Appendix A

Lower Hurst Creek Site Calibration Information

Appendix A1. IFG4 Input File Lower Hurst Creek (High-Medium Flow)

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LOWER HURST CREEK      IFIM
Q/DATE MEASURED  92 CFS ON 11-7-88, 43 ON 11-16-88
IOC        00000002000000000000
QARD  43.00
QARD  92.00
QARD 150.00
QARD 230.00
XSEC   1.0         0.01.00     194.3
       1.0  0.0200.7  2.0196.1  4.0195.8  4.5195.7  6.0195.4  8.0195.2
       1.0  9.0195.1 10.0194.8 11.0194.4 12.0194.4 13.0194.5 14.0194.3
       1.0 15.0194.6 16.0194.6 17.0194.6 18.0194.6 19.0194.7 20.0194.7
       1.0 21.0194.8 22.0194.8 23.0195.0 24.0195.0 25.0195.0 26.0195.0
       1.0 27.0194.9 28.0194.6 29.0195.0 29.5195.1 31.0195.3 33.0195.6
       1.0 35.0195.6 37.0195.4 39.0196.0 41.0196.0 42.6196.1 45.0196.2
       1.0 55.0197.5 58.0198.4 63.4199.1 64.8199.1
NS     1.0      10.90      10.90      75.70      75.70      75.70      75.70
NS     1.0      75.70      75.70      75.70      75.70      75.70      75.70
NS     1.0      75.70      75.70      75.70      75.70      75.70      75.70
NS     1.0      75.70      75.70      75.70      75.70      75.70      75.60
NS     1.0      75.60      75.60      75.60      75.60      75.60      75.60
NS     1.0      75.60      75.60      75.60      75.60      75.60      75.60
NS     1.0      75.80       3.90       3.90       3.90
CAL1   1.0     196.09      99.19
VEL1   1.0              .20  .20 1.30 1.90 2.50 2.20 2.00 3.30 3.00 3.20
VEL1   1.0 3.30 3.40 3.40 3.90 3.80 3.80 3.20 3.00 2.90 3.40 1.70 2.60
VEL1   1.0 3.00 1.90 3.10 2.00 2.30 2.30 2.40 1.70  .20  .20
VEL1   1.0
CAL2   1.0     195.69      42.10
VEL2   1.0                          .40 1.40 2.10 1.90 1.90 1.80 1.50 2.60
VEL2   1.0 2.20 2.40 2.90 2.80 2.80 2.50 1.30 2.20 2.60 1.30 2.10 2.20
VEL2   1.0 1.60 2.00 1.70 1.90 1.20  .80 1.20  .60
VEL2   1.0
XSEC   2.0       80.01.00     194.3
       2.0  0.0200.6   .1196.3  1.0194.7  2.0194.6  3.0194.5  4.0194.4
       2.0  5.0194.3  6.0194.3  7.0194.4  8.0194.4  9.0194.4 10.0194.7
       2.0 11.0194.8 12.0195.0 13.0195.0 14.0194.9 15.0194.8 16.0194.7
       2.0 17.0194.7 18.0194.9 19.0195.0 20.0195.0 21.0195.0 21.5195.2
       2.0 23.0195.4 25.0195.5 27.0195.5 29.0195.5 31.0195.2 33.0196.2
       2.0 35.0195.9 35.4196.1 37.0196.2 38.7196.3 40.0196.4 47.0197.5
       2.0 52.0199.0 56.2199.9
NS     2.0       0.00       0.00      65.80      65.80      65.80      65.80
NS     2.0      65.80      65.80      65.80      65.80      65.80      65.80
NS     2.0      65.80      65.80      65.80      65.80      65.80      65.80
NS     2.0      65.80      65.80      65.80      65.80      65.80      65.80
NS     2.0      65.80      65.80      65.80      65.80      65.80      65.80
NS     2.0      65.80      75.80      75.80      75.80      75.80      75.80
NS     2.0       0.00       0.00
CAL1   2.0     196.28      90.40
VEL1   2.0 0.00 0.00  .50 1.20 1.10 1.70 1.90 2.90 3.40 3.50 3.40 3.40
VEL1   2.0 3.10 2.90 3.20 2.70 2.30 2.10 2.50 1.70 2.40 2.00 1.60 2.20
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Appendix A1. Continued

```
VEL1    2.0 2.00 1.30  .90  .70  .60  .30  .10 0.00 0.00
VEL1    2.0
CAL2    2.0    195.87      41.91
VEL2    2.0      0.00  .30 1.00 1.00 1.10 1.60 1.40 1.70 1.80 2.40 2.20
VEL2    2.0 2.20 2.10 2.30 1.90 2.30 1.60 1.30 1.70  .70  .90  .80  .90
VEL2    2.0 1.10  .60  .70  .30  .10 0.00 0.00
VEL2    2.0
XSEC    3.0       80.01.00    194.7
        3.0  0.0200.0   .1196.4  1.0196.2  2.5196.0  3.0195.2  4.0194.9
        3.0  5.0194.8  6.0194.8  7.0194.8  8.0194.7  9.0195.0 10.0194.9
        3.0 11.0194.9 12.0194.9 13.0194.9 14.0194.8 15.0194.8 16.0195.0
        3.0 17.0195.3 18.0195.1 19.0195.3 21.0195.5 22.0195.5 23.0195.4
        3.0 24.0195.3 25.0195.3 26.0195.4 27.0195.4 29.0195.5 30.0195.6
        3.0 31.0195.7 33.0195.9 35.0196.0 36.4196.3 37.0196.3 38.0196.1
        3.0 39.6196.4 40.0196.4 45.6197.0 46.5198.2 47.5198.6 49.0199.5
        3.0 51.5200.3
NS      3.0      75.60      75.60      75.60  1.575.60      75.60      75.60
NS      3.0      75.60      75.60      75.60     75.60      75.60      75.60
NS      3.0      75.60      75.60      75.60     75.60      75.60      65.60
NS      3.0      65.60      65.60      65.60     65.60      65.60      65.60
NS      3.0      65.60      65.60      65.60     65.60      65.60      65.60
NS      3.0      65.60      65.60      65.60     76.70      76.70      76.70
NS      3.0      76.70      76.70      76.70       .50        .50        .50
NS      3.0        .50
CAL1    3.0    196.39      83.35
VEL1    3.0                 0.00  .70 2.00 1.60 2.20 3.40 1.80 3.20 2.20
VEL1    3.0 2.60 2.60 3.20 2.60 2.50 2.90 3.10 2.90 3.30 2.70 2.10 1.80
VEL1    3.0 2.40 2.10 2.60 2.40 2.10 1.00  .50  .60  .10  .10  .10  .10
VEL1    3.0
CAL2    3.0    195.96      40.97
VEL2    3.0                 0.00 1.30 1.10  .90 1.90 2.30 3.20 2.20 2.50
VEL2    3.0 2.70 2.10 2.70 1.90 2.00 1.60 2.30 1.80 2.40  .90 1.80 1.00
VEL2    3.0  .90  .70 1.00 2.20 1.70 1.50  .50 0.00 0.00
VEL2    3.0
XSEC    4.0      107.01.00    195.3
        4.0  0.0201.0  4.0196.7  4.5196.5  5.0196.2  6.0196.1  7.0196.0
        4.0  8.0195.9  9.0195.9 10.0195.9 11.0195.8 12.0195.8 13.0195.8
        4.0 14.0195.9 15.0195.9 16.0195.7 17.0195.4 18.0195.5 19.0195.5
        4.0 20.0195.3 21.0195.5 22.0195.6 23.0195.7 24.0195.6 25.0195.8
        4.0 26.0195.6 27.0195.7 28.0195.7 29.0195.8 30.0195.7 31.0195.6
        4.0 32.0195.6 33.0195.5 34.0195.4 35.0195.4 36.0195.4 37.0195.2
        4.0 38.0195.4 39.0195.3 40.0195.3 41.0195.3 42.0195.5 43.0195.7
        4.0 44.0195.6 45.0195.7 46.0195.9 48.0196.2 49.1196.5 50.0196.6
        4.0 51.0196.7 51.7199.2 55.0199.9 59.2200.4 60.8201.4 61.1201.6
NS      4.0        .50        .50   1.5  .50        .50      65.60      65.60
NS      4.0      65.60      65.60      65.60     65.60      65.60      65.60
NS      4.0      65.60      65.60      65.60     54.60      54.60      54.60
NS      4.0      54.60      54.60      54.60     54.60      54.60      54.60
NS      4.0      54.60      54.60      54.60     54.60      54.60      54.60
NS      4.0      54.60      54.60      54.60     54.60      54.60      94.80
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Appendix A1. Continued

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NS     4.0      94.80      94.80      94.80      94.80      94.80      94.80
NS     4.0      94.80      94.80      65.60      65.60        .50        .50
NS     4.0        .50        .50        .50        .50        .50        .50
CAL1   4.0     196.74      90.66
VEL1   4.0            0.00  .50 1.10  .80 1.50 1.20 1.70 1.50 1.80 2.00
VEL1   4.0 1.80 1.70 1.70 1.50 1.40 1.60 1.00 2.00 3.00 2.90 2.10 2.20
VEL1   4.0 2.50 2.10 2.30 2.60 2.10 2.50 2.90 2.80 2.60 2.90 2.40 2.70
VEL1   4.0 2.00 2.50 3.00 2.50 1.80  .70 1.20  .80  .70  .20 0.00 0.00
VEL1   4.0
CAL2   4.0     196.42      42.50
VEL2   4.0            0.00  .70  .90 1.10 1.20 1.10 1.00 1.30  .80 1.80
VEL2   4.0  .80 1.30 1.50 1.60 1.00 1.30 1.50 1.50 1.30 1.40 1.50 1.70
VEL2   4.0 1.70 1.40 1.30 1.90 1.80 2.00 1.90 1.70 1.70 2.20 1.90 2.00
VEL2   4.0 1.50 1.80 2.20 1.60 1.50 1.20  .70  .80  .40 0.00
VEL2   4.0
XSEC   5.0      107.01.00    195.3
       5.0  0.0199.5  6.0196.9 12.0196.7 14.0196.6 17.2196.5 18.0196.5
       5.0 22.0196.4 26.0196.1 27.0195.6 28.0195.9 29.0195.9 30.0195.9
       5.0 31.0195.8 32.0195.6 33.0195.5 34.0195.3 35.0195.2 36.0195.0
       5.0 37.0194.8 38.0194.5 39.0194.5 40.0194.3 41.0194.1 42.0194.1
       5.0 43.0194.1 44.0194.4 45.0194.3 46.0194.5 47.0194.9 48.0194.9
       5.0 49.0195.1 49.5196.9 50.7199.9
NS     5.0        .30        .30      35.70      35.70      65.60      65.60
NS     5.0      65.60      65.60      65.60      65.60      65.60      65.60
NS     5.0      65.60      65.60      65.60      65.60      65.60      65.60
NS     5.0      65.60      65.60      65.60      65.60      65.60      65.60
NS     5.0      65.60      65.60      65.60      65.60      65.60      65.60
NS     5.0      65.60      65.60        .50
CAL1   5.0     196.86      92.13
VEL1   5.0             .10  .30  .30  .80  .30 1.60  .95 1.70 1.10 1.60
VEL1   5.0 1.90 1.70 2.10 2.10 2.20 2.40 2.10 2.40 2.50 2.30 2.20 2.50
VEL1   5.0 2.10 2.10 2.40 2.00  .80  .50  .10
CAL2   5.0     196.49      41.22
VEL2   5.0                          0.00 0.00  .40  .50  .40  .50  .60
VEL2   5.0  .70  .80  .80  .80 1.00 1.10 1.50 1.30 1.60 1.70 1.40 1.50
VEL2   5.0 1.70 1.30 1.50 1.60 1.10  .30  .30
XSEC   6.0      520.01.00    195.5
       6.0  0.0201.5 12.0196.4 15.0197.3 16.0196.9 17.0196.9 19.0196.5
       6.0 20.0195.7 21.0195.7 22.0195.6 23.0195.7 24.0195.7 25.0195.6
       6.0 26.0195.5 27.0196.0 28.0196.0 29.0195.9 30.0195.8 31.0196.4
       6.0 32.0196.1 33.0196.4 34.0196.4 35.0196.3 36.0196.4 37.0196.3
       6.0 38.0196.2 39.0196.1 40.0196.0 41.0196.0 42.5196.5 45.0196.4
       6.0 47.0196.5 49.0196.7 51.0196.9 51.4196.9 52.0196.4 54.5198.9
NS     6.0       9.50  1.5 9.50      93.70      93.70      93.70      93.70
NS     6.0      56.70      56.70      56.70      56.70      56.70      56.70
NS     6.0      56.70      56.70      95.80      95.80      95.80      95.80
NS     6.0      95.80      95.80      95.80      95.80      95.80      95.80
NS     6.0      69.60      69.60      69.60      69.60      69.60      69.60
NS     6.0      69.60      69.60      69.60  1.569.60      69.60        .50
CAL1   6.0     197.36      95.60
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Appendix A1. Continued

```
VEL1    6.0                .10   .10 1.40 2.90 2.40 2.60 2.60 2.80 3.40 3.30
VEL1    6.0 3.00 2.60 2.40 2.50 1.70 1.90 1.60 2.90  .90 2.80 3.00 1.90
VEL1    6.0  .50  .70 1.90 1.60 2.40 2.90 2.70 1.80  .90 0.00
CAL2    6.0    196.85      44.65
VEL2    6.0                      1.00 1.70 2.10 1.80 2.00 2.10 2.10 2.20
VEL2    6.0 2.10 2.00 2.30 1.80 2.40  .70 1.20 1.30  .20 1.20 2.80 1.20
VEL2    6.0  .80  .70 1.20 2.10 1.80 2.10 1.30  .50 0.00
ENDJ
```

Appendix A2. Summary of Calibration Details Lower Hurst Creek (High-Medium Flow) LOHRST3.IN4

Calibration Information for Calculated Discharges

Transect Number

1	2	3	4	5	6
Discharge					
101	90	86	92	87	92
46	41	43	49	42	39
Stage					
196.09	196.28	196.39	196.74	196.86	197.36
195.69	195.87	195.96	196.42	196.49	196.85
Plotting Stage					
1.79	1.98	1.69	1.44	1.56	1.86
1.39	1.57	1.26	1.12	1.19	1.35

Stage/Discharge Relationship (S vs Q) S=A*Q**B+SZF

A =	.4027	.5279	.2547	.2438	.2985	.3548
B =	.3234	.2942	.4248	.3927	.3699	.3661
SZF=	194.3	194.3	194.7	195.3	195.3	195.5

B Coefficient Log/Log Discharge/Stage Relationship

3.09	3.40	2.35	2.55	2.70	2.73

Appendix A3. Data Changes Lower Hurst Creek (High-Medium Flow)

Cell velocities changed for calibration

Transect 1	Vertical 19	VEL2	Changed	1.1	to	1.3
Transect 2	Vertical 8	VEL2	Changed	1.2	to	1.4
Transect 2	Vertical 9	VEL2	Changed	1.5	to	1.7
Transect 2	Vertical 10	VEL1	Changed	3.7	to	3.5
Transect 2	Vertical 21	VEL1	Changed	2.6	to	2.4
Transect 2	Vertical 21	VEL2	Changed	0.5	to	0.7
Transect 3	Vertical 4	Specified Mannings N of 1.5				
Transect 3	Vertical 22	VEL1	Changed	2.9	to	2.7
Transect 3	Vertical 22	VEL2	Changed	0.7	to	0.9
Transect 3	Vertical 25	VEL1	Changed	2.6	to	2.4
Transect 3	Vertical 26	VEL2	Changed	0.5	to	0.7
Transect 4	Vertical 3	Specified Mannings N of 1.5				
Transect 4	Vertical 22	VEL1	Changed	3.2	to	3.0
Transect 4	Vertical 22	VEL2	Changed	1.1	to	1.3
Transect 4	Vertical 23	VEL2	Changed	1.2	to	1.4
Transect 5	Vertical 26	VEL1	Changed	1.8	to	1.6
Transect 5	Vertical 26	VEL2	Changed	0.2	to	0.4
Transect 5	Vertical 28	VEL1	Changed	1.9	to	1.7
Transect 6	Vertical 2	Specified Mannings N of 1.5				
Transect 6	Vertical 22	VEL1	Changed	3.0	to	2.8
Transect 6	Vertical 23	VEL1	Changed	2.8	to	3.0
Transect 6	Vertical 23	VEL2	Changed	3.0	to	2.8
Transect 6	Vertical 32	VEL2	Changed	0.3	to	0.5
Transect 6	Vertical 34	Specified Mannings N of 1.5				

Appendix A4. Velocity Adjustment Factors Lower Hurst Creek (High-Medium Flow)

Transect	Flow	VAF
1.00	43.0	1.001
1.00	92.0	1.003
1.00	150.0	.968
1.00	230.0	.913
2.00	43.0	1.001
2.00	92.0	.999
2.00	150.0	.953
2.00	230.0	.883
3.00	43.0	1.003
3.00	92.0	.991
3.00	150.0	.915
3.00	230.0	.811
4.00	43.0	.999
4.00	92.0	.999
4.00	150.0	.980
4.00	230.0	.951
5.00	43.0	1.003
5.00	92.0	1.000
5.00	150.0	.923
5.00	230.0	.817
6.00	43.0	.998
6.00	92.0	1.000
6.00	150.0	.976
6.00	230.0	.927

Appendix A5. IFG4 Input File Lower Hurst Creek (Medium-Low Flow)

