical walls, steep ledges, and deep pools. Steps 1, 3, and 5 were completed from access points along the road. Buffer was greater than 100 feet with some area of the right bank 26-50 feet wide and was comprised of coniferous trees. A road and some residential development encroached into the corridor on the right bank.

Appendix D – Phase 2 Database Reports

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.01**
Observers: **LG, SH**
Segment Location:

Segment: **A**
Why Not assessed:

August 18, 2006
Completion Date: **May 9, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Channel Dimensions**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms	**214.86**	**214.86**
Roads		
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Hilly**	**Hilly**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**318.0**
Width Determination	**Measured**
Confinement Type	**Very Broad**
Rock Gorge?	**No**
Human-caused change - valley width?	**No**

Notes:

Active flood chutes, signs of old meander bends, old avulsions and neck cutoffs. None were very recent. Multiple beaver dams and debris jams influencing flow.

Step 2. Stream Channel

2.1 Bankfill Width	**25.05**
2.2 Max Depth (ft)	**2.7**
2.3 Mean Depth	**1.0**
2.4 Floodprone	**318.0**
2.5 Aband.	**3.5**
2.6 Width/Depth Ratio	**25.0**
2.7 Entrenchment	**12.7**
2.8 Incision Ratio	**1.3**
2.9 Sinuosity	**Moderate**
2.10 Riffles Type	**Not**
2.11 Riffle/Step Is Not Applicable?	**YES**

2.12 Substrate Composition

Bedrock	**0.0** %
Boulder	**0.0** %
Cobble	**1.0** %
Coarse Gravel	**6.0** %
Fine Gravel	**21.0** %
Sand	**72.0** %

Silt/Clay	**Yes**
Detritus	**0.0** %
# Large Woody	**59**

2.13 Average Largest Particle on
Bed
Bar
Is Not Applicable? **YES**

2.14 Stream Type
C **None** **Dune-Ripple**
Stream **Sand**

2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Undercut**

Bank Texture	Left	Right
Upper		
Material Type	**Silt/Clay**	**Silt/Clay**
Consistency	**Non-**	**Non-**
Lower		
Material Type	**Silt/Clay**	**Silt/Clay**
Consistency	**Non-**	**Non-**

Bank Erosion	Left	Right
Erosion Length (ft)	**694**	**894**
Erosion Height (ft)	**3.4**	**3.4**
Revetmt. Type	**None**	**None**
Revetmt. Length (ft)	**0**	**0**

Near Bank Veg. Type	Left	Right
Dominant	**Shrubs/Sapli**	**Shrubs/Sapli**
Sub-dominant	**Herbaceous**	**Herbaceous**

Bank Canopy	Left	Right
Canopy %	**1-25**	**1-25**
Mid-Channel	**Open**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-dominant	**None**	**None**

Buffer Veg.	Left	Right
Dominant	**Shrubs/Sapli**	**Shrubs/Sapli**
Sub-dominant	**Deciduous**	**Deciduous**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Shrubs/Sapli**	**Shrubs/Sapli**
Sub-dominant	**Forest**	**Forest**

	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**Abundant**	
4.2 Adjacent	**Some**	
4.3 Flow Status	**Moderate**	
4.4 # of Debris	**5**	
4.5 Impoundments	**None**	
Impoundmt.		
4.6 # of Stormwater	**0**	
4.7 Upstream Flow	**None**	
4.9 # of Beaver	**0**	**0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
0	**1**	**1**

Diagonal	Delta	Island
0	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
2	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
0	**0**	**No**

5.4 Stream Ford or Animal	**Yes**
5.5 Straightening	**Yes**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.01**
Observers: **LG, SH**
Segment Location:

Segment: **B**
Why Not assessed:

August 18, 2006
Completion Date: **May 9, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Depositional Features**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms		
Roads		
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Hilly**	**Hilly**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**420.0**
Width Determination	**Measured**
Confinement Type	**Very Broad**
Rock Gorge?	**No**
Human-caused change - valley width?	**No**

Notes:

multiple stream fords. Animals have full access to channel. Landowner indicated planform adjustments and sediment deposition were causing problems with adjacent field. Landowner also mentioned fencing along the stream was in process, however the planform adjustments here are likely to undermine the fence as well if it is close to the channel.

Step 2. Stream Channel

2.1 Bankfill Width	**28.0**
2.2 Max Depth (ft)	**2.2**
2.3 Mean Depth	**1.19**
2.4 Floodprone	**420.0**
2.5 Aband.	**2.2**
2.6 Width/Depth Ratio	**23.5**
2.7 Entrenchment	**15.0**
2.8 Incision Ratio	**1.0**
2.9 Sinuosity	**Moderate**
2.10 Riffles Type	**Sedimente**
2.11 Riffle/Step Is Not Applicable?	**YES**

2.12 Substrate Composition

Bedrock	**0.0** %
Boulder	**0.0** %
Cobble	**1.0** %
Coarse Gravel	**34.0** %
Fine Gravel	**44.0** %
Sand	**21.0** %

Silt/Clay	**Yes**
Detritus	**0.0** %
# Large Woody	**23**

2.13 Average Largest Particle on

Bed	**inches**
Bar	**1.0 inches**
Is Not Applicable?	**NO**

2.14 Stream Type
C **None** **Riffle-Pool**
Stream **Gravel**

2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type		
Consistency		
Lower		
Material Type		
Consistency		
Bank Erosion	Left	Right
Erosion Length (ft)	**278**	**343**
Erosion Height (ft)	**4.0**	**4.0**
Revetmt. Type	**None**	**None**
Revetmt. Length (ft)	**0**	**0**
Near Bank Veg. Type	Left	Right
Dominant	**Herbaceous**	**Herbaceous**
Sub-dominant	**Deciduous**	**Deciduous**
Bank Canopy	Left	Right
Canopy %	**1-25**	**1-25**
Mid-Channel	**Open**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**5-25**	**5-25**
Sub-dominant	**<5**	**<5**
Buffer Veg.	Left	Right
Dominant	**Herbaceous**	**Herbaceous**
Sub-dominant	**Deciduous**	**Deciduous**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Pasture**	**Pasture**
Sub-dominant	**None**	**None**
	Amount	Mean
Mass Failures	**One**	**20.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**Some**
4.2 Adjacent	**Abundant**
4.3 Flow Status	**Moderate**
4.4 # of Debris	**4**
4.5 Impoundments	**None**
Impoundmt.	
4.6 # of Stormwater	**0**
4.7 Upstream Flow	**None**
4.9 # of Beaver	**0** **0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
2	**2**	**2**

Diagonal	Delta	Island
1	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
1	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
0	**0**	**No**

5.4 Stream Ford or Animal	**Yes**
5.5 Straightening	**Yes**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.02**
Observers: **LG, SH**
Segment Location:

Segment: **A**
Why Not assessed:

August 18, 2006
Completion Date: **May 9, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Depositional Features**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms		
Roads		
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Hilly**	**Hilly**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**420.0**
Width Determination	**Measured**
Confinement Type	**Very Broad**
Rock Gorge?	**No**
Human-caused change - valley width?	**No**

Notes:

Segment M08S1.01B was similar to this segment, and since access was limited due to cows and bulls in this segment, that cross section data was used. Landowner notes large sediment deposits accumulate in this segment downstream of the culvert and he needs to dig it out, as we observed.

Step 2. Stream Channel

2.1 Bankfill Width	**28.0**
2.2 Max Depth (ft)	**2.2**
2.3 Mean Depth	**1.19**
2.4 Floodprone	**420.0**
2.5 Aband.	**2.2**
2.6 Width/Depth Ratio	**23.5**
2.7 Entrenchment	**15.0**
2.8 Incision Ratio	**1.0**
2.9 Sinuosity	**Moderate**
2.10 Riffles Type	**Sedimente**
2.11 Riffle/Step Is Not Applicable?	**YES**

2.12 Substrate Composition

Bedrock	**0.0** %
Boulder	**0.0** %
Cobble	**1.0** %
Coarse Gravel	**34.0** %
Fine Gravel	**44.0** %
Sand	**21.0** %

Silt/Clay	**Yes**
Detritus	**0.0** %
# Large Woody	**0**

2.13 Average Largest Particle on

Bed	
Bar	
Is Not Applicable?	**YES**

2.14 Stream Type

C **None** **Riffle-Pool**
Stream **Gravel**

2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type		
Consistency		
Lower		
Material Type		
Consistency		
Bank Erosion	Left	Right
Erosion Length (ft)		
Erosion Height (ft)		
Revetmt. Type	**None**	**None**
Revetmt. Length (ft)	**0**	**0**
Near Bank Veg. Type	Left	Right
Dominant	**Herbaceous**	**Herbaceous**
Sub-dominant	**Deciduous**	**Deciduous**
Bank Canopy	Left	Right
Canopy %	**1-25**	**1-25**
Mid-Channel	**Open**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**5-25**	**5-25**
Sub-dominant	**<5**	**<5**
Buffer Veg.	Left	Right
Dominant	**Herbaceous**	**Herbaceous**
Sub-dominant	**Deciduous**	**Deciduous**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Pasture**	**Pasture**
Sub-dominant	**None**	**None**
	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**Some**	
4.2 Adjacent	**Abundant**	
4.3 Flow Status	**Moderate**	
4.4 # of Debris	**0**	
4.5 Impoundments	**None**	
Impoundmt.		
4.6 # of Stormwater	**0**	
4.7 Upstream Flow	**None**	
4.9 # of Beaver	**0**	**0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
2	**2**	**2**

Diagonal	Delta	Island
1	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
0	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
0	**0**	**No**

5.4 Stream Ford or Animal **Yes**
5.5 Straightening **Yes**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.02**
Observers: **LG, SH**
Segment Location:

Segment: **B**
Why Not assessed:

August 18, 2006
Completion Date: **May 5, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Channel Dimensions**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms		**428.55**
Roads		
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Hilly**	**Hilly**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**500.0**
Width Determination	**Estimated**
Confinement Type	**Very Broad**
Rock Gorge?	**No**
Human-caused change - valley width?	**Yes**

Notes:

Berms were to protect an orchard, now abandoned. Berms acting as a sediment supply. Removing the berms could provide a sediment attenuation area in this segment and alleviate some of the aggradation affecting the downstream landowner. This segment showed signs of incision, but the berms were keeping the bed and banks fairly stable.

