APPENDIX A

PHASE 2 GEOMORPHIC ASSESSMENT DATA

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Ompompanoosuc River**
Reach: **R15-A**
Segment Length(ft): **807**
Rain: **No**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, GA**
Completion Date: **9/8/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**
Why Not Assessed: **beaver dam**

Step 0 - Location: **Segment begins approximately 915 feet downstream of Route 113 crossing and continues for 807 feet where a series of bedrock grade controls begins.**

Step 5 - Notes: **Very short section that is impounded. Bank erosion likely underestimated - couldn't see in impounded section.**

Step 7 - Narrative:

Step 1. Valley and Floodplain

1.1 Segmentation: **Grade Controls**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	83	0	0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	62		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Very Steep	Very Steep
Continuous w/ Bank:	Never	Never
Within 1 Bankfull W:	Never	Sometimes
Texture:	N.E.	N.E.

1.5 Valley Features
Valley Width (ft): **370**
Width Determination: **Measured**
Confinement Type: **NW**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **Yes**

1.6 Grade Controls: **None**

Stream: **Ompompanoosuc River** Reach: **R15-A**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**54.00**	2.11 Riffle/Step Spacing:		2.13 Average Largest Particle on	
2.2 Max Depth (ft.):	**4.00**	2.12 Substrate Composition		Bed:	**N/A**
2.3 Mean Depth (tf):	**3.14**	Bedrock:	**0.0 %**	Bar:	**N/A**
2.4 Floodprone Width (ft.):	**75.80**	Boulder:	**0.0 %**	2.14 Stream Type	
2.5 Aband. Floodpn (ft.):	**8.80**	Cobble:	**19.0 %**	Stream Type:	**B**
Human Elev FloodPln (ft.):		Coarse Gravel:	**13.0 %**	Bed Material:	**Gravel**
2.6 Width/Depth Ratio:	**17.20**	Fine Gravel:	**29.0 %**	Subclass Slope:	**c**
2.7 Entrenchment Ratio:	**1.40**	Sand:	**39.0 %**	Bed Form:	**Riffle-Pool**
2.8 Incision Ratio:	**2.20**	Silt and Smaller:	**0.0 %**	Field Measured Slope:	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type	
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:	
2.10 Riffles Type:	**Not Applicable**	# Large Woody Debris:	**12**	Reference Bed Material:	
				Reference Subclass Slope:	
				Reference Bedform:	

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**144.1**	**156.7**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**4.5**	**6.4**	Sub-dominant:	**Shrubs/Sapling**	**Deciduous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**None**	**None**	Bank Canopy		
Lower			Revetment Length:	**0.0**	**0.0**	Canopy %:	**26-50**	**26-50**
Material Type:	**Sand**	**Sand**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**None**	**0-25**
W less than 25	**274**	**0**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Deciduous**
Sub-Dominant	**Deciduous**	**Herbaceous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Forest**	**Forest**	Mass Failures		
Sub-dominant	**Residential**	**None**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Ompompanoosuc River** Reach: **R15-A**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**1**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**560**

4.8 Channel Constrictions: **None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**1**	5.2 Other Features	Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:	**No**		
Mid:	**2**	Delta:	**0**	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**1**	Island:	**1**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**355**
Side:	**1**	Braiding:	**0**	Steep Riffles:	**1**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:	6.4 Sediment Deposition:	Stream Gradiant Type	Left	Right
6.2 Pool Substrate:	6.5 Channel Flow Status:	6.8 Bank Stability:		
6.3 Pool Variability:	6.6 Channel Alteration:	6.9 Bank Vegetation Protection		
Total Score:	6.7 Channel Sinuosity:	6.10 Riparian Veg. Zone Width:		
Habitat Rating:				
Habitat Stream Condition:				

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	Score	STD	Historic		
7.1 Channel Degradation				Geomorphic Rating	
7.2 Channel Aggradation				Channel Evolution Model	
7.3 Widening Channel				Channel Evolution Stage	
7.4 Change in Planforml				Geomorphic Condition	**Fair**
Total Score				Stream Sensitivity	

Phase 2 Segment Summary Report Ompompanoosuc

Stream: Ompompanoosuc River
Reach: R15-B
Segment Length(ft): 641
Rain: No

SGAT Version: 4.56
Organization: Bear Creek Environmental
Observers: MN, GA
Completion Date: 9/8/2010
Qualtiy Control Status - Consultant: Passed
Qualtiy Control Status - Staff: Provisional
Why Not Assessed: bedrock gorge

Step 0 - Location: **Segment begins about 100 feet downstream of Route 113 Bridge and continues until end of bedrock grade controls, 641 feet upstream.**

Step 5 - Notes:

Step 7 - Narrative:

Step 1. Valley and Floodplain

1.1 Segmentation: Grade Controls
1.2 Alluvial Fan: None
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	641	0	0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	464		0	

1.4 Adjacent Side	Left	Right
Hillside Slope:	Steep	Extr.Steep
Continuous w/ Bank:	Never	Sometimes
Within 1 Bankfull W:	Never	Sometimes
Texture:	N.E.	N.E.

1.5 Valley Features
Valley Width (ft): 173
Width Determination: Measured
Confinement Type: SC
In Rock Gorge: Yes
Human Caused Change in Valley Width?: Yes

1.6 Grade Controls:

Type	Location	Total Height	Total Height Above Water	Photo Taken?	GPS Taken?
Ledge	Mid-segment	0.0	0.0	Yes	
Ledge	Mid-segment	5.0	4.0	Yes	
Ledge	Mid-segment	3.0	2.0	Yes	
Ledge	Mid-segment	2.0	2.0	Yes	
Ledge	Mid-segment	2.0	1.0	Yes	
Dam	Mid-segment	13.0	10.0	Yes	
Ledge	Mid-segment	3.0	2.0	Yes	

Stream: **Ompompanoosuc River** Reach: **R15-B**

Step 2. Stream Channel

2.1Bankfull Width (ft.):		2.11 Riffle/Step Spacing:		2.13 Average Largest Particle on Bed:	
2.2 Max Depth (ft.):		2.12 Substrate Composition		Bar:	
2.3 Mean Depth (tf):		Bedrock:	%	2.14 Stream Type	
2.4 Floodprone Width (ft.):		Boulder:	%	Stream Type:	**B**
2.5 Aband. Floodpn (ft.):		Cobble:	%	Bed Material:	**Cobble**
Human Elev FloodPln (ft.):		Coarse Gravel:	%	Subclass Slope:	**None**
2.6 Width/Depth Ratio:	**0.00**	Fine Gravel:	%	Bed Form:	**Step-Pool**
2.7 Entrenchment Ratio:	**0.00**	Sand:	%	Field Measured Slope:	
2.8 Incision Ratio:	**0.00**	Silt and Smaller:	%	2.15 Sub-reach Stream Type	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:		Reference Stream Type:	**B**
2.9 Sinuosity:		Detritus:	**0.0 %**	Reference Bed Material:	**Cobble**
2.10 Riffles Type:		# Large Woody Debris:		Reference Subclass Slope:	**None**
				Reference Bedform:	**Step-Pool**

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**148.1**	**173.9**	Dominant:	**Deciduous**	**Deciduous**
Material Type:	**Gravel**	**Gravel**	Erosion Height (ft.):	**7.0**	**7.0**	Sub-dominant:	**Shrubs/Sapling**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**None**	**Hard Bank**	Bank Canopy		
Lower			Revetment Length:	**0.0**	**412.1**	Canopy %:	**76-100**	**76-100**
Material Type:	**Boulder/Cobble**	**Boulder/Cobble**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**None**	**0-25**
W less than 25	**0**	**173**
Buffer Vegitation Type		
Dominant	**Deciduous**	**Deciduous**
Sub-Dominant	**Herbaceous**	**Herbaceous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Forest**	**Forest**	Mass Failures		
Sub-dominant	**None**	**Residential**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Ompompanoosuc River** Reach: **R15-B**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**Small Run of River**	4.7 Stormwater Inputs			
4.2 Adjacent Wetlands:	**None**	Flow Reg. Use:	**Other**	Field Ditch:	**0**	Road Ditch:	**2**
4.3 Flow Status:	**Low**	Impoundments:		Other:	**0**	Tile Drain:	**0**
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	**0**	Urb Strm Wtr Pipe:	**0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:		**0**	
		(old) Upstrm Flow Reg.:		Affected Length (ft):		**0**	

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**44**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Below**
Other	**6**	**Yes**	**No**	**Yes**	**No**	**Deposition Above,Deposition Below,Scour Below,Alignment**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:	**No**
Mid:	Delta:	Flood chutes:	**1**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	Island:	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**641**
Side:	Braiding: **0**	Steep Riffles:	**0**	Trib Rejuv.:		5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:	6.4 Sediment Deposition:	Stream Gradiant Type	Left	Right
6.2 Pool Substrate:	6.5 Channel Flow Status:	6.8 Bank Stability:		
6.3 Pool Variability:	6.6 Channel Alteration:	6.9 Bank Vegetation Protection		
Total Score:	6.7 Channel Sinuosity:	6.10 Riparian Veg. Zone Width:		
Habitat Rating:				
Habitat Stream Condition:				

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	Score	STD	Historic		
7.1 Channel Degradation				Geomorphic Rating	
7.2 Channel Aggradation				Channel Evolution Model	
7.3 Widening Channel				Channel Evolution Stage	
7.4 Change in Planforml				Geomorphic Condition	**Good**
Total Score				Stream Sensitivity	

Phase 2 Segment Summary Report Ompompanoosuc

Stream: Ompompanoosuc River
Reach: R16-0
Segment Length(ft): 1,391
Rain: No

SGAT Version: 4.56
Organization: Bear Creek Environmental
Observers: PD, SP
Completion Date: 9/8/2010
Qualtiy Control Status - Consultant: Passed
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **Segment begins where grade controls in R15 end and continues to the confluence of the Lake Fairlee outlet (R16T2)**

Step 5 - Notes: **There is an elevated path in the cross section where a berm has been placed. This is acting as the human elevated floodplain.**

Step 7 - Narrative: **Minor historic incision which has led to major aggradation, widening and planform adjustment. Many diagonal bars and some flood chutes. Abundant fine sediment. Downstream dam and grade controls in R15 may have held back some sediment causing large side bars. STD from E to C from widening.**

Step 1. Valley and Floodplain

1.1 Segmentation: None
1.2 Alluvial Fan: None
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	444	17	0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	276		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Very Steep	Hilly
Continuous w/ Bank:	Sometimes	Never
Within 1 Bankfull W:	Sometimes	Never
Texture:	Sand	N.E.

1.5 Valley Features
Valley Width (ft): 615
Width Determination: Estimated
Confinement Type: BD
In Rock Gorge: No
Human Caused Change in Valley Width?: No

1.6 Grade Controls: None

Stream: **Ompompanoosuc River** Reach: **R16-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**57.00**	2.11 Riffle/Step Spacing:	**189 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**4.90**	2.12 Substrate Composition		Bed:	**1.3**	**inches**
2.3 Mean Depth (tf):	**3.61**	Bedrock:	**0.0 %**	Bar:	**1.1**	**inches**
2.4 Floodprone Width (ft.):	**298.00**	Boulder:	**0.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**6.40**	Cobble:	**0.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):	**16.80**	Coarse Gravel:	**7.0 %**	Bed Material:	**Sand**	
2.6 Width/Depth Ratio:	**15.79**	Fine Gravel:	**38.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**5.23**	Sand:	**48.0 %**	Bed Form:	**Dune-Ripple**	
2.8 Incision Ratio:	**1.31**	Silt and Smaller:	**7.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**3.43**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**97**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

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

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**851.6**	**840.5**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**4.5**	**4.2**	Sub-dominant:	**Deciduous**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**None**	**None**	Bank Canopy		
Lower			Revetment Length:	**0.0**	**0.0**	Canopy %:	**51-75**	**51-75**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Open**	
Consistency:	**Cohesive**	**Cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**None**	**None**
W less than 25	**0**	**0**
Buffer Vegitation Type		
Dominant	**Deciduous**	**Herbaceous**
Sub-Dominant	**Herbaceous**	**Deciduous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Forest**	**Forest**	Mass Failures	**71.55**	
Sub-dominant	**None**	**None**	Height	**12.0**	
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**One**	**12.0**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Ompompanoosuc River** Reach: **R16-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**1**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions: **None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**3**	5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**No**
Mid:	**3**	Delta:	**0**	Flood chutes:	**3**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**2**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**889**
Side:	**6**	Braiding:	**0**	Steep Riffles:	**2**	Trib Rejuv.:	**Yes**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**12**	**None**	**Yes**	Geomorphic Rating	**0.45**
7.2 Channel Aggradation		**8**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**9**	**Other**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**7**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**36**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Blood Brook**
Reach: **R16T2.01-0**
Segment Length(ft): **3,358**
Rain: **Yes**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **PD, SP**
Completion Date: **9/16/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**
Why Not Assessed: **wetland**

Step 0 - Location: **Segment begins at confluence with the main stem of the Ompompanoosuc River and continues until left valley wall gets close to the stream.**

Step 5 - Notes: **No good cross section location found on reach, even above portion of greatest wetland influence; mostly long pools. Valley wall is on old very high terrace (about 15 feet high in some places); could not see part of left valley wall due to impoundment.**

Step 7 - Narrative:

Step 1. Valley and Floodplain

1.1 Segmentation: **None**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	168		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Extr.Steep	Extr.Steep
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Sand	Sand

1.5 Valley Features
Valley Width (ft): **491**
Width Determination: **Estimated**
Confinement Type: **BD**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **No**

1.6 Grade Controls: **None**

Stream: **Blood Brook** Reach: **R16T2.01-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):		2.11 Riffle/Step Spacing:		2.13 Average Largest Particle on Bed:	
2.2 Max Depth (ft.):		2.12 Substrate Composition		Bar:	
2.3 Mean Depth (tf):		Bedrock:	%	2.14 Stream Type	
2.4 Floodprone Width (ft.):		Boulder:	%	Stream Type:	**E**
2.5 Aband. Floodpn (ft.):		Cobble:	%	Bed Material:	**Sand**
Human Elev FloodPln (ft.):		Coarse Gravel:	%	Subclass Slope:	**None**
2.6 Width/Depth Ratio:	**0.00**	Fine Gravel:	%	Bed Form:	**Dune-Ripple**
2.7 Entrenchment Ratio:	**0.00**	Sand:	%	Field Measured Slope:	
2.8 Incision Ratio:	**0.00**	Silt and Smaller:	%	2.15 Sub-reach Stream Type	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:		Reference Stream Type:	
2.9 Sinuosity:		Detritus:	**0.0 %**	Reference Bed Material:	
2.10 Riffles Type:		# Large Woody Debris:		Reference Subclass Slope:	
				Reference Bedform:	

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**225.7**	**298.1**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**13.0**	**2.9**	Sub-dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**None**	**None**	Bank Canopy		
Lower			Revetment Length:	**0.0**	**0.0**	Canopy %:	**51-75**	**51-75**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**26-50**	**51-100**
W less than 25	**0**	**0**
Buffer Vegitation Type		
Dominant	**Mixed Trees**	**Mixed Trees**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Forest**	**Forest**	Mass Failures	**179.14**	
Sub-dominant	**None**	**Residential**	Height	**15.0**	
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**Multiple**	**15.0**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Blood Brook** Reach: **R16T2.01-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Abundant**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**3**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**1**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**3078**

4.8 Channel Constrictions: **None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features	Neck Cutoff:	**2**	5.4 Stream Ford or Animal Crossing:		**No**	
Mid:	**0**	Delta:	**0**	Flood chutes:	**4**	Avulsion:	**1**	5.5 Straightening:	**None**
Point:	**4**	Island:	**1**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**0**
Side:	**4**	Braiding:	**1**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:	6.4 Sediment Deposition:	Stream Gradiant Type	Left	Right
6.2 Pool Substrate:	6.5 Channel Flow Status:	6.8 Bank Stability:		
6.3 Pool Variability:	6.6 Channel Alteration:	6.9 Bank Vegetation Protection		
Total Score:	6.7 Channel Sinuosity:	6.10 Riparian Veg. Zone Width:		
Habitat Rating:				
Habitat Stream Condition:				

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	Score	STD	Historic		
7.1 Channel Degradation				Geomorphic Rating	
7.2 Channel Aggradation				Channel Evolution Model	
7.3 Widening Channel				Channel Evolution Stage	
7.4 Change in Planforml				Geomorphic Condition	**Good**
Total Score				Stream Sensitivity	

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Blood Brook**
Reach: **R16T2.02-0**
Segment Length(ft): **1,632**
Rain: **Yes**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **PD, SP**
Completion Date: **9/16/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**

Step 0 - Location: **Reach begins where the left valley wall gets close to the stream and continues to the dam at the Lake Fairlee outlet.**

Step 5 - Notes:

Step 7 - Narrative: **Minor historic incision; Dam at upstream end of reach which has impacted flows and held back sediment in reach. Current active processes include widening, aggradation, and planform, but all are minor. Trees are falling in from banks indicating widening. In early F-III or late F-II.**

Step 1. Valley and Floodplain

1.1 Segmentation: **None**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	719		0	

1.4 Adjacent Side	Left	Right
Hillside Slope:	**Very Steep**	**Steep**
Continuous w/ Bank:	**Never**	**Sometimes**
Within 1 Bankfull W:	**Sometimes**	**Sometimes**
Texture:	**N.E.**	**Sand**

1.5 Valley Features
Valley Width (ft): **260**
Width Determination: **Measured**
Confinement Type: **NW**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **No**

1.6 Grade Controls:

Type	Location	Total Height	Total Height Above Water	Photo Taken?	GPS Taken?
Dam	**Mid-segment**	**14.0**	**13.0**	**Yes**	

Stream: **Blood Brook** Reach: **R16T2.02-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**49.50**	2.11 Riffle/Step Spacing:		2.13 Average Largest Particle on	
2.2 Max Depth (ft.):	**3.80**	2.12 Substrate Composition		Bed:	**N/A**
2.3 Mean Depth (tf):	**2.97**	Bedrock:	**0.0 %**	Bar:	**N/A**
2.4 Floodprone Width (ft.):	**131.00**	Boulder:	**0.0 %**	2.14 Stream Type	
2.5 Aband. Floodpn (ft.):	**4.60**	Cobble:	**0.0 %**	Stream Type:	**C**
Human Elev FloodPln (ft.):		Coarse Gravel:	**0.0 %**	Bed Material:	**Sand**
2.6 Width/Depth Ratio:	**16.67**	Fine Gravel:	**0.0 %**	Subclass Slope:	**None**
2.7 Entrenchment Ratio:	**2.65**	Sand:	**70.0 %**	Bed Form:	**Dune-Ripple**
2.8 Incision Ratio:	**1.21**	Silt and Smaller:	**30.0 %**	Field Measured Slope:	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type	
2.9 Sinuosity:	**Moderate**	Detritus:	**0.0 %**	Reference Stream Type:	
2.10 Riffles Type:	**Not Applicable**	# Large Woody Debris:	**156**	Reference Bed Material:	
				Reference Subclass Slope:	
				Reference Bedform:	

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**210.1**	**133.0**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**4.0**	**2.6**	Sub-dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**None**	**None**	Bank Canopy		
Lower			Revetment Length:	**0.0**	**0.0**	Canopy %:	**51-75**	**51-75**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**51-100**	**26-50**
W less than 25	**0**	**54**
Buffer Vegitation Type		
Dominant	**Mixed Trees**	**Mixed Trees**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right
Dominant	**Forest**	**Forest**
Sub-dominant	**Residential**	**Residential**
(Legacy)	Amount	Mean Hieght
Failures	**One**	**15.0**
Gullies	**None**	

	Left	Right
Mass Failures		**51.85**
Height		**15.0**
Gullies Number	**0**	
Gullies Length	**0**	

Stream: **Blood Brook** Reach: **R16T2.02-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**Large Run of River**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:	**Recreation**	Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**5**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions: **None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features	Neck Cutoff:	**1**	5.4 Stream Ford or Animal Crossing:		**No**	
Mid:	**2**	Delta:	**0**	Flood chutes:	**8**	Avulsion:	**0**	5.5 Straightening:	**None**
Point:	**7**	Island:	**1**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**0**
Side:	**2**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**13**	**None**	**Yes**	Geomorphic Rating	**0.66**
7.2 Channel Aggradation		**12**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**15**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**13**	**None**	**No**	Geomorphic Condition	**Good**
Total Score		**53**			Stream Sensitivity	**High**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Blood Brook**
Reach: **R16T2.04-A**
Segment Length(ft): **1,757**
Rain: **Yes**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD**
Completion Date: **7/29/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**
Why Not Assessed: **wetland**

Step 0 - Location: **Segment begins at confluence with Lake Fairlee and continues until King Hill Road crossing**

Step 5 - Notes: **No landowner permission at upper end of segment. Lower portion of segment is wetland.**

Step 7 - Narrative:

Step 1. Valley and Floodplain

1.1 Segmentation: **Property Access**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	143	0	0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	0		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	**Very Steep**	**Steep**
Continuous w/ Bank:	**Never**	**Never**
Within 1 Bankfull W:	**Never**	**Never**
Texture:	**N.E.**	**N.E.**

1.5 Valley Features
Valley Width (ft): **407**
Width Determination: **Measured**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **Yes**

1.6 Grade Controls: **None**

Stream: **Blood Brook** Reach: **R16T2.04-A**

Step 2. Stream Channel

2.1Bankfull Width (ft.):		2.11 Riffle/Step Spacing:		2.13 Average Largest Particle on Bed:	
2.2 Max Depth (ft.):		2.12 Substrate Composition		Bar:	
2.3 Mean Depth (tf):		Bedrock:	%	2.14 Stream Type	
2.4 Floodprone Width (ft.):		Boulder:	%	Stream Type:	**E**
2.5 Aband. Floodpn (ft.):		Cobble:	%	Bed Material:	**Sand**
Human Elev FloodPln (ft.):		Coarse Gravel:	%	Subclass Slope:	**None**
2.6 Width/Depth Ratio:	**0.00**	Fine Gravel:	%	Bed Form:	**Dune-Ripple**
2.7 Entrenchment Ratio:	**0.00**	Sand:	%	Field Measured Slope:	
2.8 Incision Ratio:	**0.00**	Silt and Smaller:	%	2.15 Sub-reach Stream Type	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:		Reference Stream Type:	
2.9 Sinuosity:		Detritus:	%	Reference Bed Material:	
2.10 Riffles Type:		# Large Woody Debris:		Reference Subclass Slope:	
				Reference Bedform:	

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**0.0**	**0.0**	Dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**0.0**	**0.0**	Sub-dominant:	**Herbaceous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**None**	**None**	Bank Canopy		
Lower			Revetment Length:	**0.0**	**0.0**	Canopy %:	**76-100**	**76-100**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Closed**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**26-50**	**51-100**
W less than 25	**0**	**0**
Buffer Vegitation Type		
Dominant	**Shrubs/Sapling**	**Herbaceous**
Sub-Dominant	**Herbaceous**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Mass Failures		
Sub-dominant	**Residential**	**Residential**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Blood Brook** Reach: **R16T2.04-A**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Abundant**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch: **0**	Road Ditch: **1**
4.3 Flow Status:	**Low**	Impoundments:		Other: **0**	Tile Drain: **0**
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow: **0**	Urb Strm Wtr Pipe: **0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Instream Culvert	**19**	**Yes**	**Yes**	**Yes**	**Yes**	**Scour Below**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:	**No**
Mid:	Delta:	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**None**
Point:	Island:	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**0**
Side:	Braiding: **0**	Steep Riffles:	**0**	Trib Rejuv.:		5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:	6.4 Sediment Deposition:	Stream Gradiant Type	Left	Right
6.2 Pool Substrate:	6.5 Channel Flow Status:	6.8 Bank Stability:		
6.3 Pool Variability:	6.6 Channel Alteration:	6.9 Bank Vegetation Protection		
Total Score:	6.7 Channel Sinuosity:	6.10 Riparian Veg. Zone Width:		
Habitat Rating:				
Habitat Stream Condition:				

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	Score	STD	Historic		
7.1 Channel Degradation				Geomorphic Rating	
7.2 Channel Aggradation				Channel Evolution Model	
7.3 Widening Channel				Channel Evolution Stage	
7.4 Change in Planforml				Geomorphic Condition	**Good**
Total Score				Stream Sensitivity	

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Blood Brook**
Reach: **R16T2.04-B**
Segment Length(ft): **997**
Rain: **Yes**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD**
Completion Date: **7/29/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**

Step 0 - Location: **Segment begins at King Hill Road crossing and continues until valley gets wider.**

Step 5 - Notes: **Livestock have been in buffer and along banks causing erosion. Recent cow "pies". No subdominant bedform. Good livestock exclusion project.**
There is herbaceous vegetation associated with cow pasture, but there is still woody vegetation within the buffer. Buffers are therefore greater than 25 feet and the dominant buffer width on both sides is greater than 100 feet. This segment flows through a wetland also in the upper part of the segment.

Step 7 - Narrative: **Major historic incision, which has caused major widening. Alders are preventing further widening. Aggradation and planform change are minor.**

Step 1. Valley and Floodplain

1.1 Segmentation: **Property Access**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	0		0	

1.6 Grade Controls: **None**

1.4 Adjacent Side	Left	Right
Hillside Slope:	**Very Steep**	**Steep**
Continuous w/ Bank:	**Never**	**Never**
Within 1 Bankfull W:	**Never**	**Never**
Texture:	**N.E.**	**N.E.**

1.5 Valley Features
Valley Width (ft): **558**
Width Determination: **Measured**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **Yes**

Stream: **Blood Brook** Reach: **R16T2.04-B**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**11.20**	2.11 Riffle/Step Spacing:		2.13 Average Largest Particle on	
2.2 Max Depth (ft.):	**2.50**	2.12 Substrate Composition		Bed:	**N/A**
2.3 Mean Depth (tf):	**1.79**	Bedrock:	**0.0 %**	Bar:	**N/A**
2.4 Floodprone Width (ft.):	**575.00**	Boulder:	**0.0 %**	2.14 Stream Type	
2.5 Aband. Floodpn (ft.):	**3.80**	Cobble:	**0.0 %**	Stream Type:	**E**
Human Elev FloodPln (ft.):		Coarse Gravel:	**0.0 %**	Bed Material:	**Sand**
2.6 Width/Depth Ratio:	**6.26**	Fine Gravel:	**20.0 %**	Subclass Slope:	**None**
2.7 Entrenchment Ratio:	**51.34**	Sand:	**80.0 %**	Bed Form:	**Dune-Ripple**
2.8 Incision Ratio:	**1.52**	Silt and Smaller:	**0.0 %**	Field Measured Slope:	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type	
2.9 Sinuosity:	**High**	Detritus:	**0.0 %**	Reference Stream Type:	
2.10 Riffles Type:	**Not Applicable**	# Large Woody Debris:	**2**	Reference Bed Material:	
				Reference Subclass Slope:	
				Reference Bedform:	

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**505.1**	**448.7**	Dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**2.0**	**1.9**	Sub-dominant:	**Pasture**	**Pasture**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Hard Bank**	**Hard Bank**	Bank Canopy		
Lower			Revetment Length:	**39.7**	**41.4**	Canopy %:	**76-100**	**76-100**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Closed**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**None**	**None**
W less than 25	**0**	**0**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Mass Failures		
Sub-dominant	**Pasture**	**Pasture**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Blood Brook** Reach: **R16T2.04-B**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Abundant**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**12**	**Yes**	**Yes**	**No**	**Yes**	**Deposition Above,Deposition Below,Scour Above,Scour Below**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features		Neck Cutoff:	**3**	5.4 Stream Ford or Animal Crossing:		**Yes**
Mid:	**0**	Delta:	**0**	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**None**
Point:	**1**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**0**
Side:	**3**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**9**	**None**	**Yes**	Geomorphic Rating	**0.60**
7.2 Channel Aggradation		**17**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**8**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**14**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**48**			Stream Sensitivity	**Extreme**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Blood Brook**
Reach: **R16T2.05-A**
Segment Length(ft): **1,497**
Rain: **Yes**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD**
Completion Date: **10/8/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**

Step 0 - Location: **Segment located about 1,000 feet upstream of King Hill Road crossing and continues until right buffer becomes more wooded.**

Step 5 - Notes: **Alders dominant on bank. Invasives include: Japanese barberry and honeysuckle.**

Based on the cross section, it is possible that this segment incised more than once during modern times. A high abandoned terrace was noted as the RAF on the left bank.

Step 7 - Narrative: **Major historic incision and major aggradation (point bars); major widening as shown by erosion on high banks and major planform adjustment. Many flood chutes inside of every bend. Stream type departure from an "E" to a "C" due to prevalent flood chutes that formed from excessive aggradation.**

Step 1. Valley and Floodplain

1.1 Segmentation: **Banks and Buffers**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	0		0	

1.4 Adjacent Side	Left	Right
Hillside Slope:	Very Steep	Very Steep
Continuous w/ Bank:	Never	Never
Within 1 Bankfull W:	Never	Never
Texture:	N.E.	N.E.

1.5 Valley Features
Valley Width (ft): **776**
Width Determination: **Measured**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **No**

1.6 Grade Controls: **None**

Stream: **Blood Brook** Reach: **R16T2.05-A**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**26.20**	2.11 Riffle/Step Spacing:	**93 ft.**	2.13 Average Largest Particle on	
2.2 Max Depth (ft.):	**3.00**	2.12 Substrate Composition		Bed:	**N/A**
2.3 Mean Depth (tf):	**1.16**	Bedrock:	**0.0 %**	Bar:	**N/A**
2.4 Floodprone Width (ft.):	**229.20**	Boulder:	**0.0 %**	2.14 Stream Type	
2.5 Aband. Floodpn (ft.):	**5.30**	Cobble:	**0.0 %**	Stream Type:	**C**
Human Elev FloodPln (ft.):		Coarse Gravel:	**2.0 %**	Bed Material:	**Sand**
2.6 Width/Depth Ratio:	**22.59**	Fine Gravel:	**25.0 %**	Subclass Slope:	**None**
2.7 Entrenchment Ratio:	**8.75**	Sand:	**69.0 %**	Bed Form:	**Dune-Ripple**
2.8 Incision Ratio:	**1.77**	Silt and Smaller:	**4.0 %**	Field Measured Slope:	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type	
2.9 Sinuosity:	**High**	Detritus:	**0.0 %**	Reference Stream Type:	
2.10 Riffles Type:	**Complete**	# Large Woody Debris:	**4**	Reference Bed Material:	
				Reference Subclass Slope:	
				Reference Bedform:	

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**595.0**	**832.5**	Dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.0**	**2.9**	Sub-dominant:	**Herbaceous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**None**	**None**	Bank Canopy		
Lower			Revetment Length:	**0.0**	**0.0**	Canopy %:	**51-75**	**51-75**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Closed**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**51-100**
Sub-Dominant	**0-25**	**0-25**
W less than 25	**147**	**188**
Buffer Vegitation Type		
Dominant	**Shrubs/Sapling**	**Herbaceous**
Sub-Dominant	**Herbaceous**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Shrubs/Sapling**	**Pasture**	Mass Failures		
Sub-dominant	**Pasture**	**Shrubs/Sapling**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Blood Brook** Reach: **R16T2.05-A**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Moderate**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions: **None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features		Neck Cutoff:	**1**	5.4 Stream Ford or Animal Crossing:		**Yes**
Mid:	**0**	Delta:	**0**	Flood chutes:	**15**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**10**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**206**
Side:	**0**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**8**	**None**	**Yes**	Geomorphic Rating	**0.38**
7.2 Channel Aggradation		**7**	**Other**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**8**	**None**	**No**	Channel Evolution Stage	**IV**
7.4 Change in Planforml		**7**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**30**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Blood Brook**
Reach: **R16T2.05-B**
Segment Length(ft): **2,615**
Rain: **Yes**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD**
Completion Date: **10/8/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**

Step 0 - Location: **Segment begins where right buffer gets more wooded and continues until beaver dam.**

Step 5 - Notes: **Average largest particle size measurement was not possible on bars because they were comprised of sand. The average largest particle in the bed was 0.62 inches on average.**
The RSI and embeddedness were not evaluated becaues the substrate was too small.

To be more consistent with the cross section in R16T2.05-A, a higher RAF was chosen for the cross section than what was selected in the field. The resultant incision ratio was then 1.83. There may have been more than one incision historically and we wanted to capture the higher RAF. There are areas within this segment that have more floodplain access so a second cross section was done.

Step 7 - Narrative: **Major historic incision although there are areas where incision is not as high (see cross section #2). Major aggradation (point bars, mcbs), widening (extensive erosion), and planform adjustment (many flood chutes).**

Step 1. Valley and Floodplain

1.1 Segmentation: **Banks and Buffers**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

	Length (ft)	One Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	0		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Steep	Very Steep
Continuous w/ Bank:	Never	Never
Within 1 Bankfull W:	Never	Never
Texture:	N.E.	N.E.

