APPENDIX A

PHASE 2 GEOMORPHIC ASSESSMENT DATA

Phase 2 Reach Summary Statistics for Jewett Brook

Reach/ Segment ID	Segment Length (ft)	Watershed Area (sq mi)	Reference Condition	Phase 1 Confinement Type	Reference Bankfull Width (ft)	Channel Dimensions			Channel & Floodplain Ratios			Existing Conditions			RGA† Condition	RHA† Condition	CEM‡	CEM‡ Stage	Stream Sensitivity
			Stream Type, Substrate, Bedform			Width (ft)	Mean Depth (ft)	Area (ft^2)	Width-to-Depth	Entrench-ment	Incision	Stream Type	Substrate	Bedform					
M01	2,752	5.2	C, Gravel, Riffle-pool	Very Broad	27.9	21.4	1.58	33.8	13.5	4.5	1.43	C	Gravel	Riffle-Pool	Fair	Poor	F	II	Very High
M01S1.01	2,245	0.43	NA - not assessed - no water in channel												Fair*	Poor*	NA	NA	NA
M02-A	1,590	4.7	C, Gravel, Riffle-pool	Very Broad	26.4	19.0	1.83	34.8	10.4	3.7	1.74	C	Gravel	Riffle-Pool	Fair	Fair	F	II	Very High
M02-B	1,541	4.4	C, Gravel, Riffle-pool	Broad	25.9	40.6	1.26	51.2	32.3	4.1	1.0	C	Gravel	Riffle-Pool	Fair	Fair	D	II d	Very High
M02T1.01-A	1,025	1.5	C, Gravel, Riffle-pool	Very Broad	15.1	12.0	1.41	16.9	8.5	5.8	1.55	E	Gravel	Riffle-Pool	Fair	Fair	F	III	Extreme
M02T1.01-B	1,512	1.0	C, Gravel, Riffle-pool	Very Broad	12.2	8.7	1.12	9.7	7.8	2.6	3.95	E	Gravel	Plane-Bed	Fair	Poor	F	II	Extreme
M02T1.01-C	673	0.86	C, Gravel, Riffle-pool	Very Broad	11.6	9.3	0.93	8.6	10.0	2.0	4.10	Bc	Gravel	Plane-Bed	Fair	Fair	F	II	Very High
M02T1.01-D	1,163	0.75	E, Gravel, Ripple-Dune	Very Broad	10.8	7.3	0.70	5.1	10.4	9.7	1.37	E	Gravel	Ripple-Dune	Fair	Fair	F	II	Extreme
M02T1.01-E	333	0.54	NA- not assessed Wetland												Good	Good	F	I	NA
M02T1.02	653	0.52	Eb, Gravel, Ripple-Dune	Very Broad	9.1	8.2	0.96	7.9	8.6	23.4	1.0	Eb	Gravel	Ripple-Dune	Good	Good	F	I	High
M03-A	1,377	2.8	Cb, Gravel, Riffle-pool	Very Broad	20.7	25.7	1.46	37.5	17.6	5.3	1.2	Cb	Gravel	Riffle-Pool	Fair	Fair	F	III	Very High
M03-B	755	2.6	Cb, Cobble, Riffle-pool	Very Broad	20.0	22.5	1.18	26.6	19.1	2.3	1.0	Cb	Cobble	Riffle-Pool	Good	Fair	F	I	Moderate
M04-A	2,208	2.6	Cb, Gravel, Riffle-pool	Broad	19.7	23.2	1.36	31.6	17.1	2.1	1.0	Cb	Gravel	Riffle-Pool	Good	Fair	F	I	High
M04-B	1,401	2.4	Cb, Gravel, Riffle-pool	Very Broad	19.3	34.7	0.97	33.7	35.8	2.4	1.0	Cb	Gravel	Riffle-Pool	Good	Good	F	I	High
M04S1.01	382	0.09	NA - not assessed - no tributary present																
M04S1.02	1,918	0.09	NA - not assessed - no tributary present																
M04T2.01-A	1,053	0.73	NA- not assessed Wetland Channel (E4) - very little water												Good*	Good*	NA	NA	NA
M04T2.01-B	1,380	0.59	NA - not assessed - no water in channel (forested corridor)												Good*	Good*	NA	NA	NA
M05	3,740	1.6	Cb, Gravel, Riffle-pool	Very Broad	15.5	23.8	1.15	27.4	20.6	3.13	1.17	Cb	Gravel	Riffle-Pool	Good	Fair	F	I	High
M06	1,319	1.3	NA- not assessed Wetland												Reference	Reference	NA	NA	NA

†RGA = Rapid Geomorphic Assessment, RHA = Rapid Habitat Assessment; ‡ CEM = Channel Evolution Model

* Segment not assessed - segment condition is an administrative judgment

NA = Not Applicable

last updated December 14, 2010

Summary of the Rapid Habitat Assessment (RHA) Values for Jewett Brook

Segment/ Reach ID	Reference Stream Type	Woody Debris Cover	Bed Substrate Cover	Scour and Depositional Features	Channel Morphology	Hydrologic Characteristics	Connectivity	River Banks		Riparian Area		Total Score	Percentage	Habitat Condition
								Left	Right	Left	Right			
M01	Riffle-Pool	5	8	8	6	5	11	4	4	1	1	53	33%	Poor
M02-A	Riffle-Pool	7	11	13	6	6	9	6	4	4	1	67	42%	Fair
M02-B	Riffle-Pool	12	13	12	8	9	17	7	8	9	8	103	64%	Fair
M03-A	Riffle-Pool	13	7	11	14	5	9	7	7	5	5	83	52%	Fair
M03-B	Riffle-Pool	9	13	11	16	7	12	8	6	8	4	94	59%	Fair
M04-A	Riffle-Pool	9	13	9	13	8	9	6	7	7	7	88	55%	Fair
M04-B	Riffle-Pool	16	15	12	13	6	9	9	8	9	7	104	65%	Good
M05	Riffle-Pool	13	13	9	16	9	8	6	6	9	9	98	61%	Fair
M06	Wetland - Not Assessed													
M02T1.01-A	Riffle-Pool	11	12	11	13	8	12	7	5	9	6	94	59%	Fair
M02T1.01-B	Riffle-Pool	3	6	5	3	3	4	1	1	1	1	28	18%	Poor
M02T1.01-C	Riffle-Pool	5	13	9	4	8	7	8	7	4	2	67	42%	Fair
M02T1.01-D	Ripple-Dune	2	0	10	11	10	8	6	6	2	2	57	41%	Fair
M02T1.01-E	Wetland - Not Assessed													
M02T1.02	Ripple-Dune	14	18	15	19	16	16	9	9	8	9	133	83%	Good
Total Possible Scores:		**20**	**20**	**20**	**20**	**20**	**20**	**10**	**10**	**10**	**10**	**160**	**100%**	**Reference**

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M01	Segment:		Completion Date:	10-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	2,751	Segment Location:	From the confluence with Opeechee Bay to just upstream of confluence with unnamed tributary (M01S1)				

Step 1. Valley and Floodplain		
1.1 Segmentation:		None
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	0
height	0	0
Roads	729	804
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	2138	2226
1.4 Adjacent Side	Left	Right
Hillside Slope	Hilly	Flat
Continuous	Never	Never
W/in 1 bnkfl	Never	Never
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		286
Width Determination		Measured
Ph. 2 Confinement Type		Very Broad
Rock Gorge?		No
Human Caused Change?		Yes
Step 2. Stream Channel		
2.1 Bankfull Width (ft)	21.4	
2.1a Wetted Width (ft)	8	
2.1b Ratio (wetted/bkfl)	0.37	
2.2 Max Depth (ft)	2.3	
2.3 Mean Depth (ft)	1.6	
2.4 Floodprone Width (ft)	97	
2.5 RAF	3.3	
*Human Elevated FP	NA	

Step 2. (Cont'd)		
2.6 Width/Depth Ratio		13.5
2.7 Entrenchment Ratio		4.5
2.8 Incision Ratio		1.4
*Human Elevated Incision		NA
2.9 Sinuosity		Low (<1.2)
2.10 Riffle Type		Eroded
2.11 Riffle Step Spacing		117
2.12 Substrate Composition		
Bedrock	0	%
Boulder	4	%
Cobble	44	%
Coarse Gravel	34	%
Fine Gravel	10	%
Sand	7	%
Silt & Smaller	1	%
Silt/Clay Present	Yes	
Embedded (chan)	22	%
Embedded (marg)	40	%
# LWD	5	
2.13 Average Largest Particle		
Bed	6.8	in
Bar	4.3	in
2.13a % Subs. Exp.	40	%
2.14 Stream Type		
Stream Type:	C	
Bed Material:	Gravel	
Subclass Slope:	None	
Bed Form:	Riffle-Pool	
Subdom Bed Form:	Plane Bed	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
C, Gravel, Riffle-Pool		

Step 3. Riparian Features		
3.1 Stream Banks	Left	Right
Typical Bank Slope	Steep	Steep

Step 3. (Cont'd)				
Bank Texture	Left		Right	
Upper				
Material Type	Sand		Sand	
Consistency	Non-Cohesive		Non-Cohesive	
Lower				
Material Type	Gravel		Gravel	
Consistency	Non-Cohesive		Non-Cohesive	
Bank Erosion	Left		Right	
Erosion Length (ft)	498		343	
Erosion Height (ft)	3.0		4.0	
Revetment Type	Multiple		Multiple	
Revetment Length (ft)	1623		1606	
Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	40	0	5	95
R Trees	30	0	10	90
	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	20	0	0	100
R Shrubs/Saplings	20	0	0	100
	% Cover	Invasive	Grasses	Forbs
L Herbs	50	30	50	20
R Herbs	50	30	50	20
Bank Canopy	Left		Right	
Canopy %	1-25		26-50	
Mid-channel canopy	Open			
3.2 Riparian Buffer				
Buffer Width	Left		Right	
Dominant	0-25		0-25	
Sub-dominant	26-50		26-50	
Length <25 ft	2187		2439	
Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	15	0	5	95
R Trees	10	0	5	95
	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	15	0	0	100
R Shrubs/Saplings	5	0	0	100
	% Cover	Invasive	Grasses	Forbs
L Herbs	40	10	85	5
R Herbs	40	10	85	10

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Residential	Residential
Sub-dominant	None	Commercial
Mass Failures (ft)	0	0
Height (ft)	0	0
Gullies (number)	0	1
Height (ft)	0	2
Step 4. Flow & Flow Modifiers		
4.1 Springs/ Seeps	None	
4.2 Adjacent Wetlands	None	
4.3 Flow Status	Low	
4.4 # of Debris Jams	0	
4.5 Flow Reg Type	None	
4.6 Up/Downstream Flow Reg	None	
4.7 Stormwater Inputs		
Field Ditch	0	Road Ditch 9
Urban Storm Pipe	1	Tile Drain 0
Overland Flow	1	Other 0
4.9 # of Beaver Dams	0	
Affected Length (ft)	NA	
Step 5. Channel Bed & Planform Changes		
5.1 Bar Types	Mid	Point	Side
	2	0	19
	Diagonal	Delta	Island
	3	0	0
5.2 Other Features	Flood	NCO	Avulsion
	0	0	0
	Braiding		
	0		
5.3 Steep Riffles & Headcuts			
	# SRs	# HCs	Trib Rejuv.
	5	0	No
5.4 Stream Ford or Animal Crossing:			None
5.5 Straightening	Straightening		
Length (ft)	2719		
5.5 Dredging	None		
Bridge and Culvert Survey	Yes		

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cut
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M01	Segment:		Completion Date:	20-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	2,751	Segment Location:	From the confluence with Opeechee Bay to just upstream of confluence with unnamed tributary (M01S1)				

1.6 Grade Controls **None**

Type	Location	Total Ht	Ht Above	Photo	GPS Point

4.8 Channel Constrictions **Present**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.
Bridge	23.5	Yes	Yes	Yes	No
Pedestrian	Problems:	SA			
Bridge	25	Yes	Yes	Yes	Yes
Highland	Problems:	DB			
Bridge	13	Yes	Yes	Yes	No
Alley	Problems:	DA, DB			
Bridge	18.3	Yes	Yes	Yes	Yes
Union Ave	Problems:	DA, DB			
Bridge	26	Yes	Yes	Yes	Yes
Trail	Problems:	A			
Bridge	24	Yes	Yes	Yes	Yes
Davis St.	Problems:	SB			

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	10	None	Yes
7.2 Channel Aggradation	8	None	No
7.3 Widening Channel	13		No
7.4 Change in Planform	14		No
Total Score:	45		
Geomorphic Rating:	0.56		
Channel Evolution Model	F		
Channel Evolution Stage	II		
Geomorphic Condition	Fair		
Stream Sensitivity	Very High		

Channel Adjustment Processes Narrative

Historic degradation in response to straightened and armored channel. Minimal widening due to bank armoring. Planform completely altered. Major aggradation especially where stream goes underneath buildings.

