APPENDIX K

HEC-RAS MODEL FOR THE CALCULATION OF THE DEVELOPED LOW LEVEL & BYPRODUCT FACILITY 500-YEAR AND PMP WATER SURFACE PROFILES

HEC-RAS Plan: 3-21-08 River: Ditch A Reach: 5

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Max Chl Dpth	E.G. Elev	E.G. Slope	Vel Chnl	Sta W.S. Lft	Sta W.S. Rgt	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft)	(ft)	(sq ft)	(ft)	
5	12674	533.00	3477.00	3478.39	3478.01	1.39	3478.47	0.003052	2.31	352.55	659.70	237.71	307.15	0.43
5	12674	1768.00	3477.00	3479.22	3478.65	2.22	3479.41	0.003111	3.61	294.31	712.12	539.30	417.81	0.48
5	11337	533.00	3469.00	3470.41	3470.38	1.41	3470.80	0.014358	5.05	426.27	558.33	107.68	132.06	0.94
5	11337	1768.00	3469.00	3471.40	3471.40	2.40	3472.19	0.011380	7.37	404.87	578.73	259.90	173.86	0.94
5	10937	533.00	3464.00	3465.81	3465.61	1.81	3466.09	0.009685	4.29	471.88	602.60	124.37	130.72	0.77
5	10937	1768.00	3464.00	3466.73	3466.67	2.73	3467.39	0.011877	6.58	438.17	635.83	274.87	197.66	0.93
5	10288	533.00	3456.00	3456.93	3456.93	0.93	3457.20	0.020830	4.16	402.40	651.88	127.98	249.47	1.02
5	10288	1768.00	3456.00	3457.50	3457.50	1.50	3457.89	0.018192	5.03	346.61	813.23	351.58	466.63	1.02
5	9690	828.00	3450.00	3451.67	3451.29	1.67	3451.79	0.004773	2.79	422.55	772.35	296.91	349.80	0.53
5	9690	4796.00	3450.00	3453.03	3452.60	3.03	3453.47	0.005600	5.43	288.83	849.46	927.89	560.63	0.67
5	9009	828.00	3445.00	3446.63	3446.51	1.63	3446.88	0.012031	4.04	439.59	717.03	205.08	277.44	0.83
5	9009	4796.00	3445.00	3448.10	3447.89	3.10	3448.61	0.009426	5.69	318.76	897.88	843.12	579.12	0.82
5	8130	828.00	3440.00	3441.76	3441.26	1.76	3441.85	0.003284	2.41	447.23	829.30	344.10	382.07	0.45
5	8130	4796.00	3440.00	3443.22	3442.55	3.22	3443.56	0.003805	4.75	348.41	939.02	1064.89	590.61	0.56
5	7717	828.00	3437.80	3438.80	3438.80	1.00	3439.11	0.019279	4.48	323.16	627.28	184.68	304.12	1.01
5	7717	4796.00	3437.80	3440.06	3440.06	2.26	3440.76	0.014557	6.74	229.27	750.71	711.27	521.44	1.01
5	7253	872.00	3435.00	3436.44	3435.96	1.44	3436.49	0.001970	1.91	401.47	927.66	461.54	526.19	0.35
5	7253	4942.00	3435.00	3437.75	3436.98	2.75	3438.01	0.003019	4.24	334.08	992.43	1236.58	658.36	0.50
5	6343	1470.00	3430.00	3430.74	3430.74	0.74	3431.06	0.018791	4.51	773.36	1296.23	326.19	522.87	1.01
5	6343	6399.00	3430.00	3431.80	3431.80	1.80	3432.49	0.013020	6.68	677.13	1465.22	974.66	788.09	0.97
5	5383	1470.00	3425.00	3426.38	3425.82	1.38	3426.44	0.001775	1.93	705.25	1552.75	775.71	847.50	0.34
5	5383	6399.00	3425.00	3427.59	3426.70	2.59	3427.77	0.002056	3.49	589.02	1795.50	2019.05	1206.47	0.41
5	4221	1668.00	3420.00	3421.05	3421.05	1.05	3421.40	0.017942	4.76	533.64	1044.80	350.94	511.16	1.00
5	4221	6955.00	3420.00	3422.09	3422.09	2.09	3422.69	0.013828	6.35	318.64	1328.07	1150.24	1009.43	0.98
5	3489	1668.00	3416.00	3417.23	3416.72	2.23	3417.29	0.002260	2.12	-117.56	884.26	858.15	1001.82	0.38
5	3489	6955.00	3416.00	3418.33	3417.53	3.33	3418.52	0.002576	3.58	-133.93	942.79	1993.09	1076.73	0.45
5	2989	1668.00	3413.80	3414.56	3414.56	0.76	3414.87	0.018785	4.28	177.66	805.71	378.40	628.05	0.99
5	2989	6955.00	3413.80	3415.53	3415.49	1.73	3416.13	0.012623	6.56	3.99	852.77	1132.34	878.78	0.95
5	2774	1668.00	3409.00	3414.04	3412.71	5.04	3414.08	0.000314	2.23	-406.27	642.67	1383.82	1048.95	0.18
5	2774	6955.00	3409.00	3415.00	3413.39	6.00	3415.18	0.001208	4.96	-437.07	683.17	2429.78	1120.24	0.37
5	2773	Culvert												
5	2734	1668.00	3408.90	3412.71	3412.71	3.81	3412.85	0.001240	3.56	83.74	515.65	665.51	431.91	0.34
5	2734	6955.00	3408.90	3413.55	3413.51	4.65	3414.43	0.006464	9.48	39.37	549.66	1061.05	510.29	0.81
5	1888	1692.00	3408.00	3409.29	3408.77	1.29	3409.36	0.002748	2.24	188.99	1004.86	754.95	815.87	0.41
5	1888	7027.00	3408.00	3410.48		2.48	3410.67	0.002815	3.54	-217.69	1201.18	2061.58	1418.87	0.46
5	1050	1767.00	3402.70	3404.18	3404.18	1.48	3404.58	0.017389	5.08	661.17	1100.39	347.74	439.22	1.01
5	1050	7252.00	3402.70	3405.41	3405.41	2.71	3406.07	0.014925	6.55	481.23	1334.86	1107.97	853.63	1.01

HEC-RAS Version 3.0.1 Mar 2001
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: WCS
Project File : FloodPlain.prj
Run Date and Time: 3/21/06 5:31:43 PM

Project in English units

PLAN DATA

Plan Title: Plan 33
Plan File : D:\program files\WCS\FloodPlain.p33

Geometry Title: PMP1-20-04SecRemoved
Geometry File : D:\program files\WCS\FloodPlain.g04

Flow Title : pmp NOD
Flow File : D:\program files\WCS\FloodPlain.f25

Plan Summary Information:
Number of: Cross Sections = 18 Mulitple Openings = 0
Culverts = 1 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: pmp NOD
Flow File : D:\program files\WCS\FloodPlain.f25

Flow Data (cfs)

River	Reach	RS	PF 2	PF 3
Ditch A	5	12674	533	1768
Ditch A	5	9690	828	4796
Ditch A	5	7253	872	4942
Ditch A	5	6343	1470	6399
Ditch A	5	4221	1668	6955
Ditch A	5	1888	1692	7027
Ditch A	5	1060	1767	7252

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Ditch A	5	PF 2	Critical	Critical

GEOMETRY DATA

Geometry Title: PMP1-20-04SecRemoved
Geometry File : D:\program files\WCS\FloodPlain.g04

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 12674

INPUT
Description: Sta. 12674
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3482	380	3478	560	3477	635	3478	761	3480
964	3482								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	380	.033	635	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
380	635	1206	1337	1433	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3478.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3478.39	Reach Len. (ft)	1206.00	1337.00	1433.00
Crit W.S. (ft)	3478.01	Flow Area (sq ft)	5.38	227.48	4.84
E.G. Slope (ft/ft)	0.003052	Area (sq ft)	5.38	227.48	4.84
Q Total (cfs)	533.00	Flow (cfs)	4.52	524.42	4.07
Top Width (ft)	307.15	Top Width (ft)	27.45	255.00	24.70

Vel Total (ft/s)	2.24	Avg. Vel. (ft/s)	0.84	2.31	0.84
Max Chl Dpth (ft)	1.39	Hydr. Depth (ft)	0.20	0.89	0.20
Conv. Total (cfs)	9647.4	Conv. (cfs)	81.8	9492.0	73.6
Length Wtd. (ft)	1336.69	Wetted Per. (ft)	27.45	255.01	24.70
Min Ch El (ft)	3477.00	Shear (lb/sq ft)	0.04	0.17	0.04
Alpha	1.04	Stream Power (lb/ft s)	0.03	0.39	0.03
Frctn Loss (ft)	7.65	Cum Volume (acre-ft)	14.80	92.35	2.28
C & E Loss (ft)	0.03	Cum SA (acres)	19.23	106.63	3.81

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3479.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3479.22	Reach Len. (ft)	1206.00	1337.00	1433.00
Crit W.S. (ft)	3478.65	Flow Area (sq ft)	52.45	439.65	47.20
E.G. Slope (ft/ft)	0.003111	Area (sq ft)	52.45	439.65	47.20
Q Total (cfs)	1768.00	Flow (cfs)	94.95	1587.60	85.45
Top Width (ft)	417.81	Top Width (ft)	85.69	255.00	77.12
Vel Total (ft/s)	3.28	Avg. Vel. (ft/s)	1.81	3.61	1.81
Max Chl Dpth (ft)	2.22	Hydr. Depth (ft)	0.61	1.72	0.61
Conv. Total (cfs)	31697.9	Conv. (cfs)	1702.3	28463.6	1532.0
Length Wtd. (ft)	1334.91	Wetted Per. (ft)	85.70	255.01	77.13
Min Ch El (ft)	3477.00	Shear (lb/sq ft)	0.12	0.33	0.12
Alpha	1.12	Stream Power (lb/ft s)	0.22	1.21	0.22
Frctn Loss (ft)	7.16	Cum Volume (acre-ft)	43.67	236.67	12.77
C & E Loss (ft)	0.06	Cum SA (acres)	37.42	137.75	18.53

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for

additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 11337

INPUT
Description: Sta. 11337
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3477	315	3474	392	3472	435	3470	499	3469
550	3470	591	3472	694	3474				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	435	.033	550	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
435	550	545	400	332	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3470.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3470.41	Reach Len. (ft)	545.00	400.00	332.00
Crit W.S. (ft)	3470.38	Flow Area (sq ft)	1.77	104.22	1.69
E.G. Slope (ft/ft)	0.014358	Area (sq ft)	1.77	104.22	1.69
Q Total (cfs)	533.00	Flow (cfs)	3.31	526.54	3.15
Top Width (ft)	132.06	Top Width (ft)	8.73	115.00	8.33
Vel Total (ft/s)	4.95	Avg. Vel. (ft/s)	1.86	5.05	1.86
Max Chl Dpth (ft)	1.41	Hydr. Depth (ft)	0.20	0.91	0.20
Conv. Total (cfs)	4448.1	Conv. (cfs)	27.6	4394.2	26.3
Length Wtd. (ft)	400.25	Wetted Per. (ft)	8.74	115.02	8.34
Min Ch El (ft)	3469.00	Shear (lb/sq ft)	0.18	0.81	0.18
Alpha	1.03	Stream Power (lb/ft s)	0.34	4.10	0.34
Frctn Loss (ft)	4.67	Cum Volume (acre-ft)	14.70	87.26	2.17
C & E Loss (ft)	0.03	Cum SA (acres)	18.73	100.95	3.27

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3472.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3471.40	Reach Len. (ft)	545.00	400.00	332.00
Crit W.S. (ft)	3471.40	Flow Area (sq ft)	21.11	218.66	20.13
E.G. Slope (ft/ft)	0.011380	Area (sq ft)	21.11	218.66	20.13
Q Total (cfs)	1768.00	Flow (cfs)	79.94	1611.84	76.22
Top Width (ft)	173.86	Top Width (ft)	30.13	115.00	28.73
Vel Total (ft/s)	6.80	Avg. Vel. (ft/s)	3.79	7.37	3.79
Max Chl Dpth (ft)	2.40	Hydr. Depth (ft)	0.70	1.90	0.70
Conv. Total (cfs)	16573.1	Conv. (cfs)	749.4	15109.3	714.5
Length Wtd. (ft)	401.35	Wetted Per. (ft)	30.16	115.02	28.76
Min Ch El (ft)	3469.00	Shear (lb/sq ft)	0.50	1.35	0.50
Alpha	1.10	Stream Power (lb/ft s)	1.88	9.96	1.88
Frctn Loss (ft)	4.67	Cum Volume (acre-ft)	42.65	226.56	11.66
C & E Loss (ft)	0.04	Cum SA (acres)	35.82	132.07	16.79

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 10937

INPUT
Description: Sta. 10937
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3470	351	3468	428	3467	465	3466	536	3464
543	3464	609	3466	683	3468	811	3472		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	428	.033	609	.033

HECRASPMPNOD

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
428	609	729	649	445	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	3466.09	Element			
Vel Head (ft)	0.29	Wt. n-Val.		0.033	
W.S. Elev (ft)	3465.81	Reach Len. (ft)	729.00	649.00	445.00
Crit W.S. (ft)	3465.61	Flow Area (sq ft)		124.37	
E.G. Slope (ft/ft)	0.009685	Area (sq ft)		124.37	
Q Total (cfs)	533.00	Flow (cfs)		533.00	
Top Width (ft)	130.72	Top Width (ft)		130.72	
Vel Total (ft/s)	4.29	Avg. Vel. (ft/s)		4.29	
Max Chl Dpth (ft)	1.81	Hydr. Depth (ft)		0.95	
Conv. Total (cfs)	5416.0	Conv. (cfs)		5416.0	
Length Wtd. (ft)	649.00	Wetted Per. (ft)		130.77	
Min Ch El (ft)	3464.00	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.46	
Frctn Loss (ft)	8.89	Cum Volume (acre-ft)	14.69	86.21	2.16
C & E Loss (ft)	0.00	Cum SA (acres)	18.67	99.82	3.23

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	3467.39	Element			
Vel Head (ft)	0.66	Wt. n-Val.		0.033	0.033
W.S. Elev (ft)	3466.73	Reach Len. (ft)	729.00	649.00	445.00
Crit W.S. (ft)	3466.67	Flow Area (sq ft)		265.14	9.73
E.G. Slope (ft/ft)	0.011877	Area (sq ft)		265.14	9.73
Q Total (cfs)	1768.00	Flow (cfs)		1743.74	24.26
Top Width (ft)	197.66	Top Width (ft)		170.83	26.83
Vel Total (ft/s)	6.43	Avg. Vel. (ft/s)		6.58	2.49

Max Chl Dpth (ft)	2.73	Hydr. Depth (ft)		1.55	0.36
Conv. Total (cfs)	16222.6	Conv. (cfs)		16000.0	222.6
Length Wtd. (ft)	647.60	Wetted Per. (ft)		170.90	26.84
Min Ch El (ft)	3464.00	Shear (lb/sq ft)		1.15	0.27
Alpha	1.03	Stream Power (lb/ft s)		7.57	0.67
Frctn Loss (ft)	9.41	Cum Volume (acre-ft)	42.52	224.34	11.55
C & E Loss (ft)	0.08	Cum SA (acres)	35.63	130.76	16.58

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 10288

INPUT
Description: Sta. 10288
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3464	177	3462	238	3460	298	3458	493	3456
519	3456	662	3457	778	3457.1	857	3458	903	3460
947	3462	989	3464						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	298	.033	857	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
298	857	552	598	633	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3457.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.033	
W.S. Elev (ft)	3456.93	Reach Len. (ft)	552.00	598.00	633.00
Crit W.S. (ft)	3456.93	Flow Area (sq ft)		127.98	
E.G. Slope (ft/ft)	0.020830	Area (sq ft)		127.98	
Q Total (cfs)	533.00	Flow (cfs)		533.00	
Top Width (ft)	249.47	Top Width (ft)		249.47	
Vel Total (ft/s)	4.16	Avg. Vel. (ft/s)		4.16	
Max Chl Dpth (ft)	0.93	Hydr. Depth (ft)		0.51	
Conv. Total (cfs)	3693.1	Conv. (cfs)		3693.1	
Length Wtd. (ft)	598.00	Wetted Per. (ft)		249.48	
Min Ch El (ft)	3456.00	Shear (lb/sq ft)		0.67	

Alpha	1.00	Stream Power (lb/ft s)		2.78	
Frctn Loss (ft)	4.51	Cum Volume (acre-ft)	14.69	84.33	2.16
C & E Loss (ft)	0.04	Cum SA (acres)	18.67	96.99	3.23

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3457.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.		0.033	
W.S. Elev (ft)	3457.50	Reach Len. (ft)	552.00	598.00	633.00
Crit W.S. (ft)	3457.50	Flow Area (sq ft)		351.58	
E.G. Slope (ft/ft)	0.018192	Area (sq ft)		351.58	
Q Total (cfs)	1768.00	Flow (cfs)		1768.00	
Top Width (ft)	466.63	Top Width (ft)		466.63	
Vel Total (ft/s)	5.03	Avg. Vel. (ft/s)		5.03	
Max Chl Dpth (ft)	1.50	Hydr. Depth (ft)		0.75	
Conv. Total (cfs)	13108.2	Conv. (cfs)		13108.2	
Length Wtd. (ft)	597.58	Wetted Per. (ft)		466.64	
Min Ch El (ft)	3456.00	Shear (lb/sq ft)		0.86	
Alpha	1.00	Stream Power (lb/ft s)		4.30	
Frctn Loss (ft)	4.32	Cum Volume (acre-ft)	42.52	219.75	11.50
C & E Loss (ft)	0.01	Cum SA (acres)	35.63	126.01	16.44

Warning: The energy equation could not be balanced within the specified number of iterations. The

program selected the water surface that had the least amount of error between computed and assumed values.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 9690

INPUT
Description: Sta. 9690
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3454.5	202	3454	381	3452	632	3450	638	3450
799	3452	897	3454	1010	3458				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	381	.033	799	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
381	799	639	681	658	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3451.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.033	
W.S. Elev (ft)	3451.67	Reach Len. (ft)	639.00	681.00	658.00
Crit W.S. (ft)	3451.29	Flow Area (sq ft)		296.91	
E.G. Slope (ft/ft)	0.004773	Area (sq ft)		296.91	
Q Total (cfs)	828.00	Flow (cfs)		828.00	
Top Width (ft)	349.80	Top Width (ft)		349.80	
Vel Total (ft/s)	2.79	Avg. Vel. (ft/s)		2.79	
Max Chl Dpth (ft)	1.67	Hydr. Depth (ft)		0.85	
Conv. Total (cfs)	11984.5	Conv. (cfs)		11984.5	
Length Wtd. (ft)	681.00	Wetted Per. (ft)		349.82	
Min Ch El (ft)	3450.00	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		0.71	
Frctn Loss (ft)	4.89	Cum Volume (acre-ft)	14.69	81.41	2.16
C & E Loss (ft)	0.01	Cum SA (acres)	18.67	92.87	3.23

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	3453.47	Element			
Vel Head (ft)	0.44	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3453.03	Reach Len. (ft)	639.00	681.00	658.00
Crit W.S. (ft)	3452.60	Flow Area (sq ft)	47.46	854.45	25.98
E.G. Slope (ft/ft)	0.005600	Area (sq ft)	47.46	854.45	25.98
Q Total (cfs)	4796.00	Flow (cfs)	102.72	4637.05	56.23
Top Width (ft)	560.63	Top Width (ft)	92.17	418.00	50.46
Vel Total (ft/s)	5.17	Avg. Vel. (ft/s)	2.16	5.43	2.16
Max Chl Dpth (ft)	3.03	Hydr. Depth (ft)	0.51	2.04	0.51
Conv. Total (cfs)	64091.1	Conv. (cfs)	1372.7	61967.1	751.4
Length Wtd. (ft)	680.41	Wetted Per. (ft)	92.17	418.02	50.47
Min Ch El (ft)	3450.00	Shear (lb/sq ft)	0.18	0.71	0.18
Alpha	1.07	Stream Power (lb/ft s)	0.39	3.88	0.39
Frctn Loss (ft)	4.86	Cum Volume (acre-ft)	42.22	211.47	11.31
C & E Loss (ft)	0.01	Cum SA (acres)	35.05	119.94	16.08

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 9009

INPUT
Description: Sta. 9009
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3452	203	3450	325	3448	492	3446	596	3445
637	3446	892	3448	1007	3450	1124	3452		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	325	.033	892	.033

HECRASPMPNOD

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
325	892	898 879	794	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3446.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.033	
W.S. Elev (ft)	3446.63	Reach Len. (ft)	898.00	879.00	794.00
Crit W.S. (ft)	3446.51	Flow Area (sq ft)		205.08	
E.G. Slope (ft/ft)	0.012031	Area (sq ft)		205.08	
Q Total (cfs)	828.00	Flow (cfs)		828.00	
Top Width (ft)	277.44	Top Width (ft)		277.44	
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)		4.04	
Max Chl Dpth (ft)	1.63	Hydr. Depth (ft)		0.74	
Conv. Total (cfs)	7548.9	Conv. (cfs)		7548.9	
Length Wtd. (ft)	879.00	Wetted Per. (ft)		277.46	
Min Ch El (ft)	3445.00	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.24	
Frctn Loss (ft)	4.98	Cum Volume (acre-ft)	14.69	77.49	2.16
C & E Loss (ft)	0.05	Cum SA (acres)	18.67	87.97	3.23

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3448.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3448.10	Reach Len. (ft)	898.00	879.00	794.00
Crit W S. (ft)	3447.89	Flow Area (sq ft)	0.32	842.50	0.30
E.G. Slope (ft/ft)	0.009426	Area (sq ft)	0.32	842.50	0.30
Q Total (cfs)	4796.00	Flow (cfs)	0.19	4795.63	0.18
Top Width (ft)	579.12	Top Width (ft)	6.24	567.00	5.88
Vel Total (ft/s)	5.69	Avg. Vel. (ft/s)	0.60	5.69	0.60

Max Chl Dpth (ft)	3.10	Hydr. Depth (ft)	0.05	1.49	0.05
Conv. Total (cfs)	49399.8	Conv. (cfs)	2.0	49395.9	1.9
Length Wtd. (ft)	878.23	Wetted Per. (ft)	6.24	567.04	5.88
Min Ch El (ft)	3445.00	Shear (lb/sq ft)	0.03	0.87	0.03
Alpha	1.00	Stream Power (lb/ft s)	0.02	4.98	0.02
Frctn Loss (ft)	5.00	Cum Volume (acre-ft)	41.87	198.21	11.11
C & E Loss (ft)	0.05	Cum SA (acres)	34.32	112.24	15.65

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 8130

INPUT
Description: Sta. 8130
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3448	303	3444	419	3442	654	3440	663	3440
852	3442	995	3444	1104	3446				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	419	.033	852	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
419	852	399	413	456	.1 .3

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	3441.85	Element			
Vel Head (ft)	0.09	Wt. n-Val.		0.033	
W.S. Elev (ft)	3441.76	Reach Len. (ft)	399.00	413.00	456.00
Crit W.S. (ft)	3441.26	Flow Area (sq ft)		344.10	
E.G. Slope (ft/ft)	0.003284	Area (sq ft)		344.10	
Q Total (cfs)	828.00	Flow (cfs)		828.00	
Top Width (ft)	382.07	Top Width (ft)		382.07	
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)		2.41	
Max Chl Dpth (ft)	1.76	Hydr. Depth (ft)		0.90	
Conv. Total (cfs)	14449.0	Conv. (cfs)		14449.0	
Length Wtd. (ft)	413.00	Wetted Per. (ft)		382.09	

Min Ch El (ft)	3440.00	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.44	
Frctn Loss (ft)	2.72	Cum Volume (acre-ft)	14.69	71.94	2.16
C & E Loss (ft)	0.02	Cum SA (acres)	18.67	81.32	3.23

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	3443.56	Element			
Vel Head (ft)	0.34	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3443.22	Reach Len. (ft)	399.00	413.00	456.00
Crit W.S. (ft)	3442.55	Flow Area (sq ft)	42.95	968.98	52.95
E.G. Slope (ft/ft)	0.003805	Area (sq ft)	42.95	968.98	52.95
Q Total (cfs)	4796.00	Flow (cfs)	85.67	4604.71	105.61
Top Width (ft)	590.61	Top Width (ft)	70.59	433.00	87.02
Vel Total (ft/s)	4.50	Avg. Vel. (ft/s)	1.99	4.75	1.99
Max Chl Dpth (ft)	3.22	Hydr. Depth (ft)	0.61	2.24	0.61
Conv. Total (cfs)	77745.8	Conv. (cfs)	1388.8	74644.9	1712.1
Length Wtd. (ft)	413.35	Wetted Per. (ft)	70.60	433.02	87.03
Min Ch El (ft)	3440.00	Shear (lb/sq ft)	0.14	0.53	0.14
Alpha	1.08	Stream Power (lb/ft s)	0.29	2.53	0.29
Frctn Loss (ft)	2.75	Cum Volume (acre-ft)	41.42	179.93	10.63
C & E Loss (ft)	0.04	Cum SA (acres)	33.53	102.15	14.81

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 7717

INPUT
Description: Sta 7717
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3442	233	3440	383	3438	492	3437.8	510	3438
657	3439	747	3440	879	3442				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	233	.033	747	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
233	747	444	464	510	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3439.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.033	
W.S. Elev (ft)	3438.80	Reach Len. (ft)	444.00	464.00	510.00
Crit W.S. (ft)	3438.80	Flow Area (sq ft)		184.68	
E.G. Slope (ft/ft)	0.019279	Area (sq ft)		184.68	
Q Total (cfs)	828.00	Flow (cfs)		828.00	
Top Width (ft)	304.12	Top Width (ft)		304.12	
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)		4.48	
Max Chl Dpth (ft)	1.00	Hydr. Depth (ft)		0.61	
Conv. Total (cfs)	5963.3	Conv. (cfs)		5963.3	
Length Wtd. (ft)	464.05	Wetted Per. (ft)		304.13	
Min Ch El (ft)	3437.80	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		3.28	
Frctn Loss (ft)	2.04	Cum Volume (acre-ft)	14.69	69.44	2.16
C & E Loss (ft)	0.08	Cum SA (acres)	18.67	78.06	3.23

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical dep

th.

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	3440.76	Element			
Vel Head (ft)	0.71	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3440.06	Reach Len. (ft)	444.00	464.00	510.00
Crit W.S. (ft)	3440.06	Flow Area (sq ft)	0.10	711.06	0.10
E.G. Slope (ft/ft)	0.014557	Area (sq ft)	0.10	711.06	0.10
Q Total (cfs)	4796.00	Flow (cfs)	0.05	4795.90	0.05
Top Width (ft)	521.44	Top Width (ft)	3.73	514.00	3.71
Vel Total (ft/s)	6.74	Avg. Vel. (ft/s)	0.50	6.74	0.50
Max Chl Dpth (ft)	2.26	Hydr. Depth (ft)	0.03	1.38	0.03
Conv. Total (cfs)	39750.7	Conv. (cfs)	0.4	39749.9	0.4
Length Wtd. (ft)	464.44	Wetted Per. (ft)	3.73	514.02	3.71
Min Ch El (ft)	3437.80	Shear (lb/sq ft)	0.03	1.26	0.03
Alpha	1.00	Stream Power (lb/ft s)	0.01	8.48	0.01
Frctn Loss (ft)	2.62	Cum Volume (acre-ft)	41.22	171.96	10.35
C & E Loss (ft)	0.13	Cum SA (acres)	33.19	97.66	14.33

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 7253

INPUT
Description: Sta. 7253
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3438	109	3438.7	321	3438	424	3436	668	3435
906	3436	1005	3438	1200	3440	1365	3442		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	424	.033	906	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
424	906	756	910	980	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	3436.49				
Vel Head (ft)	0.06	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3436.44	Reach Len. (ft)	756.00	910.00	980.00
Crit W.S. (ft)	3435.96	Flow Area (sq ft)	4.93	451.88	4.74
E.G. Slope (ft/ft)	0.001970	Area (sq ft)	4.93	451.88	4.74
Q Total (cfs)	872.00	Flow (cfs)	3.58	864.99	3.44
Top Width (ft)	526.19	Top Width (ft)	22.53	482.00	21.66
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)	0.73	1.91	0.73
Max Chl Dpth (ft)	1.44	Hydr. Depth (ft)	0.22	0.94	0.22
Conv. Total (cfs)	19648.0	Conv. (cfs)	80.6	19490.0	77.4
Length Wtd. (ft)	909.87	Wetted Per. (ft)	22.54	482.00	21.66
Min Ch El (ft)	3435.00	Shear (lb/sq ft)	0.03	0.12	0.03
Alpha	1.02	Stream Power (lb/ft s)	0.02	0.22	0.02
Frctn Loss (ft)	5.41	Cum Volume (acre-ft)	14.66	66.05	2.14
C & E Loss (ft)	0.03	Cum SA (acres)	18.56	73.88	3.11

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	3438.01				
Vel Head (ft)	0.27	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3437.75	Reach Len. (ft)	756.00	910.00	980.00
Crit W.S. (ft)	3436.98	Flow Area (sq ft)	78.51	1082.62	75.46
E.G. Slope (ft/ft)	0.003019	Area (sq ft)	78.51	1082.62	75.46
Q Total (cfs)	4942.00	Flow (cfs)	177.41	4594.06	170.52
Top Width (ft)	658.36	Top Width (ft)	89.92	482.00	86.43
Vel Total (ft/s)	4.00	Avg. Vel. (ft/s)	2.26	4.24	2.26
Max Chl Dpth (ft)	2.75	Hydr. Depth (ft)	0.87	2.25	0.87
Conv. Total (cfs)	89938.3	Conv. (cfs)	3228.7	83606.3	3103.3
Length Wtd. (ft)	908.83	Wetted Per. (ft)	89.94	482.00	86.45

Min Ch El (ft)	3435.00	Shear (lb/sq ft)	0.16	0.42	0.16
Alpha	1.07	Stream Power (lb/ft s)	0.37	1.80	0.37
Frctn Loss (ft)	5.48	Cum Volume (acre-ft)	40.82	162.41	9.91
C & E Loss (ft)	0.04	Cum SA (acres)	32.71	92.35	13.80

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 6343

INPUT
Description: Sta. 6343
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3434	346	3433	663	3432	732	3431	860	3430.2
981	3430	1273	3430	1320	3431.5	1566	3432		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	663	.033	1320	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
663	1320	767	980	1051	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3431.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.033	
W.S. Elev (ft)	3430.74	Reach Len. (ft)	767.00	980.00	1051.00
Crit W.S. (ft)	3430.74	Flow Area (sq ft)		326.19	
E.G. Slope (ft/ft)	0.018791	Area (sq ft)		326.19	
Q Total (cfs)	1470.00	Flow (cfs)		1470.00	
Top Width (ft)	522.87	Top Width (ft)		522.87	
Vel Total (ft/s)	4.51	Avg. Vel. (ft/s)		4.51	
Max Chl Dpth (ft)	0.74	Hydr. Depth (ft)		0.62	
Conv. Total (cfs)	10723.5	Conv. (cfs)		10723.5	
Length Wtd. (ft)	979.90	Wetted Per. (ft)		522.88	
Min Ch El (ft)	3430.00	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		3.30	
Frctn Loss (ft)	4.07	Cum Volume (acre-ft)	14.62	57.92	2.08

C & E Loss (ft)	0.08	Cum SA (acres)	18.36	63.38	2.86

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3432.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.		0.033	0.033
W.S. Elev (ft)	3431.80	Reach Len. (ft)	767.00	980.00	1051.00
Crit W.S. (ft)	3431.80	Flow Area (sq ft)		953.23	21.43
E.G. Slope (ft/ft)	0.013020	Area (sq ft)		953.23	21.43
Q Total (cfs)	6399.00	Flow (cfs)		6368.25	30.75
Top Width (ft)	788.09	Top Width (ft)		642.87	145.22
Vel Total (ft/s)	6.57	Avg. Vel. (ft/s)		6.68	1.43
Max Chl Dpth (ft)	1.80	Hydr. Depth (ft)		1.48	0.15
Conv. Total (cfs)	56079.7	Conv. (cfs)		55810.2	269.5
Length Wtd. (ft)	979.09	Wetted Per. (ft)		642.90	145.22
Min Ch El (ft)	3430.00	Shear (lb/sq ft)		1.21	0.12
Alpha	1.03	Stream Power (lb/ft s)		8.05	0.17
Frctn Loss (ft)	4.12	Cum Volume (acre-ft)	40.14	141.15	8.82
C & E Loss (ft)	0.15	Cum SA (acres)	31.93	80.61	11.20

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for

additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 5363

INPUT
Description: Sta. 5363
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3432	282	3430	550	3428	742	3426	885	3425
1097	3425	1476	3426	1877	3428	1966	3428	2160	3430

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	742	.033	1476	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
742	1476	1199	1142	713	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3426.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3426.38	Reach Len. (ft)	1199.00	1142.00	713.00
Crit W.S. (ft)	3425.82	Flow Area (sq ft)	7.03	753.98	14.69
E.G. Slope (ft/ft)	0.001775	Area (sq ft)	7.03	753.98	14.69
Q Total (cfs)	1470.00	Flow (cfs)	4.43	1456.31	9.26
Top Width (ft)	847.50	Top Width (ft)	36.75	734.00	76.75
Vel Total (ft/s)	1.90	Avg. Vel. (ft/s)	0.63	1.93	0.63
Max Chl Dpth (ft)	1.38	Hydr. Depth (ft)	0.19	1.03	0.19
Conv. Total (cfs)	34888.5	Conv. (cfs)	105.2	34563.6	219.7
Length Wtd. (ft)	1140.82	Wetted Per. (ft)	36.75	734.00	76.75
Min Ch El (ft)	3425.00	Shear (lb/sq ft)	0.02	0.11	0.02
Alpha	1.03	Stream Power (lb/ft s)	0.01	0.22	0.01
Frctn Loss (ft)	5.01	Cum Volume (acre-ft)	14.56	45.77	1.91
C & E Loss (ft)	0.03	Cum SA (acres)	18.04	49.24	1.94

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3427.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3427.59	Reach Len. (ft)	1199.00	1142.00	713.00
Crit W.S. (ft)	3426.70	Flow Area (sq ft)	121.88	1642.63	254.56
E.G. Slope (ft/ft)	0.002056	Area (sq ft)	121.88	1642.63	254.56
Q Total (cfs)	6399.00	Flow (cfs)	213.88	5738.41	446.71
Top Width (ft)	1206.47	Top Width (ft)	152.98	734.00	319.50
Vel Total (ft/s)	3.17	Avg. Vel. (ft/s)	1.75	3.49	1.75
Max Chl Dpth (ft)	2.59	Hydr. Depth (ft)	0.80	2.24	0.80
Conv. Total (cfs)	141114.1	Conv. (cfs)	4716.6	126546.4	9851.1
Length Wtd. (ft)	1130.38	Wetted Per. (ft)	152.98	734.00	319.50
Min Ch El (ft)	3425.00	Shear (lb/sq ft)	0.10	0.29	0.10
Alpha	1.12	Stream Power (lb/ft s)	0.18	1.00	0.18
Frctn Loss (ft)	5.03	Cum Volume (acre-ft)	39.07	111.94	5.49
C & E Loss (ft)	0.04	Cum SA (acres)	30.59	65.12	5.59

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 4221

INPUT
Description: Sta. 4221
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3423	341	3422	544	3421	640	3420	669	3420
753	3420.2	829	3420	837	3420	1030	3421	1320	3422
1407	3423	1497	3424						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

100	.033	544	.033	1407	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
544	1407	749	732	843	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3421.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3421.05	Reach Len. (ft)	749.00	732.00	843.00
Crit W.S. (ft)	3421.05	Flow Area (sq ft)	0.26	350.68	
E.G. Slope (ft/ft)	0.017942	Area (sq ft)	0.26	350.68	
Q Total (cfs)	1668.00	Flow (cfs)	0.14	1667.86	
Top Width (ft)	511.16	Top Width (ft)	10.36	500.80	
Vel Total (ft/s)	4.75	Avg. Vel. (ft/s)	0.52	4.76	
Max Chl Dpth (ft)	1.05	Hydr. Depth (ft)	0.03	0.70	
Conv. Total (cfs)	12452.5	Conv. (cfs)	1.0	12451.4	
Length Wtd. (ft)	736.81	Wetted Per. (ft)	10.36	500.81	
Min Ch El (ft)	3420.00	Shear (lb/sq ft)	0.03	0.78	
Alpha	1.00	Stream Power (lb/ft s)	0.01	3.73	
Frctn Loss (ft)	3.63	Cum Volume (acre-ft)	14.46	31.29	1.79
C & E Loss (ft)	0.09	Cum SA (acres)	17.39	33.06	1.31

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3422.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.	0.033	0.033	

W.S. Elev (ft)	3422.09	Reach Len. (ft)	749.00	732.00	843.00
Crit W.S. (ft)	3422.09	Flow Area (sq ft)	121.37	1028.87	
E.G. Slope (ft/ft)	0.013828	Area (sq ft)	121.37	1028.87	
Q Total (cfs)	6955.00	Flow (cfs)	425.40	6529.60	
Top Width (ft)	1009.43	Top Width (ft)	225.36	784.07	
Vel Total (ft/s)	6.05	Avg. Vel. (ft/s)	3.50	6.35	
Max Chl Dpth (ft)	2.09	Hydr. Depth (ft)	0.54	1.31	
Conv. Total (cfs)	59145.1	Conv. (cfs)	3617.6	55527.5	
Length Wtd. (ft)	737.78	Wetted Per. (ft)	225.36	784.08	
Min Ch El (ft)	3420.00	Shear (lb/sq ft)	0.46	1.13	
Alpha	1.05	Stream Power (lb/ft s)	1.63	7.19	
Frctn Loss (ft)	3.71	Cum Volume (acre-ft)	35.72	76.93	3.40
C & E Loss (ft)	0.12	Cum SA (acres)	25.38	45.22	2.98

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 3489

INPUT
Description: Sta. 3489
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-286	3420	-138	3418.5	-126	3418	-104	3416	-91	3415.5
-76	3416	-21	3417	100	3417	258	3416.5	299	3416
309	3415	318	3416	405	3416	422	3416	539	3416.4
581	3416.2	642	3416.4	744	3416	830	3416	918	3418
1068	3420	1159	3421						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-286	.033	539	.033	918	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
539	918	464	500	457	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3417.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3417.23	Reach Len. (ft)	464.00	500.00	457.00
Crit W.S. (ft)	3416.72	Flow Area (sq ft)	517.14	341.02	
E.G. Slope (ft/ft)	0.002260	Area (sq ft)	517.14	341.02	
Q Total (cfs)	1668.00	Flow (cfs)	943.99	724.01	
Top Width (ft)	1001.82	Top Width (ft)	656.56	345.26	
Vel Total (ft/s)	1.94	Avg. Vel. (ft/s)	1.83	2.12	
Max Chl Dpth (ft)	2.23	Hydr. Depth (ft)	0.79	0.99	
Conv. Total (cfs)	35084.5	Conv. (cfs)	19855.8	15228.6	
Length Wtd. (ft)	481.69	Wetted Per. (ft)	656.76	345.27	
Min Ch El (ft)	3416.00	Shear (lb/sq ft)	0.11	0.14	
Alpha	1.02	Stream Power (lb/ft s)	0.20	0.30	
Frctn Loss (ft)	2.40	Cum Volume (acre-ft)	10.01	25.48	1.79
C & E Loss (ft)	0.02	Cum SA (acres)	11.66	25.95	1.31

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3418.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3418.33	Reach Len. (ft)	464.00	500.00	457.00
Crit W.S. (ft)	3417.53	Flow Area (sq ft)	1244.99	744.00	4.10
E.G. Slope (ft/ft)	0.002576	Area (sq ft)	1244.99	744.00	4.10
Q Total (cfs)	6955.00	Flow (cfs)	4286.73	2665.45	2.82
Top Width (ft)	1076.73	Top Width (ft)	672.93	379.00	24.79
Vel Total (ft/s)	3.49	Avg. Vel. (ft/s)	3.44	3.58	0.69
Max Chl Dpth (ft)	3.33	Hydr. Depth (ft)	1.85	1.96	0.17

Conv. Total (cfs)	137040.4	Conv. (cfs)	84465.1	52519.7	55.6
Length Wtd. (ft)	481.05	Wetted Per. (ft)	673.17	379.02	24.79
Min Ch El (ft)	3416.00	Shear (lb/sq ft)	0.30	0.32	0.03
Alpha	1.00	Stream Power (lb/ft s)	1.02	1.13	0.02
Frctn Loss (ft)	2.35	Cum Volume (acre-ft)	23.97	62.03	3.36
C & E Loss (ft)	0.04	Cum SA (acres)	17.66	35.45	2.74

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 2989

INPUT
Description: Sta. 2989
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-31	3416	59	3414.8	170	3414.8	196	3414	436	3413.8
613	3414	651	3414	700	3414	747	3414	761	3414
841	3415.01	920	3416	976	3418	1067	3420		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-31	.033	436	.033	841	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
436	841	317	215	172	.3 .5

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3414.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3414.56	Reach Len. (ft)	317.00	215.00	172.00
Crit W.S. (ft)	3414.56	Flow Area (sq ft)	164.64	213.76	
E.G. Slope (ft/ft)	0.018785	Area (sq ft)	164.64	213.76	
Q Total (cfs)	1668.00	Flow (cfs)	752.43	915.57	
Top Width (ft)	628.05	Top Width (ft)	258.34	369.71	
Vel Total (ft/s)	4.41	Avg. Vel. (ft/s)	4.57	4.28	
Max Chl Dpth (ft)	0.76	Hydr. Depth (ft)	0.64	0.58	
Conv. Total (cfs)	12170.1	Conv. (cfs)	5489.9	6680.1	
Length Wtd. (ft)	253.48	Wetted Per. (ft)	258.35	369.71	

Min Ch El (ft)	3413.80	Shear (lb/sq ft)	0.75	0.68	
Alpha	1.00	Stream Power (lb/ft s)	3.42	2.90	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	6.38	22.29	1.79
C & E Loss (ft)	0.13	Cum SA (acres)	6.79	21.84	1.31

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3416.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3415.53	Reach Len. (ft)	317.00	215.00	172.00
Crit W.S. (ft)	3415.49	Flow Area (sq ft)	523.07	598.34	10.93
E.G. Slope (ft/ft)	0.012623	Area (sq ft)	523.07	598.34	10.93
Q Total (cfs)	6955.00	Flow (cfs)	3005.95	3926.42	22.63
Top Width (ft)	878.78	Top Width (ft)	432.01	405.00	41.77
Vel Total (ft/s)	6.14	Avg. Vel. (ft/s)	5.75	6.56	2.07
Max Chl Dpth (ft)	1.73	Hydr. Depth (ft)	1.21	1.48	0.26
Conv. Total (cfs)	61904.5	Conv. (cfs)	26755.1	34948.0	201.4
Length Wtd. (ft)	262.25	Wetted Per. (ft)	432.02	405.01	41.77
Min Ch El (ft)	3413.80	Shear (lb/sq ft)	0.95	1.16	0.21
Alpha	1.02	Stream Power (lb/ft s)	5.48	7.64	0.43
Frctn Loss (ft)	0.74	Cum Volume (acre-ft)	14.56	54.33	3.28
C & E Loss (ft)	0.21	Cum SA (acres)	11.77	30.95	2.39

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 2774

INPUT
Description: Sta. 2774 Upstream of culverts
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-453	3416	-437	3415	-405	3414	-289	3413.8	-13	3413.8
100	3413.8	175	3413.8	204	3412	261	3412	298	3411.2
402	3410.9	437	3410	469	3409	491	3409	511	3410
560	3412	641	3414	725	3416				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-453	.033	437	.033	511	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
437	511	40	40	40	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-888	F		
888	F		

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3414.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3414.04	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	803.67	346.94	233.21
E.G. Slope (ft/ft)	0.000314	Area (sq ft)	803.67	346.94	233.21
Q Total (cfs)	1668.00	Flow (cfs)	620.80	774.97	272.22
Top Width (ft)	1048.95	Top Width (ft)	843.27	74.00	131.67
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)	0.77	2.23	1.17
Max Chl Dpth (ft)	5.04	Hydr. Depth (ft)	0.95	4.69	1.77
Conv. Total (cfs)	94155.3	Conv. (cfs)	35043.1	43745.7	15366.6
Length Wtd. (ft)	40.00	Wetted Per. (ft)	843.35	74.04	131.74
Min Ch El (ft)	3409.00	Shear (lb/sq ft)	0.02	0.09	0.03
Alpha	1.90	Stream Power (lb/ft s)	0.01	0.21	0.04
Frctn Loss (ft)		Cum Volume (acre-ft)	2.85	20.91	1.33
C & E Loss (ft)		Cum SA (acres)	2.78	20.75	1.05

Warning: The parabolic search method failed to converge on critical depth. The program will try the
cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3415.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3415.00	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)	3413.39	Flow Area (sq ft)	1631.76	418.31	379.71
E.G. Slope (ft/ft)	0.001208	Area (sq ft)	1631.76	418.31	379.71
Q Total (cfs)	6955.00	Flow (cfs)	3871.69	2076.72	1006.59
Top Width (ft)	1120.24	Top Width (ft)	874.07	74.00	172.17
Vel Total (ft/s)	2.86	Avg. Vel. (ft/s)	2.37	4.96	2.65
Max Chl Dpth (ft)	6.00	Hydr. Depth (ft)	1.87	5.65	2.21
Conv. Total (cfs)	200099.2	Conv. (cfs)	111390.7	59748.5	28960.1
Length Wtd. (ft)	40.00	Wetted Per. (ft)	874.16	74.04	172.25
Min Ch El (ft)	3409.00	Shear (lb/sq ft)	0.14	0.43	0.17
Alpha	1.40	Stream Power (lb/ft s)	0.33	2.12	0.44
Frctn Loss (ft)		Cum Volume (acre-ft)	6.72	51.82	2.51
C & E Loss (ft)		Cum SA (acres)	7.02	29.76	1.96

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The parabolic search method failed to converge on critical depth. The program will try the
cross section slice/secant method to find critical depth.

CULVERT RIVER: Ditch A
REACH: 5 RS: 2773

INPUT
Description:
Distance from Upstream XS = 8
Deck/Roadway Width = 24
Weir Coefficient = 3
Upstream Deck/Roadway Coordinates
num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
26	3413.8		100	3413.8		402	3412.7	
500	3412.8		600	3413.9		700	3415.7	

Upstream Bridge Cross Section Data
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-453	3416	-437	3415	-405	3414	-289	3413.8	-13	3413.8
100	3413.8	175	3413.8	204	3412	261	3412	298	3411.2
402	3410.9	437	3410	469	3409	491	3409	511	3410
560	3412	641	3414	725	3416				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-453	.033	437	.033	511	.033

```
Bank Sta: Left   Right    Coeff Contr.   Expan.
          437     511          .3        .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888       F

Downstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      26  3413.8             100  3413.8             402  3412.7
     500  3412.8             600  3413.9             700  3415.7

Downstream Bridge Cross Section Data
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   -1721    3416   -1410    3414      26  3413.8     100  3412.4     155    3412
     299  3411.4     349    3410     387  3408.9   391.4  3408.9   395.8  3408.9
   400.2  3408.9   404.6  3408.9     409  3408.9     434    3410     487    3412
     568    3414     658    3416

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   -1721    .033     349    .033     434    .033

Bank Sta: Left   Right    Coeff Contr.   Expan.
          349     434          .3        .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888       F

Upstream Embankment side slope                =       3 horiz. to 1.0 vertical
Downstream Embankment side slope              =       3 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins           =  3412.7
Energy head used in spillway design           =
Spillway height used in design                =
Weir crest shape                              = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise    Span
Culvert #1     Pipe Arch   1.833    2.43
FHWA Chart # 34- 18 inch corner radius; Corrugated metal
FHWA Scale # 1 - 90 Degree headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                  1      39       .024                   .5                1
Number of Barrels =  6
Upstream   Elevation =  3409
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
     469   473.4   477.8   482.2   486.6     491
Downstream Elevation =  3408.9
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
     387   391.4   395.8   400.2   404.6     409

CROSS SECTION          RIVER: Ditch A
REACH: 5                  RS: 2734

INPUT
Description: Sta. 2734 Downstream of culverts
```

HECRASPMPNOD

Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1721	3416	-1410	3414	26	3413.8	100	3412.4	155	3412
299	3411.4	349	3410	387	3408.9	391.4	3408.9	395.8	3408.9
400.2	3408.9	404.6	3408.9	409	3408.9	434	3410	487	3412
568	3414	658	3416						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1721	.033	349	.033	434	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
349	434	745	846	1015	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-888	F		
888	F		

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	3412.85	Element			
Vel Head (ft)	0.14	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3412.71	Reach Len. (ft)	745.00	846.00	1015.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	275.89	288.99	100.64
E.G. Slope (ft/ft)	0.001240	Area (sq ft)	275.89	288.99	100.64
Q Total (cfs)	1668.00	Flow (cfs)	448.98	1035.68	183.34
Top Width (ft)	431.91	Top Width (ft)	265.26	85.00	81.65
Vel Total (ft/s)	2.51	Avg. Vel. (ft/s)	1.63	3.58	1.82
Max Chl Dpth (ft)	3.81	Hydr. Depth (ft)	1.04	3.40	1.23
Conv. Total (cfs)	47371.8	Conv. (cfs)	12751.3	29413.6	5206.9
Length Wtd. (ft)	841.73	Wetted Per. (ft)	265.28	85.04	81.70
Min Ch El (ft)	3408.90	Shear (lb/sq ft)	0.08	0.26	0.10
Alpha	1.44	Stream Power (lb/ft s)	0.13	0.94	0.17
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)	2.36	20.62	1.17
C & E Loss (ft)	0.03	Cum SA (acres)	2.27	20.68	0.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to

critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3414.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.89	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3413.55	Reach Len. (ft)	745.00	846.00	1015.00
Crit W.S. (ft)	3413.51	Flow Area (sq ft)	517.22	360.36	183.47
E.G. Slope (ft/ft)	0.006464	Area (sq ft)	517.22	360.36	183.47
Q Total (cfs)	6955.00	Flow (cfs)	2635.84	3416.09	903.07
Top Width (ft)	510.29	Top Width (ft)	309.63	85.00	115.66
Vel Total (ft/s)	6.55	Avg. Vel. (ft/s)	5.10	9.48	4.92
Max Chl Dpth (ft)	4.65	Hydr. Depth (ft)	1.67	4.24	1.59
Conv. Total (cfs)	86509.1	Conv. (cfs)	32785.7	42490.7	11232.7
Length Wtd. (ft)	837.02	Wetted Per. (ft)	309.67	85.04	115.72
Min Ch El (ft)	3408.90	Shear (lb/sq ft)	0.67	1.71	0.64
Alpha	1.33	Stream Power (lb/ft s)	3.43	16.21	3.15
Frctn Loss (ft)	3.41	Cum Volume (acre-ft)	5.73	51.46	2.25
C & E Loss (ft)	0.35	Cum SA (acres)	6.48	29.69	1.83

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 1888

INPUT
Description: Sta. 1888
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-775	3412	-41	3410	81	3410	100	3410.2	110	3410
331	3408	532	3408	690	3408	1180	3410	1268	3412

HECRASPMPNOD

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-775	.033	100	.033	1180	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
100	1180	305	828	980	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3409.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.033	
W.S. Elev (ft)	3409.29	Reach Len. (ft)	305.00	828.00	980.00
Crit W.S. (ft)	3408.77	Flow Area (sq ft)		754.95	
E.G. Slope (ft/ft)	0.002748	Area (sq ft)		754.95	
Q Total (cfs)	1692.00	Flow (cfs)		1692.00	
Top Width (ft)	815.87	Top Width (ft)		815.87	
Vel Total (ft/s)	2.24	Avg. Vel. (ft/s)		2.24	
Max Chl Dpth (ft)	1.29	Hydr. Depth (ft)		0.93	
Conv. Total (cfs)	32279.3	Conv. (cfs)		32279.3	
Length Wtd. (ft)	828.00	Wetted Per. (ft)		815.88	
Min Ch El (ft)	3408.00	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)		0.36	
Frctn Loss (ft)	4.75	Cum Volume (acre-ft)		10.48	
C & E Loss (ft)	0.03	Cum SA (acres)		11.93	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3410.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3410.48	Reach Len. (ft)	305.00	828.00	980.00
Crit W.S. (ft)		Flow Area (sq ft)	108.52	1947.96	5.10
E.G. Slope (ft/ft)	0.002815	Area (sq ft)	108.52	1947.96	5.10

Q Total (cfs)	7027.00	Flow (cfs)	126.68	6895.60	4.71
Top Width (ft)	1418.87	Top Width (ft)	317.69	1080.00	21.18
Vel Total (ft/s)	3.41	Avg. Vel. (ft/s)	1.17	3.54	0.92
Max Chl Dpth (ft)	2.48	Hydr. Depth (ft)	0 34	1.80	0.24
Conv. Total (cfs)	132442.1	Conv. (cfs)	2387.7	129965.6	88.8
Length Wtd. (ft)	823.41	Wetted Per. (ft)	317.69	1080.02	21.19
Min Ch El (ft)	3408.00	Shear (lb/sq ft)	0.06	0.32	0.04
Alpha	1.06	Stream Power (lb/ft s)	0.07	1.12	0.04
Frctn Loss (ft)	4.56	Cum Volume (acre-ft)	0.38	29.04	0.06
C & E Loss (ft)	0.05	Cum SA (acres)	1.11	18.38	0.24

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 1060

INPUT
Description: Sta. 1060
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3408	394	3406	879	3402.7	909	3402.7	1206	3405
1523	3406								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	394	.033	1523	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
394	1523	60	60	60	.1 .3

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	3404.58	Element			
Vel Head (ft)	0.40	Wt. n-Val.		0.033	
W.S. Elev (ft)	3404.18	Reach Len. (ft)			
Crit W.S. (ft)	3404.18	Flow Area (sq ft)		347.74	
E.G. Slope (ft/ft)	0.017389	Area (sq ft)		347.74	
Q Total (cfs)	1767.00	Flow (cfs)		1767.00	
Top Width (ft)	439.22	Top Width (ft)		439.22	
Vel Total (ft/s)	5.08	Avg. Vel. (ft/s)		5.08	

Max Chl Dpth (ft)	1.48	Hydr. Depth (ft)	0.79
Conv. Total (cfs)	13399.8	Conv. (cfs)	13399.8
Length Wtd. (ft)		Wetted Per. (ft)	439.23
Min Ch El (ft)	3402.70	Shear (lb/sq ft)	0.86
Alpha	1.00	Stream Power (lb/ft s)	4.37
Frctn Loss (ft)		Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3406.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.		0.033	
W.S. Elev (ft)	3405.41	Reach Len. (ft)			
Crit W.S. (ft)	3405.41	Flow Area (sq ft)		1107.97	
E.G. Slope (ft/ft)	0.014925	Area (sq ft)		1107.97	
Q Total (cfs)	7252.00	Flow (cfs)		7252.00	
Top Width (ft)	853.63	Top Width (ft)		853.63	
Vel Total (ft/s)	6.55	Avg. Vel. (ft/s)		6.55	
Max Chl Dpth (ft)	2.71	Hydr. Depth (ft)		1.30	
Conv. Total (cfs)	59361.7	Conv. (cfs)		59361.7	
Length Wtd. (ft)		Wetted Per. (ft)		853.65	
Min Ch El (ft)	3402.70	Shear (lb/sq ft)		1.21	
Alpha	1.00	Stream Power (lb/ft s)		7.92	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

SUMMARY OF MANNING'S N VALUES

River:Ditch A

Reach	River Sta.	n1	n2	n3
5	12674	.033	.033	.033
5	11337	.033	.033	.033
5	10937	.033	.033	.033

HECRASPMPNOD

5	10288	.033	.033	.033
5	9690	.033	.033	.033
5	9009	.033	.033	.033
5	8130	.033	.033	.033
5	7717	.033	.033	.033
5	7253	.033	.033	.033
5	6343	.033	.033	.033
5	5363	.033	.033	.033
5	4221	.033	.033	.033
5	3489	.033	.033	.033
5	2989	.033	.033	.033
5	2774	.033	.033	.033
5	2773	Culvert		
5	2734	.033	.033	.033
5	1888	.033	.033	.033
5	1060	.033	.033	.033

SUMMARY OF REACH LENGTHS

River: Ditch A

Reach	River Sta.	Left	Channel	Right
5	12674	1206	1337	1433
5	11337	545	400	332
5	10937	729	649	445
5	10288	552	598	633
5	9690	639	681	658
5	9009	898	879	794
5	8130	399	413	456
5	7717	444	464	510
5	7253	756	910	980
5	6343	767	980	1051
5	5363	1199	1142	713
5	4221	749	732	843
5	3489	464	500	457
5	2989	317	215	172
5	2774	40	40	40
5	2773	Culvert		
5	2734	745	846	1015
5	1888	305	828	980
5	1060	60	60	60

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Ditch A

Reach	River Sta.	Contr.	Expan.
5	12674	.1	.3
5	11337	.1	.3
5	10937	.1	.3
5	10288	.1	.3
5	9690	.1	.3
5	9009	.1	.3
5	8130	.1	.3
5	7717	.1	.3
5	7253	.1	.3
5	6343	.1	.3

HECRASPMPNOD

5	5363	.1	.3
5	4221	.1	.3
5	3489	.1	.3
5	2989	.3	.5
5	2774	.3	.5
5	2773	Culvert	
5	2734	.3	.5
5	1888	.1	.3
5	1060	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. S
lope	Vel Chnl	Flow Area	Top Width	Froude # Chl			
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft
/ft)	(ft/s)	(sq ft)	(ft)				
5		12674	533.00	3477.00	3478.39	3478.01	3478.47	0.00
3052	2.31	237.71	307.15	0.43			
5		12674	1768.00	3477.00	3479.22	3478.65	3479.41	0.00
3111	3.61	539.30	417.81	0.48			
5		11337	533.00	3469.00	3470.41	3470.38	3470.80	0.01
4358	5.05	107.68	132.06	0.94			
5		11337	1768.00	3469.00	3471.40	3471.40	3472.19	0.01
1380	7.37	259.90	173.86	0.94			
5		10937	533.00	3464.00	3465.81	3465.61	3466.09	0.00
9685	4.29	124.37	130.72	0.77			
5		10937	1768.00	3464.00	3466.73	3466.67	3467.39	0.01
1877	6.58	274.87	197.66	0.93			
5		10288	533.00	3456.00	3456.93	3456.93	3457.20	0.02
0830	4.16	127.98	249.47	1.02			
5		10288	1768.00	3456.00	3457.50	3457.50	3457.89	0.01
8192	5.03	351.58	466.63	1.02			
5		9690	828.00	3450.00	3451.67	3451.29	3451.79	0.00
4773	2.79	296.91	349.80	0.53			
5		9690	4796.00	3450.00	3453.03	3452.60	3453.47	0.00
5600	5.43	927.89	560.63	0.67			
5		9009	828.00	3445.00	3446.63	3446.51	3446.88	0.01
2031	4.04	205.08	277.44	0.83			
5		9009	4796.00	3445.00	3448.10	3447.89	3448.61	0.00
9426	5.69	843.12	579.12	0.82			
5		8130	828.00	3440.00	3441.76	3441.26	3441.85	0.00
3284	2.41	344.10	382.07	0.45			
5		8130	4796.00	3440.00	3443.22	3442.55	3443.56	0.00
3805	4.75	1064.89	590.61	0.56			
5		7717	828.00	3437.80	3438.80	3438.80	3439.11	0.01
9279	4.48	184.68	304.12	1.01			
5		7717	4796.00	3437.80	3440.06	3440.06	3440.76	0.01

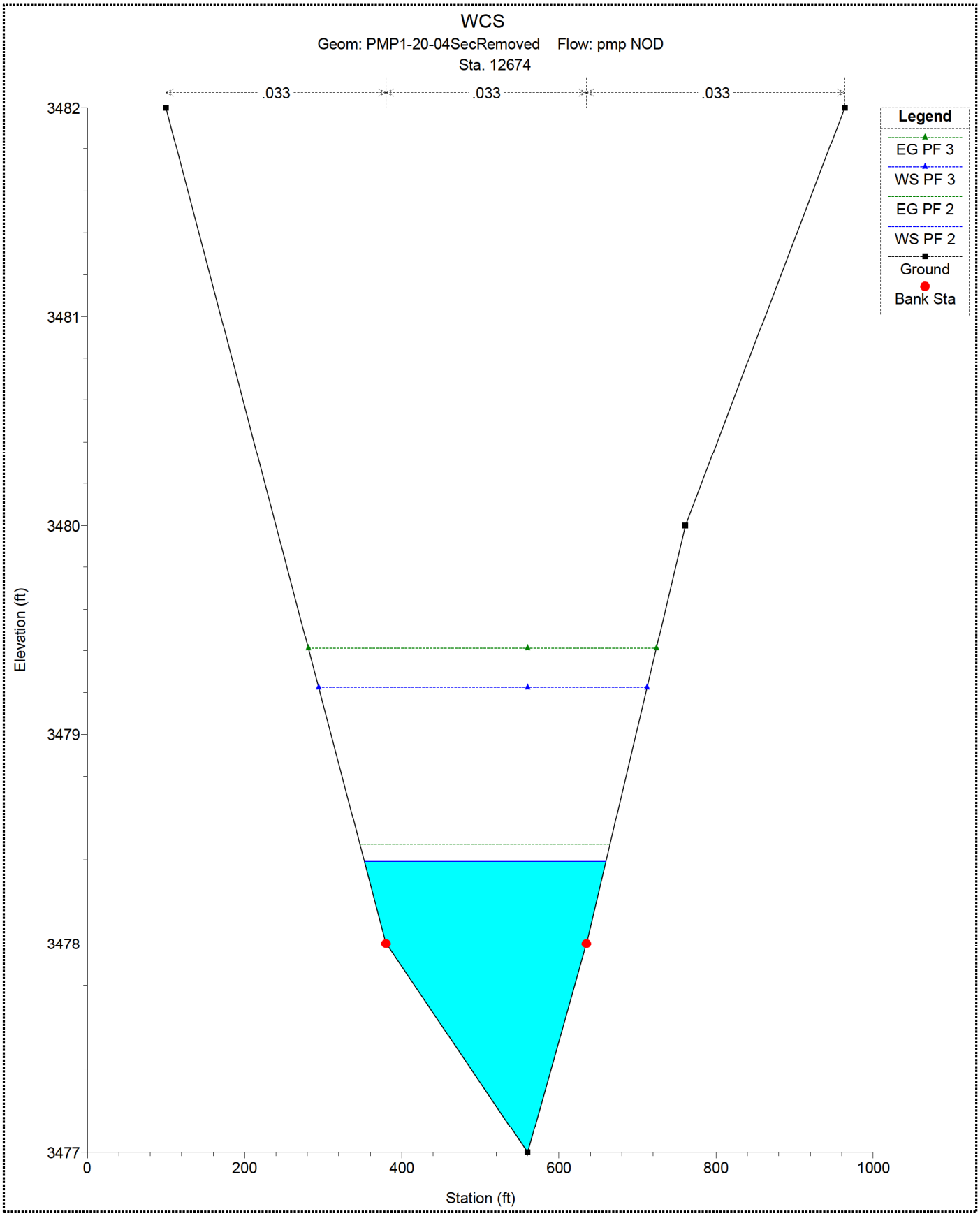
4557	6.74	711.27	521.44	1.01				
5		7253	872.00	3435.00	3436.44	3435.96	3436.49	0.00
1970	1.91	461.54	526.19	0.35				
5		7253	4942.00	3435.00	3437.75	3436.98	3438.01	0.00
3019	4.24	1236.58	658.36	0.50				
5		6343	1470.00	3430.00	3430.74	3430.74	3431.06	0.01
8791	4.51	326.19	522.87	1.01				
5		6343	6399.00	3430.00	3431.80	3431.80	3432.49	0.01
3020	6.68	974.66	788.09	0.97				
5		5363	1470.00	3425.00	3426.38	3425.82	3426.44	0.00
1775	1.93	775.71	847.50	0.34				
5		5363	6399.00	3425.00	3427.59	3426.70	3427.77	0.00
2056	3.49	2019.08	1206.47	0.41				
5		4221	1668.00	3420.00	3421.05	3421.05	3421.40	0.01
7942	4.76	350.94	511.16	1.00				
5		4221	6955.00	3420.00	3422.09	3422.09	3422.69	0.01
3828	6.35	1150.24	1009.43	0.98				
5		3489	1668.00	3416.00	3417.23	3416.72	3417.29	0.00
2260	2.12	858.15	1001.82	0.38				
5		3489	6955.00	3416.00	3418.33	3417.53	3418.52	0.00
2576	3.58	1993.09	1076.73	0.45				
5		2989	1668.00	3413.80	3414.56	3414.56	3414.87	0.01
8785	4.28	378.40	628.05	0.99				
5		2989	6955.00	3413.80	3415.53	3415.49	3416.13	0.01
2623	6.56	1132.34	878.78	0.95				
5		2774	1668.00	3409.00	3414.04	3412.71	3414.08	0.00
0314	2.23	1383.82	1048.95	0.18				
5		2774	6955.00	3409.00	3415.00	3413.39	3415.18	0.00
1208	4.96	2429.78	1120.24	0.37				
5		2773	Culvert					
5		2734	1668.00	3408.90	3412.71	3412.71	3412.85	0.00
1240	3.58	665.51	431.91	0.34				
5		2734	6955.00	3408.90	3413.55	3413.51	3414.43	0.00
6464	9.48	1061.05	510.29	0.81				
5		1888	1692.00	3408.00	3409.29	3408.77	3409.36	0.00
2748	2.24	754.95	815.87	0.41				
5		1888	7027.00	3408.00	3410.48		3410.67	0.00
2815	3.54	2061.58	1418.87	0.46				
5		1060	1767.00	3402.70	3404.18	3404.18	3404.58	0.01
7389	5.08	347.74	439.22	1.01				
5		1060	7252.00	3402.70	3405.41	3405.41	3406.07	0.01
4925	6.55	1107.97	853.63	1.01				

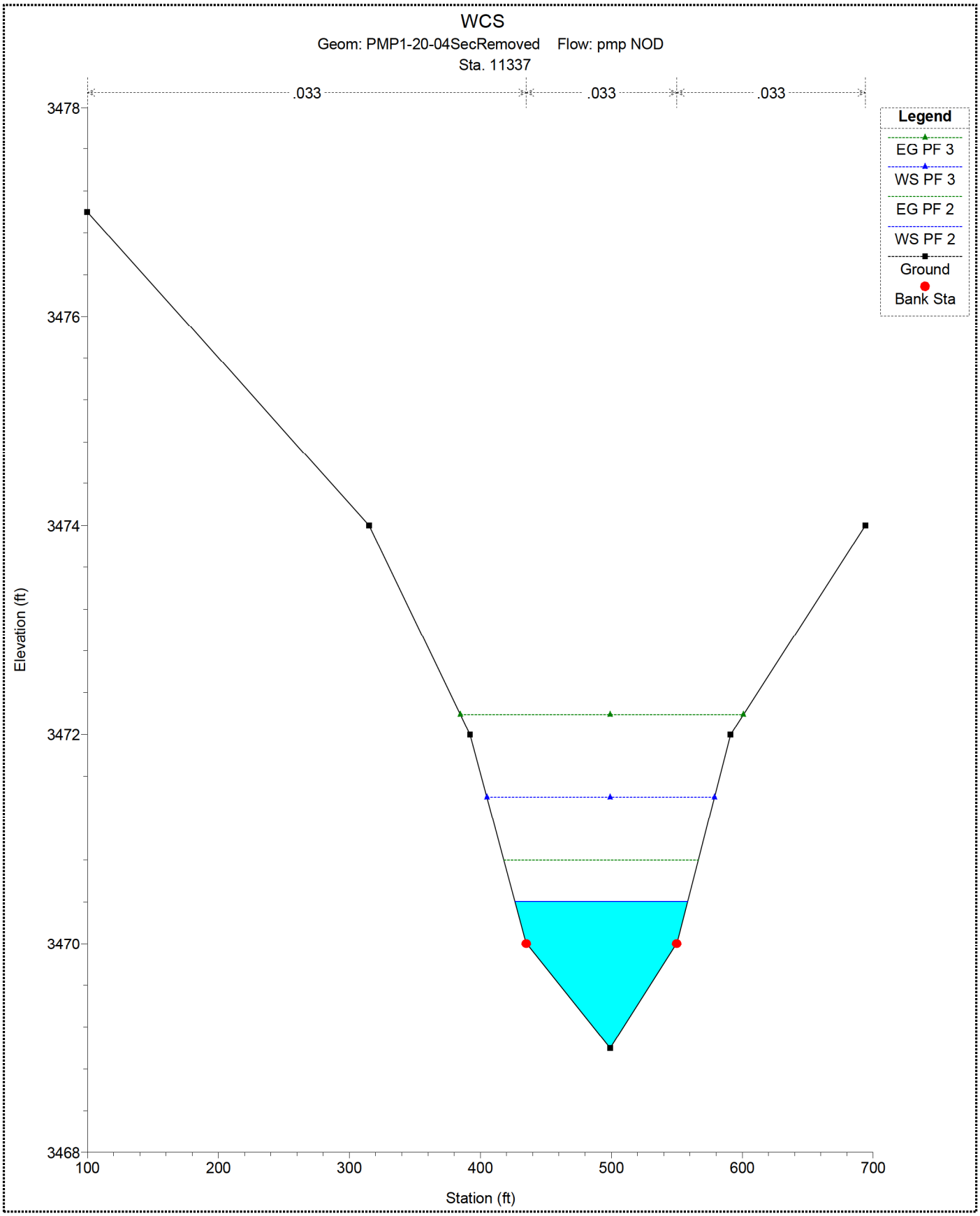
Profile Output Table - Report Standard Table 1

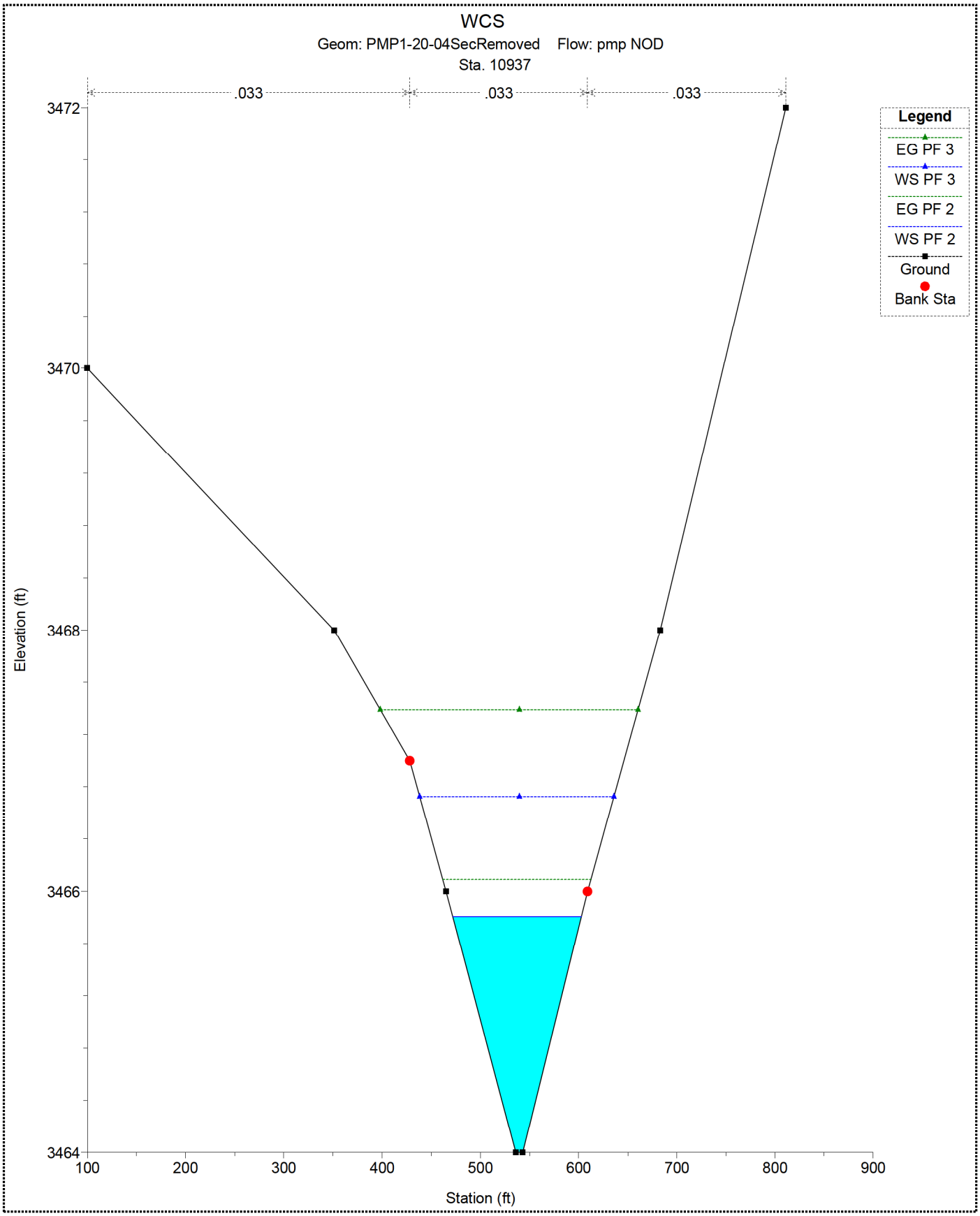
Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Max Chl Dpth	E.G
Elev	E.G. Slope Vel Chnl	Sta W.S. Lft	Sta W.S. Rgt	Flow Area	Top Width	Froude # Chl	
(ft)	(ft/ft) (ft/s)	(cfs) (ft)	(ft)	(ft) (sq ft)	(ft)	(ft)	
5	12674	533.00	3477.00	3478.39	3478.01	1.39	3
478.47	0.003052 2.31	352.55	659.70	237.71	307.15	0.43	
5	12674	1768.00	3477.00	3479.22	3478.65	2.22	3
479.41	0.003111 3.61	294.31	712.12	539.30	417.81	0.48	
5	11337	533.00	3469.00	3470.41	3470.38	1.41	3
470.80	0.014358 5.05	426.27	558.33	107.68	132.06	0.94	
5	11337	1768.00	3469.00	3471.40	3471.40	2.40	3
472.19	0.011380 7.37	404.87	578.73	259.90	173.86	0.94	
5	10937	533.00	3464.00	3465.81	3465.61	1.81	3
466.09	0.009685 4.29	471.88	602.60	124.37	130.72	0.77	
5	10937	1768.00	3464.00	3466.73	3466.67	2.73	3
467.39	0.011877 6.58	438.17	635.83	274.87	197.66	0.93	
5	10288	533.00	3456.00	3456.93	3456.93	0.93	3
457.20	0.020830 4.16	402.40	651.88	127.98	249.47	1.02	
5	10288	1768.00	3456.00	3457.50	3457.50	1.50	3
457.89	0.018192 5.03	346.61	813.23	351.58	466.63	1.02	
5	9690	828.00	3450.00	3451.67	3451.29	1.67	3
451.79	0.004773 2.79	422.55	772.35	296.91	349.80	0.53	
5	9690	4796.00	3450.00	3453.03	3452.60	3.03	3
453.47	0.005600 5.43	288.83	849.46	927.89	560.63	0.67	
5	9009	828.00	3445.00	3446.63	3446.51	1.63	3
446.88	0.012031 4.04	439.59	717.03	205.08	277.44	0.83	
5	9009	4796.00	3445.00	3448.10	3447.89	3.10	3

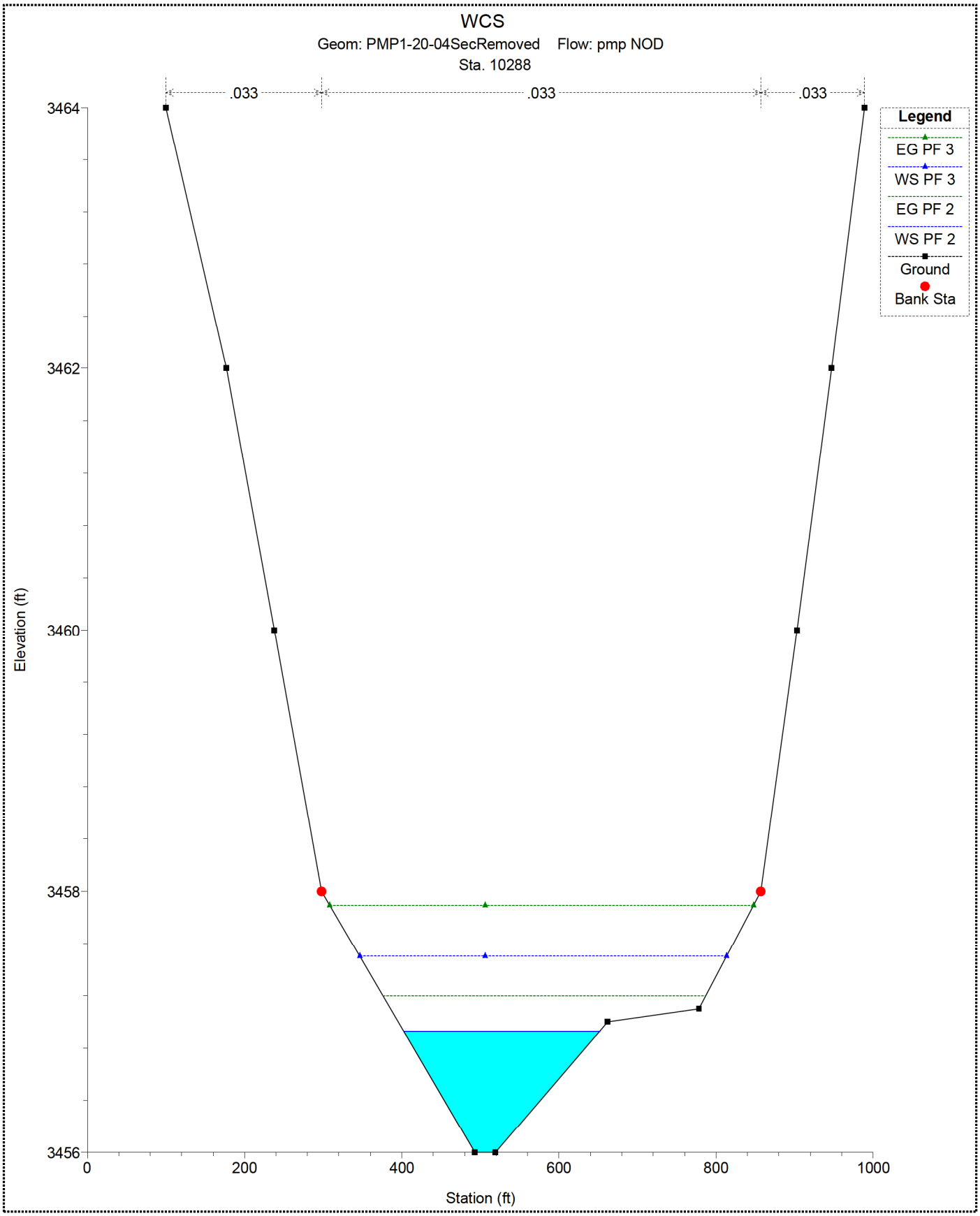
448.61	0.009426	5.69	318.76	897.88	843.12	579.12		0.82
5	8130		828.00	3440.00	3441.76	3441.26	1.76	3
441.85	0.003284	2.41	447.23	829.30	344.10	382.07		0.45
5	8130		4796.00	3440.00	3443.22	3442.55	3.22	3
443.56	0.003805	4.75	348.41	939.02	1064.89	590.61		0.56
5	7717		828.00	3437.80	3438.80	3438.80	1.00	3
439.11	0.019279	4.48	323.16	627.28	184.68	304.12		1.01
5	7717		4796.00	3437.80	3440.06	3440.06	2.26	3
440.76	0.014557	6.74	229.27	750.71	711.27	521.44		1.01
5	7253		872.00	3435.00	3436.44	3435.96	1.44	3
436.49	0.001970	1.91	401.47	927.66	461.54	526.19		0.35
5	7253		4942.00	3435.00	3437.75	3436.98	2.75	3
438.01	0.003019	4.24	334.08	992.43	1236.58	658.36		0.50
5	6343		1470.00	3430.00	3430.74	3430.74	0.74	3
431.06	0.018791	4.51	773.36	1296.23	326.19	522.87		1.01
5	6343		6399.00	3430.00	3431.80	3431.80	1.80	3
432.49	0.013020	6.68	677.13	1465.22	974.66	788.09		0.97
5	5363		1470.00	3425.00	3426.38	3425.82	1.38	3
426.44	0.001775	1.93	705.25	1552.75	775.71	847.50		0.34
5	5363		6399.00	3425.00	3427.59	3426.70	2.59	3
427.77	0.002056	3.49	589.02	1795.50	2019.08	1206.47		0.41
5	4221		1668.00	3420.00	3421.05	3421.05	1.05	3
421.40	0.017942	4.76	533.64	1044.80	350.94	511.16		1.00
5	4221		6955.00	3420.00	3422.09	3422.09	2.09	3
422.69	0.013828	6.35	318.64	1328.07	1150.24	1009.43		0.98
5	3489		1668.00	3416.00	3417.23	3416.72	2.23	3
417.29	0.002260	2.12	-117.56	884.26	858.15	1001.82		0.38
5	3489		6955.00	3416.00	3418.33	3417.53	3.33	3
418.52	0.002576	3.58	-133.93	942.79	1993.09	1076.73		0.45

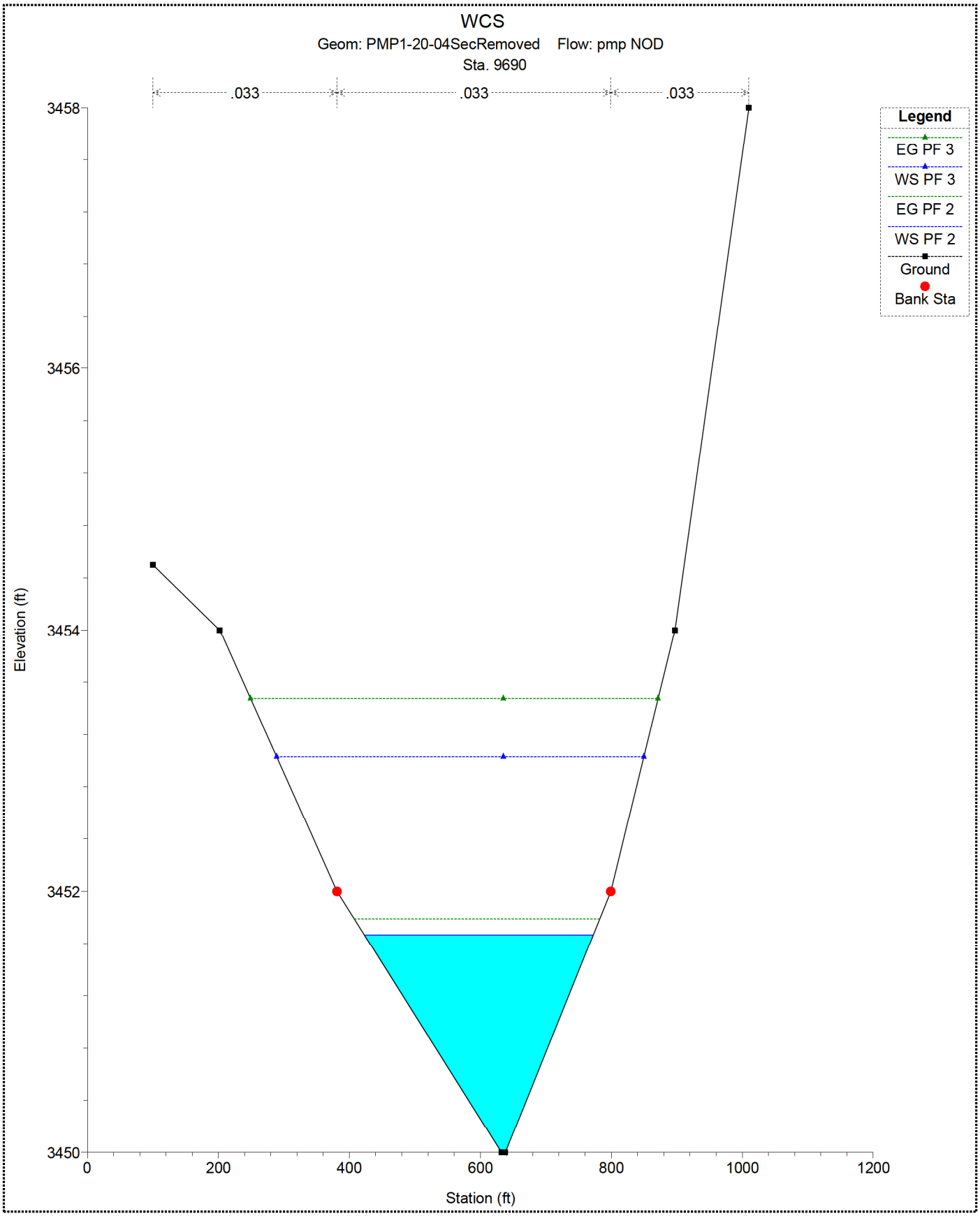
5	2989		1668.00	3413.80	3414.56	3414.56	0.76	3
414.87	0.018785	4.28	177.66	805.71	378.40	628.05		0.99
5	2989		6955.00	3413.80	3415.53	3415.49	1.73	3
416.13	0.012623	6.56	3.99	882.77	1132.34	878.78		0.95
5	2774		1668.00	3409.00	3414.04	3412.71	5.04	3
414.08	0.000314	2.23	-406.27	642.67	1383.82	1048.95		0.18
5	2774		6955.00	3409.00	3415.00	3413.39	6.00	3
415.18	0.001208	4.96	-437.07	683.17	2429.78	1120.24		0.37
5	2773		Culvert					
5	2734		1668.00	3408.90	3412.71	3412.71	3.81	3
412.85	0.001240	3.58	83.74	515.65	665.51	431.91		0.34
5	2734		6955.00	3408.90	3413.55	3413.51	4.65	3
414.43	0.006464	9.48	39.37	549.66	1061.05	510.29		0.81
5	1888		1692.00	3408.00	3409.29	3408.77	1.29	3
409.36	0.002748	2.24	188.99	1004.86	754.95	815.87		0.41
5	1888		7027.00	3408.00	3410.48		2.48	3
410.67	0.002815	3.54	-217.69	1201.18	2061.58	1418.87		0.46
5	1060		1767.00	3402.70	3404.18	3404.18	1.48	3
404.58	0.017389	5.08	661.17	1100.39	347.74	439.22		1.01
5	1060		7252.00	3402.70	3405.41	3405.41	2.71	3
406.07	0.014925	6.55	481.23	1334.86	1107.97	853.63		1.01

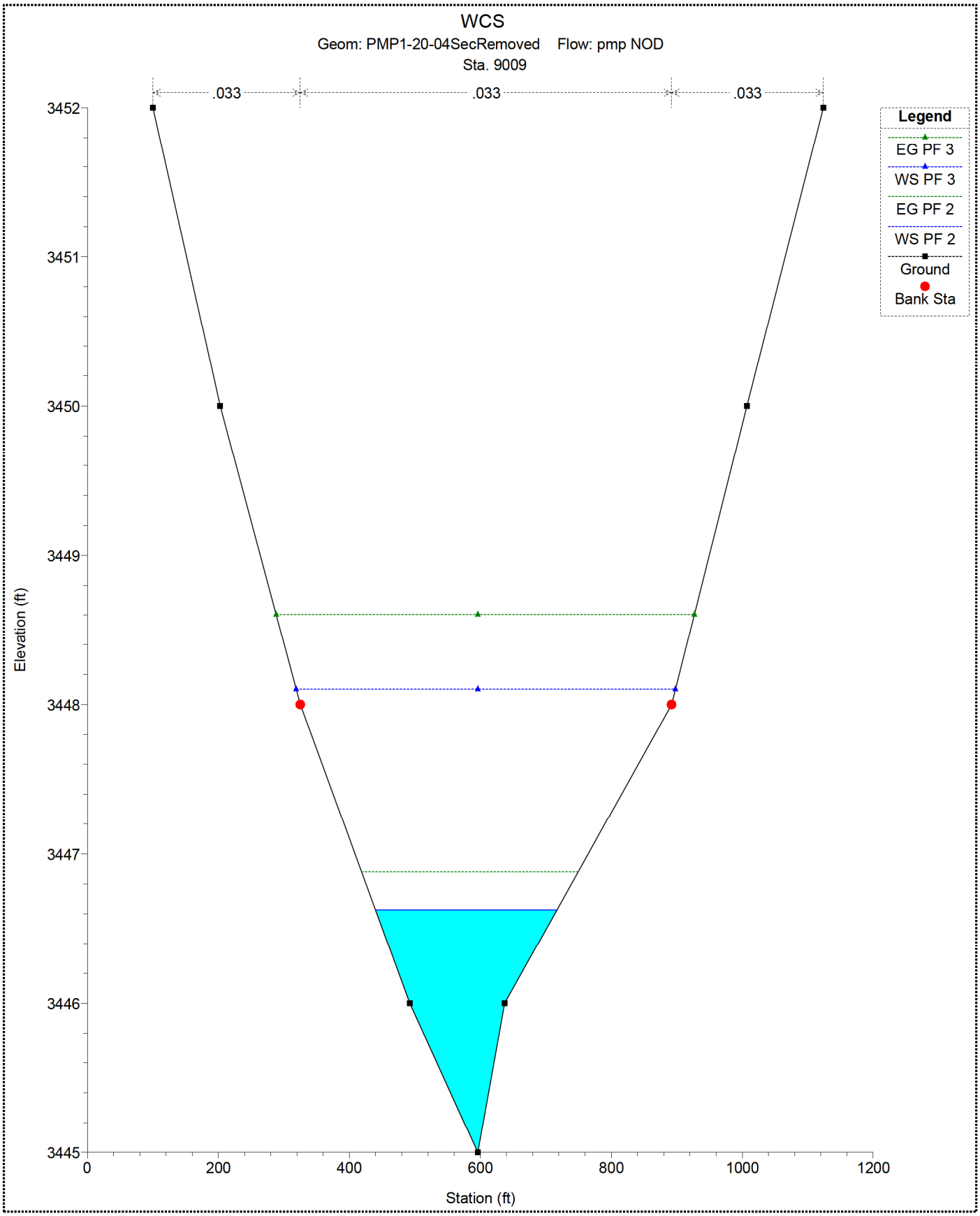

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD
Sta. 12674
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3482
3481
3480
3479
3478
3477
0
200
400
600
800
1000
Station (ft)

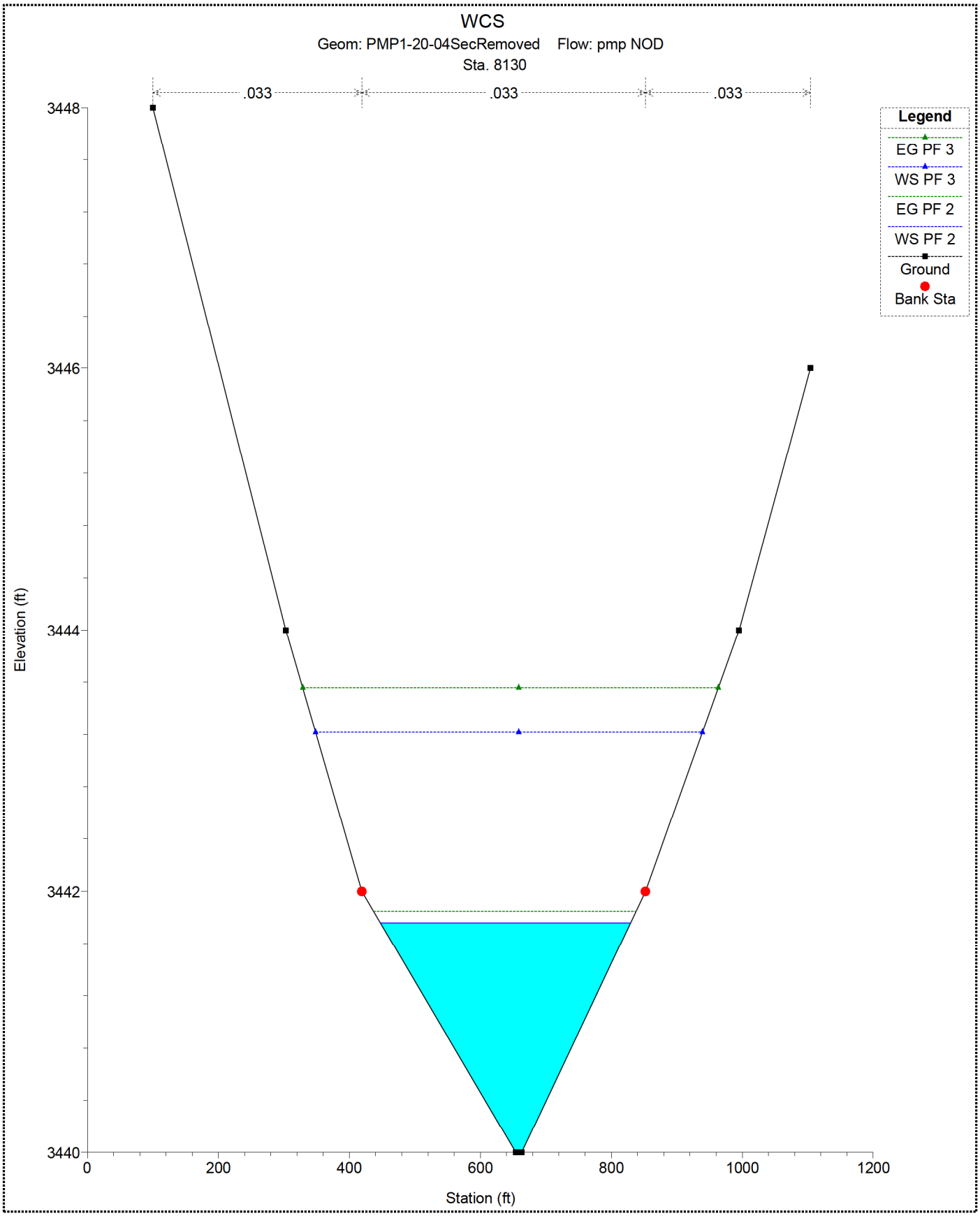

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD
Sta. 11337
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
3478
3476
3474
3472
3470
3468
Elevation (ft)
100
200
300
400
500
600
700
Station (ft)

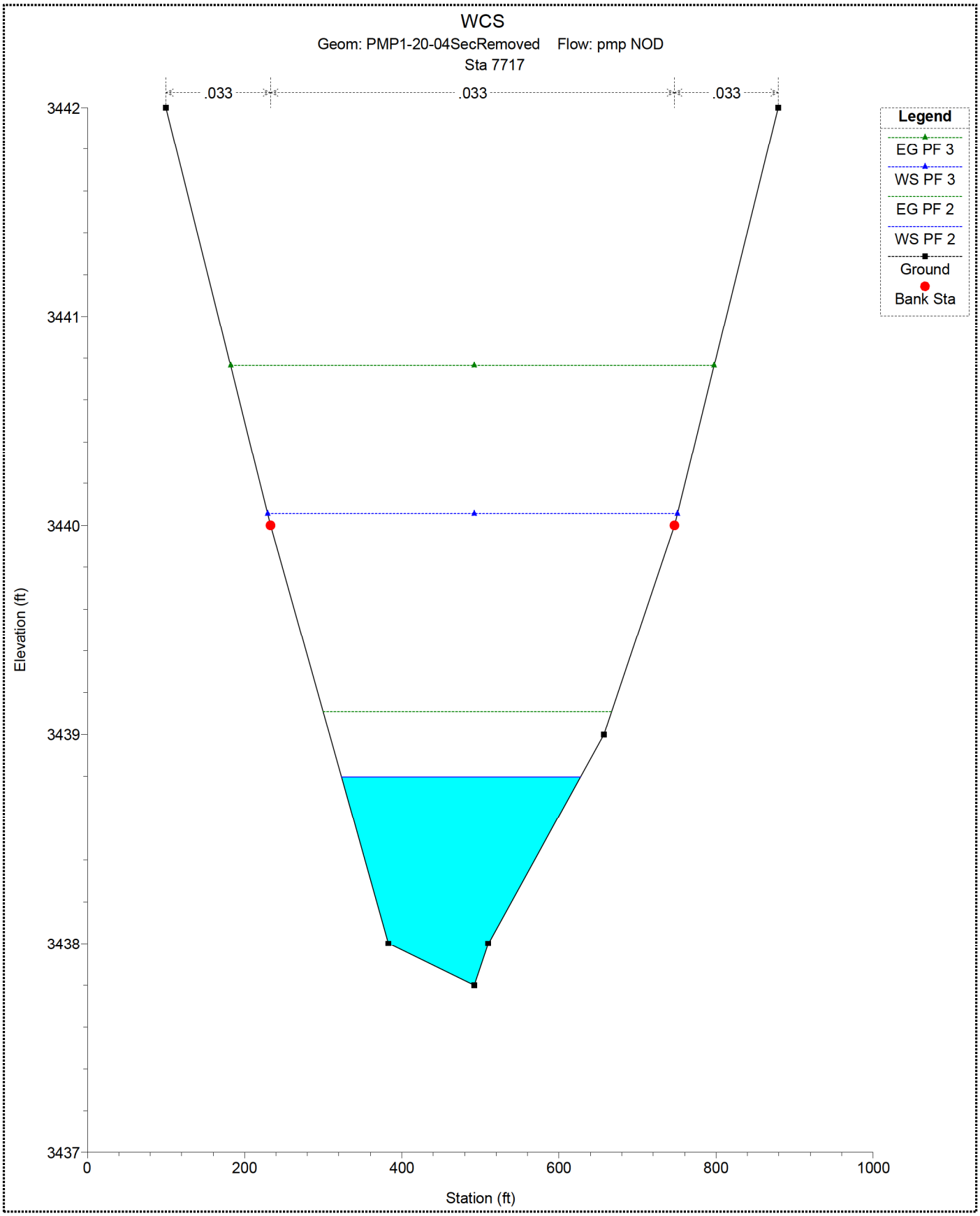

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD
Sta. 10937
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3472
3470
3468
3466
3464
100
200
300
400
500
600
700
800
900
Station (ft)

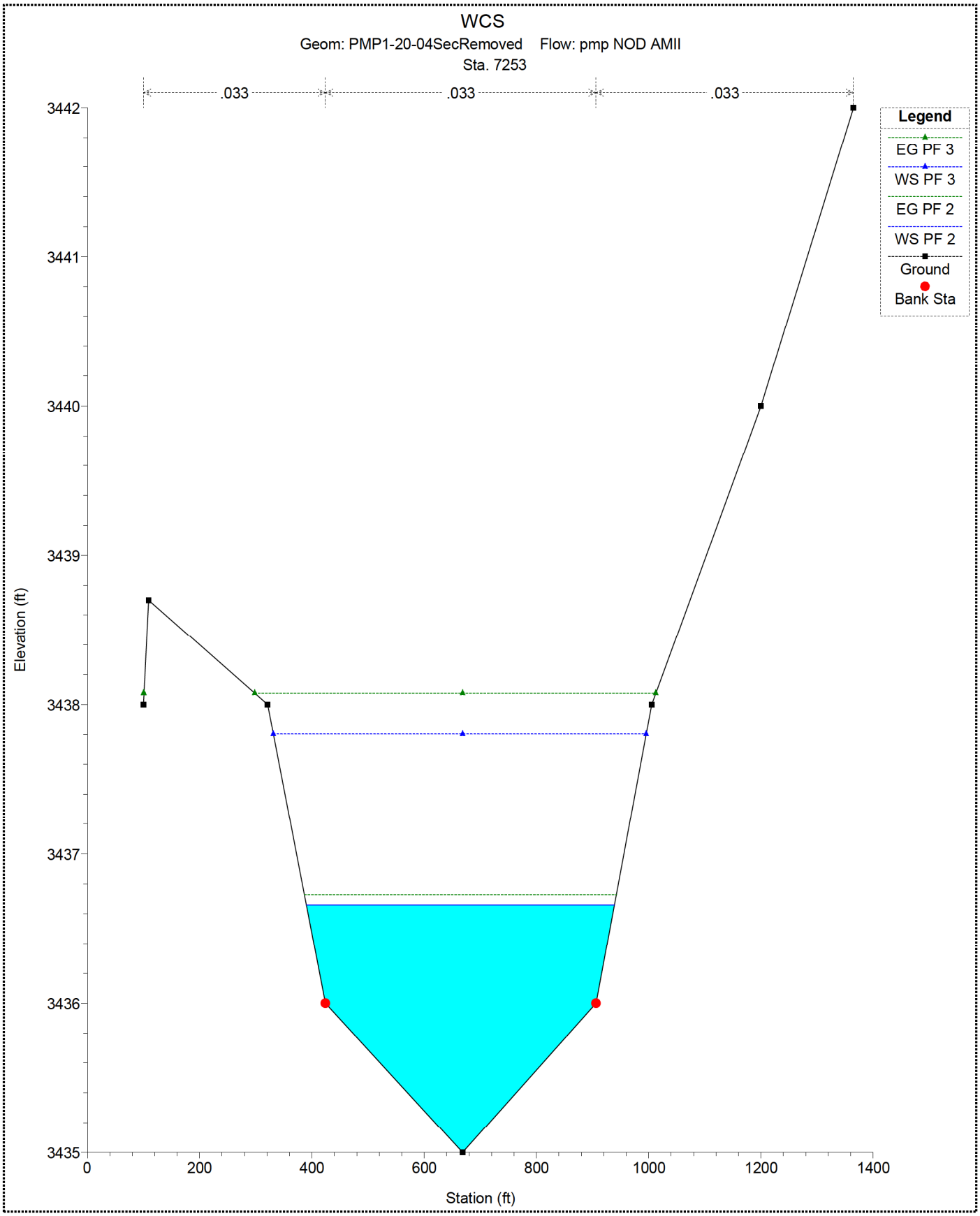

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD
Sta. 10288
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3464
3462
3460
3458
3456
0
200
400
600
800
1000
Station (ft)

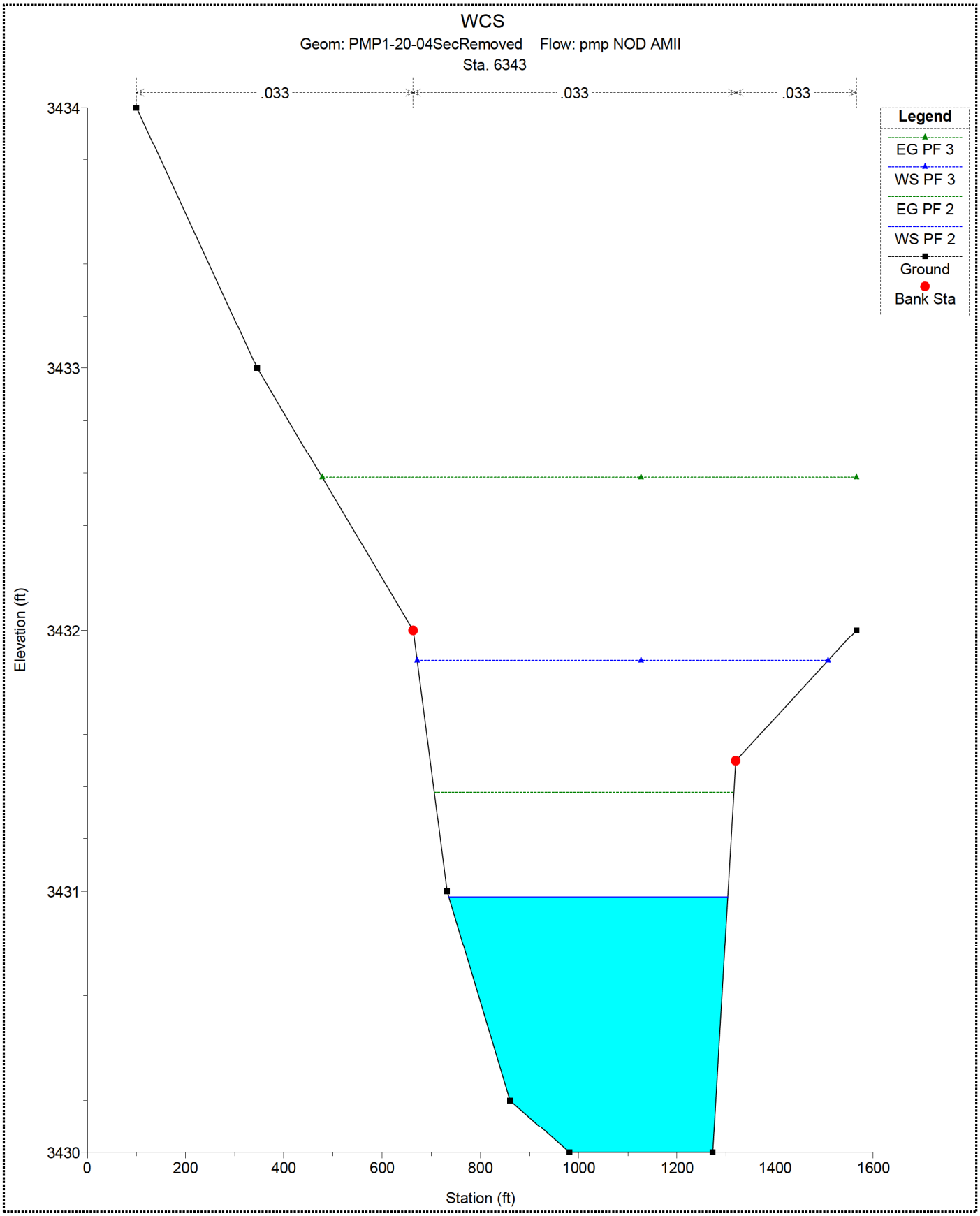

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD
Sta. 9690
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3458
3456
3454
3452
3450
0
200
400
600
800
1000
1200
Station (ft)

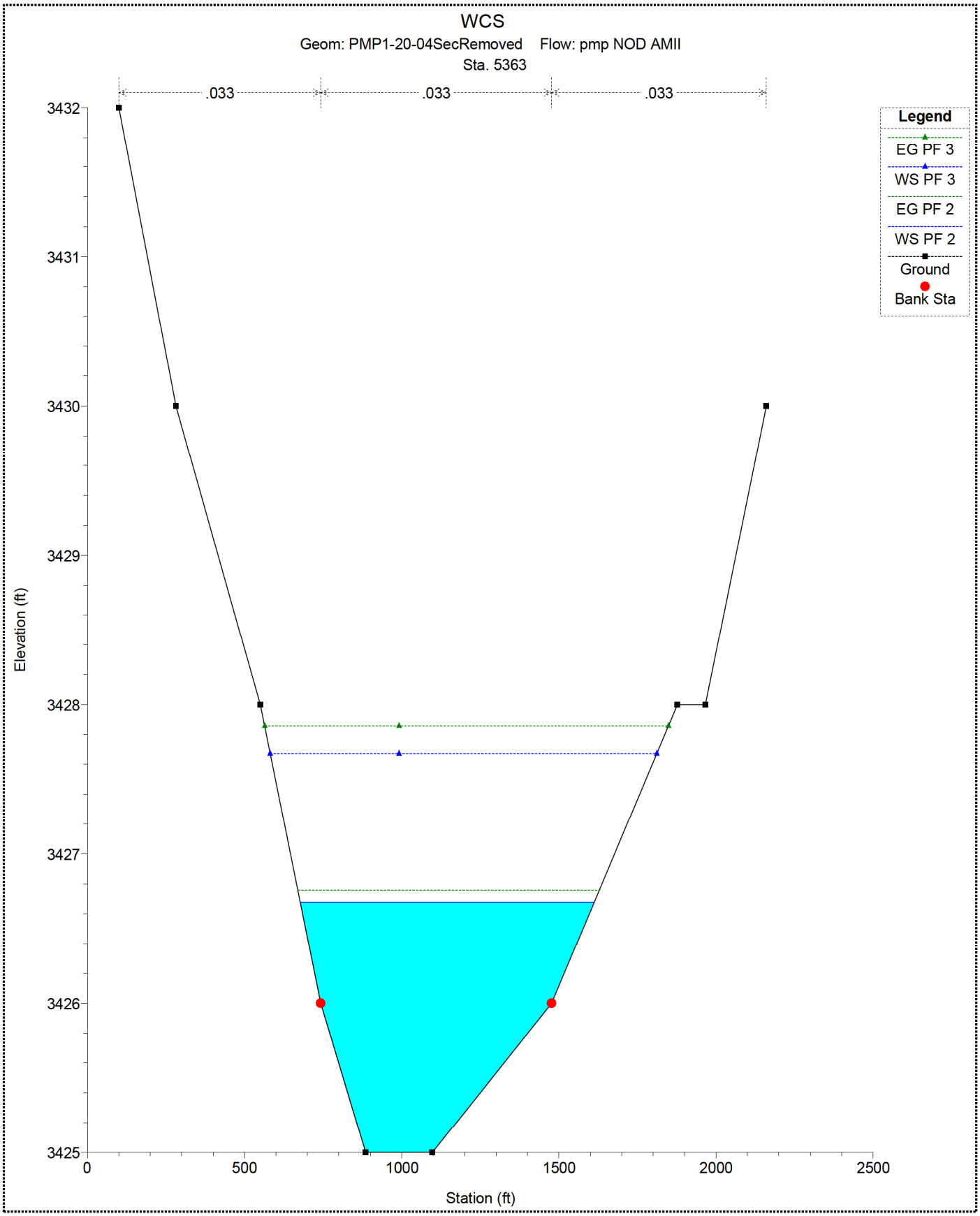

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD
Sta. 9009
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3452
3451
3450
3449
3448
3447
3446
3445
0
200
400
600
800
1000
1200
Station (ft)

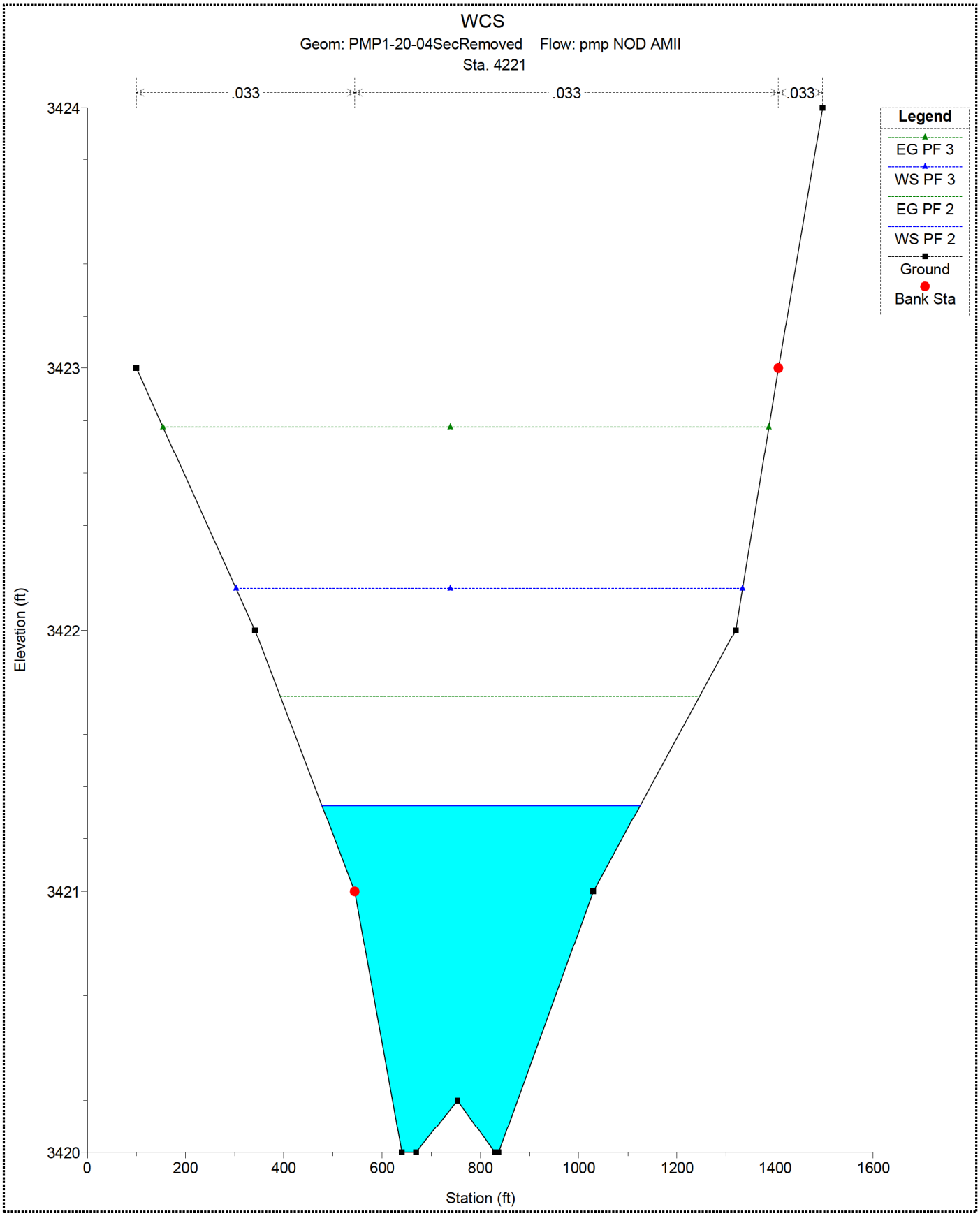

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD
Sta. 8130
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3448
3446
3444
3442
3440
0
200
400
600
800
1000
1200
Station (ft)

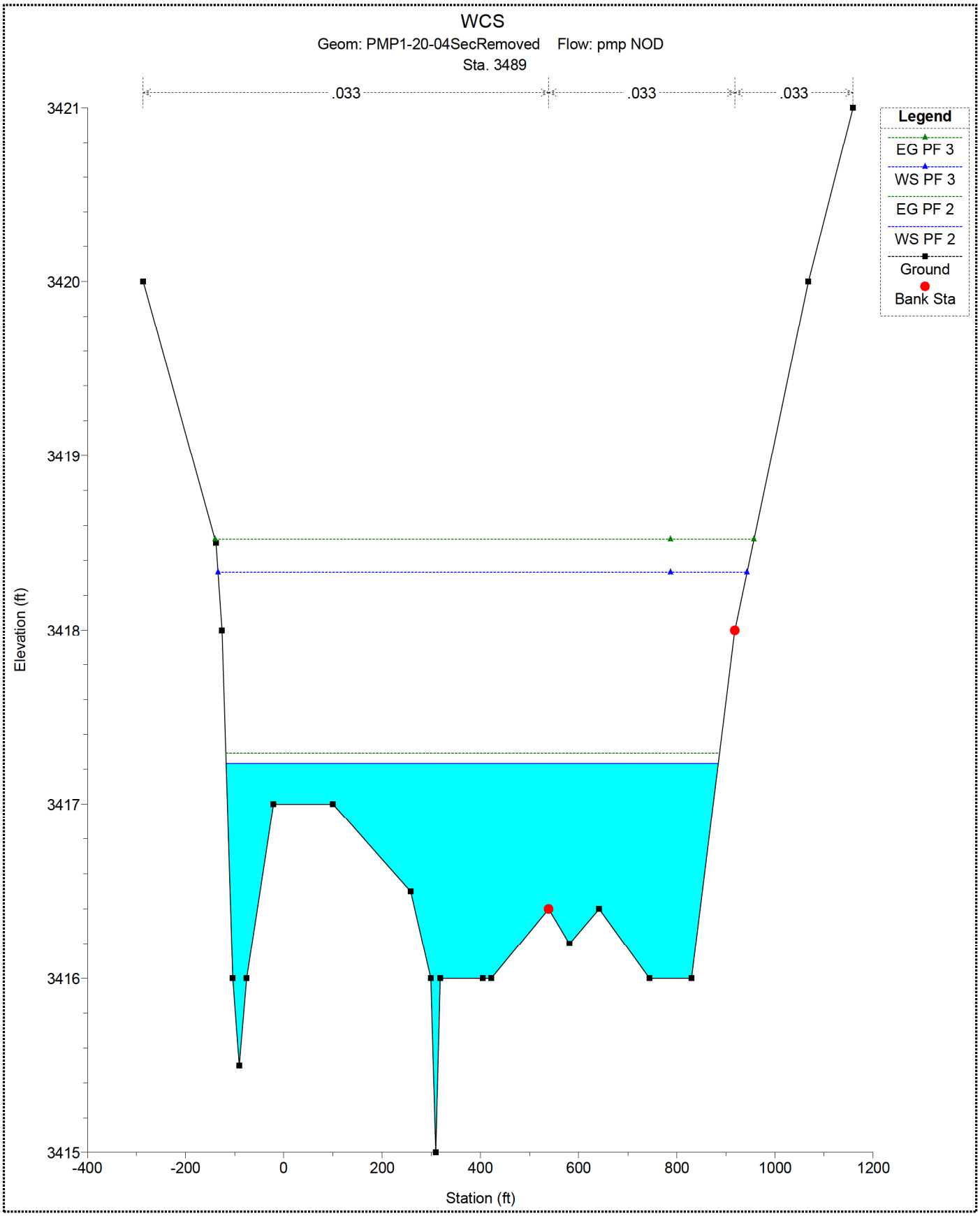

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD
Sta 7717
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
3442
3441
3440
3439
3438
3437
Elevation (ft)
0
200
400
600
800
1000
Station (ft)

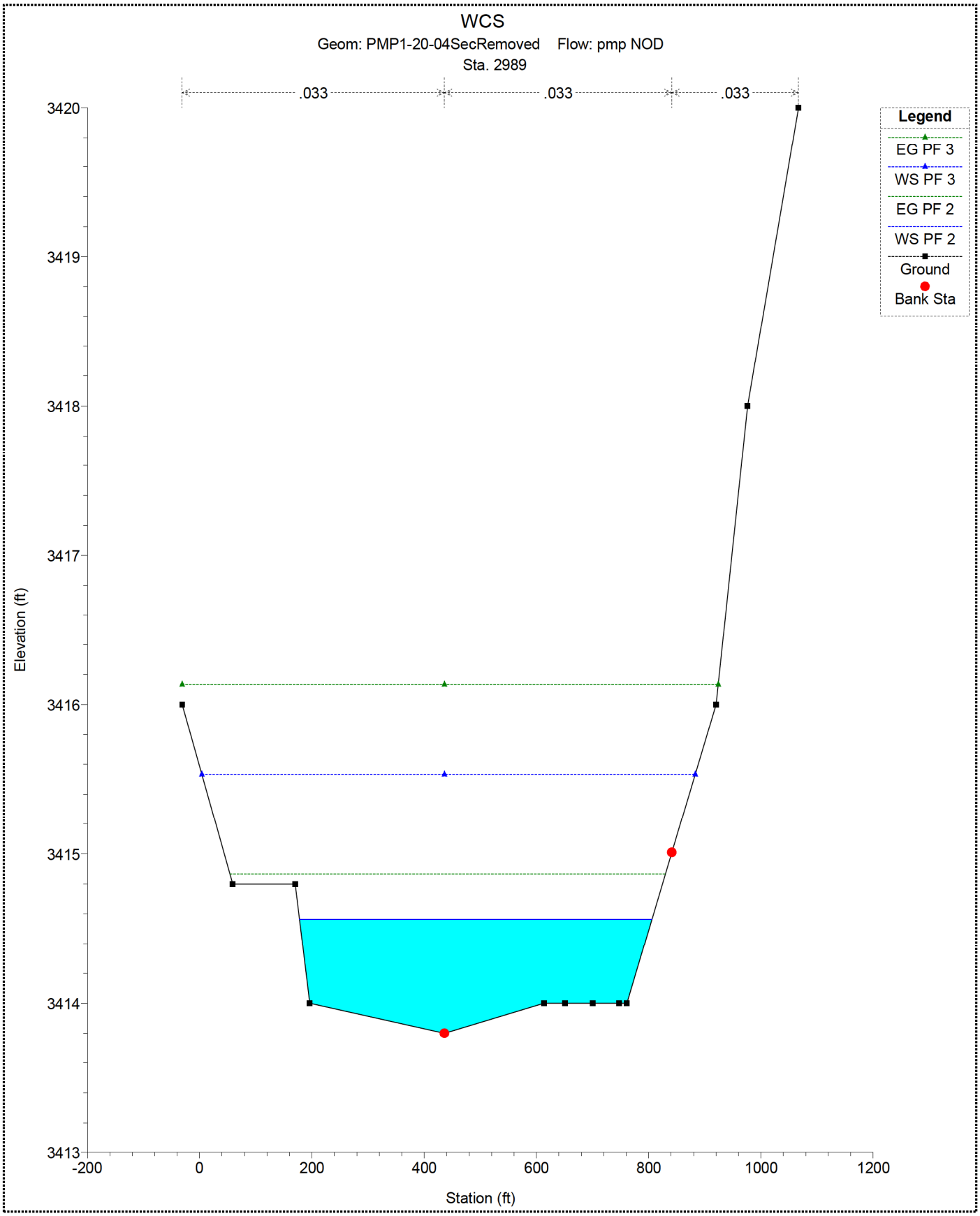

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 7253
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
3442
3441
3440
3439
3438
3437
3436
3435
0
200
400
600
800
1000
1200
1400

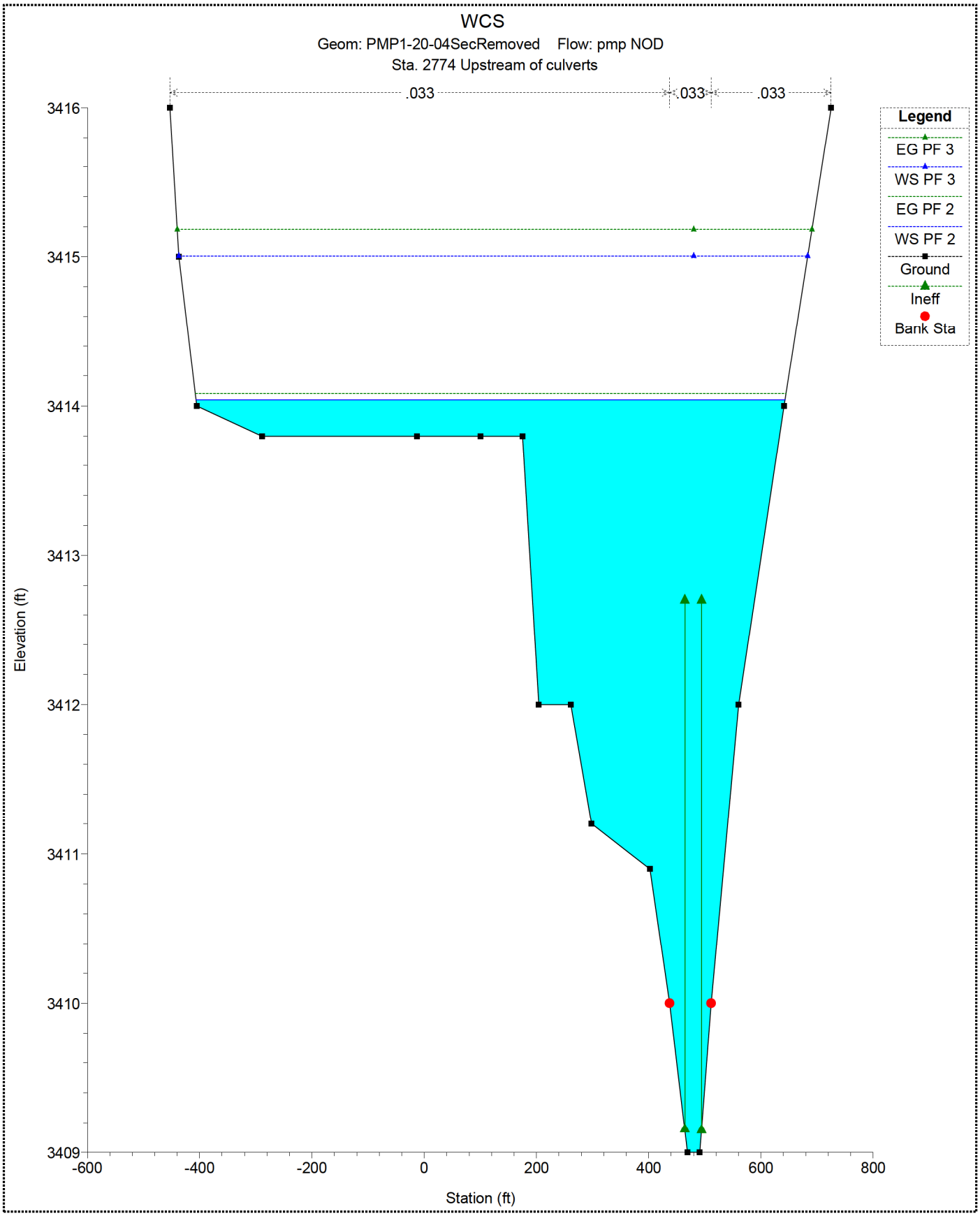

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 6343
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3434
3433
3432
3431
3430
0
200
400
600
800
1000
1200
1400
1600
Station (ft)

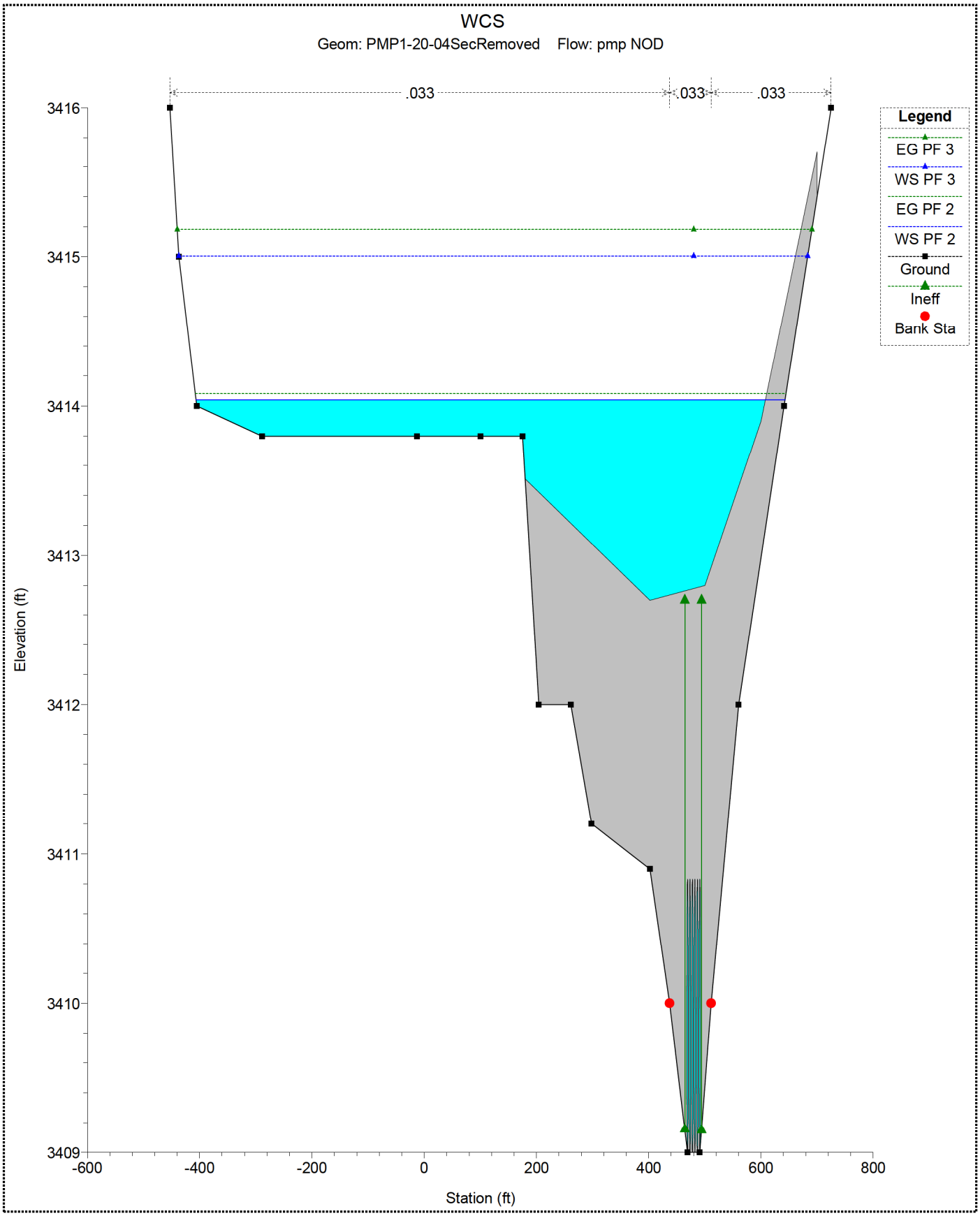

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 5363
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3432
3431
3430
3429
3428
3427
3426
3425
0
500
1000
1500
2000
2500
Station (ft)

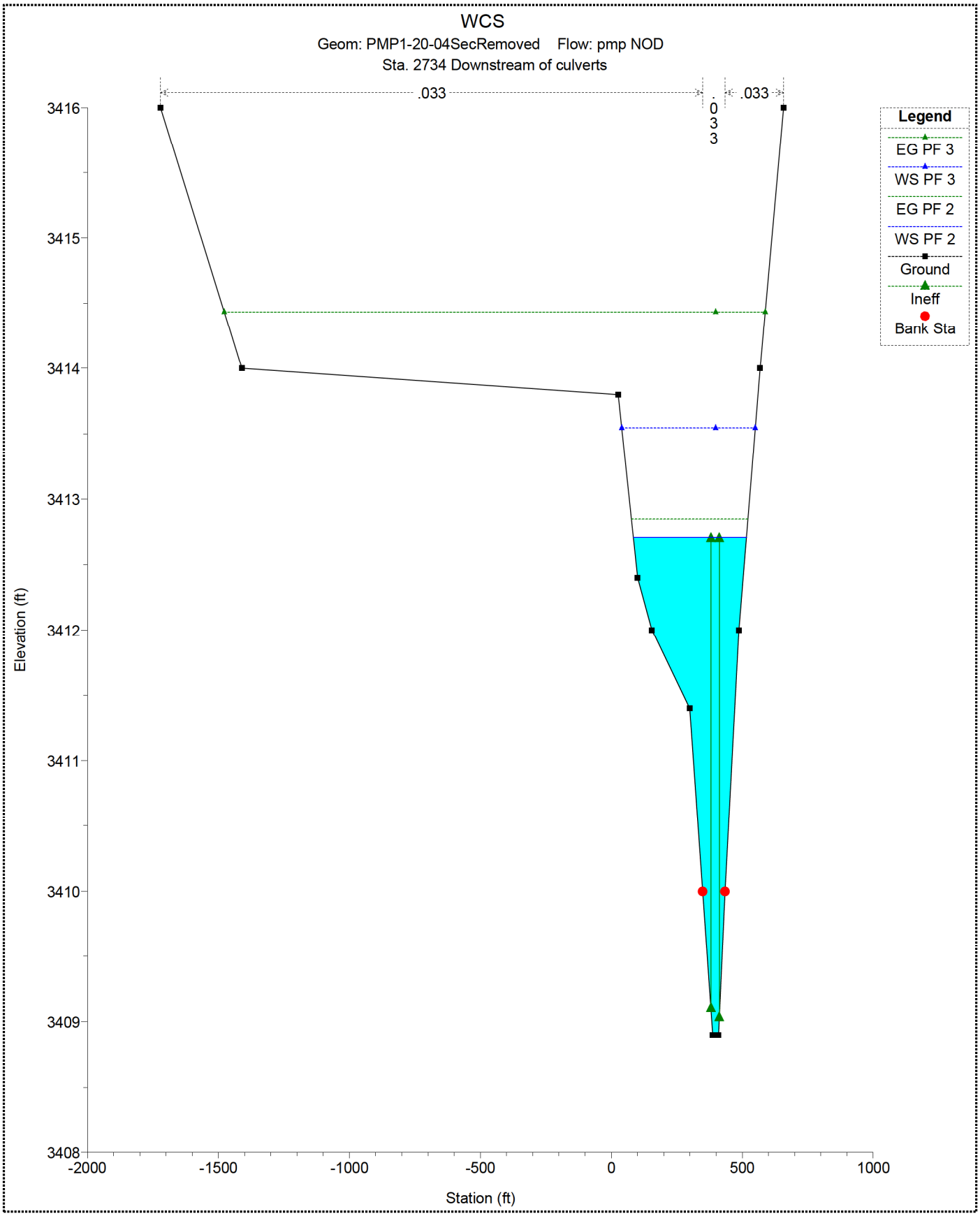

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 4221
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3424
3423
3422
3421
3420
0
200
400
600
800
1000
1200
1400
1600
Station (ft)

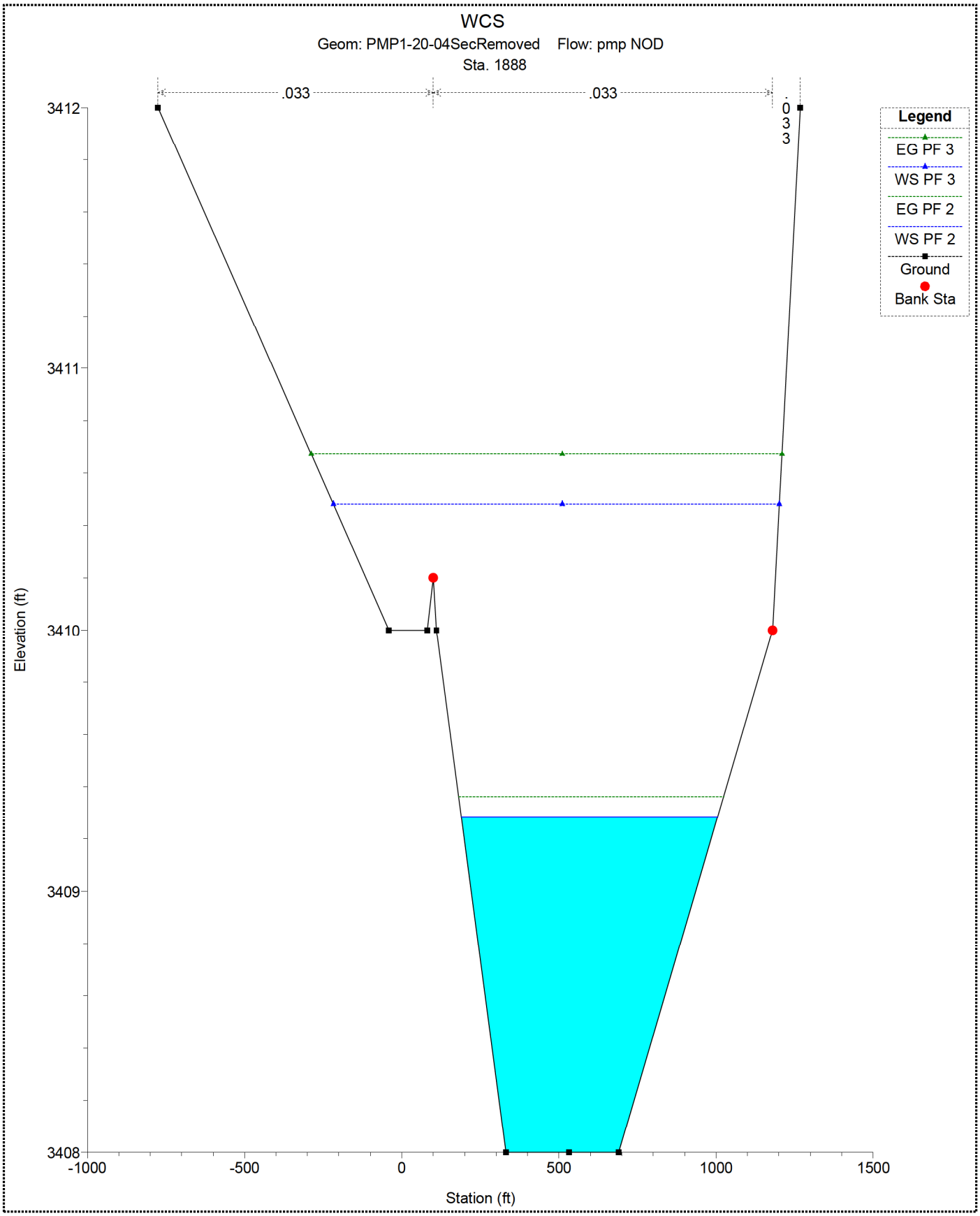

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD
Sta. 3489
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
3421
3420
3419
3418
3417
3416
3415
-400
-200
0
200
400
600
800
1000
1200

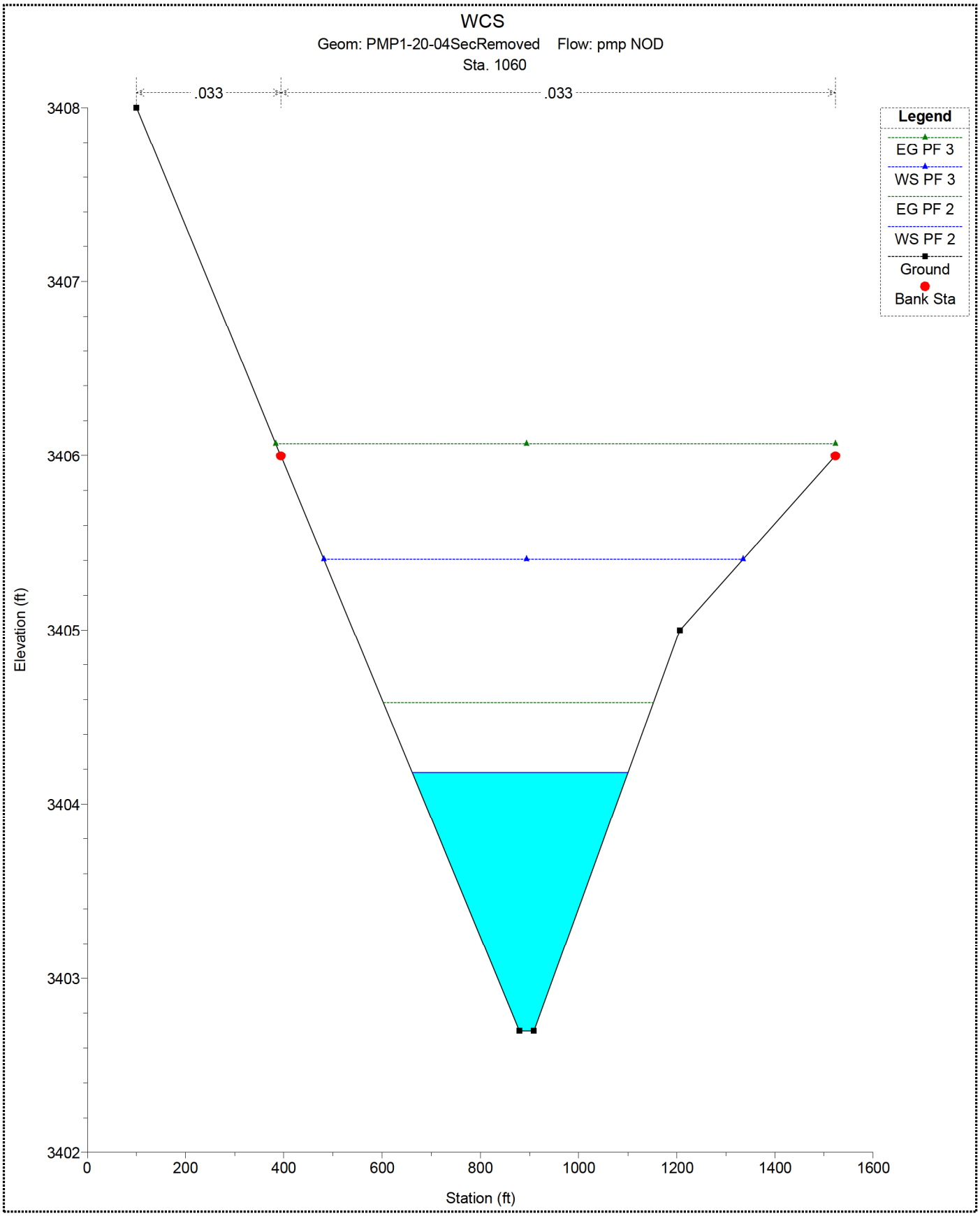

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD
Sta. 2989
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3420
3419
3418
3417
3416
3415
3414
3413
-200
0
200
400
600
800
1000
1200
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD
Sta. 2774 Upstream of culverts
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
3416
3415
3414
3413
3412
3411
3410
3409
-600
-400
-200
0
200
400
600
800


WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
3416
3415
3414
3413
3412
3411
3410
3409
Elevation (ft)
-600
-400
-200
0
200
400
600
800
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD
Sta. 2734 Downstream of culverts
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
3416
3415
3414
3413
3412
3411
3410
3409
3408
-2000
-1500
-1000
-500
0
500
1000
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD
Sta. 1888
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3412
3411
3410
3409
3408
-1000
-500
0
500
1000
1500
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD
Sta. 1060
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
3408
3407
3406
3405
3404
3403
3402
0
200
400
600
800
1000
1200
1400
1600

APPENDIX L

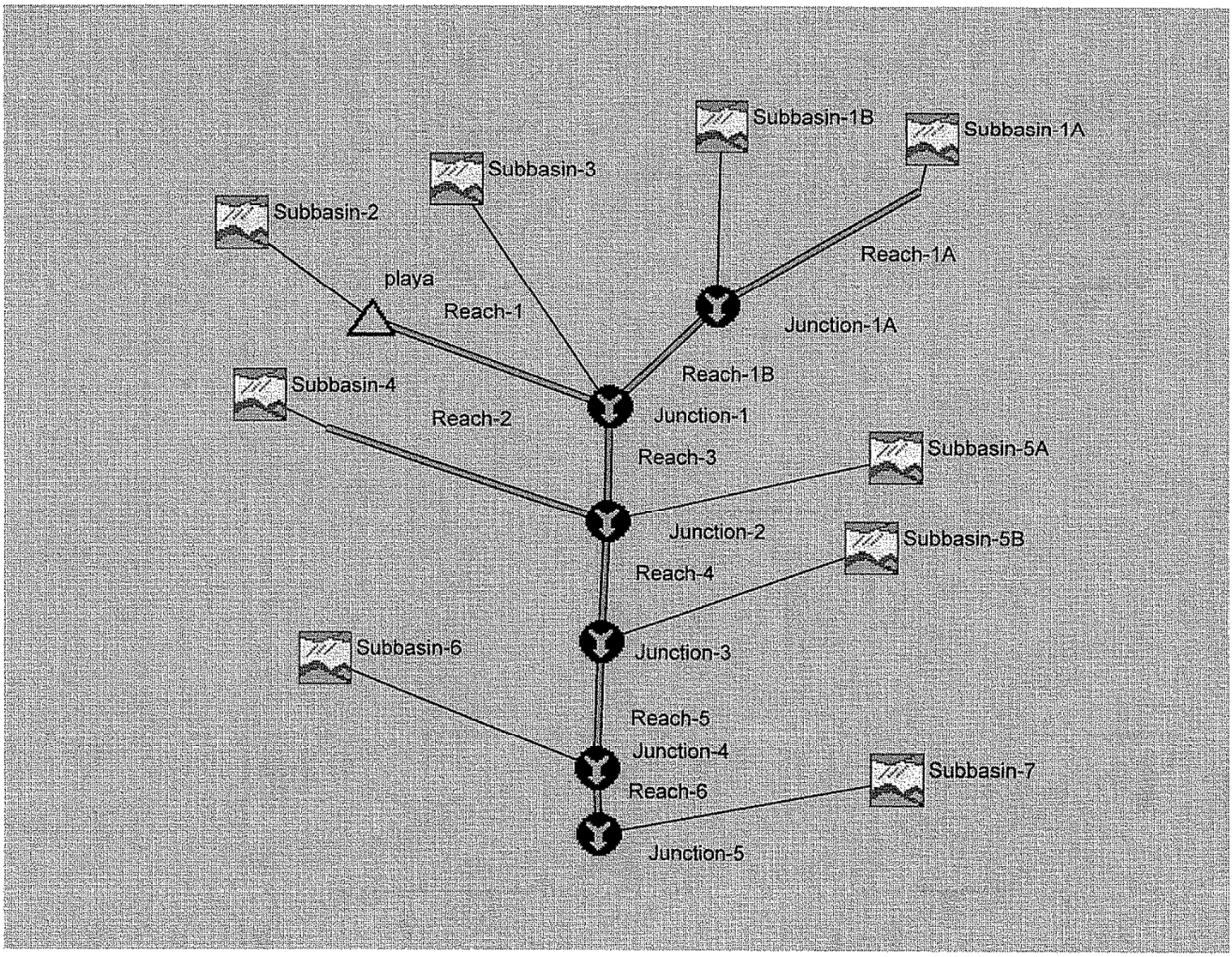
HEC-HMS MODEL FOR THE CALCULATION OF THE 100-YEAR PEAK DISCHARGE, ANTECEDENT MOISTURE CONDITION II

