8-30-2008

Ex. 277-US-438

Unknown

Stream: Upper Williamson
Site: 631
Date: 4/14/2004
Habitat: Pool **Flow:** High

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM1	3.65	103.65		100.00
HP1			5.30	98.35
HP2			5.13	98.52
HP3			4.64	99.01
TP				
HP3	4.83	103.84		
HP2			5.32	98.52
HP1			5.49	98.35
BM1			3.84	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	Sta L/R bank (ft)	Sta Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	103.84	7.70	0.00	96.14	96.14	88.2
1-R	0							
2-L	26	26	103.84	7.67	0.00	96.17	96.17	
2-R	26							
3-L	78	55	103.84	7.65	0.00	96.19	96.19	
3-R	31							
							Ave Q=	88.2

Note: HC FS=7.71 @ 38.5' D/S of TR1
WSE slope = 0.092%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 0068
Propeller ID: na

Date: 6/26/2004
Habitat: Pool **Flow:** Mid

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM1	4.21	104.21		100.00
HP1			5.85	98.36
HP2			5.69	98.52
HP3			5.20	99.01
TP				
HP3	5.33	104.34		
HP2			5.82	98.52
HP1			5.99	98.35
BM 1			4.34	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	Sta L/R bank (ft)	Sta Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	104.34	8.86	0.00	95.48	95.49	45.9
1-R	0			8.85	0.00	95.49		
2-L	26	26	104.34	8.85	0.00	95.49	95.50	40.0
2-R	26			8.84	0.00	95.50		
3-L	78	55	104.34	8.82	0.00	95.52	95.52	44.6
3-R	31			8.82	0.00	95.52		
							Ave Q=	46.3

Note: FS @ 100' U/S = 8.81, FS@ 60' D/S = 8.87; HC wse FS=8.86.
WSE slope = 0.064%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 3602
Propeller ID: 3A

Date: 8/20/2004
Habitat: Pool **Flow:** Low

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	3.56	103.56		100.00
HP1			5.21	98.35
HP2			5.04	98.52
HP3			4.56	99.00
TP				
HP3	4.61	103.61		
HP2			5.09	98.52
HP1			5.26	98.35
BM			3.61	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	Sta L/R bank (ft)	Sta Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	103.61	8.21		95.40	95.40	40.6
1-R	0			8.21		95.40		
2-L	26	26	103.61	8.21		95.40	95.40	43.8
2-R	26			8.21		95.40		
3-L	78	55	103.61	8.20		95.41	95.41	42.7
3-R	31			8.20		95.41		
							Ave Q=	42.1

Note: HC LWSE FS=8.23; RWSE FS=8.22
WSE slope = 0.018%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 4099
Propeller ID: 1A

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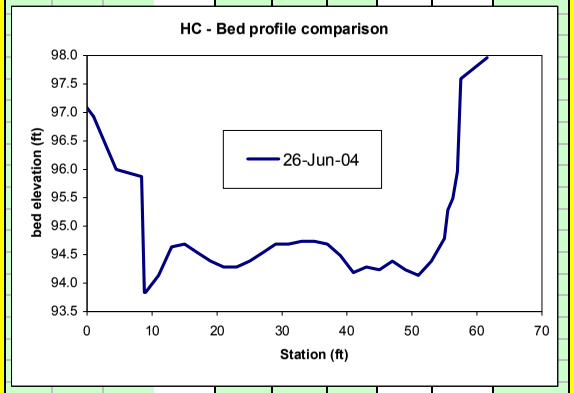
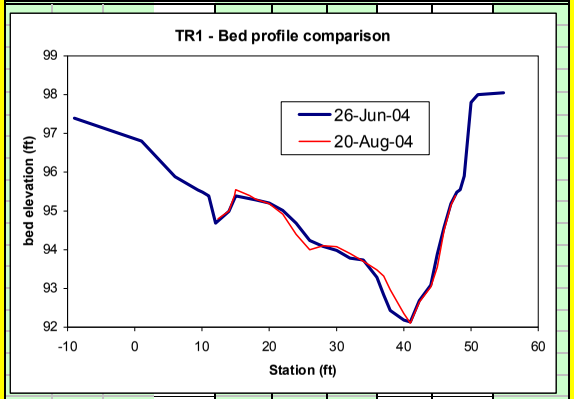
Stream:	Upper Williams		14-Apr-04									26-Jun-04									20-Aug-04								
Site:	631			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q	
Transect:	HC			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate
Habitat:	Pool																														
														-4.0	6.65	97.69															
													RWP	1.0	7.41	96.93															
Survey	HI	Q												4.5	8.34	96.00															
Date	(ft)	(cfs)												8.4	8.47	95.87															
4/14/2004	103.84	88.2											RBE	8.8		93.84	1.65														
6/26/2004	104.34													9.0		93.84	1.65														
8/20/2004	103.61													11.0		94.14	1.35														
														13.0		94.64	0.85														
			RWE	14.0		96.14	0.00	0.00		0.00	0.00			15.0		94.69	0.80														
				16.0		95.54	0.60	0.00		0.01	0.00			17.0		94.54	0.95														
				18.0		94.04	2.10	0.66		0.78	2.88			19.0		94.39	1.10														
				19.5		93.64	2.50	0.75	0.80	0.91	3.42			21.0		94.29	1.20														
				21.0		93.64	2.50	0.09	0.85	0.57	2.48			23.0		94.29	1.20														
				23.0		93.94	2.20	1.14		1.32	5.83			25.0		94.39	1.10														
				25.0		94.14	2.00	1.09		1.27	5.07			27.0		94.54	0.95														
				27.0		94.14	2.00	1.20		1.39	5.57			29.0		94.69	0.80														
				29.0		94.34	1.80	1.27		1.47	5.97			31.0		94.69	0.80														
				31.5		94.54	1.60	1.40		1.62	6.49			33.0		94.74	0.75														
				34.0		94.54	1.60	1.22		1.42	5.67			35.0		94.74	0.75														
				36.5		94.54	1.60	1.32		1.53	6.12			37.0		94.69	0.80														
				39.0		94.64	1.50	1.27		1.47	5.53			39.0		94.49	1.00														
				41.5		94.54	1.60	1.39		1.61	6.44			41.0		94.19	1.30														
				44.0		94.64	1.50	1.30		1.51	5.65			43.0		94.29	1.20														
				46.5		94.54	1.60	1.17		1.36	5.44			45.0		94.24	1.25														
				49.0		94.44	1.70	1.06		1.23	5.24			47.0		94.39	1.10														
				51.5		94.64	1.50	0.86		1.01	3.77			49.0		94.24	1.25														
				54.0		94.64	1.50	0.63		0.75	2.81			51.0		94.14	1.35														
				56.5		94.64	1.50	0.55		0.66	2.47			53.0		94.39	1.10														
				59.0		94.74	1.40	0.39		0.49	1.36			55.0		94.79	0.70														
				60.5		95.44	0.70	0.00		0.01	0.00			55.5		95.29	0.20														
				62.0		96.04	0.10	0.00		0.01	0.00		LWE	56.3		95.49	0.00														
				65.0		95.94	0.20	0.00		0.01	0.00			57.0	8.38	95.96															
				67.0		95.74	0.40	0.00		0.01	0.00			57.5	6.75	97.59															
				69.0		95.94	0.20	0.00		0.01	0.00		LWP	61.6	6.38	97.96															
			LWE	71.0		96.14	0.00	0.00		0.00	0.00																				