Step 2. Stream Channel

2.1 Bankfill Width	**38.68**
2.2 Max Depth (ft)	**2.5**
2.3 Mean Depth	**1.38**
2.4 Floodprone	**225.0**
2.5 Aband.	**4.5**
2.6 Width/Depth Ratio	**28.0**
2.7 Entrenchment	**5.8**
2.8 Incision Ratio	**1.8**
2.9 Sinuosity	**Low**
2.10 Riffles Type	**Eroded**
2.11 Riffle/Step Is Not Applicable?	**YES**

2.12 Substrate Composition

Bedrock	**0.0**	%
Boulder	**0.0**	%
Cobble	**13.0**	%
Coarse Gravel	**24.0**	%
Fine Gravel	**38.0**	%
Sand	**25.0**	%

Silt/Clay	**No**	
Detritus	**0.0**	%
# Large Woody	**7**	

2.13 Average Largest Particle on
Bed
Bar
Is Not Applicable? **YES**

2.14 Stream Type
C **None** **Riffle-Pool**
Stream **Gravel**

2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type		
Consistency		
Lower		
Material Type		
Consistency		
Bank Erosion	Left	Right
Erosion Length (ft)		
Erosion Height (ft)		
Revetmt. Type	**None**	**None**
Revetmt. Length (ft)	**0**	**0**
Near Bank Veg. Type	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**None**	**None**
Bank Canopy	Left	Right
Canopy %	**51-75**	**51-75**
Mid-Channel	**Open**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-dominant	**None**	**None**
Buffer Veg.	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**Shrubs/Sapli**	**Shrubs/Sapli**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Forest**	**Forest**
Sub-dominant	**None**	**None**
	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**None**
4.2 Adjacent	**None**
4.3 Flow Status	**Moderate**
4.4 # of Debris	**2**
4.5 Impoundments	**Small**
Impoundmt.	**Upstream**
4.6 # of Stormwater	**0**
4.7 Upstream Flow	**Run-of-**
4.9 # of Beaver	**0** **0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
0	**0**	**0**

Diagonal	Delta	Island
0	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
0	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
1	**0**	**No**

5.4 Stream Ford or Animal **No**
5.5 Straightening **Yes**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.02**
Observers: **LG, SH**
Segment Location:

Segment: **C**
Why Not assessed:

August 18, 2006
Completion Date: **May 5, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Planform and Scope**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms		
Roads		
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Hilly**	**Hilly**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**848.0**
Width Determination	**Estimated**
Confinement Type	**Very Broad**
Rock Gorge?	**No**
Human-caused change - valley width?	**No**

Notes:

Possible area for planting project. Planform adjustments overall. The beaver pond appeared to have influenced the downstream area with some incision, both upstream and downstream of the pond are now aggrading with planform changes. The incision could be from sediment being trapped by the beaver dam, or by high flows resulting from a dam breach.

Step 2. Stream Channel

2.1 Bankfill Width	**23.0**
2.2 Max Depth (ft)	**2.9**
2.3 Mean Depth	**1.97**
2.4 Floodprone	**389.0**
2.5 Aband.	**4.4**
2.6 Width/Depth Ratio	**11.7**
2.7 Entrenchment	**16.9**
2.8 Incision Ratio	**1.5**
2.9 Sinuosity	**High**
2.10 Riffles Type	**Sedimente**
2.11 Riffle/Step	**75.0**
Is Not Applicable?	**NO**

2.12 Substrate Composition

Bedrock	**0.0** %
Boulder	**0.0** %
Cobble	**2.0** %
Coarse Gravel	**25.0** %
Fine Gravel	**28.0** %
Sand	**45.0** %

Silt/Clay	**Yes**
Detritus	**0.0** %
# Large Woody	**32**

2.13 Average Largest Particle on

Bed	**3.0 inches**
Bar	**2.0 inches**
Is Not Applicable?	**NO**

2.14 Stream Type

C **None** **Riffle-Pool**
Stream **Gravel**

2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Undercut**

Bank Texture	Left	Right
Upper		
Material Type		
Consistency		
Lower		
Material Type		
Consistency		
Bank Erosion	Left	Right
Erosion Length (ft)	**676**	**895**
Erosion Height (ft)	**4.0**	**4.0**
Revetmt. Type	**None**	**None**
Revetmt. Length (ft)	**0**	**0**
Near Bank Veg. Type	Left	Right
Dominant	**Herbaceous**	**Herbaceous**
Sub-dominant	**Shrubs/Sapli**	**Shrubs/Sapli**
Bank Canopy	Left	Right
Canopy %	**1-25**	**1-25**
Mid-Channel	**Open**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-dominant	**None**	**None**
Buffer Veg.	Left	Right
Dominant	**Herbaceous**	**Herbaceous**
Sub-dominant	**Shrubs/Sapli**	**Shrubs/Sapli**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Shrubs/Sapli**	**Shrubs/Sapli**
Sub-dominant	**None**	**None**
	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**None**	
4.2 Adjacent	**Some**	
4.3 Flow Status	**Moderate**	
4.4 # of Debris	**6**	
4.5 Impoundments		
Impoundmt.		
4.6 # of Stormwater	**0**	
4.7 Upstream Flow		
4.9 # of Beaver	**0**	**0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
2	**2**	**2**

Diagonal	Delta	Island
2	**1**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
0	**0**	**1**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
1	**0**	**No**

5.4 Stream Ford or Animal	**No**
5.5 Straightening	**No**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.02**
Observers: **LG, SH**
Segment Location:

Segment: **D**
Why Not assessed:

August 18, 2006
Completion Date: **May 5, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Grade Controls**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms		
Roads	**39.06**	**39.06**
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Steep**	**Steep**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)
Width Determination
Confinement Type
Rock Gorge? **Yes**
Human-caused change - valley width? **No**

Notes:

Step 2. Stream Channel

2.1 Bankfill Width
2.2 Max Depth (ft)
2.3 Mean Depth
2.4 Floodprone
2.5 Aband.
2.6 Width/Depth Ratio **---**
2.7 Entrenchment **---**
2.8 Incision Ratio **---**
2.9 Sinuosity
2.10 Riffles Type
2.11 Riffle/Step
Is Not Applicable? **NO**
2.12 Substrate Composition

Silt/Clay
Detritus %
Large Woody
2.13 Average Largest Particle on
Bed
Bar
Is Not Applicable? **NO**
2.14 Stream Type

Stream
2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**
Lower		
Material Type	**Bedrock**	**Bedrock**
Consistency	**Cohesive**	**Cohesive**
Bank Erosion	Left	Right
Erosion Length (ft)		
Erosion Height (ft)		
Revetmt. Type	**None**	**None**
Revetmt. Length (ft)	**0**	**0**
Near Bank Veg. Type	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**Coniferous**	**None**
Bank Canopy	Left	Right
Canopy %	**76-100**	**76-100**
Mid-Channel	**Closed**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**26-50**	**26-50**
Sub-dominant	**None**	**None**
Buffer Veg.	Left	Right
Dominant	**Deciduous**	**Mixed Trees**
Sub-dominant	**None**	**None**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Forest**	**Forest**
Sub-dominant	**None**	**None**
	Amount	Mean
Mass Failures	**One**	**15.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps **Abundant**
4.2 Adjacent **None**
4.3 Flow Status **Moderate**
4.4 # of Debris **0**
4.5 Impoundments **Small**
Impoundmt. **In Reach**
4.6 # of Stormwater **0**
4.7 Upstream Flow
4.9 # of Beaver **0** **0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
0	**0**	**0**

Diagonal	Delta	Island
0	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
0	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
0	**0**	

5.4 Stream Ford or Animal **No**
5.5 Straightening **No**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.03**
Observers: **LG, SH**
Segment Location:

Segment: **A**
Why Not assessed:

August 18, 2006
Completion Date: **May 5, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Grade Controls**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms		
Roads	**528.67**	**528.67**
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Steep**	**Steep**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)
Width Determination
Confinement Type **Narrowly**
Rock Gorge? **Yes**
Human-caused change - valley width? **No**

Notes:

Step 2. Stream Channel

2.1 Bankfill Width
2.2 Max Depth (ft)
2.3 Mean Depth
2.4 Floodprone
2.5 Aband.
2.6 Width/Depth Ratio **---**
2.7 Entrenchment **---**
2.8 Incision Ratio **---**
2.9 Sinuosity
2.10 Riffles Type
2.11 Riffle/Step
Is Not Applicable? **NO**
2.12 Substrate Composition

Silt/Clay
Detritus %
Large Woody
2.13 Average Largest Particle on
Bed
Bar
Is Not Applicable? **NO**
2.14 Stream Type

Stream
2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**
Lower		
Material Type	**Bedrock**	**Bedrock**
Consistency	**Cohesive**	**Cohesive**
Bank Erosion	Left	Right
Erosion Length (ft)	**12**	**125**
Erosion Height (ft)	**5.0**	**4.0**
Revetmt. Type	**None**	**None**
Revetmt. Length (ft)	**0**	**0**
Near Bank Veg. Type	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**Coniferous**	**None**
Bank Canopy	Left	Right
Canopy %	**76-100**	**76-100**
Mid-Channel	**Closed**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**26-50**	**26-50**
Sub-dominant	**None**	**None**
Buffer Veg.	Left	Right
Dominant	**Deciduous**	**Mixed Trees**
Sub-dominant	**None**	**None**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Forest**	**Forest**
Sub-dominant	**None**	**None**
	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps
4.2 Adjacent
4.3 Flow Status
4.4 # of Debris **0**
4.5 Impoundments
Impoundmt.
4.6 # of Stormwater **0**
4.7 Upstream Flow
4.9 # of Beaver **0** **0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
0	**0**	**0**

Diagonal	Delta	Island
0	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
0	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
0	**0**	**No**

5.4 Stream Ford or Animal **No**
5.5 Straightening **No**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.03**
Observers: **LG, SH**
Segment Location:

Segment: **B**
Why Not assessed:

August 18, 2006
Completion Date: **May 3, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Channel Dimensions**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms	**12.18**	**12.18**
Roads		
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Hilly**	**Hilly**
Continuous w/	**Never**	**Never**
W/in 1 Bankfill	**Sometime**	**Never**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**610.0**
Width Determination	**Measured**
Confinement Type	**Very Broad**
Rock Gorge?	**No**
Human-caused change - valley width?	**No**

Notes:

Step 2. Stream Channel

2.1 Bankfill Width	**37.0**
2.2 Max Depth (ft)	**2.0**
2.3 Mean Depth	**1.24**
2.4 Floodprone	**610.0**
2.5 Aband.	**2.0**
2.6 Width/Depth Ratio	**29.8**
2.7 Entrenchment	**16.5**
2.8 Incision Ratio	**1.0**
2.9 Sinuosity	**Moderate**
2.10 Riffles Type	**Sedimente**
2.11 Riffle/Step Is Not Applicable?	**YES**

2.12 Substrate Composition

Bedrock	**0.0** %
Boulder	**4.0** %
Cobble	**3.0** %
Coarse Gravel	**34.0** %
Fine Gravel	**28.0** %
Sand	**31.0** %

