

12-8-2009

Ex. 279-US-431

Mike Gagner
R2 Resource Consultants

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SY-5



"Rite in the Rain"
ALL-WEATHER
LEVEL BOOK
No. 310 F

1418.01

April 12, 2004
Survey

SV-5

04/12/04

Habitat Mapping & Site Setup

Crew: M. Gagner

M. Appy

In Out

Time 9:45 10:00

5.6 9.0

35

Equipment: Nikon Cool 500i

Marsh McBrum 2000

SN 2005068

Photo Log Directions: From Sprague R.

Rd turn left onto Williamson River Rd

and follow for ~ 22 miles to head of Sprague

canyon. Rd turns to gravel near head

waters of Williamson R. proceed straight

and continue on gravel rd for ~ 11 miles to

T intersection turn left onto Rd 27 and

follow for ~ 1/2 mile to Sprague River crossing

turn right just before bridge crossing & follow to camp area.

SV-5

Habitat Mapping

04/12/04

Unit # Type Length Width Notes

1 riffle 106 35/10 30 100% c. 50%, 20 deep run

2 run 112 23

3 riffle 65 30

4 run 80 20 109 20 Trib. enters

5 run 153 20

6 scour pool 20 16 112 106

7 riffle 41 17 109 65

8 run 300 20 153 91 106 172

End

Habitat Composition

Length % Total

Run - 674 sample

Riffle - 212 sample

Pool - 20 full out

Total 906 yards

Random # for Unit Selection (Measure of stream start)

Run 3 (1106 x .3 = 331.8)

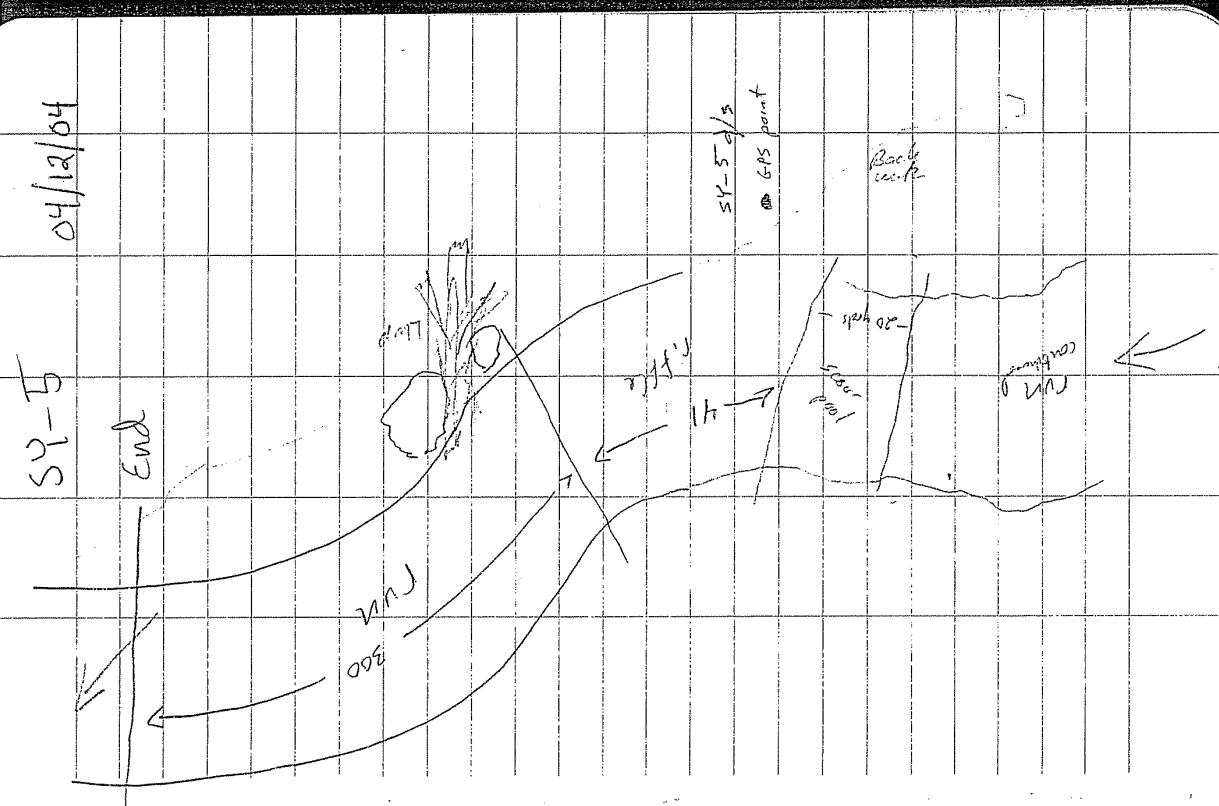
Riffle 42 (1106 x .37 = 409.2)

* selected new random # to keep within units

% of trib. that enters from right bank

(small probability spherical)

Photo #	Photo Log	SY-5	04/12/04
#9	Roll #4		
	Description		
	looking d/s from bridge and tree as right bank marker start of habitat reach.		
#8		looking d/s from end of unit #1	
#7		" d/s from bottom of unit #2	
#6		" d/s from bottom of unit #4	
#5		" d/s from " of unit #4	
#4		" d/s from last rifle	
#3		" d/s " last rifle unit #7	
#2		" @ SY-5 back beach	
#1		" d/s	
Roll #5			
#25	TR-3	Rifle looking RT → Lt	
#24	TR-2	" "	
#23	TR-1	" "	
#22		looking d/s from bottom of R. Rifle unit	
#21		looking d/s " top of con unit	
#20	TR-3	looking RT → Lt	
#19	TR-2	" "	
#18	TR-1	" "	