Q Transect Only
This is not HC transect

Right UCB=1.1'



Stream:	Upper Williams		14-Apr-04									26-Jun-04									20-Aug-04									
Site:	631			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q	
Transect:	1			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate
Habitat:	Pool													-9.0	6.95	97.39						1.1									
													RWP	1.0	7.54	96.80						1.1									
Survey	HI	Q												6.0	8.46	95.88						1.1									
Date	(ft)	(cfs)												9.4	8.80	95.54						1.1	RBE	12.4		94.80	0.60	0.00		0.00	0.00	2.9
4/14/2004	103.84	88.2											RWE	10.1		95.49	0.00	0.00		0.00	0.00	2.9		14.0		95.00	0.40	0.00		0.01	0.00	3.2
6/26/2004	104.34	45.9												11.0		95.39	0.10	0.00		0.01	0.00	2.9	*	14.8		95.40	0.00	0.00		0.00	0.00	3.2
8/20/2004	103.61	40.6												12.0		94.69	0.80	0.00		0.01	0.01	2.9	OUT	15.0		95.55	-0.15					3.2
														14.0		94.99	0.50	0.00		0.01	0.01	3.2	*	17.1		95.40	0.00	0.00		0.00	0.00	3.2
														15.0		95.39	0.10	0.00		0.01	0.00	3.2		18.0		95.30	0.10	0.00		0.01	0.00	3.2
														18.0		95.29	0.20	0.50		0.52	0.26	3.2		20.0		95.19	0.21	0.57		0.62	0.26	3.2
														20.0		95.21	0.28	0.87		0.90	0.50	3.2		22.0		94.92	0.48	0.85		0.90	0.86	3.2
														22.0		95.02	0.47	1.10		1.13	1.06	3.2		24.0		94.40	1.00	0.96		1.01	2.01	3.2
														24.0		94.69	0.80	1.19		1.22	1.95	3.2		26.0		94.00	1.40	0.98		1.03	2.87	3.2
														26.0		94.24	1.25	1.06		1.09	2.72	3.2		28.0		94.10	1.30	1.02		1.07	2.78	3.2
														28.0		94.09	1.40	1.07		1.10	3.07	3.2		30.0		94.08	1.32	1.01		1.06	2.79	3.2
														30.0		93.99	1.50	1.02		1.05	3.14	3.2		32.0		93.90	1.50	1.02		1.07	3.20	3.2
														32.0		93.79	1.70	0.95		0.98	3.32	3.2		34.0		93.70	1.70	0.93		0.97	3.31	3.2
														34.0		93.74	1.75	0.97		1.00	3.49	3.2		36.0		93.48	1.92	0.84		0.89	2.56	3.2
														36.0		93.29	2.20	0.95		0.98	3.22	3.2		37.0		93.32	2.08	0.78		0.83	1.72	3.2
														37.0		92.84	2.65	1.05	0.56	0.83	2.20	3.2		38.0		92.97	2.43	0.80		0.85	3.09	3.2
														38.0		92.44	3.05	1.06	0.78	0.95	4.33	3.2		40.0		92.35	3.05	0.94	0.83	0.93	4.26	3.2
														40.0		92.19	3.30	1.01	1.02	1.04	5.16	3.2		41.0		92.10	3.30	0.98	1.05	1.06	4.03	3.2
														41.0		92.14	3.35	0.95	0.96	0.98	3.78	3.2		42.3		92.65	2.75	0.85	0.95	0.95	3.90	3.2
														42.3		92.69	2.80	1.01	0.94	1.00	4.21	3.2		44.0		93.04	2.36	0.70		0.75	2.39	2.3
														44.0		93.09	2.40	0.91		0.94	3.03	2.3		45.0		93.55	1.85	0.23		0.32	0.59	2.3
														45.0		93.89	1.60	0.37		0.40	0.64	2.3		46.0		94.50	0.90	0.00		0.01	0.00	2.3
														46.0		94.59	0.90	-0.04		-0.12	-0.10	2.3		47.0		95.15	0.25	0.00		0.01	0.00	2.3
														47.0		95.19	0.30	-0.19		-0.24	-0.07	2.3	LWE	47.7		95.40	0.00	0.00		0.00	0.00	2.3
													LWE	47.9		95.49	0.00	0.00		0.00	0.00	2.3										
														48.4	8.79	95.55						2.3									
														49.0	8.44	95.90						3.2									
														50.0	6.54	97.80						1.1									
														51.0	6.34	98.00						1.1									
													LWP	54.9	6.29	98.05						1.1									