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignment

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M02	Segment:	A	Completion Date:	20-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	1,590	Segment Location:	From the confluence with unnamed tributary (M01S1) to where corridor becomes forested instead of developed				

Step 1. Valley and Floodplain

1.1 Segmentation:		CE
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	77
height	0	0
Roads	0	555
height	0	4
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	817	1471
1.4 Adjacent Side	Left	Right
Hillside Slope	Very Steep	Very Steep
Continuous	Never	Never
W/in 1 bnkfl	Never	Never
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		204
Width Determination		Estimated
Ph. 2 Confinement Type		Broad
Rock Gorge?		No
Human Caused Change?		Yes

Step 2. Stream Channel

2.1 Bankfull Width (ft)	19
2.1a Wetted Width (ft)	5.4
2.1b Ratio (wetted/bkfl)	0.28
2.2 Max Depth (ft)	2.85
2.3 Mean Depth (ft)	1.8
2.4 Floodprone Width (ft)	70
2.5 RAF	4.95
*Human Elevated FP	NA

Step 2. (Cont'd)

2.6 Width/Depth Ratio		10.4
2.7 Entrenchment Ratio		3.7
2.8 Incision Ratio		1.7
*Human Elevated Incision		NA
2.9 Sinuosity		Low (<1.2)
2.10 Riffle Type		Eroded
2.11 Riffle Step Spacing		94
2.12 Substrate Composition		
Bedrock	0	%
Boulder	0	%
Cobble	34	%
Coarse Gravel	27	%
Fine Gravel	20	%
Sand	19	%
Silt & Smaller	0	%
Silt/Clay Present	No	
Embedded (chan)	36	%
Embedded (marg)	44	%
# LWD	4	
2.13 Average Largest Particle		
Bed	7.4	in
Bar	4.7	in
2.13a % Subs. Exp.	30	%
2.14 Stream Type		
Stream Type:	C	
Bed Material:	Gravel	
Subclass Slope:	None	
Bed Form:	Riffle-Pool	
Subdom Bed Form:	Plane Bed	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
C, Gravel, Riffle-Pool		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	Steep	Steep

Step 3. (Cont'd)

Bank Texture	Left	Right
Upper		
Material Type	Sand	Sand
Consistency	Non-Cohesive	Non-Cohesive
Lower		
Material Type	Boulder/Cobble	Boulder/Cobble
Consistency	Non-Cohesive	Non-Cohesive

Bank Erosion	Left	Right
Erosion Length (ft)	1199	729
Erosion Height (ft)	4.0	4.0
Revetment Type	Rip-rap	Multiple
Revetment Length (ft)	490	1257

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	60	0	10	90
R Trees	20	0	0	100

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	40	0	0	100
R Shrubs/Saplings	20	0	0	100

	% Cover	Invasive	Grasses	Forbs
L Herbs	30	0	70	30
R Herbs	10	20	50	30

Bank Canopy	Left	Right
Canopy %	51-75	26-50
Mid-channel canopy	Open	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	>200	0-25
Sub-dominant	0-25	26-50
Length <25 ft	690	1526

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	70	0	10	90
R Trees	10	0	5	95

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	30	0	0	100
R Shrubs/Saplings	10	0	0	100

	% Cover	Invasive	Grasses	Forbs
L Herbs	50	0	40	60
R Herbs	80	0	90	10

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Forest	Residential
Sub-dominant	Residential	Shrub/Sapling
Mass Failures (ft)	0	0
Height (ft)	0	0
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	None
4.2 Adjacent Wetlands	None
4.3 Flow Status	Low
4.4 # of Debris Jams	0
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None

4.7 Stormwater Inputs

Field Ditch	0	Road Ditch	1
Urban Storm Pipe	0	Tile Drain	0
Overland Flow	2	Other	0

4.9 # of Beaver Dams	0
Affected Length (ft)	NA

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	0	0	13
	Diagonal	Delta	Island
	1	0	0

5.2 Other Features	Flood	NCO	Avulsion
	0	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts

# SRs	# HCs	Trib Rejuv.
2	0	No

5.4 Stream Ford or Animal Crossing:	None
5.5 Straightening	
Length (ft)	1589
5.5 Dredging	None
Bridge and Culvert Survey	Yes

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cu
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M02	Segment:	A	Completion Date:	20-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	1,590	Segment Location:	From the confluence with unnamed tributary (M01S1) to where corridor becomes forested instead of developed.				

1.6 Grade Controls **None**

Type	Location	Total Ht	Ht Above	Photo	GPS Point

4.8 Channel Constrictions **Present**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.
Bridge	20	Yes	Yes	Yes	No
Trail	Problems:	DA			
	Problems:	A			

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	8	None	Yes
7.2 Channel Aggradation	15	None	No
7.3 Widening Channel	12		No
7.4 Change in Planform	13		No
Total Score:	48		
Geomorphic Rating:	0.60		
Channel Evolution Model	F		
Channel Evolution Stage	II		
Geomorphic Condition	Fair		
Stream Sensitivity	Very High		

Channel Adjustment Processes Narrative

Major historic incision from channel alteration. Has been straightened 100 percent. Armoring is keeping channel from widening. Riprap is failing in many places and banks are eroding there. Minor widening and planform change. Minor aggradation with some side bars and one diagonal bar.

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignment

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M02	Segment:	B	Completion Date:	6-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	1,541	Segment Location:	From where the corridor becomes forested to the confluence with an unnamed tributary (M02T1)				

Step 1. Valley and Floodplain

1.1 Segmentation:		BB
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	0
height	0	0
Roads	211	0
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	0	0
1.4 Adjacent Side	Left	Right
Hillside Slope	Extremely Steep	Extremely Steep
Continuous	Never	Never
W/in 1 bnkfl	Never	Never
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		222
Width Determination		Estimated
Ph. 2 Confinement Type		Broad
Rock Gorge?		No
Human Caused Change?		No

Step 2. Stream Channel

2.1 Bankfull Width (ft)	40.6	
2.1a Wetted Width (ft)	19.4	
2.1b Ratio (wetted/bkfl)	0.48	
2.2 Max Depth (ft)	2.4	
2.3 Mean Depth (ft)	1.3	
2.4 Floodprone Width (ft)	166	
2.5 RAF	2.4	
*Human Elevated FP	NA	

Step 2. (Cont'd)

2.6 Width/Depth Ratio	32.2	
2.7 Entrenchment Ratio	4.1	
2.8 Incision Ratio	1.0	
*Human Elevated Incision	NA	
2.9 Sinuosity	Moderate (1.2-1.5)	
2.10 Riffle Type	Sedimented	
2.11 Riffle Step Spacing	74	
2.12 Substrate Composition		
Bedrock	0	%
Boulder	0	%
Cobble	30	%
Coarse Gravel	55	%
Fine Gravel	10	%
Sand	5	%
Silt & Smaller	0	%
Silt/Clay Present	No	
Embedded (chan)	18	%
Embedded (marg)	18	%
# LWD	9	
2.13 Average Largest Particle		
Bed	6.8	in
Bar	3.4	in
2.13a % Subs. Exp.	40	%
2.14 Stream Type		
Stream Type:	C	
Bed Material:	Gravel	
Subclass Slope:	None	
Bed Form:	Riffle-Pool	
Subdom Bed Form:	None	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
C, Gravel, Riffle-Pool		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	Steep	Steep

Step 3. (Cont'd)

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

Bank Erosion	Left	Right
Erosion Length (ft)	609	568
Erosion Height (ft)	3.0	3.0
Revetment Type	Rip-rap	Rip-rap
Revetment Length (ft)	54	42

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	60	0	20	80
R Trees	60	0	20	80

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	60	0	10	90
R Shrubs/Saplings	60	0	10	90

	% Cover	Invasive	Grasses	Forbs
L Herbs	80	0	70	30
R Herbs	80	0	70	30

Bank Canopy	Left	Right
Canopy %	76-100	76-100
Mid-channel canopy	Closed	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	76-100	>200
Sub-dominant	>200	76-100
Length <25 ft	0	0

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	90	0	20	80
R Trees	60	0	20	80

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	30	0	0	100
R Shrubs/Saplings	30	2	0	98

	% Cover	Invasive	Grasses	Forbs
L Herbs	70	0	30	70
R Herbs	70	0	30	70

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Forest	Forest
Sub-dominant	None	Residential
Mass Failures (ft)	0	0
Height (ft)	0	0
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	Present
4.2 Adjacent Wetlands	Present
4.3 Flow Status	Low
4.4 # of Debris Jams	0
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None

4.7 Stormwater Inputs			
Field Ditch	0	Road Ditch	2
Urban Storm Pipe	0	Tile Drain	0
Overland Flow	0	Other	0

4.9 # of Beaver Dams	0
Affected Length (ft)	NA

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	2	7	12
	Diagonal	Delta	Island
	7	0	0

5.2 Other Features	Flood	NCO	Avulsion
	6	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts		
# SRs	# HCs	Trib Rejuv.
10	0	No

5.4 Stream Ford or Animal Crossing:		None
5.5 Straightening	None	
Length (ft)	0	
5.5 Dredging	None	
Bridge and Culvert Survey	No	

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cut
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M02	Segment:	B	Completion Date:	6-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	1,541	Segment Location:	From where the corridor becomes forested to the confluence with an unnamed tributary (M02T1)				

1.6 Grade Controls **Present**

Type	Location	Total Ht	Ht Above	Photo	GPS Point
Ledge		1.1	0.7	Yes	Yes

4.8 Channel Constrictions **None**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	17	None	No
7.2 Channel Aggradation	7	None	No
7.3 Widening Channel	8		No
7.4 Change in Planform	6		No
Total Score:	38		
Geomorphic Rating:	0.48		
Channel Evolution Model	D		
Channel Evolution Stage	II d		
Geomorphic Condition	Fair		
Stream Sensitivity	Very High		

Channel Adjustment Processes Narrative

No channel incision, but major aggradation, widening and planform adjustment possibly due to increase in flows within watershed.