```
LOWER HURST CREEK      IFIM
Q/DATE MEASURED  44 CFS ON 11-16-88, 2 ON 8-2-88
IOC        0000000200000000000
QARD    2.00
QARD   20.00
QARD   44.00
XSEC    1.0         0.01.00     194.3
        1.0  0.0200.7  2.0196.1  4.0195.8  4.5195.7  6.0195.4  8.0195.2
        1.0  9.0195.1 10.0194.8 11.0194.4 12.0194.4 13.0194.5 14.0194.3
        1.0 15.0194.6 16.0194.6 17.0194.6 18.0194.6 19.0194.7 20.0194.7
        1.0 21.0194.8 22.0194.8 23.0195.0 24.0195.0 25.0195.0 26.0195.0
        1.0 27.0194.9 28.0194.6 29.0195.0 29.5195.1 31.0195.3 33.0195.6
        1.0 35.0195.6 37.0195.4 39.0196.0 41.0196.0 42.6196.1 45.0196.2
        1.0 55.0197.5 58.0198.4 63.4199.1 64.8199.1
NS      1.0      10.90      10.90      75.70      75.70      75.70      75.70
NS      1.0      75.70      75.70      75.70      75.70      75.70      75.70
NS      1.0      75.70      75.70      75.70      75.70      75.70      75.70
NS      1.0      75.70      75.70      75.70      75.70      75.70      75.60
NS      1.0      75.60      75.60      75.60      75.60      75.60      75.60
NS      1.0      75.60      75.60      75.60      75.60      75.60      75.60
NS      1.0      75.80       3.90       3.90       3.90
CAL2    1.0     195.69      42.10
VEL2    1.0                          .40 1.40 2.10 1.90 1.90 1.80 1.50 2.60
VEL2    1.0 2.20 2.40 2.90 2.80 2.80 2.50 1.10 2.20 2.60 1.30 2.10 2.20
VEL2    1.0 1.60 2.00 1.70 1.90 1.20  .80 1.20  .60
VEL2    1.0
CAL3    1.0     195.17       2.24
VEL3    1.0                                  .05  .05  .05  .05  .20  .40
VEL3    1.0  .40  .60  .50  .80  .20 1.00  .05 1.10  .20  .20  .10  .05
VEL3    1.0  .40  .10  .05  .05
VEL3    1.0
XSEC    2.0        80.01.00     194.3
        2.0  0.0200.6   .1196.3  1.0194.7  2.0194.6  3.0194.5  4.0194.4
        2.0  5.0194.3  6.0194.3  7.0194.4  8.0194.4  9.0194.4 10.0194.7
        2.0 11.0194.8 12.0195.0 13.0195.0 14.0194.9 15.0194.8 16.0194.7
        2.0 17.0194.7 18.0194.9 19.0195.0 20.0195.0 21.0195.0 21.5195.2
        2.0 23.0195.4 25.0195.5 27.0195.5 29.0195.5 31.0195.2 33.0196.3
        2.0 35.0195.9 35.4196.1 37.0196.2 38.7196.3 40.0196.4 47.0197.5
        2.0 52.0199.0 56.2199.9
NS      2.0       0.00       0.00      65.80      65.80      65.80      65.80
NS      2.0      65.80      65.80      65.80      65.80      65.80      65.80
NS      2.0      65.80      65.80      65.80      65.80      65.80      65.80
NS      2.0      65.80      65.80      65.80      65.80      65.80      65.80
NS      2.0      65.80      65.80      65.80      65.80      65.80      65.80
NS      2.0      65.80      75.80      75.80      75.80      75.80      75.80
NS      2.0       0.00       0.00
CAL2    2.0     195.87      41.91
VEL2    2.0       0.00  .30 1.00 1.00 1.10 1.60 1.20 1.50 1.80 2.40 2.20
VEL2    2.0 2.20 2.10 2.30 1.90 2.30 1.60 1.30 1.70  .50  .90  .80  .90
VEL2    2.0 1.10  .60  .70  .30  .10 0.00 0.00
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Appendix A5. Continued

```
VEL2    2.0
CAL3    2.0     195.18       2.28
VEL3    2.0       0.00  .05  .10  .20  .30  .10  .30  .20  .30  .10  .10
VEL3    2.0  .10  .10  .02  .02  .02  .02  .02  .02  .02  .02  .02
VEL3    2.0
VEL3    2.0
XSEC    3.0       80.01.00     194.7
        3.0  0.0200.0   .1196.4  1.0196.2  2.5196.0  3.0195.2  4.0194.9
        3.0  5.0194.8  6.0194.8  7.0194.8  8.0194.7  9.0195.0 10.0194.9
        3.0 11.0194.9 12.0194.9 13.0194.9 14.0194.8 15.0194.8 16.0195.0
        3.0 17.0195.3 18.0195.1 19.0195.3 20.0195.3 21.0195.5 22.0195.5
        3.0 23.0195.4 24.0195.3 25.0195.3 26.0195.4 27.0195.4 28.0195.5
        3.0 29.0195.5 30.0195.6 31.0195.7 33.0195.9 35.0196.0 36.4196.4
        3.0 37.0196.3 38.0196.1 39.6196.4 40.0196.4 45.6197.0 46.5198.2
        3.0 47.5198.6 49.0199.5 51.5200.3
NS      3.0      75.60      75.60      75.60      75.60      75.60      75.60
NS      3.0      75.60      75.60      75.60      75.60      75.60      75.60
NS      3.0      75.60      75.60      75.60      75.60      75.60      65.60
NS      3.0      65.60      65.60      65.60      65.60      65.60      65.60
NS      3.0      65.60      65.60      65.60      65.60      65.60      65.60
NS      3.0      65.60      65.60      65.60   1.565.60      65.60      76.70
NS      3.0      76.70      76.70      76.70      76.70      76.70        .50
NS      3.0        .50        .50        .50
CAL2    3.0     195.96      40.97
VEL2    3.0                 0.00 1.30 1.10  .90 1.90 2.30 3.20 2.20 2.50
VEL2    3.0 2.70 2.10 2.70 1.90 2.00 1.60 2.30 1.80 2.40  .40  .70 1.80
VEL2    3.0 1.00  .90  .50 1.00 2.20  .40 1.70 1.50  .50 0.00 0.00
VEL2    3.0
CAL3    3.0     195.34       2.15
VEL3    3.0                 0.00  .05  .05  .10 1.00  .60  .80 1.10  .40
VEL3    3.0 1.00  .40  .50  .10  .70  .10  .05  .05  .05 0.00 0.00 0.00
VEL3    3.0 0.00 0.00 0.00 0.00 0.00
VEL3    3.0
XSEC    4.0      107.01.00     195.3
        4.0  0.0201.0  4.0196.7  4.5196.5  5.0196.2  6.0196.1  7.0196.0
        4.0  8.0195.9  9.0195.9 10.0195.9 11.0195.8 12.0195.8 13.0195.8
        4.0 14.0195.9 15.0195.9 16.0195.7 17.0195.4 18.0195.5 19.0195.5
        4.0 20.0195.3 21.0195.5 22.0195.6 23.0195.7 24.0195.6 25.0195.8
        4.0 26.0195.6 27.0195.7 28.0195.7 29.0195.8 30.0195.7 31.0195.6
        4.0 32.0195.6 33.0195.5 34.0195.4 35.0195.4 36.0195.4 37.0195.2
        4.0 38.0195.4 39.0195.3 40.0195.3 41.0195.3 42.0195.5 43.0195.7
        4.0 44.0195.6 45.0195.7 46.0195.9 48.0196.2 49.1196.5 50.0196.6
        4.0 51.0196.7 51.7199.2 55.0199.9 59.2200.4 60.8201.4 61.1201.6
NS      4.0        .50        .50        .50        .50      65.60      65.60
NS      4.0      65.60      65.60      65.60      65.60      65.60      65.60
NS      4.0      65.60      65.60      65.60      54.60      54.60      54.60
NS      4.0      54.60      54.60      54.60      54.60      54.60      54.60
NS      4.0      54.60      54.60      54.60      54.60      54.60      54.60
NS      4.0      54.60      54.60      54.60      54.60      54.60      94.80
NS      4.0      94.80      94.80      94.80      94.80      94.80      94.80
```

Appendix A5. Continued

```
NS     4.0      94.80      94.80      65.60      65.60        .50        .50
NS     4.0        .50        .50        .50        .50        .50        .50
CAL2   4.0     196.42      42.50
VEL2   4.0            0.00  .70  .90 1.10 1.20 1.10 1.00 1.30  .80 1.80
VEL2   4.0  .80 1.30 1.50 1.60 1.00 1.30 1.50 1.50 1.10 1.20 1.50 1.70
VEL2   4.0 1.70 1.40 1.30 1.90 1.80 2.00 1.90 1.70 1.70 2.20 1.90 2.00
VEL2   4.0 1.50 1.80 2.20 1.60 1.50 1.20  .70  .80  .40 0.00
VEL2   4.0
CAL3   4.0     195.87       1.70
VEL3   4.0                                              .30  .10  .05  .05
VEL3   4.0 0.00 0.00  .05  .05  .20  .20  .20  .40  .30  .20  .20  .40
VEL3   4.0  .40  .30  .10  .05  .10  .20  .10  .20  .20  .10  .20  .20
VEL3   4.0  .30  .20  .20  .20  .10 0.00  .05  .05
VEL3   4.0
XSEC   5.0      107.01.00     195.3
       5.0  0.0199.5  6.0196.9 12.0196.7 14.0196.6 17.2196.5 18.0196.5
       5.0 22.0196.4 26.0196.1 27.0195.6 28.0195.9 29.0195.9 30.0195.9
       5.0 31.0195.8 32.0195.6 33.0195.5 34.0195.3 35.0195.2 36.0195.0
       5.0 37.0194.8 38.0194.5 39.0194.5 40.0194.3 41.0194.1 42.0194.1
       5.0 43.0194.1 44.0194.4 45.0194.3 46.0194.5 47.0194.9 48.0194.9
       5.0 49.0195.1 49.5196.9 50.7199.9
NS     5.0        .30        .30      35.70      35.70      65.60      65.60
NS     5.0  1.565.60      65.60      65.60      65.60      65.60      65.60
NS     5.0      65.60      65.60      65.60      65.60      65.60      65.60
NS     5.0      65.60      65.60      65.60      65.60      65.60      65.60
NS     5.0      65.60      65.60      65.60      65.60      65.60      65.60
NS     5.0      65.60      65.60        .50
CAL2   5.0     196.49      41.22
VEL2   5.0                           0.00 0.00  .20  .30  .40  .50  .60
VEL2   5.0  .70  .80  .80  .80 1.00 1.10 1.50 1.30 1.60 1.70 1.40 1.50
VEL2   5.0 1.70 1.30 1.50 1.60 1.10  .30  .30
CAL3   5.0     195.94       1.94
VEL3   5.0                                        0.00 0.00 0.00 0.00
VEL3   5.0  .05  .20  .20  .10  .10  .10  .10  .10  .10  .10  .10  .10
VEL3   5.0  .20  .10  .10  .10  .10  .01  .01
XSEC   6.0      520.01.00     195.5
       6.0  0.0201.5 12.0196.4 15.0197.3 16.0196.9 17.0196.5 19.0196.5
       6.0 20.0195.7 21.0195.7 22.0195.6 23.0195.7 24.0195.7 25.0195.6
       6.0 26.0195.5 27.0196.0 28.0196.0 29.0195.9 30.0195.8 31.0196.1
       6.0 32.0196.1 33.0196.4 34.0196.1 35.0196.3 36.0196.4 37.0196.1
       6.0 38.0196.1 39.0196.1 40.0196.0 41.0196.0 42.5196.5 45.0196.4
       6.0 47.0196.5 49.0196.7 51.0196.7 51.4196.9 52.0196.4 54.5198.9
NS     6.0       9.50  3.0 9.50      93.70      93.70      93.70      93.70
NS     6.0      56.70      56.70      56.70      56.70      56.70      56.70
NS     6.0      56.70      56.70      95.80      95.80      95.80      95.80
NS     6.0      95.80      95.80      95.80      95.80      95.80      95.80
NS     6.0      69.60      69.60      69.60      69.60      69.60      69.60
NS     6.0      69.60      69.60      69.60  1.569.60      69.60        .50
CAL2   6.0     196.85      44.65
VEL2   6.0                      1.00 1.70 2.10 1.80 2.00 2.10 2.10 2.20
```

Appendix A5. Continued

```
VEL2    6.0 2.10 2.00 2.30 1.80 2.40  .70 1.20 1.30  .20 1.20 3.00 1.20
VEL2    6.0  .80  .70 1.20 2.10 1.80 2.10 1.30  .30 0.00
CAL3    6.0    196.20       3.29
VEL3    6.0                                .10  .20  .20  .30  .30  .30
VEL3    6.0  .10  .30  .60 2.10  .80  .30  .40 0.00  .30 0.00 0.00  .20
VEL3    6.0  .30  .05  .05  .05
ENDJ
```

Appendix A6. Summary of Calibration Details Lower Hurst Creek (Medium-Low Flow) LOHRST4.IN4

Calibration Information for Calculated Discharges

Transect Number

1	2	3	4	5	6

Discharge

46	40	41	48	42	39
3	1	3	2	2	2

Stage

195.69	195.87	195.96	196.42	196.49	196.85
195.17	195.18	195.34	195.87	195.94	196.20

Plotting Stage

1.39	1.57	1.26	1.12	1.19	1.35
.87	.88	.64	.57	.64	.70

Stage/Discharge Relationship (S vs Q) S=A*Q**B+SZF

A = .7166	.8288	.4631	.4977	.5377	.5977
B = .1731	.1733	.2687	.2093	.2129	.2203
SZF= 194.3	194.3	194.7	195.3	195.3	195.5

B Coefficient Log/Log Discharge/Stage Relationship

5.78	5.77	3.72	4.78	4.70	4.53

Appendix A7. Data Changes Lower Hurst Creek (Medium-Low Flow)

Cell velocities changed for calibration

Transect 1	Vertical	7	VEL3	Changed	0.0	to	.05
Transect 1	Vertical	19	VEL3	Changed	0.0	to	.05
Transect 1	Vertical	24	VEL3	Changed	0.0	to	.05
Transect 1	Vertical	27	VEL3	Changed	0.0	to	.05
Transect 1	Vertical	28	VEL3	Changed	0.0	to	.05
Transect 2	Vertical	18	VEL3	Changed	0.0	to	.02
Transect 2	Vertical	19	VEL3	Changed	0.0	to	.02
Transect 2	Vertical	20	VEL3	Changed	0.0	to	.02
Transect 2	Vertical	21	VEL3	Changed	0.0	to	.02
Transect 2	Vertical	22	VEL3	Changed	0.0	to	.02
Transect 2	Vertical	23	VEL3	Changed	0.0	to	.02
Transect 3	Vertical	5	VEL3	Changed	0.0	to	.05
Transect 3	Vertical	19	VEL3	Changed	0.0	to	.05
Transect 3	Vertical	19	VEL3	Changed	0.0	to	.05
Transect 3	Vertical	20	VEL3	Changed	0.0	to	.05
Transect 3	Vertical	34	Specified Mannings N of 1.5				
Transect 4	Vertical	11	VEL3	Changed	0.0	to	.05
Transect 4	Vertical	12	VEL3	Changed	0.0	to	.05
Transect 4	Vertical	44	VEL3	Changed	0.0	to	.05
Transect 4	Vertical	45	VEL3	Changed	0.0	to	.05
Transect 5	Vertical	7	Specified Mannings N of 1.5				
Transect 5	Vertical	9	VEL2	Changed	0.5	to	0.3
Transect 5	Vertical	13	VEL3	Changed	0.0	to	.05
Transect 5	Vertical	48	VEL3	Changed	0.0	to	.05
Transect 5	Vertical	49	VEL3	Changed	0.0	to	.01
Transect 6	Vertical	2	Specified Mannings N of 3.0				
Transect 6	Vertical	7	VEL3	Changed	0.0	to	0.1
Transect 6	Vertical	28	VEL3	Changed	0.0	to	.05
Transect 6	Vertical	34	Specified Mannings N of 1.5				

Appendix A8. Velocity Adjustment Factors Lower Hurst Creek (Medium-Low Flow)

Transect	Flow	VAF
1.00	2.0	.989
1.00	44.0	.994
2.00	2.0	.973
2.00	44.0	.991
3.00	2.0	.989
3.00	44.0	.994
4.00	2.0	.950
4.00	44.0	.999
5.00	2.0	.982
5.00	44.0	.999
6.00	2.0	.953
6.00	44.0	.999

Appendix B

Upper Hurst Creek Site Calibration Information

Appendix B1. IFG4 Input File Upper Hurst Creek (High Flow)

```
UPPER HURST CREEK      IFIM
Q/DATE MEASURED  87 CFS ON 1-10-89, 37 ON 11-16-88
IOC        00000002000000000000
QARD  37.00
QARD  60.00
QARD  87.00
QARD 150.00
XSEC    1.0         0.01.00     193.3
        1.0  0.0198.6  1.2195.5  2.0195.2  2.5195.0  3.0194.8  4.0194.4
        1.0  4.5194.2  5.0194.0  5.5193.7  6.0193.8  6.5193.8  7.0193.6
        1.0  7.5193.7  8.0193.7  8.5193.7  9.0193.8  9.5193.8 10.0193.6
        1.0 10.5193.8 11.0193.9 11.5194.0 12.0194.0 12.5193.8 13.0194.0
        1.0 14.0193.9 15.0193.9 16.0193.9 17.0194.1 18.0194.2 19.0194.2
        1.0 20.0194.5 21.0194.5 22.0194.8 23.0194.8 24.0194.9 25.0195.0
        1.0 26.0195.0 27.0194.9 28.0194.9 29.0195.0 30.0194.9 30.8194.6
        1.0 32.0194.6 34.0195.4 36.0195.4 37.0195.2 39.0195.3 40.0195.2
        1.0 41.5195.5 42.0195.5 45.2196.2 46.5197.0 53.0198.3 55.6199.0
NS      1.0      17.80      17.80      17.80      17.80      78.50      78.50
NS      1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS      1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS      1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS      1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS      1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS      1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS      1.0      78.50      78.50      78.50      10.50      10.50      10.50
CAL1    1.0     195.49      87.00      88.10
VEL1    1.0             3.40 2.70 2.70 1.00  .80 1.20  .90 1.20 2.10 2.15
VEL1    1.0 1.60 1.00 1.50 1.60 1.30 1.10 1.00  .70 1.40 1.20  .80  .50
VEL1    1.0  .30 1.30 2.00 2.00 2.40 3.10 3.80 4.20 3.50 2.70 3.60 3.60
VEL1    1.0 3.70 3.60 3.10 3.10 3.70  .80 2.50  .60  .60 1.40 1.00  .40
VEL1    1.0
CAL2    1.0     194.97      37.00      33.28
VEL2    1.0
VEL2    1.0
VEL2    1.0
VEL2    1.0
VEL2    1.0
XSEC    2.0       117.01.00     193.3
        2.0  0.0197.4  1.0195.1  1.5193.0  2.0193.0  2.5192.8  3.0192.7
        2.0  3.5192.7  4.0192.7  4.5192.7  5.0192.8  5.5192.8  6.0192.9
        2.0  6.5192.0  7.0193.8  7.5193.4  8.0192.9  8.5192.0  9.0193.1
        2.0  9.5193.3 10.0193.6 10.5193.7 11.0193.8 11.5193.9 12.0194.2
        2.0 12.5194.1 13.0194.6 14.0194.4 15.0194.9 16.0194.7 17.0195.0
        2.0 17.7195.1 19.0194.5 21.0194.8 23.0194.8 25.0194.9 27.0195.1
        2.0 29.0195.3 32.0195.1 33.5195.6 37.5195.9 40.2197.0 46.8198.8
        2.0 49.4200.4
NS      2.0         .50         .50      75.50      75.50  3.075.50      75.50
NS      2.0      75.50      75.50      75.50      75.50      75.50      75.50
NS      2.0      75.50      75.50      75.50      75.50      75.50      75.50
```