* = Added cell

See diagram of undercut bank in field notes

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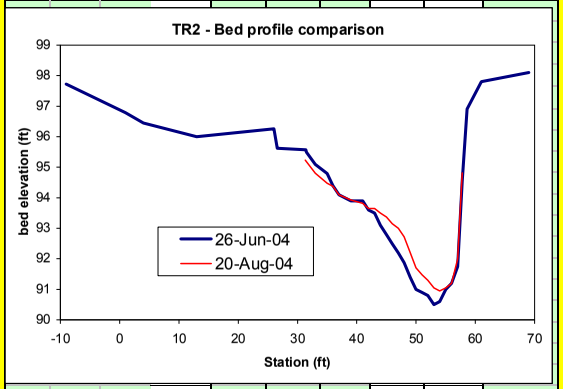
Stream:	Upper Williams		14-Apr-04										26-Jun-04										20-Aug-04											
Site:	631			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			Angle	q	
Transect:	2			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(deg)	(cfs)	substrate
Habitat:	Pool													-9.0	6.62	97.72						1.1											
													RWP	1.0	7.55	96.79						1.1											
Survey	HI	Q												4.0	7.89	96.45						1.1											
Date	(ft)	(cfs)												13.0	8.34	96.00						1.2											
4/14/2004	103.84													26.0	8.08	96.26						1.1											
6/26/2004	104.34	40.0												26.6	8.72	95.62						1.1											
8/20/2004	103.61	43.8												31.4	8.77	95.57						1.2											
													RWE	31.5		95.50	0.00	0.00		0.00	0.00	3.2	RBE	31.3		95.23	0.17	0.00		0.00		0.00	1.2
														33.0		95.10	0.40	0.51		0.53	0.37	3.2		33.0		94.80	0.60	0.20		0.29	40	0.25	3.2
														35.0		94.80	0.70	0.74		0.76	0.80	3.2		35.0		94.48	0.92	0.35		0.43	30	0.51	3.2
														36.0		94.40	1.10	0.65		0.67	0.74	3.2		36.0		94.38	1.02	0.34		0.42	30	0.37	3.2
														37.0		94.10	1.40	0.61		0.63	1.32	3.2		37.0		94.10	1.30	0.45		0.52	30	0.87	3.2
														39.0		93.90	1.60	0.67		0.69	2.21	3.2		39.0		93.93	1.47	0.75		0.80	30	2.04	3.2
														41.0		93.90	1.60	0.80		0.82	1.98	3.2		41.0		93.82	1.58	0.84		0.89	30	1.82	3.2
														42.0		93.60	1.90	0.73		0.75	1.43	3.2		42.0		93.65	1.75	0.89		0.93	30	1.42	3.2
														43.0		93.50	2.00	0.68		0.70	1.40	3.2		43.0		93.65	1.75	0.93		0.97	30	1.48	3.2
														44.0		93.10	2.40	0.64		0.66	1.59	3.2		44.0		93.50	1.90	1.03		1.08	30	1.77	3.2
														45.0		92.80	2.70	0.88	0.68	0.80	2.17	3.2		45.0		93.37	2.03	0.88		0.93	30	1.63	3.2
														46.0		92.50	3.00	0.84	0.75	0.82	2.46	3.2		46.0		93.15	2.25	0.80		0.85	20	1.79	3.2
														47.0		92.20	3.30	0.83	0.84	0.86	2.84	3.2		47.0		93.00	2.40	0.91		0.95	10	2.25	3.2
														48.0		91.88	3.62	0.82	0.88	0.88	3.17	3.2		48.0		92.72	2.68	0.84	0.89	0.91		2.44	3.2
														49.0		91.40	4.10	0.74	0.83	0.81	3.32	3.2		49.0		92.20	3.20	0.85	0.76	0.85		2.73	3.2
														50.0		91.00	4.50	0.69	0.80	0.77	3.46	3.2		50.0		91.70	3.70	0.83	0.83	0.88		3.25	3.2
														51.0		90.90	4.60	0.84	0.73	0.81	3.72	3.2		51.0		91.48	3.92	0.82	0.75	0.83		3.27	3.2
														52.0		90.80	4.70	0.73	0.83	0.80	3.78	3.2		52.0		91.30	4.10	0.97	0.97	1.02		4.17	3.2
														53.0		90.50	5.00	1.00	0.76	0.91	4.53	3.2		53.0		91.05	4.35	1.08	0.87	1.02		4.45	3.2
														54.0		90.60	4.90	0.17	0.47	0.36	1.75	2.3		54.0		90.95	4.45	0.78	0.86	0.87		3.86	2.3
														55.0		91.00	4.50	-0.15	-0.36	-0.30	-1.34	2.3		55.0		91.05	4.35	0.57	0.47	0.58		2.51	2.3
														56.0		91.20	4.30	-0.12	-0.39	-0.30	-1.27	2.3		56.0		91.20	4.20	0.00	0.34	0.21		0.88	2.3
														57.0		91.75	3.75	-0.14	0.00	-0.10	-0.33	2.3		57.0		91.99	3.41	-0.09	0.14	0.03		0.08	2.3
													LBE	57.8		94.55	0.95	-0.19		-0.24	-0.09	2.3	LBE	57.8		94.81	0.59	0.00		0.00		0.00	2.3
														58.6	7.43	96.91						1.1											
														61.0	6.54	97.80						1.1											
													LWP	69.0	6.24	98.10						1.1											

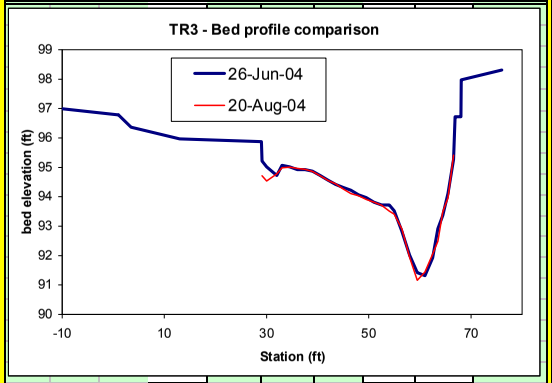


Left UCB = 0.7'

*# = Angle of Flow

See diagram of undercut bank in field notes

Stream:	Upper Williams		14-Apr-04										26-Jun-04												20-Aug-04											
Site:	631			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			Angle	q			Sta	FS	Ground	Depth	Vel (ft/s)			Angle	q	
Transect:	3			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(deg)	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(deg)	(cfs)	
Habitat:	Pool													-10.0	6.85	96.99							1.1												
													RWP	1.0	7.56	96.78							1.1												
Survey	HI	Q												3.5	7.97	96.37							1.1												
Date	(ft)	(cfs)												13.0	8.37	95.97							1.1												
4/14/2004	103.84												TOB	29.0	8.47	95.87							1.1												
6/26/2004	104.34	44.6											RBE	29.1		95.22	0.30	0.00		0.00		0.00	2.3												
8/20/2004	103.61	42.7												30.0		95.02	0.50	0.01		0.03		0.02	2.3	RBE	29.1		94.71	0.70	0.00		0.00		0.00	2.3
														32.0		94.72	0.80	0.20		0.25		0.30	2.4		30.0		94.54	0.87	0.00		0.01		0.00	2.3
														33.0		95.07	0.45	0.15		0.20		0.11	2.4		32.0		94.78	0.63	0.00		0.01		0.00	2.4
														34.5		95.02	0.50	0.06		0.17		0.13	2.4	*	33.0		94.99	0.42	0.05		0.05		0.03	2.4
														36.0		94.92	0.60	0.22		0.27	30	0.21	3.2		34.5		95.01	0.40	0.11		0.20	30	0.10	2.4
														37.5		94.92	0.60	0.50		0.52	30	0.40	3.2		36.0		94.96	0.45	0.28		0.37	30	0.21	3.2
														39.0		94.87	0.65	0.67		0.69	30	0.58	3.2		37.5		94.93	0.48	0.72		0.77	30	0.48	3.2
														40.5		94.72	0.80	0.78		0.80	30	0.84	3.2		39.0		94.86	0.55	0.69		0.74	30	0.53	3.2
														42.0		94.57	0.95	0.89		0.92	30	1.13	3.2		40.5		94.71	0.70	0.81		0.86	30	0.78	3.2
														43.5		94.42	1.10	0.94		0.97	30	1.38	3.2		42.0		94.56	0.85	0.94		0.98	30	1.09	3.2
														45.0		94.32	1.20	1.09		1.12	30	1.74	3.2		43.5		94.44	0.97	0.96		1.01	30	1.27	3.2
														46.5		94.22	1.30	1.19		1.22	30	2.06	3.2		45.0		94.26	1.15	1.01		1.06	30	1.58	3.2
														48.0		94.07	1.45	1.13		1.16	30	2.18	3.2		46.5		94.11	1.30	1.12		1.17	30	1.98	3.2
														49.5		93.97	1.55	1.27		1.30	30	2.62	3.2		48.0		94.03	1.38	1.19		1.24	30	2.23	3.2
														51.0		93.82	1.70	1.22		1.25	30	2.76	3.2		49.5		93.91	1.50	1.18		1.23	20	2.61	3.2
														52.5		93.72	1.80	1.26		1.29	30	3.01	3.2		51.0		93.82	1.59	1.15		1.20	20	2.70	3.2
														54.0		93.72	1.80	1.16		1.19	30	2.32	3.2		52.5		93.71	1.70	1.12		1.17	20	2.81	3.2
														55.0		93.52	2.00	1.19		1.22	30	2.64	3.2		54.0		93.51	1.90	1.13		1.18	20	2.64	3.2
														56.5		92.82	2.70	1.32	0.53	0.95	30	3.33	3.2		55.0		93.41	2.00	1.03		1.08	20	2.53	3.2
														58.0		92.02	3.50	1.25	0.39	0.85	30	3.86	3.2		56.5		92.91	2.50	1.26	0.92	1.14	20	4.02	3.2
														59.5		91.42	4.10	1.22	0.23	0.76	30	4.06	3.2		58.0		91.94	3.47	1.21	0.19	0.77	20	3.78	3.2
														61.0		91.32	4.20	1.07	0.41	0.77	10	4.76	2.3		59.5		91.16	4.25	1.13	0.49	0.87	10	5.44	3.2
														62.5		91.92	3.60	1.02	0.03	0.57		2.55	2.3		61.0		91.44	3.97	1.23	0.34	0.85	10	5.00	2.3
														63.5		92.92	2.60	0.72	0.14	0.47		1.22	2.3		62.5		92.05	3.36	0.39	0.00	0.23		0.97	2.3
														64.5		93.37	2.15	0.27		0.31		0.67	2.3		63.5		92.49	2.92	0.05	0.04	0.10		0.29	2.3
														65.5		94.12	1.40	-0.06		-0.17		-0.26	2.3		64.5		93.49	1.92	-0.05		-0.11		-0.21	2.3
													LBE	66.6		95.27	0.25	0.00		0.01		0.00	2.3		65.5		93.96	1.45	-0.05		-0.11		-0.17	2.3
														66.9	7.62	96.72	0.00	0.00		0.00		0.00	1.2	LWE	66.6		95.41	0.00	0.00		0.00		0.00	2.3
														68.0	7.62	96.72							2.1												
														68.1	6.36	97.98							1.1												
													LWP	76.0	6.03	98.31							1.1												