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignment

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	8-Nov-10
Stream:	Unnamed Tributary	Reach #:	M02T1.01	Segment:	A	Completion Date:	5-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	1,025	Segment Location:	From the confluence with Jewett Brook to bypass culvert				

Step 1. Valley and Floodplain

1.1 Segmentation:		CD
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	0
height	0	0
Roads	0	0
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	0	0
1.4 Adjacent Side	Left	Right
Hillside Slope	Extremely Steep	Extremely Steep
Continuous	Never	Never
W/in 1 bnkfl	Never	Never
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		188
Width Determination		Estimated
Ph. 2 Confinement Type		Very Broad
Rock Gorge?		No
Human Caused Change?		No

Step 2. Stream Channel

2.1 Bankfull Width (ft)	12	
2.1a Wetted Width (ft)	4.9	
2.1b Ratio (wetted/bkfl)	0.41	
2.2 Max Depth (ft)	2	
2.3 Mean Depth (ft)	1.4	
2.4 Floodprone Width (ft)	70	
2.5 RAF	3.1	
*Human Elevated FP	NA	

Step 2. (Cont'd)

2.6 Width/Depth Ratio	8.5	
2.7 Entrenchment Ratio	5.8	
2.8 Incision Ratio	1.6	
*Human Elevated Incision	NA	
2.9 Sinuosity	Moderate (1.2-1.5)	
2.10 Riffle Type	Sedimented	
2.11 Riffle Step Spacing	87	
2.12 Substrate Composition		
Bedrock	0	%
Boulder	0	%
Cobble	42	%
Coarse Gravel	30	%
Fine Gravel	12	%
Sand	16	%
Silt & Smaller	0	%
Silt/Clay Present	No	
Embedded (chan)	50	%
Embedded (marg)	48	%
# LWD	5	
2.13 Average Largest Particle		
Bed	6.8	in
Bar	4.4	in
2.13a % Subs. Exp.	50	%
2.14 Stream Type		
Stream Type:	E	
Bed Material:	Gravel	
Subclass Slope:	None	
Bed Form:	Riffle-Pool	
Subdom Bed Form:	None	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
C, Gravel, Riffle-Pool		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	Steep	Steep

Step 3. (Cont'd)

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

Bank Erosion	Left	Right
Erosion Length (ft)	295	591
Erosion Height (ft)	2.0	2.0
Revetment Type	Rip-rap	Rip-rap
Revetment Length (ft)	28	87

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	85	0	60	40
R Trees	70	0	0	100

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	30	0	10	90
R Shrubs/Saplings	20	0	10	90

	% Cover	Invasive	Grasses	Forbs
L Herbs	30	0	0	100
R Herbs	60	5	10	85

Bank Canopy	Left	Right
Canopy %	76-100	51-75
Mid-channel canopy	Closed	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	>200	>150
Sub-dominant	None	76-100
Length <25 ft	5	183

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	90	0	80	20
R Trees	60	0	10	90

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	30	0	0	100
R Shrubs/Saplings	40	0	0	100

	% Cover	Invasive	Grasses	Forbs
L Herbs	20	0	0	100
R Herbs	60	5	10	85

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Forest	Forest
Sub-dominant	None	Residential
Mass Failures (ft)	0	0
Height (ft)	0	0
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	Minimum
4.2 Adjacent Wetlands	Present
4.3 Flow Status	Low
4.4 # of Debris Jams	0
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None

4.7 Stormwater Inputs			
Field Ditch	0	Road Ditch	2
Urban Storm Pipe	0	Tile Drain	0
Overland Flow	1	Other	0

4.9 # of Beaver Dams	0
Affected Length (ft)	NA

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	3	0	13
	Diagonal	Delta	Island
	7	0	1

5.2 Other Features	Flood	NCO	Avulsion
	3	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts		
# SRs	# HCs	Trib Rejuv.
8	0	No

5.4 Stream Ford or Animal Crossing:		None
5.5 Straightening	None	
Length (ft)	0	
5.5 Dredging	None	
Bridge and Culvert Survey	Yes	

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cut
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	8-Nov-10
Stream:	Unnamed Tributary	Reach #:	M02T1.01	Segment:	A	Completion Date:	5-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	1,025	Segment Location:	From the confluence with Jewett Brook to bypass culvert				

1.6 Grade Controls **None**

Type	Location	Total Ht	Ht Above	Photo	GPS Point

4.8 Channel Constrictions **Present**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.
Bridge	15	Yes	Yes	Yes	Yes
Private Pedestrian	Problems:	DA			
Instream culvert	4	Yes	Yes	Yes	Yes
Hounsel Ave	Problems:	DA, SB			

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	10	Yes	Yes
7.2 Channel Aggradation	6	None	No
7.3 Widening Channel	8		No
7.4 Change in Planform	7		No
Total Score:	31		
Geomorphic Rating:	0.39		
Channel Evolution Model	F		
Channel Evolution Stage	III		
Geomorphic Condition	Fair		
Stream Sensitivity	Extreme		

Channel Adjustment Processes Narrative

Historic channel incision, major widening and aggradation. Planform adjustment evident from flood chutes. Upstream channel alteration has most likely caused limited sediment attenuation and sediment is deposited into this segment.

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignment

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	8-Nov-10
Stream:	Unnamed Tributary	Reach #:	M02T1.01	Segment:	B	Completion Date:	5-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	1,512	Segment Location:	From bypass culvert to start of vegetated banks upstream of Sawmill Road				

Step 1. Valley and Floodplain

1.1 Segmentation:		BB
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	0
height	0	0
Roads	1245	0
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	0	404
1.4 Adjacent Side	Left	Right
Hillside Slope	Extremely Steep	Hilly
Continuous	Never	Never
W/in 1 bnkfl	Never	Never
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		128
Width Determination		Measured
Ph. 2 Confinement Type		Broad
Rock Gorge?		No
Human Caused Change?		Yes

Step 2. Stream Channel

2.1 Bankfull Width (ft)	8.7
2.1a Wetted Width (ft)	2.2
2.1b Ratio (wetted/bkfl)	0.25
2.2 Max Depth (ft)	2
2.3 Mean Depth (ft)	1.1
2.4 Floodprone Width (ft)	22.7
2.5 RAF	7.9
*Human Elevated FP	NA

Step 2. (Cont'd)

2.6 Width/Depth Ratio		7.8
2.7 Entrenchment Ratio		2.6
2.8 Incision Ratio		4.0
*Human Elevated Incision		NA
2.9 Sinuosity		Low (<1.2)
2.10 Riffle Type		Eroded
2.11 Riffle Step Spacing		97
2.12 Substrate Composition		
Bedrock	0	%
Boulder	0	%
Cobble	8	%
Coarse Gravel	36	%
Fine Gravel	31	%
Sand	24	%
Silt & Smaller	1	%
Silt/Clay Present	Yes	
Embedded (chan)	76	%
Embedded (marg)	60	%
# LWD	0	
2.13 Average Largest Particle		
Bed	2.3	in
Bar	NA	in
2.13a % Subs. Exp.	5	%
2.14 Stream Type		
Stream Type:	E	
Bed Material:	Gravel	
Subclass Slope:	None	
Bed Form:	Plane Bed	
Subdom Bed Form:	None	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
C, Gravel, Riffle-Pool		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	Steep	Steep

Step 3. (Cont'd)

Bank Texture	Left	Right
Upper		
Material Type	Sand	Sand
Consistency	Non-Cohesive	Non-Cohesive
Lower		
Material Type	Boulder/Cobble	Boulder/Cobble
Consistency	Non-Cohesive	Non-Cohesive

Bank Erosion	Left	Right
Erosion Length (ft)	355	231
Erosion Height (ft)	3.0	2.0
Revetment Type	Rip-rap	Rip-rap
Revetment Length (ft)	954	660

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	0	0	0	0
R Trees	0	0	0	0

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	20	0	90	10
R Shrubs/Saplings	20	0	90	10

	% Cover	Invasive	Grasses	Forbs
L Herbs	90	10	60	30
R Herbs	90	10	60	30

Bank Canopy	Left	Right
Canopy %	1-25	1-25
Mid-channel canopy	Open	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	0-25	0-25
Sub-dominant	26-50	26-50
Length <25 ft	1086	1082

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	5	0	10	90
R Trees	5	0	0	100

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	20	0	0	100
R Shrubs/Saplings	30	0	10	90

	% Cover	Invasive	Grasses	Forbs
L Herbs	95	0	90	10
R Herbs	95	0	80	20

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Commercial	Commercial
Sub-dominant	None	None
Mass Failures (ft)	0	0
Height (ft)	0	0
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	None
4.2 Adjacent Wetlands	None
4.3 Flow Status	Low
4.4 # of Debris Jams	0
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None

4.7 Stormwater Inputs

Field Ditch	0	Road Ditch	3
Urban Storm Pipe	0	Tile Drain	0
Overland Flow	0	Other	0

4.9 # of Beaver Dams	0
Affected Length (ft)	NA

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	0	0	0
	Diagonal	Delta	Island
	0	0	0

5.2 Other Features	Flood	NCO	Avulsion
	0	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts

# SRs	# HCs	Trib Rejuv.
1	0	No

5.4 Stream Ford or Animal Crossing:		None
5.5 Straightening	Straightening	
Length (ft)	1512	
5.5 Dredging	None	
Bridge and Culvert Survey	Yes	

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cut
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	8-Nov-10
Stream:	Unnamed Tributary	Reach #:	M02T1.01	Segment:	B	Completion Date:	5-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	1,512	Segment Location:	From bypass culvert to start of vegetated banks upstream of Sawmill Roac				

1.6 Grade Controls **None**

Type	Location	Total Ht	Ht Above	Photo	GPS Point

4.8 Channel Constrictions **Present**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.
Instream culvert	6.4	Yes	Yes	Yes	Yes
Saw Mill Road	Problems:	DB, SB			
Instream culvert	7.0	Yes	Yes	Yes	Yes
Bypass	Problems:	None			
Instream culvert	7.1	Yes	Yes	Yes	Yes
Route 3 & 11	Problems:	None			
Instream culvert	6.3	Yes	Yes	Yes	Yes
Bypass	Problems:	DA			

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	3	Yes	Yes
7.2 Channel Aggradation	13	None	No
7.3 Widening Channel	15		No
7.4 Change in Planform	13		No
Total Score:	44		
Geomorphic Rating:	0.55		
Channel Evolution Model	F		
Channel Evolution Stage	II		
Geomorphic Condition	Fair		
Stream Sensitivity	Extreme		

Channel Adjustment Processes Narrative

Extreme historic incision but may have been filled in to create the RAF. Extensively straightened and armored with many long culverts. Sediment transport segment with very little aggradation.

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignmen

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	8-Nov-10
Stream:	Unnamed Tributary	Reach #:	M02T1.01	Segment:	C	Completion Date:	5-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	673	Segment Location:	From where banks becomes vegetated just upstream of Sawmill Road to where there is no buffer just downstream of Maple Street				

Step 1. Valley and Floodplain

1.1 Segmentation:		BB
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	0
height	0	0
Roads	673	0
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	0	0
1.4 Adjacent Side	Left	Right
Hillside Slope	Very Steep	Steep
Continuous	Never	Never
W/in 1 bnkfl	Never	Never
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		265
Width Determination		Measured
Ph. 2 Confinement Type		Very Broad
Rock Gorge?		No
Human Caused Change?		Yes

Step 2. Stream Channel

2.1 Bankfull Width (ft)	9.3	
2.1a Wetted Width (ft)	4.5	
2.1b Ratio (wetted/bkfl)	0.48	
2.2 Max Depth (ft)	1.5	
2.3 Mean Depth (ft)	0.9	
2.4 Floodprone Width (ft)	18.3	
2.5 RAF	6.1	
*Human Elevated FP	NA	

Step 2. (Cont'd)

2.6 Width/Depth Ratio		10.0
2.7 Entrenchment Ratio		2.0
2.8 Incision Ratio		4.1
*Human Elevated Incision		NA
2.9 Sinuosity		Low (<1.2)
2.10 Riffle Type		Eroded
2.11 Riffle Step Spacing		86
2.12 Substrate Composition		
Bedrock	0	%
Boulder	0	%
Cobble	26	%
Coarse Gravel	43	%
Fine Gravel	10	%
Sand	21	%
Silt & Smaller	0	%
Silt/Clay Present	No	
Embedded (chan)	42	%
Embedded (marg)	54	%
# LWD	1	
2.13 Average Largest Particle		
Bed	7.6	in
Bar	3.2	in
2.13a % Subs. Exp.	20	%
2.14 Stream Type		
Stream Type:	B	
Bed Material:	Gravel	
Subclass Slope:	c	
Bed Form:	Plane Bed	
Subdom Bed Form:	Riffle-Pool	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
C, Gravel, Riffle-Pool		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	Moderate	Moderate