Appendix B1. Continued

```
NS     2.0      75.50      75.50      75.50      75.50      75.50      75.50
NS     2.0      75.50      75.50      75.50      75.50      75.50      75.50
NS     2.0      76.50      76.50      76.50      76.50      76.50      76.50
NS     2.0      76.50      76.50      76.50      57.50        .50        .50
NS     2.0        .50
CAL1   2.0     195.62      87.00      83.80
VEL1   2.0            0.00 0.00 0.00  .70  .70 1.20 1.20 1.70 1.70 1.20
VEL1   2.0 1.20 1.00 1.00  .50  .50 1.20 1.90 2.70 2.70 4.10 3.50 3.00
VEL1   2.0 4.80 4.70 4.40 3.00 3.60 3.50 3.20 3.50 3.70 2.90  .40  .70
VEL1   2.0 1.10  .30
CAL2   2.0     195.05      37.00      40.56
VEL2   2.0
VEL2   2.0
VEL2   2.0
VEL2   2.0
XSEC   3.0      265.01.00    193.3
       3.0  0.0198.1  3.0195.9  4.0195.2  5.0194.3  5.3194.1  5.6194.1
       3.0  5.9194.1  6.2194.2  6.5194.2  6.8194.2  7.1193.4  7.4194.1
       3.0  7.7193.7  8.0193.5  8.3193.4  8.6193.5  8.9193.6  9.2193.6
       3.0  9.5193.6  9.8193.7 10.1193.6 10.4193.8 10.7194.1 11.0193.8
       3.0 11.3194.0 11.6194.1 12.0194.3 13.0195.0 15.0194.7 17.0194.9
       3.0 19.0195.1 21.0195.4 23.0195.4 25.0195.4 27.0195.4 28.0195.4
       3.0 29.0195.4 30.0195.4 31.0195.4 32.0195.4 34.0195.7 35.0195.9
       3.0 37.0195.9 39.6194.4 45.6197.4 47.0198.3 54.0199.3 58.8200.3
NS     3.0        .50        .30  3.0  .30        .30        .30        .30
NS     3.0        .30        .30        .30        .30        .30        .30
NS     3.0        .30        .30      75.50      75.50      75.50      75.50
NS     3.0      75.50      75.50      75.50      75.50      75.50      75.50
NS     3.0      87.50      87.50      87.50      87.50      87.50      56.50
NS     3.0      56.50      56.50      56.50      56.50      56.50      56.50
NS     3.0      56.50      56.50      56.50      56.50      76.50      76.50
NS     3.0  3.076.50      57.50      57.50        .50        .50        .50
CAL1   3.0     195.93      87.00      81.57
VEL1   3.0            0.00  .80  .60  .90  .90 1.10 1.10 2.50 1.90 2.05
VEL1   3.0 3.20 3.20 3.20 3.20 3.65 3.05 3.20 3.10 3.05 3.15 3.15 2.95
VEL1   3.0 2.95 2.95 3.40 2.70 2.70 2.70 1.60 1.40 1.10 1.10 1.00  .80
VEL1   3.0 1.10  .80  .70  .50  .20  .05
CAL2   3.0     195.44      37.00      26.39
VEL2   3.0
VEL2   3.0
VEL2   3.0
VEL2   3.0
XSEC   4.0       60.01.00    193.3
       4.0  0.0198.2  2.2195.5  2.5193.3  3.0193.3  3.5192.8  4.0192.8
       4.0  4.3193.1  4.6192.9  4.9192.3  5.2193.4  5.5193.4  5.8193.4
       4.0  6.1193.3  6.4193.3  6.7193.4  7.0193.5  7.3193.5  7.6193.6
       4.0  7.9193.6  8.2193.6  8.5193.8  8.8193.8  9.1193.9  9.4194.2
       4.0  9.7194.2 10.0194.3 10.3194.1 10.6194.1 11.0194.4 13.0195.0
       4.0 15.0195.2 17.0195.4 19.0195.4 21.0195.4 23.0195.5 25.0195.4
       4.0 27.0195.4 29.0195.5 29.9195.5 31.0195.8 33.0196.0 38.0196.4
```

Appendix B1. Continued

```
        4.0 40.8197.7 46.0198.5
NS      4.0        .10        .10        .10      78.70      78.70      78.70
NS      4.0      78.70      78.70      78.70      78.70      78.70      78.70
NS      4.0      78.70      78.70      78.70      78.70      78.70      78.70
NS      4.0      78.70      78.70      78.70      78.70      78.70      78.70
NS      4.0      78.70      78.70      78.70      78.70      78.70      76.50
NS      4.0      76.50      76.50      57.50      57.00      57.50      57.50
NS      4.0      57.50      57.50      57.50      57.50      57.50        .50
NS      4.0        .50        .50
CAL1    4.0     196.01      87.00      84.00
VEL1    4.0               .30  .40  .50  .50  .50  .50 3.95 5.00 4.50 4.50
VEL1    4.0 4.50 4.30 4.00 4.00 3.80 3.80 3.80 3.50 3.20 3.20 3.40 3.40
VEL1    4.0 3.50 3.60 3.60 3.40 3.10 3.20 3.40 3.20  .40 1.10 1.00 1.10
VEL1    4.0 1.20  .60  .80  .40
CAL2    4.0     195.52      37.00      36.66
VEL2    4.0
VEL2    4.0
VEL2    4.0
VEL2    4.0
XSEC    5.0       60.01.00    193.9
        5.0  0.0198.1   .5196.1  1.0195.6  1.5195.1  2.0194.9  3.0194.9
        5.0  3.5194.8  4.0194.8  4.5194.8  5.0194.7  5.5194.8  6.0194.8
        5.0  6.5194.8  7.0194.7  7.5194.7  8.0194.6  8.5194.6  9.0194.7
        5.0 10.0194.9 11.0194.9 12.0194.8 12.5194.8 13.0194.7 14.0194.8
        5.0 15.0194.7 16.0194.9 17.0194.9 18.0194.9 19.0194.9 20.0195.1
        5.0 21.0195.3 22.0195.2 23.0195.5 24.0195.5 25.0195.3 26.0195.3
        5.0 27.0195.4 28.0195.5 29.0195.6 30.0195.3 30.5195.6 31.0195.6
        5.0 33.0195.9 35.0196.0 37.0196.0 39.0196.1 42.0196.9 48.0198.0
        5.0 58.0199.8 59.6201.5
NS      5.0        .50        .50        .50        .50       6.50       6.50
NS      5.0       6.50       6.50       6.50       6.50       6.50       6.50
NS      5.0      65.60      65.60      65.60      65.60      65.60      65.60
NS      5.0      65.60      65.60      65.60      65.60      65.60      65.60
NS      5.0      65.60      48.60      48.60      48.60      48.60      48.60
NS      5.0      48.60      48.60      48.60      48.60      48.60      53.60
NS      5.0      53.60      53.60      53.60      53.60      53.60      53.60
NS      5.0      53.60      53.60      43.70      43.70      43.70      43.70
NS      5.0        .50        .50
CAL1    5.0     196.15      87.00      90.83
VEL1    5.0            1.50 2.00 2.40 2.40 2.40 2.90 2.40 3.10 3.20 2.30
VEL1    5.0 2.20 2.00 1.50 3.20 3.00 3.20 3.10 3.70 1.50 2.10 3.10 4.00
VEL1    5.0 3.90 3.80 4.10 3.20 3.60 3.00 3.00 2.30 2.30 2.10 1.20 1.80
VEL1    5.0 1.30 2.50 2.00  .60  .50 2.50 1.00  .20  .20
VEL1    5.0
CAL2    5.0     195.58      37.00      33.82
VEL2    5.0
VEL2    5.0
VEL2    5.0
VEL2    5.0
VEL2    5.0
```

Appendix B1. Continued

```
XSEC    6.0      117.01.00    193.9
        6.0  0.0197.4  1.4196.3  1.5195.3  2.0195.1  3.0194.9  4.0194.9
        6.0  5.0195.0  6.0195.1  7.0194.7  8.0195.2  9.0195.2 10.0195.1
        6.0 11.0195.1 12.0194.8 13.0194.7 14.0194.7 15.0194.6 16.0194.8
        6.0 17.0194.8 18.0194.9 19.0195.0 20.0195.1 21.0195.1 22.0195.1
        6.0 22.6195.3 23.0195.4 24.0195.5 25.0195.5 26.0195.6 27.0195.6
        6.0 28.0195.6 29.0195.7 30.0195.6 31.0195.8 32.0195.9 33.0195.9
        6.0 34.0196.0 35.0196.0 36.0196.2 37.4195.8 43.4198.1 57.2199.6
NS      6.0        .50  3.0  .50        .50        .50      86.60      86.60
NS      6.0      86.60      86.60      86.60      86.60      86.60      86.60
NS      6.0      86.60      86.60      86.60      86.60      86.60      86.60
NS      6.0      86.60      86.60      86.60      86.60      86.60      86.60
NS      6.0      86.60      86.60      86.60      86.60      58.80      58.80
NS      6.0      58.80      58.80      58.80      58.80      58.80      58.80
NS      6.0      58.80      58.80      58.80  3.058.80        .50        .50
CAL1    6.0     196.34      87.00      87.46
VEL1    6.0            2.30 2.60 2.30 2.80 3.50 3.30 2.70 3.00 2.60 3.70
VEL1    6.0 2.50 3.80 4.40 3.40 2.40 3.20 2.60 3.30 3.00 2.00 2.60 2.10
VEL1    6.0 2.10 2.40 2.00 1.80 2.10 1.70 1.90 1.50 1.50 1.40 1.50 1.10
VEL1    6.0 1.40  .80  .20
CAL2    6.0     195.75      37.00      31.49
VEL2    6.0
VEL2    6.0
VEL2    6.0
VEL2    6.0
XSEC    7.0      117.01.00    194.0
        7.0  0.0198.4  1.0195.2  2.0194.8  3.0194.3  4.0194.3  5.0194.3
        7.0  6.0193.8  7.0193.7  8.0194.4  9.0194.0 10.0193.5 11.0193.6
        7.0 12.0193.8 13.0193.8 14.0194.0 15.0194.0 16.0194.1 17.0194.3
        7.0 18.0194.4 19.0194.5 20.0194.7 21.0194.6 23.0194.7 24.0194.7
        7.0 25.0194.9 26.0195.1 26.9195.2 28.0195.2 29.0195.6 30.0195.6
        7.0 31.0195.6 32.0195.6 33.0195.6 34.0196.1 35.0196.5 38.0199.1
        7.0 40.5199.1
NS      7.0      65.70      65.70  3.065.70      65.70      65.70      65.70
NS      7.0      65.70      65.70      65.70      65.70      65.70      65.70
NS      7.0      65.70      65.70      65.70      65.70      65.70      65.70
NS      7.0      65.70      65.70      65.70      54.80      54.80      54.80
NS      7.0      54.80      54.80      54.80      54.80      54.80      54.80
NS      7.0      54.80      54.80      54.80      54.80      65.60      65.60
NS      7.0      65.60
CAL1    7.0     196.46      87.00      86.78
VEL1    7.0            1.10 1.00  .30  .50  .50 2.50 2.40 2.40 1.90 2.90
VEL1    7.0 3.10 2.50 2.20 2.20 1.70 1.30 1.10 1.50 2.10 2.20 2.10 1.70
VEL1    7.0 1.70 1.20 1.60 1.70 1.60  .80 1.80  .50  .90  .20
VEL1    7.0
CAL2    7.0     195.83      37.00      31.06
VEL2    7.0
VEL2    7.0
VEL2    7.0
VEL2    7.0
ENDJ
```

Appendix B2. Summary of Calibration Details Upper Hurst Creek (High Flow) UPHRST5.IN4

Calibration Information for Calculated Discharges

Transect Number

1	2	3	4	5	6	7

Discharge

68	77	66	87	93	101	108
33	41	26	37	34	31	31

Stage

195.49	195.62	195.93	196.01	196.15	196.34	196.46
194.97	195.05	195.44	195.52	195.58	195.75	195.83

Plotting Stage

2.19	2.32	2.63	2.71	2.25	2.44	2.46
1.67	1.75	2.14	2.22	1.68	1.85	1.83

Stage/Discharge Relationship (S vs Q) S=A*Q**B+SZF

A =	.4426	.3426	.1021	.9708	.6095	.8146	.8093
B =	.3789	.4404	.2261	.2297	.2879	.2378	.2375
SZF=	193.3	193.3	193.3	193.3	193.9	193.9	194.0

B Coefficient Log/Log Discharge/Stage Relationship

2.64	2.27	4.42	4.35	3.47	4.21	4.21

Appendix B3. Data Changes Upper Hurst Creek (High Flow)

Cell velocities changed for calibration

Transect 2	Vertical	5	Specified Mannings N of 3.0
Transect 3	Vertical	3	Specified Mannings N of 3.0
Transect 3	Vertical	43	Specified Mannings N of 3.0
Transect 6	Vertical	2	Specified Mannings N of 3.0
Transect 6	Vertical	40	Specified Mannings N of 3.0
Transect 7	Vertical	3	Specified Mannings N of 3.0

Appendix B4. Velocity Adjustment Factors Upper Hurst Creek (High Flow)

Transect	Flow	VAF
1.00	60.0	1.213
1.00	87.0	1.000
1.00	150.0	.795
2.00	60.0	1.136
2.00	87.0	.998
2.00	150.0	.862
3.00	60.0	.918
3.00	87.0	.999
3.00	150.0	1.160
4.00	60.0	.898
4.00	87.0	1.000
4.00	150.0	1.178
5.00	60.0	1.008
5.00	87.0	1.000
5.00	150.0	1.056
6.00	60.0	.921
6.00	87.0	1.000
6.00	150.0	1.205
7.00	60.0	.768
7.00	87.0	1.017
7.00	150.0	1.540

Appendix B5. IFG4 Input File Upper Hurst Creek (Medium Flow)

```
UPPER HURST CREEK      IFIM
Q/DATE MEASURED  87 CFS ON 1-10-89, 37 ON 11-16-88, 2 ON 8-1-88
IOC        00000002000000000000
QARD  37.00
QARD  60.00
QARD  87.00
XSEC   1.0         0.01.00     193.3
       1.0  0.0198.6  1.2195.5  2.0195.2  2.5195.0  3.0194.8  4.0194.4
       1.0  4.5194.2  5.0194.0  5.5193.7  6.0193.8  6.5193.8  7.0193.6
       1.0  7.5193.7  8.0193.7  8.5193.7  9.0193.8  9.5193.8 10.0193.6
       1.0 10.5193.8 11.0193.9 11.5194.0 12.0194.0 12.5193.8 13.0194.0
       1.0 14.0193.9 15.0193.9 16.0193.9 17.0194.1 18.0194.2 19.0194.2
       1.0 20.0194.5 21.0194.5 22.0194.8 23.0194.8 24.0194.9 25.0195.0
       1.0 26.0195.0 27.0194.9 28.0194.9 29.0195.0 30.0194.9 30.8194.6
       1.0 32.0194.6 34.0195.4 36.0195.4 37.0195.2 39.0195.3 40.0195.2
       1.0 41.5195.5 42.0195.5 45.2196.2 46.5197.0 53.0198.3 55.6199.0
NS     1.0      17.80      17.80      17.80      17.80      78.50      78.50
NS     1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS     1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS     1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS     1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS     1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS     1.0   1.578.50      78.50      78.50      78.50      78.50      78.50
NS     1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS     1.0      78.50      78.50      78.50      10.50      10.50      10.50
CAL1   1.0     195.49      87.00      88.10
VEL1   1.0
VEL1   1.0
VEL1   1.0
VEL1   1.0
VEL1   1.0
CAL2   1.0     194.97      37.00      33.28
VEL2   1.0                          .40  .50  .60 1.40  .80  .60 1.10 1.50
VEL2   1.0 1.10 1.90 2.40 1.60 2.30 2.10 2.70 3.10 4.00 3.90 3.50 3.40
VEL2   1.0 2.10 2.30 2.80 1.80 2.40 1.60 1.10  .30  .80  .20  .05 0.00
VEL2   1.0 0.00 0.00 0.00 0.00 0.00
VEL2   1.0
XSEC   2.0       117.01.00     193.3
       2.0  0.0197.4  1.0195.1  1.5193.0  2.0193.0  2.5192.8  3.0192.7
       2.0  3.5192.7  4.0192.7  4.5192.7  5.0192.8  5.5192.8  6.0192.9
       2.0  6.5192.0  7.0193.8  7.5193.4  8.0192.9  8.5192.0  9.0193.1
       2.0  9.5193.3 10.0193.6 10.5193.7 11.0193.8 11.5193.9 12.0194.2
       2.0 12.5194.1 13.0194.6 14.0194.4 15.0194.9 16.0194.7 17.0195.0
       2.0 17.7195.1 19.0194.5 21.0194.8 23.0194.8 25.0194.9 27.0195.1
       2.0 29.0195.3 32.0195.1 33.5195.6 37.5195.9 40.2197.0 46.8198.8
       2.0 49.4200.4
NS     2.0        .50        .50      75.50      75.50      75.50      75.50
NS     2.0      75.50      75.50      75.50      75.50      75.50      75.50
NS     2.0      75.50      75.50      75.50      75.50      75.50      75.50
NS     2.0      75.50      75.50      75.50      75.50      75.50      75.50
```