*# = Angle of Flow

Right UCB = 0.3'
Left UCB = 0.4'

*# = Angle of Flow

*- Estimated Velocity
Average velocity cell updated

See diagram of undercut bank in field notes

```
     Williamson River WM_7 08/20/04
Pool                          Low                                    TRANSECT 1
IOC       11011000000001000101000
QARD  19.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  40.0
QARD  42.0
QARD  45.0
QARD  47.2
QARD  50.0
QARD  52.5
QARD  55.0
QARD  57.5
QARD  60.0
QARD  62.5
QARD  65.5
QARD  67.5
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  88.2
QARD  90.0
QARD  95.0
QARD 100.0
QARD 110.0
QARD 125.0
QARD 140.0
QARD 160.0
QARD 180.0
XSEC   0.0       0.0 1.0     92.10   0.00018
       0.0 -9.0 97.4  1.0 96.8  6.0 95.9  9.4 95.5 10.1 95.5 11.0 95.4
       0.0 12.0 94.7 12.4 94.8 14.0 95.0 14.8 95.4 15.0 95.6 17.1 95.4
       0.0 18.0 95.3 20.0 95.2 22.0 94.9 24.0 94.4 26.0 94.0 28.0 94.1
       0.0 30.0 94.1 32.0 93.9 34.0 93.7 36.0 93.5 37.0 93.3 38.0 93.0
       0.0 40.0 92.4 41.0 92.1 42.3 92.7 44.0 93.0 45.0 93.6 46.0 94.5
       0.0 47.0 95.2 47.7 95.4 47.9 95.5 48.4 95.6 49.0 95.9 50.0 97.8
       0.0 51.0 98.0 54.9 98.1
NS     0.0       1.1       1.1       1.1       1.1       2.9       2.9
NS     0.0 0.2   2.9 0.15  2.9 0.1   3.2       3.2       3.2       3.2
NS     0.0 0.05  3.2 .015  3.2 .017  3.2       3.2       3.2       3.2
NS     0.0       3.2       3.2       3.2       3.2       3.2       3.2
NS     0.0       3.2       3.2       3.2       2.3       2.3 0.1   2.3
NS     0.0 0.2   2.3       2.3       2.3       2.3       3.2       1.1
NS     0.0       1.1       1.1
CAL1   0.0     95.40      42.0
VEL1   0.0                     0.00 0.01 0.01 0.00 0.01 0.00      0.00
VEL1   0.0 0.01 0.62 0.90 1.01 1.03 1.07 1.06 1.07 0.97 0.89 0.83 0.85
VEL1   0.0 0.93 1.06 0.95 0.75 0.32 0.01 0.01 0.00
VEL1   0.0
CAL2   0.0     96.14      88.2
VEL2   0.0
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     95.49      47.2
VEL3   0.0
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
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     Williamson River WM_7 08/20/04
Pool                          Low                                        TRANSECT 2
IOC       11000001000010001010000
QARD  19.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  40.0
QARD  42.0
QARD  45.0
QARD  47.2
QARD  50.0
QARD  52.5
QARD  55.0
QARD  57.5
QARD  60.0
QARD  62.5
QARD  65.5
QARD  67.5
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  88.2
QARD  90.0
QARD  95.0
QARD 100.0
QARD 110.0
QARD 125.0
QARD 140.0
QARD 160.0
QARD 180.0
XSEC   0.0       0.0 1.0     92.10   0.00018
       0.0 -9.0 97.7  1.0 96.8  4.0 96.5 13.0 96.0 26.0 96.3 26.6 95.6
       0.0 31.3 95.2 33.0 94.8 35.0 94.5 36.0 94.4 37.0 94.1 39.0 93.9
       0.0 41.0 93.8 42.0 93.7 43.0 93.7 44.0 93.5 45.0 93.4 46.0 93.2
       0.0 47.0 93.0 48.0 92.7 49.0 92.2 50.0 91.7 51.0 91.5 52.0 91.3
       0.0 53.0 91.1 54.0 91.0 55.0 91.1 56.0 91.2 57.0 92.0 57.8 94.8
       0.0 58.6 96.9 61.0 97.8 69.0 98.1
NS     0.0       1.1       1.1       1.1 .1    1.2       1.1       1.1
NS     0.0       1.2       3.2       3.2       3.2       3.2       3.2
NS     0.0       3.2       3.2       3.2       3.2       3.2       3.2
NS     0.0       3.2       3.2       3.2       3.2       3.2       3.2
NS     0.0       3.2       2.3       2.3 .15   2.3 .2    2.3       2.3
NS     0.0       1.1       1.1       1.1
WSL    0.0     94.76     94.79     94.96     95.11     95.24     95.36
WSL    0.0     95.41     95.48     95.52     95.57     95.62     95.67
WSL    0.0     95.71     95.75     95.79     95.84     95.87     95.91
WSL    0.0     95.98     96.05     96.12     96.16     96.18     96.24
WSL    0.0     96.30     96.41     96.57     96.71     96.88     97.04
CAL1   0.0     95.40      42.0
VEL1   0.0                                0.00 0.29 0.43 0.42 0.52 0.80
VEL1   0.0 0.89 0.93 0.97 1.08 0.93 0.85 0.95 0.91 0.85 0.88 0.83 1.02
VEL1   0.0 1.02 0.87 0.58 0.21 0.03 0.00
CAL2   0.0     96.17      88.2
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     95.50      47.2
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
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     Williamson River WM_7 08/20/04
Pool                         Low                                    TRANSECT 3
IOC       11000001000010001010000
QARD  19.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  40.0
QARD  42.0
QARD  45.0
QARD  47.2
QARD  50.0
QARD  52.5
QARD  55.0
QARD  57.5
QARD  60.0
QARD  62.5
QARD  65.5
QARD  67.5
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  88.2
QARD  90.0
QARD  95.0
QARD 100.0
QARD 110.0
QARD 125.0
QARD 140.0
QARD 160.0
QARD 180.0
XSEC   0.0       0.0 1.0     92.10   0.00018
       0.0-10.0 97.0  1.0 96.8  3.5 96.4 13.0 96.0 29.0 95.9 29.1 94.7
       0.0 30.0 94.5 32.0 94.8 33.0 95.0 34.5 95.0 36.0 95.0 37.5 94.9
       0.0 39.0 94.9 40.5 94.7 42.0 94.6 43.5 94.4 45.0 94.3 46.5 94.1
       0.0 48.0 94.0 49.5 93.9 51.0 93.8 52.5 93.7 54.0 93.5 55.0 93.4
       0.0 56.5 92.9 58.0 91.9 59.5 91.2 61.0 91.4 62.5 92.1 63.5 92.5
       0.0 64.5 93.5 65.5 94.0 66.6 95.4 66.9 96.7 68.0 96.7 68.1 98.0
       0.0 76.0 98.3
NS     0.0       1.1       1.1       1.1       1.1       1.1 .15   2.3
NS     0.0 .20   2.3 .15   2.4 .15   2.4       2.4       3.2       3.2