Step 3. (Cont'd)

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

Bank Erosion	Left	Right
Erosion Length (ft)	206	107
Erosion Height (ft)	2.0	2.0
Revetment Type	Rip-rap	None
Revetment Length (ft)	161	0

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	0	0	0	0
R Trees	10	0	0	100

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	90	0	90	10
R Shrubs/Saplings	90	0	90	10

	% Cover	Invasive	Grasses	Forbs
L Herbs	50	0	10	90
R Herbs	60	0	30	70

Bank Canopy	Left	Right
Canopy %	76-100	76-100
Mid-channel canopy	Closed	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	26-50	26-50
Sub-dominant	0-25	51-75
Length <25 ft	112	0

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	10	0	0	100
R Trees	30	0	40	60

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	20	0	20	80
R Shrubs/Saplings	40	0	10	90

	% Cover	Invasive	Grasses	Forbs
L Herbs	90	0	90	10
R Herbs	80	0	40	60

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Commercial	Shrub/Sapling
Sub-dominant	Residential	Commercial
Mass Failures (ft)	0	0
Height (ft)	0	0
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	Minimum
4.2 Adjacent Wetlands	None
4.3 Flow Status	Low
4.4 # of Debris Jams	0
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None
4.7 Stormwater Inputs	

Field Ditch	0	Road Ditch	0
Urban Storm Pipe	0	Tile Drain	0
Overland Flow	3	Other	0

4.9 # of Beaver Dams	0
Affected Length (ft)	NA

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	1	0	7
	Diagonal	Delta	Island
	0	0	0

5.2 Other Features	Flood	NCO	Avulsion
	1	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts

# SRs	# HCs	Trib Rejuv.
0	0	No

5.4 Stream Ford or Animal Crossing:	None
5.5 Straightening	Straightening
Length (ft)	673
5.5 Dredging	None
Bridge and Culvert Survey	No

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cut
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	8-Nov-10
Stream:	Unnamed Tributary	Reach #:	M02T1.01	Segment:	C	Completion Date:	5-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	673	Segment Location:	From where banks becomes vegetated just upstream of Sawmill Road to where there is no buffer just downstream of Maple Stree				

1.6 Grade Controls **None**

Type	Location	Total Ht	Ht Above	Photo	GPS Point

4.8 Channel Constrictions **None**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	2	Yes	Yes
7.2 Channel Aggradation	13	None	No
7.3 Widening Channel	15		No
7.4 Change in Planform	14		No
Total Score:	44		
Geomorphic Rating:	0.55		
Channel Evolution Model	F		
Channel Evolution Stage	II		
Geomorphic Condition	Fair		
Stream Sensitivity	Very High		

Channel Adjustment Processes Narrative

Extreme historic incision due to extensive channel alteration; stream type departure from C to B; limited habitat. Depositional features present from overland flow.

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignmen

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	8-Nov-10
Stream:	Unnamed Tributary	Reach #:	M02T1.01	Segment:	D	Completion Date:	5-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	1,163	Segment Location:	From where there is no buffer just downstream of Maple Street to just upstream of Wesley Roac				

Step 1. Valley and Floodplain

1.1 Segmentation:		CD
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	0
height	0	0
Roads	1094	0
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	0	190
1.4 Adjacent Side	Left	Right
Hillside Slope	Very Steep	Hilly
Continuous	Never	Never
W/in 1 bnkfl	Never	Never
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		642
Width Determination		Estimated
Ph. 2 Confinement Type		Very Broad
Rock Gorge?		No
Human Caused Change?		Yes

Step 2. Stream Channel

2.1 Bankfull Width (ft)	7.3
2.1a Wetted Width (ft)	1.7
2.1b Ratio (wetted/bkfl)	0.23
2.2 Max Depth (ft)	1.5
2.3 Mean Depth (ft)	0.7
2.4 Floodprone Width (ft)	70.8
2.5 RAF	2.05
*Human Elevated FP	NA

Step 2. (Cont'd)

2.6 Width/Depth Ratio		10.4
2.7 Entrenchment Ratio		9.7
2.8 Incision Ratio		1.4
*Human Elevated Incision		NA
2.9 Sinuosity		Low (<1.2)
2.10 Riffle Type		Eroded
2.11 Riffle Step Spacing		85
2.12 Substrate Composition		
Bedrock	0	%
Boulder	0	%
Cobble	7	%
Coarse Gravel	5	%
Fine Gravel	39	%
Sand	17	%
Silt & Smaller	32	%
Silt/Clay Present	Yes	
Embedded (chan)	NA	%
Embedded (marg)	NA	%
# LWD	0	
2.13 Average Largest Particle		
Bed	NA	in
Bar	NA	in
2.13a % Subs. Exp.	5	%
2.14 Stream Type		
Stream Type:	E	
Bed Material:	Gravel	
Subclass Slope:	None	
Bed Form:	Dune-Ripple	
Subdom Bed Form:	Plane Bed	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
E, Gravel, Ripple-Dune		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	Steep	Steep

Step 3. (Cont'd)

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

Bank Erosion	Left	Right
Erosion Length (ft)	298	162
Erosion Height (ft)	2.0	2.0
Revetment Type	Rip-rap	Rip-rap
Revetment Length (ft)	241	244

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	5	0	0	100
R Trees	5	0	0	100

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	50	0	90	10
R Shrubs/Saplings	30	0	90	10

	% Cover	Invasive	Grasses	Forbs
L Herbs	80	25	50	25
R Herbs	80	80	15	5

Bank Canopy	Left	Right
Canopy %	76-100	76-100
Mid-channel canopy	Closed	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	26-50	26-50
Sub-dominant	0-25	0-25
Length <25 ft	305	301

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	10	0	5	95
R Trees	5	0	0	100

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	50	0	10	90
R Shrubs/Saplings	20	0	10	90

	% Cover	Invasive	Grasses	Forbs
L Herbs	80	30	60	10
R Herbs	90	40	50	10

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Commercial	Commercial
Sub-dominant	Residential	None
Mass Failures (ft)	0	0
Height (ft)	0	0
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	Minimum
4.2 Adjacent Wetlands	Present
4.3 Flow Status	Low
4.4 # of Debris Jams	0
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None
4.7 Stormwater Inputs	

Field Ditch	0	Road Ditch	1
Urban Storm Pipe	0	Tile Drain	0
Overland Flow	2	Other	0

4.9 # of Beaver Dams	0
Affected Length (ft)	NA

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	0	0	5
	Diagonal	Delta	Island
	0	0	0

5.2 Other Features	Flood	NCO	Avulsion
	3	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts

# SRs	# HCs	Trib Rejuv.
0	0	No

5.4 Stream Ford or Animal Crossing:	None
5.5 Straightening	Straightening
Length (ft)	1133
5.5 Dredging	None
Bridge and Culvert Survey	Yes

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cu
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	8-Nov-10
Stream:	Unnamed Tributary	Reach #:	M02T1.01	Segment:	D	Completion Date:	5-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	1,163	Segment Location:	From where there is no buffer just downstream of Maple Street to just upstream of Wesley Roac				

1.6 Grade Controls **None**

Type	Location	Total Ht	Ht Above	Photo	GPS Point

4.8 Channel Constrictions **Present**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.
Instream culvert	4	Yes	Yes	Yes	Yes
Wesley Road	Problems:	SB			
Instream culvert	3.5	Yes	Yes	Yes	Yes
Maple Street	Problems:	SB			

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	11	None	Yes
7.2 Channel Aggradation	13	None	No
7.3 Widening Channel	14		No
7.4 Change in Planform	13		No
Total Score:	51		
Geomorphic Rating:	0.64		
Channel Evolution Model	F		
Channel Evolution Stage	II		
Geomorphic Condition	Fair		
Stream Sensitivity	Extreme		

Channel Adjustment Processes Narrative

Historically was probably a wetland that was filled in - silty soils present. Minor degradation and straightened extensively. All other processes minor.

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignmen

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	8-Nov-10
Stream:	Unnamed Tributary	Reach #:	M02T1.01	Segment:	E	Completion Date:	5-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	W	Rain:	No
Segment Length (ft):	333	Segment Location:	From just upstream of Wesley Road to top of reach where channel becomes more confined				

Step 1. Valley and Floodplain

1.1 Segmentation:		CD
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	0
height	0	0
Roads	0	0
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	0	0
1.4 Adjacent Side	Left	Right
Hillside Slope	Extremely Steep	Steep
Continuous	Never	Never
W/in 1 bnkfl	Never	Never
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		642
Width Determination		Estimated
Ph. 2 Confinement Type		Very Broad
Rock Gorge?		No
Human Caused Change?		Yes

Step 2. Stream Channel

2.1 Bankfull Width (ft)	0
2.1a Wetted Width (ft)	0
2.1b Ratio (wetted/bkfl)	0.00
2.2 Max Depth (ft)	0
2.3 Mean Depth (ft)	0.0
2.4 Floodprone Width (ft)	0
2.5 RAF	0
*Human Elevated FP	NA

Step 2. (Cont'd)

2.6 Width/Depth Ratio		NA
2.7 Entrenchment Ratio		NA
2.8 Incision Ratio		NA
*Human Elevated Incision		NA
2.9 Sinuosity		NA
2.10 Riffle Type		NA
2.11 Riffle Step Spacing		NA
2.12 Substrate Composition		
Bedrock	0	%
Boulder	0	%
Cobble	0	%
Coarse Gravel	0	%
Fine Gravel	0	%
Sand	0	%
Silt & Smaller	0	%
Silt/Clay Present	NA	
Embedded (chan)	NA	%
Embedded (marg)	NA	%
# LWD	0	
2.13 Average Largest Particle		
Bed	NA	in
Bar	NA	in
2.13a % Subs. Exp.	NA	%
2.14 Stream Type		
Stream Type:	Wetland	
Bed Material:	Sand	
Subclass Slope:	None	
Bed Form:	NA	
Subdom Bed Form:	None	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
E, Gravel, Ripple-Dune		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	NA	NA

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Step 3. (Cont'd)

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

Bank Erosion	Left	Right
Erosion Length (ft)	0	0
Erosion Height (ft)	0.0	0.0
Revetment Type	None	None
Revetment Length (ft)	0	0

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	1	0	0	100
R Trees	1	0	0	100

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	10	0	5	95
R Shrubs/Saplings	10	0	5	95

	% Cover	Invasive	Grasses	Forbs
L Herbs	100	2	60	38
R Herbs	100	2	60	38

Bank Canopy	Left	Right
Canopy %	1-25	1-25
Mid-channel canopy	Open	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	51-75	>200
Sub-dominant	76-100	None
Length <25 ft	0	0

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	1	0	0	100
R Trees	1	0	0	100

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	10	0	5	95
R Shrubs/Saplings	10	0	5	95

	% Cover	Invasive	Grasses	Forbs
L Herbs	100	2	60	38
R Herbs	100	2	60	38

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Shrub/Sapling	Shrub/Sapling
Sub-dominant	None	None
Mass Failures (ft)	0	0
Height (ft)	0	0
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	Extensive
4.2 Adjacent Wetlands	Extensive
4.3 Flow Status	Low
4.4 # of Debris Jams	0
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None

4.7 Stormwater Inputs			
Field Ditch	0	Road Ditch	0
Urban Storm Pipe	0	Tile Drain	0
Overland Flow	0	Other	0

4.9 # of Beaver Dams	1
Affected Length (ft)	50

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	0	0	0
	Diagonal	Delta	Island
	0	0	0

5.2 Other Features	Flood	NCO	Avulsion
	2	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts		
# SRs	# HCs	Trib Rejuv.
0	0	No

5.4 Stream Ford or Animal Crossing:		None
5.5 Straightening	None	
Length (ft)	0	
5.5 Dredging	None	
Bridge and Culvert Survey	No	

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cut
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	9-Nov-10
Stream:	Unnamed Tributary	Reach #:	M02T1.01	Segment:	E	Completion Date:	5-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	W	Rain:	No
Segment Length (ft):	333	Segment Location:	From just upstream of Wesley Road to top of reach where channel becomes more confined				

1.6 Grade Controls **None**

Type	Location	Total Ht	Ht Above	Photo	GPS Point

4.8 Channel Constrictions **None**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	0	None	No
7.2 Channel Aggradation	0	None	No
7.3 Widening Channel	0		No
7.4 Change in Planform	0		No
Total Score:	0		
Geomorphic Rating:	0.00		
Channel Evolution Model	NA		
Channel Evolution Stage	NA		
Geomorphic Condition	Good		
Stream Sensitivity	NA		

Channel Adjustment Processes Narrative

Wetland area in good condition; no discernable channel other than upper portion of segment above beaver dam (less than 100 feet of channel).