Silt/Clay	**No**
Detritus	**1.0** %
# Large Woody	**20**

2.13 Average Largest Particle on
Bed
Bar
Is Not Applicable? **YES**

2.14 Stream Type
C **None** **Riffle-Pool**
Stream **Gravel**

2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Moderate**

Bank Texture	Left	Right
Upper		
Material Type	**Sand**	**Sand**
Consistency	**Non-**	**Non-**
Lower		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**
Bank Erosion	Left	Right
Erosion Length (ft)	**209**	**297**
Erosion Height (ft)	**5.0**	**2.0**
Revetmt. Type	**Rip-Rap**	**Rip-Rap**
Revetmt. Length (ft)	**48**	**334**
Near Bank Veg. Type	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**None**	**None**
Bank Canopy	Left	Right
Canopy %	**76-100**	**76-100**
Mid-Channel	**Closed**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**26-50**	**5-25**
Sub-dominant	**None**	**None**
Buffer Veg.	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**None**	**None**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Crop**	**Hay**
Sub-dominant	**None**	**None**
	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**None**	
4.2 Adjacent	**None**	
4.3 Flow Status	**Moderate**	
4.4 # of Debris	**3**	
4.5 Impoundments	**None**	
Impoundmt.		
4.6 # of Stormwater	**0**	
4.7 Upstream Flow		
4.9 # of Beaver	**0**	**0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
1	**5**	**3**
Diagonal	Delta	Island
2	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
1	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
0	**0**	**No**

5.4 Stream Ford or Animal **No**
5.5 Straightening **Yes**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.03**
Observers: **LG, SH**
Segment Location:

Segment: **C**
Why Not assessed:

August 18, 2006
Completion Date: **May 3, 2006**
Rain **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Channel Dimensions**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms	**581.42**	**148.19**
Roads	**494.34**	**494.34**
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Steep**	**Hilly**
Continuous w/	**Never**	**Never**
W/in 1 Bankfill	**Never**	**Never**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**725.0**
Width Determination	**Measured**
Confinement Type	**Very Broad**
Rock Gorge?	**No**
Human-caused change - valley width?	**No**

Notes:

Step 2. Stream Channel

2.1 Bankfill Width	**20.0**
2.2 Max Depth (ft)	**2.5**
2.3 Mean Depth	**1.92**
2.4 Floodprone	**725.0**
2.5 Aband.	**4.4**
2.6 Width/Depth Ratio	**10.4**
2.7 Entrenchment	**36.3**
2.8 Incision Ratio	**1.8**
2.9 Sinuosity	**Low**
2.10 Riffles Type	**Sedimente**
2.11 Riffle/Step Is Not Applicable?	**YES**

2.12 Substrate Composition

Bedrock	**0.0**	%
Boulder	**0.0**	%
Cobble	**12.0**	%
Coarse Gravel	**37.0**	%
Fine Gravel	**20.0**	%
Sand	**31.0**	%

Silt/Clay	**No**
Detritus	**0.0** %
# Large Woody	**15**

2.13 Average Largest Particle on
Bed
Bar
Is Not Applicable? **YES**

2.14 Stream Type
C **None** **Plane Bed** Stream **Gravel**

2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type	**Sand**	**Sand**
Consistency	**Non-**	**Non-**
Lower		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**

Bank Erosion	Left	Right
Erosion Length (ft)	**402**	**426**
Erosion Height (ft)	**3.5**	**4.0**
Revetmt. Type	**Rip-Rap**	**Rip-Rap**
Revetmt. Length (ft)	**217**	**65**

Near Bank Veg. Type	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**Invasives**	**Invasives**

Bank Canopy	Left	Right
Canopy %	**76-100**	**76-100**
Mid-Channel	**Closed**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**5-25**	**5-25**
Sub-dominant	**<5**	**<5**

Buffer Veg.	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**Invasives**	**Invasives**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Hay**	**Hay**
Sub-dominant	**Crop**	**None**

	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**None**	
4.2 Adjacent	**None**	
4.3 Flow Status	**Moderate**	
4.4 # of Debris	**1**	
4.5 Impoundments	**None**	
Impoundmt.		
4.6 # of Stormwater	**0**	
4.7 Upstream Flow		
4.9 # of Beaver	**0**	**0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
0	**4**	**3**

Diagonal	Delta	Island
2	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
0	**0**	**1**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
1	**0**	**No**

5.4 Stream Ford or Animal	**No**
5.5 Straightening	**Yes**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.04**
Observers: **LG, SH**
Segment Location:

Segment: **A**
Why Not assessed:

August 18, 2006
Completion Date: **May 2, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Channel Dimensions**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms	**131.85**	**131.85**
Roads	**645.57**	**645.57**
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Hilly**	**Hilly**
Continuous w/	**Sometime**	**Never**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**450.0**
Width Determination	**Estimated**
Confinement Type	**Very Broad**
Rock Gorge?	**No**
Human-caused change - valley width?	**No**

Notes:

Step 2. Stream Channel

2.1 Bankfill Width	**26.0**
2.2 Max Depth (ft)	**3.1**
2.3 Mean Depth	**2.7**
2.4 Floodprone	**280.0**
2.5 Aband.	**3.1**
2.6 Width/Depth Ratio	**9.6**
2.7 Entrenchment	**10.8**
2.8 Incision Ratio	**1.0**
2.9 Sinuosity	**Moderate**
2.10 Riffles Type	**Sedimente**
2.11 Riffle/Step	**200.0**
Is Not Applicable?	**NO**

2.12 Substrate Composition

Bedrock	**0.0**	%
Boulder	**0.0**	%
Cobble	**15.0**	%
Coarse Gravel	**27.0**	%
Fine Gravel	**30.0**	%
Sand	**28.0**	%

Silt/Clay	**No**
Detritus	**2.0** %
# Large Woody	**10**

2.13 Average Largest Particle on

Bed	
Bar	
Is Not Applicable?	**YES**

2.14 Stream Type

C **None** **Riffle-Pool** Stream **Gravel**

2.15 Reference Stream (if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type	**Sand**	**Sand**
Consistency	**Non-**	**Non-**
Lower		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**

Bank Erosion	Left	Right
Erosion Length (ft)	**314**	**101**
Erosion Height (ft)	**7.0**	**7.0**
Revetmt. Type	**None**	**Rip-Rap**
Revetmt. Length (ft)	**0**	**104**

Near Bank Veg. Type	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**None**	**None**

Bank Canopy	Left	Right
Canopy %	**76-100**	**76-100**
Mid-Channel	**Closed**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**5-25**	**5-25**
Sub-dominant	**26-50**	**None**

Buffer Veg.	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**None**	**None**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Hay**	**Hay**
Sub-dominant	**Residential**	**Residential**

	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**Some**	
4.2 Adjacent	**Some**	
4.3 Flow Status	**Low**	
4.4 # of Debris	**1**	
4.5 Impoundments	**None**	
Impoundmt.		
4.6 # of Stormwater	**0**	
4.7 Upstream Flow	**None**	
4.9 # of Beaver	**0**	**0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
0	**2**	**6**

Diagonal	Delta	Island
2	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
0	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
0	**0**	**No**

5.4 Stream Ford or Animal	**No**
5.5 Straightening	**No**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.04**
Observers: **LG, SH**
Segment Location:

Segment: **B**
Why Not assessed:

August 18, 2006
Completion Date: **May 2, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Grade Controls**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms		
Roads	**466.07**	**466.07**
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Hilly**	**Steep**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**20.0**
Width Determination	**Estimated**
Confinement Type	**Narrowly**
Rock Gorge?	**Yes**
Human-caused change - valley width?	**No**

Notes:

Step 2. Stream Channel

2.1 Bankfill Width
2.2 Max Depth (ft)
2.3 Mean Depth
2.4 Floodprone
2.5 Aband.
2.6 Width/Depth Ratio **---**
2.7 Entrenchment **---**
2.8 Incision Ratio **---**
2.9 Sinuosity
2.10 Riffles Type
2.11 Riffle/Step
Is Not Applicable? **NO**
2.12 Substrate Composition

Silt/Clay
Detritus %
Large Woody
2.13 Average Largest Particle on
Bed
Bar
Is Not Applicable? **NO**
2.14 Stream Type

Stream
2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**
Lower		
Material Type	**Bedrock**	**Bedrock**
Consistency	**Cohesive**	**Cohesive**
Bank Erosion	Left	Right
Erosion Length (ft)		
Erosion Height (ft)		
Revetmt. Type	**Rip-Rap**	**Rip-Rap**
Revetmt. Length (ft)	**48**	**59**
Near Bank Veg. Type	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**Lawn**	**None**
Bank Canopy	Left	Right
Canopy %	**76-100**	**76-100**
Mid-Channel	**Closed**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**51-100**	**51-100**
Sub-dominant	**<5**	**5-25**
Buffer Veg.	Left	Right
Dominant	**Mixed Trees**	**Mixed Trees**
Sub-dominant	**None**	**None**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Forest**	**Forest**
Sub-dominant	**Residential**	**None**
	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps
4.2 Adjacent
4.3 Flow Status
4.4 # of Debris **0**
4.5 Impoundments
Impoundmt.
4.6 # of Stormwater **0**
4.7 Upstream Flow
4.9 # of Beaver **0** **0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
0	**0**	**1**

Diagonal	Delta	Island
1	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
0	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
0	**0**	**No**

5.4 Stream Ford or Animal **No**
5.5 Straightening **No**
5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.04**
Observers: **LG, SH**
Segment Location:

Segment: **C**
Why Not assessed:

August 18, 2006
Completion Date: **May 2, 2006**
Rain **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Channel Dimensions**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms	**608.13**	**608.13**
Roads	**565.16**	**565.16**
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Hilly**	**Hilly**
Continuous w/	**Sometime**	**Never**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**450.0**
Width Determination	**Estimated**
Confinement Type	**Very Broad**
Rock Gorge?	**No**
Human-caused change - valley width?	**No**

Notes:

Same cross section and field sheets for segments A and C.