HMS * Summary of Results

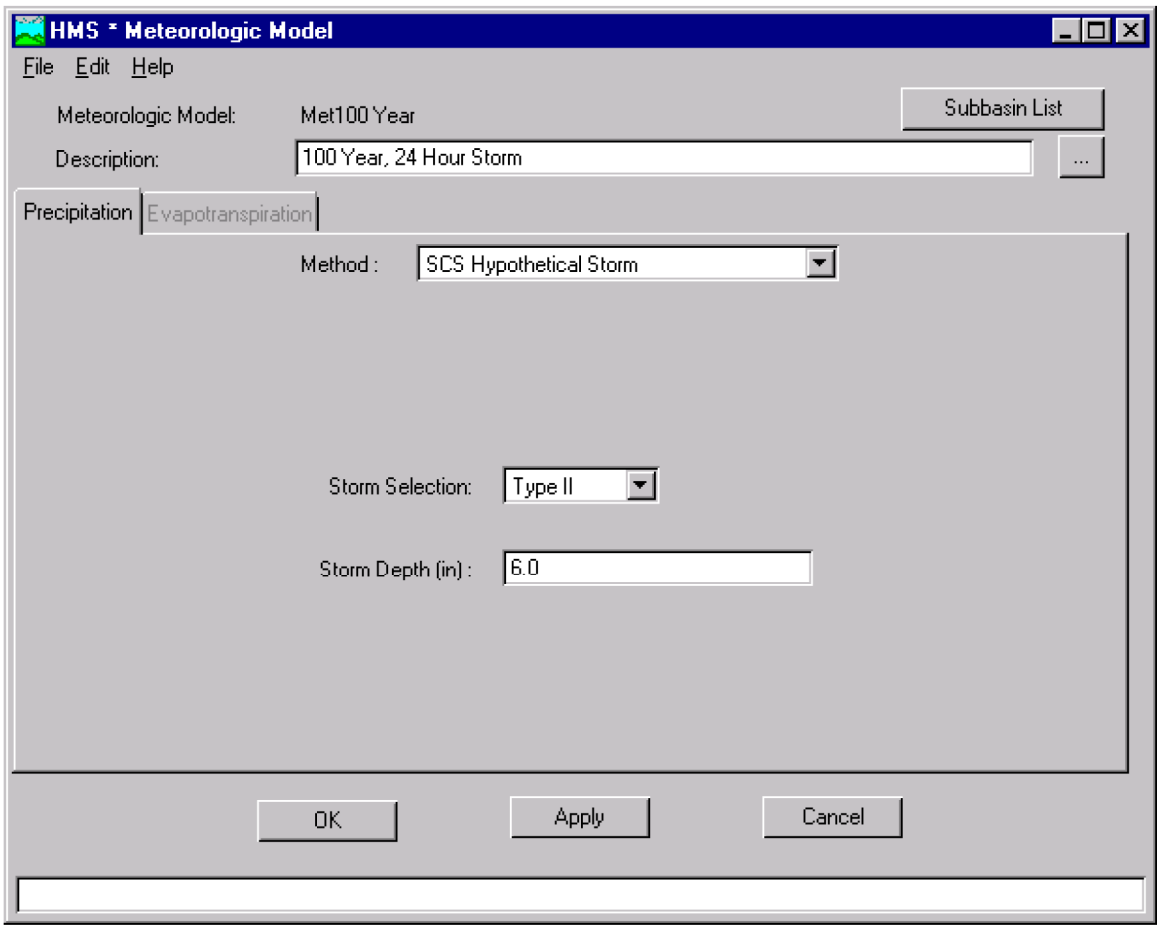
Project : WCS Run Name : 100YrAMII3/24/06NOD

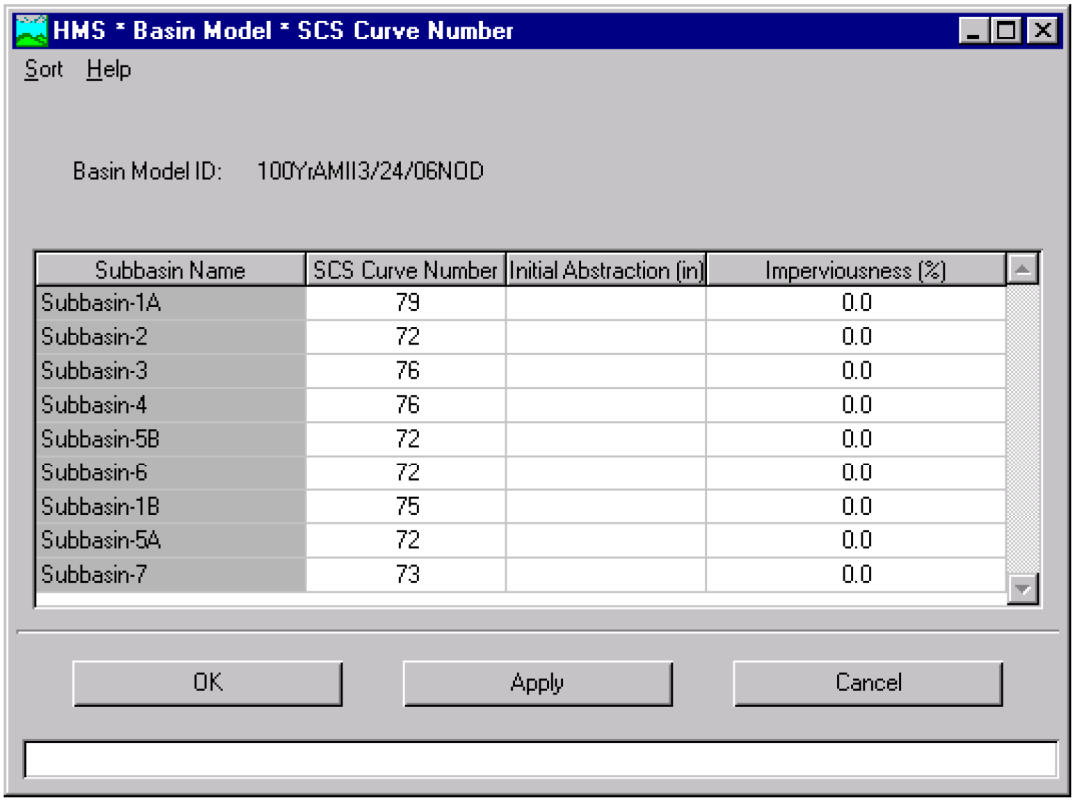
Start of Run : 01Dec00 0000 Basin Model : 100YrAMII3/24/06NOD
End of Run : 02Dec00 0000 Met. Model : Met100 Year
Execution Time : 24Mar06 1343 Control Specs : Control 1

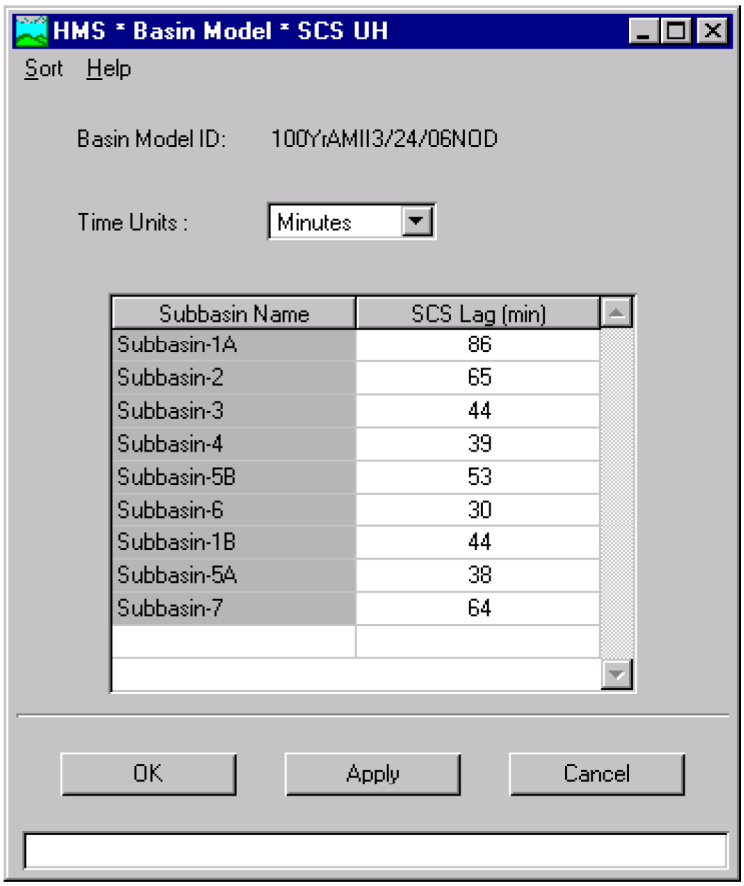
Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Subbasin-4	572.63	01 Dec 00 1232	87.051	0.490
Reach-2	572.63	01 Dec 00 1247	86.663	0.490
Subbasin-2	744.22	01 Dec 00 1301	165.24	1.063
playa	0.0	30 Nov 00 2400	0.0	1.063
Reach-1	0.0	30 Nov 00 2400	0.0	1.063
Subbasin-1A	487.80	01 Dec 00 1323	131.37	0.691
Reach-1A	487.80	01 Dec 00 1340	130.69	0.691
Subbasin-1B	325.64	01 Dec 00 1238	54.045	0.314
Junction-1A	611.21	01 Dec 00 1325	184.74	1.005
Reach-1B	611.21	01 Dec 00 1328	184.57	1.005
Subbasin-3	166.92	01 Dec 00 1238	27.661	0.156
Junction-1	697.32	01 Dec 00 1259	212.23	2.224
Reach-3	697.32	01 Dec 00 1316	211.13	2.224
Subbasin-5A	200.57	01 Dec 00 1232	30.187	0.192
Junction-2	1328.0	01 Dec 00 1252	327.98	2.906
Reach-4	1328.0	01 Dec 00 1313	325.85	2.906
Subbasin-5B	216.46	01 Dec 00 1248	41.405	0.265
Junction-3	1500.7	01 Dec 00 1311	367.25	3.171
Reach-5	1500.7	01 Dec 00 1325	365.62	3.171
Subbasin-6	91.584	01 Dec 00 1223	11.673	0.074
Junction-4	1520.6	01 Dec 00 1325	377.30	3.245
Reach-6	1520.6	01 Dec 00 1325	377.30	3.245
Subbasin-7	76.276	01 Dec 00 1300	16.696	0.104
Junction-5	1584.9	01 Dec 00 1325	393.99	3.349

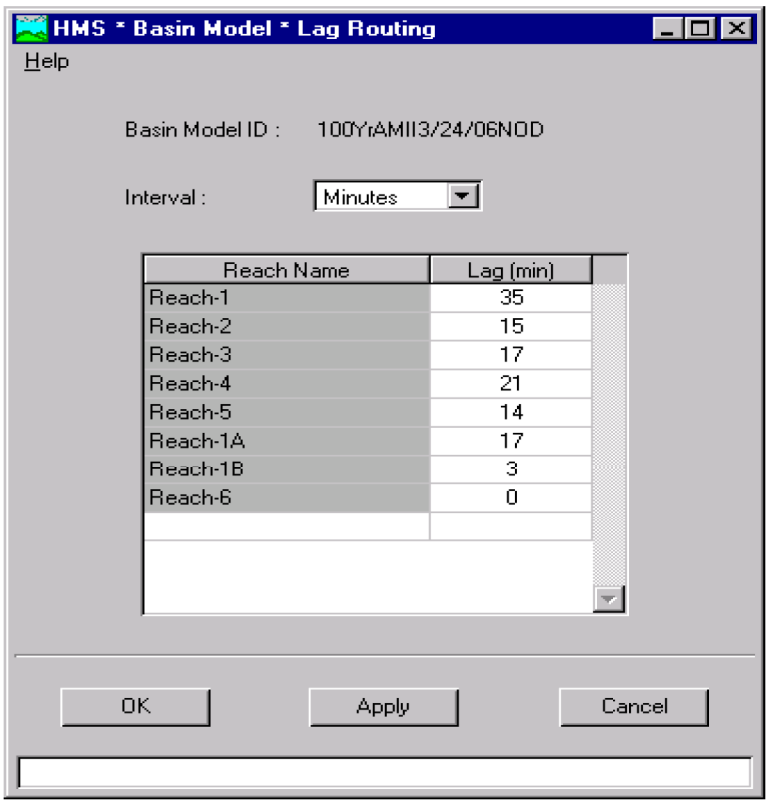

Subbasin-1B
Subbasin-1A
Subbasin-3
Subbasin-2
Reach-1A
playa
Reach-1
Junction-1A
Reach-1B
Subbasin-4
Reach-2
Junction-1
Reach-3
Subbasin-5A
Junction-2
Subbasin-5B
Reach-4
Subbasin-6
Junction-3
Reach-5
Junction-4
Subbasin-7
Reach-6
Junction-5

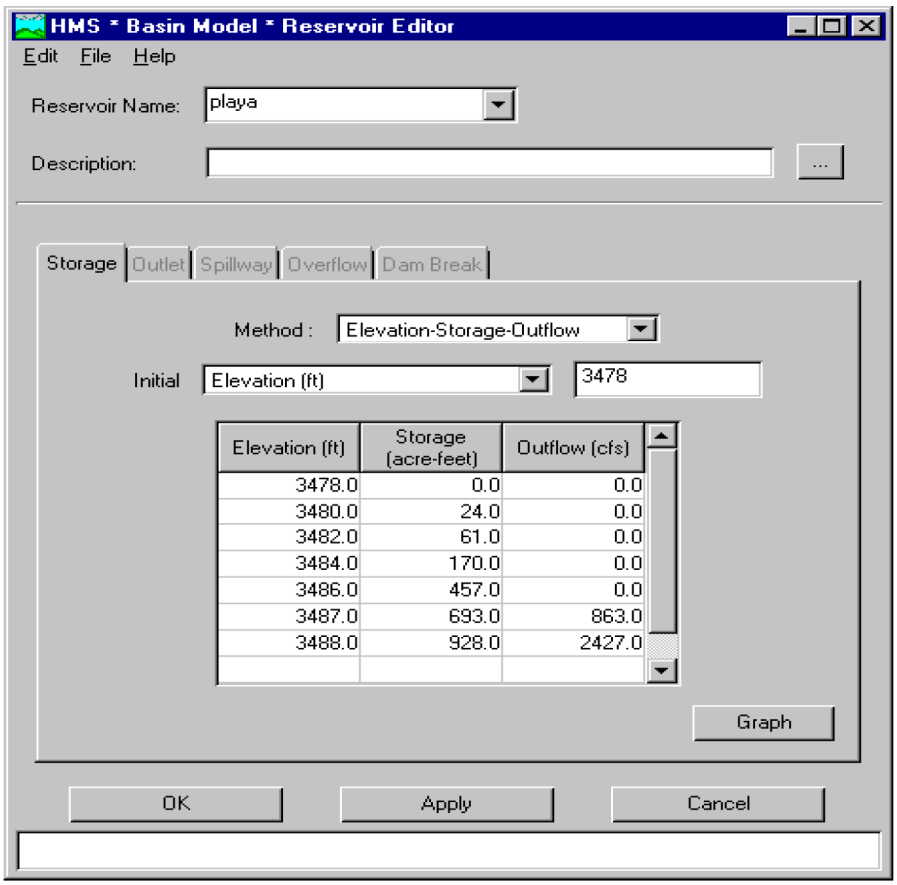
Meteorologic Model Input



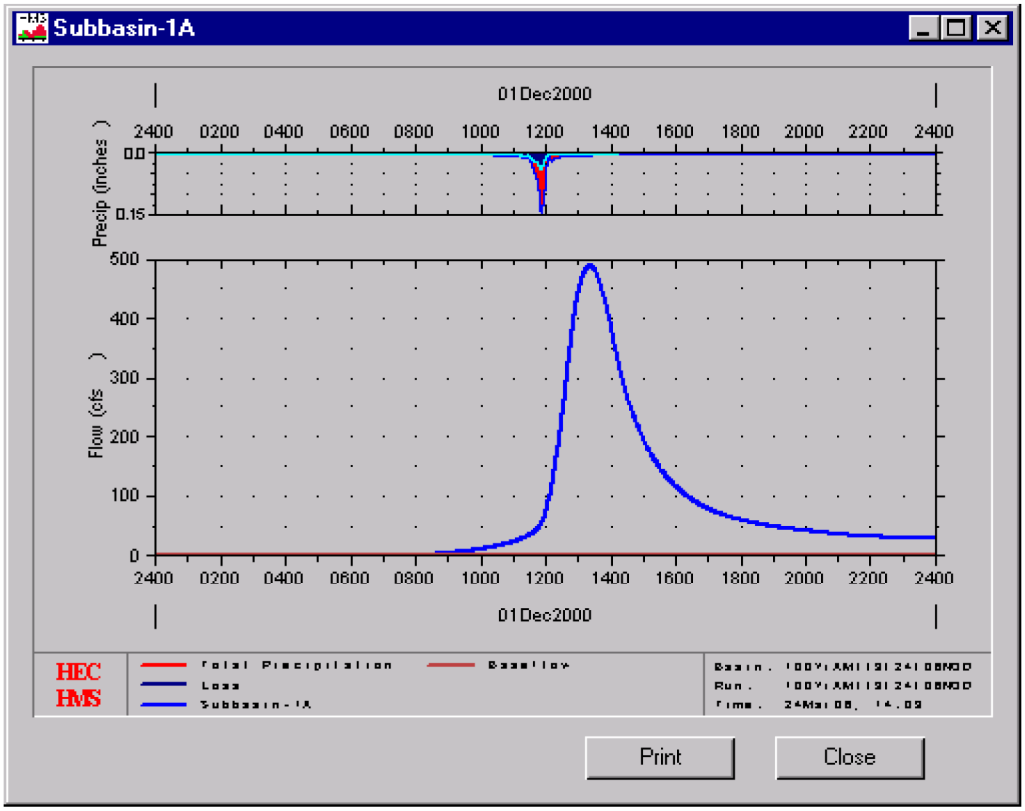

HMS * Basin Model * SCS Curve Number
Sort Help
Basin Model ID: 100YrAMII3/24/06NOD
Subbasin Name | SCS Curve Number | Initial Abstraction (in) | Imperviousness (%)
Subbasin-1A | 79 | | 0.0
Subbasin-2 | 72 | | 0.0
Subbasin-3 | 76 | | 0.0
Subbasin-4 | 76 | | 0.0
Subbasin-5B | 72 | | 0.0
Subbasin-6 | 72 | | 0.0
Subbasin-1B | 75 | | 0.0
Subbasin-5A | 72 | | 0.0
Subbasin-7 | 73 | | 0.0
OK
Apply
Cancel

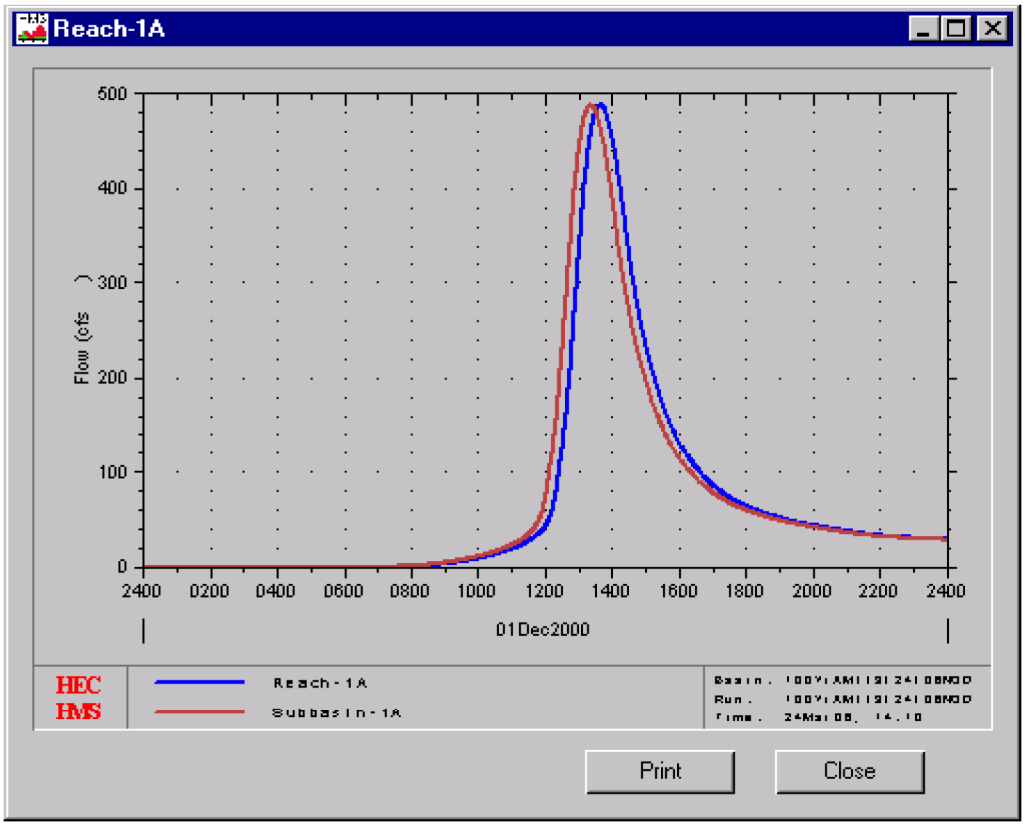

HMS * Basin Model * SCS UH
Sort Help
Basin Model ID: 100YrAMII3/24/06NOD
Time Units : Minutes
Subbasin Name | SCS Lag (min)
Subbasin-1A | 86
Subbasin-2 | 65
Subbasin-3 | 44
Subbasin-4 | 39
Subbasin-5B | 53
Subbasin-6 | 30
Subbasin-1B | 44
Subbasin-5A | 38
Subbasin-7 | 64
OK
Apply
Cancel


HMS * Basin Model * Lag Routing
Help
Basin Model ID : 100YrAMII3/24/06NOD
Interval : Minutes
Reach Name | Lag (min)
Reach-1 | 35
Reach-2 | 15
Reach-3 | 17
Reach-4 | 21
Reach-5 | 14
Reach-1A | 17
Reach-1B | 3
Reach-6 | 0
OK
Apply
Cancel

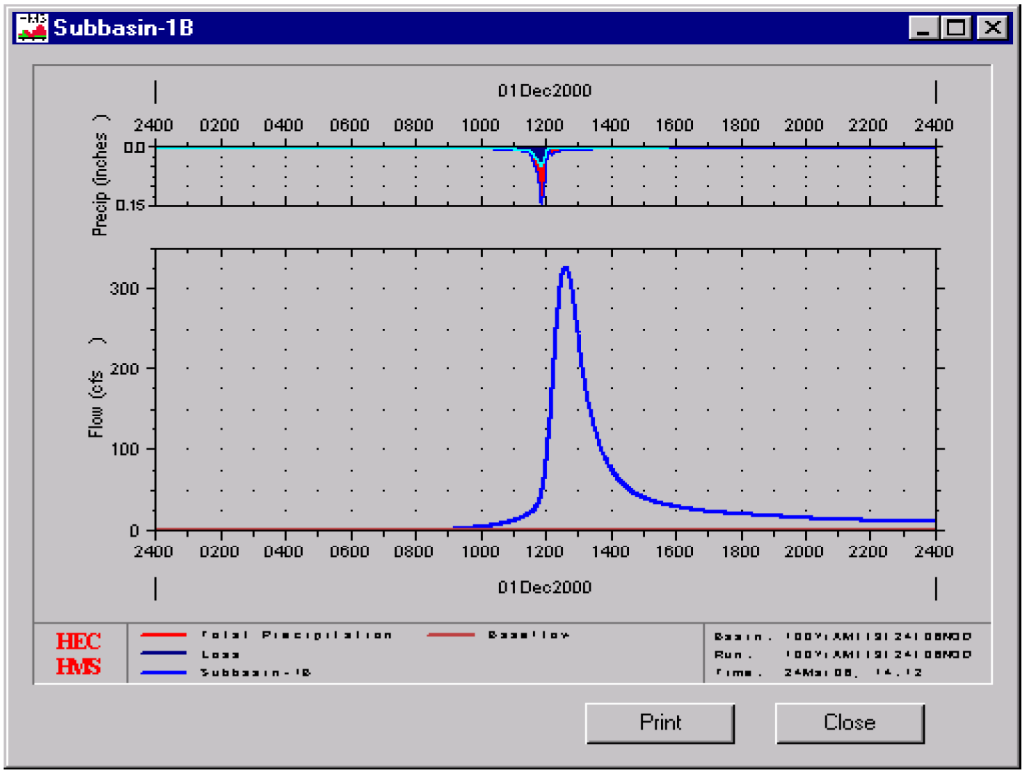

HMS * Basin Model * Reservoir Editor
Edit File Help
Reservoir Name: playa
Description:
Storage Outlet Spillway Overflow Dam Break
Method : Elevation-Storage-Outflow
Initial Elevation (ft) 3478
Elevation (ft) | Storage (acre-feet) | Outflow (cfs)
3478.0 | 0.0 | 0.0
3480.0 | 24.0 | 0.0
3482.0 | 61.0 | 0.0
3484.0 | 170.0 | 0.0
3486.0 | 457.0 | 0.0
3487.0 | 693.0 | 863.0
3488.0 | 928.0 | 2427.0
Graph
OK
Apply
Cancel

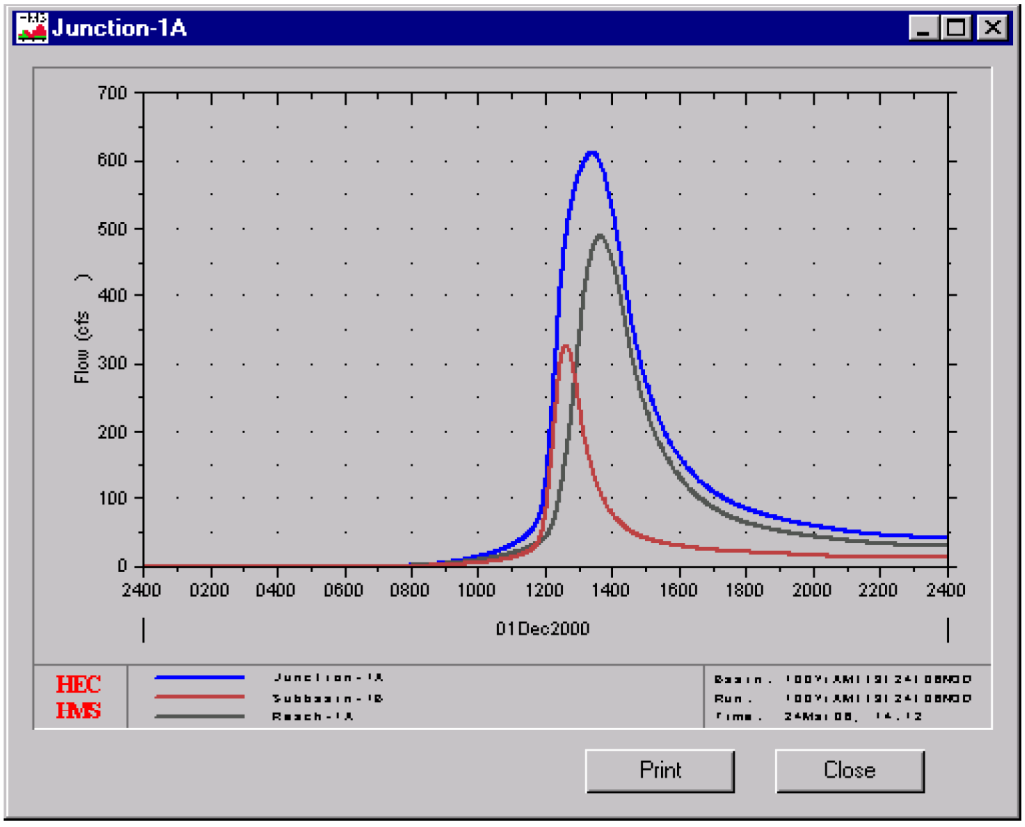
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



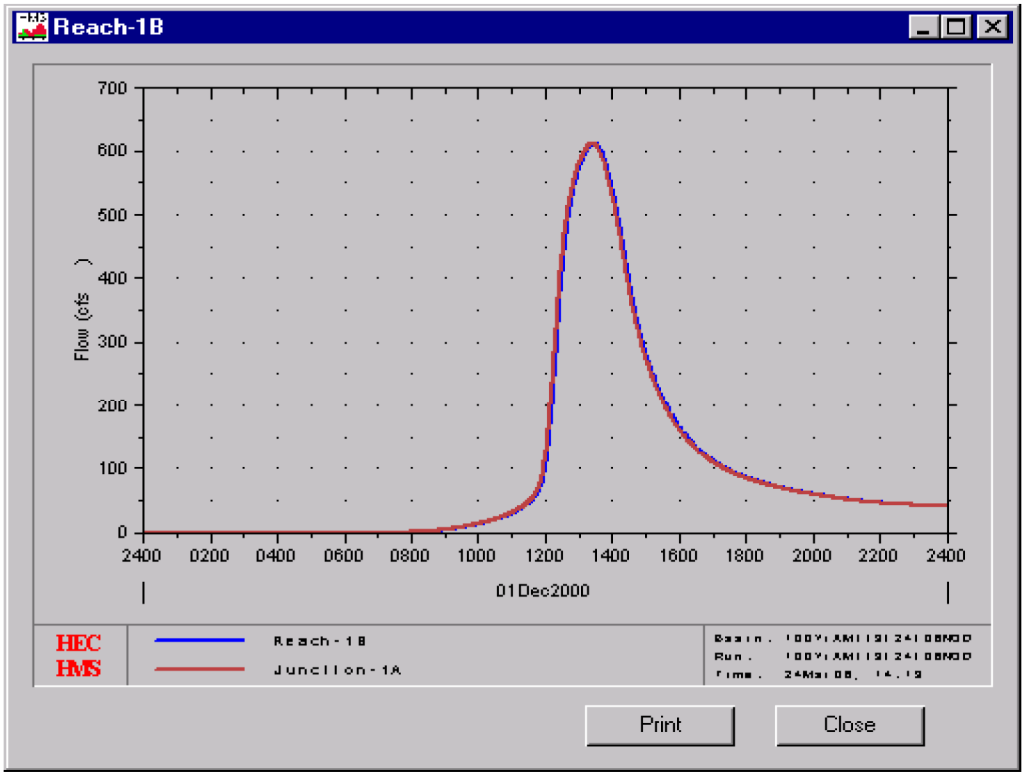


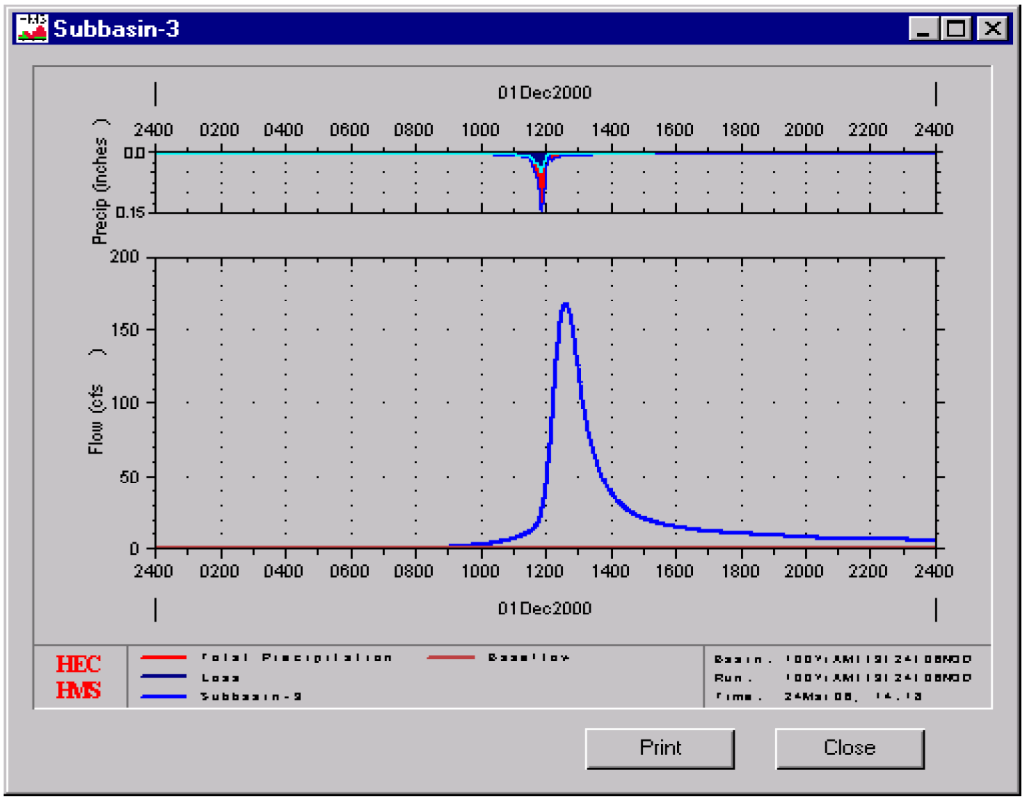
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



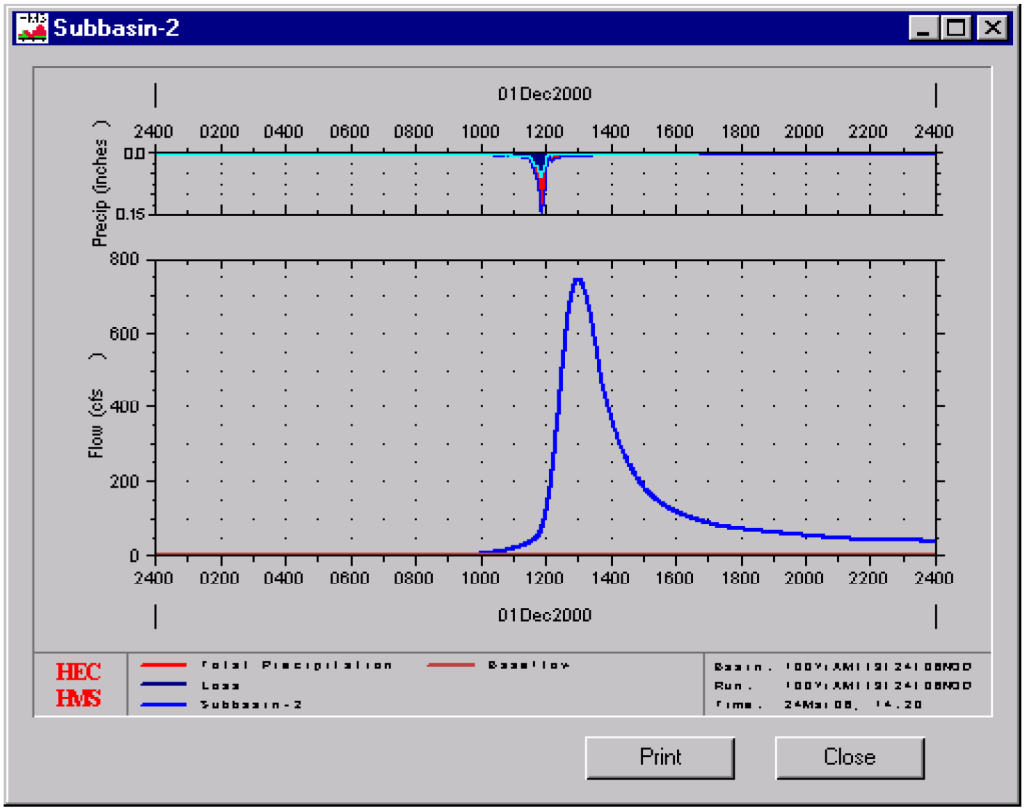


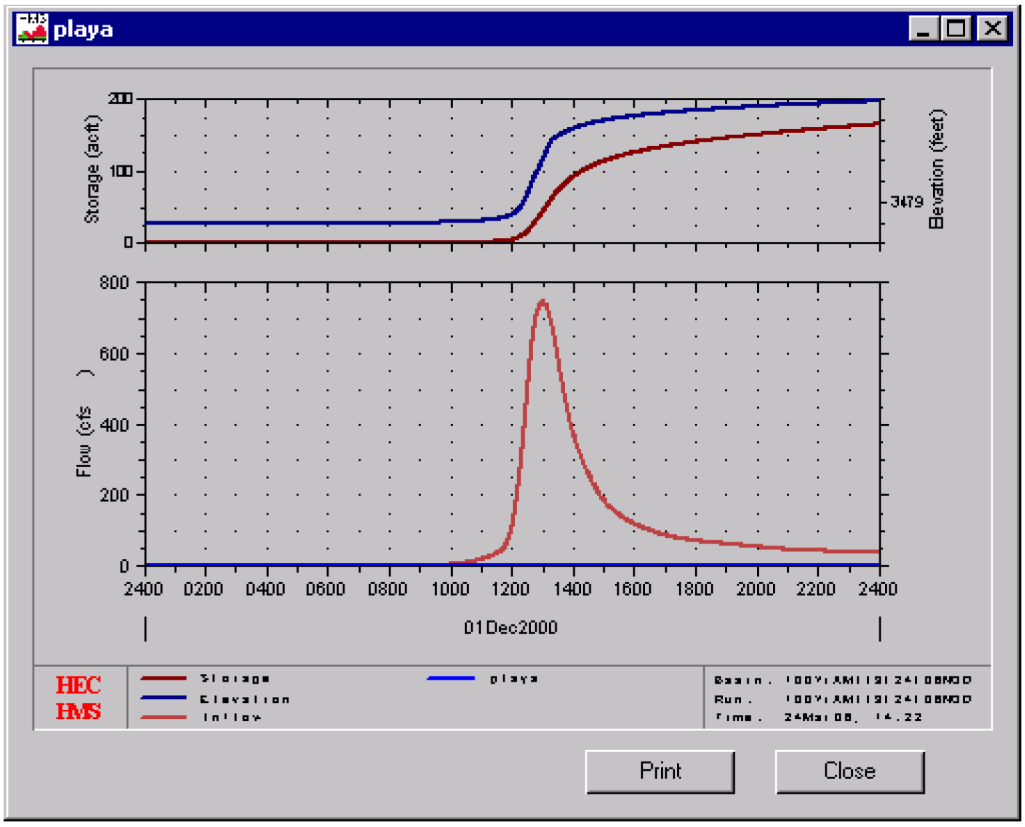
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



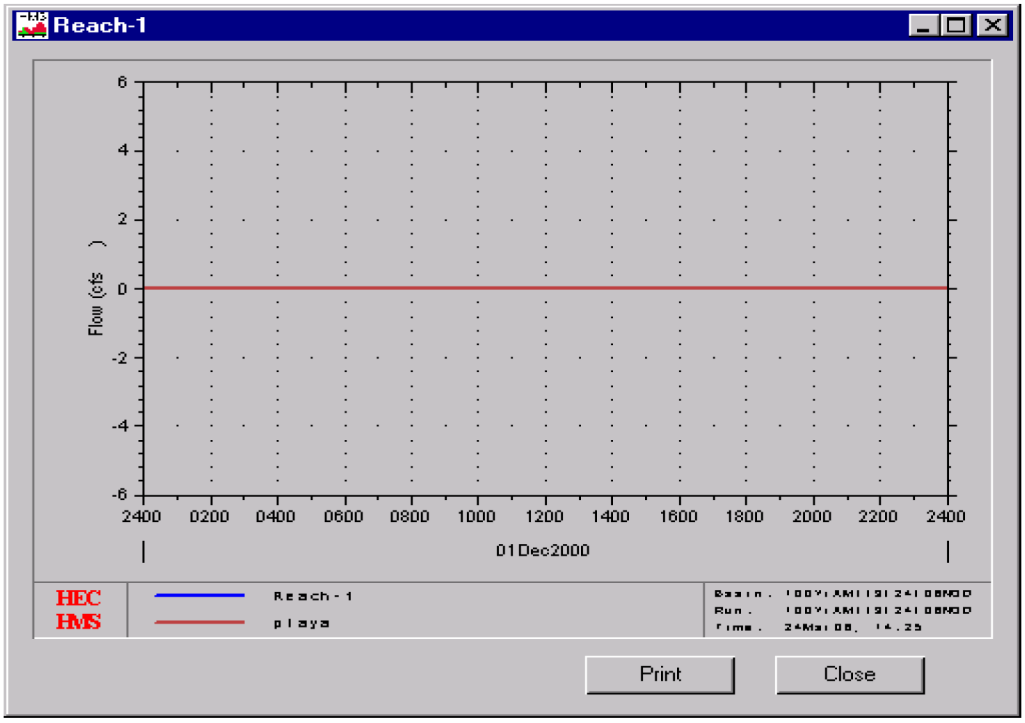


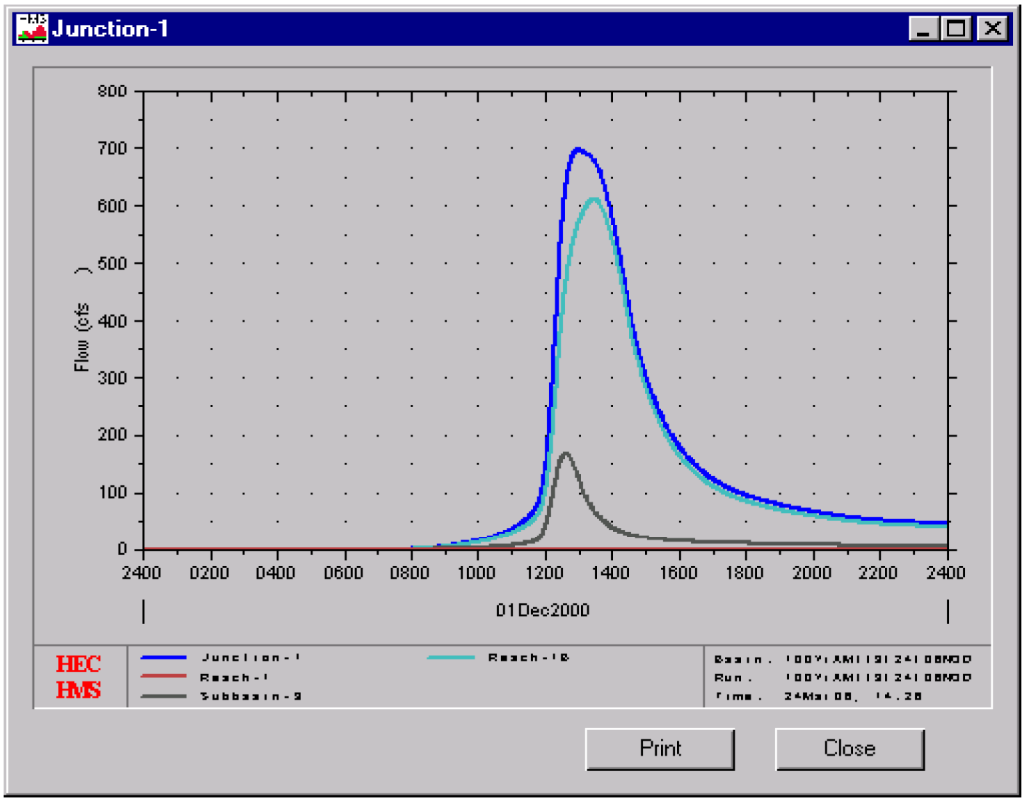
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



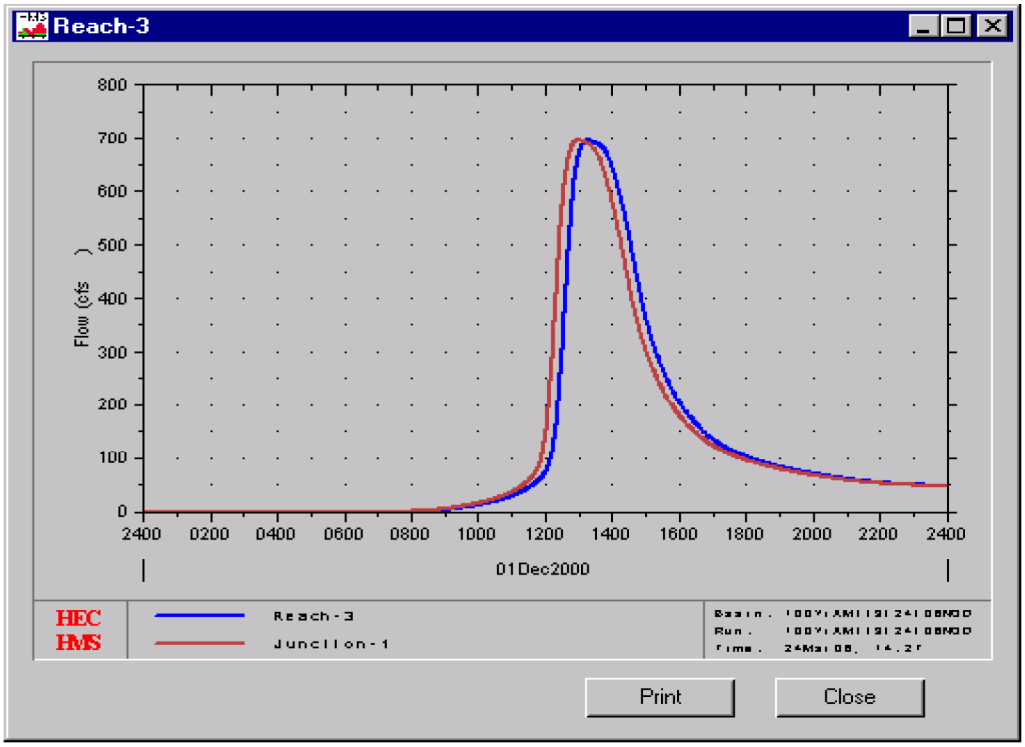


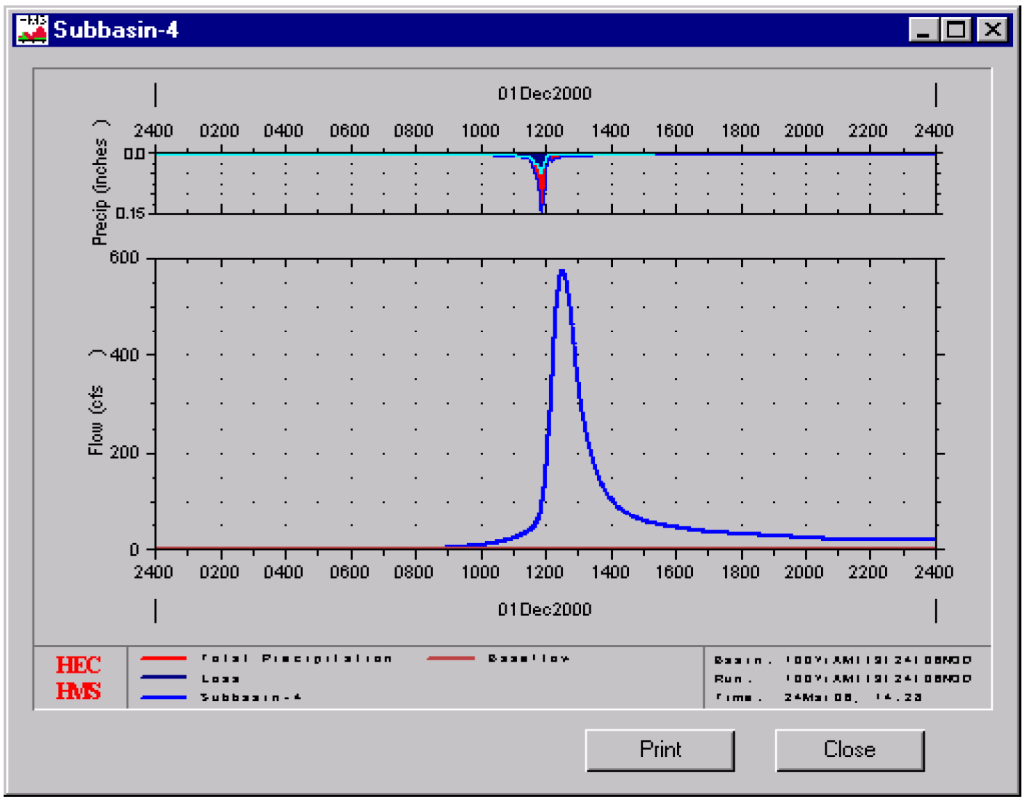
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



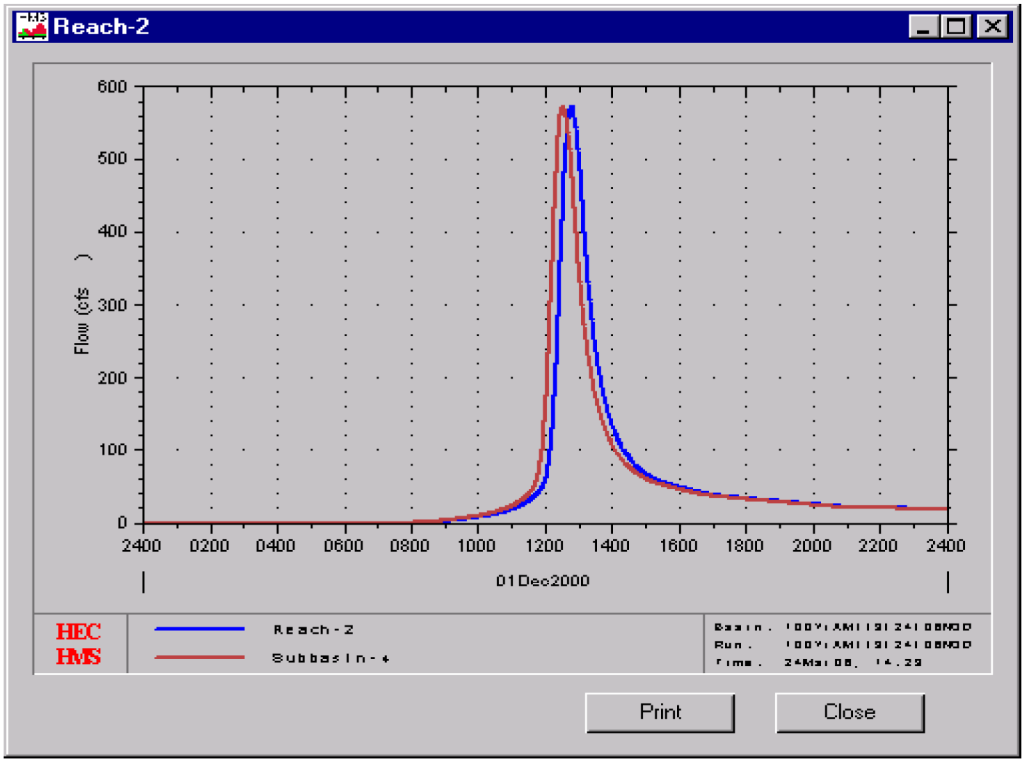


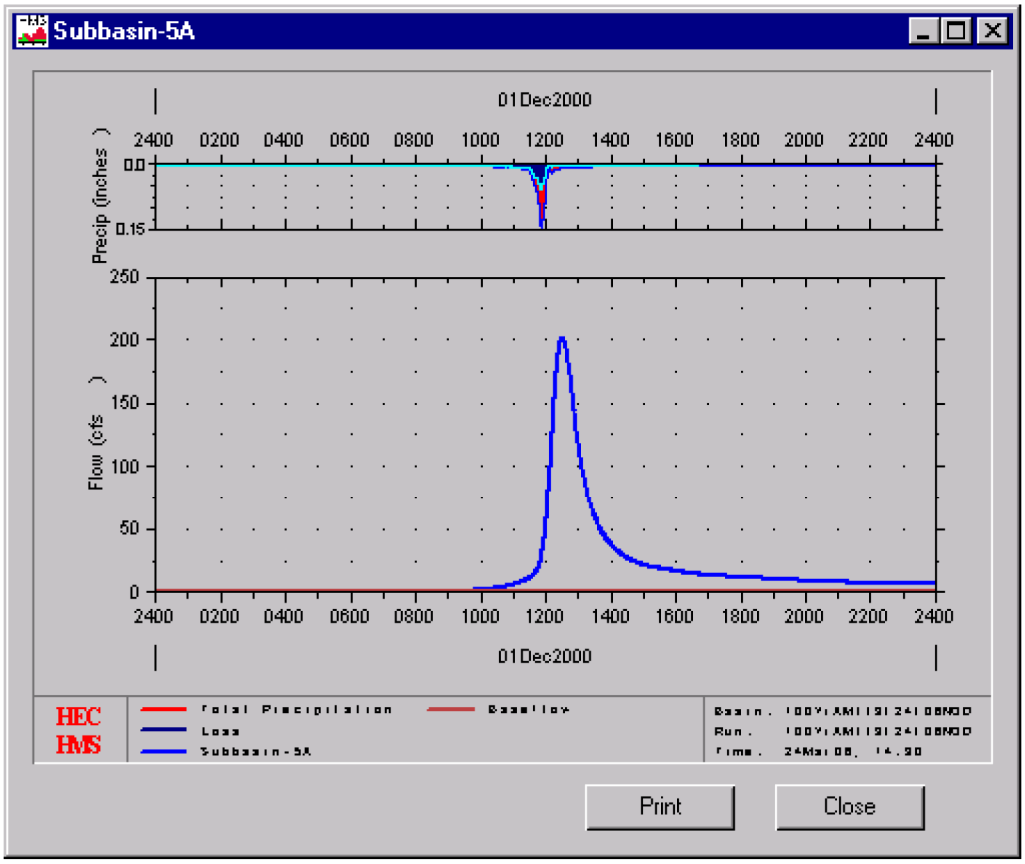
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



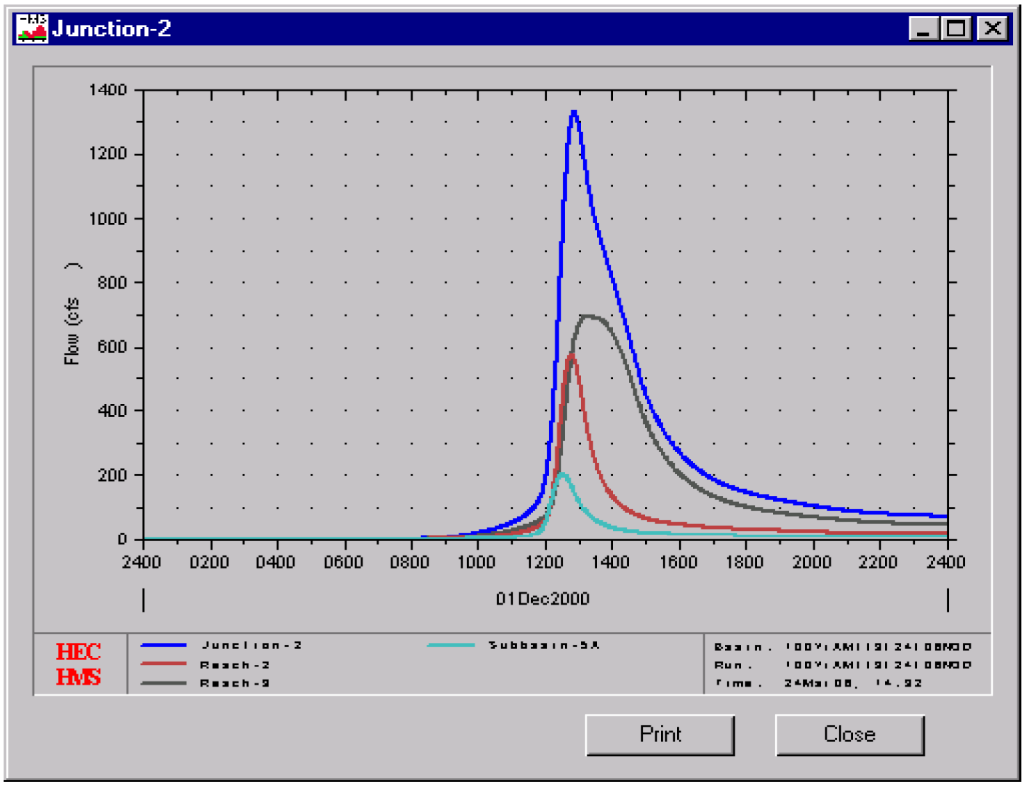


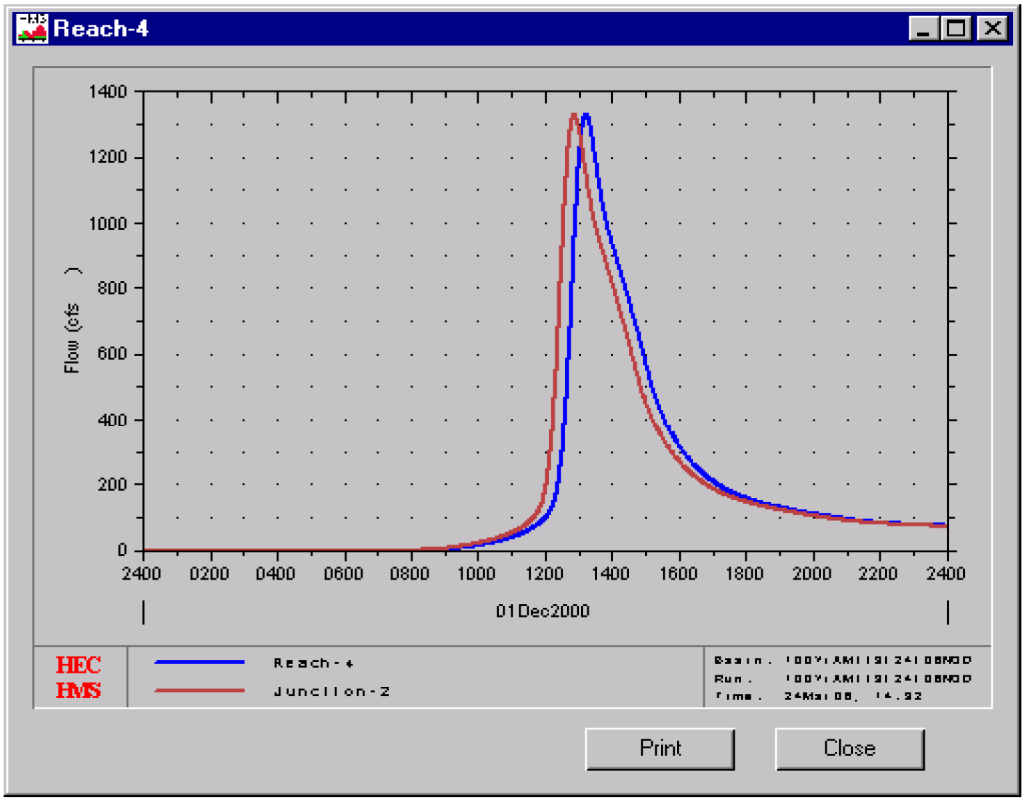
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



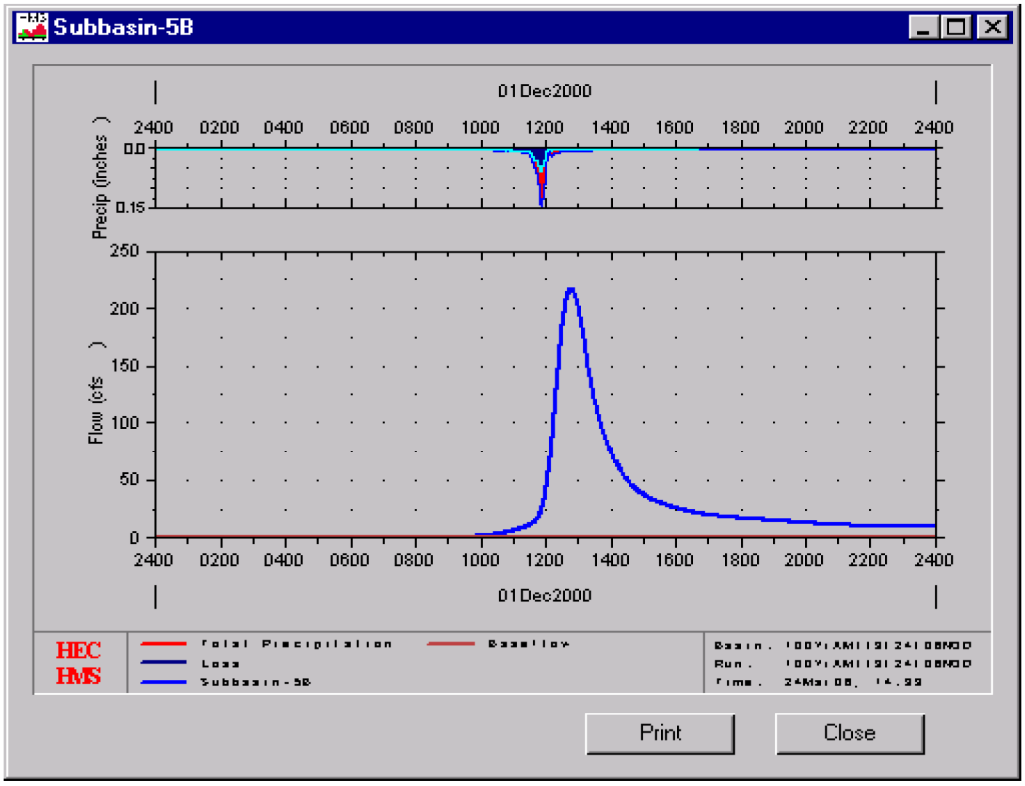


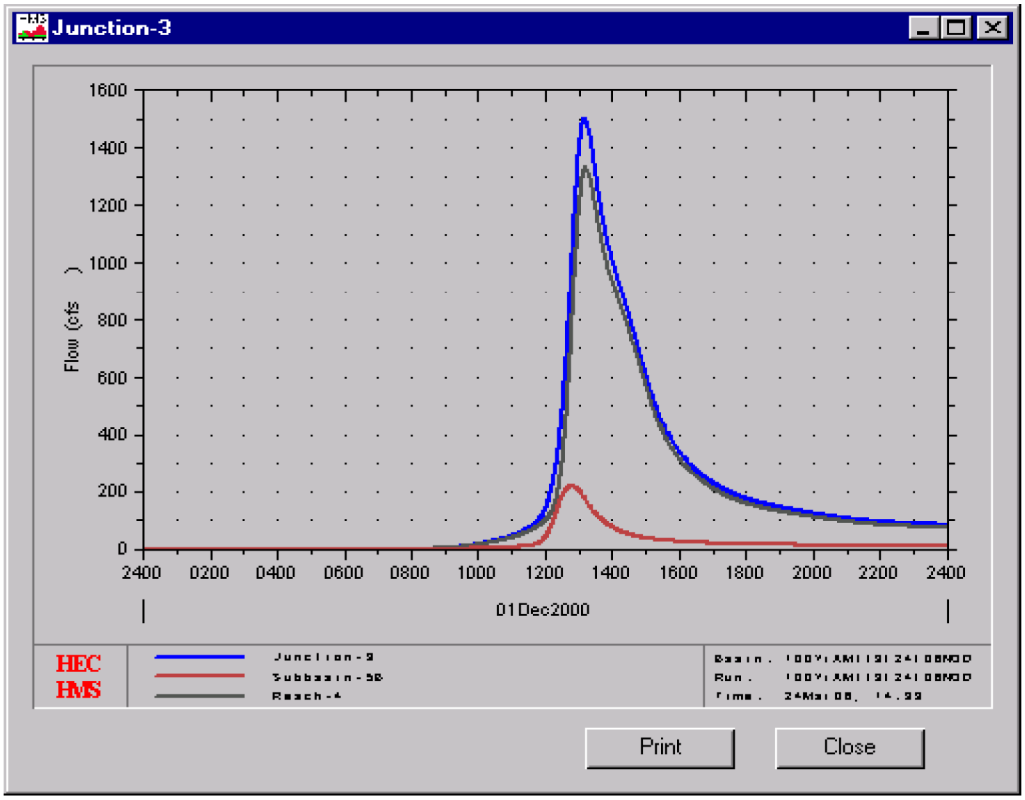
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



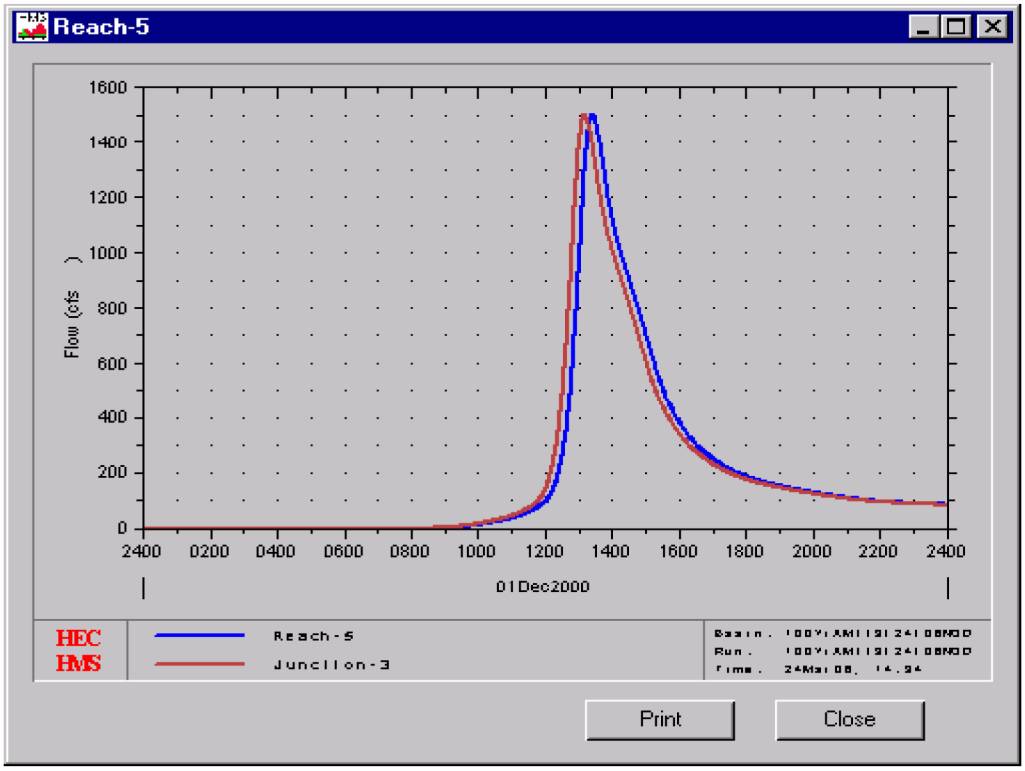


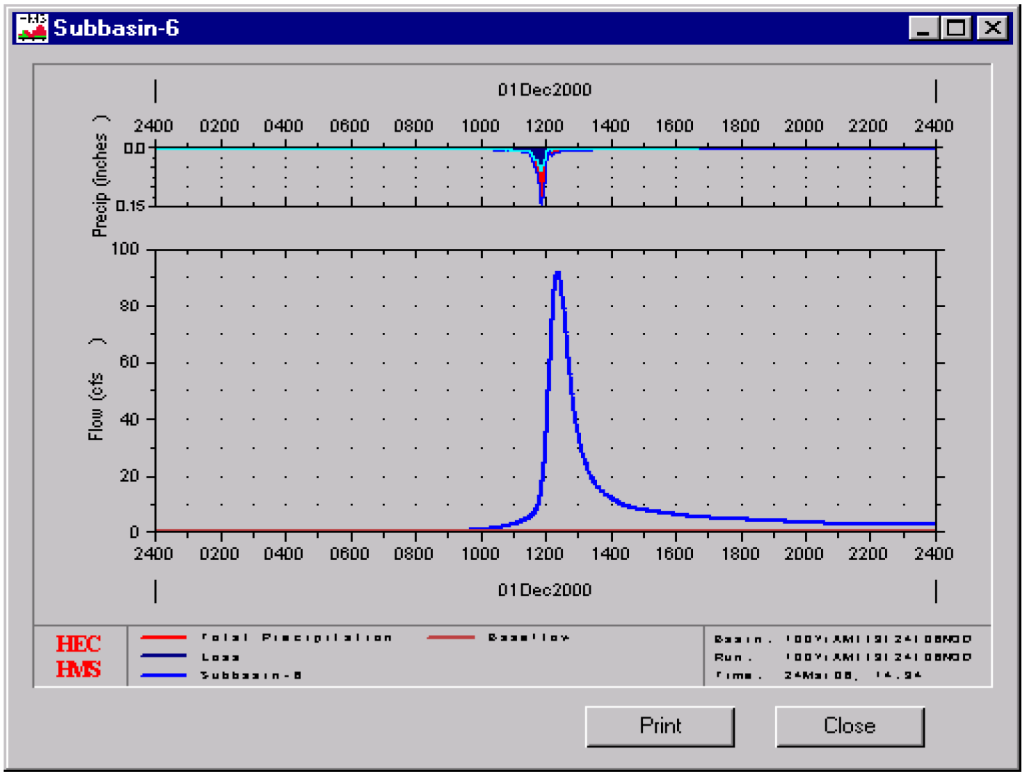
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



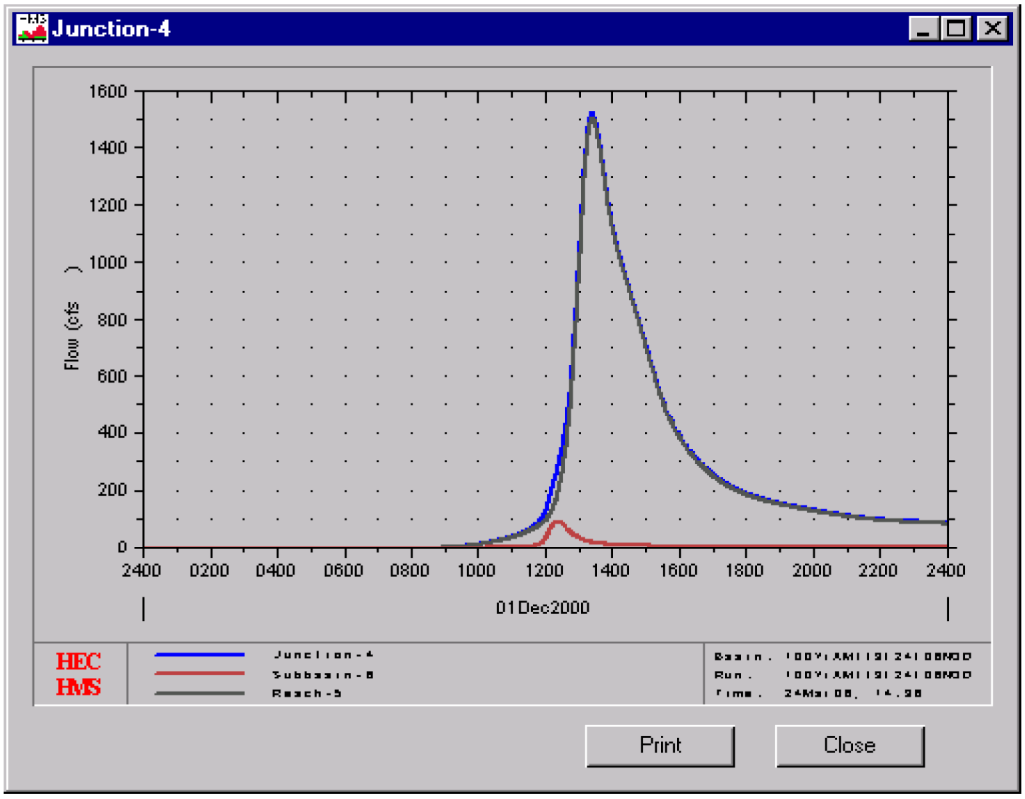


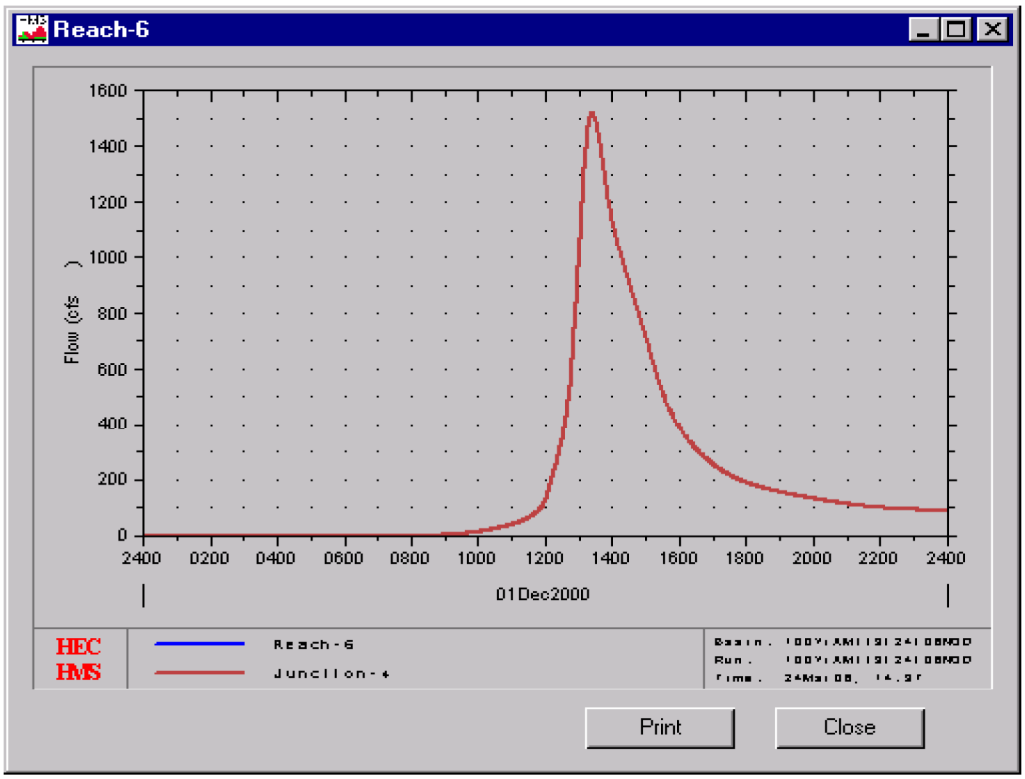
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



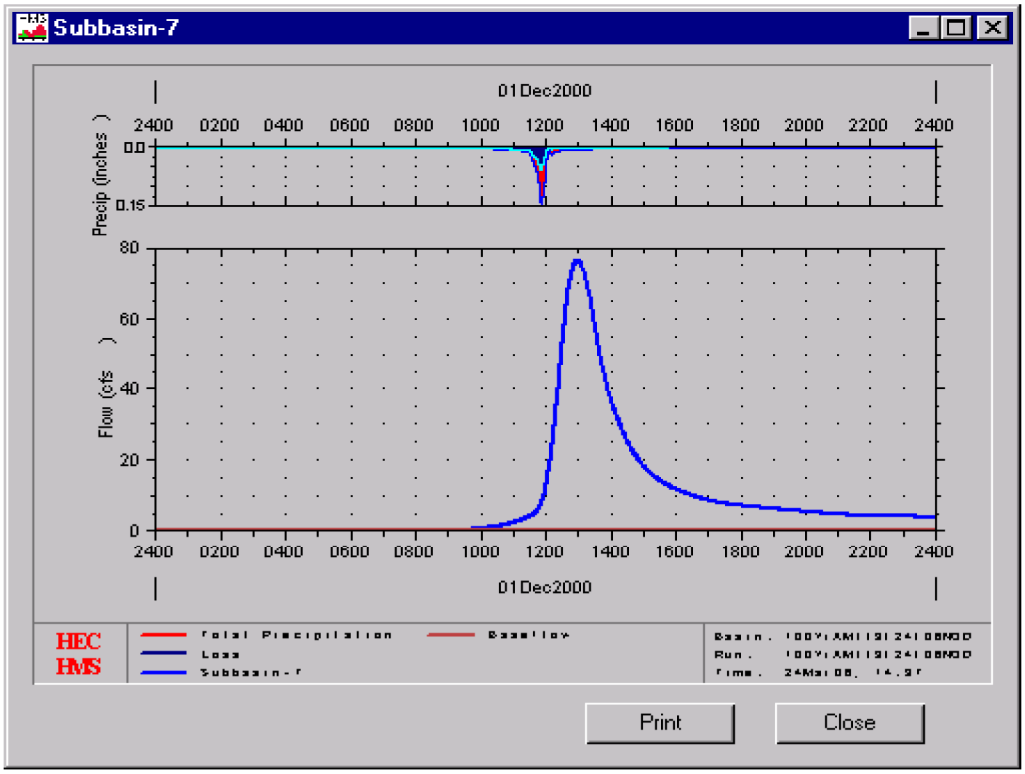


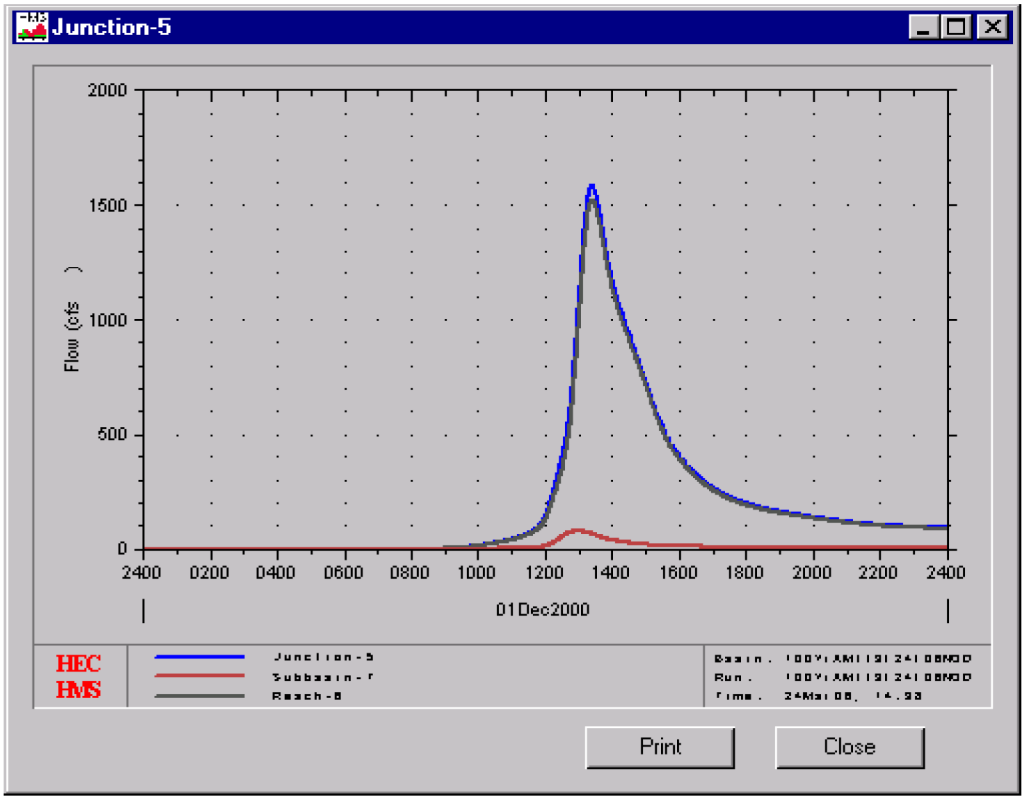
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS





WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS





APPENDIX M

HEC-RAS MODEL FOR THE CALCULATION OF THE 100-YEAR WATER SURFACE PROFILE, ANTECEDENT MOISTURE CONDITION II

HEC-RAS Plan: AMII 100 River: Ditch A Reach: 5

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Max Chl Dpth	E.G. Elev	E.G. Slope	Vel Chnl	Sta W.S. Lft	Sta W.S. Rgt	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft)	(ft)	(sq ft)	(ft)	
5	12674	488.00	3477.00	3478.35	3477.98	1.35	3478.42	0.003073	2.23	355.77	656.81	223.75	301.04	0.43
5	12674	488.00	3477.00	3478.35	3477.98	1.35	3478.42	0.003073	2.23	355.77	656.81	223.75	301.04	0.43
5	12674	488.00	3477.00	3478.35	3477.98	1.35	3478.42	0.003073	2.23	355.77	656.81	223.75	301.04	0.43
5	12674	488.00	3477.00	3478.35	3477.98	1.35	3478.42	0.003073	2.23	355.77	656.81	223.75	301.04	0.43
5	11337	488.00	3469.00	3470.36	3470.33	1.36	3470.73	0.014260	4.87	427.21	557.43	101.95	130.23	0.92
5	11337	488.00	3469.00	3470.36	3470.33	1.36	3470.73	0.014260	4.87	427.21	557.43	101.95	130.23	0.92
5	11337	488.00	3469.00	3470.36	3470.33	1.36	3470.73	0.014260	4.87	427.21	557.43	101.95	130.23	0.92
5	11337	488.00	3469.00	3470.36	3470.33	1.36	3470.73	0.014260	4.87	427.21	557.43	101.95	130.23	0.92
5	10937	488.00	3464.00	3465.74	3465.55	1.74	3466.02	0.009772	4.21	474.19	600.46	116.03	126.27	0.77
5	10937	488.00	3464.00	3465.74	3465.55	1.74	3466.02	0.009772	4.21	474.19	600.46	116.03	126.27	0.77
5	10937	488.00	3464.00	3465.74	3465.55	1.74	3466.02	0.009772	4.21	474.19	600.46	116.03	126.27	0.77
5	10937	488.00	3464.00	3465.74	3465.55	1.74	3466.02	0.009772	4.21	474.19	600.46	116.03	126.27	0.77
5	10288	488.00	3456.00	3456.90	3456.90	0.90	3457.15	0.020388	4.04	405.26	647.69	120.78	242.43	1.01
5	10288	488.00	3456.00	3456.90	3456.90	0.90	3457.15	0.020388	4.04	405.26	647.69	120.78	242.43	1.01
5	10288	488.00	3456.00	3456.90	3456.90	0.90	3457.15	0.020388	4.04	405.26	647.69	120.78	242.43	1.01
5	10288	488.00	3456.00	3456.90	3456.90	0.90	3457.15	0.020388	4.04	405.26	647.69	120.78	242.43	1.01
5	9690	611.00	3450.00	3451.49	3451.14	1.49	3451.60	0.004656	2.56	444.61	758.20	238.60	313.59	0.52
5	9690	611.00	3450.00	3451.49	3451.14	1.49	3451.60	0.004656	2.56	444.61	758.20	238.60	313.59	0.52
5	9690	611.00	3450.00	3451.49	3451.14	1.49	3451.60	0.004656	2.56	444.61	758.20	238.60	313.59	0.52
5	9690	611.00	3450.00	3451.49	3451.14	1.49	3451.60	0.004656	2.56	444.61	758.20	238.60	313.59	0.52
5	9009	611.00	3445.00	3446.45	3446.34	1.45	3446.68	0.012581	3.84	454.43	694.37	159.10	239.94	0.83
5	9009	611.00	3445.00	3446.45	3446.34	1.45	3446.68	0.012581	3.84	454.43	694.37	159.10	239.94	0.83
5	9009	611.00	3445.00	3446.45	3446.34	1.45	3446.68	0.012581	3.84	454.43	694.37	159.10	239.94	0.83
5	9009	611.00	3445.00	3446.45	3446.34	1.45	3446.68	0.012581	3.84	454.43	694.37	159.10	239.94	0.83
5	8130	611.00	3440.00	3441.57	3441.11	1.57	3441.65	0.003204	2.21	469.14	811.67	276.52	342.53	0.43
5	8130	611.00	3440.00	3441.57	3441.11	1.57	3441.65	0.003204	2.21	469.14	811.67	276.52	342.53	0.43
5	8130	611.00	3440.00	3441.57	3441.11	1.57	3441.65	0.003204	2.21	469.14	811.67	276.52	342.53	0.43
5	8130	611.00	3440.00	3441.57	3441.11	1.57	3441.65	0.003204	2.21	469.14	811.67	276.52	342.53	0.43
5	7717	611.00	3437.80	3438.66	3438.66	0.86	3438.94	0.020021	4.18	333.18	607.65	146.05	274.48	1.01
5	7717	611.00	3437.80	3438.66	3438.66	0.86	3438.94	0.020021	4.18	333.18	607.65	146.05	274.48	1.01
5	7717	611.00	3437.80	3438.66	3438.66	0.86	3438.94	0.020021	4.18	333.18	607.65	146.05	274.48	1.01
5	7717	611.00	3437.80	3438.66	3438.66	0.86	3438.94	0.020021	4.18	333.18	607.65	146.05	274.48	1.01
5	7253	697.00	3435.00	3436.35	3435.88	1.35	3436.40	0.001738	1.69	405.86	923.44	417.07	517.58	0.32
5	7253	697.00	3435.00	3436.35	3435.88	1.35	3436.40	0.001738	1.69	405.86	923.44	417.07	517.58	0.32
5	7253	697.00	3435.00	3436.35	3435.88	1.35	3436.40	0.001738	1.69	405.86	923.44	417.07	517.58	0.32
5	7253	697.00	3435.00	3436.35	3435.88	1.35	3436.40	0.001738	1.69	405.86	923.44	417.07	517.58	0.32
5	6343	1328.00	3430.00	3430.70	3430.70	0.70	3431.00	0.019035	4.37	780.28	1294.88	303.78	514.60	1.00
5	6343	1328.00	3430.00	3430.70	3430.70	0.70	3431.00	0.019035	4.37	780.28	1294.88	303.78	514.60	1.00
5	6343	1328.00	3430.00	3430.70	3430.70	0.70	3431.00	0.019035	4.37	780.28	1294.88	303.78	514.60	1.00
5	6343	1328.00	3430.00	3430.70	3430.70	0.70	3431.00	0.019035	4.37	780.28	1294.88	303.78	514.60	1.00
5	5363	1328.00	3425.00	3426.33	3425.78	1.33	3426.38	0.001763	1.85	710.73	1541.30	727.78	830.57	0.33
5	5363	1328.00	3425.00	3426.33	3425.78	1.33	3426.38	0.001763	1.85	710.73	1541.30	727.78	830.57	0.33
5	5363	1328.00	3425.00	3426.33	3425.78	1.33	3426.38	0.001763	1.85	710.73	1541.30	727.78	830.57	0.33
5	5363	1328.00	3425.00	3426.33	3425.78	1.33	3426.38	0.001763	1.85	710.73	1541.30	727.78	830.57	0.33
5	4221	1501.00	3420.00	3420.99	3420.99	0.99	3421.33	0.018533	4.67	544.80	1028.40	321.48	483.60	1.01
5	4221	1501.00	3420.00	3420.99	3420.99	0.99	3421.33	0.018533	4.67	544.80	1028.40	321.48	483.60	1.01
5	4221	1501.00	3420.00	3420.99	3420.99	0.99	3421.33	0.018533	4.67	544.80	1028.40	321.48	483.60	1.01
5	4221	1501.00	3420.00	3420.99	3420.99	0.99	3421.33	0.018533	4.67	544.80	1028.40	321.48	483.60	1.01
5	3489	1501.00	3416.00	3417.18	3416.67	2.18	3417.24	0.002251	2.05	-116.98	881.92	804.91	998.90	0.37
5	3489	1501.00	3416.00	3417.18	3416.67	2.18	3417.24	0.002251	2.05	-116.98	881.92	804.91	998.90	0.37
5	3489	1501.00	3416.00	3417.18	3416.67	2.18	3417.24	0.002251	2.05	-116.98	881.92	804.91	998.90	0.37
5	3489	1501.00	3416.00	3417.18	3416.67	2.18	3417.24	0.002251	2.05	-116.98	881.92	804.91	998.90	0.37
5	2989	1501.00	3413.80	3414.52	3414.52	0.72	3414.81	0.019219	4.14	179.04	802.32	351.67	623.28	0.99
5	2989	1501.00	3413.80	3414.52	3414.52	0.72	3414.81	0.019219	4.14	179.04	802.32	351.67	623.28	0.99
5	2989	1501.00	3413.80	3414.52	3414.52	0.72	3414.81	0.019219	4.14	179.04	802.32	351.67	623.28	0.99
5	2989	1501.00	3413.80	3414.52	3414.52	0.72	3414.81	0.019219	4.14	179.04	802.32	351.67	623.28	0.99
5	2774	1501.00	3409.00	3413.99	3412.71	4.99	3414.03	0.000278	2.09	-399.05	640.58	1331.44	1039.64	0.17
5	2774	1501.00	3409.00	3413.99	3412.71	4.99	3414.03	0.000278	2.09	-399.05	640.58	1331.44	1039.64	0.17
5	2774	1501.00	3409.00	3413.99	3412.71	4.99	3414.03	0.000278	2.09	-399.05	640.58	1331.44	1039.64	0.17
5	2774	1501.00	3409.00	3413.99	3412.71	4.99	3414.03	0.000278	2.09	-399.05	640.58	1331.44	1039.64	0.17
5	2773	Culvert												
5	2734	1501.00	3408.90	3412.71	3412.71	3.81	3412.82	0.001004	3.22	83.74	515.65	665.51	431.91	0.31
5	2734	1501.00	3408.90	3412.71	3412.71	3.81	3412.82	0.001004	3.22	83.74	515.65	665.51	431.91	0.31
5	2734	1501.00	3408.90	3412.71	3412.71	3.81	3412.82	0.001004	3.22	83.74	515.65	665.51	431.91	0.31
5	2734	1501.00	3408.90	3412.71	3412.71	3.81	3412.82	0.001004	3.22	83.74	515.65	665.51	431.91	0.31
5	1888	1521.00	3408.00	3408.41	3408.72	0.41	3409.58	0.151914	8.68	286.11	789.53	175.18	503.42	2.59
5	1888	1521.00	3408.00	3408.41	3408.72	0.41	3409.58	0.151914	8.68	286.11	789.53	175.18	503.42	2.59

HEC-RAS Plan: AMII 100 River: Ditch A Reach: 5 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Max Chl Dpth	E.G. Elev	E.G. Slope	Vel Chnl	Sta W.S. Lft	Sta W.S. Rgt	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft)	(ft)	(sq ft)	(ft)	
5	1888	1521.00	3408.00	3408.41	3408.72	0.41	3409.58	0.151914	8.68	286.11	789.53	175.18	503.42	2.59
5	1888	1521.00	3408.00	3408.41	3408.72	0.41	3409.58	0.151914	8.68	286.11	789.53	175.18	503.42	2.59
5	1080	1585.00	3402.70	3404.50	3404.11	1.80	3404.66	0.005270	3.16	614.45	1141.44	501.30	526.98	0.57
5	1060	1585.00	3402.70	3405.00	3404.11	2.30	3405.06	0.001518	1.98	540.97	1206.00	799.30	665.03	0.32
5	1060	1585.00	3402.70	3406.00	3404.11	3.30	3406.01	0.000250	0.93	394.00	1523.00	1696.32	1129.00	0.13
5	1060	1585.00	3402.70	3407.00	3404.11	4.30	3407.01	0.000045	0.56	247.00	1523.00	2898.82	1276.00	0.06