SQ-5 Run Unit 04/12/04

Unit Length = 109 yards

(measured d/s from w/s end) of unit) feet

TR-3 $109 \times .2 = 21.8 \text{ yrd} \left(\begin{array}{l} \text{"} \\ 66.0 \end{array} \right)$

TR-1 109 x .5 = 54.0 162.0

109 x .3 = 32.7

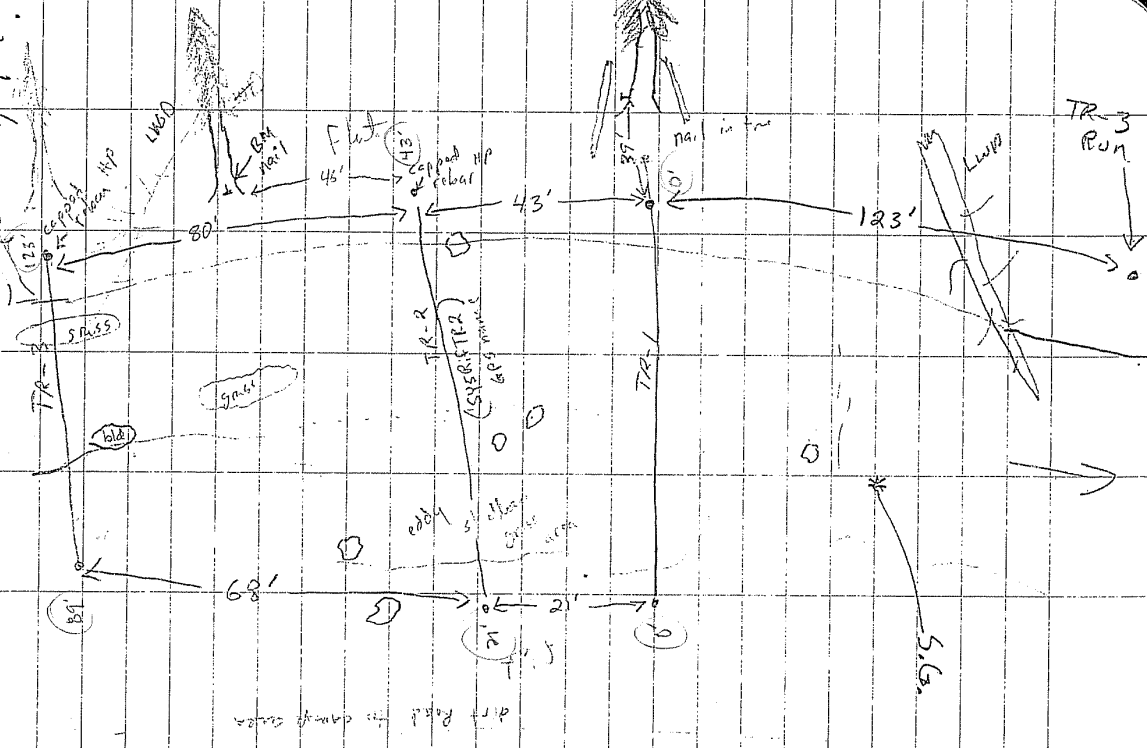
Riffle Unit

$$\text{unit length} = 65 \text{ yards}$$

()

$$65 \times .5 = 33.0$$

65 x .7 = 45.5 TR-1

$$65 \times .1 = 6.5$$


Run		Level	Loop	WSE	04/12/04	
STA	BS	HI	FS	Eleva	Rod	
TR-3	2.82			98.76	11/2/04	
TR-2		101.58	2.82	99.86		
BW-			2.78	98.80		
TR-1			1.69	99.89		
TR-1	1.39			99.89		
BW		101.28	2.48	98.80		
TR-2			1.91	99.37		
TR-3			2.53	98.75		
TR-3	2.85			98.75		
TR-2		101.6	2.23	99.37		

54-5		Discharge	04/12/04	
STA	Depth	Vel.	Notes	
STA	BS	HI	FS	Eleva Rod
TR-3		101.60		
LWS			5.65	96.24 0.29
RWS			6.15	96.21 0.76
TR-2				0.55
LWS			5.71	96.21 0.32
RWS			6.53	96.19 1.12
TR-1				
LWS			6.02	96.15 0.57
RWS			8.78	96.14 3.32

SY-5 Discharge				04/19/07
STA	Depth	Vel.	Notes	
RWE	99.0	0		
96	25	0		
93	45	0.5		
87	35	1.26		
83	4	0.7		
79	55	1.23		
75	8	1.07		
71	9	1.38		
67	1.4	1.75		
63	1.25	1.60		
59	1.70	1.60		
55	1.70	2.37		
51	2.1	2.53		
49	2.3	3.22		
47	2.4	3.24		
45	2.5	2.29 3.71		
43	2.2	2.83		
44	2.5	2.18 3.94		
42	2.1	2.55		
40	2.0	2.32		
38	1.3	2.61		
36	1.0	1.67		
34	0.6	2.15		
31	1.5	1.89		

SY-5 Discharge Continued				4/12/07
STA	Depth	Vel	Notes	
28	14	1.23		
25	25	0		
23.5	0	0		