1.5 Valley Features

Valley Width (ft):	770
Width Determination:	Measured
Confinement Type:	VB
In Rock Gorge:	No
Human Caused Change in Valley Width?:	No

1.6 Grade Controls: **None**

Stream: **Blood Brook** Reach: **R16T2.05-B**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**27.20**	2.11 Riffle/Step Spacing:	**113 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**2.90**	2.12 Substrate Composition		Bed:	**0.62**	**inches**
2.3 Mean Depth (tf):	**1.46**	Bedrock:	**0.0 %**	Bar:	**N/A**	**inches**
2.4 Floodprone Width (ft.):	**234.00**	Boulder:	**0.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**5.30**	Cobble:	**0.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**4.0 %**	Bed Material:	**Sand**	
2.6 Width/Depth Ratio:	**18.63**	Fine Gravel:	**41.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**8.60**	Sand:	**50.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.83**	Silt and Smaller:	**5.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Complete**	# Large Woody Debris:	**22**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

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

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**1,400.8**	**1,120.9**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.0**	**3.0**	Sub-dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**None**	**None**	Bank Canopy		
Lower			Revetment Length:	**0.0**	**0.0**	Canopy %:	**51-75**	**76-100**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Closed**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**51-100**	**>100**
Sub-Dominant	**0-25**	**None**
W less than 25	**540**	**0**
Buffer Vegitation Type		
Dominant	**Mixed Trees**	**Mixed Trees**
Sub-Dominant	**Herbaceous**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Forest**	**Forest**	Mass Failures		
Sub-dominant	**Hay**	**None**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Blood Brook** Reach: **R16T2.05-B**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Moderate**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**2**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions: **None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features		Neck Cutoff:	**4**	5.4 Stream Ford or Animal Crossing:		**Yes**
Mid:	**6**	Delta:	**0**	Flood chutes:	**29**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**20**	Island:	**5**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**200**
Side:	**6**	Braiding:	**1**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**10**	**None**	**Yes**	Geomorphic Rating	**0.39**
7.2 Channel Aggradation		**7**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**7**	**Other**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**7**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**31**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Blood Brook**
Reach: **R16T2.05-C**
Segment Length(ft): **1,507**
Rain: **No**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD**
Completion Date: **9/29/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**
Why Not Assessed: **wetland**

Step 0 - Location: **Segment begins at beaver dam and continues until end of wetland vegetation.**

Step 5 - Notes: **No bridge and culvert assessment at bridge - over wetland. First 200 feet on upstream end was a channel with nice buffer of good wetland vegetation. That section is incised like upstream segment.**

Step 7 - Narrative:

Step 1. Valley and Floodplain

1.1 Segmentation: **Banks and Buffers**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	0		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Very Steep	Very Steep
Continuous w/ Bank:	Never	Never
Within 1 Bankfull W:	Never	Never
Texture:	N.E.	N.E.

1.5 Valley Features
Valley Width (ft): **809**
Width Determination: **Measured**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **No**

1.6 Grade Controls: **None**

Stream: **Blood Brook** Reach: **R16T2.05-C**

Step 2. Stream Channel

2.1Bankfull Width (ft.):		2.11 Riffle/Step Spacing:		2.13 Average Largest Particle on Bed:	
2.2 Max Depth (ft.):		2.12 Substrate Composition		Bar:	
2.3 Mean Depth (tf):		Bedrock:	%	2.14 Stream Type	
2.4 Floodprone Width (ft.):		Boulder:	%	Stream Type:	**E**
2.5 Aband. Floodpn (ft.):		Cobble:	%	Bed Material:	**Sand**
Human Elev FloodPln (ft.):		Coarse Gravel:	%	Subclass Slope:	**None**
2.6 Width/Depth Ratio:	**0.00**	Fine Gravel:	%	Bed Form:	**Dune-Ripple**
2.7 Entrenchment Ratio:	**0.00**	Sand:	%	Field Measured Slope:	
2.8 Incision Ratio:	**0.00**	Silt and Smaller:	%	2.15 Sub-reach Stream Type	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:		Reference Stream Type:	
2.9 Sinuosity:		Detritus:	%	Reference Bed Material:	
2.10 Riffles Type:		# Large Woody Debris:		Reference Subclass Slope:	
				Reference Bedform:	

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**443.9**	**475.1**	Dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.0**	**3.0**	Sub-dominant:	**Herbaceous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**None**	**None**	Bank Canopy		
Lower			Revetment Length:	**0.0**	**0.0**	Canopy %:	**51-75**	**51-75**
Material Type:	**Sand**	**Sand**				Mid-Channel Canopy:	**Closed**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**51-100**	**None**
W less than 25	**0**	**0**
Buffer Vegitation Type		
Dominant	**Shrubs/Sapling**	**Herbaceous**
Sub-Dominant	**Herbaceous**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Mass Failures		
Sub-dominant	**Hay**	**Forest**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Blood Brook** Reach: **R16T2.05-C**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**2**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**3**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**1090**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**13**	**Yes**	**Yes**	**No**	**No**	**None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features	Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**No**	
Mid:	**0**	Delta:	**0**	Flood chutes:	**6**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**4**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**1**	Straightening Length (ft.):	**20**
Side:	**2**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:	6.4 Sediment Deposition:	Stream Gradiant Type Left Right
6.2 Pool Substrate:	6.5 Channel Flow Status:	6.8 Bank Stability:
6.3 Pool Variability:	6.6 Channel Alteration:	6.9 Bank Vegetation Protection
Total Score:	6.7 Channel Sinuosity:	6.10 Riparian Veg. Zone Width:
Habitat Rating:		
Habitat Stream Condition:		

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	Score	STD	Historic		
7.1 Channel Degradation				Geomorphic Rating	
7.2 Channel Aggradation				Channel Evolution Model	
7.3 Widening Channel				Channel Evolution Stage	
7.4 Change in Planforml				Geomorphic Condition	**Good**
Total Score				Stream Sensitivity	

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Blood Brook**
Reach: **R16T2.05-D**
Segment Length(ft): **610**
Rain: **No**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD**
Completion Date: **9/29/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**

Step 0 - Location: **Segment begins where wetland vegetation ends and continues until there is no property access near horse pasture.**

Step 5 - Notes:

Step 7 - Narrative: **Major historic incision, minor aggradation; stream is experiencing major widening as evident by extensive erosion on both banks. Has probably been straightened at some point. Riprap in channel and on banks in places. Planform change is major as seen by 3 flood chutes in a short section. Starting to regain some sinuosity. Start of junevile floodplain (narrow).**

Step 1. Valley and Floodplain

1.1 Segmentation: **Banks and Buffers**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	0		0	

1.4 Adjacent Side	Left	Right
Hillside Slope:	**Hilly**	**Very Steep**
Continuous w/ Bank:	**Never**	**Never**
Within 1 Bankfull W:	**Never**	**Never**
Texture:	**N.E.**	**N.E.**

1.5 Valley Features
Valley Width (ft): **543**
Width Determination: **Measured**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **No**

1.6 Grade Controls: **None**

Stream: **Blood Brook** Reach: **R16T2.05-D**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**10.40**	2.11 Riffle/Step Spacing:	**65 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**1.80**	2.12 Substrate Composition		Bed:	**3.62**	**inches**
2.3 Mean Depth (tf):	**1.38**	Bedrock:	**0.0 %**	Bar:	**1.84**	**inches**
2.4 Floodprone Width (ft.):	**108.70**	Boulder:	**0.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**2.60**	Cobble:	**0.0 %**	Stream Type:	**E**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**32.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**7.54**	Fine Gravel:	**44.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**10.45**	Sand:	**21.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.44**	Silt and Smaller:	**3.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Complete**	# Large Woody Debris:	**13**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**308.6**	**297.4**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.1**	**3.0**	Sub-dominant:	**None**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**68.3**	**54.0**	Canopy %:	**26-50**	**76-100**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**0-25**	**>100**
Sub-Dominant	**51-100**	**None**
W less than 25	**414**	**0**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Mixed Trees**
Sub-Dominant	**None**	**Herbaceous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Pasture**	**Forest**	Mass Failures		
Sub-dominant	**None**	**None**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Blood Brook** Reach: **R16T2.05-D**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**1**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions: **None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features	Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**No**	
Mid:	**0**	Delta:	**0**	Flood chutes:	**3**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**1**	Island:	**1**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**610**
Side:	**4**	Braiding:	**0**	Steep Riffles:	**2**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**8**	**None**	**Yes**	Geomorphic Rating	**0.44**
7.2 Channel Aggradation		**11**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**7**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**9**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**35**			Stream Sensitivity	**Extreme**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Blood Brook**
Reach: **R16T2.05-E**
Segment Length(ft): **1,489**
Rain: **No**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD**
Completion Date: **9/29/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**
Why Not Assessed: **no property access**

Step 0 - Location: **Segment begins where there is no landowner permission at start of pasture on both sides of stream and continues until just upstream of Marsh Hill Road.**

Step 5 - Notes:

Step 7 - Narrative:

Step 1. Valley and Floodplain

1.1 Segmentation: **Property Access**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

	Length (ft)	One Height	Both	Height
Berm:		0	0	
Road:		0	0	
Railroad:		0	0	
Imp. Path:		0	0	
Dev.:		220	0	

1.6 Grade Controls: **None**

1.4 Adjacent Side	Left	Right
Hillside Slope:	**Hilly**	**Hilly**
Continuous w/ Bank:	**Never**	**Never**
Within 1 Bankfull W:	**Never**	**Sometimes**
Texture:	**N.E.**	**N.E.**

1.5 Valley Features
Valley Width (ft): **622**
Width Determination: **Estimated**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **Yes**

Stream: **Blood Brook** Reach: **R16T2.05-E**

Step 2. Stream Channel

2.1Bankfull Width (ft.):		2.11 Riffle/Step Spacing:		2.13 Average Largest Particle on Bed:	
2.2 Max Depth (ft.):		2.12 Substrate Composition		Bar:	
2.3 Mean Depth (tf):		Bedrock:	%	2.14 Stream Type	
2.4 Floodprone Width (ft.):		Boulder:	%	Stream Type:	**E**
2.5 Aband. Floodpn (ft.):		Cobble:	%	Bed Material:	**Gravel**
Human Elev FloodPln (ft.):		Coarse Gravel:	%	Subclass Slope:	**None**
2.6 Width/Depth Ratio:	**0.00**	Fine Gravel:	%	Bed Form:	**Riffle-Pool**
2.7 Entrenchment Ratio:	**0.00**	Sand:	%	Field Measured Slope:	
2.8 Incision Ratio:	**0.00**	Silt and Smaller:	%	2.15 Sub-reach Stream Type	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:		Reference Stream Type:	
2.9 Sinuosity:		Detritus:	%	Reference Bed Material:	
2.10 Riffles Type:		# Large Woody Debris:		Reference Subclass Slope:	
				Reference Bedform:	

Step 3. Riparian Features

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

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**17.0**	**0.0**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.0**	**0.0**	Sub-dominant:	**Deciduous**	**Deciduous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**37.2**	**48.7**	Canopy %:	**1-25**	**1-25**
Material Type:	**Sand**	**Sand**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**0-25**	**0-25**
Sub-Dominant	**26-50**	**26-50**
W less than 25	**1,195**	**1,018**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Mixed Trees**	**Mixed Trees**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Pasture**	**Pasture**	Mass Failures		
Sub-dominant	**Residential**	**Residential**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Blood Brook** Reach: **R16T2.05-E**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Instream Culvert	**6.5**	**Yes**	**Yes**	**Yes**	**Yes**	**Scour Above**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:	**No**
Mid:	Delta:	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	Island:	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**781**
Side:	Braiding: **0**	Steep Riffles:	**0**	Trib Rejuv.:		5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:	6.4 Sediment Deposition:	Stream Gradiant Type	Left	Right
6.2 Pool Substrate:	6.5 Channel Flow Status:	6.8 Bank Stability:		
6.3 Pool Variability:	6.6 Channel Alteration:	6.9 Bank Vegetation Protection		
Total Score:	6.7 Channel Sinuosity:	6.10 Riparian Veg. Zone Width:		
Habitat Rating:				
Habitat Stream Condition:				

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	Score	STD	Historic		
7.1 Channel Degradation				Geomorphic Rating	
7.2 Channel Aggradation				Channel Evolution Model	
7.3 Widening Channel				Channel Evolution Stage	
7.4 Change in Planforml				Geomorphic Condition	**Fair**
Total Score				Stream Sensitivity	

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Blood Brook**
Reach: **R16T2.06-A**
Segment Length(ft): **1,386**
Rain: **No**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD**
Completion Date: **9/29/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**

Step 0 - Location: **Segment begins just upstream of Marsh Hill Road crossing and continues until banks and buffers become wooded.**

Step 5 - Notes: **This segment was most likely wetland that has been altered. Channelized and both sides used as horse pasture. Spoke to landowners and they are interested in project here. Many head cuts present and gully that is incised. Channel is actively incising. No buffer and extensive slump erosion. Clay on banks in places. Animal fords are causing localized erosion.**

Step 7 - Narrative: **Extreme active incision through the presence of head cuts. Channel is actively widening; abundant erosion on both banks. Channel (riparian corridor) should be a wetland naturally and has been altered with straightening and some dredging. minor deposition and planform change (some islands).**

Step 1. Valley and Floodplain

1.1 Segmentation: **Banks and Buffers**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	0		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Hilly	Hilly
Continuous w/ Bank:	Never	Never
Within 1 Bankfull W:	Never	Never
Texture:	N.E.	N.E.

1.5 Valley Features
Valley Width (ft): **522**
Width Determination: **Measured**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **Yes**

1.6 Grade Controls: **None**

Stream: **Blood Brook** Reach: **R16T2.06-A**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**5.20**	2.11 Riffle/Step Spacing:	**82 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**2.00**	2.12 Substrate Composition		Bed:	**4.6**	**inches**
2.3 Mean Depth (tf):	**0.94**	Bedrock:	**0.0 %**	Bar:	**2.3**	**inches**
2.4 Floodprone Width (ft.):	**160.50**	Boulder:	**0.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**3.20**	Cobble:	**9.0 %**	Stream Type:	**E**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**30.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**5.53**	Fine Gravel:	**24.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**30.87**	Sand:	**33.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.60**	Silt and Smaller:	**4.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Eroded**	# Large Woody Debris:	**0**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

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

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**831.9**	**857.6**	Dominant:	**Pasture**	**Pasture**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**2.8**	**2.8**	Sub-dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**158.8**	**12.9**	Canopy %:	**51-75**	**51-75**
Material Type:	**Clay**	**Clay**				Mid-Channel Canopy:	**Open**	
Consistency:	**Cohesive**	**Cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**0-25**	**0-25**
Sub-Dominant	**None**	**None**
W less than 25	**1,385**	**1,385**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**None**	**None**

3.3 Riparian Corridor

Corridor Land	Left	Right
Dominant	**Pasture**	**Pasture**
Sub-dominant	**None**	**None**
(Legacy)	Amount	Mean Hieght
Failures	**None**	
Gullies	**None**	

	Left	Right
Mass Failures		
Height		
Gullies Number	**0**	
Gullies Length	**0**	

Stream: **Blood Brook** Reach: **R16T2.06-A**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions: **None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**Yes**
Mid:	**0**	Delta:	**0**	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**2**	Island:	**3**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**6**	Straightening Length (ft.):	**1,386**
Side:	**0**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**Yes**	5.5 Dredging:	**Dredging**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**2**	**None**	**No**	Geomorphic Rating	**0.40**
7.2 Channel Aggradation		**15**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**7**	**None**	**No**	Channel Evolution Stage	**II**
7.4 Change in Planforml		**8**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**32**			Stream Sensitivity	**Extreme**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Blood Brook**
Reach: **R16T2.06-B**
Segment Length(ft): **2,441**
Rain: **Yes**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD**
Completion Date: **7/29/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**

Step 0 - Location: **Segment begins where banks and buffers become wooded and continues until pedestrian bridge just downstream of Godfrey Road crossing.**

Step 5 - Notes: **Deposition above at snowmobile bridge is due to boulder at inlet; slight scour below; some deep water below may be due to debris jam immediately downstream of the bridge.**

A pond visible in 2008 NAIP aerial imagery is actually off to the side of the stream and the stream does not flow in and out of it. That is why there is no dam there or flow regulation. Perhaps water is diverted into the pond from the stream, but we did not see any evidence of that when we were there.

Extreme active incision; head cuts present.

Step 7 - Narrative: **Extreme active incision; channel seems to be widening as evident by abundant erosion; minor planform adjustment. Channel has beed straightened in some locations. Late stage F-II, early F-III.**

Step 1. Valley and Floodplain

1.1 Segmentation: **Banks and Buffers**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	16		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Hilly	Hilly
Continuous w/ Bank:	Never	Never
Within 1 Bankfull W:	Never	Never
Texture:	N.E.	N.E.