Step 2. Stream Channel

2.1 Bankfill Width	**26.0**
2.2 Max Depth (ft)	**3.1**
2.3 Mean Depth	**2.7**
2.4 Floodprone	**280.0**
2.5 Aband.	**3.1**
2.6 Width/Depth Ratio	**9.6**
2.7 Entrenchment	**10.8**
2.8 Incision Ratio	**1.0**
2.9 Sinuosity	**Moderate**
2.10 Riffles Type	**Sedimente**
2.11 Riffle/Step	**200.0**
Is Not Applicable?	**NO**

2.12 Substrate Composition

Bedrock	**0.0**	%
Boulder	**0.0**	%
Cobble	**15.0**	%
Coarse Gravel	**27.0**	%
Fine Gravel	**30.0**	%
Sand	**28.0**	%

Silt/Clay	**No**
Detritus	**2.0** %
# Large Woody	**12**

2.13 Average Largest Particle on

Bed	
Bar	
Is Not Applicable?	**YES**

2.14 Stream Type

C **None** **Riffle-Pool** Stream **Gravel**

2.15 Reference Stream (if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type	**Sand**	**Sand**
Consistency	**Non-**	**Non-**
Lower		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**

Bank Erosion	Left	Right
Erosion Length (ft)	**80**	**42**
Erosion Height (ft)	**5.0**	**8.0**
Revetmt. Type	**None**	**None**
Revetmt. Length (ft)	**0**	**0**

Near Bank Veg. Type	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**None**	**None**

Bank Canopy	Left	Right
Canopy %	**76-100**	**76-100**
Mid-Channel	**Closed**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**5-25**	**5-25**
Sub-dominant	**26-50**	**None**

Buffer Veg.	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**None**	**None**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Hay**	**Hay**
Sub-dominant	**Residential**	**Residential**

	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**Some**
4.2 Adjacent	**Some**
4.3 Flow Status	**Low**
4.4 # of Debris	**0**
4.5 Impoundments	**None**
Impoundmt.	
4.6 # of Stormwater	**0**
4.7 Upstream Flow	
4.9 # of Beaver	**0** **0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
0	**5**	**0**

Diagonal	Delta	Island
0	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
1	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
0	**0**	**No**

5.4 Stream Ford or Animal	**Yes**
5.5 Straightening	**Yes**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.04**
Observers: **LG, SH**
Segment Location:

Segment: **D**
Why Not assessed:

August 18, 2006
Completion Date: **May 2, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Channel Dimensions**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms	**113.01**	**113.01**
Roads	**348.2100**	**348.2100**
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Hilly**	**Hilly**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**450.0**
Width Determination	**Estimated**
Confinement Type	**Very Broad**
Rock Gorge?	**No**
Human-caused change - valley width?	**No**

Notes:

Step 2. Stream Channel

2.1 Bankfill Width	**19.0**
2.2 Max Depth (ft)	**2.9**
2.3 Mean Depth	**2.14**
2.4 Floodprone	**35.0**
2.5 Aband.	**4.0**
2.6 Width/Depth Ratio	**8.9**
2.7 Entrenchment	**1.8**
2.8 Incision Ratio	**1.4**
2.9 Sinuosity	**Low**
2.10 Riffles Type	**Sedimente**
2.11 Riffle/Step	**150.0**
Is Not Applicable?	**NO**

2.12 Substrate Composition

Bedrock	**0.0** %
Boulder	**2.0** %
Cobble	**31.0** %
Coarse Gravel	**28.0** %
Fine Gravel	**23.0** %
Sand	**16.0** %

Silt/Clay	**No**
Detritus	**2.0** %
# Large Woody	**7**

2.13 Average Largest Particle on

Bed	**12.0**	**inches**
Bar		**inches**

Is Not Applicable? **YES**

2.14 Stream Type
B **None** **Step-Pool** Stream **Gravel**

2.15 Reference Stream (if different from Phase 1)
B 4 Non Step-Pool

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**
Lower		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**

Bank Erosion	Left	Right
Erosion Length (ft)	**90**	**67**
Erosion Height (ft)	**4.0**	**7.0**
Revetmt. Type	**None**	**None**
Revetmt. Length (ft)	**0**	**0**

Near Bank Veg. Type	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**None**	**None**

Bank Canopy	Left	Right
Canopy %	**76-100**	**76-100**
Mid-Channel	**Closed**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**5-25**	**5-25**
Sub-dominant	**<5**	**<5**

Buffer Veg.	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**None**	**None**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Hay**	**Hay**
Sub-dominant	**None**	**None**

	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**None**	
4.2 Adjacent	**None**	
4.3 Flow Status	**Low**	
4.4 # of Debris	**1**	
4.5 Impoundments	**None**	
Impoundmt.		
4.6 # of Stormwater	**0**	
4.7 Upstream Flow		
4.9 # of Beaver	**0**	**0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
0	**1**	**0**

Diagonal	Delta	Island
1	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
1	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
0	**0**	**No**

5.4 Stream Ford or Animal	**No**
5.5 Straightening	**No**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.05**
Observers: **LG, SH**
Segment Location:

Segment: **0**
Why Not assessed:

August 18, 2006
Completion Date: **June 6, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **None**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

	Length (ft)	One	Both
Berms			
Roads	**666.83**	**666.83**	
Railroads			
Improved Paths			
Development			

1.4 Adjacent Side	Left	Right
Hillside Slope	**Very**	**Hilly**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Bedrock**	**Not**

1.5 Valley Features

Valley Width (ft)	**150.0**
Width Determination	**Estimated**
Confinement Type	**Narrow**
Rock Gorge?	**No**
Human-caused change - valley width?	**No**

Notes:
Unknown if channel straightened.

Step 2. Stream Channel

2.1 Bankfill Width	**27.0**
2.2 Max Depth (ft)	**2.3**
2.3 Mean Depth	**1.44**
2.4 Floodprone	**37.5**
2.5 Aband.	**5.8**
2.6 Width/Depth Ratio	**18.7**
2.7 Entrenchment	**1.4**
2.8 Incision Ratio	**2.5**
2.9 Sinuosity	**Low**
2.10 Riffles Type	**Eroded**
2.11 Riffle/Step	**100.0**
Is Not Applicable?	**NO**

2.12 Substrate Composition

Bedrock	**0.0**	%
Boulder	**7.0**	%
Cobble	**24.0**	%
Coarse Gravel	**16.0**	%
Fine Gravel	**12.0**	%
Sand	**41.0**	%

Silt/Clay	**No**	
Detritus	**0.0**	%
# Large Woody	**3**	

2.13 Average Largest Particle on

Bed	**10.0**	**inches**
Bar		**inches**
Is Not Applicable?		**YES**

2.14 Stream Type
B **None** **Step-Pool** Stream **Gravel**

2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Moderate**

Bank Texture	Left	Right
Upper		
Material Type	**Sand**	**Sand**
Consistency	**Non-**	**Non-**
Lower		
Material Type	**Sand**	**Sand**
Consistency	**Non-**	**Non-**

Bank Erosion	Left	Right
Erosion Length (ft)	**107**	
Erosion Height (ft)	**5.0**	
Revetmt. Type	**None**	**Rip-Rap**
Revetmt. Length (ft)	**0**	**409**

Near Bank Veg. Type	Left	Right
Dominant	**Coniferous**	**Deciduous**
Sub-dominant	**None**	**Herbaceous**

Bank Canopy	Left	Right
Canopy %	**76-100**	**76-100**
Mid-Channel	**Closed**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**51-100**
Sub-dominant	**None**	**<5**

Buffer Veg.	Left	Right
Dominant	**Deciduous**	**Mixed Trees**
Sub-dominant	**None**	**Herbaceous**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Forest**	**Forest**
Sub-dominant	**None**	**Pasture**

	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**Abundant**	
4.2 Adjacent	**None**	
4.3 Flow Status	**Moderate**	
4.4 # of Debris	**0**	
4.5 Impoundments	**None**	
Impoundmt.		
4.6 # of Stormwater	**0**	
4.7 Upstream Flow	**None**	
4.9 # of Beaver	**0**	**0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
0	**0**	**3**

Diagonal	Delta	Island
0	**1**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
0	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
2	**0**	**No**

5.4 Stream Ford or Animal	**No**
5.5 Straightening	**No**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.06**
Observers: **LG, SH, Leslie**
Segment Location:

Segment: **A**
Why Not assessed:

August 18, 2006
Completion Date: **July 25, 2006**
Rain **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Channel Dimensions**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms		
Roads	**1301.19**	**1301.19**
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side

	Left	Right
Hillside Slope	**Very**	**Very**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Always**	**Always**
Texture	**Not**	**Not**

1.5 Valley Features
Valley Width (ft)
Width Determination
Confinement Type
Rock Gorge? **Yes**
Human-caused change - valley width?

Notes:
Gorge and multiple steep grade controls.

Step 2. Stream Channel

2.1 Bankfill Width
2.2 Max Depth (ft)
2.3 Mean Depth
2.4 Floodprone
2.5 Aband.
2.6 Width/Depth Ratio **---**
2.7 Entrenchment **---**
2.8 Incision Ratio **---**
2.9 Sinuosity
2.10 Riffles Type
2.11 Riffle/Step
Is Not Applicable? **NO**
2.12 Substrate Composition

Silt/Clay
Detritus %
Large Woody
2.13 Average Largest Particle on
Bed
Bar
Is Not Applicable? **NO**
2.14 Stream Type

Stream
2.15 Reference Stream
(if different from Phase 1)
A 1 NonCascade

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type	**Bedrock**	**Bedrock**
Consistency	**Cohesive**	**Cohesive**
Lower		
Material Type	**Bedrock**	**Bedrock**
Consistency	**Cohesive**	**Cohesive**

Bank Erosion	Left	Right
Erosion Length (ft)		
Erosion Height (ft)		
Revetmt. Type	**None**	**None**
Revetmt. Length (ft)	**0**	**0**

Near Bank Veg. Type	Left	Right
Dominant	**Coniferous**	**Coniferous**
Sub-dominant	**None**	**None**

Bank Canopy	Left	Right
Canopy %	**76-100**	**76-100**
Mid-Channel	**Open**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-dominant	**None**	**26-50**

Buffer Veg.	Left	Right
Dominant	**Coniferous**	**Coniferous**
Sub-dominant	**None**	**None**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Forest**	**Forest**
Sub-dominant	**None**	**None**

	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps
4.2 Adjacent
4.3 Flow Status
4.4 # of Debris **0**
4.5 Impoundments
Impoundmt.
4.6 # of Stormwater **0**
4.7 Upstream Flow
4.9 # of Beaver **0** **0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
0	**0**	**0**

Diagonal	Delta	Island
0	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
0	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
0	**0**	**No**

5.4 Stream Ford or Animal **No**
5.5 Straightening **No**
5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and
Step 4.8 - Channel Constrictions
are on The second page of this
report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Lewis Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M08-S1.06**
Observers: **LG, SH, Leslie**
Segment Location:

Segment: **B**
Why Not assessed:

August 18, 2006
Completion Date: **July 25, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Channel Dimensions**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms	**132.95**	**132.95**
Roads	**2.8**	**2.8**
Railroads		
Improved Paths	**2709.660**	**2709.660**
Development		

1.4 Adjacent Side

	Left	Right
Hillside Slope	**Very**	**Very**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**89.0**
Width Determination	**Measured**
Confinement Type	**Semi-**
Rock Gorge?	**No**
Human-caused change - valley width?	**No**

Notes:

Tributary rejuvenation in a localized area of incision downstream of a ledge.