Appendix B5. Continued

```
NS      2.0      75.50      75.50      75.50      75.50      75.50      75.50
NS      2.0   1.576.50      76.50      76.50      76.50      76.50      76.50
NS      2.0      76.50      76.50      76.50      57.50        .50        .50
NS      2.0        .50
CAL1    2.0     195.62      87.00      83.80
VEL1    2.0
VEL1    2.0
VEL1    2.0
VEL1    2.0
CAL2    2.0     195.05      37.00      40.56
VEL2    2.0               .50 1.10  .60 1.20 1.10 2.90 2.80 2.50 2.80 2.30
VEL2    2.0 1.20 1.70 2.80 3.40 3.10 3.50 2.00 2.30 1.00  .90  .50 1.20
VEL2    2.0 1.30 1.90 1.80 1.00  .30  .10
VEL2    2.0
XSEC    3.0      265.01.00    193.3
        3.0  0.0198.1  3.0195.9  4.0195.2  5.0194.3  5.3194.1  5.6194.1
        3.0  5.9194.1  6.2194.2  6.5194.2  6.8194.2  7.1193.4  7.4194.1
        3.0  7.7193.7  8.0193.5  8.3193.4  8.6193.5  8.9193.6  9.2193.6
        3.0  9.5193.6  9.8193.7 10.1193.6 10.4193.8 10.7194.1 11.0193.8
        3.0 11.3194.0 11.6194.1 12.0194.3 13.0195.0 15.0194.7 17.0194.9
        3.0 19.0195.1 21.0195.4 23.0195.4 25.0195.4 27.0195.4 28.0195.4
        3.0 29.0195.4 30.0195.4 31.0195.4 32.0195.4 34.0195.7 35.0195.9
        3.0 37.0195.9 39.6194.4 45.6197.4 47.0198.3 54.0199.3 58.8200.3
NS      3.0        .50        .50        .50        .50        .50        .50
NS      3.0        .50        .50        .50        .50        .50        .50
NS      3.0        .50        .50      75.50      75.50      75.50      75.50
NS      3.0      75.50      75.50      75.50      75.50      75.50      75.50
NS      3.0      87.50      87.50      87.50      87.50      87.50      56.50
NS      3.0      56.50      56.50   3.056.50      56.50      56.50      56.50
NS      3.0      56.50   1.556.50      56.50      56.50      76.50      76.50
NS      3.0      76.50      57.50      57.50        .50        .50        .50
CAL1    3.0     195.93      87.00      81.57
VEL1    3.0
VEL1    3.0
VEL1    3.0
VEL1    3.0
CAL2    3.0     195.44      37.00      26.39
VEL2    3.0               .10 1.30 1.50 1.60 2.10 1.60 1.80 2.00 2.40 2.50
VEL2    3.0 3.50 2.70 3.30 3.50 3.50 3.30 3.30 2.70 2.90 2.60 2.20 2.10
VEL2    3.0 1.20 2.40 1.80 1.50 1.10 1.40 1.00  .60 0.00 0.00 0.00 0.00
VEL2    3.0  .20 0.00 0.00
XSEC    4.0       60.01.00    193.3
        4.0  0.0198.2  2.2195.5  2.5193.3  3.0193.3  3.5192.8  4.0192.8
        4.0  4.3193.1  4.6192.9  4.9192.3  5.2193.4  5.5193.4  5.8193.4
        4.0  6.1193.3  6.4193.3  6.7193.4  7.0193.5  7.3193.5  7.6193.6
        4.0  7.9193.6  8.2193.6  8.5193.8  8.8193.8  9.1193.9  9.4194.2
        4.0  9.7194.2 10.0194.3 10.3194.1 10.6194.1 11.0194.4 13.0195.0
        4.0 15.0195.2 17.0195.4 19.0195.4 21.0195.4 23.0195.5 25.0195.4
        4.0 27.0195.4 29.0195.5 29.9195.5 31.0195.8 33.0196.0 38.0196.4
        4.0 40.8197.7 46.0198.5
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Appendix B5. Continued

```
NS     4.0     10.50     10.50     10.50     78.70     78.70     78.70
NS     4.0     78.70     78.70     78.70     78.70     78.70     78.70
NS     4.0     78.70     78.70     78.70     78.70     78.70     78.70
NS     4.0     78.70     78.70     78.70     78.70     78.70     78.70
NS     4.0     78.70     78.70     78.70     78.70     78.70     76.50
NS     4.0     76.50     76.50     57.50     57.00     57.50     57.50
NS     4.0     57.50     57.50     57.50     57.50     57.50       .50
NS     4.0       .50       .50
CAL1   4.0    196.01     87.00     84.00
VEL1   4.0
VEL1   4.0
VEL1   4.0
VEL1   4.0    .
CAL2   4.0    195.52     37.00     36.66
VEL2   4.0              .20 2.10 3.50 2.30 1.90 2.00 2.90 3.90 3.80 3.50
VEL2   4.0 3.40 2.80 2.60 2.60 2.50 1.20 1.50 2.50 2.30 2.30 1.90 1.20
VEL2   4.0 1.40 1.50 1.30 1.10  .90  .40  .20  .40  .30  .60  .50  .30
VEL2   4.0  .10 0.00
XSEC   5.0      60.01.00    193.9
       5.0  0.0198.1   .5196.1  1.0195.6  1.5195.1  2.0194.9  3.0194.9
       5.0  3.5194.8  4.0194.8  4.5194.8  5.0194.7  5.5194.8  6.0194.8
       5.0  6.5194.8  7.0194.7  7.5194.7  8.0194.6  8.5194.6  9.0194.7
       5.0 10.0194.9 11.0194.9 12.0194.8 12.5194.8 13.0194.7 14.0194.8
       5.0 15.0194.7 16.0194.9 17.0194.9 18.0194.9 19.0194.9 20.0195.1
       5.0 21.0195.3 22.0195.2 23.0195.5 24.0195.5 25.0195.3 26.0195.3
       5.0 27.0195.4 28.0195.5 29.0195.6 30.0195.3 30.5195.6 31.0195.6
       5.0 33.0195.9 35.0196.0 37.0196.0 39.0196.1 42.0196.9 48.0198.0
       5.0 58.0199.8 59.6201.5
NS     5.0       .50       .50       .50       .50      6.50      6.50
NS     5.0      6.50      6.50      6.50      6.50      6.50      6.50
NS     5.0     65.60     65.60     65.60     65.60     65.60     65.60
NS     5.0     65.60     65.60     65.60     65.60     65.60     65.60
NS     5.0     65.60     48.60     48.60     48.60     48.60     48.60
NS     5.0     48.60     48.60     48.60     48.60     48.60     53.60
NS     5.0     53.60     53.60     53.60     53.60     53.60     53.60
NS     5.0     53.60     53.60     43.70     43.70     43.70     43.70
NS     5.0       .50       .50
CAL1   5.0    196.15     87.00     90.83
VEL1   5.0
VEL1   5.0
VEL1   5.0
VEL1   5.0
VEL1   5.0
CAL2   5.0    195.58     37.00     33.82
VEL2   5.0              2.10 2.50 2.10 2.40 2.80 3.20 2.50 2.40 2.80
VEL2   5.0 2.40 3.50 2.70 2.80 2.20 3.70 1.70 1.20 1.50 2.10 1.30 1.40
VEL2   5.0 4.00 2.70 2.10 2.10 1.70 1.50 1.90 1.20 1.00 1.00  .90  .30
VEL2   5.0  .30  .20 0.00  .70
VEL2   5.0
XSEC   6.0     117.01.00    193.9
```

Appendix B5. Continued

```
        6.0  0.0197.4  1.4196.3  1.5195.3  2.0195.1  3.0194.9  4.0194.9
        6.0  5.0195.0  6.0195.1  7.0194.7  8.0195.2  9.0195.2 10.0195.1
        6.0 11.0195.1 12.0194.8 13.0194.7 14.0194.7 15.0194.6 16.0194.8
        6.0 17.0194.8 18.0194.9 19.0195.0 20.0195.1 21.0195.1 22.0195.1
        6.0 22.6195.3 23.0195.4 24.0195.5 25.0195.5 26.0195.6 27.0195.6
        6.0 28.0195.6 29.0195.7 30.0195.6 31.0195.8 32.0195.9 33.0195.9
        6.0 34.0196.0 35.0196.0 36.0196.2 37.4195.8 43.4198.1 57.2199.6
NS      6.0       .50       .50       .50       .50     86.60     86.60
NS      6.0     86.60     86.60     86.60     86.60     86.60     86.60
NS      6.0     86.60     86.60     86.60     86.60     86.60     86.60
NS      6.0     86.60     86.60     86.60     86.60     86.60     86.60
NS      6.0     86.60     86.60     86.60     86.60     58.80     58.80
NS      6.0    .58.80     58.80     58.80     58.80     58.80     58.80
NS      6.0     58.80     58.80     58.80     58.80       .50       .50
CAL1    6.0    196.34     87.00     87.46
VEL1    6.0
VEL1    6.0
VEL1    6.0
VEL1    6.0
CAL2    6.0    195.75     37.00     31.49
VEL2    6.0                2.00 1.60 2.10 2.80 2.30  .70 1.30 2.50 3.20
VEL2    6.0 2.40  .90 1.50 2.50 2.10 2.00 1.90 1.80 1.90 1.60 1.40 1.00
VEL2    6.0 1.00 1.10  .90 1.00  .60  .40  .50  .20  .30  .50  .20
VEL2    6.0
XSEC    7.0     117.01.00    194.0
        7.0  0.0198.4  1.0195.2  2.0194.8  3.0194.3  4.0194.3  5.0194.3
        7.0  6.0193.8  7.0193.7  8.0194.4  9.0194.0 10.0193.5 11.0193.6
        7.0 12.0193.8 13.0193.8 14.0194.0 15.0194.0 16.0194.1 17.0194.3
        7.0 18.0194.4 19.0194.5 20.0194.7 21.0194.6 23.0194.7 24.0194.7
        7.0 25.0194.9 26.0195.1 26.9195.2 28.0195.2 29.0195.6 30.0195.6
        7.0 31.0195.6 32.0195.6 33.0195.6 34.0196.1 35.0196.5 38.0199.1
        7.0 40.5199.1
NS      7.0     65.70     65.70     65.70     65.70     65.70     65.70
NS      7.0     65.70  3.065.70     65.70     65.70     65.70     65.70
NS      7.0     65.70     65.70     65.70     65.70     65.70     65.70
NS      7.0     65.70     65.70     65.70     54.80     54.80     54.80
NS      7.0     54.80     54.80     54.80     54.80     54.80     54.80
NS      7.0     54.80     54.80     54.80     54.80     65.60     65.60
NS      7.0     65.60
CAL1    7.0    196.46     87.00     86.78
VEL1    7.0
VEL1    7.0
VEL1    7.0
VEL1    7.0
CAL2    7.0    195.83     37.00     31.06
VEL2    7.0           0.00 0.00 0.00 0.00 0.00 0.00  .60 1.00  .60  .60
VEL2    7.0  .70  .80 1.10 1.20 1.60 1.70 1.40 1.40 1.60 1.60 1.80 1.10
VEL2    7.0 1.60 1.40 1.20 1.50 1.30 1.70  .60  .90  .30
VEL2    7.0
ENDJ
```

Appendix B6. Summary of Calibration Details Upper Hurst Creek (Medium Flow) UPHRST6.IN4

Calibration Information for Calculated Discharges

Transect Number

1	2	3	4	5	6	7

Discharge

88	84	82	84	91	87	87
36	45	34	42	35	32	36

Stage

195.49	195.62	195.93	196.01	196.15	196.34	196.46
194.97	195.05	195.44	195.52	195.58	195.75	195.83

Plotting Stage

2.19	2.32	2.63	2.71	2.25	2.44	2.46
1.67	1.75	2.14	2.22	1.68	1.85	1.83

Stage/Discharge Relationship (S vs Q) S=A*Q**B+SZF

A =	.5732	.3043	.9219	.7441	.5702	.7049	.5380
B =	.2993	.4587	.2382	.2917	.3044	.2777	.3405
SZF=	193.3	193.3	193.3	193.3	193.9	193.9	194.0

B Coefficient Log/Log Discharge/Stage Relationship

3.34	2.18	4.20	3.43	3.29	3.60	2.94

Appendix B7. Data Changes Upper Hurst Creek (Medium Flow)

Cell velocities changed for calibration

Transect 1	Vertical 37	Specified Mannings N of 1.5
Transect 2	Vertical 31	Specified Mannings N of 1.5
Transect 3	Vertical 33	Specified Mannings N of 3.0
Transect 3	Vertical 38	Specified Mannings N of 1.5
Transect 7	Vertical 8	Specified Mannings N of 1.5

Appendix B8. Velocity Adjustment Factors Upper Hurst Creek (Medium Flow)

Transect	Flow	VAF
1.00	37.0	1.000
1.00	60.0	1.095
2.00	37.0	.999
2.00	60.0	1.066
3.00	37.0	.998
3.00	60.0	1.122
4.00	37.0	1.000
4.00	60.0	1.100
5.00	37.0	1.000
5.00	60.0	.907
6.00	37.0	.993
6.00	60.0	.942
7.00	37.0	.991
7.00	60.0	1.049

Appendix B9. IFG4 Input File Upper Hurst Creek (Medium-Low Flow)

```
UPPER HURST CREEK      IFIM
Q/DATE MEASURED  37 CFS ON 11-16-88, 2 ON 8-1-88
IOC        00000002000000000000
QARD    2.00
QARD   20.00
QARD   37.00
QARD   60.00
XSEC    1.0         0.01.00     193.3
        1.0  0.0198.6  1.2195.5  2.0195.2  2.5195.0  3.0194.8  4.0194.4
        1.0  4.5194.2  5.0194.0  5.5193.7  6.0193.8  6.5193.8  7.0193.6
        1.0  7.5193.7  8.0193.7  8.5193.7  9.0193.8  9.5193.8 10.0193.6
        1.0 10.5193.8 11.0193.9 11.5194.0 12.0194.0 12.5193.8 13.0194.0
        1.0 14.0193.9 15.0193.9 16.0193.9 17.0194.1 18.0194.2 19.0194.2
        1.0 20.0194.5 21.0194.5 22.0194.8 23.0194.8 24.0194.9 25.0195.0
        1.0 26.0195.0 27.0194.9 28.0194.9 29.0195.0 30.0194.9 30.8194.6
        1.0 32.0194.6 34.0195.4 36.0195.4 37.0195.2 39.0195.3 40.0195.2
        1.0 41.5195.5 42.0195.5 45.2196.2 46.5197.0 53.0198.3 55.6199.0
NS      1.0      17.80      17.80      17.80      17.80      78.50      78.50
NS      1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS      1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS      1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS      1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS      1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS      1.0   1.578.50      78.50      78.50      78.50      78.50      78.50
NS      1.0      78.50      78.50      78.50      78.50      78.50      78.50
NS      1.0      78.50      78.50      78.50      10.50      10.50      10.50
CAL2    1.0     194.97      33.28
VEL2    1.0                          .40  .50  .60 1.40  .80  .60 1.10 1.50
VEL2    1.0 1.10 1.90 2.40 1.60 2.30 2.10 2.70 3.10 4.00 3.90 3.50 3.40
VEL2    1.0 2.10 2.30 2.80 1.80 2.40 1.60 1.10  .30  .80  .20  .05 0.00
VEL2    1.0 0.00 0.00 0.00 0.00 0.00
VEL2    1.0
CAL3    1.0     194.20       2.34
VEL3    1.0                                        .10  .10  .30  .30  .10
VEL3    1.0  .60  .80  .70 1.00  .80  .80 1.20 1.20 1.00 1.30 1.10  .60
VEL3    1.0  .30  .30  .10  .10
VEL3    1.0
VEL3    1.0
XSEC    2.0      117.01.00     193.3
        2.0  0.0197.4  1.0195.1  1.5193.0  2.0193.0  2.5192.8  3.0192.7
        2.0  3.5192.7  4.0192.7  4.5192.7  5.0192.8  5.5192.8  6.0192.9
        2.0  6.5192.0  7.0193.8  7.5193.4  8.0192.9  8.5192.0  9.0193.1
        2.0  9.5193.3 10.0193.6 10.5193.7 11.0193.8 11.5193.9 12.0194.2
        2.0 12.5194.1 13.0194.6 14.0194.4 15.0194.9 16.0194.7 17.0195.0
        2.0 17.7195.1 19.0194.5 21.0194.8 23.0194.8 25.0194.9 27.0195.1
        2.0 29.0195.3 32.0195.1 33.5195.6 37.5195.9 40.2197.0 46.8198.8
        2.0 49.4200.4
NS      2.0        .50        .50      75.50      75.50      75.50      75.50
NS      2.0      75.50      75.50      75.50      75.50      75.50      75.50
NS      2.0      75.50      75.50      75.50      75.50      75.50      75.50
```

Appendix B9. Continued

```
NS     2.0     75.50     75.50     75.50     75.50     75.50     75.50
NS     2.0     75.50     75.50     75.50     75.50     75.50     75.50
NS     2.0     76.50  1.576.50     76.50     76.50     76.50     76.50
NS     2.0     76.50     76.50     76.50     57.50       .50       .50
NS     2.0       .50
CAL2   2.0    195.05     40.56
VEL2   2.0             .50 1.10  .60 1.20 1.10 2.90 2.80 2.50 2.80 2.30
VEL2   2.0 1.20 1.70 2.80 3.40 3.10 3.50 2.00 2.30 1.00  .90  .50 1.20
VEL2   2.0 1.30 1.90 1.80 1.00  .30  .10
VEL2   2.0
CAL3   2.0    194.23      1.12
VEL3   2.0             .05  .10  .10  .10  .20  .20  .10  .10  .05  .05
VEL3   2.0  .05  .05  .05  .10  .20  .10  .10  .10  .20  .20  .05  .05
VEL3   2.0  .05
VEL3   2.0
XSEC   3.0     265.01.00    193.3
       3.0  0.0198.1  3.0195.9  4.0195.2  5.0194.3  5.3194.1  5.6194.1
       3.0  5.9194.1  6.2194.2  6.5194.2  6.8194.2  7.1193.4  7.4194.1
       3.0  7.7193.7  8.0193.5  8.3193.4  8.6193.5  8.9193.6  9.2193.6
       3.0  9.5193.6  9.8193.7 10.1193.6 10.4193.8 10.7194.1 11.0193.8
       3.0 11.3194.0 11.6194.1 12.0194.3 13.0195.0 15.0194.7 17.0194.9
       3.0 19.0195.1 21.0195.4 23.0195.4 25.0195.4 27.0195.4 28.0195.4
       3.0 29.0195.4 30.0195.4 31.0195.4 32.0195.4 34.0195.7 35.0195.9
       3.0 37.0195.9 39.6194.4 45.6197.4 47.0198.3 54.0199.3 58.8200.3
NS     3.0       .50       .30       .30       .30       .30       .30
NS     3.0       .30       .30       .30       .30       .30       .30
NS     3.0       .30       .30     75.50     75.50     75.50     75.50
NS     3.0     75.50     75.50     75.50     75.50     75.50     75.50
NS     3.0     87.50     87.50     87.50     87.50     87.50     56.50
NS     3.0     56.50     56.50  3.056.50     56.50     56.50     56.50
NS     3.0     56.50  1.556.50     56.50     56.50     76.50     76.50
NS     3.0     76.50     57.50     57.50       .50       .50       .50
CAL2   3.0    195.44     26.39
VEL2   3.0             .10 1.30 1.50 1.60 2.10 1.60 1.80 2.00 2.40 2.50
VEL2   3.0 3.50 2.70 3.30 3.50 3.50 3.30 3.30 2.70 2.90 2.60 2.20 2.10
VEL2   3.0 1.20 2.40 1.80 1.50 1.10 1.40 1.00  .60 0.00 0.00 0.00 0.00
VEL2   3.0  .20 0.00 0.00
CAL3   3.0    194.29      1.60
VEL3   3.0                       .05  .05  .05  .05  .05  .30  .20  .40
VEL3   3.0  .90  .80  .90  .80  .80  .70  .90  .90  .50  .60 0.00  .10
VEL3   3.0  .60  .10
VEL3   3.0
XSEC   4.0       60.01.00    193.3
       4.0  0.0198.2  2.2195.5  2.5193.3  3.0193.3  3.5192.8  4.0192.8
       4.0  4.3193.1  4.6192.9  4.9192.3  5.2193.4  5.5193.4  5.8193.4
       4.0  6.1193.3  6.4193.3  6.7193.4  7.0193.5  7.3193.5  7.6193.6
       4.0  7.9193.6  8.2193.6  8.5193.8  8.8193.8  9.1193.9  9.4194.2
       4.0  9.7194.2 10.0194.3 10.3194.1 10.6194.1 11.0194.4 13.0195.0
       4.0 15.0195.2 17.0195.4 19.0195.4 21.0195.4 23.0195.5 25.0195.4
       4.0 27.0195.4 29.0195.5 29.9195.5 31.0195.8 33.0196.0 38.0196.4
```

Appendix B9. Continued