SY-5



"*Write in the Rain*"
ALL-WEATHER
LEVEL BOOK
No. 310 F

6/25/04

SV-5

June 25, 2004

TIME	IN	OUT
9am		4pm
S.G.	0.8	0.78

Crew: C. Yoder, A. Neylough

Equipment: Marsh McBurney #2005068

Photo Log: CY ROLL #3

- 19 SVS Run TR1 RB to LB
 17 SVS Run TR1 upstream
 16 SVS Run TR1 downstream
 15 SVS Run TR1 LB to RB
 14 SVS Run TR1 upstream
 13 SVS Run TR2 LB to RB
 12 SVS Run TR2 RB to LB
 11 SVS Run TR3 RB to LB
 10 SVS Run TR3 LB to RB (No Board)
 9 SVS near Rifle BM looking downstream
 8 SVS Rifle TR1 RB to LB
 7 SVS Rifle TR1 LB to RB
 6 SVS Rifle TR2 LB to RB
 5 SVS Rifle TR2 up looking upstream
 4 SVS Rifle TR2 RB to LB

Note: Labeled as
 TR-1 RB to
 LB

6/25/04

RUN	STA	LEVEL	BS	HI	FS	ELV	ROD
BM		3.82	102.62			98.80	
		3.85	102.55				
TR1				2.73		99.89	
TR2				3.24		99.38	
TR3				3.87		98.75	
TR1		3.87	102.52			98.75	
TR3		3.90	102.65			98.75	
TR2		3.28		3.28		99.37	
TR1		2.77				99.88	
BM				3.86		98.79	

Sta WP-5.5'

6/25/04

RUN TRI CROSS SECTION PROFILE

STA	BS	HI	FS	ELV	ROD	dominant/subdominant, % of dominant	Substrate	Comments
93.9		102.65		WP+5=103.85 *estimated			veg, sand 60%,	* estimated
77.6			4.70	97.95			cobble, sand 60%	
78.4		* Cant	See rod	98.55	about 26' below * estimated WP		sand, veg 60%	Left working pin
71.9			6.47	96.08			veg, cobble, 70%	
69.5			6.87	95.78			veg, 100% veg, cobble 60%	
68.6			7.56	95.09			veg, cobble 60%	Left water's edge
			7.59	95.06				TRI WSE Center
			7.59	95.06				TRI WSE Right
			7.58	95.07				Right water's edge
10.8							60% silt, veg	
16.8			6.99	95.66			60% silt, veg	
12.3			6.73	95.92			60% veg, silt	
9.2			7.10	95.55			60% silt, veg	
6.4			6.62	96.03			60% veg, silt	
1.0			5.24	97.41			60% veg, silt	
-5.0			3.72	98.93			60% veg, silt	Right working pin 1.0 HP-6

SY-5 RUN TRI

DISCHARGE SURVEY 6/25/04

NOTE Several fish spotted (primarily)

STA	DEPTH	BOB/TOP VELOCITY	COMMENTS	DOM	SUB	DOM %
18.0	0	0	RNE			
20.5	0.3	0	instream cover	veg	silt	60%
23.0	0.92	0.04*	*estimated	veg	silt	60%
25.5	2.08	0.04*	*estimated	veg	silt	60%
28.0	2.52	0.02/0.05		veg	coarse gravel	60%
30.5	2.15	0.02		veg	coarse gravel	60%
33.0	2.5	0.02*/0.06	*estimated	co veg	coarse gravel	60%
35.5	2.42	0.07		coarse gravel	veg	60%
38.0	2.15	0.05		coarse gravel	veg	60%
40.5	2.35	0.12		coarse gravel	veg	60%
43.0	1.75	0.03		coarse gravel	veg	60%
45.5	1.95	0.11		coarse gravel	veg	60%
48.0	1.72	0.14		coarse gravel	veg	60%
50.5	2.20	0.32	NO instream cover	coarse gravel	coarse gravel	60%
53.0	1.45	0.20	on top of rock cover	coarse gravel	coarse gravel	80%
55.77	2.12	0.22		coarse gravel	coarse gravel	70%
58.0	1.9	0.1	instream cover	veg	coarse gravel	60%
60.5	1.55	0.05	instream cover	veg	silt	70%
63.0	0.75	0.02*	*estimated instream cover	veg	silt	70%
65.5	0.55	0.02*	behind boulder, *estimated	veg	coarse gravel	60%
68.0	0.2	0		veg	coarse gravel	60%
69.6	0	0	LWR			

of veg. which are eq. veg.

RUN TR2 CROSS SECTIONAL PROFILE

6/25/04

STA	BS	HI	FS	ELV	POD	DATA	SUB	%	Comments
		102.65	5.19			Sand	veg	70%	WP - 10'
1.0			5.82	96.83		veg	Sand	70%	R working pin
4.8			6.28	96.37		veg	silt	70%	
13.4			7.04	95.61		veg	silt	60%	
16.1			7.55	95.1		silt	veg	70%	waters edge
2 WSE			7.55	95.1					WSEL - right
6 WSE			7.54	95.11					WSEL - center
61.6			7.55	95.1		veg	silt	90%	waters edge
63.4			7.49	95.16		cobble	boulder	60%	
68.6			6.60			Boulder	veg	80%	
67.0			5.34	97.31		Boulder		100%	} veg Boulder
69.2			5.18	97.47		Boulder		100%	
69.5			6.01	96.64		Boulder	veg	80%	
73.2			5.60	97.05		Boulder	veg	60%	
77.7			4.01	98.64		Sand	veg	70%	L working pin estimated
77.7 + 6.1'				98.64 + 5'					