Step 2. Stream Channel

2.1 Bankfill Width	**25.0**
2.2 Max Depth (ft)	**2.1**
2.3 Mean Depth	**1.56**
2.4 Floodprone	**50.0**
2.5 Aband.	**2.1**
2.6 Width/Depth Ratio	**16.0**
2.7 Entrenchment	**2.0**
2.8 Incision Ratio	**1.0**
2.9 Sinuosity	**Moderate**
2.10 Riffles Type	**Sedimente**
2.11 Riffle/Step	**100.0**
Is Not Applicable?	**NO**

2.12 Substrate Composition

Bedrock	**0.0**	%
Boulder	**8.0**	%
Cobble	**18.0**	%
Coarse Gravel	**21.0**	%
Fine Gravel	**14.0**	%
Sand	**39.0**	%

Silt/Clay	**Yes**
Detritus	**1.0** %
# Large Woody	**52**

2.13 Average Largest Particle on

Bed	**12.0**	**inches**
Bar	**4.0**	**inches**

Is Not Applicable? **NO**

2.14 Stream Type

B **None** **Riffle-Pool** Stream **Gravel**

2.15 Reference Stream (if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**
Lower		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**

Bank Erosion	Left	Right
Erosion Length (ft)	**658**	**712**
Erosion Height (ft)	**3.3**	**3.3**
Revetmt. Type	**None**	**None**
Revetmt. Length (ft)	**0**	**0**

Near Bank Veg. Type	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**None**	**None**

Bank Canopy	Left	Right
Canopy %	**76-100**	**76-100**
Mid-Channel	**Closed**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-dominant	**None**	**5-25**

Buffer Veg.	Left	Right
Dominant	**Mixed Trees**	**Mixed Trees**
Sub-dominant	**None**	**None**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Forest**	**Forest**
Sub-dominant	**Pasture**	**None**

	Amount	Mean
Mass Failures	**Multiple**	**23.8**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**Some**	
4.2 Adjacent	**None**	
4.3 Flow Status	**Moderate**	
4.4 # of Debris	**3**	
4.5 Impoundments		
Impoundmt.		
4.6 # of Stormwater	**0**	
4.7 Upstream Flow		
4.9 # of Beaver	**0**	**0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
2	**10**	**10**

Diagonal	Delta	Island
2	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
0	**0**	**1**	**1**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
0	**0**	**Yes**

5.4 Stream Ford or Animal	**Yes**
5.5 Straightening	**Yes**

5.5 Dredging
Dredging

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Finel Hollow Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M11-S1.01**
Observers: **LG, SH**
Segment Location:

Segment: **0**
Why Not assessed:

August 18, 2006
Completion Date: **June 4, 2006**
Rain **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **None**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

	Length (ft)	One	Both
Berms			
Roads	**513.63**		**513.63**
Railroads			
Improved Paths			
Development			

1.4 Adjacent Side	Left	Right
Hillside Slope	**Hilly**	**Steep**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**46.0**
Width Determination	**Measured**
Confinement Type	**Narrowly**
Rock Gorge?	**No**
Human-caused change - valley width?	**No**

Notes:

Incision was attributed to a local rise in the floodplain at the cross section site, otherwise not incised.

Step 2. Stream Channel

2.1 Bankfill Width	**31.0**
2.2 Max Depth (ft)	**2.8**
2.3 Mean Depth	**1.81**
2.4 Floodprone	**46.0**
2.5 Aband.	**4.0**
2.6 Width/Depth Ratio	**17.1**
2.7 Entrenchment	**1.5**
2.8 Incision Ratio	**1.4**
2.9 Sinuosity	**Low**
2.10 Riffles Type	**Not**
2.11 Riffle/Step Is Not Applicable?	**YES**

2.12 Substrate Composition

Bedrock	**2.0**	%
Boulder	**4.0**	%
Cobble	**17.0**	%
Coarse Gravel	**25.0**	%
Fine Gravel	**18.0**	%
Sand	**34.0**	%

Silt/Clay	**No**	
Detritus	**1.0**	%
# Large Woody	**39**	

2.13 Average Largest Particle on

Bed	**15.0**	**inches**
Bar		**inches**
Is Not Applicable?		**YES**

2.14 Stream Type
B **c** **Riffle-Pool**
Stream **Gravel**

2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type	**Mix**	**Mix**
Consistency	**Cohesive**	**Cohesive**
Lower		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**

Bank Erosion	Left	Right
Erosion Length (ft)		**205**
Erosion Height (ft)		**5.3**
Revetmt. Type	**Rip-Rap**	**Rip-Rap**
Revetmt. Length (ft)	**104**	**43**

Near Bank Veg. Type	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**Coniferous**	**Coniferous**

Bank Canopy	Left	Right
Canopy %	**76-100**	**76-100**
Mid-Channel	**Open**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-dominant	**None**	**None**

Buffer Veg.	Left	Right
Dominant	**Mixed Trees**	**Mixed Trees**
Sub-dominant	**None**	**None**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Forest**	**Forest**
Sub-dominant	**None**	**None**

	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**Some**	
4.2 Adjacent	**None**	
4.3 Flow Status	**Moderate**	
4.4 # of Debris	**2**	
4.5 Impoundments		
Impoundmt.		
4.6 # of Stormwater	**1**	
4.7 Upstream Flow	**None**	
4.9 # of Beaver	**0**	**0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
2	**1**	**4**

Diagonal	Delta	Island
0	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
2	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
0	**0**	**No**

5.4 Stream Ford or Animal	**No**
5.5 Straightening	**No**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and
Step 4.8 - Channel Constrictions
are on The second page of this
report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Finel Hollow Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M11-S1.02**
Observers: **LG, SH**
Segment Location:

Segment: **A**
Why Not assessed:

August 18, 2006
Completion Date: **May 30, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Channel Dimensions**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms		
Roads	**287.45**	**287.45**
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Flat**	**Hilly**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**215.0**
Width Determination	**Measured**
Confinement Type	**Broad**
Rock Gorge?	**No**
Human-caused change - valley width?	**No**

Notes:

Step 2. Stream Channel

2.1 Bankfill Width	**29.5**
2.2 Max Depth (ft)	**2.4**
2.3 Mean Depth	**1.84**
2.4 Floodprone	**215.0**
2.5 Aband.	**2.4**
2.6 Width/Depth Ratio	**16.0**
2.7 Entrenchment	**7.3**
2.8 Incision Ratio	**1.0**
2.9 Sinuosity	**Low**
2.10 Riffles Type	**Sedimente**
2.11 Riffle/Step	**200.0**
Is Not Applicable?	**NO**

2.12 Substrate Composition

Bedrock	**0.0**	%
Boulder	**2.0**	%
Cobble	**19.0**	%
Coarse Gravel	**29.0**	%
Fine Gravel	**23.0**	%
Sand	**27.0**	%

Silt/Clay	**Yes**	
Detritus	**3.0**	%
# Large Woody	**30**	

2.13 Average Largest Particle on

Bed	**340.0**	**mm**
Bar		**mm**
Is Not Applicable?		**YES**

2.14 Stream Type
C **None** **Riffle-Pool**
Stream **Gravel**

2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type	**Silt/Clay**	**Silt/Clay**
Consistency	**Non-**	**Non-**
Lower		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**

Bank Erosion	Left	Right
Erosion Length (ft)	**578**	
Erosion Height (ft)	**4.0**	
Revetmt. Type	**Rip-Rap**	**None**
Revetmt. Length (ft)	**195**	**0**

Near Bank Veg. Type	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**None**	**None**

Bank Canopy	Left	Right
Canopy %	**76-100**	**76-100**
Mid-Channel	**Open**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**26-50**	**26-50**
Sub-dominant	**<5**	**>100**

Buffer Veg.	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**None**	**None**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Pasture**	**Forest**
Sub-dominant	**Forest**	**Hay**

	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**Some**	
4.2 Adjacent	**None**	
4.3 Flow Status	**Moderate**	
4.4 # of Debris	**6**	
4.5 Impoundments	**None**	
Impoundmt.		
4.6 # of Stormwater	**0**	
4.7 Upstream Flow	**None**	
4.9 # of Beaver	**0**	**0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
3	**5**	**1**

Diagonal	Delta	Island
1	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
2	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
1	**0**	**No**

5.4 Stream Ford or Animal	**No**
5.5 Straightening	**Yes**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Finel Hollow Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M11-S1.02**
Observers: **LG, SH**
Segment Location:

Segment: **B**
Why Not assessed:

August 18, 2006
Completion Date: **May 30, 2006**
Rain **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Channel Dimensions**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms		**675.58**
Roads	**156.32**	**156.32**
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Steep**	**Hilly**
Continuous w/	**Sometime**	**Never**
W/in 1 Bankfill	**Sometime**	**Never**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**450.0**
Width Determination	**Measured**
Confinement Type	**Very Broad**
Rock Gorge?	**No**
Human-caused change - valley width?	**No**

Notes:

Step 2. Stream Channel

2.1 Bankfill Width	**25.0**
2.2 Max Depth (ft)	**2.7**
2.3 Mean Depth	**2.08**
2.4 Floodprone	**450.0**
2.5 Aband.	**4.9**
2.6 Width/Depth Ratio	**12.0**
2.7 Entrenchment	**18.0**
2.8 Incision Ratio	**1.8**
2.9 Sinuosity	**Low**
2.10 Riffles Type	**Not**
2.11 Riffle/Step Is Not Applicable?	**YES**

2.12 Substrate Composition

Bedrock	**0.0**	%
Boulder	**4.0**	%
Cobble	**22.0**	%
Coarse Gravel	**35.0**	%
Fine Gravel	**15.0**	%
Sand	**24.0**	%

Silt/Clay	**No**	
Detritus	**0.0**	%
# Large Woody	**2**	

2.13 Average Largest Particle on
Bed
Bar
Is Not Applicable? **YES**

2.14 Stream Type
C **None** **Plane Bed**
Stream **Gravel**

2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**
Lower		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**

Bank Erosion	Left	Right
Erosion Length (ft)	**346**	**340**
Erosion Height (ft)	**4.0**	**4.0**
Revetmt. Type	**None**	**Rip-Rap**
Revetmt. Length (ft)	**0**	**189**

Near Bank Veg. Type	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**None**	**None**

Bank Canopy	Left	Right
Canopy %	**51-75**	**51-75**
Mid-Channel	**Open**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**5-25**	**5-25**
Sub-dominant	**<5**	**<5**

Buffer Veg.	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**None**	**None**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Pasture**	**Pasture**
Sub-dominant	**Crop**	**Residential**

	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**None**	
4.2 Adjacent	**None**	
4.3 Flow Status	**Moderate**	
4.4 # of Debris	**0**	
4.5 Impoundments	**None**	
Impoundmt.		
4.6 # of Stormwater	**0**	
4.7 Upstream Flow	**None**	
4.9 # of Beaver	**0**	**0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
1	**0**	**0**

Diagonal	Delta	Island
1	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
0	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
0	**0**	**No**

5.4 Stream Ford or Animal	**Yes**
5.5 Straightening	**Yes**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Finel Hollow Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M11-S1.02**
Observers: **LG, SH**
Segment Location:

Segment: **C**
Why Not assessed:

August 18, 2006
Completion Date: **May 24, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Grade Controls**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms		
Roads	**312.59**	**312.59**
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Steep**	**Steep**
Continuous w/	**Always**	**Always**
W/in 1 Bankfill	**Always**	**Always**
Texture	**Not**	**Not**

