Flood Control District of Maricopa County

Volume 2
Technical Data Notebook

Aguila

March 2003

Appendix E: Hydraulic Analysis Supporting Documentation

E.1 Roughness Coefficient Estimation

E.2 Cross Section Plots

E.3 Expansion and Contraction Coefficients

E.4 Analysis of Structures

E.5 Hydraulic Calculations

Unless otherwise noted, the photographs are arranged in the following sequence:

1 Left Overbank looking Upstream or downstream	2 Bed Material
3 Looking upstream or Downstream at main channel	4 Right Overbank looking Upstream or downstream

Photograph locations are shown on **Figure 5-3-1**.

Determination of Manning's Roughness Coefficients by FCDMC Method

Project: Aguila ADMP
Stream: Detailed Study Area
Location: Cross Section #1

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete		0.012-0.018			
	Rock Cut		0.025			
	Firm Soil	n0	0.025-0.032	0.025	0.025	0.025
	Fine Sand		0.023-0.036			
	Coarse Sand		0.026-0.035			
	Gravel		0.028-0.035			
	Cobble		0.030-0.050			
	Boulder		0.040-0.070			
Degree of Irregularity	Smooth		0.000		0	0
	Minor	n1	0.001-0.005	0.001		
	Moderate		0.006-0.010			
	Server		0.011-0.020			
Effects of Obstructions	Negligible		0.000-0.004	0	0	0
	Minor	n2	0.005-0.015			
	Appreciable		0.020-0.030			
	Server		0.040-0.060			
Vegetation	Small		0.002-0.010	0.002	0	
	Medium	n3	0.010-0.025			0.015
	Large		0.025-0.050			
	Very Large		0.050-0.100			
Variations in the Channel Cross Section	Gradual		0.000		0	0
	Alternating (occasionally)	n4	0.001-0.005	0.001		
	Alternating (frequently)		0.010-0.015			
Degree of Meandering	Minor		1	1	1	1
	Appreciable	m	1.15			
	Server		1.3			
n=(n0+n1+n2+n3+n4)m				0.029	0.025	0.040

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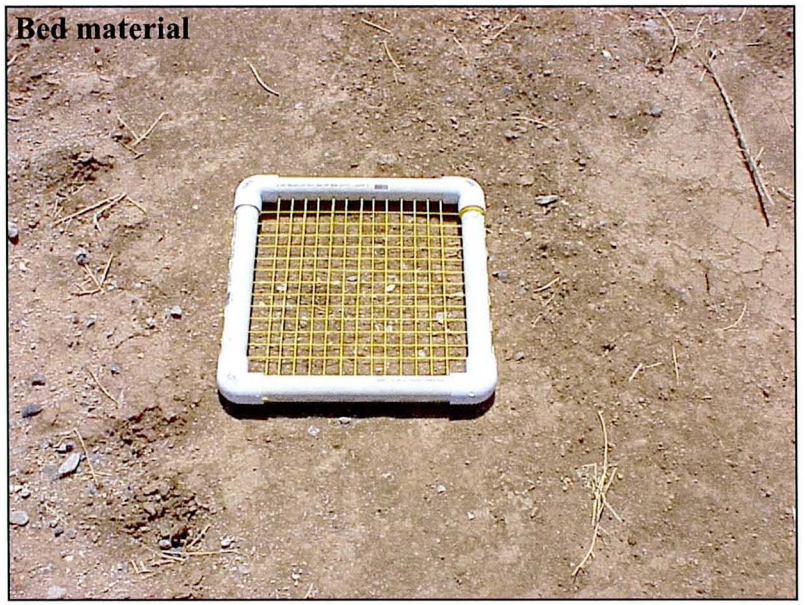
Cross Section #1

Left overbank looking upstream from SR 71

Bed material



Looking downstream at main channel from SR71

Right overbank looking upstream from SR 71

Determination of Manning's Roughness Coefficients by FCDMC Method

Project: Aguila ADMP
Stream: Detailed Study Area
Location: Cross Section #2

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete		0.012-0.018			
	Rock Cut		0.025			
	Firm Soil	n0	0.025-0.032	0.025	0.025	0.025
	Fine Sand		0.023-0.036			
	Coarse Sand		0.026-0.035			
	Gravel		0.028-0.035			
	Cobble		0.030-0.050			
	Boulder		0.040-0.070			
Degree of Irregularity	Smooth		0.000	0	0	0
	Minor	n1	0.001-0.005			
	Moderate		0.006-0.010			
	Server		0.011-0.020			
Effects of Obstructions	Negligible		0.000-0.004	0	0.002	0
	Minor	n2	0.005-0.015			
	Appreciable		0.020-0.030			
	Server		0.040-0.060			
Vegetation	Small		0.002-0.010		0.000	
	Medium	n3	0.010-0.025	0.015		0.015
	Large		0.025-0.050			
	Very Large		0.050-0.100			
Variations in the Channel Cross Section	Gradual		0.000	0	0	0
	Alternating (occasionally)	n4	0.001-0.005			
	Alternating (frequently)		0.010-0.015			
Degree of Meandering	Minor		1	1	1	1
	Appreciable	m	1.15			
	Server		1.3			
n=(n0+n1+n2+n3+n4)m				0.040	0.027	0.040

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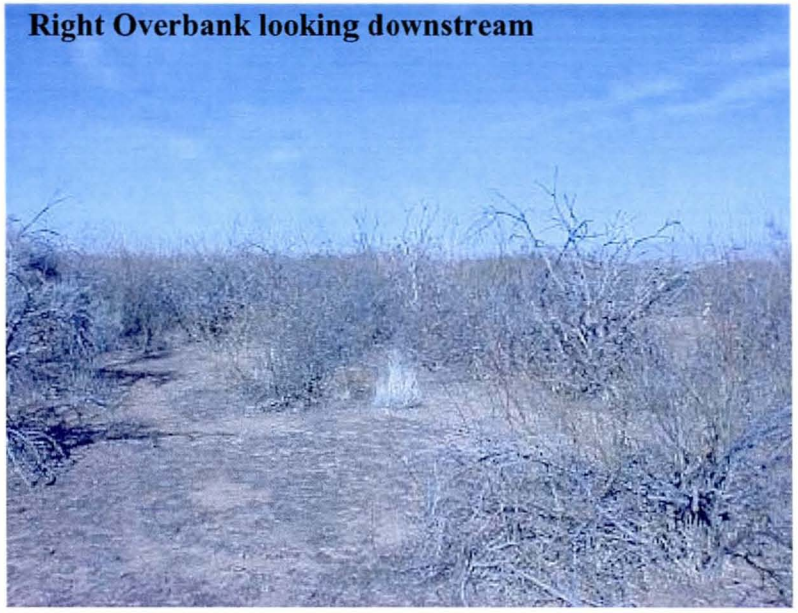
Cross Section #2

Left overbank looking downstream

Bed Material

Looking upstream at main channel

Right Overbank looking downstream



Determination of Manning's Roughness Coefficients by FCDMC Method

Project: Aguila ADMP
Stream: Detailed Study Area
Location: Cross Section #3

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete		0.012-0.018			
	Rock Cut		0.025			
	Firm Soil	n0	0.025-0.032	0.025	0.025	0.025
	Fine Sand		0.023-0.036			
	Coarse Sand		0.026-0.035			
	Gravel		0.028-0.035			
	Cobble		0.030-0.050			
	Boulder		0.040-0.070			
Degree of Irregularity	Smooth		0.000	0	0	0
	Minor	n1	0.001-0.005			
	Moderate		0.006-0.010			
	Server		0.011-0.020			
Effects of Obstructions	Negligible		0.000-0.004	0	0.002	0
	Minor	n2	0.005-0.015			
	Appreciable		0.020-0.030			
	Server		0.040-0.060			
Vegetation	Small		0.002-0.010		0	
	Medium	n3	0.010-0.025	0.015		0.015
	Large		0.025-0.050			
	Very Large		0.050-0.100			
Variations in the Channel Cross Section	Gradual		0.000	0	0	0
	Alternating (occasionally)	n4	0.001-0.005			
	Alternating (frequently)		0.010-0.015			
Degree of Meandering	Minor		1	1	1	1
	Appreciable	m	1.15			
	Server		1.3			
n=(n0+n1+n2+n3+n4)m				0.040	0.027	0.040

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Cross Section #3

Determination of Manning's Roughness Coefficients by FCDMC Method

Project: Aguila ADMP
Stream: Detailed Study Area
Location: Cross Section #4

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete		0.012-0.018			
	Rock Cut		0.025			
	Firm Soil	n0	0.025-0.032	0.025	0.025	0.025
	Fine Sand		0.023-0.036			
	Coarse Sand		0.026-0.035			
	Gravel		0.028-0.035			
	Cobble		0.030-0.050			
	Boulder		0.040-0.070			
Degree of Irregularity	Smooth		0.000	0	0	0
	Minor	n1	0.001-0.005			
	Moderate		0.006-0.010			
	Server		0.011-0.020			
Effects of Obstructions	Negligible		0.000-0.004	0	0.002	0
	Minor	n2	0.005-0.015			
	Appreciable		0.020-0.030			
	Server		0.040-0.060			
Vegetation	Small		0.002-0.010		0	
	Medium	n3	0.010-0.025	0.015		0.015
	Large		0.025-0.050			
	Very Large		0.050-0.100			
Variations in the Channel Cross Section	Gradual		0.000	0	0	0
	Alternating (occasionally)	n4	0.001-0.005			
	Alternating (frequently)		0.010-0.015			
Degree of Meandering	Minor		1	1	1	1
	Appreciable	m	1.15			
	Server		1.3			
n=(n0+n1+n2+n3+n4)m				0.040	0.027	0.040

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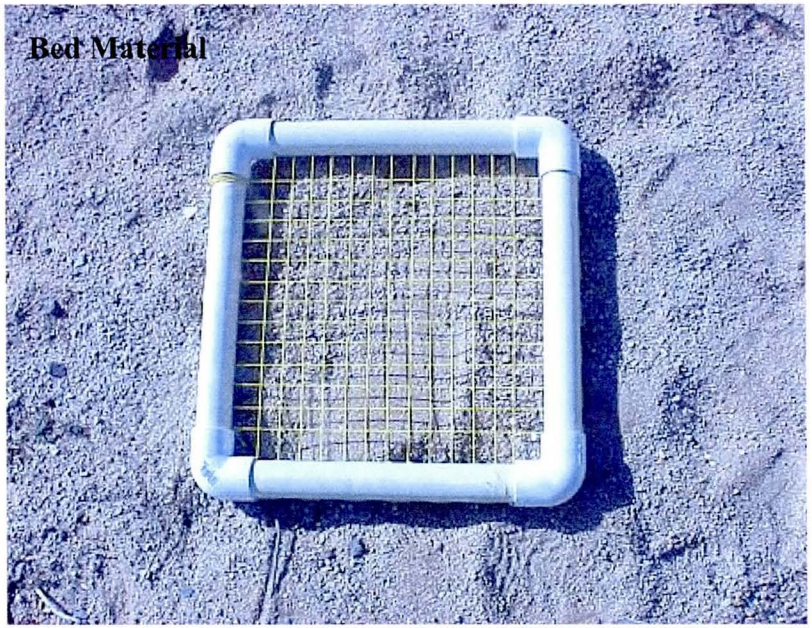
Cross Section #4

Left overbank looking downstream

Bed Material



Looking upstream at main channel

Right overbank looking downstream

Determination of Manning's Roughness Coefficients by FCDMC Method

Project: Aguila ADMP
Stream: Detailed Study Area
Location: Cross Section #5

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete		0.012-0.018			
	Rock Cut		0.025			
	Firm Soil	n0	0.025-0.032	0.025	0.025	0.025
	Fine Sand		0.023-0.036			
	Coarse Sand		0.026-0.035			
	Gravel		0.028-0.035			
	Cobble		0.030-0.050			
	Boulder		0.040-0.070			
Degree of Irregularity	Smooth		0.000		0	0
	Minor	n1	0.001-0.005	0.001		
	Moderate		0.006-0.010			
	Server		0.011-0.020			
Effects of Obstructions	Negligible		0.000-0.004	0	0	0
	Minor	n2	0.005-0.015			
	Appreciable		0.020-0.030			
	Server		0.040-0.060			
Vegetation	Small		0.002-0.010	0.002		
	Medium	n3	0.010-0.025		0.010	0.015
	Large		0.025-0.050			
	Very Large		0.050-0.100			
Variations in the Channel Cross Section	Gradual		0.000		0	0
	Alternating (occasionally)	n4	0.001-0.005	0.001		
	Alternating (frequently)		0.010-0.015			
Degree of Meandering	Minor		1	1	1	1
	Appreciable	m	1.15			
	Server		1.3			
n=(n0+n1+n2+n3+n4)m				0.029	0.035	0.040

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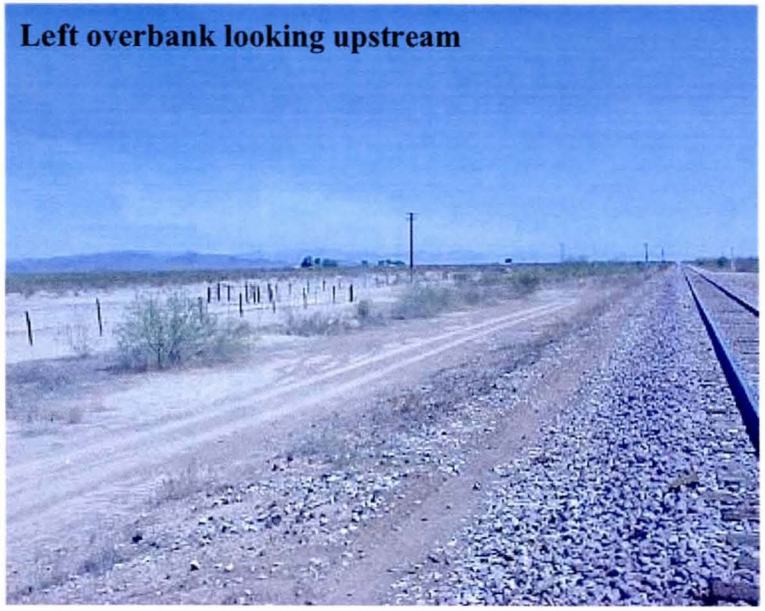
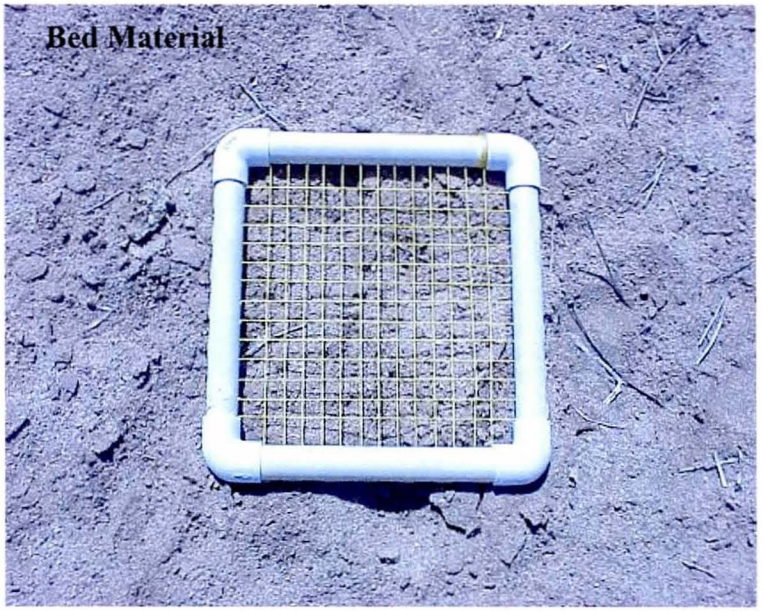
Cross Section #5





