Worksheet 2-3. Field form for Level II stream classification (Rosgen, 1996; Rosgen , 2006b).

Stream: Sweet Run	
Basin:	Drainage Area: acres mi^2
Location:	
Twp.&Rge:	Sec.&Qtr.:
Cross-Section Monuments (Lat./Long.):	Date:
Observers: Team 1	Valley Type: VIII b

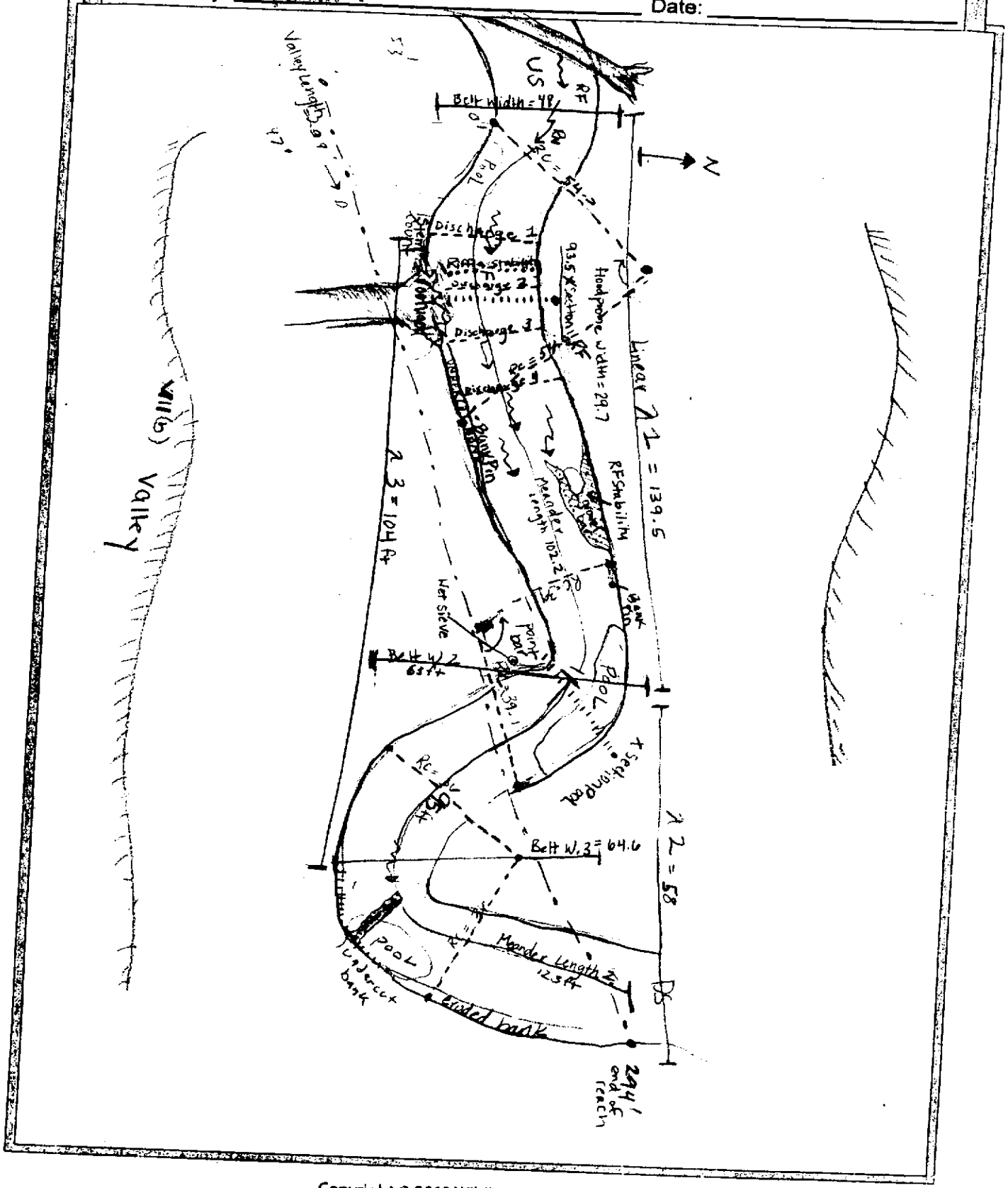
Bankfull WIDTH (W_{bkf}) WIDTH of the stream channel at bankfull stage elevation, in a riffle section.	21.4	ft
Bankfull DEPTH (d_{bkf}) Mean DEPTH of the stream channel cross-section, at bankfull stage elevation, in a riffle section (d_{bkf} = A / W_{bkf}).	1.0	ft
Bankfull X-Section AREA (A_{bkf}) AREA of the stream channel cross-section, at bankfull stage elevation, in a riffle section.	20.4	ft^2
Width/Depth Ratio (W_{bkf} / d_{bkf}) Bankfull WIDTH divided by bankfull mean DEPTH, in a riffle section.	21.4	ft/ft
Maximum DEPTH (d_{mbkf}) Maximum depth of the bankfull channel cross-section, or distance between the bankfull stage and Thalweg elevations, in a riffle section.	1.9	ft
WIDTH of Flood-Prone Area (W_{fpa}) Twice maximum DEPTH, or (2 x d_{mbkf}) = the stage/elevation at which flood-prone area WIDTH is determined in a riffle section.	29.0	ft
Entrenchment Ratio (ER) The ratio of flood-prone area WIDTH divided by bankfull channel WIDTH (W_{fpa} / W_{bkf}) (riffle section).	1.4	ft/ft
Channel Materials (Particle Size Index) D_{50} The D_{50} particle size index represents the mean diameter of channel materials, as sampled from the channel surface, between the bankfull stage and Thalweg elevations.	27	mm
Water Surface SLOPE (S) Channel slope = "rise over run" for a reach approximately 20–30 bankfull channel widths in length, with the "riffle-to-riffle" water surface slope representing the gradient at bankfull stage.	0.006 .6%	ft/ft
Channel SINUOSITY (k) Sinuosity is an index of channel pattern, determined from a ratio of stream length divided by valley length (SL / VL); or estimated from a ratio of valley slope divided by channel slope (VS / S).	1.4	