1.5 Valley Features
Valley Width (ft): **440**
Width Determination: **Measured**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **No**

1.6 Grade Controls: **None**

Stream: **Blood Brook** Reach: **R16T2.06-B**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**10.70**	2.11 Riffle/Step Spacing:	**87 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**1.80**	2.12 Substrate Composition		Bed:	**5.04**	**inches**
2.3 Mean Depth (tf):	**1.07**	Bedrock:	**0.0 %**	Bar:	**2.4**	**inches**
2.4 Floodprone Width (ft.):	**244.00**	Boulder:	**0.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**2.80**	Cobble:	**18.0 %**	Stream Type:	**E**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**36.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**10.00**	Fine Gravel:	**35.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**22.80**	Sand:	**11.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.56**	Silt and Smaller:	**0.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Eroded**	# Large Woody Debris:	**4**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

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

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**1,922.0**	**1,758.5**	Dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.4**	**3.3**	Sub-dominant:	**Herbaceous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**367.0**	**217.0**	Canopy %:	**51-75**	**51-75**
Material Type:	**Gravel**	**Gravel**				Mid-Channel Canopy:	**Closed**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**0-25**	**26-50**
W less than 25	**193**	**2**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Mass Failures		
Sub-dominant	**Residential**	**Residential**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Blood Brook** Reach: **R16T2.06-B**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Abundant**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**9**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**1**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**80**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**14.5**	**Yes**	**Yes**	**No**	**No**	**Deposition Above**
Bridge	**15.8**	**Yes**	**Yes**	**No**	**No**	**Deposition Above,Scour Below**
Other	**9**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above,Deposition Below**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**1**	5.2 Other Features	Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**No**	
Mid:	**1**	Delta:	**0**	Flood chutes:	**2**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**6**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**4**	Straightening Length (ft.):	**1,428**
Side:	**21**	Braiding:	**0**	Steep Riffles:	**1**	Trib Rejuv.:	**Yes**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic		
7.1 Channel Degradation	**5**	**None**	**No**	Geomorphic Rating	**0.49**
7.2 Channel Aggradation	**14**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel	**8**	**None**	**No**	Channel Evolution Stage	**II**
7.4 Change in Planforml	**12**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score	**39**			Stream Sensitivity	**Extreme**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Blood Brook**
Reach: **R16T2.06-C**
Segment Length(ft): **2,394**
Rain: **No**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD**
Completion Date: **9/3/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**

Step 0 - Location: **Segment begins where grade controls begin at pedestrian bridge #2 and continues wetland at upstream end of reach.**

Step 5 - Notes: **Narrow width to depth ratio, yet is a "C" channel. Minor flood chute on right bank.**

Step 7 - Narrative: **Many depositional features but aggradation is still minor. Minor planform change.**

Step 1. Valley and Floodplain

1.1 Segmentation: **Grade Controls**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

	Length (ft)	One Height	Both	Height
Berm:	0		0	
Road:	153	0	0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	461		0	

1.4 Adjacent Side	Left	Right
Hillside Slope:	Hilly	Very Steep
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	N.E.	N.E.

1.5 Valley Features
Valley Width (ft): **211**
Width Determination: **Measured**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **No**

1.6 Grade Controls:

Type	Location	Total Height	Total Height Above Water	Photo Taken?	GPS Taken?
Waterfall	Mid-segment	5.0	5.0	Yes	
Ledge	Mid-segment	2.0	1.0	Yes	
Ledge	Mid-segment	4.0	3.0	Yes	
Ledge	Mid-segment	2.0	2.0	Yes	

Stream: **Blood Brook** Reach: **R16T2.06-C**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**11.00**	2.11 Riffle/Step Spacing:	**95 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**1.90**	2.12 Substrate Composition		Bed:	**6**	**inches**
2.3 Mean Depth (tf):	**0.95**	Bedrock:	**0.0 %**	Bar:	**3.2**	**inches**
2.4 Floodprone Width (ft.):	**57.50**	Boulder:	**1.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**1.90**	Cobble:	**20.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**51.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**11.58**	Fine Gravel:	**6.0 %**	Subclass Slope:	**b**	
2.7 Entrenchment Ratio:	**5.23**	Sand:	**22.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.00**	Silt and Smaller:	**0.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**0.0 %**	Reference Stream Type:	**C**	
2.10 Riffles Type:	**Complete**	# Large Woody Debris:	**40**	Reference Bed Material:	**Gravel**	
				Reference Subclass Slope:	**b**	
				Reference Bedform:	**Riffle-Pool**	

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**434.7**	**669.1**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**4.3**	**4.8**	Sub-dominant:	**Deciduous**	**Deciduous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**228.6**	**204.5**	Canopy %:	**76-100**	**76-100**
Material Type:	**Gravel**	**Gravel**				Mid-Channel Canopy:	**Closed**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**26-50**	**26-50**
W less than 25	**70**	**52**
Buffer Vegitation Type		
Dominant	**Deciduous**	**Deciduous**
Sub-Dominant	**Herbaceous**	**Herbaceous**

3.3 Riparian Corridor

Corridor Land	Left	Right
Dominant	**Forest**	**Forest**
Sub-dominant	**Residential**	**Residential**
(Legacy)	Amount	Mean Hieght
Failures	**None**	
Gullies	**None**	

	Left	Right
Mass Failures		
Height		
Gullies Number	**0**	
Gullies Length	**0**	

Stream: **Blood Brook** Reach: **R16T2.06-C**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps: **Minimal**
4.2 Adjacent Wetlands: **Minimal**
4.3 Flow Status: **Low**
4.4 # of Debris Jams: **7**

4.5 Flow Regulation Type **None**
Flow Reg. Use:
Impoundments:
Impoundment Loc.:
4.6 Up/Down Strm flow reg.: **None**
(old) Upstrm Flow Reg.:

4.7 Stormwater Inputs
Field Ditch: **0** Road Ditch: **2**
Other: **0** Tile Drain: **0**
Overland Flow: **0** Urb Strm Wtr Pipe: **0**
4.9 # of Beaver Dams: **0**
Affected Length (ft): **0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**15**	**Yes**	**Yes**	**No**	**No**	**Deposition Below**
Bridge	**13**	**Yes**	**Yes**	**No**	**No**	**Deposition Above,Deposition Below**
Instream Culvert	**5.6**	**Yes**	**Yes**	**Yes**	**Yes**	**None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types
Diagonal: **3**
Mid: **2**
Delta: **0**
Point: **13**
Island: **2**
Side: **28**
Braiding: **0**

5.2 Other Features
Flood chutes: **6**
5.3 Steep Riffles and Head Cuts
Steep Riffles: **2**
Neck Cutoff: **0**
Avulsion: **0**
Head Cuts: **0**
Trib Rejuv.: **No**

5.4 Stream Ford or Animal Crossing: **No**
5.5 Straightening: **Straightening**
Straightening Length (ft.): **404**
5.5 Dredging: **None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:
6.2 Pool Substrate:
6.3 Pool Variability:
Total Score: **0**
Habitat Rating: **0.00**
Habitat Stream Condition:

6.4 Sediment Deposition:
6.5 Channel Flow Status:
6.6 Channel Alteration:
6.7 Channel Sinuosity:

Stream Gradiant Type Left Right
6.8 Bank Stability:
6.9 Bank Vegetation Protection
6.10 Riparian Veg. Zone Width:

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**18**	**None**	**No**
7.2 Channel Aggradation	**13**	**None**	**No**
7.3 Widening Channel	**16**	**None**	**No**
7.4 Change in Planforml	**12**	**None**	**No**
Total Score	**59**		

Geomorphic Rating **0.74**
Channel Evolution Model **F**
Channel Evolution Stage **I**
Geomorphic Condition **Good**
Stream Sensitivity **High**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Blood Brook**
Reach: **R16T2.06-D**
Segment Length(ft): **542**
Rain: **No**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD/BCE**
Completion Date: **9/3/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**
Why Not Assessed: **wetland**

Step 0 - Location: **Segment begins where wetland begins and continues until end of reach.**

Step 5 - Notes:

Step 7 - Narrative:

Step 1. Valley and Floodplain

1.1 Segmentation: **Channel Dimensions**
1.2 Alluvial Fan:
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:				
Road:				
Railroad:				
Imp. Path:				
Dev.:				

1.4 Adjacent Side	Left	Right
Hillside Slope:	**Steep**	**Steep**
Continuous w/ Bank:	**Never**	**Never**
Within 1 Bankfull W:	**Never**	**Never**
Texture:	**N.E.**	**N.E.**

1.5 Valley Features
Valley Width (ft): **306**
Width Determination: **Estimated**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **No**

1.6 Grade Controls: **None**

Stream: **Blood Brook** Reach: **R16T2.06-D**

Step 2. Stream Channel

2.1Bankfull Width (ft.):		2.11 Riffle/Step Spacing:		2.13 Average Largest Particle on Bed:	
2.2 Max Depth (ft.):		2.12 Substrate Composition		Bar:	
2.3 Mean Depth (tf):		Bedrock:	%	2.14 Stream Type	
2.4 Floodprone Width (ft.):		Boulder:	%	Stream Type:	**E**
2.5 Aband. Floodpn (ft.):		Cobble:	%	Bed Material:	**Sand**
Human Elev FloodPln (ft.):		Coarse Gravel:	%	Subclass Slope:	**None**
2.6 Width/Depth Ratio:	**0.00**	Fine Gravel:	%	Bed Form:	**Dune-Ripple**
2.7 Entrenchment Ratio:	**0.00**	Sand:	%	Field Measured Slope:	
2.8 Incision Ratio:	**0.00**	Silt and Smaller:	%	2.15 Sub-reach Stream Type	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:		Reference Stream Type:	
2.9 Sinuosity:		Detritus:	%	Reference Bed Material:	
2.10 Riffles Type:		# Large Woody Debris:		Reference Subclass Slope:	
				Reference Bedform:	

Step 3. Riparian Features

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

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):			Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):			Sub-dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:			Bank Canopy		
Lower			Revetment Length:			Canopy %:	**76-100**	**76-100**
Material Type:	**Sand**	**Sand**				Mid-Channel Canopy:	**Closed**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**None**	**None**
W less than 25		
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Mass Failures		
Sub-dominant	**None**	**None**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number		
Failures			Gullies Length		
Gullies					

Stream: **Blood Brook** Reach: **R16T2.06-D**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps: **Abundant**
4.2 Adjacent Wetlands: **Abundant**
4.3 Flow Status: **Low**
4.4 # of Debris Jams:

4.5 Flow Regulation Type
Flow Reg. Use:
Impoundments:
Impoundment Loc.:
4.6 Up/Down Strm flow reg.: **None**
(old) Upstrm Flow Reg.:

4.7 Stormwater Inputs **None**
Field Ditch: Road Ditch:
Other: Tile Drain:
Overland Flow: Urb Strm Wtr Pipe:
4.9 # of Beaver Dams:
Affected Length (ft):

4.8 Channel Constrictions: **None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types
Diagonal:
Mid:
Delta:
Point:
Island:
Side:
Braiding:

5.2 Other Features
Flood chutes:
5.3 Steep Riffles and Head Cuts
Steep Riffles:

Neck Cutoff:
Avulsion:
Head Cuts:
Trib Rejuv.:

5.4 Stream Ford or Animal Crossing:
5.5 Straightening:
Straightening Length (ft.): **0**
5.5 Dredging:

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:
6.2 Pool Substrate:
6.3 Pool Variability:
Total Score:
Habitat Rating:
Habitat Stream Condition:

6.4 Sediment Deposition:
6.5 Channel Flow Status:
6.6 Channel Alteration:
6.7 Channel Sinuosity:

Stream Gradiant Type Left Right
6.8 Bank Stability:
6.9 Bank Vegetation Protection
6.10 Riparian Veg. Zone Width:

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	Score	STD	Historic
7.1 Channel Degradation			
7.2 Channel Aggradation			
7.3 Widening Channel			
7.4 Change in Planforml			
Total Score			

Geomorphic Rating
Channel Evolution Model
Channel Evolution Stage
Geomorphic Condition **Reference**
Stream Sensitivity

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Middle Brook**
Reach: **R16T2.03S1.01-A**
Segment Length(ft): **5,661**
Rain: **No**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **PD, SP**
Completion Date: **10/13/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**
Why Not Assessed: **wetland**

Step 0 - Location: **Segment begins at confluence with Lake Fairlee and continues until there is no more impoundment influence, which is just upstream of farm bridge.**

Step 5 - Notes: **Channel is impounded caused by backup flow from Lake Fairlee and beaver dams. Not assessible.**

Step 7 - Narrative:

Step 1. Valley and Floodplain

1.1 Segmentation: **Channel Dimensions**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	309	0	0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	88		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Hilly	Hilly
Continuous w/ Bank:	Never	Never
Within 1 Bankfull W:	Never	Never
Texture:	N.E.	N.E.

1.5 Valley Features
Valley Width (ft): **725**
Width Determination: **Estimated**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **Yes**

1.6 Grade Controls: **None**

Stream: **Middle Brook** Reach: **R16T2.03S1.01-A**

Step 2. Stream Channel

2.1Bankfull Width (ft.):		2.11 Riffle/Step Spacing:		2.13 Average Largest Particle on Bed:	
2.2 Max Depth (ft.):		2.12 Substrate Composition		Bar:	
2.3 Mean Depth (tf):		Bedrock:	%	2.14 Stream Type	
2.4 Floodprone Width (ft.):		Boulder:	%	Stream Type:	**E**
2.5 Aband. Floodpn (ft.):		Cobble:	%	Bed Material:	**Sand**
Human Elev FloodPln (ft.):		Coarse Gravel:	%	Subclass Slope:	**None**
2.6 Width/Depth Ratio:	**0.00**	Fine Gravel:	%	Bed Form:	**Dune-Ripple**
2.7 Entrenchment Ratio:	**0.00**	Sand:	%	Field Measured Slope:	
2.8 Incision Ratio:	**0.00**	Silt and Smaller:	%	2.15 Sub-reach Stream Type	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:		Reference Stream Type:	
2.9 Sinuosity:		Detritus:	%	Reference Bed Material:	
2.10 Riffles Type:		# Large Woody Debris:		Reference Subclass Slope:	
				Reference Bedform:	

Step 3. Riparian Features

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

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**200.2**	**198.0**	Dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.0**	**3.0**	Sub-dominant:	**Herbaceous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**28.0**	**27.9**	Canopy %:	**51-75**	**51-75**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**0-25**	**0-25**
W less than 25	**126**	**227**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Mass Failures		
Sub-dominant	**Forest**	**Hay**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Middle Brook** Reach: **R16T2.03S1.01-A**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**1**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**2000**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**16**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above,Scour Above**
Bridge		**No**	**No**	**No**	**No**	**None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**No**
Mid:	**0**	Delta:	**0**	Flood chutes:	**0**	Avulsion:	**2**	5.5 Straightening:	**None**
Point:	**0**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**0**
Side:	**0**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:	6.4 Sediment Deposition:	Stream Gradiant Type	Left Right
6.2 Pool Substrate:	6.5 Channel Flow Status:	6.8 Bank Stability:	
6.3 Pool Variability:	6.6 Channel Alteration:	6.9 Bank Vegetation Protection	
Total Score:	6.7 Channel Sinuosity:	6.10 Riparian Veg. Zone Width:	
Habitat Rating:			
Habitat Stream Condition:			

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	Score	STD	Historic		
7.1 Channel Degradation				Geomorphic Rating	
7.2 Channel Aggradation				Channel Evolution Model	
7.3 Widening Channel				Channel Evolution Stage	
7.4 Change in Planforml				Geomorphic Condition	**Good**
Total Score				Stream Sensitivity	

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Middle Brook**
Reach: **R16T2.03S1.01-B**
Segment Length(ft): **3,426**
Rain: **No**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **PD, SP**
Completion Date: **10/13/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**

Step 0 - Location: **Segment begins where beaver dam influence ends and continues until next beaver dam just upstream of Cross River Trail Bridge.**

Step 5 - Notes: **Segment is located in between two areas of beaver dam influence. Numerous point bars inside meander bens and extreme planform change.**

Step 7 - Narrative: **Minor historic incision; aggradation is major as seen by large point bars inside meander bends. Flood chutes have developed inside point bars and two recent channel avulsions indicate extreme planform change. Major widening shown by extensive erosion.**

Step 1. Valley and Floodplain

1.1 Segmentation: **Channel Dimensions**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

	Length (ft)	One Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	0		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Hilly	Hilly
Continuous w/ Bank:	Never	Never
Within 1 Bankfull W:	Never	Sometimes
Texture:	Sand	Sand

1.5 Valley Features
Valley Width (ft): **835**
Width Determination: **Measured**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **Yes**

1.6 Grade Controls: **None**

Stream: **Middle Brook** Reach: **R16T2.03S1.01-B**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**29.50**	2.11 Riffle/Step Spacing:	**209 ft.**	2.13 Average Largest Particle on	
2.2 Max Depth (ft.):	**4.00**	2.12 Substrate Composition		Bed:	**N/A**
2.3 Mean Depth (tf):	**2.52**	Bedrock:	**0.0 %**	Bar:	**N/A**
2.4 Floodprone Width (ft.):	**268.50**	Boulder:	**0.0 %**	2.14 Stream Type	
2.5 Aband. Floodpn (ft.):	**5.40**	Cobble:	**0.0 %**	Stream Type:	**E**
Human Elev FloodPln (ft.):		Coarse Gravel:	**0.0 %**	Bed Material:	**Sand**
2.6 Width/Depth Ratio:	**11.71**	Fine Gravel:	**5.0 %**	Subclass Slope:	**None**
2.7 Entrenchment Ratio:	**9.10**	Sand:	**83.0 %**	Bed Form:	**Dune-Ripple**
2.8 Incision Ratio:	**1.35**	Silt and Smaller:	**12.0 %**	Field Measured Slope:	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type	
2.9 Sinuosity:	**High**	Detritus:	**0.0 %**	Reference Stream Type:	
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**197**	Reference Bed Material:	
				Reference Subclass Slope:	
				Reference Bedform:	