NS     0.0       3.2       3.2       3.2       3.2       3.2       3.2
NS     0.0       3.2       3.2       3.2       3.2       3.2       3.2
NS     0.0       3.2       3.2       3.2       2.3       2.3       2.3
NS     0.0       2.3       2.3       2.3       1.2       2.1       1.1
NS     0.0       1.1
WSL    0.0     94.78     94.81     94.98     95.13     95.26     95.38
WSL    0.0     95.42     95.49     95.53     95.58     95.63     95.68
WSL    0.0     95.72     95.76     95.80     95.85     95.88     95.92
WSL    0.0     95.99     96.06     96.13     96.17     96.19     96.25
WSL    0.0     96.31     96.42     96.58     96.72     96.89     97.05
CAL1   0.0     95.41      42.0
VEL1   0.0                         0.00 0.01 0.01 0.05 0.20 0.37 0.77
VEL1   0.0 0.74 0.86 0.98 1.01 1.06 1.17 1.24 1.23 1.20 1.17 1.18 1.08
VEL1   0.0 1.14 0.77 0.87 0.85 0.23 0.10-0.11-0.11 0.00
VEL1   0.0
CAL2   0.0     96.19      88.2
VEL2   0.0
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     95.52      47.2
VEL3   0.0
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```

Stream: Upper Williamson River
Site: Williamson River
Date: 9/22/1901
Habitat: Run **Flow:** High

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM1	4.28	104.28		100.00
HP1			4.94	99.34
HP2			5.43	98.85
HP3			4.97	99.31
TP HP3	5.06	104.37		
HP2			5.52	98.85
HP1			5.03	99.34
BM1			4.37	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	Sta L/R bank (ft)	Sta Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	104.37				96.26	
1-R	0			8.11	0.00	96.26		
2-L	60	63	104.37				96.27	
2-R	66			8.10	0.00	96.27		
3-L	140	133	104.37				96.30	
3-R	125			8.07	0.00	96.30		
							Ave Q=	88.2

Note:
WSE slope = 0.030%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 0068
Propeller ID: NA

Date: 6/26/2004
Habitat: Run **Flow:** Mid

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM1	3.40	103.40		100.00
HP1			4.06	99.34
HP2			4.56	98.84
HP3			4.09	99.31
TP HP3	4.27	103.58		
HP2			4.74	98.84
HP1			4.24	99.34
BM 1			3.58	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	Sta L/R bank (ft)	Sta Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	103.58	7.97	0.00	95.61	95.61	46.5
1-R	0			7.97	0.00	95.61		
2-L	60	63	103.58	7.94	0.00	95.64	95.64	49.1
2-R	66			7.95	0.00	95.63		
3-L	140	133	103.58	7.93	0.00	95.65	95.66	49.7
3-R	125			7.92	0.00	95.66		
							Ave Q=	46.3

Note: WSE @75' u/s FS=7.91; @75' d/s FS=7.98
WSE slope = 0.034%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 3602
Propeller ID: 3A

Date: 8/20/2004
Habitat: Run **Flow:** Low

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	5.25	105.25		100.00
HP1			5.91	99.34
HP2			6.42	98.83
HP3			5.95	99.30
TP HP3	4.66	103.96		
HP2			5.13	98.83
HP1			4.62	99.34
BM			3.96	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	Sta L/R bank (ft)	Sta Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	103.96	8.46	0.00	95.50	95.51	41
1-R	0			8.45	0.00	95.51		
2-L	60	63	103.96	8.45	0.00	95.51	95.52	41.1
2-R	66			8.44	0.00	95.52		
3-L	140	133	103.96	8.43	0.00	95.53	95.53	43.0
3-R	125			8.44	0.00	95.52		
							Ave Q=	42.1

Note:
WSE slope = 0.015%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 4099
Propeller ID: 1A

Ex. 277-US-438
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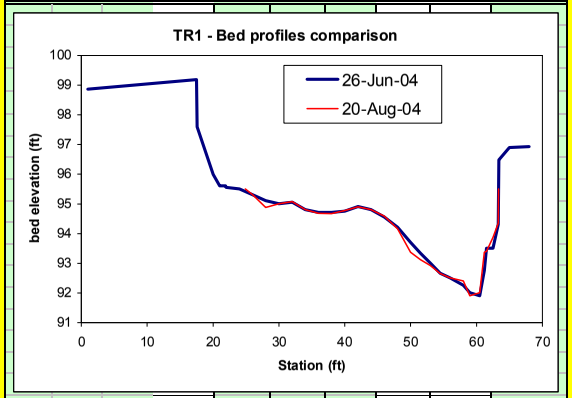
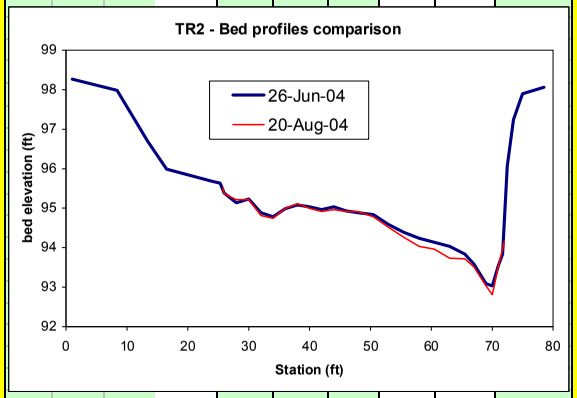
Stream:	Williamson Rive		22-Sep-01									26-Jun-04										20-Aug-04									
Site:	631			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q	
Transect:	1			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate
Habitat:	Run		RWP	1.0	4.71	98.87						1.1																			
				17.5	4.39	99.19						1.1																			
Survey	HI	Q		17.6	5.98	97.60						1.1																			
Date	(ft)	(cfs)		20.0	7.59	95.99						1.2																			
9/22/1901	104.37			21.0	7.97	95.61						1.2																			
6/26/2004	103.58	46.5	RWE	21.9		95.61	0.00	0.00		0.00	0.00	2.9																			
8/20/2004	103.96	40.6		22.0		95.56	0.05	0.00		0.01	0.00	2.9																			
				24.0		95.51	0.10	0.00		0.01	0.00	9.2	RWE	24.9		95.51	0.00	0.00		0.00	0.00										
				26.0		95.31	0.30	0.00		0.01	0.00	9.2		26.0		95.31	0.20	0.00		0.01	0.00										
				28.0		95.11	0.50	0.00		0.01	0.00	9.2		28.0		94.89	0.62	0.00		0.01	0.00										
				30.0		95.01	0.60	0.01		0.03	0.03	9.2		30.0		95.01	0.50	0.00		0.01	0.00										
				32.0		95.06	0.55	0.01		0.03	0.03	2.9		32.0		95.08	0.43	0.00		0.01	0.00										
				34.0		94.81	0.80	0.20		0.25	0.40	2.3		34.0		94.81	0.70	0.05		0.11	0.15										
				36.0		94.71	0.90	0.34		0.37	0.67	3.2		36.0		94.69	0.82	0.07		0.15	0.25										
				38.0		94.71	0.90	0.46		0.48	0.87	3.4		38.0		94.68	0.83	0.38		0.45	0.75										
				40.0		94.76	0.85	0.59		0.61	1.04	3.4		40.0		94.78	0.73	0.52		0.58	0.84										
				42.0		94.91	0.70	0.46		0.48	0.68	3.2		42.0		94.91	0.60	0.32		0.40	0.48										
				44.0		94.81	0.80	0.98		1.01	1.61	3.2		44.0		94.81	0.70	0.55		0.60	0.84										
				46.0		94.56	1.05	1.03		1.06	2.22	3.2		46.0		94.59	0.92	0.77		0.82	1.51										
				48.0		94.21	1.40	1.18		1.21	3.38	3.2		48.0		94.17	1.34	0.89		0.93	2.51										
				50.0		93.71	1.90	1.20		1.23	4.09	3.2		50.0		93.38	2.13	1.05		1.10	4.10										