Determination of Manning's Roughness Coefficients by FCDMC Method

Project: Aguila ADMP
Stream: Non-detailed Study Area
Location: Cross Section #6

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete		0.012-0.018			
	Rock Cut		0.025			
	Firm Soil	n0	0.025-0.032	0.025	0.025	0.025
	Fine Sand		0.023-0.036			
	Coarse Sand		0.026-0.035			
	Gravel		0.028-0.035			
	Cobble		0.030-0.050			
	Boulder		0.040-0.070			
Degree of Irregularity	Smooth		0.000			
	Minor	n1	0.001-0.005	0.003	0.003	0.003
	Moderate		0.006-0.010			
	Server		0.011-0.020			
Effects of Obstructions	Negligible		0.000-0.004	0	0	0
	Minor	n2	0.005-0.015			
	Appreciable		0.020-0.030			
	Server		0.040-0.060			
Vegetation	Small		0.002-0.010		0.002	
	Medium	n3	0.010-0.025	0.010		0.010
	Large		0.025-0.050			
	Very Large		0.050-0.100			
Variations in the Channel Cross Section	Gradual		0.000	0	0	0
	Alternating (occasionally)	n4	0.001-0.005			
	Alternating (frequently)		0.010-0.015			
Degree of Meandering	Minor		1	1	1	1
	Appreciable	m	1.15			
	Server		1.3			
n=(n0+n1+n2+n3+n4)m				0.038	0.030	0.038

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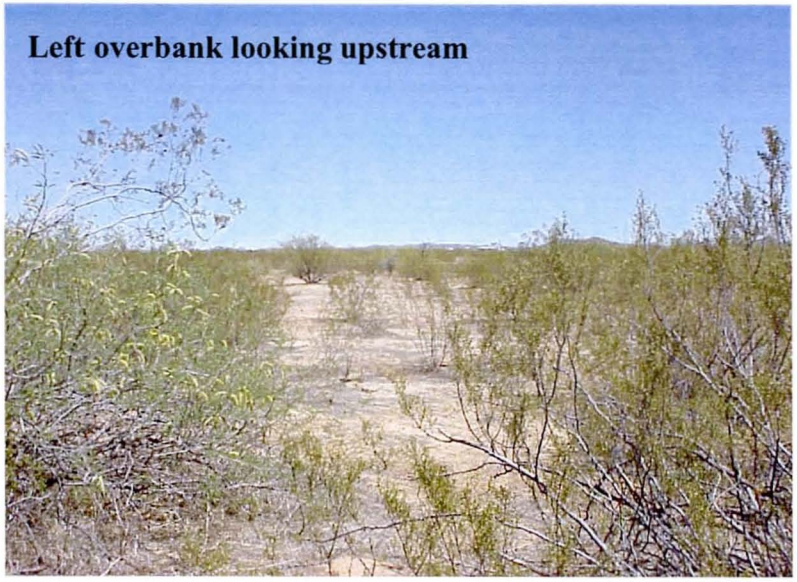
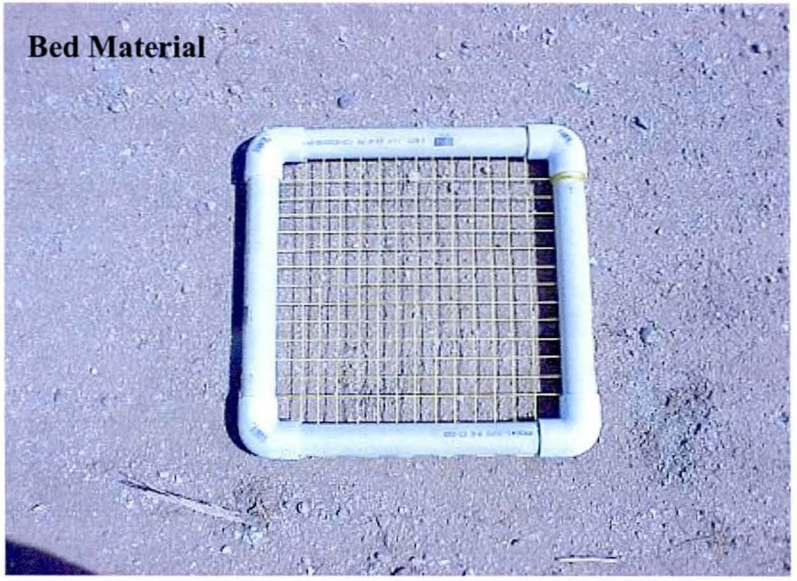
Cross Section #6





Determination of Manning's Roughness Coefficients by FCDMC Method

Project: Aguila ADMP
Stream: Non-detailed Study Area
Location: Cross Section #7

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n0	0.012-0.018			
	Rock Cut		0.025			
	Firm Soil		0.025-0.032	0.025	0.025	0.025
	Fine Sand		0.023-0.036			
	Coarse Sand		0.026-0.035			
	Gravel		0.028-0.035			
	Cobble		0.030-0.050			
	Boulder		0.040-0.070			
Degree of Irregularity	Smooth	n1	0.000			
	Minor		0.001-0.005	0.001	0.001	0.001
	Moderate		0.006-0.010			
	Server		0.011-0.020			
Effects of Obstructions	Negligible	n2	0.000-0.004	0	0	0
	Minor		0.005-0.015			
	Appreciable		0.020-0.030			
	Server		0.040-0.060			
Vegetation	Small	n3	0.002-0.010		0.002	
	Medium		0.010-0.025	0.015		0.015
	Large		0.025-0.050			
	Very Large		0.050-0.100			
Variations in the Channel Cross Section	Gradual	n4	0.000	0		0
	Alternating (occasionally)		0.001-0.005		0.004	
	Alternating (frequently)		0.010-0.015			
Degree of Meandering	Minor	m	1	1	1	1
	Appreciable		1.15			
	Server		1.3			
n=(n0+n1+n2+n3+n4)m				0.041	0.032	0.041

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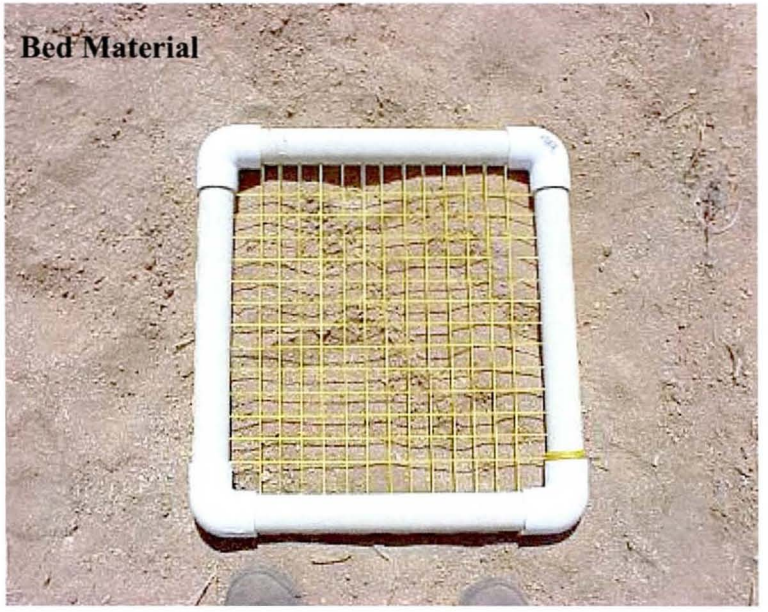
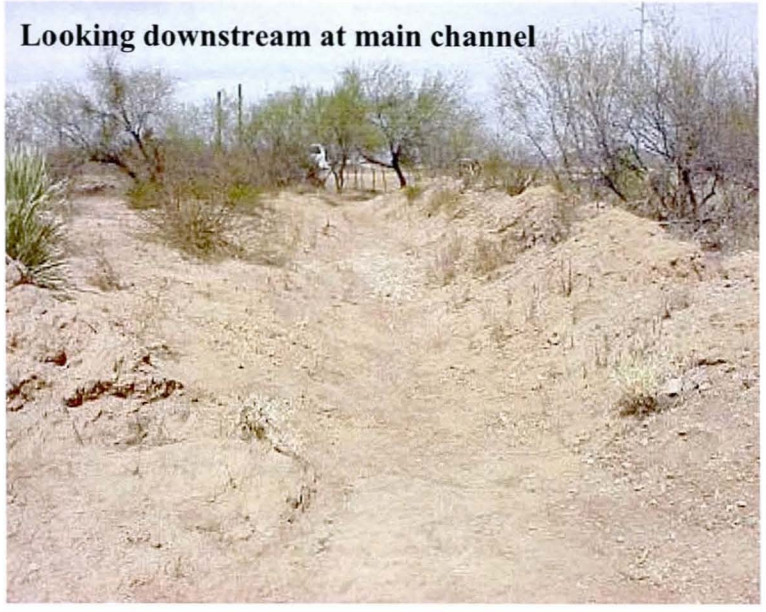
Cross Section #7

Left overbank looking upstream

Bed Material



Looking downstream at main channel



Right overbank looking upstream

Determination of Manning's Roughness Coefficients by FCDMC Method

Project: Aguila ADMP
Stream: Non-detailed Study Area
Location: Cross Section #8

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete		0.012-0.018			
	Rock Cut		0.025			
	Firm Soil	n0	0.025-0.032	0.025	0.025	0.025
	Fine Sand		0.023-0.036			
	Coarse Sand		0.026-0.035			
	Gravel		0.028-0.035			
	Cobble		0.030-0.050			
	Boulder		0.040-0.070			
Degree of Irregularity	Smooth		0.000	0	0	0
	Minor	n1	0.001-0.005			
	Moderate		0.006-0.010			
	Server		0.011-0.020			
Effects of Obstructions	Negligible		0.000-0.004	0	0	0
	Minor	n2	0.005-0.015			
	Appreciable		0.020-0.030			
	Server		0.040-0.060			
Vegetation	Small		0.002-0.010	0.010	0.010	0.010
	Medium	n3	0.010-0.025			
	Large		0.025-0.050			
	Very Large		0.050-0.100			
Variations in the Channel Cross Section	Gradual		0.000	0	0	0
	Alternating (occasionally)	n4	0.001-0.005			
	Alternating (frequently)		0.010-0.015			
Degree of Meandering	Minor		1	1	1	1
	Appreciable	m	1.15			
	Server		1.3			
n=(n0+n1+n2+n3+n4)m				0.035	0.035	0.035

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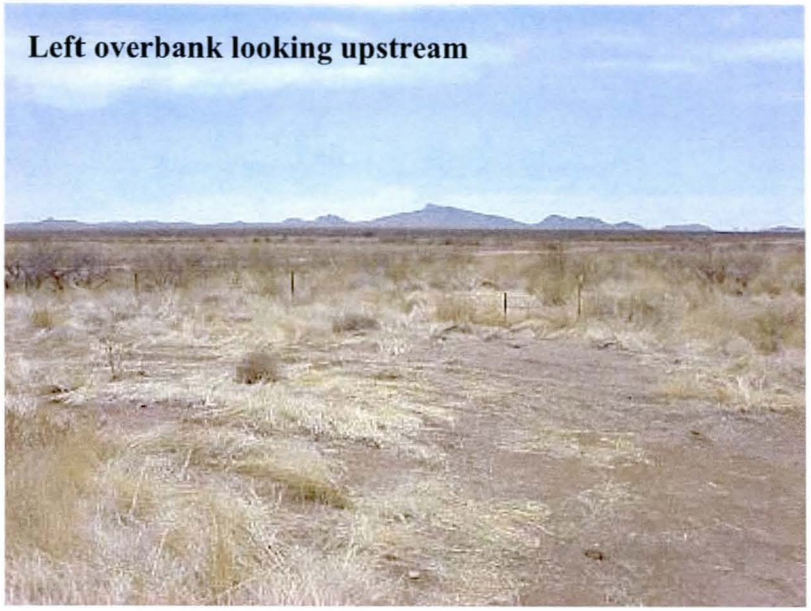
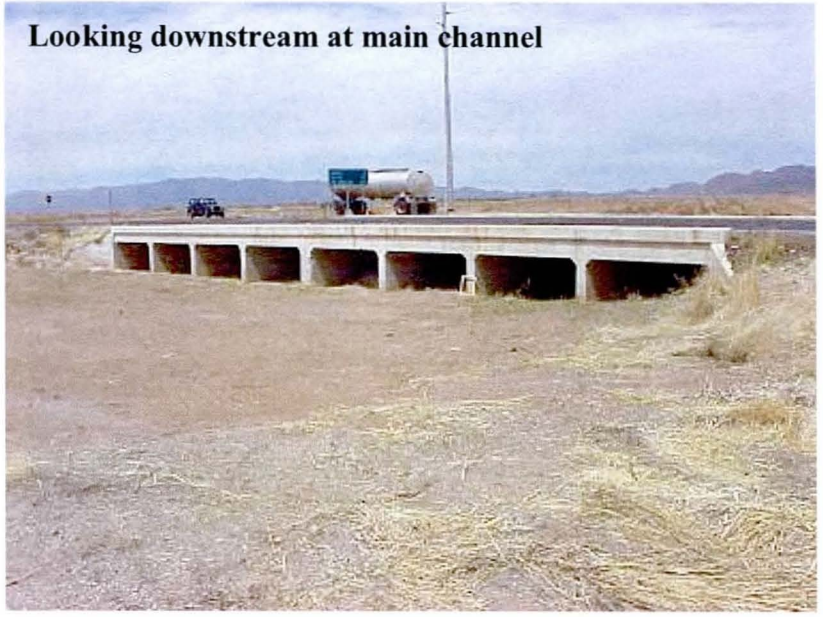
Cross Section #8

Left overbank looking upstream



Bed Material

Looking downstream at main channel



Right overbank looking upstream

Determination of Manning's Roughness Coefficients by FCDMC Method

Project: Aguila ADMP
Stream: Non-detailed Study Area
Location: Cross Section #9

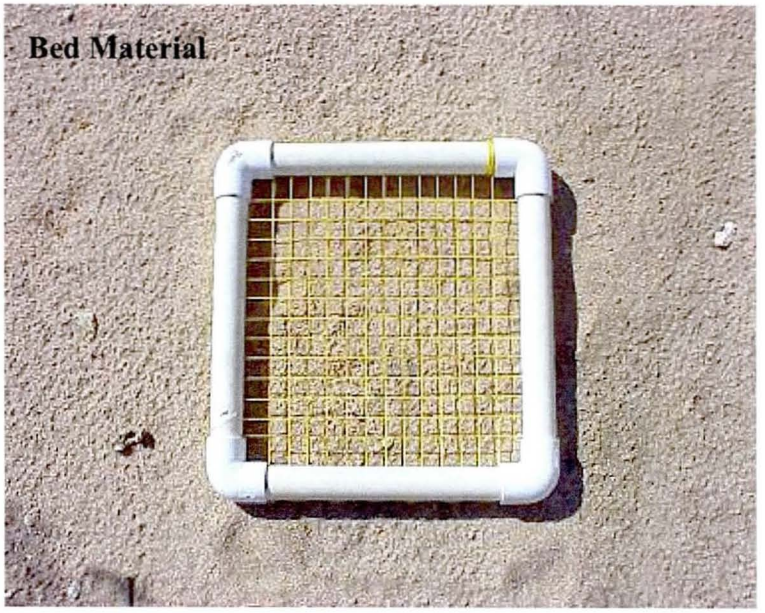
Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete		0.012-0.018			
	Rock Cut		0.025			
	Firm Soil	n0	0.025-0.032	0.025	0.025	0.025
	Fine Sand		0.023-0.036			
	Coarse Sand		0.026-0.035			
	Gravel		0.028-0.035			
	Cobble		0.030-0.050			
	Boulder		0.040-0.070			
Degree of Irregularity	Smooth		0.000			
	Minor	n1	0.001-0.005	0.003	0.003	0.003
	Moderate		0.006-0.010			
	Server		0.011-0.020			
Effects of Obstructions	Negligible		0.000-0.004	0	0	0
	Minor	n2	0.005-0.015			
	Appreciable		0.020-0.030			
	Server		0.040-0.060			
Vegetation	Small		0.002-0.010		0.002	
	Medium	n3	0.010-0.025	0.010		0.010
	Large		0.025-0.050			
	Very Large		0.050-0.100			
Variations in the Channel Cross Section	Gradual		0.000	0	0	0
	Alternating (occasionally)	n4	0.001-0.005			
	Alternating (frequently)		0.010-0.015			
Degree of Meandering	Minor		1	1	1	1
	Appreciable	m	1.15			
	Server		1.3			
n=(n0+n1+n2+n3+n4)m				0.038	0.030	0.038