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignment

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	9-Nov-10
Stream:	Unnamed Tributary	Reach #:	M02T1.02	Segment:	NA	Completion Date:	5-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	653	Segment Location:	From where channel becomes more confined to just across from Savage Road				

Step 1. Valley and Floodplain

1.1 Segmentation:		None
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	0
height	0	0
Roads	0	0
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	0	0
1.4 Adjacent Side	Left	Right
Hillside Slope	Very Steep	Extremely Steep
Continuous	Never	Never
W/in 1 bnkfl	Never	Never
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		267
Width Determination		Measured
Ph. 2 Confinement Type		Very Broad
Rock Gorge?		No
Human Caused Change?		No

Step 2. Stream Channel

2.1 Bankfull Width (ft)	8.2
2.1a Wetted Width (ft)	2.7
2.1b Ratio (wetted/bkfl)	0.33
2.2 Max Depth (ft)	1.8
2.3 Mean Depth (ft)	0.96
2.4 Floodprone Width (ft)	192
2.5 RAF	1.8
*Human Elevated FP	NA

Step 2. (Cont'd)

2.6 Width/Depth Ratio		8.6
2.7 Entrenchment Ratio		23.4
2.8 Incision Ratio		1.0
*Human Elevated Incision		NA
2.9 Sinuosity	Moderate (1.2-1.5)	
2.10 Riffle Type		Complete
2.11 Riffle Step Spacing		45
2.12 Substrate Composition		
Bedrock	0	%
Boulder	0	%
Cobble	3	%
Coarse Gravel	19	%
Fine Gravel	42	%
Sand	36	%
Silt & Smaller	0	%
Silt/Clay Present	Yes	
Embedded (chan)	NA	%
Embedded (marg)	NA	%
# LWD	11	
2.13 Average Largest Particle		
Bed	2.1	in
Bar	0.45	in
2.13a % Subs. Exp.	10	%
2.14 Stream Type		
Stream Type:	E	
Bed Material:	Gravel	
Subclass Slope:	b	
Bed Form:	Dune-Ripple	
Subdom Bed Form:	Riffle-Pool	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
E, Gravel, Ripple-Dune		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	Steep	Steep

Step 3. (Cont'd)

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

Bank Erosion	Left	Right
Erosion Length (ft)	109	42
Erosion Height (ft)	1.0	1.0
Revetment Type	Rip-rap	Rip-rap
Revetment Length (ft)	56	24

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	2	0	0	100
R Trees	2	0	0	100

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	0	0	0	0
R Shrubs/Saplings	0	0	0	0

	% Cover	Invasive	Grasses	Forbs
L Herbs	100	2	93	5
R Herbs	100	2	93	5

Bank Canopy	Left	Right
Canopy %	1-25	1-25
Mid-channel canopy	Open	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	76-100	>200
Sub-dominant	101-150	None
Length <25 ft	0	0

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	2	0	1	99
R Trees	2	0	1	99

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	5	0	90	10
R Shrubs/Saplings	5	0	90	10

	% Cover	Invasive	Grasses	Forbs
L Herbs	100	2	88	10
R Herbs	100	2	88	10

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Shrub/Sapling	Shrub/Sapling
Sub-dominant	None	None
Mass Failures (ft)	0	0
Height (ft)	0	0
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	Extensive
4.2 Adjacent Wetlands	Extensive
4.3 Flow Status	Low
4.4 # of Debris Jams	1
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None

4.7 Stormwater Inputs

Field Ditch	0	Road Ditch	0
Urban Storm Pipe	0	Tile Drain	0
Overland Flow	0	Other	0

4.9 # of Beaver Dams	0
Affected Length (ft)	NA

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	1	4	5
	Diagonal	Delta	Island
	0	0	0

5.2 Other Features	Flood	NCO	Avulsion
	3	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts

# SRs	# HCs	Trib Rejuv.
0	0	No

5.4 Stream Ford or Animal Crossing:	None
5.5 Straightening	None
Length (ft)	0
5.5 Dredging	None
Bridge and Culvert Survey	Yes

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cut
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	9-Nov-10
Stream:	Unnamed Tributary	Reach #:	M02T1.02	Segment:	NA	Completion Date:	5-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	653	Segment Location:	From where channel becomes more confined to just across from Savage Road				

1.6 Grade Controls **None**

Type	Location	Total Ht	Ht Above	Photo	GPS Point

4.8 Channel Constrictions **Present**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.
Bridge	10	Yes	Yes	Yes	No
Snowmachine	Problems:	None			

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	18	None	No
7.2 Channel Aggradation	15	None	No
7.3 Widening Channel	19		No
7.4 Change in Planform	13		No
Total Score:	65		
Geomorphic Rating:	0.81		
Channel Evolution Model	F		
Channel Evolution Stage	I		
Geomorphic Condition	Good		
Stream Sensitivity	High		

Channel Adjustment Processes Narrative

No historic incision. Minor aggradation shown by point bars and minor planform change - flood chutes present.

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignment

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M03	Segment:	A	Completion Date:	19-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	1,377	Segment Location:	From confluence with unnamed tributary (M02T1) at Hounsell Ave. to bypass culvert				

Step 1. Valley and Floodplain

1.1 Segmentation:		CD
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	0
height	0	0
Roads	0	0
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	0	0
1.4 Adjacent Side	Left	Right
Hillside Slope	Extremely Steep	Very Steep
Continuous	Sometimes	Never
W/in 1 bnkfl	Sometimes	Never
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		178
Width Determination		Measured
Ph. 2 Confinement Type		Broad
Rock Gorge?		No
Human Caused Change?		Yes

Step 2. Stream Channel

2.1 Bankfull Width (ft)	25.7
2.1a Wetted Width (ft)	9.5
2.1b Ratio (wetted/bkfl)	0.36
2.2 Max Depth (ft)	2.4
2.3 Mean Depth (ft)	1.46
2.4 Floodprone Width (ft)	137
2.5 RAF	2.9
*Human Elevated FP	NA

Step 2. (Cont'd)

2.6 Width/Depth Ratio		17.6
2.7 Entrenchment Ratio		5.3
2.8 Incision Ratio		1.2
*Human Elevated Incision		NA
2.9 Sinuosity		Low (<1.2)
2.10 Riffle Type		Sedimented
2.11 Riffle Step Spacing		82
2.12 Substrate Composition		
Bedrock	0	%
Boulder	2	%
Cobble	37	%
Coarse Gravel	33	%
Fine Gravel	14	%
Sand	10	%
Silt & Smaller	4	%
Silt/Clay Present	Yes	
Embedded (chan)	34	%
Embedded (marg)	54	%
# LWD	13	
2.13 Average Largest Particle		
Bed	8.7	in
Bar	6.2	in
2.13a % Subs. Exp.	50	%
2.14 Stream Type		
Stream Type:	C	
Bed Material:	Gravel	
Subclass Slope:	b	
Bed Form:	Riffle-Pool	
Subdom Bed Form:	None	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
C, Gravel, Riffle-pool		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	Steep	Steep

Step 3. (Cont'd)

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

Bank Erosion	Left	Right
Erosion Length (ft)	417	477
Erosion Height (ft)	4.0	3.0
Revetment Type	Rip-rap	Rip-rap
Revetment Length (ft)	30	31

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	70	0	70	30
R Trees	70	0	70	30

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	40	10	10	80
R Shrubs/Saplings	40	10	10	80

	% Cover	Invasive	Grasses	Forbs
L Herbs	60	10	20	70
R Herbs	60	10	20	70

Bank Canopy	Left	Right
Canopy %	51-75	51-75
Mid-channel canopy	Closed	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	>200	>200
Sub-dominant	0-25	0-25
Length <25 ft	292	295

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	80	0	80	20
R Trees	80	0	70	30

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	40	10	10	80
R Shrubs/Saplings	50	10	10	80

	% Cover	Invasive	Grasses	Forbs
L Herbs	50	10	20	70
R Herbs	70	10	20	70

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Forest	Forest
Sub-dominant	Residential	Residential
Mass Failures (ft)	53	0
Height (ft)	12	0
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	Present
4.2 Adjacent Wetlands	Present
4.3 Flow Status	Low
4.4 # of Debris Jams	1
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None

4.7 Stormwater Inputs

Field Ditch	0	Road Ditch	1
Urban Storm Pipe	0	Tile Drain	0
Overland Flow	0	Other	0

4.9 # of Beaver Dams	0
Affected Length (ft)	NA

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	0	1	12
	Diagonal	Delta	Island
	1	0	0

5.2 Other Features	Flood	NCO	Avulsion
	2	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts

# SRs	# HCs	Trib Rejuv.
3	0	No

5.4 Stream Ford or Animal Crossing:	None
5.5 Straightening	
Length (ft)	308
5.5 Dredging	None
Bridge and Culvert Survey	Yes

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cut
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M03	Segment:	A	Completion Date:	19-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	1,377	Segment Location:	From confluence with unnamed tributary (M02T1) at Hounsell Ave. to bypass culvert				

1.6 Grade Controls **None**

Type	Location	Total Ht	Ht Above	Photo	GPS Point

4.8 Channel Constrictions **Present**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.
Instream culvert	11	Yes	Yes	Yes	Yes
Bypass	Problems:	DA, SB			
Arch	20	Yes	Yes	Yes	No
Hounsell Ave.	Problems:	DA, DB, A			

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	15	None	Yes
7.2 Channel Aggradation	9	None	No
7.3 Widening Channel	13		No
7.4 Change in Planform	8		No
Total Score:	45		
Geomorphic Rating:	0.56		
Channel Evolution Model	F		
Channel Evolution Stage	III		
Geomorphic Condition	Fair		
Stream Sensitivity	Very high		

Channel Adjustment Processes Narrative

Minor historic incision and minor widening - major aggradation especially in the vicinity of the arch at Hounsell Road. Major planform adjustments (many flood chutes). Segment may have received increased flows from culvert causing major erosion and some planform change.