1.5 Valley Features
Valley Width (ft)
Width Determination
Confinement Type **Narrowly**
Rock Gorge? **Yes**
Human-caused change - valley width? **No**

Notes:

Step 2. Stream Channel

2.1 Bankfill Width
2.2 Max Depth (ft)
2.3 Mean Depth
2.4 Floodprone
2.5 Aband.
2.6 Width/Depth Ratio **---**
2.7 Entrenchment **---**
2.8 Incision Ratio **---**
2.9 Sinuosity
2.10 Riffles Type
2.11 Riffle/Step
Is Not Applicable? **NO**
2.12 Substrate Composition

Silt/Clay
Detritus %
Large Woody
2.13 Average Largest Particle on
Bed
Bar
Is Not Applicable? **NO**
2.14 Stream Type

Stream
2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type	**Bedrock**	**Bedrock**
Consistency	**Cohesive**	**Cohesive**
Lower		
Material Type	**Bedrock**	**Bedrock**
Consistency	**Cohesive**	**Cohesive**

Bank Erosion	Left	Right
Erosion Length (ft)		
Erosion Height (ft)		
Revetmt. Type	**None**	**None**
Revetmt. Length (ft)	**0**	**0**

Near Bank Veg. Type	Left	Right
Dominant	**Coniferous**	**Coniferous**
Sub-dominant	**None**	**None**

Bank Canopy	Left	Right
Canopy %	**76-100**	**76-100**
Mid-Channel	**Closed**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**51-100**
Sub-dominant	**None**	**None**

Buffer Veg.	Left	Right
Dominant	**Coniferous**	**Coniferous**
Sub-dominant	**None**	**None**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Forest**	**Forest**
Sub-dominant	**None**	**Residential**

	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps
4.2 Adjacent
4.3 Flow Status
4.4 # of Debris **0**
4.5 Impoundments
Impoundmt.
4.6 # of Stormwater **0**
4.7 Upstream Flow
4.9 # of Beaver **0** **0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
1	**0**	**1**

Diagonal	Delta	Island
0	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
0	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
1	**0**	**No**

5.4 Stream Ford or Animal **No**
5.5 Straightening **No**
5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Finel Hollow Brook**
Organization: **Poultney/Mettowee NRCD**
Segment Length (ft): **0**

Reach # **M11-S1.02**
Observers: **LG, SH**
Segment Location:

Segment: **D**
Why Not assessed:

August 18, 2006
Completion Date: **May 30, 2006**
Rain: **Yes**

Step 1. Valley and Floodplain

1.1 Segmentation **Channel Dimensions**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms		
Roads		
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Hilly**	**Flat**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Not**	**Not**

1.5 Valley Features

Valley Width (ft)	**320.0**
Width Determination	**Measured**
Confinement Type	**Very Broad**
Rock Gorge?	**No**
Human-caused change - valley width?	**No**

Notes:

Step 2. Stream Channel

2.1 Bankfill Width	**28.0**
2.2 Max Depth (ft)	**3.0**
2.3 Mean Depth	**1.79**
2.4 Floodprone	**320.0**
2.5 Aband.	**5.2**
2.6 Width/Depth Ratio	**15.6**
2.7 Entrenchment	**11.4**
2.8 Incision Ratio	**1.7**
2.9 Sinuosity	**Moderate**
2.10 Riffles Type	**Eroded**
2.11 Riffle/Step	**100.0**
Is Not Applicable?	**NO**

2.12 Substrate Composition

Bedrock	**0.0** %
Boulder	**2.0** %
Cobble	**38.0** %
Coarse Gravel	**22.0** %
Fine Gravel	**17.0** %
Sand	**21.0** %

Silt/Clay	**No**
Detritus	**0.0** %
# Large Woody	**23**

2.13 Average Largest Particle on

Bed	**300.0 mm**
Bar	**220.0 mm**
Is Not Applicable?	**NO**

2.14 Stream Type
C **None** **Riffle-Pool**
Stream **Gravel**

2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Undercut**

Bank Texture	Left	Right
Upper		
Material Type	**Silt/Clay**	**Silt/Clay**
Consistency	**Cohesive**	**Cohesive**
Lower		
Material Type	**Mix**	**Mix**
Consistency	**Non-**	**Non-**

Bank Erosion	Left	Right
Erosion Length (ft)	**673**	**508**
Erosion Height (ft)	**2.7**	**4.0**
Revetmt. Type	**None**	**None**
Revetmt. Length (ft)	**0**	**0**

Near Bank Veg. Type	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**Shrubs/Sapli**	**Shrubs/Sapli**

Bank Canopy	Left	Right
Canopy %	**76-100**	**51-75**
Mid-Channel	**Open**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**51-100**	**5-25**
Sub-dominant	**None**	**None**

Buffer Veg.	Left	Right
Dominant	**Deciduous**	**Deciduous**
Sub-dominant	**Shrubs/Sapli**	**Shrubs/Sapli**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Hay**	**Pasture**
Sub-dominant	**None**	**None**

	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps	**None**
4.2 Adjacent	**None**
4.3 Flow Status	**Moderate**
4.4 # of Debris	**3**
4.5 Impoundments	**None**
Impoundmt.	
4.6 # of Stormwater	**0**
4.7 Upstream Flow	**None**
4.9 # of Beaver	**0** **0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
0	**2**	**2**

Diagonal	Delta	Island
2	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
1	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
1	**0**	**No**

5.4 Stream Ford or Animal	**No**
5.5 Straightening	**No**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and Step 4.8 - Channel Constrictions are on The second page of this report - Steps 6 through 7.

Phase 2 Reach Summary

Project: **Poultney Tribs**
Stream: **Finel Hollow Brook**
Organization:
Segment Length (ft): **0**

Reach # **M11-S1.03**
Observers:
Segment Location:

Segment: **0**
Why Not assessed:

August 18, 2006
Completion Date:
Rain:

Step 1. Valley and Floodplain

1.1 Segmentation **None**
1.2 Alluvial Fan **No**
1.3 Corridor Encroachments

Length (ft)	One	Both
Berms		
Roads	**845.6**	**845.6**
Railroads		
Improved Paths		
Development		

1.4 Adjacent Side	Left	Right
Hillside Slope	**Extremely**	**Extremely**
Continuous w/	**Sometime**	**Sometime**
W/in 1 Bankfill	**Sometime**	**Sometime**
Texture	**Bedrock**	**Bedrock**

1.5 Valley Features

Valley Width (ft)	**40.0**
Width Determination	**Estimated**
Confinement Type	**Narrowly**
Rock Gorge?	**Yes**
Human-caused change - valley width?	**No**

Notes:

Unable to safely access channel due to vertical walls, hich waterfalls, deep pools, etc. Therefore reach viewed from above, but gullies, channel bars and number and height of grade controls difficult to assess.

Step 2. Stream Channel

2.1 Bankfill Width
2.2 Max Depth (ft)
2.3 Mean Depth
2.4 Floodprone
2.5 Aband.
2.6 Width/Depth Ratio **---**
2.7 Entrenchment **---**
2.8 Incision Ratio **---**
2.9 Sinuosity
2.10 Riffles Type
2.11 Riffle/Step
Is Not Applicable? **NO**
2.12 Substrate Composition

Silt/Clay
Detritus %
Large Woody
2.13 Average Largest Particle on
Bed
Bar
Is Not Applicable? **NO**
2.14 Stream Type

Stream
2.15 Reference Stream
(if different from Phase 1)

Step 3. Riparian Features

3.1 Stream Banks
Typical Bank Slope: **Steep**

Bank Texture	Left	Right
Upper		
Material Type		
Consistency		
Lower		
Material Type		
Consistency		

Bank Erosion	Left	Right
Erosion Length (ft)	**0**	**0**
Erosion Height (ft)	**0.0**	**0.0**
Revetmt. Type	**None**	**None**
Revetmt. Length (ft)	**0**	**0**

Near Bank Veg. Type	Left	Right
Dominant	**Coniferous**	**Coniferous**
Sub-dominant	**None**	**None**

Bank Canopy	Left	Right
Canopy %	**76-100**	**76-100**
Mid-Channel	**Closed**	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**26-50**
Sub-dominant	**None**	**>100**

Buffer Veg.	Left	Right
Dominant	**Coniferous**	**Coniferous**
Sub-dominant	**None**	**None**

3.3 Riparian

Corridor Land	Left	Right
Dominant	**Forest**	**Forest**
Sub-dominant	**None**	**Residential**

	Amount	Mean
Mass Failures	**None**	**0.0**
Gullies	**None**	**0.0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps
4.2 Adjacent
4.3 Flow Status
4.4 # of Debris **0**
4.5 Impoundments
Impoundmt.
4.6 # of Stormwater **0**
4.7 Upstream Flow
4.9 # of Beaver **0** **0** ft

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid	Point	Side
0	**0**	**2**

Diagonal	Delta	Island
0	**0**	**0**

5.2 Other Features

Flood Chute	Neck Cutoff	Chan. Avulsion	Braiding
0	**0**	**0**	**0**

5.3 Steep Riffles and Head

Steep	Head Cuts	Trib Rejuv.
0	**0**	**No**

5.4 Stream Ford or Animal **No**
5.5 Straightening **No**

5.5 Dredging
None

Note:
Step 1.6 - Grade Controls and
Step 4.8 - Channel Constrictions
are on The second page of this report - Steps 6 through 7.

Stream: **Lewis Brook** Reach # **M08-S1.01** Segment: **A** Completion Date: **May 9, 2006**

Organization: **Poultney/Mettowee NRCD** Observers: **LG, SH** Rain: **Yes**

Segment Length (ft): **0** Segment Location:

1.6 Grade Controls

4.8 Channel Constrictions

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**15**	**None**	**No**
7.2 Channel Aggradation	**11**	**None**	**No**
7.3 Widening Channel	**11**		**No**
7.4 Change in Planform	**10**		**No**
Total Score	**47**		
Geomorphic Rating	**0.5875**		

Channel Evolution Model **F**

Channel Evolution Stage **IV**

Geomorphic Condition **Very High**

Stream Sensitivity **Fair**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **Low**

	Score
6.1 Epifaunal Substrate - Available	9
6.2 Pool Substrate	3
6.3 Pool Variability	11
6.4 Sediment Deposition	10
6.5 Channel Flow Status	16
6.6 Channel Alteration	13
6.7 Channel Sinuosity	11
6.8 Bank Stability	Left: 4 Right: 4
6.9 Bank Vegetation Protection	Left: 6 Right: 6
6.10 Riparian Vegetation Zone Width	Left: 8 Right: 8
Total Score	109
Habitat Rating	0.545

Habitat Stream Condition **Fair**

Narrative:

Aggradation with some widening and planform adjustments. A low-gradient C Dune-Ripple type, so some parameters difficult to assess. Overall, the segment appeared pretty good, but recovering from past straightening.