RWC/mrm 6/14/2000

Cross Section #9

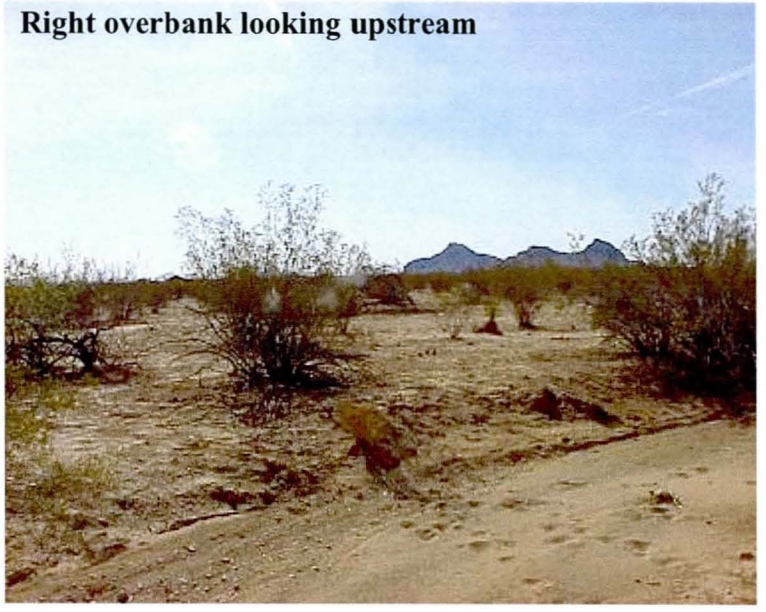
Left Overbank Looking Upstream

Bed Material



Looking downstream at main channel

Right overbank looking upstream



Determination of Manning's Roughness Coefficients by FCDMC Method

Project: Aguila ADMP
Stream: Non-detailed Study Area
Location: Cross Section #10

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n0	0.012-0.018			
	Rock Cut		0.025			
	Firm Soil		0.025-0.032	0.025	0.025	0.025
	Fine Sand		0.023-0.036			
	Coarse Sand		0.026-0.035			
	Gravel		0.028-0.035			
	Cobble		0.030-0.050			
	Boulder		0.040-0.070			
Degree of Irregularity	Smooth	n1	0.000	0		0
	Minor		0.001-0.005		0.001	
	Moderate		0.006-0.010			
	Server		0.011-0.020			
Effects of Obstructions	Negligible	n2	0.000-0.004	0	0	0
	Minor		0.005-0.015			
	Appreciable		0.020-0.030			
	Server		0.040-0.060			
Vegetation	Small	n3	0.002-0.010	0.010	0.002	0.010
	Medium		0.010-0.025			
	Large		0.025-0.050			
	Very Large		0.050-0.100			
Variations in the Channel Cross Section	Gradual	n4	0.000	0	0	0
	Alternating (occasionally)		0.001-0.005			
	Alternating (frequently)		0.010-0.015			
Degree of Meandering	Minor	m	1	1	1	1
	Appreciable		1.15			
	Server		1.3			
n=(n0+n1+n2+n3+n4)m				0.035	0.028	0.035

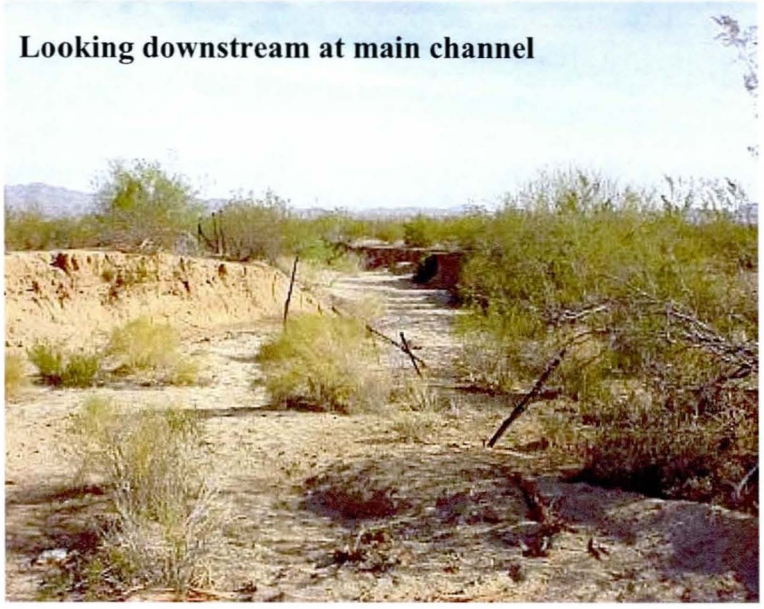
RWC/mrm 6/14/2000

Cross Section #10

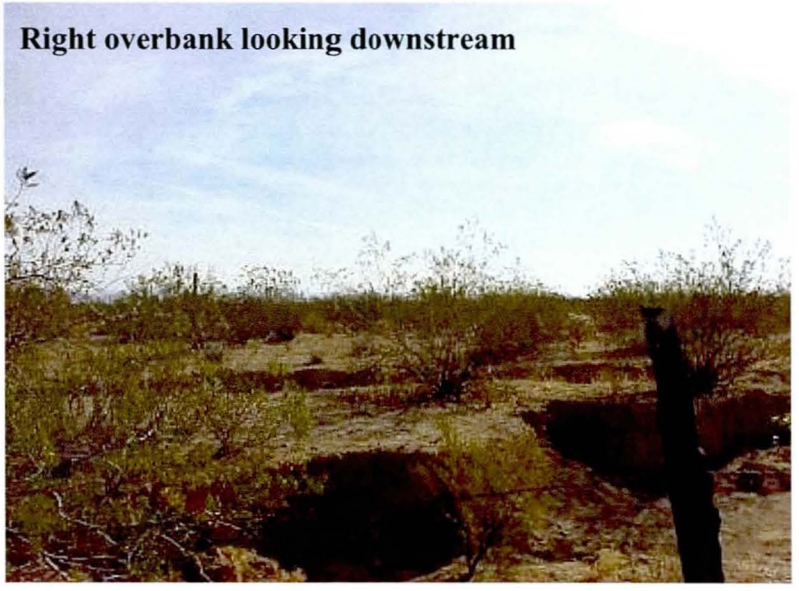
Left overbank looking downstream

Bed Material

Looking downstream at main channel



Right overbank looking downstream



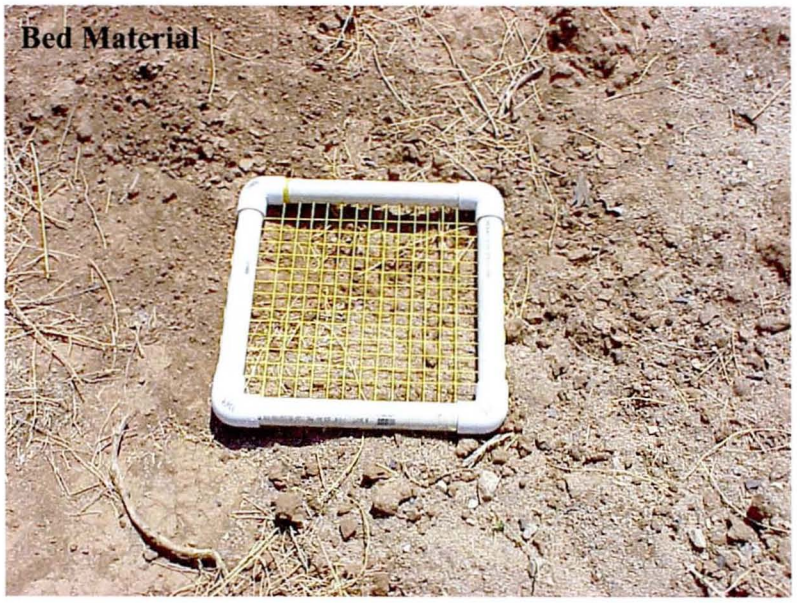
Determination of Manning's Roughness Coefficients by FCDMC Method

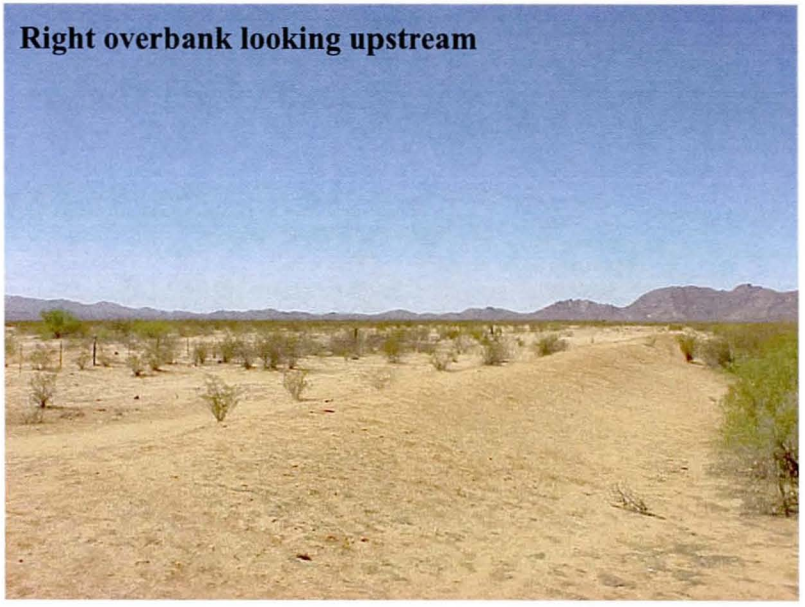
Project: Aguila ADMP
Stream: Non-detailed Study Area
Location: Cross Section #11

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete		0.012-0.018			
	Rock Cut		0.025			
	Firm Soil	n0	0.025-0.032	0.025	0.025	0.025
	Fine Sand		0.023-0.036			
	Coarse Sand		0.026-0.035			
	Gravel		0.028-0.035			
	Cobble		0.030-0.050			
	Boulder		0.040-0.070			
Degree of Irregularity	Smooth		0.000		0	
	Minor	n1	0.001-0.005			
	Moderate		0.006-0.010	0.010		0.010
	Server		0.011-0.020			
Effects of Obstructions	Negligible		0.000-0.004	0	0	0
	Minor	n2	0.005-0.015			
	Appreciable		0.020-0.030			
	Server		0.040-0.060			
Vegetation	Small		0.002-0.010	0.01	0	0.01
	Medium	n3	0.010-0.025			
	Large		0.025-0.050			
	Very Large		0.050-0.100			
Variations in the Channel Cross Section	Gradual		0.000	0	0	0
	Alternating (occasionally)	n4	0.001-0.005			
	Alternating (frequently)		0.010-0.015			
Degree of Meandering	Minor		1	1	1	1
	Appreciable	m	1.15			
	Server		1.3			
n=(n0+n1+n2+n3+n4)m				0.045	0.025	0.045

RWC/mrm 6/14/2000

Cross Section #11





Determination of Manning's Roughness Coefficients by FCDMC Method

Project: Aguila ADMP
Stream: Non-detailed Study Area
Location: Cross Section #12

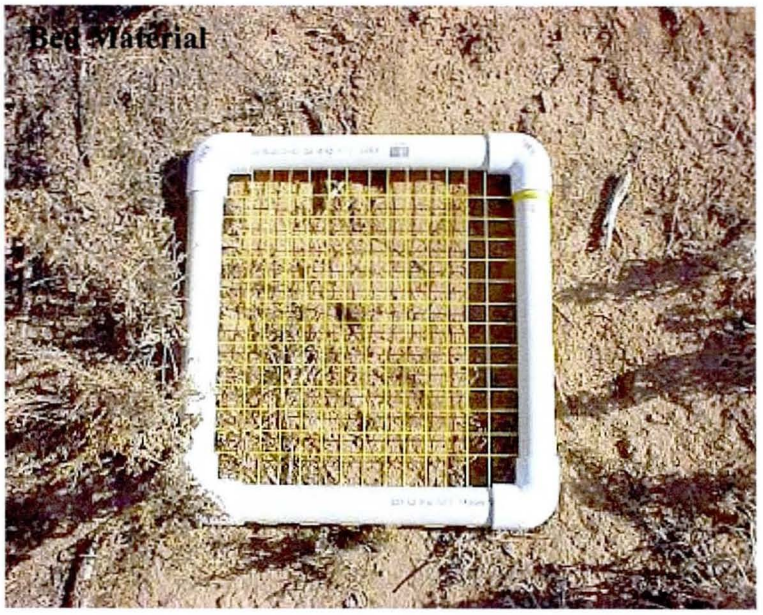
Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n0	0.012-0.018			
	Rock Cut		0.025			
	Firm Soil		0.025-0.032	0.025	0.025	0.025
	Fine Sand		0.023-0.036			
	Coarse Sand		0.026-0.035			
	Gravel		0.028-0.035			
	Cobble		0.030-0.050			
	Boulder		0.040-0.070			
Degree of Irregularity	Smooth	n1	0.000	0	0	0
	Minor		0.001-0.005			
	Moderate		0.006-0.010			
	Server		0.011-0.020			
Effects of Obstructions	Negligible	n2	0.000-0.004	0	0.002	0
	Minor		0.005-0.015			
	Appreciable		0.020-0.030			
	Server		0.040-0.060			
Vegetation	Small	n3	0.002-0.010	0.010	0.002	0.010
	Medium		0.010-0.025			
	Large		0.025-0.050			
	Very Large		0.050-0.100			
Variations in the Channel Cross Section	Gradual	n4	0.000	0	0	0
	Alternating (occasionally)		0.001-0.005			
	Alternating (frequently)		0.010-0.015			
Degree of Meandering	Minor	m	1	1	1	1
	Appreciable		1.15			
	Server		1.3			
n=(n0+n1+n2+n3+n4)m				0.035	0.029	0.035

RWC/mrm 6/14/2000

Cross Section #12

Left overbank looking upstream

Bed Material



Looking upstream at main channel

Right overbank looking upstream

Determination of Manning's Roughness Coefficients by FCDMC Method

Project: Aguila ADMP
Stream: Non-detailed Study Area
Location: Point #13

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete		0.012-0.018			
	Rock Cut		0.025			
	Firm Soil	n0	0.025-0.032	0.025	0.025	0.025
	Fine Sand		0.023-0.036			
	Coarse Sand		0.026-0.035			
	Gravel		0.028-0.035			
	Cobble		0.030-0.050			
	Boulder		0.040-0.070			
Degree of Irregularity	Smooth		0.000			
	Minor	n1	0.001-0.005			
	Moderate		0.006-0.010	0.01	0.01	0.01
	Server		0.011-0.020			
Effects of Obstructions	Negligible		0.000-0.004	0	0	0
	Minor	n2	0.005-0.015			
	Appreciable		0.020-0.030			
	Server		0.040-0.060			
Vegetation	Small		0.002-0.010			
	Medium	n3	0.010-0.025			
*Assume cultivated field in production	Large		0.025-0.050	0.050	0.050	0.050
	Very Large		0.050-0.100			
Variations in the Channel Cross Section	Gradual		0.000	0	0	0
	Alternating (occasionally)	n4	0.001-0.005			
	Alternating (frequently)		0.010-0.015			
Degree of Meandering	Minor		1	1	1	1
	Appreciable	m	1.15			
	Server		1.3			
n=(n0+n1+n2+n3+n4)m				0.085	0.085	0.085