```
        4.0 40.8197.7 46.0198.5
NS      4.0        .10        .10        .10      78.70      78.70      78.70
NS      4.0      78.70      78.70      78.70      78.70      78.70      78.70
NS      4.0      78.70      78.70      78.70      78.70      78.70      78.70
NS      4.0      78.70      78.70      78.70      78.70      78.70      78.70
NS      4.0      78.70      78.70      78.70      78.70      78.70      76.50
NS      4.0      76.50      76.50      57.50      57.00      57.50      57.50
NS      4.0      57.50      57.50      57.50      57.50      57.50        .50
NS      4.0        .50        .50
CAL2    4.0     195.52      36.66
VEL2    4.0                .20 2.10 3.50 2.30 1.90 2.00 2.90 3.90 3.80 3.50
VEL2    4.0 3.40 2.80 2.60 2.60 2.50 1.20 1.50 2.50 2.30 2.30 1.90 1.20
VEL2    4.0 1.40 1.50 1.30 1.10  .90  .40  .20  .40  .30  .60  .50  .30
VEL2    4.0  .10 0.00
CAL3    4.0     194.30       1.75
VEL3    4.0              .10  .10  .10  .10  .10  .10  .20  .30  .30  .30
VEL3    4.0  .30  .40  .40  .90  .60  .40  .30  .20  .20  .60  .40  .10
VEL3    4.0  .10  .05  .05  .05
VEL3    4.0
XSEC    5.0       60.01.00    193.9
        5.0  0.0198.1   .5196.1  1.0195.6  1.5195.1  2.0194.9  3.0194.9
        5.0  3.5194.8  4.0194.8  4.5194.8  5.0194.7  5.5194.8  6.0194.8
        5.0  6.5194.8  7.0194.7  7.5194.7  8.0194.6  8.5194.6  9.0194.7
        5.0 10.0194.9 11.0194.9 12.0194.8 12.5194.8 13.0194.7 14.0194.8
        5.0 15.0194.7 16.0194.9 17.0194.9 18.0194.9 19.0194.9 20.0195.1
        5.0 21.0195.3 22.0195.2 23.0195.5 24.0195.5 25.0195.3 26.0195.3
        5.0 27.0195.4 28.0195.5 29.0195.6 30.0195.3 30.5195.6 31.0195.6
        5.0 33.0195.9 35.0196.0 37.0196.0 39.0196.1 42.0196.9 48.0198.0
        5.0 58.0199.8 59.6201.5
NS      5.0        .50        .50        .50        .50       6.50       6.50
NS      5.0       6.50       6.50       6.50       6.50       6.50       6.50
NS      5.0      65.60      65.60      65.60      65.60      65.60      65.60
NS      5.0      65.60      65.60      65.60      65.60      65.60      65.60
NS      5.0      65.60      48.60      48.60      48.60      48.60      48.60
NS      5.0      48.60      48.60      48.60      48.60      48.60      53.60
NS      5.0      53.60      53.60      53.60      53.60      53.60      53.60
NS      5.0      53.60      53.60      43.70      43.70      43.70      43.70
NS      5.0        .50        .50
CAL2    5.0     195.58      33.82
VEL2    5.0                2.10 2.50 2.10 2.40 2.80 3.20 2.50 2.40 2.80
VEL2    5.0 2.40 3.50 2.70 2.80 2.20 3.70 1.70 1.20 1.50 2.10 1.30 1.40
VEL2    5.0 4.00 2.70 2.10 2.10 1.70 1.50 1.90 1.20 1.00 1.00  .90  .30
VEL2    5.0  .30  .20 0.00  .70
VEL2    5.0
CAL3    5.0     194.94       1.14
VEL3    5.0                  .05  .10  .80  .20  .80  .20  .20  .30 1.60
VEL3    5.0  .40  .30 2.60  .10  .90  .30  .30  .20 1.10  .20  .20  .70
VEL3    5.0  .05  .05  .05  .05  .05
VEL3    5.0
VEL3    5.0
```

Appendix B9. Continued

```
XSEC   6.0     117.01.00    193.9
       6.0  0.0197.4  1.4196.3  1.5195.3  2.0195.1  3.0194.9  4.0194.9
       6.0  5.0195.0  6.0195.1  7.0194.7  8.0195.2  9.0195.2 10.0195.1
       6.0 11.0195.1 12.0194.8 13.0194.7 14.0194.7 15.0194.6 16.0194.8
       6.0 17.0194.8 18.0194.9 19.0195.0 20.0195.1 21.0195.1 22.0195.1
       6.0 22.6195.3 23.0195.4 24.0195.5 25.0195.5 26.0195.6 27.0195.6
       6.0 28.0195.6 29.0195.7 30.0195.6 31.0195.8 32.0195.9 33.0195.9
       6.0 34.0196.0 35.0196.0 36.0196.2 37.4195.8 43.4198.1 57.2199.6
NS     6.0       .50       .50  1.5  .50       .50     86.60     86.60
NS     6.0     86.60     86.60     86.60     86.60     86.60     86.60
NS     6.0     86.60     86.60     86.60     86.60     86.60     86.60
NS     6.0     86.60     86.60     86.60     86.60     86.60     86.60
NS     6.0    .86.60     86.60     86.60     86.60     58.80     58.80
NS     6.0     58.80     58.80     58.80     58.80     58.80     58.80
NS     6.0     58.80     58.80     58.80     58.80       .50       .50
CAL2   6.0    195.75     31.49
VEL2   6.0              2.00 1.60 2.10 2.80 2.30  .70 1.30 2.50 3.20
VEL2   6.0 2.40  .90 1.50 2.50 2.10 2.00 1.90 1.80 1.90 1.60 1.40 1.00
VEL2   6.0 1.00 1.10  .90 1.00  .60  .40  .50  .20  .30  .50  .20
VEL2   6.0
CAL3   6.0    195.19      1.48
VEL3   6.0                .10  .20  .30  .30  .40  .70  .05  .05  .05
VEL3   6.0  .05  .10  .30  .30  .20  .20  .20  .10  .10  .05  .05  .05
VEL3   6.0
VEL3   6.0
XSEC   7.0     117.01.00    194.0
       7.0  0.0198.4  1.0195.2  2.0194.8  3.0194.3  4.0194.3  5.0194.3
       7.0  6.0193.8  7.0193.7  8.0194.4  9.0194.0 10.0193.5 11.0193.6
       7.0 12.0193.8 13.0193.8 14.0194.0 15.0194.0 16.0194.1 17.0194.3
       7.0 18.0194.4 19.0194.5 20.0194.7 21.0194.6 23.0194.7 24.0194.7
       7.0 25.0194.9 26.0195.1 26.9195.2 28.0195.2 29.0195.6 30.0195.6
       7.0 31.0195.6 32.0195.6 33.0195.6 34.0196.1 35.0196.5 38.0199.1
       7.0 40.5199.1
NS     7.0     65.70     65.70  1.565.70     65.70     65.70  1.565.70
NS     7.0     65.70     65.70     65.70     65.70     65.70     65.70
NS     7.0     65.70     65.70     65.70     65.70     65.70     65.70
NS     7.0     65.70     65.70     65.70     54.80     54.80     54.80
NS     7.0     54.80     54.80     54.80     54.80     54.80     54.80
NS     7.0     54.80     54.80     54.80     54.80     65.60     65.60
NS     7.0     65.60
CAL2   7.0    195.83     31.06
VEL2   7.0           0.00 0.00 0.00 0.00 0.00 0.00  .60 1.00  .60  .60
VEL2   7.0  .70  .80 1.10 1.20 1.60 1.70 1.40 1.40 1.60 1.60 1.80 1.10
VEL2   7.0 1.60 1.40 1.20 1.50 1.30 1.70  .60  .90  .30
VEL2   7.0
CAL3   7.0    195.21      2.10
VEL3   7.0             .10  .10  .10  .10  .10  .05  .05  .10  .10  .10
VEL3   7.0  .10  .10  .10  .10  .05  .20  .10  .05  .05  .05  .05  .05
VEL3   7.0  .05  .05 0.00
VEL3   7.0
ENDJ
```

Appendix B10. Summary of Calibration Details Upper Hurst Creek (Medium-Low Flow) UPHRST4.IN4

Calibration Information for Calculated Discharges

Transect Number

1	2	3	4	5	6	7

Discharge

36	45	34	42	35	32	36
3	1	2	2	1	1	2

Stage

194.97	195.05	195.44	195.52	195.58	195.75	195.83
194.20	194.23	194.29	194.30	194.94	195.19	195.21

Plotting Stage

1.67	1.75	2.14	2.22	1.68	1.85	1.83
0.90	0.93	0.99	1.00	1.04	1.29	1.21

Stage/Discharge Relationship (S vs Q) S=A*Q**B+SZF

A =	.7262	.8822	.8509	.8772	.1012	.1273	.1092
B =	.2331	.1796	.2608	.2478	.1428	.1076	.1437
SZF=	193.3	193.3	193.3	193.3	193.9	193.9	194.0

B Coefficient Log/Log Discharge/Stage Relationship

4.29	5.57	3.83	4.04	7.00	9.30	6.96

Appendix B11. Data Changes Upper Hurst Creek (Medium-Low Flow)

Cell velocities changed for calibration

Transect 1	Vertical	8	VEL3	Changed	0.0	to	0.1
Transect 1	Vertical	27	VEL3	Changed	0.0	to	0.1
Transect 1	Vertical	28	VEL3	Changed	0.0	to	0.1
Transect 1	Vertical	37	Specified	Mannings N of	1.5		
Transect 2	Vertical	3	VEL3	Changed	0.0	to	.05
Transect 2	Vertical	4	VEL3	Changed	0.0	to	0.1
Transect 2	Vertical	23	VEL3	Changed	0.0	to	.05
Transect 2	Vertical	24	VEL3	Changed	0.0	to	.05
Transect 2	Vertical	25	VEL3	Changed	0.0	to	.05
Transect 2	Vertical	32	Specified	Mannings N of	1.5		
Transect 3	Vertical	8	VEL3	Changed	0.0	to	.05
Transect 3	Vertical	9	VEL3	Changed	0.0	to	.05
Transect 3	Vertical	26	VEL3	Changed	0.0	to	0.1
Transect 3	Vertical	33	Specified	Mannings N of	3.0		
Transect 3	Vertical	38	Specified	Mannings N of	1.5		
Transect 4	Vertical	26	VEL3	Changed	0.0	to	.05
Transect 4	Vertical	27	VEL3	Changed	0.0	to	.05
Transect 4	Vertical	28	VEL3	Changed	0.0	to	.05
Transect 5	Vertical	26	VEL3	Changed	0.0	to	.05
Transect 5	Vertical	27	VEL3	Changed	0.0	to	.05
Transect 5	Vertical	28	VEL3	Changed	0.0	to	.05
Transect 5	Vertical	29	VEL3	Changed	0.0	to	.05
Transect 6	Vertical	3	Specified	Mannings N of	1.5		
Transect 6	Vertical	12	VEL3	Changed	0.0	to	.05
Transect 6	Vertical	13	VEL3	Changed	0.0	to	.05
Transect 6	Vertical	23	VEL3	Changed	0.0	to	.05
Transect 6	Vertical	24	VEL3	Changed	0.0	to	.05
Transect 7	Vertical	3	Specified	Mannings N of	1.5		
Transect 7	Vertical	6	Specified	Mannings N of	1.5		
Transect 7	Vertical	24	VEL3	Changed	0.0	to	.05
Transect 7	Vertical	25	VEL3	Changed	0.0	to	.05
Transect 7	Vertical	26	VEL3	Changed	0.0	to	.05

Appendix B12. Velocity Adjustment Factors Upper Hurst Creek (Medium-Low Flow)

Transect	Flow	VAF
1.00	2.0	1.002
1.00	37.0	1.000
2.00	2.0	1.042
2.00	37.0	1.005
3.00	2.0	.980
3.00	37.0	.950
4.00	2.0	1.008
4.00	37.0	.998
5.00	2.0	.967
5.00	37.0	.992
6.00	2.0	.998
6.00	37.0	.992
7.00	2.0	1.035
7.00	37.0	.949

Appendix C

Shale Creek Site Calibration Information

Appendix C1. IFG4 Input File Shale Creek (High-Medium Flow)

```
SHALE CREEK      IFIM   SHALE3.IN4
Q/DATE MEASURED   72 CFS ON 1-20-89, 34 ON 11-17-88
IOC        00000002000000000000
QARD  34.00
QARD  72.00
QARD 100.00
XSEC   1.0        0.01.00    192.1
       1.0  0.0197.1  3.5193.8  5.0193.6  7.0193.6  7.5193.5  8.0193.5
       1.0  9.0193.3 10.0192.8 11.0192.7 12.0192.8 13.0193.2 14.0193.6
       1.0 15.0193.5 16.0193.5 17.0193.8 18.0193.4 19.0193.7 20.0193.6
       1.0 21.0193.5 22.0193.7 23.0193.6 24.0193.0 25.0192.1 25.5192.2
       1.0 26.0192.5 26.5192.3 27.0192.5 27.5192.5 28.0192.3 28.5192.8
       1.0 29.0192.7 29.5192.7 30.0192.5 30.5192.7 31.0192.7 31.5192.8
       1.0 32.0192.8 32.5193.0 33.0193.0 33.5193.1 34.0193.1 35.0193.3
       1.0 37.0193.2 39.0193.3 41.0193.1 41.9193.4 43.0193.5 44.0193.5
       1.0 45.0193.7 46.9193.8 50.0194.5 60.0195.6 65.0196.2 69.0198.3
       1.0 73.0200.1 79.9200.4
NS     1.0      86.80      86.80      86.80   1.586.80      76.60      76.60
NS     1.0      76.60      76.60      86.70      86.70      86.70      86.70
NS     1.0      87.90      87.90      87.90      87.90      87.90      87.90
NS     1.0      87.90      87.90      87.90      87.90      87.90      87.90
NS     1.0      87.90      67.70      67.70      67.70      67.70      67.70
NS     1.0      67.70      67.70      67.70      67.70      67.70      67.70
NS     1.0      67.70      67.70      67.70      67.70      67.70      67.70
NS     1.0      65.60      65.60      65.60      65.60      65.60      65.60
NS     1.0      65.60      63.60      63.60      63.60        .50        .50
NS     1.0        .50        .50
CAL1   1.0     193.82      87.74
VEL1   1.0             0.00 0.00  .30 2.10 3.20 1.00 3.20 6.20 6.56 8.20
VEL1   1.0 4.00  .10 0.00  .30  .30  .50  .70  .50  .10 2.50 6.50 6.20
VEL1   1.0 5.70 4.70 4.60 5.80 5.20 5.00 5.60 6.00 4.50 3.40 3.50 5.10
VEL1   1.0 5.70 4.60 4.30 4.00 2.90 3.40  .60 3.00 2.00  .60 1.00  .70
VEL1   1.0  .30
CAL2   1.0    193.40      39.50
VEL2   1.0                          .10  .70 2.10 2.00  .60  .80 0.00
VEL2   1.0 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 2.70 4.40 5.00
VEL2   1.0 5.00 3.90 3.40 5.30 1.10 1.90 2.40 2.60 4.00 3.60 2.50 3.60
VEL2   1.0 1.60 2.30 2.20  .60  .40 2.10 1.00  .80  .40
VEL2   1.0
XSEC   2.0       38.01.00    192.8
       2.0  0.0197.8  1.0194.3  2.0193.7  3.0193.4  4.0193.7  5.0193.2
       2.0  5.5193.4  6.0193.5  7.0193.9  8.0193.1  9.0193.1 10.0193.1
       2.0 11.0193.1 12.0193.0 13.0193.1 14.0193.4 15.0193.0 16.0192.8
       2.0 17.0192.9 18.0193.0 19.0193.3 20.0193.1 21.0193.1 22.0193.6
       2.0 23.0193.1 24.0193.6 25.0193.6 27.0193.5 29.0193.7 31.0193.7
       2.0 33.0193.8 34.5193.8 36.0193.8 37.0194.0 39.4194.3 45.0194.7
       2.0 55.0195.9 64.0199.6
NS     2.0      99.50      99.50      99.50      87.60      87.60      87.60
NS     2.0      87.60      87.60      87.60      87.60      87.60      87.60
NS     2.0      87.60      87.60      87.60      87.60      87.60      76.70
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Appendix C1. Continued

```
NS     2.0      76.70      76.70      76.70      76.70      76.70      76.70
NS     2.0      76.70      76.70      76.70      75.70      75.70      75.70
NS     2.0      75.70      75.70      75.70      75.70      75.70      75.70
NS     2.0        .50        .50
CAL1   2.0     194.31      67.54
VEL1   2.0               .40  .80 1.10 2.00 2.20 1.60 2.10 2.10 2.30 2.50
VEL1   2.0 2.00 3.20 1.90 2.00 2.00 2.20 3.80 2.80 3.70 3.20 4.60 4.00
VEL1   2.0 2.70 2.80 2.40 2.30 2.10 1.80 1.20 1.80 1.20  .40
VEL1   2.0
CAL2   2.0     193.80      33.84
VEL2   2.0               .20  .40 1.20 1.60 1.90 1.60 0.00 2.50 1.70 1.70
VEL2   2.0 2.70 2.30 2.80 1.60 1.60 1.50 2.50 4.50 4.40 2.40 3.60 1.20
VEL2   2.0 4.00 2.20 1.20 1.10  .40 1.20  .10
VEL2   2.0
XSEC   3.0      190.01.00    192.8
       3.0  0.0200.9  8.8194.4  9.0194.3 10.0193.6 11.0193.2 12.0193.2
       3.0 13.0193.0 14.0192.7 15.0192.6 16.0192.4 17.0192.5 17.5192.5
       3.0 18.0192.4 18.5192.6 19.0192.7 19.5192.9 20.0192.6 20.5192.6
       3.0 21.0193.1 21.5193.0 22.0193.0 23.0193.2 24.0193.3 25.0193.5
       3.0 26.0193.6 27.0193.7 29.0193.8 31.0193.7 33.0194.0 35.0194.0
       3.0 37.0193.6 39.0193.7 40.0194.0 42.0194.3 44.0194.3 47.0194.4
       3.0 50.0194.8 59.5195.7 64.0197.1 64.9198.4
NS     3.0      30.50      30.50   1.530.50      30.50      30.50      65.50
NS     3.0      65.50      65.50      65.50      73.60      73.60      73.60
NS     3.0      73.60      73.60      73.60      73.60      73.60      73.60
NS     3.0      73.60      35.60      35.60      35.60      35.60      35.60
NS     3.0      35.60      35.60      35.60      35.60      35.60      35.60
NS     3.0      35.60      35.60      35.60      73.70      73.70   1.573.70
NS     3.0      73.70        .50        .50        .50
CAL1   3.0     194.43      62.20
VEL1   3.0       0.00 0.00  .70  .50 1.00 1.30 1.20 1.40 1.40 2.20 1.60
VEL1   3.0 1.90 2.70 3.10 2.90 2.60 2.50 3.10 2.60 2.60 2.50 2.20 2.30
VEL1   3.0 2.70 2.50 2.40 2.00 2.30 3.00 1.90  .90  .90  .80  .20
VEL1   3.0
CAL2   3.0     194.00      29.22
VEL2   3.0                 .20  .60  .40 1.10 1.20  .60 1.50 1.70 1.70
VEL2   3.0 1.40 1.60 2.10 1.90 1.50 2.00 2.00 2.10 2.20 2.10 2.00  .80
VEL2   3.0 2.10 1.40  .30  .20  .60  .40  .50  .80  .20
VEL2   3.0
XSEC   4.0      160.01.00    192.8
       4.0  0.0197.0  7.6194.6  8.1193.9  8.5193.9  9.0193.9 12.0193.1
       4.0 13.0193.1 13.5193.2 14.0193.1 14.5192.9 15.0192.0 15.5191.8
       4.0 16.0191.7 16.5191.9 17.0191.8 17.5192.3 18.0192.3 18.5192.0
       4.0 19.0192.2 19.5192.1 20.0192.3 20.5192.6 21.0192.6 22.0193.0
       4.0 23.0193.0 24.0193.2 24.5193.5 25.0193.7 26.0193.7 27.0193.9
       4.0 28.0193.9 29.0194.0 31.0194.3 33.0194.5 35.0194.6 49.0196.8
       4.0 55.0199.0 58.5200.2
NS     4.0        .50        .50      86.70      86.70      86.70      86.70
NS     4.0      86.70      86.70      86.70      86.70      86.70      67.60
NS     4.0      67.60      67.60      67.60      67.60      67.60      67.60
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Appendix C1. Continued