HEC-RAS Version 3.0.1 Mar 2001
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X     X
X     X  X        X            X   X     X    X   X
XXXXXXX  XXXX     X       XXX  XXXX      XXXXXX    XXXX
X     X  X        X            X  X      X    X       X
X     X  X        X    X       X   X     X    X       X
X     X  XXXXXX    XXXX        X    X    X    X   XXXXX
```

PROJECT DATA
Project Title: WCS
Project File : FloodPlain.prj
Run Date and Time: 3/24/06 3:15:28 PM

Project in English units

PLAN DATA

Plan Title: Plan 35
Plan File : D:\program files\WCS\FloodPlain.p35

Geometry Title: PMP1-20-04SecRemoved
Geometry File : D:\program files\WCS\FloodPlain.g04

Flow Title : 100YrAMII3-24-06ManyNOD
Flow File : D:\program files\WCS\FloodPlain.f27

Plan Summary Information:
Number of: Cross Sections = 18 Mulitple Openings = 0
Culverts = 1 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: 100YrAMII3-24-06ManyNOD
Flow File : D:\program files\WCS\FloodPlain.f27

Flow Data (cfs)

River	Reach	RS	100 Yr.-WS3404.5	100 Yr.-WS3405	100 Yr.-WS3406	100 Yr.-WS3407
Ditch A	5	12674	488	488	488	488
Ditch A	5	9690	611	611	611	611
Ditch A	5	7253	697	697	697	697
Ditch A	5	6343	1328	1328	1328	1328
Ditch A	5	4221	1501	1501	1501	1501
Ditch A	5	1888	1521	1521	1521	1521
Ditch A	5	1060	1585	1585	1585	1585

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Ditch A	5	100 Yr.-WS3404.5	Critical	Known WS = 3404.5
Ditch A	5	100 Yr.-WS3405	Critical	Known WS = 3405
Ditch A	5	100 Yr.-WS3406	Critical	Known WS = 3406
Ditch A	5	100 Yr.-WS3407	Critical	Known WS = 3407

GEOMETRY DATA

Geometry Title: PMP1-20-04SecRemoved
Geometry File : D:\program files\WCS\FloodPlain.g04

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 12674

INPUT
Description: Sta. 12674
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3482	380	3478	560	3477	635	3478	761	3480
964	3482								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	380	.033	635	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
380	635	1206	1337	1433	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3478.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3478.35	Reach Len. (ft)	1206.00	1337.00	1433.00
Crit W.S. (ft)	3477.98	Flow Area (sq ft)	4.19	215.78	3.78
E.G. Slope (ft/ft)	0.003073	Area (sq ft)	4.19	215.78	3.78
Q Total (cfs)	488.00	Flow (cfs)	3.25	481.82	2.93
Top Width (ft)	301.04	Top Width (ft)	24.23	255.00	21.81
Vel Total (ft/s)	2.18	Avg. Vel. (ft/s)	0.78	2.23	0.78
Max Chl Dpth (ft)	1.35	Hydr. Depth (ft)	0.17	0.85	0.17
Conv. Total (cfs)	8803.6	Conv. (cfs)	58.7	8692.1	52.8
Length Wtd. (ft)	1336.75	Wetted Per. (ft)	24.24	255.01	21.81
Min Ch El (ft)	3477.00	Shear (lb/sq ft)	0.03	0.16	0.03
Alpha	1.04	Stream Power (lb/ft s)	0.03	0.36	0.03
Frctn Loss (ft)	7.66	Cum Volume (acre-ft)	13.94	75.93	2.13
C & E Loss (ft)	0.03	Cum SA (acres)	18.70	98.60	3.43

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross secti
ons.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3478.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3478.35	Reach Len. (ft)	1206.00	1337.00	1433.00
Crit W.S. (ft)	3477.98	Flow Area (sq ft)	4.19	215.78	3.78
E.G. Slope (ft/ft)	0.003073	Area (sq ft)	4.19	215.78	3.78
Q Total (cfs)	488.00	Flow (cfs)	3.25	481.82	2.93
Top Width (ft)	301.04	Top Width (ft)	24.23	255.00	21.81
Vel Total (ft/s)	2.18	Avg. Vel. (ft/s)	0.78	2.23	0.78
Max Chl Dpth (ft)	1.35	Hydr. Depth (ft)	0.17	0.85	0.17
Conv. Total (cfs)	8803.6	Conv. (cfs)	58.7	8692.1	52.8

Length Wtd. (ft)	1336.75	Wetted Per. (ft)	24.24	255.01	21.81
Min Ch El (ft)	3477.00	Shear (lb/sq ft)	0.03	0.16	0.03
Alpha	1.04	Stream Power (lb/ft s)	0.03	0.36	0.03
Frctn Loss (ft)	7.66	Cum Volume (acre-ft)	13.94	78.76	2.13
C & E Loss (ft)	0.03	Cum SA (acres)	18.70	99.92	3.43

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3478.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3478.35	Reach Len. (ft)	1206.00	1337.00	1433.00
Crit W.S. (ft)	3477.98	Flow Area (sq ft)	4.19	215.78	3.78
E.G. Slope (ft/ft)	0.003073	Area (sq ft)	4.19	215.78	3.78
Q Total (cfs)	488.00	Flow (cfs)	3.25	481.82	2.93
Top Width (ft)	301.04	Top Width (ft)	24.23	255.00	21.81
Vel Total (ft/s)	2.18	Avg. Vel. (ft/s)	0.78	2.23	0.78
Max Chl Dpth (ft)	1.35	Hydr. Depth (ft)	0.17	0.85	0.17
Conv. Total (cfs)	8803.6	Conv. (cfs)	58.7	8692.1	52.8
Length Wtd. (ft)	1336.75	Wetted Per. (ft)	24.24	255.01	21.81
Min Ch El (ft)	3477.00	Shear (lb/sq ft)	0.03	0.16	0.03
Alpha	1.04	Stream Power (lb/ft s)	0.03	0.36	0.03
Frctn Loss (ft)	7.66	Cum Volume (acre-ft)	13.94	87.29	2.13
C & E Loss (ft)	0.03	Cum SA (acres)	18.70	104.33	3.43

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3478.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3478.35	Reach Len. (ft)	1206.00	1337.00	1433.00
Crit W.S. (ft)	3477.98	Flow Area (sq ft)	4.19	215.78	3.78
E.G. Slope (ft/ft)	0.003073	Area (sq ft)	4.19	215.78	3.78
Q Total (cfs)	488.00	Flow (cfs)	3.25	481.82	2.93
Top Width (ft)	301.04	Top Width (ft)	24.23	255.00	21.81
Vel Total (ft/s)	2.18	Avg. Vel. (ft/s)	0.78	2.23	0.78
Max Chl Dpth (ft)	1.35	Hydr. Depth (ft)	0.17	0.85	0.17
Conv. Total (cfs)	8803.6	Conv. (cfs)	58.7	8692.1	52.8
Length Wtd. (ft)	1336.75	Wetted Per. (ft)	24.24	255.01	21.81
Min Ch El (ft)	3477.00	Shear (lb/sq ft)	0.03	0.16	0.03
Alpha	1.04	Stream Power (lb/ft s)	0.03	0.36	0.03
Frctn Loss (ft)	7.66	Cum Volume (acre-ft)	14.20	98.02	2.13
C & E Loss (ft)	0.03	Cum SA (acres)	19.22	104.33	3.43

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 11337

INPUT
Description: Sta. 11337
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3477	315	3474	392	3472	435	3470	499	3469
550	3470	591	3472	694	3474				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	435	.033	550	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
435	550	545	400	332	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3470.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.033	0.033	0.033

W.S. Elev (ft)	3470.36	Reach Len. (ft)	545.00	400.00	332.00
Crit W.S. (ft)	3470.33	Flow Area (sq ft)	1.41	99.19	1.35
E.G. Slope (ft/ft)	0.014260	Area (sq ft)	1.41	99.19	1.35
Q Total (cfs)	488.00	Flow (cfs)	2.43	483.25	2.32
Top Width (ft)	130.23	Top Width (ft)	7.79	115.00	7.43
Vel Total (ft/s)	4.79	Avg. Vel. (ft/s)	1.72	4.87	1.72
Max Chl Dpth (ft)	1.36	Hydr. Depth (ft)	0.18	0.86	0.18
Conv. Total (cfs)	4086.5	Conv. (cfs)	20.4	4046.8	19.4
Length Wtd. (ft)	400.20	Wetted Per. (ft)	7.80	115.02	7.44
Min Ch El (ft)	3469.00	Shear (lb/sq ft)	0.16	0.77	0.16
Alpha	1.03	Stream Power (lb/ft s)	0.28	3.74	0.28
Frctn Loss (ft)	4.68	Cum Volume (acre-ft)	13.87	71.10	2.04
C & E Loss (ft)	0.03	Cum SA (acres)	18.26	92.93	2.95

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3470.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3470.36	Reach Len. (ft)	545.00	400.00	332.00
Crit W.S. (ft)	3470.33	Flow Area (sq ft)	1.41	99.19	1.35
E.G. Slope (ft/ft)	0.014260	Area (sq ft)	1.41	99.19	1.35
Q Total (cfs)	488.00	Flow (cfs)	2.43	483.25	2.32
Top Width (ft)	130.23	Top Width (ft)	7.79	115.00	7.43
Vel Total (ft/s)	4.79	Avg. Vel. (ft/s)	1.72	4.87	1.72
Max Chl Dpth (ft)	1.36	Hydr. Depth (ft)	0.18	0.86	0.18
Conv. Total (cfs)	4086.5	Conv. (cfs)	20.4	4046.8	19.4
Length Wtd. (ft)	400.20	Wetted Per. (ft)	7.80	115.02	7.44
Min Ch El (ft)	3469.00	Shear (lb/sq ft)	0.16	0.77	0.16
Alpha	1.03	Stream Power (lb/ft s)	0.28	3.74	0.28
Frctn Loss (ft)	4.68	Cum Volume (acre-ft)	13.87	73.93	2.04

C & E Loss (ft)	0.03	Cum SA (acres)	18.26	94.24	2.95

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3470.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3470.36	Reach Len. (ft)	545.00	400.00	332.00
Crit W.S. (ft)	3470.33	Flow Area (sq ft)	1.41	99.19	1.35
E.G. Slope (ft/ft)	0.014260	Area (sq ft)	1.41	99.19	1.35
Q Total (cfs)	488.00	Flow (cfs)	2.43	483.25	2.32
Top Width (ft)	130.23	Top Width (ft)	7.79	115.00	7.43
Vel Total (ft/s)	4.79	Avg. Vel. (ft/s)	1.72	4.87	1.72
Max Chl Dpth (ft)	1.36	Hydr. Depth (ft)	0.18	0.86	0.18
Conv. Total (cfs)	4086.5	Conv. (cfs)	20.4	4046.8	19.4
Length Wtd. (ft)	400.20	Wetted Per. (ft)	7.80	115.02	7.44
Min Ch El (ft)	3469.00	Shear (lb/sq ft)	0.16	0.77	0.16
Alpha	1.03	Stream Power (lb/ft s)	0.28	3.74	0.28
Frctn Loss (ft)	4.68	Cum Volume (acre-ft)	13.87	82.45	2.04
C & E Loss (ft)	0.03	Cum SA (acres)	18.26	98.65	2.95

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3470.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3470.36	Reach Len. (ft)	545.00	400.00	332.00
Crit W.S. (ft)	3470.33	Flow Area (sq ft)	1.41	99.19	1.35
E.G. Slope (ft/ft)	0.014260	Area (sq ft)	1.41	99.19	1.35
Q Total (cfs)	488.00	Flow (cfs)	2.43	483.25	2.32
Top Width (ft)	130.23	Top Width (ft)	7.79	115.00	7.43

Vel Total (ft/s)	4.79	Avg. Vel. (ft/s)	1.72	4.87	1.72
Max Chl Dpth (ft)	1.36	Hydr. Depth (ft)	0.18	0.86	0.18
Conv. Total (cfs)	4086.5	Conv. (cfs)	20.4	4046.8	19.4
Length Wtd. (ft)	400.20	Wetted Per. (ft)	7.80	115.02	7.44
Min Ch El (ft)	3469.00	Shear (lb/sq ft)	0.16	0.77	0.16
Alpha	1.03	Stream Power (lb/ft s)	0.28	3.74	0.28
Frctn Loss (ft)	4.68	Cum Volume (acre-ft)	14.12	93.18	2.04
C & E Loss (ft)	0.03	Cum SA (acres)	18.77	98.65	2.95

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 10937

INPUT
Description: Sta. 10937
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3470	351	3468	428	3467	465	3466	536	3464
543	3464	609	3466	683	3468	811	3472		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	428	.033	609	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
428	609	729	649	445	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3466.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.033	
W.S. Elev (ft)	3465.74	Reach Len. (ft)	729.00	649.00	445.00
Crit W.S. (ft)	3465.55	Flow Area (sq ft)		116.03	
E.G. Slope (ft/ft)	0.009772	Area (sq ft)		116.03	
Q Total (cfs)	488.00	Flow (cfs)		488.00	
Top Width (ft)	126.27	Top Width (ft)		126.27	
Vel Total (ft/s)	4.21	Avg. Vel. (ft/s)		4.21	
Max Chl Dpth (ft)	1.74	Hydr. Depth (ft)		0.92	
Conv. Total (cfs)	4936.6	Conv. (cfs)		4936.6	
Length Wtd. (ft)	649.00	Wetted Per. (ft)		126.32	

Min Ch El (ft)	3464.00	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.36	
Frctn Loss (ft)	8.86	Cum Volume (acre-ft)	13.86	70.11	2.04
C & E Loss (ft)	0.01	Cum SA (acres)	18.21	91.82	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3466.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.033	
W.S. Elev (ft)	3465.74	Reach Len. (ft)	729.00	649.00	445.00
Crit W.S. (ft)	3465.55	Flow Area (sq ft)		116.03	
E.G. Slope (ft/ft)	0.009772	Area (sq ft)		116.03	
Q Total (cfs)	488.00	Flow (cfs)		488.00	
Top Width (ft)	126.27	Top Width (ft)		126.27	
Vel Total (ft/s)	4.21	Avg. Vel. (ft/s)		4.21	
Max Chl Dpth (ft)	1.74	Hydr. Depth (ft)		0.92	
Conv. Total (cfs)	4936.6	Conv. (cfs)		4936.6	
Length Wtd. (ft)	649.00	Wetted Per. (ft)		126.32	
Min Ch El (ft)	3464.00	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.36	
Frctn Loss (ft)	8.86	Cum Volume (acre-ft)	13.86	72.94	2.04
C & E Loss (ft)	0.01	Cum SA (acres)	18.21	93.13	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3466.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.033	
W.S. Elev (ft)	3465.74	Reach Len. (ft)	729.00	649.00	445.00
Crit W.S. (ft)	3465.55	Flow Area (sq ft)		116.03	
E.G. Slope (ft/ft)	0.009772	Area (sq ft)		116.03	
Q Total (cfs)	488.00	Flow (cfs)		488.00	
Top Width (ft)	126.27	Top Width (ft)		126.27	
Vel Total (ft/s)	4.21	Avg. Vel. (ft/s)		4.21	
Max Chl Dpth (ft)	1.74	Hydr. Depth (ft)		0.92	
Conv. Total (cfs)	4936.6	Conv. (cfs)		4936.6	
Length Wtd. (ft)	649.00	Wetted Per. (ft)		126.32	
Min Ch El (ft)	3464.00	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.36	
Frctn Loss (ft)	8.86	Cum Volume (acre-ft)	13.86	81.46	2.04
C & E Loss (ft)	0.01	Cum SA (acres)	18.21	97.54	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3466.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.033	
W.S. Elev (ft)	3465.74	Reach Len. (ft)	729.00	649.00	445.00
Crit W.S. (ft)	3465.55	Flow Area (sq ft)		116.03	
E.G. Slope (ft/ft)	0.009772	Area (sq ft)		116.03	
Q Total (cfs)	488.00	Flow (cfs)		488.00	
Top Width (ft)	126.27	Top Width (ft)		126.27	
Vel Total (ft/s)	4.21	Avg. Vel. (ft/s)		4.21	
Max Chl Dpth (ft)	1.74	Hydr. Depth (ft)		0.92	
Conv. Total (cfs)	4936.6	Conv. (cfs)		4936.6	
Length Wtd. (ft)	649.00	Wetted Per. (ft)		126.32	

Min Ch El (ft)	3464.00	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.36	
Frctn Loss (ft)	8.86	Cum Volume (acre-ft)	14.11	92.19	2.04
C & E Loss (ft)	0.01	Cum SA (acres)	18.72	97.54	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 10288

INPUT
Description: Sta. 10288
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3464	177	3462	238	3460	298	3458	493	3456
519	3456	662	3457	778	3457.1	857	3458	903	3460
947	3462	989	3464						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	298	.033	857	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
298	857	552	598	633	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3457.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.033	
W.S. Elev (ft)	3456.90	Reach Len. (ft)	552.00	598.00	633.00
Crit W.S. (ft)	3456.90	Flow Area (sq ft)		120.78	
E.G. Slope (ft/ft)	0.020388	Area (sq ft)		120.78	
Q Total (cfs)	488.00	Flow (cfs)		488.00	
Top Width (ft)	242.43	Top Width (ft)		242.43	
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)		4.04	
Max Chl Dpth (ft)	0.90	Hydr. Depth (ft)		0.50	
Conv. Total (cfs)	3417.7	Conv. (cfs)		3417.7	
Length Wtd. (ft)	598.00	Wetted Per. (ft)		242.43	
Min Ch El (ft)	3456.00	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		2.56	

Frctn Loss (ft)	4.72	Cum Volume (acre-ft)	13.86	68.34	2.04
C & E Loss (ft)	0.05	Cum SA (acres)	18.21	89.07	2.92

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3457.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.033	
W.S. Elev (ft)	3456.90	Reach Len. (ft)	552.00	598.00	633.00
Crit W.S. (ft)	3456.90	Flow Area (sq ft)		120.78	
E.G. Slope (ft/ft)	0.020388	Area (sq ft)		120.78	
Q Total (cfs)	488.00	Flow (cfs)		488.00	
Top Width (ft)	242.43	Top Width (ft)		242.43	
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)		4.04	
Max Chl Dpth (ft)	0.90	Hydr. Depth (ft)		0.50	
Conv. Total (cfs)	3417.7	Conv. (cfs)		3417.7	
Length Wtd. (ft)	598.00	Wetted Per. (ft)		242.43	
Min Ch El (ft)	3456.00	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		2.56	
Frctn Loss (ft)	4.72	Cum Volume (acre-ft)	13.86	71.18	2.04
C & E Loss (ft)	0.05	Cum SA (acres)	18.21	90.38	2.92

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less

than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3457.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.033	
W.S. Elev (ft)	3456.90	Reach Len. (ft)	552.00	598.00	633.00
Crit W.S. (ft)	3456.90	Flow Area (sq ft)		120.78	
E.G. Slope (ft/ft)	0.020388	Area (sq ft)		120.78	
Q Total (cfs)	488.00	Flow (cfs)		488.00	
Top Width (ft)	242.43	Top Width (ft)		242.43	
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)		4.04	
Max Chl Dpth (ft)	0.90	Hydr. Depth (ft)		0.50	
Conv. Total (cfs)	3417.7	Conv. (cfs)		3417.7	
Length Wtd. (ft)	598.00	Wetted Per. (ft)		242.43	
Min Ch El (ft)	3456.00	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		2.56	
Frctn Loss (ft)	4.72	Cum Volume (acre-ft)	13.86	79.70	2.04
C & E Loss (ft)	0.05	Cum SA (acres)	18.21	94.79	2.92

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3457.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.033	
W.S. Elev (ft)	3456.90	Reach Len. (ft)	552.00	598.00	633.00
Crit W.S. (ft)	3456.90	Flow Area (sq ft)		120.78	
E.G. Slope (ft/ft)	0.020388	Area (sq ft)		120.78	
Q Total (cfs)	488.00	Flow (cfs)		488.00	
Top Width (ft)	242.43	Top Width (ft)		242.43	
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)		4.04	
Max Chl Dpth (ft)	0.90	Hydr. Depth (ft)		0.50	
Conv. Total (cfs)	3417.7	Conv. (cfs)		3417.7	
Length Wtd. (ft)	598.00	Wetted Per. (ft)		242.43	
Min Ch El (ft)	3456.00	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		2.56	
Frctn Loss (ft)	4.72	Cum Volume (acre-ft)	14.11	90.43	2.04
C & E Loss (ft)	0.05	Cum SA (acres)	18.72	94.79	2.92

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 9690

INPUT
Description: Sta. 9690
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3454.5	202	3454	381	3452	632	3450	638	3450
799	3452	897	3454	1010	3458				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

100	.033	381	.033	799	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
381	799	639	681	658	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3451.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.033	
W.S. Elev (ft)	3451.49	Reach Len. (ft)	639.00	681.00	658.00
Crit W.S. (ft)	3451.14	Flow Area (sq ft)		238.60	
E.G. Slope (ft/ft)	0.004656	Area (sq ft)		238.60	
Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	313.59	Top Width (ft)		313.59	
Vel Total (ft/s)	2.56	Avg. Vel. (ft/s)		2.56	
Max Chl Dpth (ft)	1.49	Hydr. Depth (ft)		0.76	
Conv. Total (cfs)	8953.9	Conv. (cfs)		8953.9	
Length Wtd. (ft)	681.00	Wetted Per. (ft)		313.61	
Min Ch El (ft)	3450.00	Shear (lb/sq ft)		0.22	
Alpha	1.00	Stream Power (lb/ft s)		0.57	
Frctn Loss (ft)	4.90	Cum Volume (acre-ft)	13.86	65.88	2.04
C & E Loss (ft)	0.01	Cum SA (acres)	18.21	85.26	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3451.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.033	
W.S. Elev (ft)	3451.49	Reach Len. (ft)	639.00	681.00	658.00
Crit W.S. (ft)	3451.14	Flow Area (sq ft)		238.60	
E.G. Slope (ft/ft)	0.004656	Area (sq ft)		238.60	
Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	313.59	Top Width (ft)		313.59	

Vel Total (ft/s)	2.56	Avg. Vel. (ft/s)		2.56	
Max Chl Dpth (ft)	1.49	Hydr. Depth (ft)		0.76	
Conv. Total (cfs)	8953.9	Conv. (cfs)		8953.9	
Length Wtd. (ft)	681.00	Wetted Per. (ft)		313.61	
Min Ch El (ft)	3450.00	Shear (lb/sq ft)		0.22	
Alpha	1.00	Stream Power (lb/ft s)		0.57	
Frctn Loss (ft)	4.90	Cum Volume (acre-ft)	13.86	68.71	2.04
C & E Loss (ft)	0.01	Cum SA (acres)	18.21	86.57	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3451.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.033	
W.S. Elev (ft)	3451.49	Reach Len. (ft)	639.00	681.00	658.00
Crit W.S. (ft)	3451.14	Flow Area (sq ft)		238.60	
E.G. Slope (ft/ft)	0.004656	Area (sq ft)		238.60	
Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	313.59	Top Width (ft)		313.59	
Vel Total (ft/s)	2.56	Avg. Vel. (ft/s)		2.56	
Max Chl Dpth (ft)	1.49	Hydr. Depth (ft)		0.76	
Conv. Total (cfs)	8953.9	Conv. (cfs)		8953.9	
Length Wtd. (ft)	681.00	Wetted Per. (ft)		313.61	
Min Ch El (ft)	3450.00	Shear (lb/sq ft)		0.22	
Alpha	1.00	Stream Power (lb/ft s)		0.57	
Frctn Loss (ft)	4.90	Cum Volume (acre-ft)	13.86	77.23	2.04
C & E Loss (ft)	0.01	Cum SA (acres)	18.21	90.98	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3451.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.033	
W.S. Elev (ft)	3451.49	Reach Len. (ft)	639.00	681.00	658.00
Crit W.S. (ft)	3451.14	Flow Area (sq ft)		238.60	
E.G. Slope (ft/ft)	0.004656	Area (sq ft)		238.60	
Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	313.59	Top Width (ft)		313.59	
Vel Total (ft/s)	2.56	Avg. Vel. (ft/s)		2.56	
Max Chl Dpth (ft)	1.49	Hydr. Depth (ft)		0.76	
Conv. Total (cfs)	8953.9	Conv. (cfs)		8953.9	
Length Wtd. (ft)	681.00	Wetted Per. (ft)		313.61	
Min Ch El (ft)	3450.00	Shear (lb/sq ft)		0.22	
Alpha	1.00	Stream Power (lb/ft s)		0.57	
Frctn Loss (ft)	4.90	Cum Volume (acre-ft)	14.11	87.96	2.04
C & E Loss (ft)	0.01	Cum SA (acres)	18.72	90.98	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 9009

INPUT
Description: Sta 9009
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3452	203	3450	325	3448	492	3446	596	3445
637	3446	892	3448	1007	3450	1124	3452		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	325	.033	892	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
325	892	898	879	794	.1 .3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3446.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.033	
W.S. Elev (ft)	3446.45	Reach Len. (ft)	898.00	879.00	794.00
Crit W.S. (ft)	3446.34	Flow Area (sq ft)		159.10	
E.G. Slope (ft/ft)	0.012581	Area (sq ft)		159.10	
Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	239.94	Top Width (ft)		239.94	
Vel Total (ft/s)	3.84	Avg. Vel. (ft/s)		3.84	
Max Chl Dpth (ft)	1.45	Hydr. Depth (ft)		0.66	
Conv. Total (cfs)	5447.3	Conv. (cfs)		5447.3	
Length Wtd. (ft)	879.00	Wetted Per. (ft)		239.96	
Min Ch El (ft)	3445.00	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		2.00	
Frctn Loss (ft)	4.98	Cum Volume (acre-ft)	13.86	62.77	2.04
C & E Loss (ft)	0.05	Cum SA (acres)	18.21	80.93	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3446.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.033	
W.S. Elev (ft)	3446.45	Reach Len. (ft)	898.00	879.00	794.00
Crit W.S. (ft)	3446.34	Flow Area (sq ft)		159.10	
E.G. Slope (ft/ft)	0.012581	Area (sq ft)		159.10	
Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	239.94	Top Width (ft)		239.94	
Vel Total (ft/s)	3.84	Avg. Vel. (ft/s)		3.84	
Max Chl Dpth (ft)	1.45	Hydr. Depth (ft)		0.66	
Conv. Total (cfs)	5447.3	Conv. (cfs)		5447.3	

Length Wtd. (ft)	879.00	Wetted Per. (ft)		239.96	
Min Ch El (ft)	3445.00	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		2.00	
Frctn Loss (ft)	4.98	Cum Volume (acre-ft)	13.86	65.60	2.04
C & E Loss (ft)	0.05	Cum SA (acres)	18.21	82.24	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3446.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.033	
W.S. Elev (ft)	3446.45	Reach Len. (ft)	898.00	879.00	794.00
Crit W.S. (ft)	3446.34	Flow Area (sq ft)		159.10	
E.G. Slope (ft/ft)	0.012581	Area (sq ft)		159.10	
Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	239.94	Top Width (ft)		239.94	
Vel Total (ft/s)	3.84	Avg. Vel. (ft/s)		3.84	
Max Chl Dpth (ft)	1.45	Hydr. Depth (ft)		0.66	
Conv. Total (cfs)	5447.3	Conv. (cfs)		5447.3	
Length Wtd. (ft)	879.00	Wetted Per. (ft)		239.96	
Min Ch El (ft)	3445.00	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		2.00	
Frctn Loss (ft)	4.98	Cum Volume (acre-ft)	13.86	74.12	2.04
C & E Loss (ft)	0.05	Cum SA (acres)	18.21	86.65	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3446.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.033	
W.S. Elev (ft)	3446.45	Reach Len. (ft)	898.00	879.00	794.00
Crit W.S. (ft)	3446.34	Flow Area (sq ft)		159.10	
E.G. Slope (ft/ft)	0.012581	Area (sq ft)		159.10	
Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	239.94	Top Width (ft)		239.94	
Vel Total (ft/s)	3.84	Avg. Vel. (ft/s)		3.84	
Max Chl Dpth (ft)	1.45	Hydr. Depth (ft)		0.66	
Conv. Total (cfs)	5447.3	Conv. (cfs)		5447.3	
Length Wtd. (ft)	879.00	Wetted Per. (ft)		239.96	
Min Ch El (ft)	3445.00	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		2.00	
Frctn Loss (ft)	4.98	Cum Volume (acre-ft)	14.11	84.86	2.04
C & E Loss (ft)	0.05	Cum SA (acres)	18.72	86.65	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 8130

INPUT
Description: Sta. 8130
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3448	303	3444	419	3442	654	3440	663	3440
852	3442	995	3444	1104	3446				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	419	.033	852	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
419	852	399	413	456	.1 .3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3441.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.033	

W.S. Elev (ft)	3441.57	Reach Len. (ft)	399.00	413.00	456.00
Crit W.S. (ft)	3441.11	Flow Area (sq ft)		276.52	
E.G. Slope (ft/ft)	0.003204	Area (sq ft)		276.52	
Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	342.53	Top Width (ft)		342.53	
Vel Total (ft/s)	2.21	Avg. Vel. (ft/s)		2.21	
Max Chl Dpth (ft)	1.57	Hydr. Depth (ft)		0.81	
Conv. Total (cfs)	10794.8	Conv. (cfs)		10794.8	
Length Wtd. (ft)	413.00	Wetted Per. (ft)		342.54	
Min Ch El (ft)	3440.00	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)		0.36	
Frctn Loss (ft)	2.70	Cum Volume (acre-ft)	13.86	58.37	2.04
C & E Loss (ft)	0.02	Cum SA (acres)	18.21	75.05	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3441.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.033	
W.S. Elev (ft)	3441.57	Reach Len. (ft)	399.00	413.00	456.00
Crit W.S. (ft)	3441.11	Flow Area (sq ft)		276.52	
E.G. Slope (ft/ft)	0.003204	Area (sq ft)		276.52	
Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	342.53	Top Width (ft)		342.53	
Vel Total (ft/s)	2.21	Avg. Vel. (ft/s)		2.21	
Max Chl Dpth (ft)	1.57	Hydr. Depth (ft)		0.81	
Conv. Total (cfs)	10794.8	Conv. (cfs)		10794.8	
Length Wtd. (ft)	413.00	Wetted Per. (ft)		342.54	
Min Ch El (ft)	3440.00	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)		0.36	

Frctn Loss (ft)	2.70	Cum Volume (acre-ft)	13.86	61.20	2.04
C & E Loss (ft)	0.02	Cum SA (acres)	18.21	76.36	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3441.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.033	
W.S. Elev (ft)	3441.57	Reach Len. (ft)	399.00	413.00	456.00
Crit W.S. (ft)	3441.11	Flow Area (sq ft)		276.52	
E.G. Slope (ft/ft)	0.003204	Area (sq ft)		276.52	
Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	342.53	Top Width (ft)		342.53	
Vel Total (ft/s)	2.21	Avg. Vel. (ft/s)		2.21	
Max Chl Dpth (ft)	1.57	Hydr. Depth (ft)		0.81	
Conv. Total (cfs)	10794.8	Conv. (cfs)		10794.8	
Length Wtd. (ft)	413.00	Wetted Per. (ft)		342.54	
Min Ch El (ft)	3440.00	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)		0.36	
Frctn Loss (ft)	2.70	Cum Volume (acre-ft)	13.86	69.73	2.04
C & E Loss (ft)	0.02	Cum SA (acres)	18.21	80.77	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3441.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.033	
W.S. Elev (ft)	3441.57	Reach Len. (ft)	399.00	413.00	456.00

Crit W.S. (ft)	3441.11	Flow Area (sq ft)		276.52	
E.G. Slope (ft/ft)	0.003204	Area (sq ft)		276.52	
Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	342.53	Top Width (ft)		342.53	
Vel Total (ft/s)	2.21	Avg. Vel. (ft/s)		2.21	
Max Chl Dpth (ft)	1.57	Hydr. Depth (ft)		0.81	
Conv. Total (cfs)	10794.8	Conv. (cfs)		10794.8	
Length Wtd. (ft)	413.00	Wetted Per. (ft)		342.54	
Min Ch El (ft)	3440.00	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)		0.36	
Frctn Loss (ft)	2.70	Cum Volume (acre-ft)	14.11	80.46	2.04
C & E Loss (ft)	0.02	Cum SA (acres)	18.72	80.77	2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 7717

INPUT
Description: Sta 7717
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3442	233	3440	383	3438	492	3437.8	510	3438
657	3439	747	3440	879	3442				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	233	.033	747	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
233	747	444	464	510	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3438.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.033	
W.S. Elev (ft)	3438.66	Reach Len. (ft)	444.00	464.00	510.00
Crit W.S. (ft)	3438.66	Flow Area (sq ft)		146.05	
E.G. Slope (ft/ft)	0.020021	Area (sq ft)		146.05	

Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	274.48	Top Width (ft)		274.48	
Vel Total (ft/s)	4.18	Avg. Vel. (ft/s)		4.18	
Max Chl Dpth (ft)	0.86	Hydr. Depth (ft)		0.53	
Conv. Total (cfs)	4318.2	Conv. (cfs)		4318.2	
Length Wtd. (ft)	464.03	Wetted Per. (ft)		274.48	
Min Ch El (ft)	3437.80	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		2.78	
Frctn Loss (ft)	1.79	Cum Volume (acre-ft)	13.86	56.37	2.04
C & E Loss (ft)	0.07	Cum SA (acres)	18.21	72.13	2.92

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3438.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.033	
W.S. Elev (ft)	3438.66	Reach Len. (ft)	444.00	464.00	510.00
Crit W.S. (ft)	3438.66	Flow Area (sq ft)		146.05	
E.G. Slope (ft/ft)	0.020021	Area (sq ft)		146.05	
Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	274.48	Top Width (ft)		274.48	
Vel Total (ft/s)	4.18	Avg. Vel. (ft/s)		4.18	
Max Chl Dpth (ft)	0.86	Hydr. Depth (ft)		0.53	
Conv. Total (cfs)	4318.2	Conv. (cfs)		4318.2	
Length Wtd. (ft)	464.03	Wetted Per. (ft)		274.48	

Min Ch El (ft)	3437.80	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		2.78	
Frctn Loss (ft)	1.79	Cum Volume (acre-ft)	13.86	59.20	2.04
C & E Loss (ft)	0.07	Cum SA (acres)	18.21	73.44	2.92

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3438.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.033	
W.S. Elev (ft)	3438.66	Reach Len. (ft)	444.00	464.00	510.00
Crit W.S. (ft)	3438.66	Flow Area (sq ft)		146.05	
E.G. Slope (ft/ft)	0.020021	Area (sq ft)		146.05	
Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	274.48	Top Width (ft)		274.48	
Vel Total (ft/s)	4.18	Avg. Vel. (ft/s)		4.18	
Max Chl Dpth (ft)	0.86	Hydr. Depth (ft)		0.53	
Conv. Total (cfs)	4318.2	Conv. (cfs)		4318.2	
Length Wtd. (ft)	464.03	Wetted Per. (ft)		274.48	
Min Ch El (ft)	3437.80	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		2.78	
Frctn Loss (ft)	1.79	Cum Volume (acre-ft)	13.86	67.73	2.04
C & E Loss (ft)	0.07	Cum SA (acres)	18.21	77.85	2.92

Warning: The energy equation could not be balanced within the specified number of iterations.

The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3438.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.033	
W.S. Elev (ft)	3438.66	Reach Len. (ft)	444.00	464.00	510.00
Crit W.S. (ft)	3438.66	Flow Area (sq ft)		146.05	
E.G. Slope (ft/ft)	0.020021	Area (sq ft)		146.05	
Q Total (cfs)	611.00	Flow (cfs)		611.00	
Top Width (ft)	274.48	Top Width (ft)		274.48	
Vel Total (ft/s)	4.18	Avg. Vel. (ft/s)		4.18	
Max Chl Dpth (ft)	0.86	Hydr. Depth (ft)		0.53	
Conv. Total (cfs)	4318.2	Conv. (cfs)		4318.2	
Length Wtd. (ft)	464.03	Wetted Per. (ft)		274.48	
Min Ch El (ft)	3437.80	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		2.78	
Frctn Loss (ft)	1.79	Cum Volume (acre-ft)	14.11	78.46	2.04
C & E Loss (ft)	0.07	Cum SA (acres)	18.72	77.85	2.92

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This i

ndicates
that there is not a valid subcritical answer. The program defaulted to critical dep
th.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 7253

INPUT
Description: Sta. 7253
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3438	109	3438.7	321	3438	424	3436	668	3435
906	3436	1005	3438	1200	3440	1365	3442		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	424	.033	906	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
424	906	756	910	980	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3436.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3436.35	Reach Len. (ft)	756.00	910.00	980.00
Crit W.S. (ft)	3435.88	Flow Area (sq ft)	3.20	410.81	3.07
E.G. Slope (ft/ft)	0.001738	Area (sq ft)	3.20	410.81	3.07
Q Total (cfs)	697.00	Flow (cfs)	1.89	693.30	1.81
Top Width (ft)	517.58	Top Width (ft)	18.14	482.00	17.44
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)	0.59	1.69	0.59
Max Chl Dpth (ft)	1.35	Hydr. Depth (ft)	0.18	0.85	0.18
Conv. Total (cfs)	16716.8	Conv. (cfs)	45.2	16628.1	43.5
Length Wtd. (ft)	909.92	Wetted Per. (ft)	18.15	482.00	17.44
Min Ch El (ft)	3435.00	Shear (lb/sq ft)	0.02	0.09	0.02
Alpha	1.02	Stream Power (lb/ft s)	0.01	0.16	0.01
Frctn Loss (ft)	5.38	Cum Volume (acre-ft)	13.84	53.40	2.02
C & E Loss (ft)	0.03	Cum SA (acres)	18.12	68.10	2.82

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
than 0.7 or greater than 1.4. This may indicate the need for additional cross secti
ons.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3436.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3436.35	Reach Len. (ft)	756.00	910.00	980.00
Crit W.S. (ft)	3435.88	Flow Area (sq ft)	3.20	410.81	3.07
E.G. Slope (ft/ft)	0.001738	Area (sq ft)	3.20	410.81	3.07
Q Total (cfs)	697.00	Flow (cfs)	1.89	693.30	1.81
Top Width (ft)	517.58	Top Width (ft)	18.14	482.00	17.44
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)	0.59	1.69	0.59
Max Chl Dpth (ft)	1.35	Hydr. Depth (ft)	0.18	0.85	0.18
Conv. Total (cfs)	16716.8	Conv. (cfs)	45.2	16628.1	43.5
Length Wtd. (ft)	909.92	Wetted Per. (ft)	18.15	482.00	17.44
Min Ch El (ft)	3435.00	Shear (lb/sq ft)	0.02	0.09	0.02
Alpha	1.02	Stream Power (lb/ft s)	0.01	0.16	0.01
Frctn Loss (ft)	5.38	Cum Volume (acre-ft)	13.84	56.24	2.02
C & E Loss (ft)	0.03	Cum SA (acres)	18.12	69.41	2.82

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3436.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3436.35	Reach Len. (ft)	756.00	910.00	980.00
Crit W.S. (ft)	3435.88	Flow Area (sq ft)	3.20	410.81	3.07
E.G. Slope (ft/ft)	0.001738	Area (sq ft)	3.20	410.81	3.07
Q Total (cfs)	697.00	Flow (cfs)	1.89	693.30	1.81
Top Width (ft)	517.58	Top Width (ft)	18.14	482.00	17.44
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)	0.59	1.69	0.59
Max Chl Dpth (ft)	1.35	Hydr. Depth (ft)	0.18	0.85	0.18
Conv. Total (cfs)	16716.8	Conv. (cfs)	45.2	16628.1	43.5

Length Wtd. (ft)	909.92	Wetted Per. (ft)	18.15	482.00	17.44
Min Ch El (ft)	3435.00	Shear (lb/sq ft)	0.02	0.09	0.02
Alpha	1.02	Stream Power (lb/ft s)	0.01	0.16	0.01
Frctn Loss (ft)	5.38	Cum Volume (acre-ft)	13.84	64.76	2.02
C & E Loss (ft)	0.03	Cum SA (acres)	18.12	73.82	2.82

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3436.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3436.35	Reach Len. (ft)	756.00	910.00	980.00
Crit W.S. (ft)	3435.88	Flow Area (sq ft)	3.20	410.81	3.07
E.G. Slope (ft/ft)	0.001738	Area (sq ft)	3.20	410.81	3.07
Q Total (cfs)	697.00	Flow (cfs)	1.89	693.30	1.81
Top Width (ft)	517.58	Top Width (ft)	18.14	482.00	17.44
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)	0.59	1.69	0.59
Max Chl Dpth (ft)	1.35	Hydr. Depth (ft)	0.18	0.85	0.18
Conv. Total (cfs)	16716.8	Conv. (cfs)	45.2	16628.1	43.5
Length Wtd. (ft)	909.92	Wetted Per. (ft)	18.15	482.00	17.44
Min Ch El (ft)	3435.00	Shear (lb/sq ft)	0.02	0.09	0.02
Alpha	1.02	Stream Power (lb/ft s)	0.01	0.16	0.01
Frctn Loss (ft)	5.38	Cum Volume (acre-ft)	14.10	75.49	2.02
C & E Loss (ft)	0.03	Cum SA (acres)	18.63	73.82	2.82

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 6343

INPUT
Description: Sta. 6343
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3434	346	3433	663	3432	732	3431	860	3430.2
981	3430	1273	3430	1320	3431.5	1566	3432		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	663	.033	1320	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
663	1320	767	980	1051	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3431.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.033	
W.S. Elev (ft)	3430.70	Reach Len. (ft)	767.00	980.00	1051.00
Crit W.S. (ft)	3430.70	Flow Area (sq ft)		303.78	
E.G. Slope (ft/ft)	0.019035	Area (sq ft)		303.78	
Q Total (cfs)	1328.00	Flow (cfs)		1328.00	
Top Width (ft)	514.60	Top Width (ft)		514.60	
Vel Total (ft/s)	4.37	Avg. Vel. (ft/s)		4.37	
Max Chl Dpth (ft)	0.70	Hydr. Depth (ft)		0.59	
Conv. Total (cfs)	9625.4	Conv. (cfs)		9625.4	
Length Wtd. (ft)	979.93	Wetted Per. (ft)		514.61	
Min Ch El (ft)	3430.00	Shear (lb/sq ft)		0.70	
Alpha	1.00	Stream Power (lb/ft s)		3.07	
Frctn Loss (ft)	4.06	Cum Volume (acre-ft)	13.81	45.94	1.99
C & E Loss (ft)	0.07	Cum SA (acres)	17.96	57.69	2.63

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates

that there is not a valid subcritical answer. The program defaulted to critical dep
th.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3431.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.033	
W.S. Elev (ft)	3430.70	Reach Len. (ft)	767.00	980.00	1051.00
Crit W.S. (ft)	3430.70	Flow Area (sq ft)		303.78	
E.G. Slope (ft/ft)	0.019035	Area (sq ft)		303.78	
Q Total (cfs)	1328.00	Flow (cfs)		1328.00	
Top Width (ft)	514.60	Top Width (ft)		514.60	
Vel Total (ft/s)	4.37	Avg. Vel. (ft/s)		4.37	
Max Chl Dpth (ft)	0.70	Hydr. Depth (ft)		0.59	
Conv. Total (cfs)	9625.4	Conv. (cfs)		9625.4	
Length Wtd. (ft)	979.93	Wetted Per. (ft)		514.61	
Min Ch El (ft)	3430.00	Shear (lb/sq ft)		0.70	
Alpha	1.00	Stream Power (lb/ft s)		3.07	
Frctn Loss (ft)	4.06	Cum Volume (acre-ft)	13.81	48.77	1.99
C & E Loss (ft)	0.07	Cum SA (acres)	17.96	59.00	2.63

Warning: The energy equation could not be balanced within the specified number of iterations.
The
program used critical depth for the water surface and continued on with the calculat
ions.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
than 0.7 or greater than 1.4. This may indicate the need for additional cross secti
ons.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to
critical depth, the calculated water surface came back below critical depth. This i
ndicates
that there is not a valid subcritical answer. The program defaulted to critical dep
th.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3431.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.033	
W.S. Elev (ft)	3430.70	Reach Len. (ft)	767.00	980.00	1051.00

Crit W.S. (ft)	3430.70	Flow Area (sq ft)		303.78	
E.G. Slope (ft/ft)	0.019035	Area (sq ft)		303.78	
Q Total (cfs)	1328.00	Flow (cfs)		1328.00	
Top Width (ft)	514.60	Top Width (ft)		514.60	
Vel Total (ft/s)	4.37	Avg. Vel. (ft/s)		4.37	
Max Chl Dpth (ft)	0.70	Hydr. Depth (ft)		0.59	
Conv. Total (cfs)	9625.4	Conv. (cfs)		9625.4	
Length Wtd. (ft)	979.93	Wetted Per. (ft)		514.61	
Min Ch El (ft)	3430.00	Shear (lb/sq ft)		0.70	
Alpha	1.00	Stream Power (lb/ft s)		3.07	
Frctn Loss (ft)	4.06	Cum Volume (acre-ft)	13.81	57.30	1.99
C & E Loss (ft)	0.07	Cum SA (acres)	17.96	63.41	2.63

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3431.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.033	
W.S. Elev (ft)	3430.70	Reach Len. (ft)	767.00	980.00	1051.00
Crit W.S. (ft)	3430.70	Flow Area (sq ft)		303.78	
E.G. Slope (ft/ft)	0.019035	Area (sq ft)		303.78	
Q Total (cfs)	1328.00	Flow (cfs)		1328.00	
Top Width (ft)	514.60	Top Width (ft)		514.60	
Vel Total (ft/s)	4.37	Avg. Vel. (ft/s)		4.37	
Max Chl Dpth (ft)	0.70	Hydr. Depth (ft)		0.59	

Conv. Total (cfs)	9625.4	Conv. (cfs)		9625.4	
Length Wtd. (ft)	979.93	Wetted Per. (ft)		514.61	
Min Ch El (ft)	3430.00	Shear (lb/sq ft)		0.70	
Alpha	1.00	Stream Power (lb/ft s)		3.07	
Frctn Loss (ft)	4.06	Cum Volume (acre-ft)	14.07	68.03	1.99
C & E Loss (ft)	0.07	Cum SA (acres)	18.47	63.41	2.63

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 5363

INPUT
Description: Sta. 5363
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3432	282	3430	550	3428	742	3426	885	3425
1097	3425	1476	3426	1877	3428	1966	3428	2160	3430

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	742	.033	1476	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
742	1476	1199	1142	713	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3426.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3426.33	Reach Len. (ft)	1199.00	1142.00	713.00
Crit W.S. (ft)	3425.78	Flow Area (sq ft)	5.09	712.05	10.63
E.G. Slope (ft/ft)	0.001763	Area (sq ft)	5.09	712.05	10.63
Q Total (cfs)	1328.00	Flow (cfs)	2.87	1319.14	5.99
Top Width (ft)	830.57	Top Width (ft)	31.27	734.00	65.30

Vel Total (ft/s)	1.82	Avg. Vel. (ft/s)	0.56	1.85	0.56
Max Chl Dpth (ft)	1.33	Hydr. Depth (ft)	0.16	0.97	0.16
Conv. Total (cfs)	31630.8	Conv. (cfs)	68.4	31419.6	142.8
Length Wtd. (ft)	1141.15	Wetted Per. (ft)	31.27	734.00	65.30
Min Ch El (ft)	3425.00	Shear (lb/sq ft)	0.02	0.11	0.02
Alpha	1.02	Stream Power (lb/ft s)	0.01	0.20	0.01
Frctn Loss (ft)	5.02	Cum Volume (acre-ft)	13.77	34.51	1.86
C & E Loss (ft)	0.03	Cum SA (acres)	17.68	43.64	1.84

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3426.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3426.33	Reach Len. (ft)	1199.00	1142.00	713.00
Crit W.S. (ft)	3425.78	Flow Area (sq ft)	5.09	712.05	10.63
E.G. Slope (ft/ft)	0.001763	Area (sq ft)	5.09	712.05	10.63
Q Total (cfs)	1328.00	Flow (cfs)	2.87	1319.14	5.99
Top Width (ft)	830.57	Top Width (ft)	31.27	734.00	65.30
Vel Total (ft/s)	1.82	Avg. Vel. (ft/s)	0.56	1.85	0.56
Max Chl Dpth (ft)	1.33	Hydr. Depth (ft)	0.16	0.97	0.16
Conv. Total (cfs)	31630.8	Conv. (cfs)	68.4	31419.6	142.8
Length Wtd. (ft)	1141.15	Wetted Per. (ft)	31.27	734.00	65.30
Min Ch El (ft)	3425.00	Shear (lb/sq ft)	0.02	0.11	0.02
Alpha	1.02	Stream Power (lb/ft s)	0.01	0.20	0.01
Frctn Loss (ft)	5.02	Cum Volume (acre-ft)	13.77	37.34	1.86
C & E Loss (ft)	0.03	Cum SA (acres)	17.68	44.95	1.84

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross secti

ons.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3426.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3426.33	Reach Len. (ft)	1199.00	1142.00	713.00
Crit W.S. (ft)	3425.78	Flow Area (sq ft)	5.09	712.05	10.63
E.G. Slope (ft/ft)	0.001763	Area (sq ft)	5.09	712.05	10.63
Q Total (cfs)	1328.00	Flow (cfs)	2.87	1319.14	5.99
Top Width (ft)	830.57	Top Width (ft)	31.27	734.00	65.30
Vel Total (ft/s)	1.82	Avg. Vel. (ft/s)	0.56	1.85	0.56
Max Chl Dpth (ft)	1.33	Hydr. Depth (ft)	0.16	0.97	0.16
Conv. Total (cfs)	31630.8	Conv. (cfs)	68.4	31419.6	142.8
Length Wtd. (ft)	1141.15	Wetted Per. (ft)	31.27	734.00	65.30
Min Ch El (ft)	3425.00	Shear (lb/sq ft)	0.02	0.11	0.02
Alpha	1.02	Stream Power (lb/ft s)	0.01	0.20	0.01
Frctn Loss (ft)	5.02	Cum Volume (acre-ft)	13.77	45.87	1.86
C & E Loss (ft)	0.03	Cum SA (acres)	17.68	49.36	1.84

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
than 0.7 or greater than 1.4. This may indicate the need for additional cross secti
ons.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3426.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3426.33	Reach Len. (ft)	1199.00	1142.00	713.00
Crit W.S. (ft)	3425.78	Flow Area (sq ft)	5.09	712.05	10.63
E.G. Slope (ft/ft)	0.001763	Area (sq ft)	5.09	712.05	10.63
Q Total (cfs)	1328.00	Flow (cfs)	2.87	1319.14	5.99
Top Width (ft)	830.57	Top Width (ft)	31.27	734.00	65.30

Vel Total (ft/s)	1.82	Avg. Vel. (ft/s)	0.56	1.85	0.56
Max Chl Dpth (ft)	1.33	Hydr. Depth (ft)	0.16	0.97	0.16
Conv. Total (cfs)	31630.8	Conv. (cfs)	68.4	31419.6	142.8
Length Wtd. (ft)	1141.15	Wetted Per. (ft)	31.27	734.00	65.30
Min Ch El (ft)	3425.00	Shear (lb/sq ft)	0.02	0.11	0.02
Alpha	1.02	Stream Power (lb/ft s)	0.01	0.20	0.01
Frctn Loss (ft)	5.02	Cum Volume (acre-ft)	14.03	56.60	1.86
C & E Loss (ft)	0.03	Cum SA (acres)	18.20	49.36	1.84

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 4221

INPUT
Description: Sta. 4221
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3423	341	3422	544	3421	640	3420	669	3420
753	3420.2	829	3420	837	3420	1030	3421	1320	3422
1407	3423	1497	3424						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	544	.033	1407	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
544	1407	749	732	843	.1 .3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3421.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.033	
W.S. Elev (ft)	3420.99	Reach Len. (ft)	749.00	732.00	843.00
Crit W.S. (ft)	3420.99	Flow Area (sq ft)		321.48	
E.G. Slope (ft/ft)	0.018533	Area (sq ft)		321.48	
Q Total (cfs)	1501.00	Flow (cfs)		1501.00	
Top Width (ft)	483.60	Top Width (ft)		483.60	
Vel Total (ft/s)	4.67	Avg. Vel. (ft/s)		4.67	
Max Chl Dpth (ft)	0.99	Hydr. Depth (ft)		0.66	

Conv. Total (cfs)	11025.7	Conv. (cfs)		11025.7	
Length Wtd. (ft)	736.75	Wetted Per. (ft)		483.61	
Min Ch El (ft)	3420.00	Shear (lb/sq ft)		0.77	
Alpha	1.00	Stream Power (lb/ft s)		3.59	
Frctn Loss (ft)	3.65	Cum Volume (acre-ft)	13.70	20.96	1.77
C & E Loss (ft)	0.09	Cum SA (acres)	17.25	27.68	1.30

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3421.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.033	
W.S. Elev (ft)	3420.99	Reach Len. (ft)	749.00	732.00	843.00
Crit W.S. (ft)	3420.99	Flow Area (sq ft)		321.48	
E.G. Slope (ft/ft)	0.018533	Area (sq ft)		321.48	
Q Total (cfs)	1501.00	Flow (cfs)		1501.00	
Top Width (ft)	483.60	Top Width (ft)		483.60	
Vel Total (ft/s)	4.67	Avg. Vel. (ft/s)		4.67	
Max Chl Dpth (ft)	0.99	Hydr. Depth (ft)		0.66	
Conv. Total (cfs)	11025.7	Conv. (cfs)		11025.7	
Length Wtd. (ft)	736.75	Wetted Per. (ft)		483.61	
Min Ch El (ft)	3420.00	Shear (lb/sq ft)		0.77	
Alpha	1.00	Stream Power (lb/ft s)		3.59	
Frctn Loss (ft)	3.65	Cum Volume (acre-ft)	13.70	23.80	1.77
C & E Loss (ft)	0.09	Cum SA (acres)	17.25	28.99	1.30

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3421.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.033	
W.S. Elev (ft)	3420.99	Reach Len. (ft)	749.00	732.00	843.00
Crit W.S. (ft)	3420.99	Flow Area (sq ft)		321.48	
E.G. Slope (ft/ft)	0.018533	Area (sq ft)		321.48	
Q Total (cfs)	1501.00	Flow (cfs)		1501.00	
Top Width (ft)	483.60	Top Width (ft)		483.60	
Vel Total (ft/s)	4.67	Avg. Vel. (ft/s)		4.67	
Max Chl Dpth (ft)	0.99	Hydr. Depth (ft)		0.66	
Conv. Total (cfs)	11025.7	Conv. (cfs)		11025.7	
Length Wtd. (ft)	736.75	Wetted Per. (ft)		483.61	
Min Ch El (ft)	3420.00	Shear (lb/sq ft)		0.77	
Alpha	1.00	Stream Power (lb/ft s)		3.59	
Frctn Loss (ft)	3.65	Cum Volume (acre-ft)	13.70	32.32	1.77
C & E Loss (ft)	0.09	Cum SA (acres)	17.25	33.40	1.30

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3421.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.033	
W.S. Elev (ft)	3420.99	Reach Len. (ft)	749.00	732.00	843.00
Crit W.S. (ft)	3420.99	Flow Area (sq ft)		321.48	
E.G. Slope (ft/ft)	0.018533	Area (sq ft)		321.48	
Q Total (cfs)	1501.00	Flow (cfs)		1501.00	
Top Width (ft)	483.60	Top Width (ft)		483.60	
Vel Total (ft/s)	4.67	Avg. Vel. (ft/s)		4.67	
Max Chl Dpth (ft)	0.99	Hydr. Depth (ft)		0.66	
Conv. Total (cfs)	11025.7	Conv. (cfs)		11025.7	
Length Wtd. (ft)	736.75	Wetted Per. (ft)		483.61	
Min Ch El (ft)	3420.00	Shear (lb/sq ft)		0.77	
Alpha	1.00	Stream Power (lb/ft s)		3.59	
Frctn Loss (ft)	3.65	Cum Volume (acre-ft)	13.96	43.05	1.77
C & E Loss (ft)	0.09	Cum SA (acres)	17.77	33.40	1.30

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 3489

INPUT

Description: Sta. 3489
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-286	3420	-138	3418.5	-126	3418	-104	3416	-91	3415.5
-76	3416	-21	3417	100	3417	258	3416.5	299	3416
309	3415	318	3416	405	3416	422	3416	539	3416.4
581	3416.2	642	3416.4	744	3416	830	3416	918	3418
1068	3420	1159	3421						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-286	.033	539	.033	918	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
539	918	464	500	457	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3417.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3417.18	Reach Len. (ft)	464.00	500.00	457.00
Crit W.S. (ft)	3416.67	Flow Area (sq ft)	482.21	322.70	
E.G. Slope (ft/ft)	0.002251	Area (sq ft)	482.21	322.70	
Q Total (cfs)	1501.00	Flow (cfs)	838.96	662.05	
Top Width (ft)	998.90	Top Width (ft)	655.98	342.92	
Vel Total (ft/s)	1.86	Avg. Vel. (ft/s)	1.74	2.05	
Max Chl Dpth (ft)	2.18	Hydr. Depth (ft)	0.74	0.94	
Conv. Total (cfs)	31635.3	Conv. (cfs)	17681.9	13953.4	
Length Wtd. (ft)	481.78	Wetted Per. (ft)	656.17	342.93	
Min Ch El (ft)	3416.00	Shear (lb/sq ft)	0.10	0.13	
Alpha	1.02	Stream Power (lb/ft s)	0.18	0.27	
Frctn Loss (ft)	2.41	Cum Volume (acre-ft)	9.55	15.55	1.77
C & E Loss (ft)	0.02	Cum SA (acres)	11.61	20.74	1.30

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3417.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.033	0.033	

W.S. Elev (ft)	3417.18	Reach Len. (ft)	464.00	500.00	457.00
Crit W.S. (ft)	3416.67	Flow Area (sq ft)	482.21	322.70	
E.G. Slope (ft/ft)	0.002251	Area (sq ft)	482.21	322.70	
Q Total (cfs)	1501.00	Flow (cfs)	838.96	662.05	
Top Width (ft)	998.90	Top Width (ft)	655.98	342.92	
Vel Total (ft/s)	1.86	Avg. Vel. (ft/s)	1.74	2.05	
Max Chl Dpth (ft)	2.18	Hydr. Depth (ft)	0.74	0.94	
Conv. Total (cfs)	31635.3	Conv. (cfs)	17681.9	13953.4	
Length Wtd. (ft)	481.78	Wetted Per. (ft)	656.17	342.93	
Min Ch El (ft)	3416.00	Shear (lb/sq ft)	0.10	0.13	
Alpha	1.02	Stream Power (lb/ft s)	0.18	0.27	
Frctn Loss (ft)	2.41	Cum Volume (acre-ft)	9.55	18.38	1.77
C & E Loss (ft)	0.02	Cum SA (acres)	11.61	22.05	1.30

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3417.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3417.18	Reach Len. (ft)	464.00	500.00	457.00
Crit W.S. (ft)	3416.67	Flow Area (sq ft)	482.21	322.70	
E.G. Slope (ft/ft)	0.002251	Area (sq ft)	482.21	322.70	
Q Total (cfs)	1501.00	Flow (cfs)	838.96	662.05	
Top Width (ft)	998.90	Top Width (ft)	655.98	342.92	
Vel Total (ft/s)	1.86	Avg. Vel. (ft/s)	1.74	2.05	
Max Chl Dpth (ft)	2.18	Hydr. Depth (ft)	0.74	0.94	
Conv. Total (cfs)	31635.3	Conv. (cfs)	17681.9	13953.4	
Length Wtd. (ft)	481.78	Wetted Per. (ft)	656.17	342.93	
Min Ch El (ft)	3416.00	Shear (lb/sq ft)	0.10	0.13	
Alpha	1.02	Stream Power (lb/ft s)	0.18	0.27	

Frctn Loss (ft)	2.41	Cum Volume (acre-ft)	9.55	26.91	1.77
C & E Loss (ft)	0.02	Cum SA (acres)	11.61	26.46	1.30

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3417.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3417.18	Reach Len. (ft)	464.00	500.00	457.00
Crit W.S. (ft)	3416.67	Flow Area (sq ft)	482.21	322.70	
E.G. Slope (ft/ft)	0.002251	Area (sq ft)	482.21	322.70	
Q Total (cfs)	1501.00	Flow (cfs)	838.96	662.05	
Top Width (ft)	998.90	Top Width (ft)	655.98	342.92	
Vel Total (ft/s)	1.86	Avg. Vel. (ft/s)	1.74	2.05	
Max Chl Dpth (ft)	2.18	Hydr. Depth (ft)	0.74	0.94	
Conv. Total (cfs)	31635.3	Conv. (cfs)	17681.9	13953.4	
Length Wtd. (ft)	481.78	Wetted Per. (ft)	656.17	342.93	
Min Ch El (ft)	3416.00	Shear (lb/sq ft)	0.10	0.13	
Alpha	1.02	Stream Power (lb/ft s)	0.18	0.27	
Frctn Loss (ft)	2.41	Cum Volume (acre-ft)	9.81	37.64	1.77
C & E Loss (ft)	0.02	Cum SA (acres)	12.13	26.46	1.30

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 2989

INPUT
Description: Sta. 2989
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

-31	3416	59	3414.8	170	3414.8	196	3414	436	3413.8
613	3414	651	3414	700	3414	747	3414	761	3414
841	3415.01	920	3416	976	3418	1067	3420		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-31	.033	436	.033	841	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
436	841	317	215	172	.3	.5

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3414.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3414.52	Reach Len. (ft)	317.00	215.00	172.00
Crit W.S. (ft)	3414.52	Flow Area (sq ft)	153.63	198.04	
E.G. Slope (ft/ft)	0.019219	Area (sq ft)	153.63	198.04	
Q Total (cfs)	1501.00	Flow (cfs)	680.62	820.38	
Top Width (ft)	623.28	Top Width (ft)	256.96	366.32	
Vel Total (ft/s)	4.27	Avg. Vel. (ft/s)	4.43	4.14	
Max Chl Dpth (ft)	0.72	Hydr. Depth (ft)	0.60	0.54	
Conv. Total (cfs)	10827.1	Conv. (cfs)	4909.5	5917.6	
Length Wtd. (ft)	252.84	Wetted Per. (ft)	256.96	366.33	
Min Ch El (ft)	3413.80	Shear (lb/sq ft)	0.72	0.65	
Alpha	1.00	Stream Power (lb/ft s)	3.18	2.69	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	6.17	12.56	1.77
C & E Loss (ft)	0.12	Cum SA (acres)	6.75	16.67	1.30

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3414.81	Element	Left OB	Channel	Right OB

Vel Head (ft)	0.28	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3414.52	Reach Len. (ft)	317.00	215.00	172.00
Crit W.S. (ft)	3414.52	Flow Area (sq ft)	153.63	198.04	
E.G. Slope (ft/ft)	0.019219	Area (sq ft)	153.63	198.04	
Q Total (cfs)	1501.00	Flow (cfs)	680.62	820.38	
Top Width (ft)	623.28	Top Width (ft)	256.96	366.32	
Vel Total (ft/s)	4.27	Avg. Vel. (ft/s)	4.43	4.14	
Max Chl Dpth (ft)	0.72	Hydr. Depth (ft)	0.60	0.54	
Conv. Total (cfs)	10827.1	Conv. (cfs)	4909.5	5917.6	
Length Wtd. (ft)	252.84	Wetted Per. (ft)	256.96	366.33	
Min Ch El (ft)	3413.80	Shear (lb/sq ft)	0.72	0.65	
Alpha	1.00	Stream Power (lb/ft s)	3.18	2.69	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	6.17	15.40	1.77
C & E Loss (ft)	0.12	Cum SA (acres)	6.75	17.98	1.30

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3414.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3414.52	Reach Len. (ft)	317.00	215.00	172.00
Crit W.S. (ft)	3414.52	Flow Area (sq ft)	153.63	198.04	
E.G. Slope (ft/ft)	0.019219	Area (sq ft)	153.63	198.04	
Q Total (cfs)	1501.00	Flow (cfs)	680.62	820.38	
Top Width (ft)	623.28	Top Width (ft)	256.96	366.32	
Vel Total (ft/s)	4.27	Avg. Vel. (ft/s)	4.43	4.14	

Max Chl Dpth (ft)	0.72	Hydr. Depth (ft)	0.60	0.54	
Conv. Total (cfs)	10827.1	Conv. (cfs)	4909.5	5917.6	
Length Wtd. (ft)	252.84	Wetted Per. (ft)	256.96	366.33	
Min Ch El (ft)	3413.80	Shear (lb/sq ft)	0.72	0.65	
Alpha	1.00	Stream Power (lb/ft s)	3.18	2.69	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	6.17	23.92	1.77
C & E Loss (ft)	0.12	Cum SA (acres)	6.75	22.39	1.30

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3414.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3414.52	Reach Len. (ft)	317.00	215.00	172.00
Crit W.S. (ft)	3414.52	Flow Area (sq ft)	153.63	198.04	
E.G. Slope (ft/ft)	0.019219	Area (sq ft)	153.63	198.04	
Q Total (cfs)	1501.00	Flow (cfs)	680.62	820.38	
Top Width (ft)	623.28	Top Width (ft)	256.96	366.32	
Vel Total (ft/s)	4.27	Avg. Vel. (ft/s)	4.43	4.14	
Max Chl Dpth (ft)	0.72	Hydr. Depth (ft)	0.60	0.54	
Conv. Total (cfs)	10827.1	Conv. (cfs)	4909.5	5917.6	
Length Wtd. (ft)	252.84	Wetted Per. (ft)	256.96	366.33	
Min Ch El (ft)	3413.80	Shear (lb/sq ft)	0.72	0.65	
Alpha	1.00	Stream Power (lb/ft s)	3.18	2.69	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	6.42	34.65	1.77
C & E Loss (ft)	0.12	Cum SA (acres)	7.27	22.39	1.30

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 2774

INPUT
Description: Sta. 2774 Upstream of culverts
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-453	3416	-437	3415	-405	3414	-289	3413.8	-13	3413.8
100	3413.8	175	3413.8	204	3412	261	3412	298	3411.2
402	3410.9	437	3410	469	3409	491	3409	511	3410
560	3412	641	3414	725	3416				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-453	.033	437	.033	511	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
437	511	40	40	40	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-888	F		
888	F		

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3414.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3413.99	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	761.53	343.24	226.67
E.G. Slope (ft/ft)	0.000278	Area (sq ft)	761.53	343.24	226.67
Q Total (cfs)	1501.00	Flow (cfs)	537.33	716.64	247.03
Top Width (ft)	1039.64	Top Width (ft)	836.05	74.00	129.58
Vel Total (ft/s)	1.13	Avg. Vel. (ft/s)	0.71	2.09	1.09
Max Chl Dpth (ft)	4.99	Hydr. Depth (ft)	0.91	4.64	1.75
Conv. Total (cfs)	90001.4	Conv. (cfs)	32219.0	42970.2	14812.2
Length Wtd. (ft)	40.00	Wetted Per. (ft)	836.13	74.04	129.65
Min Ch El (ft)	3409.00	Shear (lb/sq ft)	0.02	0.08	0.03

Alpha	1.93	Stream Power (lb/ft s)	0.01	0.17	0.03
Frctn Loss (ft)		Cum Volume (acre-ft)	2.84	11.23	1.32
C & E Loss (ft)		Cum SA (acres)	2.77	15.58	1.05

Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

			Left OB	Channel	Right OB
E.G. Elev (ft)	3414.03	Element			
Vel Head (ft)	0.04	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3413.99	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	761.53	343.24	226.67
E.G. Slope (ft/ft)	0.000278	Area (sq ft)	761.53	343.24	226.67
Q Total (cfs)	1501.00	Flow (cfs)	537.33	716.64	247.03
Top Width (ft)	1039.64	Top Width (ft)	836.05	74.00	129.58
Vel Total (ft/s)	1.13	Avg. Vel. (ft/s)	0.71	2.09	1.09
Max Chl Dpth (ft)	4.99	Hydr. Depth (ft)	0.91	4.64	1.75
Conv. Total (cfs)	90001.4	Conv. (cfs)	32219.0	42970.2	14812.2
Length Wtd. (ft)	40.00	Wetted Per. (ft)	836.13	74.04	129.65
Min Ch El (ft)	3409.00	Shear (lb/sq ft)	0.02	0.08	0.03
Alpha	1.93	Stream Power (lb/ft s)	0.01	0.17	0.03
Frctn Loss (ft)		Cum Volume (acre-ft)	2.84	14.06	1.32
C & E Loss (ft)		Cum SA (acres)	2.77	16.89	1.05

Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

			Left OB	Channel	Right OB
E.G. Elev (ft)	3414.03	Element			
Vel Head (ft)	0.04	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3413.99	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	761.53	343.24	226.67

E.G. Slope (ft/ft)	0.000278	Area (sq ft)	761.53	343.24	226.67
Q Total (cfs)	1501.00	Flow (cfs)	537.33	716.64	247.03
Top Width (ft)	1039.64	Top Width (ft)	836.05	74.00	129.58
Vel Total (ft/s)	1.13	Avg. Vel. (ft/s)	0.71	2.09	1.09
Max Chl Dpth (ft)	4.99	Hydr. Depth (ft)	0.91	4.64	1.75
Conv. Total (cfs)	90001.4	Conv. (cfs)	32219.0	42970.2	14812.2
Length Wtd. (ft)	40.00	Wetted Per. (ft)	836.13	74.04	129.65
Min Ch El (ft)	3409.00	Shear (lb/sq ft)	0.02	0.08	0.03
Alpha	1.93	Stream Power (lb/ft s)	0.01	0.17	0.03
Frctn Loss (ft)		Cum Volume (acre-ft)	2.84	22.58	1.32
C & E Loss (ft)		Cum SA (acres)	2.77	21.30	1.05

Warning: The parabolic search method failed to converge on critical depth. The program will try the
cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3414.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3413.99	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	761.53	343.24	226.67
E.G. Slope (ft/ft)	0.000278	Area (sq ft)	761.53	343.24	226.67
Q Total (cfs)	1501.00	Flow (cfs)	537.33	716.64	247.03
Top Width (ft)	1039.64	Top Width (ft)	836.05	74.00	129.58
Vel Total (ft/s)	1.13	Avg. Vel. (ft/s)	0.71	2.09	1.09
Max Chl Dpth (ft)	4.99	Hydr. Depth (ft)	0.91	4.64	1.75
Conv. Total (cfs)	90001.4	Conv (cfs)	32219.0	42970.2	14812.2
Length Wtd. (ft)	40.00	Wetted Per. (ft)	836.13	74.04	129.65
Min Ch El (ft)	3409.00	Shear (lb/sq ft)	0.02	0.08	0.03
Alpha	1.93	Stream Power (lb/ft s)	0.01	0.17	0.03
Frctn Loss (ft)		Cum Volume (acre-ft)	3.09	33.31	1.32
C & E Loss (ft)		Cum SA (acres)	3.29	21.30	1.05

Warning: The parabolic search method failed to converge on critical depth. The program will try the
cross section slice/secant method to find critical depth.

CULVERT RIVER: Ditch A
REACH: 5 RS: 2773

INPUT
Description:
Distance from Upstream XS = 8
Deck/Roadway Width = 24
Weir Coefficient = 3
Upstream Deck/Roadway Coordinates
num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
26	3413.8		100	3413.8		402	3412.7	
500	3412.8		600	3413.9		700	3415.7	

Upstream Bridge Cross Section Data
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-453	3416	-437	3415	-405	3414	-289	3413.8	-13	3413.8
100	3413.8	175	3413.8	204	3412	261	3412	298	3411.2
402	3410.9	437	3410	469	3409	491	3409	511	3410
560	3412	641	3414	725	3416				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-453	.033	437	.033	511	.033

Bank Sta: Left Right Coeff Contr. Expan.
437 511 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-888	F		
888	F		

Downstream Deck/Roadway Coordinates
num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
26	3413.8		100	3413.8		402	3412.7	
500	3412.8		600	3413.9		700	3415.7	

Downstream Bridge Cross Section Data
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1721	3416	-1410	3414	26	3413.8	100	3412.4	155	3412
299	3411.4	349	3410	387	3408.9	391.4	3408.9	395.8	3408.9
400.2	3408.9	404.6	3408.9	409	3408.9	434	3410	487	3412
568	3414	658	3416						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1721	.033	349	.033	434	.033

Bank Sta: Left Right Coeff Contr. Expan.
349 434 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-888	F		
888	F		

Upstream Embankment side slope = 3 horiz. to 1.0 vertical
Downstream Embankment side slope = 3 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95

Elevation at which weir flow begins = 3412.7
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name	Shape	Rise	Span
Culvert #1	Pipe Arch	1.833	2.43

FHWA Chart # 34- 18 inch corner radius; Corrugated metal
FHWA Scale # 1 - 90 Degree headwall
Solution Criteria = Highest U.S. EG

Culvert	Upstrm Dist	Length	n Value	Entrance Loss Coef	Exit Loss Coef
	1	39	.024	.5	1

Number of Barrels = 6
Upstream Elevation = 3409
Centerline Stations

Sta.	Sta.	Sta.	Sta.	Sta.	Sta.
469	473.4	477.8	482.2	486.6	491

Downstream Elevation = 3408.9
Centerline Stations

Sta.	Sta.	Sta.	Sta.	Sta.	Sta.
387	391.4	395.8	400.2	404.6	409

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 2734

INPUT
Description: Sta. 2734 Downstream of culverts
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1721	3416	-1410	3414	26	3413.8	100	3412.4	155	3412
299	3411.4	349	3410	387	3408.9	391.4	3408.9	395.8	3408.9
400.2	3408.9	404.6	3408.9	409	3408.9	434	3410	487	3412
568	3414	658	3416						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1721	.033	349	.033	434	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
349	434	745	846	1015	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-888	F		
888	F		

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3412.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3412.71	Reach Len. (ft)	745.00	846.00	1015.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	275.89	288.99	100.64
E.G. Slope (ft/ft)	0.001004	Area (sq ft)	275.89	288.99	100.64
Q Total (cfs)	1501.00	Flow (cfs)	404.03	931.98	164.98
Top Width (ft)	431.91	Top Width (ft)	265.26	85.00	81.65
Vel Total (ft/s)	2.26	Avg. Vel. (ft/s)	1.46	3.22	1.64

Max Chl Dpth (ft)	3.81	Hydr. Depth (ft)	1.04	3.40	1.23
Conv. Total (cfs)	47371.8	Conv. (cfs)	12751.3	29413.6	5206.9
Length Wtd. (ft)	841.72	Wetted Per. (ft)	265.28	85.04	81.70
Min Ch El (ft)	3408.90	Shear (lb/sq ft)	0.07	0.21	0.08
Alpha	1.44	Stream Power (lb/ft s)	0.10	0.69	0.13
Frctn Loss (ft)	1.67	Cum Volume (acre-ft)	2.36	10.94	1.17
C & E Loss (ft)	0.00	Cum SA (acres)	2.27	15.51	0.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3412.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3412.71	Reach Len. (ft)	745.00	846.00	1015.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	275.89	288.99	100.64
E.G. Slope (ft/ft)	0.001004	Area (sq ft)	275.89	288.99	100.64
Q Total (cfs)	1501.00	Flow (cfs)	404.03	931.98	164.98
Top Width (ft)	431.91	Top Width (ft)	265.26	85.00	81.65
Vel Total (ft/s)	2.26	Avg. Vel. (ft/s)	1.46	3.22	1.64
Max Chl Dpth (ft)	3.81	Hydr. Depth (ft)	1.04	3.40	1.23
Conv. Total (cfs)	47371.8	Conv. (cfs)	12751.3	29413.6	5206.9
Length Wtd. (ft)	841.72	Wetted Per. (ft)	265.28	85.04	81.70
Min Ch El (ft)	3408.90	Shear (lb/sq ft)	0.07	0.21	0.08

Alpha	1.44	Stream Power (lb/ft s)	0.10	0.69	0.13
Frctn Loss (ft)	2.25	Cum Volume (acre-ft)	2.36	13.77	1.17
C & E Loss (ft)	0.05	Cum SA (acres)	2.27	16.82	0.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3412.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3412.71	Reach Len. (ft)	745.00	846.00	1015.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	275.89	288.99	100.64
E.G. Slope (ft/ft)	0.001004	Area (sq ft)	275.89	288.99	100.64
Q Total (cfs)	1501.00	Flow (cfs)	404.03	931.98	164.98
Top Width (ft)	431.91	Top Width (ft)	265.26	85.00	81.65
Vel Total (ft/s)	2.26	Avg. Vel. (ft/s)	1.46	3.22	1.64
Max Chl Dpth (ft)	3.81	Hydr. Depth (ft)	1.04	3.40	1.23
Conv. Total (cfs)	47371.8	Conv. (cfs)	12751.3	29413.6	5206.9
Length Wtd. (ft)	841.72	Wetted Per. (ft)	265.28	85.04	81.70
Min Ch El (ft)	3408.90	Shear (lb/sq ft)	0.07	0.21	0.08
Alpha	1.44	Stream Power (lb/ft s)	0.10	0.69	0.13
Frctn Loss (ft)	2.25	Cum Volume (acre-ft)	2.36	22.29	1.17
C & E Loss (ft)	0.05	Cum SA (acres)	2.27	21.23	0.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3412.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3412.71	Reach Len. (ft)	745.00	846.00	1015.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	275.89	288.99	100.64
E.G. Slope (ft/ft)	0.001004	Area (sq ft)	275.89	288.99	100.64
Q Total (cfs)	1501.00	Flow (cfs)	404.03	931.98	164.98
Top Width (ft)	431.91	Top Width (ft)	265.26	85.00	81.65
Vel Total (ft/s)	2.26	Avg. Vel. (ft/s)	1.46	3.22	1.64
Max Chl Dpth (ft)	3.81	Hydr. Depth (ft)	1.04	3.40	1.23
Conv. Total (cfs)	47371.8	Conv. (cfs)	12751.3	29413.6	5206.9
Length Wtd. (ft)	841.72	Wetted Per. (ft)	265.28	85.04	81.70
Min Ch El (ft)	3408.90	Shear (lb/sq ft)	0.07	0.21	0.08
Alpha	1.44	Stream Power (lb/ft s)	0.10	0.69	0.13
Frctn Loss (ft)	2.25	Cum Volume (acre-ft)	2.62	33.02	1.17
C & E Loss (ft)	0.05	Cum SA (acres)	2.78	21.23	0.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 1888

INPUT
Description: Sta. 1888
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-775	3412	-41	3410	81	3410	100	3410.2	110	3410
331	3408	532	3408	690	3408	1180	3410	1268	3412

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-775	.033	100	.033	1180	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
100	1180	305	828	980	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3409.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.17	Wt. n-Val.		0.033	
W.S. Elev (ft)	3408.41	Reach Len. (ft)	305.00	828.00	980.00
Crit W.S. (ft)	3408.72	Flow Area (sq ft)		175.18	
E.G. Slope (ft/ft)	0.151914	Area (sq ft)		175.18	
Q Total (cfs)	1521.00	Flow (cfs)		1521.00	
Top Width (ft)	503.42	Top Width (ft)		503.42	
Vel Total (ft/s)	8.68	Avg. Vel. (ft/s)		8.68	
Max Chl Dpth (ft)	0.41	Hydr. Depth (ft)		0.35	
Conv. Total (cfs)	3902.4	Conv. (cfs)		3902.4	
Length Wtd. (ft)	828.00	Wetted Per. (ft)		503.42	
Min Ch El (ft)	3408.00	Shear (lb/sq ft)		3.30	
Alpha	1.00	Stream Power (lb/ft s)		28.65	
Frctn Loss (ft)	2.92	Cum Volume (acre-ft)		6.43	
C & E Loss (ft)	0.32	Cum SA (acres)		9.79	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the n

eed for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3409.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.17	Wt. n-Val.		0.033	
W.S. Elev (ft)	3408.41	Reach Len. (ft)	305.00	828.00	980.00
Crit W.S. (ft)	3408.72	Flow Area (sq ft)		175.18	
E.G. Slope (ft/ft)	0.151914	Area (sq ft)		175.18	
Q Total (cfs)	1521.00	Flow (cfs)		1521.00	
Top Width (ft)	503.42	Top Width (ft)		503.42	
Vel Total (ft/s)	8.68	Avg. Vel. (ft/s)		8.68	
Max Chl Dpth (ft)	0.41	Hydr. Depth (ft)		0.35	
Conv. Total (cfs)	3902.4	Conv. (cfs)		3902.4	
Length Wtd. (ft)	828.00	Wetted Per. (ft)		503.42	
Min Ch El (ft)	3408.00	Shear (lb/sq ft)		3.30	
Alpha	1.00	Stream Power (lb/ft s)		28.65	
Frctn Loss (ft)	2.92	Cum Volume (acre-ft)		9.26	
C & E Loss (ft)	0.32	Cum SA (acres)		11.11	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3409.58	Element	Left OB	Channel	Right OB

Vel Head (ft)	1.17	Wt. n-Val.		0.033	
W.S. Elev (ft)	3408.41	Reach Len. (ft)	305.00	828.00	980.00
Crit W.S. (ft)	3408.72	Flow Area (sq ft)		175.18	
E.G. Slope (ft/ft)	0.151914	Area (sq ft)		175.18	
Q Total (cfs)	1521.00	Flow (cfs)		1521.00	
Top Width (ft)	503.42	Top Width (ft)		503.42	
Vel Total (ft/s)	8.68	Avg. Vel. (ft/s)		8.68	
Max Chl Dpth (ft)	0.41	Hydr. Depth (ft)		0.35	
Conv. Total (cfs)	3902.4	Conv. (cfs)		3902.4	
Length Wtd. (ft)	828.00	Wetted Per. (ft)		503.42	
Min Ch El (ft)	3408.00	Shear (lb/sq ft)		3.30	
Alpha	1.00	Stream Power (lb/ft s)		28.65	
Frctn Loss (ft)	2.92	Cum Volume (acre-ft)		17.79	
C & E Loss (ft)	0.32	Cum SA (acres)		15.51	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the
cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3409.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.17	Wt. n-Val.		0.033	
W.S. Elev (ft)	3408.41	Reach Len. (ft)	305.00	828.00	980.00
Crit W.S. (ft)	3408.72	Flow Area (sq ft)		175.18	
E.G. Slope (ft/ft)	0.151914	Area (sq ft)		175.18	
Q Total (cfs)	1521.00	Flow (cfs)		1521.00	
Top Width (ft)	503.42	Top Width (ft)		503.42	
Vel Total (ft/s)	8.68	Avg. Vel. (ft/s)		8.68	
Max Chl Dpth (ft)	0.41	Hydr. Depth (ft)		0.35	

Conv. Total (cfs)	3902.4	Conv. (cfs)		3902.4
Length Wtd. (ft)	825.65	Wetted Per. (ft)		503.42
Min Ch El (ft)	3408.00	Shear (lb/sq ft)		3.30
Alpha	1.00	Stream Power (lb/ft s)		28.65
Frctn Loss (ft)	2.92	Cum Volume (acre-ft)	0.26	28.52
C & E Loss (ft)	0.32	Cum SA (acres)	0.51	15.51

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
section. This may indicate the need for additional cross sections.
Warning: The parabolic search method failed to converge on critical depth. The program will try the
cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 1060

INPUT
Description: Sta. 1060
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3408	394	3406	879	3402.7	909	3402.7	1206	3405
1523	3406								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	394	.033	1523	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
394	1523	60	60	60	.1 .3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

			Left OB	Channel	Right OB
E.G. Elev (ft)	3404.66	Element			
Vel Head (ft)	0.16	Wt. n-Val.		0.033	
W.S. Elev (ft)	3404.50	Reach Len. (ft)			
Crit W.S. (ft)	3404.11	Flow Area (sq ft)		501.30	
E.G. Slope (ft/ft)	0.005270	Area (sq ft)		501.30	
Q Total (cfs)	1585.00	Flow (cfs)		1585.00	
Top Width (ft)	526.98	Top Width (ft)		526.98	
Vel Total (ft/s)	3.16	Avg. Vel. (ft/s)		3.16	

Max Chl Dpth (ft)	1.80	Hydr. Depth (ft)	0.95
Conv. Total (cfs)	21832.6	Conv. (cfs)	21832.6
Length Wtd. (ft)		Wetted Per. (ft)	527.00
Min Ch El (ft)	3402.70	Shear (lb/sq ft)	0.31
Alpha	1.00	Stream Power (lb/ft s)	0.99
Frctn Loss (ft)		Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3405.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.033	
W.S. Elev (ft)	3405.00	Reach Len. (ft)			
Crit W.S. (ft)	3404.11	Flow Area (sq ft)		799.30	
E.G. Slope (ft/ft)	0.001518	Area (sq ft)		799.30	
Q Total (cfs)	1585.00	Flow (cfs)		1585.00	
Top Width (ft)	665.03	Top Width (ft)		665.03	
Vel Total (ft/s)	1.98	Avg. Vel. (ft/s)		1.98	
Max Chl Dpth (ft)	2.30	Hydr. Depth (ft)		1.20	
Conv. Total (cfs)	40684.8	Conv. (cfs)		40684.8	
Length Wtd. (ft)		Wetted Per. (ft)		665.05	