				51.5		93.34	2.27	1.24		1.27	4.32	3.2		51.5		93.13	2.38	1.10		1.15	4.11										
				53.0		93.01	2.60	1.40	1.02	1.24	4.83	3.2		53.0		92.93	2.58	1.22	0.86	1.09	4.22										
				54.5		92.66	2.95	1.38	1.04	1.24	5.48	3.2		54.5		92.66	2.85	1.14	1.06	1.15	4.92										
				56.0		92.51	3.10	1.23	1.23	1.26	6.83	3.2		56.0		92.51	3.00	1.01	1.18	1.15	6.02										
				58.0		92.26	3.35	0.74	0.85	0.82	4.12	3.2		58.0		92.41	3.10	0.71	1.07	0.94	4.37										
				59.0		92.01	3.60	0.79	0.71	0.77	3.48	2.3		59.0		91.91	3.60	0.51	0.46	0.55	2.46										
				60.5		91.91	3.70	0.54	0.14	0.38	1.53	2.3		60.5		92.01	3.50	0.50	0.07	0.36	1.37										
				61.2		92.76	2.85	0.32	0.02	0.21	0.29	2.3		61.2		93.38	2.13	0.64		0.69	0.74										
				61.5		93.51	2.10	0.26		0.30	0.42	2.3		61.5		93.41	2.10	0.58		0.63	0.86										
				62.5		93.51	2.10	0.03		0.09	0.16	2.3		62.5		93.88	1.63	0.04		0.09	0.13										
			LBE	63.3		94.31	1.30	0.00		0.01	0.00	2.3	LBE	63.3		94.36	1.15	0.00		0.01	0.00										
				63.4	7.10	96.48						1.1	LWE	63.4		95.51	0.00	0.00		0.00	0.00										
				65.0	6.68	96.90						1.1																			
			LWP	68.0	6.65	96.93						1.1																			



Left UCB=0.5'

See diagram of undercut bank in field notes

Stream:	Williamson Rive		22-Sep-01									26-Jun-04										20-Aug-04									
Site:	631			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q	
Transect:	2			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate
Habitat:	Run												RWP	1.0	5.31	98.27						1.1									
														8.4	5.60	97.98						1.1									
Survey	HI	Q												13.4	6.88	96.70						1.1									
Date	(ft)	(cfs)												16.5	7.59	95.99						1.1									
9/22/1901	104.37													24.0	7.90	95.68						1.2									
6/26/2004	103.58	49.1											RWE	25.3		95.64	0.00	0.00		0.00	0.00	9.2	RWE	25.8		95.52	0.00	0.00		0.00	0.00	
8/20/2004	103.96	41.1												26.0		95.39	0.25	0.00		0.01	0.00	2.9		26.0		95.37	0.15	0.00		0.01	0.00	
														28.0		95.14	0.50	0.00		0.01	0.00	9.2		28.0		95.22	0.30	0.00		0.01	0.00	
														30.0		95.24	0.40	0.10		0.16	0.13	9.2		30.0		95.22	0.30	0.00		0.01	0.00	
														32.0		94.89	0.75	0.30		0.34	0.51	2.9		32.0		94.82	0.70	0.24		0.33	0.46	
														34.0		94.79	0.85	0.34		0.37	0.63	2.9		34.0		94.75	0.77	0.01		0.02	0.03	
														36.0		94.99	0.65	0.28		0.32	0.42	9.2		36.0		95.00	0.52	0.00		0.00	0.00	
														38.0		95.09	0.55	0.64		0.66	0.73	3.2		38.0		95.12	0.40	0.63		0.68	0.54	
														40.0		95.04	0.60	0.99		1.02	1.22	3.2		40.0		95.00	0.52	0.76		0.81	0.84	
														42.0		94.97	0.67	1.01		1.04	1.39	3.2		42.0		94.92	0.60	0.88		0.93	1.11	
														44.0		95.04	0.60	1.19		1.22	1.46	2.3		44.0		94.97	0.55	0.82		0.87	0.96	
														46.0		94.94	0.70	1.18		1.21	1.69	3.2		46.0		94.92	0.60	0.95		1.00	1.19	
														48.0		94.89	0.75	1.24		1.27	2.14	3.2		48.0		94.92	0.60	0.96		1.01	1.36	
														50.5		94.84	0.80	1.27		1.30	2.60	3.2		50.5		94.79	0.73	0.99		1.04	1.89	
														53.0		94.59	1.05	1.26		1.29	3.38	3.2		53.0		94.52	1.00	1.13		1.18	2.96	
														55.5		94.39	1.25	1.35		1.38	4.31	3.2		55.5		94.27	1.25	1.07		1.12	3.50	
														58.0		94.24	1.40	1.34		1.37	4.79	3.2		58.0		94.04	1.48	1.16		1.21	4.49	
														60.5		94.14	1.50	1.31		1.34	5.02	3.2		60.5		93.97	1.55	1.08		1.13	4.38	
														63.0		94.04	1.60	1.22		1.25	5.00	3.2		63.0		93.74	1.78	1.12		1.17	5.21	
														65.5		93.84	1.80	1.26		1.29	4.64	3.2		65.5		93.72	1.80	1.10		1.15	4.14	
														67.0		93.59	2.05	0.85		0.88	3.14	2.3		67.0		93.52	2.00	0.75		0.80	2.80	
														69.0		93.09	2.55	1.00	0.84	0.95	3.62	2.3		69.0		93.04	2.48	0.86		0.91	3.37	
														70.0		93.04	2.60	0.78	0.67	0.75	1.94	2.3		70.0		92.82	2.70	0.69	0.54	0.67	1.80	
														71.0		93.54	2.10	0.10		0.16	0.28	1.2		71.0		93.52	2.00	0.01		0.02	0.04	
													LBE	71.7		93.84	1.80	0.10		0.16	0.10	1.2	LBE	72.0		94.17	1.35	0.00		0.01	0.00	
														72.5	7.51	96.07						1.1									
														73.5	6.34	97.24						1.1									
														75.0	5.68	97.90						1.1									
													LWP	78.5	5.52	98.06						1.1									

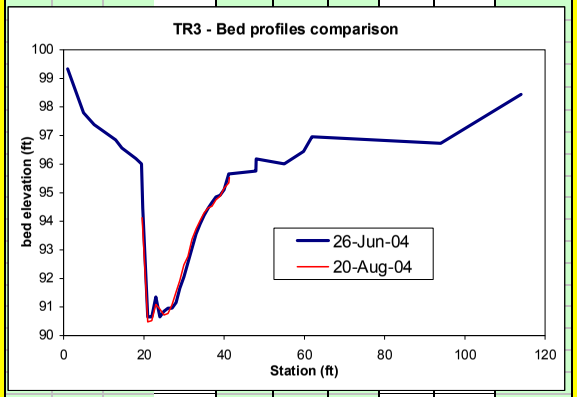


Left UCB = 0.7'

See diagram of undercut bank in field notes

Ex. 277-US-438
Page 11 of 15

Stream:	Williamson Rive	
Site:	631	
Transect:	3	
Habitat:	Run	
Survey Date	HI (ft)	Q (cfs)
9/22/1901	104.37	
6/26/2004	103.58	49.7
8/20/2004	103.96	43.0



22-Sep-01

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate

26-Jun-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
RWP	1.0	5.03	99.34						1.1
	5.0	5.78	97.80						1.1
	7.6	6.20	97.38						1.1
	13.0	6.73	96.85						1.1
	14.5	7.01	96.57						1.1
	18.0	7.39	96.19						1.1
TOB	19.4	7.57	96.01						1.1
RBE	19.7		94.46	1.20	0.00		0.01	0.00	1.2
	21.0		90.66	5.00	0.18	0.52	0.39	2.21	1.2
	22.0		90.66	5.00	0.16	0.45	0.34	1.72	2.3
	23.0		91.36	4.30	0.36	0.26	0.35	1.49	2.3
	24.0		90.66	5.00	0.73	0.29	0.54	2.71	2.3
	25.0		90.86	4.80	0.99	0.99	1.02	4.88	3.2
	26.0		90.96	4.70	1.07	1.06	1.09	5.14	3.2
	27.0		90.96	4.70	1.09	1.09	1.12	5.25	3.2
	28.0		91.16	4.50	1.12	1.15	1.16	5.23	3.2
	29.0		91.66	4.00	1.00	1.21	1.13	4.53	3.2
	30.0		92.06	3.60	0.79	0.98	0.91	3.28	3.2
	31.0		92.56	3.10	0.78	0.91	0.87	2.70	3.2
	32.0		93.06	2.60	0.89	0.80	0.87	2.26	3.2
	33.0		93.56	2.10	0.91		0.94	1.97	3.2