Step 3. Riparian Features

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

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**1,140.1**	**1,397.3**	Dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.0**	**3.0**	Sub-dominant:	**Herbaceous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**11.6**	**56.2**	Canopy %:	**51-75**	**51-75**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**51-100**
Sub-Dominant	**0-25**	**0-25**
W less than 25	**395**	**204**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Mass Failures	**67.68**	**130.27**
Sub-dominant	**Hay**	**Hay**	Height	**8.1**	**11.2**
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**Multiple**	**8.8**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Middle Brook** Reach: **R16T2.03S1.01-B**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**2**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**2**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**1400**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**14**	**Yes**	**Yes**	**Yes**	**Yes**	**Scour Above,Scour Below**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features	Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:	**No**		
Mid:	**1**	Delta:	**0**	Flood chutes:	**19**	Avulsion:	**2**	5.5 Straightening:	**Straightening**
Point:	**23**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**455**
Side:	**1**	Braiding:	**1**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**12**	**None**	**Yes**	Geomorphic Rating	**0.40**
7.2 Channel Aggradation		**8**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**9**	**None**	**No**	Channel Evolution Stage	**IV**
7.4 Change in Planforml		**3**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**32**			Stream Sensitivity	**Extreme**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Middle Brook**
Reach: **R16T2.03S1.01-C**
Segment Length(ft): **1,041**
Rain: **No**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **PD, SP**
Completion Date: **10/13/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**
Why Not Assessed: **beaver dam**

Step 0 - Location: **Segment begins at beaver dam just upstream of Cross River Trail bridge and continues for 1,041 feet until upstream end of reach.**

Step 5 - Notes:

Step 7 - Narrative:

Step 1. Valley and Floodplain

1.1 Segmentation: **Channel Dimensions**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	0		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	**Very Steep**	**Hilly**
Continuous w/ Bank:	**Never**	**Never**
Within 1 Bankfull W:	**Sometimes**	**Never**
Texture:	**N.E.**	**N.E.**

1.5 Valley Features
Valley Width (ft): **433**
Width Determination: **Measured**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **No**

1.6 Grade Controls: **None**

Stream: **Middle Brook** Reach: **R16T2.03S1.01-C**

Step 2. Stream Channel

2.1Bankfull Width (ft.):		2.11 Riffle/Step Spacing:		2.13 Average Largest Particle on Bed:	
2.2 Max Depth (ft.):		2.12 Substrate Composition		Bar:	
2.3 Mean Depth (tf):		Bedrock:	%	2.14 Stream Type	
2.4 Floodprone Width (ft.):		Boulder:	%	Stream Type:	**E**
2.5 Aband. Floodpn (ft.):		Cobble:	%	Bed Material:	**Sand**
Human Elev FloodPln (ft.):		Coarse Gravel:	%	Subclass Slope:	**None**
2.6 Width/Depth Ratio:	**0.00**	Fine Gravel:	%	Bed Form:	**Dune-Ripple**
2.7 Entrenchment Ratio:	**0.00**	Sand:	%	Field Measured Slope:	
2.8 Incision Ratio:	**0.00**	Silt and Smaller:	%	2.15 Sub-reach Stream Type	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:		Reference Stream Type:	
2.9 Sinuosity:		Detritus:	%	Reference Bed Material:	
2.10 Riffles Type:		# Large Woody Debris:		Reference Subclass Slope:	
				Reference Bedform:	

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**0.0**	**0.0**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Mix**	**Mix**	Erosion Height (ft.):	**0.0**	**0.0**	Sub-dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**None**	**None**	Bank Canopy		
Lower			Revetment Length:	**0.0**	**0.0**	Canopy %:	**51-75**	**51-75**
Material Type:	**Gravel**	**Gravel**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**0-25**
Sub-Dominant	**51-100**	**>100**
W less than 25	**0**	**708**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Mixed Trees**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Forest**	**Crop**	Mass Failures		
Sub-dominant	**Crop**	**Shrubs/Sapling**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Middle Brook** Reach: **R16T2.03S1.01-C**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions: **None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:	**No**
Mid:	Delta:	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	Island:	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**11**
Side:	Braiding: **0**	Steep Riffles:	**0**	Trib Rejuv.:		5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:	6.4 Sediment Deposition:	Stream Gradiant Type	Left	Right
6.2 Pool Substrate:	6.5 Channel Flow Status:	6.8 Bank Stability:		
6.3 Pool Variability:	6.6 Channel Alteration:	6.9 Bank Vegetation Protection		
Total Score:	6.7 Channel Sinuosity:	6.10 Riparian Veg. Zone Width:		
Habitat Rating:				
Habitat Stream Condition:				

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	Score	STD	Historic		
7.1 Channel Degradation				Geomorphic Rating	
7.2 Channel Aggradation				Channel Evolution Model	
7.3 Widening Channel				Channel Evolution Stage	
7.4 Change in Planforml				Geomorphic Condition	**Good**
Total Score				Stream Sensitivity	

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Middle Brook**
Reach: **R16T2.03S1.02-A**
Segment Length(ft): **2,747**
Rain: **No**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD**
Completion Date: **9/23/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**

Step 0 - Location: **Segment begins on sharp meander bend, which is about 500 feet downstream of where left buffer becomes more wooded and continues until reach is straightened.**

Step 5 - Notes: **Bankfull elevation revised on cross section on 3/8/11 to account for stronger bankfull feature, which was 0.6 feet higher than selected in the field. This higher bankfull elevation makes sense given the juvenile floodplain that is expected to form with extensive lateral bank erosion. The existing stream type was revised to "C" to take into account the numerous bars observed in the field. "E" channels by reference typrically do not have bar features due to the low width to depth ratio.**

Step 7 - Narrative: **Minor historic incision; stream has widened as shown by extreme bank erosion. Many flood chutes and two islands indicate planform is adjusting Process is major due to islands. Downstream (350') end of segment is influenced by beaver dam.**

Step 1. Valley and Floodplain

1.1 Segmentation: **Planform and Scope**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	304		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Extr.Steep	Extr.Steep
Continuous w/ Bank:	Never	Never
Within 1 Bankfull W:	Never	Never
Texture:	N.E.	N.E.

1.5 Valley Features

Valley Width (ft): **991**
Width Determination: **Measured**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **No**

1.6 Grade Controls: **None**

Stream: **Middle Brook** Reach: **R16T2.03S1.02-A**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**26.40**	2.11 Riffle/Step Spacing:	**120 ft.**	2.13 Average Largest Particle on	
2.2 Max Depth (ft.):	**3.70**	2.12 Substrate Composition		Bed:	**N/A**
2.3 Mean Depth (tf):	**2.36**	Bedrock:	**0.0 %**	Bar:	**N/A**
2.4 Floodprone Width (ft.):	**315.00**	Boulder:	**0.0 %**	2.14 Stream Type	
2.5 Aband. Floodpn (ft.):	**4.90**	Cobble:	**0.0 %**	Stream Type:	**E**
Human Elev FloodPln (ft.):		Coarse Gravel:	**0.0 %**	Bed Material:	**Sand**
2.6 Width/Depth Ratio:	**11.19**	Fine Gravel:	**9.0 %**	Subclass Slope:	**None**
2.7 Entrenchment Ratio:	**11.93**	Sand:	**87.0 %**	Bed Form:	**Dune-Ripple**
2.8 Incision Ratio:	**1.32**	Silt and Smaller:	**4.0 %**	Field Measured Slope:	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type	
2.9 Sinuosity:	**High**	Detritus:	**0.0 %**	Reference Stream Type:	
2.10 Riffles Type:	**Complete**	# Large Woody Debris:	**5**	Reference Bed Material:	
				Reference Subclass Slope:	
				Reference Bedform:	

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**1,926.9**	**2,063.8**	Dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.2**	**3.1**	Sub-dominant:	**Herbaceous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**28.4**	**66.9**	Canopy %:	**51-75**	**76-100**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Closed**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**26-50**	**51-100**
Sub-Dominant	**0-25**	**0-25**
W less than 25	**802**	**1,092**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Shrubs/Sapling**
Sub-Dominant	**Shrubs/Sapling**	**Herbaceous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Hay**	**Shrubs/Sapling**	Mass Failures		
Sub-dominant	**None**	**Pasture**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Middle Brook** Reach: **R16T2.03S1.02-A**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Abundant**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch: **2**	Road Ditch: **0**
4.3 Flow Status:	**Low**	Impoundments:		Other: **0**	Tile Drain: **0**
4.4 # of Debris Jams:	**1**	Impoundment Loc.:		Overland Flow: **0**	Urb Strm Wtr Pipe: **0**
		4.6 Up/Down Strm flow reg.:	**Up Stream**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**9.2**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above,Scour Above**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features	Neck Cutoff:	**2**	5.4 Stream Ford or Animal Crossing:	**No**		
Mid:	**1**	Delta:	**1**	Flood chutes:	**8**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**20**	Island:	**2**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**459**
Side:	**14**	Braiding:	**1**	Steep Riffles:	**0**	Trib Rejuv.:	**Yes**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**11**	**None**	**Yes**	Geomorphic Rating	**0.45**
7.2 Channel Aggradation		**8**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**8**	**None**	**No**	Channel Evolution Stage	**IV**
7.4 Change in Planforml		**9**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**36**			Stream Sensitivity	**Extreme**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Middle Brook**
Reach: **R16T2.03S1.02-B**
Segment Length(ft): **1,602**
Rain: **No**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD**
Completion Date: **9/23/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**

Step 0 - Location: **Segment begins where channel has been straightened and continues until dam just upstream of Middle Brook Road crossing.**

Step 5 - Notes: **Segment has been extensively channelized. There is a grass strip in between the crop/hay field on the left side. Extensive erosion along left bank and areas of no buffer on both banks.**

Step 7 - Narrative: **Major historic incision; channel has been extensively straightened resulting in major widening and planform change. Aggradation is minor except for large mid-channel bar in between culvert and dam.**

Step 1. Valley and Floodplain

1.1 Segmentation: **Planform and Scope**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	145	0	0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	0		0	

1.4 Adjacent Side	Left	Right
Hillside Slope:	Extr.Steep	Very Steep
Continuous w/ Bank:	Never	Never
Within 1 Bankfull W:	Never	Never
Texture:	N.E.	N.E.

1.5 Valley Features
Valley Width (ft): **480**
Width Determination: **Measured**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **Yes**

1.6 Grade Controls:

Type	Location	Total Height	Total Height Above Water	Photo Taken?	GPS Taken?
Dam	Mid-segment	15.0	12.0	Yes	

Stream: **Middle Brook** Reach: **R16T2.03S1.02-B**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**25.30**	2.11 Riffle/Step Spacing:	**177 ft.**	2.13 Average Largest Particle on	
2.2 Max Depth (ft.):	**2.80**	2.12 Substrate Composition		Bed:	**N/A**
2.3 Mean Depth (tf):	**1.95**	Bedrock:	**0.0 %**	Bar:	**N/A**
2.4 Floodprone Width (ft.):	**246.40**	Boulder:	**0.0 %**	2.14 Stream Type	
2.5 Aband. Floodpn (ft.):	**4.30**	Cobble:	**0.0 %**	Stream Type:	**C**
Human Elev FloodPln (ft.):		Coarse Gravel:	**3.0 %**	Bed Material:	**Sand**
2.6 Width/Depth Ratio:	**12.97**	Fine Gravel:	**37.0 %**	Subclass Slope:	**None**
2.7 Entrenchment Ratio:	**9.74**	Sand:	**53.0 %**	Bed Form:	**Riffle-Pool**
2.8 Incision Ratio:	**1.54**	Silt and Smaller:	**7.0 %**	Field Measured Slope:	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type	
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:	
2.10 Riffles Type:	**Complete**	# Large Woody Debris:	**1**	Reference Bed Material:	
				Reference Subclass Slope:	
				Reference Bedform:	

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**935.2**	**605.9**	Dominant:	**Herbaceous**	**Shrubs/Sapling**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**4.0**	**3.9**	Sub-dominant:	**Shrubs/Sapling**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**366.4**	**187.1**	Canopy %:	**26-50**	**51-75**
Material Type:	**Sand**	**Sand**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**0-25**	**26-50**
Sub-Dominant	**26-50**	**0-25**
W less than 25	**1,229**	**953**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**None**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right
Dominant	**Hay**	**Hay**
Sub-dominant	**Crop**	**Residential**
(Legacy)	Amount	Mean Hieght
Failures	**None**	
Gullies	**None**	

	Left	Right
Mass Failures		
Height		
Gullies Number	**0**	
Gullies Length	**0**	

Stream: **Middle Brook** Reach: **R16T2.03S1.02-B**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**None**	4.5 Flow Regulation Type	**Small Run of River**	4.7 Stormwater Inputs			
4.2 Adjacent Wetlands:	**None**	Flow Reg. Use:	**Recreation**	Field Ditch:	**0**	Road Ditch:	**1**
4.3 Flow Status:	**Low**	Impoundments:		Other:	**0**	Tile Drain:	**0**
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	**0**	Urb Strm Wtr Pipe:	**0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:		**0**	
		(old) Upstrm Flow Reg.:		Affected Length (ft):		**0**	

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Instream Culvert	**11.2**	**Yes**	**Yes**	**Yes**	**Yes**	**Deposition Above,Scour Below**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**1**	5.2 Other Features	Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**No**	
Mid:	**2**	Delta:	**0**	Flood chutes:	**2**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**1**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**1,518**
Side:	**9**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**8**	**None**	**Yes**	Geomorphic Rating	**0.46**
7.2 Channel Aggradation		**13**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**9**	**Other**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**7**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**37**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: Ompompanoosuc River
Reach: R17-0
Segment Length(ft): 6,824
Rain: No

SGAT Version: 4.56
Organization: Bear Creek Environmental
Observers: MN, PD
Completion Date: 8/31/2010
Qualtiy Control Status - Consultant: Passed
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **Reach begins just upstream of confluence with Lake Fairlee outlet and conitnues until about 1,300 feet downstream of Cross Road crossing.**

Step 5 - Notes: **Material on bed too small to measure embeddedness. There are many debris jams, which are most likely from trees that fell in from banks due to widening and bank erosion.**

Constriction width for Route 244 Bridge is the distance between center pier and right bank rip-rap. There is a large side bar in between the center pier and the left bank rip-rap where bankfull flows probably do not flow over the top.

Step 7 - Narrative: **Historic major degradation has led to extreme aggradation as seen through many diagonal bars and steep riffles. Extreme widening and planform adjustment are also occurring. There are many debris jams from trees that entered the channel from the banks most likely as a result of the widening. Multiple thread channels and many flood chutes.**

Step 1. Valley and Floodplain

1.1 Segmentation: None
1.2 Alluvial Fan: None
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	887		411	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Extr.Steep	Very Steep
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Sand	Sand

1.5 Valley Features

Valley Width (ft): 682
Width Determination: Estimated
Confinement Type: VB
In Rock Gorge: No
Human Caused Change in Valley Width?: Yes

1.6 Grade Controls: None

Stream: **Ompompanoosuc River** Reach: **R17-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**54.80**	2.11 Riffle/Step Spacing:	**190 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**4.40**	2.12 Substrate Composition		Bed:	**1.6**	**inches**
2.3 Mean Depth (tf):	**3.02**	Bedrock:	**0.0 %**	Bar:	**1.5**	**inches**
2.4 Floodprone Width (ft.):	**587.50**	Boulder:	**0.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**7.50**	Cobble:	**0.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**21.0 %**	Bed Material:	**Sand**	
2.6 Width/Depth Ratio:	**18.15**	Fine Gravel:	**24.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**10.72**	Sand:	**48.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.70**	Silt and Smaller:	**7.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**201**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

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

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**3,237.2**	**3,477.8**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**5.7**	**5.4**	Sub-dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**45.8**	**290.2**	Canopy %:	**26-50**	**26-50**
Material Type:	**Clay**	**Clay**				Mid-Channel Canopy:	**Open**	
Consistency:	**Cohesive**	**Cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**0-25**	**0-25**
W less than 25	**1,291**	**1,928**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Mass Failures	**125.99**	
Sub-dominant	**Residential**	**Residential**	Height	**37.3**	
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**Multiple**	**37.5**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Ompompanoosuc River** Reach: **R17-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**4**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**36**	**Yes**	**Yes**	**Yes**	**Yes**	**Deposition Above,Deposition Below,Alignment**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**10**	5.2 Other Features	Neck Cutoff:	**1**	5.4 Stream Ford or Animal Crossing:		**No**	
Mid:	**11**	Delta:	**0**	Flood chutes:	**15**	Avulsion:	**3**	5.5 Straightening:	**Straightening**
Point:	**19**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**575**
Side:	**19**	Braiding:	**1**	Steep Riffles:	**13**	Trib Rejuv.:	**Yes**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic		
7.1 Channel Degradation	**8**	**None**	**Yes**	Geomorphic Rating	**0.22**
7.2 Channel Aggradation	**3**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel	**4**	**None**	**No**	Channel Evolution Stage	**IV**
7.4 Change in Planforml	**3**	**None**	**No**	Geomorphic Condition	**Poor**
Total Score	**18**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Ompompanoosuc River**
Reach: **R18-0**
Segment Length(ft): **5,372**
Rain: **Yes**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD**
Completion Date: **8/25/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**

Step 0 - Location: **Reach begins about 1,300 feet downstream of Cross Road crossing and continues until confluence with Schoolhouse Brook**

Step 5 - Notes: **No subdominant bedform. Reach is very aggradational. Stage is F-III in some places and F-IV in others where there was a juvenile floodplain developing, but segmentation was not appropriate because the stage alternated back and forth. Two cross sections were done to describe these two scenarios. The majority of the reach was in stage F-IV.**

Step 7 - Narrative: **Extreme historic incision which has led to major widening, aggradation and planform change. Abundant erosion, diagonal bars, and flood chutes. At times reach has juvenile flood plain and in early stage F-IV and alternates to F-III with no juvenile floodplain. Cross section #2 represents dominant evolution stage which is F-IV. Cross section #1 represents the areas in F-III. There has been a stream type departure from "C" to a "B" due to the historic incision.**

Step 1. Valley and Floodplain

1.1 Segmentation: **None**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	167		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Very Steep	Very Steep
Continuous w/ Bank:	Sometimes	Never
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Sand	N.E.