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignment

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M03	Segment:	B	Completion Date:	19-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	755	Segment Location:	From bypass culvert to about 200 feet downstream of Country Club Road				

Step 1. Valley and Floodplain

1.1 Segmentation:		CD
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	0
height	0	0
Roads	0	0
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	0	0
1.4 Adjacent Side	Left	Right
Hillside Slope	Extremely Steep	Very Steep
Continuous	Never	Never
W/in 1 bnkfl	Never	Never
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		452
Width Determination		Estimated
Ph. 2 Confinement Type		Very Broad
Rock Gorge?		No
Human Caused Change?		No

Step 2. Stream Channel

2.1 Bankfull Width (ft)	22.5
2.1a Wetted Width (ft)	3.3
2.1b Ratio (wetted/bkfl)	0.15
2.2 Max Depth (ft)	2.2
2.3 Mean Depth (ft)	1.18
2.4 Floodprone Width (ft)	52.5
2.5 RAF	2.2
*Human Elevated FP	NA

Step 2. (Cont'd)

2.6 Width/Depth Ratio		19.1
2.7 Entrenchment Ratio		2.3
2.8 Incision Ratio		1.0
*Human Elevated Incision		NA
2.9 Sinuosity		Low (<1.2)
2.10 Riffle Type		Complete
2.11 Riffle Step Spacing		120
2.12 Substrate Composition		
Bedrock	0	%
Boulder	17	%
Cobble	43	%
Coarse Gravel	21	%
Fine Gravel	12	%
Sand	5	%
Silt & Smaller	2	%
Silt/Clay Present	Yes	
Embedded (chan)	24	%
Embedded (marg)	54	%
# LWD	4	
2.13 Average Largest Particle		
Bed	11.1	in
Bar	4.5	in
2.13a % Subs. Exp.	60	%
2.14 Stream Type		
Stream Type:	C	
Bed Material:	Cobble	
Subclass Slope:	b	
Bed Form:	Riffle-Pool	
Subdom Bed Form:	None	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
C, Gravel, Riffle-pool		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	Steep	Steep

Step 3. (Cont'd)

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

Bank Erosion	Left	Right
Erosion Length (ft)	20	73
Erosion Height (ft)	2.0	4.0
Revetment Type	None	None
Revetment Length (ft)	0	0

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	60	0	70	30
R Trees	60	0	70	30

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	40	0	0	100
R Shrubs/Saplings	10	0	0	100

	% Cover	Invasive	Grasses	Forbs
L Herbs	70	0	10	90
R Herbs	70	0	10	90

Bank Canopy	Left	Right
Canopy %	76-100	51-75
Mid-channel canopy	Closed	

3.2 Riparian Buffer		
Buffer Width	Left	Right
Dominant	>200	26-50
Sub-dominant	26-50	51-75
Length <25 ft	0	64

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	70	0	80	20
R Trees	30	0	60	40

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	20	0	0	100
R Shrubs/Saplings	10	0	0	100

	% Cover	Invasive	Grasses	Forbs
L Herbs	40	0	10	90
R Herbs	30	0	10	90

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Forest	Commercial
Sub-dominant	Commercial	Forest
Mass Failures (ft)	0	0
Height (ft)	0	0
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	None
4.2 Adjacent Wetlands	None
4.3 Flow Status	Low
4.4 # of Debris Jams	0
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None

4.7 Stormwater Inputs			
Field Ditch	0	Road Ditch	0
Urban Storm Pipe	0	Tile Drain	0
Overland Flow	1	Other	0

4.9 # of Beaver Dams	0
Affected Length (ft)	NA

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	0	0	9
	Diagonal	Delta	Island
	1	0	0

5.2 Other Features	Flood	NCO	Avulsion
	2	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts		
# SRs	# HCs	Trib Rejuv.
2	0	No

5.4 Stream Ford or Animal Crossing:		None
5.5 Straightening	None	
Length (ft)	0	
5.5 Dredging	None	
Bridge and Culvert Survey	No	

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cut
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M03	Segment:	B	Completion Date:	19-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	755	Segment Location:	From bypass culvert to about 200 feet downstream of Country Club Road				

1.6 Grade Controls **None**

Type	Location	Total Ht	Ht Above	Photo	GPS Point

4.8 Channel Constrictions **None**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	19	None	No
7.2 Channel Aggradation	13	None	No
7.3 Widening Channel	18		No
7.4 Change in Planform	16		No
Total Score:	66		
Geomorphic Rating:	0.83		
Channel Evolution Model	F		
Channel Evolution Stage	I		
Geomorphic Condition	Good		
Stream Sensitivity	Moderate		

Channel Adjustment Processes Narrative

Minor aggradation - some steep riffles and one diagonal bar present. Right buffer has been altered for landscaping business. Clear cut on top of high bank on stream left on upstream end. Trees still on bank.

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignment

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M04	Segment:	A	Completion Date:	19-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	2,208	Segment Location:	From just below Country Club Road crossing to just downstream of where road gets closer to stream				

Step 1. Valley and Floodplain

1.1 Segmentation:		PS
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	160	0
height	0	0
Roads	0	0
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	0	0
1.4 Adjacent Side	Left	Right
Hillside Slope	Extremely Steep	Extremely Steep
Continuous	Sometimes	Sometimes
W/in 1 bnkfl	Sometimes	Sometimes
Texture	sand	sand
1.5 Valley Features		
Ph. 2 Valley Width (ft)		156
Width Determination		Measured
Ph. 2 Confinement Type		Broad
Rock Gorge?		No
Human Caused Change?		No

Step 2. Stream Channel

2.1 Bankfull Width (ft)	23.2
2.1a Wetted Width (ft)	3.7
2.1b Ratio (wetted/bkfl)	0.16
2.2 Max Depth (ft)	1.95
2.3 Mean Depth (ft)	1.36
2.4 Floodprone Width (ft)	48.2
2.5 RAF	1.95
*Human Elevated FP	NA

Step 2. (Cont'd)

2.6 Width/Depth Ratio		17.1
2.7 Entrenchment Ratio		2.1
2.8 Incision Ratio		1.0
*Human Elevated Incision		NA
2.9 Sinuosity	Moderate (1.2-1.5)	
2.10 Riffle Type		Complete
2.11 Riffle Step Spacing		227
2.12 Substrate Composition		
Bedrock	0	%
Boulder	10	%
Cobble	39	%
Coarse Gravel	25	%
Fine Gravel	17	%
Sand	9	%
Silt & Smaller	0	%
Silt/Clay Present	No	
Embedded (chan)	12	%
Embedded (marg)	50	%
# LWD	12	
2.13 Average Largest Particle		
Bed	11.1	in
Bar	4.5	in
2.13a % Subs. Exp.	80	%
2.14 Stream Type		
Stream Type:	C	
Bed Material:	Gravel	
Subclass Slope:	b	
Bed Form:	Step Pool	
Subdom Bed Form:	Plane Bed	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
C, Gravel, Riffle-pool		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	Steep	Steep

Step 3. (Cont'd)

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

Bank Erosion	Left	Right
Erosion Length (ft)	285	200
Erosion Height (ft)	6.0	4.0
Revetment Type	Rip-rap	Multiple
Revetment Length (ft)	28	35

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	60	0	60	40
R Trees	60	0	60	40

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	30	0	0	100
R Shrubs/Saplings	30	0	0	100

	% Cover	Invasive	Grasses	Forbs
L Herbs	60	0	10	90
R Herbs	60	0	10	90

Bank Canopy	Left	Right
Canopy %	76-100	76-100
Mid-channel canopy	Closed	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	>200	>200
Sub-dominant	26-50	101-150
Length <25 ft	141	44

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	80	0	60	40
R Trees	80	0	60	40

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	30	0	0	100
R Shrubs/Saplings	30	0	0	100

	% Cover	Invasive	Grasses	Forbs
L Herbs	40	0	0	100
R Herbs	40	0	0	100

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Forest	Forest
Sub-dominant	Residential	Commercial
Mass Failures (ft)	78	31
Height (ft)	24	40
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	Minimum
4.2 Adjacent Wetlands	None
4.3 Flow Status	Low
4.4 # of Debris Jams	1
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None

4.7 Stormwater Inputs

Field Ditch	0	Road Ditch	1
Urban Storm Pipe	0	Tile Drain	0
Overland Flow	0	Other	0

4.9 # of Beaver Dams	0
Affected Length (ft)	NA

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	0	0	10
	Diagonal	Delta	Island
	0	0	2

5.2 Other Features	Flood	NCO	Avulsion
	7	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts

# SRs	# HCs	Trib Rejuv.
1	0	No

5.4 Stream Ford or Animal Crossing:		None
5.5 Straightening	None	
Length (ft)	0	
5.5 Dredging	None	
Bridge and Culvert Survey	Yes	

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cut
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M04	Segment:	A	Completion Date:	19-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	2,208	Segment Location:	From just below Country Club Road crossing to just downstream of where road gets closer to stream.				

1.6 Grade Controls **None**

Type	Location	Total Ht	Ht Above	Photo	GPS Point

4.8 Channel Constrictions **Present**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.
Other	16	Yes	No	Yes	Yes
Rockwall	Problems:	DA, A			
Instream culvert	8	Yes	Yes	Yes	Yes
Country Club Rd	Problems:	DA			
Other	10.5	No	No	Yes	Yes
Granite blocks	Problems:	SB, SA			

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	19	None	No
7.2 Channel Aggradation	15	None	No
7.3 Widening Channel	16		No
7.4 Change in Planform	10		No
Total Score:	60		
Geomorphic Rating:	0.75		
Channel Evolution Model	F		
Channel Evolution Stage	I		
Geomorphic Condition	Good		
Stream Sensitivity	High		

Channel Adjustment Processes Narrative

Minor aggradation; planform adjustments is major due to alteration of channel where rock wall was placed and streamflow was diverted. An island was formed and flood chutes downstream indicate a major planform change.

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignment

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	8-Nov-10
Stream:	Jewett Brook	Reach #:	M04	Segment:	B	Completion Date:	19-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	1,401	Segment Location:	From just below where road gets closer to stream to the confluence of an unnamed tributary (M04T2)				

Step 1. Valley and Floodplain

1.1 Segmentation:		PS
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	0
height	0	0
Roads	0	440
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	0	0
1.4 Adjacent Side	Left	Right
Hillside Slope	Very Steep	Extremely Steep
Continuous	Never	Sometimes
W/in 1 bnkfl	Never	Sometimes
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		212
Width Determination		Measured
Ph. 2 Confinement Type		Broad
Rock Gorge?		No
Human Caused Change?		Yes

Step 2. Stream Channel

2.1 Bankfull Width (ft)	34.7
2.1a Wetted Width (ft)	3
2.1b Ratio (wetted/bkfl)	0.09
2.2 Max Depth (ft)	1.8
2.3 Mean Depth (ft)	0.97
2.4 Floodprone Width (ft)	84.2
2.5 RAF	1.8
*Human Elevated FP	NA

Step 2. (Cont'd)

2.6 Width/Depth Ratio		35.8
2.7 Entrenchment Ratio		2.4
2.8 Incision Ratio		1.0
*Human Elevated Incision		NA
2.9 Sinuosity		Moderate (1.2-
2.10 Riffle Type		Complete
2.11 Riffle Step Spacing		78
2.12 Substrate Composition		
Bedrock	0	%
Boulder	3	%
Cobble	24	%
Coarse Gravel	35	%
Fine Gravel	22	%
Sand	9	%
Silt & Smaller	7	%
Silt/Clay Present	Yes	
Embedded (chan)	2	%
Embedded (marg)	44	%
# LWD	18	
2.13 Average Largest Particle		
Bed	9.3	in
Bar	4.1	in
2.13a % Subs. Exp.	70	%
2.14 Stream Type		
Stream Type:	C	
Bed Material:	Gravel	
Subclass Slope:	b	
Bed Form:	Riffle-Pool	
Subdom Bed Form:	None	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
C, Gravel, Riffle-pool		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	Steep	Steep

Step 3. (Cont'd)

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

Bank Erosion	Left	Right
Erosion Length (ft)	17	216
Erosion Height (ft)	8.0	4.0
Revetment Type	None	None
Revetment Length (ft)	0	0

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	70	0	30	70
R Trees	70	0	30	70

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	50	0	0	100
R Shrubs/Saplings	50	0	0	100

	% Cover	Invasive	Grasses	Forbs
L Herbs	70	0	60	40
R Herbs	70	0	60	40

Bank Canopy	Left	Right
Canopy %	76-100	76-100
Mid-channel canopy	Closed	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	>200	101-150
Sub-dominant	None	51-75
Length <25 ft	0	0