```
NS     4.0      67.60      67.60      67.60      67.60      67.60      67.60
NS     4.0      67.60      67.60      67.60      67.60      46.70      46.70
NS     4.0      46.70      46.70      46.70      46.70      46.70        .50
NS     4.0        .50        .50
CAL1   4.0     194.55      64.89
VEL1   4.0             .05  .05  .05  .20  .50 1.70 1.00  .60 1.60 3.20
VEL1   4.0 3.90 3.90 2.60 3.80 3.70 3.40 3.20 2.70 2.30 2.40 3.00 2.80
VEL1   4.0 2.50 1.90 1.50 1.10  .90  .90  .70  .40  .10
VEL1   4.0
CAL2   4.0     194.05      33.72
VEL2   4.0           0.00 0.00 0.00  .20  .10 1.40  .80 1.00 1.60 3.10
VEL2   4.0 3.20 2.60 3.00 3.10 2.50 1.90 1.10 1.20 1.50 2.00  .70 1.00
VEL2   4.0  .90  .40  .30  .30  .20  .20 0.00
VEL2   4.0
XSEC   5.0       38.01.00    192.8
       5.0  0.0198.4   .1195.1  5.0194.7  7.0194.6 11.0194.6 13.0194.7
       5.0 14.0194.2 15.0194.1 16.0194.1 17.0194.1 18.0193.0 19.0193.8
       5.0 20.0193.7 21.0192.6 22.0193.3 23.0193.3 24.0193.4 25.0193.6
       5.0 26.0193.6 27.0193.6 28.0193.7 29.0193.9 30.0194.1 31.0194.1
       5.0 32.0194.1 33.0194.3 34.0194.3 35.0194.5 37.0194.0 39.0194.8
       5.0 41.0194.9 41.5195.1 42.0195.2 47.0196.9 51.5198.1 52.0199.3
       5.0 54.0199.9 55.5200.1
NS     5.0        .50        .50        .50        .50      63.80      63.80
NS     5.0      63.80      63.80      46.60      46.60      46.60      46.60
NS     5.0      46.60      46.60      46.60      46.60      46.60      46.60
NS     5.0      46.60      46.60      46.60      46.60      46.60      46.60
NS     5.0      46.60      46.60      46.60      46.60      46.60      46.60
NS     5.0      46.60        .50        .50        .50        .50        .50
NS     5.0        .50        .50
CAL1   5.0     195.11      72.71
VEL1   5.0             .40  .70 3.00 1.90 2.10 2.50 2.70 2.70 2.30 2.10
VEL1   5.0 2.60 2.60 2.40 2.40 2.80 3.20 3.20 2.80 3.30 1.80  .40  .70
VEL1   5.0 1.50 1.60  .50  .30  .10  .10 0.00 0.00
VEL1   5.0
CAL2   5.0     194.87      30.08
VEL2   5.0             .10  .30  .80  .70 1.10 1.40  .80 1.90 1.90 1.80
VEL2   5.0 1.40 1.50 2.00 2.10 2.10 2.00 2.20 2.50 2.00 1.50  .60  .50
VEL2   5.0  .40  .50  .60  .50 0.00 0.00 0.00
VEL2   5.0
XSEC   6.0      190.01.00    192.8
       6.0  0.0199.2  4.0195.3  5.0195.0  8.0194.3 20.0195.3 21.2194.9
       6.0 22.0194.4 23.0194.2 24.0194.0 25.0193.9 26.0192.7 27.0192.8
       6.0 28.0192.7 29.0192.7 30.0193.4 31.0193.0 32.0193.0 33.0192.9
       6.0 34.0193.2 35.0193.4 36.0193.3 37.0193.4 38.0193.6 39.0193.6
       6.0 40.0193.8 41.0193.9 42.0194.0 43.0194.3 44.0194.2 45.0194.2
       6.0 47.0194.7 47.2195.2 47.4195.3 50.0194.5 53.0196.3 55.0197.0
       6.0 60.0199.1 63.1199.9
NS     6.0        .50        .50        .50      82.90  3.082.90      86.80
NS     6.0      86.80      86.80      86.80      86.80      65.60      65.60
NS     6.0      65.60      65.60      65.60      65.60      65.60      65.60
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Appendix C1. Continued

```
NS      6.0      65.60      65.60      67.70      67.70      67.70      67.70
NS      6.0      67.70      67.70      67.70      67.70      67.70      67.70
NS      6.0      36.50   1.536.50      36.50      36.50      36.50        .50
NS      6.0        .50        .50
CAL1    6.0     195.33      72.59
VEL1    6.0       0.00 0.00 0.00 0.00  .60  .80  .20 1.10  .80  .40  .30
VEL1    6.0  .50  .60 2.00 2.45 2.40 1.35 1.10 2.40 3.40 4.30 2.70 3.70
VEL1    6.0 1.70 2.60 2.60  .70  .40  .30  .10 0.00 0.00
VEL1    6.0
CAL2    6.0     194.97      31.10
VEL2    6.0       0.00 0.00 0.00 0.00 0.00  .10  .10  .20  .20  .50  .80
VEL2    6.0  .40  .50  .50 1.10 1.30 1.40 1.40 1.20  .80  .90 2.00 2.30
VEL2    6.0 2.10 2.00  .70  .80 2.10  .70  .20
VEL2    6.0
XSEC    7.0      160.01.00     193.3
        7.0  0.0199.3 20.3195.6 21.0195.5 22.0195.4 23.0195.1 24.0195.1
        7.0 25.0194.7 26.0194.3 27.0194.3 28.0194.3 29.0194.3 30.0194.3
        7.0 30.5194.3 31.0194.3 31.5194.0 32.0193.8 32.5193.5 33.0193.4
        7.0 34.0193.3 35.0193.6 36.0193.3 37.0193.3 38.0194.3 39.0193.4
        7.0 40.0193.7 41.0194.0 42.0194.3 43.0194.3 44.0194.5 45.0194.8
        7.0 46.0195.6 48.0199.6 50.7199.3
NS      7.0      67.60      65.70      65.70      65.70      65.70      65.70
NS      7.0      65.70      65.70      65.70      65.70      65.70      65.70
NS      7.0      65.60      65.60      65.60      65.60      65.60      65.60
NS      7.0      65.60      65.60      65.60      65.60      65.60      65.60
NS      7.0      65.60      88.50      88.50      88.50      88.50      88.50
NS      7.0      88.50      88.50      88.50
CAL1    7.0     195.62      76.22
VEL1    7.0               .10  .90  .20 1.40 2.70 2.90 3.10 4.50 5.40 4.50
VEL1    7.0 4.20 3.80 3.70 4.50 4.40 4.20 3.05 3.50 1.90 2.00 1.70  .50
VEL1    7.0  .10  .05  .05  .05  .05  .05
CAL2    7.0     195.17      33.49
VEL2    7.0                      .70 1.00 2.00 1.60 2.10 2.10 3.60 3.20
VEL2    7.0 3.40 1.40 1.20 1.10 1.70 1.10 1.00 1.80 1.90 1.30  .80  .50
VEL2    7.0  .30  .30  .60  .30  .20 0.00 0.00
XSEC    8.0       38.01.00     194.4
        8.0  0.0201.9 21.0195.6 23.0195.4 24.0195.4 25.0195.3 25.7195.3
        8.0 27.0195.1 29.0194.9 31.0194.9 33.0194.9 35.0195.0 38.2194.8
        8.0 38.5194.7 39.0194.6 39.5194.5 40.0194.5 40.5194.6 41.0194.6
        8.0 41.5194.5 42.0194.6 42.5194.7 43.0194.3 43.5194.3 44.0194.6
        8.0 44.5194.3 45.0194.3 45.5194.5 46.0194.1 46.5194.1 47.0194.2
        8.0 47.5194.7 48.0194.9 49.0194.8 50.0194.8 51.0194.9 51.8195.1
        8.0 52.2195.6 53.0195.7 54.0197.7 65.0199.9 69.3201.5
NS      8.0        .50   1.556.60      56.60      56.60      56.60      56.60
NS      8.0      56.60      56.60      56.60      56.60      56.60      76.60
NS      8.0      76.60      76.60      76.60      76.60      76.60      76.60
NS      8.0      76.60      76.60      76.60      76.60      76.60      76.60
NS      8.0      76.60      76.60      76.60      76.60      76.60      76.60
NS      8.0      86.60      86.60      86.60      86.60      86.60      86.60
NS      8.0      86.60      86.60        .50        .50        .50
```

Appendix C1. Continued

```
CAL1   8.0    195.62     61.70
VEL1   8.0             .70  .60  .30 2.30 3.00 3.00 3.50 3.90 6.40 3.20
VEL1   8.0 3.50 4.00 3.90 5.50 5.90 5.40 5.00 4.50 4.00 4.40 3.80 4.20
VEL1   8.0 4.10 4.40 4.40 4.20 4.00 3.90 3.40 3.00 2.20 1.20  .20  .05
VEL1   8.0
CAL2   8.0    195.19     27.83
VEL2   8.0                                  1.40 2.00 2.30 1.40  .50 1.20
VEL2   8.0 1.30 1.20 3.40 3.40 2.30 3.20 3.80 2.00 2.40 2.30 2.40 2.80
VEL2   8.0 3.40 3.00 3.20 3.50 3.40 3.30 2.30 1.30 1.90  .50  .30
VEL2   8.0
XSEC   9.0      38.01.00    194.4
       9.0  0.0202.4  8.7201.4 10.0199.9 17.0198.0 20.5197.6 25.0197.6
       9.0 29.6196.9 33.7196.6 37.5196.3 40.7195.5 41.0195.3 42.0194.7
       9.0 44.0193.9 46.0193.0 48.0192.7 50.0192.2 52.0192.0 54.0190.8
       9.0 56.0190.8 58.0190.1 60.0192.0 61.0192.3 62.0192.4 63.0192.1
       9.0 64.0191.9 65.0191.9 66.0192.1 68.0192.5 70.0193.0 72.0193.4
       9.0 74.0194.0 76.0194.6 78.0194.7 80.1195.3 83.0195.5 85.0195.8
       9.0 98.0198.6
NS     9.0       .50       .50       .50       .50     36.80     36.80
NS     9.0     56.60     56.60     36.80  1.536.80     36.80     36.80
NS     9.0     65.80     65.80     65.80     65.80     65.80     65.80
NS     9.0     65.80     65.80     65.80     65.80     65.80     86.70
NS     9.0     86.70     86.70     86.70     86.70     86.70     86.70
NS     9.0     86.70     86.70     86.70  1.586.70     86.70     80.80
NS     9.0     80.80
CAL1   9.0    195.94     78.62
VEL1   9.0                                                    .10  .20
VEL1   9.0  .90 2.90 3.60 2.85 3.50 1.75  .65  .60  .50  .40  .40  .40
VEL1   9.0  .40  .40  .40  .40  .30  .30  .30  .30  .10 0.00 0.00
VEL1   9.0
CAL2   9.0    195.48     42.76
VEL2   9.0                                                    .10  .20
VEL2   9.0  .50  .70 1.30 1.80 1.60 1.00  .50  .60  .45  .20  .30  .30
VEL2   9.0  .30  .30  .30  .30  .20  .20  .30  .30 0.00 0.00
VEL2   9.0
ENDJ
```

Appendix C2. Summary of Calibration Details Shale Creek (High-Medium Flow) SHALE3.IN4

Calibration Information for Calculated Discharges

Transect Number

1	2	3	4	5	6
Discharge					
92	76	66	67	74	72
30	31	26	32	39	35
Stage					
193.82	194.31	194.43	194.55	195.11	195.33
193.40	193.80	194.00	194.05	194.87	194.97
Plotting Stage					
1.72	1.51	1.63	1.75	2.31	2.53
1.30	1.00	1.20	1.25	2.07	2.17

Stage/Discharge Relationship (S vs Q) S=A*Q**B+SZF

A =	.5584	.2124	.4023	.2595	.1089	.1018
B =	.2491	.4532	.3345	.4539	.1748	.2133
SZF=	192.1	192.8	192.8	192.8	192.8	192.8

B Coefficient Log/Log Discharge/Stage Relationship

4.02	2.21	2.99	2.20	5.72	4.69

Appendix C2. Continued

Calibration Information for Calculated Discharges

Transect Number	7	8	9
Discharge			
	80	86	146
	32	25	69
Stage			
	195.62	195.62	195.94
	195.17	195.19	195.48
Plotting Stage			
	2.32	1.22	1.54
	1.87	.79	1.08
Stage/Discharge Relationship (S vs Q) S=A*Q**B+SZF			
A =	.8407	.2513	.1432
B =	.2315	.3546	.4767
SZF=	193.3	194.4	194.4
B Coefficient Log/Log Discharge/Stage Relationship			
	4.32	2.82	2.10

Appendix C3. Data Changes Shale Creek (High-Medium Flow)

Cell velocities changed for calibration

Transect 1	Vertical	4	Specified Mannings N of 1.5				
Transect 3	Vertical	3	Specified Mannings N of 1.5				
Transect 3	Vertical	28	VEL1	Changed	2.2	to	2.0
Transect 3	Vertical	28	VEL2	Changed	0.0	to	0.2
Transect 3	Vertical	33	VEL2	Changed	0.0	to	0.2
Transect 3	Vertical	36	Specified Mannings N of 1.5				
Transect 4	Vertical	26	VEL2	Changed	0.2	to	0.4
Transect 4	Vertical	27	VEL1	Changed	1.7	to	1.5
Transect 4	Vertical	27	VEL2	Changed	0.1	to	0.3
Transect 4	Vertical	28	VEL2	Changed	0.1	to	0.3
Transect 4	Vertical	29	VEL2	Changed	0.0	to	0.2
Transect 4	Vertical	30	VEL2	Changed	0.0	to	0.2
Transect 5	Vertical	3	VEL2	Changed	0.0	to	0.1
Transect 5	Vertical	4	VEL2	Changed	0.1	to	0.3
Transect 6	Vertical	5	Specified Mannings N of 3.0				
Transect 6	Vertical	7	VEL2	Changed	0.0	to	0.1
Transect 6	Vertical	8	VEL2	Changed	0.0	to	0.1
Transect 6	Vertical	9	VEL2	Changed	0.0	to	0.2
Transect 7	Vertical	27	VEL2	Changed	0.8	to	0.6
Transect 8	Vertical	2	Specified Mannings N of 1.5				
Transect 8	Vertical	11	VEL1	Changed	6.6	to	6.4
Transect 8	Vertical	11	VEL2	Changed	0.3	to	0.5
Transect 9	Vertical	10	Specified Mannings N of 1.5				
Transect 9	Vertical	34	Specified Mannings N of 1.5				

Appendix C4. Velocity Adjustment Factors Shale Creek (High-Medium Flow)

Transect	Flow	VAF
1.00	34.0	.954
1.00	72.0	1.055
1.00	100.0	.949
2.00	34.0	1.000
2.00	72.0	.989
2.00	100.0	.897
3.00	34.0	1.026
3.00	72.0	.939
3.00	100.0	.737
4.00	34.0	1.000
4.00	72.0	.971
4.00	100.0	.835
5.00	34.0	1.006
5.00	72.0	1.000
5.00	100.0	.959
6.00	34.0	1.021
6.00	72.0	1.000
6.00	100.0	.887
7.00	34.0	1.002
7.00	72.0	1.006
7.00	100.0	.965
8.00	34.0	1.031
8.00	72.0	.949
8.00	100.0	.775
9.00	34.0	.957
9.00	72.0	1.010
9.00	100.0	.951