1.5 Valley Features

Valley Width (ft):	597
Width Determination:	Measured
Confinement Type:	VB
In Rock Gorge:	No

Human Caused Change in Valley Width?: **Yes**

1.6 Grade Controls: **None**

Stream: **Ompompanoosuc River** Reach: **R18-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**64.50**	2.11 Riffle/Step Spacing:	**218 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**2.60**	2.12 Substrate Composition		Bed:	**8.9**	**inches**
2.3 Mean Depth (tf):	**1.78**	Bedrock:	**0.0 %**	Bar:	**5.2**	**inches**
2.4 Floodprone Width (ft.):	**114.00**	Boulder:	**1.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**7.20**	Cobble:	**32.0 %**	Stream Type:	**B**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**45.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**36.24**	Fine Gravel:	**17.0 %**	Subclass Slope:	**c**	
2.7 Entrenchment Ratio:	**1.77**	Sand:	**5.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**2.77**	Silt and Smaller:	**0.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**45**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**1,716.1**	**2,767.4**	Dominant:	**Deciduous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**5.2**	**5.3**	Sub-dominant:	**Herbaceous**	**Deciduous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**283.2**	**395.9**	Canopy %:	**76-100**	**26-50**
Material Type:	**Gravel**	**Gravel**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**0-25**	**0-25**
W less than 25	**154**	**978**
Buffer Vegitation Type		
Dominant	**Deciduous**	**Deciduous**
Sub-Dominant	**Herbaceous**	**Herbaceous**

3.3 Riparian Corridor

Corridor Land	Left	Right
Dominant	**Forest**	**Forest**
Sub-dominant	**Crop**	**Hay**
(Legacy)	Amount	Mean Hieght
Failures	**None**	
Gullies	**None**	

	Left	Right
Mass Failures		
Height		
Gullies Number	**0**	
Gullies Length	**0**	

Stream: **Ompompanoosuc River** Reach: **R18-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Abundant**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs			
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch:	**1**	Road Ditch:	**0**
4.3 Flow Status:	**Low**	Impoundments:		Other:	**0**	Tile Drain:	**0**
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	**1**	Urb Strm Wtr Pipe:	**0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:		**0**	
		(old) Upstrm Flow Reg.:		Affected Length (ft):		**0**	

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**84**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above,Deposition Below,Scour Above,Scour Below,Alignment**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**17**	5.2 Other Features	Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**No**	
Mid:	**2**	Delta:	**1**	Flood chutes:	**14**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**6**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**3,659**
Side:	**18**	Braiding:	**0**	Steep Riffles:	**17**	Trib Rejuv.:	**Yes**	5.5 Dredging:	**Gravel Mining**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic		
7.1 Channel Degradation	**3**	**C to B**	**Yes**	Geomorphic Rating	**0.30**
7.2 Channel Aggradation	**6**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel	**7**	**None**	**No**	Channel Evolution Stage	**IV**
7.4 Change in Planforml	**8**	**None**	**No**	Geomorphic Condition	**Poor**
Total Score	**24**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: Ompompanoosuc River
Reach: R19-A
Segment Length(ft): 925
Rain: No

SGAT Version: 4.56
Organization: Bear Creek Environmental
Observers: MN, PD
Completion Date: 9/28/2010
Qualtiy Control Status - Consultant: Passed
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **Segment begins just upstream of confluence with Schoolhouse Brook and continues for 925 feet until there is no longer floodplain access.**

Step 5 - Notes: **Reach has been straightened for farm along field. Reach was segmented due to channel dimensions. In this segment the channel is starting to create a juvenile floodplain. Left valley wall measurement was taken as the drainage divide between the mainstem and the small tributary that enters at the bottom of the reach.**

Step 7 - Narrative: **Major historic incision has resulted in major widening and aggradation. Planform features are present but process still seems minor. Segmented due to channel dimensions; "C" type stream. Starting to create juvenile floodplain and is in late stage III.**

Step 1. Valley and Floodplain

1.1 Segmentation: Channel Dimensions
1.2 Alluvial Fan: None
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	0		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Hilly	Flat
Continuous w/ Bank:	Never	Never
Within 1 Bankfull W:	Never	Never
Texture:	N.E.	N.E.

1.5 Valley Features
Valley Width (ft): 282
Width Determination: Estimated
Confinement Type: NW
In Rock Gorge: No
Human Caused Change in Valley Width?: No

1.6 Grade Controls: None

Stream: **Ompompanoosuc River** Reach: **R19-A**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**41.00**	2.11 Riffle/Step Spacing:	**150 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**2.65**	2.12 Substrate Composition		Bed:	**6.1**	**inches**
2.3 Mean Depth (tf):	**1.99**	Bedrock:	**0.0 %**	Bar:	**4.7**	**inches**
2.4 Floodprone Width (ft.):	**140.00**	Boulder:	**0.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**5.15**	Cobble:	**28.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**29.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**20.60**	Fine Gravel:	**14.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**3.41**	Sand:	**29.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.94**	Silt and Smaller:	**0.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**10**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

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

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**613.5**	**223.1**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.0**	**3.4**	Sub-dominant:	**Deciduous**	**Deciduous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**None**	**None**	Bank Canopy		
Lower			Revetment Length:	**0.0**	**0.0**	Canopy %:	**1-25**	**51-75**
Material Type:	**Gravel**	**Gravel**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**0-25**	**>100**
Sub-Dominant	**26-50**	**51-100**
W less than 25	**762**	**0**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Mixed Trees**
Sub-Dominant	**Shrubs/Sapling**	**Herbaceous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Hay**	**Forest**	Mass Failures		
Sub-dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Ompompanoosuc River** Reach: **R19-A**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions: **None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**2**	5.2 Other Features	Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**No**	
Mid:	**1**	Delta:	**0**	Flood chutes:	**1**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**2**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**614**
Side:	**2**	Braiding:	**0**	Steep Riffles:	**1**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**7**	**None**	**Yes**	Geomorphic Rating	**0.43**
7.2 Channel Aggradation		**8**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**7**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**12**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**34**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: Ompompanoosuc River
Reach: R19-B
Segment Length(ft): 5,236
Rain: No

SGAT Version: 4.56
Organization: Bear Creek Environmental
Observers: MN, PD
Completion Date: 9/28/2010
Qualtiy Control Status - Consultant: Passed
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **Segment begins about 650 feet downstream of Mill Street crossing and continues until valley narrows just upstream of confluence with unnamed tributary..**

Step 5 - Notes: **Segment appears to have been pushed up against valley wall. Dam grade control in reach is creating flow impacts and holding back sediment. The impact from the dam was rather short lived (maybe about 200 feet) and did not seem like a long enough impounded area to warrant an entirely new segment. Stream type departure due to extreme historic incision.**

Step 7 - Narrative: **Extreme historic incision leading to a stream type departure from a "C" to a "B". Major aggradation as seen by steep riffles and diagonal bars. Major widening and planform adjustment with many flood chutes and diagonal bars.**

Step 1. Valley and Floodplain

1.1 Segmentation: Channel Dimensions
1.2 Alluvial Fan: None
1.3 Corridor Encroachments:

	Length (ft)	One Height	Both	Height
Berm:	0		0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	1,093		576	

1.4 Adjacent Side	Left	Right
Hillside Slope:	Extr.Steep	Extr.Steep
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Sand	Sand

1.5 Valley Features
Valley Width (ft): 439
Width Determination: Estimated
Confinement Type: BD
In Rock Gorge: No
Human Caused Change in Valley Width?: Yes

1.6 Grade Controls:

Type	Location	Total Height	Total Height Above Water	Photo Taken?	GPS Taken?
Ledge	Mid-segment	2.0	1.0	Yes	
Ledge	Mid-segment	1.0	0.0	Yes	
Dam	Mid-segment	7.0	4.0	Yes	
Ledge	Mid-segment	5.0	4.0	Yes	
Ledge	Mid-segment	2.0	1.0	Yes	
Ledge	Mid-segment	2.0	2.0	Yes	

Stream: **Ompompanoosuc River** Reach: **R19-B**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**41.80**	2.11 Riffle/Step Spacing:	**138 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**3.20**	2.12 Substrate Composition		Bed:	**7.2**	**inches**
2.3 Mean Depth (tf):	**2.42**	Bedrock:	**0.0 %**	Bar:	**3.8**	**inches**
2.4 Floodprone Width (ft.):	**59.20**	Boulder:	**1.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**8.30**	Cobble:	**26.0 %**	Stream Type:	**B**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**49.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**17.27**	Fine Gravel:	**17.0 %**	Subclass Slope:	**c**	
2.7 Entrenchment Ratio:	**1.42**	Sand:	**7.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**2.59**	Silt and Smaller:	**0.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**38**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**1,640.3**	**2,410.6**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**4.0**	**5.0**	Sub-dominant:	**Deciduous**	**Deciduous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Multiple**	**Multiple**	Bank Canopy		
Lower			Revetment Length:	**1,353.8**	**826.5**	Canopy %:	**51-75**	**26-50**
Material Type:	**Gravel**	**Gravel**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**0-25**
Sub-Dominant	**0-25**	**26-50**
W less than 25	**1,909**	**2,459**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Mixed Trees**	**Mixed Trees**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Forest**	**Residential**	Mass Failures		**45.43**
Sub-dominant	**Pasture**	**Hay**	Height		**12.3**
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**Multiple**	**12.5**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Ompompanoosuc River** Reach: **R19-B**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**Small Run of River**	4.7 Stormwater Inputs			
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:	**Other**	Field Ditch:	**0**	Road Ditch:	**2**
4.3 Flow Status:	**Low**	Impoundments:		Other:	**0**	Tile Drain:	**0**
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	**0**	Urb Strm Wtr Pipe:	**0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:		**1**	
		(old) Upstrm Flow Reg.:		Affected Length (ft):		**100**	

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**26**	**Yes**	**Yes**	**Yes**	**Yes**	**Scour Above,Scour Below**
Other	**39**	**Yes**	**No**	**Yes**	**Yes**	**Deposition Above,Deposition Below,Scour Above,Scour Below**
Bridge	**57**	**Yes**	**Yes**	**No**	**Yes**	**Scour Above,Alignment**
Bedrock Outcrops	**13.8**	**Yes**	**No**	**Yes**	**Yes**	**Deposition Above,Scour Below**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**10**	5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**No**
Mid:	**1**	Delta:	**0**	Flood chutes:	**5**	Avulsion:	**1**	5.5 Straightening:	**Straightening**
Point:	**3**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**4,242**
Side:	**24**	Braiding:	**0**	Steep Riffles:	**7**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**4**	**C to B**	**Yes**	Geomorphic Rating	**0.35**
7.2 Channel Aggradation		**8**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**8**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**8**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**28**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Ompompanoosuc River**
Reach: **R20-A**
Segment Length(ft): **1,396**
Rain: **No**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD**
Completion Date: **7/21/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**

Step 0 - Location: **Segment begins where valley begins to narrow upstream from West Fairlee Village and then continues until just downstream of private bridge crossing.**

Step 5 - Notes: **Segment has some short riffles but no subdominant bedform. Not plane bed.**

Step 7 - Narrative: **Extreme degradation with a stream type departure; major active widening but large trees and riprap reducing stream widening. Channel evolution is early stage III.**

Step 1. Valley and Floodplain

1.1 Segmentation: **Depositional Features**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	597	0	0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	623		0	

1.4 Adjacent Side	Left	Right
Hillside Slope:	Extr.Steep	Extr.Steep
Continuous w/ Bank:	Never	Never
Within 1 Bankfull W:	Never	Never
Texture:	N.E.	N.E.

1.5 Valley Features
Valley Width (ft): **433**
Width Determination: **Estimated**
Confinement Type: **BD**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **Yes**

1.6 Grade Controls:

Type	Location	Total Height	Total Height Above Water	Photo Taken?	GPS Taken?
Ledge	Mid-segment	2.0	1.0	Yes	
Ledge	Mid-segment	2.0	0.0	Yes	

Stream: **Ompompanoosuc River** Reach: **R20-A**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**44.00**	2.11 Riffle/Step Spacing:	**153 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**3.05**	2.12 Substrate Composition		Bed:	**13.2**	**inches**
2.3 Mean Depth (tf):	**2.21**	Bedrock:	**5.0 %**	Bar:	**3.18**	**inches**
2.4 Floodprone Width (ft.):	**70.50**	Boulder:	**12.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**5.85**	Cobble:	**18.0 %**	Stream Type:	**B**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**33.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**19.91**	Fine Gravel:	**17.0 %**	Subclass Slope:	**c**	
2.7 Entrenchment Ratio:	**1.60**	Sand:	**15.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.92**	Silt and Smaller:	**0.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Eroded**	# Large Woody Debris:	**15**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

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

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**560.9**	**530.3**	Dominant:	**Deciduous**	**Deciduous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.1**	**3.1**	Sub-dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Multiple**	**Multiple**	Bank Canopy		
Lower			Revetment Length:	**430.1**	**222.5**	Canopy %:	**51-75**	**51-75**
Material Type:	**Mix**	**Mix**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**26-50**
Sub-Dominant	**0-25**	**0-25**
W less than 25	**485**	**1,008**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right
Dominant	**Shrubs/Sapling**	**Residential**
Sub-dominant	**Forest**	**Commercial**
(Legacy)	Amount	Mean Hieght
Failures	**None**	
Gullies	**None**	

	Left	Right
Mass Failures		
Height		
Gullies Number	**0**	
Gullies Length	**0**	

Stream: **Ompompanoosuc River** Reach: **R20-A**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	
4.2 Adjacent Wetlands:	**None**	Flow Reg. Use:		Field Ditch: **0**	Road Ditch: **1**
4.3 Flow Status:	**Low**	Impoundments:		Other: **0**	Tile Drain: **0**
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow: **0**	Urb Strm Wtr Pipe: **0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Old Abutment	**18**	**Yes**	**No**	**Yes**	**Yes**	**Scour Above,Scour Below**
Old Abutment	**23.5**	**Yes**	**No**	**Yes**	**Yes**	**Scour Above,Scour Below**
Bridge	**40**	**Yes**	**Yes**	**Yes**	**Yes**	**None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**Yes**
Mid:	**0**	Delta:	**0**	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:		**Straightening**
Point:	**0**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):		**1,386**
Side:	**8**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:		**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic		
7.1 Channel Degradation	**4**	**C to B**	**Yes**	Geomorphic Rating	**0.54**
7.2 Channel Aggradation	**17**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel	**9**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml	**13**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score	**43**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: Ompompanoosuc River
Reach: R20-B
Segment Length(ft): 2,416
Rain: Yes

SGAT Version: 4.56
Organization: Bear Creek Environmental
Observers: MN, PD
Completion Date: 7/23/2010
Qualtiy Control Status - Consultant: Passed
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **Segment begins just downstream of center private bridge and continues until about 900 feet upstream of next private bridge where stream gets very close to Route 113.**

Step 5 - Notes: **Segment is more aggradational than downstream segment, but diagonal bars are minor (less than 1/2 bankfull stage). Lack of sinuosity. Some areas of riffle-run-riffle, probably due to lack of planform. Cross section was near the cut-off between a "C' and a "B" channel. A "C" channel seems more characteristic of the overall segment. It is possible that the bankfull elevation is 0.6 feet higher than was identified in the field, but woody vegetation observed indicated bankfull was likely at the lower elevation.**

Step 7 - Narrative: **Major historic degradation caused widening and now segment is aggrading thru the presence of diagonal bars (diagonal bars are minor; less than 1/2 bankfull stage). Rip rap is preventing planform adjustment and further widening.**

Step 1. Valley and Floodplain

1.1 Segmentation: **Depositional Features**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

	Length (ft)	One Height	Both	Height
Berm:	0		0	
Road:	1,390	0	0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	1,545		0	

1.4 Adjacent Side	Left	Right
Hillside Slope:	Very Steep	Extr.Steep
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	N.E.	N.E.