STA	DEPTH	VELOCITY	DOM	SUB	%	COM
59.5	1.22	0.02	boulder	veg	70	
60.5	0.65	0.03 +	boulder	veg	60	* Est
61.6	0	0	veg	silt	80	LWE

STA	DEPTH	TR2	SURVEY	DOM	SUB	%	Comments
16.1	0	0		silt	veg	70	RWE
17.5	0.23	0.01*		veg	silt	60	* Est.
20.0	0.28	0.02*		veg	silt	60	
22.5	0.32	0.03*		veg	silt	60	
25.0	0.7	0.01		veg	silt	60	
27.5	1.33	0.07		veg	silt	60	
30.0	1.62	0.01		veg	silt	70	
32.5	2.5	0.16		cobble	veg	70	
35.0	2.28	0.07		cobble	veg	70	
37.5	2.4	0.12		coarse gravel	veg	70	
40.0	2.2	0.10		coarse gravel	cobble	70	behind builder at edge of builder
41.0	2.02	0.05		boulder	sm. gravel	80%	
41.8	0	0					Boulder
42.0							+ 0.1'
42.8	0	0					
44.1	2.17	0.03		boulder	coarse gravel	80	edge of builder
46.0	2.35	0.25		cobble	coarse gravel	60	behind
48.0	2.18	0.03		cobble	coarse gravel	60	veg
49.0	2.05	0.03		boulder	cobble	70	at side of strong boulder
50.5	0.32	0.29		boulder	cobble	100	top of boulder
51.9	1.35	0.03		boulder	veg	80	
54.5	1.35	0.01		veg	silt	70	horizontal silt
57.0	1.0	0.03		veg	silt	70	

S15 RUN TR3

CROSS SECTIONAL PROFILE

STA	BS	HI	FS	ELV	BOB
-7.0		102.65	5.29	97.36	
1.0			5.68	96.97	
4.5			6.05	96.6	
9.4			6.70	95.95	
14.0			7.50	95.15	
B-10SE			7.51	95.14	
L-10SE			7.51	95.14	
71.5			7.50	95.15	
74.4			7.15	95.5	
76.0			6.44	96.21	
80.7			4.01	97.84	
80.7 + 9.8'				97.84 + 4'	

DOM	SUB	%	COMMENTS
veg	Sand	70	WNP - B'
veg	Sand	70	RNP
veg	Sand	90	
veg	Silt	70	
Silt	veg	60	waters edge (R)
Silt	veg	60	
Silt	veg	70	waters edge (L)
veg	Silt	60	
veg	Sand	80	L working Pic
boulder	veg	60	veg # Estimated

SY5 RUN TR3

DISCHARGE SURVEY

STA	DEPTH	VEL	DOM	SUB	%	COM
14	0	0	Silt	veg	60	RWE
16.5	0.27	0.03*	veg	silt	60	* Est
19.0	0.2	0.03*	veg	silt	60	
21.5	0.32	0.03	veg	silt	60	
24.0	0.45	0.03*	veg	silt	60	
26.5	0.52	0.02	veg	silt	60	
29.0	0.5	0.03*	veg	silt	60	
31.5	0.82	0.02*	veg	silt	60	
34.0	1.07	0.05	veg	silt	60	
36.5	1.1	0.02*	veg	silt	60	
39.0	0.9	0.03	veg	silt	60	
41.5	1.0	0.03	veg	silt	60	
44.0	1.5	0.06	veg	silt	60	
46.5	1.65	0.1	veg	silt	60	
49.0	1.9	0.04	coarse gravel	veg	70	
51.5	2.0	0.05*	coarse gravel	veg	70	behind boulder
53.0	2.03	0.05*	coarse gravel	veg	70	* Est. No Cover
55.0	2.07	0.44	coarse gravel	veg	70	behind boulder
57.0	2.07	0.23	coarse gravel	veg	70	No Cover
59.0	2.03	0	fine gravel	veg	60	No Cover
62.0	2.05	0.01	coarse gravel	fine gravel	60	No Cover
64.5	2.00	0.01*	boulder	cobble	70	No Cover

CONTINUED

STA	DEPTH	VEL	DOM	SUB	%	COM
65.1	2.2	0.01*	boulder	cobble	70	cover
65.5	0.75	0	boulder		100	boulder
68.0	0.58	0	boulder		100	cover
70.5	0.35	0	veg	silt	60	cover
71.5	0	0	silt	veg	60	LWE

RIFLE LEVEL LOOP 6/25/04

STA	BS	HI	FS	ELV	BLVD
-----	----	----	----	-----	------

BM	1.20	101.2 102.0		100.00	
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TR1			0.72	100.48	
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TR2			2.04	99.18 99.96	
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TR3			2.17	99.03 99.83	
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(TP)