RWC/mrm 6/14/2000

Point #13

Northwest view towards agricultural fields

Northeast view towards agricultural fields

Southwest view towards agricultural fields

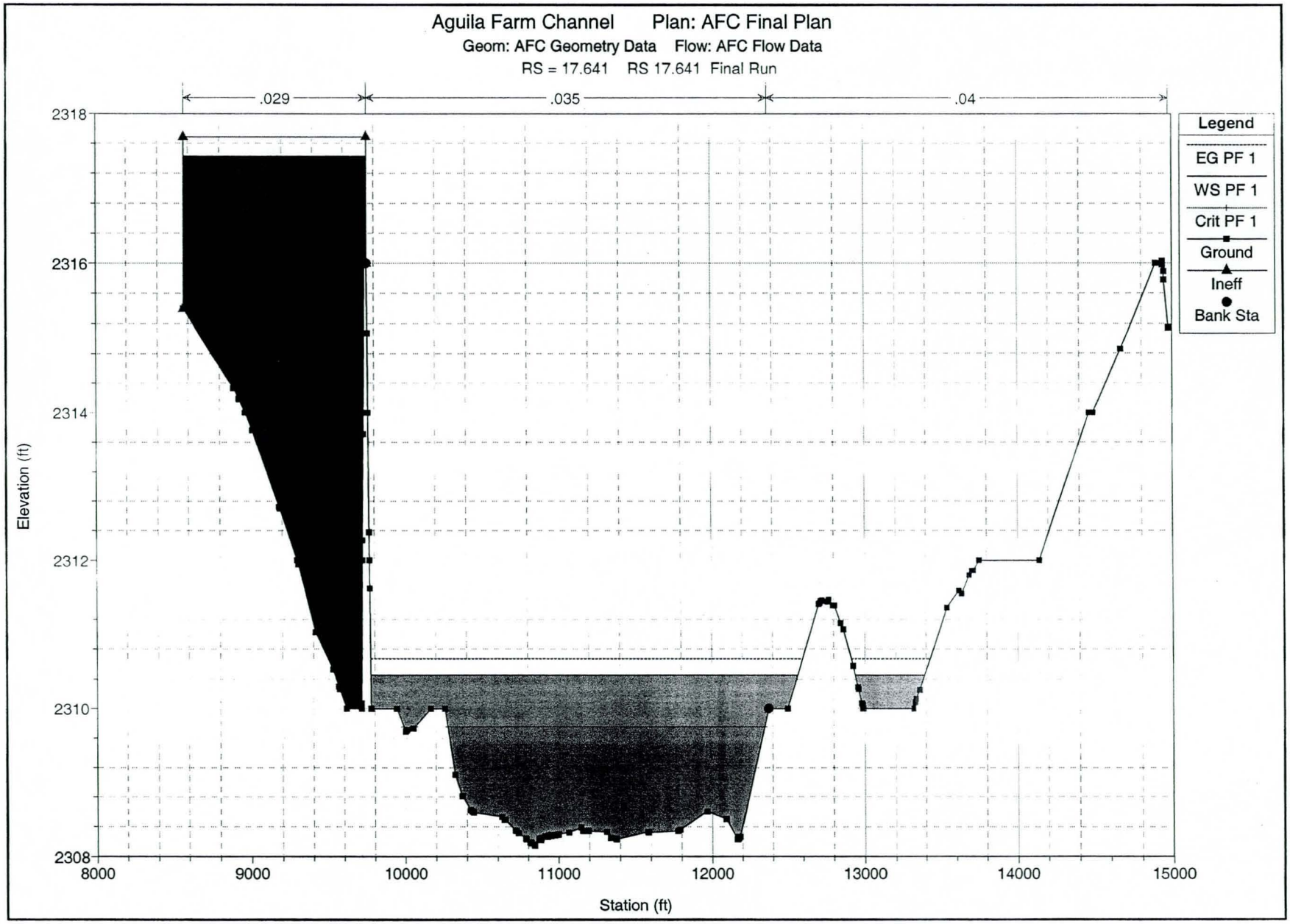
Southeast view towards agricultural fields

HEC-RAS Plan: AFC River: Aguila Farm Chan Reach: Reach-1 Profile: PF 1

Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
Reach-1	17.641	16900.00	2310.46	2309.75	3.77	3246.31	2.31	0.51	9773.87	13392.13
Reach-1	17.547	16900.00	2308.34	2307.55	3.83	3579.28	2.83	0.55	9638.48	13220.99
Reach-1	17.449	16900.00	2305.55	2305.12	4.69	2459.28	3.54	0.63	9054.11	11513.39
Reach-1	17.357	16900.00	2303.65	2302.79	3.80	2516.16	3.33	0.46	8793.50	11309.66
Reach-1	17.259	16900.00	2302.16	2301.20	3.69	2615.94	2.93	0.45	8949.97	11565.91
Reach-1	17.161	16900.00	2300.55	2299.72	3.89	2516.51	2.89	0.48	9059.02	11575.53
Reach-1	17.066	16900.00	2298.82	2298.04	4.41	2306.36	4.82	0.51	9850.49	12229.49
Reach-1	16.972	16900.00	2296.84	2296.15	4.81	1727.52	4.84	0.56	9912.03	11910.51
Reach-1	16.876	16900.00	2295.45	2293.88	4.54	1671.09	5.45	0.42	9394.49	11189.59
Reach-1	16.781	16900.00	2294.42	2292.75	4.39	1957.91	6.42	0.43	9886.88	11844.79
Reach-1	16.682	16900.00	2293.03	2291.84	6.01	2129.53	7.03	0.50	9883.68	12013.21
Reach-1	16.590	16900.00	2291.33	2290.52	7.24	2868.84	7.33	0.62	9878.78	12747.61
Reach-1	16.498	16900.00	2289.63	2287.83	6.13	2864.82	7.63	0.51	9874.40	12739.22
Reach-1	16.403	16900.00	2288.24	2287.23	5.47	3214.10	6.24	0.50	9846.57	13060.67
Reach-1	16.307	16900.00	2286.45	2286.16	6.46	3044.74	6.45	0.56	9823.09	12867.83
Reach-1	16.210	16900.00	2284.57	2284.24	6.48	3000.70	6.57	0.59	9817.01	12817.71
Reach-1	16.117	16900.00	2282.73	2282.26	5.64	2705.63	6.73	0.52	9810.58	12675.12
Reach-1	16.021	16900.00	2280.89	2280.61	8.29	2594.57	4.89	0.75	9967.50	12584.77
Reach-1	15.924	16900.00	2278.75	2278.75	8.45	2499.78	6.75	0.72	9971.87	12531.78
Reach-1	15.828	16900.00	2277.07	2276.67	6.49	2695.99	7.07	0.61	9815.60	12511.59
Reach-1	15.736	16900.00	2275.59	2275.19	6.85	2632.32	5.59	0.70	9810.76	12456.75
Reach-1	15.642	16900.00	2273.82	2273.19	5.53	2465.85	5.82	0.66	9822.72	12318.36
Reach-1	15.547	16900.00	2272.03	2271.29	3.88	2426.89	4.03	0.61	9810.99	12264.57
Reach-1	15.448	16900.00	2270.22	2269.27	4.92	2568.05	4.22	0.62	9977.36	12545.41
Reach-1	15.358	16900.00	2268.14	2267.35	5.65	2611.49	3.04	0.77	9971.55	12583.04
Reach-1	15.265	16900.00	2266.15	2265.20	6.07	2437.38	4.15	0.64	9975.05	12412.43
Reach-1	15.166	16900.00	2264.52	2263.63	5.99	2632.72	4.15	0.66	9969.07	12601.79
Reach-1	15.074	16900.00	2262.73	2261.84	5.45	2589.74	2.73	0.66	9981.84	12571.58
Reach-1	14.976	16900.00	2261.01	2259.98	5.73	2170.69	3.01	0.64	9973.52	12144.21
Reach-1	14.884	16900.00	2259.48	2258.39	5.13	1851.55	3.48	0.57	9661.76	11513.31
Reach-1	14.787	16900.00	2258.12	2256.92	6.55	1738.39	4.12	0.63	9975.75	11714.14
Reach-1	14.689	16900.00	2256.66	2255.66	5.79	2136.24	2.86	0.65	9938.77	12075.01
Reach-1	14.596	16900.00	2254.52	2253.82	6.44	2036.77	2.52	0.79	9968.42	12005.19
Reach-1	14.498	16900.00	2252.62	2251.89	5.74	1899.47	4.12	0.60	9521.67	11421.15
Reach-1	14.402	16900.00	2251.14	2250.42	8.08	1780.55	5.14	0.70	9958.90	11739.44
Reach-1	14.300	16900.00	2248.99	2248.61	9.01	1678.43	4.99	0.84	9976.31	11654.73

HEC-RAS Plan: AFC River: Aguila Farm Chan Reach: Reach-1 Profile: PF 1 (Continued)

Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
Reach-1	14.202	16900.00	2247.12	2246.48	6.79	1723.52	3.69	0.64	9958.72	11682.23
Reach-1	14.114	16900.00	2245.78	2244.84	6.81	1718.10	5.78	0.66	9950.70	11668.80
Reach-1	14.013	16900.00	2244.12	2243.18	8.24	1638.56	6.12	0.71	9980.02	11618.57
Reach-1	13.913	16900.00	2242.67	2241.49	6.58	1591.99	5.85	0.58	9963.88	11555.86
Reach-1	13.822	16900.00	2240.56	2240.56	11.02	1461.74	8.56	0.84	9972.33	11434.06
Reach-1	13.726	16900.00	2239.08	2235.25	7.14	1368.17	13.08	0.54	9957.06	11382.14
Reach-1	13.629	16900.00	2237.57	2236.89	8.93	1369.21	8.38	0.69	9975.17	11344.38
Reach-1	13.534	16900.00	2236.03	2235.55	8.24	1461.43	8.03	0.66	9972.79	11434.22
Reach-1	13.438	16900.00	2235.00	2233.94	7.70	1646.23	9.00	0.62	9954.10	11613.07
Reach-1	13.345	16900.00	2233.33	2232.50	8.01	1516.08	5.33	0.75	9966.98	11483.06
Reach-1	13.250	16900.00	2231.74	2230.49	7.93	1528.27	5.74	0.65	9967.34	11495.61
Reach-1	13.155	16900.00	2230.11	2229.20	8.32	1550.87	6.11	0.72	9958.23	11509.10
Reach-1	13.059	16900.00	2228.37	2227.49	8.59	1448.61	8.37	0.69	9952.24	11400.85
Reach-1	12.961	16900.00	2226.86	2225.75	8.37	1476.01	7.18	0.68	9962.34	11438.35
Reach-1	12.870	16900.00	2225.17	2224.68	9.18	1509.82	7.17	0.75	9955.49	11465.31
Reach-1	12.775	16900.00	2223.40	2222.78	8.83	1600.15	7.40	0.75	9958.38	11558.53
Reach-1	12.680	16900.00	2221.71	2220.84	7.90	1638.18	7.71	0.69	9960.90	11599.08
Reach-1	12.585	16900.00	2220.05	2219.34	9.31	1646.78	8.04	0.74	9947.80	11594.58
Reach-1	12.491	16900.00	2217.91	2217.42	9.18	1532.74	7.91	0.79	9974.59	11507.32
Reach-1	12.395	16900.00	2216.28	2215.25	8.95	1964.18	6.28	0.69	9951.08	11915.26
Reach-1	12.300	16900.00	2214.22	2213.64	10.92	1804.32	8.22	0.83	9954.62	11758.94
Reach-1	12.206	16900.00	2211.38	2211.03	8.61	2464.49	7.38	0.84	9963.05	12427.53
Reach-1	12.105	16900.00	2209.78	2209.39	9.19	2304.44	5.78	0.81	9966.92	12271.37
Reach-1	12.010	16900.00	2208.36	2207.83	8.73	2243.72	6.36	0.72	9973.92	12217.63
Reach-1	11.912	16900.00	2206.91	2206.27	7.84	2331.82	6.91	0.62	9963.45	12295.27
Reach-1	11.815	16900.00	2206.02	2204.98	5.97	2702.61	6.02	0.52	9959.07	12661.68
Reach-1	11.713	16900.00	2205.94	2203.75	3.78	2752.71	5.93	0.31	9966.64	12719.35
Reach-1	11.621	16900.00	2205.86	2200.46	3.25	2842.97	13.86	0.18	9947.69	12790.66
Reach-1	11.579	16900.00	2205.70	2203.35	4.24	2570.40	15.70	0.31	9688.29	12258.69
Reach-1	11.571	Culvert								
Reach-1	11.541	16900.00	2203.19	2194.80	3.05	1900.93	15.19	0.17	1127.51	3028.44
Reach-1	11.523	16900.00	2200.75	2199.01	8.77	2083.19	12.75	0.53	9935.90	12019.08
Reach-1	11.468	16900.00	2199.49	2199.49	8.93	2299.52	11.50	0.61	9937.17	12236.68
Reach-1	11.378	16900.00	2198.75	2197.80	6.09	4143.52	10.76	0.37	9953.76	14097.27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.035
.04
Legend
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WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2318
2316
2314
2312
2310
2308
8000
9000
10000
11000
12000
13000
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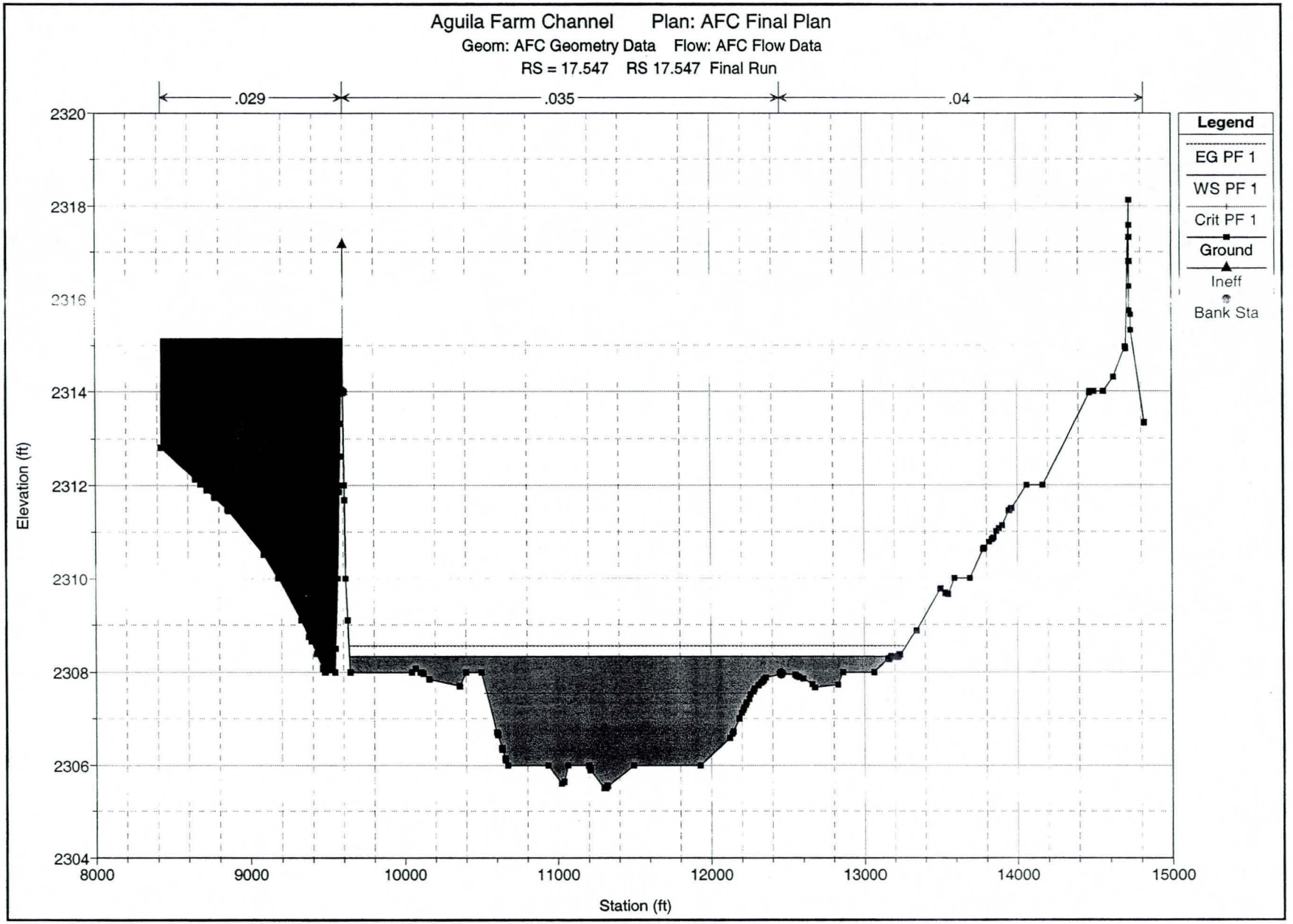
15000
Station (ft)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.035
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Legend
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WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
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2318
2316
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2304
8000
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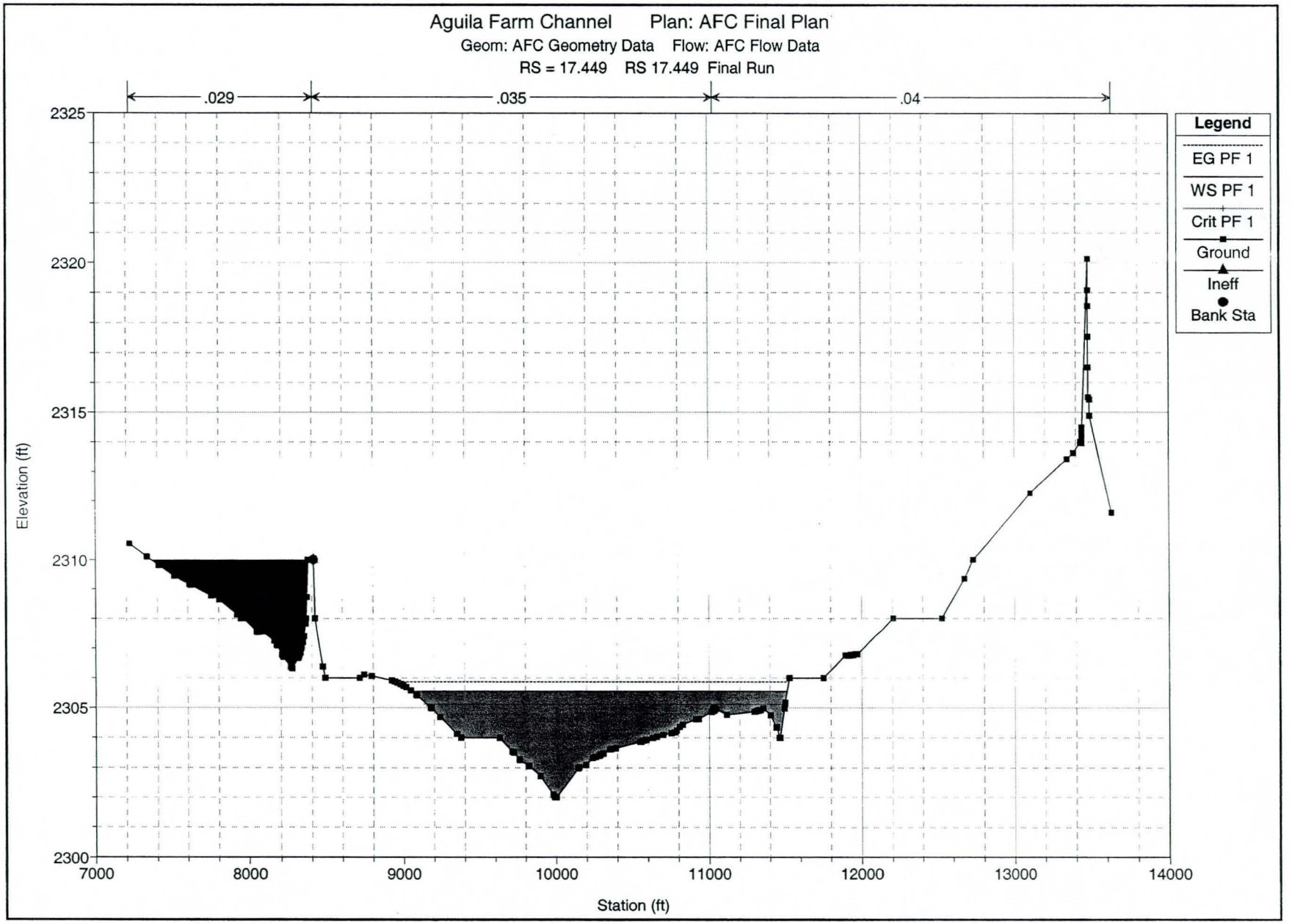
14000
15000
Station (ft)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Geom: AFC Geometry Data Flow: AFC Flow Data
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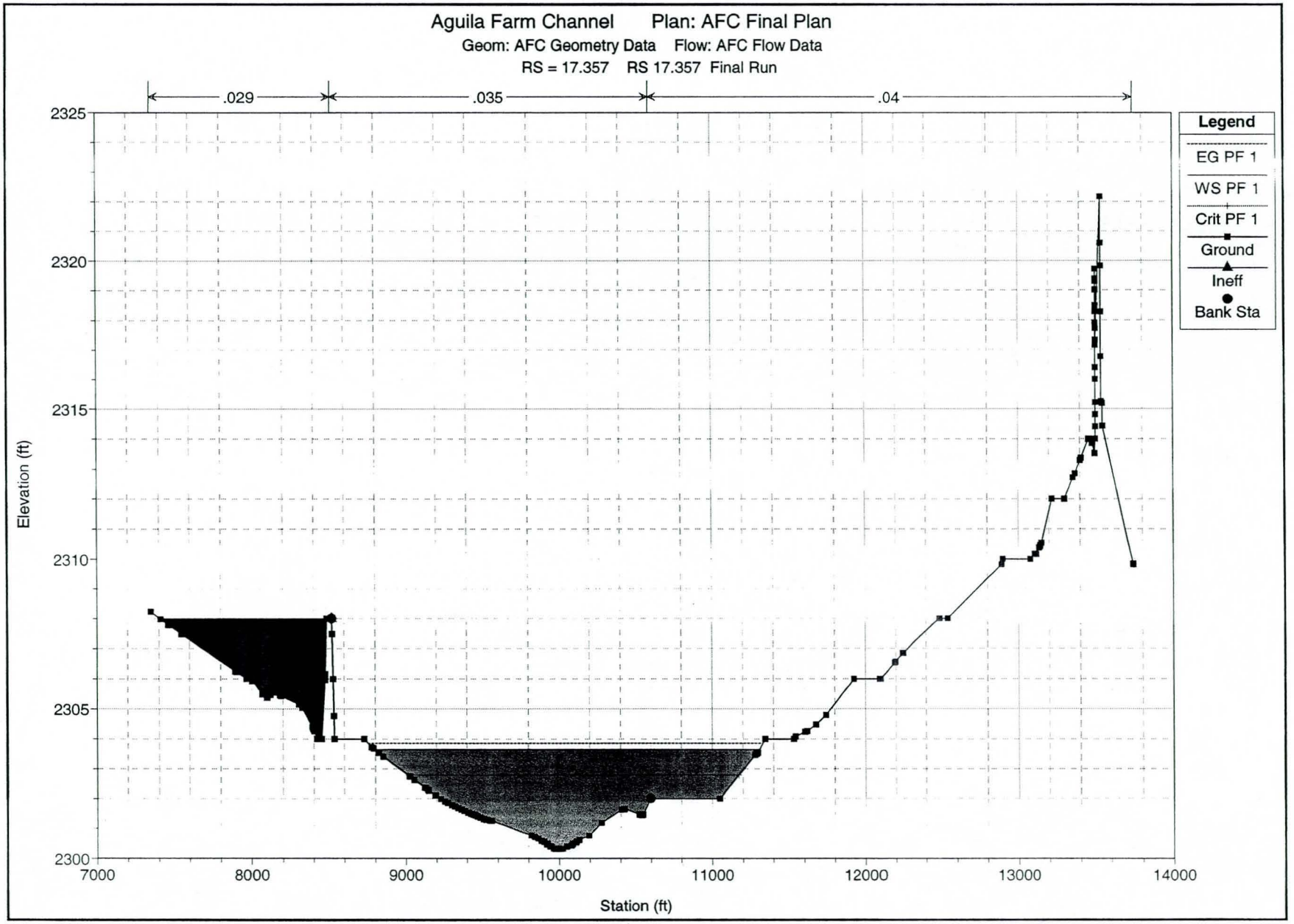
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2325
2320
2315
2310
2305
2300
7000
8000
9000
10000
11000
12000
13000
14000
Station (ft)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Geom: AFC Geometry Data Flow: AFC Flow Data
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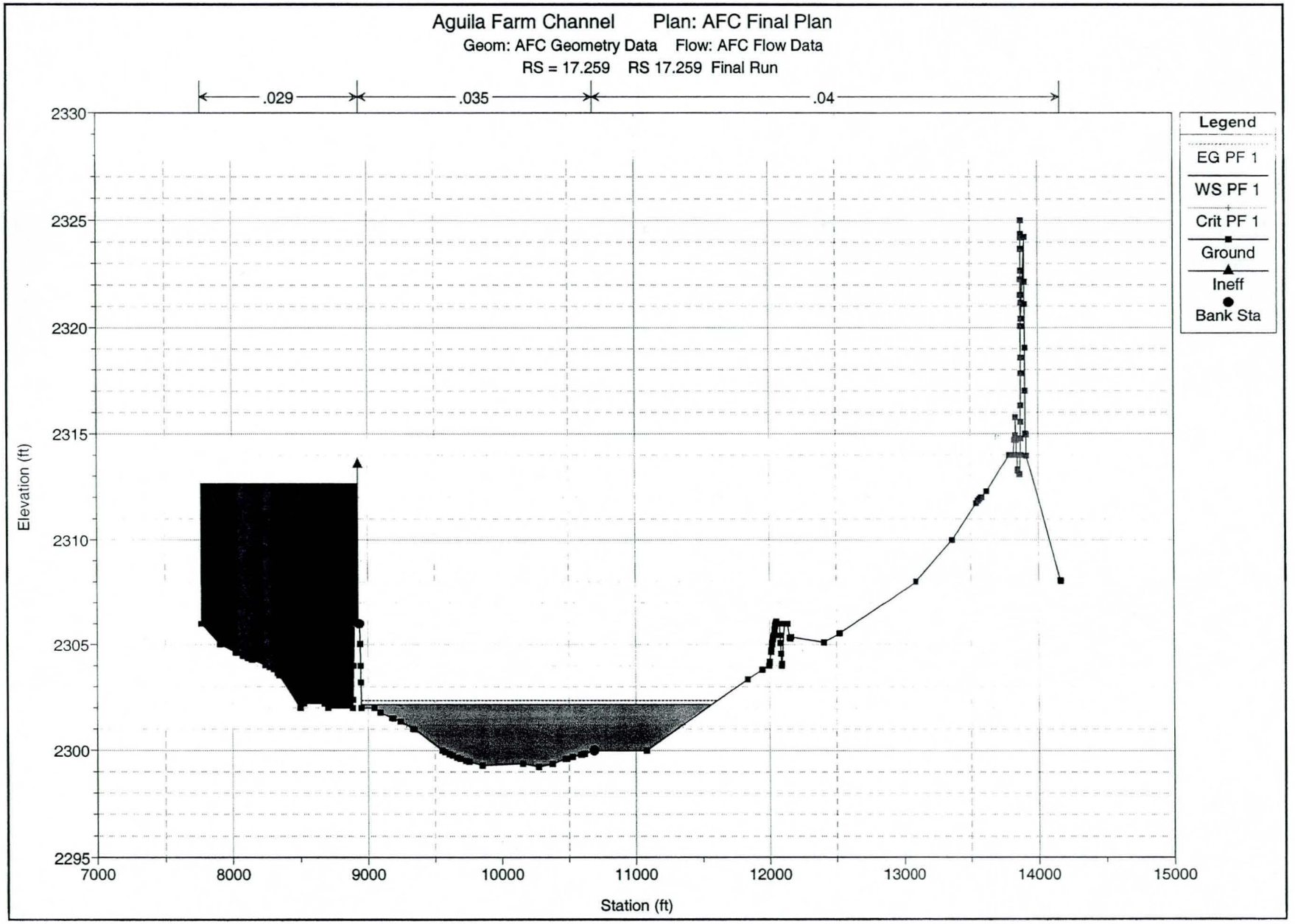
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2325
2320
2315
2310
2305
2300
7000
8000
9000
10000
11000
12000
13000
14000
Station (ft)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Geom: AFC Geometry Data Flow: AFC Flow Data
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.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2330
2325
2320
2315
2310
2305
2300
2295
7000
8000
9000
10000
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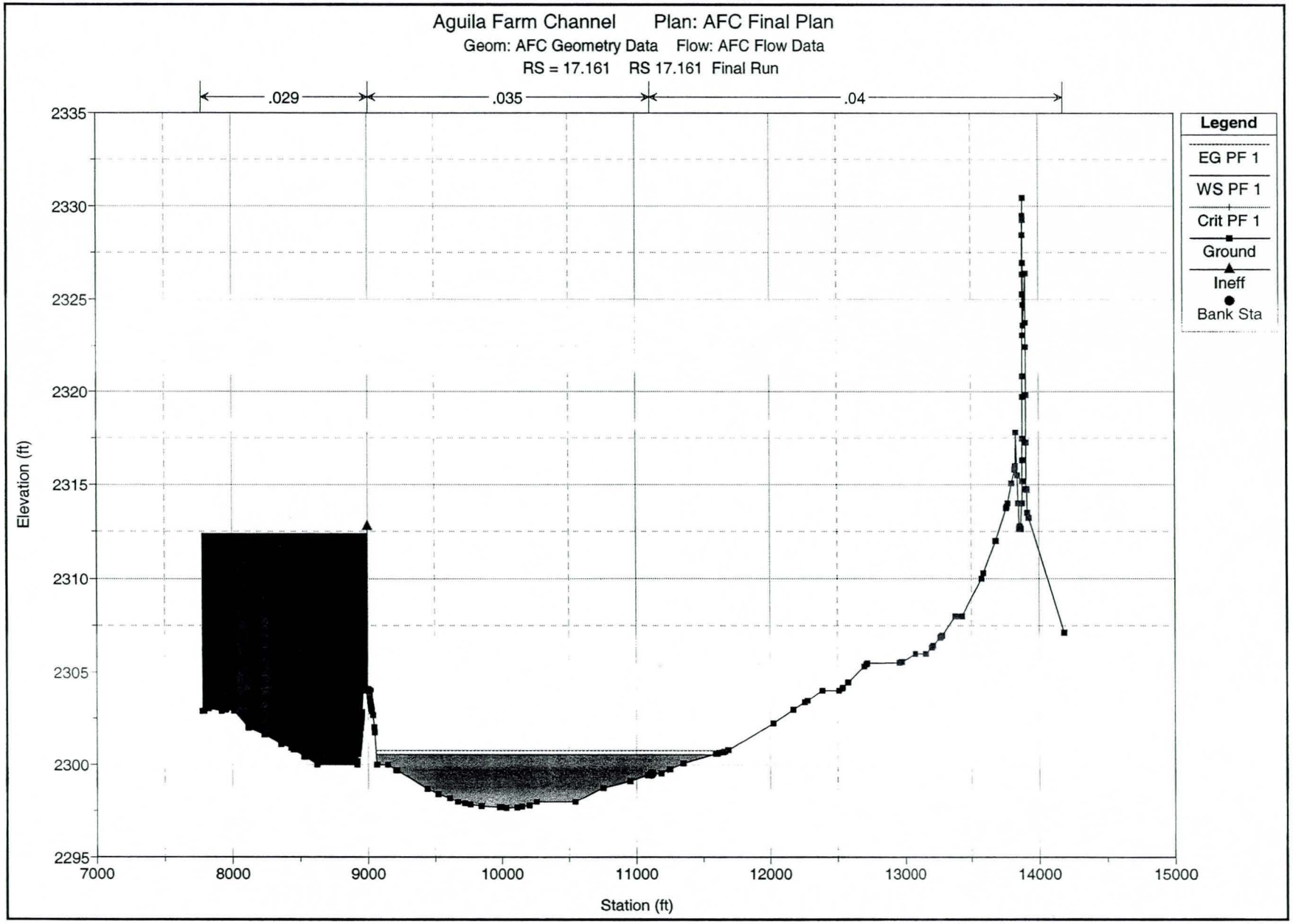
14000
15000
Station (ft)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Geom: AFC Geometry Data Flow: AFC Flow Data
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.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2335
2330
2325
2320
2315
2310
2305
2300
2295
7000
8000
9000
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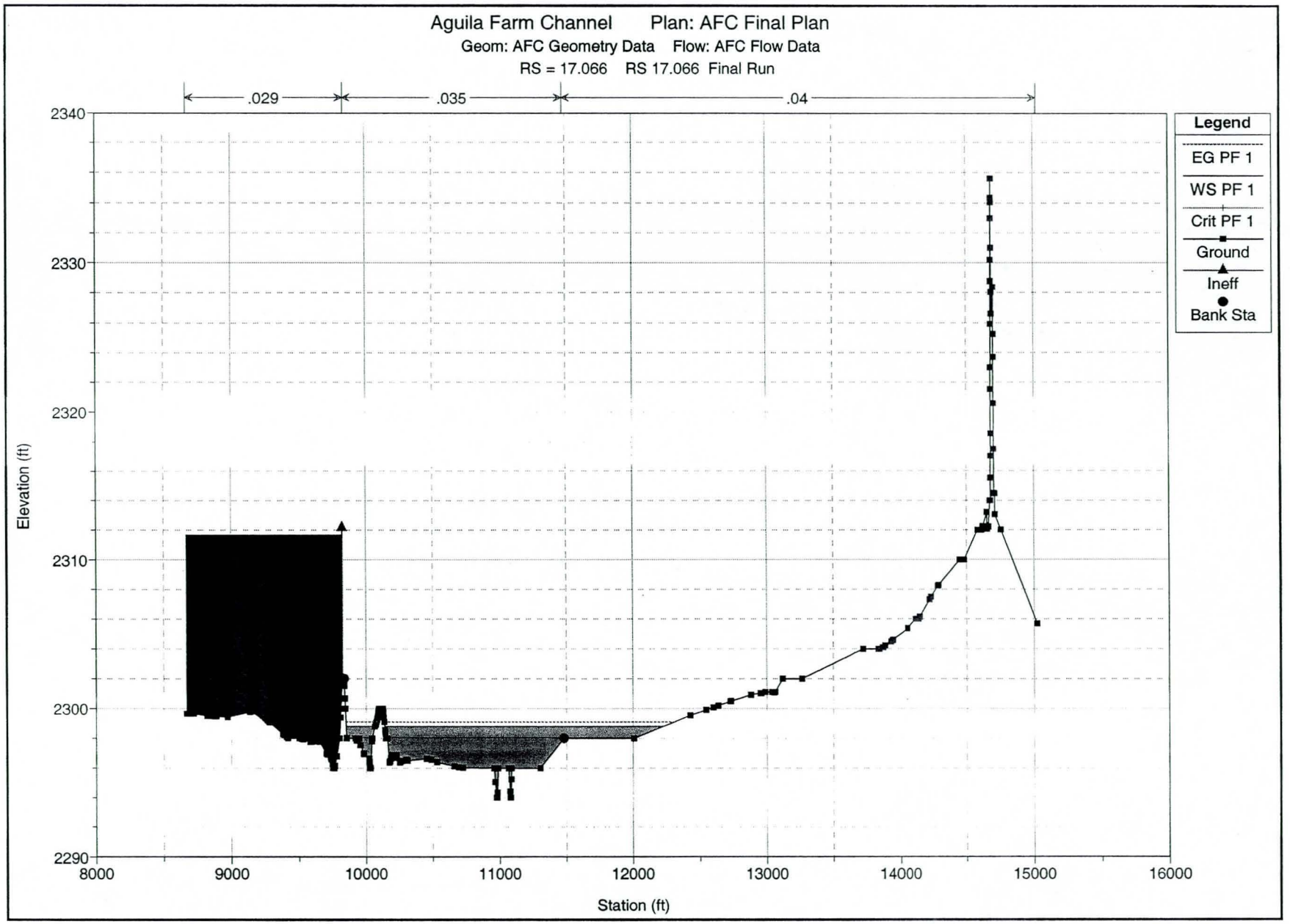
14000
15000
Station (ft)


Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
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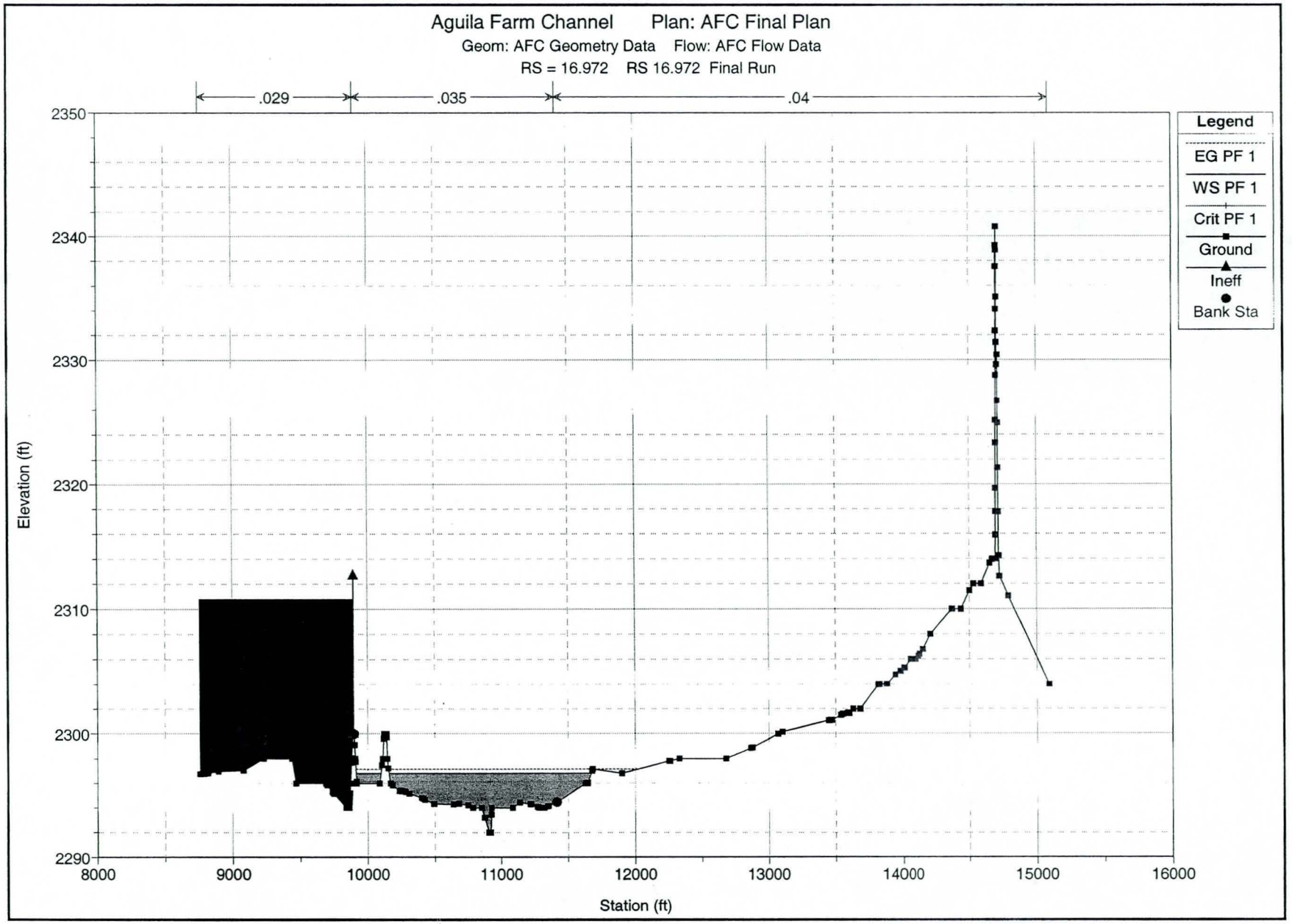
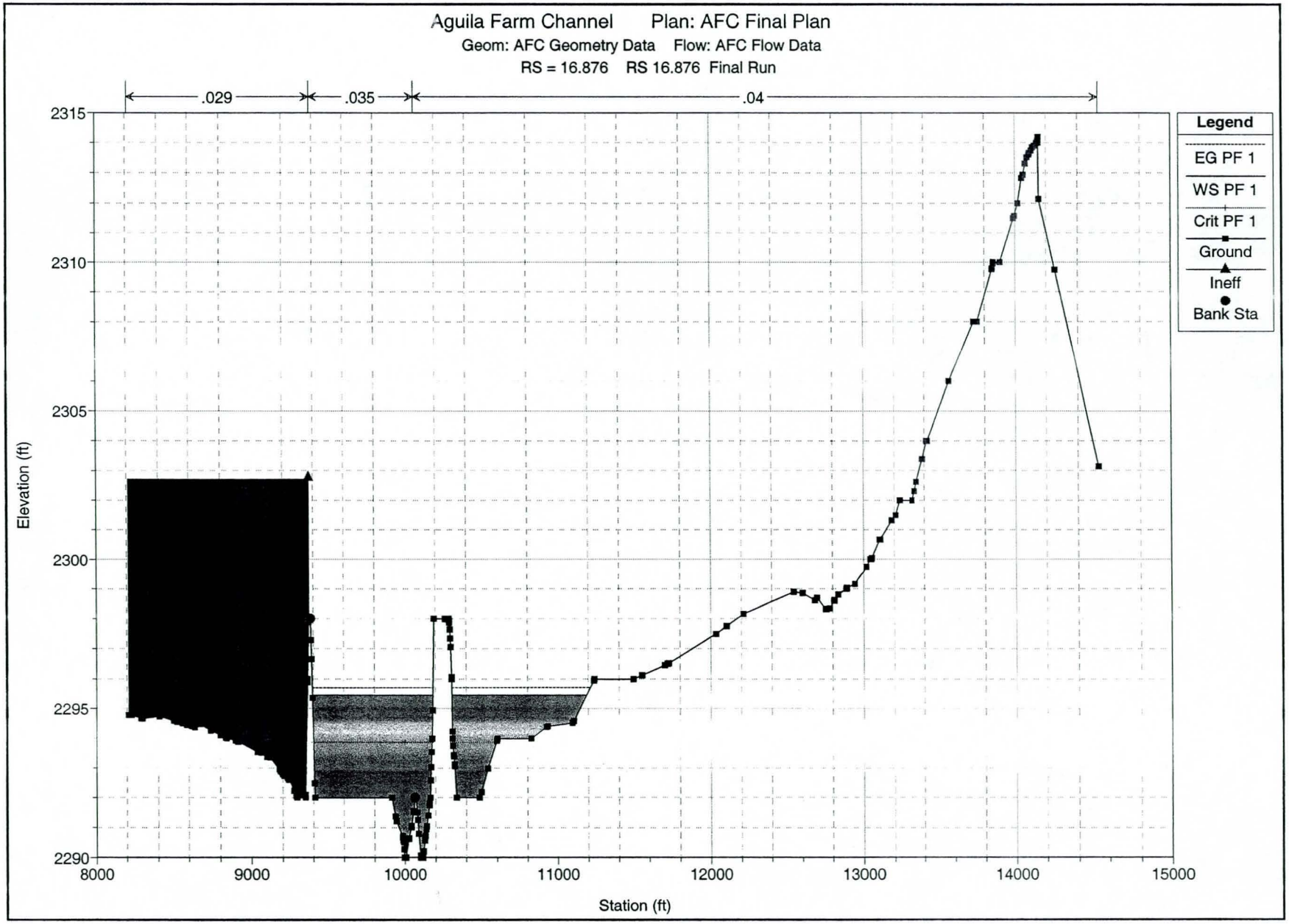
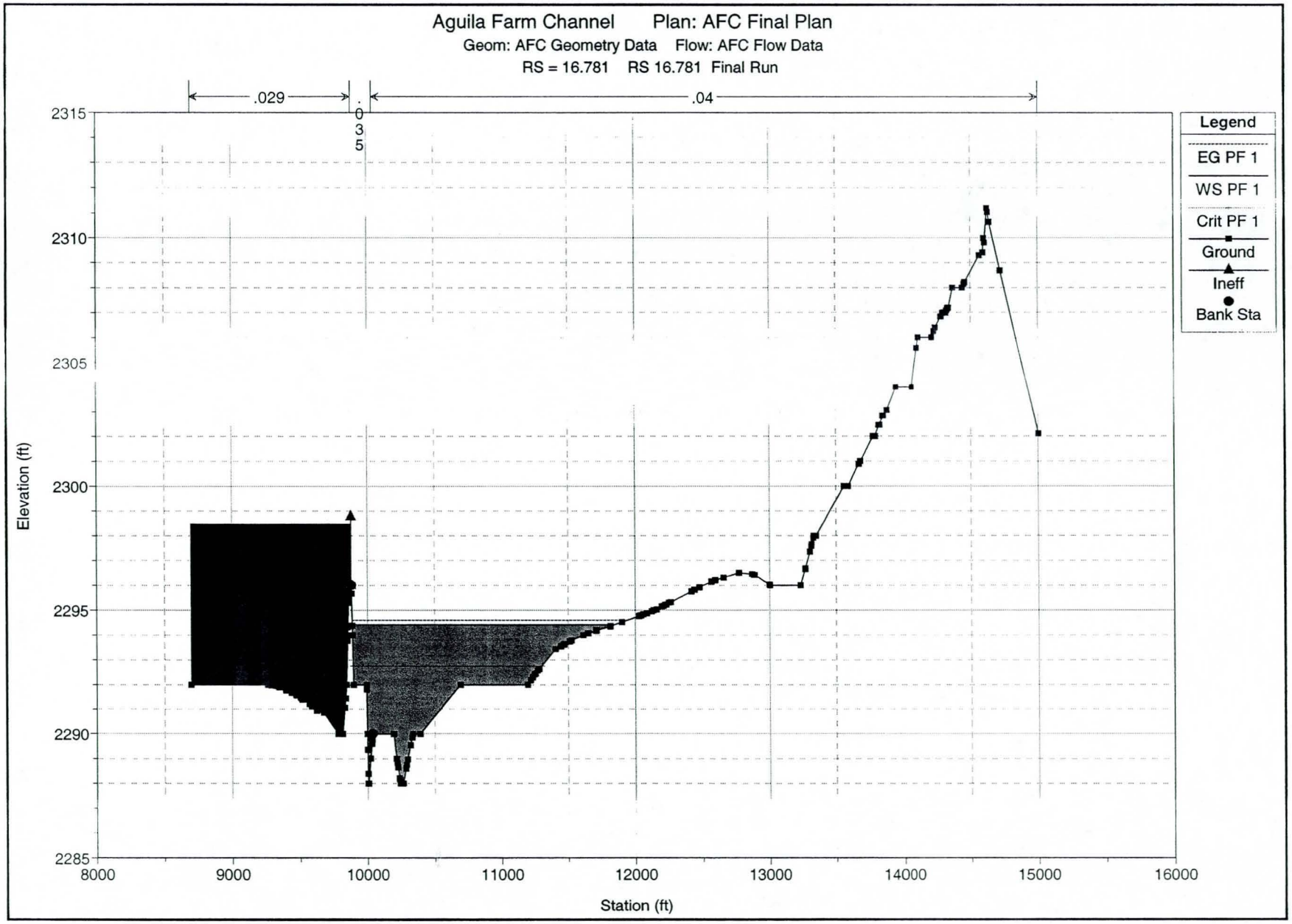
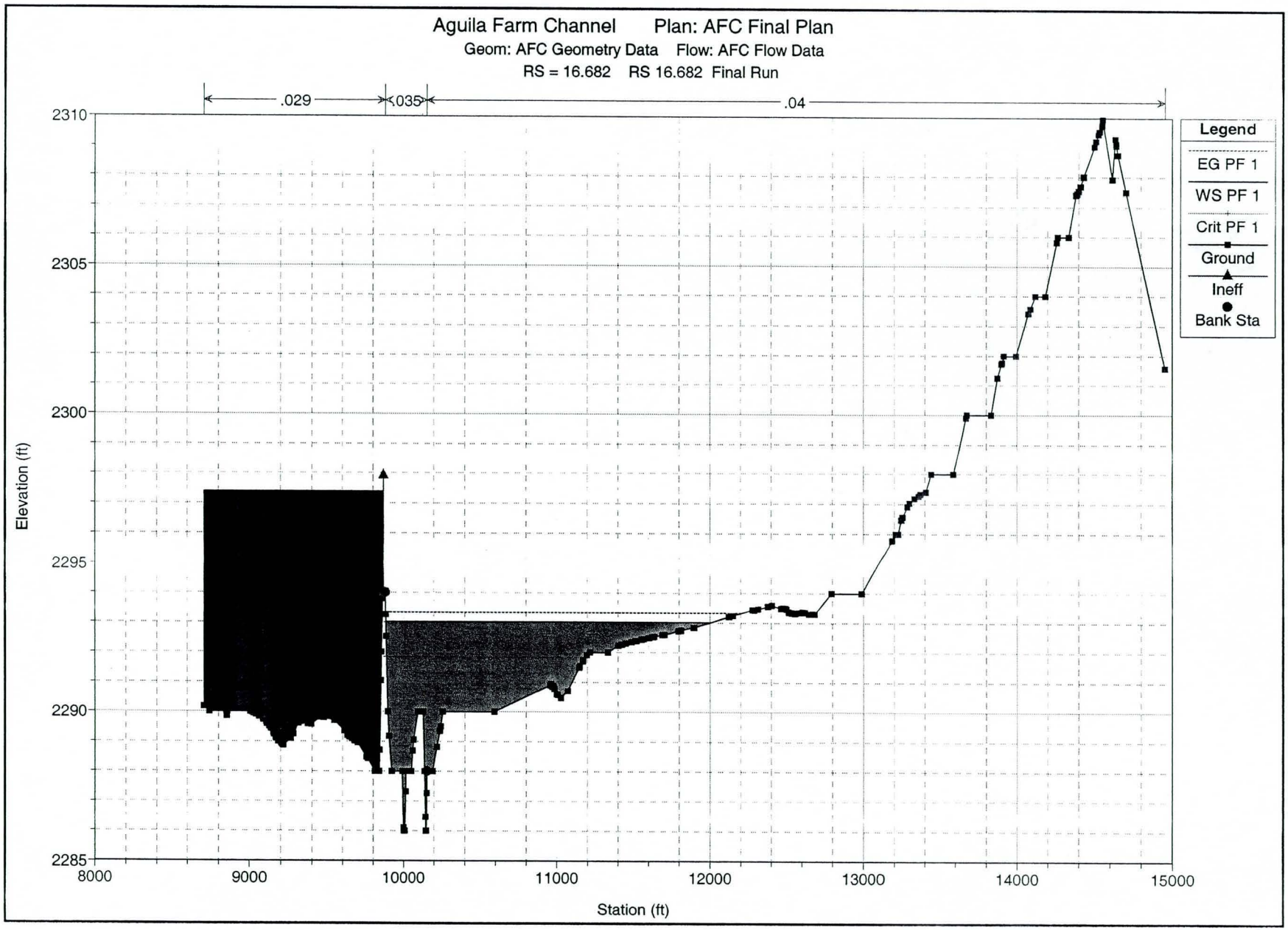
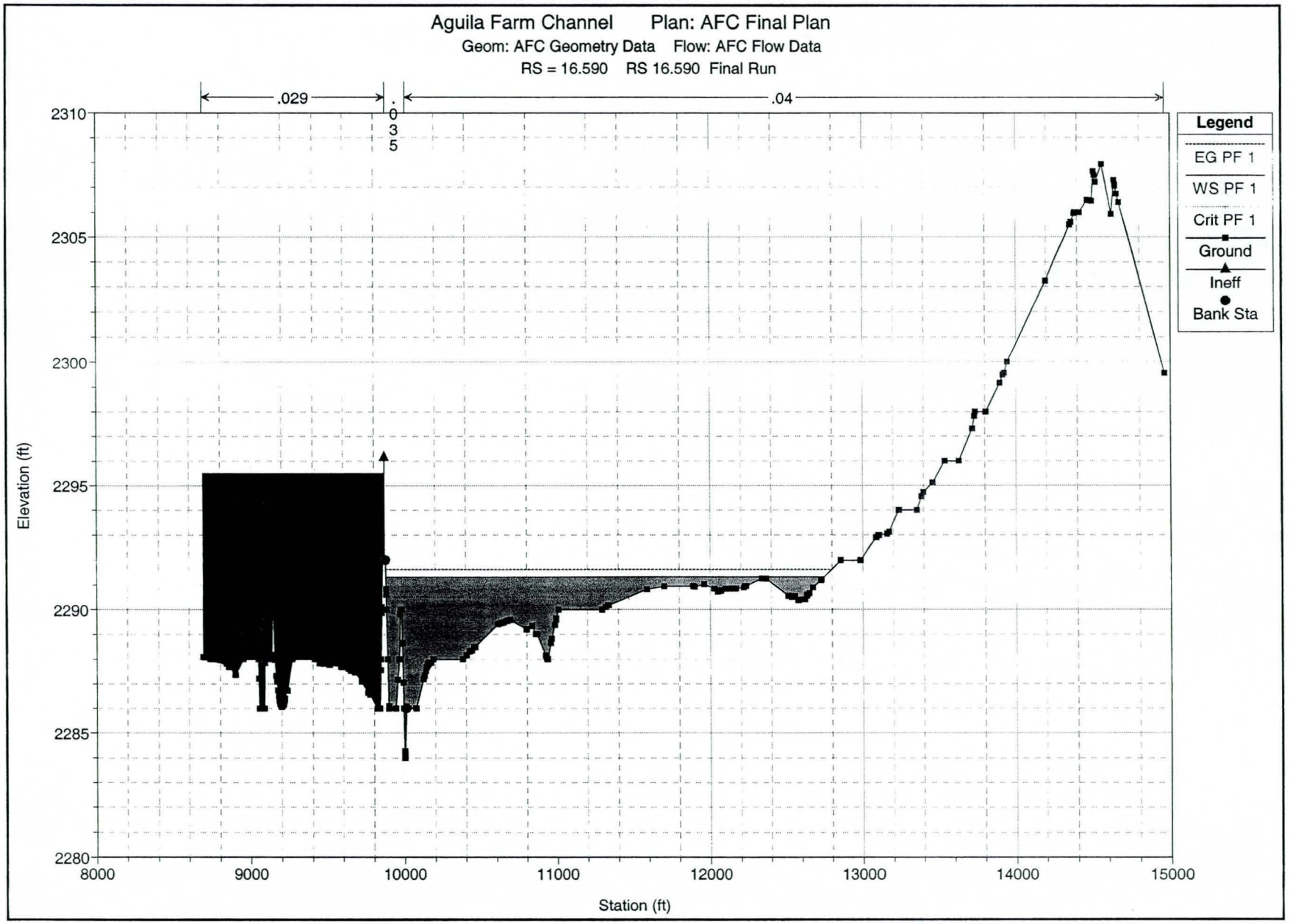
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2340
2330
2320
2310
2300
2290
8000
9000
10000
11000
12000
13000
14000
15000
16000
Station (ft)