Min Ch El (ft)	3402.70	Shear (lb/sq ft)		0.11	
Alpha	1.00	Stream Power (lb/ft s)		0.23	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3406.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.033	

W.S. Elev (ft)	3406.00	Reach Len. (ft)	
Crit W.S. (ft)	3404.11	Flow Area (sq ft)	1696.32
E.G. Slope (ft/ft)	0.000250	Area (sq ft)	1696.32
Q Total (cfs)	1585.00	Flow (cfs)	1585.00
Top Width (ft)	1129.00	Top Width (ft)	1129.00
Vel Total (ft/s)	0.93	Avg. Vel. (ft/s)	0.93
Max Chl Dpth (ft)	3.30	Hydr. Depth (ft)	1.50
Conv. Total (cfs)	100198.1	Conv. (cfs)	100198.1
Length Wtd. (ft)		Wetted Per. (ft)	1129.02
Min Ch El (ft)	3402.70	Shear (lb/sq ft)	0.02
Alpha	1.00	Stream Power (lb/ft s)	0.02
Frctn Loss (ft)		Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3407.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3407.00	Reach Len. (ft)			
Crit W.S. (ft)	3404.11	Flow Area (sq ft)	73.50	2825.32	
E.G. Slope (ft/ft)	0.000045	Area (sq ft)	73.50	2825.32	
Q Total (cfs)	1585.00	Flow (cfs)	13.98	1571.02	
Top Width (ft)	1276.00	Top Width (ft)	147.00	1129.00	
Vel Total (ft/s)	0.55	Avg. Vel. (ft/s)	0.19	0.56	
Max Chl Dpth (ft)	4.30	Hydr. Depth (ft)	0.50	2.50	
Conv. Total (cfs)	236437.3	Conv. (cfs)	2084.9	234352.5	
Length Wtd. (ft)		Wetted Per. (ft)	147.00	1130.02	
Min Ch El (ft)	3402.70	Shear (lb/sq ft)	0.00	0.01	
Alpha	1.03	Stream Power (lb/ft s)	0.00	0.00	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

SUMMARY OF MANNING'S N VALUES

River:Ditch A

Reach	River Sta.	n1	n2	n3
5	12674	.033	.033	.033
5	11337	.033	.033	.033
5	10937	.033	.033	.033
5	10288	.033	.033	.033
5	9690	.033	.033	.033
5	9009	.033	.033	.033
5	8130	.033	.033	.033
5	7717	.033	.033	.033
5	7253	.033	.033	.033
5	6343	.033	.033	.033
5	5363	.033	.033	.033
5	4221	.033	.033	.033
5	3489	.033	.033	.033
5	2989	.033	.033	.033
5	2774	.033	.033	.033
5	2773	Culvert		
5	2734	.033	.033	.033
5	1888	.033	.033	.033
5	1060	.033	.033	.033

SUMMARY OF REACH LENGTHS

River: Ditch A

Reach	River Sta.	Left	Channel	Right
5	12674	1206	1337	1433
5	11337	545	400	332
5	10937	729	649	445
5	10288	552	598	633
5	9690	639	681	658
5	9009	898	879	794
5	8130	399	413	456
5	7717	444	464	510
5	7253	756	910	980
5	6343	767	980	1051
5	5363	1199	1142	713
5	4221	749	732	843
5	3489	464	500	457
5	2989	317	215	172
5	2774	40	40	40
5	2773	Culvert		
5	2734	745	846	1015
5	1888	305	828	980
5	1060	60	60	60

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Ditch A

Reach	River Sta.	Contr.	Expan.
5	12674	.1	.3
5	11337	.1	.3
5	10937	.1	.3
5	10288	.1	.3
5	9690	.1	.3
5	9009	.1	.3
5	8130	.1	.3
5	7717	.1	.3
5	7253	.1	.3
5	6343	.1	.3
5	5363	.1	.3
5	4221	.1	.3
5	3489	.1	.3
5	2989	.3	.5
5	2774	.3	.5
5	2773	Culvert	
5	2734	.3	.5
5	1888	.1	.3
5	1060	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. S
		(cfs)	(ft)	(ft)	(ft)	(ft)	
5	12674	488.00	3477.00	3478.35	3477.98	3478.42	0.00
3073	2.23	223.75	301.04	0.43			
5	12674	488.00	3477.00	3478.35	3477.98	3478.42	0.00
3073	2.23	223.75	301.04	0.43			
5	12674	488.00	3477.00	3478.35	3477.98	3478.42	0.00
3073	2.23	223.75	301.04	0.43			
5	12674	488.00	3477.00	3478.35	3477.98	3478.42	0.00
3073	2.23	223.75	301.04	0.43			
5	11337	488.00	3469.00	3470.36	3470.33	3470.73	0.01
4260	4.87	101.95	130.23	0.92			
5	11337	488.00	3469.00	3470.36	3470.33	3470.73	0.01
4260	4.87	101.95	130.23	0.92			
5	11337	488.00	3469.00	3470.36	3470.33	3470.73	0.01
4260	4.87	101.95	130.23	0.92			
5	11337	488.00	3469.00	3470.36	3470.33	3470.73	0.01
4260	4.87	101.95	130.23	0.92			
5	10937	488.00	3464.00	3465.74	3465.55	3466.02	0.00
9772	4.21	116.03	126.27	0.77			
5	10937	488.00	3464.00	3465.74	3465.55	3466.02	0.00
9772	4.21	116.03	126.27	0.77			
5	10937	488.00	3464.00	3465.74	3465.55	3466.02	0.00
9772	4.21	116.03	126.27	0.77			
5	10937	488.00	3464.00	3465.74	3465.55	3466.02	0.00

9772	4.21	116.03	126.27	0.77				
5		10288	488.00	3456.00	3456.90	3456.90	3457.15	0.02
0388	4.04	120.78	242.43	1.01				
5		10288	488.00	3456.00	3456.90	3456.90	3457.15	0.02
0388	4.04	120.78	242.43	1.01				
5		10288	488.00	3456.00	3456.90	3456.90	3457.15	0.02
0388	4.04	120.78	242.43	1.01				
5		10288	488.00	3456.00	3456.90	3456.90	3457.15	0.02
0388	4.04	120.78	242.43	1.01				
5		9690	611.00	3450.00	3451.49	3451.14	3451.60	0.00
4656	2.56	238.60	313.59	0.52				
5		9690	611.00	3450.00	3451.49	3451.14	3451.60	0.00
4656	2.56	238.60	313.59	0.52				
5		9690	611.00	3450.00	3451.49	3451.14	3451.60	0.00
4656	2.56	238.60	313.59	0.52				
5		9690	611.00	3450.00	3451.49	3451.14	3451.60	0.00
4656	2.56	238.60	313.59	0.52				
5		9009	611.00	3445.00	3446.45	3446.34	3446.68	0.01
2581	3.84	159.10	239.94	0.83				
5		9009	611.00	3445.00	3446.45	3446.34	3446.68	0.01
2581	3.84	159.10	239.94	0.83				
5		9009	611.00	3445.00	3446.45	3446.34	3446.68	0.01
2581	3.84	159.10	239.94	0.83				
5		9009	611.00	3445.00	3446.45	3446.34	3446.68	0.01
2581	3.84	159.10	239.94	0.83				
5		8130	611.00	3440.00	3441.57	3441.11	3441.65	0.00
3204	2.21	276.52	342.53	0.43				
5		8130	611.00	3440.00	3441.57	3441.11	3441.65	0.00
3204	2.21	276.52	342.53	0.43				
5		8130	611.00	3440.00	3441.57	3441.11	3441.65	0.00
3204	2.21	276.52	342.53	0.43				
5		8130	611.00	3440.00	3441.57	3441.11	3441.65	0.00
3204	2.21	276.52	342.53	0.43				
5		7717	611.00	3437.80	3438.66	3438.66	3438.94	0.02
0021	4.18	146.05	274.48	1.01				
5		7717	611.00	3437.80	3438.66	3438.66	3438.94	0.02
0021	4.18	146.05	274.48	1.01				
5		7717	611.00	3437.80	3438.66	3438.66	3438.94	0.02
0021	4.18	146.05	274.48	1.01				
5		7717	611.00	3437.80	3438.66	3438.66	3438.94	0.02
0021	4.18	146.05	274.48	1.01				
5		7253	697.00	3435.00	3436.35	3435.88	3436.40	0.00
1738	1.69	417.07	517.58	0.32				
5		7253	697.00	3435.00	3436.35	3435.88	3436.40	0.00
1738	1.69	417.07	517.58	0.32				
5		7253	697.00	3435.00	3436.35	3435.88	3436.40	0.00
1738	1.69	417.07	517.58	0.32				
5		7253	697.00	3435.00	3436.35	3435.88	3436.40	0.00
1738	1.69	417.07	517.58	0.32				
5		6343	1328.00	3430.00	3430.70	3430.70	3431.00	0.01
9035	4.37	303.78	514.60	1.00				

5		6343	1328.00	3430.00	3430.70	3430.70	3431.00	0.01
9035	4.37	303.78	514.60	1.00				
5		6343	1328.00	3430.00	3430.70	3430.70	3431.00	0.01
9035	4.37	303.78	514.60	1.00				
5		6343	1328.00	3430.00	3430.70	3430.70	3431.00	0.01
9035	4.37	303.78	514.60	1.00				
5		5363	1328.00	3425.00	3426.33	3425.78	3426.38	0.00
1763	1.85	727.78	830.57	0.33				
5		5363	1328.00	3425.00	3426.33	3425.78	3426.38	0.00
1763	1.85	727.78	830.57	0.33				
5		5363	1328.00	3425.00	3426.33	3425.78	3426.38	0.00
1763	1.85	727.78	830.57	0.33				
5		5363	1328.00	3425.00	3426.33	3425.78	3426.38	0.00
1763	1.85	727.78	830.57	0.33				
5		4221	1501.00	3420.00	3420.99	3420.99	3421.33	0.01
8533	4.67	321.48	483.60	1.01				
5		4221	1501.00	3420.00	3420.99	3420.99	3421.33	0.01
8533	4.67	321.48	483.60	1.01				
5		4221	1501.00	3420.00	3420.99	3420.99	3421.33	0.01
8533	4.67	321.48	483.60	1.01				
5		4221	1501.00	3420.00	3420.99	3420.99	3421.33	0.01
8533	4.67	321.48	483.60	1.01				
5		3489	1501.00	3416.00	3417.18	3416.67	3417.24	0.00
2251	2.05	804.91	998.90	0.37				
5		3489	1501.00	3416.00	3417.18	3416.67	3417.24	0.00
2251	2.05	804.91	998.90	0.37				
5		3489	1501.00	3416.00	3417.18	3416.67	3417.24	0.00
2251	2.05	804.91	998.90	0.37				
5		3489	1501.00	3416.00	3417.18	3416.67	3417.24	0.00
2251	2.05	804.91	998.90	0.37				
5		2989	1501.00	3413.80	3414.52	3414.52	3414.81	0.01
9219	4.14	351.67	623.28	0.99				
5		2989	1501.00	3413.80	3414.52	3414.52	3414.81	0.01
9219	4.14	351.67	623.28	0.99				
5		2989	1501.00	3413.80	3414.52	3414.52	3414.81	0.01
9219	4.14	351.67	623.28	0.99				
5		2989	1501.00	3413.80	3414.52	3414.52	3414.81	0.01
9219	4.14	351.67	623.28	0.99				
5		2774	1501.00	3409.00	3413.99	3412.71	3414.03	0.00
0278	2.09	1331.44	1039.64	0.17				
5		2774	1501.00	3409.00	3413.99	3412.71	3414.03	0.00
0278	2.09	1331.44	1039.64	0.17				
5		2774	1501.00	3409.00	3413.99	3412.71	3414.03	0.00
0278	2.09	1331.44	1039.64	0.17				
5		2774	1501.00	3409.00	3413.99	3412.71	3414.03	0.00
0278	2.09	1331.44	1039.64	0.17				
5		2773	Culvert					
5		2734	1501.00	3408.90	3412.71	3412.71	3412.82	0.00
1004	3.22	665.51	431.91	0.31				
5		2734	1501.00	3408.90	3412.71	3412.71	3412.82	0.00

1004	3.22	665.51	431.91	0.31				
5		2734	1501.00	3408.90	3412.71	3412.71	3412.82	0.00
1004	3.22	665.51	431.91	0.31				
5		2734	1501.00	3408.90	3412.71	3412.71	3412.82	0.00
1004	3.22	665.51	431.91	0.31				
5		1888	1521.00	3408.00	3408.41	3408.72	3409.58	0.15
1914	8.68	175.18	503.42	2.59				
5		1888	1521.00	3408.00	3408.41	3408.72	3409.58	0.15
1914	8.68	175.18	503.42	2.59				
5		1888	1521.00	3408.00	3408.41	3408.72	3409.58	0.15
1914	8.68	175.18	503.42	2.59				
5		1060	1585.00	3402.70	3404.50	3404.11	3404.66	0.00
5270	3.16	501.30	526.98	0.57				
5		1060	1585.00	3402.70	3405.00	3404.11	3405.06	0.00
1518	1.98	799.30	665.03	0.32				
5		1060	1585.00	3402.70	3406.00	3404.11	3406.01	0.00
0250	0.93	1696.32	1129.00	0.13				
5		1060	1585.00	3402.70	3407.00	3404.11	3407.01	0.00
0045	0.56	2898.82	1276.00	0.06				

Profile Output Table - Report Standard Table 1

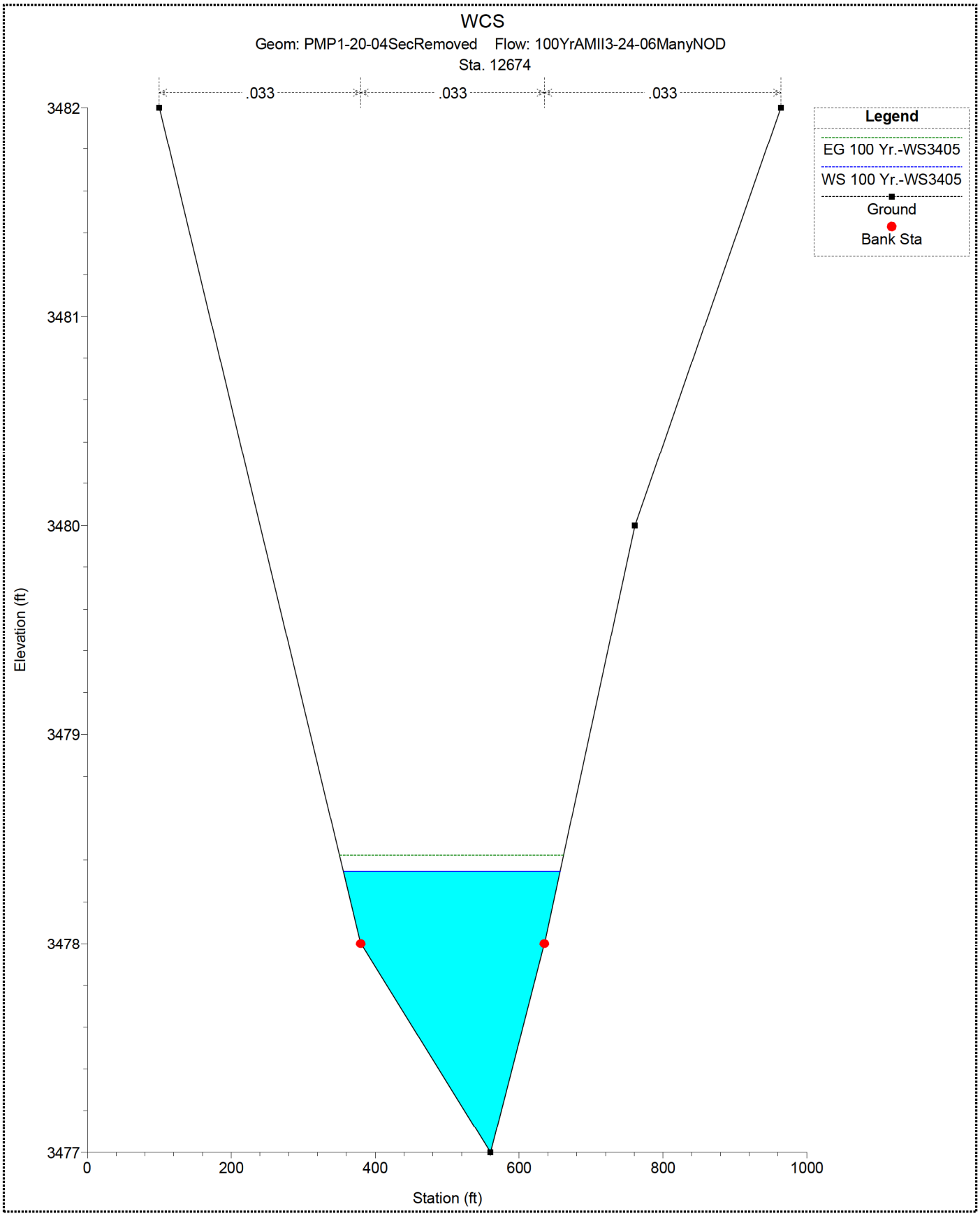
Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Max Chl Dpth	E.G
Elev E.G. Slope Vel Chnl	Sta W.S. Lft	Sta W.S. Rgt	Flow Area	Top Width	Froude # Chl		
(ft) (ft/ft) (ft/s)	(cfs) (ft)	(ft) (ft)	(ft) (sq ft)	(ft)	(ft)		
5	12674	488.00	3477.00	3478.35	3477.98	1.35	3
478.42 0.003073	2.23	355.77	656.81	223.75	301.04		0.43
5	12674	488.00	3477.00	3478.35	3477.98	1.35	3
478.42 0.003073	2.23	355.77	656.81	223.75	301.04		0.43
5	12674	488.00	3477.00	3478.35	3477.98	1.35	3
478.42 0.003073	2.23	355.77	656.81	223.75	301.04		0.43
5	12674	488.00	3477.00	3478.35	3477.98	1.35	3
478.42 0.003073	2.23	355.77	656.81	223.75	301.04		0.43
5	11337	488.00	3469.00	3470.36	3470.33	1.36	3
470.73 0.014260	4.87	427.21	557.43	101.95	130.23		0.92
5	11337	488.00	3469.00	3470.36	3470.33	1.36	3
470.73 0.014260	4.87	427.21	557.43	101.95	130.23		0.92
5	11337	488.00	3469.00	3470.36	3470.33	1.36	3
470.73 0.014260	4.87	427.21	557.43	101.95	130.23		0.92

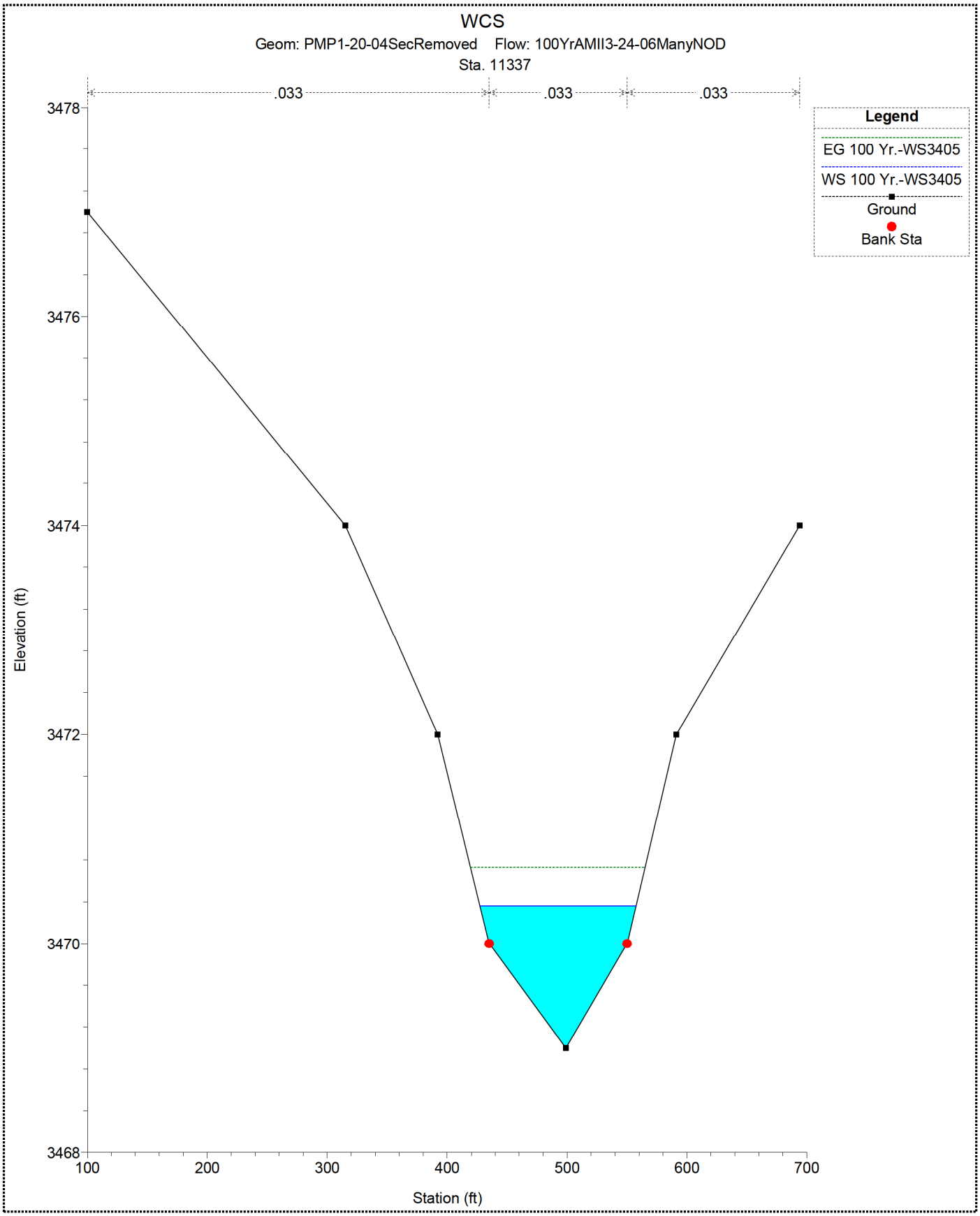
5	11337		488.00	3469.00	3470.36	3470.33	1.36	3
470.73	0.014260	4.87	427.21	557.43	101.95	130.23		0.92
5	10937		488.00	3464.00	3465.74	3465.55	1.74	3
466.02	0.009772	4.21	474.19	600.46	116.03	126.27		0.77
5	10937		488.00	3464.00	3465.74	3465.55	1.74	3
466.02	0.009772	4.21	474.19	600.46	116.03	126.27		0.77
5	10937		488.00	3464.00	3465.74	3465.55	1.74	3
466.02	0.009772	4.21	474.19	600.46	116.03	126.27		0.77
5	10937		488.00	3464.00	3465.74	3465.55	1.74	3
466.02	0.009772	4.21	474.19	600.46	116.03	126.27		0.77
5	10288		488.00	3456.00	3456.90	3456.90	0.90	3
457.15	0.020388	4.04	405.26	647.69	120.78	242.43		1.01
5	10288		488.00	3456.00	3456.90	3456.90	0.90	3
457.15	0.020388	4.04	405.26	647.69	120.78	242.43		1.01
5	10288		488.00	3456.00	3456.90	3456.90	0.90	3
457.15	0.020388	4.04	405.26	647.69	120.78	242.43		1.01
5	10288		488.00	3456.00	3456.90	3456.90	0.90	3
457.15	0.020388	4.04	405.26	647.69	120.78	242.43		1.01
5	9690		611.00	3450.00	3451.49	3451.14	1.49	3
451.60	0.004656	2.56	444.61	758.20	238.60	313.59		0.52
5	9690		611.00	3450.00	3451.49	3451.14	1.49	3
451.60	0.004656	2.56	444.61	758.20	238.60	313.59		0.52
5	9690		611.00	3450.00	3451.49	3451.14	1.49	3
451.60	0.004656	2.56	444.61	758.20	238.60	313.59		0.52
5	9690		611.00	3450.00	3451.49	3451.14	1.49	3
451.60	0.004656	2.56	444.61	758.20	238.60	313.59		0.52
5	9009		611.00	3445.00	3446.45	3446.34	1.45	3
446.68	0.012581	3.84	454.43	694.37	159.10	239.94		0.83
5	9009		611.00	3445.00	3446 45	3446.34	1.45	3
446.68	0.012581	3.84	454.43	694.37	159.10	239.94		0.83
5	9009		611.00	3445.00	3446.45	3446.34	1.45	3
446.68	0.012581	3.84	454.43	694.37	159.10	239.94		0.83
5	9009		611.00	3445.00	3446.45	3446.34	1.45	3
446.68	0.012581	3.84	454.43	694.37	159.10	239.94		0.83

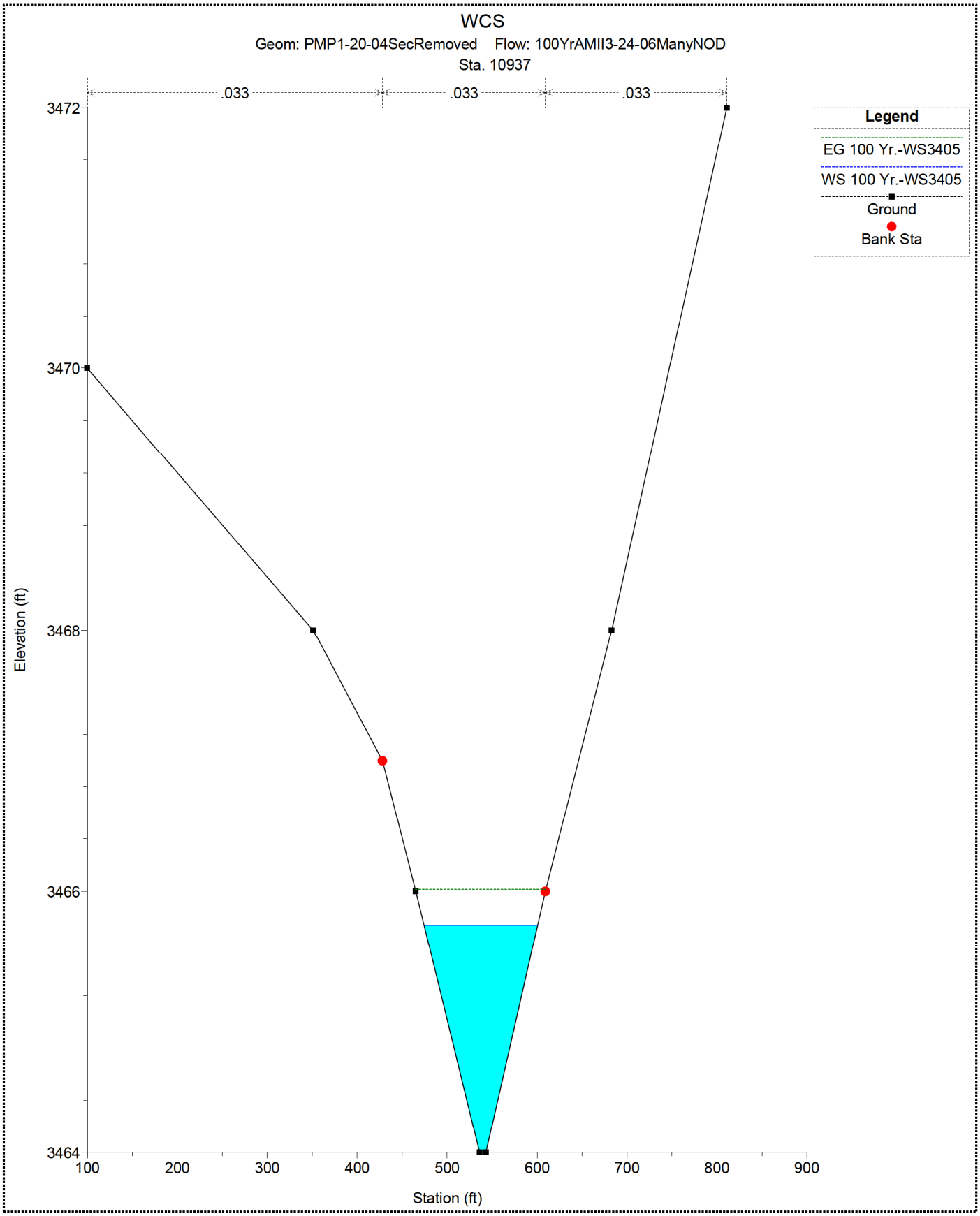
5	8130		611.00	3440.00	3441.57	3441.11	1.57	3
441.65	0.003204	2.21	469.14	811.67	276.52	342.53		0.43
5	8130		611.00	3440.00	3441.57	3441.11	1.57	3
441.65	0.003204	2.21	469.14	811.67	276.52	342.53		0.43
5	8130		611.00	3440.00	3441.57	3441.11	1.57	3
441.65	0.003204	2.21	469.14	811.67	276.52	342.53		0.43
5	8130		611.00	3440.00	3441.57	3441.11	1.57	3
441.65	0.003204	2.21	469.14	811.67	276.52	342.53		0.43
5	7717		611.00	3437.80	3438.66	3438.66	0.86	3
438.94	0.020021	4.18	333.18	607.65	146.05	274.48		1.01
5	7717		611.00	3437.80	3438.66	3438.66	0.86	3
438.94	0.020021	4.18	333.18	607.65	146.05	274.48		1.01
5	7717		611.00	3437.80	3438.66	3438.66	0.86	3
438.94	0.020021	4.18	333.18	607.65	146.05	274.48		1.01
5	7717		611.00	3437.80	3438.66	3438.66	0.86	3
438.94	0.020021	4.18	333.18	607.65	146.05	274.48		1.01
5	7253		697.00	3435.00	3436.35	3435.88	1.35	3
436.40	0.001738	1.69	405.86	923.44	417.07	517.58		0.32
5	7253		697.00	3435.00	3436.35	3435.88	1.35	3
436.40	0.001738	1.69	405.86	923.44	417.07	517.58		0.32
5	7253		697.00	3435.00	3436.35	3435.88	1.35	3
436.40	0.001738	1.69	405.86	923.44	417.07	517.58		0.32
5	7253		697.00	3435.00	3436.35	3435.88	1.35	3
436.40	0.001738	1.69	405.86	923.44	417.07	517.58		0.32
5	6343		1328.00	3430.00	3430.70	3430.70	0.70	3
431.00	0.019035	4.37	780.28	1294.88	303.78	514.60		1.00
5	6343		1328.00	3430.00	3430.70	3430.70	0.70	3
431.00	0.019035	4.37	780.28	1294.88	303.78	514.60		1.00
5	6343		1328.00	3430.00	3430.70	3430.70	0.70	3
431.00	0.019035	4.37	780.28	1294.88	303.78	514.60		1.00
5	6343		1328.00	3430.00	3430.70	3430.70	0.70	3
431.00	0.019035	4.37	780.28	1294.88	303.78	514.60		1.00
5	5363		1328.00	3425.00	3426.33	3425.78	1.33	3
426.38	0.001763	1.85	710.73	1541.30	727.78	830.57		0.33
5	5363		1328.00	3425.00	3426.33	3425.78	1.33	3

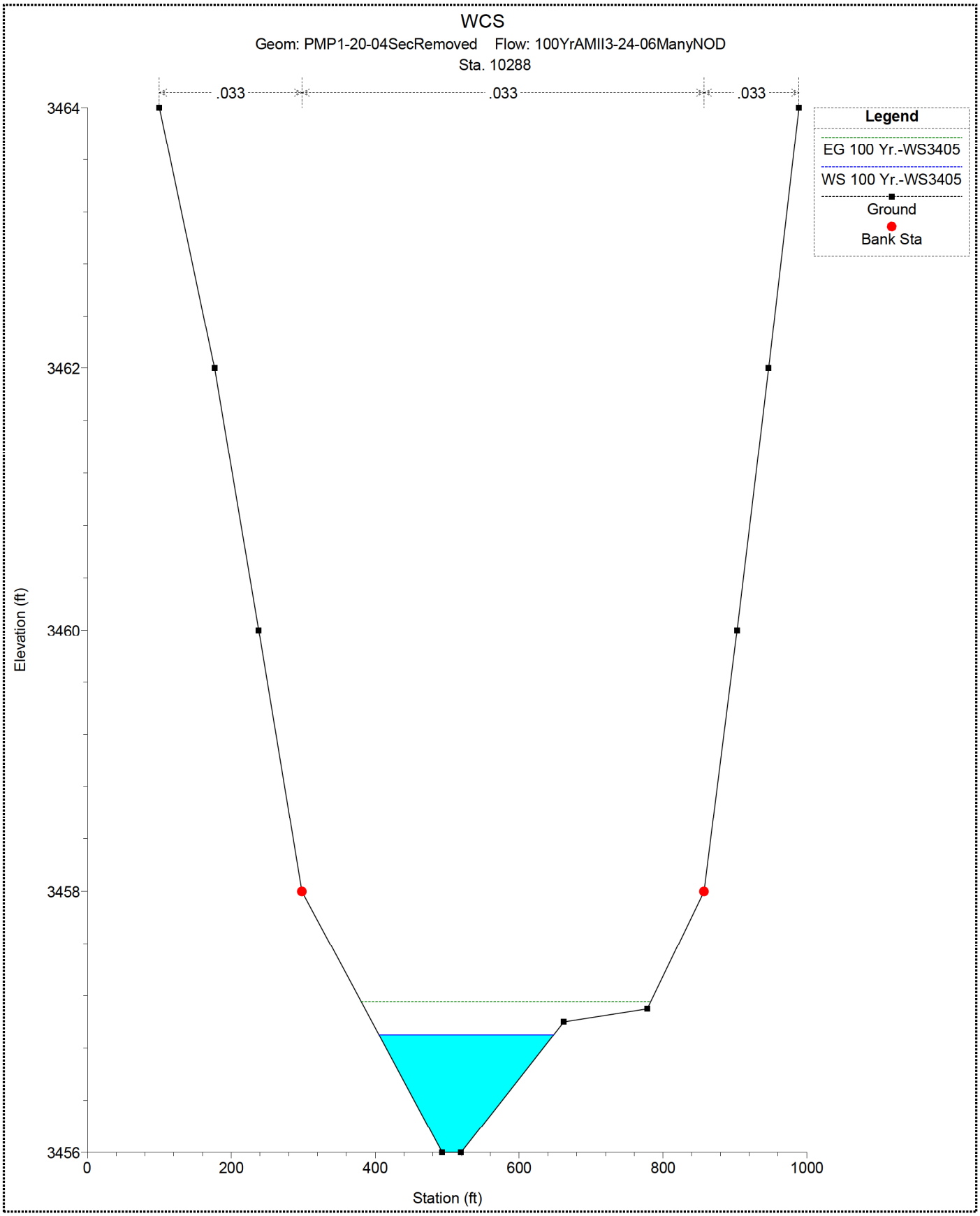
426.38	0.001763	1.85	710.73	1541.30	727.78	830.57		0.33
5	5363		1328.00	3425.00	3426.33	3425.78	1.33	3
426.38	0.001763	1.85	710.73	1541.30	727.78	830.57		0.33
5	5363		1328.00	3425.00	3426.33	3425.78	1.33	3
426.38	0.001763	1.85	710.73	1541.30	727.78	830.57		0.33
5	4221		1501.00	3420.00	3420.99	3420.99	0.99	3
421.33	0.018533	4.67	544.80	1028.40	321.48	483.60		1.01
5	4221		1501.00	3420.00	3420.99	3420.99	0.99	3
421.33	0.018533	4.67	544.80	1028.40	321.48	483.60		1.01
5	4221		1501.00	3420.00	3420.99	3420.99	0.99	3
421.33	0.018533	4.67	544.80	1028.40	321.48	483.60		1.01
5	4221		1501.00	3420.00	3420.99	3420.99	0.99	3
421.33	0.018533	4.67	544.80	1028.40	321.48	483.60		1.01
5	3489		1501.00	3416.00	3417.18	3416.67	2.18	3
417.24	0.002251	2.05	-116.98	881.92	804.91	998.90		0.37
5	3489		1501.00	3416.00	3417.18	3416.67	2.18	3
417.24	0.002251	2.05	-116.98	881.92	804.91	998.90		0.37
5	3489		1501.00	3416.00	3417.18	3416.67	2.18	3
417.24	0.002251	2.05	-116.98	881.92	804.91	998.90		0.37
5	3489		1501.00	3416.00	3417.18	3416.67	2.18	3
417.24	0.002251	2.05	-116.98	881.92	804.91	998.90		0.37
5	2989		1501.00	3413.80	3414.52	3414.52	0.72	3
414.81	0.019219	4.14	179.04	802.32	351.67	623.28		0.99
5	2989		1501.00	3413.80	3414.52	3414.52	0.72	3
414.81	0.019219	4.14	179.04	802.32	351.67	623.28		0.99
5	2989		1501.00	3413.80	3414.52	3414.52	0.72	3
414.81	0.019219	4.14	179.04	802.32	351.67	623.28		0.99
5	2989		1501.00	3413.80	3414.52	3414.52	0.72	3
414.81	0.019219	4.14	179.04	802.32	351.67	623.28		0.99
5	2774		1501.00	3409.00	3413.99	3412.71	4.99	3
414.03	0.000278	2.09	-399.05	640.58	1331.44	1039.64		0.17
5	2774		1501.00	3409.00	3413.99	3412.71	4.99	3
414.03	0.000278	2.09	-399.05	640.58	1331.44	1039.64		0.17
5	2774		1501.00	3409.00	3413.99	3412.71	4.99	3
414.03	0.000278	2.09	-399.05	640.58	1331.44	1039.64		0.17

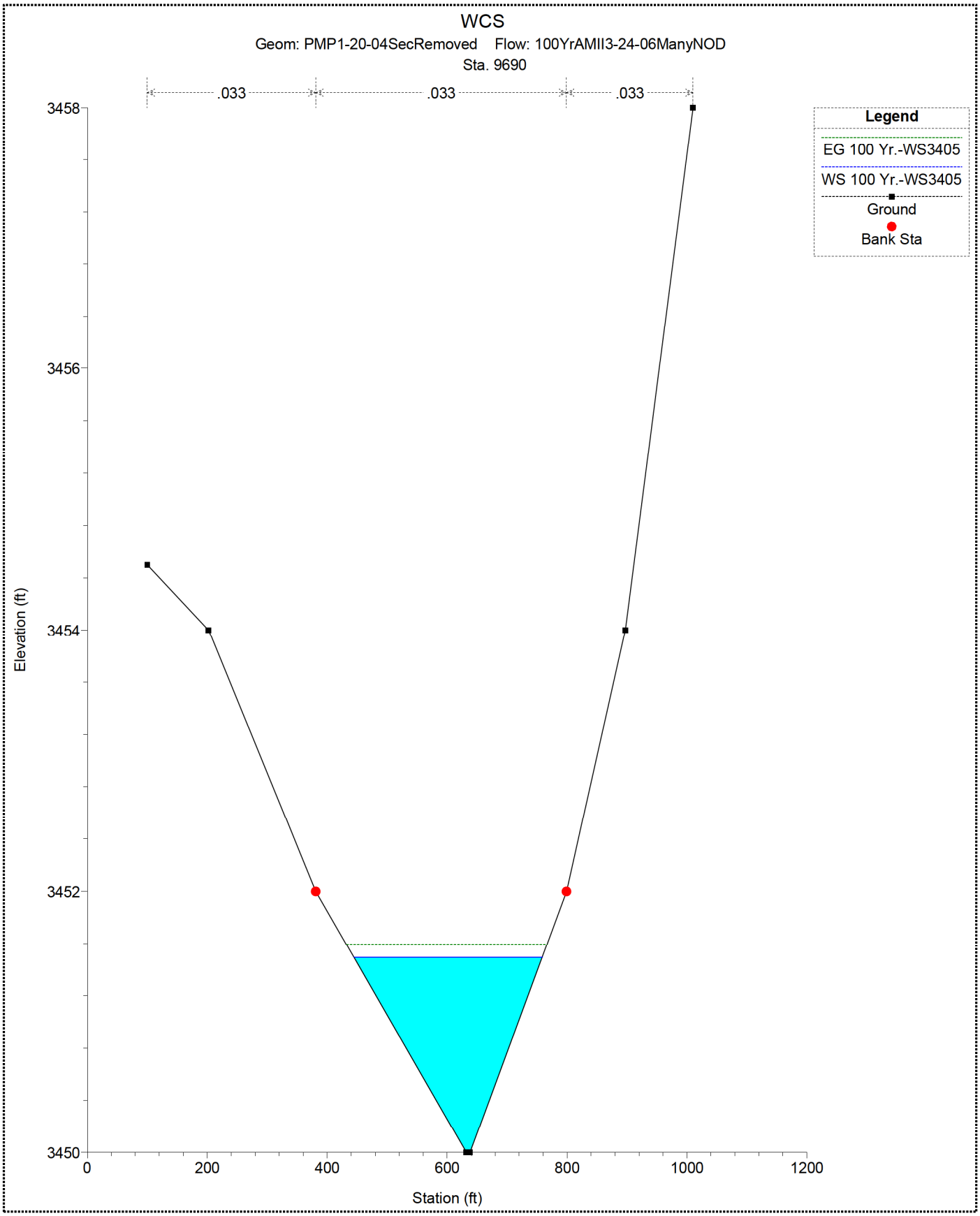
5	2774		1501.00	3409.00	3413.99	3412.71	4.99	3
414.03	0.000278	2.09	-399.05	640.58	1331.44	1039.64		0.17
5	2773		Culvert					
5	2734		1501.00	3408.90	3412.71	3412.71	3.81	3
412.82	0.001004	3.22	83.74	515.65	665.51	431.91		0.31
5	2734		1501.00	3408.90	3412.71	3412.71	3.81	3
412.82	0.001004	3.22	83.74	515.65	665.51	431.91		0.31
5	2734		1501.00	3408.90	3412.71	3412.71	3.81	3
412.82	0.001004	3.22	83.74	515.65	665.51	431.91		0.31
5	2734		1501.00	3408.90	3412.71	3412.71	3.81	3
412.82	0.001004	3.22	83.74	515.65	665.51	431.91		0.31
5	1888		1521.00	3408.00	3408.41	3408.72	0.41	3
409.58	0.151914	8.68	286.11	789.53	175.18	503.42		2.59
5	1888		1521.00	3408.00	3408.41	3408.72	0.41	3
409.58	0.151914	8.68	286.11	789.53	175.18	503.42		2.59
5	1888		1521.00	3408.00	3408.41	3408.72	0.41	3
409.58	0.151914	8.68	286.11	789.53	175.18	503.42		2.59
5	1888		1521.00	3408.00	3408.41	3408.72	0.41	3
409.58	0.151914	8.68	286.11	789.53	175.18	503.42		2.59
5	1060		1585.00	3402.70	3404.50	3404.11	1.80	3
404.66	0.005270	3.16	614.45	1141.44	501.30	526.98		0.57
5	1060		1585.00	3402.70	3405.00	3404.11	2.30	3
405.06	0.001518	1.98	540.97	1206.00	799.30	665.03		0.32
5	1060		1585.00	3402.70	3406.00	3404.11	3.30	3
406.01	0.000250	0.93	394.00	1523.00	1696.32	1129.00		0.13
5	1060		1585.00	3402.70	3407.00	3404.11	4.30	3
407.01	0.000045	0.56	247.00	1523.00	2898.82	1276.00		0.06

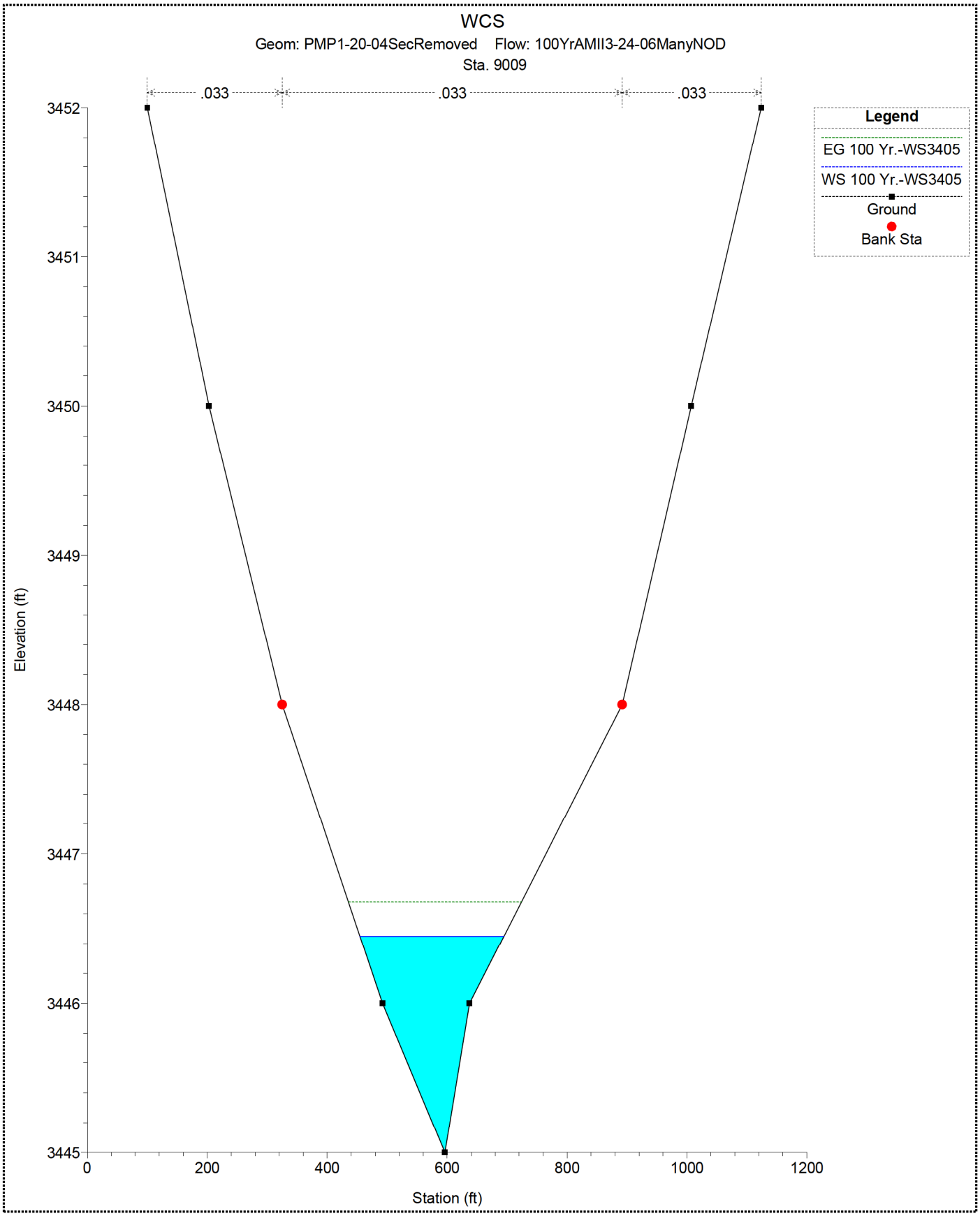

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 12674
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
3482
3481
3480
3479
3478
3477
Elevation (ft)
0
200
400
600
800
1000
Station (ft)

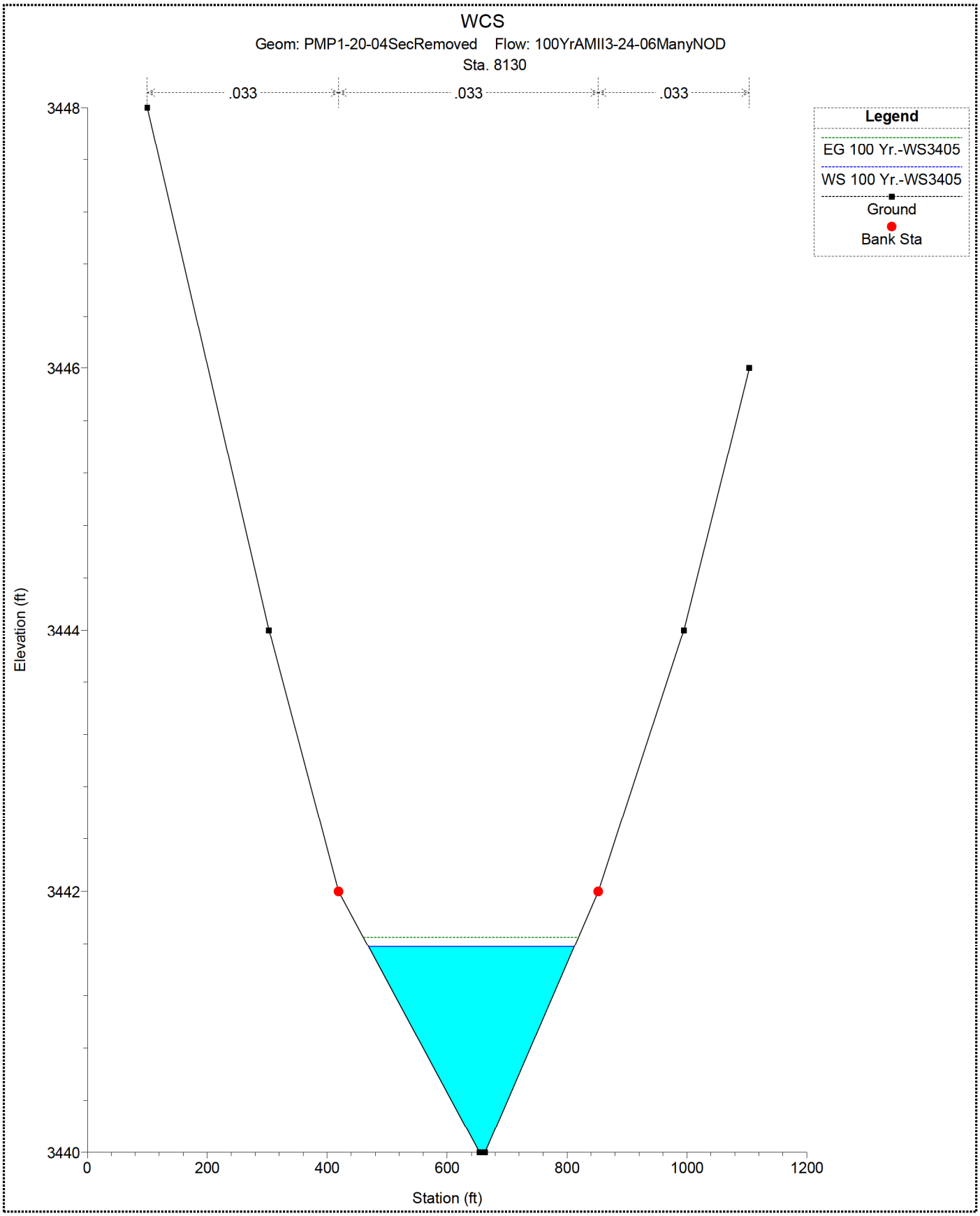

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 11337
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3478
3476
3474
3472
3470
3468
100
200
300
400
500
600
700
Station (ft)

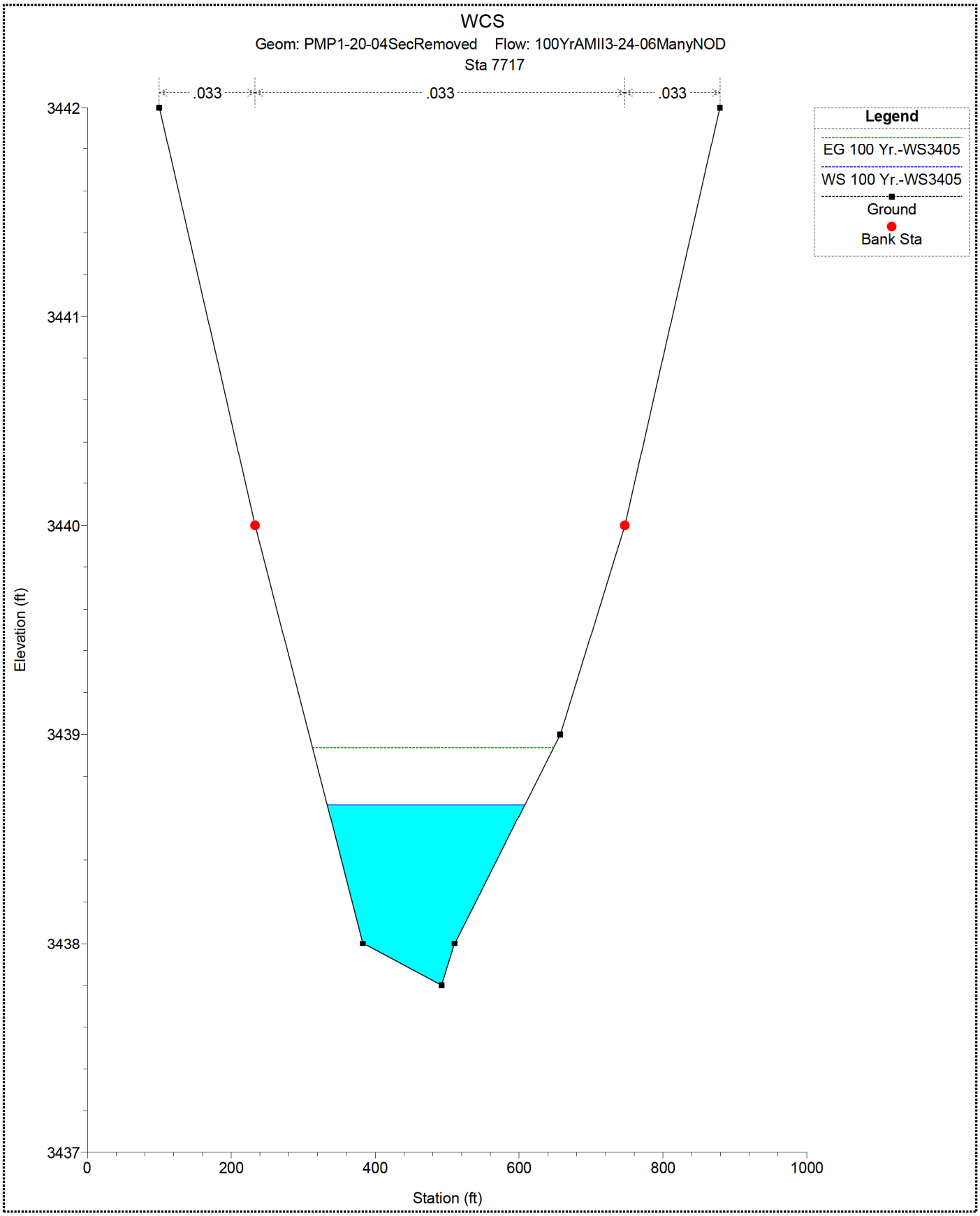

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 10937
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3472
3470
3468
3466
3464
100
200
300
400
500
600
700
800
900
Station (ft)

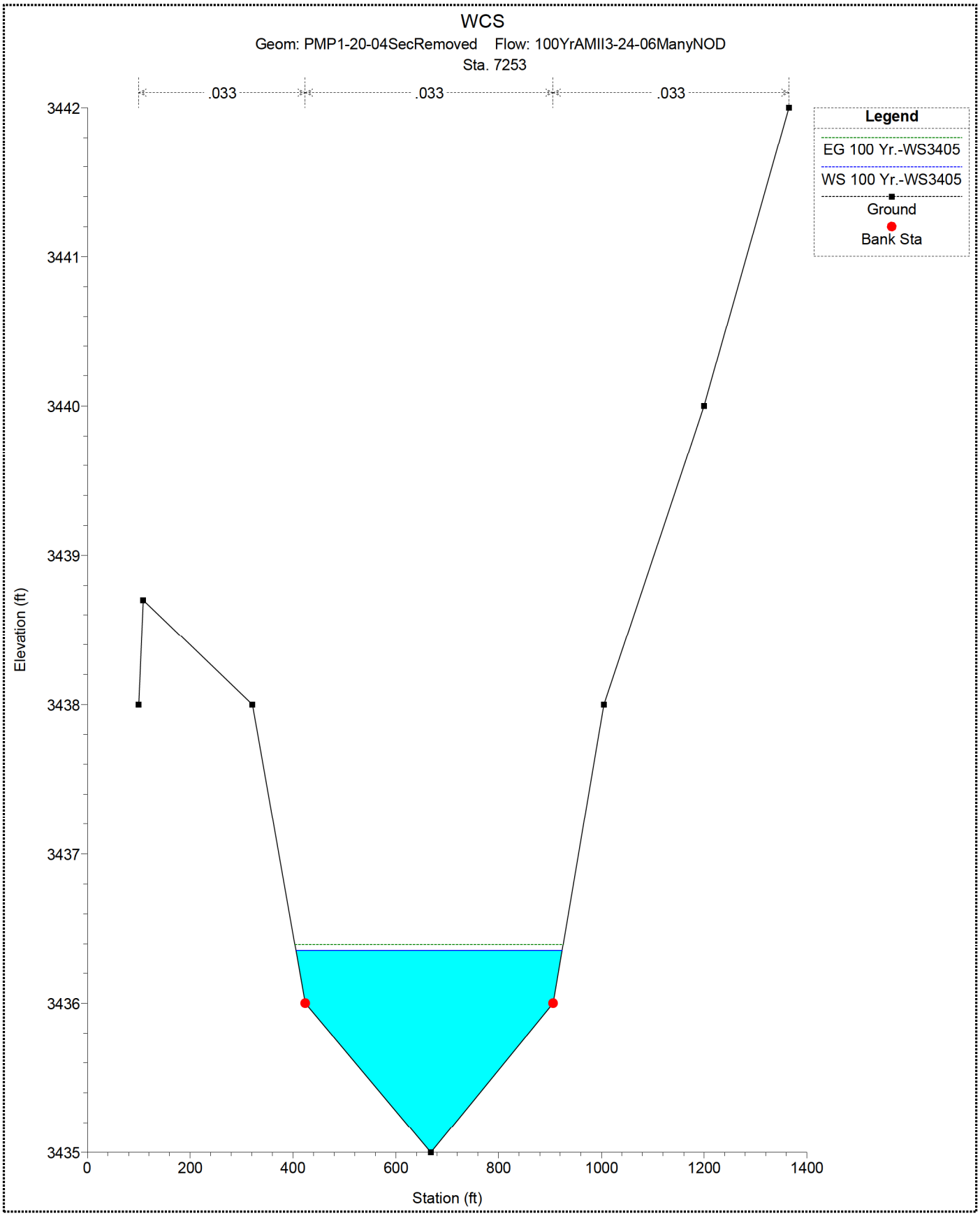

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 10288
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3464
3462
3460
3458
3456
0
200
400
600
800
1000
Station (ft)

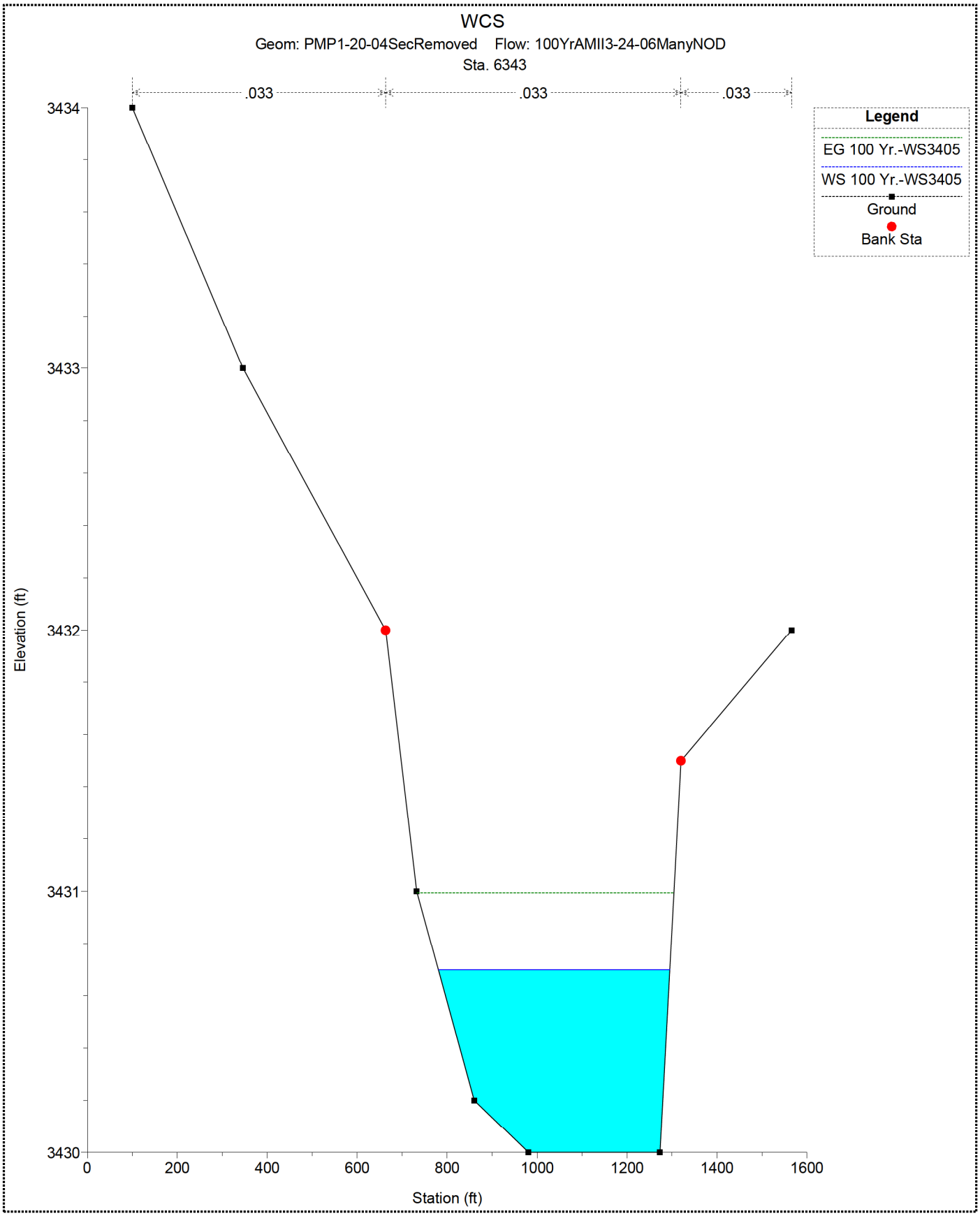

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 9690
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3458
3456
3454
3452
3450
0
200
400
600
800
1000
1200
Station (ft)

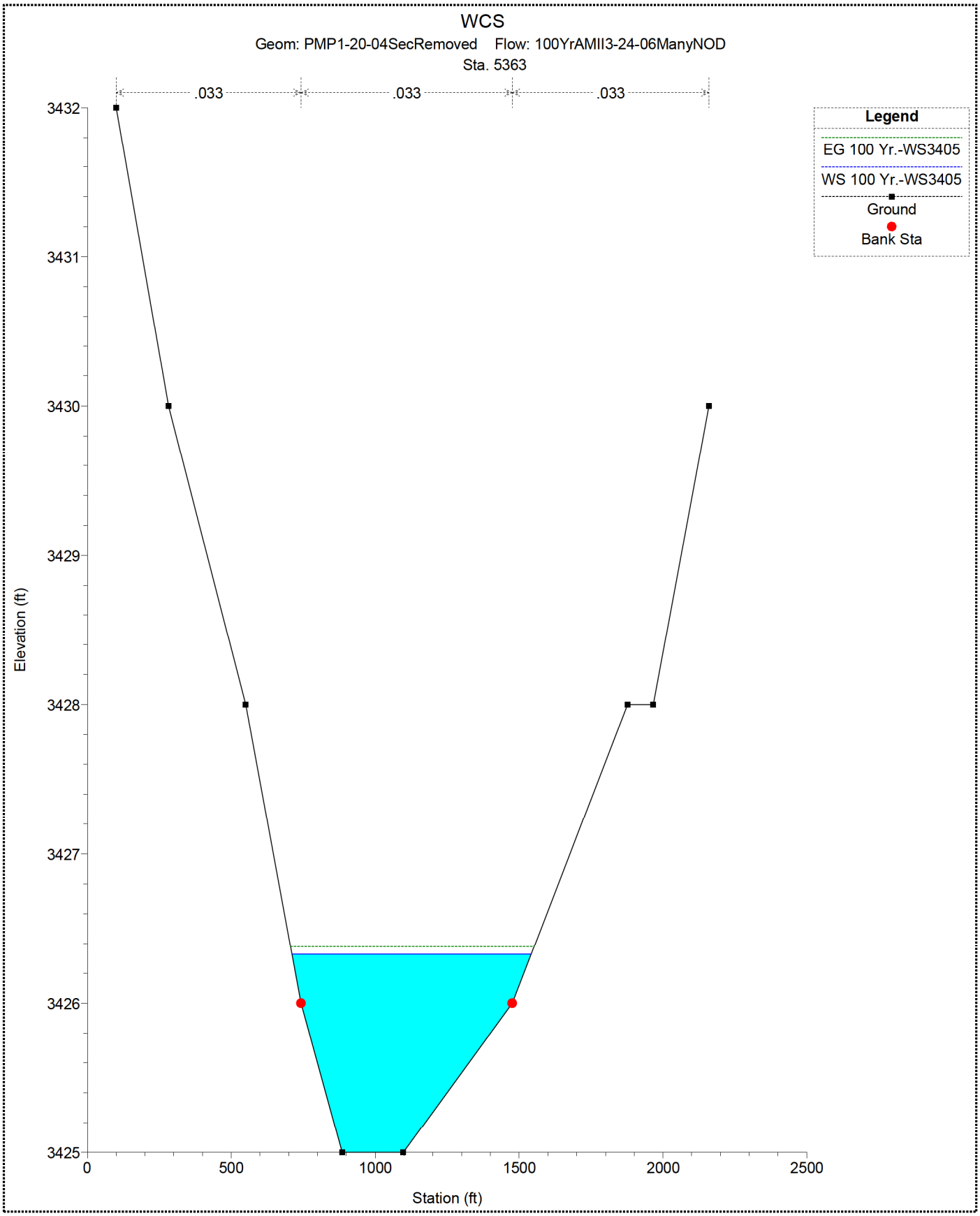

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 9009
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3452
3451
3450
3449
3448
3447
3446
3445
0
200
400
600
800
1000
1200
Station (ft)

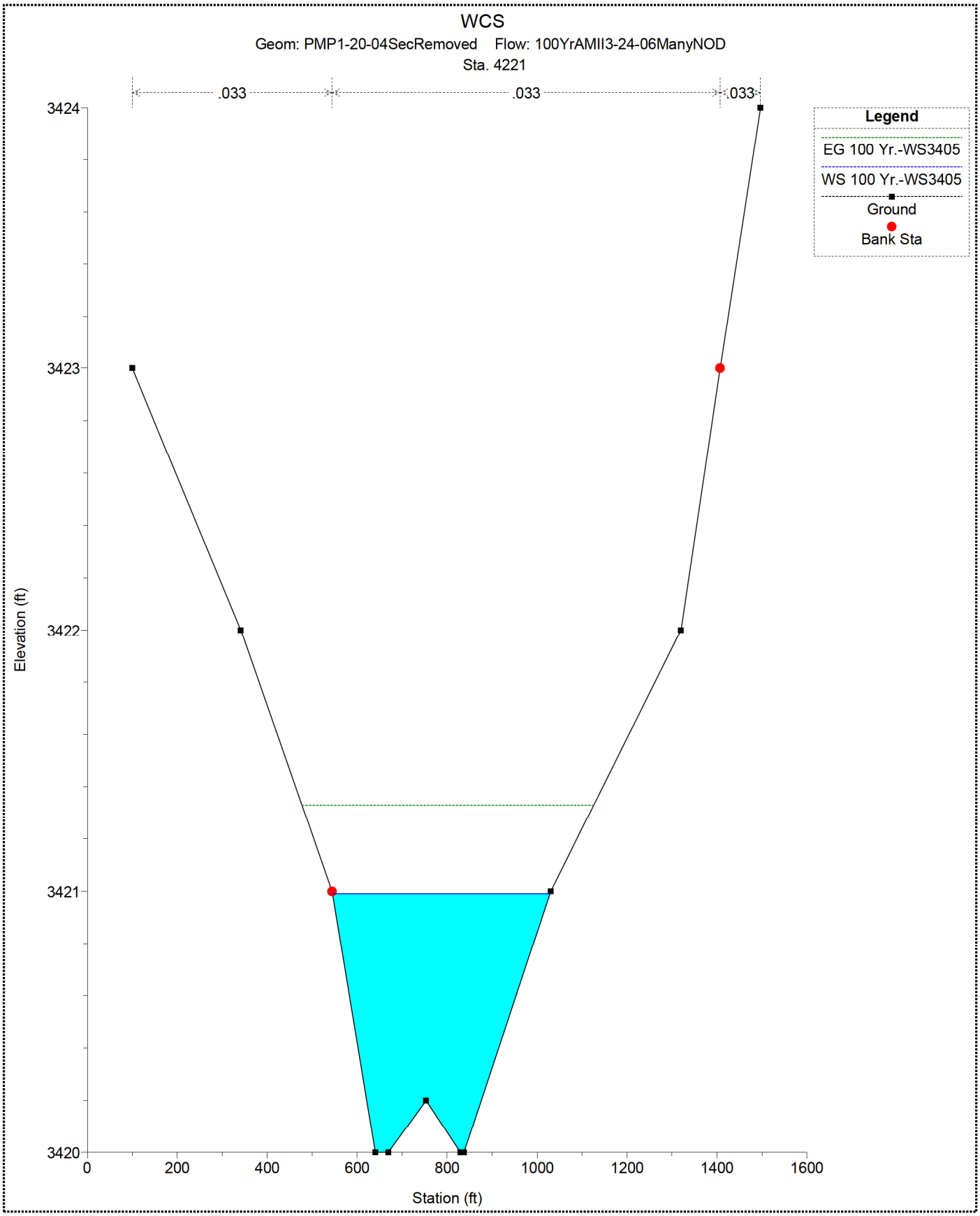

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 8130
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3448
3446
3444
3442
3440
0
200
400
600
800
1000
1200
Station (ft)

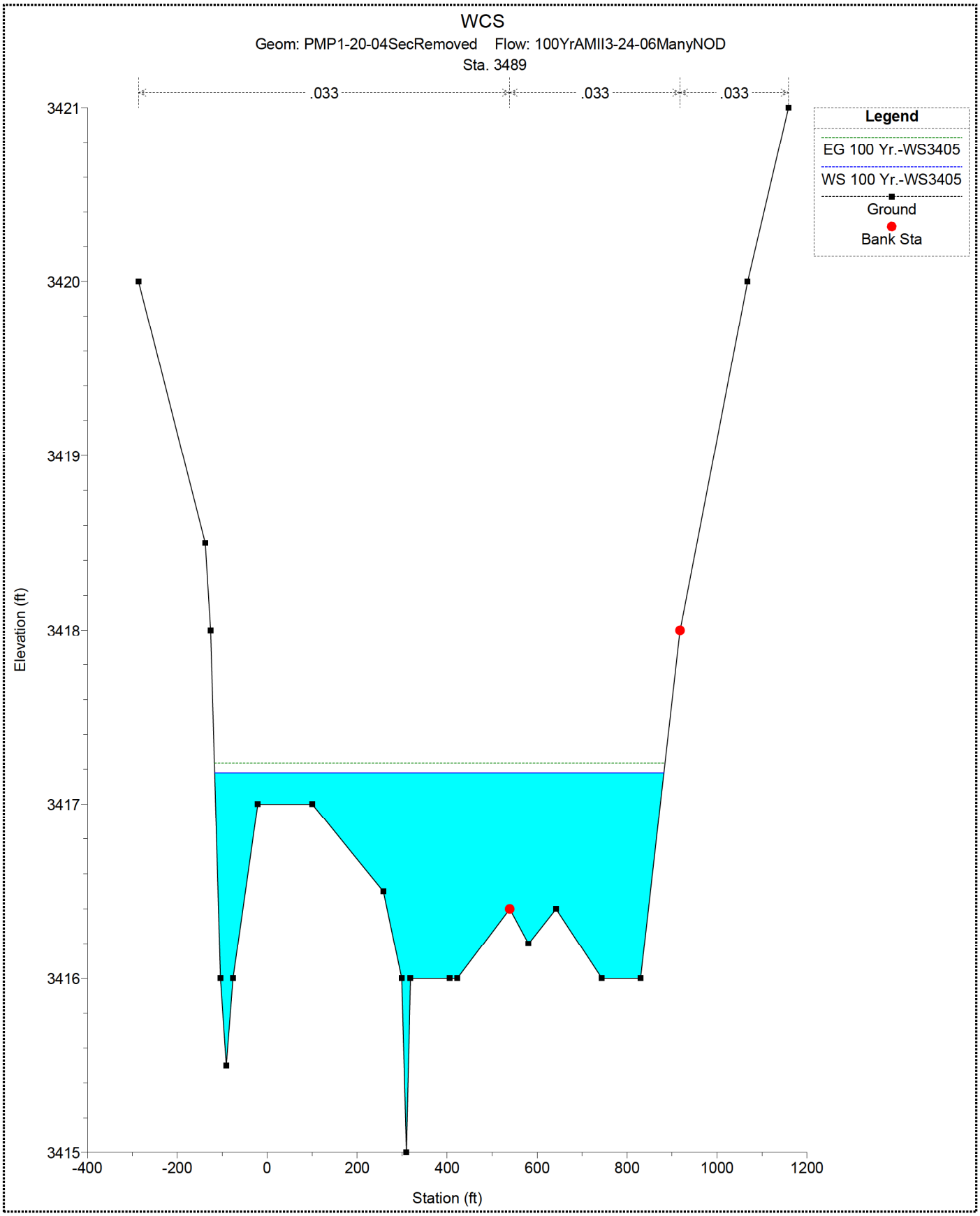

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta 7717
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3442
3441
3440
3439
3438
3437
0
200
400
600
800
1000
Station (ft)

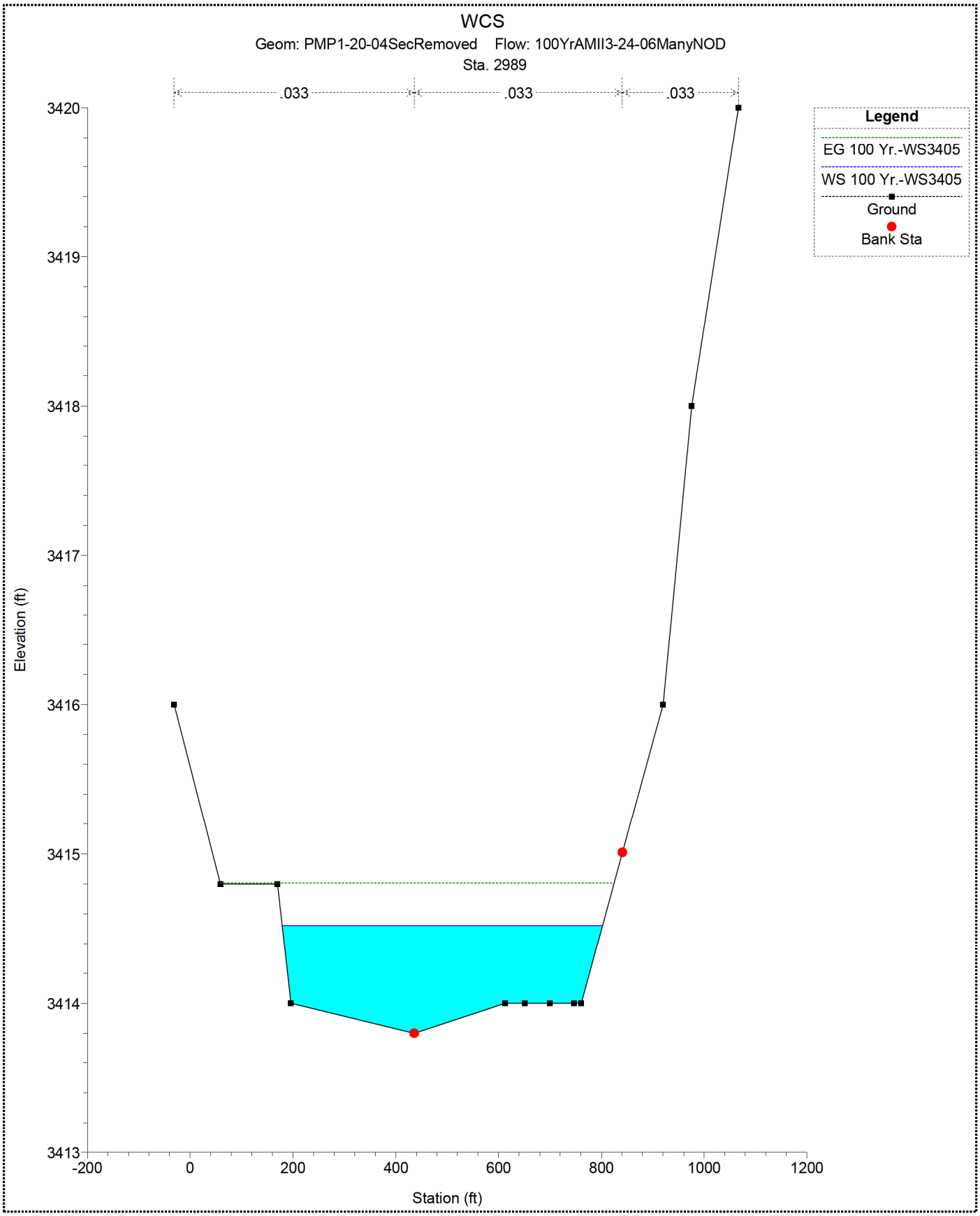

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 7253
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
Station (ft)
3442
3441
3440
3439
3438
3437
3436
3435
0
200
400
600
800
1000
1200
1400

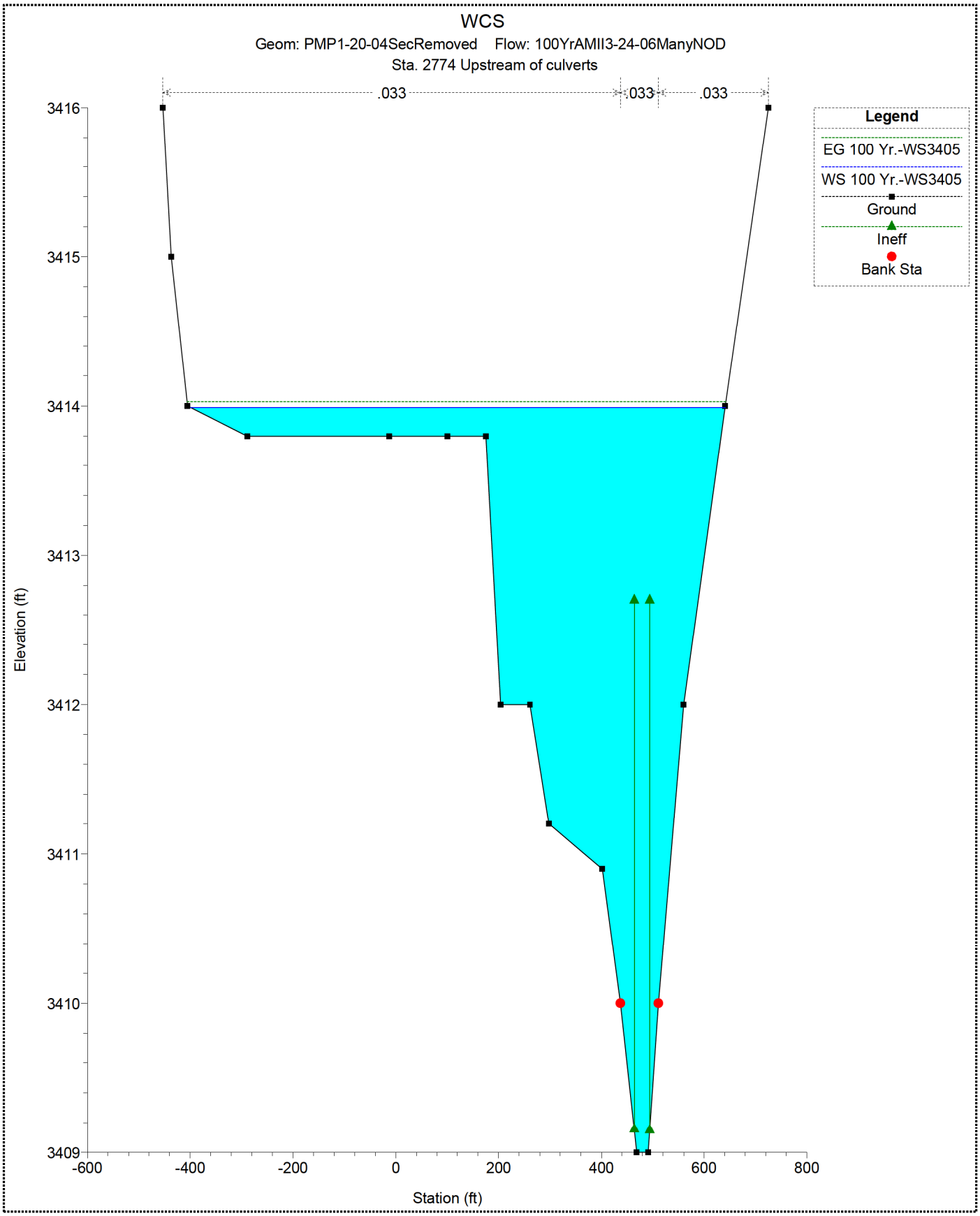

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 6343
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3434
3433
3432
3431
3430
0
200
400
600
800
1000
1200
1400
1600
Station (ft)

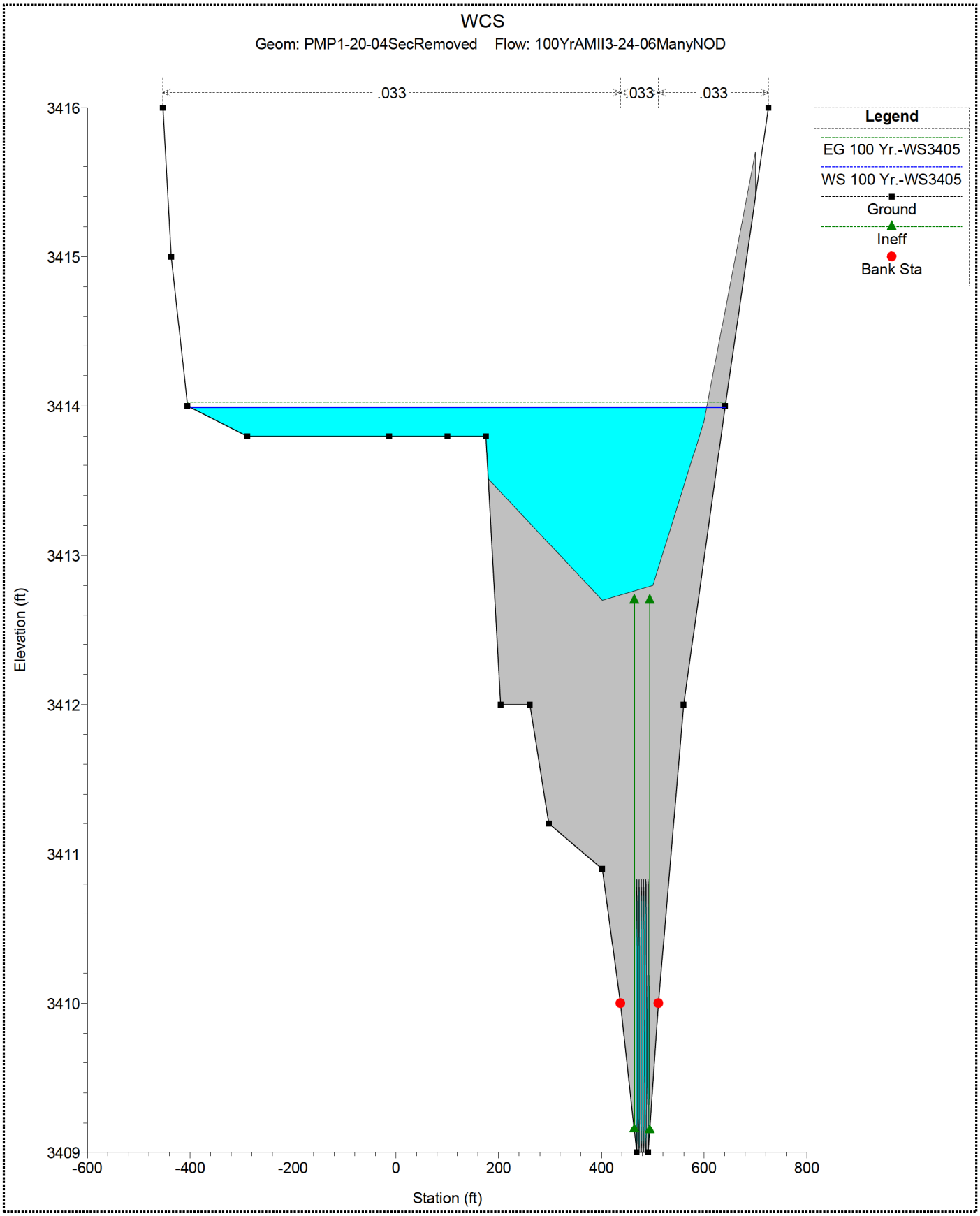

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 5363
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3432
3431
3430
3429
3428
3427
3426
3425
0
500
1000
1500
2000
2500
Station (ft)

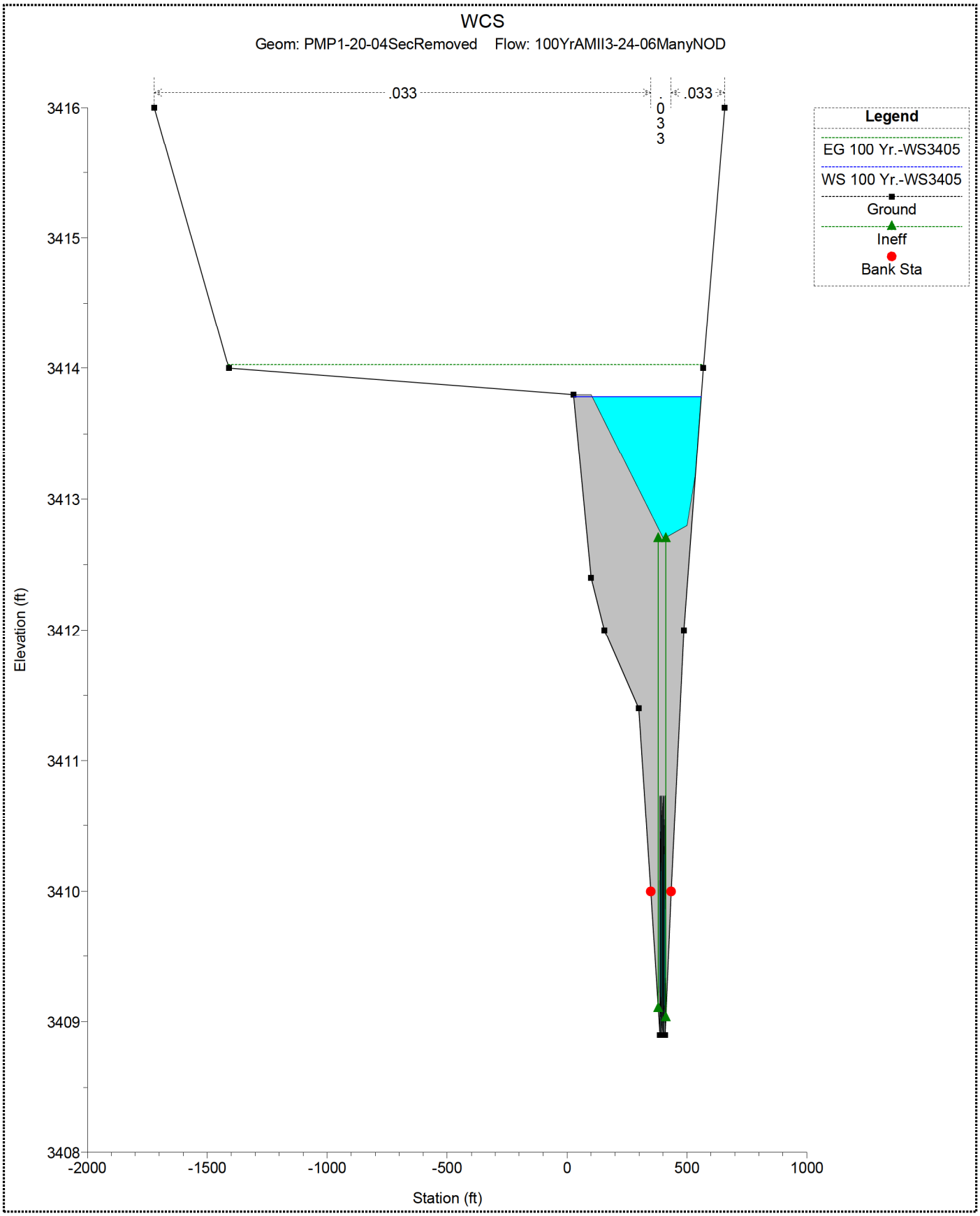

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 4221
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3424
3423
3422
3421
3420
0
200
400
600
800
1000
1200
1400
1600
Station (ft)

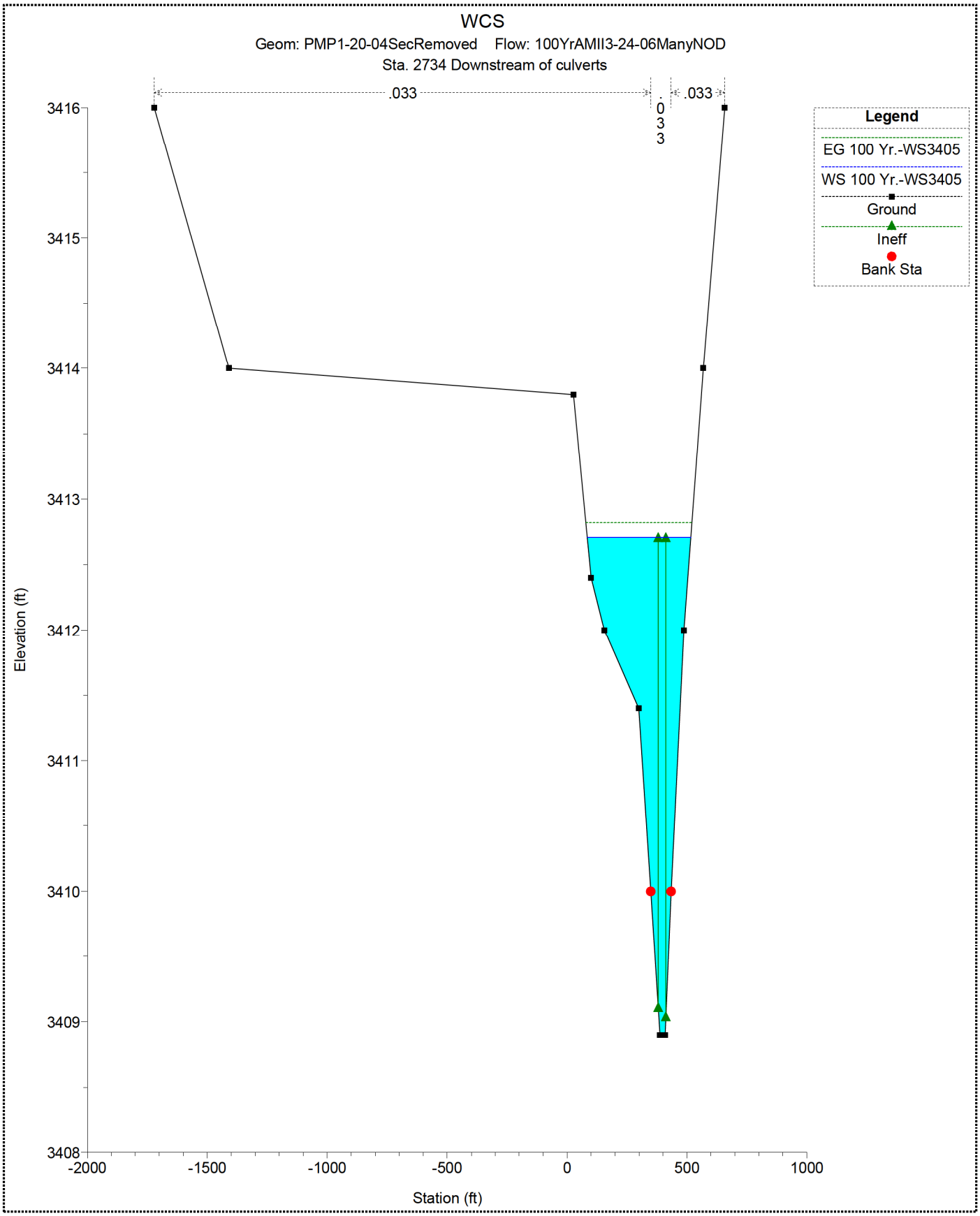

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 3489
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3421
3420
3419
3418
3417
3416
3415
-400
-200
0
200
400
600
800
1000
1200
Station (ft)

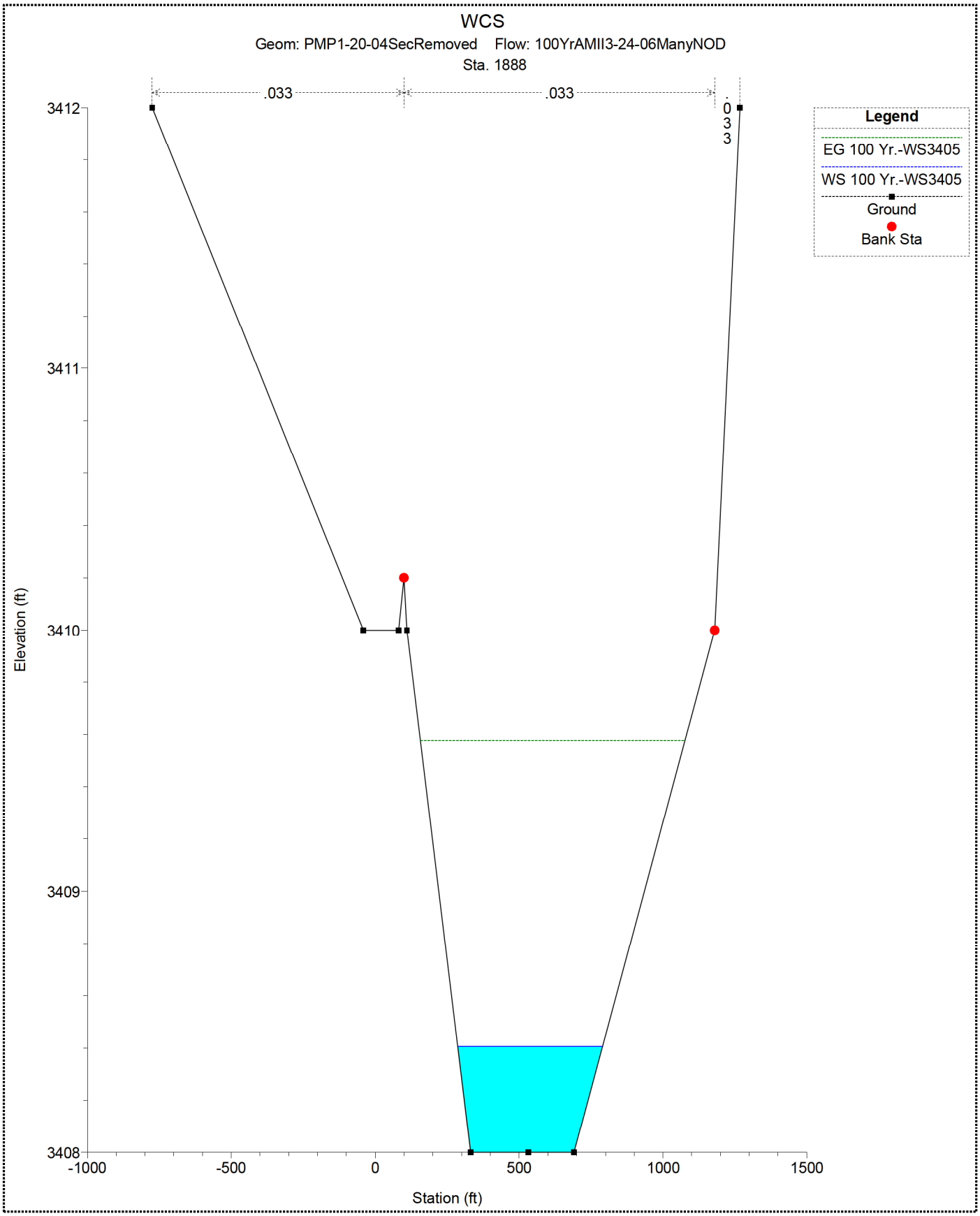

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 2989
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
Station (ft)
3420
3419
3418
3417
3416
3415
3414
3413
-200
0
200
400
600
800
1000
1200

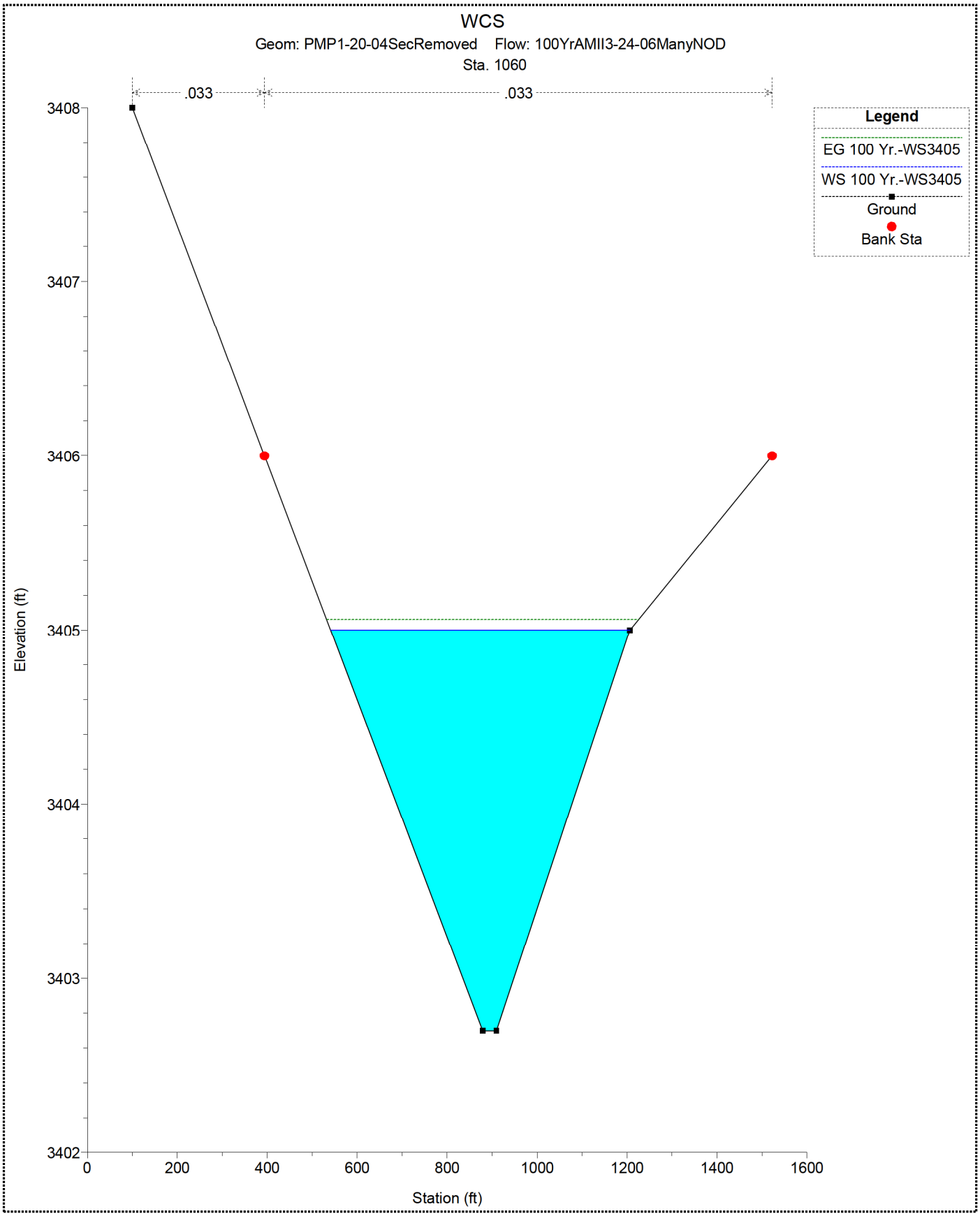

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 2774 Upstream of culverts
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Ineff
Bank Sta
Elevation (ft)
3416
3415
3414
3413
3412
3411
3410
3409
-600
-400
-200
0
200
400
600
800
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Ineff
Bank Sta
Elevation (ft)
3416
3415
3414
3413
3412
3411
3410
3409
-600
-400
-200
0
200
400
600
800
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Ineff
Bank Sta
Elevation (ft)
3416
3415
3414
3413
3412
3411
3410
3409
3408
-2000
-1500
-1000
-500
0
500
1000
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 2734 Downstream of culverts
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Ineff
Bank Sta
Elevation (ft)
3416
3415
3414
3413
3412
3411
3410
3409
3408
-2000
-1500
-1000
-500
0
500
1000
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 1888
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3412
3411
3410
3409
3408
-1000
-500
0
500
1000
1500
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMII3-24-06ManyNOD
Sta. 1060
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
Station (ft)
3408
3407
3406
3405
3404
3403
3402
0
200
400
600
800
1000
1200
1400
1600

APPENDIX N

HEC-HMS MODEL FOR THE CALCULATION OF THE 500-YEAR PEAK DISCHARGE, ANTECEDENT MOISTURE CONDITION II

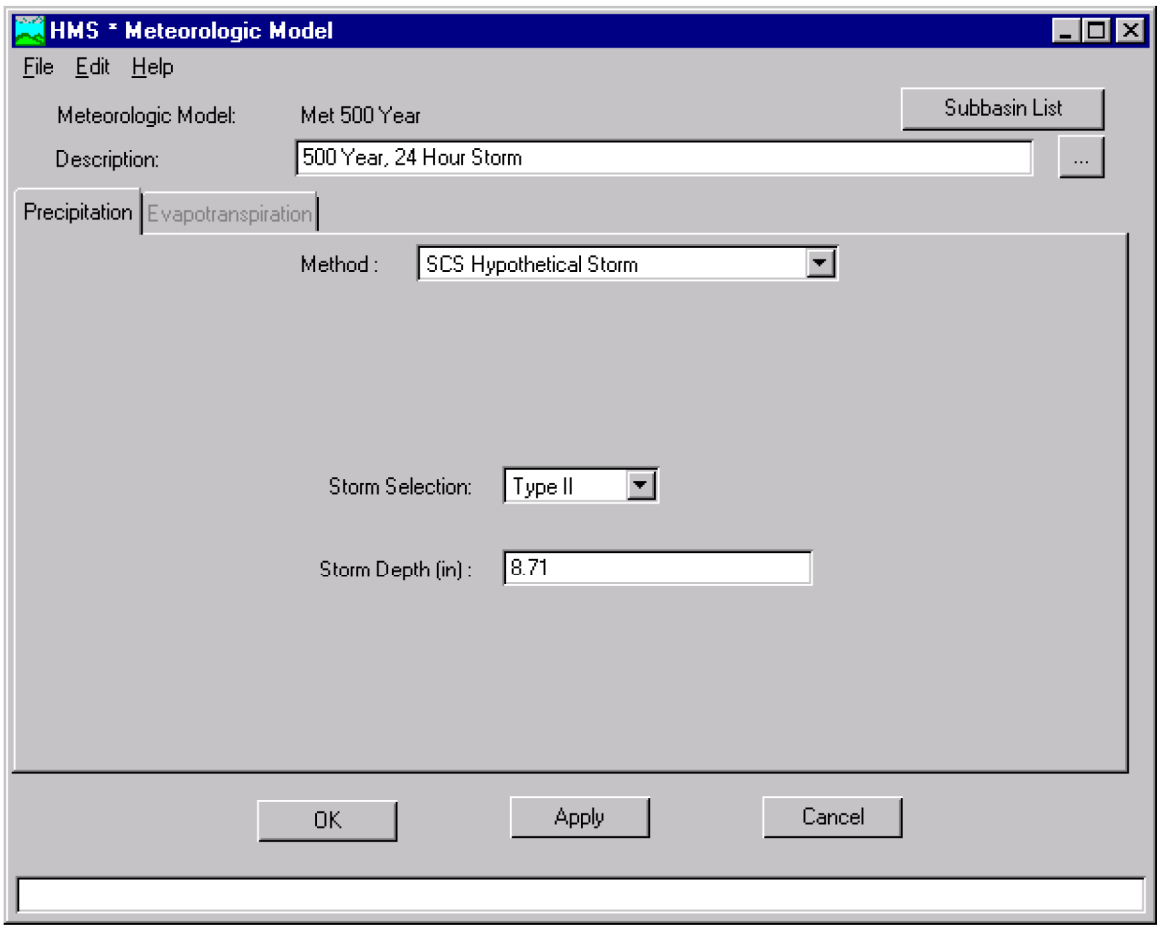
HMS * Summary of Results

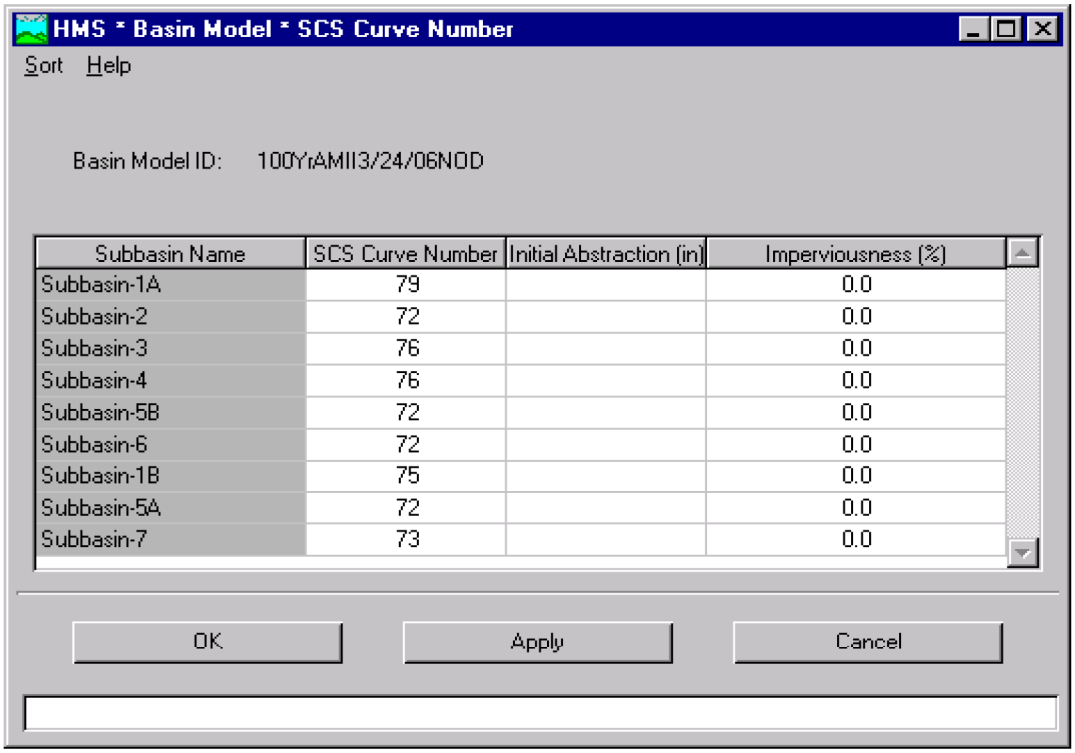
Project : WCS Run Name : 500 Yr AMII

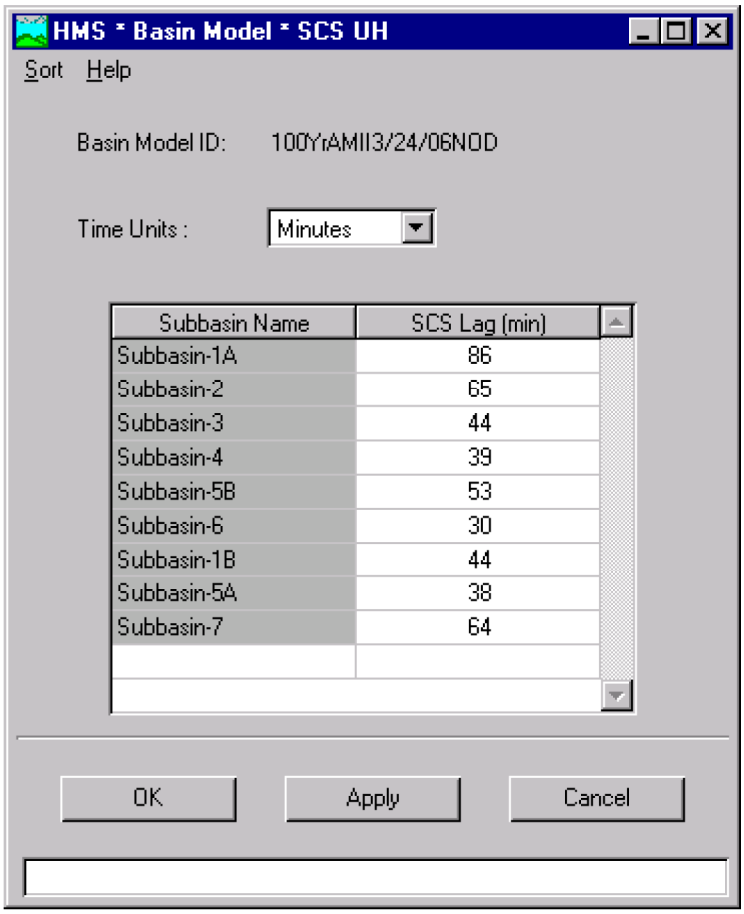
Start of Run : 01Dec00 0000 Basin Model : 100YrAMII3/24/06NOD
End of Run : 02Dec00 0000 Met. Model : Met 500 Year
Execution Time : 29Mar06 1101 Control Specs : Control 1

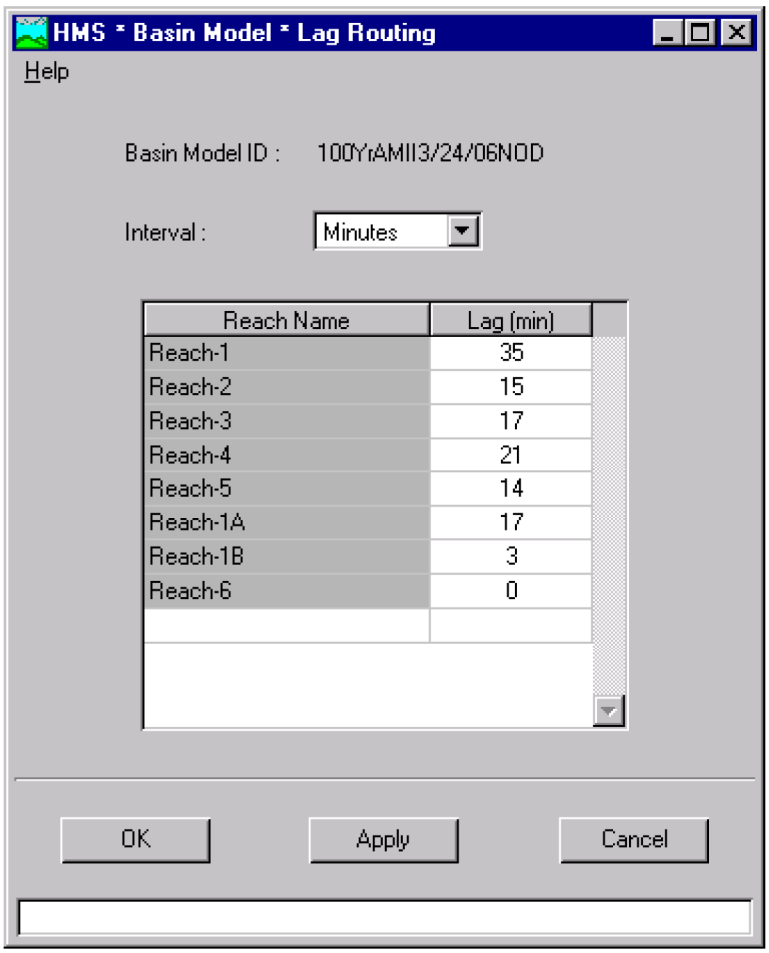
Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Subbasin-4	986.26	01 Dec 00 1232	149.79	0.490
Reach-2	986.26	01 Dec 00 1247	149.19	0.490
Subbasin-2	1343.1	01 Dec 00 1300	294.70	1.063
playa	0.0	30 Nov 00 2400	0.0	1.063
Reach-1	0.0	30 Nov 00 2400	0.0	1.063
Subbasin-1A	817.92	01 Dec 00 1321	220.98	0.691
Reach-1A	817.92	01 Dec 00 1338	219.95	0.691
Subbasin-1B	567.21	01 Dec 00 1237	93.801	0.314
Junction-1A	1031.9	01 Dec 00 1322	313.75	1.005
Reach-1B	1031.9	01 Dec 00 1325	313.49	1.005
Subbasin-3	287.68	01 Dec 00 1237	47.606	0.156
Junction-1	1200.7	01 Dec 00 1256	361.10	2.224
Reach-3	1200.7	01 Dec 00 1313	359.40	2.224
Subbasin-5A	361.11	01 Dec 00 1231	53.770	0.192
Junction-2	2314.6	01 Dec 00 1251	562.36	2.906
Reach-4	2314.6	01 Dec 00 1312	559.06	2.906
Subbasin-5B	390.30	01 Dec 00 1247	73.802	0.265
Junction-3	2624.5	01 Dec 00 1310	632.86	3.171
Reach-5	2624.5	01 Dec 00 1324	630.34	3.171
Subbasin-6	164.62	01 Dec 00 1222	20.784	0.074
Junction-4	2658.6	01 Dec 00 1324	651.12	3.245
Reach-6	2658.6	01 Dec 00 1324	651.12	3.245
Subbasin-7	136.06	01 Dec 00 1259	29.510	0.104
Junction-5	2772.5	01 Dec 00 1323	680.63	3.349

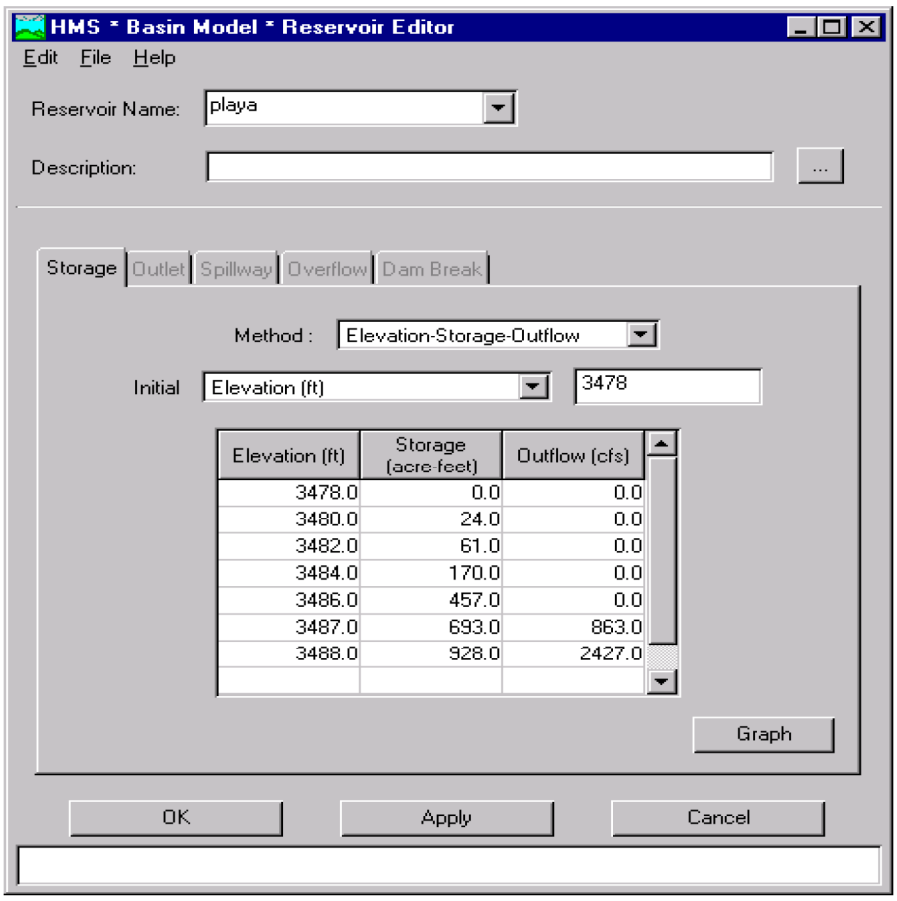
Meteorologic Model Input



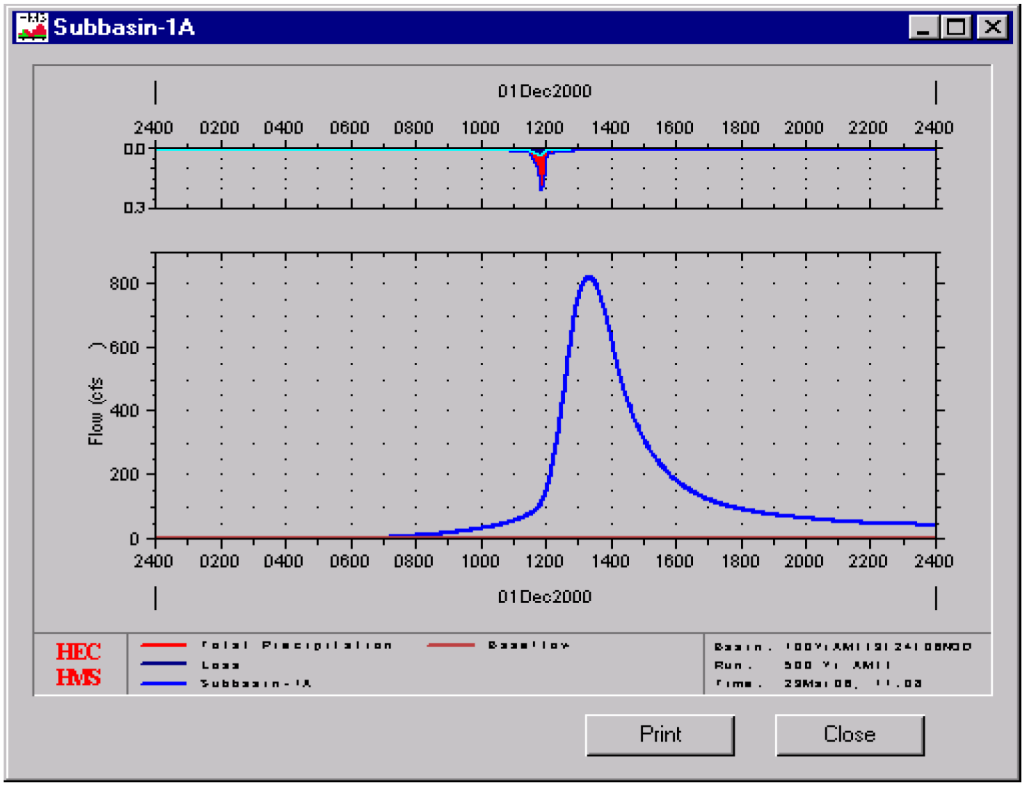

HMS * Basin Model * SCS Curve Number
Sort Help
Basin Model ID: 100YrAMII3/24/06NOD
Subbasin Name | SCS Curve Number | Initial Abstraction (in) | Imperviousness (%)
Subbasin-1A | 79 | | 0.0
Subbasin-2 | 72 | | 0.0
Subbasin-3 | 76 | | 0.0
Subbasin-4 | 76 | | 0.0
Subbasin-5B | 72 | | 0.0
Subbasin-6 | 72 | | 0.0
Subbasin-1B | 75 | | 0.0
Subbasin-5A | 72 | | 0.0
Subbasin-7 | 73 | | 0.0
OK
Apply
Cancel

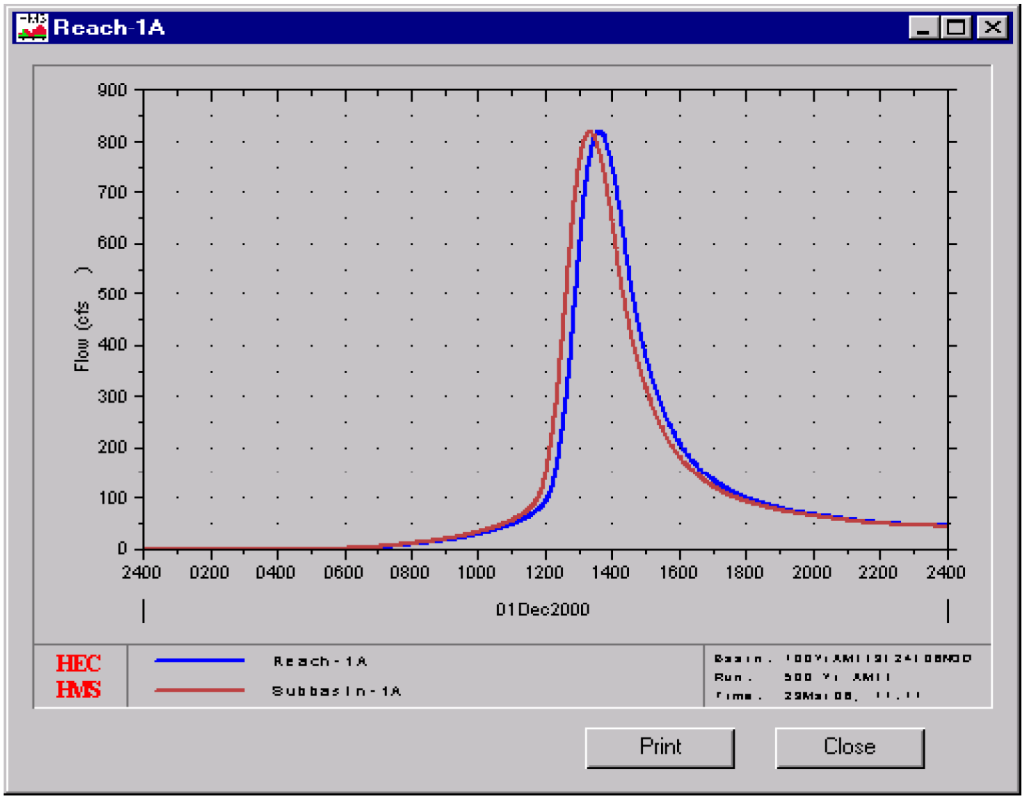

HMS * Basin Model * SCS UH
Sort Help
Basin Model ID: 100YrAMII3/24/06NOD
Time Units : Minutes
Subbasin Name | SCS Lag (min)
Subbasin-1A | 86
Subbasin-2 | 65
Subbasin-3 | 44
Subbasin-4 | 39
Subbasin-5B | 53
Subbasin-6 | 30
Subbasin-1B | 44
Subbasin-5A | 38
Subbasin-7 | 64
OK
Apply
Cancel


HMS * Basin Model * Lag Routing
Help
Basin Model ID : 100YrAMII3/24/06NOD
Interval : Minutes
Reach Name
Lag (min)
Reach-1 35
Reach-2 15
Reach-3 17
Reach-4 21
Reach-5 14
Reach-1A 17
Reach-1B 3
Reach-6 0
OK
Apply
Cancel

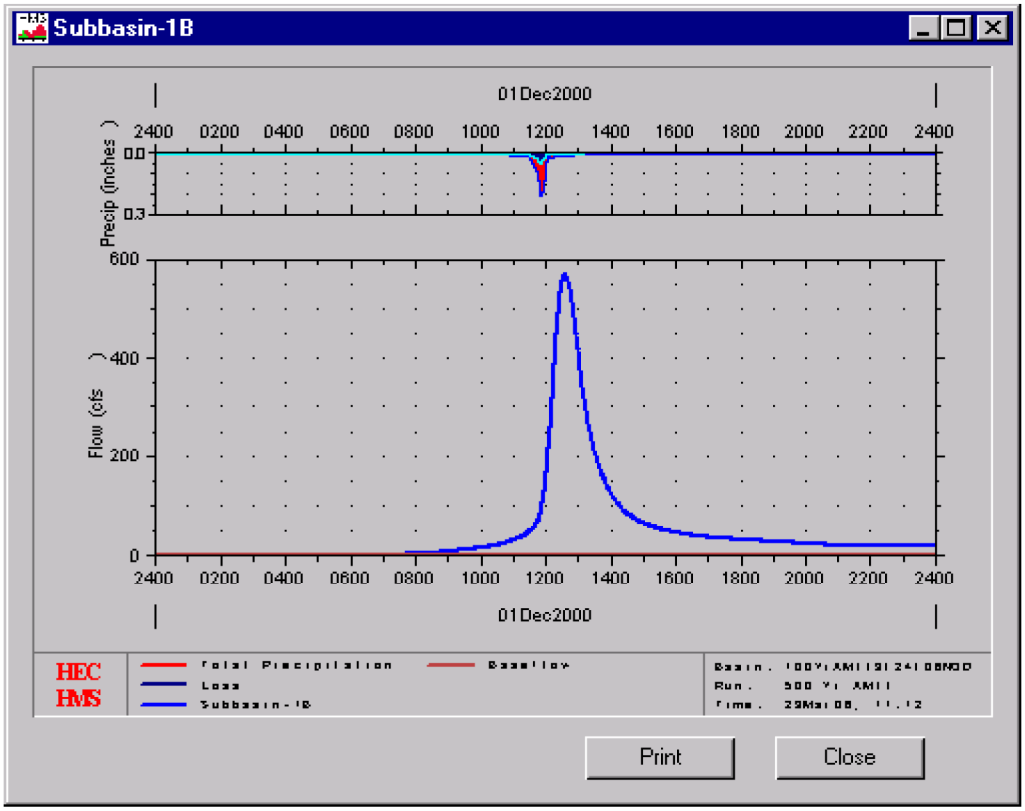

HMS * Basin Model * Reservoir Editor
Edit File Help
Reservoir Name: playa
Description:
...
Storage Outlet Spillway Overflow Dam Break
Method : Elevation-Storage-Outflow
Initial Elevation (ft) 3478
Elevation (ft) Storage (acre-feet) Outflow (cfs)
3478.0 0.0 0.0
3480.0 24.0 0.0
3482.0 61.0 0.0
3484.0 170.0 0.0
3486.0 457.0 0.0
3487.0 693.0 863.0
3488.0 928.0 2427.0
Graph
OK
Apply
Cancel

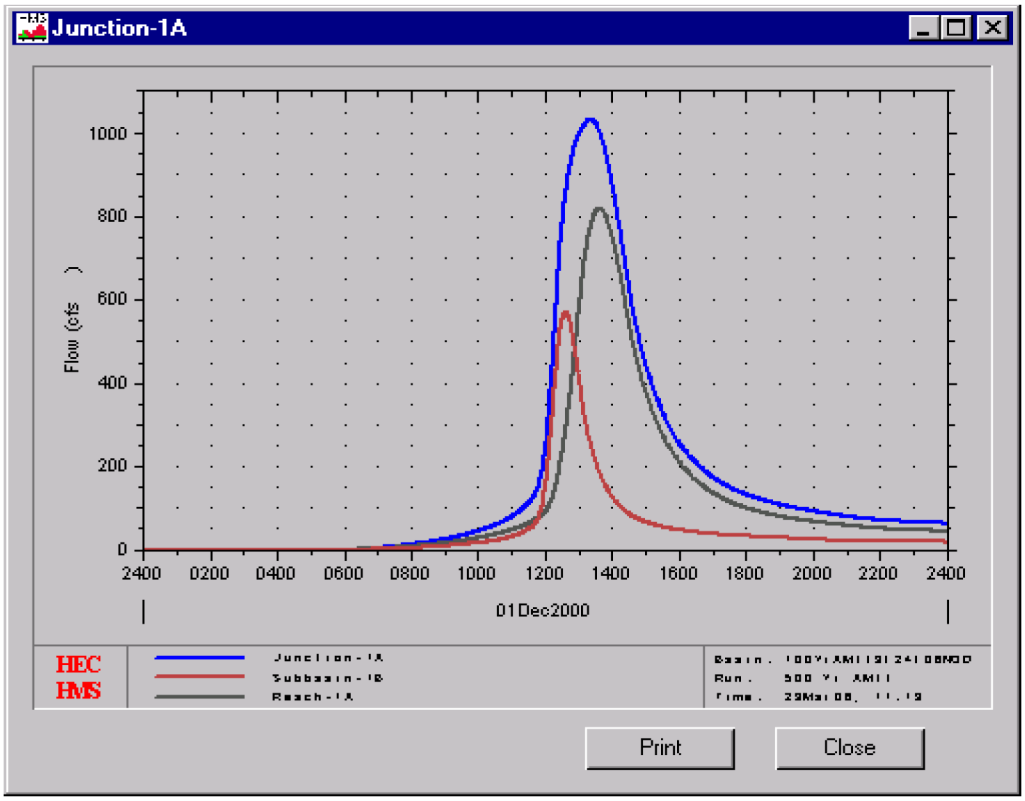
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



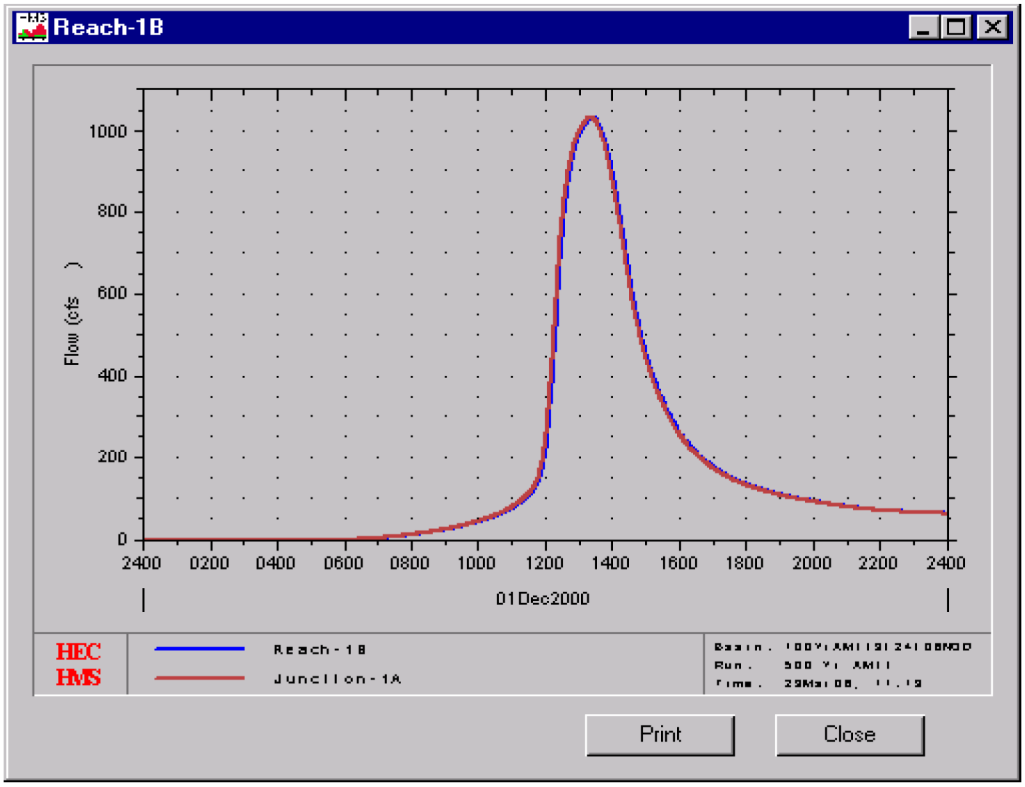


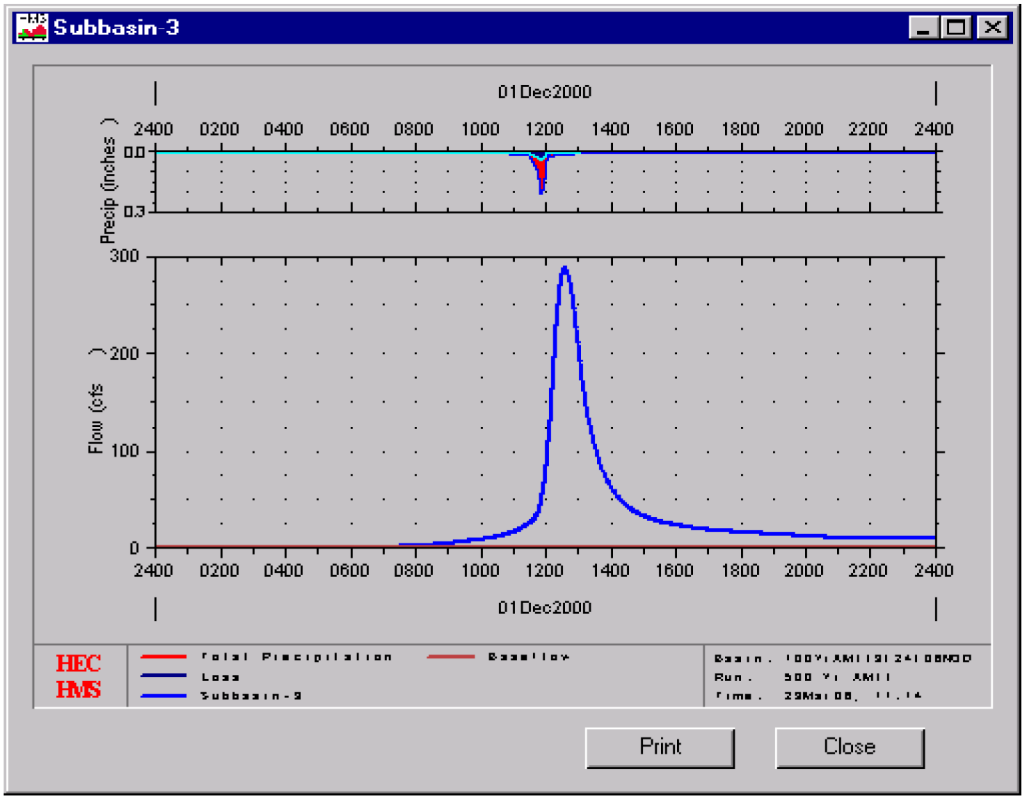
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



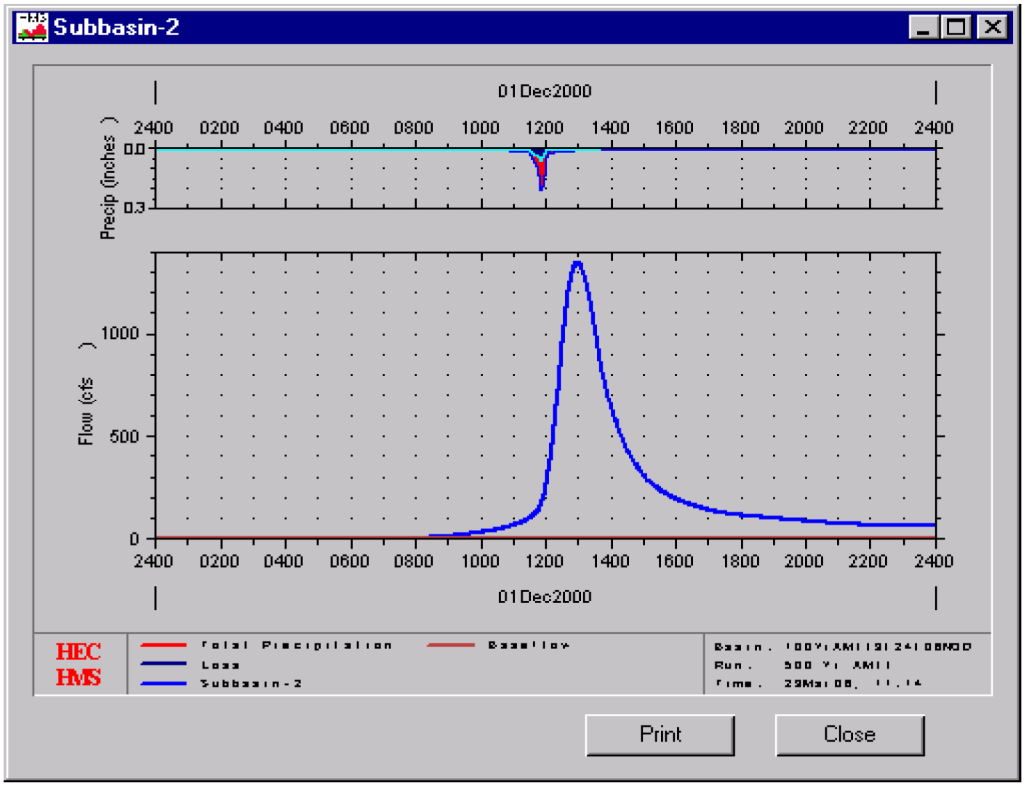


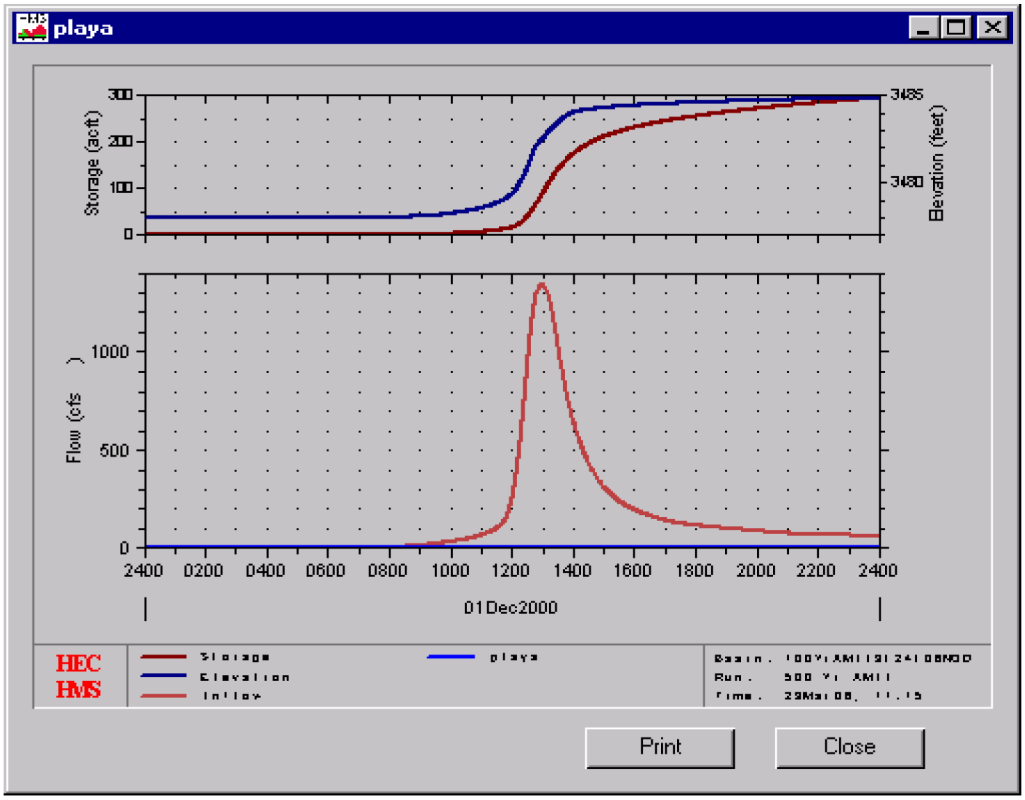
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



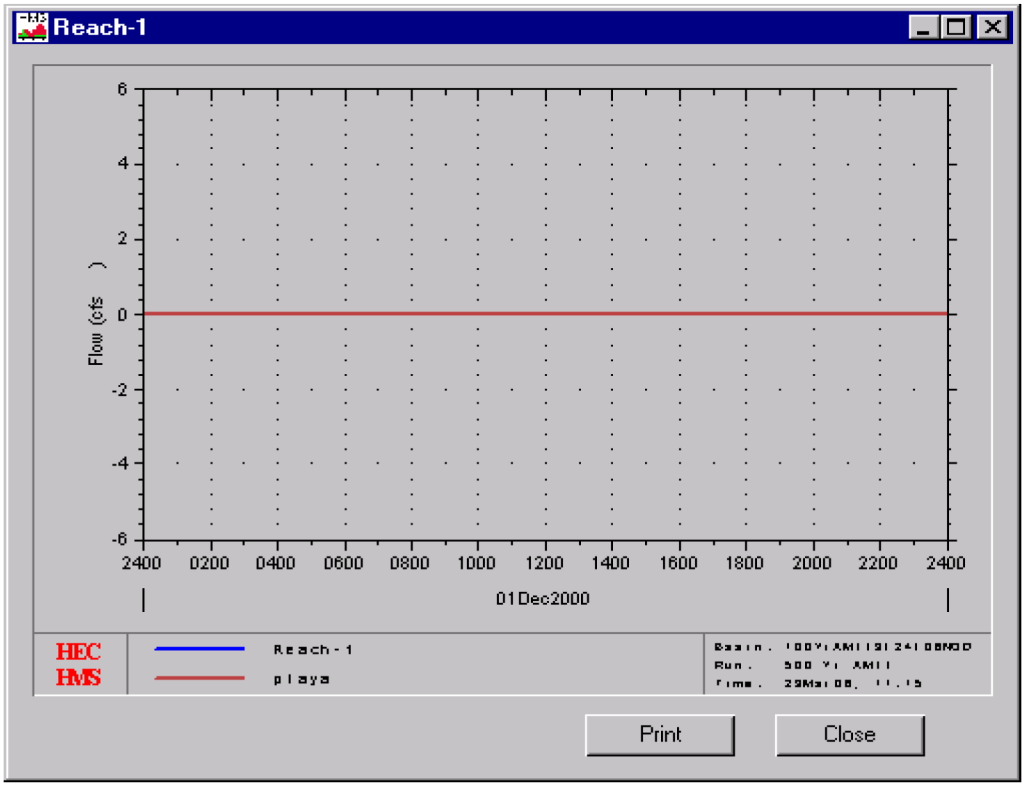


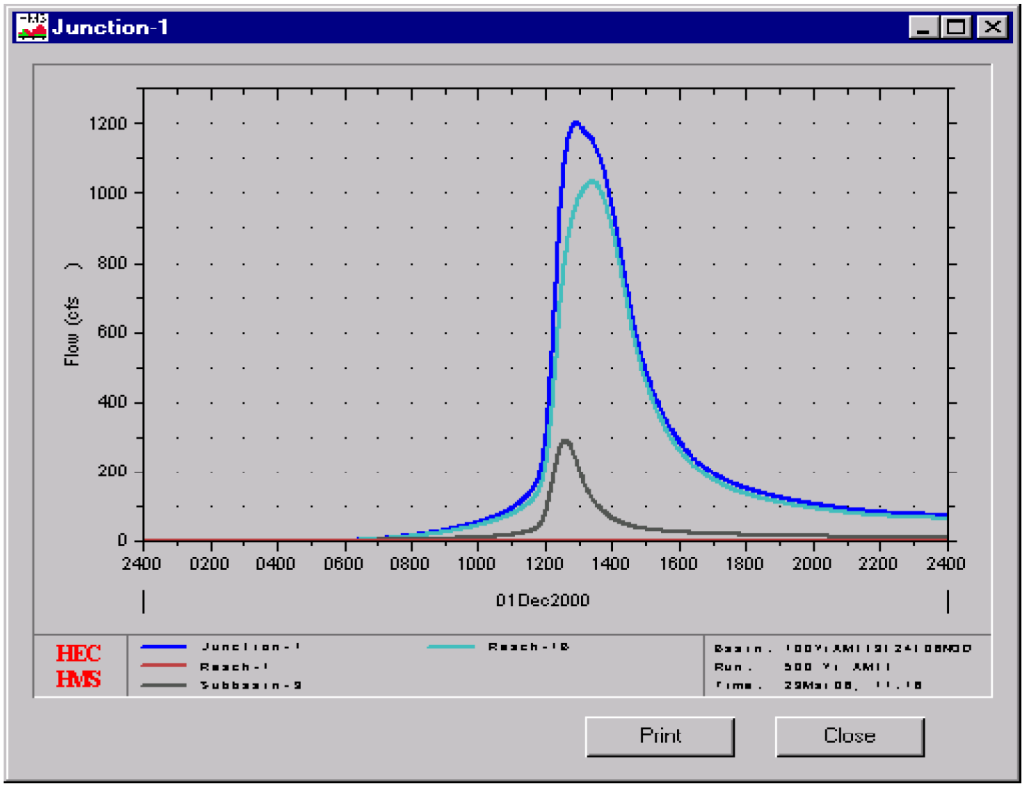
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



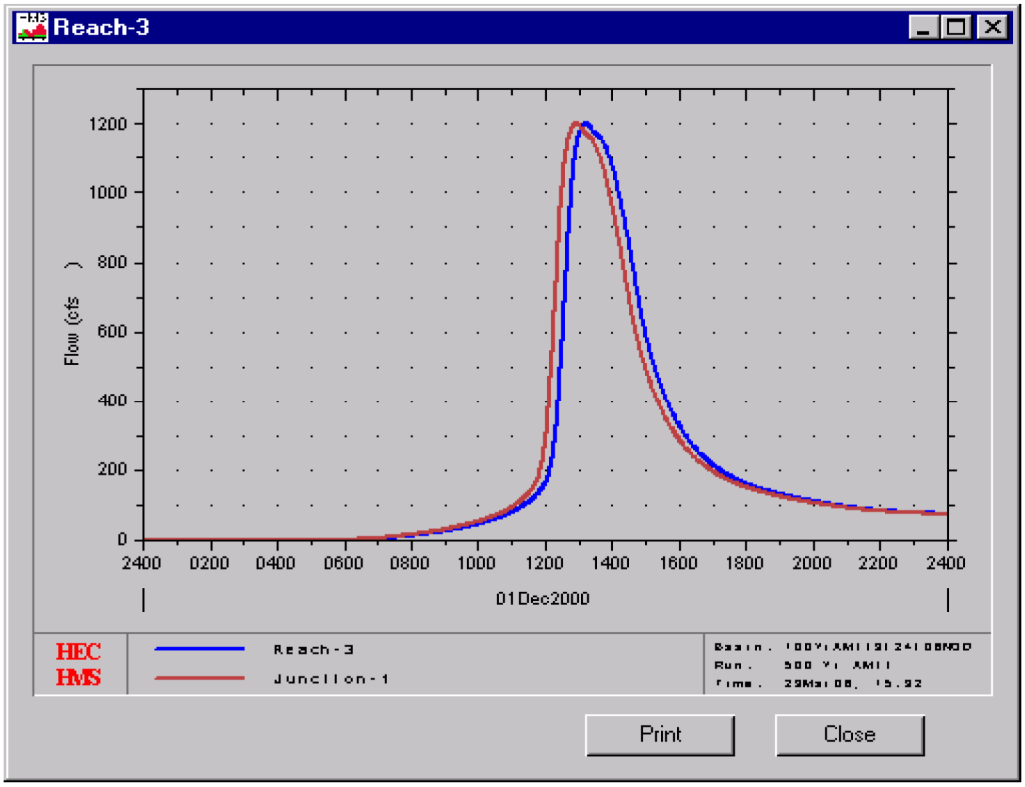


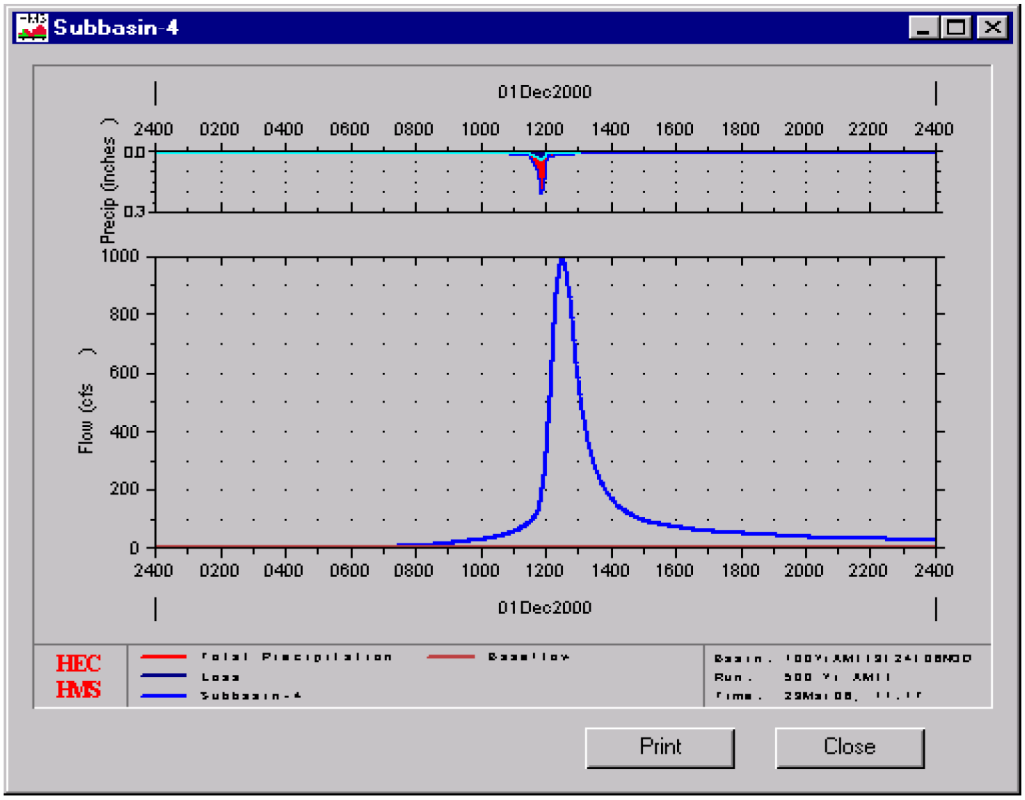
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



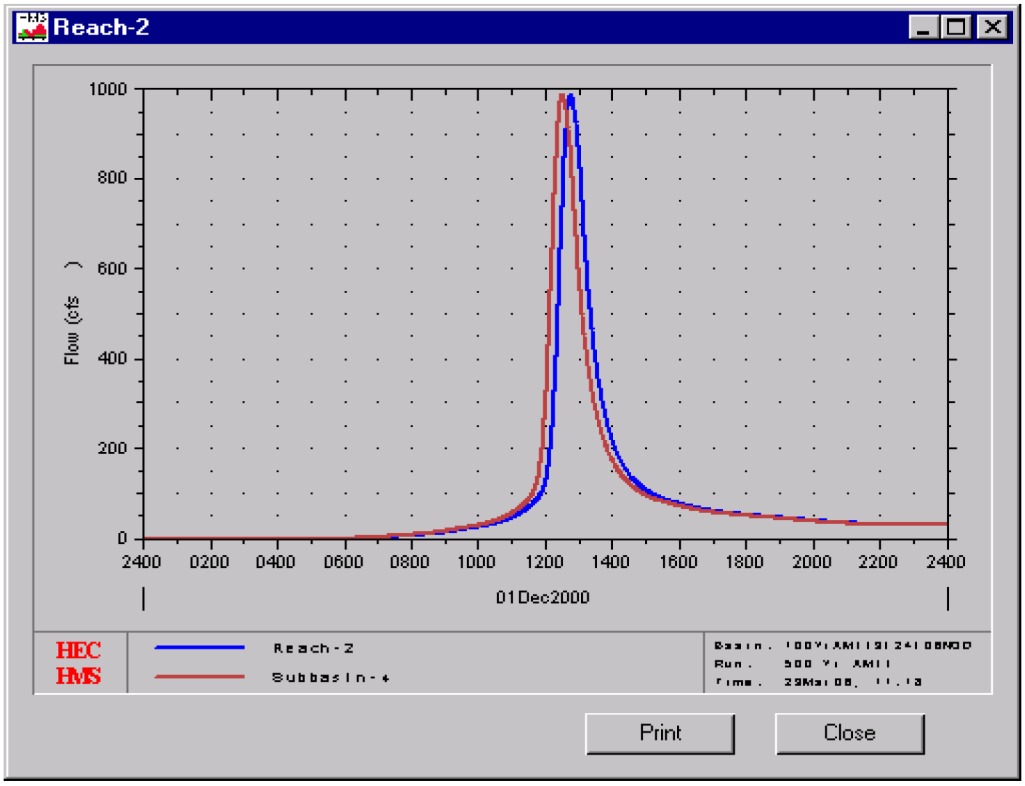


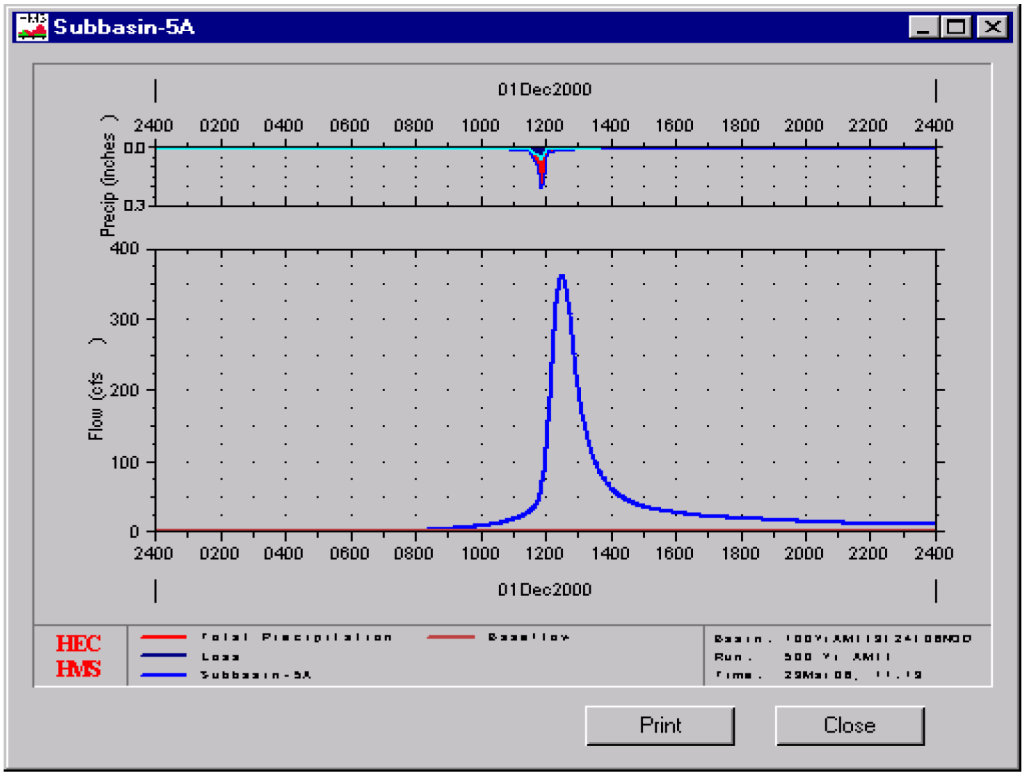
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



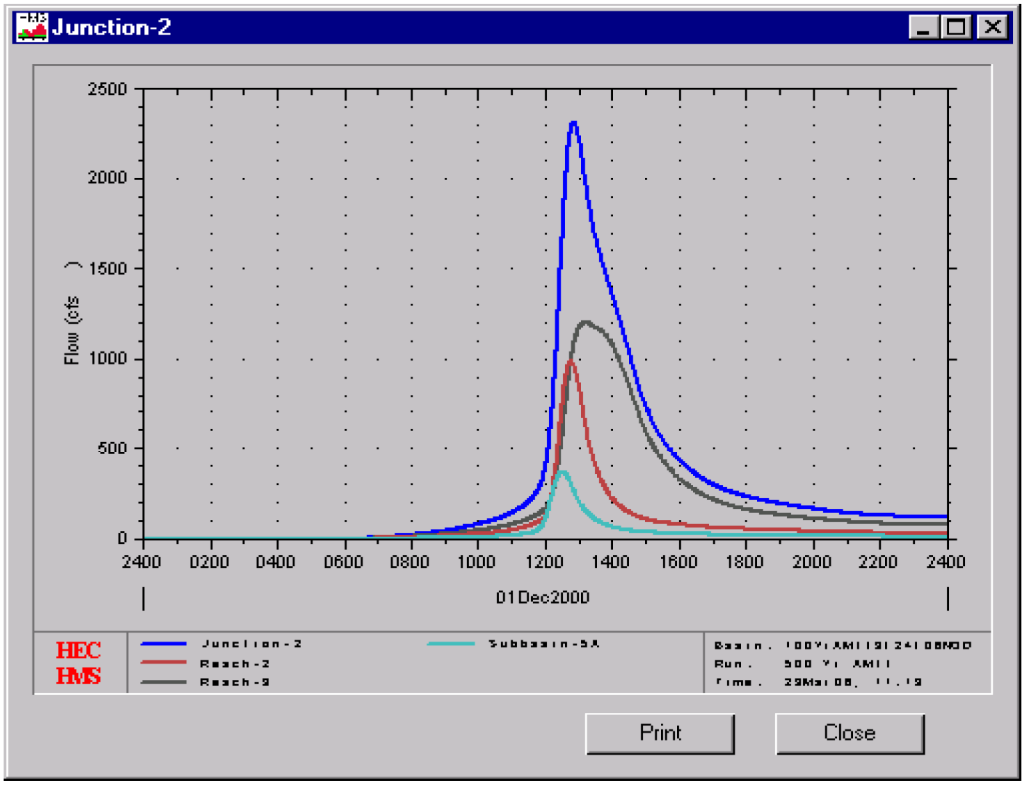


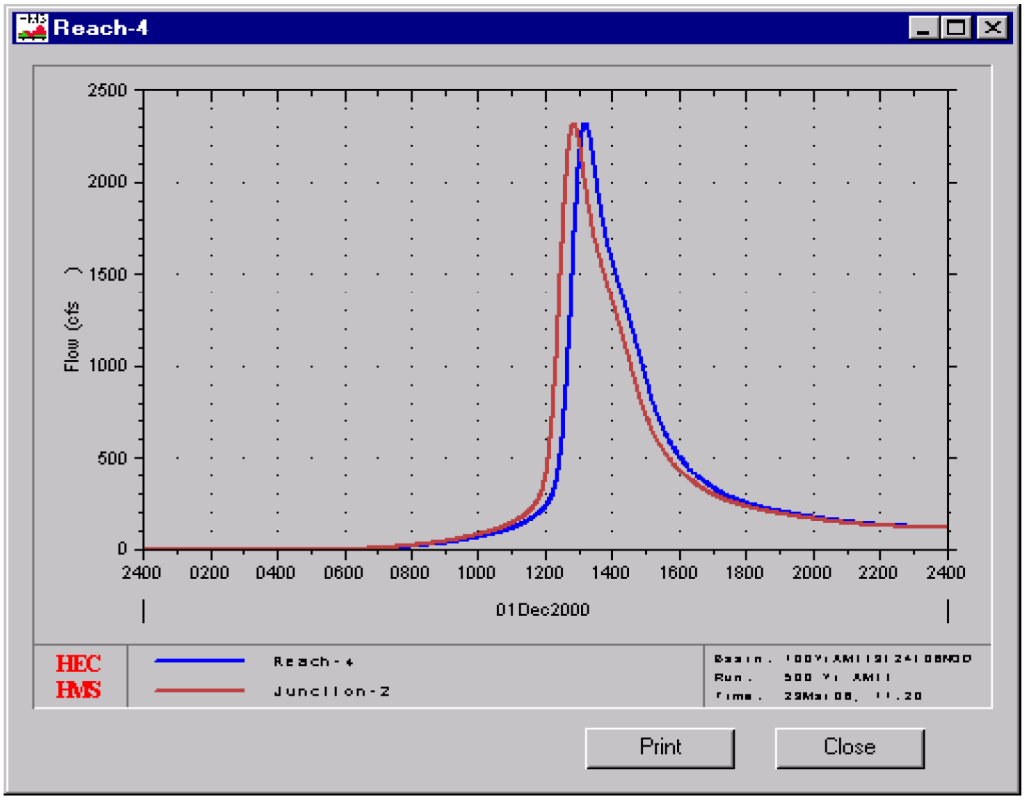
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



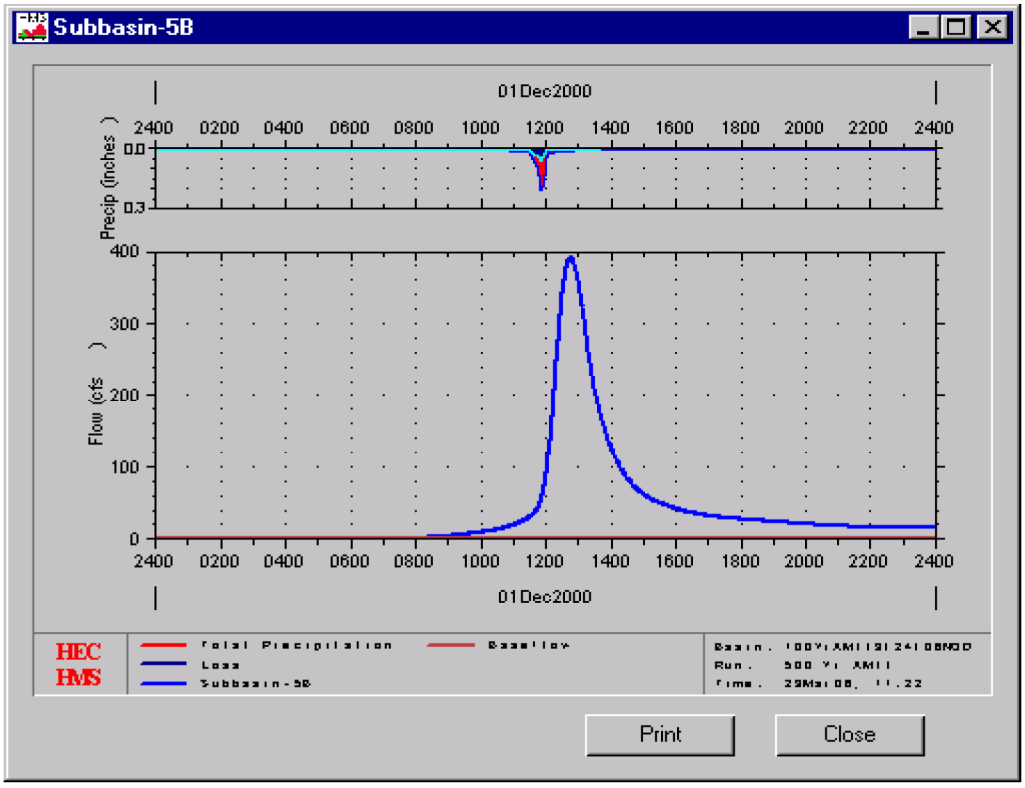


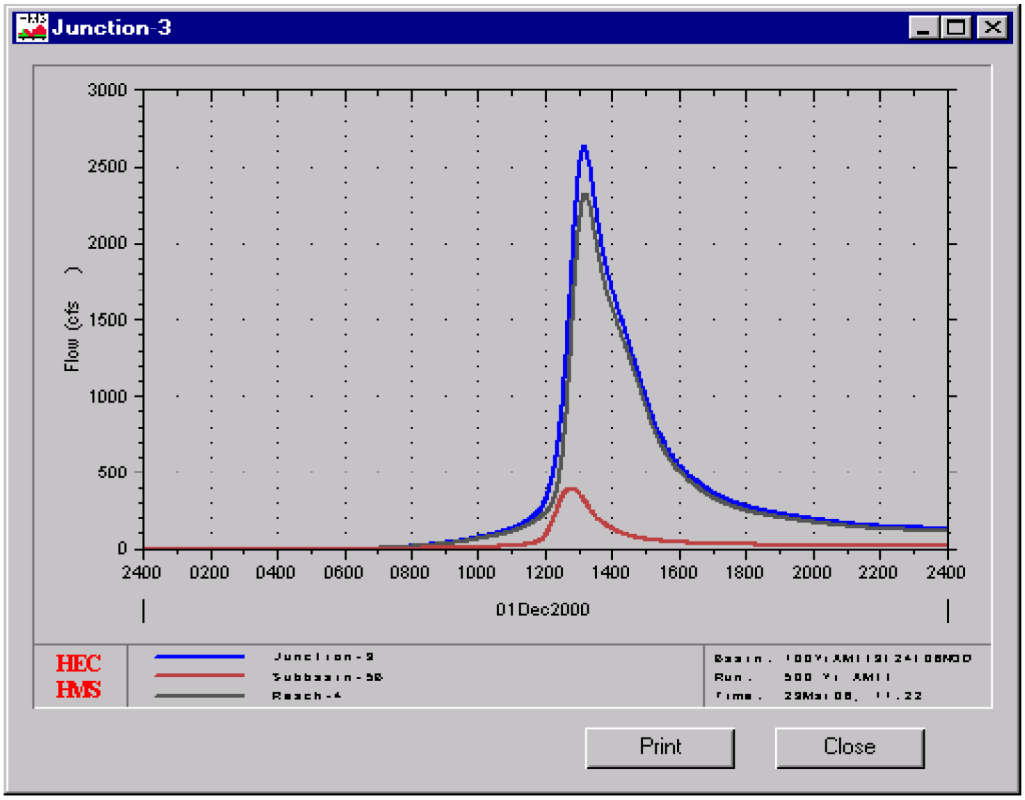
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



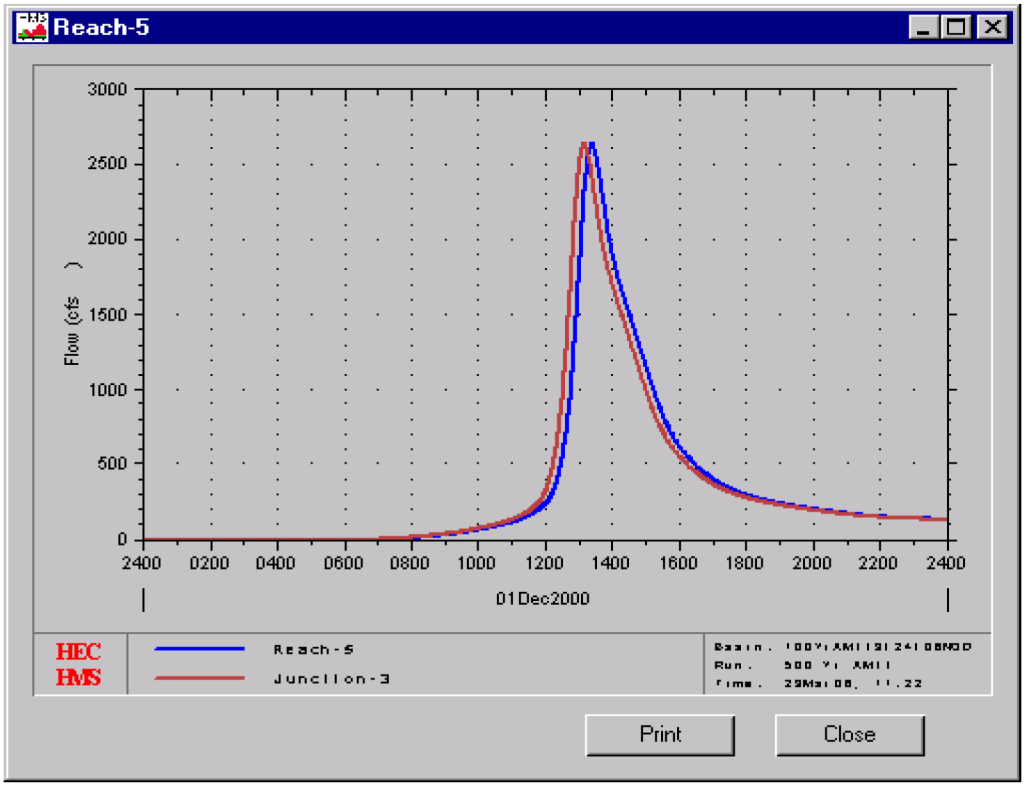


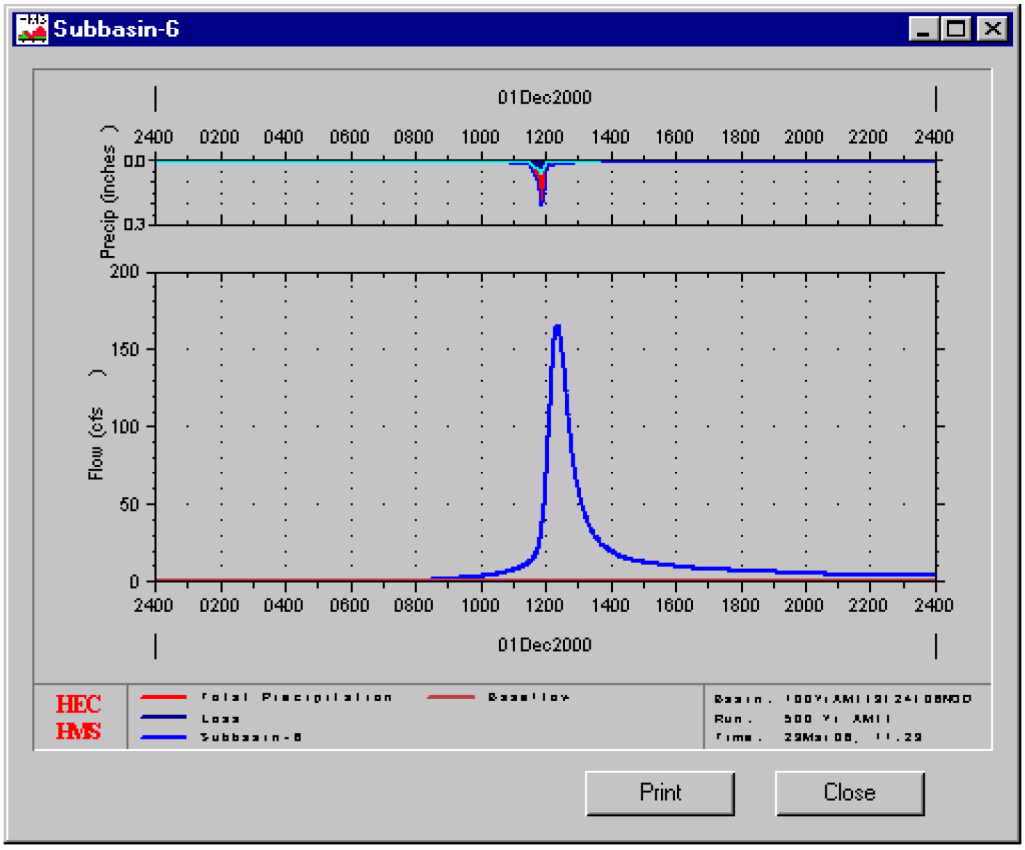
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



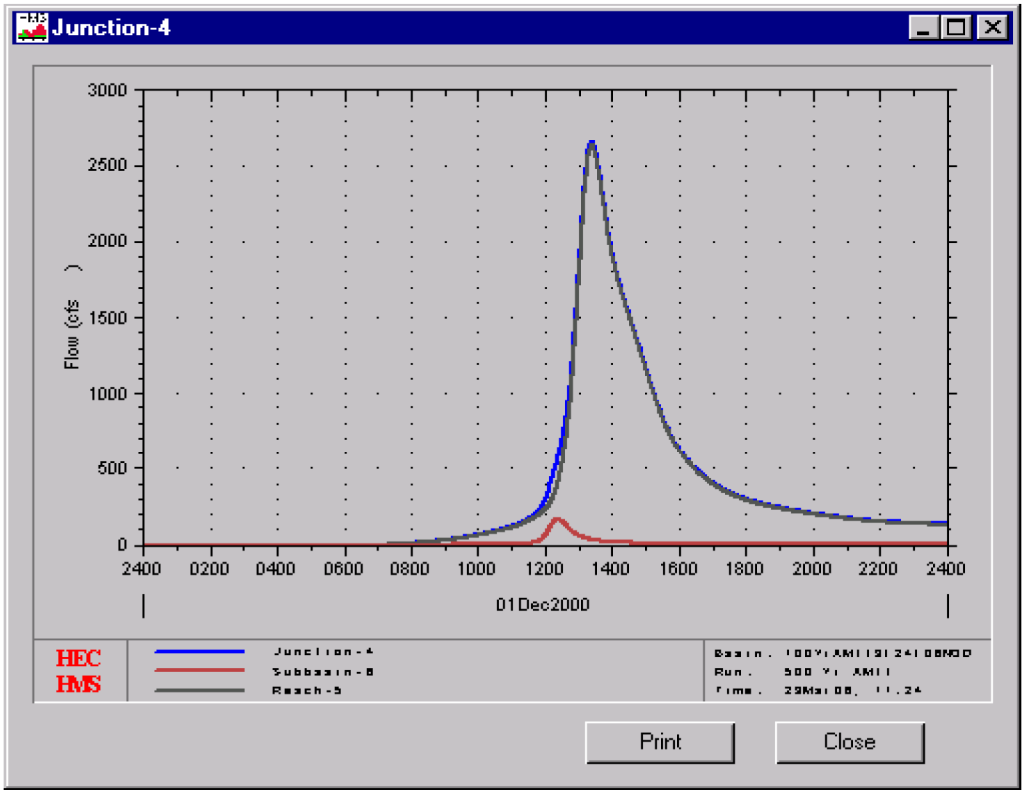


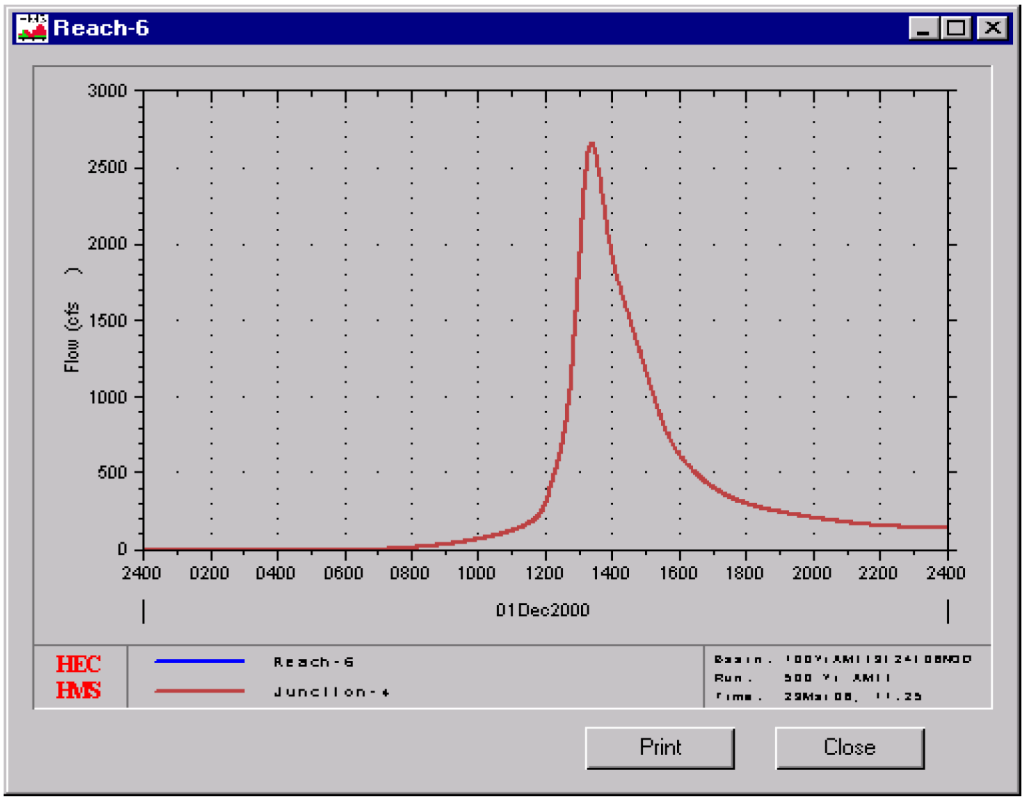
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



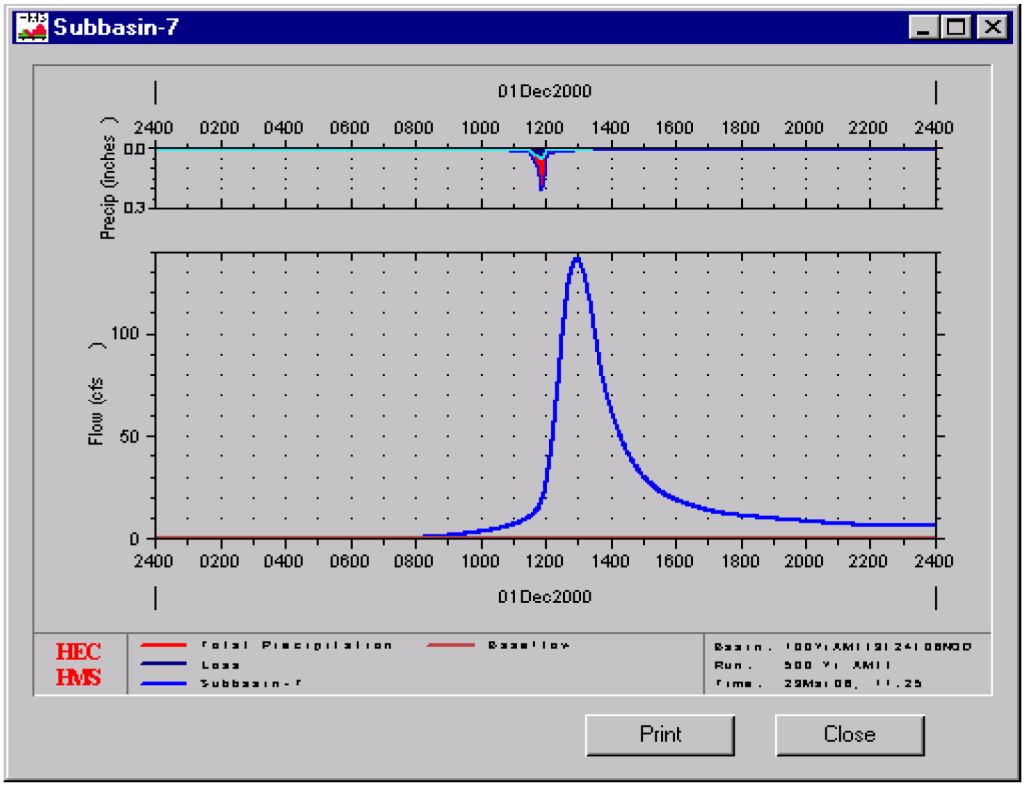


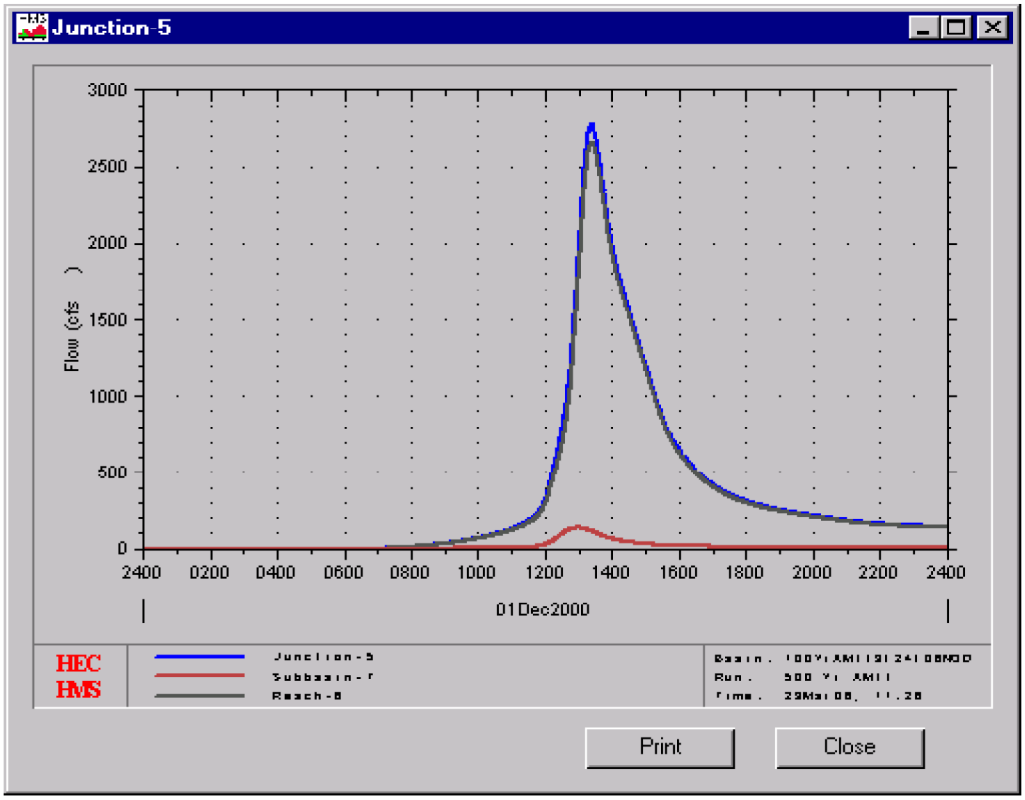
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS





WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS





APPENDIX O

HEC-HMS MODEL FOR THE CALCULATION OF THE PMP PEAK DISCHARGE, ANTECEDENT MOISTURE CONDITION II

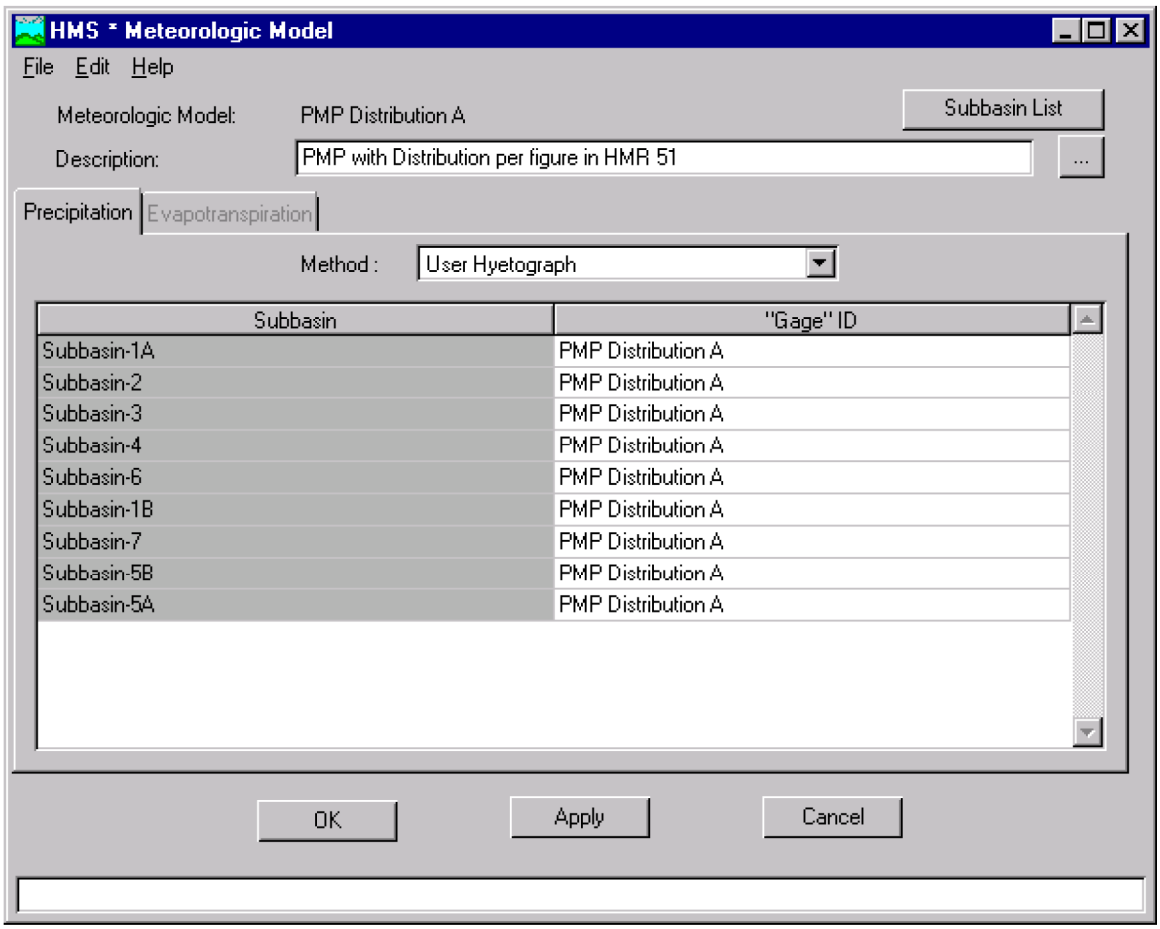
HMS * Summary of Results

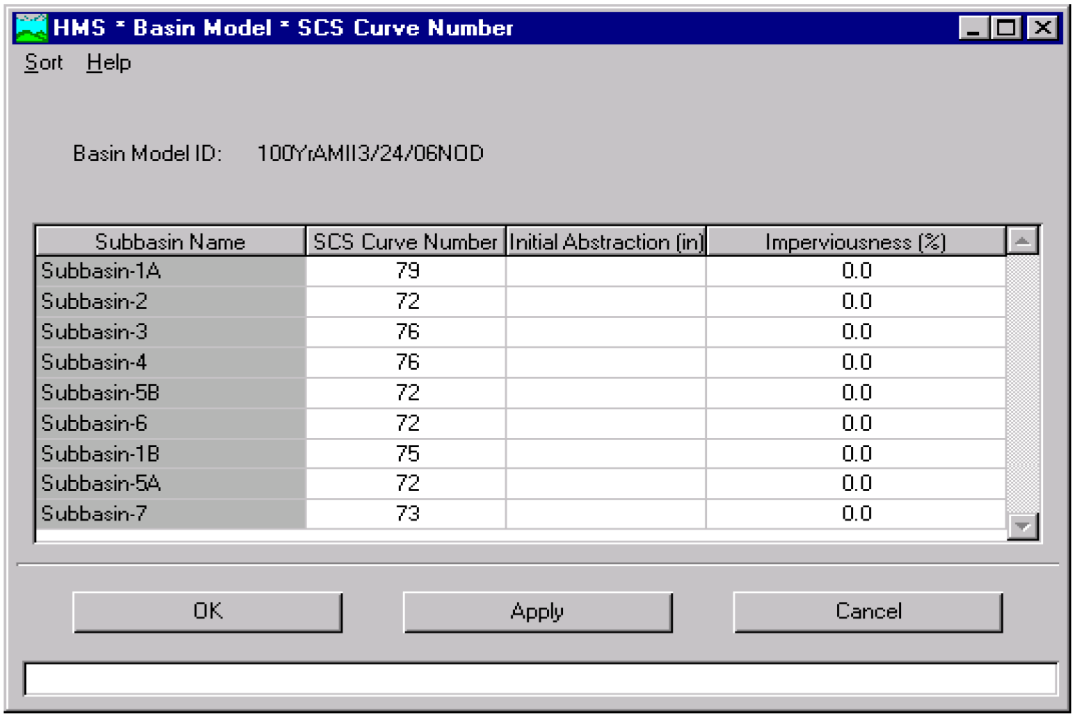
Project : WCS Run Name : PMP Dist A AMII

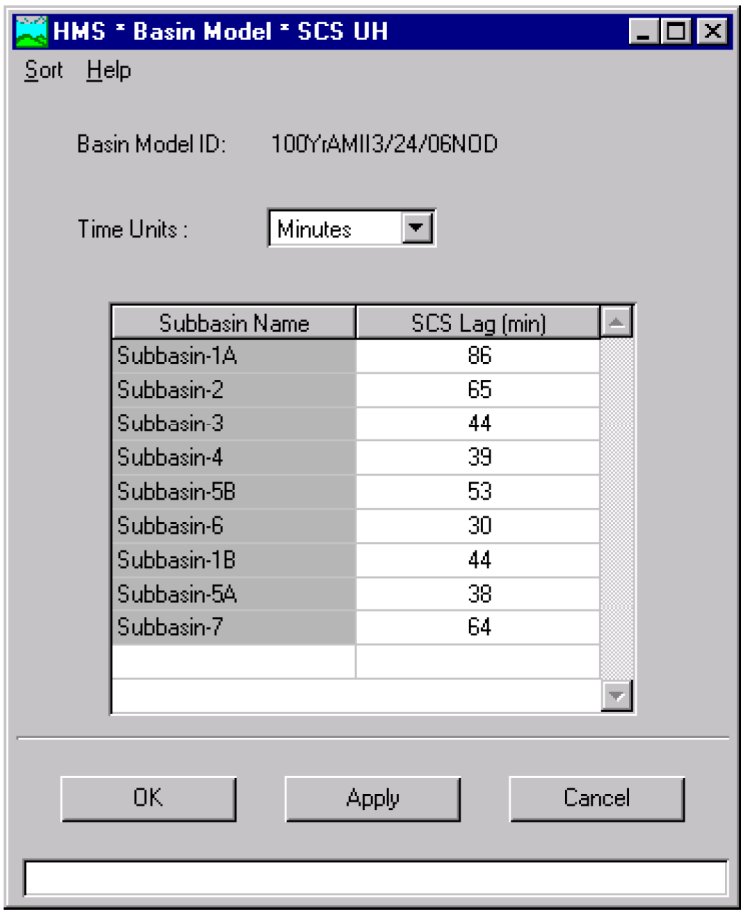
Start of Run : 01Dec00 0000 Basin Model : 100YrAMII3/24/06NOD
End of Run : 05Dec00 0000 Met. Model : PMP Dist. A NOD
Execution Time : 29Mar06 1606 Control Specs : Control PMP

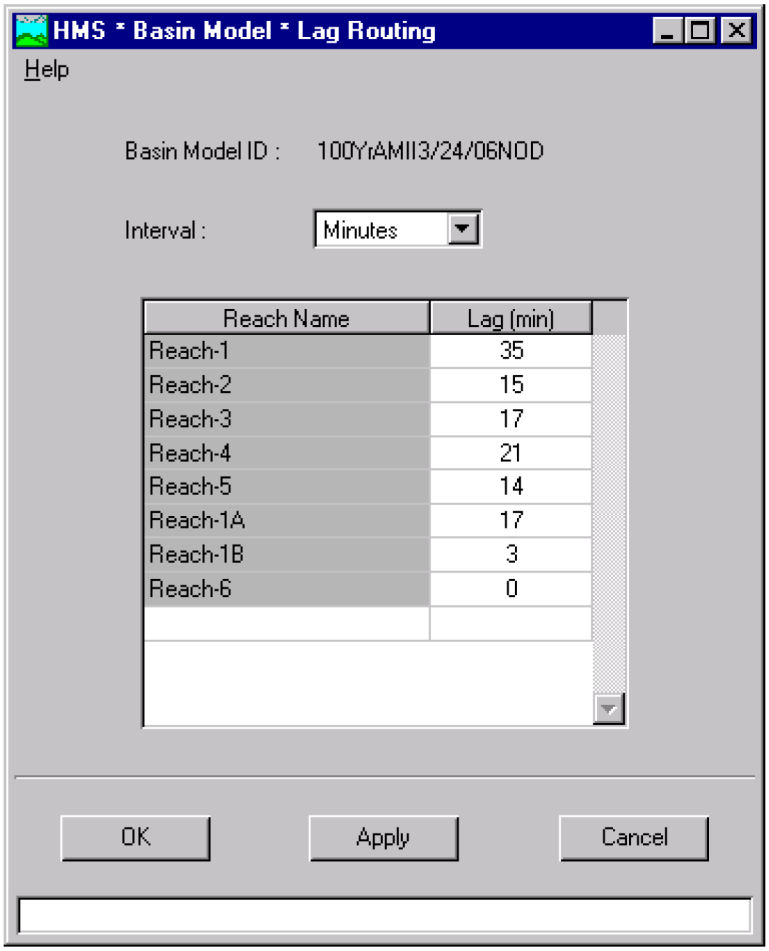
Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Subbasin-4	1303.2	03 Dec 00 0600	965.43	0.490
Reach-2	1303.2	03 Dec 00 0615	965.43	0.490
Subbasin-2	2804.8	03 Dec 00 0602	2051.2	1.063
playa	2380.3	03 Dec 00 0649	1594.1	1.063
Reach-1	2380.3	03 Dec 00 0724	1594.1	1.063
Subbasin-1A	1832.7	03 Dec 00 0605	1381.1	0.691
Reach-1A	1832.7	03 Dec 00 0622	1381.1	0.691
Subbasin-1B	833.89	03 Dec 00 0600	615.56	0.314
Junction-1A	2662.1	03 Dec 00 0604	1996.7	1.005
Reach-1B	2662.1	03 Dec 00 0607	1996.7	1.005
Subbasin-3	414.76	03 Dec 00 0600	307.36	0.156
Junction-1	5169.8	03 Dec 00 0621	3898.2	2.224
Reach-3	5169.8	03 Dec 00 0638	3898.1	2.224
Subbasin-5A	508.22	03 Dec 00 0600	370.48	0.192
Junction-2	6871.1	03 Dec 00 0622	5234.1	2.906
Reach-4	6871.1	03 Dec 00 0643	5234.1	2.906
Subbasin-5B	700.32	03 Dec 00 0601	511.35	0.265
Junction-3	7467.3	03 Dec 00 0635	5745.4	3.171
Reach-5	7467.3	03 Dec 00 0649	5745.4	3.171
Subbasin-6	196.02	03 Dec 00 0600	142.79	0.074
Junction-4	7552.2	03 Dec 00 0644	5888.2	3.245
Reach-6	7552.2	03 Dec 00 0644	5888.2	3.245
Subbasin-7	274.88	03 Dec 00 0601	201.77	0.104
Junction-5	7798.5	03 Dec 00 0640	6090.0	3.349

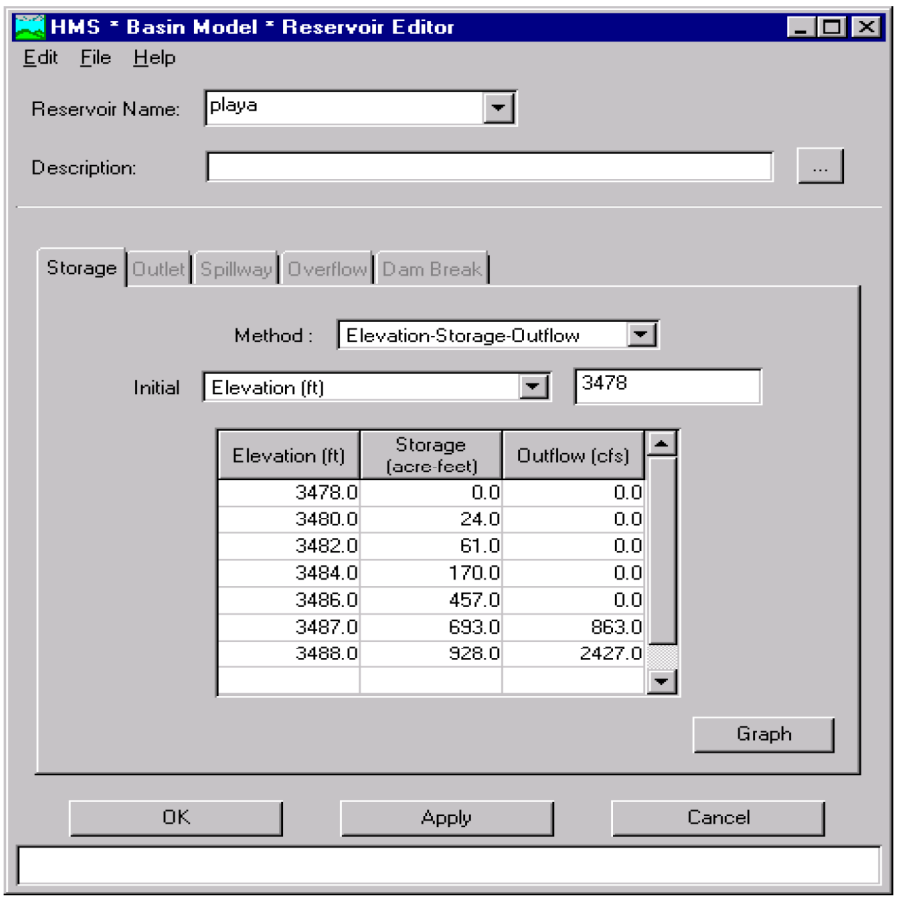
Meteorologic Model Input



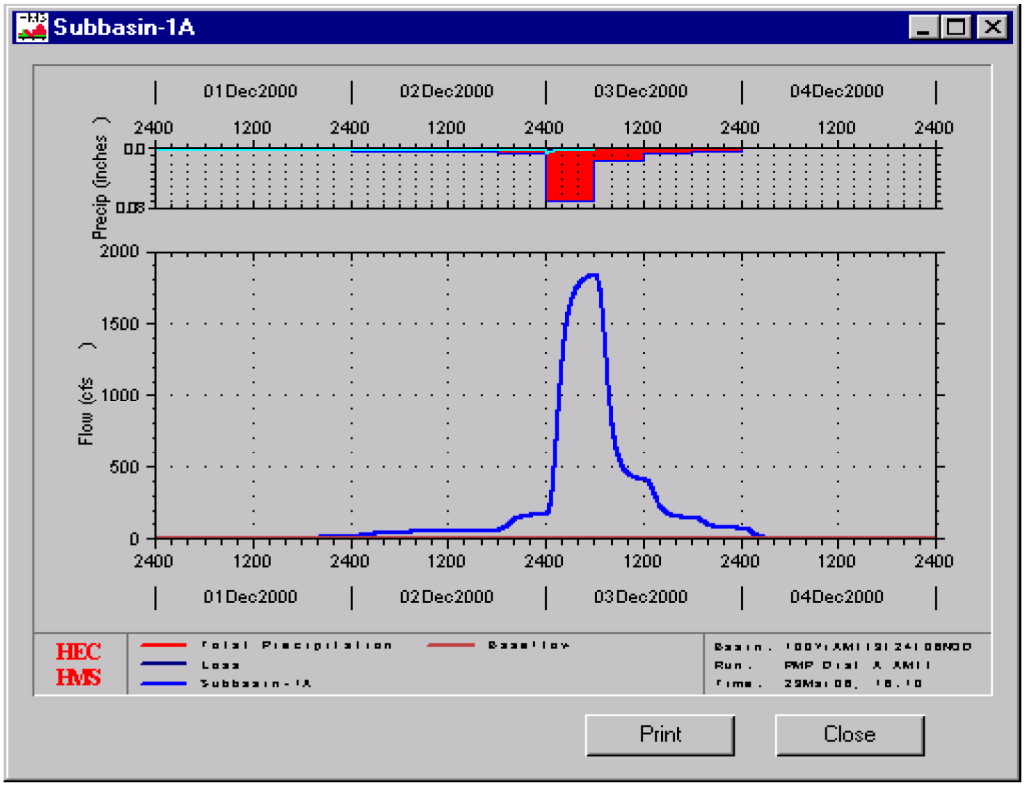

HMS * Basin Model * SCS Curve Number
Sort Help
Basin Model ID: 100YrAMII3/24/06NOD
Subbasin Name | SCS Curve Number | Initial Abstraction (in) | Imperviousness (%)
Subbasin-1A | 79 | | 0.0
Subbasin-2 | 72 | | 0.0
Subbasin-3 | 76 | | 0.0
Subbasin-4 | 76 | | 0.0
Subbasin-5B | 72 | | 0.0
Subbasin-6 | 72 | | 0.0
Subbasin-1B | 75 | | 0.0
Subbasin-5A | 72 | | 0.0
Subbasin-7 | 73 | | 0.0
OK
Apply
Cancel

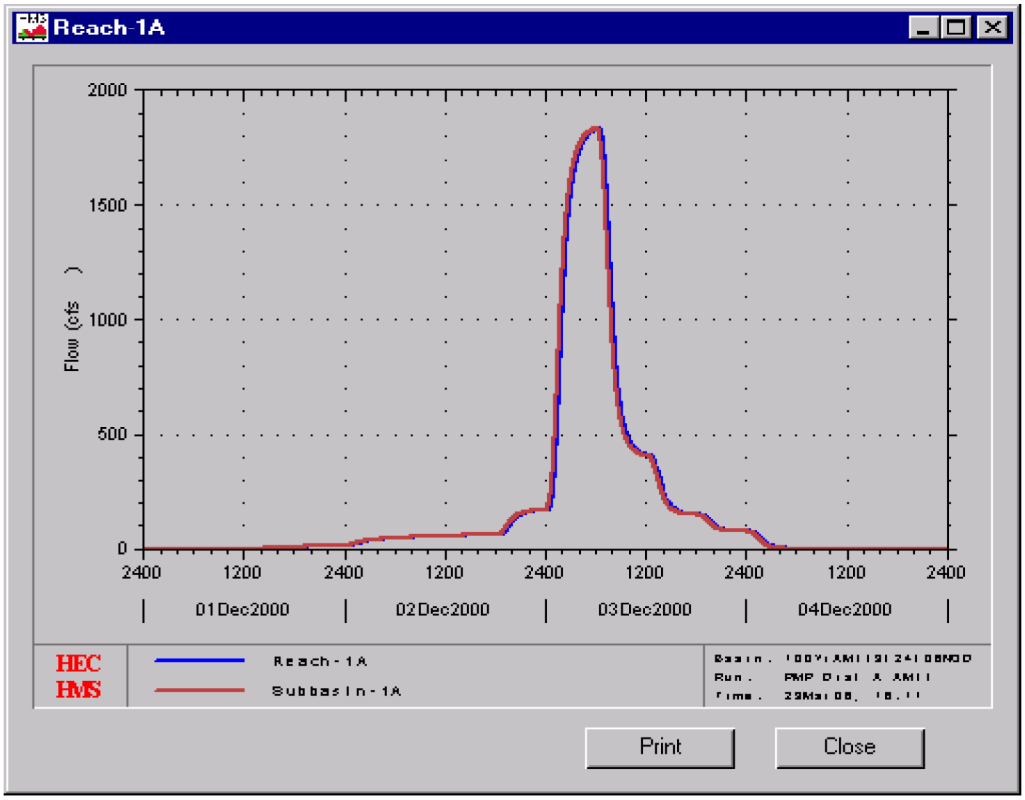

HMS * Basin Model * SCS UH
Sort Help
Basin Model ID: 100YrAMII3/24/06NOD
Time Units : Minutes
Subbasin Name | SCS Lag (min)
Subbasin-1A | 86
Subbasin-2 | 65
Subbasin-3 | 44
Subbasin-4 | 39
Subbasin-5B | 53
Subbasin-6 | 30
Subbasin-1B | 44
Subbasin-5A | 38
Subbasin-7 | 64
OK
Apply
Cancel


HMS * Basin Model * Lag Routing
Help
Basin Model ID : 100YrAMII3/24/06NOD
Interval : Minutes
Reach Name
Lag (min)
Reach-1 35
Reach-2 15
Reach-3 17
Reach-4 21
Reach-5 14
Reach-1A 17
Reach-1B 3
Reach-6 0
OK
Apply
Cancel

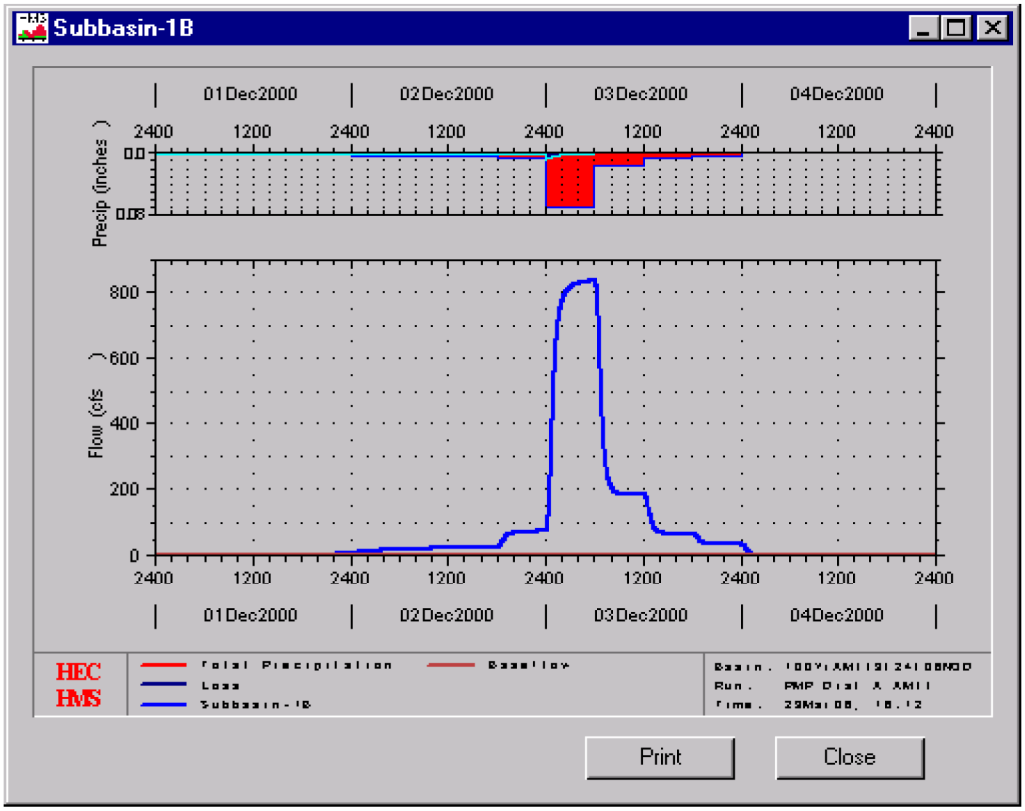

HMS * Basin Model * Reservoir Editor
Edit File Help
Reservoir Name: playa
Description:
...
Storage Outlet Spillway Overflow Dam Break
Method : Elevation-Storage-Outflow
Initial Elevation (ft) 3478
Elevation (ft) Storage (acre-feet) Outflow (cfs)
3478.0 0.0 0.0
3480.0 24.0 0.0
3482.0 61.0 0.0
3484.0 170.0 0.0
3486.0 457.0 0.0
3487.0 693.0 863.0
3488.0 928.0 2427.0
Graph
OK
Apply
Cancel

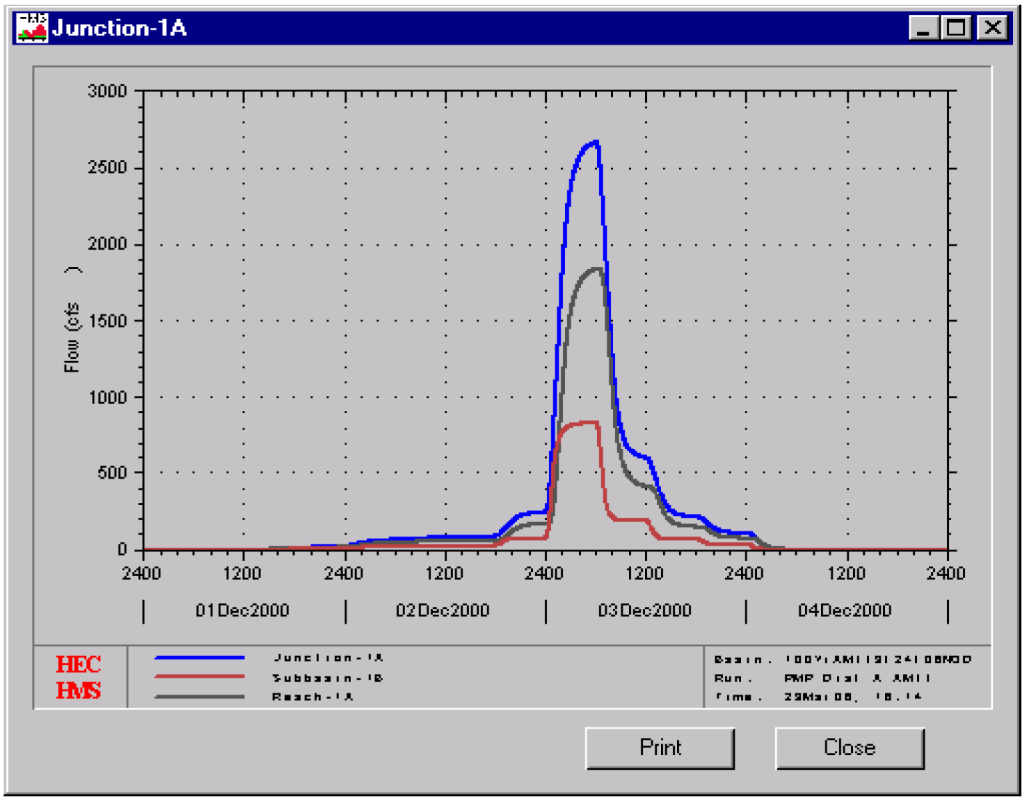
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



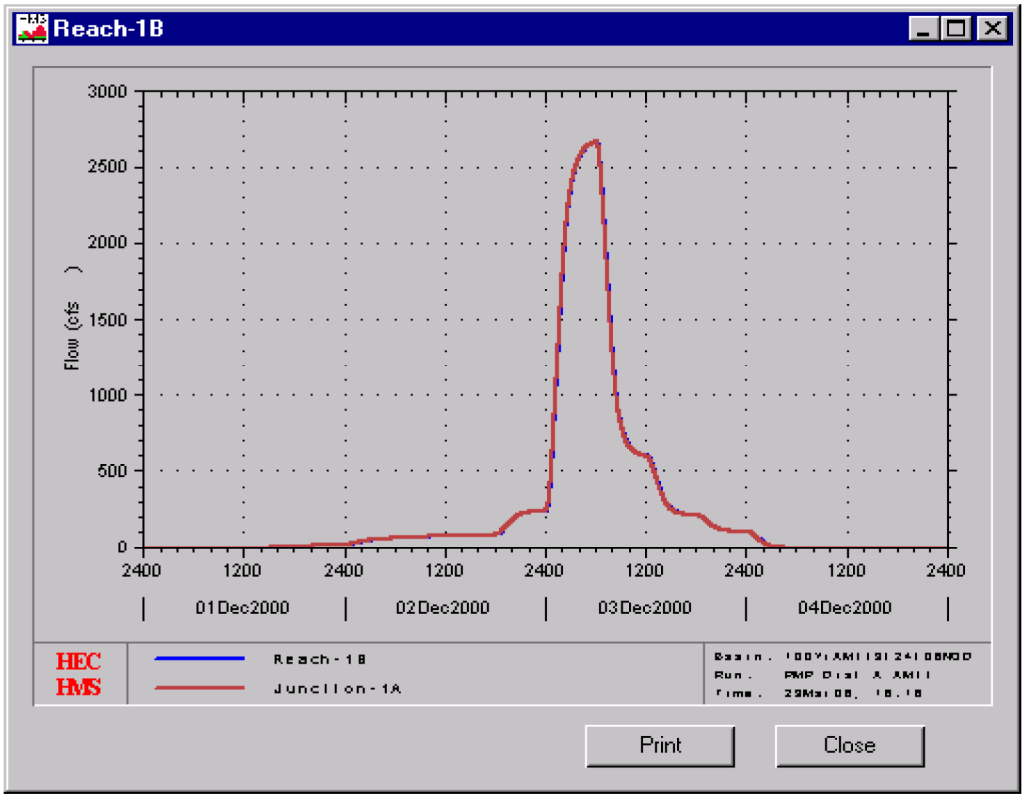


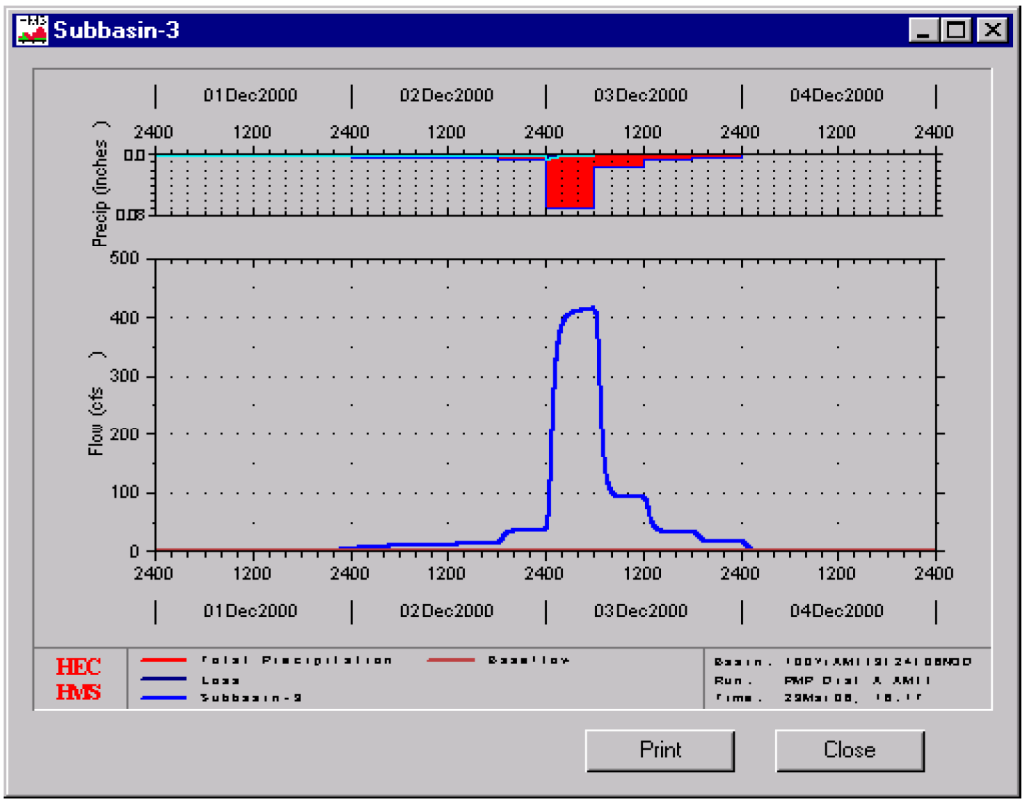
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



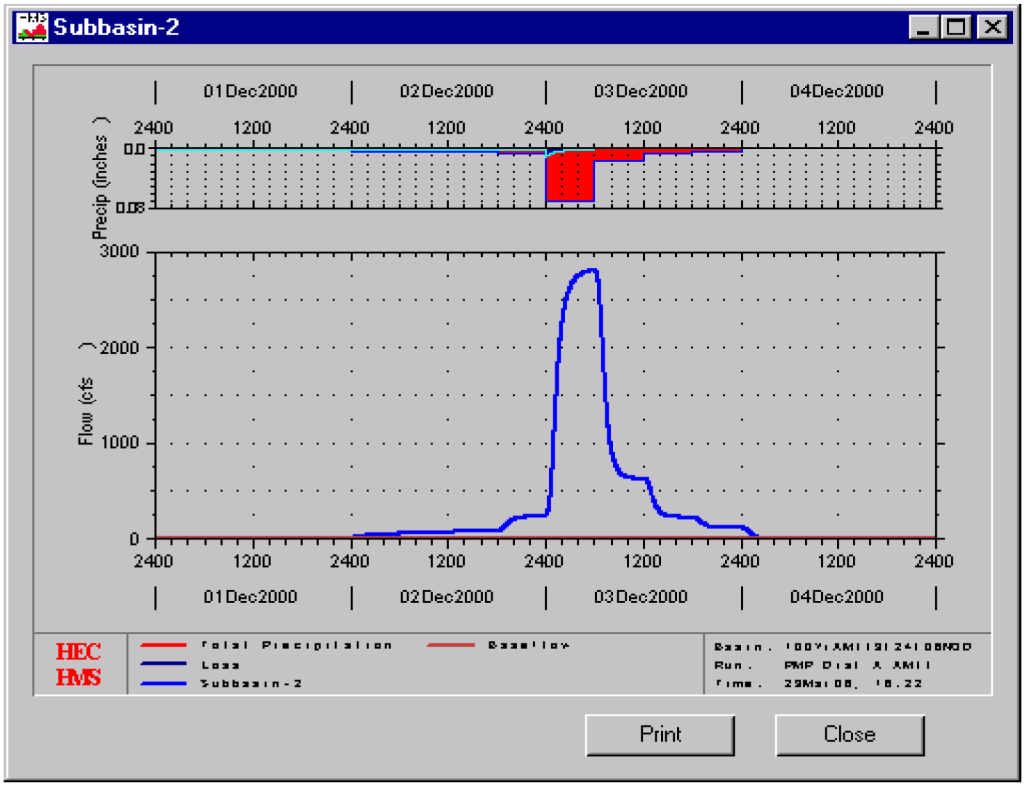


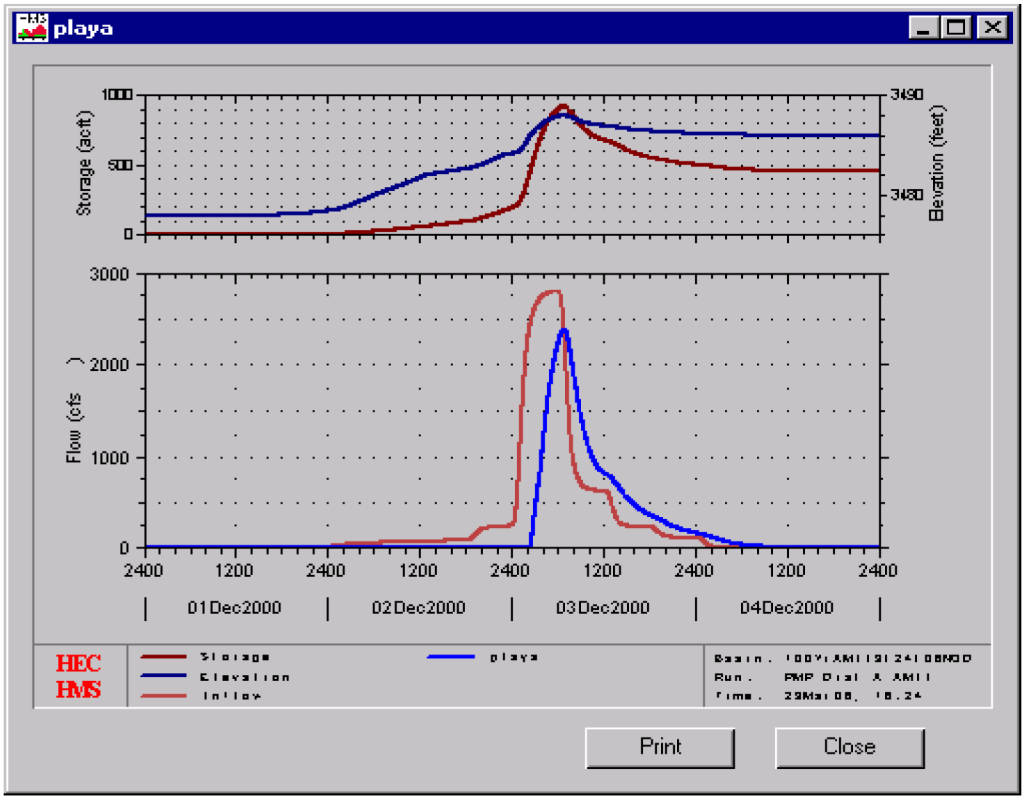
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



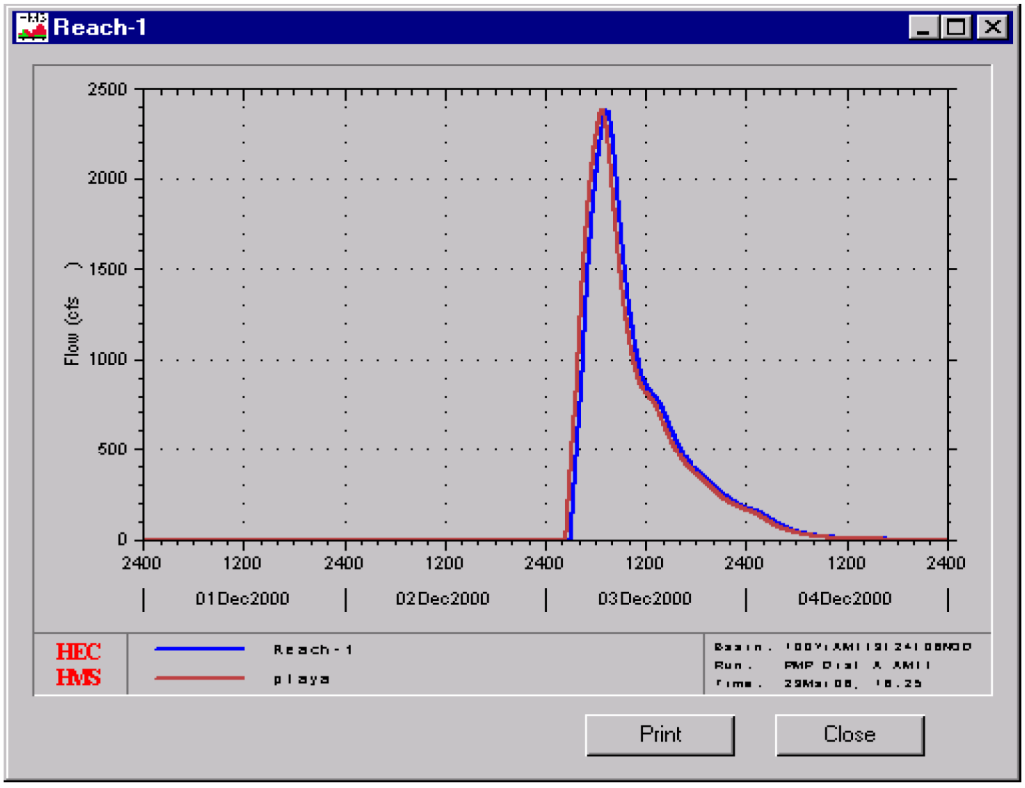


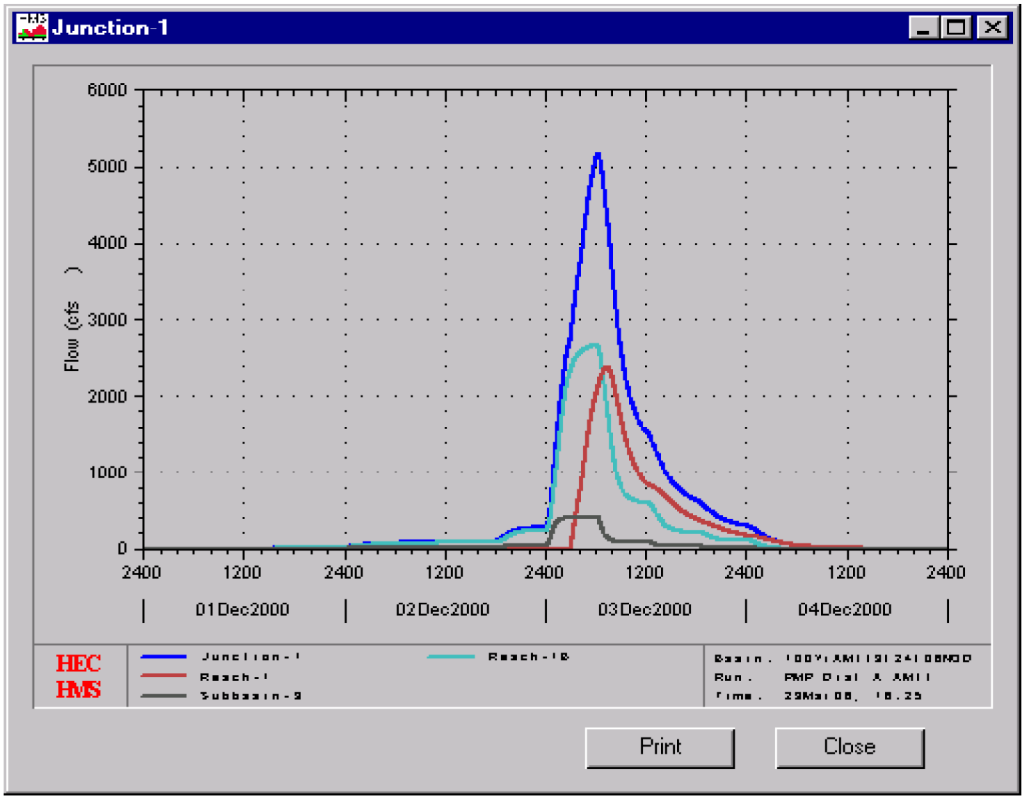
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



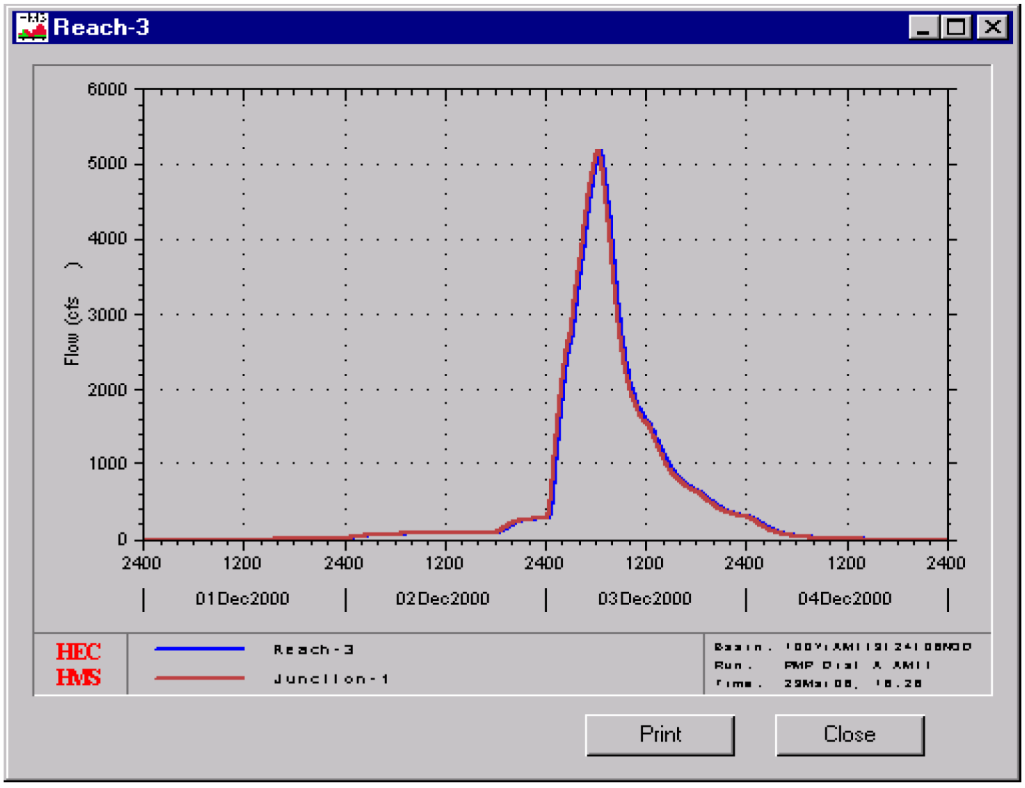


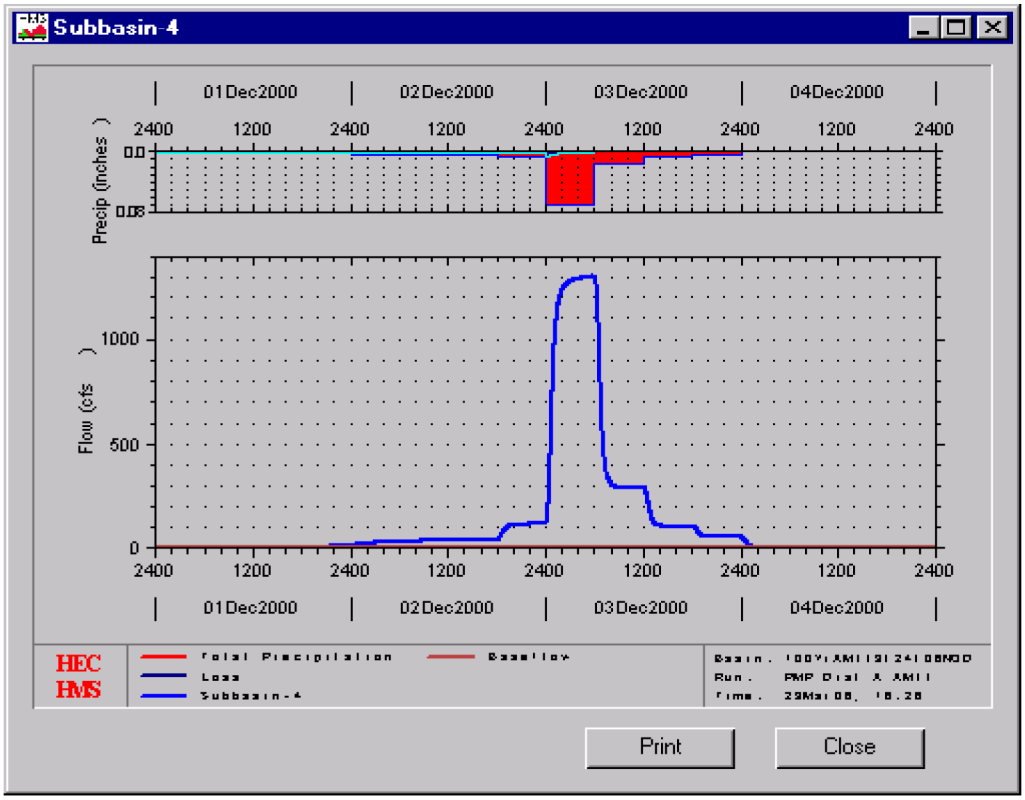
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



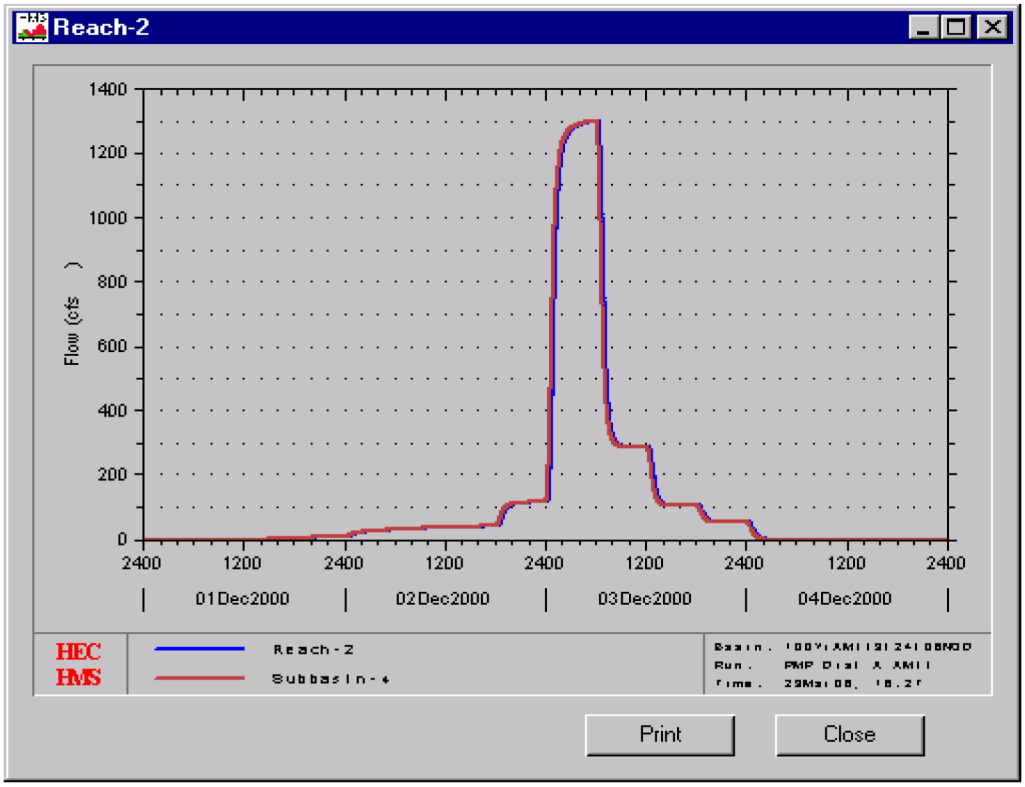


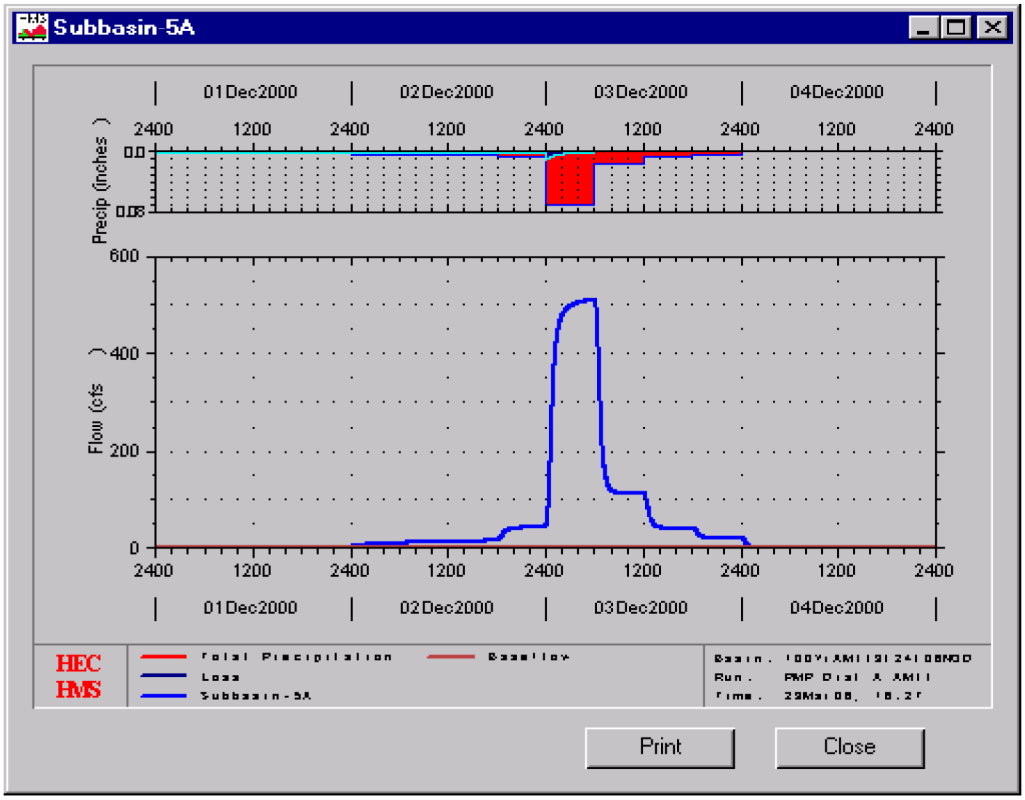
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



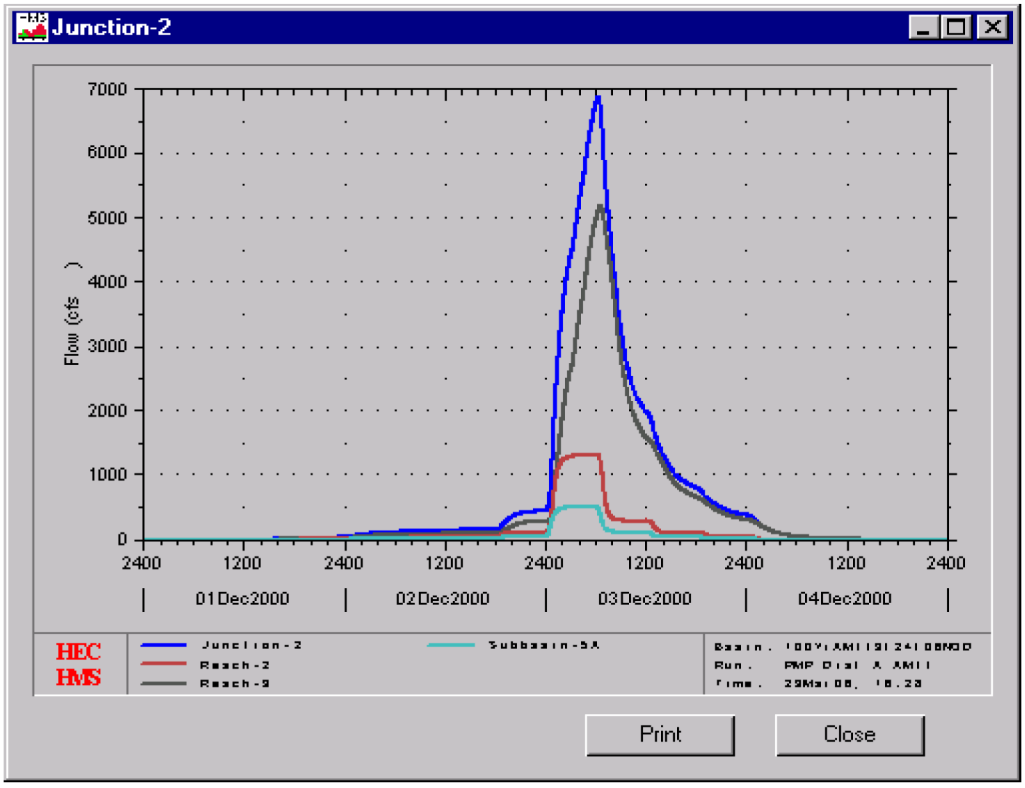


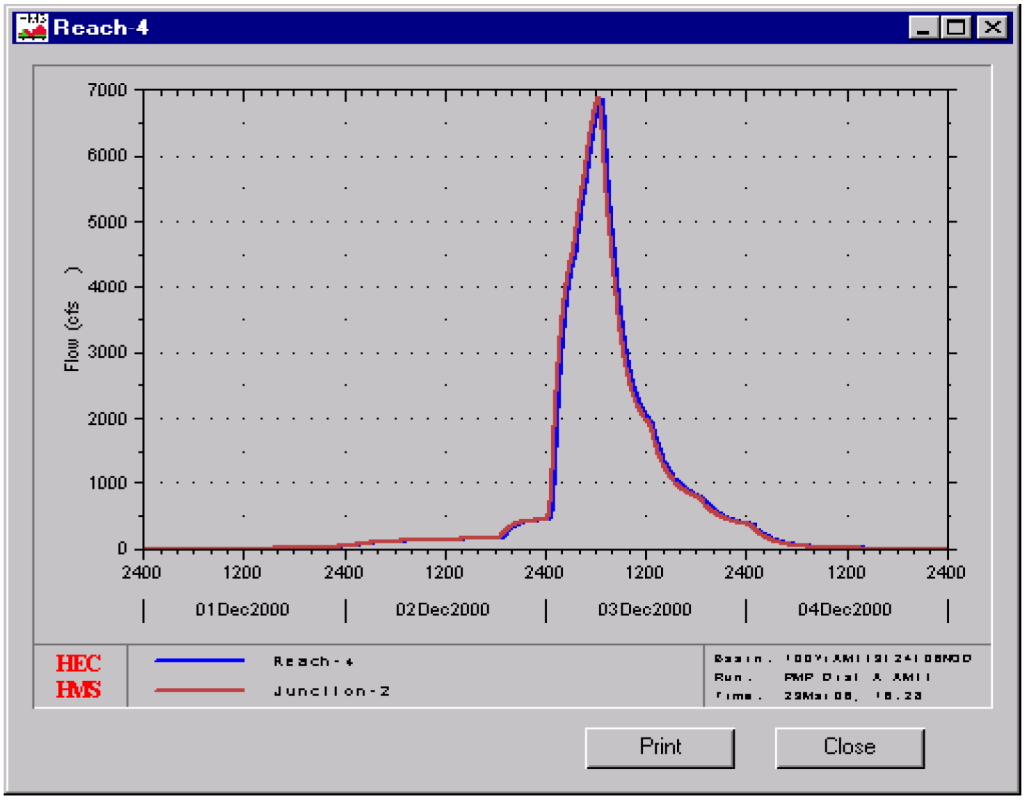
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



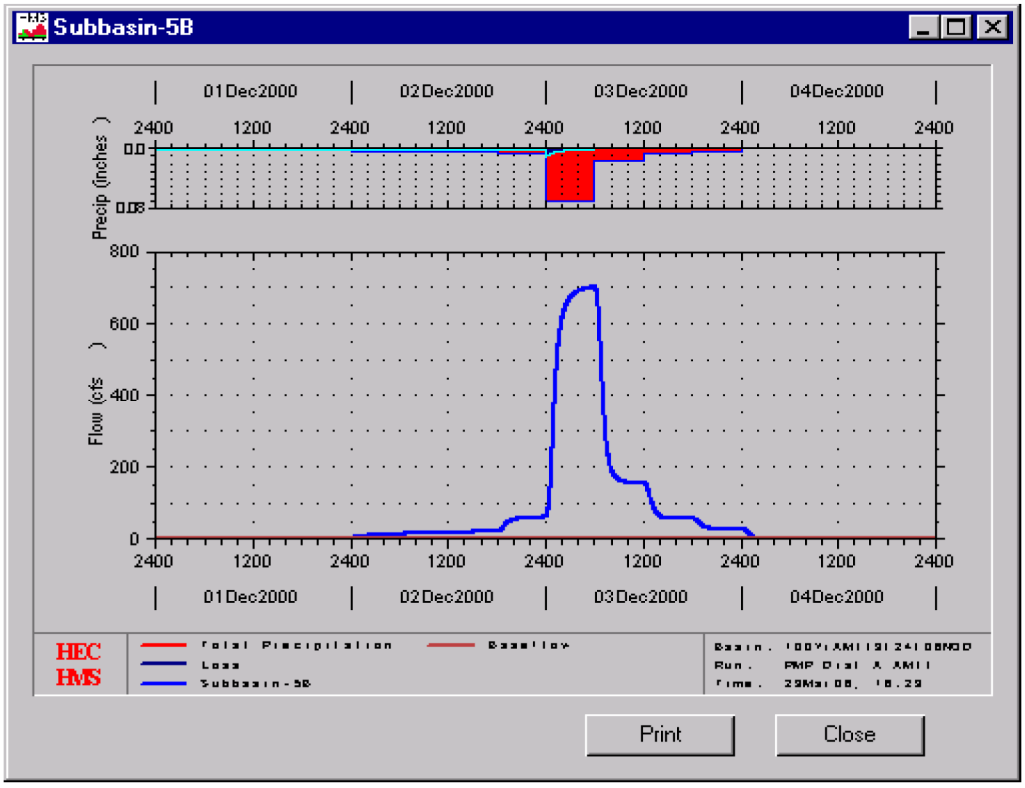


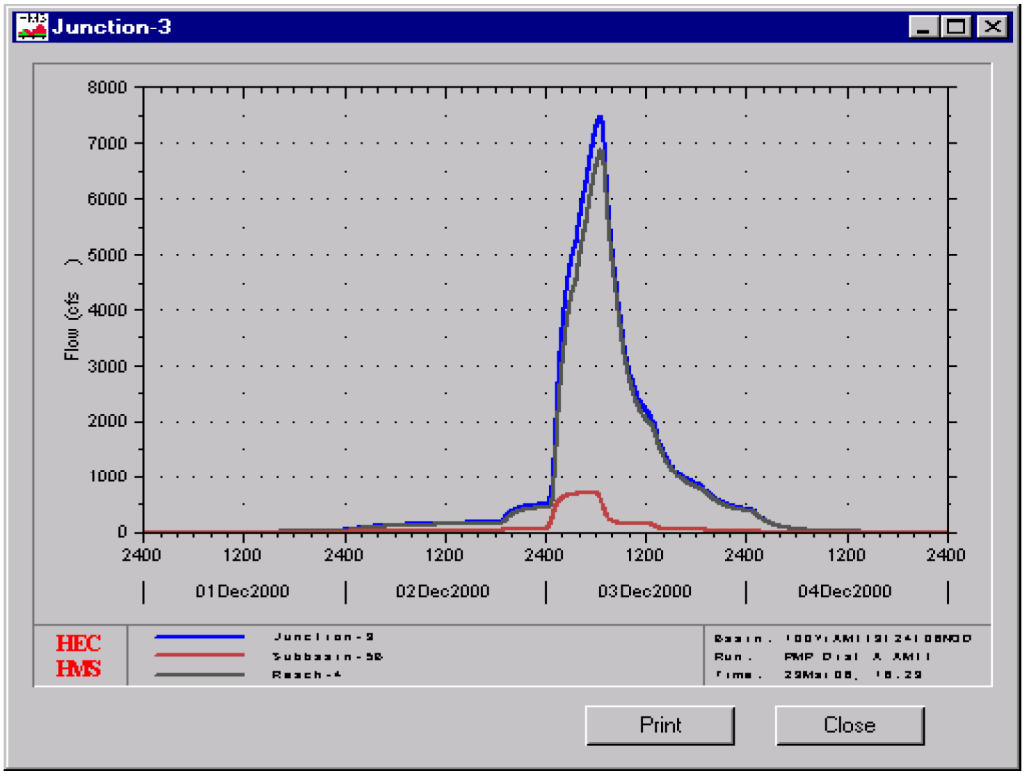
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



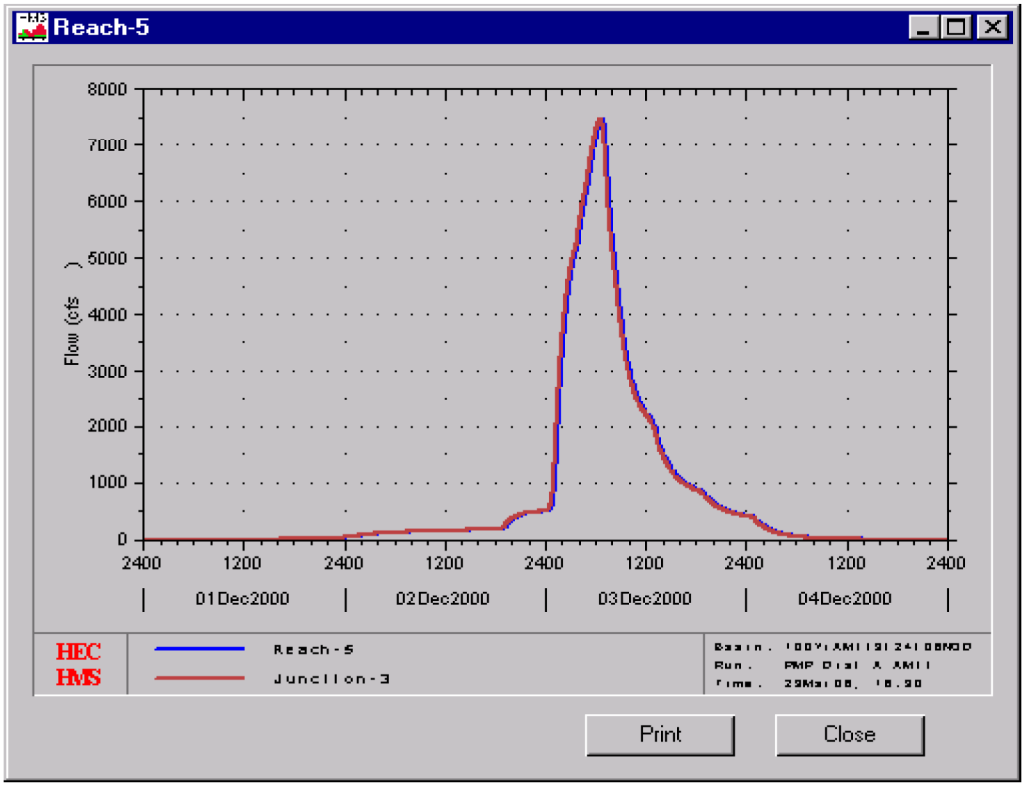


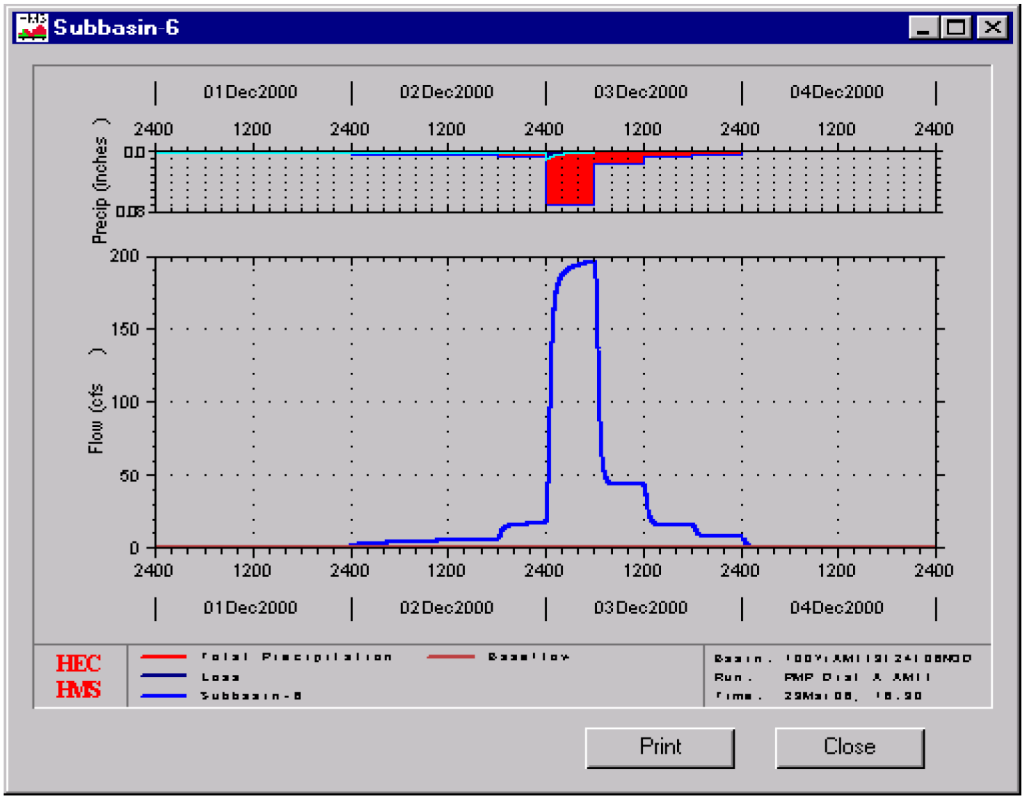
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



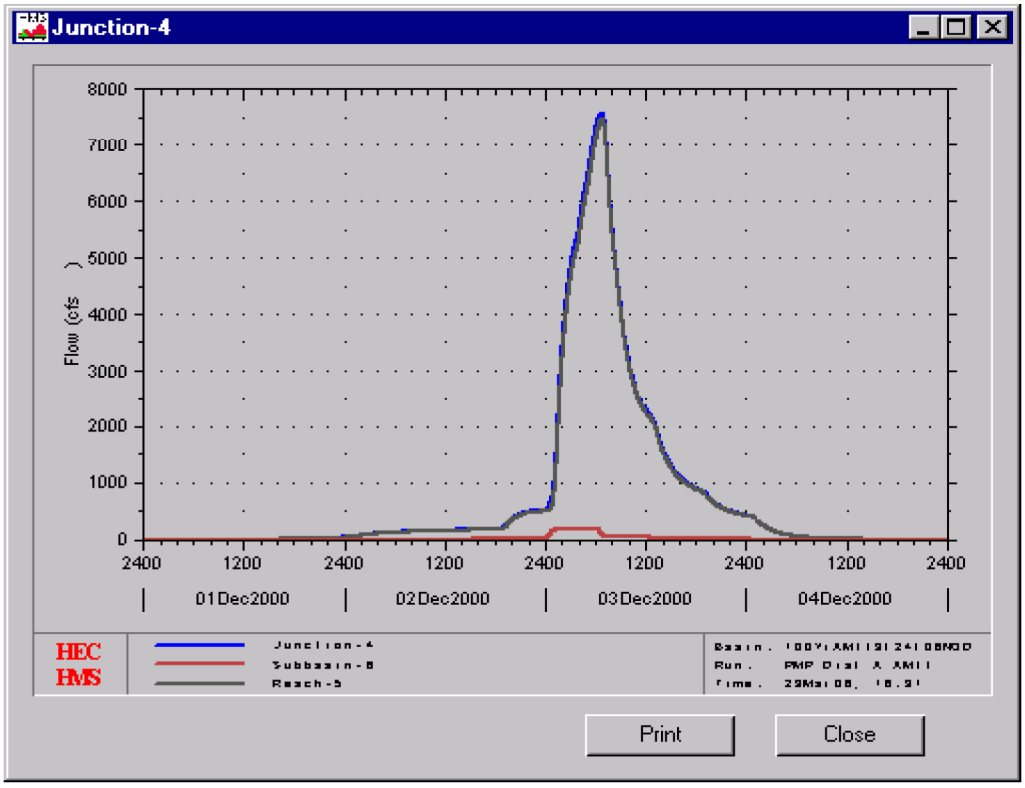


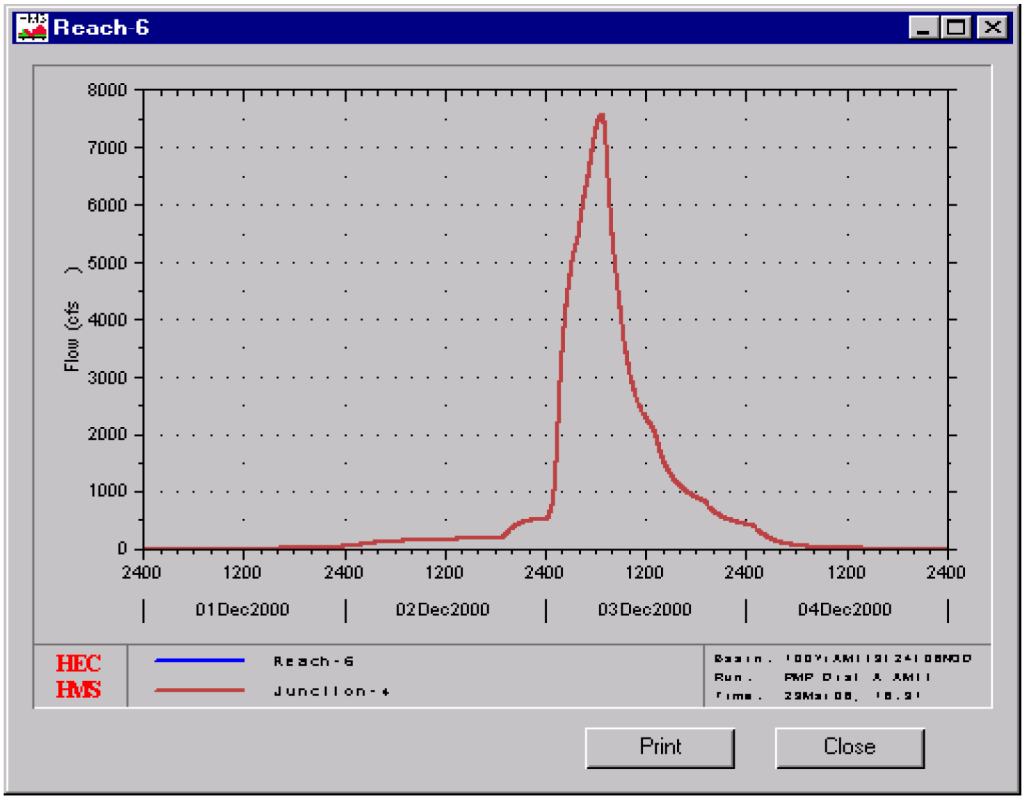
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



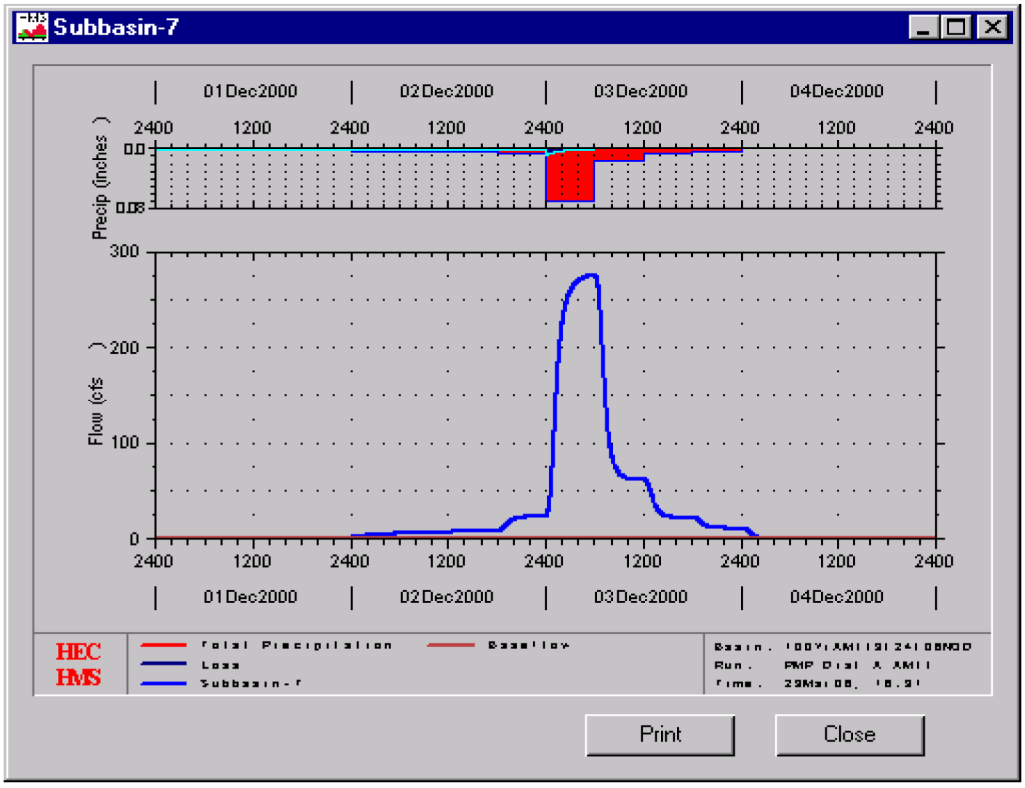


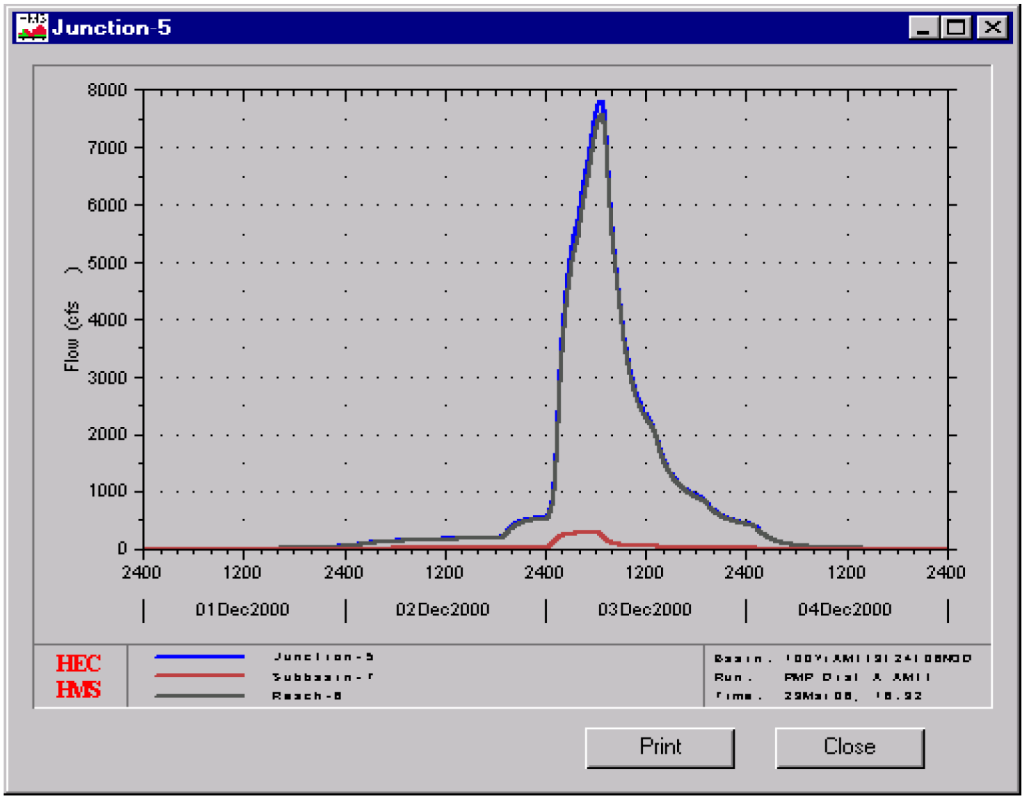
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS





WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS





APPENDIX P

HEC-RAS MODEL FOR THE CALCULATION OF THE 500-YEAR AND PMP WATER SURFACE PROFILES, ANTECEDENT MOISTURE CONDITION II

HEC-RAS Plan: PMP AMII River: Ditch A Reach: 5

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Max Chl Dpth	E.G. Elev	E.G. Slope	Vel Chnl	Sta W.S. Lft	Sta W.S. Rgt	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft)	(ft)	(sq ft)	(ft)	
5	12674	818.00	3477.00	3478.64	3478.18	1.64	3478.75	0.003030	2.70	335.19	675.33	317.98	340.14	0.45
5	12674	1833.00	3477.00	3479.26	3478.68	2.26	3479.45	0.003127	3.66	292.14	714.07	552.32	421.93	0.49
5	11337	818.00	3469.00	3470.67	3470.66	1.67	3471.20	0.013821	5.89	420.54	563.79	144.35	143.25	0.96
5	11337	1833.00	3469.00	3471.45	3471.45	2.45	3472.25	0.011178	7.43	403.86	579.69	268.14	175.84	0.94
5	10937	818.00	3464.00	3466.11	3465.94	2.11	3466.48	0.009957	4.88	460.77	613.23	167.94	152.46	0.81
5	10937	1833.00	3464.00	3466.73	3466.71	2.73	3467.44	0.012731	6.81	438.12	635.88	275.16	197.77	0.96
5	10288	818.00	3456.00	3457.15	3457.15	1.15	3457.41	0.020844	4.08	380.58	782.65	200.26	402.08	1.02
5	10288	1833.00	3456.00	3457.54	3457.52	1.54	3457.92	0.016736	4.94	342.63	816.81	370.76	474.18	0.99
5	9690	1032.00	3450.00	3451.81	3451.40	1.81	3451.94	0.004888	2.97	405.24	783.45	347.12	378.22	0.55
5	9690	2662.00	3450.00	3452.41	3452.06	2.41	3452.72	0.006092	4.45	344.33	819.07	606.88	474.74	0.66
5	9009	1032.00	3445.00	3446.77	3446.64	1.77	3447.04	0.011604	4.19	427.76	735.08	246.48	307.32	0.82
5	9009	2662.00	3445.00	3447.61		2.61	3447.94	0.008169	4.59	357.39	842.54	580.42	485.14	0.74
5	8130	1032.00	3440.00	3441.91	3441.38	1.91	3442.01	0.003348	2.56	429.84	843.28	402.94	413.44	0.48
5	8130	2662.00	3440.00	3442.51	3442.02	2.51	3442.76	0.004426	3.98	389.33	888.57	680.41	499.24	0.57
5	7717	1032.00	3437.80	3438.91	3438.91	1.11	3439.25	0.018684	4.70	314.92	643.43	219.43	328.51	1.01
5	7717	2662.00	3437.80	3439.69	3439.52	1.89	3440.08	0.010227	5.00	255.92	719.49	532.79	463.57	0.82
5	7253	1201.00	3435.00	3436.66	3436.07	1.66	3436.73	0.001800	2.11	389.96	938.71	581.61	548.75	0.35
5	7253	5170.00	3435.00	3437.80	3437.02	2.80	3438.08	0.003027	4.32	331.21	995.19	1273.39	663.98	0.50
5	6343	2315.00	3430.00	3430.98	3430.98	0.98	3431.38	0.017106	5.08	735.44	1303.66	455.52	568.22	1.00
5	6343	6871.00	3430.00	3431.88	3431.88	1.88	3432.58	0.012467	6.75	671.15	1507.86	1045.07	836.71	0.95
5	5383	2315.00	3425.00	3426.68	3426.03	1.68	3426.76	0.001829	2.32	670.94	1611.89	1038.55	934.95	0.36
5	5383	6871.00	3425.00	3427.67	3426.76	2.67	3427.86	0.002084	3.60	581.55	1811.11	2113.94	1229.57	0.42
5	4221	2625.00	3420.00	3421.33	3421.33	1.33	3421.75	0.016273	5.20	477.24	1125.37	511.99	648.13	0.99
5	4221	7467.00	3420.00	3422.16	3422.16	2.16	3422.78	0.013513	6.45	302.64	1333.85	1218.00	1031.21	0.97
5	3489	2625.00	3416.00	3417.51	3416.93	2.51	3417.59	0.002263	2.45	-120.59	896.35	1135.64	1016.94	0.39
5	3489	7467.00	3416.00	3418.39	3417.57	3.39	3418.60	0.002662	3.72	-135.46	947.57	2061.90	1083.03	0.46
5	2989	2625.00	3413.80	3414.77	3414.77	0.97	3415.18	0.018036	5.02	170.96	822.03	510.19	651.07	1.02
5	2989	7467.00	3413.80	3415.64	3415.55	1.84	3416.23	0.011451	6.54	-3.75	891.01	1223.92	894.76	0.92
5	2774	2625.00	3409.00	3414.27	3412.71	5.27	3414.34	0.000514	2.95	-413.72	652.44	1629.88	1066.16	0.23
5	2774	7467.00	3409.00	3415.13	3413.50	6.13	3415.31	0.001181	4.98	-439.10	688.51	2572.47	1127.60	0.37
5	2773	Culvert												
5	2734	2625.00	3408.90	3412.71	3412.71	3.81	3413.06	0.003071	5.64	83.74	515.65	665.51	431.91	0.54
5	2734	7467.00	3408.90	3413.64	3413.58	4.74	3414.57	0.006651	9.75	34.58	553.33	1107.66	518.75	0.83
5	1888	2659.00	3408.00	3409.62	3409.00	1.61	3409.72	0.002763	2.55	152.60	1085.55	1042.93	932.96	0.42
5	1888	7552.00	3408.00	3410.56		2.56	3410.76	0.002811	3.63	-245.29	1204.49	2169.43	1449.78	0.47
5	1060	2773.00	3402.70	3404.49	3404.49	1.79	3404.98	0.016639	5.60	616.07	1140.02	495.53	523.95	1.01
5	1060	7799.00	3402.70	3405.49	3405.49	2.79	3406.17	0.014796	6.60	468.88	1361.48	1181.30	892.60	1.01

HEC-RAS Version 3.0.1 Mar 2001
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: WCS
Project File : FloodPlain.prj
Run Date and Time: 3/30/06 9:08:03 AM

Project in English units

PLAN DATA

Plan Title: Plan 37
Plan File : D:\program files\WCS\FloodPlain.p37

Geometry Title: PMP1-20-04SecRemoved
Geometry File : D:\program files\WCS\FloodPlain.g04

Flow Title : pmp NOD AMII
Flow File : D:\program files\WCS\FloodPlain.f29

Plan Summary Information:
Number of: Cross Sections = 18 Mulitple Openings = 0
Culverts = 1 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: pmp NOD AMII
Flow File : D:\program files\WCS\FloodPlain.f29

Flow Data (cfs)

River	Reach	RS	PF 2	PF 3
Ditch A	5	12674	818	1833
Ditch A	5	9690	1032	2662
Ditch A	5	7253	1201	5170
Ditch A	5	6343	2315	6871
Ditch A	5	4221	2625	7467
Ditch A	5	1888	2659	7552
Ditch A	5	1060	2773	7799

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Ditch A	5	PF 2	Critical	Critical

GEOMETRY DATA

Geometry Title: PMP1-20-04SecRemoved
Geometry File : D:\program files\WCS\FloodPlain.g04

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 12674

INPUT
Description: Sta. 12674
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3482	380	3478	560	3477	635	3478	761	3480
964	3482								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	380	.033	635	.033

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

Left	Right	Left	Channel	Right	Coeff Contr.	Expan.
380	635	1206	1337	1433	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	3478.75	Element			
Vel Head (ft)	0.11	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3478.64	Reach Len. (ft)	1206.00	1337.00	1433.00
Crit W.S. (ft)	3478.18	Flow Area (sq ft)	14.34	290.73	12.91
E.G. Slope (ft/ft)	0.003030	Area (sq ft)	14.34	290.73	12.91
Q Total (cfs)	818.00	Flow (cfs)	16.63	786.40	14.97
Top Width (ft)	340.14	Top Width (ft)	44.81	255.00	40.33

Vel Total (ft/s)	2.57	Avg. Vel. (ft/s)	1.16	2.70	1.16
Max Chl Dpth (ft)	1.64	Hydr. Depth (ft)	0.32	1.14	0.32
Conv. Total (cfs)	14861.0	Conv. (cfs)	302.2	14286.9	271.9
Length Wtd. (ft)	1336.25	Wetted Per. (ft)	44.81	255.01	40.33
Min Ch El (ft)	3477.00	Shear (lb/sq ft)	0.06	0.22	0.06
Alpha	1.07	Stream Power (lb/ft s)	0.07	0.58	0.07
Frctn Loss (ft)	7.51	Cum Volume (acre-ft)	19.46	120.19	3.29
C & E Loss (ft)	0.04	Cum SA (acres)	21.78	116.76	5.62

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3479.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3479.26	Reach Len. (ft)	1206.00	1337.00	1433.00
Crit W.S. (ft)	3478.68	Flow Area (sq ft)	55.14	447.56	49.62
E.G. Slope (ft/ft)	0.003127	Area (sq ft)	55.14	447.56	49.62
Q Total (cfs)	1833.00	Flow (cfs)	101.76	1639.66	91.58
Top Width (ft)	421.93	Top Width (ft)	87.86	255.00	79.07
Vel Total (ft/s)	3.32	Avg. Vel. (ft/s)	1.85	3.66	1.85
Max Chl Dpth (ft)	2.26	Hydr. Depth (ft)	0.63	1.76	0.63
Conv. Total (cfs)	32779.3	Conv. (cfs)	1819.7	29321.9	1637.7
Length Wtd. (ft)	1334.83	Wetted Per. (ft)	87.87	255.01	79.08
Min Ch El (ft)	3477.00	Shear (lb/sq ft)	0.12	0.34	0.12
Alpha	1.12	Stream Power (lb/ft s)	0.23	1.26	0.23
Frctn Loss (ft)	7.14	Cum Volume (acre-ft)	45.36	229.55	13.10
C & E Loss (ft)	0.06	Cum SA (acres)	37.00	136.51	18.89

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for

additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 11337

INPUT
Description: Sta. 11337
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3477	315	3474	392	3472	435	3470	499	3469
550	3470	591	3472	694	3474				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	435	.033	550	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
435	550	545	400	332	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3471.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3470.67	Reach Len. (ft)	545.00	400.00	332.00
Crit W.S. (ft)	3470.66	Flow Area (sq ft)	4.86	134.85	4.64
E.G. Slope (ft/ft)	0.013821	Area (sq ft)	4.86	134.85	4.64
Q Total (cfs)	818.00	Flow (cfs)	12.44	793.70	11.86
Top Width (ft)	143.25	Top Width (ft)	14.46	115.00	13.79
Vel Total (ft/s)	5.67	Avg. Vel. (ft/s)	2.56	5.89	2.56
Max Chl Dpth (ft)	1.67	Hydr. Depth (ft)	0.34	1.17	0.34
Conv. Total (cfs)	6958.0	Conv. (cfs)	105.8	6751.3	100.9
Length Wtd. (ft)	400.60	Wetted Per. (ft)	14.48	115.02	13.80
Min Ch El (ft)	3469.00	Shear (lb/sq ft)	0.29	1.01	0.29
Alpha	1.05	Stream Power (lb/ft s)	0.74	5.95	0.74
Frctn Loss (ft)	4.67	Cum Volume (acre-ft)	19.19	113.66	3.00
C & E Loss (ft)	0.05	Cum SA (acres)	20.96	111.08	4.73

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	3472.25	Element			
Vel Head (ft)	0.80	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3471.45	Reach Len. (ft)	545.00	400.00	332.00
Crit W.S. (ft)	3471.45	Flow Area (sq ft)	22.55	224.08	21.51
E.G. Slope (ft/ft)	0.011178	Area (sq ft)	22.55	224.08	21.51
Q Total (cfs)	1833.00	Flow (cfs)	86.53	1663.97	82.50
Top Width (ft)	175.84	Top Width (ft)	31.14	115.00	29.69
Vel Total (ft/s)	6.84	Avg. Vel. (ft/s)	3.84	7.43	3.84
Max Chl Dpth (ft)	2.45	Hydr. Depth (ft)	0.72	1.95	0.72
Conv. Total (cfs)	17337.3	Conv. (cfs)	818.5	15738.5	780.3
Length Wtd. (ft)	401.42	Wetted Per. (ft)	31.18	115.02	29.73
Min Ch El (ft)	3469.00	Shear (lb/sq ft)	0.50	1.36	0.50
Alpha	1.10	Stream Power (lb/ft s)	1.94	10.10	1.94
Frctn Loss (ft)	4.78	Cum Volume (acre-ft)	44.28	219.24	11.93
C & E Loss (ft)	0.03	Cum SA (acres)	35.35	130.83	17.11

Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross
section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 10937

INPUT
Description: Sta. 10937
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3470	351	3468	428	3467	465	3466	536	3464
543	3464	609	3466	683	3468	811	3472		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	428	.033	609	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
428	609	729	649	445	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	3466.48	Element			
Vel Head (ft)	0.37	Wt. n-Val.		0.033	0.033
W.S. Elev (ft)	3466.11	Reach Len. (ft)	729.00	649.00	445.00

Crit W.S. (ft)	3465.94	Flow Area (sq ft)		167.69	0.24
E.G. Slope (ft/ft)	0.009957	Area (sq ft)		167.69	0.24
Q Total (cfs)	818.00	Flow (cfs)		817.84	0.16
Top Width (ft)	152.46	Top Width (ft)		148.23	4.23
Vel Total (ft/s)	4.87	Avg. Vel. (ft/s)		4.88	0.67
Max Chl Dpth (ft)	2.11	Hydr. Depth (ft)		1.13	0.06
Conv. Total (cfs)	8197.8	Conv. (cfs)		8196.2	1.6
Length Wtd. (ft)	648.98	Wetted Per. (ft)		148.29	4.23
Min Ch El (ft)	3464.00	Shear (lb/sq ft)		0.70	0.04
Alpha	1.00	Stream Power (lb/ft s)		3.43	0.02
Frctn Loss (ft)	9.04	Cum Volume (acre-ft)	19.16	112.27	2.98
C & E Loss (ft)	0.03	Cum SA (acres)	20.87	109.87	4.67

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3467.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.71	Wt. n-Val.		0.033	0.033
W.S. Elev (ft)	3466.73	Reach Len. (ft)	729.00	649.00	445.00
Crit W.S. (ft)	3466.71	Flow Area (sq ft)		265.39	9.77
E.G. Slope (ft/ft)	0.012731	Area (sq ft)		265.39	9.77
Q Total (cfs)	1833.00	Flow (cfs)		1807.75	25.26
Top Width (ft)	197.77	Top Width (ft)		170.88	26.88
Vel Total (ft/s)	6.66	Avg. Vel. (ft/s)		6.81	2.59
Max Chl Dpth (ft)	2.73	Hydr. Depth (ft)		1.55	0.36
Conv. Total (cfs)	16245.6	Conv. (cfs)		16021.8	223.8
Length Wtd. (ft)	647.59	Wetted Per. (ft)		170.95	26.89
Min Ch El (ft)	3464.00	Shear (lb/sq ft)		1.23	0.29
Alpha	1.03	Stream Power (lb/ft s)		8.40	0.75
Frctn Loss (ft)	9.41	Cum Volume (acre-ft)	44.14	217.00	11.81

C & E Loss (ft)	0.10	Cum SA (acres)	35.16	129.52	16.89

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 10288

INPUT
Description: Sta. 10288
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3464	177	3462	238	3460	298	3458	493	3456
519	3456	662	3457	778	3457.1	857	3458	903	3460
947	3462	989	3464						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	298	.033	857	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
298	857	552	598	633	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3457.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.033	
W.S. Elev (ft)	3457.15	Reach Len. (ft)	552.00	598.00	633.00
Crit W.S. (ft)	3457.15	Flow Area (sq ft)		200.26	
E.G. Slope (ft/ft)	0.020844	Area (sq ft)		200.26	
Q Total (cfs)	818.00	Flow (cfs)		818.00	
Top Width (ft)	402.08	Top Width (ft)		402.08	
Vel Total (ft/s)	4.08	Avg. Vel. (ft/s)		4.08	
Max Chl Dpth (ft)	1.15	Hydr. Depth (ft)		0.50	
Conv. Total (cfs)	5665.8	Conv. (cfs)		5665.8	
Length Wtd. (ft)	598.00	Wetted Per. (ft)		402.09	
Min Ch El (ft)	3456.00	Shear (lb/sq ft)		0.65	
Alpha	1.00	Stream Power (lb/ft s)		2.65	
Frctn Loss (ft)	4.91	Cum Volume (acre-ft)	19.16	109.53	2.98
C & E Loss (ft)	0.04	Cum SA (acres)	20.87	105.78	4.64

Warning: The energy equation could not be balanced within the specified number of iterations.

The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3457.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.033	
W.S. Elev (ft)	3457.54	Reach Len. (ft)	552.00	598.00	633.00
Crit W.S. (ft)	3457.52	Flow Area (sq ft)		370.76	
E.G. Slope (ft/ft)	0.016736	Area (sq ft)		370.76	
Q Total (cfs)	1833.00	Flow (cfs)		1833.00	
Top Width (ft)	474.18	Top Width (ft)		474.18	
Vel Total (ft/s)	4.94	Avg. Vel. (ft/s)		4.94	
Max Chl Dpth (ft)	1.54	Hydr. Depth (ft)		0.78	
Conv. Total (cfs)	14169.0	Conv. (cfs)		14169.0	
Length Wtd. (ft)	597.95	Wetted Per. (ft)		474.20	
Min Ch El (ft)	3456.00	Shear (lb/sq ft)		0.82	
Alpha	1.00	Stream Power (lb/ft s)		4.04	
Frctn Loss (ft)	5.18	Cum Volume (acre-ft)	44.14	212.26	11.76
C & E Loss (ft)	0.02	Cum SA (acres)	35.16	124.71	16.75

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 9690

INPUT
Description: Sta. 9690
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3454.5	202	3454	381	3452	632	3450	638	3450
799	3452	897	3454	1010	3458				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	381	.033	799	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
381	799	639	681	658	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3451.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.033	
W.S. Elev (ft)	3451.81	Reach Len. (ft)	639.00	681.00	658.00
Crit W.S. (ft)	3451.40	Flow Area (sq ft)		347.12	
E.G. Slope (ft/ft)	0.004888	Area (sq ft)		347.12	
Q Total (cfs)	1032.00	Flow (cfs)		1032.00	
Top Width (ft)	378.22	Top Width (ft)		378.22	
Vel Total (ft/s)	2.97	Avg. Vel. (ft/s)		2.97	
Max Chl Dpth (ft)	1.81	Hydr. Depth (ft)		0.92	
Conv. Total (cfs)	14760.6	Conv. (cfs)		14760.6	
Length Wtd. (ft)	681.00	Wetted Per. (ft)		378.24	
Min Ch El (ft)	3450.00	Shear (lb/sq ft)		0.28	
Alpha	1.00	Stream Power (lb/ft s)		0.83	
Frctn Loss (ft)	4.90	Cum Volume (acre-ft)	19.16	105.77	2.98
C & E Loss (ft)	0.01	Cum SA (acres)	20.87	100.42	4.64

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3452.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3452.41	Reach Len. (ft)	639.00	681.00	658.00
Crit W.S. (ft)	3452.06	Flow Area (sq ft)	7.51	595.24	4.11

E.G. Slope (ft/ft)	0.006092	Area (sq ft)	7.51	595.24	4.11
Q Total (cfs)	2662.00	Flow (cfs)	9.17	2647.81	5.02
Top Width (ft)	474.74	Top Width (ft)	36.67	418.00	20.07
Vel Total (ft/s)	4.39	Avg. Vel. (ft/s)	1.22	4.45	1.22
Max Chl Dpth (ft)	2.41	Hydr. Depth (ft)	0.20	1.42	0.20
Conv. Total (cfs)	34105.6	Conv. (cfs)	117.5	33923.8	64.3
Length Wtd. (ft)	680.91	Wetted Per. (ft)	36.67	418.02	20.08
Min Ch El (ft)	3450.00	Shear (lb/sq ft)	0.08	0.54	0.08
Alpha	1.02	Stream Power (lb/ft s)	0.10	2.41	0.10
Frctn Loss (ft)	4.78	Cum Volume (acre-ft)	44.10	205.63	11.73
C & E Loss (ft)	0.00	Cum SA (acres)	34.92	118.59	16.61

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 9009

INPUT
Description: Sta. 9009
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3452	203	3450	325	3448	492	3446	596	3445
637	3446	892	3448	1007	3450	1124	3452		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	325	.033	892	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
325	892	898	879	794	.1 .3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3447.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.033	
W.S. Elev (ft)	3446.77	Reach Len. (ft)	898.00	879.00	794.00
Crit W.S. (ft)	3446.64	Flow Area (sq ft)		246.48	
E.G. Slope (ft/ft)	0.011604	Area (sq ft)		246.48	
Q Total (cfs)	1032.00	Flow (cfs)		1032.00	
Top Width (ft)	307.32	Top Width (ft)		307.32	
Vel Total (ft/s)	4.19	Avg. Vel. (ft/s)		4.19	

Max Chl Dpth (ft)	1.77	Hydr. Depth (ft)		0.80	
Conv. Total (cfs)	9580.2	Conv. (cfs)		9580.2	
Length Wtd. (ft)	879.00	Wetted Per. (ft)		307.34	
Min Ch El (ft)	3445.00	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.43	
Frctn Loss (ft)	4.98	Cum Volume (acre-ft)	19.16	101.13	2.98
C & E Loss (ft)	0.05	Cum SA (acres)	20.87	95.06	4.64

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3447.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.		0.033	
W.S. Elev (ft)	3447.61	Reach Len. (ft)	898.00	879.00	794.00
Crit W.S. (ft)		Flow Area (sq ft)		580.42	
E.G. Slope (ft/ft)	0.008169	Area (sq ft)		580.42	
Q Total (cfs)	2662.00	Flow (cfs)		2662.00	
Top Width (ft)	485.14	Top Width (ft)		485.14	
Vel Total (ft/s)	4.59	Avg. Vel. (ft/s)		4.59	
Max Chl Dpth (ft)	2.61	Hydr. Depth (ft)		1.20	
Conv. Total (cfs)	29451.9	Conv. (cfs)		29451.9	
Length Wtd. (ft)	878.85	Wetted Per. (ft)		485.18	
Min Ch El (ft)	3445.00	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		2.80	
Frctn Loss (ft)	5.16	Cum Volume (acre-ft)	44.04	196.44	11.70
C & E Loss (ft)	0.02	Cum SA (acres)	34.66	111.53	16.46

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A

REACH: 5 RS: 8130

INPUT
Description: Sta. 8130
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3448	303	3444	419	3442	654	3440	663	3440
852	3442	995	3444	1104	3446				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	419	.033	852	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
419	852	399	413	456	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	3442.01	Element			
Vel Head (ft)	0.10	Wt. n-Val.		0.033	
W.S. Elev (ft)	3441.91	Reach Len. (ft)	399.00	413.00	456.00
Crit W.S. (ft)	3441.38	Flow Area (sq ft)		402.94	
E.G. Slope (ft/ft)	0.003348	Area (sq ft)		402.94	
Q Total (cfs)	1032.00	Flow (cfs)		1032.00	
Top Width (ft)	413.44	Top Width (ft)		413.44	
Vel Total (ft/s)	2.56	Avg. Vel. (ft/s)		2.56	
Max Chl Dpth (ft)	1.91	Hydr. Depth (ft)		0.97	
Conv. Total (cfs)	17834.9	Conv. (cfs)		17834.9	
Length Wtd. (ft)	413.00	Wetted Per. (ft)		413.45	
Min Ch El (ft)	3440.00	Shear (lb/sq ft)		0.20	
Alpha	1.00	Stream Power (lb/ft s)		0.52	
Frctn Loss (ft)	2.73	Cum Volume (acre-ft)	19.16	94.58	2.98
C & E Loss (ft)	0.02	Cum SA (acres)	20.87	87.79	4.64

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	3442.76	Element			
Vel Head (ft)	0.24	Wt. n-Val.	0.033	0.033	0.033

W.S. Elev (ft)	3442.51	Reach Len. (ft)	399.00	413.00	456.00
Crit W.S. (ft)	3442.02	Flow Area (sq ft)	7.59	663.47	9.35
E.G. Slope (ft/ft)	0.004426	Area (sq ft)	7.59	663.47	9.35
Q Total (cfs)	2662.00	Flow (cfs)	9.16	2641.56	11.29
Top Width (ft)	499.24	Top Width (ft)	29.67	433.00	36.57
Vel Total (ft/s)	3.91	Avg. Vel. (ft/s)	1.21	3.98	1.21
Max Chl Dpth (ft)	2.51	Hydr. Depth (ft)	0.26	1.53	0.26
Conv. Total (cfs)	40012.1	Conv. (cfs)	137.6	39704.9	169.7
Length Wtd. (ft)	413.07	Wetted Per. (ft)	29.67	433.02	36.57
Min Ch El (ft)	3440.00	Shear (lb/sq ft)	0.07	0.42	0.07
Alpha	1.03	Stream Power (lb/ft s)	0.09	1.69	0.09
Frctn Loss (ft)	2.66	Cum Volume (acre-ft)	43.96	183.89	11.61
C & E Loss (ft)	0.01	Cum SA (acres)	34.35	102.27	16.12

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 7717

INPUT
Description: Sta 7717
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3442	233	3440	383	3438	492	3437.8	510	3438
657	3439	747	3440	879	3442				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	233	.033	747	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
233	747	444	464	510	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3439.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.033	
W.S. Elev (ft)	3438.91	Reach Len. (ft)	444.00	464.00	510.00
Crit W.S. (ft)	3438.91	Flow Area (sq ft)		219.43	

E.G. Slope (ft/ft)	0.018684	Area (sq ft)		219.43	
Q Total (cfs)	1032.00	Flow (cfs)		1032.00	
Top Width (ft)	328.51	Top Width (ft)		328.51	
Vel Total (ft/s)	4.70	Avg. Vel. (ft/s)		4.70	
Max Chl Dpth (ft)	1.11	Hydr. Depth (ft)		0.67	
Conv. Total (cfs)	7550.0	Conv. (cfs)		7550.0	
Length Wtd. (ft)	464.11	Wetted Per. (ft)		328.52	
Min Ch El (ft)	3437.80	Shear (lb/sq ft)		0.78	
Alpha	1.00	Stream Power (lb/ft s)		3.66	
Frctn Loss (ft)	1.80	Cum Volume (acre-ft)	19.16	91.63	2.98
C & E Loss (ft)	0.08	Cum SA (acres)	20.87	84.27	4.64

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3440.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.		0.033	
W.S. Elev (ft)	3439.69	Reach Len. (ft)	444.00	464.00	510.00
Crit W.S. (ft)	3439.52	Flow Area (sq ft)		532.79	
E.G. Slope (ft/ft)	0.010227	Area (sq ft)		532.79	
Q Total (cfs)	2662.00	Flow (cfs)		2662.00	
Top Width (ft)	463.57	Top Width (ft)		463.57	
Vel Total (ft/s)	5.00	Avg. Vel. (ft/s)		5.00	
Max Chl Dpth (ft)	1.89	Hydr. Depth (ft)		1.15	
Conv. Total (cfs)	26322.5	Conv. (cfs)		26322.5	

Length Wtd. (ft)	464.60	Wetted Per. (ft)		463.59	
Min Ch El (ft)	3437.80	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		3.67	
Frctn Loss (ft)	1.97	Cum Volume (acre-ft)	43.93	178.22	11.57
C & E Loss (ft)	0.03	Cum SA (acres)	34.21	98.02	15.93

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 7253

INPUT
Description: Sta. 7253
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3438	109	3438.7	321	3438	424	3436	668	3435
906	3436	1005	3438	1200	3440	1365	3442		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	424	.033	906	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
424	906	756	910	980	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3436.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3436.66	Reach Len. (ft)	756.00	910.00	980.00
Crit W.S. (ft)	3436.07	Flow Area (sq ft)	11.25	559.55	10.81
E.G. Slope (ft/ft)	0.001800	Area (sq ft)	11.25	559.55	10.81
Q Total (cfs)	1201.00	Flow (cfs)	10.27	1180.86	9.87
Top Width (ft)	548.75	Top Width (ft)	34.04	482.00	32.71
Vel Total (ft/s)	2.06	Avg. Vel. (ft/s)	0.91	2.11	0.91
Max Chl Dpth (ft)	1.66	Hydr. Depth (ft)	0.33	1.16	0.33
Conv. Total (cfs)	28304.5	Conv. (cfs)	242.0	27829.8	232.6
Length Wtd. (ft)	909.75	Wetted Per. (ft)	34.04	482.00	32.72
Min Ch El (ft)	3435.00	Shear (lb/sq ft)	0.04	0.13	0.04
Alpha	1.03	Stream Power (lb/ft s)	0.03	0.28	0.03

Frctn Loss (ft)	5.31	Cum Volume (acre-ft)	19.11	87.48	2.92
C & E Loss (ft)	0.03	Cum SA (acres)	20.69	79.95	4.45

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3438.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3437.80	Reach Len. (ft)	756.00	910.00	980.00
Crit W.S. (ft)	3437.02	Flow Area (sq ft)	83.59	1109.45	80.35
E.G. Slope (ft/ft)	0.003027	Area (sq ft)	83.59	1109.45	80.35
Q Total (cfs)	5170.00	Flow (cfs)	193.14	4791.23	185.63
Top Width (ft)	663.98	Top Width (ft)	92.79	482.00	89.19
Vel Total (ft/s)	4.06	Avg. Vel. (ft/s)	2.31	4.32	2.31
Max Chl Dpth (ft)	2.80	Hydr. Depth (ft)	0.90	2.30	0.90
Conv. Total (cfs)	93972.8	Conv. (cfs)	3510.5	87088.0	3374.2
Length Wtd. (ft)	908.96	Wetted Per. (ft)	92.81	482.00	89.21
Min Ch El (ft)	3435.00	Shear (lb/sq ft)	0.17	0.43	0.17
Alpha	1.07	Stream Power (lb/ft s)	0.39	1.88	0.39
Frctn Loss (ft)	5.45	Cum Volume (acre-ft)	43.50	169.47	11.10
C & E Loss (ft)	0.04	Cum SA (acres)	33.74	92.98	15.41

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 6343

INPUT
Description: Sta. 6343
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

100	3434	346	3433	663	3432	732	3431	860	3430.2
981	3430	1273	3430	1320	3431.5	1566	3432		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	663	.033	1320	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
663	1320	767	980 1051	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	3431.38	Element			
Vel Head (ft)	0.40	Wt. n-Val.		0.033	
W.S. Elev (ft)	3430.98	Reach Len. (ft)	767.00	980.00	1051.00
Crit W.S. (ft)	3430.98	Flow Area (sq ft)		455.52	
E.G. Slope (ft/ft)	0.017106	Area (sq ft)		455.52	
Q Total (cfs)	2315.00	Flow (cfs)		2315.00	
Top Width (ft)	568.22	Top Width (ft)		568.22	
Vel Total (ft/s)	5.08	Avg. Vel. (ft/s)		5.08	
Max Chl Dpth (ft)	0.98	Hydr. Depth (ft)		0.80	
Conv. Total (cfs)	17700.0	Conv. (cfs)		17700.0	
Length Wtd. (ft)	979.71	Wetted Per. (ft)		568.24	
Min Ch El (ft)	3430.00	Shear (lb/sq ft)		0.86	
Alpha	1.00	Stream Power (lb/ft s)		4.35	
Frctn Loss (ft)	4.07	Cum Volume (acre-ft)	19.01	76.87	2.80
C & E Loss (ft)	0.10	Cum SA (acres)	20.40	68.98	4.08

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3432.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.		0.033	0.033
W.S. Elev (ft)	3431.88	Reach Len. (ft)	767.00	980.00	1051.00
Crit W.S. (ft)	3431.88	Flow Area (sq ft)		1009.20	35.87
E.G. Slope (ft/ft)	0.012467	Area (sq ft)		1009.20	35.87
Q Total (cfs)	6871.00	Flow (cfs)		6811.21	59.79
Top Width (ft)	836.71	Top Width (ft)		648.85	187.86
Vel Total (ft/s)	6.57	Avg. Vel. (ft/s)		6.75	1.67
Max Chl Dpth (ft)	1.88	Hydr. Depth (ft)		1.56	0.19
Conv. Total (cfs)	61536.4	Conv. (cfs)		61001.0	535.5
Length Wtd. (ft)	979.16	Wetted Per. (ft)		648.88	187.86
Min Ch El (ft)	3430.00	Shear (lb/sq ft)		1.21	0.15
Alpha	1.05	Stream Power (lb/ft s)		8.17	0.25
Frctn Loss (ft)	4.11	Cum Volume (acre-ft)	42.78	147.34	9.79
C & E Loss (ft)	0.16	Cum SA (acres)	32.94	81.17	12.29

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 5363

INPUT
Description: Sta. 5363
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3432	282	3430	550	3428	742	3426	885	3425
1097	3425	1476	3426	1877	3428	1966	3428	2160	3430

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	742	.033	1476	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
742	1476	1199	1142	713	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	3426.76	Element			
Vel Head (ft)	0.08	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3426.68	Reach Len. (ft)	1199.00	1142.00	713.00
Crit W.S. (ft)	3426.03	Flow Area (sq ft)	22.05	970.46	46.05
E.G. Slope (ft/ft)	0.001829	Area (sq ft)	22.05	970.46	46.05
Q Total (cfs)	2315.00	Flow (cfs)	20.64	2251.26	43.10
Top Width (ft)	934.95	Top Width (ft)	65.06	734.00	135.89
Vel Total (ft/s)	2.23	Avg. Vel. (ft/s)	0.94	2.32	0.94
Max Chl Dpth (ft)	1.68	Hydr. Depth (ft)	0.34	1.32	0.34
Conv. Total (cfs)	54129.5	Conv. (cfs)	482.5	52639.2	1007.8
Length Wtd. (ft)	1138.71	Wetted Per. (ft)	65.07	734.00	135.89
Min Ch El (ft)	3425.00	Shear (lb/sq ft)	0.04	0.15	0.04
Alpha	1.06	Stream Power (lb/ft s)	0.04	0.35	0.04
Frctn Loss (ft)	4.98	Cum Volume (acre-ft)	18.81	60.83	2.24
C & E Loss (ft)	0.03	Cum SA (acres)	19.82	54.34	2.45

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	3427.86	Element			
Vel Head (ft)	0.18	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3427.67	Reach Len. (ft)	1199.00	1142.00	713.00
Crit W.S. (ft)	3426.76	Flow Area (sq ft)	134.09	1699.80	280.05
E.G. Slope (ft/ft)	0.002084	Area (sq ft)	134.09	1699.80	280.05
Q Total (cfs)	6871.00	Flow (cfs)	244.53	6115.75	510.72
Top Width (ft)	1229.57	Top Width (ft)	160.45	734.00	335.11

Vel Total (ft/s)	3.25	Avg. Vel. (ft/s)	1.82	3.60	1.82
Max Chl Dpth (ft)	2.67	Hydr. Depth (ft)	0.84	2.32	0.84
Conv. Total (cfs)	150515.5	Conv. (cfs)	5356.6	133971.0	11187.9
Length Wtd. (ft)	1129.64	Wetted Per. (ft)	160.46	734.00	335.12
Min Ch El (ft)	3425.00	Shear (lb/sq ft)	0.11	0.30	0.11
Alpha	1.13	Stream Power (lb/ft s)	0.20	1.08	0.20
Frctn Loss (ft)	5.04	Cum Volume (acre-ft)	41.60	116.87	5.98
C & E Loss (ft)	0.04	Cum SA (acres)	31.52	65.61	5.98

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 4221

INPUT
Description: Sta. 4221
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3423	341	3422	544	3421	640	3420	669	3420
753	3420.2	829	3420	837	3420	1030	3421	1320	3422
1407	3423	1497	3424						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	544	.033	1407	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
544	1407	749	732	843	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3421.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3421.33	Reach Len. (ft)	749.00	732.00	843.00
Crit W.S. (ft)	3421.33	Flow Area (sq ft)	10.98	501.01	
E.G. Slope (ft/ft)	0.016273	Area (sq ft)	10.98	501.01	
Q Total (cfs)	2625.00	Flow (cfs)	18.92	2606.08	
Top Width (ft)	648.13	Top Width (ft)	66.76	581.37	
Vel Total (ft/s)	5.13	Avg. Vel. (ft/s)	1.72	5.20	
Max Chl Dpth (ft)	1.33	Hydr. Depth (ft)	0.16	0.86	

Conv. Total (cfs)	20577.6	Conv. (cfs)	148.3	20429.3	
Length Wtd. (ft)	737.09	Wetted Per. (ft)	66.76	581.38	
Min Ch El (ft)	3420.00	Shear (lb/sq ft)	0.17	0.88	
Alpha	1.02	Stream Power (lb/ft s)	0.29	4.55	
Frctn Loss (ft)	3.54	Cum Volume (acre-ft)	18.36	41.55	1.86
C & E Loss (ft)	0.10	Cum SA (acres)	18.01	37.09	1.33

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3422.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.62	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3422.16	Reach Len. (ft)	749.00	732.00	843.00
Crit W.S. (ft)	3422.16	Flow Area (sq ft)	136.87	1081.13	
E.G. Slope (ft/ft)	0.013513	Area (sq ft)	136.87	1081.13	
Q Total (cfs)	7467.00	Flow (cfs)	490.80	6976.20	
Top Width (ft)	1031.21	Top Width (ft)	241.36	789.85	
Vel Total (ft/s)	6.13	Avg. Vel. (ft/s)	3.59	6.45	
Max Chl Dpth (ft)	2.16	Hydr. Depth (ft)	0.57	1.37	
Conv. Total (cfs)	64234.9	Conv. (cfs)	4222.1	60012.8	
Length Wtd. (ft)	737.83	Wetted Per. (ft)	241.37	789.86	
Min Ch El (ft)	3420.00	Shear (lb/sq ft)	0.48	1.15	
Alpha	1.06	Stream Power (lb/ft s)	1.72	7.45	
Frctn Loss (ft)	3.77	Cum Volume (acre-ft)	37.87	80.41	3.68
C & E Loss (ft)	0.12	Cum SA (acres)	25.99	45.64	3.24

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 3489

INPUT
Description: Sta. 3489
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-286	3420	-138	3418.5	-126	3418	-104	3416	-91	3415.5
-76	3416	-21	3417	100	3417	258	3416.5	299	3416
309	3415	318	3416	405	3416	422	3416	539	3416.4
581	3416.2	642	3416.4	744	3416	830	3416	918	3418
1068	3420	1159	3421						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-286	.033	539	.033	918	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
539	918	464	500	457	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3417.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3417.51	Reach Len. (ft)	464.00	500.00	457.00
Crit W.S. (ft)	3416.93	Flow Area (sq ft)	698.04	437.59	
E.G. Slope (ft/ft)	0.002263	Area (sq ft)	698.04	437.59	
Q Total (cfs)	2625.00	Flow (cfs)	1552.31	1072.69	
Top Width (ft)	1016.94	Top Width (ft)	659.59	357.35	
Vel Total (ft/s)	2.31	Avg. Vel. (ft/s)	2.22	2.45	
Max Chl Dpth (ft)	2.51	Hydr. Depth (ft)	1.06	1.22	
Conv. Total (cfs)	55186.5	Conv. (cfs)	32634.8	22551.7	

Length Wtd. (ft)	481.39	Wetted Per. (ft)	659.79	357.37	
Min Ch El (ft)	3416.00	Shear (lb/sq ft)	0.15	0.17	
Alpha	1.01	Stream Power (lb/ft s)	0.33	0.42	
Frctn Loss (ft)	2.38	Cum Volume (acre-ft)	12.26	33.66	1.86
C & E Loss (ft)	0.03	Cum SA (acres)	11.77	29.21	1.33

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3418.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3418.39	Reach Len. (ft)	464.00	500.00	457.00
Crit W.S. (ft)	3417.57	Flow Area (sq ft)	1287.92	768.15	5.83
E.G. Slope (ft/ft)	0.002662	Area (sq ft)	1287.92	768.15	5.83
Q Total (cfs)	7467.00	Flow (cfs)	4604.42	2858.00	4.59
Top Width (ft)	1083.03	Top Width (ft)	674.46	379.00	29.57
Vel Total (ft/s)	3.62	Avg. Vel. (ft/s)	3.58	3.72	0.79
Max Chl Dpth (ft)	3.39	Hydr. Depth (ft)	1.91	2.03	0.20
Conv. Total (cfs)	144720.1	Conv. (cfs)	89239.5	55391.6	88.9
Length Wtd. (ft)	480.96	Wetted Per. (ft)	674.70	379.02	29.57
Min Ch El (ft)	3416.00	Shear (lb/sq ft)	0.32	0.34	0.03
Alpha	1.00	Stream Power (lb/ft s)	1.13	1.25	0.03
Frctn Loss (ft)	2.33	Cum Volume (acre-ft)	25.62	64.87	3.63
C & E Loss (ft)	0.04	Cum SA (acres)	18.12	35.82	2.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 2989

INPUT
Description: Sta. 2989
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-31	3416	59	3414.8	170	3414.8	196	3414	436	3413.8
613	3414	651	3414	700	3414	747	3414	761	3414
841	3415.01	920	3416	976	3418	1067	3420		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-31	.033	436	.033	841	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
436	841	317	215	172	.3	.5

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3415.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3414.77	Reach Len. (ft)	317.00	215.00	172.00
Crit W.S. (ft)	3414.77	Flow Area (sq ft)	218.56	291.62	
E.G. Slope (ft/ft)	0.018036	Area (sq ft)	218.56	291.62	
Q Total (cfs)	2625.00	Flow (cfs)	1162.24	1462.76	
Top Width (ft)	651.07	Top Width (ft)	265.04	386.03	
Vel Total (ft/s)	5.15	Avg. Vel. (ft/s)	5.32	5.02	
Max Chl Dpth (ft)	0.97	Hydr. Depth (ft)	0.82	0.76	
Conv. Total (cfs)	19545.9	Conv. (cfs)	8654.1	10891.8	
Length Wtd. (ft)	256.34	Wetted Per. (ft)	265.05	386.03	
Min Ch El (ft)	3413.80	Shear (lb/sq ft)	0.93	0.85	
Alpha	1.00	Stream Power (lb/ft s)	4.94	4.27	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	7.38	29.47	1.86
C & E Loss (ft)	0.17	Cum SA (acres)	6.84	24.94	1.33

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical dep

th.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3416.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3415.64	Reach Len. (ft)	317.00	215.00	172.00
Crit W.S. (ft)	3415.55	Flow Area (sq ft)	568.08	640.17	15.67
E.G. Slope (ft/ft)	0.011451	Area (sq ft)	568.08	640.17	15.67
Q Total (cfs)	7467.00	Flow (cfs)	3246.66	4185.51	34.83
Top Width (ft)	894.76	Top Width (ft)	439.75	405.00	50.01
Vel Total (ft/s)	6.10	Avg. Vel. (ft/s)	5.72	6.54	2.22
Max Chl Dpth (ft)	1.84	Hydr. Depth (ft)	1.29	1.58	0.31
Conv. Total (cfs)	69779.2	Conv. (cfs)	30340.1	39113.6	325.5
Length Wtd. (ft)	263.12	Wetted Per. (ft)	439.77	405.01	50.01
Min Ch El (ft)	3413.80	Shear (lb/sq ft)	0.92	1.13	0.22
Alpha	1.03	Stream Power (lb/ft s)	5.28	7.39	0.50
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	15.73	56.79	3.52
C & E Loss (ft)	0.21	Cum SA (acres)	12.18	31.32	2.54

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 2774

INPUT
Description: Sta. 2774 Upstream of culverts
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-453	3416	-437	3415	-405	3414	-289	3413.8	-13	3413.8
100	3413.8	175	3413.8	204	3412	261	3412	298	3411.2
402	3410.9	437	3410	469	3409	491	3409	511	3410
560	3412	641	3414	725	3416				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-453	.033	437	.033	511	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
437	511	40	40	40	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-888	F		
888	F		

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3414.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3414.27	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	1000.73	364.16	264.98
E.G. Slope (ft/ft)	0.000514	Area (sq ft)	1000.73	364.16	264.98
Q Total (cfs)	2625.00	Flow (cfs)	1138.58	1075.38	411.03
Top Width (ft)	1066.16	Top Width (ft)	850.72	74.00	141.44
Vel Total (ft/s)	1.61	Avg. Vel. (ft/s)	1.14	2.95	1.55
Max Chl Dpth (ft)	5.27	Hydr. Depth (ft)	1.18	4.92	1.87
Conv. Total (cfs)	115759.9	Conv. (cfs)	50210.4	47423.4	18126.1
Length Wtd. (ft)	40.00	Wetted Per. (ft)	850.80	74.04	141.51
Min Ch El (ft)	3409.00	Shear (lb/sq ft)	0.04	0.16	0.06
Alpha	1.74	Stream Power (lb/ft s)	0.04	0.47	0.09
Frctn Loss (ft)		Cum Volume (acre-ft)	2.95	27.86	1.34
C & E Loss (ft)		Cum SA (acres)	2.78	23.80	1.05

Warning: The parabolic search method failed to converge on critical depth. The program will try the
cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3415.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3415.13	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)	3413.50	Flow Area (sq ft)	1742.86	427.70	401.91
E.G. Slope (ft/ft)	0.001181	Area (sq ft)	1742.86	427.70	401.91
Q Total (cfs)	7467.00	Flow (cfs)	4264.79	2130.35	1071.87
Top Width (ft)	1127.60	Top Width (ft)	876.10	74.00	177.51
Vel Total (ft/s)	2.90	Avg. Vel. (ft/s)	2.45	4.98	2.67
Max Chl Dpth (ft)	6.13	Hydr. Depth (ft)	1.99	5.78	2.26
Conv. Total (cfs)	217319.5	Conv. (cfs)	124122.4	62001.6	31195.6
Length Wtd. (ft)	40.00	Wetted Per. (ft)	876.19	74.04	177.59

Min Ch El (ft)	3409.00	Shear (lb/sq ft)	0.15	0.43	0.17
Alpha	1.37	Stream Power (lb/ft s)	0.36	2.12	0.44
Frctn Loss (ft)		Cum Volume (acre-ft)	7.32	54.16	2.69
C & E Loss (ft)		Cum SA (acres)	7.40	30.13	2.09

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The parabolic search method failed to converge on critical depth. The program will try the
cross section slice/secant method to find critical depth.

CULVERT RIVER: Ditch A
REACH: 5 RS: 2773

INPUT
Description:
Distance from Upstream XS = 8
Deck/Roadway Width = 24
Weir Coefficient = 3
Upstream Deck/Roadway Coordinates
num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
26	3413.8		100	3413.8		402	3412.7	
500	3412.8		600	3413.9		700	3415.7	

Upstream Bridge Cross Section Data
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-453	3416	-437	3415	-405	3414	-289	3413.8	-13	3413.8
100	3413.8	175	3413.8	204	3412	261	3412	298	3411.2
402	3410.9	437	3410	469	3409	491	3409	511	3410
560	3412	641	3414	725	3416				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-453	.033	437	.033	511	.033

Bank Sta: Left Right Coeff Contr. Expan.
437 511 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-888	F		
888	F		

Downstream Deck/Roadway Coordinates
num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
26	3413.8		100	3413.8		402	3412.7	
500	3412.8		600	3413.9		700	3415.7	

Downstream Bridge Cross Section Data
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1721	3416	-1410	3414	26	3413.8	100	3412.4	155	3412
299	3411.4	349	3410	387	3408.9	391.4	3408.9	395.8	3408.9
400.2	3408.9	404.6	3408.9	409	3408.9	434	3410	487	3412
568	3414	658	3416						

Manning's n Values num= 3