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	80	0	40	60
R Trees	80	0	40	60

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	50	0	0	100
R Shrubs/Saplings	70	0	0	100

	% Cover	Invasive	Grasses	Forbs
L Herbs	60	0	30	70
R Herbs	60	0	30	70

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Forest	Forest
Sub-dominant	None	Residential
Mass Failures (ft)	0	0
Height (ft)	0	0
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	Minimum
4.2 Adjacent Wetlands	Minimum
4.3 Flow Status	Low
4.4 # of Debris Jams	0
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None

4.7 Stormwater Inputs			
Field Ditch	0	Road Ditch	6
Urban Storm Pipe	0	Tile Drain	0
Overland Flow	0	Other	0

4.9 # of Beaver Dams	0
Affected Length (ft)	NA

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	1	0	14
	Diagonal	Delta	Island
	1	0	0

5.2 Other Features	Flood	NCO	Avulsion
	2	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts		
# SRs	# HCs	Trib Rejuv.
1	0	No

5.4 Stream Ford or Animal Crossing:	None
5.5 Straightening	None
Length (ft)	0
5.5 Dredging	None
Bridge and Culvert Survey	No

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cut
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	8-Nov-10
Stream:	Jewett Brook	Reach #:	M04	Segment:	B	Completion Date:	19-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	1,401	Segment Location:	From just below where road gets closer to stream to the confluence of an unnamed tributary (M04T2)				

1.6 Grade Controls **Present**

Type	Location	Total Ht	Ht Above	Photo	GPS Point
Ledge		1	0.5	Yes	No

4.8 Channel Constrictions **None**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	19	None	No
7.2 Channel Aggradation	14	None	No
7.3 Widening Channel	16		No
7.4 Change in Planform	13		No
Total Score:	62		
Geomorphic Rating:	0.78		
Channel Evolution Model	F		
Channel Evolution Stage	I		
Geomorphic Condition	Good		
Stream Sensitivity	High		

Channel Adjustment Processes Narrative

Minor aggradation; stormwater inputs may be causing some increase in flow. Banks are very stable with good floodplain access. Two flood chutes reflect planform adjustment. Channel may be a "B" in places.

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignment

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	9-Nov-10
Stream:	Unnamed Tributary	Reach #:	M04T2.01	Segment:	A	Completion Date:	18-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	W	Rain:	No
Segment Length (ft):	1,053	Segment Location:	From confluence with Jewett Brook to upper extent of the wetlanc				

Step 1. Valley and Floodplain

1.1 Segmentation:		CD
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	0
height	0	0
Roads	0	0
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	0	0
1.4 Adjacent Side	Left	Right
Hillside Slope	Very Steep	Very Steep
Continuous	Never	Never
W/in 1 bnkfl	Never	Never
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		0
Width Determination		Measured
Ph. 2 Confinement Type		Very Broad
Rock Gorge?		No
Human Caused Change?		No

Step 2. Stream Channel

2.1 Bankfull Width (ft)	0
2.1a Wetted Width (ft)	0
2.1b Ratio (wetted/bkfl)	0.00
2.2 Max Depth (ft)	0
2.3 Mean Depth (ft)	0.00
2.4 Floodprone Width (ft)	0
2.5 RAF	0
*Human Elevated FP	NA

Step 2. (Cont'd)

2.6 Width/Depth Ratio		
2.7 Entrenchment Ratio		
2.8 Incision Ratio		
*Human Elevated Incision		NA
2.9 Sinuosity	Moderate (1.2-1.5)	
2.10 Riffle Type	Not Applicable	
2.11 Riffle Step Spacing		0
2.12 Substrate Composition		
Bedrock	0	%
Boulder	0	%
Cobble	0	%
Coarse Gravel	0	%
Fine Gravel	0	%
Sand	0	%
Silt & Smaller	0	%
Silt/Clay Present	Yes	
Embedded (chan)	0	%
Embedded (marg)	0	%
# LWD	0	
2.13 Average Largest Particle		
Bed	0	in
Bar	0	in
2.13a % Subs. Exp.	0	%
2.14 Stream Type		
Stream Type:	E	
Bed Material:	Gravel	
Subclass Slope:	None	
Bed Form:	Dune-Ripple	
Subdom Bed Form:	None	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
E, Dune-Ripple, Sand		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	Steep	Steep

Step 3. (Cont'd)

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

Bank Erosion	Left	Right
Erosion Length (ft)	0	0
Erosion Height (ft)	0.0	0.0
Revetment Type	None	None
Revetment Length (ft)	0	0

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	5	0	0	5
R Trees	5	0	0	5

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	0	0	0	0
R Shrubs/Saplings	0	0	0	0

	% Cover	Invasive	Grasses	Forbs
L Herbs	100	0	95	5
R Herbs	100	0	95	5

Bank Canopy	Left	Right
Canopy %	51-75	51-75
Mid-channel canopy	Open	

3.2 Riparian Buffer		
Buffer Width	Left	Right
Dominant	>200	>200
Sub-dominant	51-75	51-75
Length <25 ft	0	0

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	85	0	90	10
R Trees	85	0	90	10

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	20	0	10	90
R Shrubs/Saplings	20	0	10	90

	% Cover	Invasive	Grasses	Forbs
L Herbs	20	0	10	90
R Herbs	20	0	10	90

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Forest	Forest
Sub-dominant	Residential	Residential
Mass Failures (ft)	0	0
Height (ft)	0	0
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	Extensive
4.2 Adjacent Wetlands	Extensive
4.3 Flow Status	Low
4.4 # of Debris Jams	0
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None
4.7 Stormwater Inputs	
Field Ditch 0	Road Ditch 0
Urban Storm Pipe 0	Tile Drain 0
Overland Flow 0	Other 0
4.9 # of Beaver Dams	1
Affected Length (ft)	620

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	1	0	14
	Diagonal	Delta	Island
	1	0	0

5.2 Other Features	Flood	NCO	Avulsion
	2	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts		
# SRs	# HCs	Trib Rejuv.
0	0	No

5.4 Stream Ford or Animal Crossing:	None
5.5 Straightening None	
Length (ft) 0	
5.5 Dredging	None
Bridge and Culvert Survey	Yes

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cu
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	9-Nov-10
Stream:	Unnamed Tributary	Reach #:	M04T2.01	Segment:	A	Completion Date:	18-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	W	Rain:	No
Segment Length (ft):	1,053	Segment Location:	From confluence with Jewett Brook to upper extent of the wetland				

1.6 Grade Controls **None**

Type	Location	Total Ht	Ht Above	Photo	GPS Point

4.8 Channel Constrictions **Present**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.
Instream culvert	3	Yes	Yes	Yes	Yes
Liberty Hill Road	Problems:	DB, SB			

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	0	None	No
7.2 Channel Aggradation	0	None	No
7.3 Widening Channel	0		No
7.4 Change in Planform	0		No
Total Score:	0		
Geomorphic Rating:	0.00		
Channel Evolution Model	NA		
Channel Evolution Stage	NA		
Geomorphic Condition	Good		
Stream Sensitivity	NA		

Channel Adjustment Processes Narrative

Not assessed - Wetland. Narrow "E" channel through wetland --- very little flow (if any).

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignment

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	9-Nov-10
Stream:	Unnamed Tributary	Reach #:	M04T2.01	Segment:	B	Completion Date:	18-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	O	Rain:	No
Segment Length (ft):	1,380	Segment Location:	From upper extent of the wetland to about 700 feet downstream from lake outle				

Step 1. Valley and Floodplain

1.1 Segmentation:		CD
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	0
height	0	0
Roads	0	0
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	0	0
1.4 Adjacent Side	Left	Right
Hillside Slope	Very Steep	Very Steep
Continuous	Never	Never
W/in 1 bnkfl	Sometimes	Sometimes
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		0
Width Determination		NA
Ph. 2 Confinement Type		NA
Rock Gorge?		No
Human Caused Change?		No

Step 2. Stream Channel

2.1 Bankfull Width (ft)	0
2.1a Wetted Width (ft)	0
2.1b Ratio (wetted/bkfl)	0.00
2.2 Max Depth (ft)	0
2.3 Mean Depth (ft)	0.00
2.4 Floodprone Width (ft)	0
2.5 RAF	0
*Human Elevated FP	NA

Step 2. (Cont'd)

2.6 Width/Depth Ratio		
2.7 Entrenchment Ratio		
2.8 Incision Ratio		
*Human Elevated Incision		NA
2.9 Sinuosity		Low (<1.2)
2.10 Riffle Type		Not Applicable
2.11 Riffle Step Spacing		0
2.12 Substrate Composition		
Bedrock	0	%
Boulder	0	%
Cobble	0	%
Coarse Gravel	0	%
Fine Gravel	0	%
Sand	0	%
Silt & Smaller	0	%
Silt/Clay Present	Yes	
Embedded (chan)	0	%
Embedded (marg)	0	%
# LWD	0	
2.13 Average Largest Particle		
Bed	0	in
Bar	0	in
2.13a % Subs. Exp.	0	%
2.14 Stream Type		
Stream Type:	C	
Bed Material:	Gravel	
Subclass Slope:	None	
Bed Form:	Riffle-Pool	
Subdom Bed Form:	None	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
C, Gravel, Riffle-pool		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	Steep	Steep

Step 3. (Cont'd)

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

Bank Erosion	Left	Right
Erosion Length (ft)	0	0
Erosion Height (ft)	0.0	0.0
Revetment Type	None	None
Revetment Length (ft)	0	0

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	60	0	90	10
R Trees	60	0	90	10

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	30	0	0	100
R Shrubs/Saplings	30	0	0	100

	% Cover	Invasive	Grasses	Forbs
L Herbs	50	0	20	80
R Herbs	50	0	20	80

Bank Canopy	Left	Right
Canopy %	76-100	76-100
Mid-channel canopy	Closed	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	>200	>200
Sub-dominant	None	None
Length <25 ft	0	0

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	60	0	80	20
R Trees	70	0	90	10

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	50	0	0	100
R Shrubs/Saplings	10	0	0	100

	% Cover	Invasive	Grasses	Forbs
L Herbs	40	0	10	90
R Herbs	10	0	10	90

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Forest	Forest
Sub-dominant	None	None
Mass Failures (ft)	0	0
Height (ft)	0	0
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	Present
4.2 Adjacent Wetlands	Present
4.3 Flow Status	Low
4.4 # of Debris Jams	0
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None
4.7 Stormwater Inputs	
Field Ditch	0
Road Ditch	0
Urban Storm Pipe	0
Tile Drain	0
Overland Flow	0
Other	0
4.9 # of Beaver Dams	0
Affected Length (ft)	0

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	0	0	0
	Diagonal	Delta	Island
	0	0	0

5.2 Other Features	Flood	NCO	Avulsion
	0	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts		
# SRs	# HCs	Trib Rejuv.
0	0	No

5.4 Stream Ford or Animal Crossing:	None
5.5 Straightening	None
Length (ft)	0
5.5 Dredging	None
Bridge and Culvert Survey	No

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cu
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	9-Nov-10
Stream:	Unnamed Tributary	Reach #:	M04T2.01	Segment:	B	Completion Date:	18-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	O	Rain:	No
Segment Length (ft):	1,380	Segment Location:	From upper extent of the wetland to about 700 feet downstream from lake outlet				

1.6 Grade Controls **None**

Type	Location	Total Ht	Ht Above	Photo	GPS Point

4.8 Channel Constrictions **None**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	0	None	No
7.2 Channel Aggradation	0	None	No
7.3 Widening Channel	0		No
7.4 Change in Planform	0		No
Total Score:	0		
Geomorphic Rating:	0.00		
Channel Evolution Model	NA		
Channel Evolution Stage	NA		
Geomorphic Condition	Good		
Stream Sensitivity	NA		