Stream: **Lewis Brook** Reach # **M08-S1.01** Segment: **B** Completion Date: **May 9, 2006**

Organization: **Poultney/Mettowee NRCD** Observers: **LG, SH** Rain: **Yes**

Segment Length (ft): **0** Segment Location:

1.6 Grade Controls

4.8 Channel Constrictions

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**15**	**None**	**No**
7.2 Channel Aggradation	**10**	**None**	**No**
7.3 Widening Channel	**12**		**No**
7.4 Change in Planform	**9**		**No**
Total Score	**46**		
Geomorphic Rating	**0.575**		

Channel Evolution Model **F**

Channel Evolution Stage **IV**

Geomorphic Condition **Very High**

Stream Sensitivity **Fair**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High**

	Score
6.1 Epifaunal Substrate - Available	6
6.2 Embeddedness	6
6.3 Velocity/Depth Patterns	12
6.4 Sediment Deposition	8
6.5 Channel Flow Status	10
6.6 Channel Alteration	13
6.7 Frequency of Riffles/Steps	13
6.8 Bank Stability	Left: 4 Right: 4
6.9 Bank Vegetation Protection	Left: 7 Right: 7
6.10 Riparian Vegetation Zone Width	Left: 3 Right: 3
Total Score	96
Habitat Rating	0.48

Habitat Stream Condition **Fair**

Narrative:

Major aggradation and planform adjustments after historical channel straightening.

Stream: **Lewis Brook** Reach # **M08-S1.02** Segment: **A** Completion Date: **May 9, 2006**

Organization: **Poultney/Mettowee NRCD** Observers: **LG, SH** Rain: **Yes**

Segment Length (ft): **0** Segment Location:

1.6 Grade Controls

4.8 Channel Constrictions

Narrative:
Aggradation and planform.

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**15**	**None**	**No**
7.2 Channel Aggradation	**10**	**None**	**No**
7.3 Widening Channel	**12**		**No**
7.4 Change in Planform	**9**		**No**
Total Score	**46**		
Geomorphic Rating	**0.575**		

Channel Evolution Model **F**
Channel Evolution Stage **IV**
Geomorphic Condition **Very High**
Stream Sensitivity **Fair**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High**

	Score
6.1 Epifaunal Substrate - Available	6
6.2 Embeddedness	6
6.3 Velocity/Depth Patterns	12
6.4 Sediment Deposition	8
6.5 Channel Flow Status	10
6.6 Channel Alteration	13
6.7 Frequency of Riffles/Steps	13
6.8 Bank Stability	Left: 4 Right: 4
6.9 Bank Vegetation Protection	Left: 7 Right: 7
6.10 Riparian Vegetation Zone Width	Left: 3 Right: 3
Total Score	96
Habitat Rating	0.48

Habitat Stream Condition **Fair**

Stream: **Lewis Brook** Reach # **M08-S1.02** Segment: **B** Completion Date: **May 5, 2006**

Organization: **Poultney/Mettowee NRCD** Observers: **LG, SH** Rain: **Yes**

Segment Length (ft): **0** Segment Location:

1.6 Grade Controls

4.8 Channel Constrictions

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**11**	**None**	**Yes**
7.2 Channel Aggradation	**13**	**None**	**No**
7.3 Widening Channel	**14**		**No**
7.4 Change in Planform	**15**		**No**
Total Score	**53**		
Geomorphic Rating	**0.6625**		

Channel Evolution Model **F**

Channel Evolution Stage **II**

Geomorphic Condition **High**

Stream Sensitivity **Good**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High**

	Score
6.1 Epifaunal Substrate - Available	6
6.2 Embeddedness	5
6.3 Velocity/Depth Patterns	8
6.4 Sediment Deposition	15
6.5 Channel Flow Status	16
6.6 Channel Alteration	6
6.7 Frequency of Riffles/Steps	4
6.8 Bank Stability	Left: 7 Right: 7
6.9 Bank Vegetation Protection	Left: 6 Right: 6
6.10 Riparian Vegetation Zone Width	Left: 8 Right: 9
Total Score	103
Habitat Rating	0.515

Habitat Stream Condition **Fair**

Narrative:

Fairly stable, some incision. Transporting all sediment and bermed on both banks.

Stream: **Lewis Brook** Reach # **M08-S1.02** Segment: **C** Completion Date: **May 5, 2006**

Organization: **Poultney/Mettowee NRCD** Observers: **LG, SH** Rain: **Yes**

Segment Length (ft): **0** Segment Location:

1.6 Grade Controls

4.8 Channel Constrictions

Narrative:
Major planform with minor aggradation and widening.

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**14**	**None**	**No**
7.2 Channel Aggradation	**12**	**None**	**No**
7.3 Widening Channel	**12**		**No**
7.4 Change in Planform	**10**		**No**
Total Score	**48**		
Geomorphic Rating	**0.6**		

Channel Evolution Model	**F**
Channel Evolution Stage	**IV**
Geomorphic Condition	**Very High**
Stream Sensitivity	**Fair**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High**

	Score
6.1 Epifaunal Substrate - Available	11
6.2 Embeddedness	8
6.3 Velocity/Depth Patterns	14
6.4 Sediment Deposition	7
6.5 Channel Flow Status	11
6.6 Channel Alteration	19
6.7 Frequency of Riffles/Steps	17
6.8 Bank Stability	Left: 3 Right: 3
6.9 Bank Vegetation Protection	Left: 6 Right: 6
6.10 Riparian Vegetation Zone Width	Left: 7 Right: 7
Total Score	119
Habitat Rating	0.595

Habitat Stream Condition **Fair**

1.6 Grade Controls

4.8 Channel Constrictions

Narrative:

Step 7. Rapid Geomorphic Assessment Data

Confinement Type

Channel Evolution Model

Channel Evolution Stage

Geomorphic Condition

Stream Sensitivity

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type

Habitat Stream Condition

1.6 Grade Controls

4.8 Channel Constrictions

Narrative:

Step 7. Rapid Geomorphic Assessment Data

Confinement Type

Channel Evolution Model

Channel Evolution Stage

Geomorphic Condition

Stream Sensitivity

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type

Habitat Stream Condition

1.6 Grade Controls

4.8 Channel Constrictions

Narrative:
Major aggradation, planform, minor widening.

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**13**	**None**	**No**
7.2 Channel Aggradation	**8**	**None**	**No**
7.3 Widening Channel	**12**		**No**
7.4 Change in Planform	**8**		**No**
Total Score	**41**		
Geomorphic Rating	**0.5125**		

Channel Evolution Model **F**
Channel Evolution Stage **III**
Geomorphic Condition **Very High**
Stream Sensitivity **Fair**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High**

	Score
6.1 Epifaunal Substrate - Available	11
6.2 Embeddedness	7
6.3 Velocity/Depth Patterns	12
6.4 Sediment Deposition	7
6.5 Channel Flow Status	0
6.6 Channel Alteration	6
6.7 Frequency of Riffles/Steps	13
6.8 Bank Stability	Left: 3 Right: 3
6.9 Bank Vegetation Protection	Left: 7 Right: 5
6.10 Riparian Vegetation Zone Width	Left: 5 Right: 1
Total Score	80
Habitat Rating	0.4

Habitat Stream Condition **Fair**

Stream: **Lewis Brook** Reach # **M08-S1.03** Segment: **C** Completion Date: **May 3, 2006**

Organization: **Poultney/Mettowee NRCD** Observers: **LG, SH** Rain: **Yes**

Segment Length (ft): **0** Segment Location:

1.6 Grade Controls

4.8 Channel Constrictions

Narrative:

Incised, aggrading and begining to widen.

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**8**	**None**	**No**
7.2 Channel Aggradation	**7**	**None**	**No**
7.3 Widening Channel	**8**		**No**
7.4 Change in Planform	**11**		**No**
Total Score	**34**		
Geomorphic Rating	**0.425**		

Channel Evolution Model **F**

Channel Evolution Stage **III**

Geomorphic Condition **Very High**

Stream Sensitivity **Fair**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High**

	Score
6.1 Epifaunal Substrate - Available	9
6.2 Embeddedness	9
6.3 Velocity/Depth Patterns	9
6.4 Sediment Deposition	3
6.5 Channel Flow Status	0
6.6 Channel Alteration	5
6.7 Frequency of Riffles/Steps	5
6.8 Bank Stability	Left: 3 Right: 3
6.9 Bank Vegetation Protection	Left: 7 Right: 7
6.10 Riparian Vegetation Zone Width	Left: 1 Right: 1
Total Score	62
Habitat Rating	0.31

Habitat Stream Condition **Poor**

Stream: **Lewis Brook** Reach # **M08-S1.04** Segment: **A** Completion Date: **May 2, 2006**

Organization: **Poultney/Mettowee NRCD** Observers: **LG, SH** Rain: **Yes**

Segment Length (ft): **0** Segment Location:

1.6 Grade Controls

4.8 Channel Constrictions

Narrative:
Aggradation and planform.

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**15**	**None**	**No**
7.2 Channel Aggradation	**9**	**None**	**No**
7.3 Widening Channel	**14**		**No**
7.4 Change in Planform	**10**		**No**
Total Score	**48**		
Geomorphic Rating	**0.6**		

Channel Evolution Model **F**
Channel Evolution Stage **III**
Geomorphic Condition **Very High**
Stream Sensitivity **Fair**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High**

	Score
6.1 Epifaunal Substrate - Available	7
6.2 Embeddedness	6
6.3 Velocity/Depth Patterns	15
6.4 Sediment Deposition	7
6.5 Channel Flow Status	8
6.6 Channel Alteration	8
6.7 Frequency of Riffles/Steps	14
6.8 Bank Stability	Left: 5 Right: 5
6.9 Bank Vegetation Protection	Left: 8 Right: 8
6.10 Riparian Vegetation Zone Width	Left: 2 Right: 2
Total Score	95
Habitat Rating	0.475

Habitat Stream Condition **Fair**

1.6 Grade Controls

4.8 Channel Constrictions

Narrative:

Step 7. Rapid Geomorphic Assessment Data

Confinement Type

Channel Evolution Model
Channel Evolution Stage
Geomorphic Condition
Stream Sensitivity

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type

Habitat Stream Condition

Stream: **Lewis Brook** Reach # **M08-S1.04** Segment: **C** Completion Date: **May 2, 2006**

Organization: **Poultney/Mettowee NRCD** Observers: **LG, SH** Rain: **Yes**

Segment Length (ft): **0** Segment Location:

1.6 Grade Controls

4.8 Channel Constrictions

Narrative:
Aggradation and planform.