	34.0		93.91	1.75	0.92		0.95	1.66	3.2
	35.0		94.21	1.45	0.89		0.92	1.33	3.2
	36.0		94.46	1.20	0.97		1.00	1.20	3.2
	37.0		94.66	1.00	0.85		0.88	0.88	2.3
	38.0		94.86	0.80	0.73		0.75	0.60	2.3
	39.0		94.91	0.75	0.58		0.60	0.45	2.3
	40.0		95.11	0.55	0.35		0.38	0.23	3.2
LWE	41.2		95.66	0.00	0.00		0.00	0.00	3.2
	41.4	7.92	95.66						2.9
	47.9	7.82	95.76						2.9
	48.0	7.40	96.18						1.1
	55.0	7.57	96.01						1.1
	59.8	7.13	96.45						1.1
LWP	61.9	6.62	96.96						1.1
	94.0	6.85	96.73						1.1
	114.0	5.14	98.44						1.1

Right UCB = 0.3'

20-Aug-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
RBE	19.6		94.13	1.40	0.00		0.01	0.00	
	21.0		90.48	5.05	0.17	0.07	0.21	1.25	
	22.0		90.53	5.00	0.27	0.48	0.45	2.25	
	23.0		91.10	4.43	0.42	0.19	0.39	1.71	
	24.0		90.93	4.60	0.41	0.60	0.57	2.60	
	25.0		90.72	4.81	0.85	0.29	0.64	3.06	
	26.0		90.78	4.75	0.93	0.97	1.00	4.73	
	27.0		91.08	4.45	1.02	0.98	1.05	4.66	
	28.0		91.53	4.00	0.99	0.98	1.03	4.13	
	29.0		91.93	3.60	0.87	1.05	1.01	3.63	
	30.0		92.48	3.05	0.98	0.97	1.02	3.11	
	31.0		92.78	2.75	0.98	1.06	1.07	2.94	
	32.0		93.38	2.15	1.05		1.10	2.36	
	33.0		93.73	1.80	1.02		1.07	1.92	
	34.0		94.03	1.50	0.96		1.01	1.51	
	35.0		94.30	1.23	0.83		0.88	1.08	
	36.0		94.48	1.05	0.87		0.92	0.96	
	37.0		94.53	1.00	0.65		0.70	0.70	
	38.0		94.76	0.77	0.28		0.37	0.28	
	39.0		94.88	0.65	0.05		0.11	0.07	
	40.0		95.16	0.37	0.00		0.01	0.00	
	41.2		95.35	0.18	0.00		0.01	0.00	
LWE	41.3		95.53	0.00	0.00		0.00	0.00	

See diagram of undercut bank in field notes

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     Williamson River WM_7 06/26/04
Run      Williamson River
IOC      631
QARD  19.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  40.0
QARD  42.0
QARD  45.0
QARD  47.2
QARD  50.0
QARD  52.5
QARD  55.0
QARD  57.5
QARD  60.0
QARD  62.5
QARD  65.5
QARD  67.5
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  88.2
QARD  90.0
QARD  95.0
QARD 100.0
QARD 110.0
QARD 125.0
QARD 140.0
QARD 160.0
QARD 180.0
XSEC   0.0        0.0 1.0      91.91   0.00034
       0.0  1.0 98.9 17.5 99.2 17.6 97.6 20.0 96.0 21.0 95.6 21.9 95.6
       0.0 22.0 95.6 24.0 95.5 26.0 95.3 28.0 95.1 30.0 95.0 32.0 95.1
       0.0 34.0 94.8 36.0 94.7 38.0 94.7 40.0 94.8 42.0 94.9 44.0 94.8
       0.0 46.0 94.6 48.0 94.2 50.0 93.7 51.5 93.3 53.0 93.0 54.5 92.7
       0.0 56.0 92.5 58.0 92.3 59.0 92.0 60.5 91.9 61.2 92.8 61.5 93.5
       0.0 62.5 93.5 63.3 94.3 63.4 96.5 65.0 96.9 68.0 96.9
NS     0.0       1.1       1.1       1.1       1.2       1.2       2.9
NS     0.0 0.2   2.9 .2    9.2 0.2   9.2 0.2   9.2 0.2   9.2 0.15  2.9
NS     0.0       2.3       3.2       3.4       3.4       3.2       3.2
NS     0.0       3.2       3.2       3.2       3.2       3.2       3.2
NS     0.0       3.2       3.2       2.3       2.3       2.3       2.3
NS     0.0 .2    2.3 .2    2.3       1.1       1.1       1.1
CAL1   0.0     95.61      47.2
VEL1   0.0                          0.00 0.01 0.01 0.01 0.01 0.03 0.03
VEL1   0.0 0.25 0.37 0.48 0.61 0.48 1.01 1.06 1.21 1.23 1.27 1.24 1.24
VEL1   0.0 1.26 0.82 0.77 0.38 0.21 0.30 0.09 0.01
CAL2   0.0     96.26      88.2
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     95.51      42.0
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
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     Williamson River WM_7 06/26/04
Run      Williamson River
IOC      631
QARD  19.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  40.0
QARD  42.0
QARD  45.0
QARD  47.2
QARD  50.0
QARD  52.5
QARD  55.0
QARD  57.5
QARD  60.0
QARD  62.5
QARD  65.5
QARD  67.5
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  88.2
QARD  90.0
QARD  95.0
QARD 100.0
QARD 110.0
QARD 125.0
QARD 140.0
QARD 160.0
QARD 180.0
XSEC   0.0       0.0 1.0     93.04   0.00034
       0.0  1.0 98.3  8.4 98.0 13.4 96.7 16.5 96.0 24.0 95.7 25.3 95.6
       0.0 26.0 95.4 28.0 95.1 30.0 95.2 32.0 94.9 34.0 94.8 36.0 95.0
       0.0 38.0 95.1 40.0 95.0 42.0 95.0 44.0 95.0 46.0 94.9 48.0 94.9
       0.0 50.5 94.8 53.0 94.6 55.5 94.4 58.0 94.2 60.5 94.1 63.0 94.0
       0.0 65.5 93.8 67.0 93.6 69.0 93.1 70.0 93.0 71.0 93.5 71.7 93.8
       0.0 72.5 96.1 73.5 97.2 75.0 97.9 78.5 98.1
NS     0.0       1.1       1.1       1.1       1.1       1.2       9.2
NS     0.0  0.2  2.9 0.2   9.2       9.2       2.9       2.9 .05   9.2
NS     0.0       3.2       3.2       3.2       2.3       3.2       3.2
NS     0.0       3.2       3.2       3.2       3.2       3.2       3.2
NS     0.0       3.2       2.3       2.3       2.3  0.1  1.2 0.1   1.2
NS     0.0       1.1       1.1       1.1       1.1
WSL    0.0     94.88     94.92     95.09     95.24     95.37     95.48
WSL    0.0     95.53     95.59     95.64     95.69     95.74     95.78
WSL    0.0     95.83     95.87     95.91     95.96     95.99     96.03
WSL    0.0     96.10     96.17     96.24     96.28     96.30     96.36
WSL    0.0     96.42     96.53     96.69     96.83     97.01     97.16
CAL1   0.0     95.64      47.2
VEL1   0.0                          0.00 0.01 0.01 0.16 0.34 0.37 0.32
VEL1   0.0 0.66 1.02 1.04 1.22 1.21 1.27 1.30 1.29 1.38 1.37 1.34 1.25
VEL1   0.0 1.29 0.88 0.95 0.75 0.16 0.16
CAL2   0.0     96.27      88.2
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     95.52      42.0
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```