TR3	2.24	101.27 102.07		99.03 99.83	
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TR2			2.11	99.16	
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TR1			0.79	100.48	
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BM			1.26	100.01	
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RIFLE TR I			PROFILE		6/28/04		DOM	SUB	%	COMMENTS
STA	BS	HI	FS	ELV	0200	0200				
152.6		101.27	2.07				veg	sand	60	
120.6			4.36	96.91			veg	sand	80	LWP
112.0			4.81	96.46			veg	sand	80	
107.7			5.44	95.83			silt	veg	70	
102.1			5.99	95.28			veg	silt	60	waters edge
LWSE			5.99	95.28			veg	silt	70	R - waters edge
76.8			5.99	95.28			veg	silt	70	
73.2			5.86	95.41						
71.0					0.15					
67.6			6.24		0.3		veg	silt	70	unconnected ponds
66.5							veg	silt	70	waters edge
71.5							veg	silt	70	waters edge
63.8			5.88	95.39			veg	silt	70	ponding waters edge
61.8							veg	silt	70	ponding waters edge
60.6			6.26		0.33		veg	silt	70	ponding
58.0					0.3		veg	silt	70	unconnected
56.0					0.3		veg	silt	70	Pond
54.7							veg	silt	70	waters edge
53.4			5.81	95.46			silt	veg	70	
46.0			5.66	95.61			silt	veg	70	
38.0			6.03	95.24			silt	veg	70	
31.0			6.00	95.27			silt	veg	70	
25.0			5.42	95.85			silt	veg	70	
20.5			5.96	95.31			silt	veg	60	

RIPPLE TR 1
 DISCHARGE SURVEY 6/25/01
 STA DEPTH VBL DOM SUR % COM
 158.6
 120.6
 *Est.
 LWP

CONTINUED

STA	BS	HI	FS	ELV	KOD	DOM	SUB	%	COMMENTS
14.5		101.27	5.76	95.51		SLH	very fine sand	60	
11.5			5.55	95.72		SLH	fine sand	60	WP
1.0			4.14	97.13		sm. gravel	Sand	80	
-23			3.31	97.96		sm. gravel	sand	80	WP - 24'

RIFLE TR-1		6/25/04	
STA	DEPTH VEL	DOM	SUB % COR
76.0	0	veg	silt 70 RWE
77.5	0.3	silt	veg 60
78.5	0.7	boulder	silt 60
80.5	0.6	boulder	silt 70
81.0	1.25	silt	veg 60
82.0	1.4	silt	veg 60
83.0	1.52	silt	sm gravel 60
84.0	1.7	sm gravel	70
85.0	1.7	sm gravel	70 No
86.0	1.7	sm gravel	70 coarse sand 70 cover
87.0	1.58	sm gravel	70 No cover
88.0	1.7	sm gravel	70 No cover
89.0	1.65	sm gravel	70 No cover
90.0	1.47	sm gravel	70 stream cover
91.0	1.4	sm gravel	70 *est
92.0	1.12	silt	veg 60
93.5	0.95	boulder	silt 80
95.0	0.95	silt	veg 60 *est.
96.5	0.62	silt	veg 60
98.0	0.42	silt	veg 60
99.5	0.28	silt	veg 60
101.0	0.28	silt	veg 60
102.1	0	silt	veg 60 LWE
120.5			LMP

RIFFLE ~~TR~~ TR2

CROSS SECTIONAL PROFILE 6/25/04

STA	BS	HI	FS	ELV	ROD	DOM	JUR	%	COMMENTS
-15		101.27	2.70	98.55		gravel	sand	70	Estimated Wp-16
1.0			3.76	97.51	gravel	sand		70	RWP
17.0			5.08	96.19	veg	silt		60	
27.0			5.24	96.03	veg	silt		60	
33.5			5.44	95.83	silt	veg		60	
43.0			5.57	95.70	silt	veg		60	
53.0			5.65	95.62	silt	veg		60	
61.2			5.91	95.36	silt	veg		60	RWE water's edge
WSE			5.92	95.35					
107.5			5.91	95.36	veg	silt		70	LWE water's edge
108.7			5.55	95.72	silt	silt		70	
113.0			5.10	96.17	veg	silt		60	
119.8 120.5			4.90	96.37	veg	silt		60	toe of bank
124.5			3.87	97.4	veg	silt		60	
125.5			3.05	98.22	veg	silt		60	
132.6			2.35	98.92	veg	silt		60	LWP
144.6			2.02	99.25	veg	sand		60	* Estimated (Wp + 12')

RIFPLE TR2 (Good Discharge)

DISCHARGE SURVEY					6/25/04	
STA	DEPTH	VEL	DOM	SUB	% COM	
61.2	0	0	silt	veg	60	RWE
63.5	0.2	0	silt	veg	60	↑
65.5	0.25	0	silt	veg	60	↑
67.5	0.12	0	silt	veg	60	↑
69.5	0.1	0	silt	veg	60	↑
71.5	0.2	0.02*	silt	veg	60	*Est.
73.5	0.3	0.03*	silt	veg	60	*Est.
75.5	0.2	0.02*	silt	veg	60	
77.5	0.37	0.03*	silt	veg	60	
79.5	0.53	0.03*	silt	veg	60	
81.5	0.70	0.04	silt	veg	60	
83.5	0.77	0.09	silt	veg	60	
85.5	0.75	0.05	silt	veg	60	
87.5	1.0	0.21	silt	veg	60	
88.5	1.6	0.09	sm. gravel	sand	60	
90.5	1.75	0.17	sm. gravel	sand	60	
92.5	1.83	0.36	sm. gravel	sand	60	No Cover
94.5	1.95	0.10	sm. gravel	sand	60	No Cover
96.5	2.00	0.08	sm. gravel	sand	60	Cover
98.5	2.03	0.09	sm. gravel	sand	60	Cover
100.5	1.92	0.1	sm. gravel	sm. gravel	60	No Cover
102.5	1.85	0.09	sm. gravel	sand	60	No Cover
104.5	1.25	0.05	sm. gravel	sand	60	Cover
106.5	0.6	0.02*	silt	veg	70	Cover
107.5	0	0	veg	silt	70	Cover