Channel Adjustment Processes Narrative

Not assessed - No water in channel

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignment

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M05	Segment:	NA	Completion Date:	18-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	3,740	Segment Location:	From confluence with unnamed tributary to wetland				

Step 1. Valley and Floodplain

1.1 Segmentation:		None
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	0
height	0	0
Roads	0	0
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	0	0
1.4 Adjacent Side	Left	Right
Hillside Slope	Hilly	Very Steep
Continuous	Never	Never
W/in 1 bnkfl	Never	Never
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		311
Width Determination		Estimated
Ph. 2 Confinement Type		Very Broad
Rock Gorge?		No
Human Caused Change?		No

Step 2. Stream Channel

2.1 Bankfull Width (ft)	23.8
2.1a Wetted Width (ft)	3.5
2.1b Ratio (wetted/bkfl)	0.15
2.2 Max Depth (ft)	1.8
2.3 Mean Depth (ft)	1.15
2.4 Floodprone Width (ft)	74.5
2.5 RAF	2.1
*Human Elevated FP	NA

Step 2. (Cont'd)

2.6 Width/Depth Ratio		20.7
2.7 Entrenchment Ratio		3.1
2.8 Incision Ratio		1.2
*Human Elevated Incision		NA
2.9 Sinuosity	Moderate (1.2-1.5)	
2.10 Riffle Type		Complete
2.11 Riffle Step Spacing		95
2.12 Substrate Composition		
Bedrock	0	%
Boulder	2	%
Cobble	31	%
Coarse Gravel	38	%
Fine Gravel	16	%
Sand	13	%
Silt & Smaller	0	%
Silt/Clay Present	No	
Embedded (chan)	5	%
Embedded (marg)	NA	%
# LWD	29	
2.13 Average Largest Particle		
Bed	11.3	in
Bar	3.9	in
2.13a % Subs. Exp.	90	%
2.14 Stream Type		
Stream Type:	C	
Bed Material:	Gravel	
Subclass Slope:	None	
Bed Form:	Riffle-Pool	
Subdom Bed Form:	Braided	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
C, Gravel, Riffle-pool		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	Steep	Steep

Step 3. (Cont'd)

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

Bank Erosion	Left	Right
Erosion Length (ft)	998	934
Erosion Height (ft)	2.0	2.0
Revetment Type	None	Rip-rap
Revetment Length (ft)	0	49

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	50	0	60	40
R Trees	50	0	60	40

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	30	0	0	100
R Shrubs/Saplings	30	0	0	100

	% Cover	Invasive	Grasses	Forbs
L Herbs	70	0	10	90
R Herbs	70	0	10	90

Bank Canopy	Left	Right
Canopy %	76-100	76-100
Mid-channel canopy	Closed	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	>200	>200
Sub-dominant	None	None
Length <25 ft	0	0

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	70	0	60	40
R Trees	70	0	60	40

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	30	0	0	100
R Shrubs/Saplings	30	0	0	100

	% Cover	Invasive	Grasses	Forbs
L Herbs	50	0	10	90
R Herbs	50	0	10	90

3.3 Riparian Corridor

Corridor Land Use	Left	Right
Dominant	Forest	Forest
Sub-dominant	None	None
Mass Failures (ft)	0	0
Height (ft)	0	0
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	Extensive
4.2 Adjacent Wetlands	Present
4.3 Flow Status	Low
4.4 # of Debris Jams	6
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None

4.7 Stormwater Inputs

Field Ditch	0	Road Ditch	3
Urban Storm Pipe	0	Tile Drain	0
Overland Flow	0	Other	0

4.9 # of Beaver Dams	0
Affected Length (ft)	0

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	1	5	30
	Diagonal	Delta	Island
	1	1	3

5.2 Other Features	Flood	NCO	Avulsion
	8	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts

	# SRs	# HCs	Trib Rejuv.
	1	0	Yes

5.4 Stream Ford or Animal Crossing:		None
5.5 Straightening	None	
Length (ft)	0	
5.5 Dredging	None	
Bridge and Culvert Survey	Yes	

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cu
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M05	Segment:	NA	Completion Date:	18-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	NA	Rain:	No
Segment Length (ft):	3,740	Segment Location:	From confluence with unnamed tributary to wetland				

1.6 Grade Controls **None**

Type	Location	Total Ht	Ht Above	Photo	GPS Point

4.8 Channel Constrictions **Present**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.
Instream culvert	4	Yes	Yes	Yes	Yes
Swan Road	Problems:	DB, SB, A			

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	18	None	No
7.2 Channel Aggradation	12	None	No
7.3 Widening Channel	12		No
7.4 Change in Planform	12		No
Total Score:	54		
Geomorphic Rating:	0.68		
Channel Evolution Model	F		
Channel Evolution Stage	I		
Geomorphic Condition	Good		
Stream Sensitivity	High		

Channel Adjustment Processes Narrative

Minor widening, aggradation, & planform change. No incision. Planform change due mostly to debris jams diverting water flow. Widening is minor - erosion may have been overestimated due to lack of water in channel. Erosion mostly in upper half of segment below culvert.

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignmen

Phase 2 Segment Summary (page 1)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M06	Segment:	NA	Completion Date:	18-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	W	Rain:	No
Segment Length (ft):	1,319	Segment Location:	From lower end of wetland to headwaters				

Step 1. Valley and Floodplain

1.1 Segmentation:		None
1.2 Alluvial Fan:		None
1.3 Corridor Encroachments:		
Length (ft)	Left	Right
Berms	0	0
height	0	0
Roads	0	0
height	0	0
Railroads	0	0
height	0	0
Improved Paths	0	0
height	0	0
Development	0	0
1.4 Adjacent Side	Left	Right
Hillside Slope	NA	NA
Continuous	NA	NA
W/in 1 bnkfl	NA	NA
Texture	NE	NE
1.5 Valley Features		
Ph. 2 Valley Width (ft)		NA
Width Determination		NA
Ph. 2 Confinement Type		NA
Rock Gorge?		No
Human Caused Change?		No

Step 2. Stream Channel

2.1 Bankfull Width (ft)	0
2.1a Wetted Width (ft)	0
2.1b Ratio (wetted/bkfl)	0.00
2.2 Max Depth (ft)	0
2.3 Mean Depth (ft)	0.00
2.4 Floodprone Width (ft)	0
2.5 RAF	0
*Human Elevated FP	NA

Step 2. (Cont'd)

2.6 Width/Depth Ratio		#DIV/0!
2.7 Entrenchment Ratio		#DIV/0!
2.8 Incision Ratio		#DIV/0!
*Human Elevated Incision		NA
2.9 Sinuosity		NA
2.10 Riffle Type		NA
2.11 Riffle Step Spacing		0
2.12 Substrate Composition		
Bedrock	0	%
Boulder	0	%
Cobble	0	%
Coarse Gravel	0	%
Fine Gravel	0	%
Sand	0	%
Silt & Smaller	0	%
Silt/Clay Present	Yes	
Embedded (chan)	0	%
Embedded (marg)	0	%
# LWD	0	
2.13 Average Largest Particle		
Bed	0	in
Bar	0	in
2.13a % Subs. Exp.	0	%
2.14 Stream Type		
Stream Type:	E	
Bed Material:	Sand	
Subclass Slope:	None	
Bed Form:	Dune-Ripple	
Subdom Bed Form:	None	
Field Measured Slope:	NE	
2.15 Reference Stream Type		
E, Sand, Dune-Ripple		

Step 3. Riparian Features

3.1 Stream Banks	Left	Right
Typical Bank Slope	Steep	Steep

Step 3. (Cont'd)

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

Bank Erosion	Left	Right
Erosion Length (ft)	0	0
Erosion Height (ft)	0.0	0.0
Revetment Type	None	None
Revetment Length (ft)	0	0

Near Bank Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	70	0	40	60
R Trees	70	0	40	60

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	50	0	0	100
R Shrubs/Saplings	50	0	0	100

	% Cover	Invasive	Grasses	Forbs
L Herbs	80	0	80	20
R Herbs	80	0	80	20

Bank Canopy	Left	Right
Canopy %	51-75	51-75
Mid-channel canopy	Open	

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	>200	>200
Sub-dominant	None	None
Length <25 ft	0	0

Buffer Veg. Type	% Cover	Invasive	Conifer	Deciduous
L Trees	80	0	70	30
R Trees	80	0	70	30

	% Cover	Invasive	WADs	Saplings
L Shrubs/Saplings	40	0	0	100
R Shrubs/Saplings	40	0	0	100

	% Cover	Invasive	Grasses	Forbs
L Herbs	70	0	10	90
R Herbs	70	0	10	90

3.3 Riparian Corridor	Left	Right
Corridor Land Use		
Dominant	Forest	Forest
Sub-dominant	None	None
Mass Failures (ft)	0	0
Height (ft)	0	0
Gullies (number)	0	0
Height (ft)	0	0

Step 4. Flow & Flow Modifiers

4.1 Springs/ Seeps	Extensive
4.2 Adjacent Wetlands	Extensive
4.3 Flow Status	Low
4.4 # of Debris Jams	0
4.5 Flow Reg Type	None
4.6 Up/Downstream Flow Reg	None

4.7 Stormwater Inputs			
Field Ditch	0	Road Ditch	0
Urban Storm Pipe	0	Tile Drain	0
Overland Flow	0	Other	0

4.9 # of Beaver Dams	1
Affected Length (ft)	130

Step 5. Channel Bed & Planform Changes

5.1 Bar Types	Mid	Point	Side
	0	0	0
	Diagonal	Delta	Island
	0	0	0

5.2 Other Features	Flood	NCO	Avulsion
	0	0	0
	Braiding		
	0		

5.3 Steep Riffles & Headcuts		
# SRs	# HCs	Trib Rejuv.
0	0	No

5.4 Stream Ford or Animal Crossing:	None
5.5 Straightening	None
Length (ft)	0
5.5 Dredging	None
Bridge and Culvert Survey	No

Note: Step 1.6 Grade Controls and Step 4.8 Channel Constrictions on Sheet 2 of this workbook.

Legend: RAF=Recently Abandoned Floodplain, FP=Floodplain, LWD=Large Woody Debris, % Subs. Exp.=Exposed Substrate, Flood=Flood Chute, NCO=Neck Cutoff, SR=Steep Riffle, HC=Head Cu
NE= Not evaluated, NA=Not applicable

Phase 2 Segment Summary (page 2)

Project:	Jewett Brook					Sheet Last Revised:	5-Nov-10
Stream:	Jewett Brook	Reach #:	M06	Segment:	NA	Completion Date:	18-Aug-10
Organization:	BCE	Observers:	MN, PD	Why Not Assessed:	W	Rain:	No
Segment Length (ft):	1,319	Segment Location:	From lower end of wetland to headwaters				

1.6 Grade Controls **None**

Type	Location	Total Ht	Ht Above	Photo	GPS Point

4.8 Channel Constrictions **None**

Type	Width (ft)	Photo	GPS	Channel Constr.	Floodprone Constr.

Step 7. Rapid Geomorphic Assessment Summary (*fill out RGA sheet first, then enter narrative*)

Confinement Type Unconfined

	Score	STD	Historic
7.1 Channel Degradation	0	None	No
7.2 Channel Aggradation	0	None	No
7.3 Widening Channel	0		No
7.4 Change in Planform	0		No
Total Score:	0		
Geomorphic Rating:	0.00		
Channel Evolution Model	F		
Channel Evolution Stage	I		
Geomorphic Condition	Reference		
Stream Sensitivity	NA		

Channel Adjustment Processes Narrative

Not assessed - wetland

Notes:

Legend: Ht.=Height, Constr.=Constriction, Old abutm.=Old abutment, DA=Deposition above, DB=Deposition below, SA=Scour above, SB=Scour below, A=Alignment