```
     Williamson River WM_7 06/26/04
Run      Williamson River
IOC      631
QARD  19.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  40.0
QARD  42.0
QARD  45.0
QARD  47.2
QARD  50.0
QARD  52.5
QARD  55.0
QARD  57.5
QARD  60.0
QARD  62.5
QARD  65.5
QARD  67.5
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  88.2
QARD  90.0
QARD  95.0
QARD 100.0
QARD 110.0
QARD 125.0
QARD 140.0
QARD 160.0
QARD 180.0
XSEC    0.0       0.0 1.0     93.04   0.00034
        0.0  1.0 99.3  5.0 97.8  7.6 97.4 13.0 96.8 14.5 96.6 18.0 96.2
        0.0 19.4 96.0 19.7 94.5 21.0 90.7 22.0 90.7 23.0 91.4 24.0 90.7
        0.0 25.0 90.9 26.0 91.0 27.0 91.0 28.0 91.2 29.0 91.7 30.0 92.1
        0.0 31.0 92.6 32.0 93.1 33.0 93.6 34.0 93.9 35.0 94.2 36.0 94.5
        0.0 37.0 94.7 38.0 94.9 39.0 94.9 40.0 95.1 41.2 95.7 41.4 95.7
        0.0 47.9 95.8 48.0 96.2 55.0 96.0 59.8 96.4 61.9 97.0 94.0 96.7
        0.0114.0 98.4
NS      0.0       1.1       1.1       1.1       1.1       1.1       1.1
NS      0.0       1.1 0.2   1.2       1.2       2.3       2.3       2.3
NS      0.0       3.2       3.2       3.2       3.2       3.2       3.2
NS      0.0       3.2       3.2       3.2       3.2       3.2       3.2
NS      0.0       2.3       2.3       2.3       3.2 0.04  3.2 0.05  2.9
NS      0.0 .20   2.9       1.1       1.1       1.1       1.1       1.1
NS      0.0       1.1
WSL     0.0     94.90     94.94     95.12     95.26     95.39     95.51
WSL     0.0     95.55     95.61     95.66     95.71     95.76     95.80
WSL     0.0     95.85     95.89     95.93     95.98     96.01     96.05
WSL     0.0     96.12     96.18     96.25     96.29     96.31     96.37
WSL     0.0     96.43     96.54     96.70     96.84     97.02     97.17
CAL1    0.0     95.66      47.2
VEL1    0.0                                    0.01 0.39 0.34 0.35 0.54
VEL1    0.0 1.02 1.09 1.12 1.16 1.13 0.91 0.87 0.87 0.94 0.95 0.92 1.00
VEL1    0.0 0.88 0.75 0.60 0.38 0.00
VEL1    0.0
CAL2    0.0     96.30      88.2
VEL2    0.0
VEL2    0.0
VEL2    0.0
VEL2    0.0
CAL3    0.0     95.53      42.0
VEL3    0.0
VEL3    0.0
VEL3    0.0
VEL3    0.0
ENDJ
```