PHOTO LOG (continued)

- 06/25/04
- C1 ROLL 3
- ③ R1S15 Riffle TR3 RB to RB
- ② S1S Riffle TR3 downstream
- ① S1S Riffle TR3 LB to RB

cmh 72905

- ① unlikely to have abrupt terrain change
- ② 5/3/05 survey shows no sudden bed change
- ③ transect w/s and d/s of TR-2 do not have sudden change
- ④ the change is exactly 1.0 foot
- Based on above 4 reasons, the change of adding 1.0 foot to the depths @ STA=96.5 and @ STA=98.5 are made.

RIFFLE TR3

CROSS SECTIONAL PROFILE 6/25/04

STA	BS	HI	FS	ELV	ROD
-19.0		101.27	2.7	98.57	
1.0			3.50	97.77	
14.0			3.96	97.31	
24.0			4.60	96.67	
36.0			5.10	96.17	
46.0			5.44	95.83	
57.0			5.29	95.98	
62.7	RWSE		5.82	95.45	
WSE middle			5.85	95.42	
81.0	LWSE		5.84	95.43	
85.5			5.40	95.87	
93.5			<u>3.50</u>	97.71	
98.0		5.56	5.77	95.5	
106.3		cmh 7/29/05	4.90	96.37	
112.6		photos of 6/25/04 & 5/2/05	2.64	98.63	
122.6		no abrupt terrain change. Use FS= 5.56 to approximately match the bed profile surveyed on 5/2/05	2.30	98.98	

DOM	SUB	%	COMMENTS
sm. gravel	sand	60	estimated RWP - 20'
sm. gravel	coarse gravel	70	RWP
coarse gravel	sm. gravel	70	
coarse gravel	sm. gravel	70	
cobbles	coarse gravel	60	
veg	silt	70	
veg	silt	70	
silt	veg	60	RWE water's edge
silt	veg	70	water
veg	silt	60	LWE water's edge
veg	silt	60	
silt	veg	60	
veg	silt	60	
			LWP
			ESTIMATED

RIFFLE TR.3

DISCHARGE

STA DEPTH VEL

SURVEY

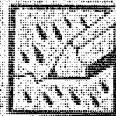
DOM

SUB % COM

06/25/04

STA	DEPTH	VEL	DOM	SUB %	COM
62.7	0	0	silt	veg 60	RWE
63.0	0.2	0.03*	silt	veg 60	* Est.
64.0	0.32	0.04	silt	veg 60	
65.0	0.82	0.09	silt	veg 60	
66.0	0.78	0.18	silt	veg 60	
67.0	0.95	0.06	cobble	sm. gravel 60	
68.0	1.1	0.48	cobble	sm. gravel 60	
69.0	1.1	1.31	lg gravel	sm. gravel 60	No cover
70.0	0.98	1.1	lg gravel	sm. gravel 60	
71.0	1.0	1.39	lg gravel	sm. gravel 60	
72.0	1.15	0.7	lg gravel	sm. gravel 60	
73.0	1.15	1.19	lg gravel	cobble 60	
74.0	1.2	0.53	lg gravel	sm. gravel 60	
75.0	1.12	0.04	sm. gravel	lg gravel 60	
76.0	1.2	0.23	cobble	sm. gravel 70	Cover
77.0	1.05	0.06	cobble	sm. gravel 70	
78.0	0.85	0.03*	silt	cobble 70	* Est.
79.0	0.6	0.03*	silt	veg 60	
80.0	0.3	0.02	silt	veg 60	
81.0	0	0	silt	veg 70	LWE
118.6					LWP

SY-5



"Rite in the Rain"
ALL-WEATHER
LEVEL BOOK
No. 310 F

SY-5

May 3, 05

In | Out
Time 9:00 | 3:00

Crew: McGeary
A. Weybright

Equipment: Nikon 3161B1
Marsh McGeary
puller VK2 # 3594C

Weather: clear & warm 55°F
no ppt. in past 24 hrs

Photos: { #1 TR3 R→L #9 TR3 R→L
#2 TR3 Look N/S #10 TR3 L→R
#3 TR3 L→R #11 TR2 L→L
#4 TR2 R→L #12 TR2 L→R
#5 TR2 L→R #13 TR1 R→L
#6 TR1 R→L #14 TR1 L→R
#7 TR1 L→R
#8 TR1 Look N/S

SY-5	Level	Loop	05/03/05
	R. ffile		
SXA	BS	HI	FS Elev
BM	2.55		100.00
	102.55		
TR-1		2.06	100.49
TR-2		3.39	99.16
TR-3		3.52	99.03
TR-3			
TR-2			
TR-1			
BM		2.55	100.00
TR-2		6.03	96.52
TR-2		6.06	96.49
TR-3		5.94	96.61
TR-3		5.88	96.67
TR-1		6.11	96.44
TR-1		6.12	96.43