Appendix C5. IFG4 Input File Shale Creek (Medium-Low Flow)

```
SHALE CREEK      IFIM   SHALE4.IN4
Q/DATE MEASURED   34 CFS ON 11-17-88, 3 ON 8-9-88
IOC        00000002000000000000
QARD   3.00
QARD  10.00
QARD  34.00
XSEC    1.0        0.01.00    192.1
        1.0  0.0197.1  3.5193.8  5.0193.6  7.0193.6  7.5193.5  8.0193.5
        1.0  9.0193.3 10.0192.8 11.0192.7 12.0192.8 13.0193.2 14.0193.6
        1.0 15.0193.5 16.0193.5 17.0193.8 18.0193.4 19.0193.7 20.0193.6
        1.0 21.0193.5 22.0193.7 23.0193.6 24.0193.0 25.0192.1 25.5192.2
        1.0 26.0192.5 26.5192.3 27.0192.5 27.5192.5 28.0192.3 28.5192.8
        1.0 29.0192.7 29.5192.7 30.0192.5 30.5192.7 31.0192.7 31.5192.8
        1.0 32.0192.8 32.5193.0 33.0193.0 33.5193.1 34.0193.1 35.0193.3
        1.0 37.0193.2 39.0193.3 41.0193.1 41.9193.4 43.0193.5 44.0193.5
        1.0 45.0193.7 46.9193.8 50.0194.5 60.0195.6 65.0196.2 69.0198.3
        1.0 73.0200.1 79.9200.4
NS      1.0      86.80      86.80      86.80      86.80      76.60      76.60
NS      1.0      76.60      76.60      86.70      86.70      86.70      86.70
NS      1.0      87.90      87.90      87.90      87.90      87.90      87.90
NS      1.0      87.90      87.90      87.90      87.90      87.90      87.90
NS      1.0      87.90      67.70      67.70      67.70      67.70      67.70
NS      1.0      67.70      67.70      67.70      67.70      67.70      67.70
NS      1.0      67.70      67.70      67.70      67.70      67.70      67.70
NS      1.0      65.60      65.60      65.60      65.60      65.60      65.60
NS      1.0      65.60      63.60      63.60      63.60        .50        .50
NS      1.0        .50        .50
CAL2    1.0     193.40      39.50
VEL2    1.0                                .10  .70 2.10 2.00  .60  .80 0.00
VEL2    1.0 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 2.70 4.40 5.00
VEL2    1.0 5.00 3.90 3.40 5.30 1.10 1.90 2.40 2.60 4.00 3.60 2.50 3.60
VEL2    1.0 1.60 2.30 2.20  .60  .40 2.10 1.00  .80  .40
VEL2    1.0
CAL3    1.0     192.71       1.34
VEL3    1.0                                      .10  .30  .20  .05 0.00
VEL3    1.0 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00  .20 1.10
VEL3    1.0  .65  .30  .40  .30  .50  .30  .10  .10  .20  .10  .10  .05
VEL3    1.0  .05 0.00 0.00 0.00 0.00
VEL3    1.0
XSEC    2.0       38.01.00    192.8
        2.0  0.0197.8  1.0194.3  2.0193.7  3.0193.4  4.0193.7  5.0193.2
        2.0  5.5193.4  6.0193.5  7.0193.9  8.0193.1  9.0193.1 10.0193.1
        2.0 11.0193.1 12.0193.0 13.0193.1 14.0193.4 15.0193.0 16.0192.8
        2.0 17.0192.9 18.0193.0 19.0193.3 20.0193.1 21.0193.1 22.0193.6
        2.0 23.0193.1 24.0193.6 25.0193.6 27.0193.5 29.0193.7 31.0193.7
        2.0 33.0193.8 34.5193.8 36.0193.8 37.0194.0 39.4194.3 45.0194.7
        2.0 55.0195.9 64.0199.6
NS      2.0      99.50      99.50      99.50      87.60      87.60      87.60
NS      2.0      87.60      87.60      87.60      87.60      87.60      87.60
NS      2.0      87.60      87.60      87.60      87.60      87.60      76.70
```

Appendix C5. Continued

```
NS     2.0      76.70      76.70      76.70      76.70      76.70      76.70
NS     2.0      76.70      76.70      76.70      75.70      75.70      75.70
NS     2.0      75.70   1.575.70      75.70      75.70      75.70      75.70
NS     2.0        .50        .50
CAL2   2.0     193.80      33.84
VEL2   2.0             .20  .40 1.20 1.60 1.90 1.60 0.00 2.50 1.70 1.70
VEL2   2.0 2.70 2.30 2.80 1.60 1.60 1.50 2.50 4.50 4.40 2.40 3.60 1.20
VEL2   2.0 4.00 2.20 1.20 1.10  .40 1.20  .10
VEL2   2.0
CAL3   2.0     193.14       3.07
VEL3   2.0                            .05  .05 0.00 0.00  .30  .40  .70
VEL3   2.0 1.20 1.90 1.50 0.00 1.10 1.60 1.50 1.00  .20 1.10 1.10 0.00
VEL3   2.0 2.30
VEL3   2.0
XSEC   3.0      190.01.00    192.8
       3.0  0.0200.9  8.8194.4  9.0194.3 10.0193.6 11.0193.2 12.0193.2
       3.0 13.0193.0 14.0192.7 15.0192.6 16.0192.4 17.0192.5 17.5192.5
       3.0 18.0192.4 18.5192.6 19.0192.7 19.5192.9 20.0192.6 20.5192.6
       3.0 21.0193.1 21.5193.0 22.0193.0 23.0193.2 24.0193.3 25.0193.5
       3.0 26.0193.6 27.0193.7 29.0193.8 31.0193.7 33.0193.9 35.0193.9
       3.0 37.0193.6 39.0193.7 40.0194.0 42.0194.3 44.0194.3 47.0194.4
       3.0 50.0194.8 59.5195.7 64.0197.1 64.9198.4
NS     3.0      30.50      30.50      30.50      30.50      30.50      65.50
NS     3.0      65.50      65.50      65.50      73.60      73.60      73.60
NS     3.0      73.60      73.60      73.60      73.60      73.60      73.60
NS     3.0      73.60      35.60      35.60      35.60      35.60      35.60
NS     3.0      35.60      35.60      35.60   1.535.60      35.60      35.60
NS     3.0      35.60      35.60   1.535.60      73.70      73.70      73.70
NS     3.0      73.70        .50        .50        .50
CAL2   3.0     194.00      29.22
VEL2   3.0                 .20  .60  .40 1.10 1.20  .60 1.50 1.70 1.70
VEL2   3.0 1.40 1.60 2.10 1.90 1.50 2.00 2.00 2.10 2.20 2.10 2.00  .80
VEL2   3.0 2.10 1.40  .30 0.00  .60  .40  .50  .80
VEL2   3.0
CAL3   3.0     193.48       2.47
VEL3   3.0                          .02  .02  .02  .05  .05  .20  .05  .20
VEL3   3.0  .30  .30  .60  .40  .30 1.10  .70  .50  .50  .50  .70  .10
VEL3   3.0  .05
VEL3   3.0
XSEC   4.0      160.01.00    192.8
       4.0  0.0197.0  7.6194.6  8.1193.9  8.5193.9  9.0193.9 12.0193.1
       4.0 13.0193.1 13.5193.2 14.0193.1 14.5192.9 15.0192.0 15.5191.8
       4.0 16.0191.7 16.5191.9 17.0191.8 17.5192.3 18.0192.3 18.5192.0
       4.0 19.0192.2 19.5192.1 20.0192.3 20.5192.6 21.0192.6 22.0193.0
       4.0 23.0193.0 24.0193.2 24.5193.5 25.0193.7 26.0193.7 27.0193.9
       4.0 28.0193.9 29.0194.0 31.0194.3 33.0194.5 35.0194.6 49.0196.8
       4.0 55.0199.0 58.5200.2
NS     4.0        .50        .50      86.70      86.70   1.586.70      86.70
NS     4.0      86.70      86.70      86.70      86.70      86.70      67.60
NS     4.0      67.60      67.60      67.60      67.60      67.60      67.60
```

Appendix C5. Continued

```
NS      4.0      67.60      67.60      67.60      67.60      67.60      67.60
NS      4.0      67.60      67.60      67.60      67.60   1.546.70      46.70
NS      4.0      46.70      46.70      46.70      46.70      46.70        .50
NS      4.0        .50        .50
CAL2    4.0     194.05      33.72
VEL2    4.0             0.00 0.00 0.00  .20  .10 1.40  .80 1.00 1.60 3.10
VEL2    4.0 3.20 2.60 3.00 3.10 2.50 1.90 1.10 1.20 1.50 2.00  .70 1.00
VEL2    4.0  .90  .20  .10  .10 0.00 0.00 0.00
VEL2    4.0
CAL3    4.0     193.49       2.42
VEL3    4.0                              .05  .05  .05  .05  .05  .10  .10
VEL3    4.0  .20  .10  .20  .20  .30  .30  .40  .70  .50  .10  .05  .05
VEL3    4.0  .05 0.00 0.00
VEL3    4.0
XSEC    5.0       38.01.00    192.8
        5.0  0.0198.4   .1195.1  5.0194.7  7.0194.6  9.0194.6 11.0194.6
        5.0 13.0194.7 14.0194.2 15.0194.1 16.0194.1 17.0194.1 18.0193.0
        5.0 19.0193.8 20.0193.7 21.0192.6 22.0193.3 23.0193.3 24.0193.4
        5.0 25.0193.6 26.0193.6 27.0193.6 28.0193.7 29.0193.9 30.0194.1
        5.0 31.0194.1 32.0194.1 33.0194.3 34.0194.3 35.0194.5 37.0194.0
        5.0 39.0194.8 41.0194.9 41.5195.1 42.0195.2 47.0196.9 51.5198.1
        5.0 52.0199.3 54.0199.9 55.5200.1
NS      5.0        .50        .50        .50        .50      63.80      63.80
NS      5.0      63.80      63.80      63.80      46.60      46.60      46.60
NS      5.0      46.60      46.60      46.60      46.60      46.60      46.60
NS      5.0      46.60      46.60      46.60      46.60      46.60      46.60
NS      5.0      46.60      46.60      46.60      46.60      46.60   3.046.60
NS      5.0      46.60        .50        .50        .50        .50        .50
NS      5.0        .50        .50        .50
CAL2    5.0     194.87      30.08
VEL2    5.0                  .10  .10  .80  .70 1.10 1.40  .80 1.90 1.90
VEL2    5.0 1.80 1.40 1.50 2.00 2.10 2.10 2.00 2.20 2.50 2.00 1.50  .60
VEL2    5.0  .50  .40  .50  .60  .50 0.00 0.00 0.00
VEL2    5.0
CAL3    5.0     194.35       2.13
VEL3    5.0                                    .05  .05  .05  .10  .05
VEL3    5.0  .05  .20  .20  .40  .20  .20  .40  .80  .60  .20  .05  .05
VEL3    5.0  .05  .05  .05  .05
VEL3    5.0
XSEC    6.0      190.01.00    192.8
        6.0  0.0199.2  4.0195.3  5.0195.0  8.0194.3 20.0195.3 21.2194.9
        6.0 22.0194.4 23.0194.2 24.0194.0 25.0193.9 26.0192.7 27.0192.8
        6.0 28.0192.7 29.0192.7 30.0193.4 31.0193.0 32.0193.0 33.0192.9
        6.0 34.0193.2 35.0193.4 36.0193.3 37.0193.4 38.0193.6 39.0193.6
        6.0 40.0193.8 41.0193.9 42.0194.0 43.0194.3 44.0194.2 45.0194.2
        6.0 47.0194.7 47.2195.2 47.4195.3 50.0194.5 53.0196.3 55.0197.0
        6.0 60.0199.1 63.1199.9
NS      6.0        .50        .50        .50      82.90      82.90      86.80
NS      6.0  1.586.80      86.80      86.80      86.80      65.60      65.60
NS      6.0      65.60      65.60      65.60      65.60      65.60      65.60
```

Appendix C5. Continued

```
NS      6.0      65.60      65.60      67.70      67.70      67.70      67.70
NS      6.0      67.70      67.70      67.70      67.70      67.70      67.70
NS      6.0      36.50      36.50  1.536.50      36.50      36.50        .50
NS      6.0        .50        .50
CAL2    6.0     194.97      31.10
VEL2    6.0       0.00 0.00 0.00 0.00 0.00 0.00  .10  .10  .20  .50  .80
VEL2    6.0  .40  .50  .50 1.10 1.30 1.40 1.40 1.20  .80  .90 2.00 2.30
VEL2    6.0 2.10 2.00  .70  .80 2.10  .70  .20
VEL2    6.0
CAL3    6.0     194.43       3.47
VEL3    6.0                                    0.02  .05  .10  .20  .30
VEL3    6.0  .20  .10  .20  .30  .30  .20  .30  .20  .20  .10  .05  .05
VEL3    6.0  .02  .02  .02  .02  .02  .02
VEL3    6.0
XSEC    7.0      160.01.00     193.3
        7.0  0.0199.3 20.3195.6 21.0195.5 22.0195.4 23.0195.1 24.0195.1
        7.0 25.0194.7 26.0194.3 27.0194.3 28.0194.3 29.0194.3 30.0194.3
        7.0 30.5194.3 31.0194.3 31.5194.0 32.0193.8 32.5193.5 33.0193.4
        7.0 34.0193.3 35.0193.6 36.0193.3 37.0193.3 38.0194.3 39.0193.4
        7.0 40.0193.7 41.0194.0 42.0194.3 43.0194.3 44.0194.5 45.0194.8
        7.0 46.0195.6 48.0199.6 50.7199.3
NS      7.0      67.60      65.70      65.70      65.70      65.70      65.70
NS      7.0      65.70      65.70      65.70      65.70      65.70      65.70
NS      7.0      65.60      65.60      65.60      65.60      65.60      65.60
NS      7.0      65.60      65.60      65.60      65.60      65.60      65.60
NS      7.0      65.60      88.50      88.50      88.50      88.50  1.588.50
NS      7.0      88.50      88.50      88.50
CAL2    7.0     195.17      33.49
VEL2    7.0                          .70 1.00 2.00 1.60 2.10 2.10 3.60 3.20
VEL2    7.0 3.40 1.40 1.20 1.10 1.70 1.10 1.00 1.80 1.90 1.30  .80  .50
VEL2    7.0  .30  .30  .80  .30  .20 0.00 0.00
CAL3    7.0     194.51       5.39
VEL3    7.0                                    .80  .70  .70 2.10 2.70
VEL3    7.0 2.00 1.30  .40  .90  .40  .20  .20  .20  .05  .02  .02  .02
VEL3    7.0  .02  .02  .02
XSEC    8.0       38.01.00     194.4
        8.0  0.0201.9 21.0195.6 23.0195.4 24.0195.4 25.0195.3 25.7195.3
        8.0 27.0195.1 29.0194.9 31.0194.9 33.0194.9 35.0195.0 38.2194.8
        8.0 38.5194.7 39.0194.6 39.5194.5 40.0194.5 40.5194.6 41.0194.6
        8.0 41.5194.5 42.0194.6 42.5194.7 43.0194.7 43.5194.3 44.0194.6
        8.0 44.5194.3 45.0194.3 45.5194.5 46.0194.1 46.5194.1 47.0194.2
        8.0 47.5194.7 48.0194.9 49.0194.8 50.0194.8 51.0194.9 51.8195.1
        8.0 52.2195.6 53.0195.7 54.0197.7 65.0199.9 69.3201.5
NS      8.0        .50      56.60      56.60      56.60      56.60      56.60
NS      8.0      56.60      56.60      56.60      56.60      56.60      76.60
NS      8.0      76.60      76.60      76.60      76.60      76.60      76.60
NS      8.0      76.60      76.60      76.60      76.60      76.60      76.60
NS      8.0      76.60      76.60      76.60      76.60      76.60      76.60
NS      8.0      86.60      86.60      86.60      86.60      86.60      86.60
NS      8.0      86.60      86.60        .50        .50        .50
```

Appendix C5. Continued

```
CAL2    8.0     195.19      27.83
VEL2    8.0                                      1.40 2.00 2.30 1.40  .30 1.20
VEL2    8.0 1.30 1.20 3.40 3.40 2.30 3.20 3.80 2.00 2.40 2.30 2.40 2.80
VEL2    8.0 3.40 3.00 3.20 3.50 3.40 3.30 2.30 1.30 1.90  .50  .30
VEL2    8.0
CAL3    8.0     194.69       2.44
VEL3    8.0
VEL3    8.0  .20  .20 1.00  .60  .30 1.10  .70  .60 0.00  .05  .40  .40
VEL3    8.0 1.40 1.30 1.90 1.40 2.10 2.50  .05
VEL3    8.0
XSEC    9.0       38.01.00    194.4
        9.0  0.0202.4  8.7201.4 10.0199.9 17.0198.0 20.5197.6 25.0197.6
        9.0 29.6196.9 33.7196.6 37.5196.3 40.7195.5 41.0195.3 42.0194.7
        9.0 44.0193.9 46.0193.0 48.0192.7 50.0192.2 52.0192.0 54.0190.8
        9.0 56.0190.8 58.0190.1 60.0192.0 61.0192.3 62.0192.4 63.0192.1
        9.0 64.0191.9 65.0191.9 66.0192.1 68.0192.5 70.0193.0 72.0193.4
        9.0 74.0194.0 76.0194.6 78.0194.7 80.1195.3 83.0195.5 85.0195.8
        9.0 98.0198.6
NS      9.0        .50        .50        .50        .50      36.80      36.80
NS      9.0      56.60      56.60      36.80      36.80      36.80      36.80
NS      9.0      65.80      65.80      65.80      65.80      65.80      65.80
NS      9.0      65.80      65.80      65.80      65.80      65.80      86.70
NS      9.0      86.70      86.70      86.70      86.70      86.70      86.70
NS      9.0      86.70      86.70   1.586.70      86.70      86.70      80.80
NS      9.0      80.80
CAL2    9.0     195.48      42.76
VEL2    9.0                                                          .10  .20
VEL2    9.0  .50  .70 1.30 1.80 1.60 1.00  .50  .60  .45  .20  .30  .30
VEL2    9.0  .30  .30  .30  .30  .20  .20  .30  .30 0.00 0.00
VEL2    9.0
CAL3    9.0     194.73       7.68
VEL3    9.0
VEL3    9.0  .10  .05  .10  .10  .25  .30  .20  .05  .05  .05  .10  .05
VEL3    9.0  .05  .05  .05  .05 0.00 0.00 0.00 0.00 0.00
VEL3    9.0
ENDJ
```

Appendix C6. Summary of Calibration Details Shale Creek (Medium-Low Flow) SHALE4.IN4

Calibration Information for Calculated Discharges

Transect Number

1	2	3	4	5	6

Discharge

30	31	26	32	39	35
1	1	2	2	3	4

Stage

193.40	193.80	194.00	194.05	194.87	194.97
192.71	193.14	193.48	193.49	194.35	194.43