Stream Type B4c **See Classification Key (Figure 2-21)**

AREA SITE LOCATION...REACH MAP

Stream: Sweet Run Reach: #1

Drawn By: Team 1 Date:



Field Data Sheet for Discharge Measurements

Stream Discharge Measurement Sheet

Site ID #: Sweet Run
Name and Location: 30 ft along tape
Date: 3/20/14 Crew: Team 1

County: Loudon
Weather: 45°F
Cross-section Location:
Meter:

17.0 ft
Transect

Station	Width	Depth	Area (Width x Depth)	Run Length	Secs	Velocity (ft/s)	Average Velocity Use with 2pt method (0.2+0.8)/2	Discharge (Area x Velocity)
1 = 30 ft .25 = 4.25	4.25	0.4	1.7			0.32	Pools	0.54
.5 = 8.50	8.50	0.4	3.4			0.82		2.79
.75 = 12.75	12.75	0.7	8.925			0.81		7.23
2 = 85 ft 0.25 = 4.25	4.25	0.7	2.98			1.25		3.73
0.50 = 8.50	8.50	0.4	3.4			0.54		1.84
0.75 = 12.75	12.75	0.2	2.55			-0.16		-0.41
3 = 15' .25 = 3.75		.7				.98		
.50 = 7.50		.3				.14		
.75 = 11.25		.2				.49		
4 = 10.9' .25 = 16.85		.6				.64		
.50 = 13.8		.5				.52		
.75 =		.35				1.11		
0.85	1.7	.25	.425			.28		.119
2.55	1.7	.25	.425			~~-0.10~~		0
4.25	1.7	.4	.68			.35		.238
5.95	1.7	.35	.595			.5		.298
7.65	1.7	.3	.51			.8		.408
9.35	1.7	.4	.68			.92		.626
11.05	1.7	.3	.51			.68		.347
12.75	1.7	.75	1.275			.85		1.08
14.45	1.7	.7	1.19			.74		.881
16.15	1.7	.3	.51			.24		.122

17 / 10 = 1.7

Total Discharge: ______ CFS (oMeasured, o Estimated) 4.119 cfs

Comments:

Transects
1) 30
2) 85
3) 118.
4) 130

Field Data Sheet for Discharge Measurements

Stream Discharge Measurement Sheet

Site ID #: Sweet Run

Name and Location: _____

Date: _____ Crew: _____

County: _____

Weather: _____

Cross-section Location: _____

Meter: _____

Station	Width	Depth	Area (Width x Depth)	Run Length	Secs	Velocity (cfs)	Average Velocity Use with 2pt method (0.2+0.8)/2	Discharge (Area x Velocity)
.6	1.2	.5	.60			0.42		.252
1.8		.5	.60			0.88		.528
3		.5	.60			0.35		.21
4.2		.6	.72			0.70		.50
5.4		.6	.72			1.03		.742
6.6		.5	.60			1.16		.696
7.8		.5	.60			1.05		.63
9.0		.5	.60			1.08		.648
10.2		.3	.36			0.71		.256
11.4		.3	.36			0.45		.27

Total Discharge: 4.732 CFS (oMeasured, o Estimated)

Comments:

4.732 cfs

Stream Sweet Run Location: riffle Team: Beth, Rich, Kevin

Systematic transects spaced at 2 mean stream widths intervals. ***Velocity***, ***Depth***, ***Substrate***, and ***Embeddedness*** measurements taken at points 0.25, 0.5, and 0.75 wetted stream width of transect. Four substrate measurements taken at each observation point. Measurements taken from left descending bank to right descending bank

Silt (<0.062) = 1, Sand (0.062 - 2 mm) = 2, Gravel (fine; 2 – 16 mm) = 3, Gravel (coarse or "Pebble"; 17 – 63 mm) = 4, Cobble (64 – 256 mm) = 5, Boulder (256 – 4,096 mm) = 6, Bedrock (> 4,096 mm)

Embeddedness: **1** = <5%, **2** = 5 – 25%, **3** = 26 – 50%, **4** = 51 – 75%, **5** > 75%

Canopy presence/absence: taken with tube densiometer at 10 evenly spaced points per transect; P = 1.

Strip transect: ***Instream cover*** (2 foot intervals); >10 cm = 2 surfaces, <10 cm = 1 surface, <3 cm apart = 1 surface, > 3 cm apart = 2 surfaces; ***Structural complexity*** (6 foot intervals)

At each end of transect: ***Bank angle*** (taken with clinometer), ***Riparian cover*** density (taken with spherical densiometer)

Distance (feet)	Wetted Width	Velocity (ft/sec)	Depth (inches)	Substrate All gravel	Embedded	Bank angle (subtract from 180) L R	Instr Cover	Mesohabitat Type	Rip density L R	Canopy P/A
~~0~~ S	16'		220 mm	sand 130mm (50:25)→3 35mm 35mm		(14°) L 166°	2 H = 3	riffle	~~15~~ 14/17 16/17	~~10 P 15 P~~ 16 P 10 P
~~38~~ 9	16'		111 mm	45mm 11mm (36.25)→3 65mm 24mm		~~65° R (undercut)~~			94% 94%	13.8 P 12 P 10.4 P 9. P
13	16'		64 mm	~~40mm~~ 9mm 8mm (16.75)→3 40mm 10mm		(75°) 105° R				P P P P P
										10P = 100%

Center 10 (Mr)
12, 22, 18, 20
111, 111, 31, 6 = 37 → 3
21, 18

Stream Sweet Run Location: 85' #1 Team: Beth, Kevin, Rick

1) Extend both ends of the systematic transects for instream habitat to bankful locations. Where transect intercepts bankful location, center a 1 x 5 m quadrat perpendicular to the transect, with the bankful line marking the center of the streamside quadrat boundary. Make hardwood stem density counts just above ground level within each 1 x 5 m quadrat.
2) Extend both ends of the systematic transects for instream habitat 5 m into the riparian zone. Use a cruise prism to estimate area of board feet per acre via "point sampling". Multiply "in trees" by 10 to estimate basal area per acre in square feet.*