54-5 R. Pile TR-3 25/03/05

STA	Depth	Vel	Substr	Cover	Notes
24.2	0.0	0.0	SG	5.4	REW
26.0	0.2	0.10	SG	5.11	
28.5	0.35	0.33	SG	5.14	
31.0	0.05	0.0	SG	5.14	
33.0	0.10	0.51	SG	8.1	
36.0	0.5	1.36	SG	5.4	ag. veg
40.0	0.6	1.66	5.4	5.4	ag. veg
45.0	0.8	1.21	5.4	veg	ag. veg
50.0	0.85	1.52	5.4	veg	
55.0	0.60	1.96	veg	5.4	
60.0	1.0	0.27	veg	5.4	
62.7	1.3	3.50			
63.0	1.4	3.36			
64.0	1.55	3.84			
65.0	2.05	3.96			
66.0	2.05	3.75			
67.0	2.20	3.65			
68.0	2.40	3.62			
69.0	2.25	3.91			
70.0	2.40	3.84			
71.0	2.40	3.74			
72.0	2.40	3.58			
73.0	2.45	3.38			
74.0	2.30	3.37			

17

STA	Depth	Vel	Substr	Cover	Comments
75.0	2.50	3.95 / 1.35			
76.0	2.50	3.97 / 1.71			
77.0	2.30	3.22			
78.0	2.10	2.66			
79.0	1.85	2.33			
80.0	1.60	2.41			
81.0	1.30	1.70			
83.0	1.05	0.68			
85.0	0.85	0.51			Flow @ 45
88.0	0.80	0.08			Ag. veg
91.0	1.70	0.47			Ag. veg
94.0	0.70	0.22			Cover Ag. veg
97.0	1.05	0.80			veg cover
100.0	0.98	0.26			veg cover
104.0	0.25	0.11			veg/object cover
106.8	0.0	0.0			LWE

Instrument

Marsh McBirney

STA	Depth	Vel	Cover	Comments
84-5	Rifle	TR-2	05/03/05	
12.8	0.0	0.0		REW
16.0	0.2	0.01	veg	
20.0	0.3	0.01	veg	
25.0	0.4	0.01	veg	
30.0	0.4	0.01	veg	
40.0	0.55	0.01	veg	
45.0	0.80	0.06	veg	
50.0	0.70	0.08	veg	
55.0	0.95	0.04	veg	
60.0	1.05	0.22	veg	
61.2	1.10	0.18	veg	
63.5	1.30	0.26	veg	
65.5	1.35	0.30	veg	
67.5	1.25	0.16	veg	
69.5	1.40	0.71	veg	
71.5	1.38	0.48		
73.5	1.40	0.23		
75.5	1.40	0.15		
77.5	0.45	0.12	1.45 smh 7/29/05	
79.5	1.55	0.30	unlike test profile had such abrupt change	
81.5	1.70	0.61		
83.5	1.40	1.06		
85.5	1.85	1.42		

Sta	Depth	Vel	Cover	Comments
87.5	2.10	1.95		
88.5	2.70	1.79/1.80		
90.5	3.0	2.48/2.53		
92.5	3.15	3.27/2.21		
94.5	3.20	2.39/2.89		
96.5	3.20	3.72/2.44		
98.5	3.30	3.52/2.62		
100.5	3.30	3.58/2.33		
102.5	3.20	2.13/1.69		
104.5	2.60	2.25/0.93		
106.5	1.80	1.03		
107.5	1.10	0.79	veg	
109.0	0.75	0.04	veg	
112.0	0.40	0.05	veg	
115.0	0.50	0.01	veg	
118.0	0.45	2.01	veg	
121.2	0.0	0.0	veg	LEW

S4-5 Rifle TR-1 05/03/05

STA	DEPTH	VEL	Cover	Comments
7.0	0.0	0.0		REW
12.0	0.70	0.01		
17.0	1.00	0.01	veg	
22.0	0.90	0.01	veg	
25.5	0.60	0.01	veg	
31.0	1.17	0.01	veg	
37.0	1.37	0.01	veg	
42.0	0.90	0.13	veg	
45.0	0.90	0.42	veg	
49.0	1.40	0.58	veg	
52.0	1.00	0.52	veg	
57.0	1.40	0.80	veg	
62.0	1.15	0.68	veg	
67.0	1.30	1.31	veg	
71.0	1.20	0.87	veg	end veg 0.73
76.8	1.25	2.38	veg	
77.5	1.60	2.33		
78.5	1.75	2.31		
80.5	1.80	2.77		
81.0	2.50	2.76/1.91		
82.0	2.55	2.83/2.04		
83.0	2.80	3.18/2.37		
84.0	2.90	3.10/2.02		

✓

STA	DEPTH	VEL	Cover	Comments
85.0	2.80	3.27/2.44		
86.0	3.00	3.47/2.95		
87.0	2.85	3.55/2.60		
88.0	3.00	3.83/2.48		
89.0	2.90	4.05/2.53		
90.0	2.70	3.92/1.67		
91.0	2.60	3.98/0.91		
92.0	2.40	2.27		
93.5	2.25	2.12	veg	
95.0	2.0	2.51	veg	
96.5	1.85	2.27	veg	
98.0	1.60	2.49	veg	
99.5	1.40	0.86	veg	
101.0	1.50	1.54	veg	
102.1	1.30	1.28	veg	
104.0	1.00	0.68	veg	
106.0	0.80	0.43	veg	
109.0	0.40	0.09	veg	
111.8	0.0	0.0	veg	UEW