1.5 Valley Features
Valley Width (ft): 355
Width Determination: Estimated
Confinement Type: BD
In Rock Gorge: No
Human Caused Change in Valley Width?: Yes

1.6 Grade Controls:

Type	Location	Total Height	Total Height Above Water	Photo Taken?	GPS Taken?
Ledge	Mid-segment	2.0	0.0	Yes	
Ledge	Mid-segment	1.0	0.0	Yes	
Ledge	Mid-segment	2.0	0.0	Yes	

Stream: **Ompompanoosuc River** Reach: **R20-B**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**42.50**	2.11 Riffle/Step Spacing:	**156 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**2.85**	2.12 Substrate Composition		Bed:	**5.34**	**inches**
2.3 Mean Depth (tf):	**2.27**	Bedrock:	**0.0 %**	Bar:	**2.2**	**inches**
2.4 Floodprone Width (ft.):	**88.00**	Boulder:	**0.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**5.05**	Cobble:	**6.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**44.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**18.72**	Fine Gravel:	**13.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**2.07**	Sand:	**37.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.77**	Silt and Smaller:	**0.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Complete**	# Large Woody Debris:	**15**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**344.1**	**737.5**	Dominant:	**Shrubs/Sapling**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.9**	**2.9**	Sub-dominant:	**Deciduous**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**170.8**	**648.0**	Canopy %:	**51-75**	**26-50**
Material Type:	**Sand**	**Sand**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**0-25**
Sub-Dominant	**51-100**	**26-50**
W less than 25	**337**	**1,721**
Buffer Vegitation Type		
Dominant	**Mixed Trees**	**Herbaceous**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Forest**	**Residential**	Mass Failures	**42.12**	
Sub-dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Height	**15.0**	
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**One**	**15.0**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Ompompanoosuc River** Reach: **R20-B**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch: **1**	Road Ditch: **0**
4.3 Flow Status:	**Low**	Impoundments:		Other: **0**	Tile Drain: **0**
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow: **0**	Urb Strm Wtr Pipe: **0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**29.7**	**Yes**	**Yes**	**Yes**	**Yes**	**Deposition Above**
Bridge	**42**	**Yes**	**Yes**	**No**	**Yes**	**None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**4**	5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**Yes**
Mid:	**1**	Delta:	**0**	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**0**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**2,130**
Side:	**9**	Braiding:	**0**	Steep Riffles:	**2**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic		
7.1 Channel Degradation	**7**	**None**	**Yes**	Geomorphic Rating	**0.51**
7.2 Channel Aggradation	**12**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel	**9**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml	**13**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score	**41**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: **Ompompanoosuc River**
Reach: **R21-A**
Segment Length(ft): **4,292**
Rain: **Yes**

SGAT Version: **4.56**
Organization: **Bear Creek Environmental**
Observers: **MN, PD**
Completion Date: **7/21/2010**
Qualtiy Control Status - Consultant: **Passed**
Qualtiy Control Status - Staff: **Provisional**

Step 0 - Location: **Segment begins where valley gets wider and river gets close to Route 113. It continues until just above confluence with second tributary that enters from the west.**

Step 5 - Notes: **Removal of abutment is not high priority; is causing localized geomorphic impact. Created nice rank 7 pool. A few large trees on left bank.**

Step 7 - Narrative: **Major historic degradation resulting in widening and major aggradation; planform change due to 55 percent straightening where the river was pushed up against the valley wall for agricultural uses.**

Step 1. Valley and Floodplain

1.1 Segmentation: **Depositional Features**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

	Length (ft)	One Height	Both Height
Berm:	0		0
Road:	1,272	0	0
Railroad:	0		0
Imp. Path:	0		0
Dev.:	424		0

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Extr.Steep	Extr.Steep
Continuous w/ Bank:	Never	Sometimes
Within 1 Bankfull W:	Never	Sometimes
Texture:	N.E.	N.E.

1.5 Valley Features
Valley Width (ft): **651**
Width Determination: **Estimated**
Confinement Type: **VB**
In Rock Gorge: **No**
Human Caused Change in Valley Width?: **Yes**

1.6 Grade Controls: **None**

Stream: **Ompompanoosuc River** Reach: **R21-A**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**37.50**	2.11 Riffle/Step Spacing:	**159 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**3.10**	2.12 Substrate Composition		Bed:	**5.96**	**inches**
2.3 Mean Depth (tf):	**1.95**	Bedrock:	**0.0 %**	Bar:	**2.38**	**inches**
2.4 Floodprone Width (ft.):	**329.50**	Boulder:	**0.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**4.80**	Cobble:	**17.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**51.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**19.23**	Fine Gravel:	**14.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**8.79**	Sand:	**18.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.55**	Silt and Smaller:	**0.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**22**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**1,246.9**	**1,289.0**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.5**	**4.5**	Sub-dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**301.4**	**562.9**	Canopy %:	**26-50**	**26-50**
Material Type:	**Gravel**	**Gravel**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**0-25**	**0-25**
Sub-Dominant	**>100**	**51-100**
W less than 25	**3,529**	**2,297**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right
Dominant	**Hay**	**Hay**
Sub-dominant	**Forest**	**Residential**
(Legacy)	Amount	Mean Hieght
Failures	**Multiple**	**16.0**
Gullies	**None**	

	Left	Right
Mass Failures		**75.56**
Height		**16.3**
Gullies Number	**0**	
Gullies Length	**0**	

Stream: **Ompompanoosuc River** Reach: **R21-A**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs			
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	**0**	Road Ditch:	**2**
4.3 Flow Status:	**Low**	Impoundments:		Other:	**0**	Tile Drain:	**0**
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	**0**	Urb Strm Wtr Pipe:	**0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:		**0**	
		(old) Upstrm Flow Reg.:		Affected Length (ft):		**0**	

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Old Abutment	**23.5**	**Yes**	**Yes**	**Yes**	**Yes**	**Deposition Below,Scour Above,Scour Below,Alignment**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**12**	5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**Yes**
Mid:	**0**	Delta:	**0**	Flood chutes:	**2**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**10**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**2,348**
Side:	**15**	Braiding:	**0**	Steep Riffles:	**8**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**9**	**None**	**Yes**	Geomorphic Rating	**0.39**
7.2 Channel Aggradation		**6**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**8**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**8**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**31**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: Ompompanoosuc River
Reach: R21-B
Segment Length(ft): 1,066
Rain: Yes

SGAT Version: 4.56
Organization: Bear Creek Environmental
Observers: MN, PD
Completion Date: 7/28/2010
Qualtiy Control Status - Consultant: Passed
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **Segment begins about 750 feet downstream of Route 113 crossing and continues until just above tributary confluence upstream of Route 113 crossing.**

Step 5 - Notes: **Stream type departure from a "C" to a "F" due to entrenchment. More fines present downstream of cross section. A lot of old rip rap in channel where pebble count was done. Trees are planted in buffer as part of a WHIP project about three years ago.**

Step 7 - Narrative: **Extreme historic incision with strem type departure from "C" to "F" due to entrenchment - now a transport reach. Active major widening, minor planform and aggradation. Trees planted in buffer. Trees on banks and riprap maintaining Stage III.**

Step 1. Valley and Floodplain

1.1 Segmentation: **Depositional Features**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	177	0	280	0
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	484		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Extr.Steep	Extr.Steep
Continuous w/ Bank:	Never	Never
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	N.E.	N.E.

1.5 Valley Features
Valley Width (ft): 500
Width Determination: Estimated
Confinement Type: VB
In Rock Gorge: No
Human Caused Change in Valley Width?: Yes

1.6 Grade Controls: None

Stream: **Ompompanoosuc River** Reach: **R21-B**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**42.20**	2.11 Riffle/Step Spacing:	**170 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**2.90**	2.12 Substrate Composition		Bed:	**5.2**	**inches**
2.3 Mean Depth (tf):	**2.09**	Bedrock:	**0.0 %**	Bar:	**2.38**	**inches**
2.4 Floodprone Width (ft.):	**56.70**	Boulder:	**6.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**6.40**	Cobble:	**48.0 %**	Stream Type:	**F**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**27.0 %**	Bed Material:	**Cobble**	
2.6 Width/Depth Ratio:	**20.19**	Fine Gravel:	**11.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**1.34**	Sand:	**8.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**2.21**	Silt and Smaller:	**0.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**3**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**387.1**	**280.4**	Dominant:	**Deciduous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**4.6**	**3.1**	Sub-dominant:	**Shrubs/Sapling**	**Deciduous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Multiple**	**Multiple**	Bank Canopy		
Lower			Revetment Length:	**104.8**	**170.4**	Canopy %:	**51-75**	**51-75**
Material Type:	**Mix**	**Mix**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**26-50**	**26-50**
Sub-Dominant	**0-25**	**0-25**
W less than 25	**298**	**58**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right
Dominant	**Hay**	**Hay**
Sub-dominant	**Residential**	**Residential**
(Legacy)	Amount	Mean Hieght
Failures	**None**	
Gullies	**None**	

	Left	Right
Mass Failures		
Height		
Gullies Number	**0**	
Gullies Length		

Stream: **Ompompanoosuc River** Reach: **R21-B**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**None**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**25**	**Yes**	**Yes**	**Yes**	**Yes**	**None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**2**	5.2 Other Features	Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:	**No**		
Mid:	**0**	Delta:	**2**	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**With Windrowing**
Point:	**1**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**1,052**
Side:	**6**	Braiding:	**0**	Steep Riffles:	**1**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**3**	**C to F**	**Yes**	Geomorphic Rating	**0.47**
7.2 Channel Aggradation		**14**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**9**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**12**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**38**			Stream Sensitivity	**Extreme**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: Tributary 3 to Ompompanoosuc River
Reach: R18T3.01-A
Segment Length(ft): 1,682
Rain: Yes

SGAT Version: 4.56
Organization: Bear Creek Environmental
Observers: MN, PD
Completion Date: 8/11/2010
Qualtiy Control Status - Consultant: Passed
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **Segment begins at confluence with Ompompanoosuc River and continues until just downstream of Route 113 crossing**

Step 5 - Notes: **No subdominant bedform. Less entrenched than upstream segment.**

Step 7 - Narrative: **Major aggradation, widening and extreme planform adjustment. Many diagonal bars and steep riffles present. High bars greater than 1/2 bankfull in many locations.**

Step 1. Valley and Floodplain

1.1 Segmentation: Channel Dimensions
1.2 Alluvial Fan: None
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	77	0	0	
Road:	0		0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	148		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Flat	Extr.Steep
Continuous w/ Bank:	Never	Sometimes
Within 1 Bankfull W:	Never	Sometimes
Texture:	N.E.	N.E.

1.5 Valley Features
Valley Width (ft): 407
Width Determination: Measured
Confinement Type: VB
In Rock Gorge: No
Human Caused Change in Valley Width?: Yes

1.6 Grade Controls: None

Stream: **Tributary 3 to Ompompanoosuc River** Reach: **R18T3.01-A**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**44.70**	2.11 Riffle/Step Spacing:	**116 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**2.20**	2.12 Substrate Composition		Bed:	**8.4**	**inches**
2.3 Mean Depth (tf):	**1.67**	Bedrock:	**0.0 %**	Bar:	**3.7**	**inches**
2.4 Floodprone Width (ft.):	**443.00**	Boulder:	**7.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**4.30**	Cobble:	**52.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**29.0 %**	Bed Material:	**Cobble**	
2.6 Width/Depth Ratio:	**26.77**	Fine Gravel:	**8.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**9.91**	Sand:	**4.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.95**	Silt and Smaller:	**0.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**58**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

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

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**809.1**	**529.8**	Dominant:	**Deciduous**	**Deciduous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**4.7**	**6.6**	Sub-dominant:	**Herbaceous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**None**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**0.0**	**303.9**	Canopy %:	**76-100**	**76-100**
Material Type:	**Gravel**	**Gravel**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**51-100**	**0-25**
W less than 25	**0**	**105**
Buffer Vegitation Type		
Dominant	**Mixed Trees**	**Shrubs/Sapling**
Sub-Dominant	**Shrubs/Sapling**	**Mixed Trees**

3.3 Riparian Corridor

Corridor Land	Left	Right
Dominant	**Forest**	**Forest**
Sub-dominant	**Residential**	**Residential**
(Legacy)	Amount	Mean Hieght
Failures	**None**	
Gullies	**None**	

	Left	Right
Mass Failures		
Height		
Gullies Number	**0**	
Gullies Length	**0**	

Stream: **Tributary 3 to Ompompanoosuc River** Reach: **R18T3.01-A**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**None**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**None**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Low**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions: **None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**8**	5.2 Other Features	Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:	**No**		
Mid:	**4**	Delta:	**0**	Flood chutes:	**5**	Avulsion:	**1**	5.5 Straightening:	**With Windrowing**
Point:	**7**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**500**
Side:	**5**	Braiding:	**0**	Steep Riffles:	**12**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**6**	**None**	**Yes**	Geomorphic Rating	**0.31**
7.2 Channel Aggradation		**6**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**8**	**None**	**No**	Channel Evolution Stage	**IV**
7.4 Change in Planforml		**5**	**None**	**No**	Geomorphic Condition	**Poor**
Total Score		**25**			Stream Sensitivity	**High**

Phase 2 Segment Summary Report Ompompanoosuc

Stream: Tributary 3 to Ompompanoosuc River
Reach: R18T3.01-B
Segment Length(ft): 625
Rain: No

SGAT Version: 4.56
Organization: Bear Creek Environmental
Observers: MN, PD
Completion Date: 8/11/2010
Qualtiy Control Status - Consultant: Passed
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **Segment begins just downstream of Route 113 crossing and continues until about 450 feet downstream of Back Street crossing.**

Step 5 - Notes: **Segment has been encroached upon by Back Street. Perhaps some filling associated with residential development on west bank. 100% straightened. Not clear of natural large boulders versus riprap. Some evidence of berming (windrowing) at top of segment.**

Step 7 - Narrative: **Major historic incision; wideing is minimal due to boulders at toe (may be riprap or natural).**

Step 1. Valley and Floodplain

1.1 Segmentation: **Channel Dimensions**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	52	6	0	
Road:	524	0	0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	89		343	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Flat	Extr.Steep
Continuous w/ Bank:	Never	Sometimes
Within 1 Bankfull W:	Never	Sometimes
Texture:	N.E.	Sand

1.5 Valley Features
Valley Width (ft): 255
Width Determination: Measured
Confinement Type: BD
In Rock Gorge: No
Human Caused Change in Valley Width?: Yes

1.6 Grade Controls:

Type	Location	Total Height	Total Height Above Water	Photo Taken?	GPS Taken?
Ledge	Mid-segment	1.0	0.0	Yes	
Ledge	Mid-segment	3.0	1.0	Yes	

Stream: **Tributary 3 to Ompompanoosuc River** Reach: **R18T3.01-B**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**42.80**	2.11 Riffle/Step Spacing:	**135 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**2.90**	2.12 Substrate Composition		Bed:	**10.2**	**inches**
2.3 Mean Depth (tf):	**2.09**	Bedrock:	**5.0 %**	Bar:	**5.2**	**inches**
2.4 Floodprone Width (ft.):	**90.80**	Boulder:	**19.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**5.10**	Cobble:	**43.0 %**	Stream Type:	**B**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**18.0 %**	Bed Material:	**Cobble**	
2.6 Width/Depth Ratio:	**20.48**	Fine Gravel:	**8.0 %**	Subclass Slope:	**c**	
2.7 Entrenchment Ratio:	**2.12**	Sand:	**7.0 %**	Bed Form:	**Plane Bed**	
2.8 Incision Ratio:	**1.76**	Silt and Smaller:	**0.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Eroded**	# Large Woody Debris:	**2**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

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

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**90.0**	**85.4**	Dominant:	**Deciduous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**4.5**	**12.0**	Sub-dominant:	**Herbaceous**	**Deciduous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Multiple**	**Multiple**	Bank Canopy		
Lower			Revetment Length:	**155.6**	**245.2**	Canopy %:	**51-75**	**51-75**
Material Type:	**Mix**	**Mix**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**51-100**	**0-25**
Sub-Dominant	**0-25**	**26-50**
W less than 25	**378**	**215**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Deciduous**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Residential**	**Residential**	Mass Failures		
Sub-dominant	**Forest**	**None**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Tributary 3 to Ompompanoosuc River** Reach: **R18T3.01-B**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**None**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs			
4.2 Adjacent Wetlands:	**None**	Flow Reg. Use:		Field Ditch:	**0**	Road Ditch:	**3**
4.3 Flow Status:	**Low**	Impoundments:		Other:	**0**	Tile Drain:	**0**
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	**0**	Urb Strm Wtr Pipe:	**0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:		**0**	
		(old) Upstrm Flow Reg.:		Affected Length (ft):		**0**	