Plotting Stage

1.30	1.00	1.20	1.25	2.07	2.17
0.61	0.34	0.68	0.69	1.55	1.63

Stage/Discharge Relationship (S vs Q) S=A*Q**B+SZF

A =	.6687	.2973	.5567	.5708	.1367	.1371
B =	.1959	.3549	.2344	.2270	.1132	.1295
SZF=	192.1	192.8	192.8	192.8	192.8	192.8

B Coefficient Log/Log Discharge/Stage Relationship

5.10	2.82	4.27	4.41	8.84	7.72

Appendix C6. Continued

Calibration Information for Calculated Discharges

Transect Number

7	8	9

Discharge

32	25	69
3	3	8

Stage

195.17	195.19	195.48
194.51	194.69	194.73

Plotting Stage

1.87	0.79	1.08
1.21	0.29	0.33

Stage/Discharge Relationship (S vs Q) S=A*Q**B+SZF

A	=	.9862	.1906	.1001
B	=	.1850	.4435	.5611
SZF	=	193.3	194.4	194.4

B Coefficient Log/Log Discharge/Stage Relationship

5.41	2.26	1.78

Appendix C7. Data Changes Shale Creek (Medium-Low Flow)

Cell velocities changed for calibration

Transect 1	Vertical	8	VEL3	Changed	0.0	to	0.1
Transect 1	Vertical	23	VEL3	Changed	0.0	to	0.2
Transect 1	Vertical	35	VEL3	Changed	0.0	to	0.1
Transect 2	Vertical	32	Specified	Mannings N of	1.5		
Transect 3	Vertical	5	VEL3	Changed	0.0	to	.02
Transect 3	Vertical	28	Specified	Mannings N of	1.5		
Transect 3	Vertical	33	Specified	Mannings N of	1.5		
Transect 4	Vertical	5	Specified	Mannings N of	1.5		
Transect 4	Vertical	25	VEL3	Changed	0.0	to	.05
Transect 4	Vertical	29	Specified	Mannings N of	1.5		
Transect 5	Vertical	8	VEL3	Changed	0.0	to	.05
Transect 5	Vertical	26	VEL3	Changed	0.0	to	.05
Transect 5	Vertical	27	VEL3	Changed	0.0	to	.05
Transect 5	Vertical	28	VEL3	Changed	0.0	to	.05
Transect 5	Vertical	30	Specified	Mannings N of	3.0		
Transect 6	Vertical	22	Specified	Mannings N of	1.5		
Transect 6	Vertical	23	VEL2	Changed	0.0	to	0.1
Transect 6	Vertical	24	VEL2	Changed	0.0	to	0.1
Transect 6	Vertical	30	VEL3	Changed	0.0	to	.02
Transect 6	Vertical	33	Specified	Mannings N of	1.5		
Transect 7	Vertical	26	VEL3	Changed	0.0	to	.02
Transect 7	Vertical	27	VEL3	Changed	0.0	to	.02
Transect 7	Vertical	30	Specified	Mannings N of	1.5		
Transect 8	Vertical	22	VEL3	Changed	0.0	to	.05
Transect 8	Vertical	31	VEL3	Changed	0.0	to	.05
Transect 9	Vertical	22	VEL3	Changed	0.0	to	.05
Transect 9	Vertical	24	VEL3	Changed	0.0	to	.05
Transect 9	Vertical	26	VEL3	Changed	0.0	to	.05
Transect 9	Vertical	27	VEL3	Changed	0.0	to	.05
Transect 9	Vertical	28	VEL3	Changed	0.0	to	.05
Transect 9	Vertical	33	Specified	Mannings N of	1.5		

Appendix C8. Velocity Adjustment Factors Shale Creek (Medium-Low Flow)

Transect	Flow	VAF
1.00	3.0	1.038
1.00	10.0	1.057
1.00	34.0	1.013
2.00	3.0	1.002
2.00	10.0	1.029
2.00	34.0	.999
3.00	3.0	1.021
3.00	10.0	1.102
3.00	34.0	.975
4.00	3.0	1.026
4.00	10.0	1.110
4.00	34.0	.998
5.00	3.0	1.027
5.00	10.0	1.066
5.00	34.0	.987
6.00	3.0	.969
6.00	10.0	1.160
6.00	34.0	.965
7.00	3.0	1.289
7.00	10.0	.987
7.00	34.0	.998
8.00	3.0	1.047
8.00	10.0	1.226
8.00	34.0	.947
9.00	3.0	.596
9.00	10.0	.932
9.00	34.0	1.026

Appendix D

Lower Miller Creek Site Calibration Information

Appendix D1. IFG4 Input File Lower Miller Creek (High-Medium Flow)

```
LOWER MILLER CREEK              IFIM   LOMILR3.IN4
Q/DATE MEASURED  94 CFS ON 1-11-89, 61 ON 12-1-88
IOC       00000002000000000000
QARD  61.00
QARD  94.00
QARD 150.00
XSEC   1.0        0.01.00    192.0
       1.0  0.0197.8  7.0194.6  8.6194.1 10.0193.9 11.5193.8 12.0192.9
       1.0 13.0192.3 14.0192.0 15.0192.7 16.0193.4 17.0192.9 18.0193.0
       1.0 19.0193.3 20.0193.1 21.0192.7 22.0192.8 23.0193.7 24.0193.9
       1.0 25.0193.3 26.0192.8 27.0193.3 28.0193.3 28.8193.6 30.0193.7
       1.0 33.0193.7 35.0194.1 37.0194.2 39.0194.7 41.0194.5 41.2194.6
       1.0 49.2197.3
NS     1.0       9.70       9.70       9.70      87.60      87.60      87.60
NS     1.0      87.60      87.60      87.60      87.60      87.60      87.60
NS     1.0      87.60      87.60      87.60      87.60      87.60      87.60
NS     1.0      87.60      87.60      87.60      87.60      87.60      87.60
NS     1.0      87.60      87.60      87.60      83.60  1.583.60      83.60
NS     1.0       8.60
CAL1   1.0     194.65      99.50
VEL1   1.0            2.10 2.70 3.40 4.30 4.30 3.40 2.00 3.60 3.80 3.10
VEL1   1.0 1.80 1.70 1.80 1.50 2.20 2.80 4.50 3.00 4.00 3.50 3.00 2.40
VEL1   1.0 2.30 1.70  .50 0.00 0.00
CAL2   1.0     194.23      67.30
VEL2   1.0                  1.50 3.10 2.60 4.20 2.40 2.70 3.10 3.30 2.80
VEL2   1.0 1.80 1.20 1.60 1.10 2.40 2.20 3.30 3.00 3.30 1.70 2.90 2.40
VEL2   1.0 2.40 1.70  .20
XSEC   2.0      125.01.00    193.4
       2.0  0.0198.6  3.0195.0  3.5194.8  5.0195.1  7.0194.5  8.1193.9
       2.0  9.0193.7 10.0193.7 11.0193.9 12.0193.7 13.0193.6 14.0194.0
       2.0 15.0193.8 16.0193.5 17.0193.9 18.0193.6 19.0193.8 20.0193.9
       2.0 21.0193.8 22.0193.5 23.0193.6 24.0193.4 25.0193.7 26.0193.5
       2.0 27.0193.8 28.0193.6 29.0193.8 30.0194.6 31.0194.5 32.0194.3
       2.0 33.0194.2 34.0194.3 34.1194.3 36.0194.3 38.0194.6 40.0194.8
       2.0 42.8194.9 43.1194.9 45.0195.1 49.0195.7 53.4197.0
NS     2.0       9.70       9.70       9.70   1.5 9.70       9.70      98.60
NS     2.0      98.60      98.60      98.60      98.60      98.60      98.60
NS     2.0      98.60      87.60      87.60      87.60      87.60      87.60
NS     2.0      87.60      87.60      87.60      87.60      87.60      87.60
NS     2.0      87.60      87.60      87.60      87.60      87.60      87.60
NS     2.0      87.60      87.60      87.60      87.60      87.60      87.60
NS     2.0      87.60  1.587.60      87.60       8.60       8.60
CAL1   2.0     195.03      93.33
VEL1   2.0            0.00 0.00 2.50 2.30 2.70 1.00 3.40 4.60 3.50 4.80
VEL1   2.0 2.40 1.10 4.00 2.40 3.60 4.00 4.00 1.95 2.30 3.90 3.80 3.00
VEL1   2.0 2.00 3.20 1.70  .80 1.90 1.50 1.50 3.40 3.40 1.50  .60  .30
VEL1   2.0  .20
CAL2   2.0     194.62      61.88
VEL2   2.0                  0.00 0.00 2.00 1.30 2.20  .80 4.10 4.00 4.10
VEL2   2.0 3.90 1.40 2.90 2.90 3.80 3.70  .70 0.00 3.90 3.60 3.80 3.00
```

Appendix D1. Continued

```
VEL2    2.0 1.90 1.40 2.40  .70  .90 1.30 1.10 1.50 1.60  .30 1.20  .70
VEL2    2.0
XSEC    3.0     210.01.00    193.8
        3.0  0.0197.9  4.5195.6  4.8195.1  5.0195.0  6.0194.4  7.0194.3
        3.0  8.0194.5  9.0194.3 10.0194.3 11.0194.4 12.0194.4 13.0193.8
        3.0 14.0193.8 15.0194.6 16.0194.6 17.0194.5 18.0194.5 19.0194.4
        3.0 20.0194.5 21.0194.6 22.0193.8 23.0194.7 24.0194.7 25.0194.6
        3.0 26.0194.7 27.0194.7 28.0194.4 29.0193.8 30.0194.3 31.0194.4
        3.0 32.0195.0 33.0195.1 35.0195.3 36.0194.9 37.0194.6 38.0194.6
        3.0 39.0194.0 40.0194.3 41.0195.2 42.0194.3 43.0195.0 44.0194.4
        3.0 45.0194.6 46.0194.7 47.0194.7 47.5194.8 49.0194.8 51.0195.0
        3.0 54.5195.5 55.3195.6 59.5197.6 62.2199.5
NS      3.0      8.60      8.60      8.60      8.60     87.50     87.50
NS      3.0     87.50     87.50     87.50     87.50     87.50     87.50
NS      3.0     87.50     87.50     87.60     87.60     87.60     87.60
NS      3.0     87.60     87.60     87.60     87.60     87.60     87.60
NS      3.0     87.60     87.60     87.60     87.60     87.60     87.60
NS      3.0     87.60     87.60     87.60     87.60     87.60     87.60
NS      3.0     87.60     87.60     87.60     87.60     87.60     87.60
NS      3.0     87.60     87.60     87.60     87.60     87.60     87.60
NS      3.0     87.60     87.60      8.60      8.60
CAL1    3.0    195.57     91.82
VEL1    3.0            .70 1.10 1.40 1.30 1.30 1.20 1.80  .60 2.80 1.70
VEL1    3.0 1.50 1.70 2.00 2.00 2.50 2.60 1.70 1.50 3.60 4.30 3.50 3.30
VEL1    3.0 2.60 2.90 2.30 3.10 1.50 2.60 2.80 3.60 2.70 3.00 2.80 2.40
VEL1    3.0 2.50 3.30 3.00 1.60 2.60 1.50 2.20 1.40 1.10  .70  .10  .30
VEL1    3.0 0.00
CAL2    3.0    195.43     57.03
VEL2    3.0            .20  .70  .90  .50 1.00 1.20  .70 1.50 1.50  .40
VEL2    3.0 1.70 2.40 1.90 1.50 2.20 1.00  .70  .40  .80 3.10 1.90 4.10
VEL2    3.0 2.00 2.10 2.40 2.70  .80 1.20 2.30 1.80 1.60 1.70 2.60 1.70
VEL2    3.0 2.10 2.60 1.30 1.00 1.20 1.40 1.50 1.80  .50  .40  .20  .10
VEL2    3.0
XSEC    4.0     210.01.00    193.9
        4.0  0.0198.5  9.5196.0 11.0195.9 13.0195.9 14.9195.6 16.0195.5
        4.0 20.0195.2 24.6195.2 25.0195.0 26.0194.8 27.0194.5 28.0194.6
        4.0 29.0194.8 30.0194.8 31.0194.8 32.0194.6 33.0194.5 34.0194.5
        4.0 35.0194.5 36.0194.8 37.0194.2 38.0194.2 39.0194.5 40.0193.9
        4.0 41.0194.0 42.0194.1 43.0194.1 44.0194.1 45.0194.9 46.0194.7
        4.0 47.0195.2 48.0195.2 49.0194.7 51.5195.2 53.0195.3 54.0195.3
        4.0 55.0195.5 57.0196.0 58.5199.4
NS      4.0       .50      8.60      8.60      8.60      8.60     97.60
NS      4.0     97.60     97.60     97.60     97.60     97.60     97.60
NS      4.0     97.60     97.60     97.60     97.60     97.60     97.60
NS      4.0     97.60     97.60     97.60     97.60     97.60     97.60
NS      4.0     78.60     97.60     97.60     97.60     97.60     97.60
NS      4.0     97.60     97.60     97.60     97.60     97.60     97.60
NS      4.0     97.60      8.60      8.60
CAL1    4.0    195.98     93.67
VEL1    4.0            .10  .50 1.10  .90  .60 1.40 1.60 2.00 1.50 1.80
```

Appendix D1. Continued

```
VEL1    4.0 2.20 2.10 2.20 2.30 2.80 2.00 2.00 2.60 2.60 3.00 3.20 2.00
VEL1    4.0 2.40 2.70 2.20 2.80 2.50 3.40 2.10  .80  .70  .50  .60  .30
VEL1    4.0  .20
CAL2    4.0    195.76     63.59
VEL2    4.0                          .30 1.10 1.50  .90 1.60 1.30 1.00
VEL2    4.0 1.90 1.30 1.50 2.20 2.30 2.10  .80 1.30 2.60 3.00 2.70 1.80
VEL2    4.0 1.90 1.80 1.60 2.30 2.20 2.40 1.40 1.10  .90  .60  .50  .50
VEL2    4.0 0.00
XSEC    5.0     125.01.00    193.9
        5.0  0.0202.5 15.5196.1 17.0196.0 19.0195.9 21.0195.8 25.0195.7
        5.0 30.0195.2 37.0195.8 39.0195.3 40.0194.8 41.0194.1 42.0194.3
        5.0 43.0194.4 44.0194.3 45.0194.5 46.0194.5 47.0194.4 48.0194.5
        5.0 49.0194.4 50.0194.2 51.0194.0 52.0194.0 53.0194.4 54.0193.9
        5.0 55.0193.8 56.0193.7 57.0193.8 58.0193.7 59.0194.0 60.0194.2
        5.0 61.0194.3 62.0194.4 62.5194.7 64.0195.2 65.0195.9 65.3196.9
        5.0 68.5197.0 73.5197.9 73.6200.4 80.0201.8
NS      5.0        .50     87.50     87.50     87.50     87.50     87.50
NS      5.0     87.50     87.50     87.50     87.50     87.50     87.50
NS      5.0     87.50     87.50     87.50     87.50     87.50     87.50
NS      5.0     87.50     87.50     87.50     87.50     87.50     87.50
NS      5.0     87.50     87.50     87.50     87.50     87.50     87.50
NS      5.0     87.50     87.50     87.50     87.50     87.50     87.50
NS      5.0       .50       .50       .50       .50
CAL1    5.0    196.09     94.18
VEL1    5.0             .10  .70  .80  .40  .50  .30 1.20 1.30 1.60 1.70
VEL1    5.0 1.30 2.40 1.90 1.40 1.80 2.40 2.50 3.10 2.60 2.50 2.50 2.30
VEL1    5.0 2.75 2.50 2.65 2.55 2.30 1.40  .70  .40  .40  .20 1.60
VEL1    5.0
CAL2    5.0    195.82     57.01
VEL2    5.0                          .20  .30  .30  .50  .70 1.50  .80
VEL2    5.0 1.20 1.60 1.60 1.10 1.20 2.00 2.30 1.90 1.80 2.30 1.60 2.10
VEL2    5.0 2.30 1.40 1.90 2.10 1.50 1.80 1.50 1.00  .95  .55
VEL2    5.0
ENDJ
```

Appendix D2. Summary of Calibration Details Lower Miller Creek (High-Medium Flow) LOMILR3.IN4

Calibration Information for Calculated Discharges

Transect Number

1	2	3	4	5
Discharge				
104	97	100	89	97
62	54	60	61	64
Stage				
194.65	195.03	195.57	195.98	196.09
194.23	194.62	195.43	195.76	195.82
Plotting Stage				
2.65	1.63	1.77	2.08	2.19
2.23	1.22	1.63	1.86	1.92

Stage/Discharge Relationship (S vs Q) S=A*Q**B+SZF

A =	.5810	.1735	.8331	.5536	.5095
B =	.3266	.4894	.1638	.2947	.3189
SZF=	192.0	193.4	193.8	193.9	193.9

B Coefficient Log/Log Discharge/Stage Relationship

3.06	2.04	6.11	3.39	3.14

Appendix D3. Data Changes Lower Miller Creek (High-Medium Flow)

Cell velocities changed for calibration

Transect 1	Vertical	30	Specified Mannings N of 1.5				
Transect 2	Vertical	4	Specified Mannings N of 1.5				
Transect 2	Vertical	5	VEL2	Changed	0.2	to	0.0
Transect 2	Vertical	19	VEL1	Changed	4.2	to	4.0
Transect 2	Vertical	19	VEL2	Changed	0.5	to	0.7
Transect 2	Vertical	20	VEL2	Changed	0.1	to	0.0
Transect 2	Vertical	36	VEL1	Changed	0.1	to	0.3
Transect 2	Vertical	38	Specified Mannings N of 1.5				
Transect 3	Vertical	3	VEL2	Changed	0.0	to	0.2
Transect 4	Vertical	5	VEL1	Changed	1.3	to	1.1
Transect 4	Vertical	19	VEL2	Changed	0.6	to	0.8
Transect 5	Vertical	5	VEL1	Changed	1.0	to	0.8
Transect 5	Vertical	6	VEL2	Changed	.02	to	0.2
Transect 5	Vertical	32	VEL1	Changed	0.2	to	0.4
Transect 5	Vertical	33	VEL1	Changed	0.2	to	0.4

Appendix D4. Velocity Adjustment Factors Lower Miller Creek (High-Medium Flow)

Transect	Flow	VAF
1.00	61.0	1.001
1.00	94.0	.999
1.00	150.0	.985
2.00	61.0	.962
2.00	94.0	.998
2.00	150.0	.674
3.00	61.0	1.012
3.00	94.0	.995
3.00	150.0	.800
4.00	61.0	.994
4.00	94.0	1.000
4.00	150.0	.904
5.00	61.0	1.007
5.00	94.0	1.000
5.00	150.0	.925