ASY-5 RUN TR-3 05/03/05

STA	Depth	Vel	Color	Comments
6.8	0.0	0.0	v19	REW
9.0	0.3	0.01	veg	
12.0	0.7	0.01	veg	
14.0	1.2	0.20	veg	
16.5	1.45	0.34	veg	
19.0	1.40	0.56	veg	
21.5	1.50	0.89	veg	
24.0	1.65	1.14	veg	
26.5	1.70	1.45	veg	
29.0	1.70	1.51	veg	
31.5	2.00	1.74	veg	
34.0	2.30	1.83	veg	
36.5	2.40	2.23	veg	
39.0	2.15	2.28	veg	
41.5	2.20	2.07	veg	
44.0	2.70	2.72/0.91		
46.5	2.90	2.83/0.82		
49.0	3.10	3.12/1.03		
51.0	3.25	3.13/2.08 - 0.12 - 0.2 depth		Boulder affects 0.2 velocity
53.0	3.20	2.48/1.18		object/resolver
55.0	3.15	2.41/2.01		no d/s of veg bldw,
57.0	3.00	1.70/0.20		in back eddy
59.0	3.10	-0.06/-0.33		

✓ 40 Run TR-3

Sta	Depth	Vel	Color	Comments
62.0	3.20	0.09/0.17		back eddy from bldw v/s
64.5	3.30	1.18/0.79	0.4 vel/veg	
65.1	3.40 3.25	1.47/0.01	object	
65.5	1.70	1.42		
68.0	2.10	0.97		
70.5	1.50	0.32	veg	
71.5	1.30	0.25	veg	
73.0	1.0	0.01	object/veg	
75.0	0.4	0.01		
76.1	0.0	0.0		

SY-5 RUN TR-2 05/03/05

Sta	Depth	Vel.	Cover	Comments
6.5	0.0	0.0		RWE f.c.
9.0	0.3	0.01	veg	
12.0	0.5	0.01	veg	
14.0	0.75	0.05	veg	
16.1	1.25	0.59		
17.5	1.45	0.70		
20.0	1.50	1.17		
22.5	1.55	1.33		
25.0	1.80	1.70		
27.5	2.50	1.87/0.90		
30.0	2.90	2.06/0.83		
32.5	3.75	2.17/1.82		
35.0	3.50	2.49/1.09		
37.5	3.60	2.67/0.69		
40.0	3.50	2.50/0.72		
41.0	3.20	1.78/0.01	Bldw	
41.8	1.10	0.84		Boulder
42.0	1.00	1.02		Bldw
42.6	1.20	2.19		Bldw
44.1	3.40	2.01/-0.51	Bldw	
46.0	3.50	2.47/2.18		
48.0	3.40	2.59/1.59		
49.2	3.30	2.79/0.72		Edge Bldw

SY-5 RUN TR-2 05/03/05

Sta	Depth	Vel	Cover	Comments
50.5	1.55	2.31		top bldw
51.9	2.75	2.29/0.87		
54.5	2.50	1.08/1.37		
57.0	2.20	0.85	veg	
59.5	2.90	0.88	veg	
60.5	1.90	0.68	veg	
61.6	1.10	1.02	veg	
63.5	1.10	0.06	veg	
64.0	0.5	0.05	veg	
65.6	0.25	0.01	veg	
66.7	0.0	0.0		LWE - side of bldw

VKP ✓

TR-1 RM

Sta. Depth Vel Cover Comments

60.5	2.70	1.60 / 0.96		
63.0	2.40	0.89	veg	
65.5	2.20	1.62	veg	
68.0	1.50	0.04	veg/bldr	
68.6	1.15	0.09	veg	
70.0	0.38	0.02	veg	
77.20	0.0	0.0		LEW

Instrument

Morse Meter

SY-5 RUN TR-1 05/03/05

Sta. Depth Vel Cover Comments

Sta.	Depth	Vel	Cover	Comments
5.5	0.0	0.00		RWE
8.0	0.5	0.01	veg	
11.0	0.6	0.01	veg	
13.0	0.3	0.01	veg	
16.0	0.5	0.01	veg	
18.0	1.0	-0.15	veg	
19.8	1.2	-0.15		
20.5	1.5	-0.06		
23.0	2.1	-0.24		
25.5	3.3	0.18 / 0.06		
28.0	3.7	0.36 / 0.36		
30.5	3.3	1.45 / 0.24		On rock
33.0	3.6	1.99 / 0.59		
35.5	3.6	2.09 / 0.58		
38.0	3.4	2.29 / 1.16		
40.5	3.0	2.64 / 1.53		
43.0	3.0	2.61 / 1.88		
45.5	3.2	2.38 / 1.41		
48.0	2.9	2.56 / 1.44		
50.5	3.4	2.44 / 1.27		
53.0	2.65	2.39 / 1.50		On rock
55.7	3.40	2.23 / 1.07		
58.0	3.0	1.69 / 0.75		

54-5	Rm	level loop	KNOW	05/03/05
STA	ABS	HI	FS	Eleva
BM	2.39			98.80
		10R.19		
TR-3			2.43	98.76✓
TR-2			1.80	99.39
TR-1			1.30	99.89
	TP			
TR-1	1.03			99.89
		100.92		
TR-2			1.53	99.39
TR-3			2.15	98.77✓
BM			2.11	98.81
		100.92		
TR-1	L		4.68	96.24
	R		4.67	
TR-2	L		4.60	96.32
	R		4.61	
TR-3	L		4.57	96.35
	R		4.58	