```
     Sta   n Val     Sta   n Val     Sta   n Val
   -1721    .033     349    .033     434    .033

Bank Sta: Left   Right    Coeff Contr.   Expan.
           349     434            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888       F

Upstream Embankment side slope              =       3 horiz. to 1.0 vertical
Downstream Embankment side slope            =       3 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =  3412.7
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1     Pipe Arch   1.833    2.43
FHWA Chart # 34- 18 inch corner radius; Corrugated metal
FHWA Scale # 1 - 90 Degree headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                  1      39       .024                   .5                1
Number of Barrels =  6
Upstream   Elevation =  3409
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
     469   473.4   477.8   482.2   486.6     491
Downstream Elevation =  3408.9
Centerline Stations
    Sta.    Sta.    Sta.    Sta.    Sta.    Sta.
     387   391.4   395.8   400.2   404.6     409

CROSS SECTION          RIVER: Ditch A
REACH: 5                  RS: 2734

INPUT
Description: Sta. 2734 Downstream of culverts
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   -1721    3416   -1410    3414      26  3413.8     100  3412.4     155    3412
     299  3411.4     349    3410     387  3408.9   391.4  3408.9   395.8  3408.9
   400.2  3408.9   404.6  3408.9     409  3408.9     434    3410     487    3412
     568    3414     658    3416

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   -1721    .033     349    .033     434    .033

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           349     434             745     846    1015              .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
-888       F
888       F