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**15**	**None**	**No**
7.2 Channel Aggradation	**9**	**None**	**No**
7.3 Widening Channel	**14**		**No**
7.4 Change in Planform	**10**		**No**
Total Score	**48**		
Geomorphic Rating	**0.6**		

Channel Evolution Model **F**
Channel Evolution Stage **III**
Geomorphic Condition **Very High**
Stream Sensitivity **Fair**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High**

	Score
6.1 Epifaunal Substrate - Available	7
6.2 Embeddedness	6
6.3 Velocity/Depth Patterns	15
6.4 Sediment Deposition	7
6.5 Channel Flow Status	8
6.6 Channel Alteration	8
6.7 Frequency of Riffles/Steps	14
6.8 Bank Stability	Left: 5 Right: 5
6.9 Bank Vegetation Protection	Left: 8 Right: 8
6.10 Riparian Vegetation Zone Width	Left: 2 Right: 2
Total Score	95
Habitat Rating	0.475

Habitat Stream Condition **Fair**

1.6 Grade Controls

4.8 Channel Constrictions

Narrative:
Degraded, now aggradation.

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**8**	**None**	**Yes**
7.2 Channel Aggradation	**10**	**None**	**No**
7.3 Widening Channel	**12**		**No**
7.4 Change in Planform	**13**		**No**
Total Score	**43**		
Geomorphic Rating	**0.5375**		

Channel Evolution Model	**F**
Channel Evolution Stage	**II**
Geomorphic Condition	**High**
Stream Sensitivity	**Fair**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High**

	Score
6.1 Epifaunal Substrate - Available	5
6.2 Embeddedness	9
6.3 Velocity/Depth Patterns	9
6.4 Sediment Deposition	7
6.5 Channel Flow Status	8
6.6 Channel Alteration	13
6.7 Frequency of Riffles/Steps	11
6.8 Bank Stability	Left: 8 Right: 8
6.9 Bank Vegetation Protection	Left: 8 Right: 8
6.10 Riparian Vegetation Zone Width	Left: 1 Right: 1
Total Score	96
Habitat Rating	0.48

Habitat Stream Condition **Fair**

Stream: **Lewis Brook** Reach # **M08-S1.05** Segment: **0** Completion Date: **June 6, 2006**

Organization: **Poultney/Mettowee NRCD** Observers: **LG, SH** Rain: **Yes**

Segment Length (ft): **0** Segment Location:

1.6 Grade Controls

Type	Location	Total	Total Height Above Water (ft)	Photo Taken	GPSTaken

4.8 Channel Constrictions

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Confined**

	Score	STD	Historic
7.1 Channel Degradation	**12**	**None**	**No**
7.2 Channel Aggradation	**12**	**None**	**No**
7.3 Widening Channel	**14**		**No**
7.4 Change in Planform	**15**		**No**
Total Score	**53**		
Geomorphic Rating	**0.6625**		

Channel Evolution Model **F**

Channel Evolution Stage **II**

Geomorphic Condition **Moderate**

Stream Sensitivity **Good**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High**

	Score
6.1 Epifaunal Substrate - Available	8
6.2 Embeddedness	6
6.3 Velocity/Depth Patterns	13
6.4 Sediment Deposition	9
6.5 Channel Flow Status	14
6.6 Channel Alteration	13
6.7 Frequency of Riffles/Steps	17
6.8 Bank Stability	Left: 8 Right: 8
6.9 Bank Vegetation Protection	Left: 9 Right: 7
6.10 Riparian Vegetation Zone Width	Left: 10 Right: 5
Total Score	127
Habitat Rating	0.635

Habitat Stream Condition **Fair**

Narrative:

Minor incision and aggradation of fines.

1.6 Grade Controls

4.8 Channel Constrictions

Narrative:

Step 7. Rapid Geomorphic Assessment Data

Confinement Type

Channel Evolution Model

Channel Evolution Stage

Geomorphic Condition

Stream Sensitivity

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type

Habitat Stream Condition

1.6 Grade Controls

4.8 Channel Constrictions

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**4**	**C to B**	**No**
7.2 Channel Aggradation	**8**	**Other**	**No**
7.3 Widening Channel	**11**		**No**
7.4 Change in Planform	**11**		**No**
Total Score	**34**		
Geomorphic Rating	**0.425**		

Channel Evolution Model **F**
Channel Evolution Stage **IV**
Geomorphic Condition **Very High**
Stream Sensitivity **Fair**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High**

	Score
6.1 Epifaunal Substrate - Available	6
6.2 Embeddedness	6
6.3 Velocity/Depth Patterns	10
6.4 Sediment Deposition	6
6.5 Channel Flow Status	8
6.6 Channel Alteration	11
6.7 Frequency of Riffles/Steps	17
6.8 Bank Stability	Left: 5 Right: 5
6.9 Bank Vegetation Protection	Left: 9 Right: 9
6.10 Riparian Vegetation Zone Width	Left: 9 Right: 9
Total Score	110
Habitat Rating	0.55

Habitat Stream Condition **Fair**

Narrative:
Stream type departure because of berm, not because of incision. Major aggradation.

1.6 Grade Controls

Type	Location	Total	Total Height Above Water (ft)	Photo Taken	GPSTaken

4.8 Channel Constrictions

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?
Bedrock	22.00	Yes	No	YES	YES
Problems: None					
Bedrock	20.00	Yes	Yes	YES	YES
Problems: None					
Bridge	23.00	Yes	No	YES	YES
Problems: Deposition Above,Scour Below					
Bedrock	10.00	No	No	YES	YES
Problems: Deposition Above					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Confined**

	Score	STD	Historic
7.1 Channel Degradation	**15**	**None**	**No**
7.2 Channel Aggradation	**13**	**None**	**No**
7.3 Widening Channel	**14**		**No**
7.4 Change in Planform	**13**		**No**
Total Score	**55**		
Geomorphic Rating	**0.6875**		

Channel Evolution Model **F**
Channel Evolution Stage **I**
Geomorphic Condition **High**
Stream Sensitivity **Good**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High**

	Score
6.1 Epifaunal Substrate - Available	6
6.2 Embeddedness	4
6.3 Velocity/Depth Patterns	16
6.4 Sediment Deposition	14
6.5 Channel Flow Status	16
6.6 Channel Alteration	17
6.7 Frequency of Riffles/Steps	13
6.8 Bank Stability	Left: 7 Right: 7
6.9 Bank Vegetation Protection	Left: 9 Right: 9
6.10 Riparian Vegetation Zone Width	Left: 10 Right: 10
Total Score	138
Habitat Rating	0.69

Habitat Stream Condition **Good**

Narrative:
In regime, minor aggradation and planform.

Stream: **Finel Hollow Brook** Reach # **M11-S1.02** Segment: **A** Completion Date: **May 30, 2006**

Organization: **Poultney/Mettowee NRCD** Observers: **LG, SH** Rain: **Yes**

Segment Length (ft): **0** Segment Location:

1.6 Grade Controls

4.8 Channel Constrictions

Narrative:
Planform

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**15**	**None**	**No**
7.2 Channel Aggradation	**13**	**None**	**No**
7.3 Widening Channel	**14**		**No**
7.4 Change in Planform	**9**		**No**
Total Score	**51**		
Geomorphic Rating	**0.6375**		

Channel Evolution Model **F**
Channel Evolution Stage **III**
Geomorphic Condition **Very High**
Stream Sensitivity **Fair**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High**

	Score
6.1 Epifaunal Substrate - Available	10
6.2 Embeddedness	10
6.3 Velocity/Depth Patterns	11
6.4 Sediment Deposition	9
6.5 Channel Flow Status	8
6.6 Channel Alteration	13
6.7 Frequency of Riffles/Steps	16
6.8 Bank Stability	Left: 5 Right: 5
6.9 Bank Vegetation Protection	Left: 6 Right: 6
6.10 Riparian Vegetation Zone Width	Left: 5 Right: 5
Total Score	109
Habitat Rating	0.545

Habitat Stream Condition **Fair**

Stream: **Finel Hollow Brook** Reach # **M11-S1.02** Segment: **B** Completion Date: **May 30, 2006**

Organization: **Poultney/Mettowee NRCD** Observers: **LG, SH** Rain: **Yes**

Segment Length (ft): **0** Segment Location:

1.6 Grade Controls

4.8 Channel Constrictions

Narrative:
Incised, now aggradation and planform.

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**9**	**None**	**Yes**
7.2 Channel Aggradation	**11**	**None**	**No**
7.3 Widening Channel	**12**		**No**
7.4 Change in Planform	**13**		**No**
Total Score	**45**		
Geomorphic Rating	**0.5625**		

Channel Evolution Model **F**
Channel Evolution Stage **III**
Geomorphic Condition **Very High**
Stream Sensitivity **Fair**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High**

	Score
6.1 Epifaunal Substrate - Available	9
6.2 Embeddedness	8
6.3 Velocity/Depth Patterns	8
6.4 Sediment Deposition	14
6.5 Channel Flow Status	11
6.6 Channel Alteration	11
6.7 Frequency of Riffles/Steps	11
6.8 Bank Stability	Left: 7 Right: 7
6.9 Bank Vegetation Protection	Left: 6 Right: 5
6.10 Riparian Vegetation Zone Width	Left: 1 Right: 1
Total Score	99
Habitat Rating	0.495

Habitat Stream Condition **Fair**

1.6 Grade Controls

4.8 Channel Constrictions

Narrative:

Step 7. Rapid Geomorphic Assessment Data

Confinement Type

Channel Evolution Model

Channel Evolution Stage

Geomorphic Condition

Stream Sensitivity

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type

Habitat Stream Condition

1.6 Grade Controls

4.8 Channel Constrictions

Narrative:
widening, minor aggradation.

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**10**	**None**	**Yes**
7.2 Channel Aggradation	**13**	**None**	**No**
7.3 Widening Channel	**11**		**No**
7.4 Change in Planform	**14**		**No**
Total Score	**48**		
Geomorphic Rating	**0.6**		

Channel Evolution Model	**F**
Channel Evolution Stage	**III**
Geomorphic Condition	**Very High**
Stream Sensitivity	**Fair**

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High**

	Score
6.1 Epifaunal Substrate - Available	10
6.2 Embeddedness	10
6.3 Velocity/Depth Patterns	10
6.4 Sediment Deposition	9
6.5 Channel Flow Status	12
6.6 Channel Alteration	12
6.7 Frequency of Riffles/Steps	16
6.8 Bank Stability	Left: 5 Right: 5
6.9 Bank Vegetation Protection	Left: 8 Right: 8
6.10 Riparian Vegetation Zone Width	Left: 7 Right: 3
Total Score	115
Habitat Rating	0.575

Habitat Stream Condition **Fair**

1.6 Grade Controls

Type	Location	Total	Total Height Above Water (ft)	Photo Taken	GPSTaken
Waterfall	Mid-segment	0.00	0.00		
Ledge	Mid-segment	0.00	0.00		

4.8 Channel Constrictions

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?

Narrative:

Step 7. Rapid Geomorphic Assessment Data

Confinement Type

Channel Evolution Model
Channel Evolution Stage
Geomorphic Condition
Stream Sensitivity

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type

Habitat Stream Condition