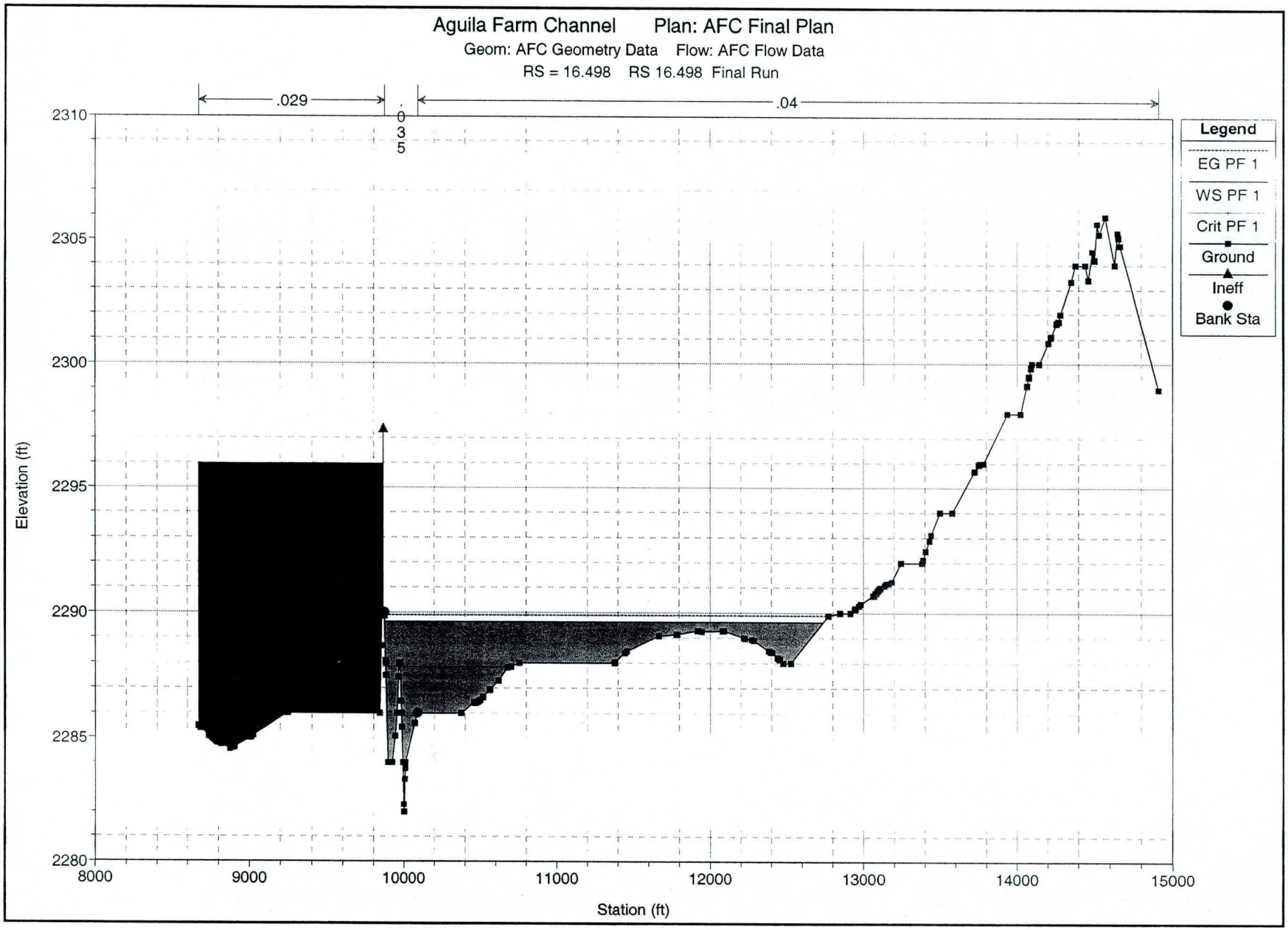

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 16.972 RS 16.972 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2350
2340
2330
2320
2310
2300
2290
8000
9000
10000
11000
12000
13000
14000
15000
16000
Station (ft)

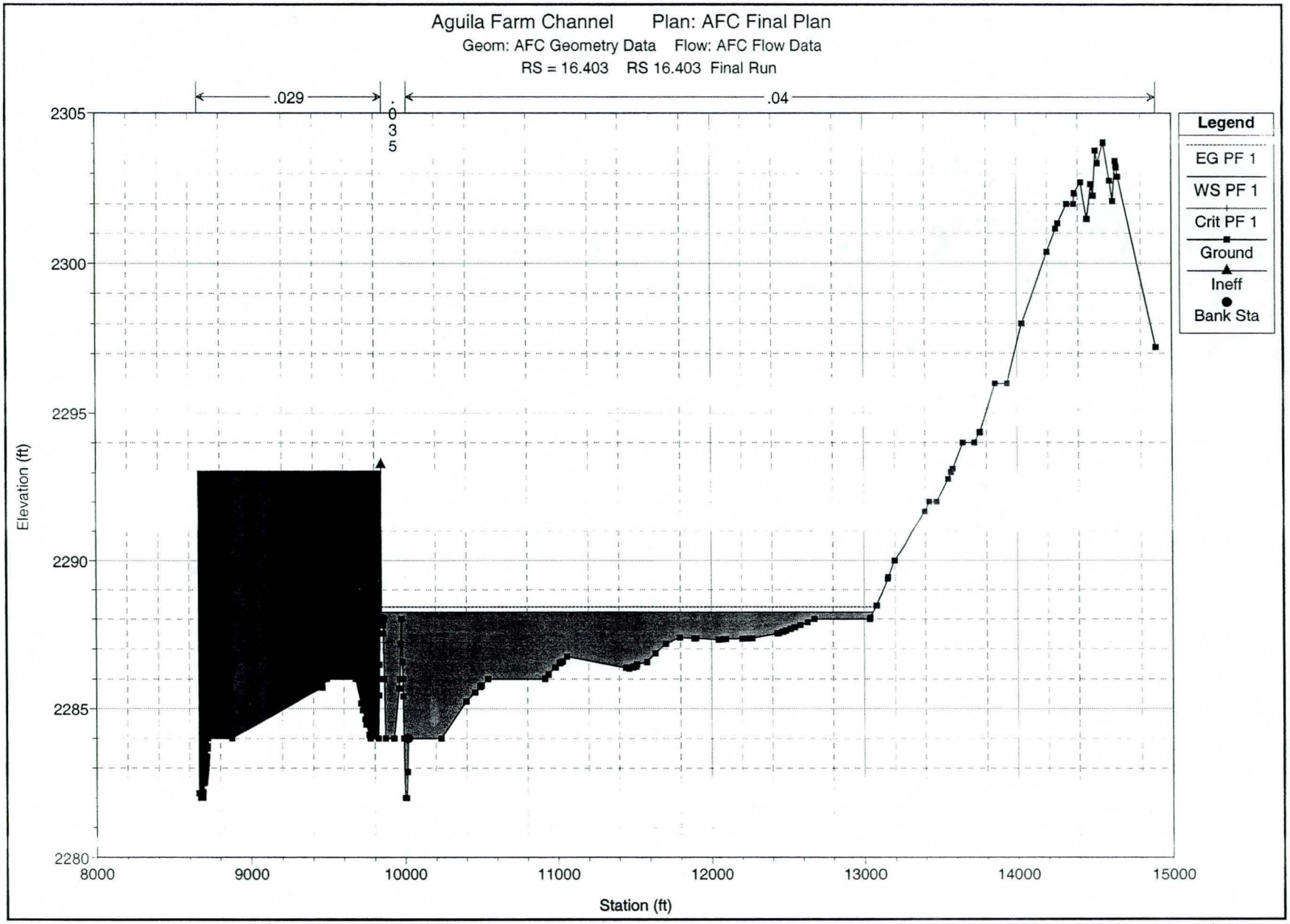

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 16.876 RS 16.876 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2315
2310
2305
2300
2295
2290
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

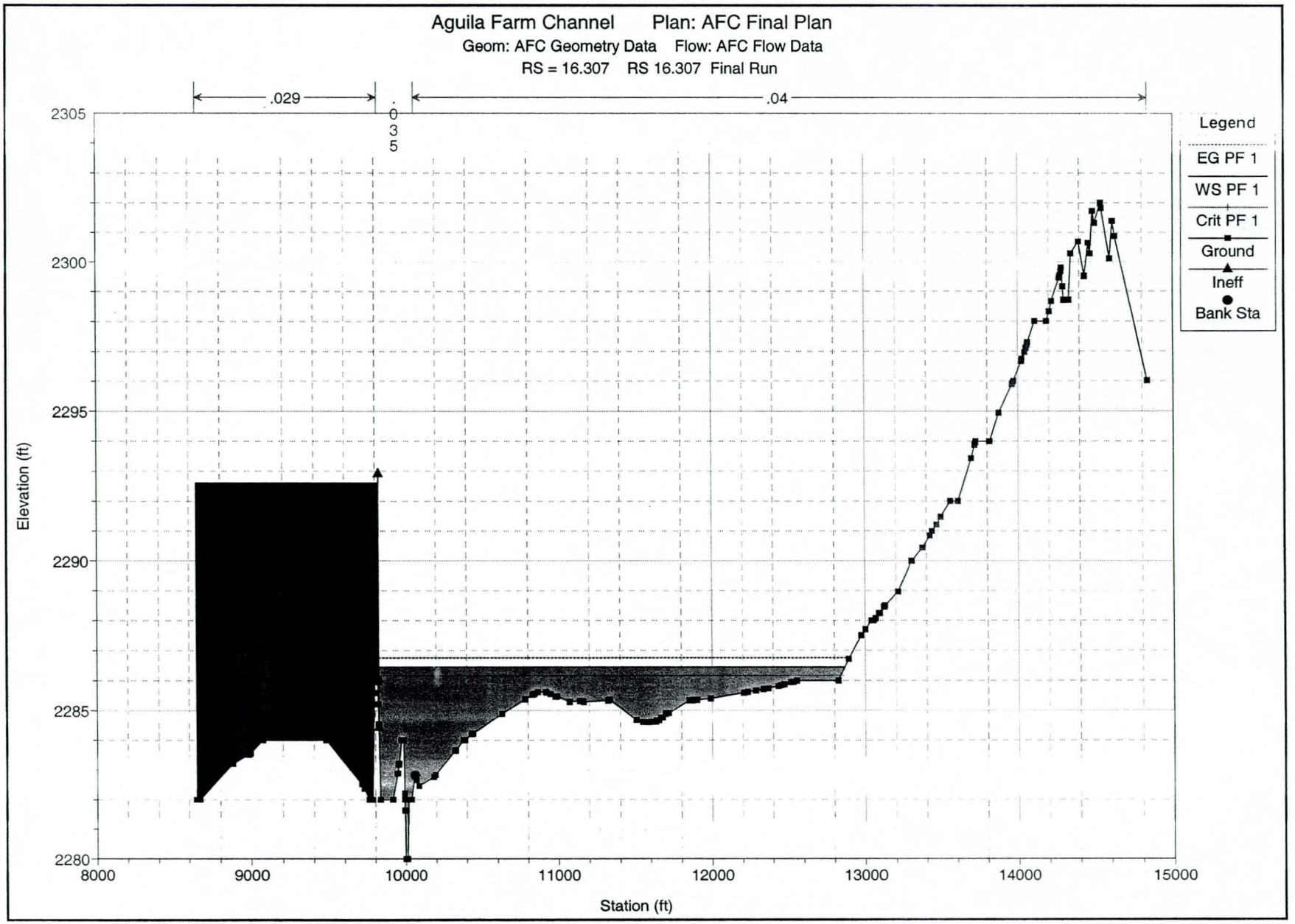

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 16.781 RS 16.781 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2315
2310
2305
2300
2295
2290
2285
8000
9000
10000
11000
12000
13000
14000
15000
16000