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)          3413.06    Element                Left OB    Channel   Right OB
```

Vel Head (ft)	0.35	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3412.71	Reach Len. (ft)	745.00	846.00	1015.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	275.89	288.99	100.64
E.G. Slope (ft/ft)	0.003071	Area (sq ft)	275.89	288.99	100.64
Q Total (cfs)	2625.00	Flow (cfs)	706.59	1629.89	288.53
Top Width (ft)	431.91	Top Width (ft)	265.26	85.00	81.65
Vel Total (ft/s)	3.94	Avg. Vel. (ft/s)	2.56	5.64	2.87
Max Chl Dpth (ft)	3.81	Hydr. Depth (ft)	1.04	3.40	1.23
Conv. Total (cfs)	47371.8	Conv. (cfs)	12751.3	29413.6	5206.9
Length Wtd. (ft)	841.72	Wetted Per. (ft)	265.28	85.04	81.70
Min Ch El (ft)	3408.90	Shear (lb/sq ft)	0.20	0.65	0.24
Alpha	1.44	Stream Power (lb/ft s)	0.51	3.67	0.68
Frctn Loss (ft)	2.45	Cum Volume (acre-ft)	2.36	27.56	1.17
C & E Loss (ft)	0.12	Cum SA (acres)	2.27	23.73	0.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3414.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.93	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3413.64	Reach Len. (ft)	745.00	846.00	1015.00
Crit W.S. (ft)	3413.58	Flow Area (sq ft)	545.49	368.06	194.11
E.G. Slope (ft/ft)	0.006651	Area (sq ft)	545.49	368.06	194.11
Q Total (cfs)	7467.00	Flow (cfs)	2891.92	3589.49	985.59
Top Width (ft)	518.75	Top Width (ft)	314.42	85.00	119.33

Vel Total (ft/s)	6.74	Avg. Vel. (ft/s)	5.30	9.75	5.08
Max Chl Dpth (ft)	4.74	Hydr. Depth (ft)	1.73	4.33	1.63
Conv. Total (cfs)	91560.7	Conv. (cfs)	35460.9	44014.4	12085.4
Length Wtd. (ft)	836.58	Wetted Per. (ft)	314.45	85.04	119.38
Min Ch El (ft)	3408.90	Shear (lb/sq ft)	0.72	1.80	0.68
Alpha	1.32	Stream Power (lb/ft s)	3.82	17.53	3.43
Frctn Loss (ft)	3.45	Cum Volume (acre-ft)	6.27	53.79	2.42
C & E Loss (ft)	0.37	Cum SA (acres)	6.85	30.06	1.95

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 1888

INPUT
Description: Sta. 1888
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-775	3412	-41	3410	81	3410	100	3410.2	110	3410
331	3408	532	3408	690	3408	1180	3410	1268	3412

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-775	.033	100	.033	1180	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
100	1180	305	828	980	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	3409.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.033	
W.S. Elev (ft)	3409.62	Reach Len. (ft)	305.00	828.00	980.00
Crit W.S. (ft)	3409.00	Flow Area (sq ft)		1042.93	
E.G. Slope (ft/ft)	0.002763	Area (sq ft)		1042.93	
Q Total (cfs)	2659.00	Flow (cfs)		2659.00	
Top Width (ft)	932.96	Top Width (ft)		932.96	
Vel Total (ft/s)	2.55	Avg. Vel. (ft/s)		2.55	

Max Chl Dpth (ft)	1.61	Hydr. Depth (ft)	1.12
Conv. Total (cfs)	50582.2	Conv. (cfs)	50582.2
Length Wtd. (ft)	828.00	Wetted Per. (ft)	932.97
Min Ch El (ft)	3408.00	Shear (lb/sq ft)	0.19
Alpha	1.00	Stream Power (lb/ft s)	0.49
Frctn Loss (ft)	4.70	Cum Volume (acre-ft)	14.62
C & E Loss (ft)	0.04	Cum SA (acres)	13.85

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	3410.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3410.56	Reach Len. (ft)	305.00	828.00	980.00
Crit W.S. (ft)		Flow Area (sq ft)	133.44	2029.17	6.82
E.G. Slope (ft/ft)	0.002811	Area (sq ft)	133.44	2029.17	6.82
Q Total (cfs)	7552.00	Flow (cfs)	169.03	7376.04	6.94
Top Width (ft)	1449.78	Top Width (ft)	345.29	1080.00	24.49
Vel Total (ft/s)	3.48	Avg. Vel. (ft/s)	1.27	3.63	1.02
Max Chl Dpth (ft)	2.56	Hydr. Depth (ft)	0.39	1.88	0.28
Conv. Total (cfs)	142439.9	Conv. (cfs)	3188.0	139121.0	130.8
Length Wtd. (ft)	822.31	Wetted Per. (ft)	345.29	1080.02	24.50
Min Ch El (ft)	3408.00	Shear (lb/sq ft)	0.07	0.33	0.05
Alpha	1.07	Stream Power (lb/ft s)	0.09	1.20	0.05
Frctn Loss (ft)	4.54	Cum Volume (acre-ft)	0.47	30.51	0.08
C & E Loss (ft)	0.05	Cum SA (acres)	1.21	18.75	0.28

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 1060

INPUT
Description: Sta. 1060
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3408	394	3406	879	3402.7	909	3402.7	1206	3405
1523	3406								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	394	.033	1523	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
394	1523	60	60	60	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	3404.98	Element			
Vel Head (ft)	0.49	Wt. n-Val.		0.033	
W.S. Elev (ft)	3404.49	Reach Len. (ft)			
Crit W.S. (ft)	3404.49	Flow Area (sq ft)		495.53	
E.G. Slope (ft/ft)	0.016639	Area (sq ft)		495.53	
Q Total (cfs)	2773.00	Flow (cfs)		2773.00	
Top Width (ft)	523.95	Top Width (ft)		523.95	
Vel Total (ft/s)	5.60	Avg. Vel. (ft/s)		5.60	
Max Chl Dpth (ft)	1.79	Hydr. Depth (ft)		0.95	
Conv. Total (cfs)	21497.7	Conv. (cfs)		21497.7	
Length Wtd. (ft)		Wetted Per. (ft)		523.96	
Min Ch El (ft)	3402.70	Shear (lb/sq ft)		0.98	
Alpha	1.00	Stream Power (lb/ft s)		5.50	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	3406.17	Element			
Vel Head (ft)	0.68	Wt. n-Val.		0.033	
W.S. Elev (ft)	3405.49	Reach Len. (ft)			

Crit W.S. (ft)	3405.49	Flow Area (sq ft)	1181.30
E.G. Slope (ft/ft)	0.014796	Area (sq ft)	1181.30
Q Total (cfs)	7799.00	Flow (cfs)	7799.00
Top Width (ft)	892.60	Top Width (ft)	892.60
Vel Total (ft/s)	6.60	Avg. Vel. (ft/s)	6.60
Max Chl Dpth (ft)	2.79	Hydr. Depth (ft)	1.32
Conv. Total (cfs)	64116.4	Conv. (cfs)	64116.4
Length Wtd. (ft)		Wetted Per. (ft)	892.62
Min Ch El (ft)	3402.70	Shear (lb/sq ft)	1.22
Alpha	1.00	Stream Power (lb/ft s)	8.07
Frctn Loss (ft)		Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

SUMMARY OF MANNING'S N VALUES

River:Ditch A

Reach	River Sta.	n1	n2	n3
5	12674	.033	.033	.033
5	11337	.033	.033	.033
5	10937	.033	.033	.033
5	10288	.033	.033	.033
5	9690	.033	.033	.033
5	9009	.033	.033	.033
5	8130	.033	.033	.033
5	7717	.033	.033	.033
5	7253	.033	.033	.033
5	6343	.033	.033	.033
5	5363	.033	.033	.033
5	4221	.033	.033	.033
5	3489	.033	.033	.033
5	2989	.033	.033	.033
5	2774	.033	.033	.033
5	2773	Culvert		
5	2734	.033	.033	.033
5	1888	.033	.033	.033
5	1060	.033	.033	.033

SUMMARY OF REACH LENGTHS

River: Ditch A

Reach	River Sta.	Left	Channel	Right

FloodPlain.rep

5	12674	1206	1337	1433
5	11337	545	400	332
5	10937	729	649	445
5	10288	552	598	633
5	9690	639	681	658
5	9009	898	879	794
5	8130	399	413	456
5	7717	444	464	510
5	7253	756	910	980
5	6343	767	980	1051
5	5363	1199	1142	713
5	4221	749	732	843
5	3489	464	500	457
5	2989	317	215	172
5	2774	40	40	40
5	2773	Culvert		
5	2734	745	846	1015
5	1888	305	828	980
5	1060	60	60	60

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Ditch A

Reach	River Sta.	Contr.	Expan.
5	12674	.1	.3
5	11337	.1	.3
5	10937	.1	.3
5	10288	.1	.3
5	9690	.1	.3
5	9009	.1	.3
5	8130	.1	.3
5	7717	.1	.3
5	7253	.1	.3
5	6343	.1	.3
5	5363	.1	.3
5	4221	.1	.3
5	3489	.1	.3
5	2989	.3	.5
5	2774	.3	.5
5	2773	Culvert	
5	2734	.3	.5
5	1888	.1	.3
5	1060	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. S
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)
5	12674	818.00	3477.00	3478.64	3478.18	3478.75	0.00
3030	2.70	317.98	340.14	0.45			
5	12674	1833.00	3477.00	3479.26	3478.68	3479.45	0.00
3127	3.66	552.32	421.93	0.49			

5		11337	818.00	3469.00	3470.67	3470.66	3471.20	0.01
3821	5.89	144.35	143.25	0.96				
5		11337	1833.00	3469.00	3471.45	3471.45	3472.25	0.01
1178	7.43	268.14	175.84	0.94				
5		10937	818.00	3464.00	3466.11	3465.94	3466.48	0.00
9957	4.88	167.94	152.46	0.81				
5		10937	1833.00	3464.00	3466.73	3466.71	3467.44	0.01
2731	6.81	275.16	197.77	0.96				
5		10288	818.00	3456.00	3457.15	3457.15	3457.41	0.02
0844	4.08	200.26	402.08	1.02				
5		10288	1833.00	3456.00	3457.54	3457.52	3457.92	0.01
6736	4.94	370.76	474.18	0.99				
5		9690	1032.00	3450.00	3451.81	3451.40	3451.94	0.00
4888	2.97	347.12	378.22	0.55				
5		9690	2662.00	3450.00	3452.41	3452.06	3452.72	0.00
6092	4.45	606.86	474.74	0.66				
5		9009	1032.00	3445.00	3446.77	3446.64	3447.04	0.01
1604	4.19	246.48	307.32	0.82				
5		9009	2662.00	3445.00	3447.61		3447.94	0.00
8169	4.59	580.42	485.14	0.74				
5		8130	1032.00	3440.00	3441.91	3441.38	3442.01	0.00
3348	2.56	402.94	413.44	0.46				
5		8130	2662.00	3440.00	3442.51	3442.02	3442.76	0.00
4426	3.98	680.41	499.24	0.57				
5		7717	1032.00	3437.80	3438.91	3438.91	3439.25	0.01
8684	4.70	219.43	328.51	1.01				
5		7717	2662.00	3437.80	3439.69	3439.52	3440.08	0.01
0227	5.00	532.79	463.57	0.82				
5		7253	1201.00	3435.00	3436.66	3436.07	3436.73	0.00
1800	2.11	581.61	548.75	0.35				
5		7253	5170.00	3435.00	3437.80	3437.02	3438.08	0.00
3027	4.32	1273.39	663.98	0.50				
5		6343	2315.00	3430.00	3430.98	3430.98	3431.38	0.01
7106	5.08	455.52	568.22	1.00				
5		6343	6871.00	3430.00	3431.88	3431.88	3432.58	0.01
2467	6.75	1045.07	836.71	0.95				
5		5363	2315.00	3425.00	3426.68	3426.03	3426.76	0.00
1829	2.32	1038.55	934.95	0.36				
5		5363	6871.00	3425.00	3427.67	3426.76	3427.86	0.00
2084	3.60	2113.94	1229.57	0.42				
5		4221	2625.00	3420.00	3421.33	3421.33	3421.75	0.01
6273	5.20	511.99	648.13	0.99				
5		4221	7467.00	3420.00	3422.16	3422.16	3422.78	0.01
3513	6.45	1218.00	1031.21	0.97				

5		3489	2625.00	3416.00	3417.51	3416.93	3417.59	0.00
2263	2.45	1135.64	1016.94	0.39				
5		3489	7467.00	3416.00	3418.39	3417.57	3418.60	0.00
2662	3.72	2061.90	1083.03	0.46				
5		2989	2625.00	3413.80	3414.77	3414.77	3415.18	0.01
8036	5.02	510.19	651.07	1.02				
5		2989	7467.00	3413.80	3415.64	3415.55	3416.23	0.01
1451	6.54	1223.92	894.76	0.92				
5		2774	2625.00	3409.00	3414.27	3412.71	3414.34	0.00
0514	2.95	1629.88	1066.16	0.23				
5		2774	7467.00	3409.00	3415.13	3413.50	3415.31	0.00
1181	4.98	2572.47	1127.60	0.37				
5		2773	Culvert					
5		2734	2625.00	3408.90	3412.71	3412.71	3413.06	0.00
3071	5.64	665.51	431.91	0.54				
5		2734	7467.00	3408.90	3413.64	3413.58	3414.57	0.00
6651	9.75	1107.66	518.75	0.83				
5		1888	2659.00	3408.00	3409.62	3409.00	3409.72	0.00
2763	2.55	1042.93	932.96	0.42				
5		1888	7552.00	3408.00	3410.56		3410.76	0.00
2811	3.63	2169.43	1449.78	0.47				
5		1060	2773.00	3402.70	3404.49	3404.49	3404.98	0.01
6639	5.60	495.53	523.95	1.01				
5		1060	7799.00	3402.70	3405.49	3405.49	3406.17	0.01
4796	6.60	1181.30	892.60	1.01				

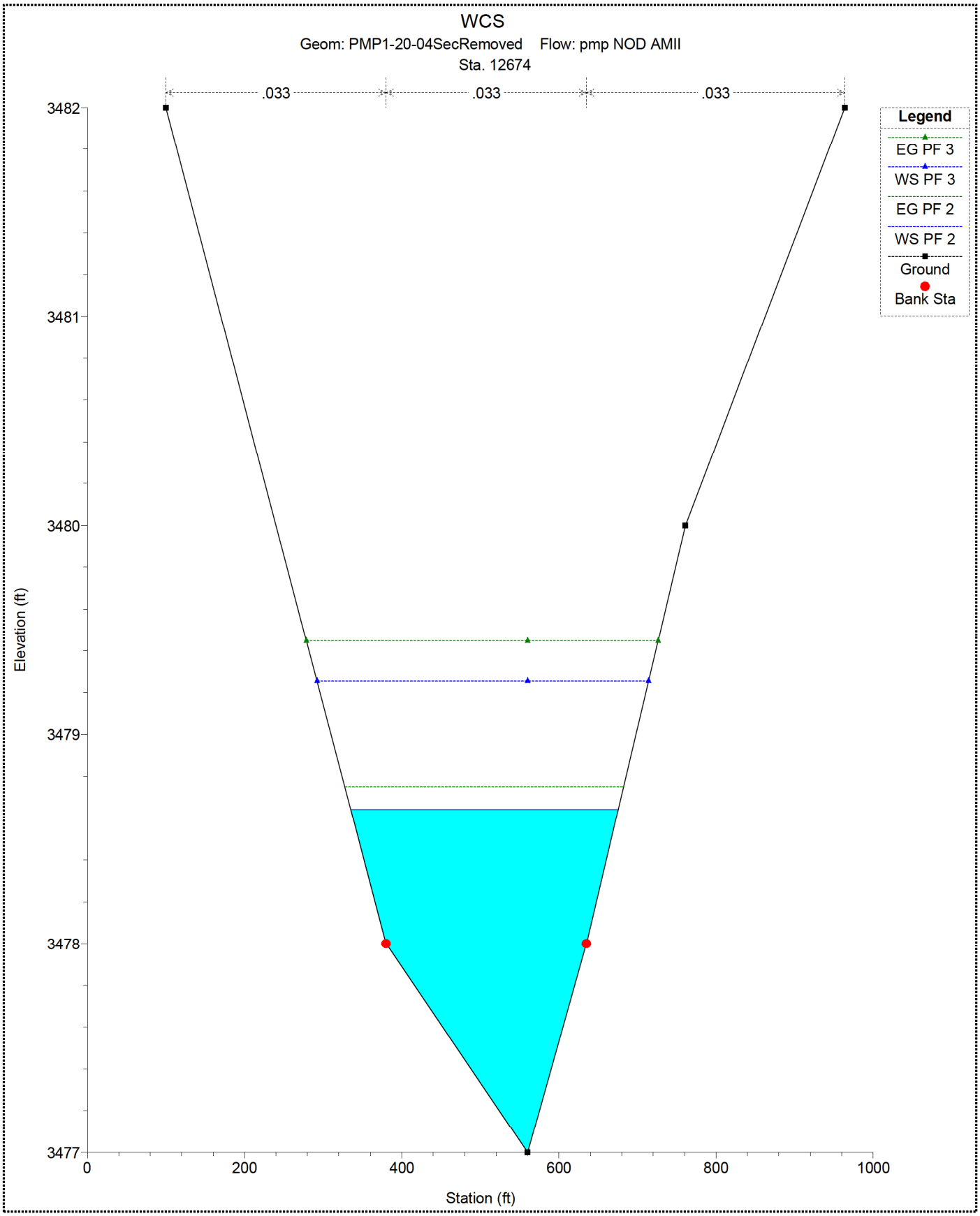
Profile Output Table - Report Standard Table 1

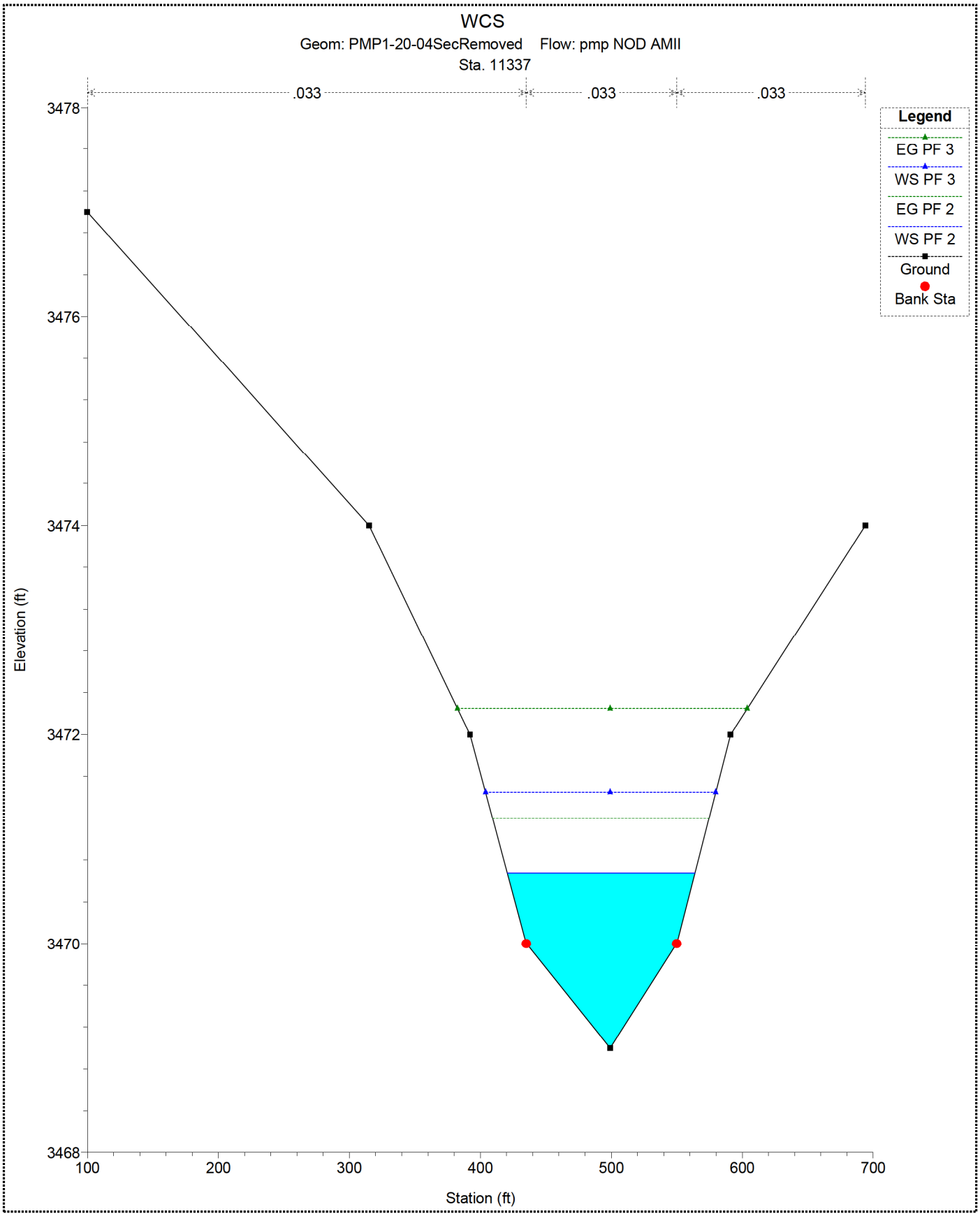
Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Max Chl Dpth	E.G
Elev	E.G. Slope Vel Chnl	Sta W.S. Lft	Sta W.S. Rgt	Flow Area	Top Width	Froude # Chl	
		(cfs)	(ft)	(ft)	(ft)	(ft)	
(ft)	(ft/ft) (ft/s)	(ft)	(ft)	(sq ft)	(ft)		
5	12674	818.00	3477.00	3478.64	3478.18	1.64	3
478.75	0.003030 2.70	335.19	675.33	317.98	340.14		0.45
5	12674	1833.00	3477.00	3479.26	3478.68	2.26	3
479.45	0.003127 3.66	292.14	714.07	552.32	421.93		0.49
5	11337	818.00	3469.00	3470.67	3470.66	1.67	3

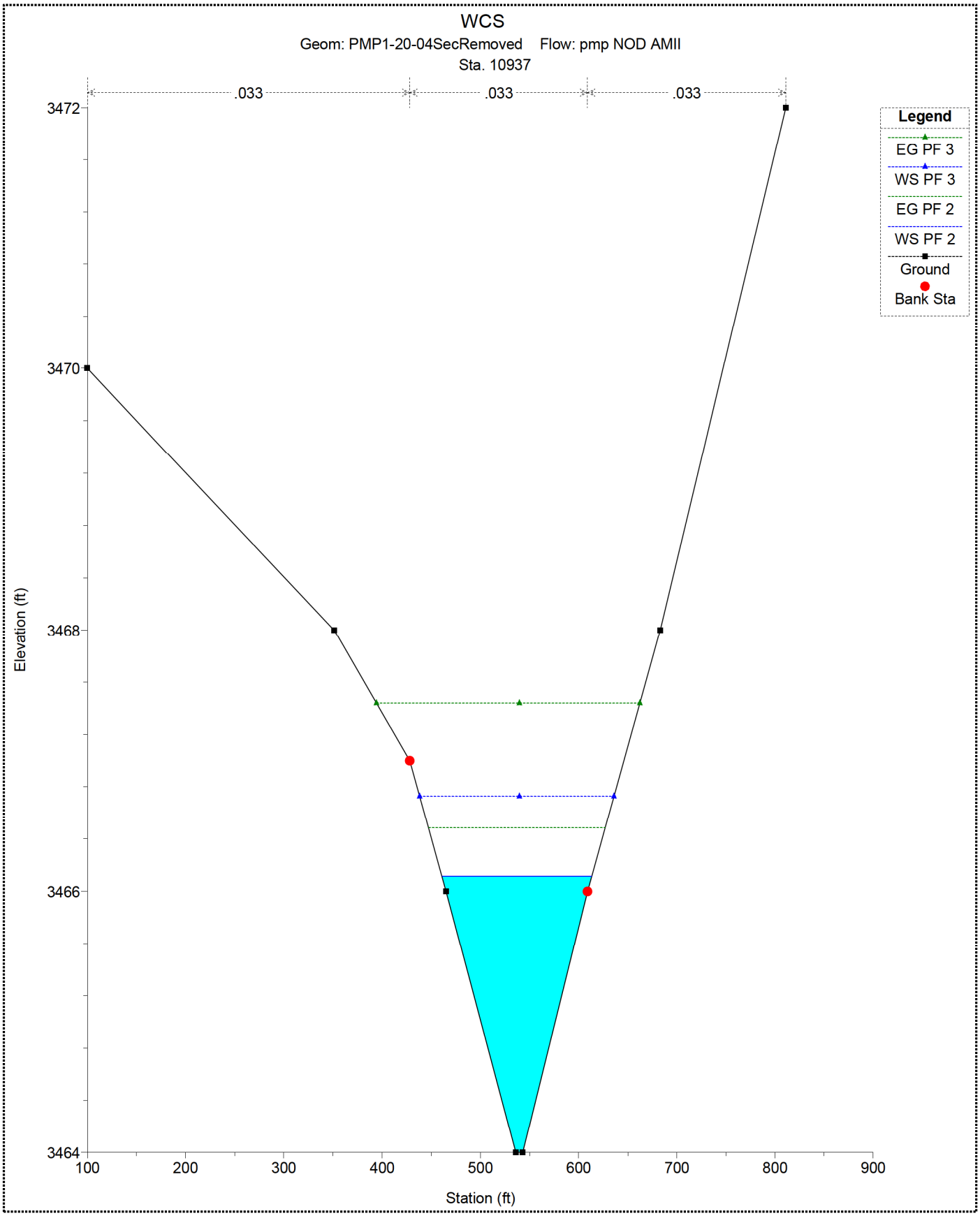
471.20	0.013821	5.89	420.54	563.79	144.35	143.25		0.96
5	11337		1833.00	3469.00	3471.45	3471.45	2.45	3
472.25	0.011178	7.43	403.86	579.69	268.14	175.84		0.94
5	10937		818.00	3464.00	3466.11	3465.94	2.11	3
466.48	0.009957	4.88	460.77	613.23	167.94	152.46		0.81
5	10937		1833.00	3464.00	3466.73	3466.71	2.73	3
467.44	0.012731	6.81	438.12	635.88	275.16	197.77		0.96
5	10288		818.00	3456.00	3457.15	3457.15	1.15	3
457.41	0.020844	4.08	380.58	782.65	200.26	402.08		1.02
5	10288		1833.00	3456.00	3457.54	3457.52	1.54	3
457.92	0.016736	4.94	342.63	816.81	370.76	474.18		0.99
5	9690		1032.00	3450.00	3451.81	3451.40	1.81	3
451.94	0.004888	2.97	405.24	783.45	347.12	378.22		0.55
5	9690		2662.00	3450.00	3452.41	3452.06	2.41	3
452.72	0.006092	4.45	344.33	819.07	606.86	474.74		0.66
5	9009		1032.00	3445.00	3446.77	3446.64	1.77	3
447.04	0.011604	4.19	427.76	735.08	246.48	307.32		0.82
5	9009		2662.00	3445.00	3447.61		2.61	3
447.94	0.008169	4.59	357.39	842.54	580.42	485.14		0.74
5	8130		1032.00	3440.00	3441.91	3441.38	1.91	3
442.01	0.003348	2.56	429.84	843.28	402.94	413.44		0.46
5	8130		2662.00	3440.00	3442.51	3442.02	2.51	3
442.76	0.004426	3.98	389.33	888.57	680.41	499.24		0.57
5	7717		1032.00	3437.80	3438.91	3438.91	1.11	3
439.25	0.018684	4.70	314.92	643.43	219.43	328.51		1.01
5	7717		2662.00	3437.80	3439.69	3439.52	1.89	3
440.08	0.010227	5.00	255.92	719.49	532.79	463.57		0.82
5	7253		1201.00	3435.00	3436.66	3436.07	1.66	3
436.73	0.001800	2.11	389.96	938.71	581.61	548.75		0.35

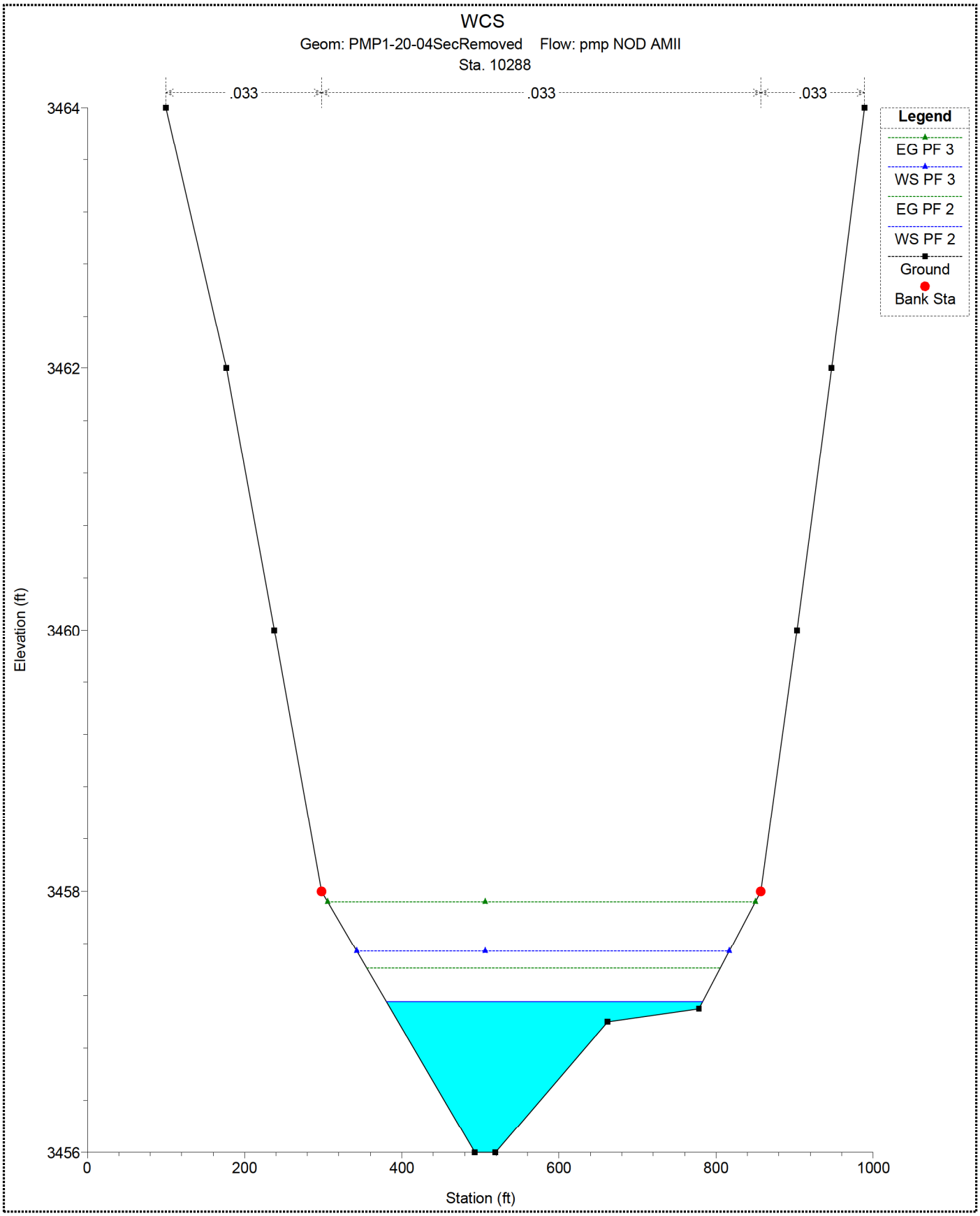
5	7253		5170.00	3435.00	3437.80	3437.02	2.80	3
438.08	0.003027	4.32	331.21	995.19	1273.39	663.98		0.50
5	6343		2315.00	3430.00	3430.98	3430.98	0.98	3
431.38	0.017106	5.08	735.44	1303.66	455.52	568.22		1.00
5	6343		6871.00	3430.00	3431.88	3431.88	1.88	3
432.58	0.012467	6.75	671.15	1507.86	1045.07	836.71		0.95
5	5363		2315.00	3425.00	3426.68	3426.03	1.68	3
426.76	0.001829	2.32	676.94	1611.89	1038.55	934.95		0.36
5	5363		6871.00	3425.00	3427.67	3426.76	2.67	3
427.86	0.002084	3.60	581.55	1811.11	2113.94	1229.57		0.42
5	4221		2625.00	3420.00	3421.33	3421.33	1.33	3
421.75	0.016273	5.20	477.24	1125.37	511.99	648.13		0.99
5	4221		7467.00	3420.00	3422.16	3422.16	2.16	3
422.78	0.013513	6.45	302.64	1333.85	1218.00	1031.21		0.97
5	3489		2625.00	3416.00	3417.51	3416.93	2.51	3
417.59	0.002263	2.45	-120.59	896.35	1135.64	1016.94		0.39
5	3489		7467.00	3416.00	3418.39	3417.57	3.39	3
418.60	0.002662	3.72	-135.46	947.57	2061.90	1083.03		0.46
5	2989		2625.00	3413.80	3414.77	3414.77	0.97	3
415.18	0.018036	5.02	170.96	822.03	510.19	651.07		1.02
5	2989		7467.00	3413.80	3415.64	3415.55	1.84	3
416.23	0.011451	6.54	-3.75	891.01	1223.92	894.76		0.92
5	2774		2625.00	3409.00	3414.27	3412.71	5.27	3
414.34	0.000514	2.95	-413.72	652.44	1629.88	1066.16		0.23
5	2774		7467.00	3409.00	3415.13	3413.50	6.13	3
415.31	0.001181	4.98	-439.10	688.51	2572.47	1127.60		0.37
5	2773		Culvert					

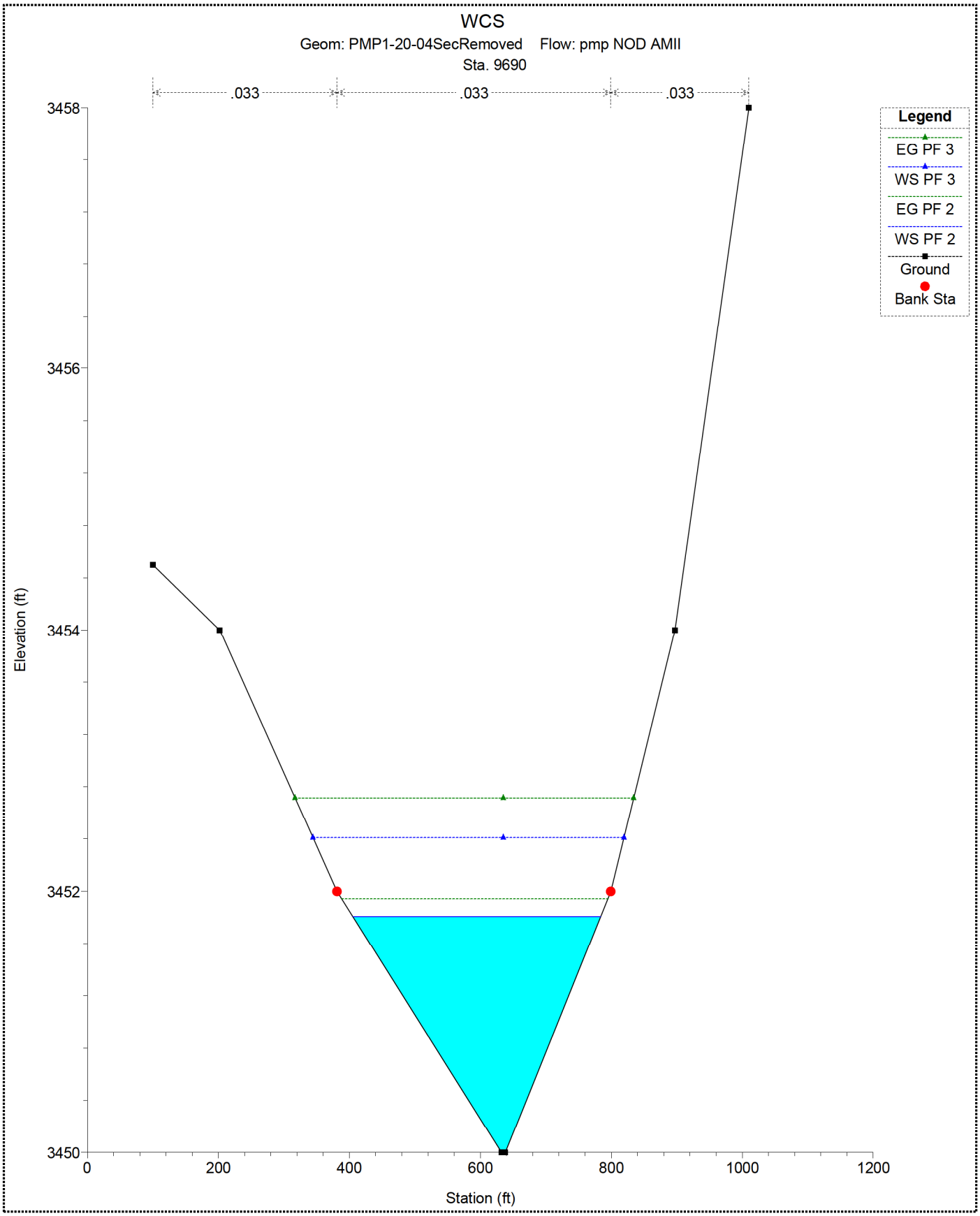
5	2734		2625.00	3408.90	3412.71	3412.71	3.81	3
413.06	0.003071	5.64	83.74	515.65	665.51	431.91		0.54
5	2734		7467.00	3408.90	3413.64	3413.58	4.74	3
414.57	0.006651	9.75	34.58	553.33	1107.66	518.75		0.83
5	1888		2659.00	3408.00	3409.62	3409.00	1.61	3
409.72	0.002763	2.55	152.60	1085.55	1042.93	932.96		0.42
5	1888		7552.00	3408.00	3410.56		2.56	3
410.76	0.002811	3.63	-245.29	1204.49	2169.43	1449.78		0.47
5	1060		2773.00	3402.70	3404.49	3404.49	1.79	3
404.98	0.016639	5.60	616.07	1140.02	495.53	523.95		1.01
5	1060		7799.00	3402.70	3405.49	3405.49	2.79	3
406.17	0.014796	6.60	468.88	1361.48	1181.30	892.60		1.01

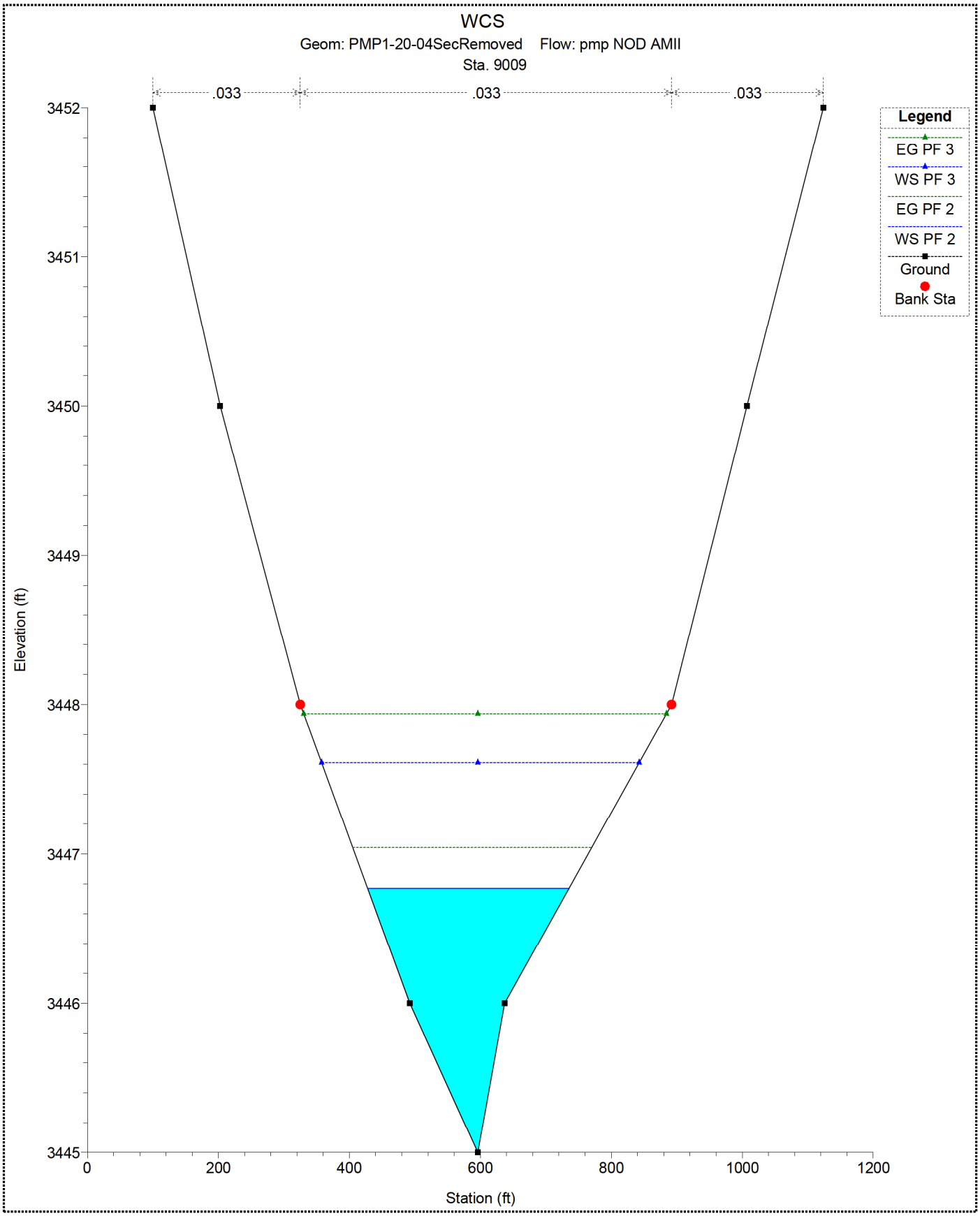

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 12674
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3482
3481
3480
3479
3478
3477
0
200
400
600
800
1000
Station (ft)

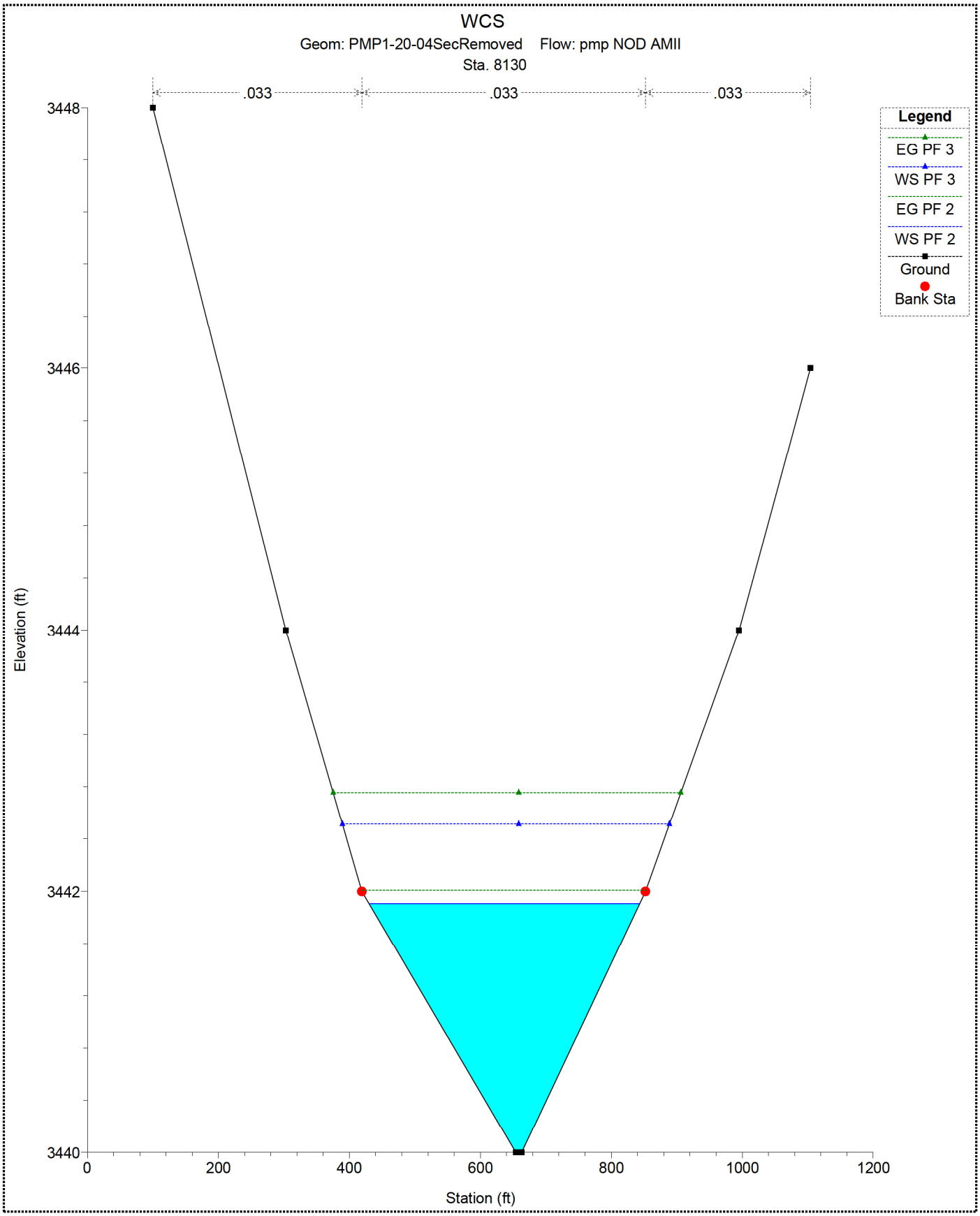

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 11337
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
3478
3476
3474
3472
3470
3468
Elevation (ft)
100
200
300
400
500
600
700
Station (ft)

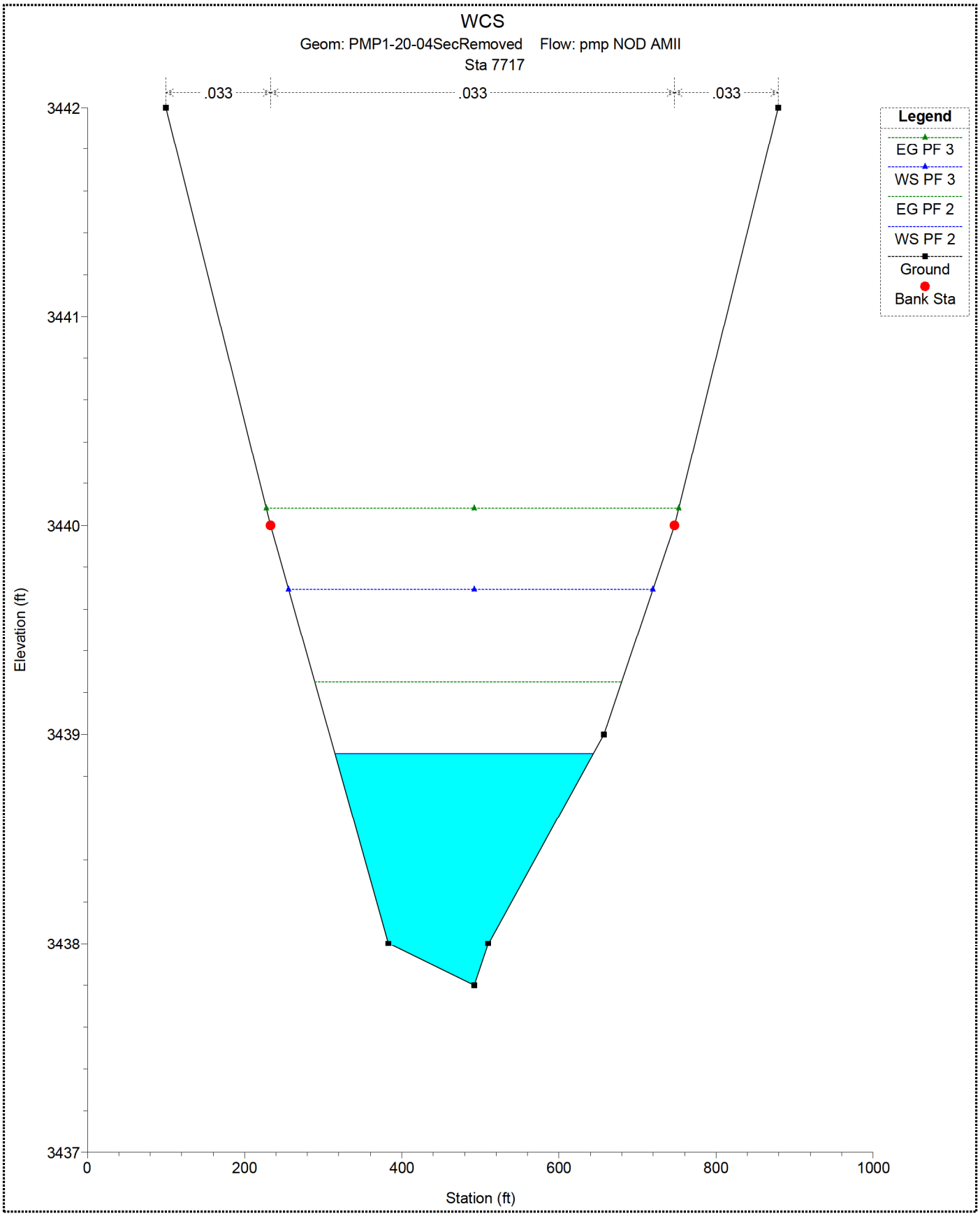

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 10937
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3472
3470
3468
3466
3464
100
200
300
400
500
600
700
800
900
Station (ft)

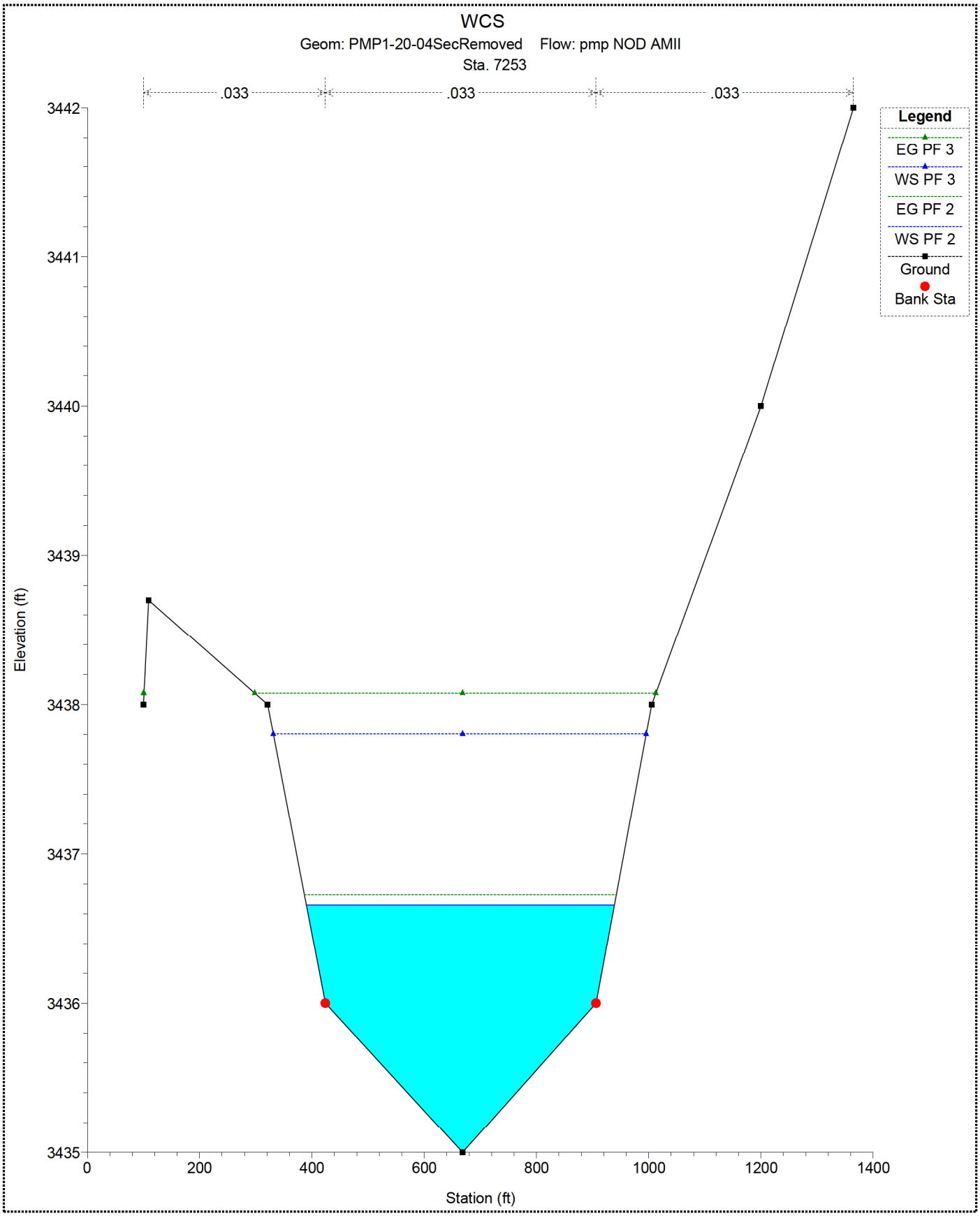

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 10288
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3464
3462
3460
3458
3456
0
200
400
600
800
1000
Station (ft)

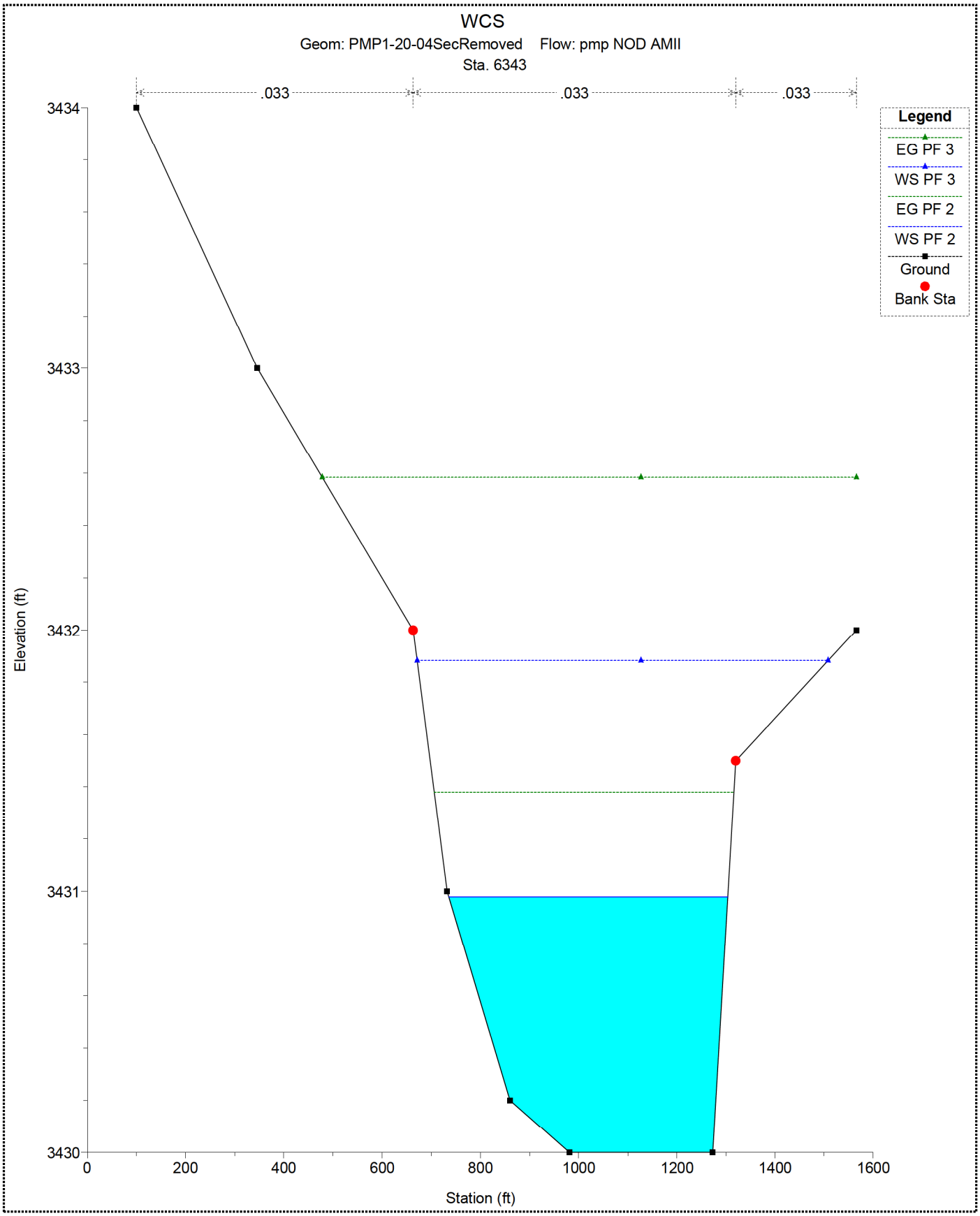

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 9690
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3458
3456
3454
3452
3450
0
200
400
600
800
1000
1200
Station (ft)

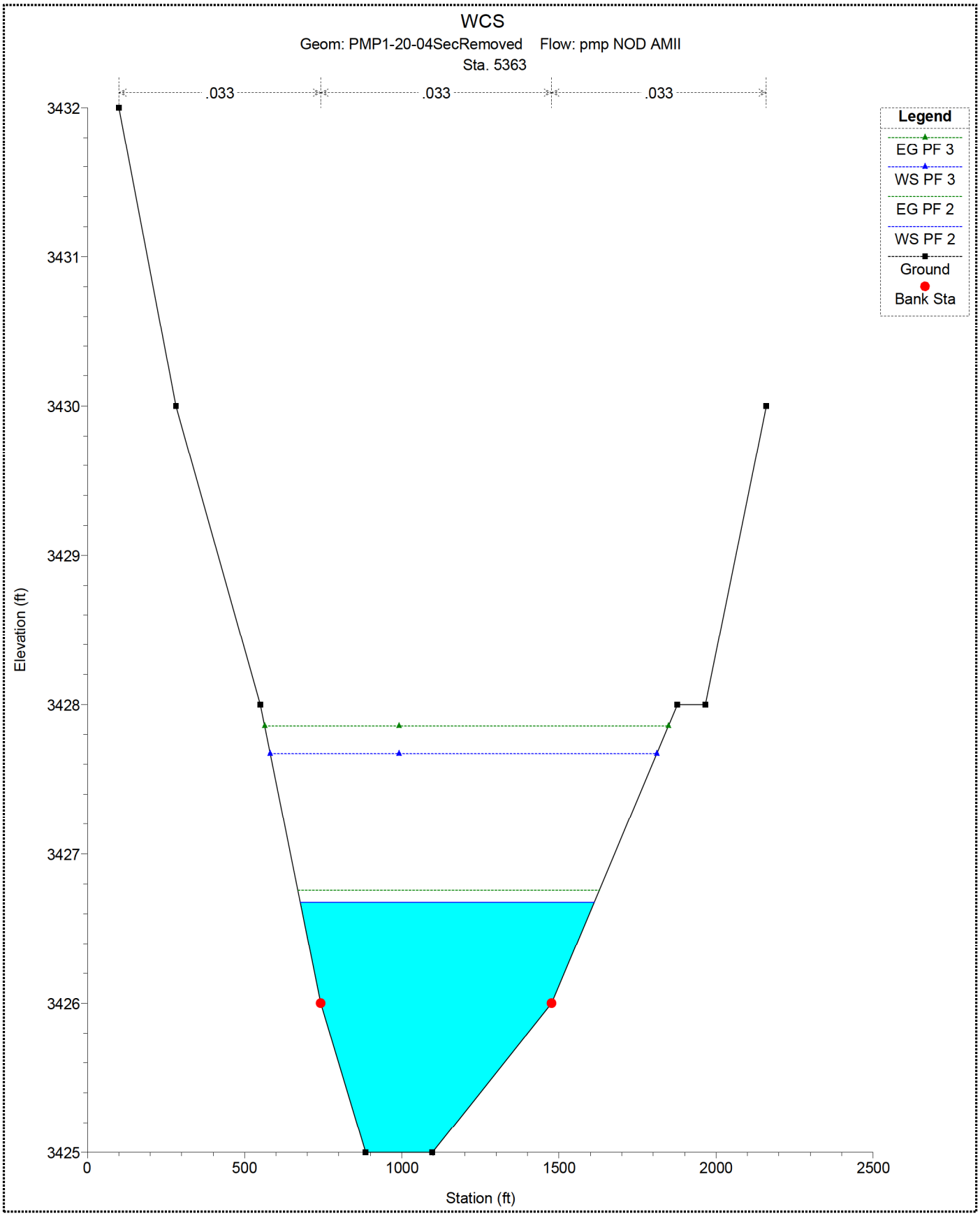

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 9009
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3452
3451
3450
3449
3448
3447
3446
3445
0
200
400
600
800
1000
1200
Station (ft)

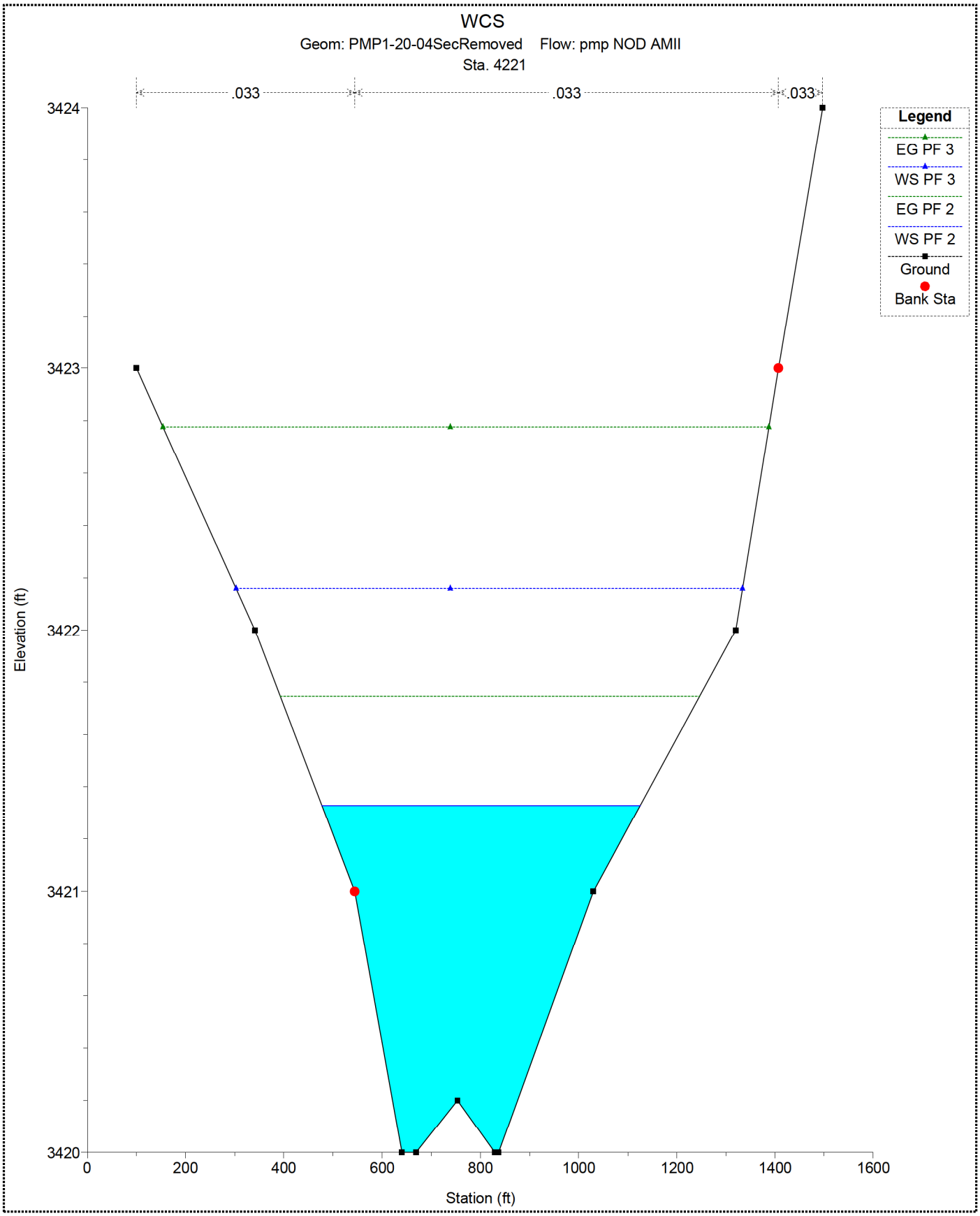

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 8130
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3448
3446
3444
3442
3440
0
200
400
600
800
1000
1200
Station (ft)

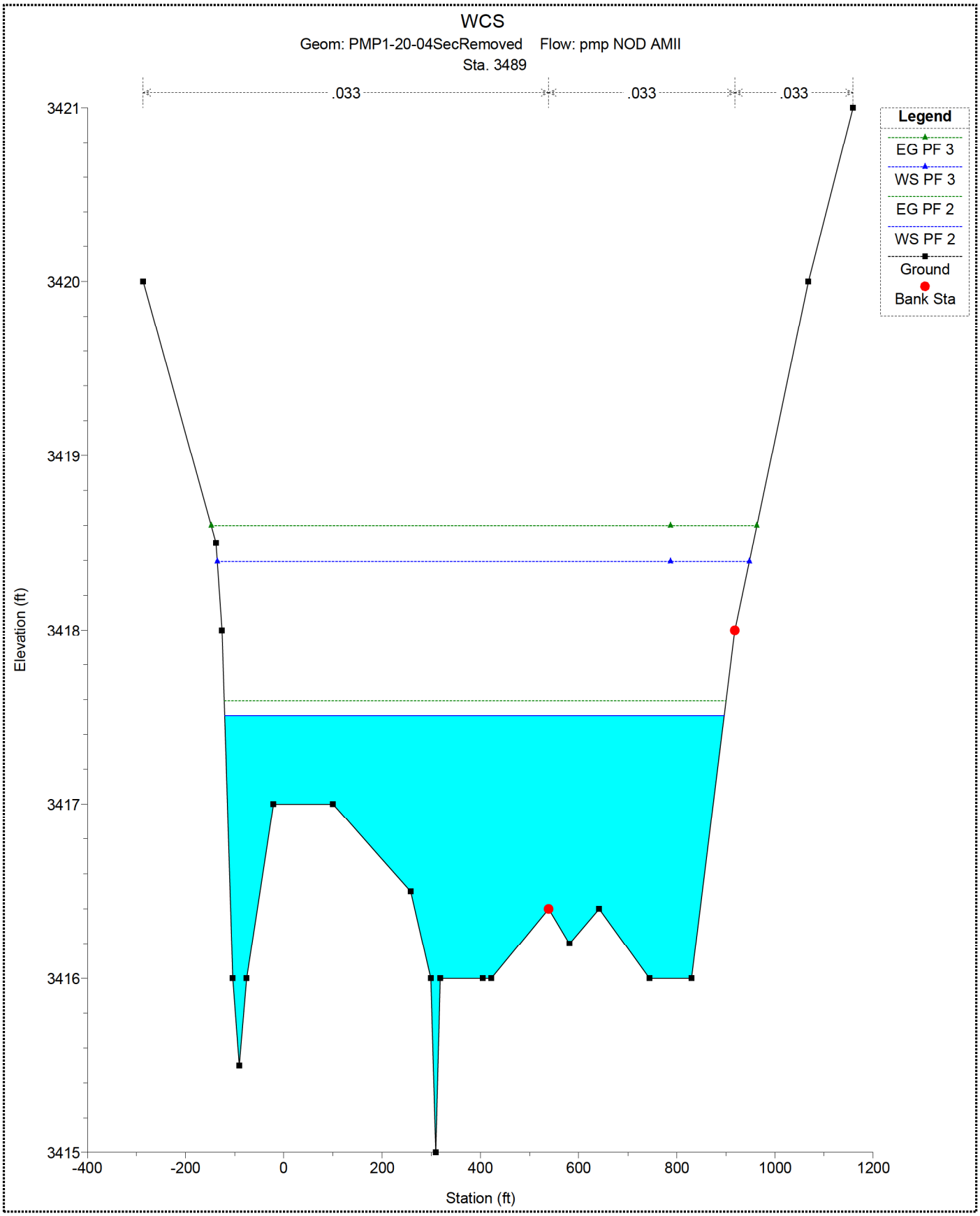

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta 7717
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3442
3441
3440
3439
3438
3437
0
200
400
600
800
1000
Station (ft)

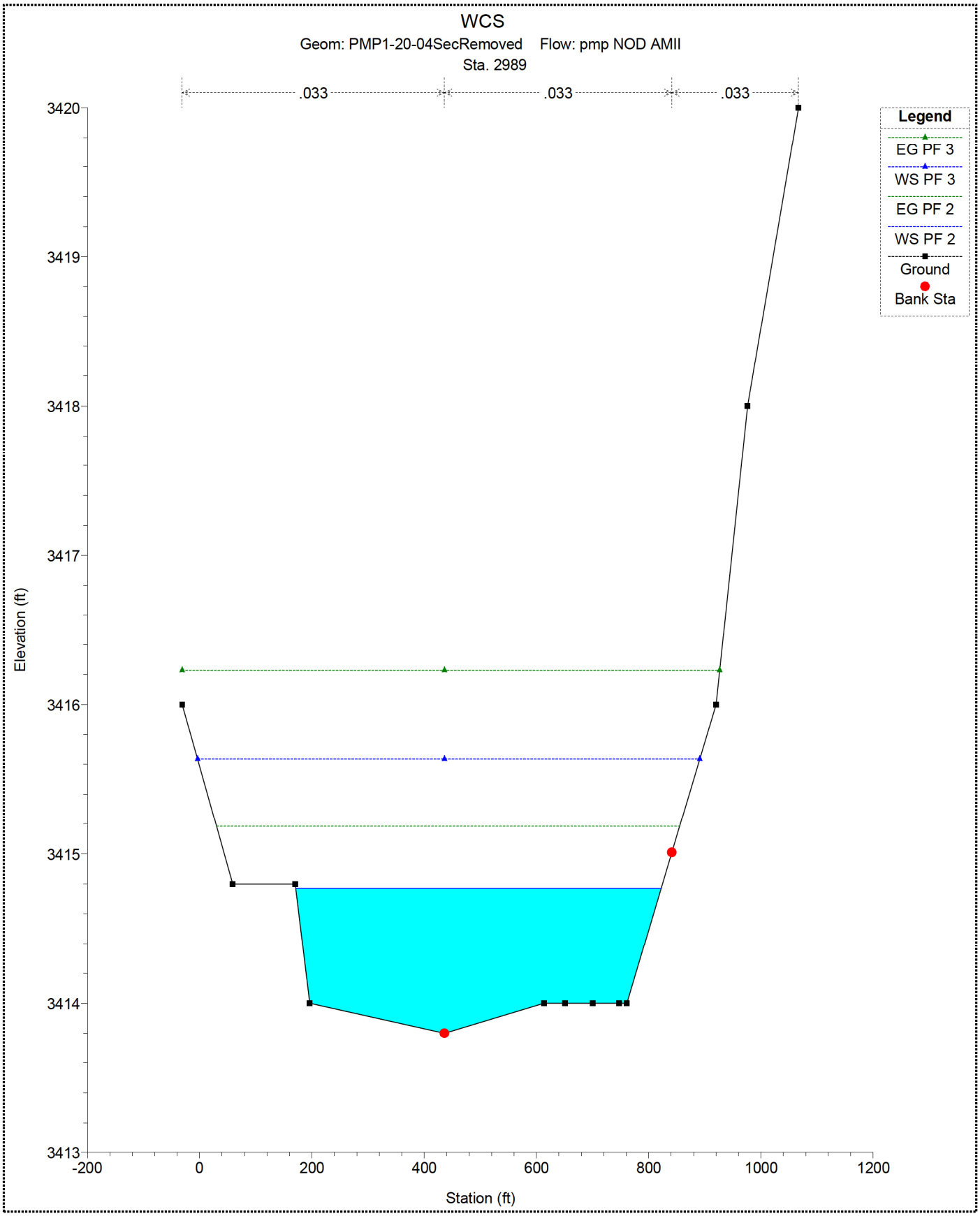

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 7253
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
3442
3441
3440
3439
3438
3437
3436
3435
0
200
400
600
800
1000
1200
1400

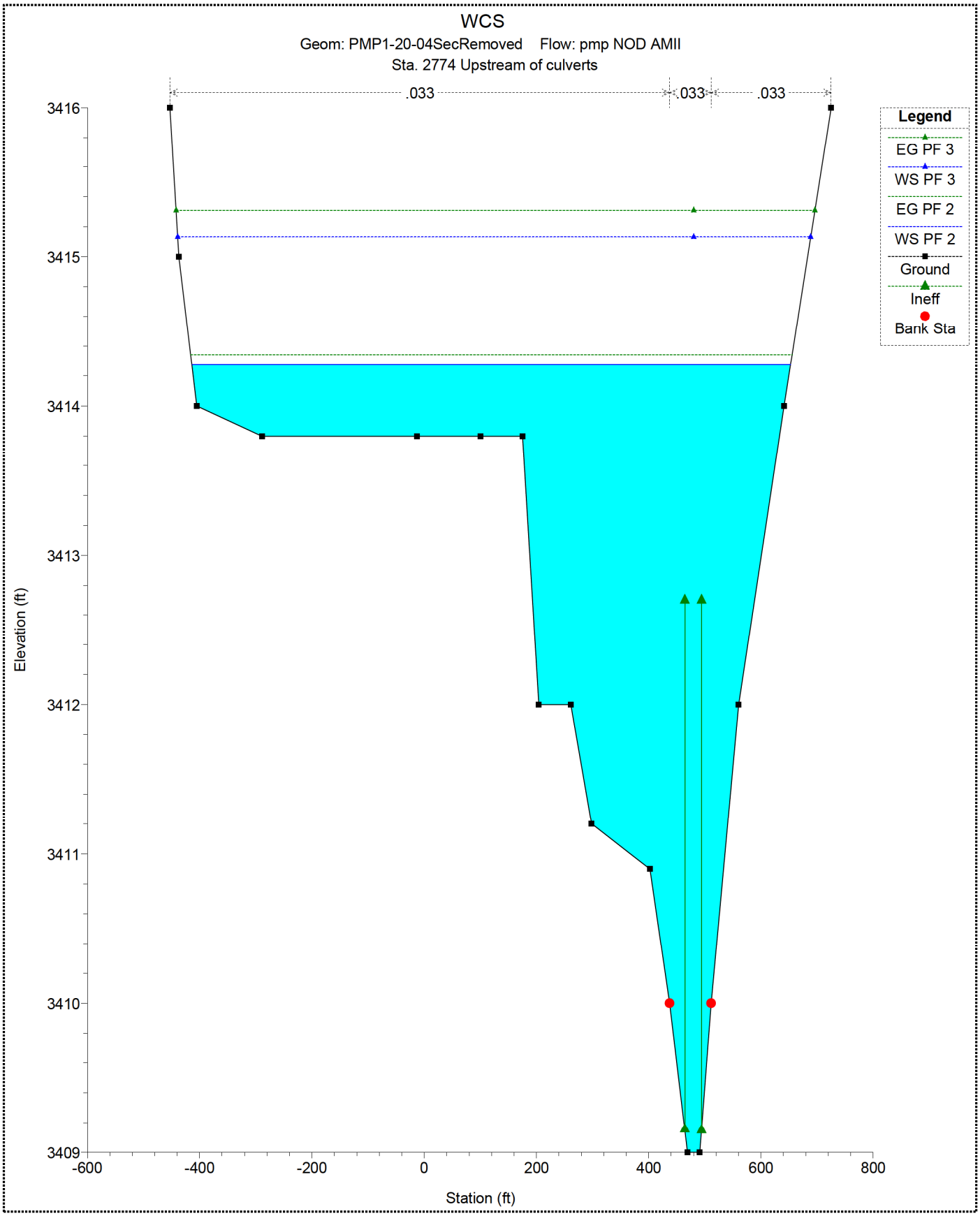

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 6343
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3434
3433
3432
3431
3430
0
200
400
600
800
1000
1200
1400
1600
Station (ft)

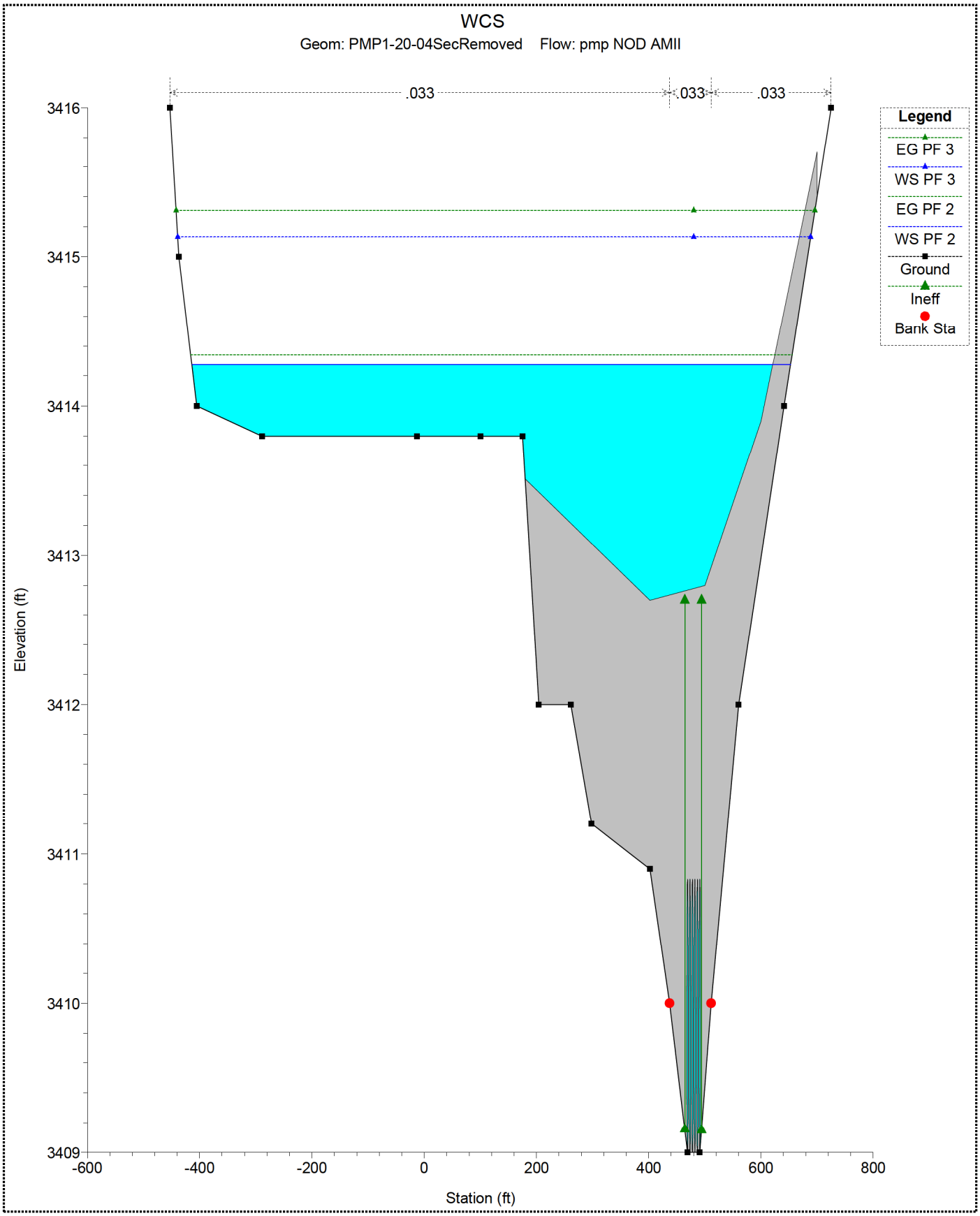

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 5363
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3432
3431
3430
3429
3428
3427
3426
3425
0
500
1000
1500
2000
2500
Station (ft)

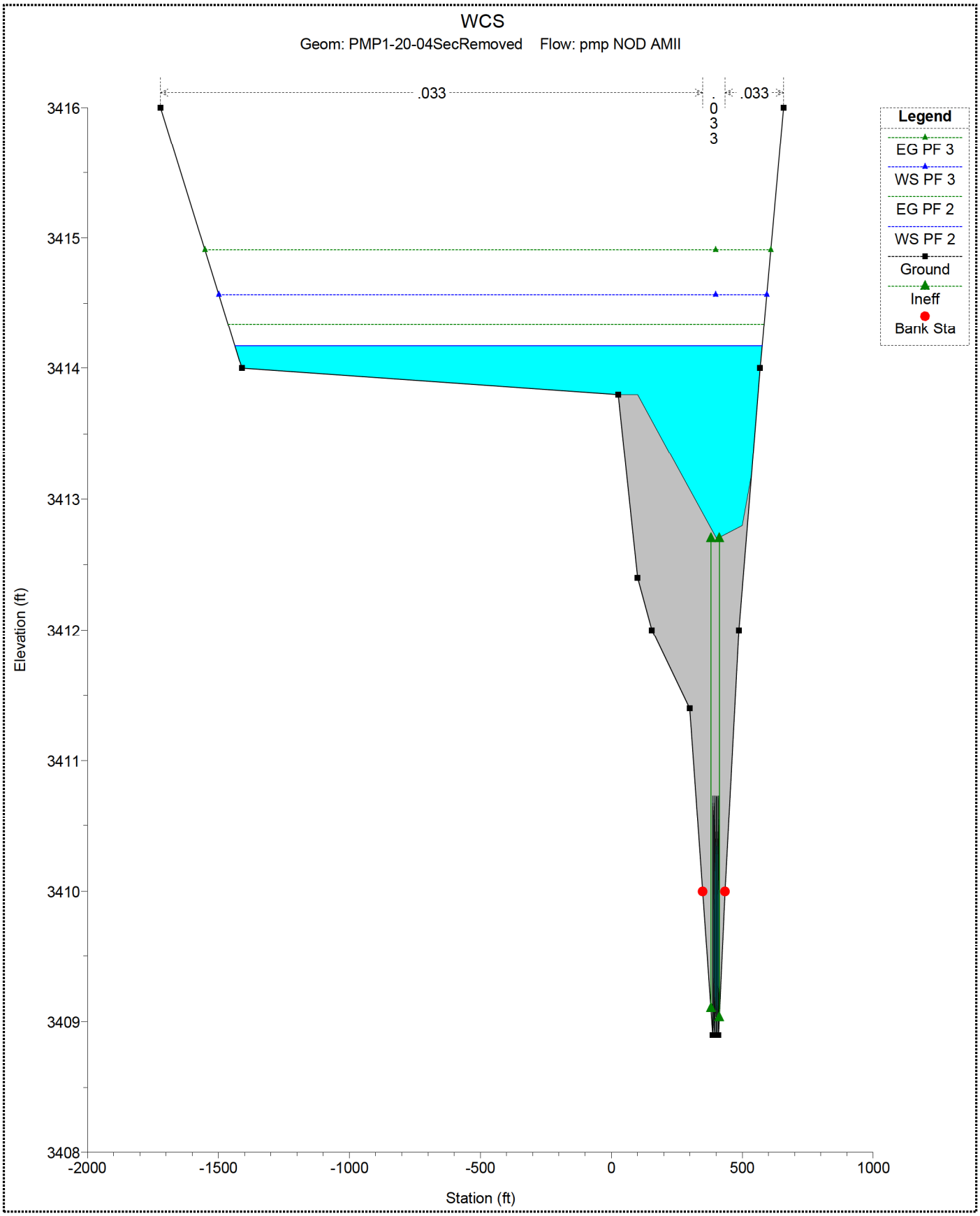

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 4221
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3424
3423
3422
3421
3420
0
200
400
600
800
1000
1200
1400
1600
Station (ft)

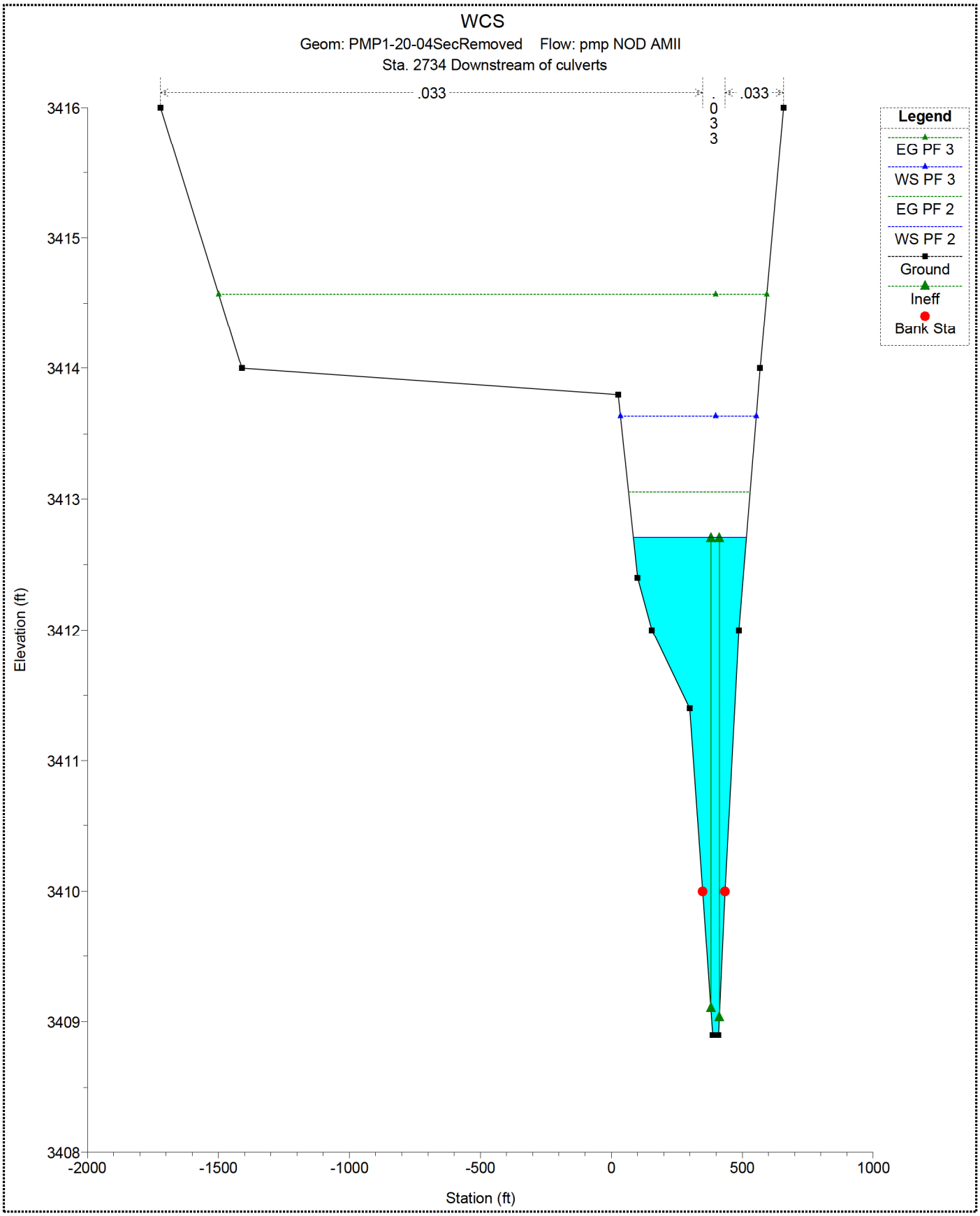

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 3489
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
3421
3420
3419
3418
3417
3416
3415
-400
-200
0
200
400
600
800
1000
1200

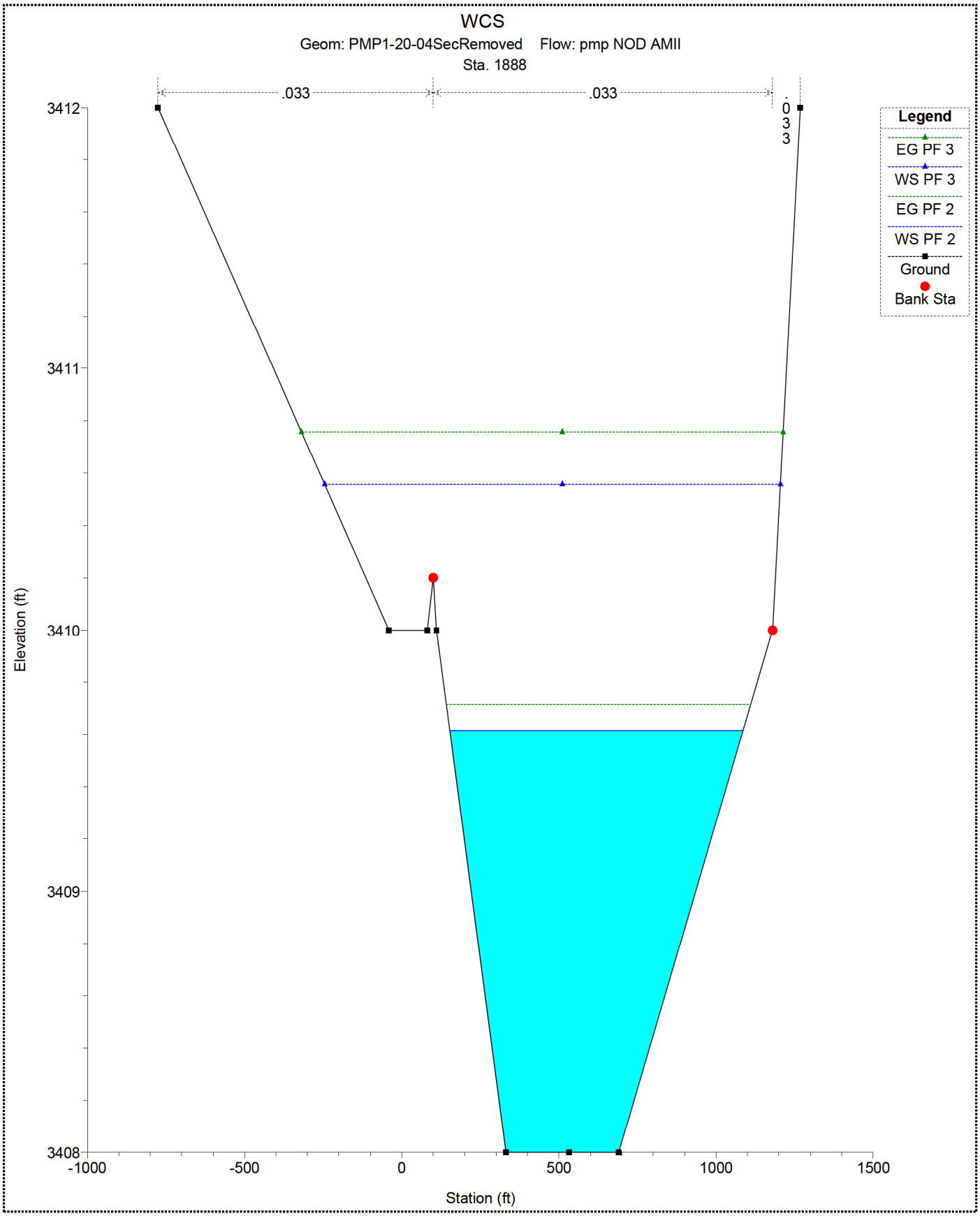

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 2989
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3420
3419
3418
3417
3416
3415
3414
3413
-200
0
200
400
600
800
1000
1200
Station (ft)

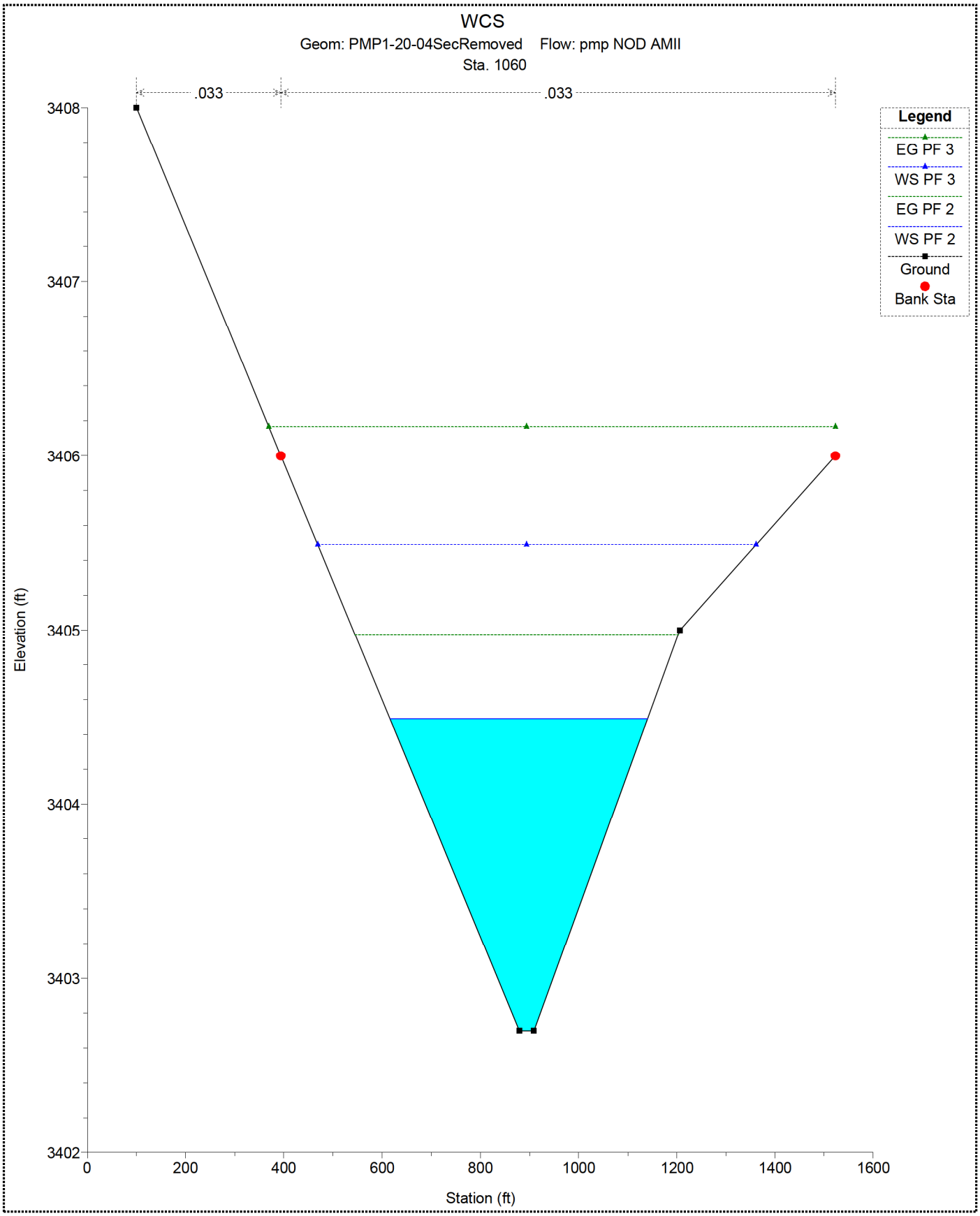

WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 2774 Upstream of culverts
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
3416
3415
3414
3413
3412
3411
3410
3409
-600
-400
-200
0
200
400
600
800
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
3416
3415
3414
3413
3412
3411
3410
3409
-600
-400
-200
0
200
400
600
800


WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
3416
3415
3414
3413
3412
3411
3410
3409
3408
-2000
-1500
-1000
-500
0
500
1000
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 2734 Downstream of culverts
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
3416
3415
3414
3413
3412
3411
3410
3409
3408
-2000
-1500
-1000
-500
0
500
1000
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 1888
.033
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
3412
3411
3410
3409
3408
-1000
-500
0
500
1000
1500
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: pmp NOD AMII
Sta. 1060
.033
.033
Legend
EG PF 3
WS PF 3
EG PF 2
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
3408
3407
3406
3405
3404
3403
3402
0
200
400
600
800
1000
1200
1400
1600

APPENDIX Q

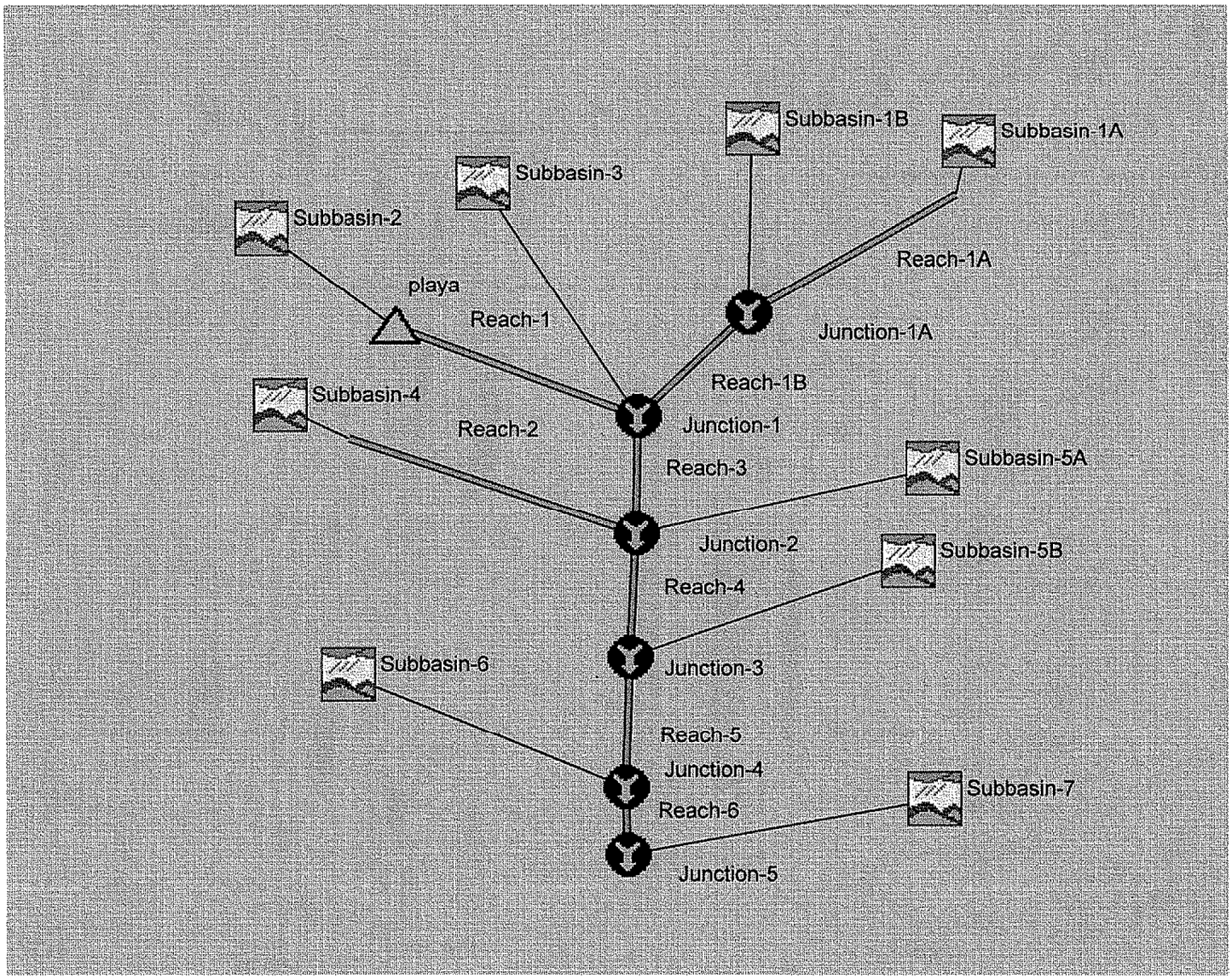
HEC-HMS MODEL FOR THE CALCULATION OF THE 100-YEAR PEAK DISCHARGE, ANTECEDENT MOISTURE CONDITION III

HMS * Summary of Results

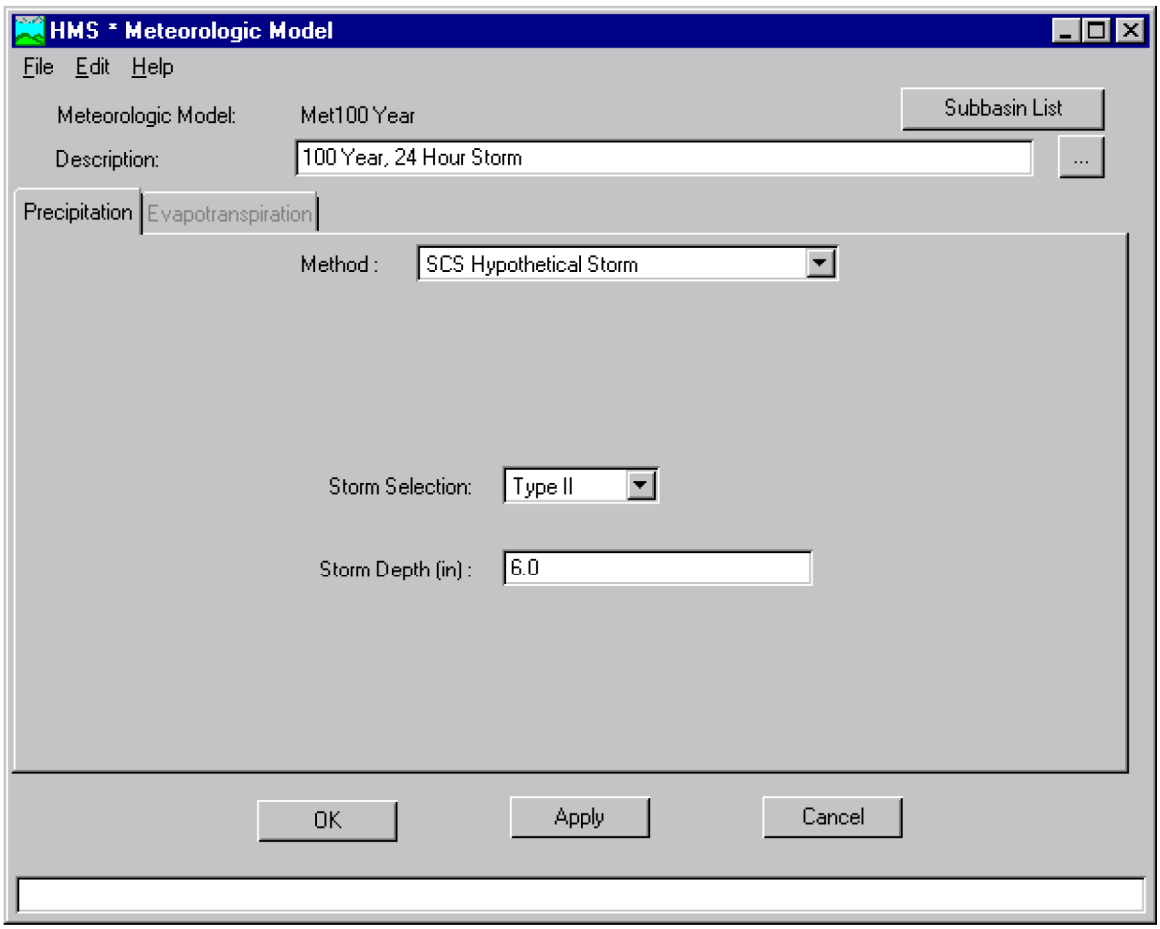
Project : WCS Run Name : 100YrAMIII3/24/06NOD

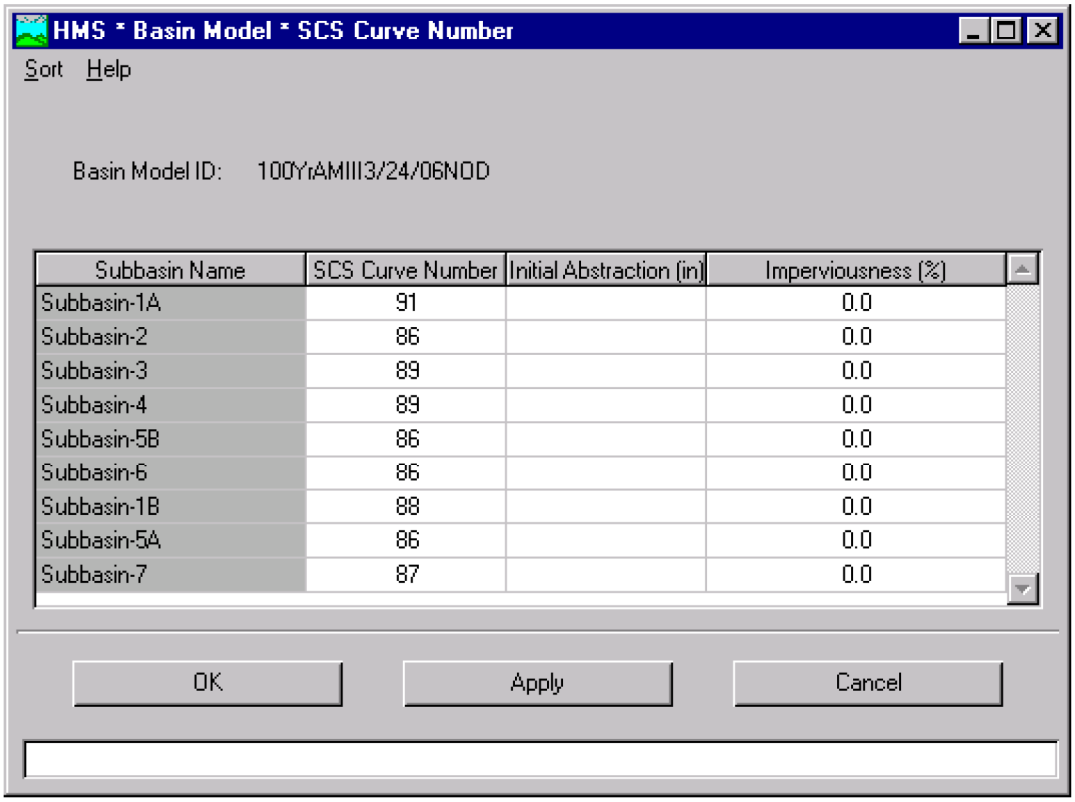
Start of Run : 01Dec00 0000 Basin Model : 100YrAMIII3/24/06NOD
End of Run : 02Dec00 0000 Met. Model : Met100 Year
Execution Time : 24Mar06 1557 Control Specs : Control 1

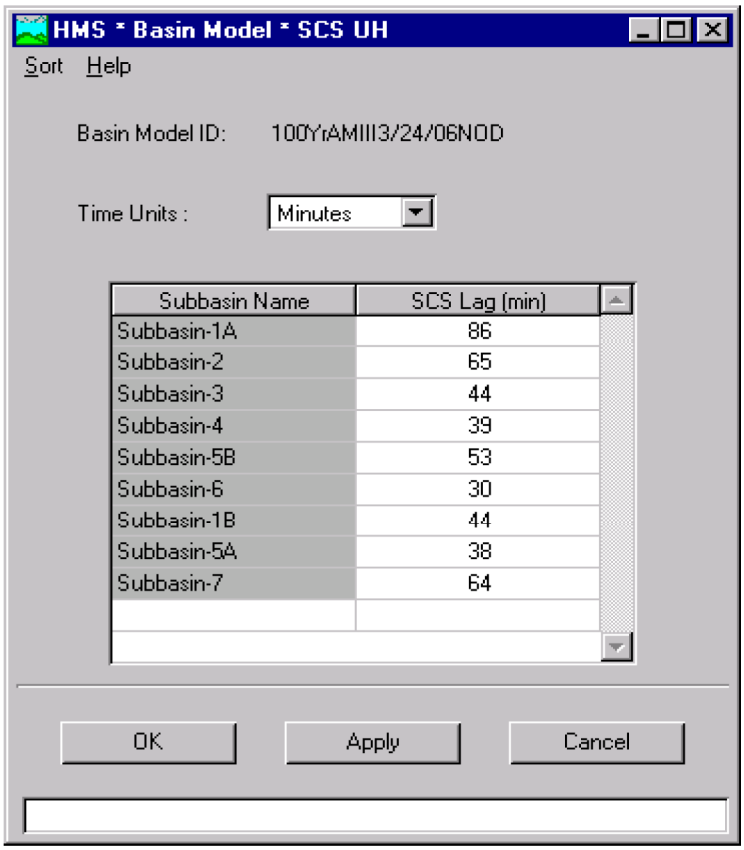
Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Subbasin-4	790.29	01 Dec 00 1231	122.31	0.490
Reach-2	790.29	01 Dec 00 1246	121.87	0.490
Subbasin-2	1107.9	01 Dec 00 1259	244.80	1.063
playa	0.0	30 Nov 00 2400	0.0	1.063
Reach-1	0.0	30 Nov 00 2400	0.0	1.063
Subbasin-1A	644.57	01 Dec 00 1319	178.03	0.691
Reach-1A	644.57	01 Dec 00 1336	177.29	0.691
Subbasin-1B	455.38	01 Dec 00 1236	76.429	0.314
Junction-1A	816.66	01 Dec 00 1319	253.72	1.005
Reach-1B	816.66	01 Dec 00 1322	253.54	1.005
Subbasin-3	230.66	01 Dec 00 1236	38.879	0.156
Junction-1	965.95	01 Dec 00 1253	292.42	2.224
Reach-3	965.95	01 Dec 00 1310	291.19	2.224
Subbasin-5A	296.92	01 Dec 00 1230	44.613	0.192
Junction-2	1873.4	01 Dec 00 1250	457.68	2.906
Reach-4	1873.4	01 Dec 00 1311	455.29	2.906
Subbasin-5B	321.56	01 Dec 00 1246	61.273	0.265
Junction-3	2127.6	01 Dec 00 1309	516.56	3.171
Reach-5	2127.6	01 Dec 00 1323	514.73	3.171
Subbasin-6	135.18	01 Dec 00 1222	17.239	0.074
Junction-4	2154.5	01 Dec 00 1323	531.96	3.245
Reach-6	2154.5	01 Dec 00 1323	531.96	3.245
Subbasin-7	112.07	01 Dec 00 1257	24.553	0.104
Junction-5	2247.7	01 Dec 00 1323	556.52	3.349

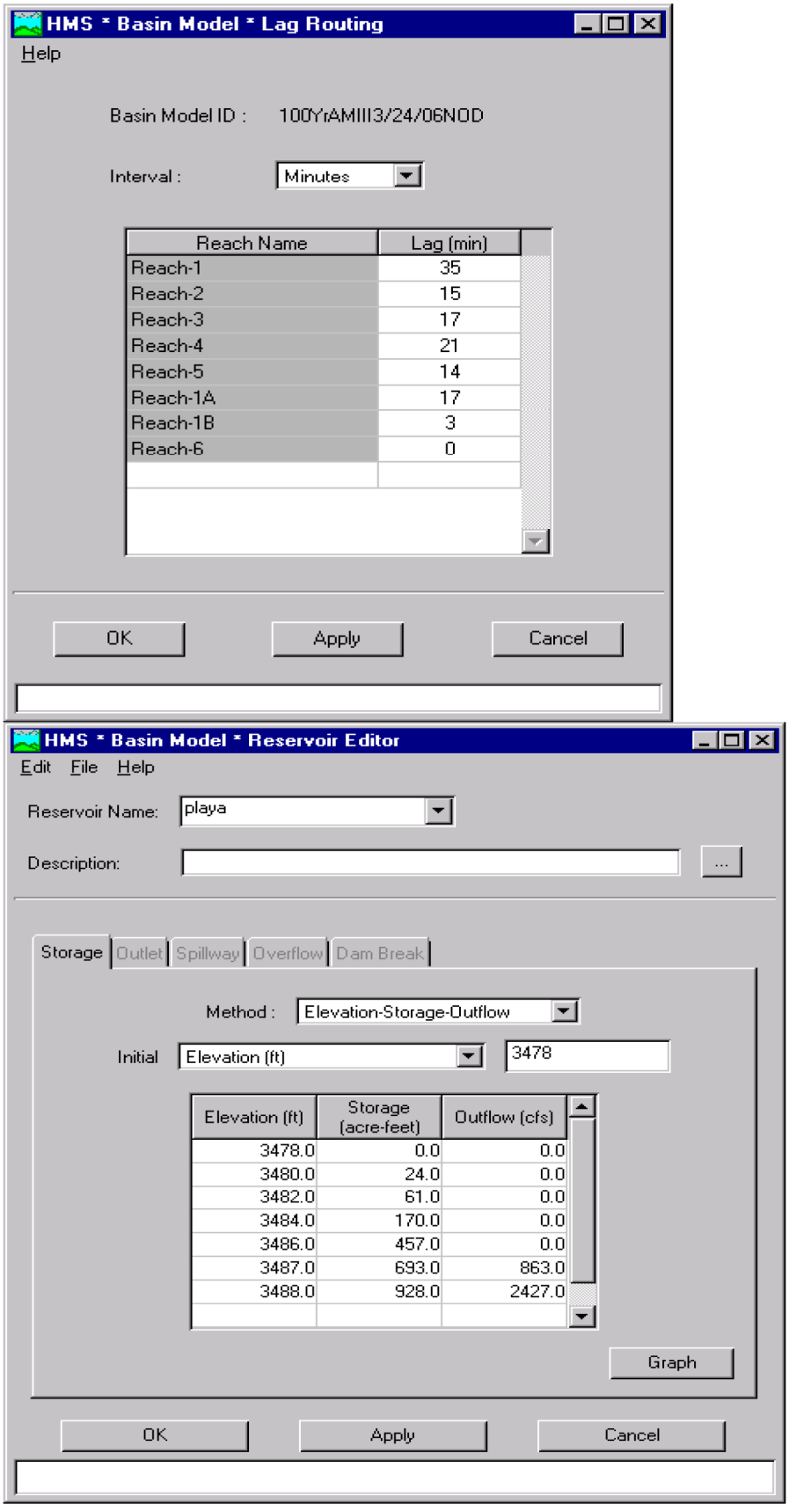

Subbasin-1B
Subbasin-1A
Subbasin-3
Subbasin-2
Reach-1A
playa
Reach-1
Junction-1A
Reach-1B
Subbasin-4
Reach-2
Junction-1
Reach-3
Subbasin-5A
Junction-2
Subbasin-5B
Reach-4
Subbasin-6
Junction-3
Reach-5
Junction-4
Subbasin-7
Reach-6
Junction-5

Meteorologic Model Input

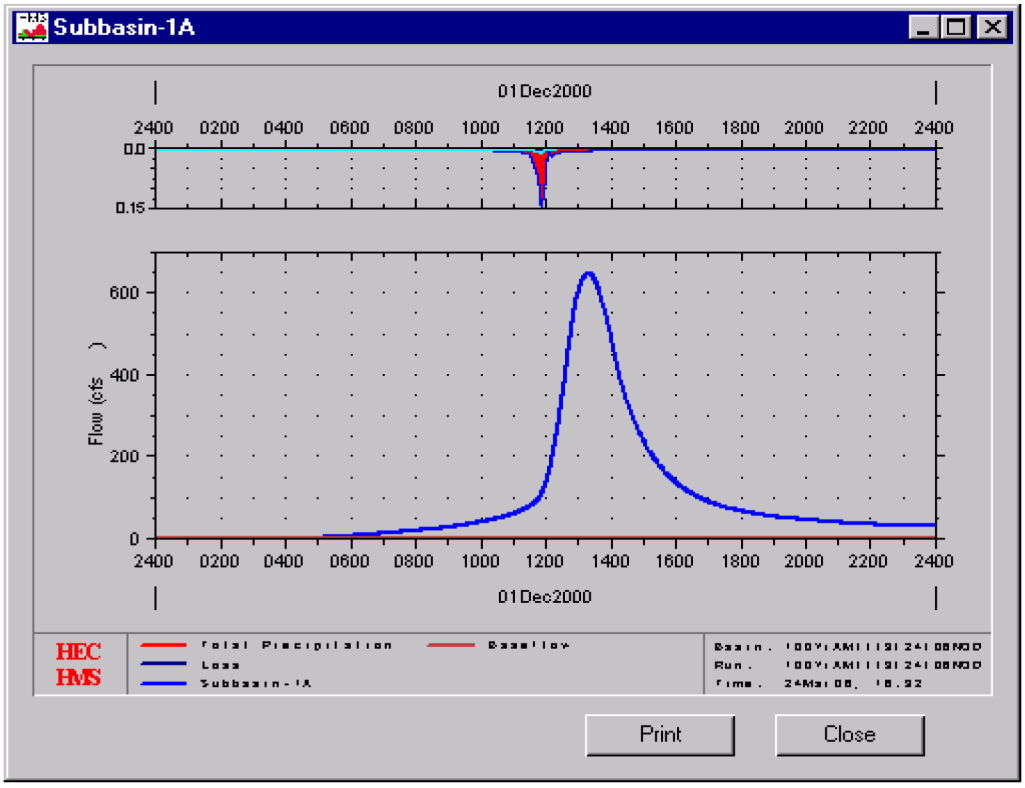


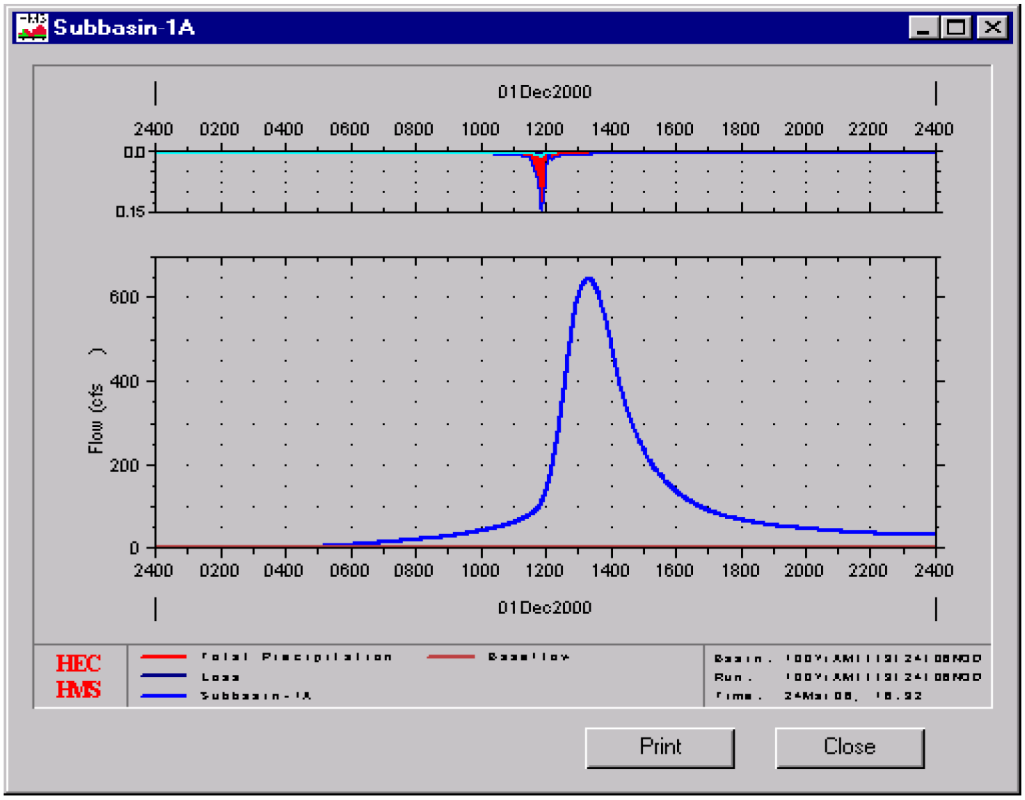

HMS * Basin Model * SCS Curve Number
Sort Help
Basin Model ID: 100YrAMIII3/24/06NOD
Subbasin Name | SCS Curve Number | Initial Abstraction (in) | Imperviousness (%)
Subbasin-1A | 91 | | 0.0
Subbasin-2 | 86 | | 0.0
Subbasin-3 | 89 | | 0.0
Subbasin-4 | 89 | | 0.0
Subbasin-5B | 86 | | 0.0
Subbasin-6 | 86 | | 0.0
Subbasin-1B | 88 | | 0.0
Subbasin-5A | 86 | | 0.0
Subbasin-7 | 87 | | 0.0
OK
Apply
Cancel


HMS * Basin Model * SCS UH
Sort Help
Basin Model ID: 100YrAMIII3/24/06NOD
Time Units : Minutes
Subbasin Name | SCS Lag (min)
Subbasin-1A | 86
Subbasin-2 | 65
Subbasin-3 | 44
Subbasin-4 | 39
Subbasin-5B | 53
Subbasin-6 | 30
Subbasin-1B | 44
Subbasin-5A | 38
Subbasin-7 | 64
OK
Apply
Cancel

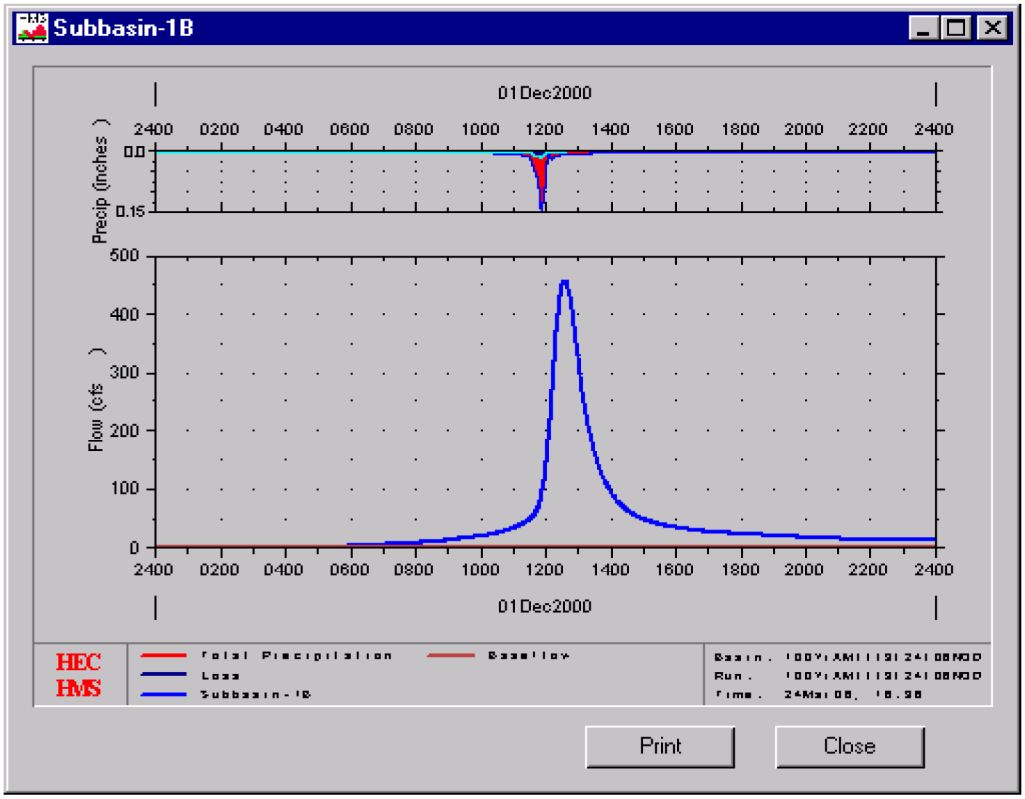

HMS * Basin Model * Lag Routing
Help
Basin Model ID : 100YrAMIII3/24/06NOD
Interval : Minutes
Reach Name | Lag (min)
Reach-1 | 35
Reach-2 | 15
Reach-3 | 17
Reach-4 | 21
Reach-5 | 14
Reach-1A | 17
Reach-1B | 3
Reach-6 | 0
OK
Apply
Cancel
HMS * Basin Model * Reservoir Editor
Edit File Help
Reservoir Name: playa
Description:
...
Storage Outlet Spillway Overflow Dam Break
Method : Elevation-Storage-Outflow
Initial Elevation (ft) 3478
Elevation (ft) | Storage (acre-feet) | Outflow (cfs)
3478.0 | 0.0 | 0.0
3480.0 | 24.0 | 0.0
3482.0 | 61.0 | 0.0
3484.0 | 170.0 | 0.0
3486.0 | 457.0 | 0.0
3487.0 | 693.0 | 863.0
3488.0 | 928.0 | 2427.0
Graph
OK
Apply
Cancel

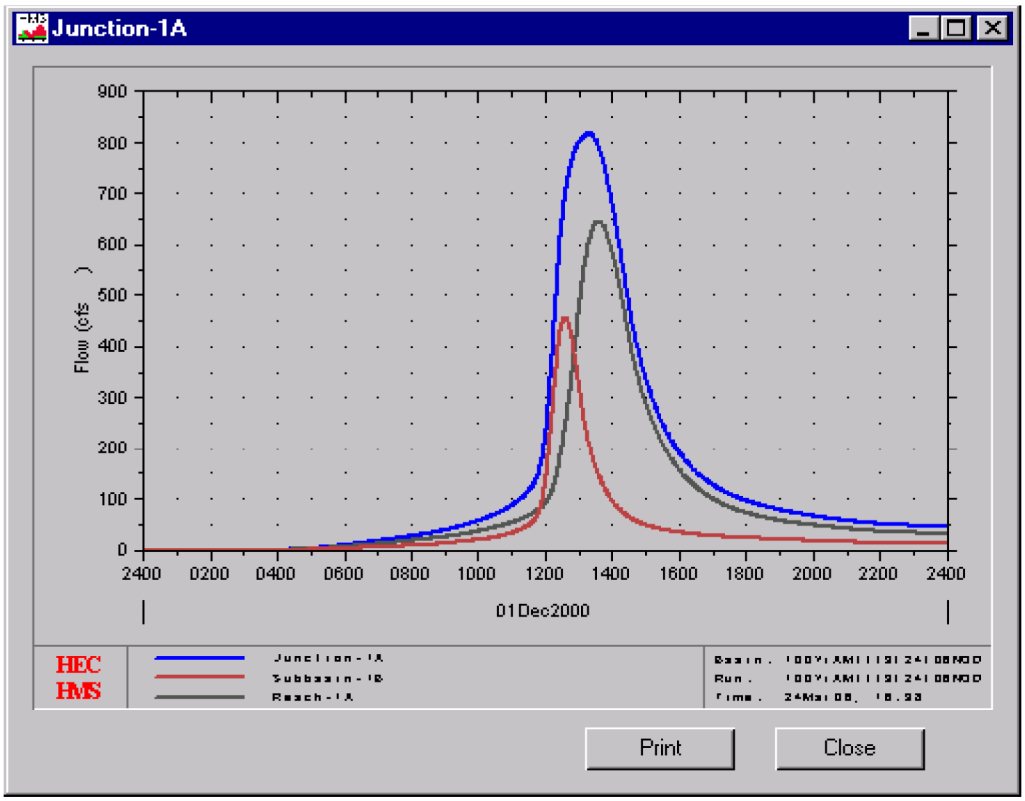
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



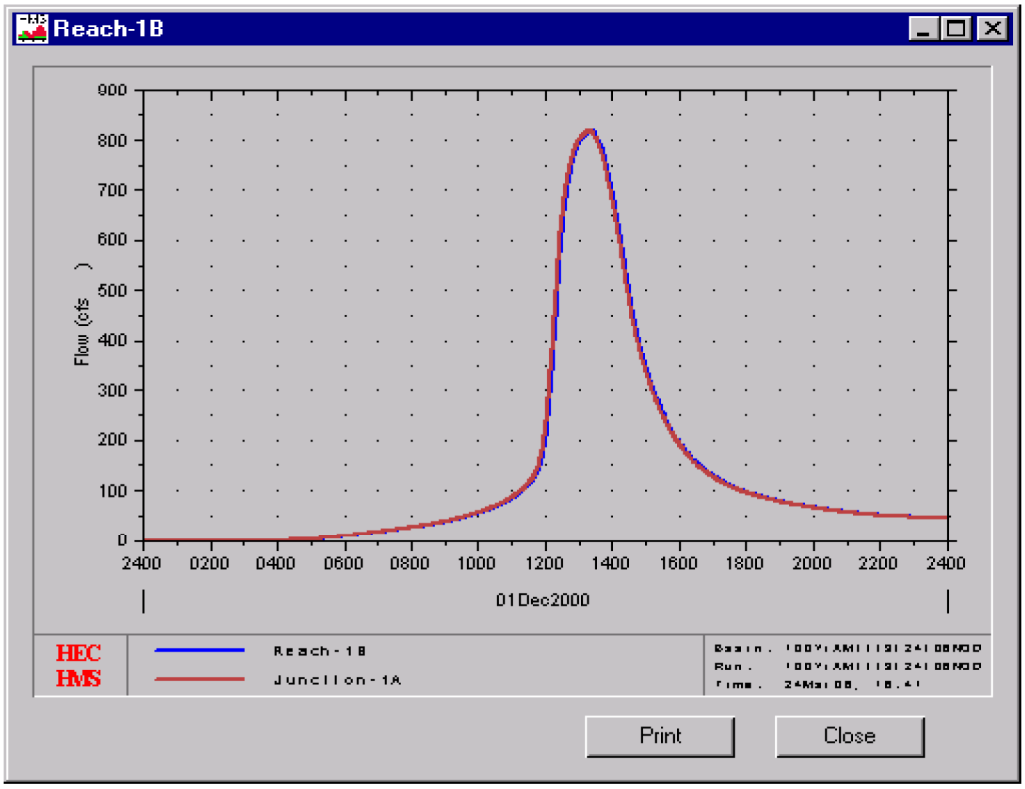


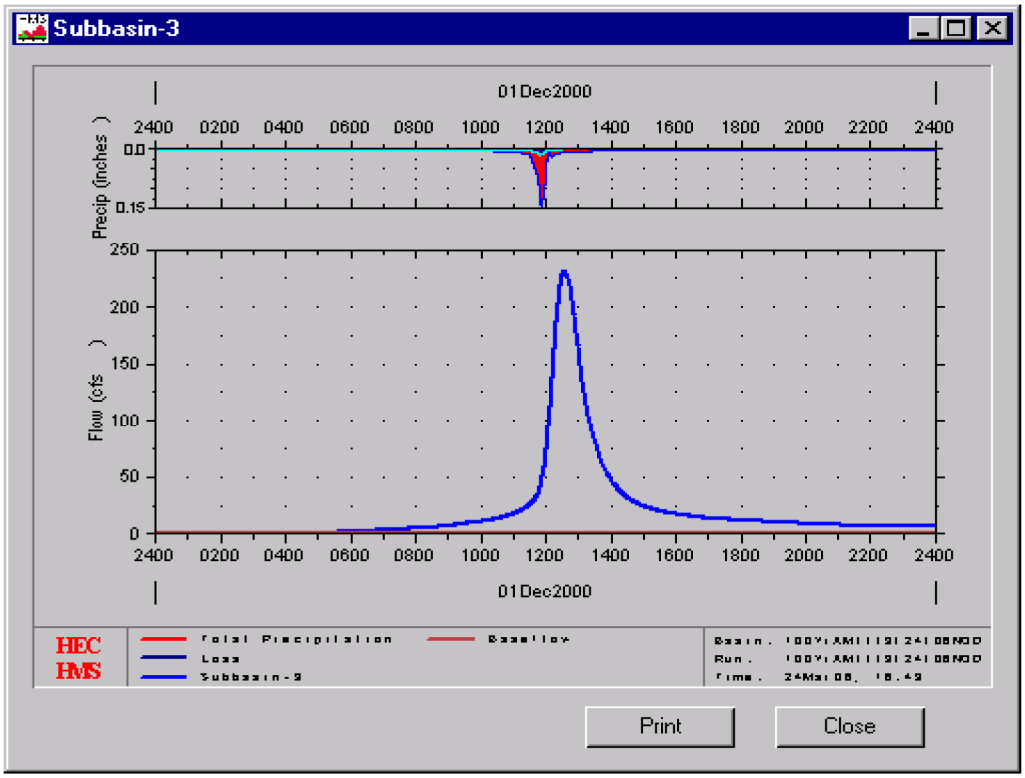
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



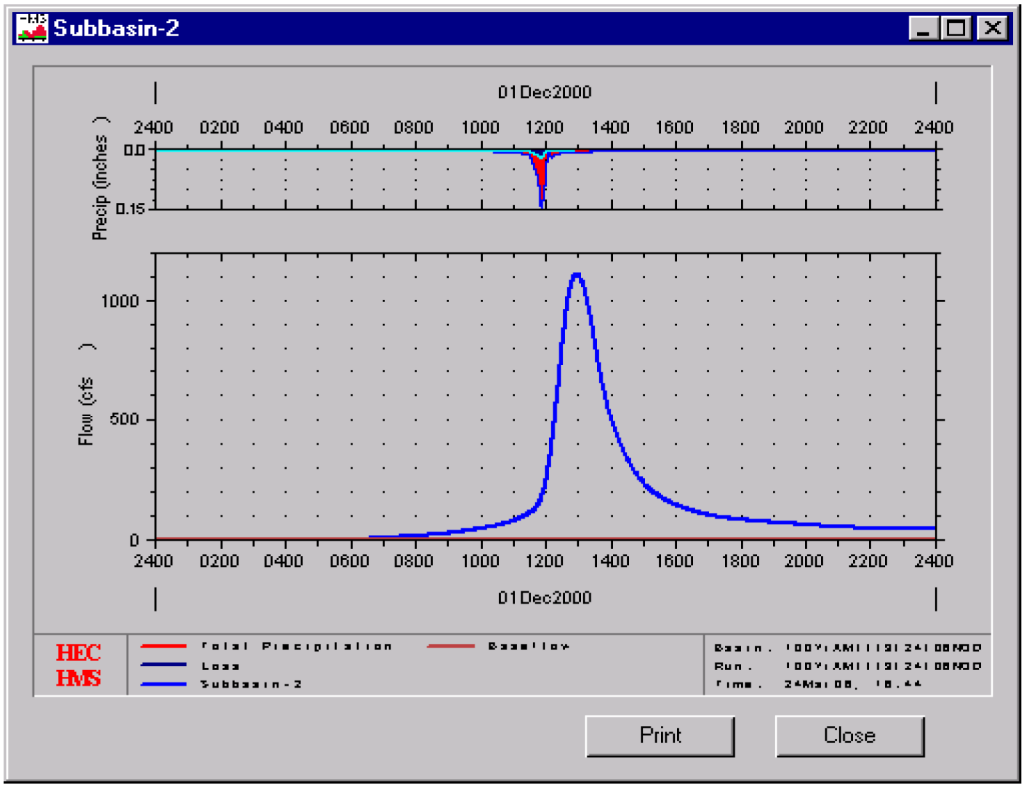


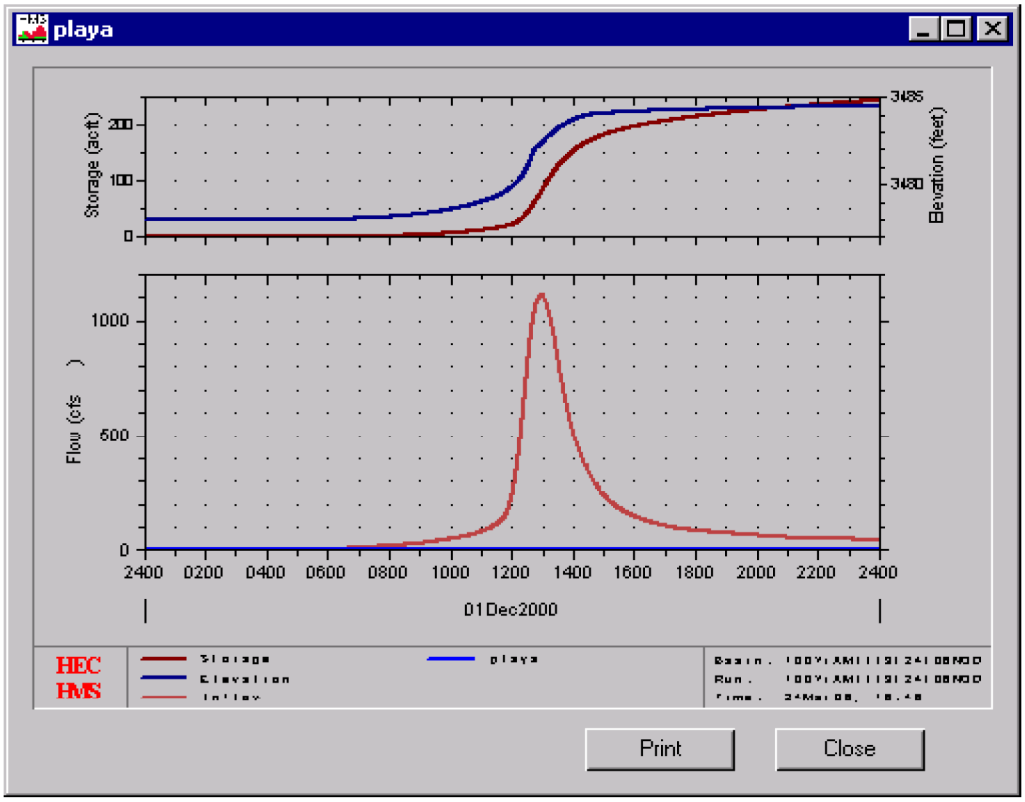
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



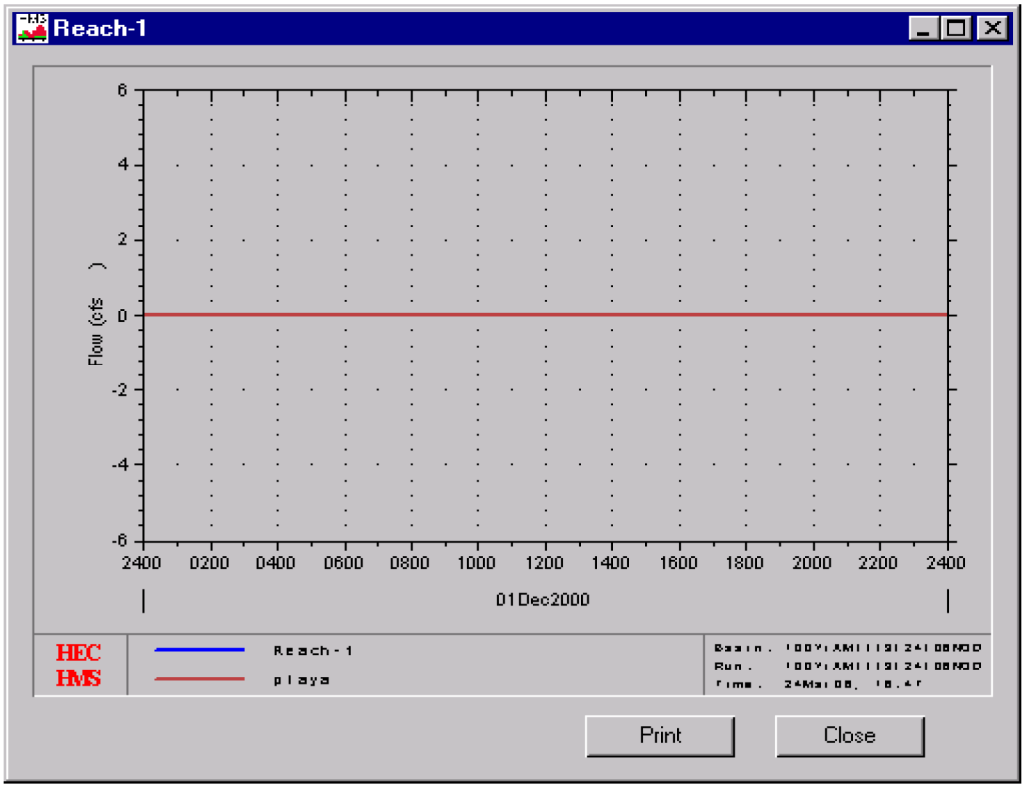


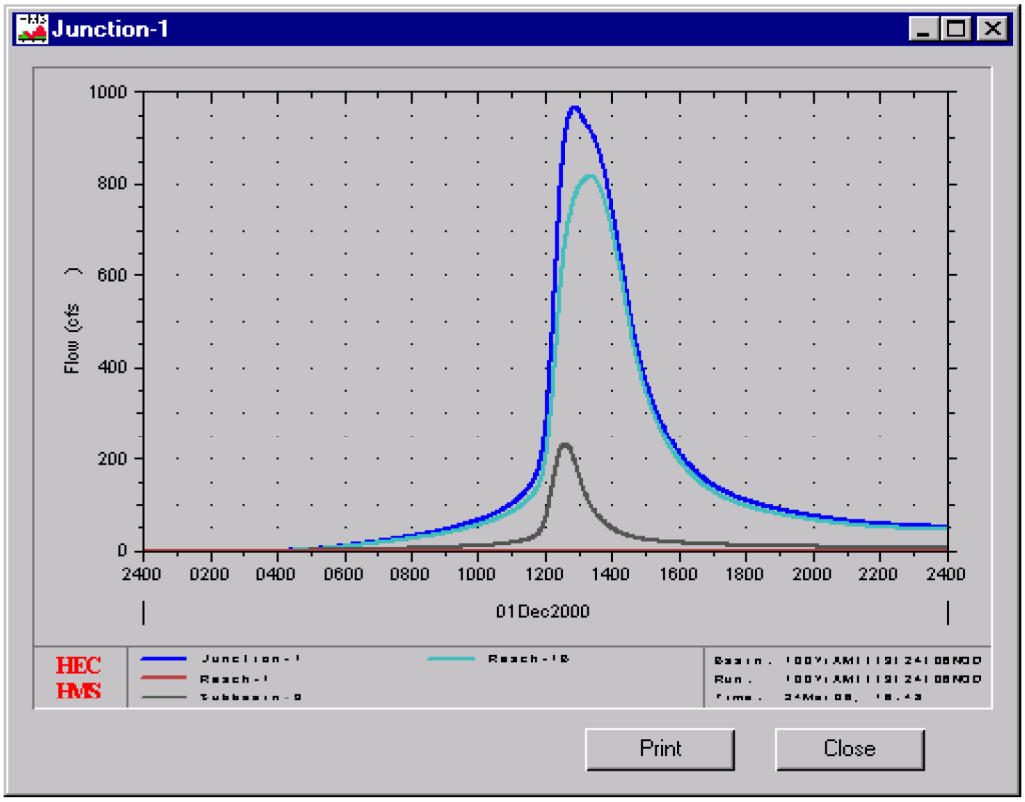
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



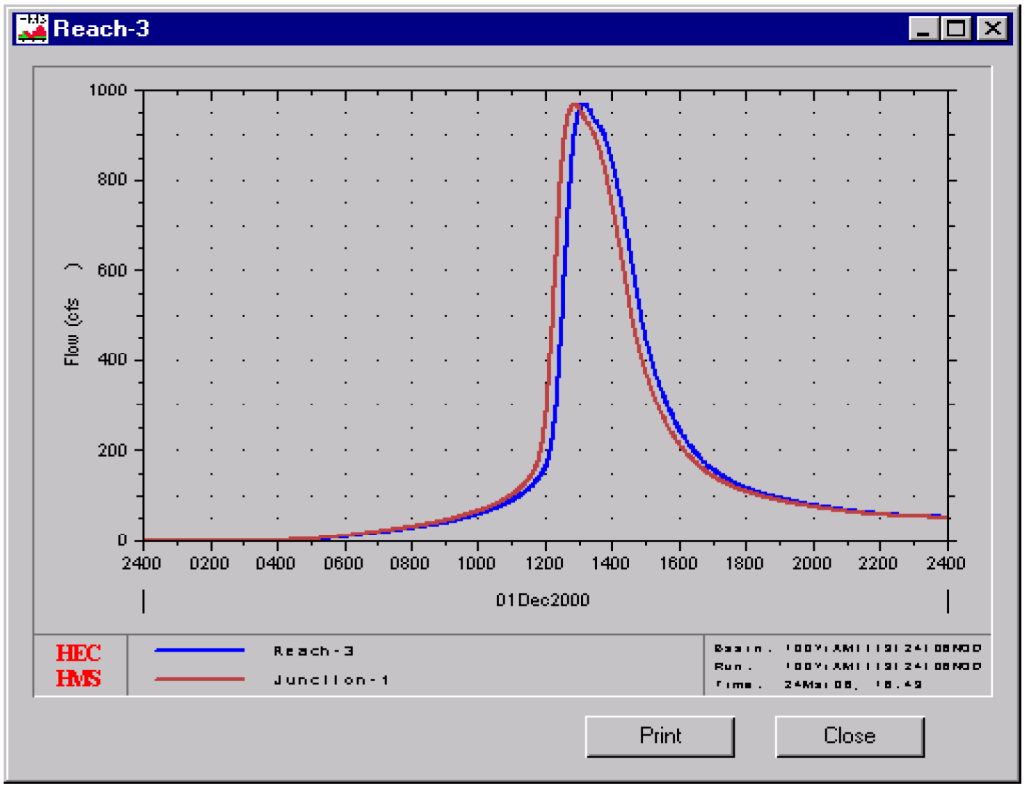


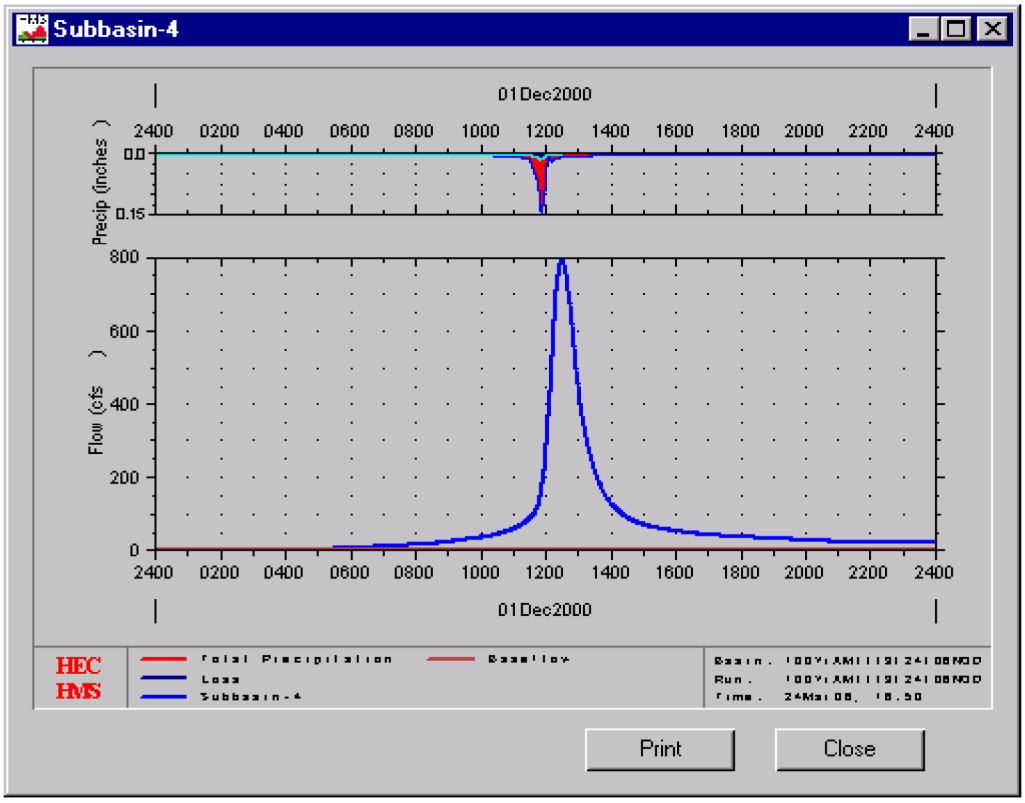
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



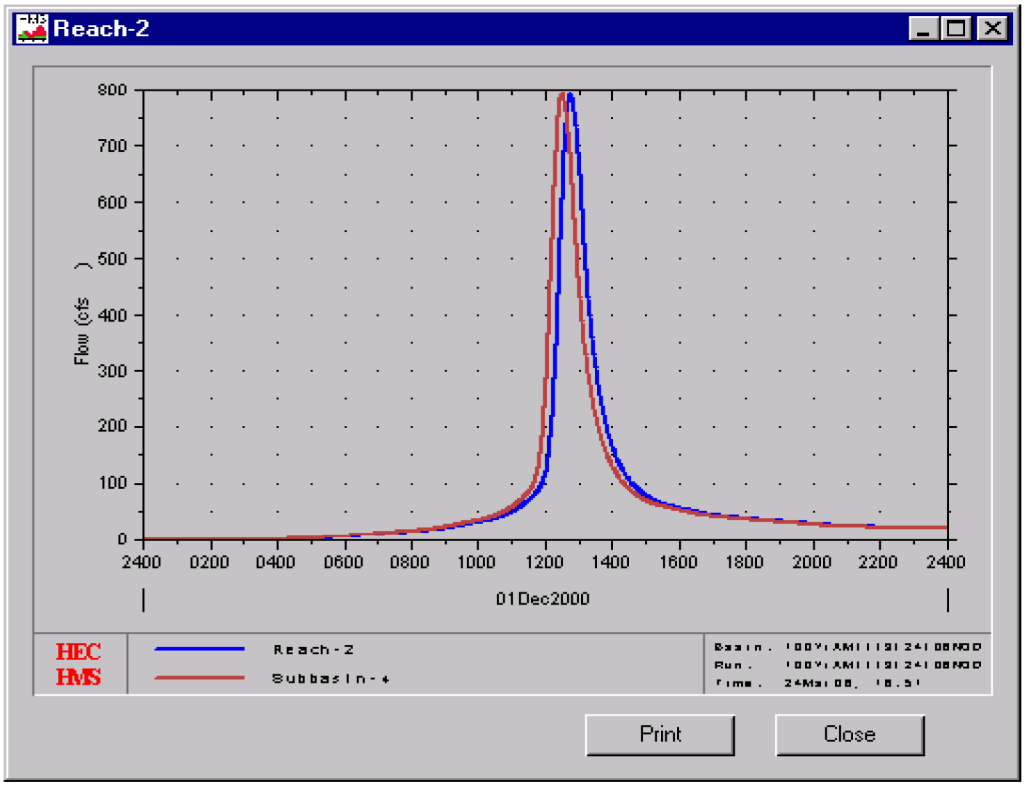


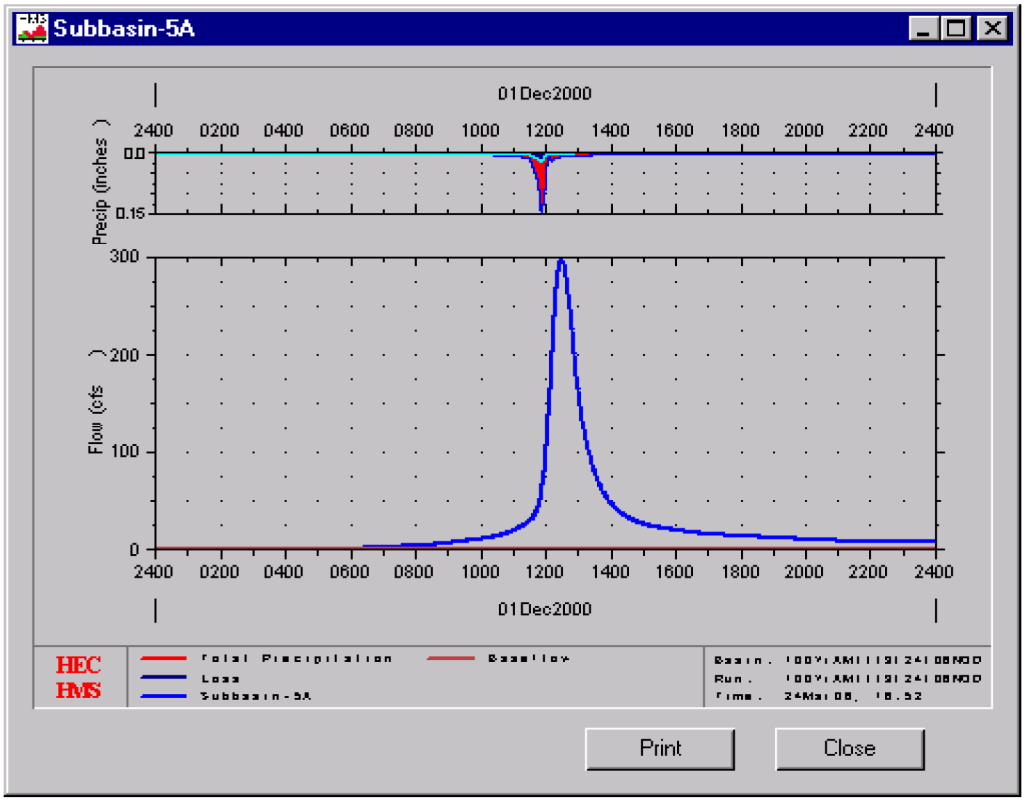
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



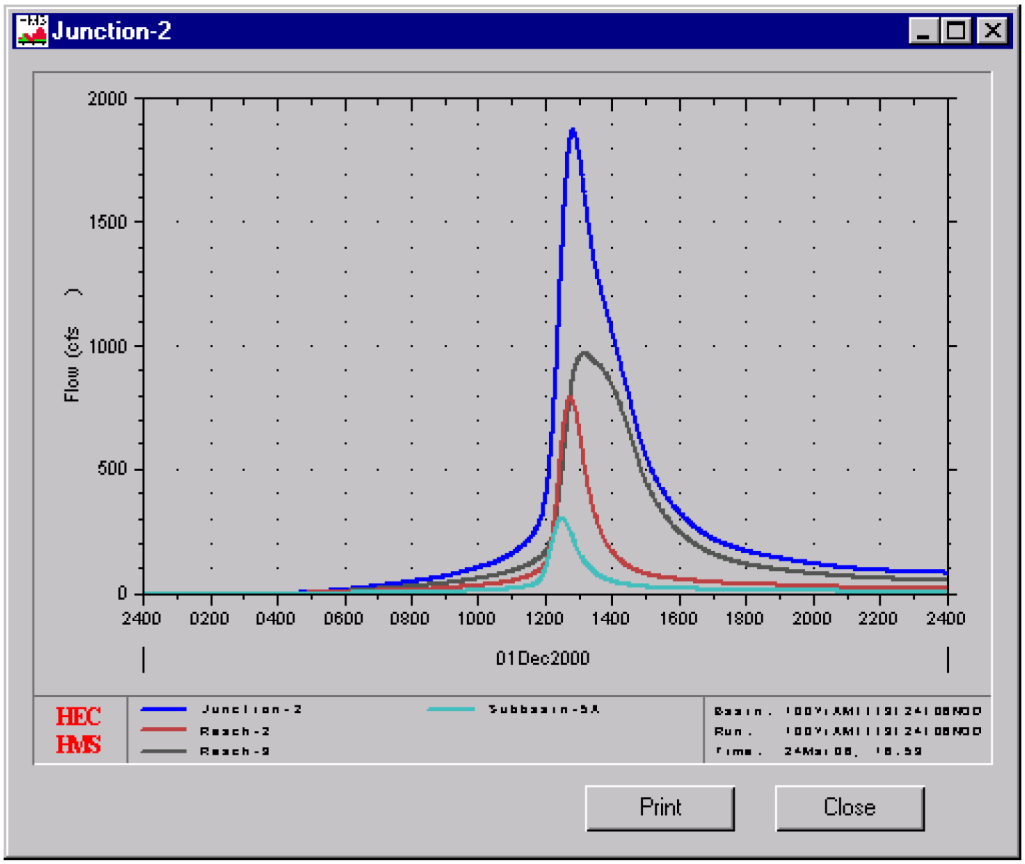


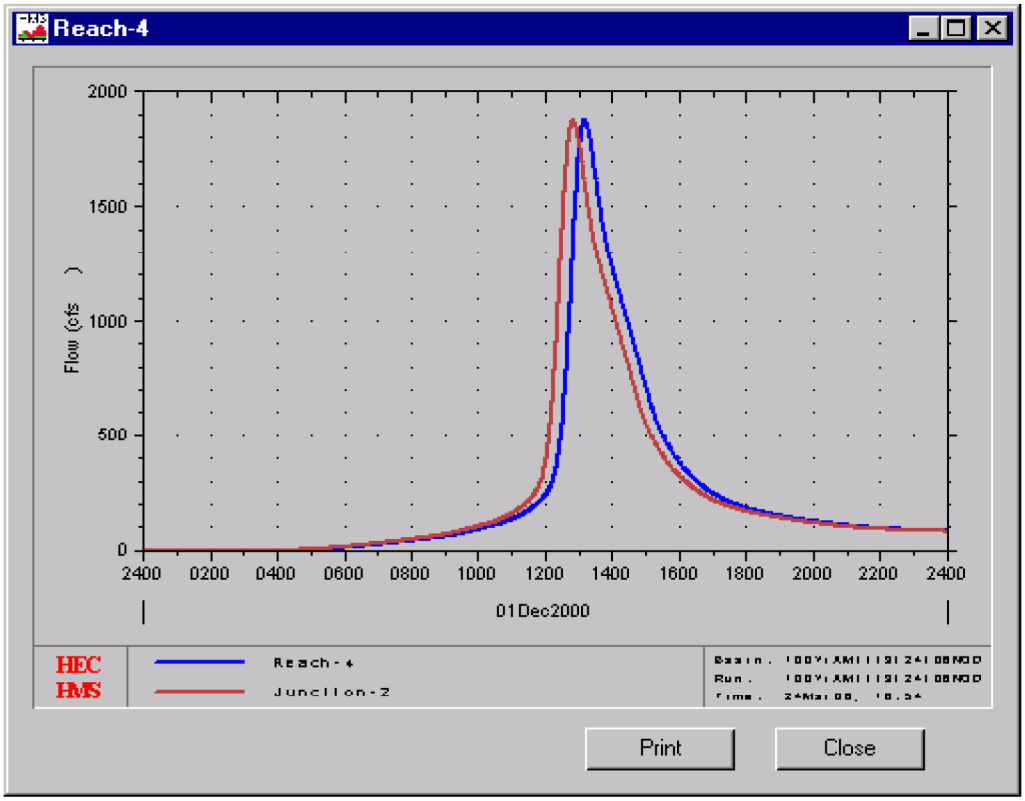
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



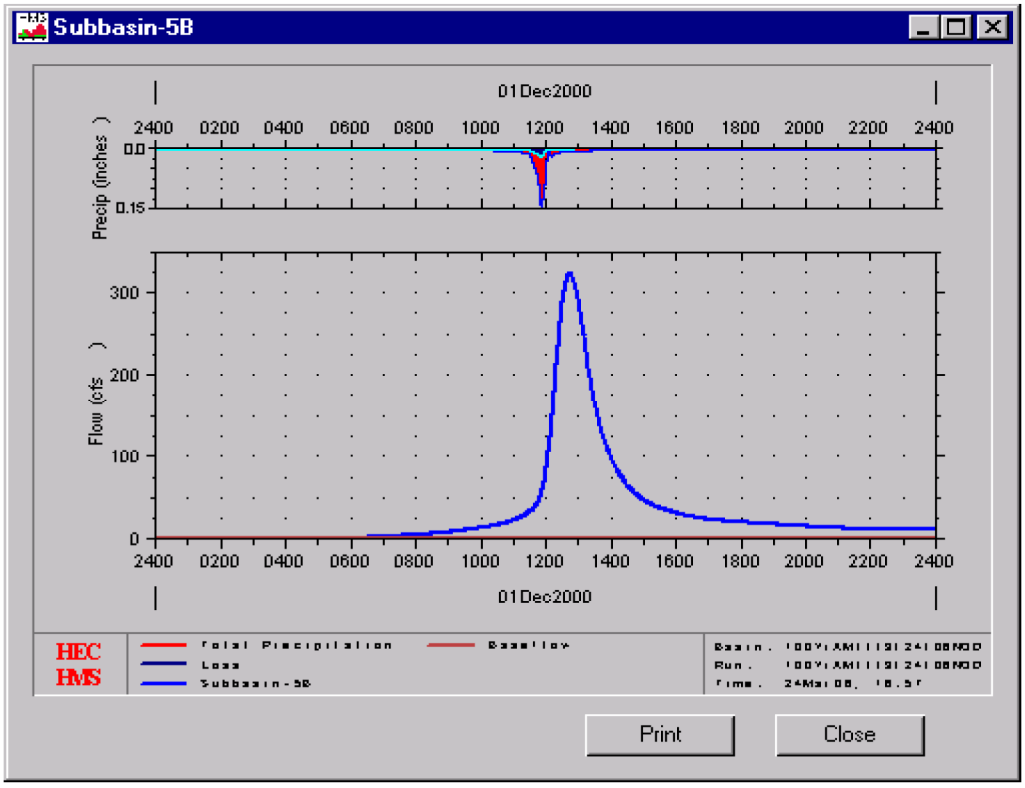


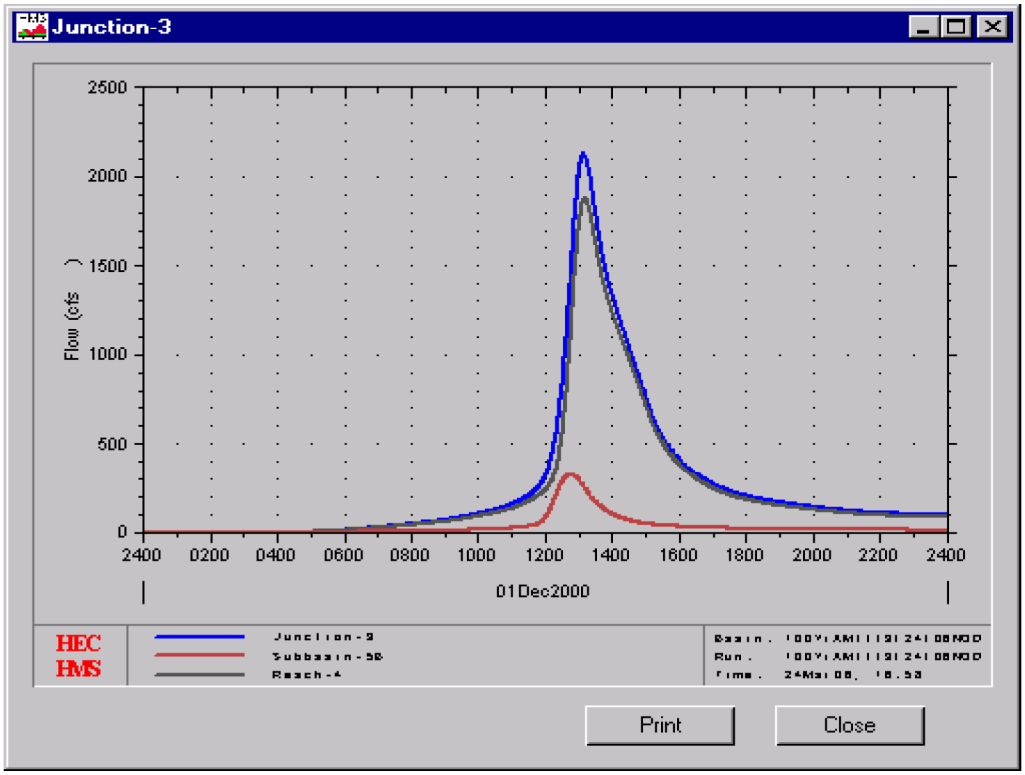
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



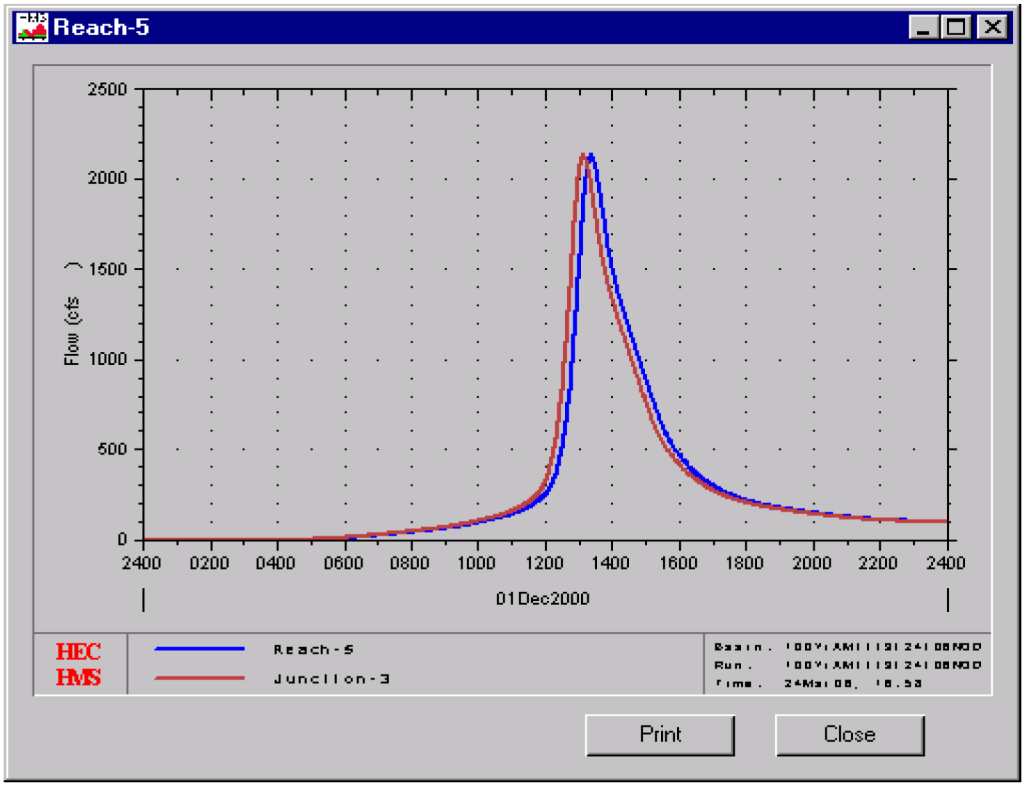


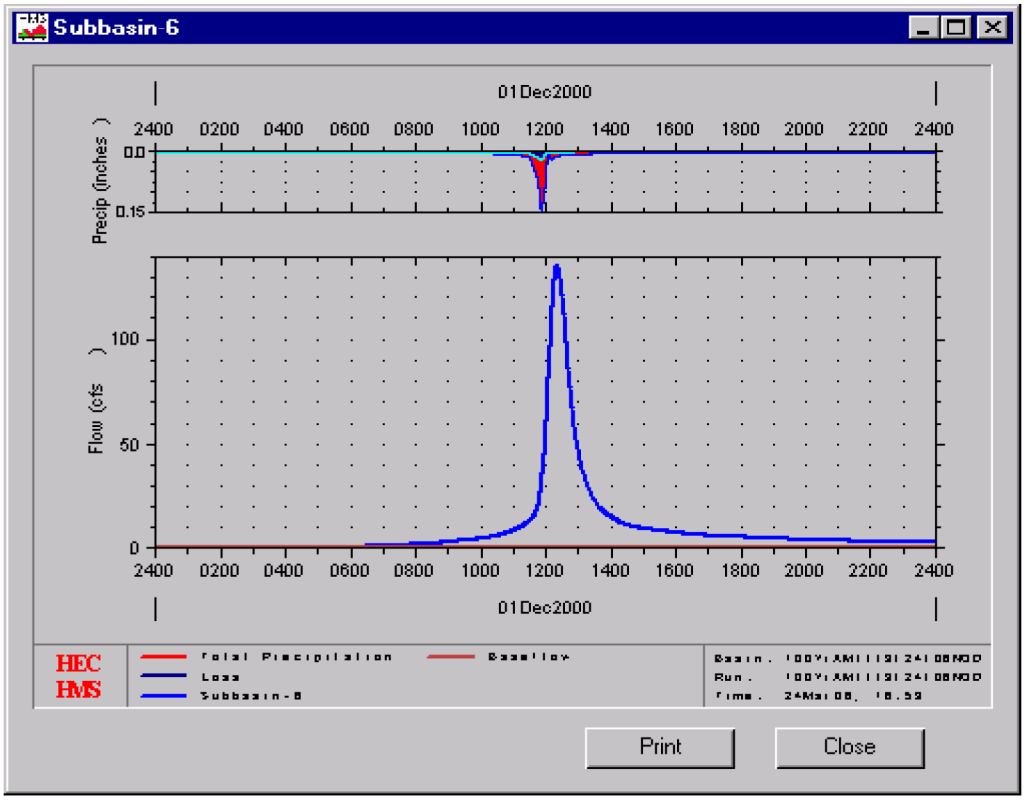
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



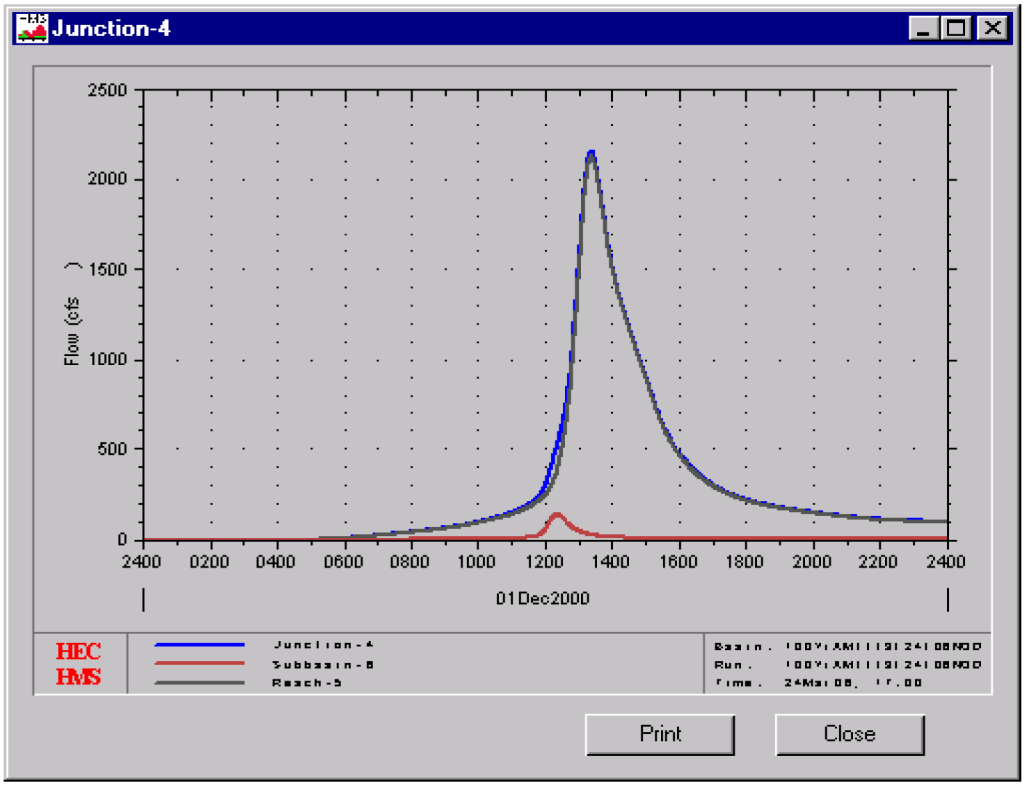


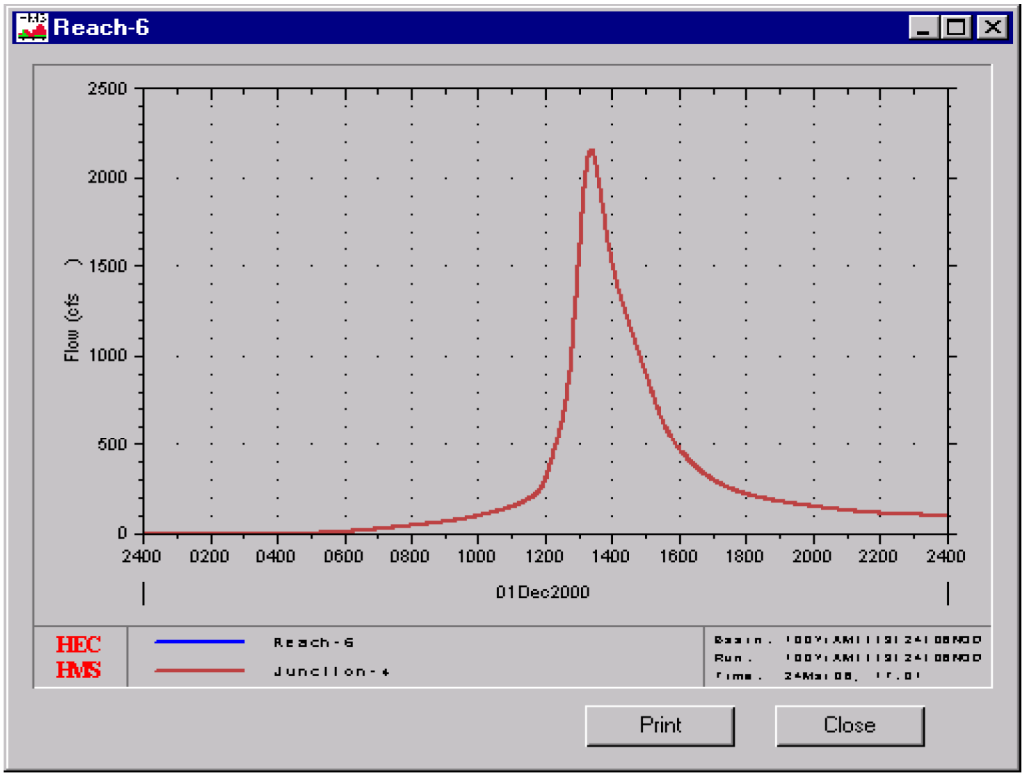
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



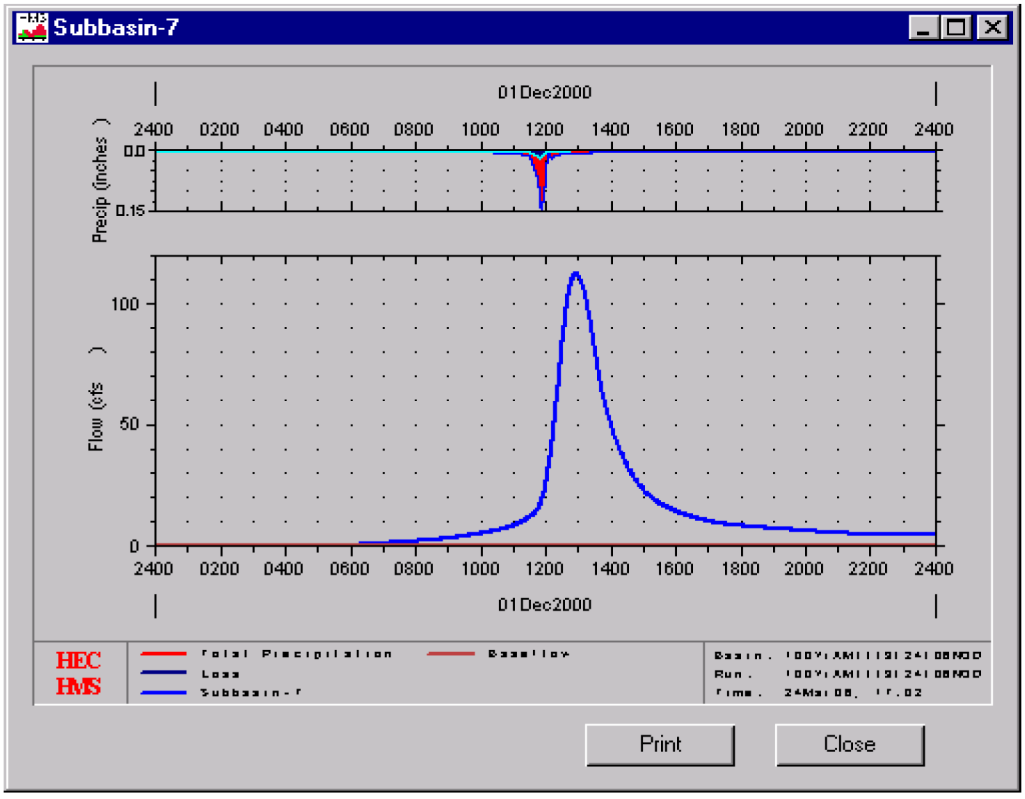


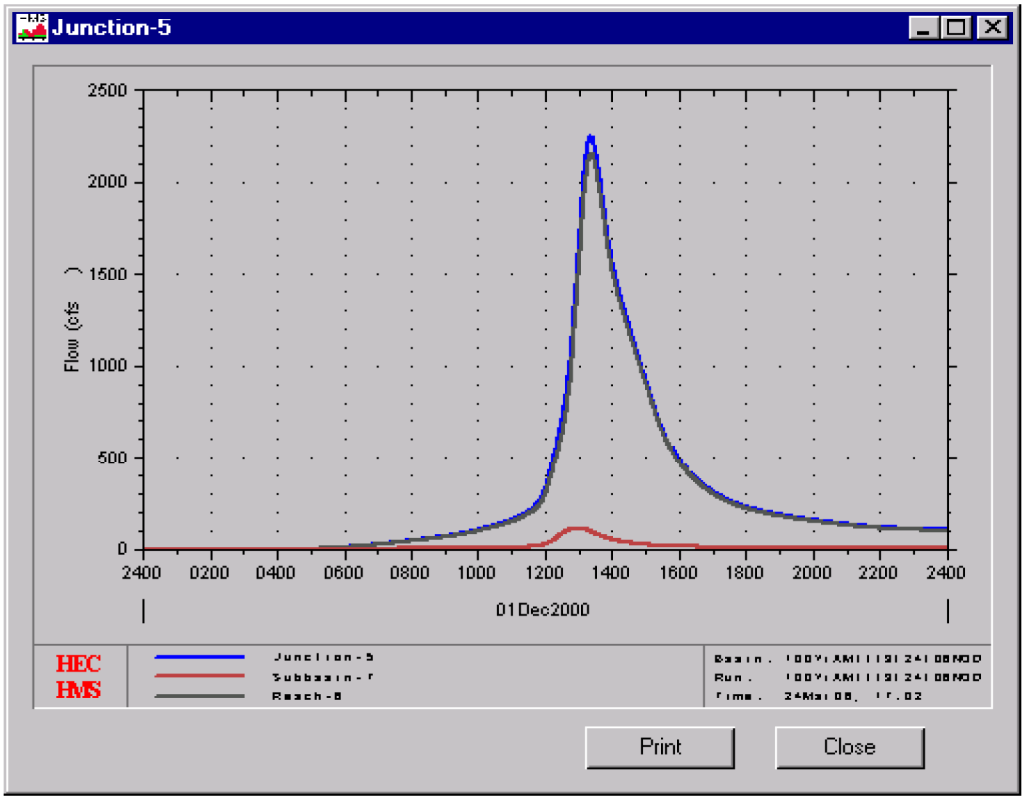
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS





WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS





APPENDIX R

HEC-RAS MODEL FOR THE CALCULATION OF THE 100-YEAR WATER SURFACE PROFILE, ANTECEDENT MOISTURE CONDITION III

HEC-RAS Plan: AMIII 100 River: Ditch A Reach: 5

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Max Chl Dpth	E.G. Elev	E.G. Slope	Vel Chnl	Sta W.S. Lft	Sta W.S. Rgt	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft)	(ft)	(sq ft)	(ft)	
5	12674	645.00	3477.00	3478.49	3478.08	1.49	3478.59	0.003093	2.49	345.62	665.95	268.80	320.33	0.44
5	12674	645.00	3477.00	3478.49	3478.08	1.49	3478.59	0.003093	2.49	345.62	665.95	268.80	320.33	0.44
5	12674	645.00	3477.00	3478.49	3478.08	1.49	3478.59	0.003093	2.49	345.62	665.95	268.80	320.33	0.44
5	12674	645.00	3477.00	3478.49	3478.08	1.49	3478.59	0.003093	2.49	345.62	665.95	268.80	320.33	0.44
5	11337	645.00	3469.00	3470.53	3470.50	1.53	3470.97	0.013657	5.36	423.67	560.80	123.92	137.13	0.93
5	11337	645.00	3469.00	3470.53	3470.50	1.53	3470.97	0.013657	5.36	423.67	560.80	123.92	137.13	0.93
5	11337	645.00	3469.00	3470.53	3470.50	1.53	3470.97	0.013657	5.36	423.67	560.80	123.92	137.13	0.93
5	11337	645.00	3469.00	3470.53	3470.50	1.53	3470.97	0.013657	5.36	423.67	560.80	123.92	137.13	0.93
5	10937	645.00	3464.00	3465.93	3465.75	1.93	3466.26	0.010093	4.57	467.44	606.74	141.28	139.30	0.80
5	10937	645.00	3464.00	3465.93	3465.75	1.93	3466.26	0.010093	4.57	467.44	606.74	141.28	139.30	0.80
5	10937	645.00	3464.00	3465.93	3465.75	1.93	3466.26	0.010093	4.57	467.44	606.74	141.28	139.30	0.80
5	10937	645.00	3464.00	3465.93	3465.75	1.93	3466.26	0.010093	4.57	467.44	606.74	141.28	139.30	0.80
5	10288	645.00	3456.00	3457.07	3457.07	1.07	3457.30	0.019840	3.87	389.03	738.96	166.72	349.93	0.99
5	10288	645.00	3456.00	3457.07	3457.07	1.07	3457.30	0.019840	3.87	389.03	738.96	166.72	349.93	0.99
5	10288	645.00	3456.00	3457.07	3457.07	1.07	3457.30	0.019840	3.87	389.03	738.96	166.72	349.93	0.99
5	10288	645.00	3456.00	3457.07	3457.07	1.07	3457.30	0.019840	3.87	389.03	738.96	166.72	349.93	0.99
5	9690	817.00	3450.00	3451.66	3451.28	1.66	3451.78	0.004774	2.78	423.62	771.66	293.93	348.04	0.53
5	9690	817.00	3450.00	3451.66	3451.28	1.66	3451.78	0.004774	2.78	423.62	771.66	293.93	348.04	0.53
5	9690	817.00	3450.00	3451.66	3451.28	1.66	3451.78	0.004774	2.78	423.62	771.66	293.93	348.04	0.53
5	9690	817.00	3450.00	3451.66	3451.28	1.66	3451.78	0.004774	2.78	423.62	771.66	293.93	348.04	0.53
5	9009	817.00	3445.00	3446.62	3446.50	1.62	3446.87	0.012038	4.03	440.24	716.03	202.92	275.79	0.83
5	9009	817.00	3445.00	3446.62	3446.50	1.62	3446.87	0.012038	4.03	440.24	716.03	202.92	275.79	0.83
5	9009	817.00	3445.00	3446.62	3446.50	1.62	3446.87	0.012038	4.03	440.24	716.03	202.92	275.79	0.83
5	9009	817.00	3445.00	3446.62	3446.50	1.62	3446.87	0.012038	4.03	440.24	716.03	202.92	275.79	0.83
5	8130	817.00	3440.00	3441.75	3441.25	1.75	3441.84	0.003282	2.40	448.26	828.47	340.75	380.21	0.45
5	8130	817.00	3440.00	3441.75	3441.25	1.75	3441.84	0.003282	2.40	448.26	828.47	340.75	380.21	0.45
5	8130	817.00	3440.00	3441.75	3441.25	1.75	3441.84	0.003282	2.40	448.26	828.47	340.75	380.21	0.45
5	8130	817.00	3440.00	3441.75	3441.25	1.75	3441.84	0.003282	2.40	448.26	828.47	340.75	380.21	0.45
5	7717	817.00	3437.80	3438.79	3438.79	0.99	3439.10	0.019275	4.47	323.60	626.42	182.90	302.82	1.01
5	7717	817.00	3437.80	3438.79	3438.79	0.99	3439.10	0.019275	4.47	323.60	626.42	182.90	302.82	1.01
5	7717	817.00	3437.80	3438.79	3438.79	0.99	3439.10	0.019275	4.47	323.60	626.42	182.90	302.82	1.01
5	7717	817.00	3437.80	3438.79	3438.79	0.99	3439.10	0.019275	4.47	323.60	626.42	182.90	302.82	1.01
5	7253	966.00	3435.00	3436.53	3435.99	1.53	3436.59	0.001746	1.92	396.63	932.31	511.45	535.68	0.33
5	7253	966.00	3435.00	3436.53	3435.99	1.53	3436.59	0.001746	1.92	396.63	932.31	511.45	535.68	0.33
5	7253	966.00	3435.00	3436.53	3435.99	1.53	3436.59	0.001746	1.92	396.63	932.31	511.45	535.68	0.33
5	7253	966.00	3435.00	3436.53	3435.99	1.53	3436.59	0.001746	1.92	396.63	932.31	511.45	535.68	0.33
5	6343	1873.00	3430.00	3430.86	3430.86	0.86	3431.22	0.018047	4.82	754.77	1299.87	388.25	545.10	1.01
5	6343	1873.00	3430.00	3430.86	3430.86	0.86	3431.22	0.018047	4.82	754.77	1299.87	388.25	545.10	1.01
5	6343	1873.00	3430.00	3430.86	3430.86	0.86	3431.22	0.018047	4.82	754.77	1299.87	388.25	545.10	1.01
5	6343	1873.00	3430.00	3430.86	3430.86	0.86	3431.22	0.018047	4.82	754.77	1299.87	388.25	545.10	1.01
5	5363	1873.00	3425.00	3426.53	3425.93	1.53	3426.60	0.001798	2.13	690.84	1582.86	906.30	892.02	0.35
5	5363	1873.00	3425.00	3426.53	3425.93	1.53	3426.60	0.001798	2.13	690.84	1582.86	906.30	892.02	0.35
5	5363	1873.00	3425.00	3426.53	3425.93	1.53	3426.60	0.001798	2.13	690.84	1582.86	906.30	892.02	0.35
5	5363	1873.00	3425.00	3426.53	3425.93	1.53	3426.60	0.001798	2.13	690.84	1582.86	906.30	892.02	0.35
5	4221	2128.00	3420.00	3421.19	3421.19	1.19	3421.58	0.017043	5.00	504.75	1086.07	428.69	581.33	0.99
5	4221	2128.00	3420.00	3421.19	3421.19	1.19	3421.58	0.017043	5.00	504.75	1086.07	428.69	581.33	0.99
5	4221	2128.00	3420.00	3421.19	3421.19	1.19	3421.58	0.017043	5.00	504.75	1086.07	428.69	581.33	0.99
5	4221	2128.00	3420.00	3421.19	3421.19	1.19	3421.58	0.017043	5.00	504.75	1086.07	428.69	581.33	0.99
5	3489	2128.00	3416.00	3417.37	3416.82	2.37	3417.44	0.002273	2.30	-119.07	890.29	995.88	1009.36	0.38
5	3489	2128.00	3416.00	3417.37	3416.82	2.37	3417.44	0.002273	2.30	-119.07	890.29	995.88	1009.36	0.38
5	3489	2128.00	3416.00	3417.37	3416.82	2.37	3417.44	0.002273	2.30	-119.07	890.29	995.88	1009.36	0.38
5	3489	2128.00	3416.00	3417.37	3416.82	2.37	3417.44	0.002273	2.30	-119.07	890.29	995.88	1009.36	0.38
5	2989	2128.00	3413.80	3414.67	3414.67	0.87	3415.03	0.018086	4.64	174.17	814.20	446.36	640.02	1.00
5	2989	2128.00	3413.80	3414.67	3414.67	0.87	3415.03	0.018086	4.64	174.17	814.20	446.36	640.02	1.00
5	2989	2128.00	3413.80	3414.67	3414.67	0.87	3415.03	0.018086	4.64	174.17	814.20	446.36	640.02	1.00
5	2989	2128.00	3413.80	3414.67	3414.67	0.87	3415.03	0.018086	4.64	174.17	814.20	446.36	640.02	1.00
5	2774	2128.00	3409.00	3414.16	3412.71	5.16	3414.21	0.000414	2.61	-409.96	647.51	1505.18	1057.47	0.21
5	2774	2128.00	3409.00	3414.16	3412.71	5.16	3414.21	0.000414	2.61	-409.96	647.51	1505.18	1057.47	0.21
5	2774	2128.00	3409.00	3414.16	3412.71	5.16	3414.21	0.000414	2.61	-409.98	647.53	1505.70	1057.51	0.21
5	2774	2128.00	3409.00	3414.16	3412.71	5.16	3414.21	0.000414	2.61	-409.98	647.53	1505.70	1057.51	0.21
5	2773	Culvert												
5	2734	2128.00	3408.90	3412.71	3412.71	3.81	3412.94	0.002018	4.57	83.74	515.65	665.51	431.91	0.44
5	2734	2128.00	3408.90	3412.71	3412.71	3.81	3412.94	0.002018	4.57	83.74	515.65	665.51	431.91	0.44
5	2734	2128.00	3408.90	3412.74	3412.71	3.84	3412.96	0.001906	4.47	81.87	517.09	680.86	435.22	0.43
5	2734	2128.00	3408.90	3412.74	3412.71	3.84	3412.96	0.001906	4.47	81.87	517.09	680.86	435.22	0.43
5	1888	2155.00	3408.00	3409.38	3408.89	1.38	3409.46	0.003403	2.59	178.62	1027.41	831.55	846.59	0.46
5	1888	2155.00	3408.00	3409.05	3408.89	1.05	3409.27	0.009807	3.78	215.37	946.36	570.28	730.99	0.75

HEC-RAS Plan: AMIII 100 River: Ditch A Reach: 5 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S	Max Chl Dpth	E.G. Elev	E.G. Slope	Vel Chnl	Sta W.S. Lft	Sta W.S. Rgt	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(ft)	(ft)	(sq ft)	(ft)	
5	1888	2155.00	3408.00	3408.89	3408.89	0.89	3409.23	0.018312	4.71	233.07	907.13	457.76	674.05	1.01
5	1888	2155.00	3408.00	3408.89	3408.89	0.89	3409.23	0.018312	4.71	233.07	907.13	457.76	674.05	1.01
5	1060	2248.00	3402.70	3404.50	3404.34	1.80	3404.81	0.010602	4.48	614.45	1141.44	501.30	526.98	0.81
5	1060	2248.00	3402.70	3405.00	3404.34	2.30	3405.12	0.003053	2.81	540.97	1206.00	799.30	665.03	0.45
5	1060	2248.00	3402.70	3406.00	3404.34	3.30	3406.03	0.000503	1.33	394.00	1523.00	1696.32	1129.00	0.19
5	1060	2248.00	3402.70	3407.00	3404.34	4.30	3407.01	0.000090	0.79	247.00	1523.00	2898.82	1276.00	0.09

HECRASAMIII100

HEC-RAS Version 3.0.1 Mar 2001
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: WCS
Project File : FloodPlain.prj
Run Date and Time: 3/24/06 4:04:35 PM

Project in English units

PLAN DATA

Plan Title: Plan 36
Plan File : D:\program files\WCS\FloodPlain.p36

Geometry Title: PMP1-20-04SecRemoved
Geometry File : D:\program files\WCS\FloodPlain.g04

Flow Title : 100YrAMIII3-24-06ManyNOD
Flow File : D:\program files\WCS\FloodPlain.f28

Plan Summary Information:
Number of: Cross Sections = 18 Mulitple Openings = 0
Culverts = 1 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: 100YrAMIII3-24-06ManyNOD
Flow File : D:\program files\WCS\FloodPlain.f28

Flow Data (cfs)

River	Reach	RS	100 Yr.-WS3404.5	100 Yr.-WS3405	100 Yr.-WS3406	100 Yr.-WS3407
Ditch A	5	12674	645	645	645	645
Ditch A	5	9690	817	817	817	817
Ditch A	5	7253	966	966	966	966
Ditch A	5	6343	1873	1873	1873	1873
Ditch A	5	4221	2128	2128	2128	2128
Ditch A	5	1888	2155	2155	2155	2155
Ditch A	5	1060	2248	2248	2248	2248

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Ditch A	5	100 Yr.-WS3404.5	Critical	Known WS = 3404.5
Ditch A	5	100 Yr.-WS3405	Critical	Known WS = 3405
Ditch A	5	100 Yr.-WS3406	Critical	Known WS = 3406
Ditch A	5	100 Yr.-WS3407	Critical	Known WS = 3407

GEOMETRY DATA

Geometry Title: PMP1-20-04SecRemoved
Geometry File : D:\program files\WCS\FloodPlain.g04

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 12674

INPUT
Description: Sta. 12674
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3482	380	3478	560	3477	635	3478	761	3480
964	3482								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	380	.033	635	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
380	635	1206	1337	1433	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3478.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3478.49	Reach Len. (ft)	1206.00	1337.00	1433.00
Crit W.S. (ft)	3478.08	Flow Area (sq ft)	8.45	252.76	7.60
E.G. Slope (ft/ft)	0.003093	Area (sq ft)	8.45	252.76	7.60
Q Total (cfs)	645.00	Flow (cfs)	8.29	629.24	7.46
Top Width (ft)	320.33	Top Width (ft)	34.38	255.00	30.95
Vel Total (ft/s)	2.40	Avg. Vel. (ft/s)	0.98	2.49	0.98
Max Chl Dpth (ft)	1.49	Hydr. Depth (ft)	0.25	0.99	0.25
Conv. Total (cfs)	11597.5	Conv. (cfs)	149.1	11314.1	134.2
Length Wtd. (ft)	1336.52	Wetted Per. (ft)	34.39	255.01	30.95
Min Ch El (ft)	3477.00	Shear (lb/sq ft)	0.05	0.19	0.05
Alpha	1.05	Stream Power (lb/ft s)	0.05	0.48	0.05
Frctn Loss (ft)	7.59	Cum Volume (acre-ft)	17.03	103.92	2.70
C & E Loss (ft)	0.03	Cum SA (acres)	20.48	111.06	4.66

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3478.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3478.49	Reach Len. (ft)	1206.00	1337.00	1433.00
Crit W.S. (ft)	3478.08	Flow Area (sq ft)	8.45	252.76	7.60
E.G. Slope (ft/ft)	0.003093	Area (sq ft)	8.45	252.76	7.60
Q Total (cfs)	645.00	Flow (cfs)	8.29	629.24	7.46
Top Width (ft)	320.33	Top Width (ft)	34.38	255.00	30.95
Vel Total (ft/s)	2.40	Avg. Vel. (ft/s)	0.98	2.49	0.98
Max Chl Dpth (ft)	1.49	Hydr. Depth (ft)	0.25	0.99	0.25
Conv. Total (cfs)	11597.5	Conv. (cfs)	149.1	11314.1	134.2

Length Wtd. (ft)	1336.52	Wetted Per. (ft)	34.39	255.01	30.95
Min Ch El (ft)	3477.00	Shear (lb/sq ft)	0.05	0.19	0.05
Alpha	1.05	Stream Power (lb/ft s)	0.05	0.48	0.05
Frctn Loss (ft)	7.59	Cum Volume (acre-ft)	17.03	101.73	2.70
C & E Loss (ft)	0.03	Cum SA (acres)	20.48	110.11	4.66

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3478.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3478.49	Reach Len. (ft)	1206.00	1337.00	1433.00
Crit W.S. (ft)	3478.08	Flow Area (sq ft)	8.45	252.76	7.60
E.G. Slope (ft/ft)	0.003093	Area (sq ft)	8.45	252.76	7.60
Q Total (cfs)	645.00	Flow (cfs)	8.29	629.24	7.46
Top Width (ft)	320.33	Top Width (ft)	34.38	255.00	30.95
Vel Total (ft/s)	2.40	Avg. Vel. (ft/s)	0.98	2.49	0.98
Max Chl Dpth (ft)	1.49	Hydr. Depth (ft)	0.25	0.99	0.25
Conv. Total (cfs)	11597.5	Conv. (cfs)	149.1	11314.1	134.2
Length Wtd. (ft)	1336.52	Wetted Per. (ft)	34.39	255.01	30.95
Min Ch El (ft)	3477.00	Shear (lb/sq ft)	0.05	0.19	0.05
Alpha	1.05	Stream Power (lb/ft s)	0.05	0.48	0.05
Frctn Loss (ft)	7.59	Cum Volume (acre-ft)	17.11	108.13	2.74
C & E Loss (ft)	0.03	Cum SA (acres)	20.50	113.43	4.68

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3478.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3478.49	Reach Len. (ft)	1206.00	1337.00	1433.00
Crit W.S. (ft)	3478.08	Flow Area (sq ft)	8.45	252.76	7.60
E.G. Slope (ft/ft)	0.003093	Area (sq ft)	8.45	252.76	7.60
Q Total (cfs)	645.00	Flow (cfs)	8.29	629.24	7.46
Top Width (ft)	320.33	Top Width (ft)	34.38	255.00	30.95
Vel Total (ft/s)	2.40	Avg. Vel. (ft/s)	0.98	2.49	0.98
Max Chl Dpth (ft)	1.49	Hydr. Depth (ft)	0.25	0.99	0.25
Conv. Total (cfs)	11597.5	Conv. (cfs)	149.1	11314.1	134.2
Length Wtd. (ft)	1336.52	Wetted Per. (ft)	34.39	255.01	30.95
Min Ch El (ft)	3477.00	Shear (lb/sq ft)	0.05	0.19	0.05
Alpha	1.05	Stream Power (lb/ft s)	0.05	0.48	0.05
Frctn Loss (ft)	7.59	Cum Volume (acre-ft)	17.37	118.86	2.74
C & E Loss (ft)	0.03	Cum SA (acres)	21.02	113.43	4.68

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 11337

INPUT
Description: Sta. 11337
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3477	315	3474	392	3472	435	3470	499	3469
550	3470	591	3472	694	3474				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	435	.033	550	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
435	550	545	400	332	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3470.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.	0.033	0.033	0.033

W.S. Elev (ft)	3470.53	Reach Len. (ft)	545.00	400.00	332.00
Crit W.S. (ft)	3470.50	Flow Area (sq ft)	2.98	118.09	2.85
E.G. Slope (ft/ft)	0.013657	Area (sq ft)	2.98	118.09	2.85
Q Total (cfs)	645.00	Flow (cfs)	6.45	632.40	6.15
Top Width (ft)	137.13	Top Width (ft)	11.33	115.00	10.80
Vel Total (ft/s)	5.21	Avg. Vel. (ft/s)	2.16	5.36	2.16
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.26	1.03	0.26
Conv. Total (cfs)	5519.3	Conv. (cfs)	55.2	5411.5	52.6
Length Wtd. (ft)	400.40	Wetted Per. (ft)	11.34	115.02	10.81
Min Ch El (ft)	3469.00	Shear (lb/sq ft)	0.22	0.88	0.22
Alpha	1.04	Stream Power (lb/ft s)	0.48	4.69	0.48
Frctn Loss (ft)	4.67	Cum Volume (acre-ft)	16.87	98.23	2.53
C & E Loss (ft)	0.03	Cum SA (acres)	19.85	105.38	3.98

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3470.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3470.53	Reach Len. (ft)	545.00	400.00	332.00
Crit W.S. (ft)	3470.50	Flow Area (sq ft)	2.98	118.09	2.85
E.G. Slope (ft/ft)	0.013657	Area (sq ft)	2.98	118.09	2.85
Q Total (cfs)	645.00	Flow (cfs)	6.45	632.40	6.15
Top Width (ft)	137.13	Top Width (ft)	11.33	115.00	10.80
Vel Total (ft/s)	5.21	Avg. Vel. (ft/s)	2.16	5.36	2.16
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.26	1.03	0.26
Conv. Total (cfs)	5519.3	Conv. (cfs)	55.2	5411.5	52.6
Length Wtd. (ft)	400.40	Wetted Per. (ft)	11.34	115.02	10.81
Min Ch El (ft)	3469.00	Shear (lb/sq ft)	0.22	0.88	0.22
Alpha	1.04	Stream Power (lb/ft s)	0.48	4.69	0.48
Frctn Loss (ft)	4.67	Cum Volume (acre-ft)	16.87	96.04	2.53

C & E Loss (ft)	0.03	Cum SA (acres)	19.85	104.43	3.98

Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3470.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3470.53	Reach Len. (ft)	545.00	400.00	332.00
Crit W.S. (ft)	3470.50	Flow Area (sq ft)	2.98	118.09	2.85
E.G. Slope (ft/ft)	0.013657	Area (sq ft)	2.98	118.09	2.85
Q Total (cfs)	645.00	Flow (cfs)	6.45	632.40	6.15
Top Width (ft)	137.13	Top Width (ft)	11.33	115.00	10.80
Vel Total (ft/s)	5.21	Avg. Vel. (ft/s)	2.16	5.36	2.16
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.26	1.03	0.26
Conv. Total (cfs)	5519.3	Conv. (cfs)	55.2	5411.5	52.6
Length Wtd. (ft)	400.40	Wetted Per. (ft)	11.34	115.02	10.81
Min Ch El (ft)	3469.00	Shear (lb/sq ft)	0.22	0.88	0.22
Alpha	1.04	Stream Power (lb/ft s)	0.48	4.69	0.48
Frctn Loss (ft)	4.67	Cum Volume (acre-ft)	16.96	102.43	2.57
C & E Loss (ft)	0.03	Cum SA (acres)	19.87	107.75	3.99

Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3470.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3470.53	Reach Len. (ft)	545.00	400.00	332.00
Crit W.S. (ft)	3470.50	Flow Area (sq ft)	2.98	118.09	2.85
E.G. Slope (ft/ft)	0.013657	Area (sq ft)	2.98	118.09	2.85
Q Total (cfs)	645.00	Flow (cfs)	6.45	632.40	6.15
Top Width (ft)	137.13	Top Width (ft)	11.33	115.00	10.80

Vel Total (ft/s)	5.21	Avg. Vel. (ft/s)	2.16	5.36	2.16
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.26	1.03	0.26
Conv. Total (cfs)	5519.3	Conv. (cfs)	55.2	5411.5	52.6
Length Wtd. (ft)	400.40	Wetted Per. (ft)	11.34	115.02	10.81
Min Ch El (ft)	3469.00	Shear (lb/sq ft)	0.22	0.88	0.22
Alpha	1.04	Stream Power (lb/ft s)	0.48	4.69	0.48
Frctn Loss (ft)	4.67	Cum Volume (acre-ft)	17.21	113.16	2.57
C & E Loss (ft)	0.03	Cum SA (acres)	20.38	107.75	3.99

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 10937

INPUT
Description: Sta. 10937
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3470	351	3468	428	3467	465	3466	536	3464
543	3464	609	3466	683	3468	811	3472		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	428	.033	609	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
428	609	729	649	445	.1 .3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3466.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.033	
W.S. Elev (ft)	3465.93	Reach Len. (ft)	729.00	649.00	445.00
Crit W.S. (ft)	3465.75	Flow Area (sq ft)		141.28	
E.G. Slope (ft/ft)	0.010093	Area (sq ft)		141.28	
Q Total (cfs)	645.00	Flow (cfs)		645.00	
Top Width (ft)	139.30	Top Width (ft)		139.30	
Vel Total (ft/s)	4.57	Avg. Vel. (ft/s)		4.57	
Max Chl Dpth (ft)	1.93	Hydr. Depth (ft)		1.01	
Conv. Total (cfs)	6420.1	Conv. (cfs)		6420.1	
Length Wtd. (ft)	649.00	Wetted Per. (ft)		139.36	

Min Ch El (ft)	3464.00	Shear (lb/sq ft)		0.64	
Alpha	1.00	Stream Power (lb/ft s)		2.92	
Frctn Loss (ft)	8.93	Cum Volume (acre-ft)	16.85	97.04	2.52
C & E Loss (ft)	0.03	Cum SA (acres)	19.78	104.21	3.93

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3466.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.033	
W.S. Elev (ft)	3465.93	Reach Len. (ft)	729.00	649.00	445.00
Crit W.S. (ft)	3465.75	Flow Area (sq ft)		141.28	
E.G. Slope (ft/ft)	0.010093	Area (sq ft)		141.28	
Q Total (cfs)	645.00	Flow (cfs)		645.00	
Top Width (ft)	139.30	Top Width (ft)		139.30	
Vel Total (ft/s)	4.57	Avg. Vel. (ft/s)		4.57	
Max Chl Dpth (ft)	1.93	Hydr. Depth (ft)		1.01	
Conv. Total (cfs)	6420.1	Conv. (cfs)		6420.1	
Length Wtd. (ft)	649.00	Wetted Per. (ft)		139.36	
Min Ch El (ft)	3464.00	Shear (lb/sq ft)		0.64	
Alpha	1.00	Stream Power (lb/ft s)		2.92	
Frctn Loss (ft)	8.93	Cum Volume (acre-ft)	16.85	94.85	2.52
C & E Loss (ft)	0.03	Cum SA (acres)	19.78	103.27	3.93

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3466.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.033	
W.S. Elev (ft)	3465.93	Reach Len. (ft)	729.00	649.00	445.00
Crit W.S. (ft)	3465.75	Flow Area (sq ft)		141.28	
E.G. Slope (ft/ft)	0.010093	Area (sq ft)		141.28	
Q Total (cfs)	645.00	Flow (cfs)		645.00	
Top Width (ft)	139.30	Top Width (ft)		139.30	
Vel Total (ft/s)	4.57	Avg. Vel. (ft/s)		4.57	
Max Chl Dpth (ft)	1.93	Hydr. Depth (ft)		1.01	
Conv. Total (cfs)	6420.1	Conv. (cfs)		6420.1	
Length Wtd. (ft)	649.00	Wetted Per. (ft)		139.36	
Min Ch El (ft)	3464.00	Shear (lb/sq ft)		0.64	
Alpha	1.00	Stream Power (lb/ft s)		2.92	
Frctn Loss (ft)	8.93	Cum Volume (acre-ft)	16.94	101.24	2.56
C & E Loss (ft)	0.03	Cum SA (acres)	19.80	106.58	3.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3466.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.033	
W.S. Elev (ft)	3465.93	Reach Len. (ft)	729.00	649.00	445.00
Crit W.S. (ft)	3465.75	Flow Area (sq ft)		141.28	
E.G. Slope (ft/ft)	0.010093	Area (sq ft)		141.28	
Q Total (cfs)	645.00	Flow (cfs)		645.00	
Top Width (ft)	139.30	Top Width (ft)		139.30	
Vel Total (ft/s)	4.57	Avg. Vel. (ft/s)		4.57	
Max Chl Dpth (ft)	1.93	Hydr. Depth (ft)		1.01	
Conv. Total (cfs)	6420.1	Conv. (cfs)		6420.1	
Length Wtd. (ft)	649.00	Wetted Per. (ft)		139.36	

Min Ch El (ft)	3464.00	Shear (lb/sq ft)		0.64	
Alpha	1.00	Stream Power (lb/ft s)		2.92	
Frctn Loss (ft)	8.93	Cum Volume (acre-ft)	17.19	111.97	2.56
C & E Loss (ft)	0.03	Cum SA (acres)	20.31	106.58	3.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 10288

INPUT
Description: Sta. 10288
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3464	177	3462	238	3460	298	3458	493	3456
519	3456	662	3457	778	3457.1	857	3458	903	3460
947	3462	989	3464						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	298	.033	857	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
298	857	552	598	633	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3457.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.033	
W.S. Elev (ft)	3457.07	Reach Len. (ft)	552.00	598.00	633.00
Crit W.S. (ft)	3457.07	Flow Area (sq ft)		166.72	