Distance (feet)	L or R Bank	Stem Density (#)	Point Sample # of "In" Trees	Basal Area (ft^2/acre)	L or R Bank	Stem Density (#)	Point Sample # of "In" Trees	Basal Area (ft^2/acre)
85	L	22	8	80	L			

The prism is held a comfortable distance away from the eye with the bottom edge parallel to the ground, and trees are sighted through the prism approximately 4.5 ft. above the ground. A tree is an "in" tree if the offset section of the tree overlaps the bole. A tree where the offset section of the trunk is perfectly aligned with the original bole is a borderline tree and commonly in practice, every other borderline tree is counted. A tree where the offset section of the tree does not overlap or touch the original bole is an "out" tree and is not counted. Basal area is estimated by multiplying the count of "in" trees at a given point by the 'factor' of the prism.

Stream _____ Location: 59' Team: _____

Systematic transects spaced at 2 mean stream widths intervals. *Velocity*, *Depth*, *Substrate*, and *Embeddedness* measurements taken at points 0.25, 0.5, and 0.75 wetted stream width of transect. Four substrate measurements taken at each observation point. Measurements taken from left descending bank to right descending bank

Silt (<0.062) = 1, Sand (0.062 - 2 mm) = 2, Gravel (fine; 2 – 16 mm) = 3, Gravel (coarse or "Pebble"; 17 – 63 mm) = 4, Cobble (64 – 256 mm) = 5, Boulder (256 – 4,096 mm) = 6, Bedrock (> 4,096 mm)

Embeddedness: **1** = <5%, **2** = 5 – 25%, **3** = 26 – 50%, **4** = 51 – 75%, **5** > 75%

Canopy presence/absence: taken with tube densiometer at 10 evenly spaced points per transect; P = 1.

Strip transect: *Instream cover* (2 foot intervals); >10 cm = 2 surfaces, <10 cm = 1 surface, <3 cm apart = 1 surface, > 3 cm apart = 2 surfaces; *Structural complexity* (6 foot intervals)

At each end of transect: *Bank angle* (taken with clinometer), *Riparian cover* density (taken with spherical densiometer)

Distance (feet)	Wetted Width	Velocity (ft/sec)	Depth (inches)	Substrate	Embedded	Bank angle L	Bank angle R	Instr Cover @ 1.7' intervals	Mesohabitat Type	Rip density L	Rip density R	Canopy P/A
4.25				4,1,4,5	5	163°	164°	6	35%			P
				G,G,G,G,S,S,G,G,C,C				7	47%			P
8.5				4,3,3,5	3			12	73%			P
				C,C,G,G,G,G,G,G,G,G				16	94%			P
12.75				4,5,4,3	3			9	53%			P
				[redacted],C,C,G,C,G,C,C,C,C				9	53%			P
								16	94			P
								17	100			P
								17	100			P
								17	100			P

Stream _____ Location: _____ Team: _____

1) Extend both ends of the systematic transects for instream habitat to bankful locations. Where transect intercepts bankful location, center a 1 x 5 m quadrat perpendicular to the transect, with the bankful line marking the center of the streamside quadrat boundary. Make hardwood stem density counts just above ground level within each 1 x 5 m quadrat.
2) Extend both ends of the systematic transects for instream habitat 5 m into the riparian zone. Use a cruise prism to estimate area of board feet per acre via "point sampling". Multiply "in trees" by 10 to estimate basal area per acre in square feet.*

Distance (feet)	L or R Bank	Stem Density (#)	Point Sample # of "In" Trees	Basal Area (ft^2/acre)	L or R Bank	Stem Density (#)	Point Sample # of "In" Trees	Basal Area (ft^2/acre)
59ft	L	48	9	90 ft²/ac	R	7	11	110 ft²/ac

The prism is held a comfortable distance away from the eye with the bottom edge parallel to the ground, and trees are sighted through the prism approximately 4.5 ft. above the ground. A tree is an "in" tree if the offset section of the tree overlaps the bole. A tree where the offset section of the trunk is perfectly aligned with the original bole is a borderline tree and commonly in practice, every other borderline tree is counted. A tree where the offset section of the tree does not overlap or touch the original bole is an "out" tree and is not counted. Basal area is estimated by multiplying the count of "in" trees at a given point by the 'factor' of the prism.