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**60**	**Yes**	**Yes**	**No**	**Yes**	**Deposition Above,Deposition Below,Scour Above,Alignment**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**1**	5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**No**
Mid:	**0**	Delta:	**0**	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:		**With Windrowing**
Point:	**0**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):		**617**
Side:	**5**	Braiding:	**0**	Steep Riffles:	**1**	Trib Rejuv.:	**No**	5.5 Dredging:		**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**8**	**C to B**	**Yes**	Geomorphic Rating	**0.61**
7.2 Channel Aggradation		**13**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**14**	**None**	**No**	Channel Evolution Stage	**II**
7.4 Change in Planforml		**14**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**49**			Stream Sensitivity	**High**

Phase 2 - Stream Geometry Data

Ompompanoosuc

		Phase 2 Stream Type					Phase 1 Data			Phase 2 Channel Data											
Reach	Seg-ment	Stream Type	Bed Material	Bedform	Subcl. Slope	Sub Rch?	Channel Slope	Channel Width	Bankfull Width	Max Depth	Mean Depth	Floodpr Width	Recnt Abandn Fldpln	Width Depth Ratio	Entrench-ment Ratio	Incision Ratio	Channel Evolution Stage	Channel Evolution Model	Geo Assess Condition	Hab Assess Condition	QC Staff	QC Auto
R15	A	B	Gravel	Riffle-Pool	c	No	0.21		54	4	3.14	75.8	8.8	17.20	1.40	2.20			Fair		P	F
R15	B	B	Cobble	Step-Pool	None	Yes	0.21							0.00	0.00	0.00			Good		P	F
R16	0	C	Sand	Dune-Ripple	None	No	0.36		57	4.9	3.61	298	6.4	15.79	5.23	1.31	III	F	Fair		P	P
R16T2.01	0	E	Sand	Dune-Ripple	None	No	0.30							0.00	0.00	0.00			Good		P	F
R16T2.02	0	C	Sand	Dune-Ripple	None	No	0.31		49.5	3.8	2.97	131	4.6	16.67	2.65	1.21	III	F	Good		P	P
R16T2.04	A	E	Sand	Dune-Ripple	None	No	0.51	11.2						0.00	0.00	0.00			Good		P	F
R16T2.04	B	E	Sand	Dune-Ripple	None	No	0.51	11.2	11.2	2.5	1.79	575	3.8	6.26	51.34	1.52	III	F	Fair		P	P
R16T2.05	A	C	Sand	Dune-Ripple	None	No	0.71		26.2	3	1.16	229.2	5.3	22.59	8.75	1.77	IV	F	Fair		P	P
R16T2.05	B	C	Sand	Riffle-Pool	None	No	0.71		27.2	2.9	1.46	234	5.3	18.63	8.60	1.83	III	F	Fair		P	P
R16T2.05	C	E	Sand	Dune-Ripple	None	No	0.71							0.00	0.00	0.00			Good		P	F
R16T2.05	D	E	Gravel	Riffle-Pool	None	No	0.71		10.4	1.8	1.38	108.7	2.6	7.54	10.45	1.44	III	F	Fair		P	P
R16T2.05	E	E	Gravel	Riffle-Pool	None	No	0.71							0.00	0.00	0.00			Fair		P	F
R16T2.06	A	E	Gravel	Riffle-Pool	None	No	2.29	11	5.2	2	0.94	160.5	3.2	5.53	30.87	1.60	II	F	Fair		P	P
R16T2.06	B	E	Gravel	Riffle-Pool	None	No	2.29	11	10.7	1.8	1.07	244	2.8	10.00	22.80	1.56	II	F	Fair		P	P
R16T2.06	C	C	Gravel	Riffle-Pool	b	Yes	2.29	11	11	1.9	0.95	57.5	1.9	11.58	5.23	1.00	I	F	Good		P	P
R16T2.06	D	E	Sand	Dune-Ripple	None	No	2.29	11						0.00	0.00	0.00			Reference		P	F
R16T2.03S1.01	A	E	Sand	Dune-Ripple	None	No	0.11	29.5						0.00	0.00	0.00			Good		P	F
R16T2.03S1.01	B	E	Sand	Dune-Ripple	None	No	0.11	29.5	29.5	4	2.52	268.5	5.4	11.71	9.10	1.35	IV	F	Fair		P	P
R16T2.03S1.01	C	E	Sand	Dune-Ripple	None	No	0.11	29.5						0.00	0.00	0.00			Good		P	F
R16T2.03S1.02	A	E	Sand	Dune-Ripple	None	No	0.23	22.1	26.4	3.7	2.36	315	4.9	11.19	11.93	1.32	IV	F	Fair		P	P
R16T2.03S1.02	B	C	Sand	Riffle-Pool	None	No	0.23	22.1	25.3	2.8	1.95	246.4	4.3	12.97	9.74	1.54	III	F	Fair		P	P

Reach	Seg-ment	Stream Type	Bed Material	Bedform	Subcl. Slope	Sub Rch?	Channel Slope	Channel Width	Bankfull Width	Max Depth	Mean Depth	Floodpr Width	Recnt Abandn Fldpln	Width Depth Ratio	Entrench-ment Ratio	Incision Ratio	Channel Evolution Stage	Channel Evolution Model	Geo Assess Condition	Hab Assess Condition	QC Staff	QC Auto
R17	0	C	Sand	Riffle-Pool	None	No	0.37		54.8	4.4	3.02	587.5	7.5	18.15	10.72	1.70	IV	F	Poor		P	P
R18	0	B	Gravel	Riffle-Pool	c	No	0.37		64.5	2.6	1.78	114	7.2	36.24	1.77	2.77	IV	F	Poor		P	P
R19	A	C	Gravel	Riffle-Pool	None	No	0.65		41	2.65	1.99	140	5.15	20.60	3.41	1.94	III	F	Fair		P	P
R19	B	B	Gravel	Riffle-Pool	c	No	0.65		41.8	3.2	2.42	59.2	8.3	17.27	1.42	2.59	III	F	Fair		P	P
R20	A	B	Gravel	Riffle-Pool	c	No	0.47		44	3.05	2.21	70.5	5.85	19.91	1.60	1.92	III	F	Fair		P	P
R20	B	C	Gravel	Riffle-Pool	None	No	0.47		42.5	2.85	2.27	88	5.05	18.72	2.07	1.77	III	F	Fair		P	P
R21	A	C	Gravel	Riffle-Pool	None	No	0.50		37.5	3.1	1.95	329.5	4.8	19.23	8.79	1.55	III	F	Fair		P	P
R21	B	F	Cobble	Riffle-Pool	None	No	0.50		42.2	2.9	2.09	56.7	6.4	20.19	1.34	2.21	III	F	Fair		P	P
R18T3.01	A	C	Cobble	Riffle-Pool	None	No	1.52		44.7	2.2	1.67	443	4.3	26.77	9.91	1.95	IV	F	Poor		P	P
R18T3.01	B	B	Cobble	Plane Bed	c	No	1.52		42.8	2.9	2.09	90.8	5.1	20.48	2.12	1.76	II	F	Fair		P	P

Phase 2 - Rapid Geomorphic Assessment

Ompompanoosuc

			Degradation			Aggradation			Widening		Planform								
Reach	Seg-ment	Sub Rch?	Score	STD	Historic	Score	STD	Historic	Score	Historic	Score	Historic	Geo Score	Geo Condition	Evol. Stage	Confin. Type	Sensitivity	QC Staff	QC Auto
R15	A	No											0.00	Fair		NW		P	F
R15	B	Yes											0.00	Good		SC		P	F
R16	0	No	12	None	Yes	8	None	No	9	No	7	No	0.45	Fair	III	BD	Very High	P	P
R16T2.01	0	No											0.00	Good		BD		P	F
R16T2.02	0	No	13	None	Yes	12	None	No	15	No	13	No	0.66	Good	III	NW	High	P	P
R16T2.03S1.01	A	No											0.00	Good		VB		P	F
R16T2.03S1.01	B	No	12	None	Yes	8	None	No	9	No	3	No	0.40	Fair	IV	VB	Extreme	P	P
R16T2.03S1.01	C	No											0.00	Good		VB		P	F
R16T2.03S1.02	A	No	11	None	Yes	8	None	No	8	No	9	No	0.45	Fair	IV	VB	Extreme	P	P
R16T2.03S1.02	B	No	8	None	Yes	13	None	No	9	No	7	No	0.46	Fair	III	VB	Very High	P	P
R16T2.04	A	No											0.00	Good		VB		P	F
R16T2.04	B	No	9	None	Yes	17	None	No	8	No	14	No	0.60	Fair	III	VB	Extreme	P	P
R16T2.05	A	No	8	None	Yes	7	Other	No	8	No	7	No	0.38	Fair	IV	VB	Very High	P	P
R16T2.05	B	No	10	None	Yes	7	None	No	7	No	7	No	0.39	Fair	III	VB	Very High	P	P
R16T2.05	C	No											0.00	Good		VB		P	F
R16T2.05	D	No	8	None	Yes	11	None	No	7	No	9	No	0.44	Fair	III	VB	Extreme	P	P
R16T2.05	E	No											0.00	Fair		VB		P	F
R16T2.06	A	No	2	None	No	15	None	No	7	No	8	No	0.40	Fair	II	VB	Extreme	P	P
R16T2.06	B	No	5	None	No	14	None	No	8	No	12	No	0.49	Fair	II	VB	Extreme	P	P
R16T2.06	C	Yes	18	None	No	13	None	No	16	No	12	No	0.74	Good	I	VB	High	P	P
R16T2.06	D	No											0.00	Reference		VB		P	F
R17	0	No	8	None	Yes	3	None	No	4	No	3	No	0.23	Poor	IV	VB	Very High	P	P
R18	0	No	3	C to B	Yes	6	None	No	7	No	8	No	0.30	Poor	IV	VB	Very High	P	P
R18T3.01	A	No	6	None	Yes	6	None	No	8	No	5	No	0.31	Poor	IV	VB	High	P	P
R18T3.01	B	No	8	C to B	Yes	13	None	No	14	No	14	No	0.61	Fair	II	BD	High	P	P
R19	A	No	7	None	Yes	8	None	No	7	No	12	No	0.43	Fair	III	NW	Very High	P	P
R19	B	No	4	C to B	Yes	8	None	No	8	No	8	No	0.35	Fair	III	BD	Very High	P	P

Agency of Natural Resouces

March. 09 2011

Reach	Seg-ment	Sub Rch?	Score	STD	Historic	Score	STD	Historic	Score	Historic	Score	Historic	Geo Score	Geo Condition	Evol. Stage	Confin. Type	Sensitivity	QC Staff	QC Auto
R20	A	No	4	C to B	Yes	17	None	No	9	No	13	No	0.54	Fair	III	BD	Very High	P	P
R20	B	No	7	None	Yes	12	None	No	9	No	13	No	0.51	Fair	III	BD	Very High	P	P
R21	A	No	9	None	Yes	6	None	No	8	No	8	No	0.39	Fair	III	VB	Very High	P	P
R21	B	No	3	C to F	Yes	14	None	No	9	No	12	No	0.48	Fair	III	VB	Extreme	P	P

Phase 2 - Rapid Habitat Assessment Scores

Ompompanoosuc

Explanation of codes used in table header

6.1	Woody Debris Cover	**6.5**	Hydrologic Characteristics
6.2	Bed Substrate Cover	**6.6**	Connectivity
6.3	Scour and Deposition Features	**6.7**	River Banks
6.4	Channel Morphology	**6.8**	Riparian Area

Reach	Reference Stream Type	Bed-form	Habitat Departure	Reach Length	6.1	6.2	6.3	6.4	6.5	6.6	6.7 Left	6.7 Right	6.8 Left	6.8 Right	Total Score	Percent-age	Habitat Condition
R15-A	Riffle-Pool	Riffle-Pool	None	807											0	0	Poor (Severe Departure)
R15-B	Step-Pool	Riffle-Pool	None	641											0	0	Poor (Severe Departure)
R16-0	Dune-Ripple	Dune-Ripple	None	1,391	16	10	11	13	10	13	4	5	9	7	98	61	Fair (Major Departure)
R16T2.01-0		Dune-Ripple	None	3,358											0	0	Poor (Severe Departure)
R16T2.02-0	Dune-Ripple	Dune-Ripple	None	1,632	19	8	13	15	12	9	7	7	6	5	101	63	Fair (Major Departure)
R16T2.03S1.01-A		Dune-Ripple	None	5,661											0	0	Poor (Severe Departure)
R16T2.03S1.01-B	Dune-Ripple	Dune-Ripple	None	3,426	15	10	13	16	16	18	7	7	9	6	117	73	Good (Minor Departure)
R16T2.03S1.01-C		Dune-Ripple	None	1,041											0	0	Poor (Severe Departure)
R16T2.03S1.02-A	Dune-Ripple	Dune-Ripple	None	2,747	9	12	9	16	13	11	5	7	3	5	90	56	Fair (Major Departure)
R16T2.03S1.02-B	Riffle-Pool	Dune-Ripple	None	1,602	4	14	11	7	11	7	3	5	2	3	67	42	Fair (Major Departure)
R16T2.04-A		Dune-Ripple	None	1,757											0	0	Poor (Severe Departure)
R16T2.04-B	Dune-Ripple	Dune-Ripple	None	997	8	14	14	12	19	15	4	4	7	7	104	65	Good (Minor Departure)
R16T2.05-A	Dune-Ripple	Riffle-Pool	None	1,497	12	13	13	11	16	12	5	4	6	4	96	60	Fair (Major Departure)
R16T2.05-B	Riffle-Pool	Riffle-Pool	None	2,615	13	13	13	11	15	13	5	7	4	9	103	64	Fair (Major Departure)
R16T2.05-C		Riffle-Pool	None	1,507											0	0	Poor (Severe Departure)
R16T2.05-D	Riffle-Pool	Riffle-Pool	None	610	12	10	12	9	14	12	3	7	3	10	92	58	Fair (Major Departure)
R16T2.05-E		Riffle-Pool	None	1,489											0	0	Poor (Severe Departure)
R16T2.06-A	Riffle-Pool	Riffle-Pool	None	1,386	4	13	13	6	10	8	5	5	2	2	68	43	Fair (Major Departure)
R16T2.06-B	Riffle-Pool	Riffle-Pool	None	2,441	13	12	13	10	15	13	7	7	7	8	105	66	Good (Minor Departure)
R16T2.06-C	Riffle-Pool	Riffle-Pool	None	2,394	14	13	11	16	13	9	7	7	8	8	106	66	Good (Minor Departure)
R16T2.06-D		Riffle-Pool	None	542											0	0	Poor (Severe Departure)
R17-0	Riffle-Pool	Riffle-Pool	None	6,824	16	5	10	9	12	13	3	3	6	6	83	52	Fair (Major Departure)

Reach	Reference Stream Type	Bed-form	Habitat Departure	Reach Length	6.1	6.2	6.3	6.4	6.5	6.6	6.7 Left	6.7 Right	6.8 Left	6.8 Right	Total Score	Percent-age	Habitat Condition
R18-0	Riffle-Pool	Riffle-Pool	None	5,372	13	8	12	5	13	13	7	4	7	4	86	54	Fair (Major Departure)
R18T3.01-A	Riffle-Pool	Riffle-Pool	None	1,682	17	12	15	7	11	15	4	5	8	7	101	63	Fair (Major Departure)
R18T3.01-B	Riffle-Pool	Riffle-Pool	Plane Bed	625	3	13	7	8	8	15	4	5	4	2	69	43	Fair (Major Departure)
R19-A	Riffle-Pool	Riffle-Pool	None	925	14	11	13	8	13	8	2	5	2	6	82	51	Fair (Major Departure)
R19-B	Riffle-Pool	Riffle-Pool	None	5,236	13	14	12	5	13	10	5	3	5	3	83	52	Fair (Major Departure)
R20-A	Riffle-Pool	Riffle-Pool	None	1,396	9	11	14	6	17	13	5	4	8	2	89	56	Fair (Major Departure)
R20-B	Riffle-Pool	Riffle-Pool	None	2,416	9	8	13	8	16	12	7	4	7	3	87	54	Fair (Major Departure)
R21-A	Riffle-Pool	Riffle-Pool	None	4,292	8	13	14	9	8	12	4	5	3	2	78	49	Fair (Major Departure)
R21-B	Riffle-Pool	Riffle-Pool	None	1,066	5	13	12	4	13	13	5	6	4	3	78	49	Fair (Major Departure)