E.G. Slope (ft/ft)	0.019840	Area (sq ft)		166.72	
Q Total (cfs)	645.00	Flow (cfs)		645.00	
Top Width (ft)	349.93	Top Width (ft)		349.93	
Vel Total (ft/s)	3.87	Avg. Vel. (ft/s)		3.87	
Max Chl Dpth (ft)	1.07	Hydr. Depth (ft)		0.48	
Conv. Total (cfs)	4579.2	Conv. (cfs)		4579.2	
Length Wtd. (ft)	598.00	Wetted Per. (ft)		349.94	
Min Ch El (ft)	3456.00	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.28	

Frctn Loss (ft)	4.75	Cum Volume (acre-ft)	16.85	94.74	2.52
C & E Loss (ft)	0.03	Cum SA (acres)	19.78	100.57	3.93

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3457.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.033	
W.S. Elev (ft)	3457.07	Reach Len. (ft)	552.00	598.00	633.00
Crit W.S. (ft)	3457.07	Flow Area (sq ft)		166.72	
E.G. Slope (ft/ft)	0.019840	Area (sq ft)		166.72	
Q Total (cfs)	645.00	Flow (cfs)		645.00	
Top Width (ft)	349.93	Top Width (ft)		349.93	
Vel Total (ft/s)	3.87	Avg. Vel. (ft/s)		3.87	
Max Chl Dpth (ft)	1.07	Hydr. Depth (ft)		0.48	
Conv. Total (cfs)	4579.2	Conv. (cfs)		4579.2	
Length Wtd. (ft)	598.00	Wetted Per. (ft)		349.94	
Min Ch El (ft)	3456.00	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.28	
Frctn Loss (ft)	4.75	Cum Volume (acre-ft)	16.85	92.55	2.52
C & E Loss (ft)	0.03	Cum SA (acres)	19.78	99.62	3.93

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less

than 0.7 or greater than 1.4. This may indicate the need for additional cross secti
ons.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to
critical depth, the calculated water surface came back below critical depth. This i
ndicates
that there is not a valid subcritical answer. The program defaulted to critical dep
th.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3457.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.033	
W.S. Elev (ft)	3457.07	Reach Len. (ft)	552.00	598.00	633.00
Crit W.S. (ft)	3457.07	Flow Area (sq ft)		166.72	
E.G. Slope (ft/ft)	0.019840	Area (sq ft)		166.72	
Q Total (cfs)	645.00	Flow (cfs)		645.00	
Top Width (ft)	349.93	Top Width (ft)		349.93	
Vel Total (ft/s)	3.87	Avg. Vel. (ft/s)		3.87	
Max Chl Dpth (ft)	1.07	Hydr. Depth (ft)		0.48	
Conv. Total (cfs)	4579.2	Conv. (cfs)		4579.2	
Length Wtd. (ft)	598.00	Wetted Per. (ft)		349.94	
Min Ch El (ft)	3456.00	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.28	
Frctn Loss (ft)	4.75	Cum Volume (acre-ft)	16.94	98.95	2.56
C & E Loss (ft)	0.03	Cum SA (acres)	19.80	102.94	3.95

Warning: The energy equation could not be balanced within the specified number of iterations.
The
program used critical depth for the water surface and continued on with the calculat
ions.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
than 0.7 or greater than 1.4. This may indicate the need for additional cross secti
ons.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to
critical depth, the calculated water surface came back below critical depth. This i
ndicates
that there is not a valid subcritical answer. The program defaulted to critical dep
th.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3457.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.033	
W.S. Elev (ft)	3457.07	Reach Len. (ft)	552.00	598.00	633.00
Crit W.S. (ft)	3457.07	Flow Area (sq ft)		166.72	
E.G. Slope (ft/ft)	0.019840	Area (sq ft)		166.72	
Q Total (cfs)	645.00	Flow (cfs)		645.00	
Top Width (ft)	349.93	Top Width (ft)		349.93	
Vel Total (ft/s)	3.87	Avg. Vel. (ft/s)		3.87	
Max Chl Dpth (ft)	1.07	Hydr. Depth (ft)		0.48	
Conv. Total (cfs)	4579.2	Conv. (cfs)		4579.2	
Length Wtd. (ft)	598.00	Wetted Per. (ft)		349.94	
Min Ch El (ft)	3456.00	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.28	
Frctn Loss (ft)	4.75	Cum Volume (acre-ft)	17.19	109.68	2.56
C & E Loss (ft)	0.03	Cum SA (acres)	20.31	102.94	3.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 9690

INPUT
Description: Sta. 9690
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3454.5	202	3454	381	3452	632	3450	638	3450
799	3452	897	3454	1010	3458				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

100	.033	381	.033	799	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
381	799	639	681	658	.1

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3451.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.033	
W.S. Elev (ft)	3451.66	Reach Len. (ft)	639.00	681.00	658.00
Crit W.S. (ft)	3451.28	Flow Area (sq ft)		293.93	
E.G. Slope (ft/ft)	0.004774	Area (sq ft)		293.93	
Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	348.04	Top Width (ft)		348.04	
Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)		2.78	
Max Chl Dpth (ft)	1.66	Hydr. Depth (ft)		0.84	
Conv. Total (cfs)	11824.3	Conv. (cfs)		11824.3	
Length Wtd. (ft)	681.00	Wetted Per. (ft)		348.06	
Min Ch El (ft)	3450.00	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		0.70	
Frctn Loss (ft)	4.90	Cum Volume (acre-ft)	16.85	91.58	2.52
C & E Loss (ft)	0.01	Cum SA (acres)	19.78	95.78	3.93

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3451.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.033	
W.S. Elev (ft)	3451.66	Reach Len. (ft)	639.00	681.00	658.00
Crit W.S. (ft)	3451.28	Flow Area (sq ft)		293.93	
E.G. Slope (ft/ft)	0.004774	Area (sq ft)		293.93	
Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	348.04	Top Width (ft)		348.04	

Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)		2.78	
Max Chl Dpth (ft)	1.66	Hydr. Depth (ft)		0.84	
Conv. Total (cfs)	11824.3	Conv. (cfs)		11824.3	
Length Wtd. (ft)	681.00	Wetted Per. (ft)		348.06	
Min Ch El (ft)	3450.00	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		0.70	
Frctn Loss (ft)	4.90	Cum Volume (acre-ft)	16.85	89.39	2.52
C & E Loss (ft)	0.01	Cum SA (acres)	19.78	94.83	3.93

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3451.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.033	
W.S. Elev (ft)	3451.66	Reach Len. (ft)	639.00	681.00	658.00
Crit W.S. (ft)	3451.28	Flow Area (sq ft)		293.93	
E.G. Slope (ft/ft)	0.004774	Area (sq ft)		293.93	
Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	348.04	Top Width (ft)		348.04	
Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)		2.78	
Max Chl Dpth (ft)	1.66	Hydr. Depth (ft)		0.84	
Conv. Total (cfs)	11824.3	Conv. (cfs)		11824.3	
Length Wtd. (ft)	681.00	Wetted Per. (ft)		348.06	
Min Ch El (ft)	3450.00	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		0.70	
Frctn Loss (ft)	4.90	Cum Volume (acre-ft)	16.94	95.79	2.56
C & E Loss (ft)	0.01	Cum SA (acres)	19.80	98.15	3.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m) between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3451.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.033	
W.S. Elev (ft)	3451.66	Reach Len. (ft)	639.00	681.00	658.00
Crit W.S. (ft)	3451.28	Flow Area (sq ft)		293.93	
E.G. Slope (ft/ft)	0.004774	Area (sq ft)		293.93	
Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	348.04	Top Width (ft)		348.04	
Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)		2.78	
Max Chl Dpth (ft)	1.66	Hydr. Depth (ft)		0.84	
Conv. Total (cfs)	11824.3	Conv. (cfs)		11824.3	
Length Wtd. (ft)	681.00	Wetted Per. (ft)		348.06	
Min Ch El (ft)	3450.00	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		0.70	
Frctn Loss (ft)	4.90	Cum Volume (acre-ft)	17.19	106.52	2.56
C & E Loss (ft)	0.01	Cum SA (acres)	20.31	98.15	3.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m) between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 9009

INPUT
Description: Sta. 9009
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3452	203	3450	325	3448	492	3446	596	3445
637	3446	892	3448	1007	3450	1124	3452		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	325	.033	892	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
325	892	898	879	794	.1 .3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3446.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.033	
W.S. Elev (ft)	3446.62	Reach Len. (ft)	898.00	879.00	794.00
Crit W.S. (ft)	3446.50	Flow Area (sq ft)		202.92	
E.G. Slope (ft/ft)	0.012038	Area (sq ft)		202.92	
Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	275.79	Top Width (ft)		275.79	
Vel Total (ft/s)	4.03	Avg. Vel. (ft/s)		4.03	
Max Chl Dpth (ft)	1.62	Hydr. Depth (ft)		0.74	
Conv. Total (cfs)	7446.3	Conv. (cfs)		7446.3	
Length Wtd. (ft)	879.00	Wetted Per. (ft)		275.82	
Min Ch El (ft)	3445.00	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.23	
Frctn Loss (ft)	4.98	Cum Volume (acre-ft)	16.85	87.70	2.52
C & E Loss (ft)	0.05	Cum SA (acres)	19.78	90.90	3.93

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3446.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.033	
W.S. Elev (ft)	3446.62	Reach Len. (ft)	898.00	879.00	794.00
Crit W.S. (ft)	3446.50	Flow Area (sq ft)		202.92	
E.G. Slope (ft/ft)	0.012038	Area (sq ft)		202.92	
Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	275.79	Top Width (ft)		275.79	
Vel Total (ft/s)	4.03	Avg. Vel. (ft/s)		4.03	
Max Chl Dpth (ft)	1.62	Hydr. Depth (ft)		0.74	
Conv. Total (cfs)	7446.3	Conv. (cfs)		7446.3	

Length Wtd. (ft)	879.00	Wetted Per. (ft)		275.82	
Min Ch El (ft)	3445.00	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.23	
Frctn Loss (ft)	4.98	Cum Volume (acre-ft)	16.85	85.51	2.52
C & E Loss (ft)	0.05	Cum SA (acres)	19.78	89.95	3.93

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3446.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.033	
W.S. Elev (ft)	3446.62	Reach Len. (ft)	898.00	879.00	794.00
Crit W.S. (ft)	3446.50	Flow Area (sq ft)		202.92	
E.G. Slope (ft/ft)	0.012038	Area (sq ft)		202.92	
Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	275.79	Top Width (ft)		275.79	
Vel Total (ft/s)	4.03	Avg. Vel. (ft/s)		4.03	
Max Chl Dpth (ft)	1.62	Hydr. Depth (ft)		0.74	
Conv. Total (cfs)	7446.3	Conv. (cfs)		7446.3	
Length Wtd. (ft)	879.00	Wetted Per. (ft)		275.82	
Min Ch El (ft)	3445.00	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.23	
Frctn Loss (ft)	4.98	Cum Volume (acre-ft)	16.94	91.90	2.56
C & E Loss (ft)	0.05	Cum SA (acres)	19.80	93.27	3.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3446.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.033	
W.S. Elev (ft)	3446.62	Reach Len. (ft)	898.00	879.00	794.00
Crit W.S. (ft)	3446.50	Flow Area (sq ft)		202.92	
E.G. Slope (ft/ft)	0.012038	Area (sq ft)		202.92	
Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	275.79	Top Width (ft)		275.79	
Vel Total (ft/s)	4.03	Avg. Vel. (ft/s)		4.03	
Max Chl Dpth (ft)	1.62	Hydr. Depth (ft)		0.74	
Conv. Total (cfs)	7446.3	Conv. (cfs)		7446.3	
Length Wtd. (ft)	879.00	Wetted Per. (ft)		275.82	
Min Ch El (ft)	3445.00	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.23	
Frctn Loss (ft)	4.98	Cum Volume (acre-ft)	17.19	102.63	2.56
C & E Loss (ft)	0.05	Cum SA (acres)	20.31	93.27	3.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 8130

INPUT
Description: Sta. 8130
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3448	303	3444	419	3442	654	3440	663	3440
852	3442	995	3444	1104	3446				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	419	.033	852	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
419	852	399	413	456	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3441.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.033	

W.S. Elev (ft)	3441.75	Reach Len. (ft)	399.00	413.00	456.00
Crit W.S. (ft)	3441.25	Flow Area (sq ft)		340.75	
E.G. Slope (ft/ft)	0.003282	Area (sq ft)		340.75	
Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	380.21	Top Width (ft)		380.21	
Vel Total (ft/s)	2.40	Avg. Vel. (ft/s)		2.40	
Max Chl Dpth (ft)	1.75	Hydr. Depth (ft)		0.90	
Conv. Total (cfs)	14261.8	Conv. (cfs)		14261.8	
Length Wtd. (ft)	413.00	Wetted Per. (ft)		380.22	
Min Ch El (ft)	3440.00	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.44	
Frctn Loss (ft)	2.72	Cum Volume (acre-ft)	16.85	82.21	2.52
C & E Loss (ft)	0.02	Cum SA (acres)	19.78	84.28	3.93

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3441.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.033	
W.S. Elev (ft)	3441.75	Reach Len. (ft)	399.00	413.00	456.00
Crit W.S. (ft)	3441.25	Flow Area (sq ft)		340.75	
E.G. Slope (ft/ft)	0.003282	Area (sq ft)		340.75	
Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	380.21	Top Width (ft)		380.21	
Vel Total (ft/s)	2.40	Avg. Vel. (ft/s)		2.40	
Max Chl Dpth (ft)	1.75	Hydr. Depth (ft)		0.90	
Conv. Total (cfs)	14261.8	Conv. (cfs)		14261.8	
Length Wtd. (ft)	413.00	Wetted Per. (ft)		380.22	
Min Ch El (ft)	3440.00	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.44	

Frctn Loss (ft)	2.72	Cum Volume (acre-ft)	16.85	80.02	2.52
C & E Loss (ft)	0.02	Cum SA (acres)	19.78	83.34	3.93

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3441.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.033	
W.S. Elev (ft)	3441.75	Reach Len. (ft)	399.00	413.00	456.00
Crit W.S. (ft)	3441.25	Flow Area (sq ft)		340.75	
E.G. Slope (ft/ft)	0.003282	Area (sq ft)		340.75	
Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	380.21	Top Width (ft)		380.21	
Vel Total (ft/s)	2.40	Avg. Vel. (ft/s)		2.40	
Max Chl Dpth (ft)	1.75	Hydr. Depth (ft)		0.90	
Conv. Total (cfs)	14261.8	Conv. (cfs)		14261.8	
Length Wtd. (ft)	413.00	Wetted Per. (ft)		380.22	
Min Ch El (ft)	3440.00	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.44	
Frctn Loss (ft)	2.72	Cum Volume (acre-ft)	16.94	86.42	2.56
C & E Loss (ft)	0.02	Cum SA (acres)	19.80	86.65	3.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3441.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.033	
W.S. Elev (ft)	3441.75	Reach Len. (ft)	399.00	413.00	456.00

Crit W.S. (ft)	3441.25	Flow Area (sq ft)		340.75	
E.G. Slope (ft/ft)	0.003282	Area (sq ft)		340.75	
Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	380.21	Top Width (ft)		380.21	
Vel Total (ft/s)	2.40	Avg. Vel. (ft/s)		2.40	
Max Chl Dpth (ft)	1.75	Hydr. Depth (ft)		0.90	
Conv. Total (cfs)	14261.8	Conv. (cfs)		14261.8	
Length Wtd. (ft)	413.00	Wetted Per. (ft)		380.22	
Min Ch El (ft)	3440.00	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.44	
Frctn Loss (ft)	2.72	Cum Volume (acre-ft)	17.19	97.15	2.56
C & E Loss (ft)	0.02	Cum SA (acres)	20.31	86.65	3.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 7717

INPUT
Description: Sta 7717
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3442	233	3440	383	3438	492	3437.8	510	3438
657	3439	747	3440	879	3442				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	233	.033	747	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
233	747	444	464	510	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3439.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.033	
W.S. Elev (ft)	3438.79	Reach Len. (ft)	444.00	464.00	510.00
Crit W.S. (ft)	3438.79	Flow Area (sq ft)		182.90	
E.G. Slope (ft/ft)	0.019275	Area (sq ft)		182.90	

Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	302.82	Top Width (ft)		302.82	
Vel Total (ft/s)	4.47	Avg. Vel. (ft/s)		4.47	
Max Chl Dpth (ft)	0.99	Hydr. Depth (ft)		0.60	
Conv. Total (cfs)	5884.7	Conv. (cfs)		5884.7	
Length Wtd. (ft)	464.08	Wetted Per. (ft)		302.83	
Min Ch El (ft)	3437.80	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		3.25	
Frctn Loss (ft)	1.75	Cum Volume (acre-ft)	16.85	79.73	2.52
C & E Loss (ft)	0.08	Cum SA (acres)	19.78	81.05	3.93

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3439.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.033	
W.S. Elev (ft)	3438.79	Reach Len. (ft)	444.00	464.00	510.00
Crit W.S. (ft)	3438.79	Flow Area (sq ft)		182.90	
E.G. Slope (ft/ft)	0.019275	Area (sq ft)		182.90	
Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	302.82	Top Width (ft)		302.82	
Vel Total (ft/s)	4.47	Avg. Vel. (ft/s)		4.47	
Max Chl Dpth (ft)	0.99	Hydr. Depth (ft)		0.60	
Conv. Total (cfs)	5884.7	Conv. (cfs)		5884.7	
Length Wtd. (ft)	464.08	Wetted Per. (ft)		302.83	

Min Ch El (ft)	3437.80	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		3.25	
Frctn Loss (ft)	1.75	Cum Volume (acre-ft)	16.85	77.54	2.52
C & E Loss (ft)	0.08	Cum SA (acres)	19.78	80.10	3.93

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3439.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.033	
W.S. Elev (ft)	3438.79	Reach Len. (ft)	444.00	464.00	510.00
Crit W.S. (ft)	3438.79	Flow Area (sq ft)		182.90	
E.G. Slope (ft/ft)	0.019275	Area (sq ft)		182.90	
Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	302.82	Top Width (ft)		302.82	
Vel Total (ft/s)	4.47	Avg. Vel. (ft/s)		4.47	
Max Chl Dpth (ft)	0.99	Hydr. Depth (ft)		0.60	
Conv. Total (cfs)	5884.7	Conv. (cfs)		5884.7	
Length Wtd. (ft)	464.08	Wetted Per. (ft)		302.83	
Min Ch El (ft)	3437.80	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		3.25	
Frctn Loss (ft)	1.75	Cum Volume (acre-ft)	16.94	83.94	2.56
C & E Loss (ft)	0.08	Cum SA (acres)	19.80	83.41	3.95

Warning: The energy equation could not be balanced within the specified number of iterations.

The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3439.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.033	
W.S. Elev (ft)	3438.79	Reach Len. (ft)	444.00	464.00	510.00
Crit W.S. (ft)	3438.79	Flow Area (sq ft)		182.90	
E.G. Slope (ft/ft)	0.019275	Area (sq ft)		182.90	
Q Total (cfs)	817.00	Flow (cfs)		817.00	
Top Width (ft)	302.82	Top Width (ft)		302.82	
Vel Total (ft/s)	4.47	Avg. Vel. (ft/s)		4.47	
Max Chl Dpth (ft)	0.99	Hydr. Depth (ft)		0.60	
Conv. Total (cfs)	5884.7	Conv. (cfs)		5884.7	
Length Wtd. (ft)	464.08	Wetted Per. (ft)		302.83	
Min Ch El (ft)	3437.80	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		3.25	
Frctn Loss (ft)	1.75	Cum Volume (acre-ft)	17.19	94.67	2.56
C & E Loss (ft)	0.08	Cum SA (acres)	20.31	83.41	3.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This i

ndicates
that there is not a valid subcritical answer. The program defaulted to critical dep
th.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 7253

INPUT
Description: Sta. 7253
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3438	109	3438.7	321	3438	424	3436	668	3435
906	3436	1005	3438	1200	3440	1365	3442		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	424	.033	906	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
424	906	756	910	980	.1 .3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

			Left OB	Channel	Right OB
E.G. Elev (ft)	3436.59	Element			
Vel Head (ft)	0.06	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3436.53	Reach Len. (ft)	756.00	910.00	980.00
Crit W.S. (ft)	3435.99	Flow Area (sq ft)	7.27	497.18	6.99
E.G. Slope (ft/ft)	0.001746	Area (sq ft)	7.27	497.18	6.99
Q Total (cfs)	966.00	Flow (cfs)	5.66	954.91	5.44
Top Width (ft)	535.68	Top Width (ft)	27.37	482.00	26.31
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)	0.78	1.92	0.78
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.27	1.03	0.27
Conv. Total (cfs)	23119.9	Conv. (cfs)	135.4	22854.4	130.1
Length Wtd. (ft)	909.83	Wetted Per. (ft)	27.38	482.00	26.31
Min Ch El (ft)	3435.00	Shear (lb/sq ft)	0.03	0.11	0.03
Alpha	1.02	Stream Power (lb/ft s)	0.02	0.22	0.02
Frctn Loss (ft)	5.34	Cum Volume (acre-ft)	16.81	76.11	2.48
C & E Loss (ft)	0.03	Cum SA (acres)	19.64	76.87	3.78

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
than 0.7 or greater than 1.4. This may indicate the need for additional cross secti
ons.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3436.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3436.53	Reach Len. (ft)	756.00	910.00	980.00
Crit W.S. (ft)	3435.99	Flow Area (sq ft)	7.27	497.18	6.99
E.G. Slope (ft/ft)	0.001746	Area (sq ft)	7.27	497.18	6.99
Q Total (cfs)	966.00	Flow (cfs)	5.66	954.91	5.44
Top Width (ft)	535.68	Top Width (ft)	27.37	482.00	26.31
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)	0.78	1.92	0.78
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.27	1.03	0.27
Conv. Total (cfs)	23119.9	Conv. (cfs)	135.4	22854.4	130.1
Length Wtd. (ft)	909.83	Wetted Per. (ft)	27.38	482.00	26.31
Min Ch El (ft)	3435.00	Shear (lb/sq ft)	0.03	0.11	0.03
Alpha	1.02	Stream Power (lb/ft s)	0.02	0.22	0.02
Frctn Loss (ft)	5.34	Cum Volume (acre-ft)	16.81	73.92	2.48
C & E Loss (ft)	0.03	Cum SA (acres)	19.64	75.92	3.78

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3436.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3436.53	Reach Len. (ft)	756.00	910.00	980.00
Crit W.S. (ft)	3435.99	Flow Area (sq ft)	7.27	497.18	6.99
E.G. Slope (ft/ft)	0.001746	Area (sq ft)	7.27	497.18	6.99
Q Total (cfs)	966.00	Flow (cfs)	5.66	954.91	5.44
Top Width (ft)	535.68	Top Width (ft)	27.37	482.00	26.31
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)	0.78	1.92	0.78
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.27	1.03	0.27
Conv. Total (cfs)	23119.9	Conv. (cfs)	135.4	22854.4	130.1

Length Wtd. (ft)	909.83	Wetted Per. (ft)	27.38	482.00	26.31
Min Ch El (ft)	3435.00	Shear (lb/sq ft)	0.03	0.11	0.03
Alpha	1.02	Stream Power (lb/ft s)	0.02	0.22	0.02
Frctn Loss (ft)	5.34	Cum Volume (acre-ft)	16.90	80.31	2.51
C & E Loss (ft)	0.03	Cum SA (acres)	19.66	79.23	3.80

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3436.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3436.53	Reach Len. (ft)	756.00	910.00	980.00
Crit W.S. (ft)	3435.99	Flow Area (sq ft)	7.27	497.18	6.99
E.G. Slope (ft/ft)	0.001746	Area (sq ft)	7.27	497.18	6.99
Q Total (cfs)	966.00	Flow (cfs)	5.66	954.91	5.44
Top Width (ft)	535.68	Top Width (ft)	27.37	482.00	26.31
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)	0.78	1.92	0.78
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.27	1.03	0.27
Conv. Total (cfs)	23119.9	Conv. (cfs)	135.4	22854.4	130.1
Length Wtd. (ft)	909.83	Wetted Per. (ft)	27.38	482.00	26.31
Min Ch El (ft)	3435.00	Shear (lb/sq ft)	0.03	0.11	0.03
Alpha	1.02	Stream Power (lb/ft s)	0.02	0.22	0.02
Frctn Loss (ft)	5.34	Cum Volume (acre-ft)	17.16	91.04	2.51
C & E Loss (ft)	0.03	Cum SA (acres)	20.17	79.23	3.80

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 6343

INPUT
Description: Sta. 6343
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3434	346	3433	663	3432	732	3431	860	3430.2
981	3430	1273	3430	1320	3431.5	1566	3432		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	663	.033	1320	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
663	1320	767	980 1051	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

			Left OB	Channel	Right OB
E.G. Elev (ft)	3431.22	Element			
Vel Head (ft)	0.36	Wt. n-Val.		0.033	
W.S. Elev (ft)	3430.86	Reach Len. (ft)	767.00	980.00	1051.00
Crit W.S. (ft)	3430.86	Flow Area (sq ft)		388.25	
E.G. Slope (ft/ft)	0.018047	Area (sq ft)		388.25	
Q Total (cfs)	1873.00	Flow (cfs)		1873.00	
Top Width (ft)	545.10	Top Width (ft)		545.10	
Vel Total (ft/s)	4.82	Avg. Vel. (ft/s)		4.82	
Max Chl Dpth (ft)	0.86	Hydr. Depth (ft)		0.71	
Conv. Total (cfs)	13942.4	Conv. (cfs)		13942.4	
Length Wtd. (ft)	979.81	Wetted Per. (ft)		545.12	
Min Ch El (ft)	3430.00	Shear (lb/sq ft)		0.80	
Alpha	1.00	Stream Power (lb/ft s)		3.87	
Frctn Loss (ft)	4.07	Cum Volume (acre-ft)	16.75	66.86	2.40
C & E Loss (ft)	0.09	Cum SA (acres)	19.40	66.14	3.48

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates

that there is not a valid subcritical answer. The program defaulted to critical dep
th.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3431.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.		0.033	
W.S. Elev (ft)	3430.86	Reach Len. (ft)	767.00	980.00	1051.00
Crit W.S. (ft)	3430.86	Flow Area (sq ft)		388.25	
E.G. Slope (ft/ft)	0.018047	Area (sq ft)		388.25	
Q Total (cfs)	1873.00	Flow (cfs)		1873.00	
Top Width (ft)	545.10	Top Width (ft)		545.10	
Vel Total (ft/s)	4.82	Avg. Vel. (ft/s)		4.82	
Max Chl Dpth (ft)	0.86	Hydr. Depth (ft)		0.71	
Conv. Total (cfs)	13942.4	Conv. (cfs)		13942.4	
Length Wtd. (ft)	979.81	Wetted Per. (ft)		545.12	
Min Ch El (ft)	3430.00	Shear (lb/sq ft)		0.80	
Alpha	1.00	Stream Power (lb/ft s)		3.87	
Frctn Loss (ft)	4.07	Cum Volume (acre-ft)	16.75	64.67	2.40
C & E Loss (ft)	0.09	Cum SA (acres)	19.40	65.19	3.48

Warning: The energy equation could not be balanced within the specified number of iterations.
The
program used critical depth for the water surface and continued on with the calculat
ions.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
than 0.7 or greater than 1.4. This may indicate the need for additional cross secti
ons.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to
critical depth, the calculated water surface came back below critical depth. This i
ndicates
that there is not a valid subcritical answer. The program defaulted to critical dep
th.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3431.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.		0.033	
W.S. Elev (ft)	3430.86	Reach Len. (ft)	767.00	980.00	1051.00

Crit W.S. (ft)	3430.86	Flow Area (sq ft)		388.25	
E.G. Slope (ft/ft)	0.018047	Area (sq ft)		388.25	
Q Total (cfs)	1873.00	Flow (cfs)		1873.00	
Top Width (ft)	545.10	Top Width (ft)		545.10	
Vel Total (ft/s)	4.82	Avg. Vel. (ft/s)		4.82	
Max Chl Dpth (ft)	0.86	Hydr. Depth (ft)		0.71	
Conv. Total (cfs)	13942.4	Conv. (cfs)		13942.4	
Length Wtd. (ft)	979.81	Wetted Per. (ft)		545.12	
Min Ch El (ft)	3430.00	Shear (lb/sq ft)		0.80	
Alpha	1.00	Stream Power (lb/ft s)		3.87	
Frctn Loss (ft)	4.07	Cum Volume (acre-ft)	16.84	71.06	2.44
C & E Loss (ft)	0.09	Cum SA (acres)	19.42	68.50	3.50

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3431.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.		0.033	
W.S. Elev (ft)	3430.86	Reach Len. (ft)	767.00	980.00	1051.00
Crit W.S. (ft)	3430.86	Flow Area (sq ft)		388.25	
E.G. Slope (ft/ft)	0.018047	Area (sq ft)		388.25	
Q Total (cfs)	1873.00	Flow (cfs)		1873.00	
Top Width (ft)	545.10	Top Width (ft)		545.10	
Vel Total (ft/s)	4.82	Avg. Vel. (ft/s)		4.82	
Max Chl Dpth (ft)	0.86	Hydr. Depth (ft)		0.71	

Conv. Total (cfs)	13942.4	Conv. (cfs)		13942.4	
Length Wtd. (ft)	979.81	Wetted Per. (ft)		545.12	
Min Ch El (ft)	3430.00	Shear (lb/sq ft)		0.80	
Alpha	1.00	Stream Power (lb/ft s)		3.87	
Frctn Loss (ft)	4.07	Cum Volume (acre-ft)	17.09	81.79	2.44
C & E Loss (ft)	0.09	Cum SA (acres)	19.93	68.50	3.50

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 5363

INPUT
Description: Sta. 5363
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3432	282	3430	550	3428	742	3426	885	3425
1097	3425	1476	3426	1877	3428	1966	3428	2160	3430

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	742	.033	1476	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
742	1476	1199	1142	713	.1

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3426.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3426.53	Reach Len. (ft)	1199.00	1142.00	713.00
Crit W.S. (ft)	3425.93	Flow Area (sq ft)	13.63	864.19	28.48
E.G. Slope (ft/ft)	0.001798	Area (sq ft)	13.63	864.19	28.48
Q Total (cfs)	1873.00	Flow (cfs)	10.78	1839.71	22.51
Top Width (ft)	892.02	Top Width (ft)	51.16	734.00	106.86

Vel Total (ft/s)	2.07	Avg. Vel. (ft/s)	0.79	2.13	0.79
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.27	1.18	0.27
Conv. Total (cfs)	44172.8	Conv. (cfs)	254.2	43387.6	531.0
Length Wtd. (ft)	1139.81	Wetted Per. (ft)	51.17	734.00	106.86
Min Ch El (ft)	3425.00	Shear (lb/sq ft)	0.03	0.13	0.03
Alpha	1.04	Stream Power (lb/ft s)	0.02	0.28	0.02
Frctn Loss (ft)	4.99	Cum Volume (acre-ft)	16.63	52.77	2.06
C & E Loss (ft)	0.03	Cum SA (acres)	18.95	51.75	2.20

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross secti
ons.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3426.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3426.53	Reach Len. (ft)	1199.00	1142.00	713.00
Crit W.S. (ft)	3425.93	Flow Area (sq ft)	13.63	864.19	28.48
E.G. Slope (ft/ft)	0.001798	Area (sq ft)	13.63	864.19	28.48
Q Total (cfs)	1873.00	Flow (cfs)	10.78	1839.71	22.51
Top Width (ft)	892.02	Top Width (ft)	51.16	734.00	106.86
Vel Total (ft/s)	2.07	Avg. Vel. (ft/s)	0.79	2.13	0.79
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.27	1.18	0.27
Conv. Total (cfs)	44172.8	Conv. (cfs)	254.2	43387.6	531.0
Length Wtd. (ft)	1139.81	Wetted Per. (ft)	51.17	734.00	106.86
Min Ch El (ft)	3425.00	Shear (lb/sq ft)	0.03	0.13	0.03
Alpha	1.04	Stream Power (lb/ft s)	0.02	0.28	0.02
Frctn Loss (ft)	4.99	Cum Volume (acre-ft)	16.63	50.58	2.06
C & E Loss (ft)	0.03	Cum SA (acres)	18.95	50.80	2.20

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross secti

ons.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3426.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3426.53	Reach Len. (ft)	1199.00	1142.00	713.00
Crit W.S. (ft)	3425.93	Flow Area (sq ft)	13.63	864.19	28.48
E.G. Slope (ft/ft)	0.001798	Area (sq ft)	13.63	864.19	28.48
Q Total (cfs)	1873.00	Flow (cfs)	10.78	1839.71	22.51
Top Width (ft)	892.02	Top Width (ft)	51.16	734.00	106.86
Vel Total (ft/s)	2.07	Avg. Vel. (ft/s)	0.79	2.13	0.79
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.27	1.18	0.27
Conv. Total (cfs)	44172.8	Conv. (cfs)	254.2	43387.6	531.0
Length Wtd. (ft)	1139.81	Wetted Per. (ft)	51.17	734.00	106.86
Min Ch El (ft)	3425.00	Shear (lb/sq ft)	0.03	0.13	0.03
Alpha	1.04	Stream Power (lb/ft s)	0.02	0.28	0.02
Frctn Loss (ft)	4.99	Cum Volume (acre-ft)	16.72	56.98	2.09
C & E Loss (ft)	0.03	Cum SA (acres)	18.97	54.12	2.21

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
than 0.7 or greater than 1.4. This may indicate the need for additional cross secti
ons.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cr
oss
section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3426.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3426.53	Reach Len. (ft)	1199.00	1142.00	713.00
Crit W.S. (ft)	3425.93	Flow Area (sq ft)	13.63	864.19	28.48
E.G. Slope (ft/ft)	0.001798	Area (sq ft)	13.63	864.19	28.48
Q Total (cfs)	1873.00	Flow (cfs)	10.78	1839.71	22.51
Top Width (ft)	892.02	Top Width (ft)	51.16	734.00	106.86

Vel Total (ft/s)	2.07	Avg. Vel. (ft/s)	0.79	2.13	0.79
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.27	1.18	0.27
Conv. Total (cfs)	44172.8	Conv. (cfs)	254.2	43387.6	531.0
Length Wtd. (ft)	1139.81	Wetted Per. (ft)	51.17	734.00	106.86
Min Ch El (ft)	3425.00	Shear (lb/sq ft)	0.03	0.13	0.03
Alpha	1.04	Stream Power (lb/ft s)	0.02	0.28	0.02
Frctn Loss (ft)	4.99	Cum Volume (acre-ft)	16.97	67.71	2.09
C & E Loss (ft)	0.03	Cum SA (acres)	19.48	54.12	2.21

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 4221

INPUT
Description: Sta. 4221
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3423	341	3422	544	3421	640	3420	669	3420
753	3420.2	829	3420	837	3420	1030	3421	1320	3422
1407	3423	1497	3424						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	544	.033	1407	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
544	1407	749	732	843	.1

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3421.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3421.19	Reach Len. (ft)	749.00	732.00	843.00
Crit W.S. (ft)	3421.19	Flow Area (sq ft)	3.79	424.90	
E.G. Slope (ft/ft)	0.017043	Area (sq ft)	3.79	424.90	
Q Total (cfs)	2128.00	Flow (cfs)	4.70	2123.30	
Top Width (ft)	581.33	Top Width (ft)	39.25	542.07	
Vel Total (ft/s)	4.96	Avg. Vel. (ft/s)	1.24	5.00	
Max Chl Dpth (ft)	1.19	Hydr. Depth (ft)	0.10	0.78	

Conv. Total (cfs)	16300.7	Conv. (cfs)	36.0	16264.7	
Length Wtd. (ft)	736.95	Wetted Per. (ft)	39.25	542.08	
Min Ch El (ft)	3420.00	Shear (lb/sq ft)	0.10	0.83	
Alpha	1.01	Stream Power (lb/ft s)	0.13	4.17	
Frctn Loss (ft)	3.60	Cum Volume (acre-ft)	16.39	35.87	1.82
C & E Loss (ft)	0.09	Cum SA (acres)	17.71	35.02	1.32

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3421.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3421.19	Reach Len. (ft)	749.00	732.00	843.00
Crit W.S. (ft)	3421.19	Flow Area (sq ft)	3.79	424.90	
E.G. Slope (ft/ft)	0.017043	Area (sq ft)	3.79	424.90	
Q Total (cfs)	2128.00	Flow (cfs)	4.70	2123.30	
Top Width (ft)	581.33	Top Width (ft)	39.25	542.07	
Vel Total (ft/s)	4.96	Avg. Vel. (ft/s)	1.24	5.00	
Max Chl Dpth (ft)	1.19	Hydr. Depth (ft)	0.10	0.78	
Conv. Total (cfs)	16300.7	Conv. (cfs)	36.0	16264.7	
Length Wtd. (ft)	736.95	Wetted Per. (ft)	39.25	542.08	
Min Ch El (ft)	3420.00	Shear (lb/sq ft)	0.10	0.83	
Alpha	1.01	Stream Power (lb/ft s)	0.13	4.17	
Frctn Loss (ft)	3.60	Cum Volume (acre-ft)	16.39	33.68	1.82
C & E Loss (ft)	0.09	Cum SA (acres)	17.71	34.07	1.32

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3421.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3421.19	Reach Len. (ft)	749.00	732.00	843.00
Crit W.S. (ft)	3421.19	Flow Area (sq ft)	3.79	424.90	
E.G. Slope (ft/ft)	0.017043	Area (sq ft)	3.79	424.90	
Q Total (cfs)	2128.00	Flow (cfs)	4.70	2123.30	
Top Width (ft)	581.33	Top Width (ft)	39.25	542.07	
Vel Total (ft/s)	4.96	Avg. Vel. (ft/s)	1.24	5.00	
Max Chl Dpth (ft)	1.19	Hydr. Depth (ft)	0.10	0.78	
Conv. Total (cfs)	16300.7	Conv. (cfs)	36.0	16264.7	
Length Wtd. (ft)	736.95	Wetted Per. (ft)	39.25	542.08	
Min Ch El (ft)	3420.00	Shear (lb/sq ft)	0.10	0.83	
Alpha	1.01	Stream Power (lb/ft s)	0.13	4.17	
Frctn Loss (ft)	3.60	Cum Volume (acre-ft)	16.48	40.08	1.86
C & E Loss (ft)	0.09	Cum SA (acres)	17.72	37.39	1.34

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3421.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3421.19	Reach Len. (ft)	749.00	732.00	843.00
Crit W.S. (ft)	3421.19	Flow Area (sq ft)	3.79	424.90	
E.G. Slope (ft/ft)	0.017043	Area (sq ft)	3.79	424.90	
Q Total (cfs)	2128.00	Flow (cfs)	4.70	2123.30	
Top Width (ft)	581.33	Top Width (ft)	39.25	542.07	
Vel Total (ft/s)	4.96	Avg. Vel. (ft/s)	1.24	5.00	
Max Chl Dpth (ft)	1.19	Hydr. Depth (ft)	0.10	0.78	
Conv. Total (cfs)	16300.7	Conv. (cfs)	36.0	16264.7	
Length Wtd. (ft)	736.95	Wetted Per. (ft)	39.25	542.08	
Min Ch El (ft)	3420.00	Shear (lb/sq ft)	0.10	0.83	
Alpha	1.01	Stream Power (lb/ft s)	0.13	4.17	
Frctn Loss (ft)	3.60	Cum Volume (acre-ft)	16.73	50.81	1.86
C & E Loss (ft)	0.09	Cum SA (acres)	18.24	37.39	1.34

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 3489

INPUT

Description: Sta. 3489

Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-286	3420	-138	3418.5	-126	3418	-104	3416	-91	3415.5
-76	3416	-21	3417	100	3417	258	3416.5	299	3416
309	3415	318	3416	405	3416	422	3416	539	3416.4
581	3416.2	642	3416.4	744	3416	830	3416	918	3418
1068	3420	1159	3421						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-286	.033	539	.033	918	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
539	918	464	500	457	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3417.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3417.37	Reach Len. (ft)	464.00	500.00	457.00
Crit W.S. (ft)	3416.82	Flow Area (sq ft)	607.17	388.72	
E.G. Slope (ft/ft)	0.002273	Area (sq ft)	607.17	388.72	
Q Total (cfs)	2128.00	Flow (cfs)	1235.19	892.81	
Top Width (ft)	1009.36	Top Width (ft)	658.07	351.29	
Vel Total (ft/s)	2.14	Avg. Vel. (ft/s)	2.03	2.30	
Max Chl Dpth (ft)	2.37	Hydr. Depth (ft)	0.92	1.11	
Conv. Total (cfs)	44630.1	Conv. (cfs)	25905.4	18724.6	
Length Wtd. (ft)	481.52	Wetted Per. (ft)	658.27	351.30	
Min Ch El (ft)	3416.00	Shear (lb/sq ft)	0.13	0.16	
Alpha	1.01	Stream Power (lb/ft s)	0.27	0.36	
Frctn Loss (ft)	2.39	Cum Volume (acre-ft)	11.14	29.04	1.82
C & E Loss (ft)	0.03	Cum SA (acres)	11.71	27.52	1.32

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3417.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.033	0.033	

W.S. Elev (ft)	3417.37	Reach Len. (ft)	464.00	500.00	457.00
Crit W.S. (ft)	3416.82	Flow Area (sq ft)	607.17	388.72	
E.G. Slope (ft/ft)	0.002273	Area (sq ft)	607.17	388.72	
Q Total (cfs)	2128.00	Flow (cfs)	1235.19	892.81	
Top Width (ft)	1009.36	Top Width (ft)	658.07	351.29	
Vel Total (ft/s)	2.14	Avg. Vel. (ft/s)	2.03	2.30	
Max Chl Dpth (ft)	2.37	Hydr. Depth (ft)	0.92	1.11	
Conv. Total (cfs)	44630.1	Conv. (cfs)	25905.4	18724.6	
Length Wtd. (ft)	481.52	Wetted Per. (ft)	658.27	351.30	
Min Ch El (ft)	3416.00	Shear (lb/sq ft)	0.13	0.16	
Alpha	1.01	Stream Power (lb/ft s)	0.27	0.36	
Frctn Loss (ft)	2.39	Cum Volume (acre-ft)	11.14	26.85	1.82
C & E Loss (ft)	0.03	Cum SA (acres)	11.71	26.57	1.32

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3417.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3417.37	Reach Len. (ft)	464.00	500.00	457.00
Crit W.S. (ft)	3416.82	Flow Area (sq ft)	607.17	388.72	
E.G. Slope (ft/ft)	0.002273	Area (sq ft)	607.17	388.72	
Q Total (cfs)	2128.00	Flow (cfs)	1235.19	892.81	
Top Width (ft)	1009.36	Top Width (ft)	658.07	351.29	
Vel Total (ft/s)	2.14	Avg. Vel. (ft/s)	2.03	2.30	
Max Chl Dpth (ft)	2.37	Hydr. Depth (ft)	0.92	1.11	
Conv. Total (cfs)	44630.1	Conv. (cfs)	25905.4	18724.6	
Length Wtd. (ft)	481.52	Wetted Per. (ft)	658.27	351.30	
Min Ch El (ft)	3416.00	Shear (lb/sq ft)	0.13	0.16	
Alpha	1.01	Stream Power (lb/ft s)	0.27	0.36	

Frctn Loss (ft)	2.39	Cum Volume (acre-ft)	11.22	33.24	1.86
C & E Loss (ft)	0.03	Cum SA (acres)	11.73	29.88	1.34

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3417.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3417.37	Reach Len. (ft)	464.00	500.00	457.00
Crit W.S. (ft)	3416.82	Flow Area (sq ft)	607.17	388.72	
E.G. Slope (ft/ft)	0.002273	Area (sq ft)	607.17	388.72	
Q Total (cfs)	2128.00	Flow (cfs)	1235.19	892.81	
Top Width (ft)	1009.36	Top Width (ft)	658.07	351.29	
Vel Total (ft/s)	2.14	Avg. Vel. (ft/s)	2.03	2.30	
Max Chl Dpth (ft)	2.37	Hydr. Depth (ft)	0.92	1.11	
Conv. Total (cfs)	44630.1	Conv. (cfs)	25905.4	18724.6	
Length Wtd. (ft)	481.52	Wetted Per. (ft)	658.27	351.30	
Min Ch El (ft)	3416.00	Shear (lb/sq ft)	0.13	0.16	
Alpha	1.01	Stream Power (lb/ft s)	0.27	0.36	
Frctn Loss (ft)	2.39	Cum Volume (acre-ft)	11.48	43.97	1.86
C & E Loss (ft)	0.03	Cum SA (acres)	12.24	29.88	1.34

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 2989

INPUT
Description: Sta. 2989
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

-31	3416	59	3414.8	170	3414.8	196	3414	436	3413.8
613	3414	651	3414	700	3414	747	3414	761	3414
841	3415.01	920	3416	976	3418	1067	3420		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-31	.033	436	.033	841	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
436	841	317	215	172	.3	.5

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3415.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3414.67	Reach Len. (ft)	317.00	215.00	172.00
Crit W.S. (ft)	3414.67	Flow Area (sq ft)	192.52	253.84	
E.G. Slope (ft/ft)	0.018086	Area (sq ft)	192.52	253.84	
Q Total (cfs)	2128.00	Flow (cfs)	949.67	1178.33	
Top Width (ft)	640.02	Top Width (ft)	261.83	378.20	
Vel Total (ft/s)	4.77	Avg. Vel. (ft/s)	4.93	4.64	
Max Chl Dpth (ft)	0.87	Hydr. Depth (ft)	0.74	0.67	
Conv. Total (cfs)	15823.5	Conv. (cfs)	7061.6	8761.9	
Length Wtd. (ft)	254.95	Wetted Per. (ft)	261.84	378.20	
Min Ch El (ft)	3413.80	Shear (lb/sq ft)	0.83	0.76	
Alpha	1.00	Stream Power (lb/ft s)	4.10	3.52	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	6.88	25.35	1.82
C & E Loss (ft)	0.15	Cum SA (acres)	6.81	23.33	1.32

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3415.03	Element	Left OB	Channel	Right OB

Vel Head (ft)	0.35	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3414.67	Reach Len. (ft)	317.00	215.00	172.00
Crit W.S. (ft)	3414.67	Flow Area (sq ft)	192.52	253.84	
E.G. Slope (ft/ft)	0.018086	Area (sq ft)	192.52	253.84	
Q Total (cfs)	2128.00	Flow (cfs)	949.67	1178.33	
Top Width (ft)	640.02	Top Width (ft)	261.83	378.20	
Vel Total (ft/s)	4.77	Avg. Vel. (ft/s)	4.93	4.64	
Max Chl Dpth (ft)	0.87	Hydr. Depth (ft)	0.74	0.67	
Conv. Total (cfs)	15823.5	Conv. (cfs)	7061.6	8761.9	
Length Wtd. (ft)	254.95	Wetted Per. (ft)	261.84	378.20	
Min Ch El (ft)	3413.80	Shear (lb/sq ft)	0.83	0.76	
Alpha	1.00	Stream Power (lb/ft s)	4.10	3.52	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	6.88	23.16	1.82
C & E Loss (ft)	0.15	Cum SA (acres)	6.81	22.38	1.32

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3415.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3414.67	Reach Len. (ft)	317.00	215.00	172.00
Crit W.S. (ft)	3414.67	Flow Area (sq ft)	192.52	253.84	
E.G. Slope (ft/ft)	0.018086	Area (sq ft)	192.52	253.84	
Q Total (cfs)	2128.00	Flow (cfs)	949.67	1178.33	
Top Width (ft)	640.02	Top Width (ft)	261.83	378.20	
Vel Total (ft/s)	4.77	Avg. Vel. (ft/s)	4.93	4.64	

Max Chl Dpth (ft)	0.87	Hydr. Depth (ft)	0.74	0.67	
Conv. Total (cfs)	15823.5	Conv. (cfs)	7061.6	8761.9	
Length Wtd. (ft)	254.96	Wetted Per. (ft)	261.84	378.20	
Min Ch El (ft)	3413.80	Shear (lb/sq ft)	0.83	0.76	
Alpha	1.00	Stream Power (lb/ft s)	4.10	3.52	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	6.97	29.55	1.86
C & E Loss (ft)	0.15	Cum SA (acres)	6.83	25.70	1.34

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

			Left OB	Channel	Right OB
E.G. Elev (ft)	3415.03	Element			
Vel Head (ft)	0.35	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3414.67	Reach Len. (ft)	317.00	215.00	172.00
Crit W.S. (ft)	3414.67	Flow Area (sq ft)	192.52	253.84	
E.G. Slope (ft/ft)	0.018086	Area (sq ft)	192.52	253.84	
Q Total (cfs)	2128.00	Flow (cfs)	949.67	1178.33	
Top Width (ft)	640.02	Top Width (ft)	261.83	378.20	
Vel Total (ft/s)	4.77	Avg. Vel. (ft/s)	4.93	4.64	
Max Chl Dpth (ft)	0.87	Hydr. Depth (ft)	0.74	0.67	
Conv. Total (cfs)	15823.5	Conv. (cfs)	7061.6	8761.9	
Length Wtd. (ft)	254.96	Wetted Per. (ft)	261.84	378.20	
Min Ch El (ft)	3413.80	Shear (lb/sq ft)	0.83	0.76	
Alpha	1.00	Stream Power (lb/ft s)	4.10	3.52	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	7.22	40.28	1.86
C & E Loss (ft)	0.15	Cum SA (acres)	7.35	25.70	1.34

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 2774

INPUT
Description: Sta. 2774 Upstream of culverts
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-453	3416	-437	3415	-405	3414	-289	3413.8	-13	3413.8
100	3413.8	175	3413.8	204	3412	261	3412	298	3411.2
402	3410.9	437	3410	469	3409	491	3409	511	3410
560	3412	641	3414	725	3416				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-453	.033	437	.033	511	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
437	511	40	40	40	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-888	F		
888	F		

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

			Left OB	Channel	Right OB
E.G. Elev (ft)	3414.21	Element			
Vel Head (ft)	0.06	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3414.16	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	901.05	355.47	248.66
E.G. Slope (ft/ft)	0.000414	Area (sq ft)	901.05	355.47	248.66
Q Total (cfs)	2128.00	Flow (cfs)	860.75	927.38	339.87
Top Width (ft)	1057.47	Top Width (ft)	846.96	74.00	136.51
Vel Total (ft/s)	1.41	Avg. Vel. (ft/s)	0.96	2.61	1.37
Max Chl Dpth (ft)	5.16	Hydr. Depth (ft)	1.06	4.80	1.82
Conv. Total (cfs)	104526.0	Conv. (cfs)	42279.5	45552.3	16694.2
Length Wtd. (ft)	40.00	Wetted Per. (ft)	847.04	74.04	136.58
Min Ch El (ft)	3409.00	Shear (lb/sq ft)	0.03	0.12	0.05

Alpha	1.82	Stream Power (lb/ft s)	0.03	0.32	0.06
Frctn Loss (ft)		Cum Volume (acre-ft)	2.90	23.84	1.33
C & E Loss (ft)		Cum SA (acres)	2.78	22.21	1.05

Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3414.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3414.16	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	901.05	355.47	248.66
E.G. Slope (ft/ft)	0.000414	Area (sq ft)	901.05	355.47	248.66
Q Total (cfs)	2128.00	Flow (cfs)	860.75	927.38	339.87
Top Width (ft)	1057.47	Top Width (ft)	846.96	74.00	136.51
Vel Total (ft/s)	1.41	Avg. Vel. (ft/s)	0.96	2.61	1.37
Max Chl Dpth (ft)	5.16	Hydr. Depth (ft)	1.06	4.80	1.82
Conv. Total (cfs)	104526.0	Conv. (cfs)	42279.5	45552.3	16694.2
Length Wtd. (ft)	40.00	Wetted Per. (ft)	847.04	74.04	136.58
Min Ch El (ft)	3409.00	Shear (lb/sq ft)	0.03	0.12	0.05
Alpha	1.82	Stream Power (lb/ft s)	0.03	0.32	0.06
Frctn Loss (ft)		Cum Volume (acre-ft)	2.90	21.66	1.33
C & E Loss (ft)		Cum SA (acres)	2.78	21.26	1.05

Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3414.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3414.16	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	901.47	355.51	248.73

E.G. Slope (ft/ft)	0.000414	Area (sq ft)	901.47	355.51	248.73
Q Total (cfs)	2128.00	Flow (cfs)	861.02	927.14	339.84
Top Width (ft)	1057.51	Top Width (ft)	846.98	74.00	136.53
Vel Total (ft/s)	1.41	Avg. Vel. (ft/s)	0.96	2.61	1.37
Max Chl Dpth (ft)	5.16	Hydr. Depth (ft)	1.06	4.80	1.82
Conv. Total (cfs)	104571.3	Conv. (cfs)	42311.3	45560.1	16700.0
Length Wtd. (ft)	40.00	Wetted Per. (ft)	847.06	74.04	136.60
Min Ch El (ft)	3409.00	Shear (lb/sq ft)	0.03	0.12	0.05
Alpha	1.82	Stream Power (lb/ft s)	0.03	0.32	0.06
Frctn Loss (ft)		Cum Volume (acre-ft)	2.98	28.05	1.37
C & E Loss (ft)		Cum SA (acres)	2.80	24.58	1.07

Warning: The parabolic search method failed to converge on critical depth. The program will try the
cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3414.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3414.16	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	901.47	355.51	248.73
E.G. Slope (ft/ft)	0.000414	Area (sq ft)	901.47	355.51	248.73
Q Total (cfs)	2128.00	Flow (cfs)	861.02	927.14	339.84
Top Width (ft)	1057.51	Top Width (ft)	846.98	74.00	136.53
Vel Total (ft/s)	1.41	Avg. Vel. (ft/s)	0.96	2.61	1.37
Max Chl Dpth (ft)	5.16	Hydr. Depth (ft)	1.06	4.80	1.82
Conv. Total (cfs)	104571.3	Conv. (cfs)	42311.3	45560.1	16700.0
Length Wtd. (ft)	40.00	Wetted Per. (ft)	847.06	74.04	136.60
Min Ch El (ft)	3409.00	Shear (lb/sq ft)	0.03	0.12	0.05
Alpha	1.82	Stream Power (lb/ft s)	0.03	0.32	0.06
Frctn Loss (ft)		Cum Volume (acre-ft)	3.24	38.78	1.37
C & E Loss (ft)		Cum SA (acres)	3.31	24.58	1.07

Warning: The parabolic search method failed to converge on critical depth. The program will try the
cross section slice/secant method to find critical depth.

CULVERT RIVER: Ditch A
REACH: 5 RS: 2773

INPUT
Description:
Distance from Upstream XS = 8
Deck/Roadway Width = 24
Weir Coefficient = 3
Upstream Deck/Roadway Coordinates
num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
26	3413.8		100	3413.8		402	3412.7	
500	3412.8		600	3413.9		700	3415.7	

Upstream Bridge Cross Section Data
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-453	3416	-437	3415	-405	3414	-289	3413.8	-13	3413.8
100	3413.8	175	3413.8	204	3412	261	3412	298	3411.2
402	3410.9	437	3410	469	3409	491	3409	511	3410
560	3412	641	3414	725	3416				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-453	.033	437	.033	511	.033

Bank Sta: Left Right Coeff Contr. Expan.
437 511 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-888	F		
888	F		

Downstream Deck/Roadway Coordinates
num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
26	3413.8		100	3413.8		402	3412.7	
500	3412.8		600	3413.9		700	3415.7	

Downstream Bridge Cross Section Data
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1721	3416	-1410	3414	26	3413.8	100	3412.4	155	3412
299	3411.4	349	3410	387	3408.9	391.4	3408.9	395.8	3408.9
400.2	3408.9	404.6	3408.9	409	3408.9	434	3410	487	3412
568	3414	658	3416						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1721	.033	349	.033	434	.033

Bank Sta: Left Right Coeff Contr. Expan.
349 434 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-888	F		
888	F		

Upstream Embankment side slope = 3 horiz. to 1.0 vertical
Downstream Embankment side slope = 3 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95

Elevation at which weir flow begins = 3412.7
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name	Shape	Rise	Span
Culvert #1	Pipe Arch	1.833	2.43

FHWA Chart # 34- 18 inch corner radius; Corrugated metal
FHWA Scale # 1 - 90 Degree headwall
Solution Criteria = Highest U.S. EG

Culvert	Upstrm Dist	Length	n Value	Entrance Loss Coef	Exit Loss Coef
	1	39	.024	.5	1

Number of Barrels = 6
Upstream Elevation = 3409
Centerline Stations

Sta.	Sta.	Sta.	Sta.	Sta.	Sta.
469	473.4	477.8	482.2	486.6	491

Downstream Elevation = 3408.9
Centerline Stations

Sta.	Sta.	Sta.	Sta.	Sta.	Sta.
387	391.4	395.8	400.2	404.6	409

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 2734

INPUT
Description: Sta. 2734 Downstream of culverts
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1721	3416	-1410	3414	26	3413.8	100	3412.4	155	3412
299	3411.4	349	3410	387	3408.9	391.4	3408.9	395.8	3408.9
400.2	3408.9	404.6	3408.9	409	3408.9	434	3410	487	3412
568	3414	658	3416						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1721	.033	349	.033	434	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
349	434	745	846	1015	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-888	F		
888	F		

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3412.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3412.71	Reach Len. (ft)	745.00	846.00	1015.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	275.89	288.99	100.64
E.G. Slope (ft/ft)	0.002018	Area (sq ft)	275.89	288.99	100.64
Q Total (cfs)	2128.00	Flow (cfs)	572.81	1321.29	233.90
Top Width (ft)	431.91	Top Width (ft)	265.26	85.00	81.65
Vel Total (ft/s)	3.20	Avg. Vel. (ft/s)	2.08	4.57	2.32

Max Chl Dpth (ft)	3.81	Hydr. Depth (ft)	1.04	3.40	1.23
Conv. Total (cfs)	47371.8	Conv. (cfs)	12751.3	29413.6	5206.9
Length Wtd. (ft)	841.72	Wetted Per. (ft)	265.28	85.04	81.70
Min Ch El (ft)	3408.90	Shear (lb/sq ft)	0.13	0.43	0.16
Alpha	1.44	Stream Power (lb/ft s)	0.27	1.96	0.36
Frctn Loss (ft)	2.17	Cum Volume (acre-ft)	2.36	23.55	1.17
C & E Loss (ft)	0.06	Cum SA (acres)	2.27	22.14	0.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3412.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3412.71	Reach Len. (ft)	745.00	846.00	1015.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	275.89	288.99	100.64
E.G. Slope (ft/ft)	0.002018	Area (sq ft)	275.89	288.99	100.64
Q Total (cfs)	2128.00	Flow (cfs)	572.81	1321.29	233.90
Top Width (ft)	431.91	Top Width (ft)	265.26	85.00	81.65
Vel Total (ft/s)	3.20	Avg. Vel. (ft/s)	2.08	4.57	2.32
Max Chl Dpth (ft)	3.81	Hydr. Depth (ft)	1.04	3.40	1.23
Conv. Total (cfs)	47371.8	Conv. (cfs)	12751.3	29413.6	5206.9
Length Wtd. (ft)	841.72	Wetted Per. (ft)	265.28	85.04	81.70
Min Ch El (ft)	3408.90	Shear (lb/sq ft)	0.13	0.43	0.16
Alpha	1.44	Stream Power (lb/ft s)	0.27	1.96	0.36
Frctn Loss (ft)	3.23	Cum Volume (acre-ft)	2.36	21.36	1.17

C & E Loss (ft)	0.00	Cum SA (acres)	2.27	21.19	0.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

			Left OB	Channel	Right OB
E.G. Elev (ft)	3412.96	Element			
Vel Head (ft)	0.22	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3412.74	Reach Len. (ft)	745.00	846.00	1015.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	285.31	292.00	103.55
E.G. Slope (ft/ft)	0.001906	Area (sq ft)	285.31	292.00	103.55
Q Total (cfs)	2128.00	Flow (cfs)	585.95	1306.41	235.64
Top Width (ft)	435.22	Top Width (ft)	267.13	85.00	83.09
Vel Total (ft/s)	3.13	Avg. Vel. (ft/s)	2.05	4.47	2.28
Max Chl Dpth (ft)	3.84	Hydr. Depth (ft)	1.07	3.44	1.25
Conv. Total (cfs)	48746.0	Conv. (cfs)	13422.4	29925.8	5397.8
Length Wtd. (ft)	841.48	Wetted Per. (ft)	267.15	85.04	83.14
Min Ch El (ft)	3408.90	Shear (lb/sq ft)	0.13	0.41	0.15
Alpha	1.44	Stream Power (lb/ft s)	0.26	1.83	0.34
Frctn Loss (ft)	3.69	Cum Volume (acre-ft)	2.44	27.75	1.21
C & E Loss (ft)	0.04	Cum SA (acres)	2.28	24.51	0.97

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3412.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.033	0.033	0.033
W.S. Elev (ft)	3412.74	Reach Len. (ft)	745.00	846.00	1015.00
Crit W.S. (ft)	3412.71	Flow Area (sq ft)	285.31	292.00	103.55
E.G. Slope (ft/ft)	0.001906	Area (sq ft)	285.31	292.00	103.55
Q Total (cfs)	2128.00	Flow (cfs)	585.95	1306.41	235.64
Top Width (ft)	435.22	Top Width (ft)	267.13	85.00	83.09
Vel Total (ft/s)	3.13	Avg. Vel. (ft/s)	2.05	4.47	2.28
Max Chl Dpth (ft)	3.84	Hydr. Depth (ft)	1.07	3.44	1.25
Conv. Total (cfs)	48746.0	Conv. (cfs)	13422.4	29925.8	5397.8
Length Wtd. (ft)	841.48	Wetted Per. (ft)	267.15	85.04	83.14
Min Ch El (ft)	3408.90	Shear (lb/sq ft)	0.13	0.41	0.15
Alpha	1.44	Stream Power (lb/ft s)	0.26	1.83	0.34
Frctn Loss (ft)	3.69	Cum Volume (acre-ft)	2.70	38.48	1.21
C & E Loss (ft)	0.04	Cum SA (acres)	2.80	24.51	0.97

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 1888

INPUT
Description: Sta. 1888
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-775	3412	-41	3410	81	3410	100	3410.2	110	3410
331	3408	532	3408	690	3408	1180	3410	1268	3412

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

-775	.033	100	.033	1180	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
100	1180	305	828	980	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

E.G. Elev (ft)	3409.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.033	
W.S. Elev (ft)	3409.38	Reach Len. (ft)	305.00	828.00	980.00
Crit W.S. (ft)	3408.89	Flow Area (sq ft)		831.55	
E.G. Slope (ft/ft)	0.003403	Area (sq ft)		831.55	
Q Total (cfs)	2155.00	Flow (cfs)		2155.00	
Top Width (ft)	848.59	Top Width (ft)		848.59	
Vel Total (ft/s)	2.59	Avg. Vel. (ft/s)		2.59	
Max Chl Dpth (ft)	1.38	Hydr. Depth (ft)		0.98	
Conv. Total (cfs)	36939.4	Conv. (cfs)		36939.4	
Length Wtd. (ft)	828.00	Wetted Per. (ft)		848.60	
Min Ch El (ft)	3408.00	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		0.54	
Frctn Loss (ft)	4.65	Cum Volume (acre-ft)		12.67	
C & E Loss (ft)	0.02	Cum SA (acres)		13.07	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

E.G. Elev (ft)	3409.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.		0.033	
W.S. Elev (ft)	3409.05	Reach Len. (ft)	305.00	828.00	980.00
Crit W.S. (ft)	3408.89	Flow Area (sq ft)		570.28	
E.G. Slope (ft/ft)	0.009807	Area (sq ft)		570.28	
Q Total (cfs)	2155.00	Flow (cfs)		2155.00	

Top Width (ft)	730.99	Top Width (ft)	730.99
Vel Total (ft/s)	3.78	Avg. Vel. (ft/s)	3.78
Max Chl Dpth (ft)	1.05	Hydr. Depth (ft)	0.78
Conv. Total (cfs)	21761.0	Conv. (cfs)	21761.0
Length Wtd. (ft)	828.00	Wetted Per. (ft)	731.00
Min Ch El (ft)	3408.00	Shear (lb/sq ft)	0.48
Alpha	1.00	Stream Power (lb/ft s)	1.80
Frctn Loss (ft)	4.12	Cum Volume (acre-ft)	13.02
C & E Loss (ft)	0.03	Cum SA (acres)	13.27

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3409.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.033	
W.S. Elev (ft)	3408.89	Reach Len. (ft)	305.00	828.00	980.00
Crit W.S. (ft)	3408.89	Flow Area (sq ft)		457.76	
E.G. Slope (ft/ft)	0.018312	Area (sq ft)		457.76	
Q Total (cfs)	2155.00	Flow (cfs)		2155.00	
Top Width (ft)	674.05	Top Width (ft)		674.05	
Vel Total (ft/s)	4.71	Avg. Vel. (ft/s)		4.71	
Max Chl Dpth (ft)	0.89	Hydr. Depth (ft)		0.68	
Conv. Total (cfs)	15925.1	Conv. (cfs)		15925.1	
Length Wtd. (ft)	828.00	Wetted Per. (ft)		674.06	
Min Ch El (ft)	3408.00	Shear (lb/sq ft)		0.78	
Alpha	1.00	Stream Power (lb/ft s)		3.65	
Frctn Loss (ft)	1.19	Cum Volume (acre-ft)		20.47	
C & E Loss (ft)	0.10	Cum SA (acres)		17.14	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3409.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.033	
W.S. Elev (ft)	3408.89	Reach Len. (ft)	305.00	828.00	980.00
Crit W.S. (ft)	3408.89	Flow Area (sq ft)		457.76	
E.G. Slope (ft/ft)	0.018312	Area (sq ft)		457.76	
Q Total (cfs)	2155.00	Flow (cfs)		2155.00	
Top Width (ft)	674.05	Top Width (ft)		674.05	
Vel Total (ft/s)	4.71	Avg. Vel. (ft/s)		4.71	
Max Chl Dpth (ft)	0.89	Hydr. Depth (ft)		0.68	
Conv. Total (cfs)	15925.1	Conv. (cfs)		15925.1	
Length Wtd. (ft)	825.65	Wetted Per. (ft)		674.06	
Min Ch El (ft)	3408.00	Shear (lb/sq ft)		0.78	
Alpha	1.00	Stream Power (lb/ft s)		3.65	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	0.26	31.20	
C & E Loss (ft)	0.10	Cum SA (acres)	0.51	17.14	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to

critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Ditch A
REACH: 5 RS: 1060

INPUT
Description: Sta. 1060
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	3408	394	3406	879	3402.7	909	3402.7	1206	3405
1523	3406								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.033	394	.033	1523	.033

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
394	1523	60	60	.1	.3

CROSS SECTION OUTPUT Profile #100 Yr.-WS3404.5

			Left OB	Channel	Right OB
E.G. Elev (ft)	3404.81	Element			
Vel Head (ft)	0.31	Wt. n-Val.		0.033	
W.S. Elev (ft)	3404.50	Reach Len. (ft)			
Crit W.S. (ft)	3404.34	Flow Area (sq ft)		501.30	
E.G. Slope (ft/ft)	0.010602	Area (sq ft)		501.30	
Q Total (cfs)	2248.00	Flow (cfs)		2248.00	
Top Width (ft)	526.98	Top Width (ft)		526.98	
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)		4.48	
Max Chl Dpth (ft)	1.80	Hydr. Depth (ft)		0.95	
Conv. Total (cfs)	21832.6	Conv. (cfs)		21832.6	
Length Wtd. (ft)		Wetted Per. (ft)		527.00	
Min Ch El (ft)	3402.70	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		2.82	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CROSS SECTION OUTPUT Profile #100 Yr.-WS3405

			Left OB	Channel	Right OB
E.G. Elev (ft)	3405.12	Element			
Vel Head (ft)	0.12	Wt. n-Val.		0.033	

W.S. Elev (ft)	3405.00	Reach Len. (ft)	
Crit W.S. (ft)	3404.34	Flow Area (sq ft)	799.30
E.G. Slope (ft/ft)	0.003053	Area (sq ft)	799.30
Q Total (cfs)	2248.00	Flow (cfs)	2248.00
Top Width (ft)	665.03	Top Width (ft)	665.03
Vel Total (ft/s)	2.81	Avg. Vel. (ft/s)	2.81
Max Chl Dpth (ft)	2.30	Hydr. Depth (ft)	1.20
Conv. Total (cfs)	40684.8	Conv. (cfs)	40684.8
Length Wtd. (ft)		Wetted Per. (ft)	665.05
Min Ch El (ft)	3402.70	Shear (lb/sq ft)	0.23
Alpha	1.00	Stream Power (lb/ft s)	0.64
Frctn Loss (ft)		Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

CROSS SECTION OUTPUT Profile #100 Yr.-WS3406

E.G. Elev (ft)	3406.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.		0.033	
W.S. Elev (ft)	3406.00	Reach Len. (ft)			
Crit W.S. (ft)	3404.34	Flow Area (sq ft)		1696.32	
E.G. Slope (ft/ft)	0.000503	Area (sq ft)		1696.32	
Q Total (cfs)	2248.00	Flow (cfs)		2248.00	
Top Width (ft)	1129.00	Top Width (ft)		1129.00	
Vel Total (ft/s)	1.33	Avg. Vel. (ft/s)		1.33	
Max Chl Dpth (ft)	3.30	Hydr. Depth (ft)		1.50	
Conv. Total (cfs)	100198.1	Conv. (cfs)		100198.1	
Length Wtd. (ft)		Wetted Per. (ft)		1129.02	
Min Ch El (ft)	3402.70	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)		0.06	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION OUTPUT Profile #100 Yr.-WS3407

E.G. Elev (ft)	3407.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.033	0.033	
W.S. Elev (ft)	3407.00	Reach Len. (ft)			
Crit W.S. (ft)	3404.34	Flow Area (sq ft)	73.50	2825.32	
E.G. Slope (ft/ft)	0.000090	Area (sq ft)	73.50	2825.32	
Q Total (cfs)	2248.00	Flow (cfs)	19.82	2228.18	
Top Width (ft)	1276.00	Top Width (ft)	147.00	1129.00	
Vel Total (ft/s)	0.78	Avg. Vel. (ft/s)	0.27	0.79	
Max Chl Dpth (ft)	4.30	Hydr. Depth (ft)	0.50	2.50	
Conv. Total (cfs)	236437.3	Conv. (cfs)	2084.9	234352.5	
Length Wtd. (ft)		Wetted Per. (ft)	147.00	1130.02	
Min Ch El (ft)	3402.70	Shear (lb/sq ft)	0.00	0.01	
Alpha	1.03	Stream Power (lb/ft s)	0.00	0.01	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

SUMMARY OF MANNING'S N VALUES

River:Ditch A

Reach	River Sta.	n1	n2	n3
5	12674	.033	.033	.033
5	11337	.033	.033	.033
5	10937	.033	.033	.033
5	10288	.033	.033	.033
5	9690	.033	.033	.033
5	9009	.033	.033	.033
5	8130	.033	.033	.033
5	7717	.033	.033	.033
5	7253	.033	.033	.033
5	6343	.033	.033	.033
5	5363	.033	.033	.033
5	4221	.033	.033	.033
5	3489	.033	.033	.033
5	2989	.033	.033	.033

5	2774	.033	.033	.033
5	2773	Culvert		
5	2734	.033	.033	.033
5	1888	.033	.033	.033
5	1060	.033	.033	.033

SUMMARY OF REACH LENGTHS

River: Ditch A

Reach	River Sta.	Left	Channel	Right
5	12674	1206	1337	1433
5	11337	545	400	332
5	10937	729	649	445
5	10288	552	598	633
5	9690	639	681	658
5	9009	898	879	794
5	8130	399	413	456
5	7717	444	464	510
5	7253	756	910	980
5	6343	767	980	1051
5	5363	1199	1142	713
5	4221	749	732	843
5	3489	464	500	457
5	2989	317	215	172
5	2774	40	40	40
5	2773	Culvert		
5	2734	745	846	1015
5	1888	305	828	980
5	1060	60	60	60

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Ditch A

Reach	River Sta.	Contr.	Expan.
5	12674	.1	.3
5	11337	.1	.3
5	10937	.1	.3
5	10288	.1	.3
5	9690	.1	.3
5	9009	.1	.3
5	8130	.1	.3
5	7717	.1	.3
5	7253	.1	.3
5	6343	.1	.3
5	5363	.1	.3
5	4221	.1	.3
5	3489	.1	.3
5	2989	.3	.5
5	2774	.3	.5
5	2773	Culvert	
5	2734	.3	.5
5	1888	.1	.3
5	1060	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. S
	Flow Area	Top Width	Froude # Chl				
		(cfs)	(ft)	(ft)	(ft)	(ft)	
lope	Vel Chnl						
/ft)	(ft/s)	(sq ft)	(ft)				(ft
5	12674	645.00	3477.00	3478.49	3478.08	3478.59	0.00
3093	2.49	268.80	320.33	0.44			
5	12674	645.00	3477.00	3478.49	3478.08	3478.59	0.00
3093	2.49	268.80	320.33	0.44			
5	12674	645.00	3477.00	3478.49	3478.08	3478.59	0.00
3093	2.49	268.80	320.33	0.44			
5	12674	645.00	3477.00	3478.49	3478.08	3478.59	0.00
3093	2.49	268.80	320.33	0.44			
5	11337	645.00	3469.00	3470.53	3470.50	3470.97	0.01
3657	5.36	123.92	137.13	0.93			
5	11337	645.00	3469.00	3470.53	3470.50	3470.97	0.01
3657	5.36	123.92	137.13	0.93			
5	11337	645.00	3469.00	3470.53	3470.50	3470.97	0.01
3657	5.36	123.92	137.13	0.93			
5	11337	645.00	3469.00	3470.53	3470.50	3470.97	0.01
3657	5.36	123.92	137.13	0.93			
5	10937	645.00	3464.00	3465.93	3465.75	3466.26	0.01
0093	4.57	141.28	139.30	0.80			
5	10937	645.00	3464.00	3465.93	3465.75	3466.26	0.01
0093	4.57	141.28	139.30	0.80			
5	10937	645.00	3464.00	3465.93	3465.75	3466.26	0.01
0093	4.57	141.28	139.30	0.80			
5	10937	645.00	3464.00	3465.93	3465.75	3466.26	0.01
0093	4.57	141.28	139.30	0.80			
5	10288	645.00	3456.00	3457.07	3457.07	3457.30	0.01
9840	3.87	166.72	349.93	0.99			
5	10288	645.00	3456.00	3457.07	3457.07	3457.30	0.01
9840	3.87	166.72	349.93	0.99			
5	10288	645.00	3456.00	3457.07	3457.07	3457.30	0.01
9840	3.87	166.72	349.93	0.99			
5	10288	645.00	3456.00	3457.07	3457.07	3457.30	0.01
9840	3.87	166.72	349.93	0.99			
5	9690	817.00	3450.00	3451.66	3451.28	3451.78	0.00
4774	2.78	293.93	348.04	0.53			
5	9690	817.00	3450.00	3451.66	3451.28	3451.78	0.00
4774	2.78	293.93	348.04	0.53			
5	9690	817.00	3450.00	3451.66	3451.28	3451.78	0.00
4774	2.78	293.93	348.04	0.53			
5	9690	817.00	3450.00	3451.66	3451.28	3451.78	0.00
4774	2.78	293.93	348.04	0.53			
5	9009	817.00	3445.00	3446.62	3446.50	3446.87	0.01
2038	4.03	202.92	275.79	0.83			
5	9009	817.00	3445.00	3446.62	3446.50	3446.87	0.01
2038	4.03	202.92	275.79	0.83			
5	9009	817.00	3445.00	3446.62	3446.50	3446.87	0.01
2038	4.03	202.92	275.79	0.83			

5		9009	817.00	3445.00	3446.62	3446.50	3446.87	0.01
2038	4.03	202.92	275.79	0.83				
5		8130	817.00	3440.00	3441.75	3441.25	3441.84	0.00
3282	2.40	340.75	380.21	0.45				
5		8130	817.00	3440.00	3441.75	3441.25	3441.84	0.00
3282	2.40	340.75	380.21	0.45				
5		8130	817.00	3440.00	3441.75	3441.25	3441.84	0.00
3282	2.40	340.75	380.21	0.45				
5		8130	817.00	3440.00	3441.75	3441.25	3441.84	0.00
3282	2.40	340.75	380.21	0.45				
5		7717	817.00	3437.80	3438.79	3438.79	3439.10	0.01
9275	4.47	182.90	302.82	1.01				
5		7717	817.00	3437.80	3438.79	3438.79	3439.10	0.01
9275	4.47	182.90	302.82	1.01				
5		7717	817.00	3437.80	3438.79	3438.79	3439.10	0.01
9275	4.47	182.90	302.82	1.01				
5		7717	817.00	3437.80	3438.79	3438.79	3439.10	0.01
9275	4.47	182.90	302.82	1.01				
5		7253	966.00	3435.00	3436.53	3435.99	3436.59	0.00
1746	1.92	511.45	535.68	0.33				
5		7253	966.00	3435.00	3436.53	3435.99	3436.59	0.00
1746	1.92	511.45	535.68	0.33				
5		7253	966.00	3435.00	3436.53	3435.99	3436.59	0.00
1746	1.92	511.45	535.68	0.33				
5		7253	966.00	3435.00	3436.53	3435.99	3436.59	0.00
1746	1.92	511.45	535.68	0.33				
5		6343	1873.00	3430.00	3430.86	3430.86	3431.22	0.01
8047	4.82	388.25	545.10	1.01				
5		6343	1873.00	3430.00	3430.86	3430.86	3431.22	0.01
8047	4.82	388.25	545.10	1.01				
5		6343	1873.00	3430.00	3430.86	3430.86	3431.22	0.01
8047	4.82	388.25	545.10	1.01				
5		6343	1873.00	3430.00	3430.86	3430.86	3431.22	0.01
8047	4.82	388.25	545.10	1.01				
5		5363	1873.00	3425.00	3426.53	3425.93	3426.60	0.00
1798	2.13	906.30	892.02	0.35				
5		5363	1873.00	3425.00	3426.53	3425.93	3426.60	0.00
1798	2.13	906.30	892.02	0.35				
5		5363	1873.00	3425.00	3426.53	3425.93	3426.60	0.00
1798	2.13	906.30	892.02	0.35				
5		5363	1873.00	3425.00	3426.53	3425.93	3426.60	0.00
1798	2.13	906.30	892.02	0.35				
5		4221	2128.00	3420.00	3421.19	3421.19	3421.58	0.01
7043	5.00	428.69	581.33	0.99				
5		4221	2128.00	3420.00	3421.19	3421.19	3421.58	0.01
7043	5.00	428.69	581.33	0.99				
5		4221	2128.00	3420.00	3421.19	3421.19	3421.58	0.01
7043	5.00	428.69	581.33	0.99				
5		4221	2128.00	3420.00	3421.19	3421.19	3421.58	0.01
7043	5.00	428.69	581.33	0.99				
5		3489	2128.00	3416.00	3417.37	3416.82	3417.44	0.00

2273	2.30	995.88	1009.36	0.38				
5		3489	2128.00	3416.00	3417.37	3416.82	3417.44	0.00
2273	2.30	995.88	1009.36	0.38				
5		3489	2128.00	3416.00	3417.37	3416.82	3417.44	0.00
2273	2.30	995.88	1009.36	0.38				
5		3489	2128.00	3416.00	3417.37	3416.82	3417.44	0.00
2273	2.30	995.88	1009.36	0.38				
5		2989	2128.00	3413.80	3414.67	3414.67	3415.03	0.01
8086	4.64	446.36	640.02	1.00				
5		2989	2128.00	3413.80	3414.67	3414.67	3415.03	0.01
8086	4.64	446.36	640.02	1.00				
5		2989	2128.00	3413.80	3414.67	3414.67	3415.03	0.01
8086	4.64	446.36	640.02	1.00				
5		2989	2128.00	3413.80	3414.67	3414.67	3415.03	0.01
8086	4.64	446.36	640.02	1.00				
5		2774	2128.00	3409.00	3414.16	3412.71	3414.21	0.00
0414	2.61	1505.18	1057.47	0.21				
5		2774	2128.00	3409.00	3414.16	3412.71	3414.21	0.00
0414	2.61	1505.18	1057.47	0.21				
5		2774	2128.00	3409.00	3414.16	3412.71	3414.21	0.00
0414	2.61	1505.70	1057.51	0.21				
5		2774	2128.00	3409.00	3414.16	3412.71	3414.21	0.00
0414	2.61	1505.70	1057.51	0.21				
5		2773	Culvert					
5		2734	2128.00	3408.90	3412.71	3412.71	3412.94	0.00
2018	4.57	665.51	431.91	0.44				
5		2734	2128.00	3408.90	3412.71	3412.71	3412.94	0.00
2018	4.57	665.51	431.91	0.44				
5		2734	2128.00	3408.90	3412.74	3412.71	3412.96	0.00
1906	4.47	680.86	435.22	0.43				
5		2734	2128.00	3408.90	3412.74	3412.71	3412.96	0.00
1906	4.47	680.86	435.22	0.43				
5		1888	2155.00	3408.00	3409.38	3408.89	3409.48	0.00
3403	2.59	831.55	848.59	0.46				
5		1888	2155.00	3408.00	3409.05	3408.89	3409.27	0.00
9807	3.78	570.28	730.99	0.75				
5		1888	2155.00	3408.00	3408.89	3408.89	3409.23	0.01
8312	4.71	457.76	674.05	1.01				
5		1888	2155.00	3408.00	3408.89	3408.89	3409.23	0.01
8312	4.71	457.76	674.05	1.01				
5		1060	2248.00	3402.70	3404.50	3404.34	3404.81	0.01
0602	4.48	501.30	526.98	0.81				
5		1060	2248.00	3402.70	3405.00	3404.34	3405.12	0.00
3053	2.81	799.30	665.03	0.45				
5		1060	2248.00	3402.70	3406.00	3404.34	3406.03	0.00
0503	1.33	1696.32	1129.00	0.19				
5		1060	2248.00	3402.70	3407.00	3404.34	3407.01	0.00
0090	0.79	2898.82	1276.00	0.09				

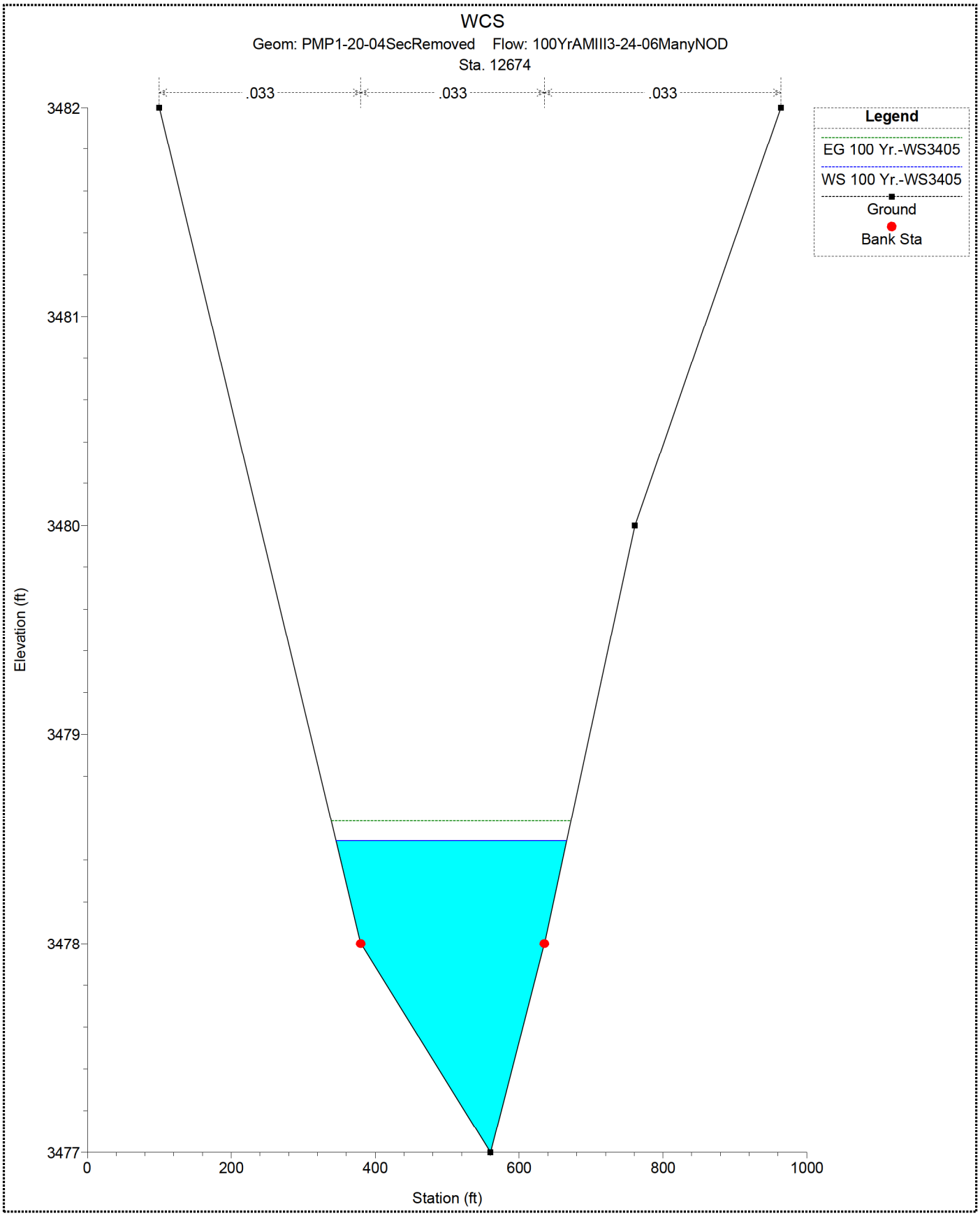
Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Max Chl Dpth	E.G
Elev	E.G. Slope Vel Chnl	Sta W.S. Lft	Sta W.S. Rgt	Flow Area	Top Width	Froude # Chl	
(ft)	(ft/ft) (ft/s)	(cfs) (ft)	(ft)	(ft) (sq ft)	(ft)	(ft)	
5	12674	645.00	3477.00	3478.49	3478.08	1.49	3
478.59	0.003093 2.49	345.62	665.95	268.80	320.33		0.44
5	12674	645.00	3477.00	3478.49	3478.08	1.49	3
478.59	0.003093 2.49	345.62	665.95	268.80	320.33		0.44
5	12674	645.00	3477.00	3478.49	3478.08	1.49	3
478.59	0.003093 2.49	345.62	665.95	268.80	320.33		0.44
5	12674	645.00	3477.00	3478.49	3478.08	1.49	3
478.59	0.003093 2.49	345.62	665.95	268.80	320.33		0.44
5	11337	645.00	3469.00	3470.53	3470.50	1.53	3
470.97	0.013657 5.36	423.67	560.80	123.92	137.13		0.93
5	11337	645.00	3469.00	3470.53	3470.50	1.53	3
470.97	0.013657 5.36	423.67	560.80	123.92	137.13		0.93
5	11337	645.00	3469.00	3470.53	3470.50	1.53	3
470.97	0.013657 5.36	423.67	560.80	123.92	137.13		0.93
5	11337	645.00	3469.00	3470.53	3470.50	1.53	3
470.97	0.013657 5.36	423.67	560.80	123.92	137.13		0.93
5	10937	645.00	3464.00	3465.93	3465.75	1.93	3
466.26	0.010093 4.57	467.44	606.74	141.28	139.30		0.80
5	10937	645.00	3464.00	3465.93	3465.75	1.93	3
466.26	0.010093 4.57	467.44	606.74	141.28	139.30		0.80
5	10937	645.00	3464.00	3465.93	3465.75	1.93	3
466.26	0.010093 4.57	467.44	606.74	141.28	139.30		0.80
5	10937	645.00	3464.00	3465.93	3465.75	1.93	3
466.26	0.010093 4.57	467.44	606.74	141.28	139.30		0.80
5	10288	645.00	3456.00	3457.07	3457.07	1.07	3
457.30	0.019840 3.87	389.03	738.96	166.72	349.93		0.99
5	10288	645.00	3456.00	3457.07	3457.07	1.07	3
457.30	0.019840 3.87	389.03	738.96	166.72	349.93		0.99
5	10288	645.00	3456.00	3457.07	3457.07	1.07	3
457.30	0.019840 3.87	389.03	738.96	166.72	349.93		0.99

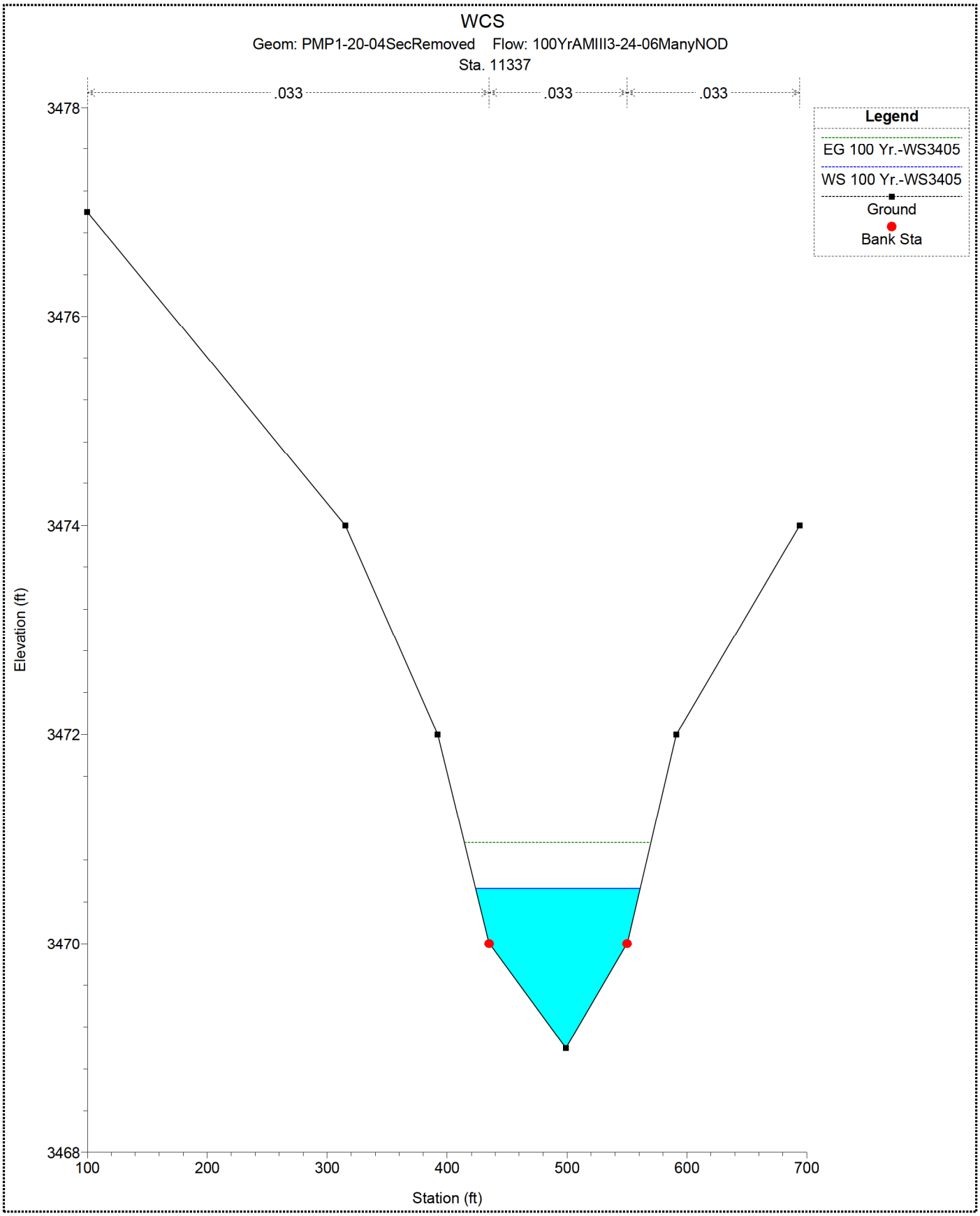
5	10288		645.00	3456.00	3457.07	3457.07	1.07	3
457.30	0.019840	3.87	389.03	738.96	166.72	349.93		0.99
5	9690		817.00	3450.00	3451.66	3451.28	1.66	3
451.78	0.004774	2.78	423.62	771.66	293.93	348.04		0.53
5	9690		817.00	3450.00	3451.66	3451.28	1.66	3
451.78	0.004774	2.78	423.62	771.66	293.93	348.04		0.53
5	9690		817.00	3450.00	3451.66	3451.28	1.66	3
451.78	0.004774	2.78	423.62	771.66	293.93	348.04		0.53
5	9690		817.00	3450.00	3451.66	3451.28	1.66	3
451.78	0.004774	2.78	423.62	771.66	293.93	348.04		0.53
5	9009		817.00	3445.00	3446.62	3446.50	1.62	3
446.87	0.012038	4.03	440.24	716.03	202.92	275.79		0.83
5	9009		817.00	3445.00	3446.62	3446.50	1.62	3
446.87	0.012038	4.03	440.24	716.03	202.92	275.79		0.83
5	9009		817.00	3445.00	3446.62	3446.50	1.62	3
446.87	0.012038	4.03	440.24	716.03	202.92	275.79		0.83
5	9009		817.00	3445.00	3446.62	3446.50	1.62	3
446.87	0.012038	4.03	440.24	716.03	202.92	275.79		0.83
5	8130		817.00	3440.00	3441.75	3441.25	1.75	3
441.84	0.003282	2.40	448.26	828.47	340.75	380.21		0.45
5	8130		817.00	3440.00	3441.75	3441.25	1.75	3
441.84	0.003282	2.40	448.26	828.47	340.75	380.21		0.45
5	8130		817.00	3440.00	3441.75	3441.25	1.75	3
441.84	0.003282	2.40	448.26	828.47	340.75	380.21		0.45
5	8130		817.00	3440.00	3441.75	3441.25	1.75	3
441.84	0.003282	2.40	448.26	828.47	340.75	380.21		0.45
5	7717		817.00	3437.80	3438.79	3438.79	0.99	3
439.10	0.019275	4.47	323.60	626.42	182.90	302.82		1.01
5	7717		817.00	3437.80	3438.79	3438.79	0.99	3
439.10	0.019275	4.47	323.60	626.42	182.90	302.82		1.01
5	7717		817.00	3437.80	3438.79	3438.79	0.99	3
439.10	0.019275	4.47	323.60	626.42	182.90	302.82		1.01
5	7717		817.00	3437.80	3438.79	3438.79	0.99	3
439.10	0.019275	4.47	323.60	626.42	182.90	302.82		1.01

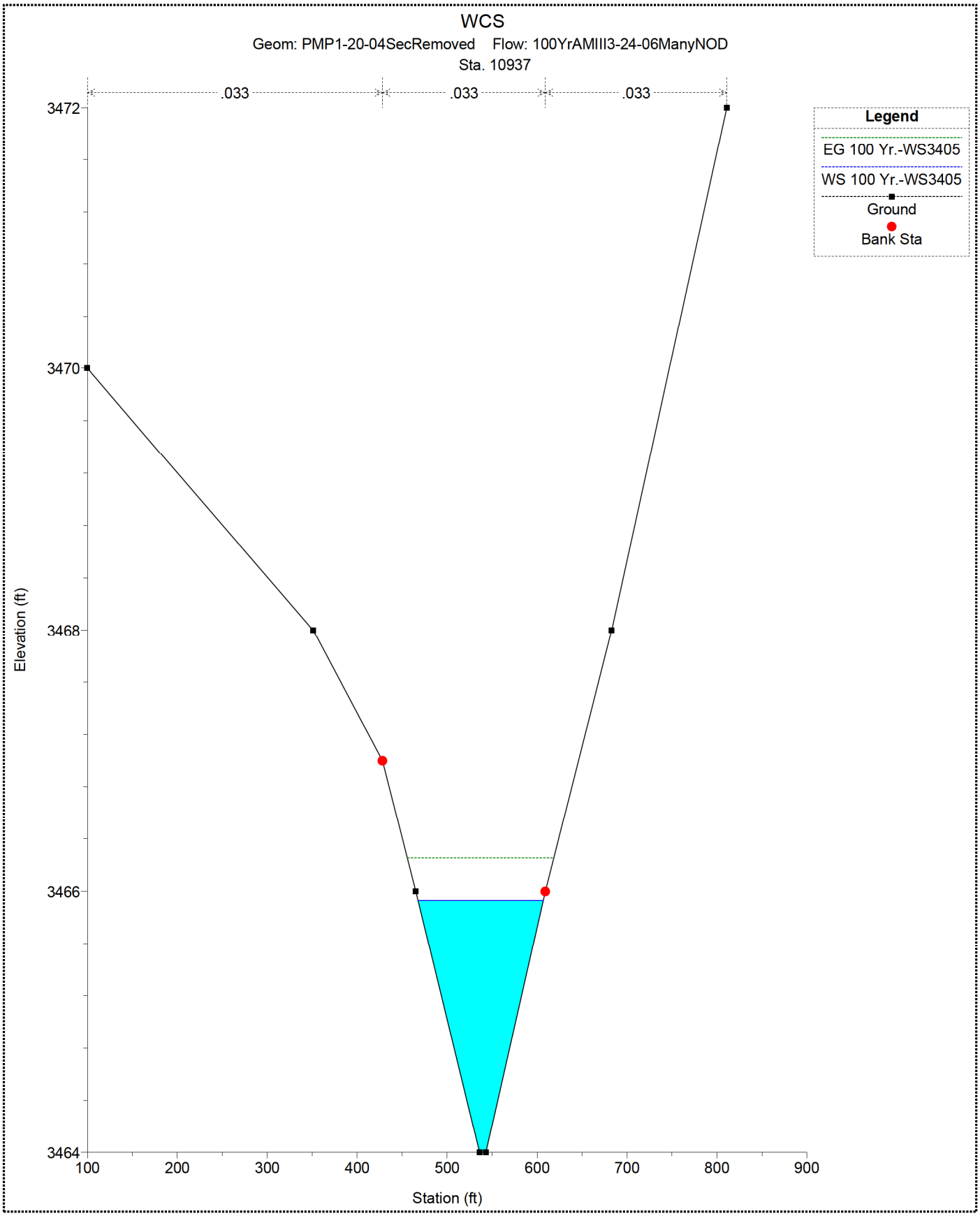
5	7253		966.00	3435.00	3436.53	3435.99	1.53	3
436.59	0.001746	1.92	396.63	932.31	511.45	535.68		0.33
5	7253		966.00	3435.00	3436.53	3435.99	1.53	3
436.59	0.001746	1.92	396.63	932.31	511.45	535.68		0.33
5	7253		966.00	3435.00	3436.53	3435.99	1.53	3
436.59	0.001746	1.92	396.63	932.31	511.45	535.68		0.33
5	7253		966.00	3435.00	3436.53	3435.99	1.53	3
436.59	0.001746	1.92	396.63	932.31	511.45	535.68		0.33
5	6343		1873.00	3430.00	3430.86	3430.86	0.86	3
431.22	0.018047	4.82	754.77	1299.87	388.25	545.10		1.01
5	6343		1873.00	3430.00	3430.86	3430.86	0.86	3
431.22	0.018047	4.82	754.77	1299.87	388.25	545.10		1.01
5	6343		1873.00	3430.00	3430.86	3430.86	0.86	3
431.22	0.018047	4.82	754.77	1299.87	388.25	545.10		1.01
5	6343		1873.00	3430.00	3430.86	3430.86	0.86	3
431.22	0.018047	4.82	754.77	1299.87	388.25	545.10		1.01
5	5363		1873.00	3425.00	3426.53	3425.93	1.53	3
426.60	0.001798	2.13	690.84	1582.86	906.30	892.02		0.35
5	5363		1873.00	3425.00	3426.53	3425.93	1.53	3
426.60	0.001798	2.13	690.84	1582.86	906.30	892.02		0.35
5	5363		1873.00	3425.00	3426.53	3425.93	1.53	3
426.60	0.001798	2.13	690.84	1582.86	906.30	892.02		0.35
5	5363		1873.00	3425.00	3426.53	3425.93	1.53	3
426.60	0.001798	2.13	690.84	1582.86	906.30	892.02		0.35
5	4221		2128.00	3420.00	3421.19	3421.19	1.19	3
421.58	0.017043	5.00	504.75	1086.07	428.69	581.33		0.99
5	4221		2128.00	3420.00	3421.19	3421.19	1.19	3
421.58	0.017043	5.00	504.75	1086.07	428.69	581.33		0.99
5	4221		2128.00	3420.00	3421.19	3421.19	1.19	3
421.58	0.017043	5.00	504.75	1086.07	428.69	581.33		0.99
5	4221		2128.00	3420.00	3421.19	3421.19	1.19	3
421.58	0.017043	5.00	504.75	1086.07	428.69	581.33		0.99
5	3489		2128.00	3416.00	3417.37	3416.82	2.37	3
417.44	0.002273	2.30	-119.07	890.29	995.88	1009.36		0.38

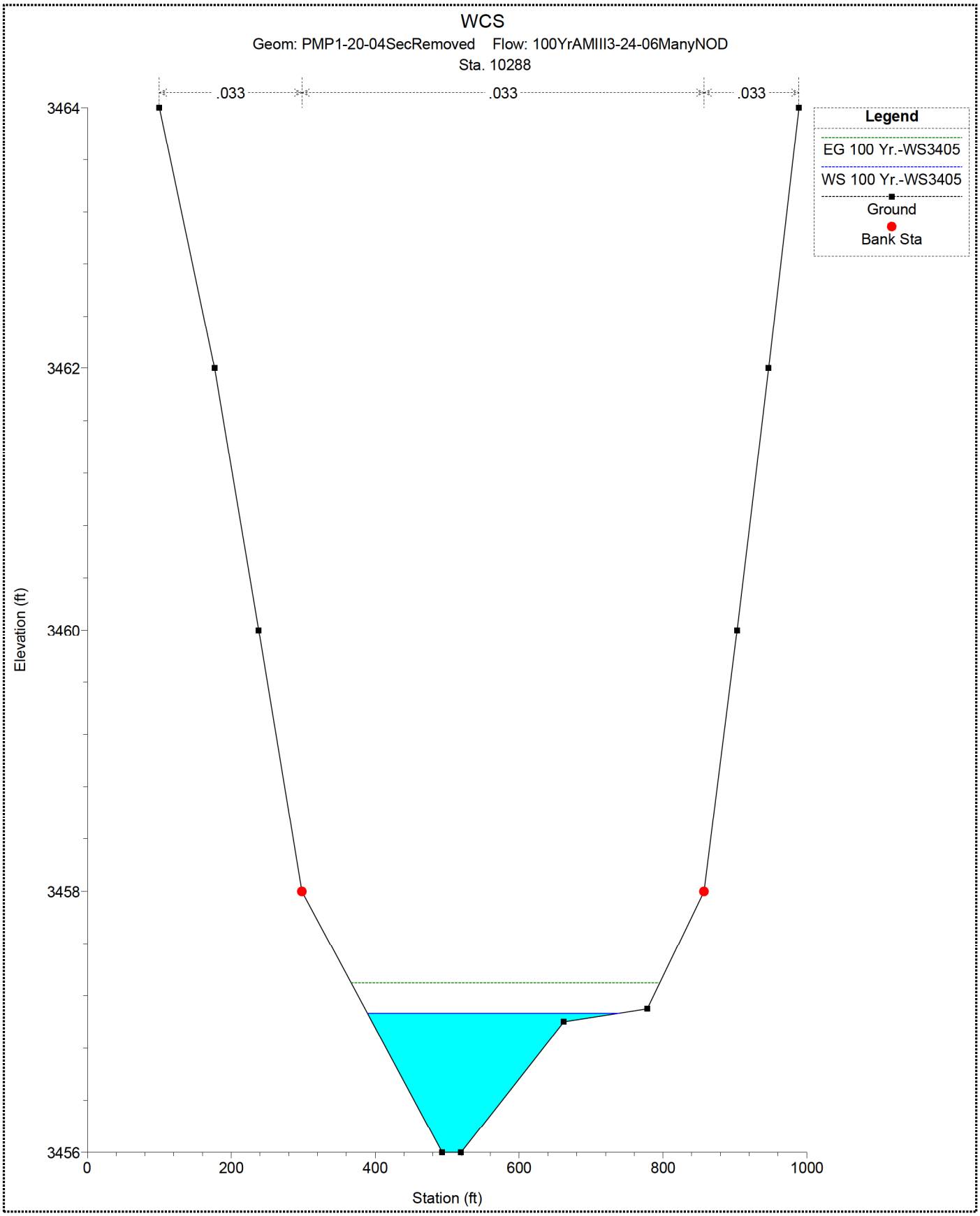
5	3489		2128.00	3416.00	3417.37	3416.82	2.37	3
417.44	0.002273	2.30	-119.07	890.29	995.88	1009.36		0.38
5	3489		2128.00	3416.00	3417.37	3416.82	2.37	3
417.44	0.002273	2.30	-119.07	890.29	995.88	1009.36		0.38
5	3489		2128.00	3416.00	3417.37	3416.82	2.37	3
417.44	0.002273	2.30	-119.07	890.29	995.88	1009.36		0.38
5	2989		2128.00	3413.80	3414.67	3414.67	0.87	3
415.03	0.018086	4.64	174.17	814.20	446.36	640.02		1.00
5	2989		2128.00	3413.80	3414.67	3414.67	0.87	3
415.03	0.018086	4.64	174.17	814.20	446.36	640.02		1.00
5	2989		2128.00	3413.80	3414.67	3414.67	0.87	3
415.03	0.018086	4.64	174.17	814.20	446.36	640.02		1.00
5	2989		2128.00	3413.80	3414.67	3414.67	0.87	3
415.03	0.018086	4.64	174.17	814.20	446.36	640.02		1.00
5	2774		2128.00	3409.00	3414.16	3412.71	5.16	3
414.21	0.000414	2.61	-409.96	647.51	1505.18	1057.47		0.21
5	2774		2128.00	3409.00	3414.16	3412.71	5.16	3
414.21	0.000414	2.61	-409.96	647.51	1505.18	1057.47		0.21
5	2774		2128.00	3409.00	3414.16	3412.71	5.16	3
414.21	0.000414	2.61	-409.98	647.53	1505.70	1057.51		0.21
5	2774		2128.00	3409.00	3414.16	3412.71	5.16	3
414.21	0.000414	2.61	-409.98	647.53	1505.70	1057.51		0.21
5	2773		Culvert					
5	2734		2128.00	3408.90	3412.71	3412.71	3.81	3
412.94	0.002018	4.57	83.74	515.65	665.51	431.91		0.44
5	2734		2128.00	3408.90	3412.71	3412.71	3.81	3
412.94	0.002018	4.57	83.74	515.65	665.51	431.91		0.44
5	2734		2128.00	3408.90	3412.74	3412.71	3.84	3
412.96	0.001906	4.47	81.87	517.09	680.86	435.22		0.43
5	2734		2128.00	3408.90	3412.74	3412.71	3.84	3
412.96	0.001906	4.47	81.87	517.09	680.86	435.22		0.43
5	1888		2155.00	3408.00	3409.38	3408.89	1.38	3
409.48	0.003403	2.59	178.82	1027.41	831.55	848.59		0.46

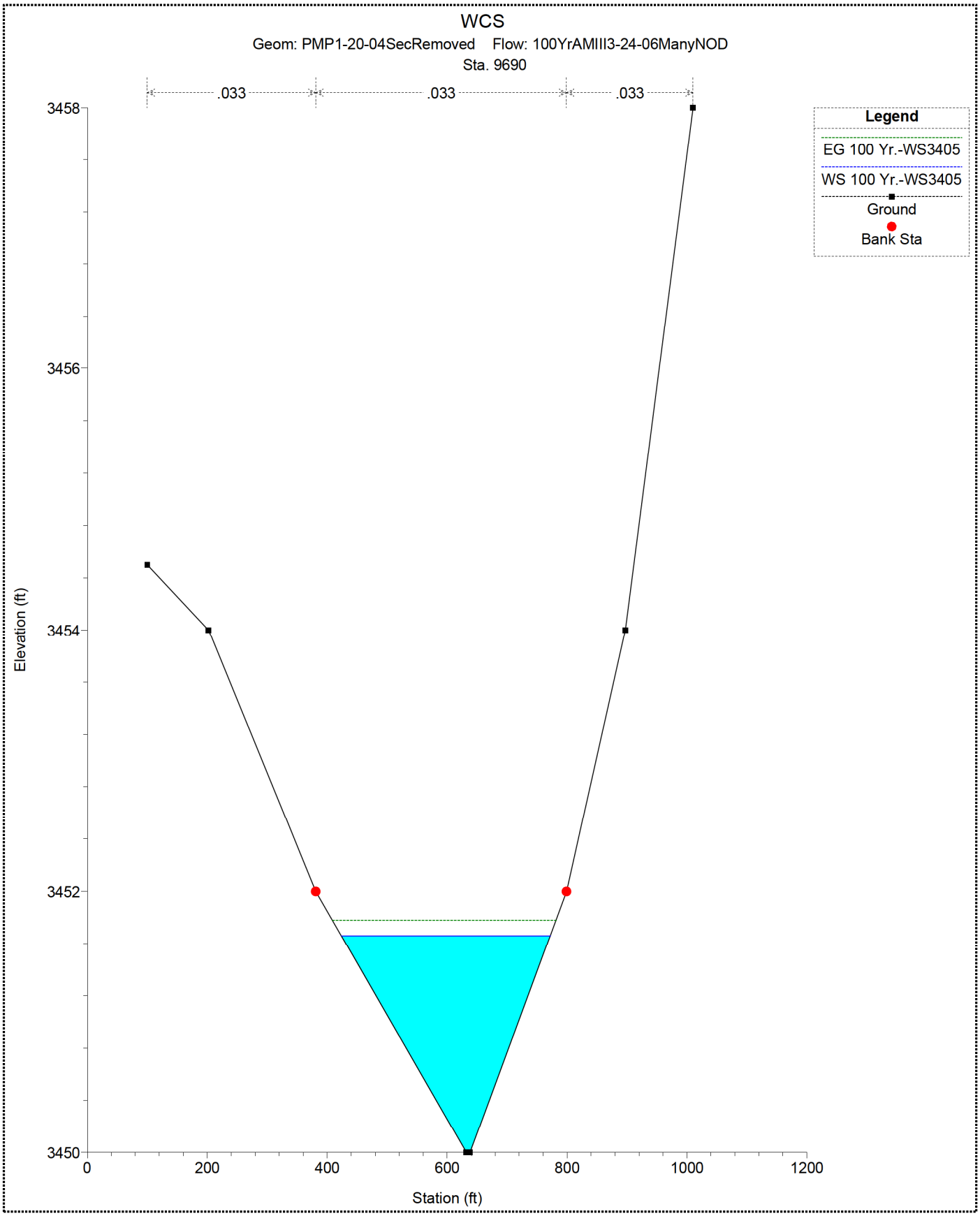
5	1888		2155.00	3408.00	3409.05	3408.89	1.05	3
409.27	0.009807	3.78	215.37	946.36	570.28	730.99		0.75
5	1888		2155.00	3408.00	3408.89	3408.89	0.89	3
409.23	0.018312	4.71	233.07	907.13	457.76	674.05		1.01
5	1888		2155.00	3408.00	3408.89	3408.89	0.89	3
409.23	0.018312	4.71	233.07	907.13	457.76	674.05		1.01
5	1060		2248.00	3402.70	3404.50	3404.34	1.80	3
404.81	0.010602	4.48	614.45	1141.44	501.30	526.98		0.81
5	1060		2248.00	3402.70	3405.00	3404.34	2.30	3
405.12	0.003053	2.81	540.97	1206.00	799.30	665.03		0.45
5	1060		2248.00	3402.70	3406.00	3404.34	3.30	3
406.03	0.000503	1.33	394.00	1523.00	1696.32	1129.00		0.19
5	1060		2248.00	3402.70	3407.00	3404.34	4.30	3
407.01	0.000090	0.79	247.00	1523.00	2898.82	1276.00		0.09

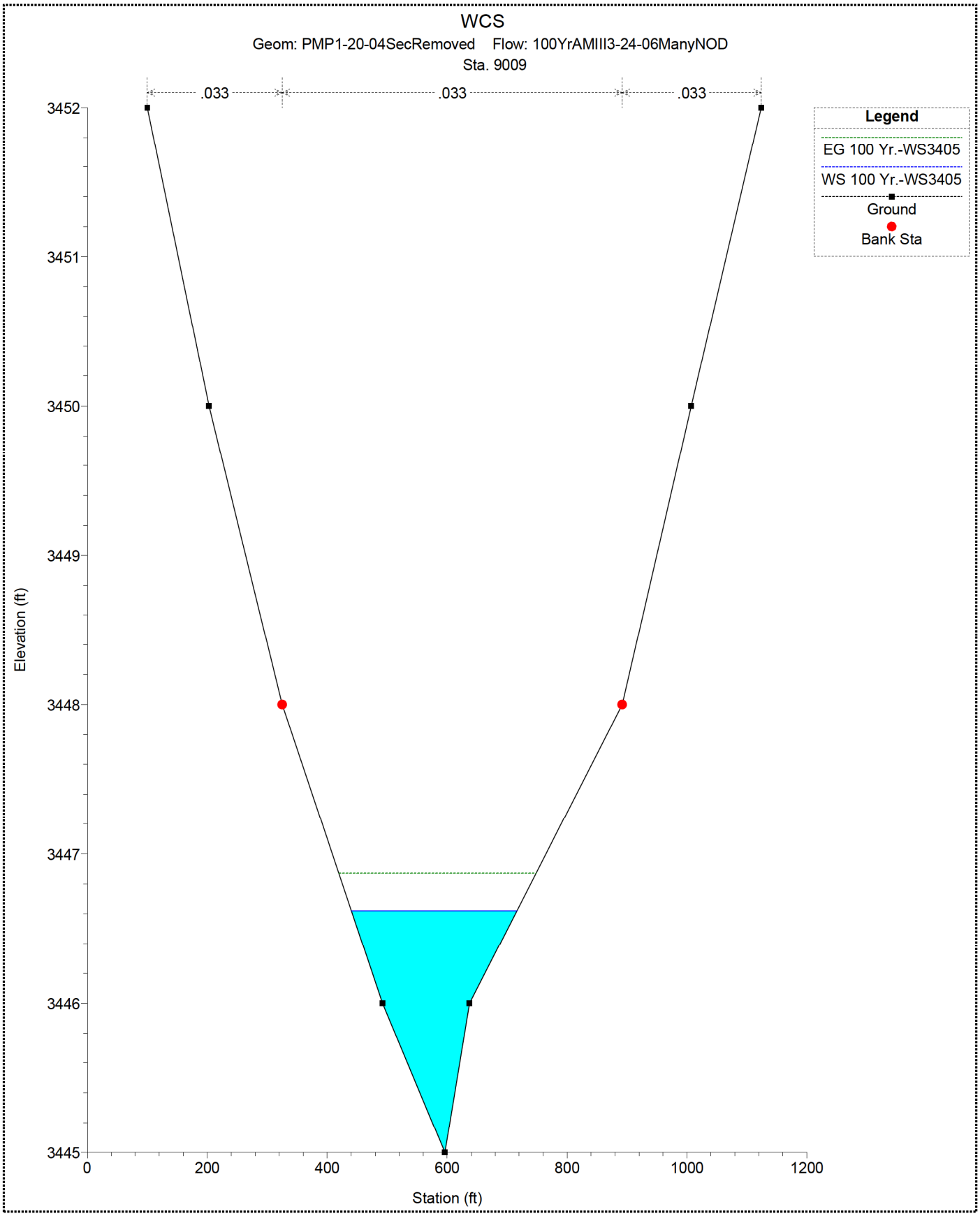

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 12674
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3482
3481
3480
3479
3478
3477
0
200
400
600
800
1000
Station (ft)

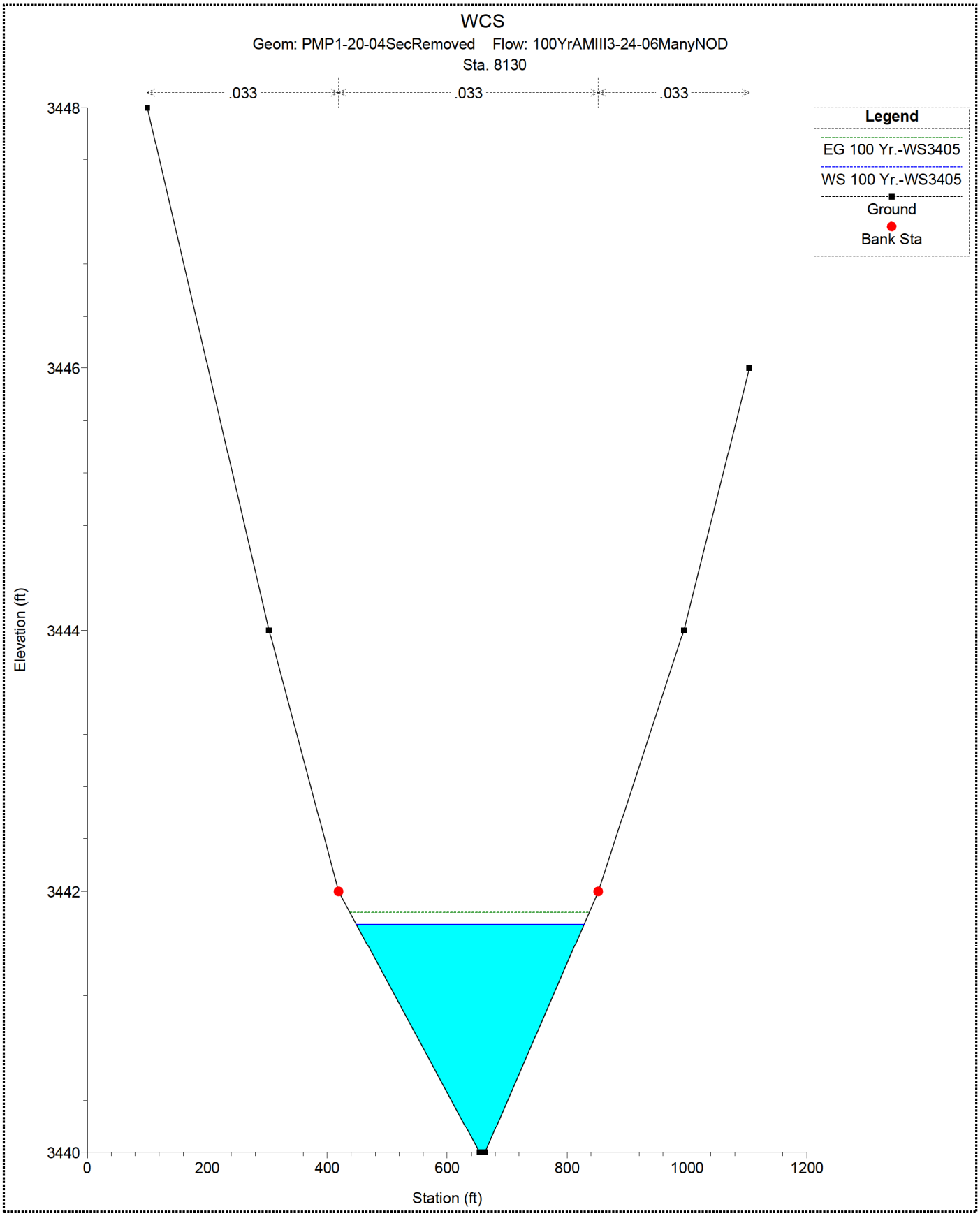

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 11337
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3478
3476
3474
3472
3470
3468
100
200
300
400
500
600
700
Station (ft)

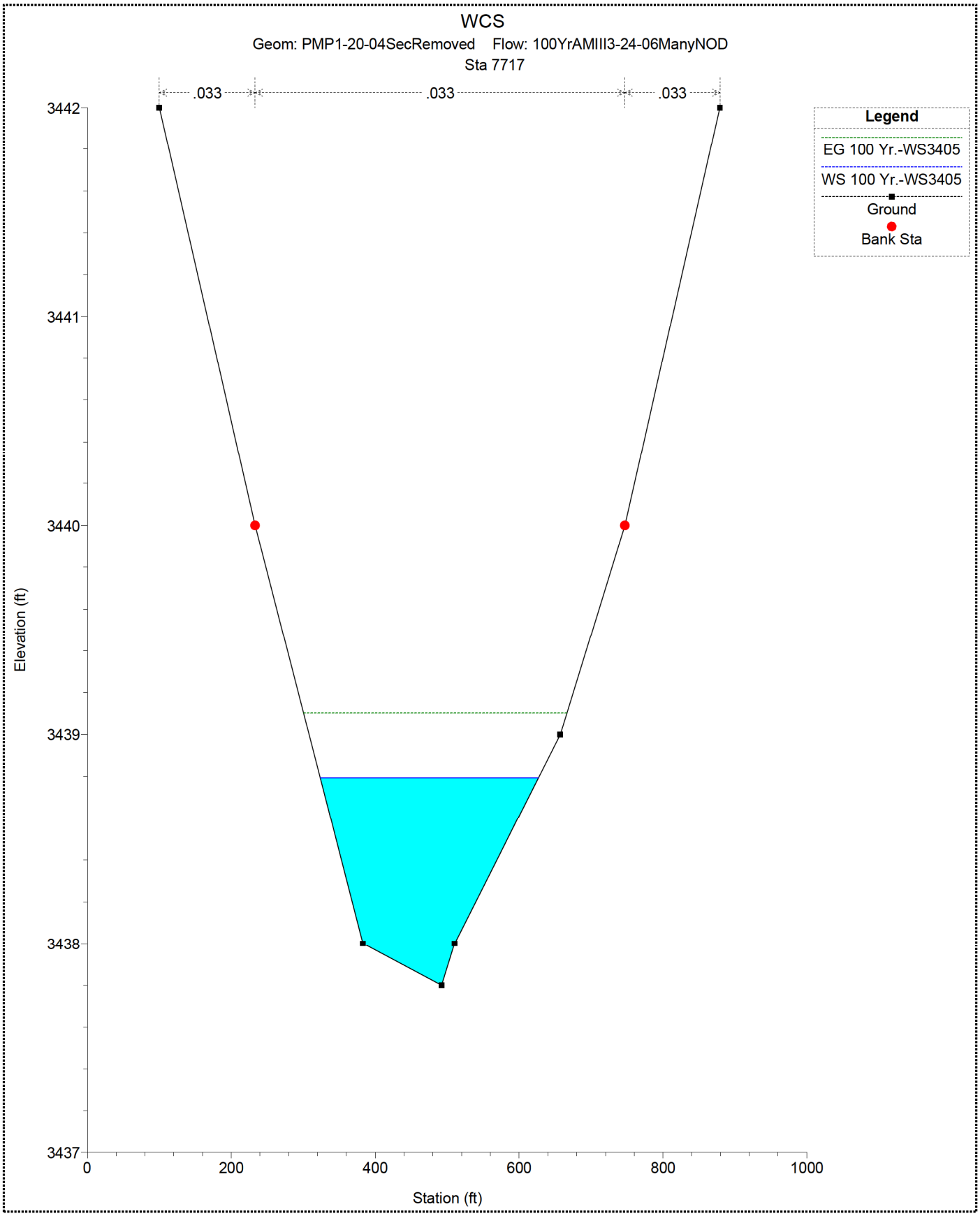

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 10937
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3472
3470
3468
3466
3464
100
200
300
400
500
600
700
800
900
Station (ft)

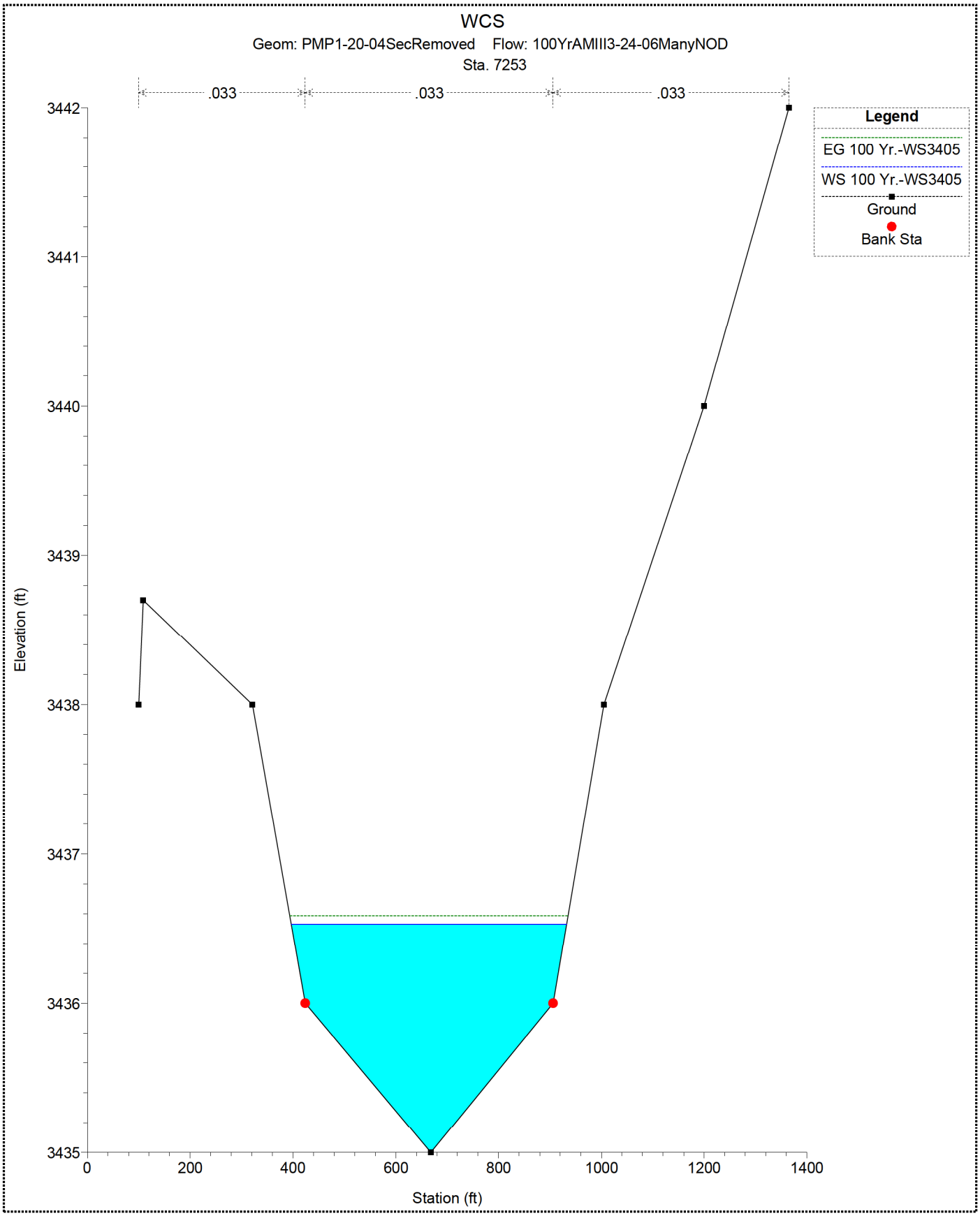

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 10288
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3464
3462
3460
3458
3456
0
200
400
600
800
1000
Station (ft)

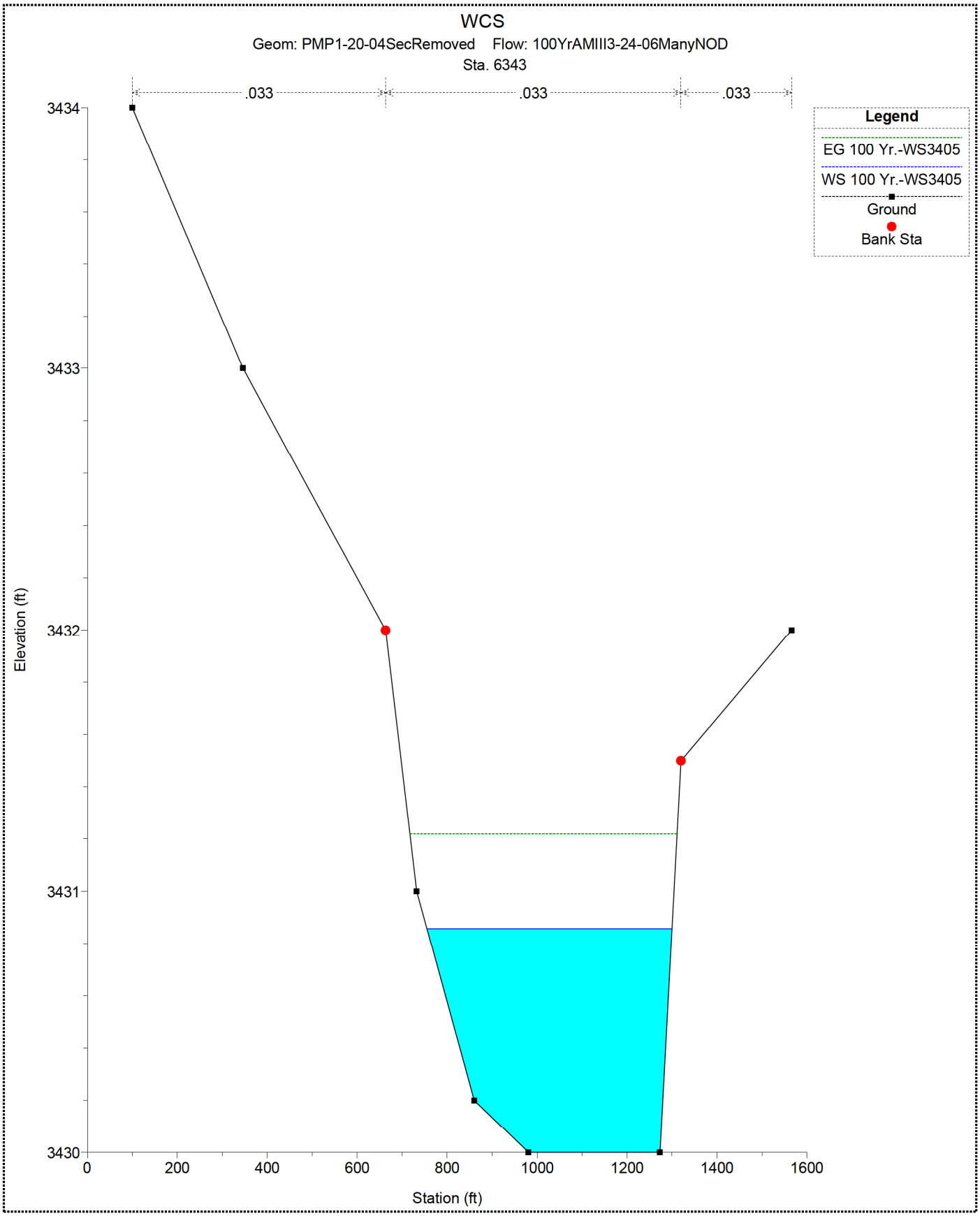

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 9690
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3458
3456
3454
3452
3450
0
200
400
600
800
1000
1200
Station (ft)

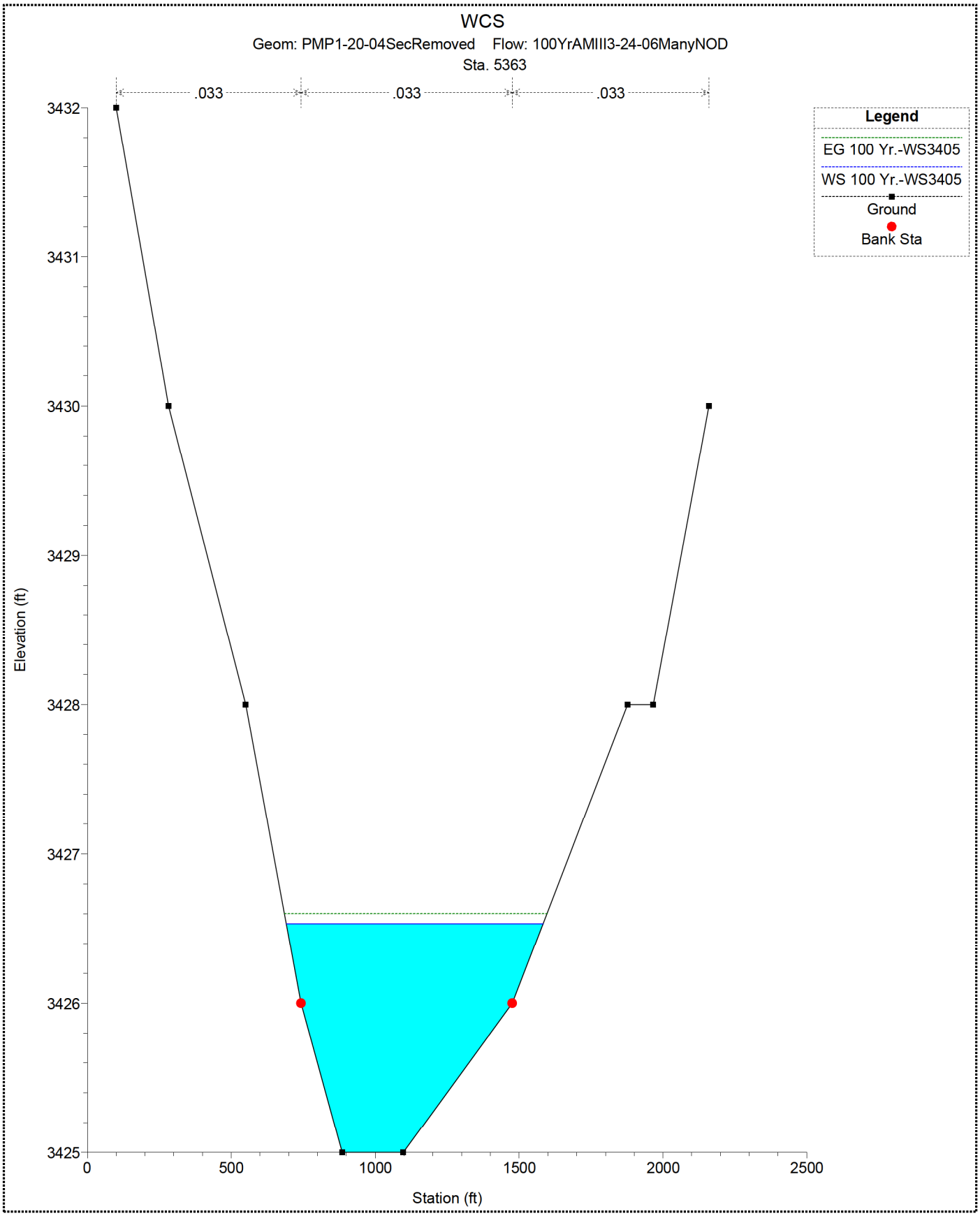

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 9009
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
Station (ft)
3452
3451
3450
3449
3448
3447
3446
3445
0
200
400
600
800
1000
1200

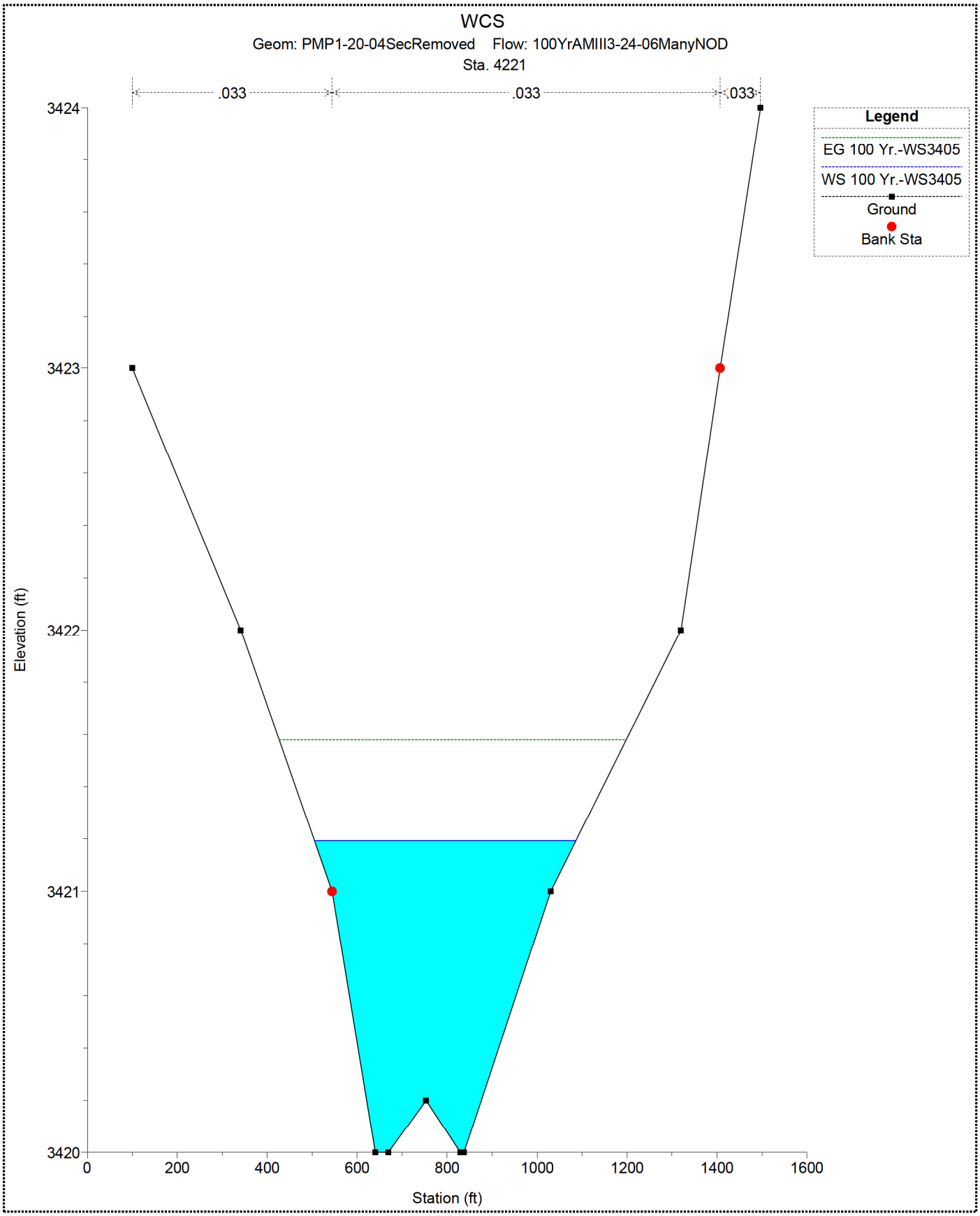

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 8130
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3448
3446
3444
3442
3440
0
200
400
600
800
1000
1200
Station (ft)

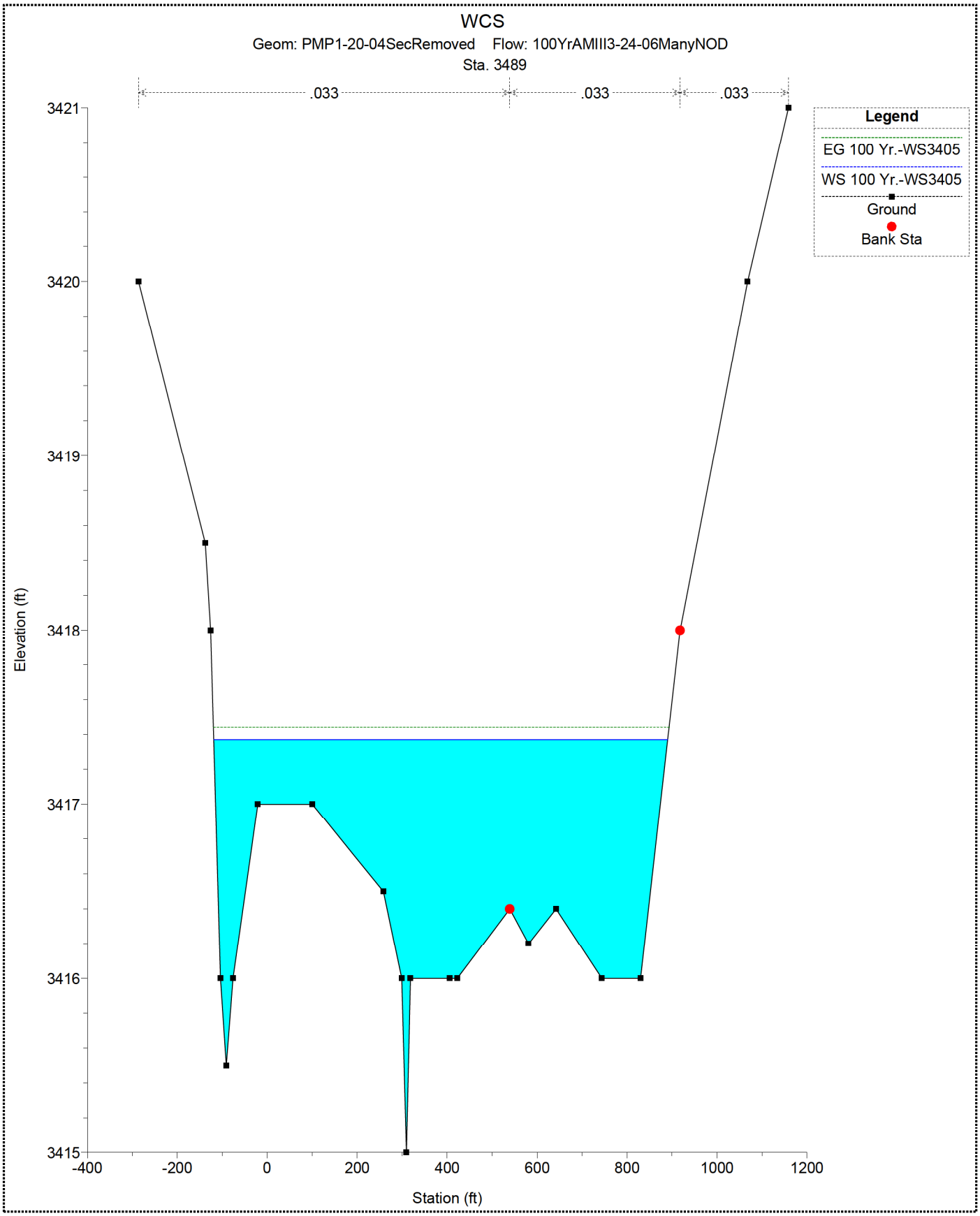

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta 7717
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3442
3441
3440
3439
3438
3437
0
200
400
600
800
1000
Station (ft)

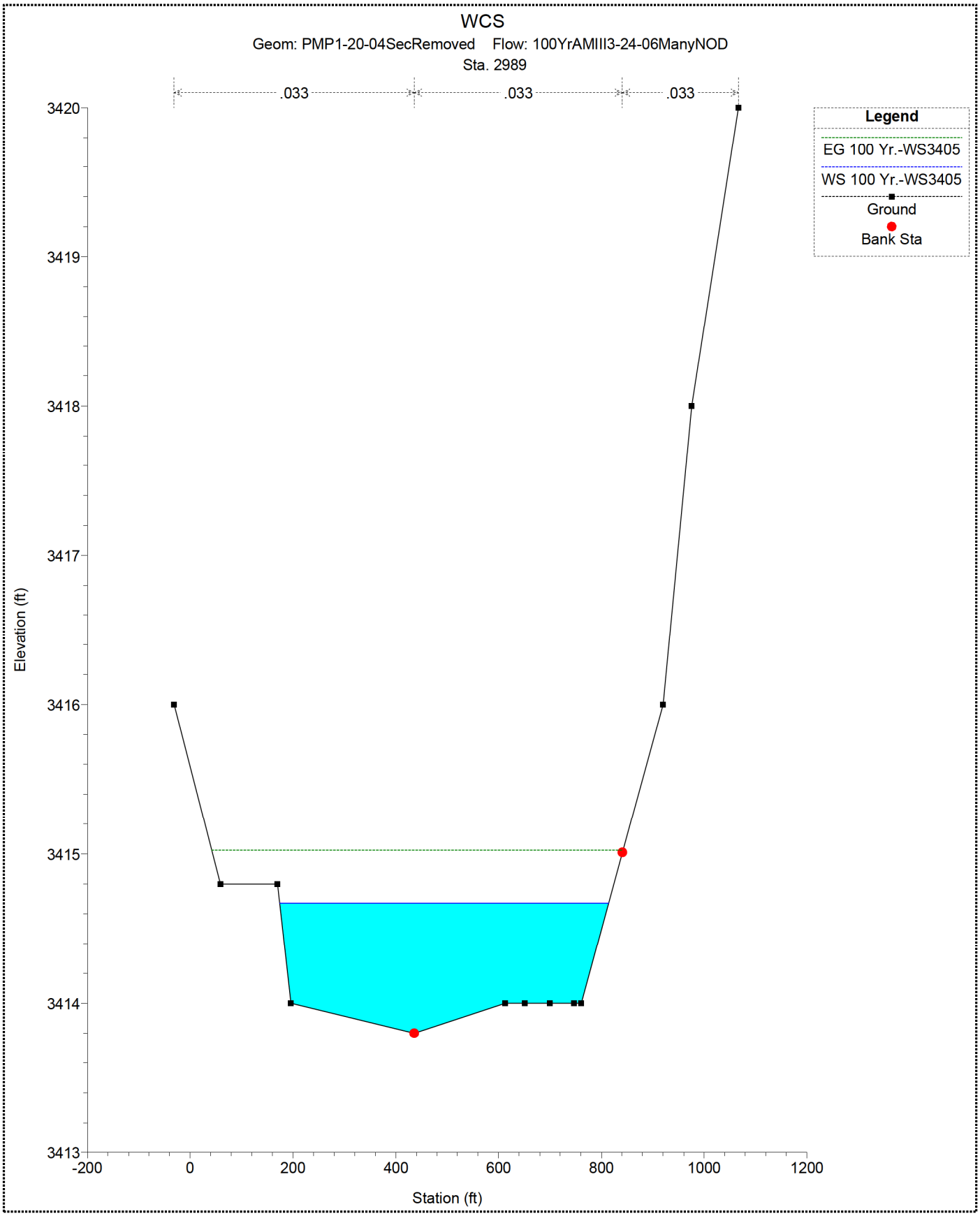

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 7253
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
Station (ft)
3442
3441
3440
3439
3438
3437
3436
3435
0
200
400
600
800
1000
1200
1400

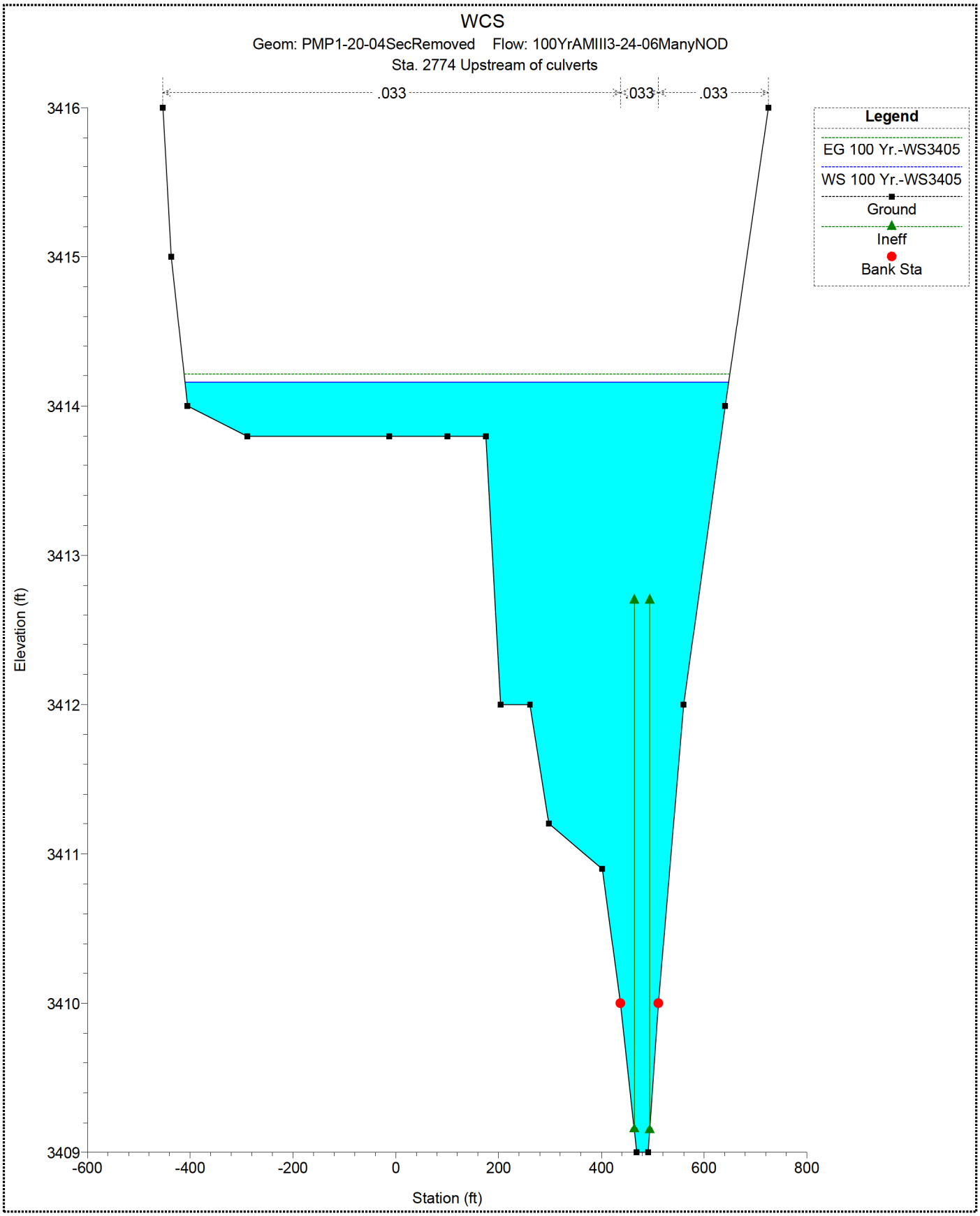

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 6343
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3434
3433
3432
3431
3430
0
200
400
600
800
1000
1200
1400
1600
Station (ft)

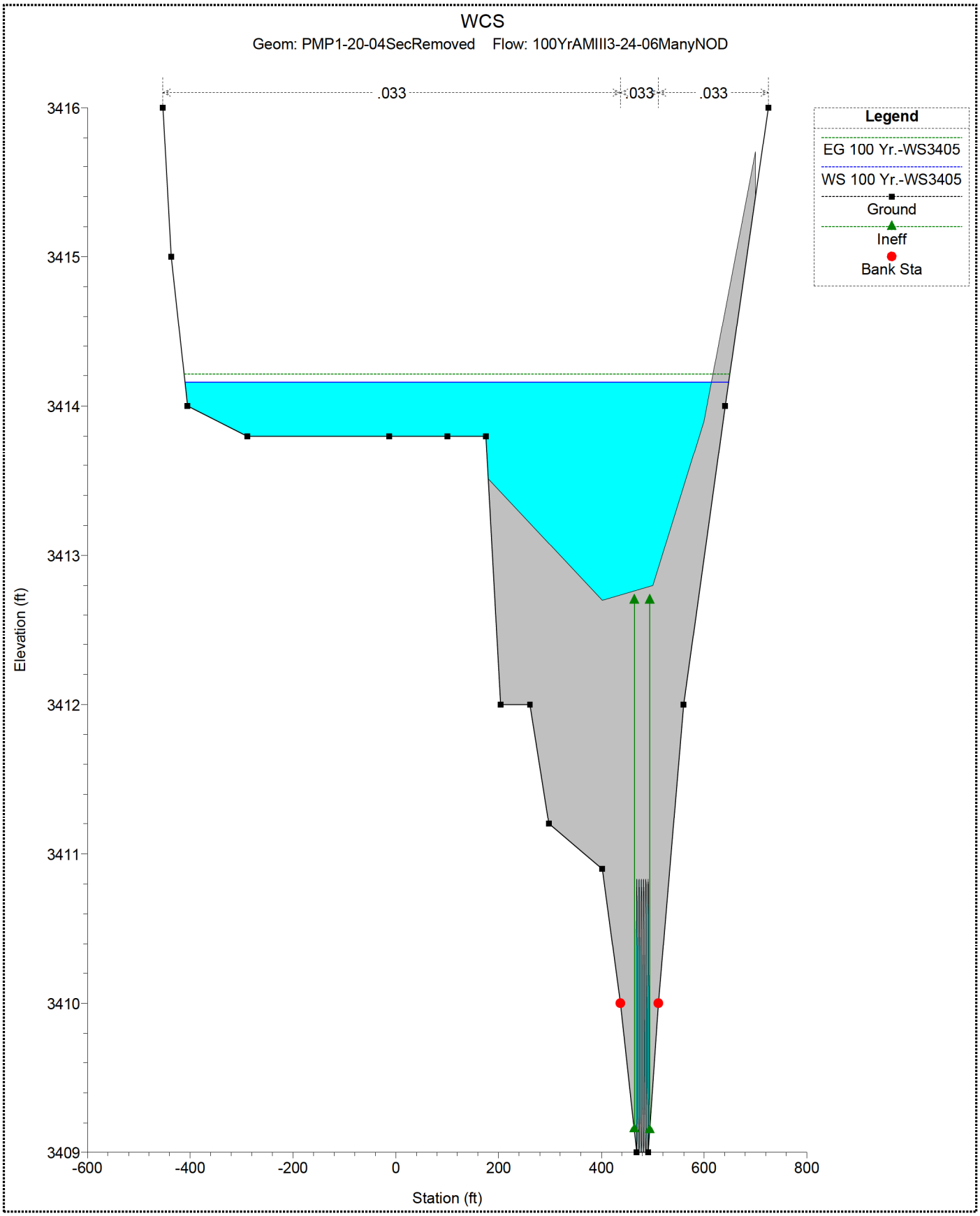

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 5363
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3432
3431
3430
3429
3428
3427
3426
3425
0
500
1000
1500
2000
2500
Station (ft)

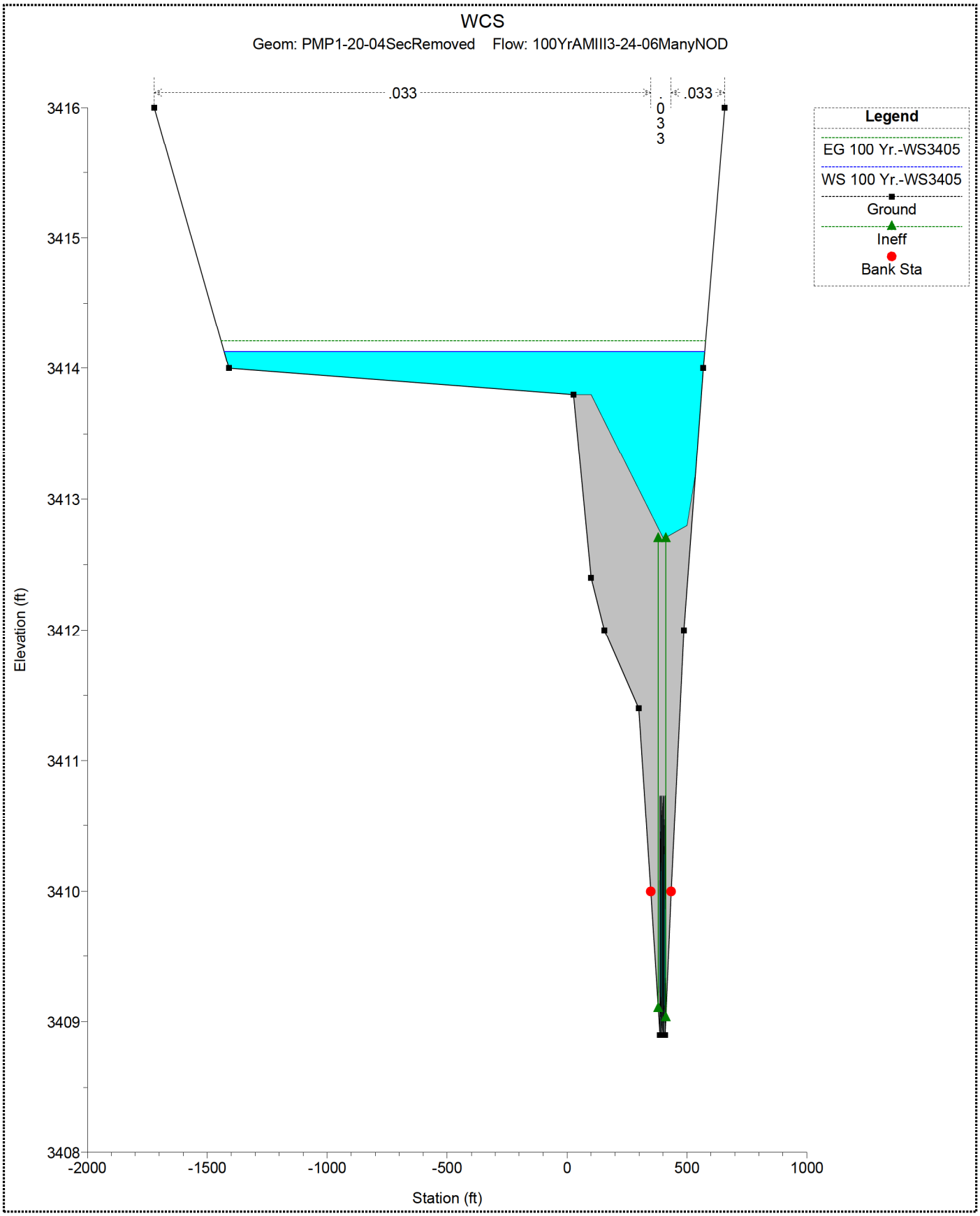

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 4221
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3424
3423
3422
3421
3420
0
200
400
600
800
1000
1200
1400
1600
Station (ft)

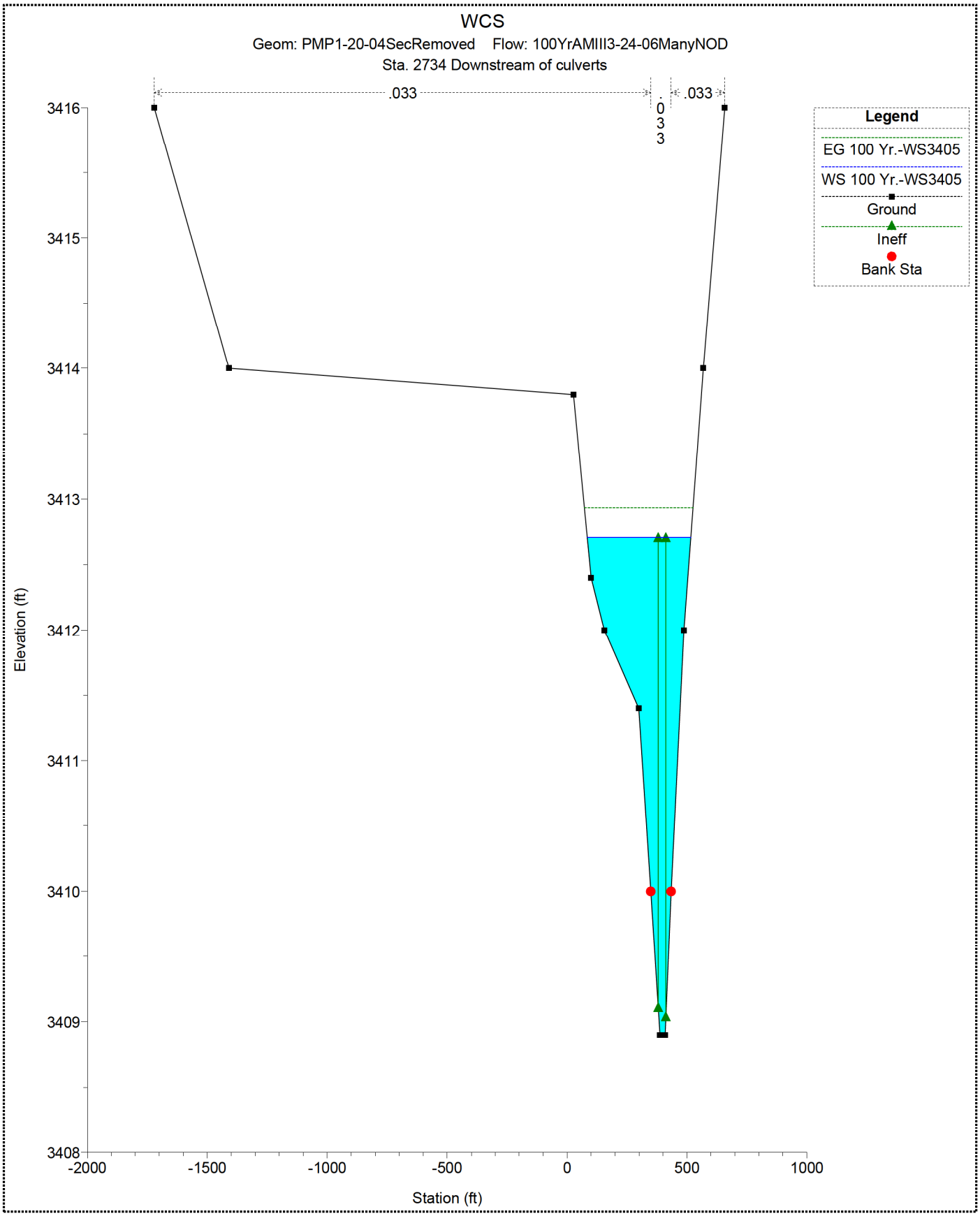

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 3489
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3421
3420
3419
3418
3417
3416
3415
-400
-200
0
200
400
600
800
1000
1200
Station (ft)

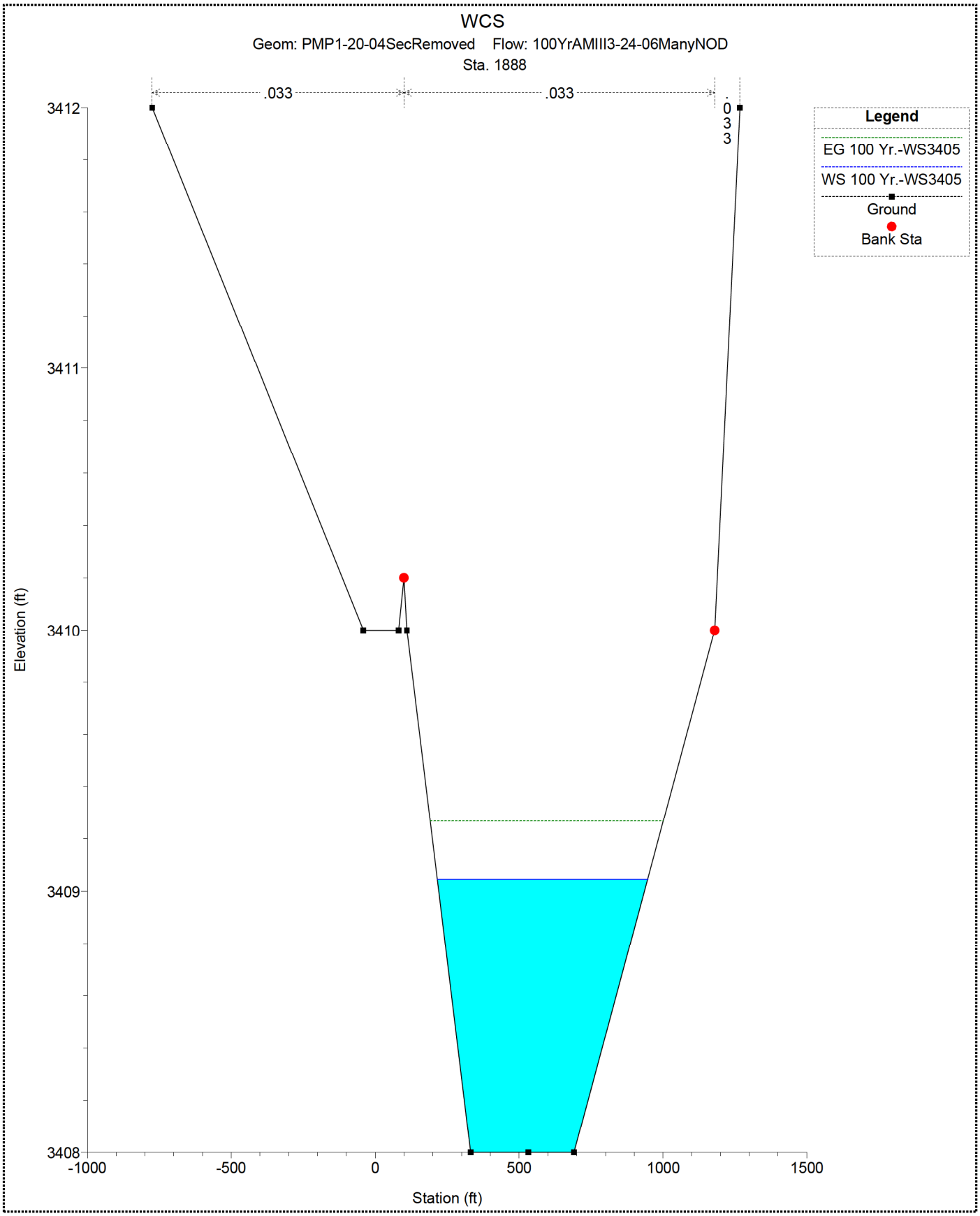

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 2989
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
Station (ft)
3420
3419
3418
3417
3416
3415
3414
3413
-200
0
200
400
600
800
1000
1200

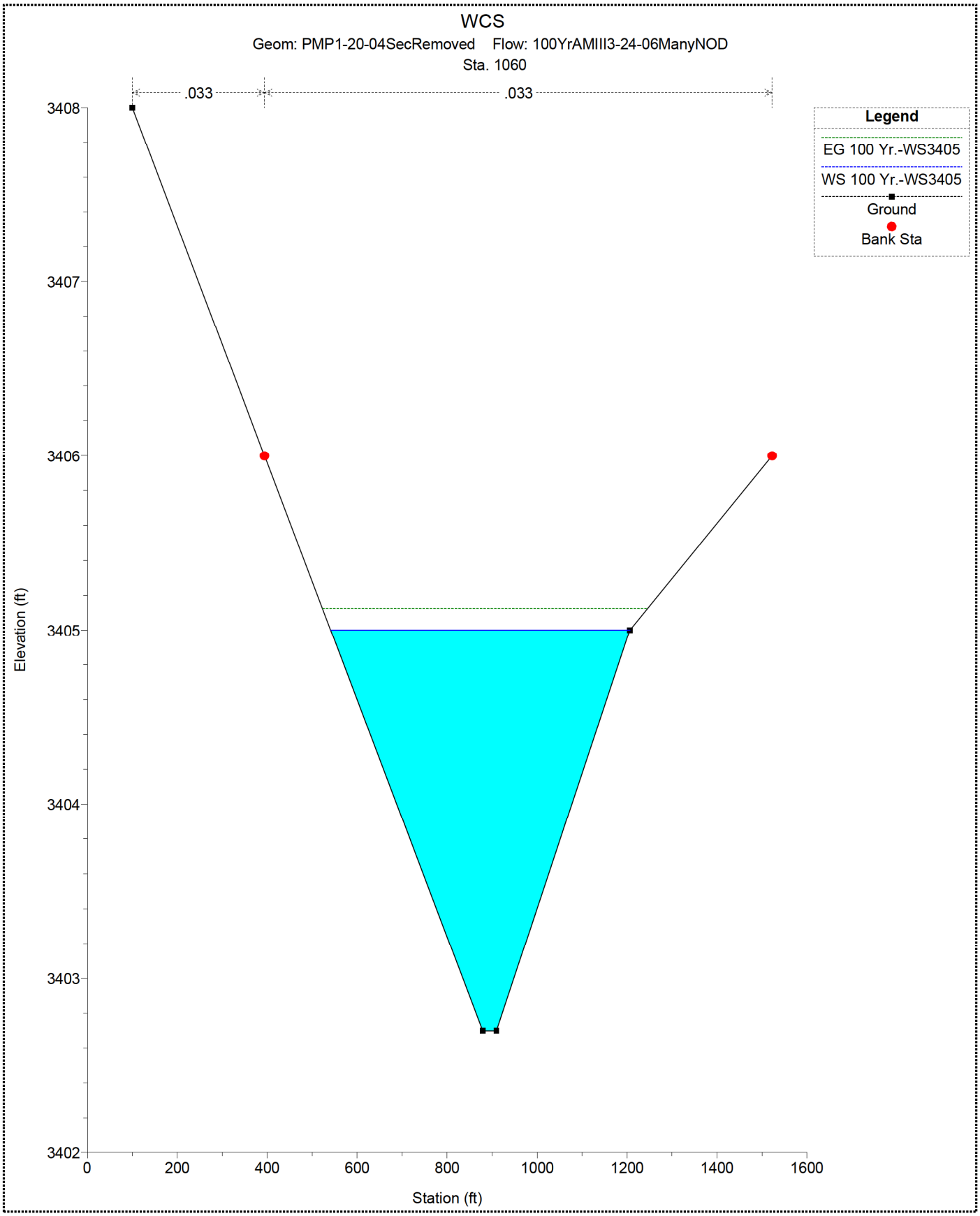

WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 2774 Upstream of culverts
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Ineff
Bank Sta
Elevation (ft)
3416
3415
3414
3413
3412
3411
3410
3409
-600
-400
-200
0
200
400
600
800
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Ineff
Bank Sta
Elevation (ft)
3416
3415
3414
3413
3412
3411
3410
3409
-600
-400
-200
0
200
400
600
800
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Ineff
Bank Sta
Elevation (ft)
3416
3415
3414
3413
3412
3411
3410
3409
3408
-2000
-1500
-1000
-500
0
500
1000
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 2734 Downstream of culverts
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Ineff
Bank Sta
Elevation (ft)
3416
3415
3414
3413
3412
3411
3410
3409
3408
-2000
-1500
-1000
-500
0
500
1000
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 1888
.033
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
3412
3411
3410
3409
3408
-1000
-500
0
500
1000
1500
Station (ft)


WCS
Geom: PMP1-20-04SecRemoved Flow: 100YrAMIII3-24-06ManyNOD
Sta. 1060
.033
.033
Legend
EG 100 Yr.-WS3405
WS 100 Yr.-WS3405
Ground
Bank Sta
Elevation (ft)
Station (ft)
3408
3407
3406
3405
3404
3403
3402
0
200
400
600
800
1000
1200
1400
1600

APPENDIX S

HEC-HMS MODEL FOR THE CALCULATION OF THE 500-YEAR PEAK DISCHARGES, ANTECEDENT MOISTURE CONDITION III

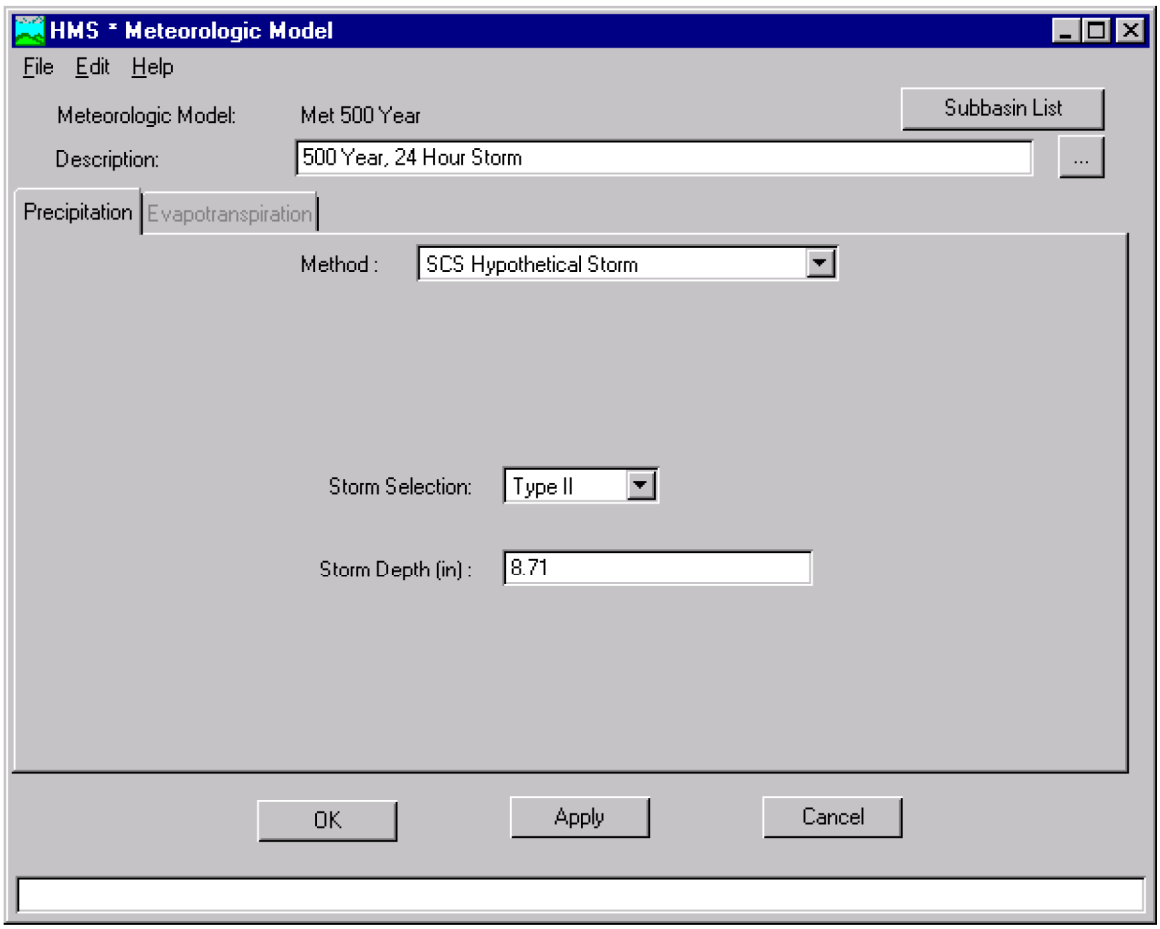
HMS * Summary of Results

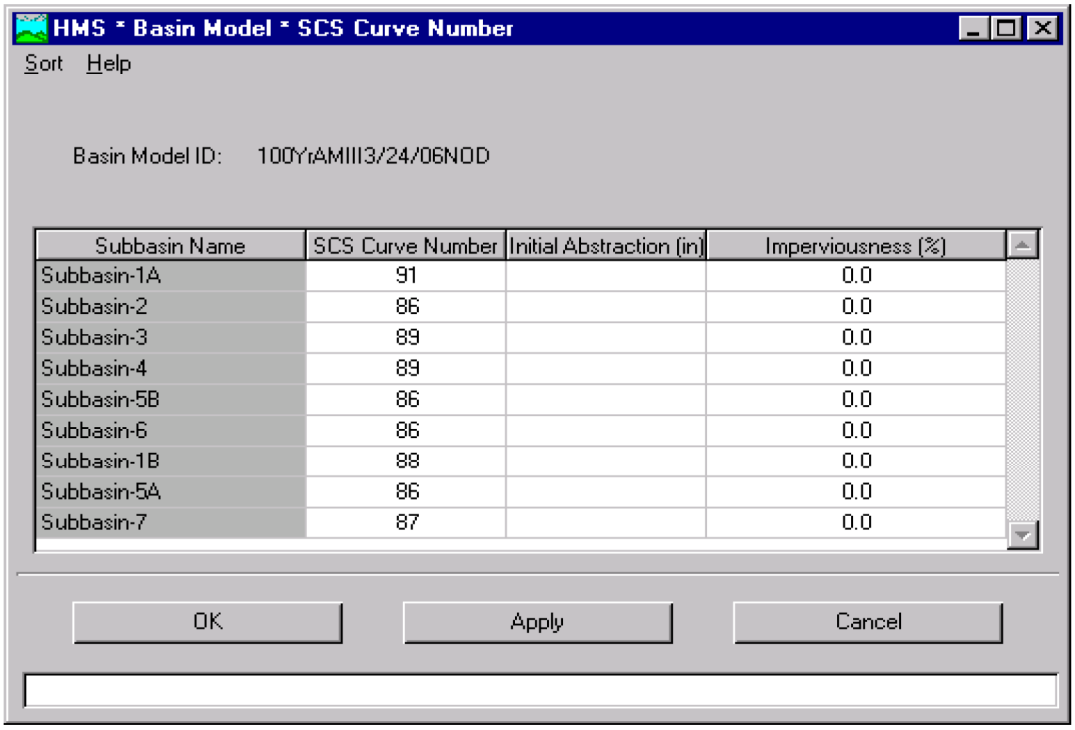
Project : WCS Run Name : 500 Yr AMIII

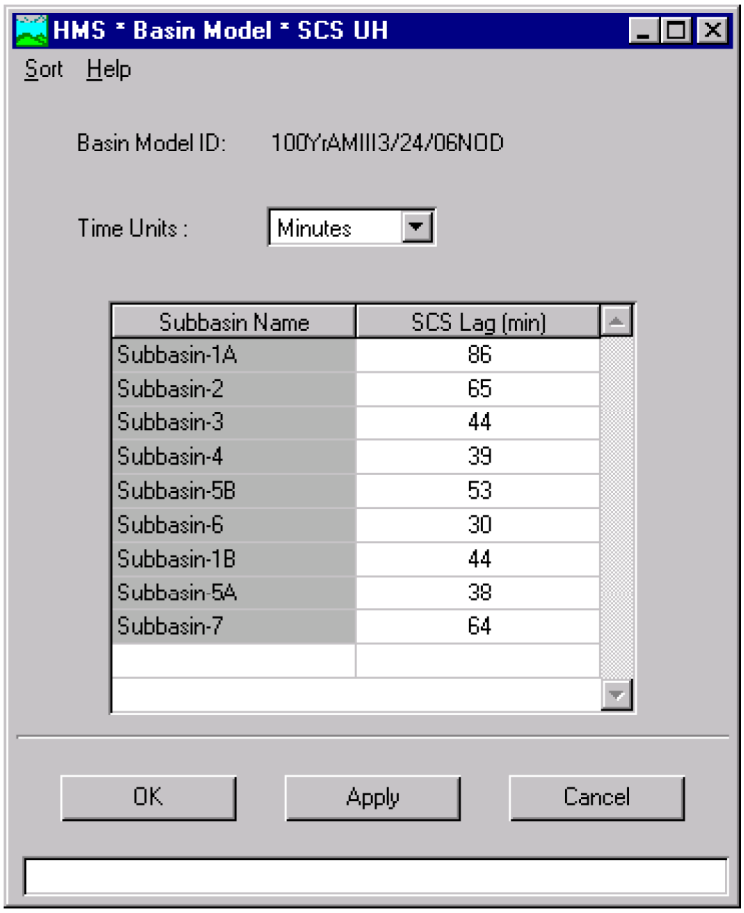
Start of Run : 01Dec00 0000 Basin Model : 100YrAMIII3/24/06NOD
End of Run : 02Dec00 0000 Met. Model : Met 500 Year
Execution Time : 29Mar06 1420 Control Specs : Control 1

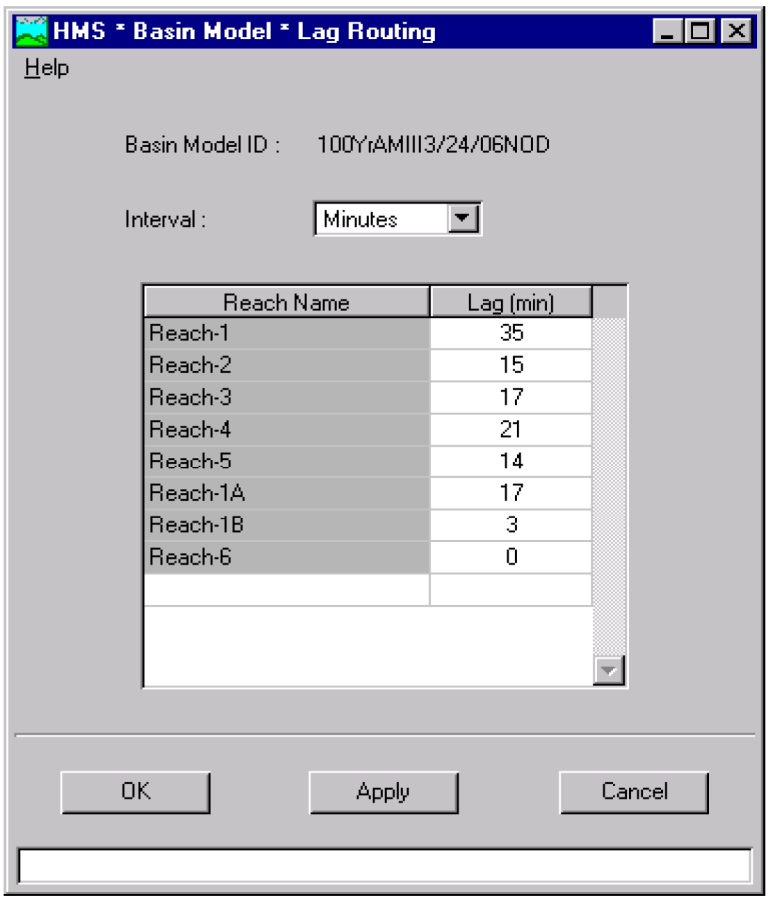
Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Subbasin-4	1210.1	01 Dec 00 1231	190.85	0.490
Reach-2	1210.1	01 Dec 00 1246	190.21	0.490
Subbasin-2	1741.4	01 Dec 00 1258	390.34	1.063
playa	0.0	30 Nov 00 2400	0.0	1.063
Reach-1	0.0	30 Nov 00 2400	0.0	1.063
Subbasin-1A	975.62	01 Dec 00 1319	274.21	0.691
Reach-1A	975.62	01 Dec 00 1336	273.13	0.691
Subbasin-1B	703.08	01 Dec 00 1236	120.10	0.314
Junction-1A	1241.7	01 Dec 00 1318	393.23	1.005
Reach-1B	1241.7	01 Dec 00 1321	392.96	1.005
Subbasin-3	353.38	01 Dec 00 1236	60.672	0.156
Junction-1	1483.0	01 Dec 00 1252	453.63	2.224
Reach-3	1483.0	01 Dec 00 1309	451.82	2.224
Subbasin-5A	465.61	01 Dec 00 1230	71.094	0.192
Junction-2	2887.8	01 Dec 00 1250	713.12	2.906
Reach-4	2887.8	01 Dec 00 1311	709.60	2.906
Subbasin-5B	504.92	01 Dec 00 1245	97.675	0.265
Junction-3	3286.1	01 Dec 00 1309	807.28	3.171
Reach-5	3286.1	01 Dec 00 1323	804.57	3.171
Subbasin-6	211.72	01 Dec 00 1222	27.467	0.074
Junction-4	3326.9	01 Dec 00 1323	832.04	3.245
Reach-6	3326.9	01 Dec 00 1323	832.04	3.245
Subbasin-7	174.68	01 Dec 00 1257	38.870	0.104
Junction-5	3472.7	01 Dec 00 1322	870.91	3.349

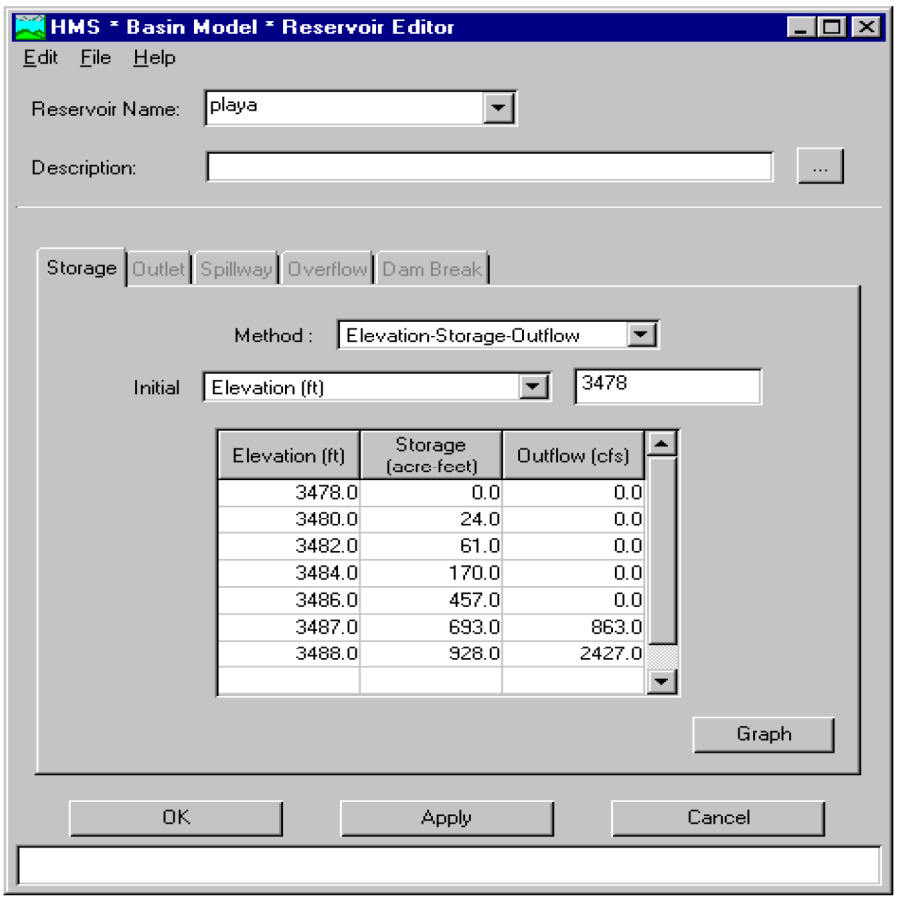
Meteorologic Model Input



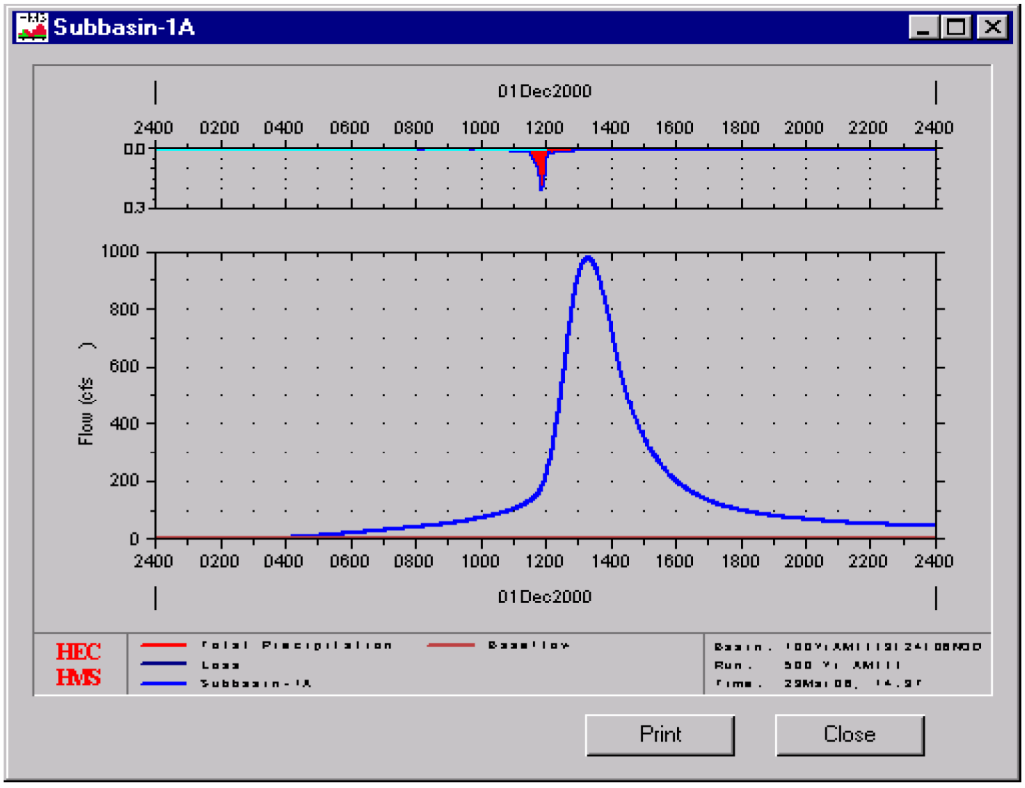

HMS * Basin Model * SCS Curve Number
Sort Help
Basin Model ID: 100YrAMIII3/24/06NOD
Subbasin Name | SCS Curve Number | Initial Abstraction (in) | Imperviousness (%)
Subbasin-1A | 91 | | 0.0
Subbasin-2 | 86 | | 0.0
Subbasin-3 | 89 | | 0.0
Subbasin-4 | 89 | | 0.0
Subbasin-5B | 86 | | 0.0
Subbasin-6 | 86 | | 0.0
Subbasin-1B | 88 | | 0.0
Subbasin-5A | 86 | | 0.0
Subbasin-7 | 87 | | 0.0
OK
Apply
Cancel

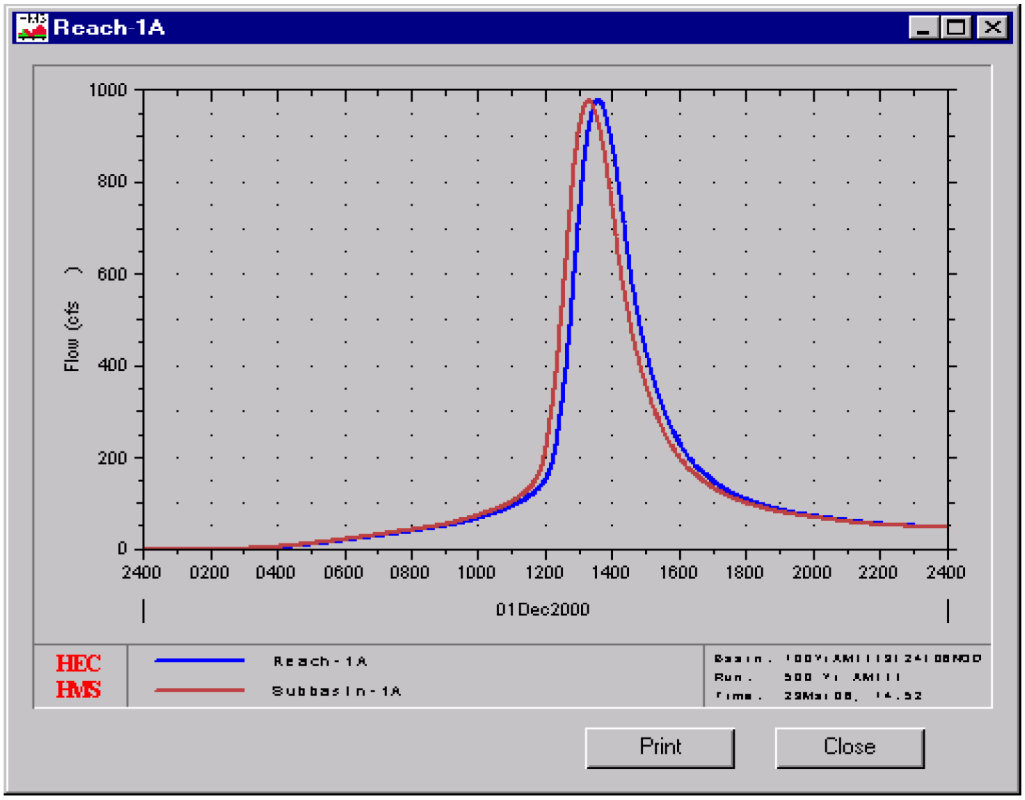

HMS * Basin Model * SCS UH
Sort Help
Basin Model ID: 100YrAMIII3/24/06NOD
Time Units : Minutes
Subbasin Name | SCS Lag (min)
Subbasin-1A | 86
Subbasin-2 | 65
Subbasin-3 | 44
Subbasin-4 | 39
Subbasin-5B | 53
Subbasin-6 | 30
Subbasin-1B | 44
Subbasin-5A | 38
Subbasin-7 | 64
OK
Apply
Cancel


HMS * Basin Model * Lag Routing
Help
Basin Model ID : 100YrAMIII3/24/06NOD
Interval : Minutes
Reach Name
Lag (min)
Reach-1 35
Reach-2 15
Reach-3 17
Reach-4 21
Reach-5 14
Reach-1A 17
Reach-1B 3
Reach-6 0
OK
Apply
Cancel

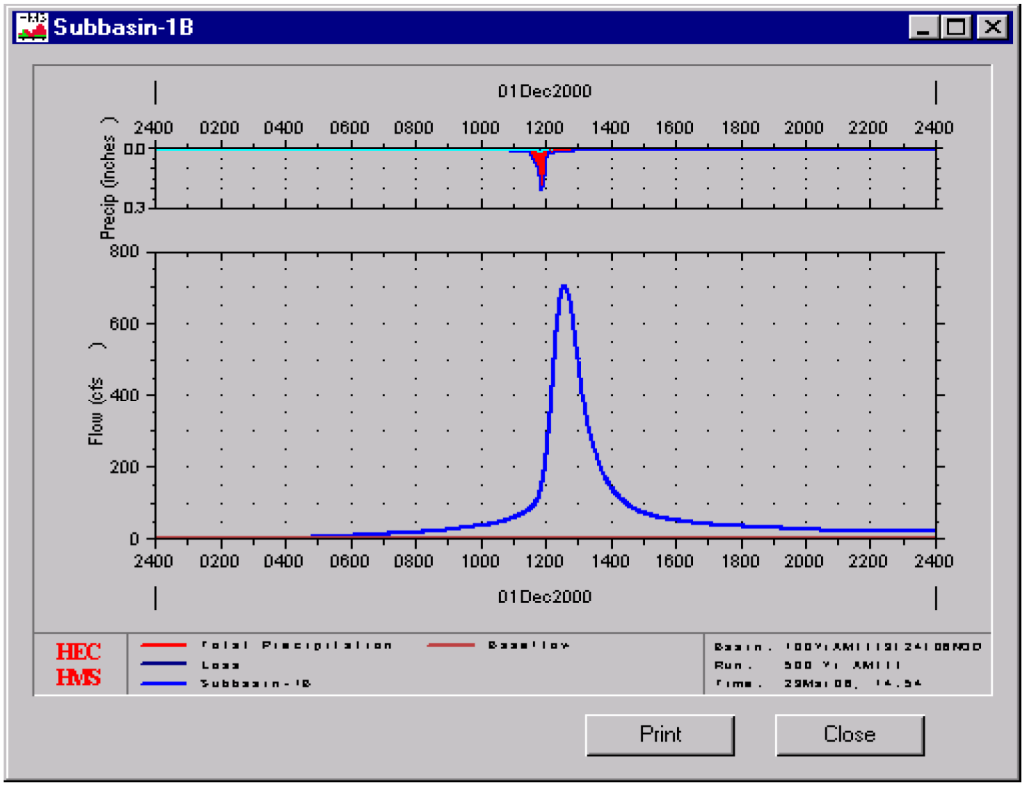

HMS * Basin Model * Reservoir Editor
Edit File Help
Reservoir Name: playa
Description:
...
Storage Outlet Spillway Overflow Dam Break
Method : Elevation-Storage-Outflow
Initial Elevation (ft) 3478
Elevation (ft) Storage (acre-feet) Outflow (cfs)
3478.0 0.0 0.0
3480.0 24.0 0.0
3482.0 61.0 0.0
3484.0 170.0 0.0
3486.0 457.0 0.0
3487.0 693.0 863.0
3488.0 928.0 2427.0
Graph
OK
Apply
Cancel

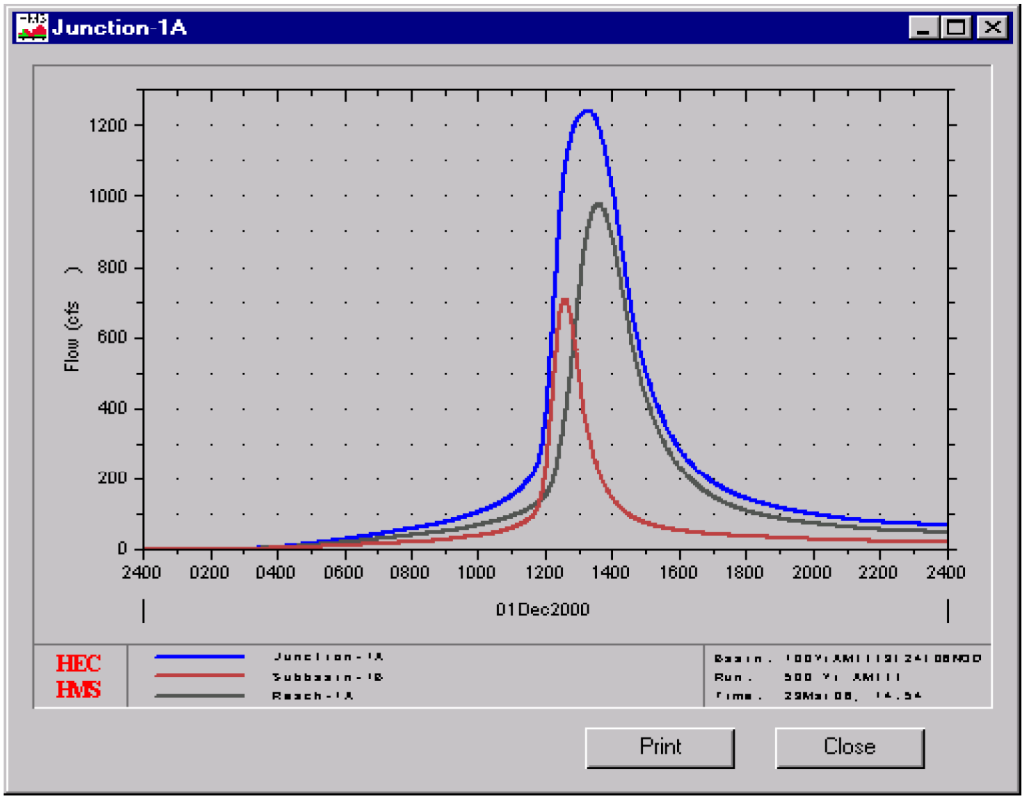
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



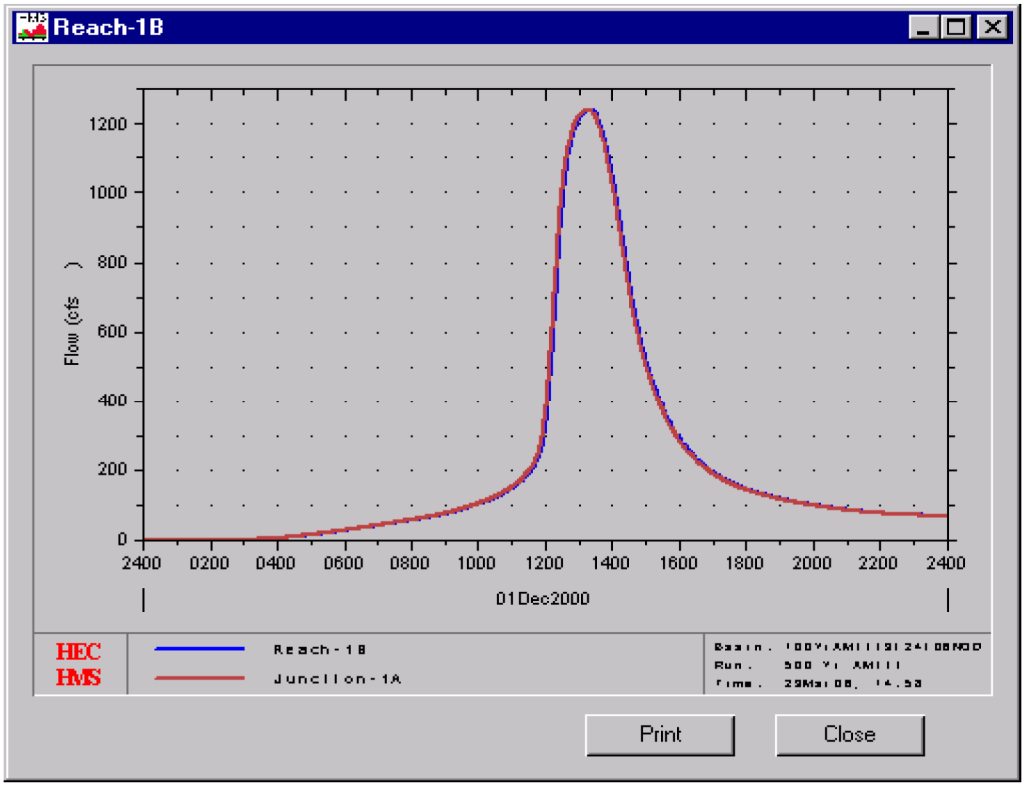


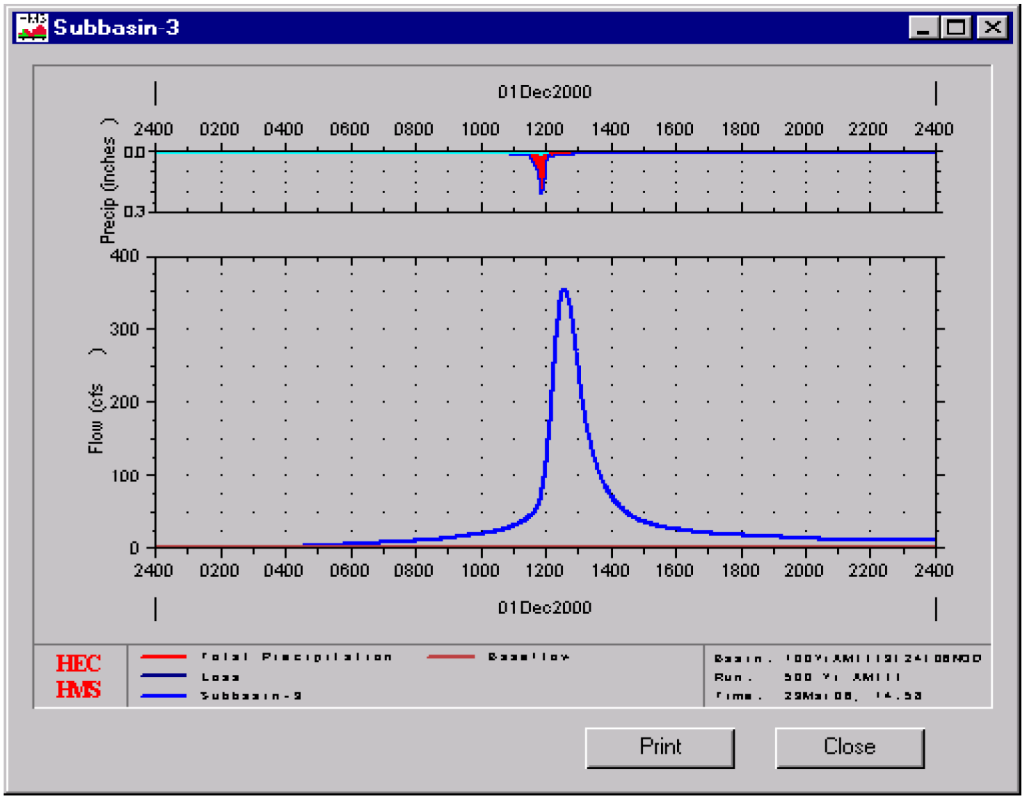
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



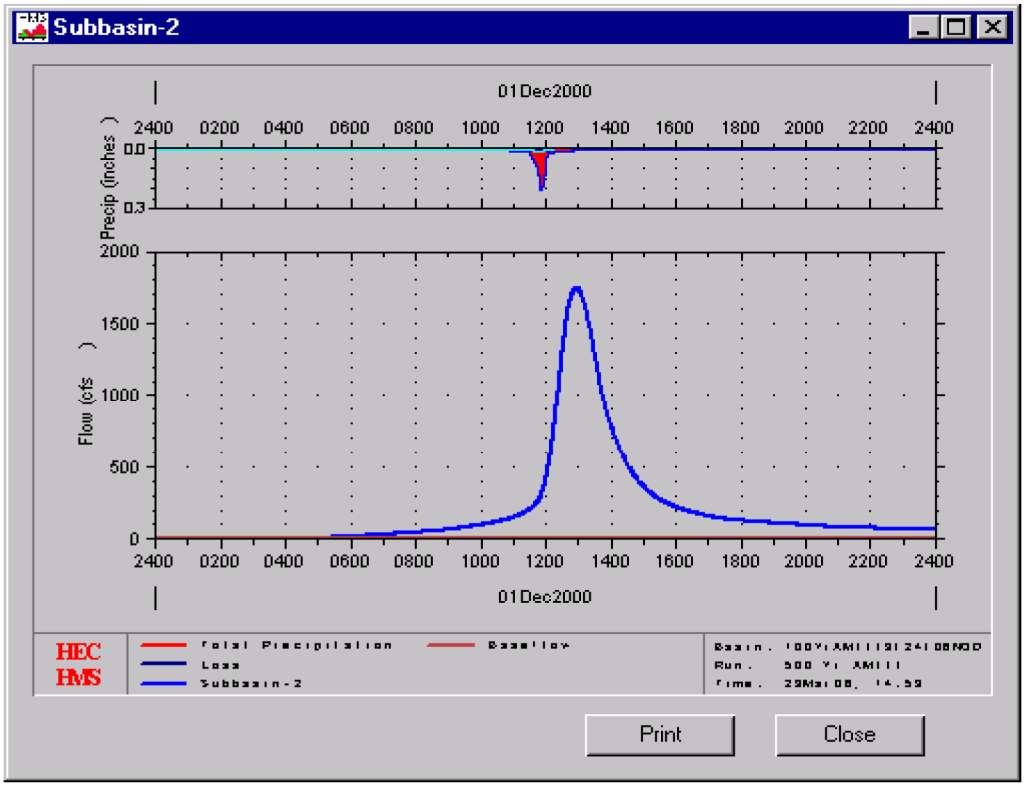


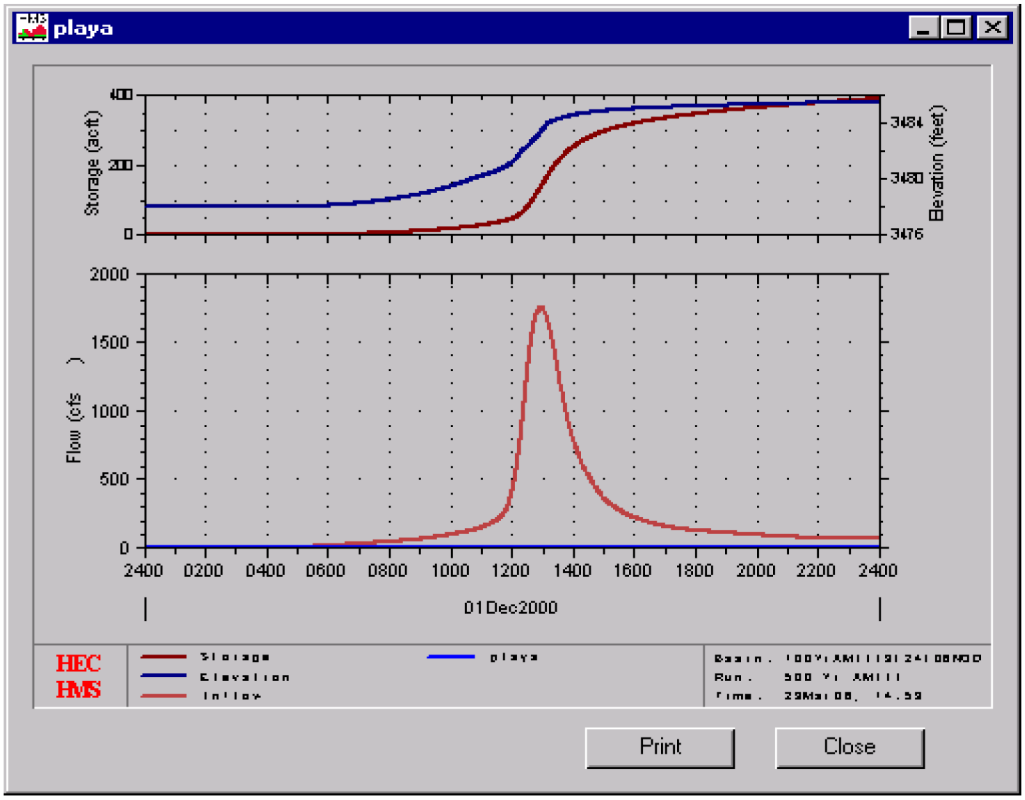
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



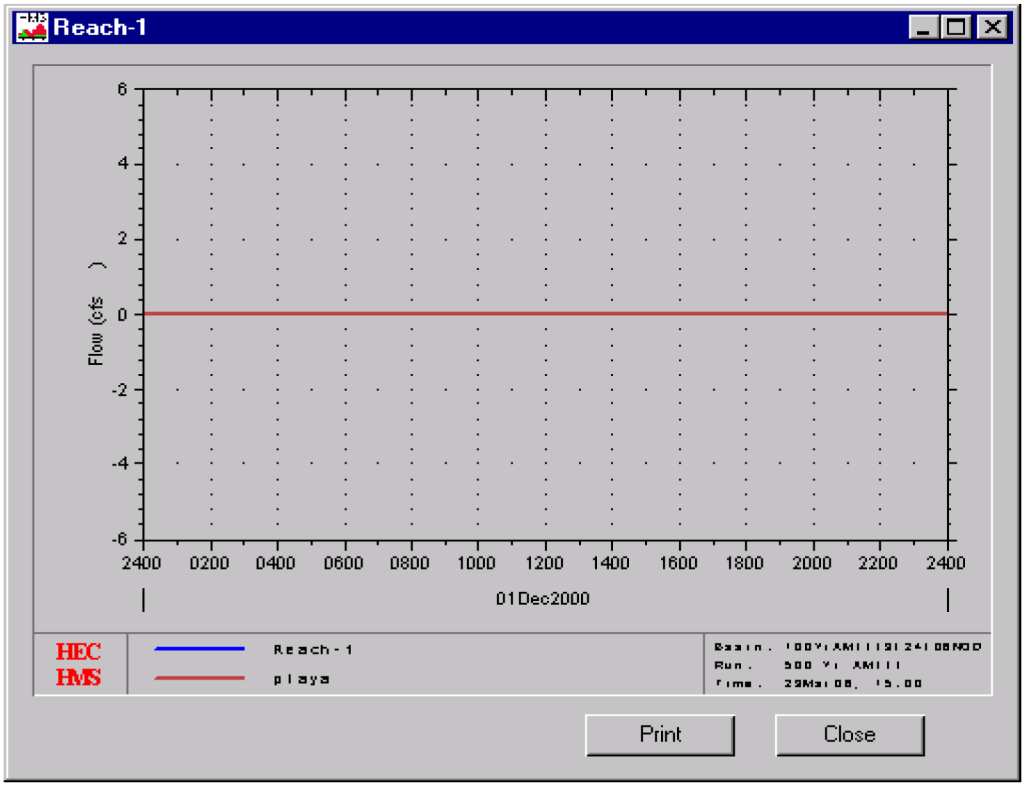


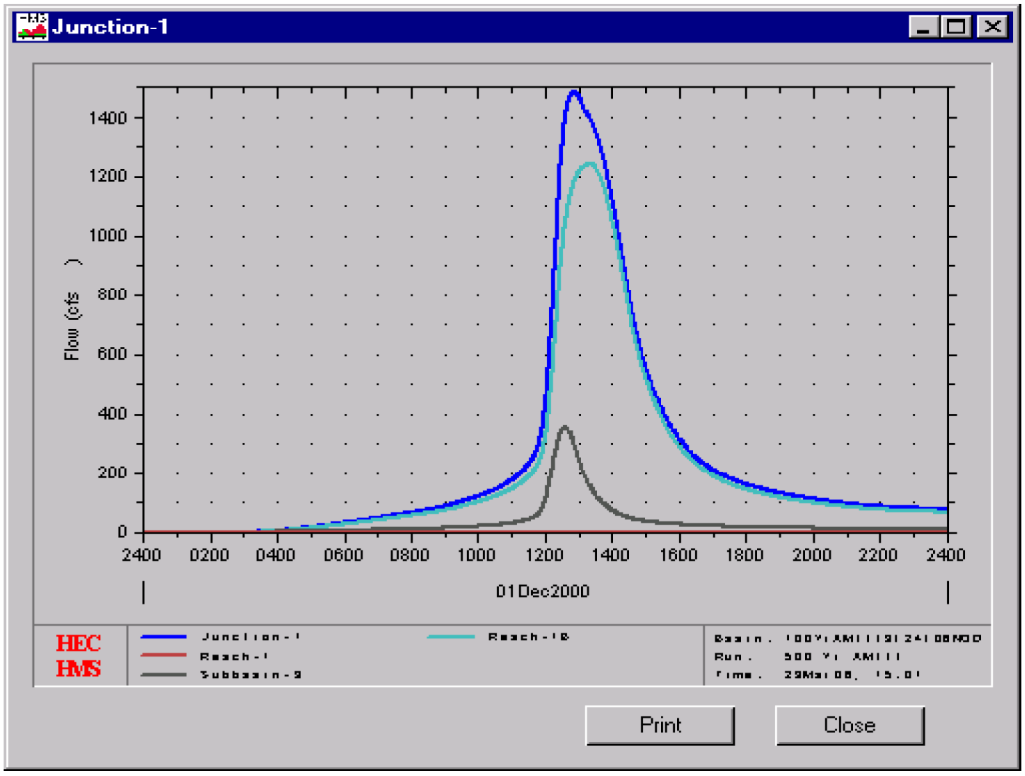
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



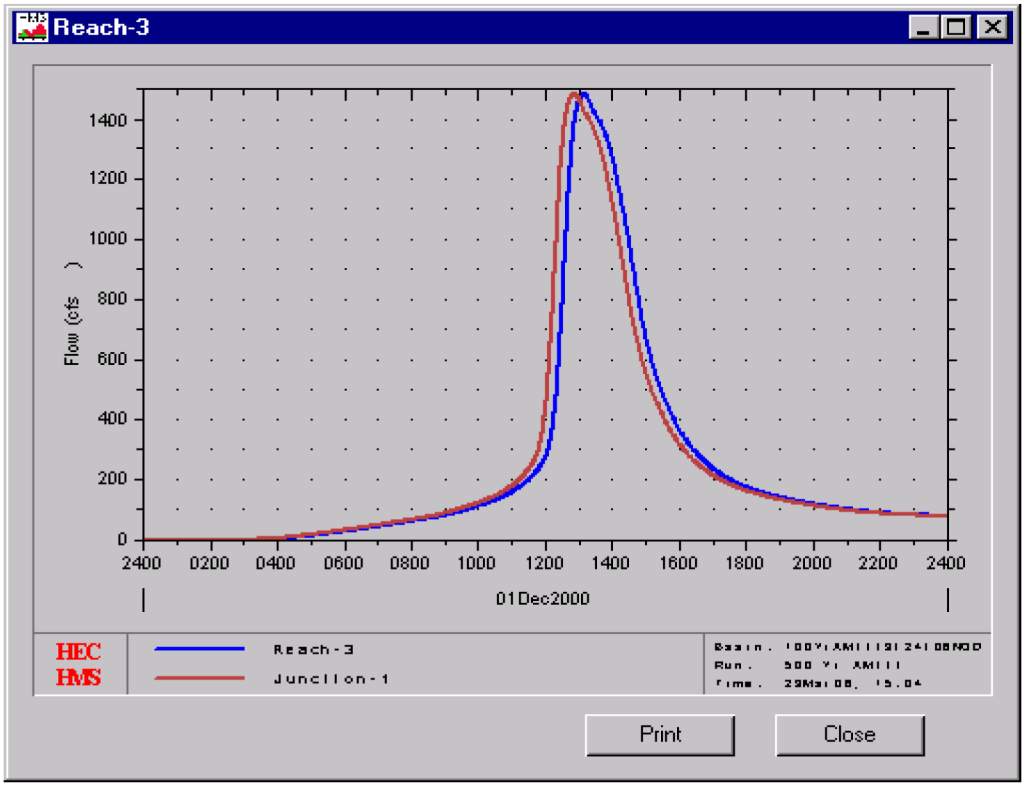


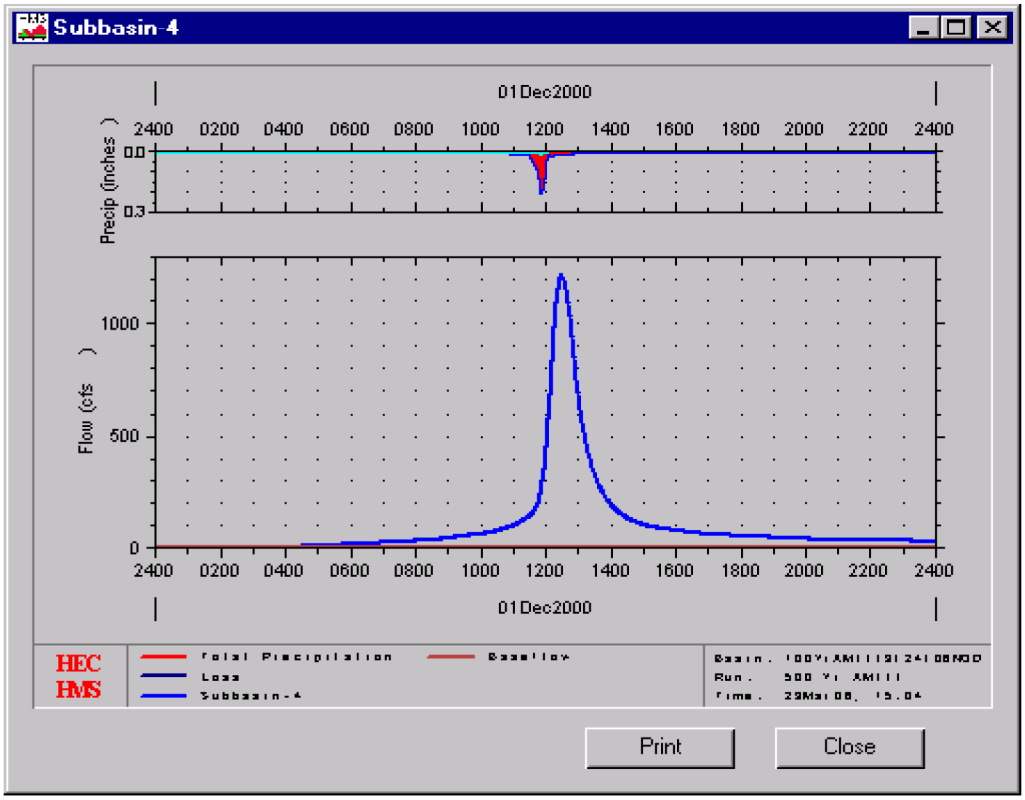
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



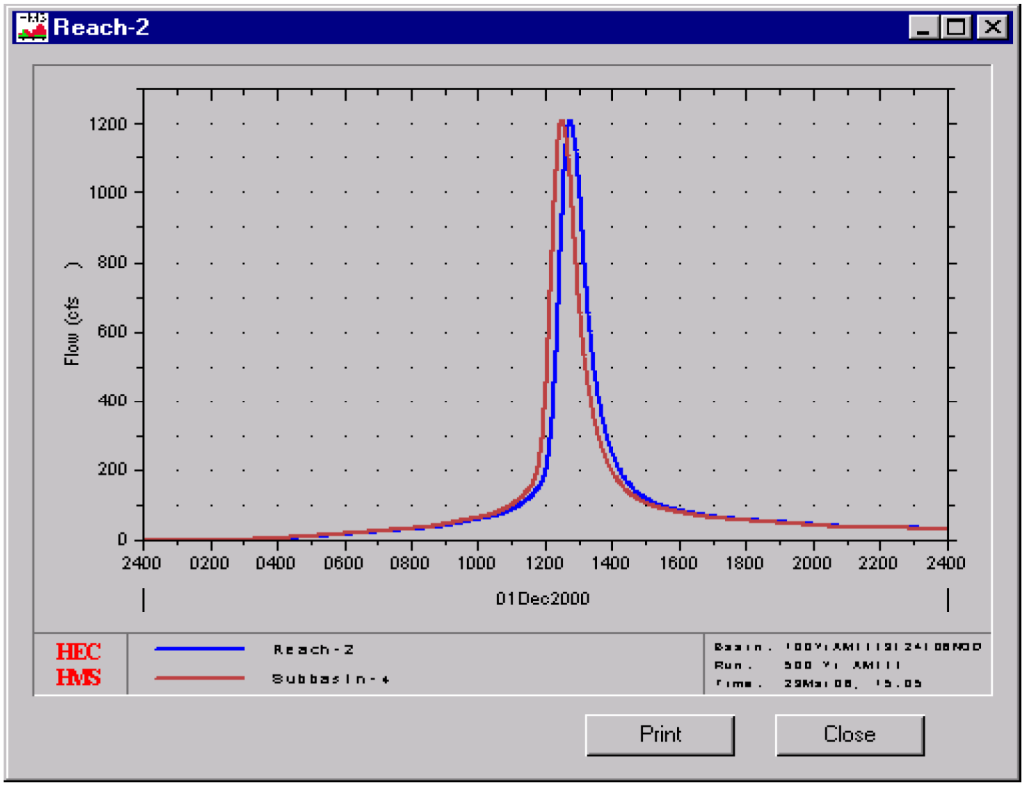


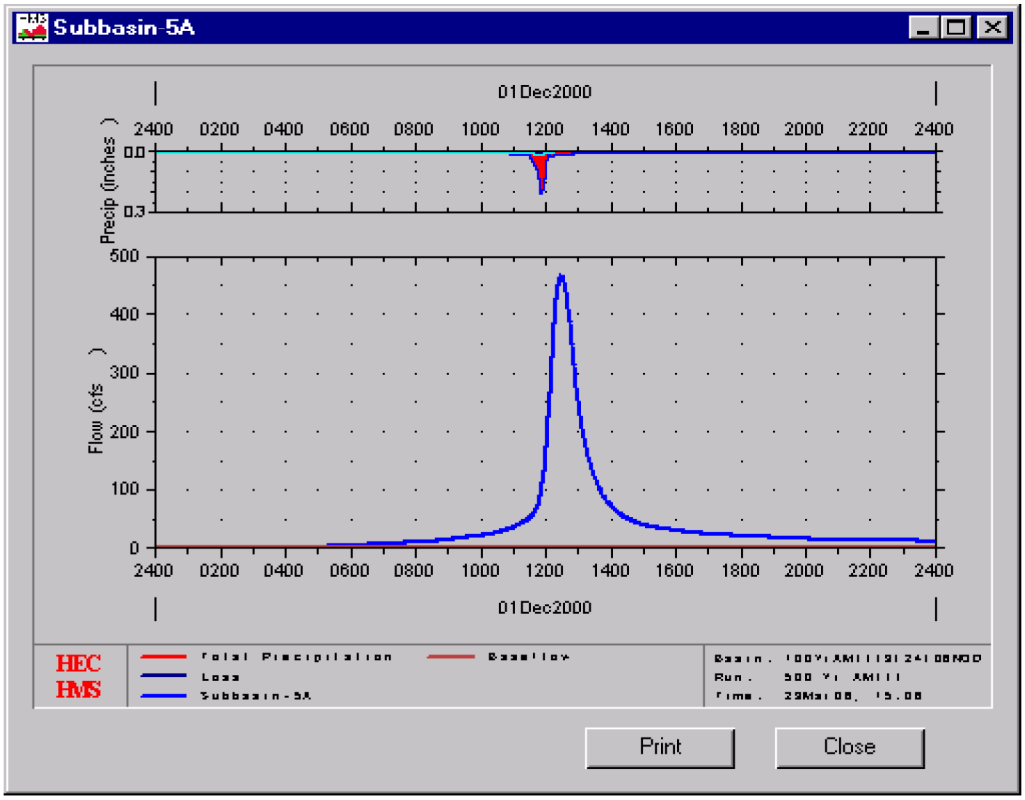
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



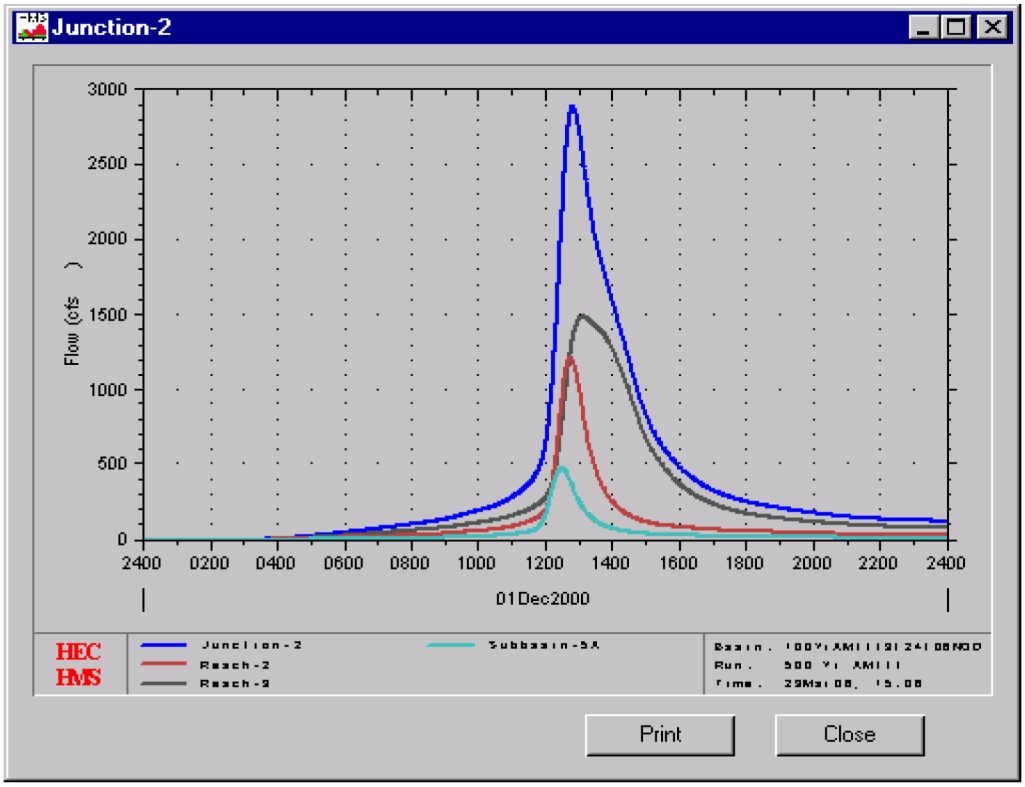


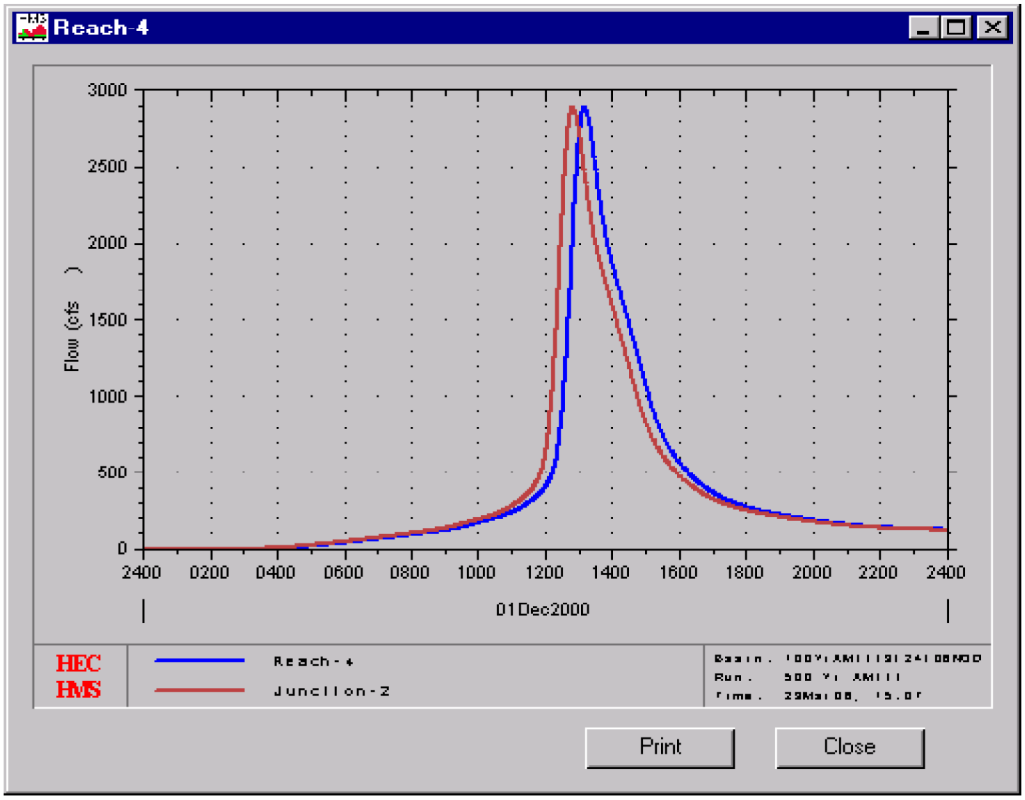
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



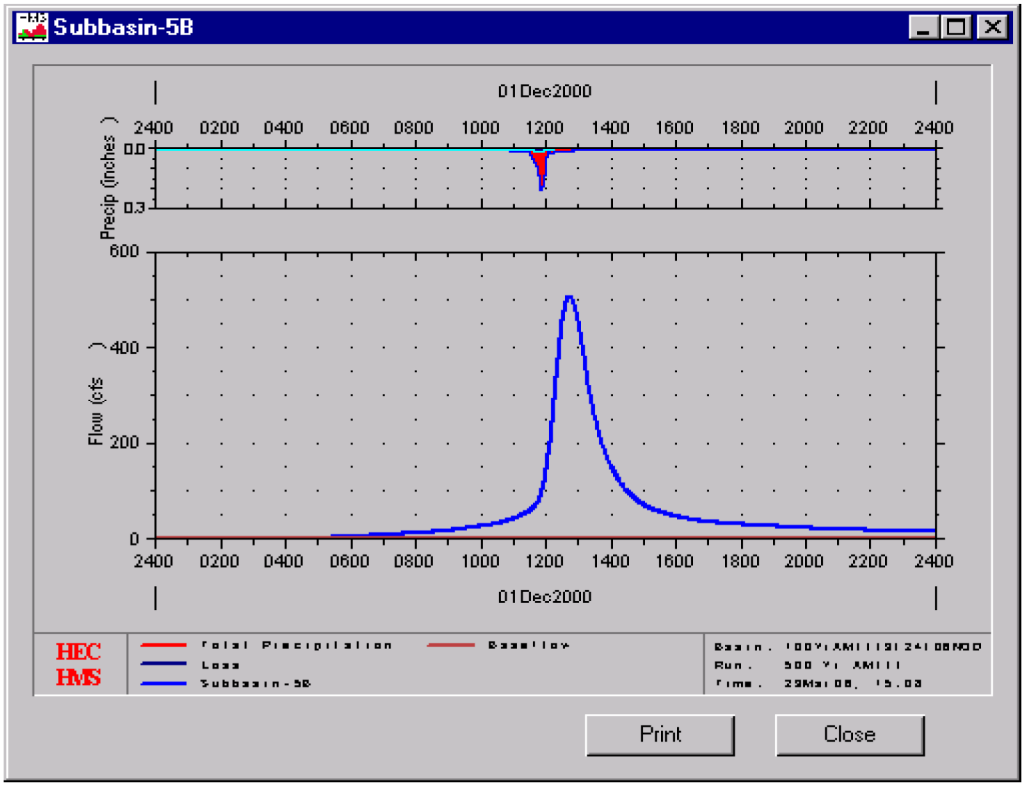


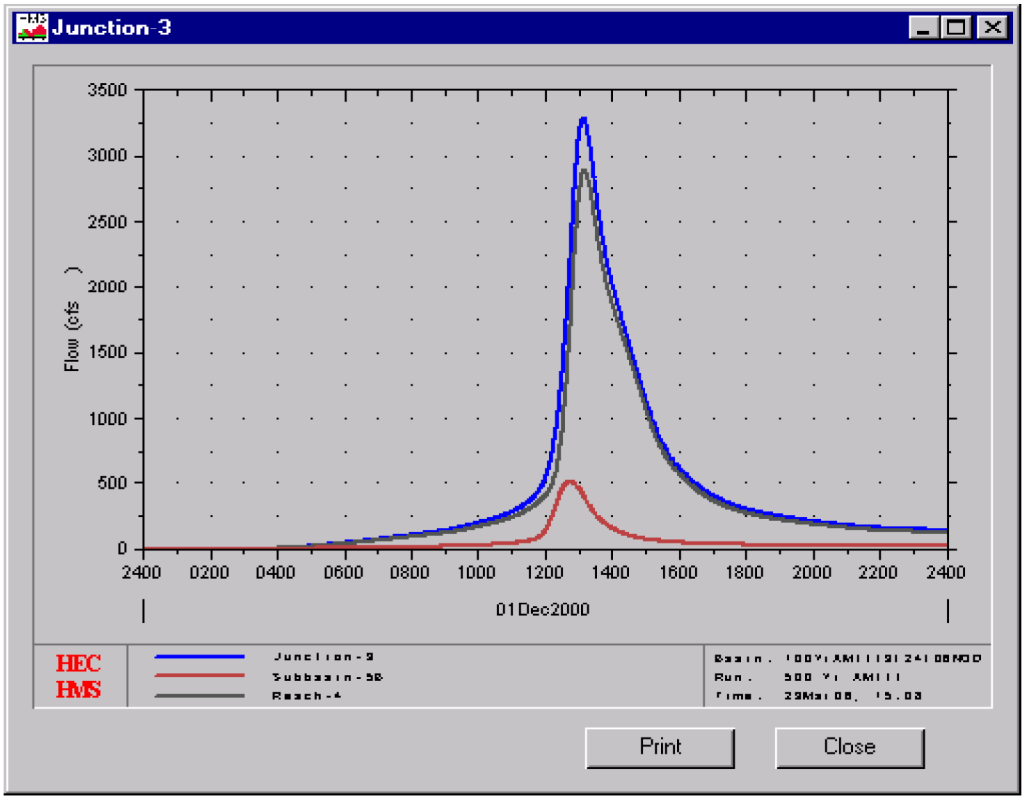
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



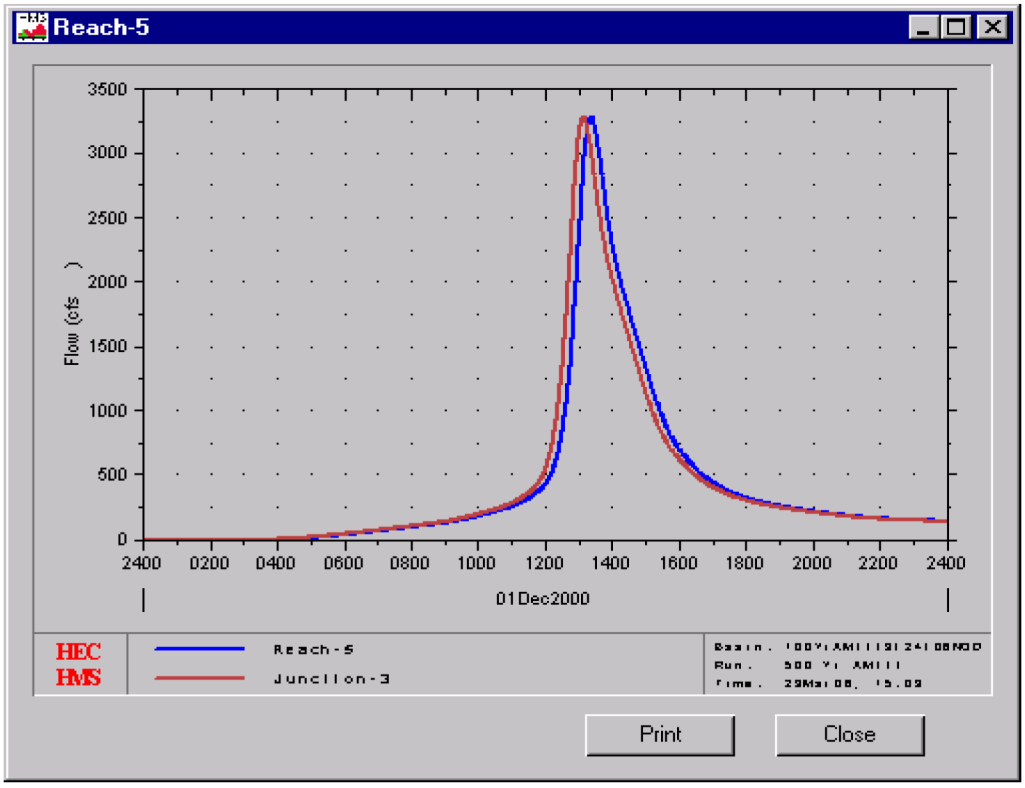


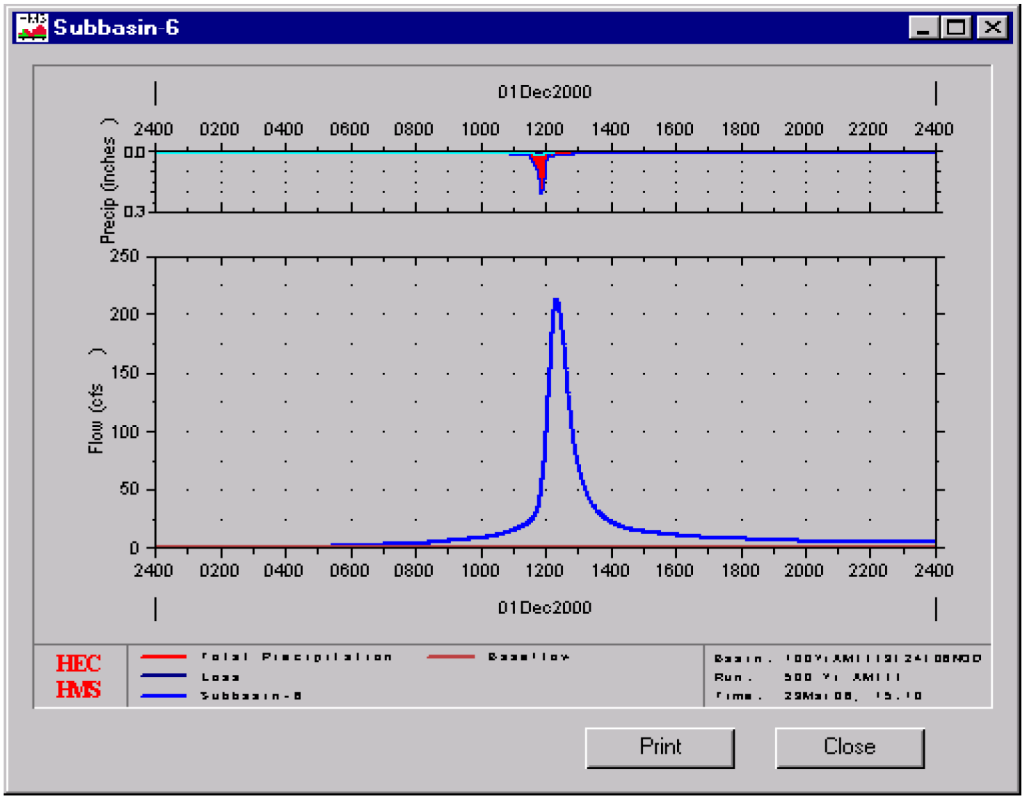
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



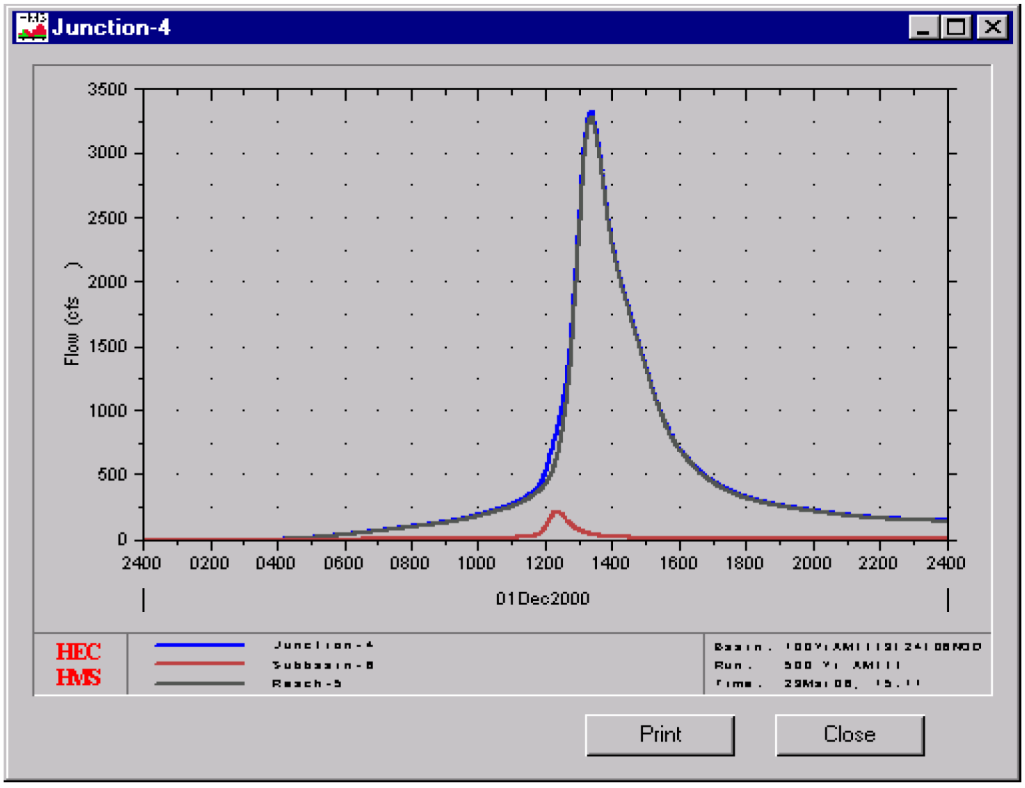


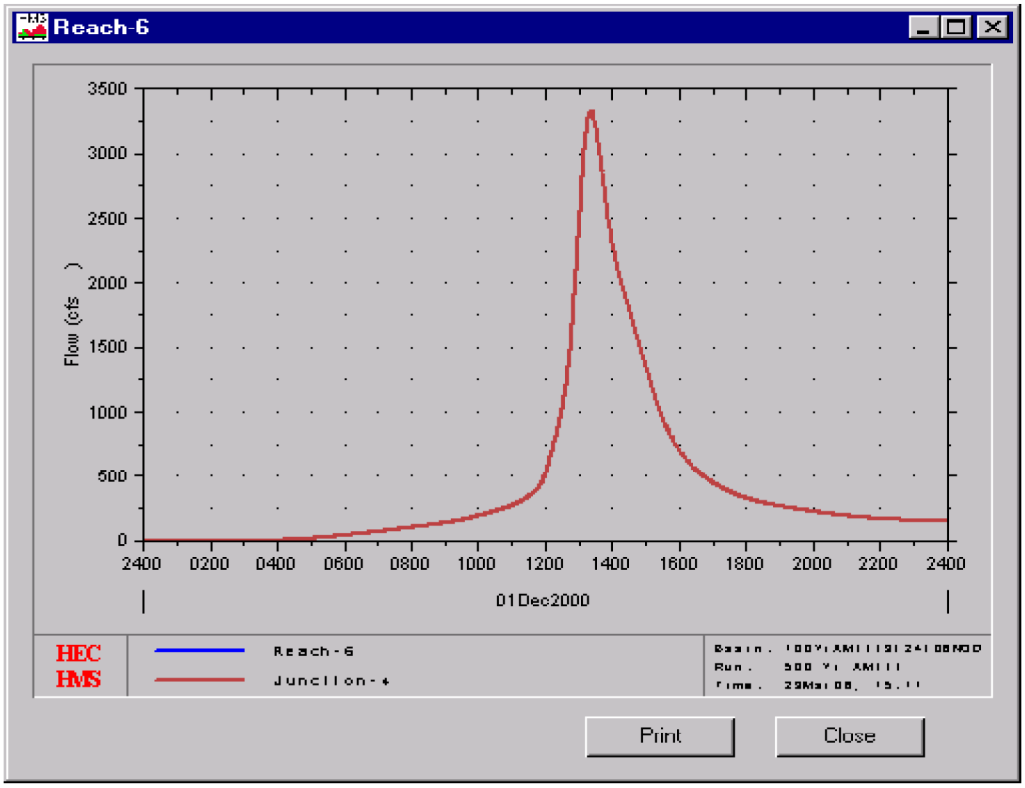
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



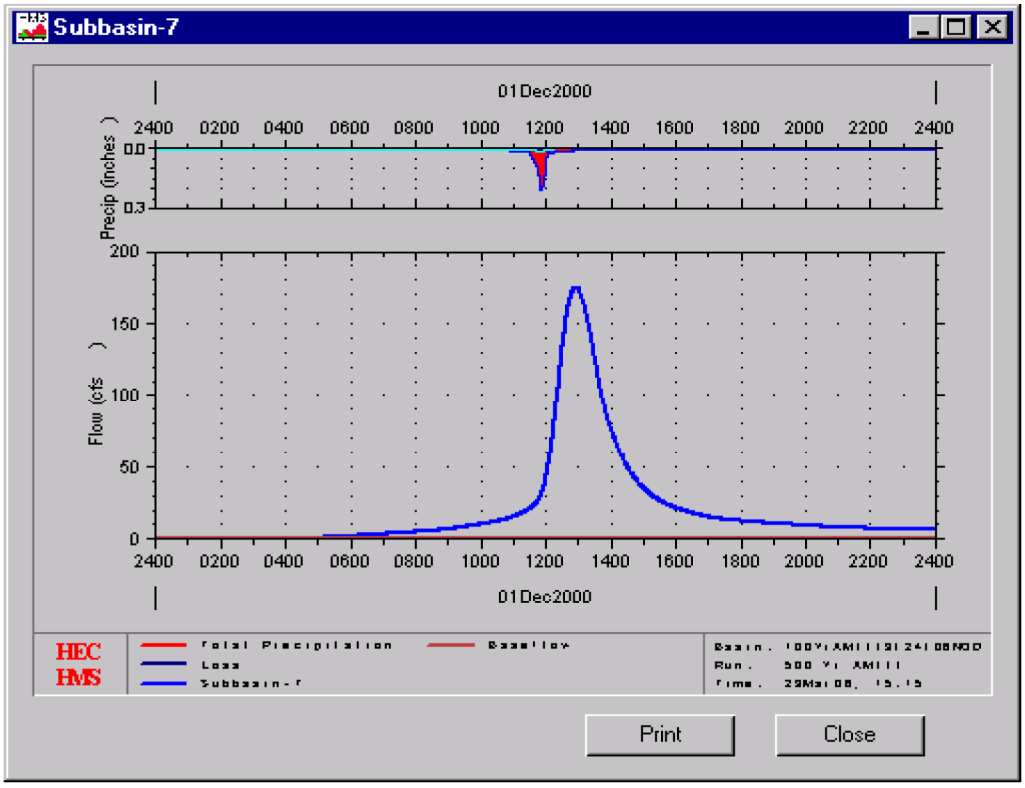


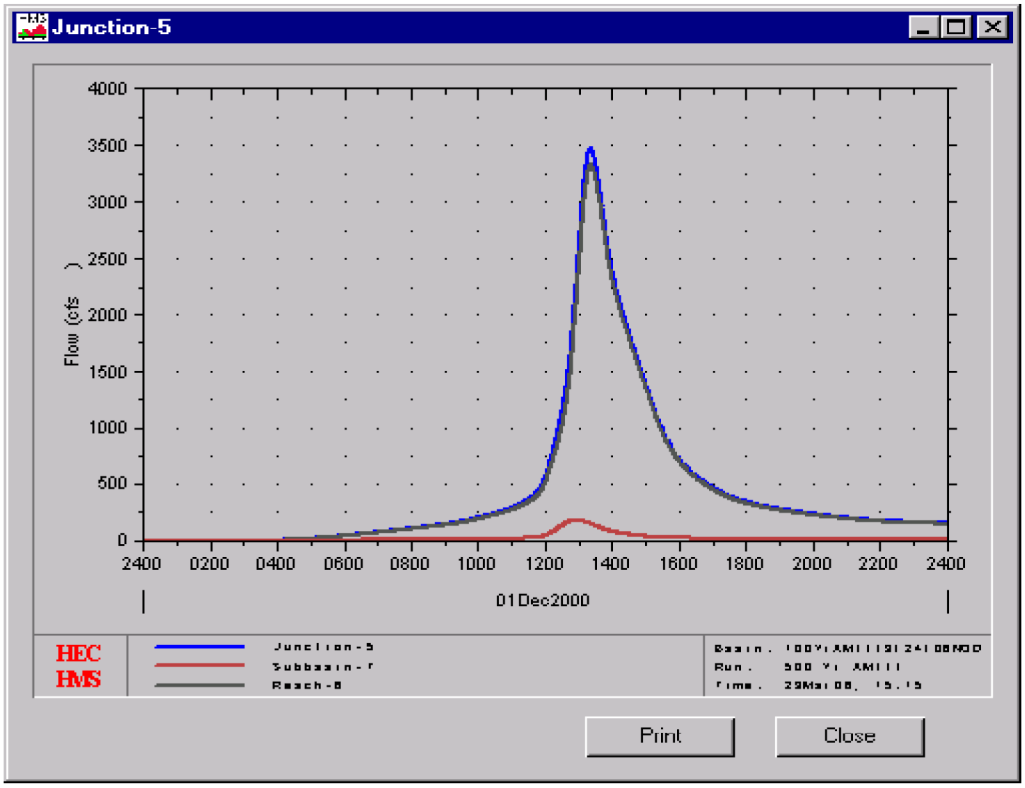
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS





WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS





APPENDIX T

HEC-HMS MODEL FOR THE CALCULATION OF THE PMP PEAK DISCHARGE, ANTECEDENT MOISTURE CONDITION III

HMS * Summary of Results

Project : WCS Run Name : PMP Dist A AMIII

Start of Run : 01Dec00 0000 Basin Model : 100YrAMIII3/24/06NOD
End of Run : 05Dec00 0000 Met. Model : PMP Dist. A NOD
Execution Time : 30Mar06 0838 Control Specs : Control PMP

Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Subbasin-4	1314.7	03 Dec 00 0600	1020.6	0.490
Reach-2	1314.7	03 Dec 00 0615	1020.6	0.490
Subbasin-2	2846.6	03 Dec 00 0600	2188.9	1.063
playa	2519.0	03 Dec 00 0644	1731.9	1.063
Reach-1	2519.0	03 Dec 00 0719	1731.9	1.063
Subbasin-1A	1849.8	03 Dec 00 0603	1449.7	0.691
Reach-1A	1849.8	03 Dec 00 0620	1449.7	0.691
Subbasin-1B	842.09	03 Dec 00 0600	651.59	0.314
Junction-1A	2689.0	03 Dec 00 0602	2101.3	1.005
Reach-1B	2689.0	03 Dec 00 0605	2101.3	1.005
Subbasin-3	418.53	03 Dec 00 0600	324.93	0.156
Junction-1	5399.3	03 Dec 00 0619	4158.1	2.224
Reach-3	5399.3	03 Dec 00 0636	4158.1	2.224
Subbasin-5A	514.51	03 Dec 00 0600	395.37	0.192
Junction-2	7143.7	03 Dec 00 0620	5574.0	2.906
Reach-4	7143.7	03 Dec 00 0641	5574.0	2.906
Subbasin-5B	709.89	03 Dec 00 0600	545.69	0.265
Junction-3	7765.5	03 Dec 00 0631	6119.7	3.171
Reach-5	7765.5	03 Dec 00 0645	6119.7	3.171
Subbasin-6	198.33	03 Dec 00 0600	152.38	0.074
Junction-4	7864.0	03 Dec 00 0638	6272.1	3.245
Reach-6	7864.0	03 Dec 00 0638	6272.1	3.245
Subbasin-7	278.66	03 Dec 00 0600	214.99	0.104
Junction-5	8123.7	03 Dec 00 0633	6487.1	3.349

File: StorageNOD11.xls
PLAYA ELEVATION, STORAGE, OUTFLOW

ELEVATION AND STORAGE

Elev	Area S.F.	Elev. Change	Ave S.F.	Storage C.F.	Total Storage C.F.	AC.-FT.
3478	402,878			0	0	
		2	517,775	1,035,550		
3480	632,672				1,035,550	24
		2	811,325	1,622,649		
3482	989,977				2,658,199	61
		2	2,375,467	4,750,934		
3484	3,760,957				7,409,133	170
		2	6,247,780	12,495,559		
3486	8,734,602				19,904,692	457
		2	10,261,979	20,523,958		
3488	11,789,356				40,428,650	928
		2	13,334,447	26,668,893		
3,490	14,879,537				67,097,543	1,540

OUTFLOW

WEIR EQUATION

Q=C*L*H^3/2

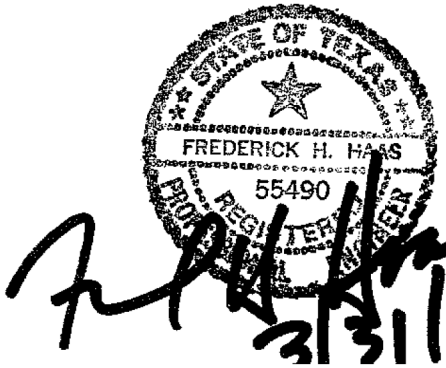
WHERE:

Q= FLOW, CFS
C= WEIR COEFFICIENT
L= HORIZONTAL LENGTH, FT
H= HEAD ON WEIR, FT

ASSUME TOP OF PLAYA IS ELEVATION 3486
LENGTH OF 3486 CONTOUR IS 241 FT.

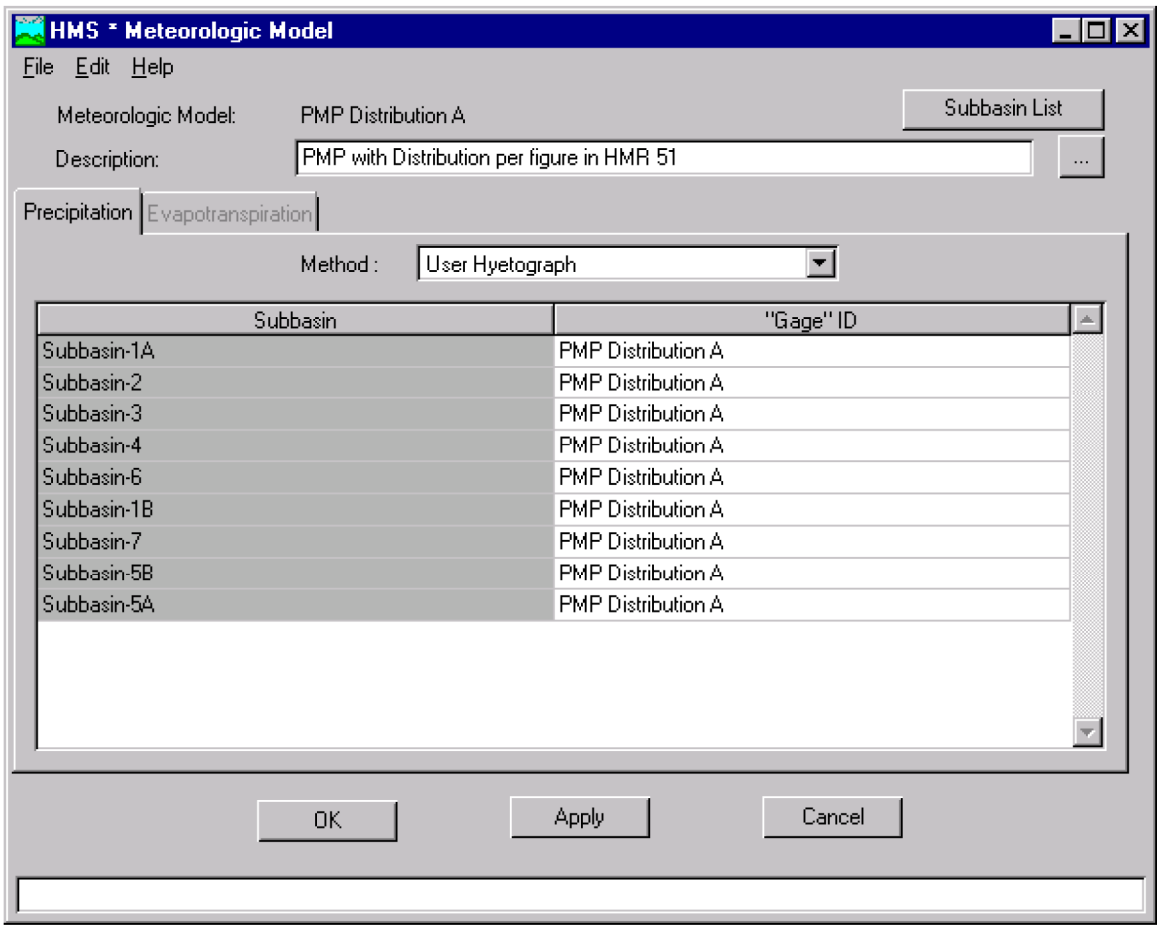
ELEV FT	HEAD FT	Cw	Q CU FT/SEC
3,486.5	0.5	3.58	305
3,487.0	1.0	3.58	863
3,487.5	1.5	3.58	1,585
3,488.0	2.0	3.56	2,427
3,490.0	4.0	3.62	6,979

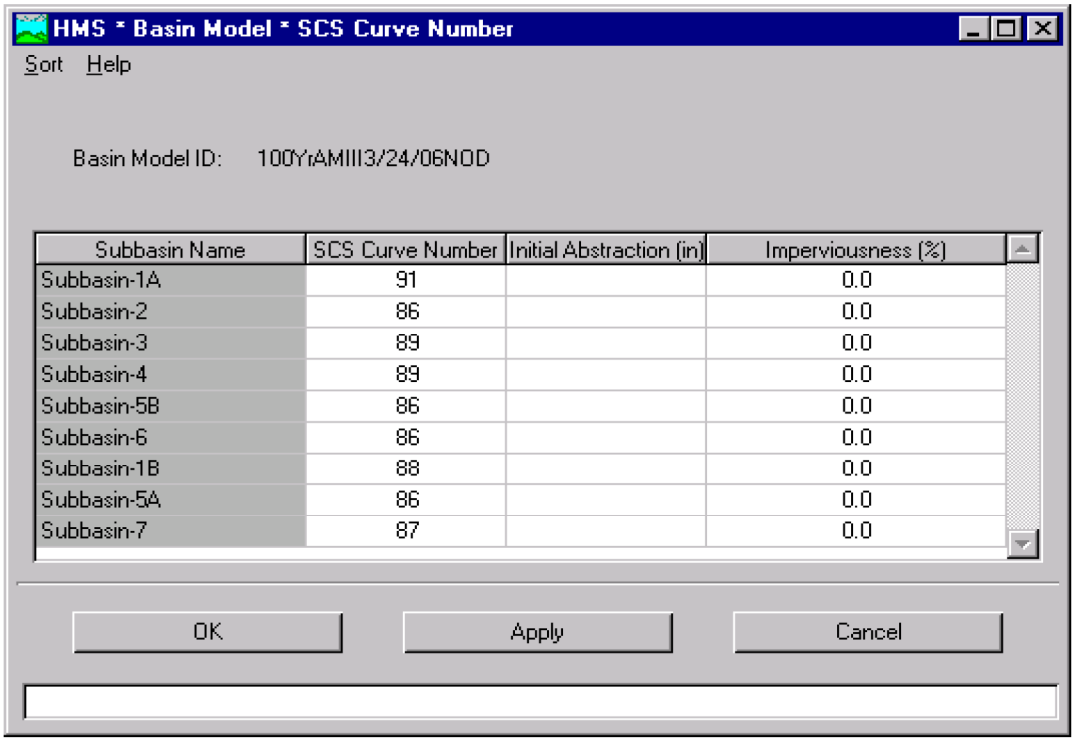
NOTE: Cw IS FROM WATER-RESOURCES ENGINEERING, LINSLEY AND FRANZINI

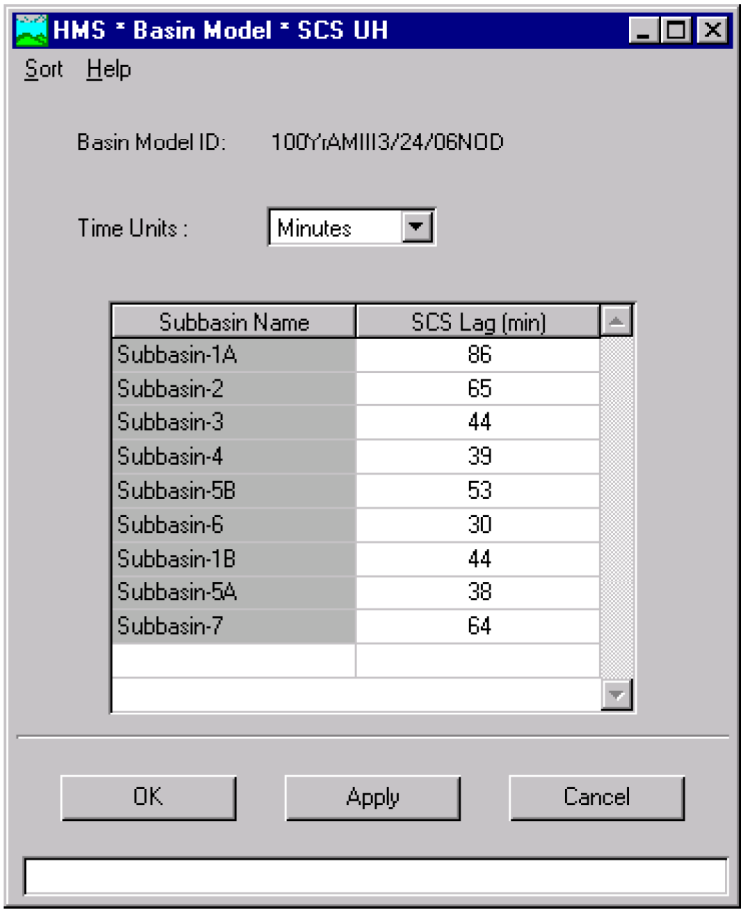


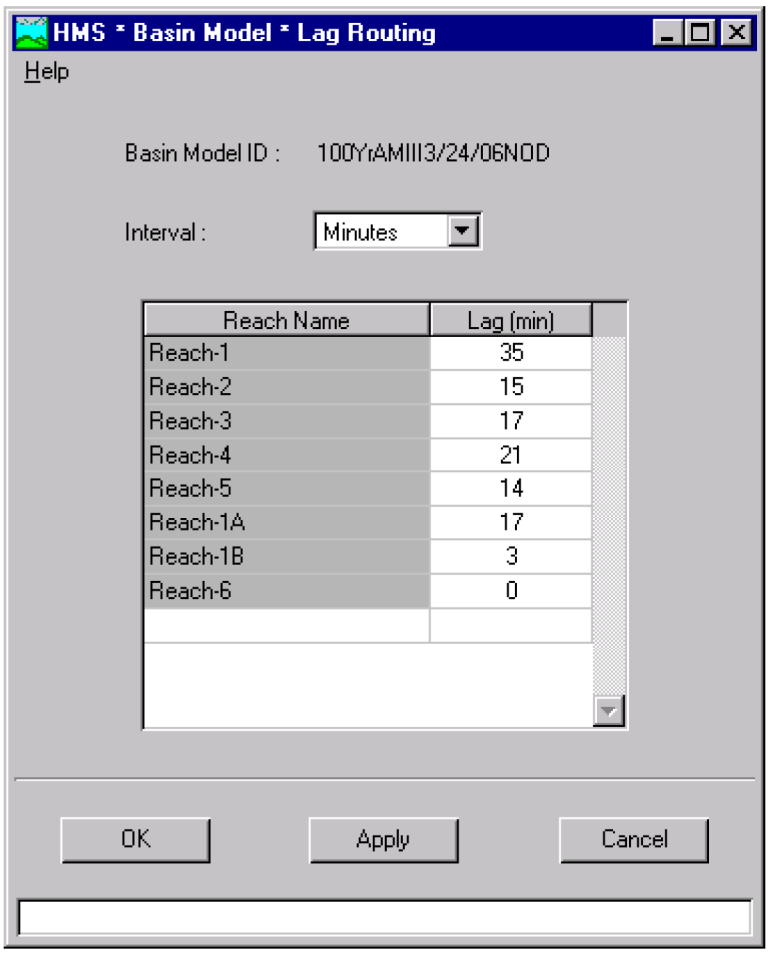
3/31/06

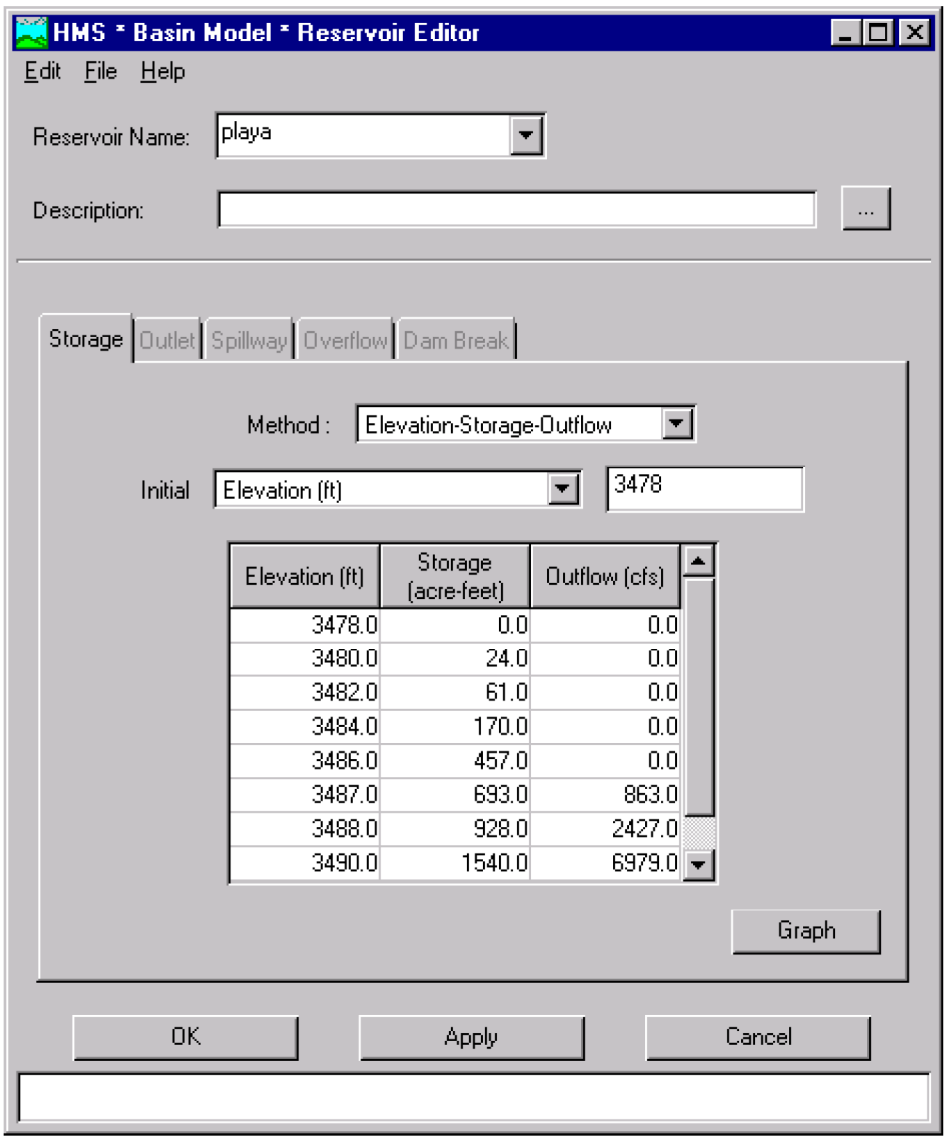
Meteorologic Model Input



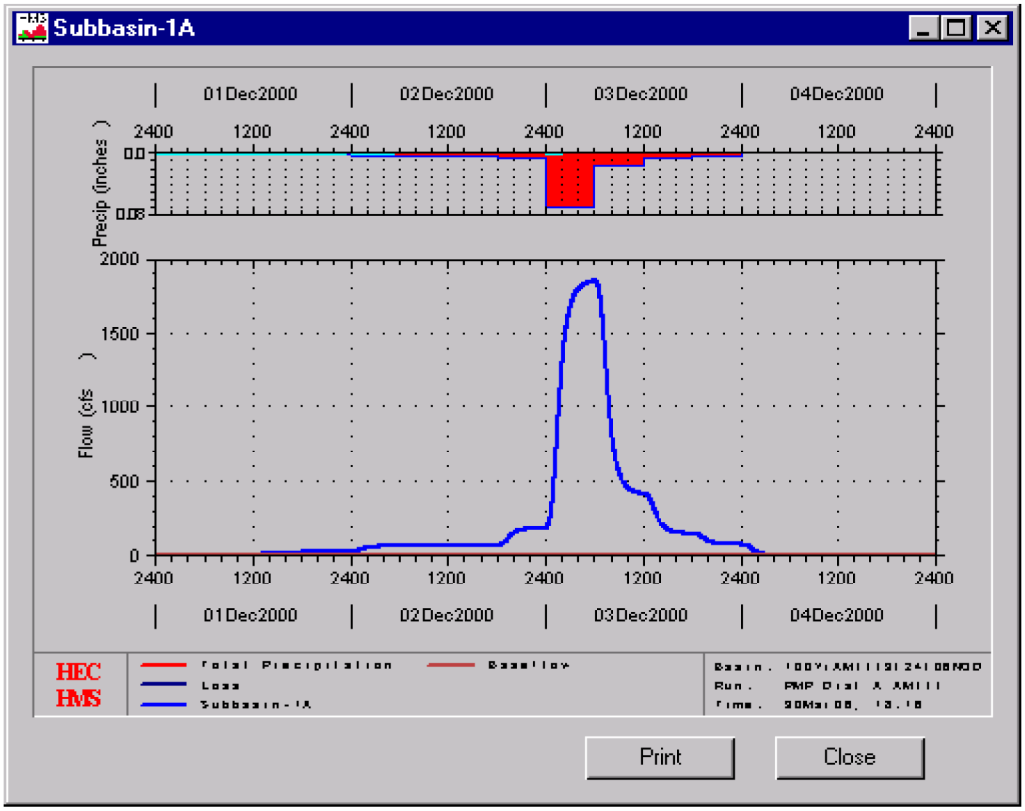

HMS * Basin Model * SCS Curve Number
Sort Help
Basin Model ID: 100YrAMIII3/24/06NOD
Subbasin Name | SCS Curve Number | Initial Abstraction (in) | Imperviousness (%)
Subbasin-1A | 91 | | 0.0
Subbasin-2 | 86 | | 0.0
Subbasin-3 | 89 | | 0.0
Subbasin-4 | 89 | | 0.0
Subbasin-5B | 86 | | 0.0
Subbasin-6 | 86 | | 0.0
Subbasin-1B | 88 | | 0.0
Subbasin-5A | 86 | | 0.0
Subbasin-7 | 87 | | 0.0
OK
Apply
Cancel

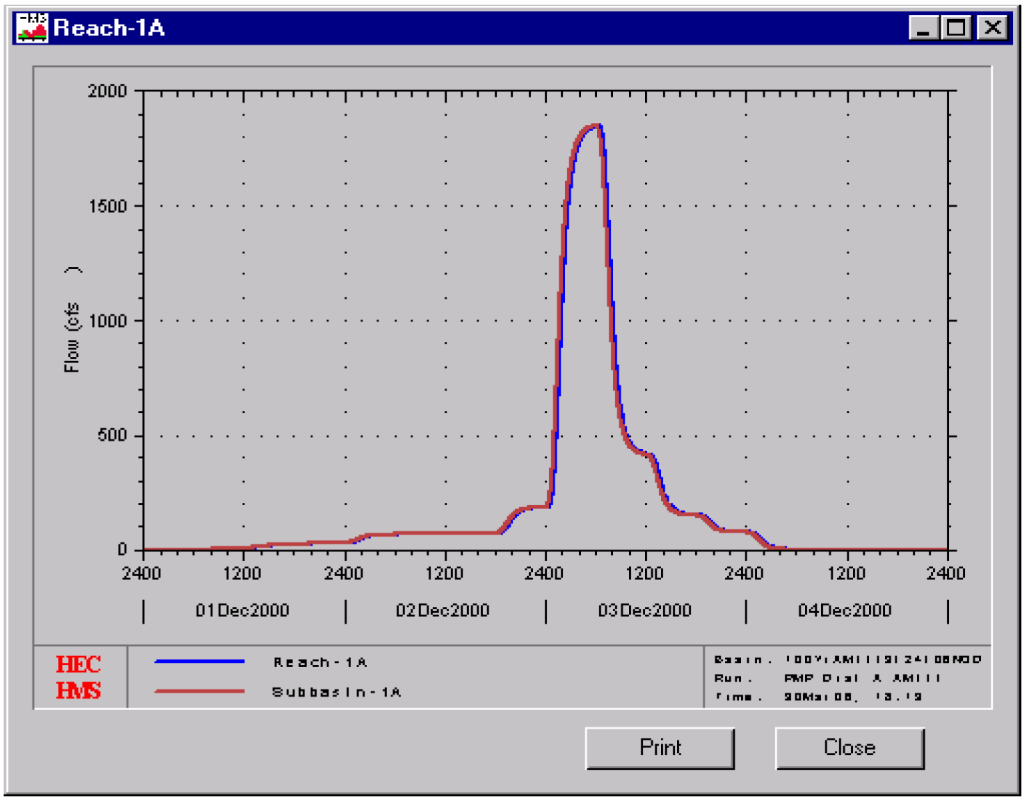

HMS * Basin Model * SCS UH
Sort Help
Basin Model ID: 100YrAMIII3/24/06NOD
Time Units : Minutes
Subbasin Name | SCS Lag (min)
Subbasin-1A | 86
Subbasin-2 | 65
Subbasin-3 | 44
Subbasin-4 | 39
Subbasin-5B | 53
Subbasin-6 | 30
Subbasin-1B | 44
Subbasin-5A | 38
Subbasin-7 | 64
OK
Apply
Cancel


HMS * Basin Model * Lag Routing
Help
Basin Model ID : 100YrAMIII3/24/06NOD
Interval : Minutes
Reach Name
Lag (min)
Reach-1 35
Reach-2 15
Reach-3 17
Reach-4 21
Reach-5 14
Reach-1A 17
Reach-1B 3
Reach-6 0
OK
Apply
Cancel

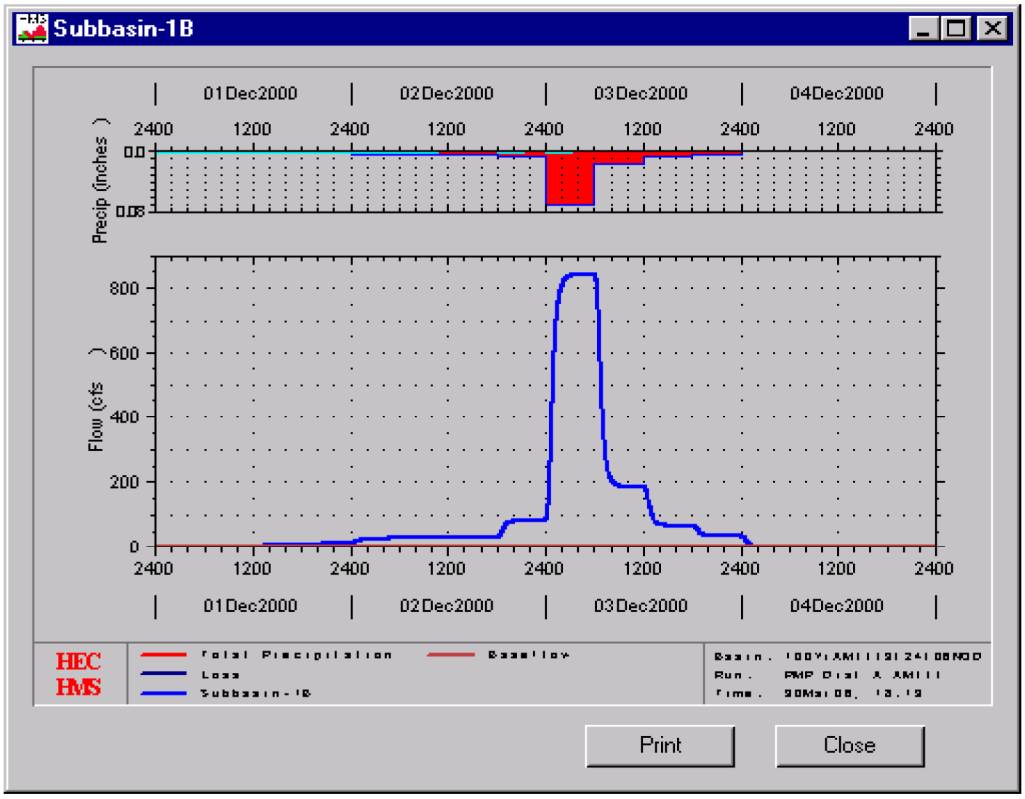

HMS * Basin Model * Reservoir Editor
Edit File Help
Reservoir Name: playa
Description:
...
Storage Outlet Spillway Overflow Dam Break
Method : Elevation-Storage-Outflow
Initial Elevation (ft) 3478
Elevation (ft) Storage (acre-feet) Outflow (cfs)
3478.0 0.0 0.0
3480.0 24.0 0.0
3482.0 61.0 0.0
3484.0 170.0 0.0
3486.0 457.0 0.0
3487.0 693.0 863.0
3488.0 928.0 2427.0
3490.0 1540.0 6979.0
Graph
OK
Apply
Cancel

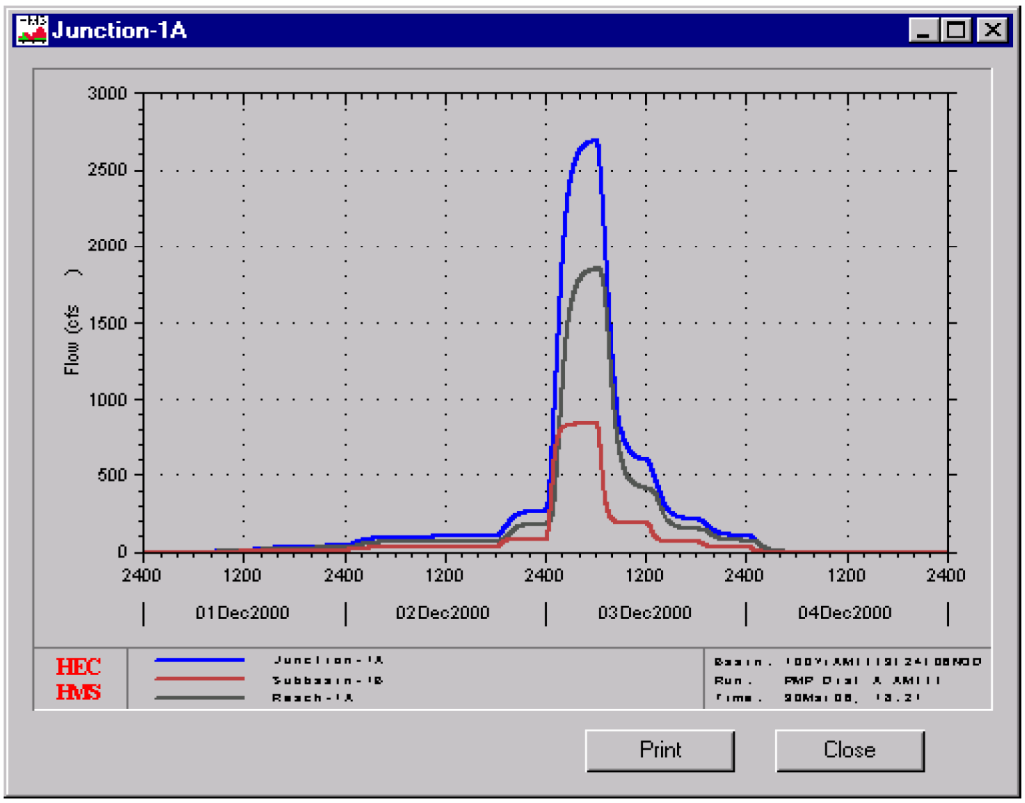
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



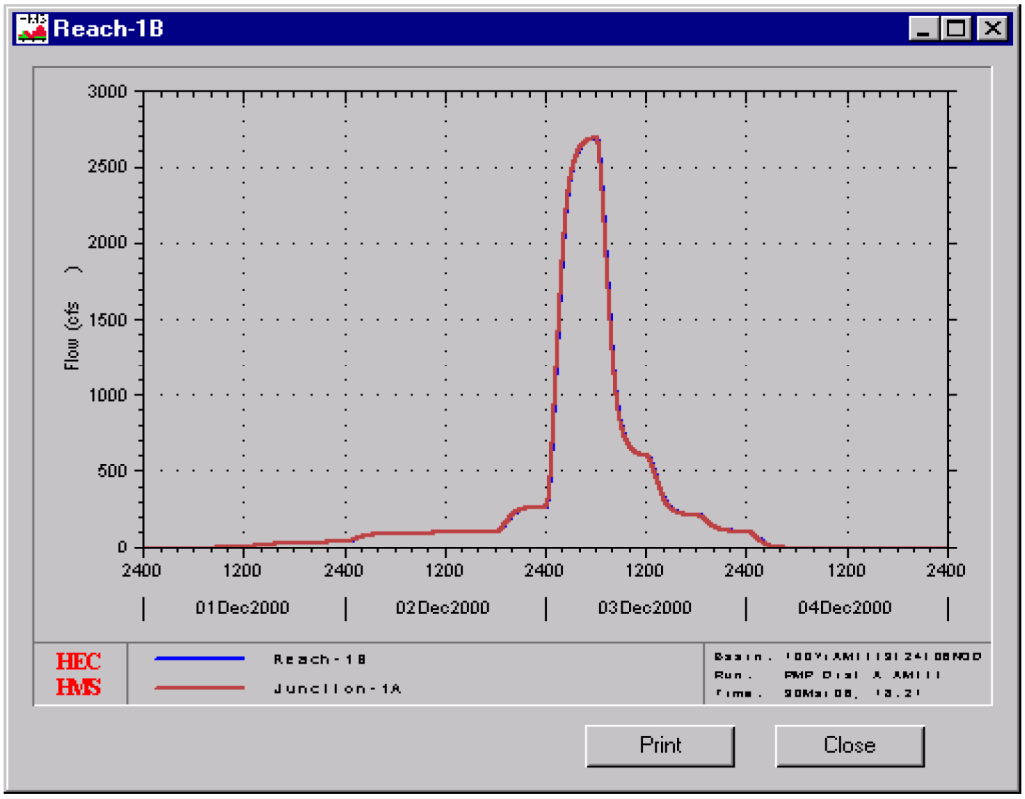


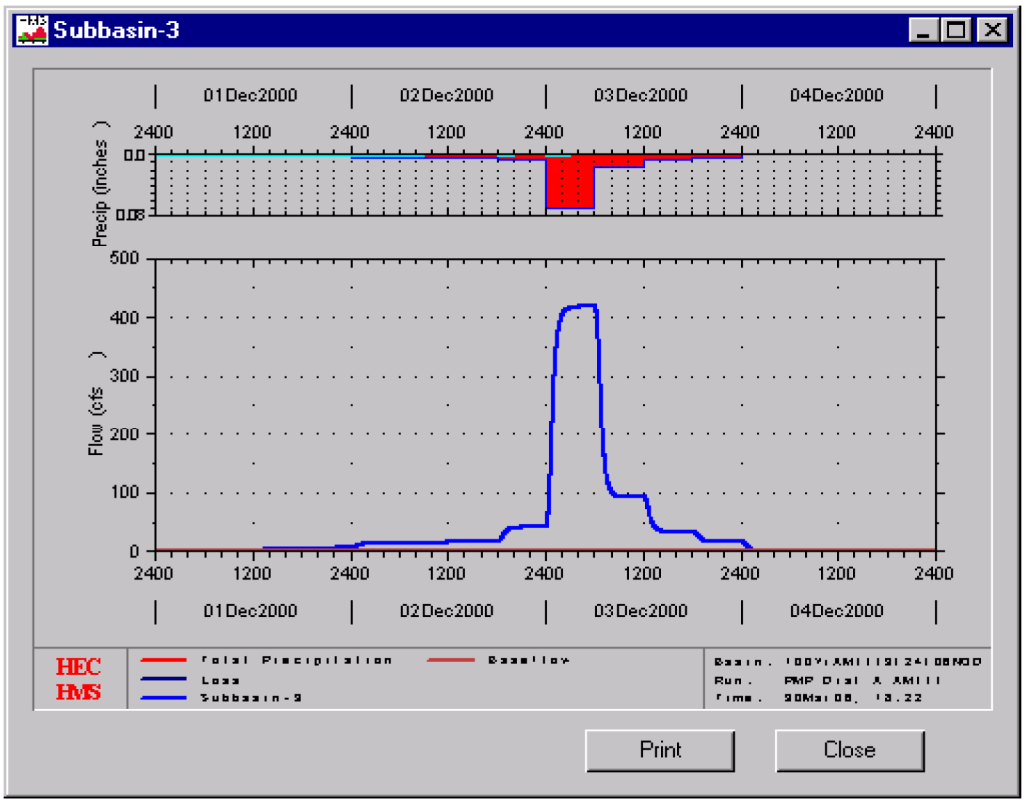
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



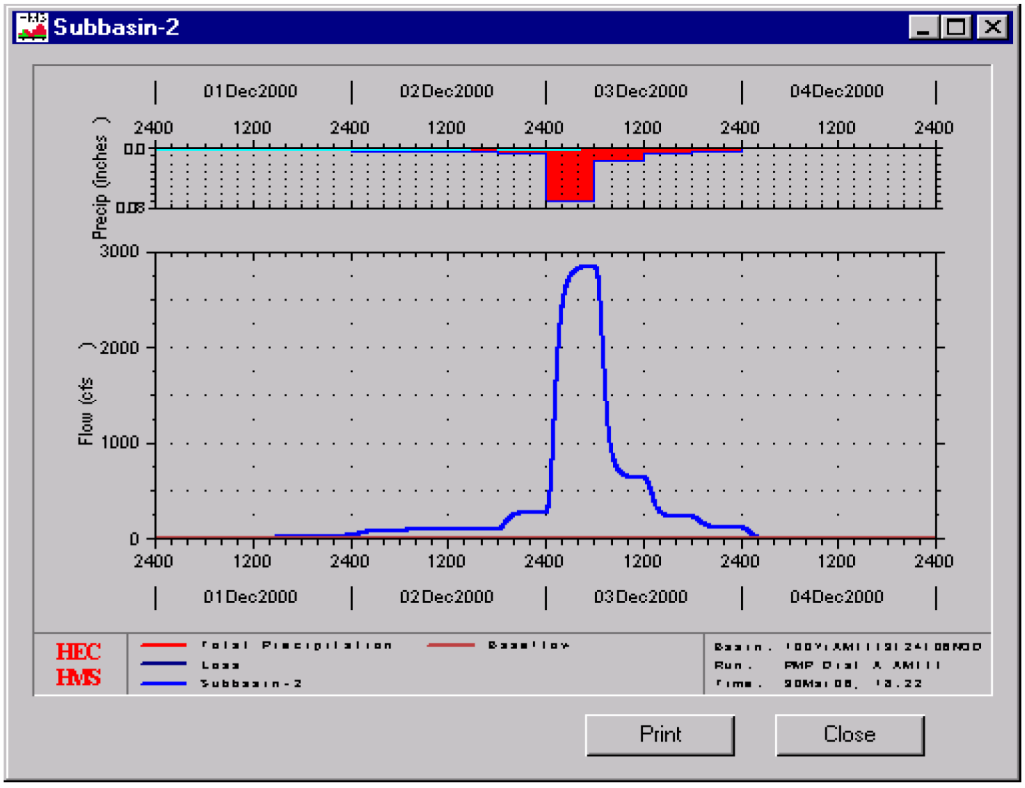


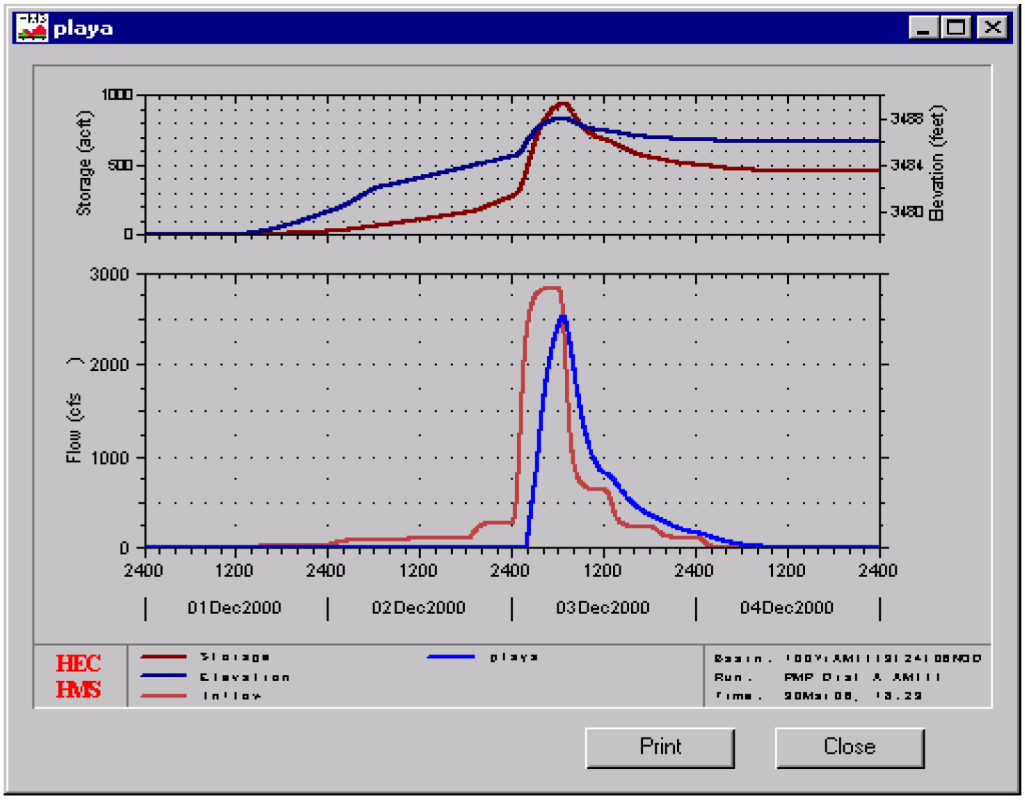
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



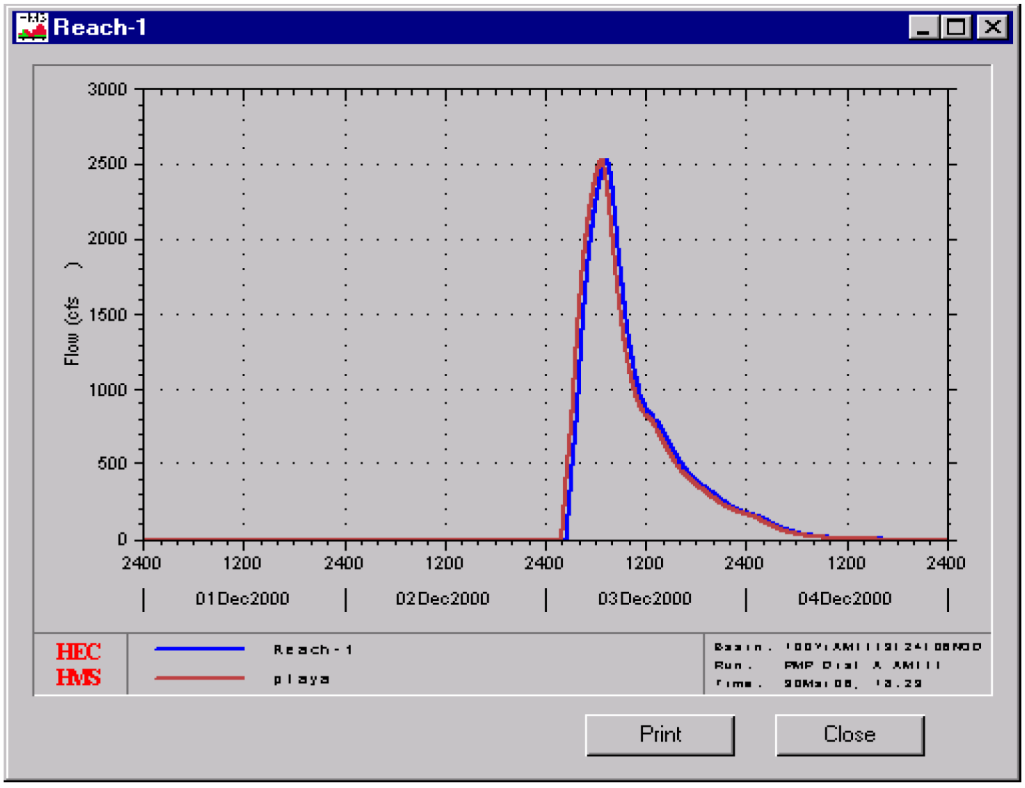


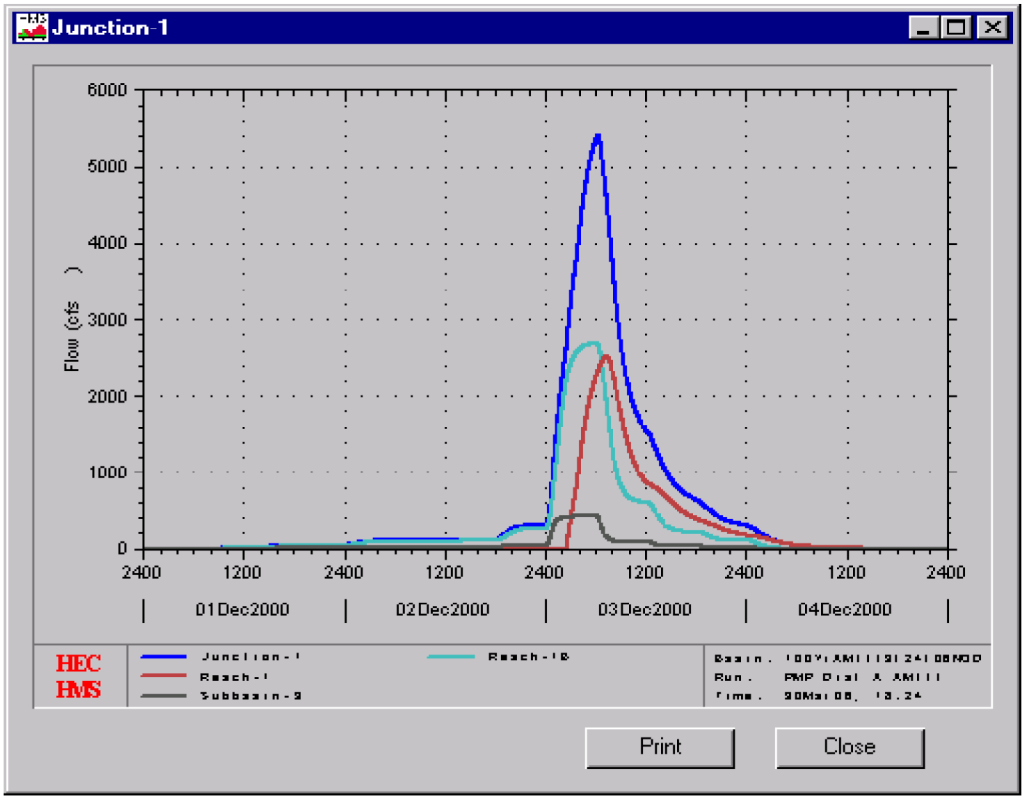
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



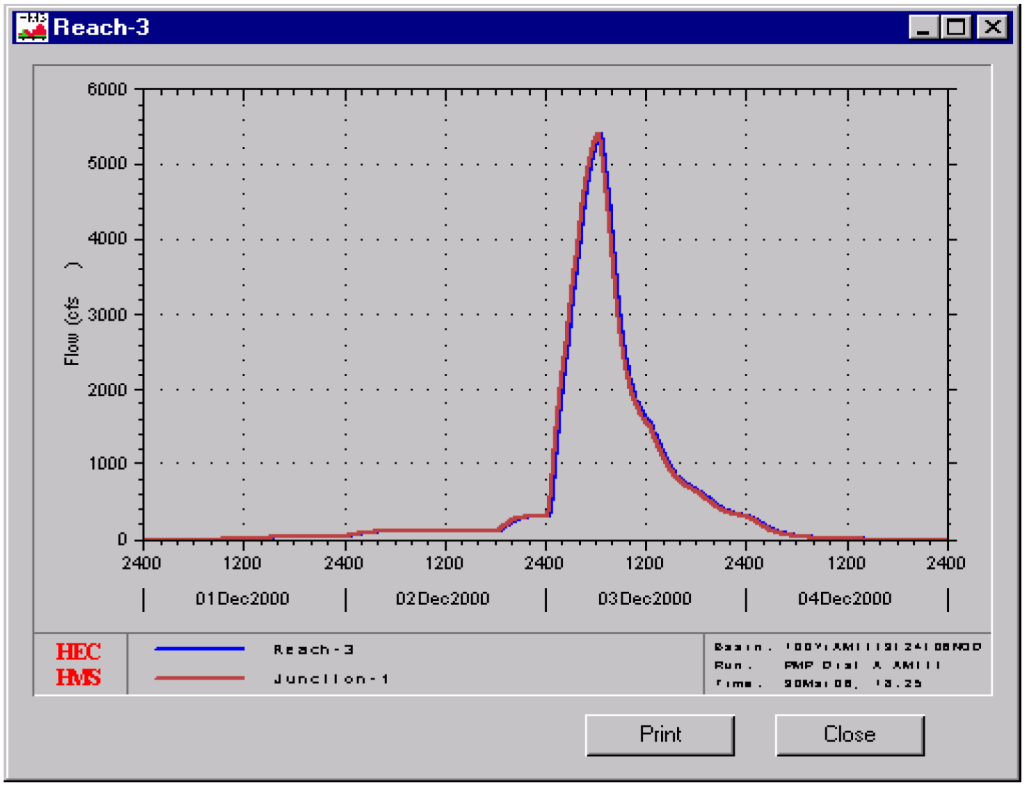


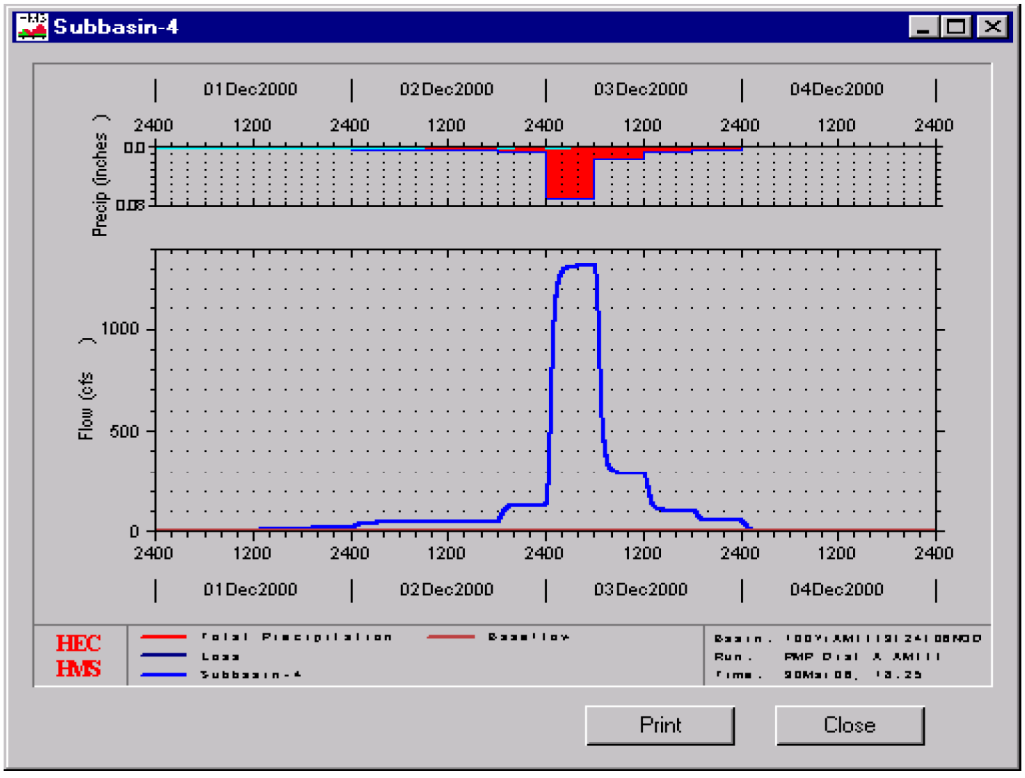
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



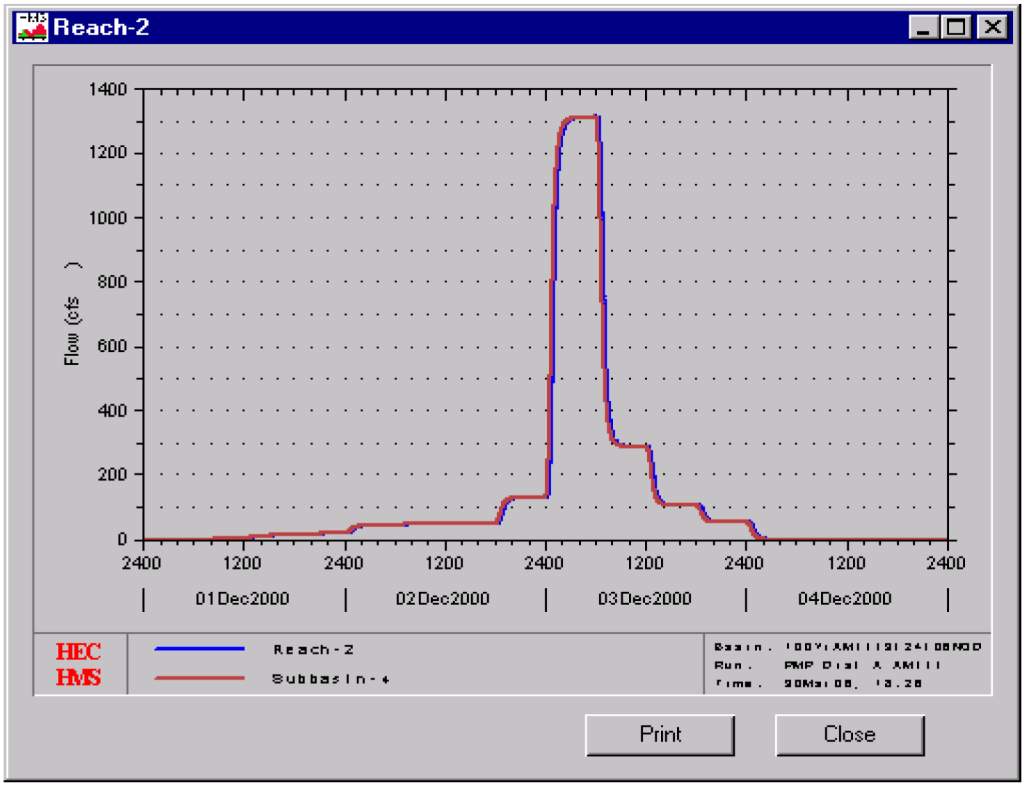


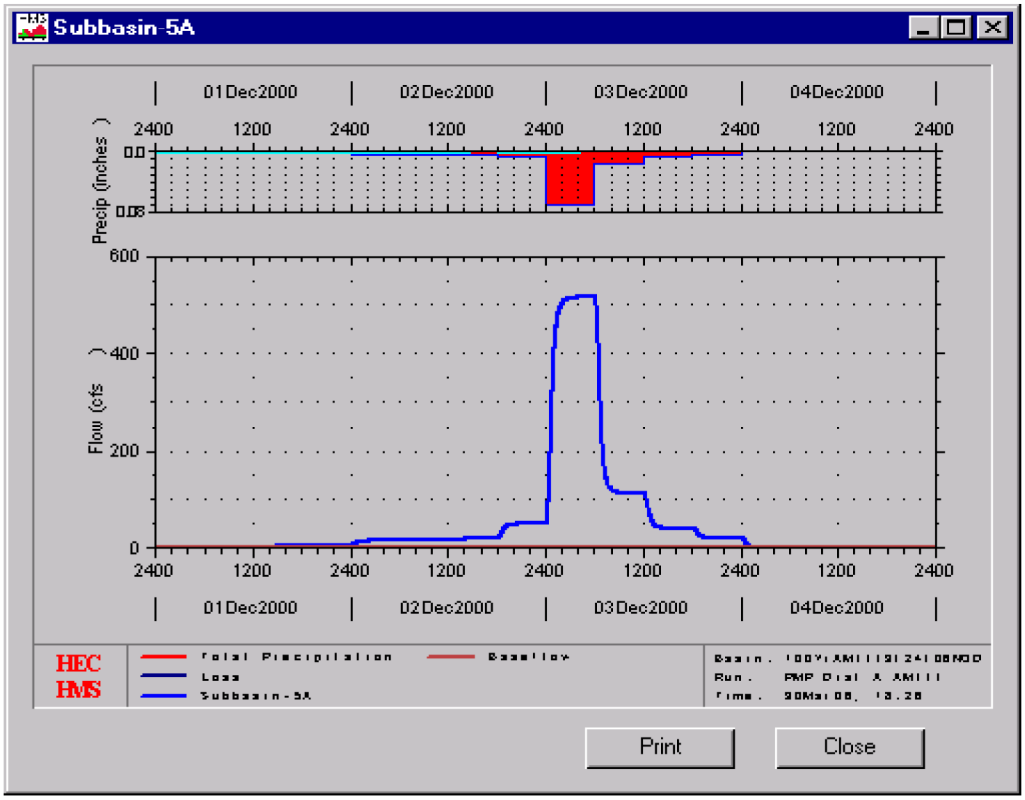
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



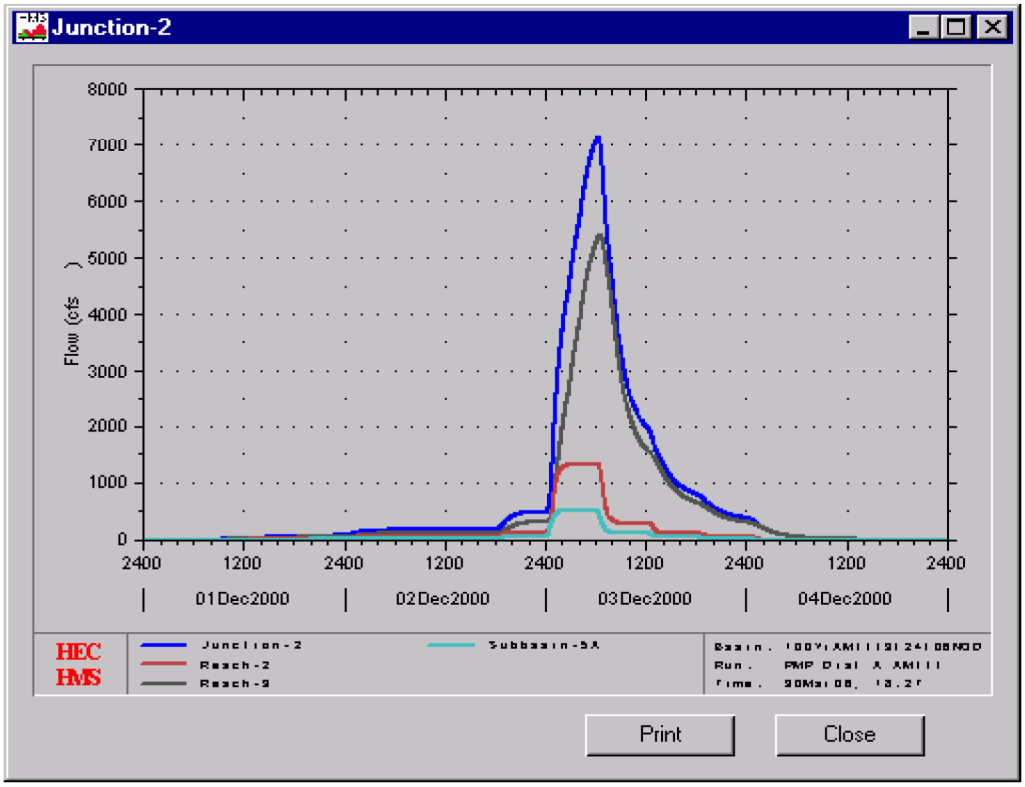


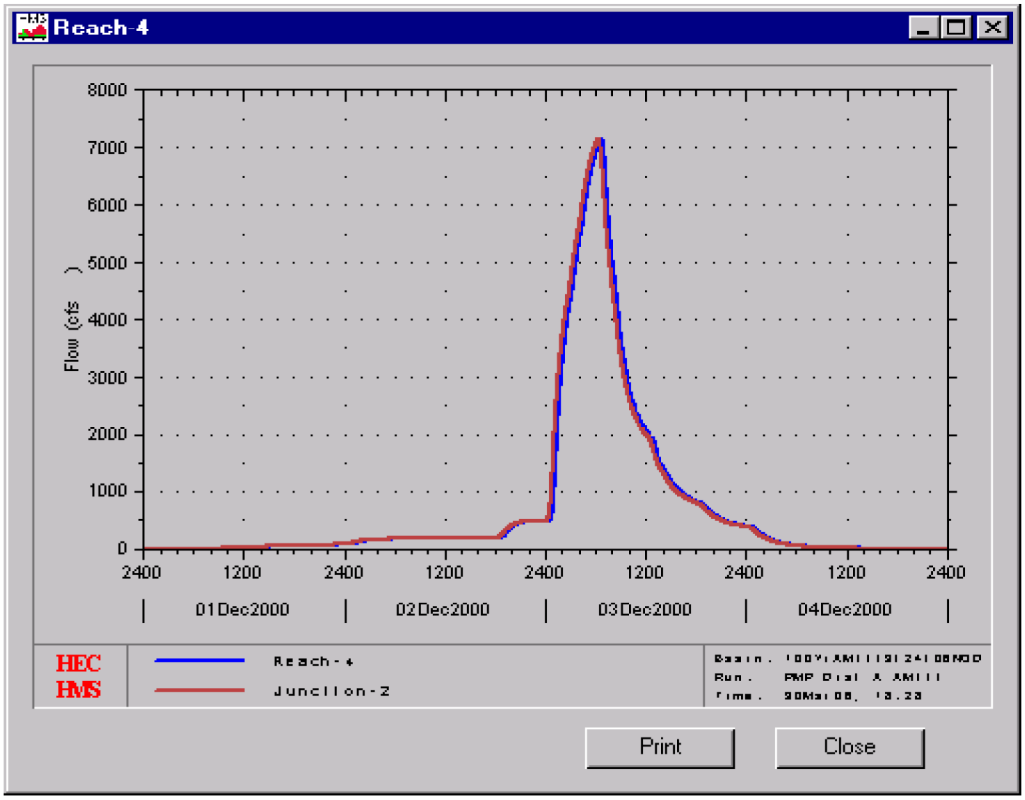
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



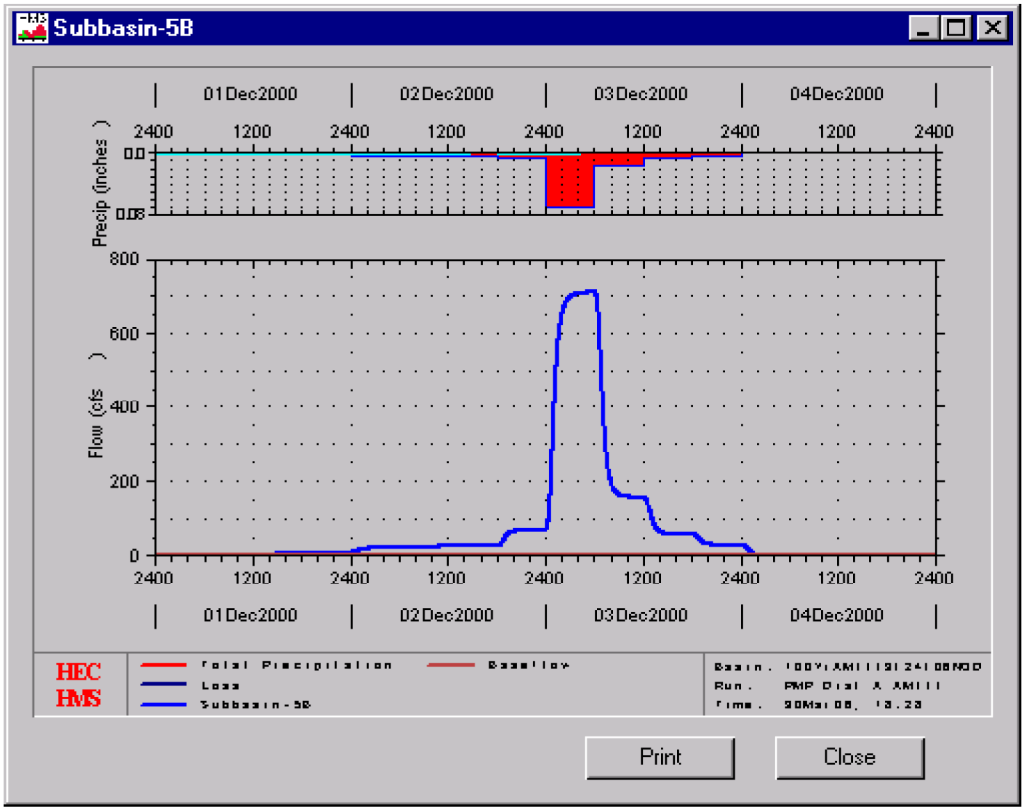


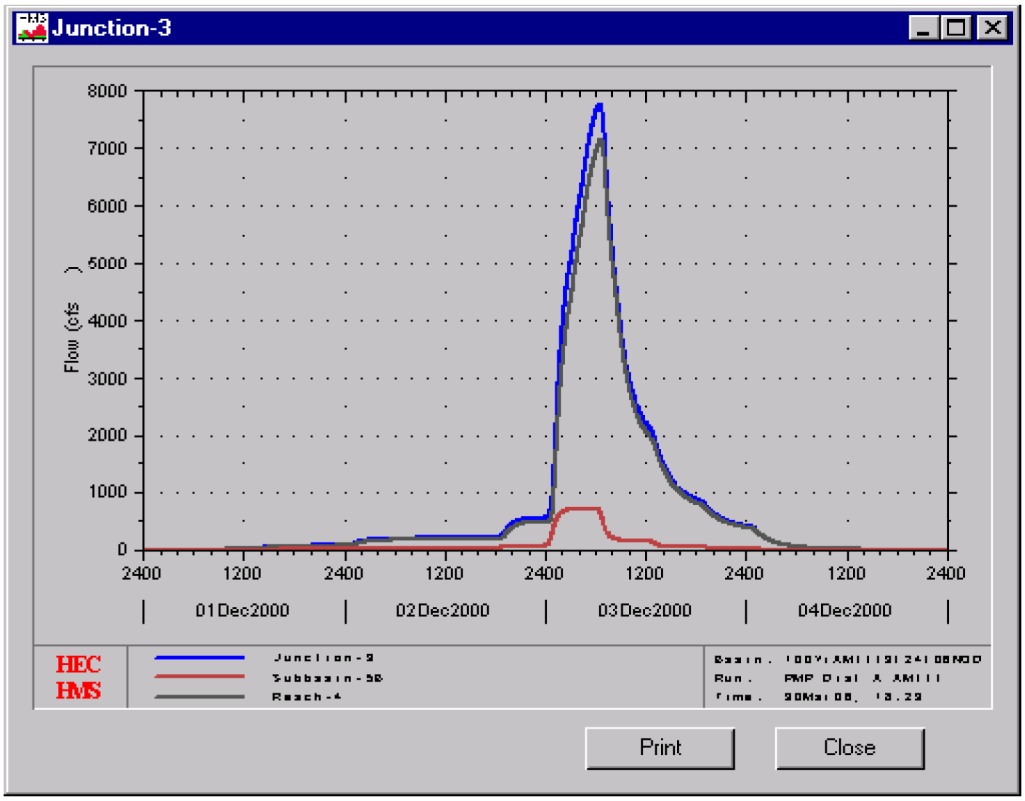
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



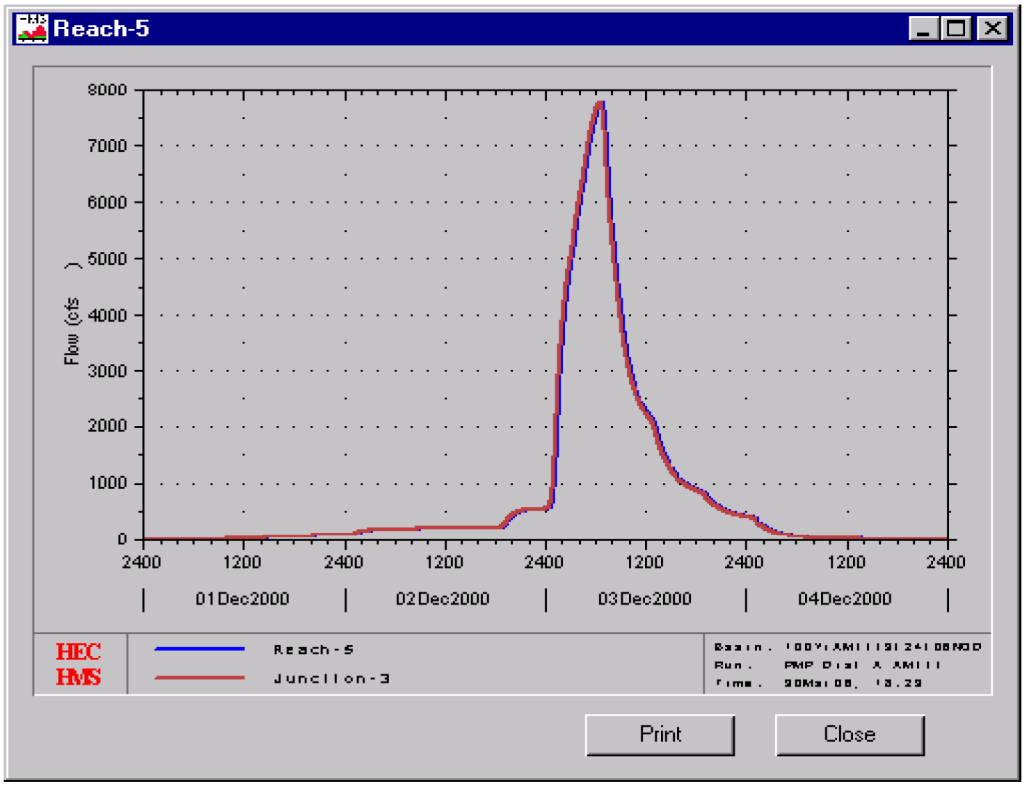


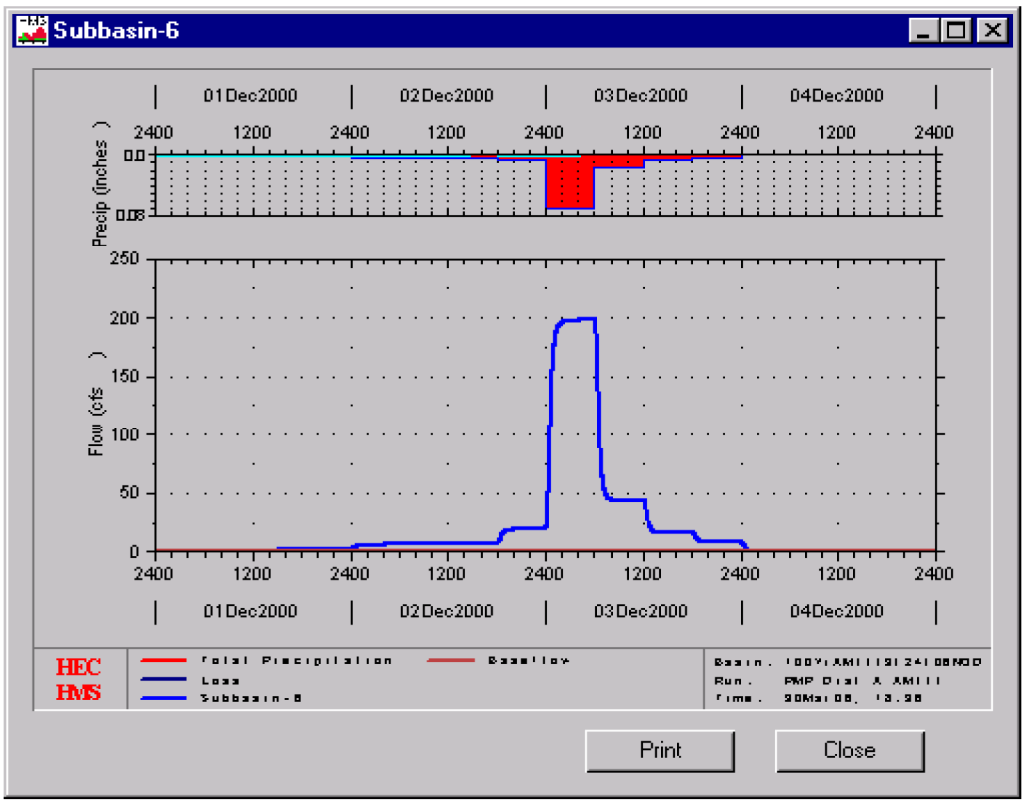
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS



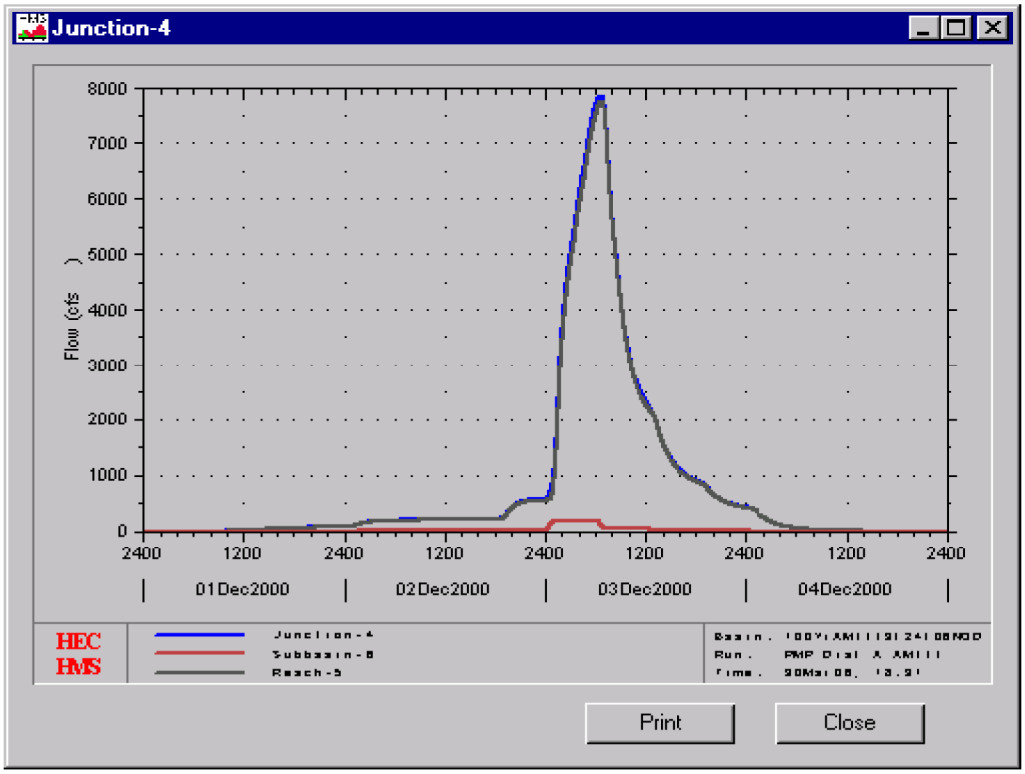


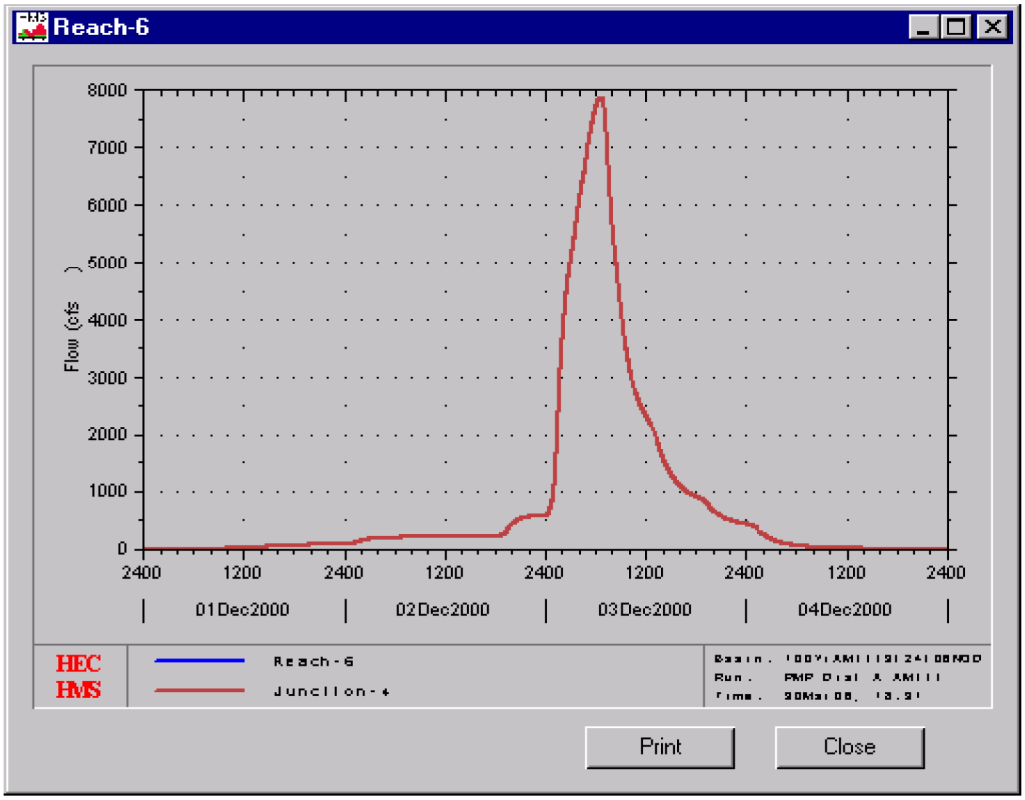
WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS





WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS





WCS FACILITY
FLOOD PLAIN STUDY HYDROGRAPHS