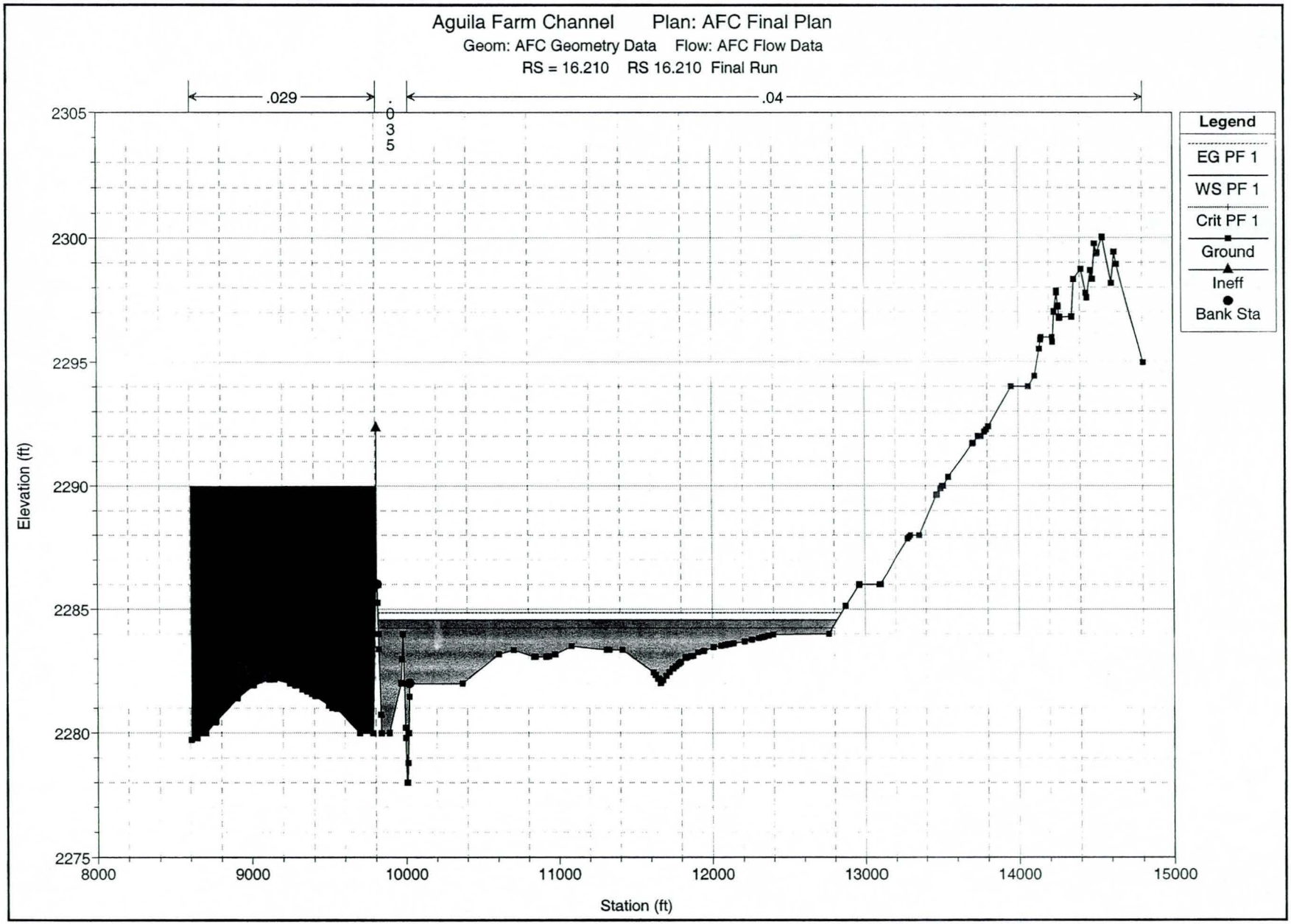

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 16.682 RS 16.682 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2310
2305
2300
2295
2290
2285
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

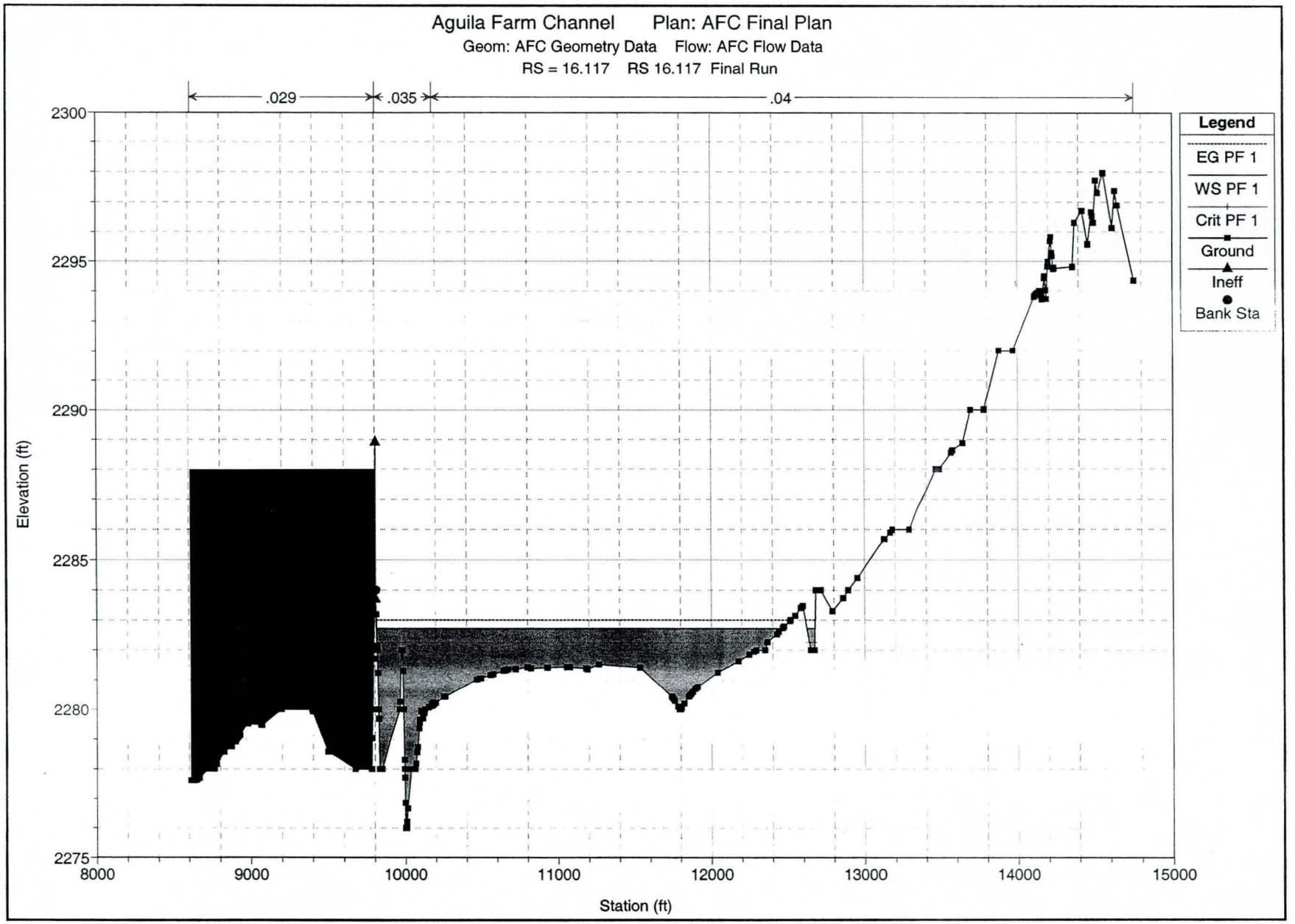

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 16.590 RS 16.590 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2310
2305
2300
2295
2290
2285
2280
8000
9000
10000
11000
12000
13000
14000
15000

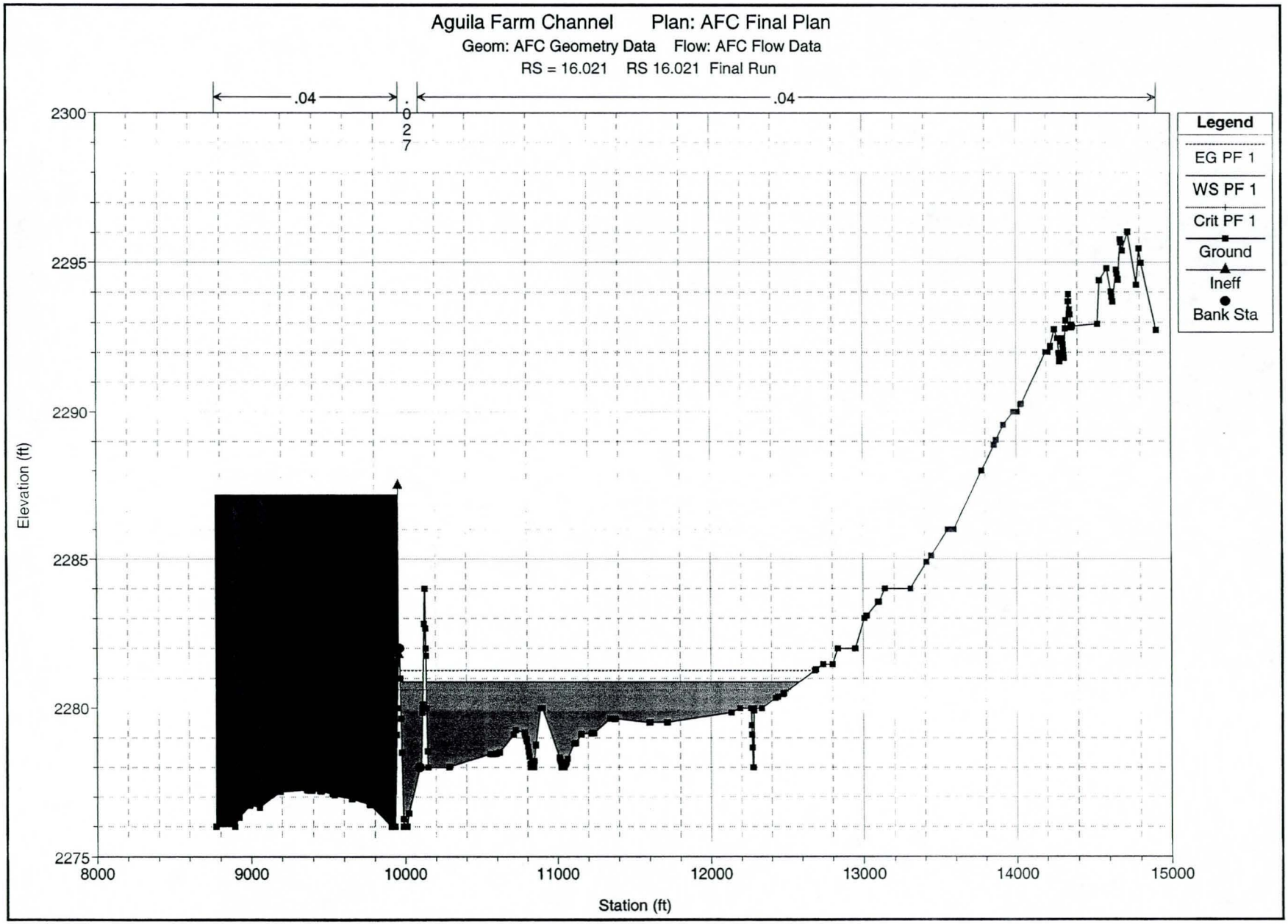

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 16.498 RS 16.498 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2310
2305
2300
2295
2290
2285
2280
8000
9000
10000
11000
12000
13000
14000
15000

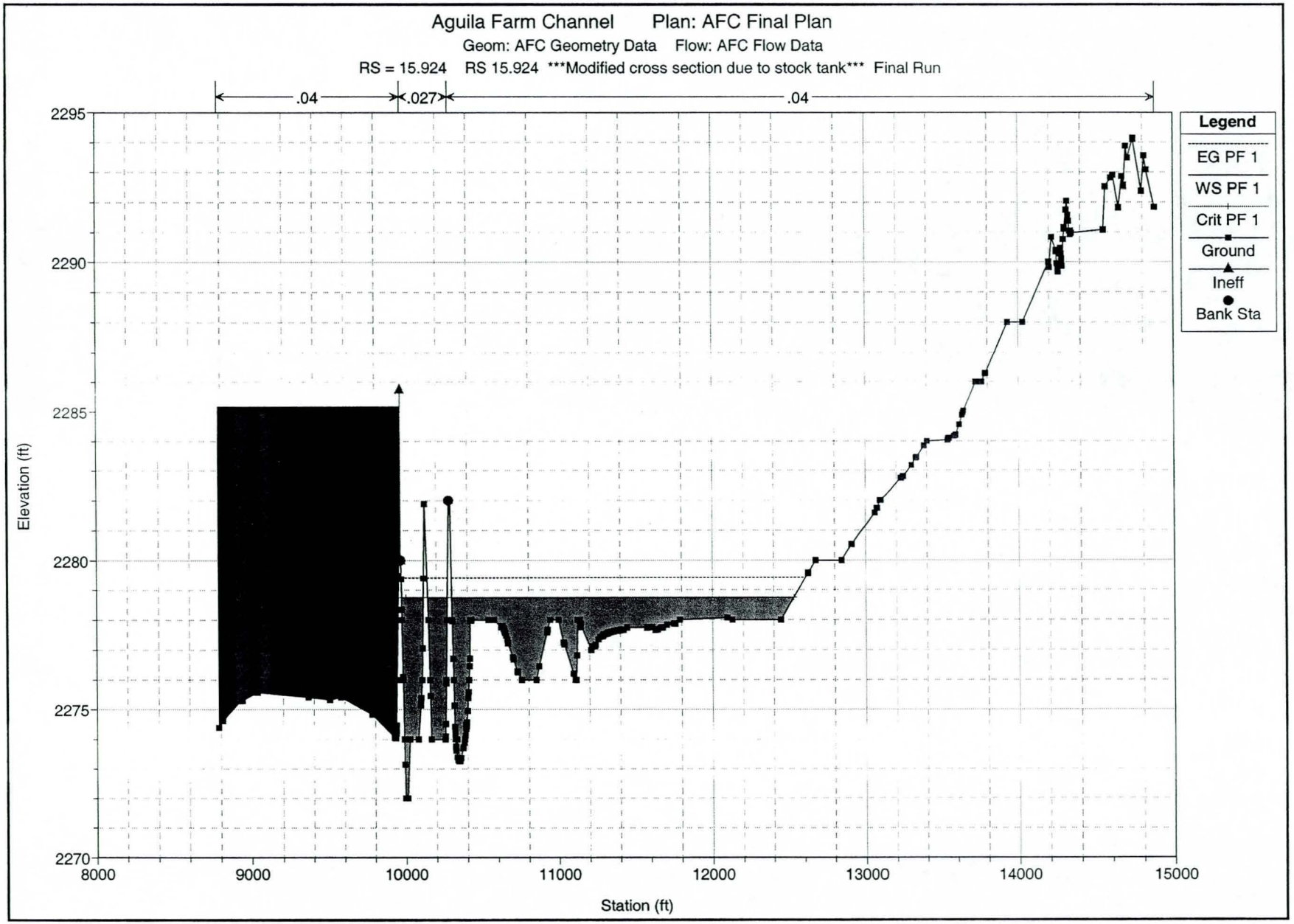

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 16.403 RS 16.403 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2305
2300
2295
2290
2285
2280
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

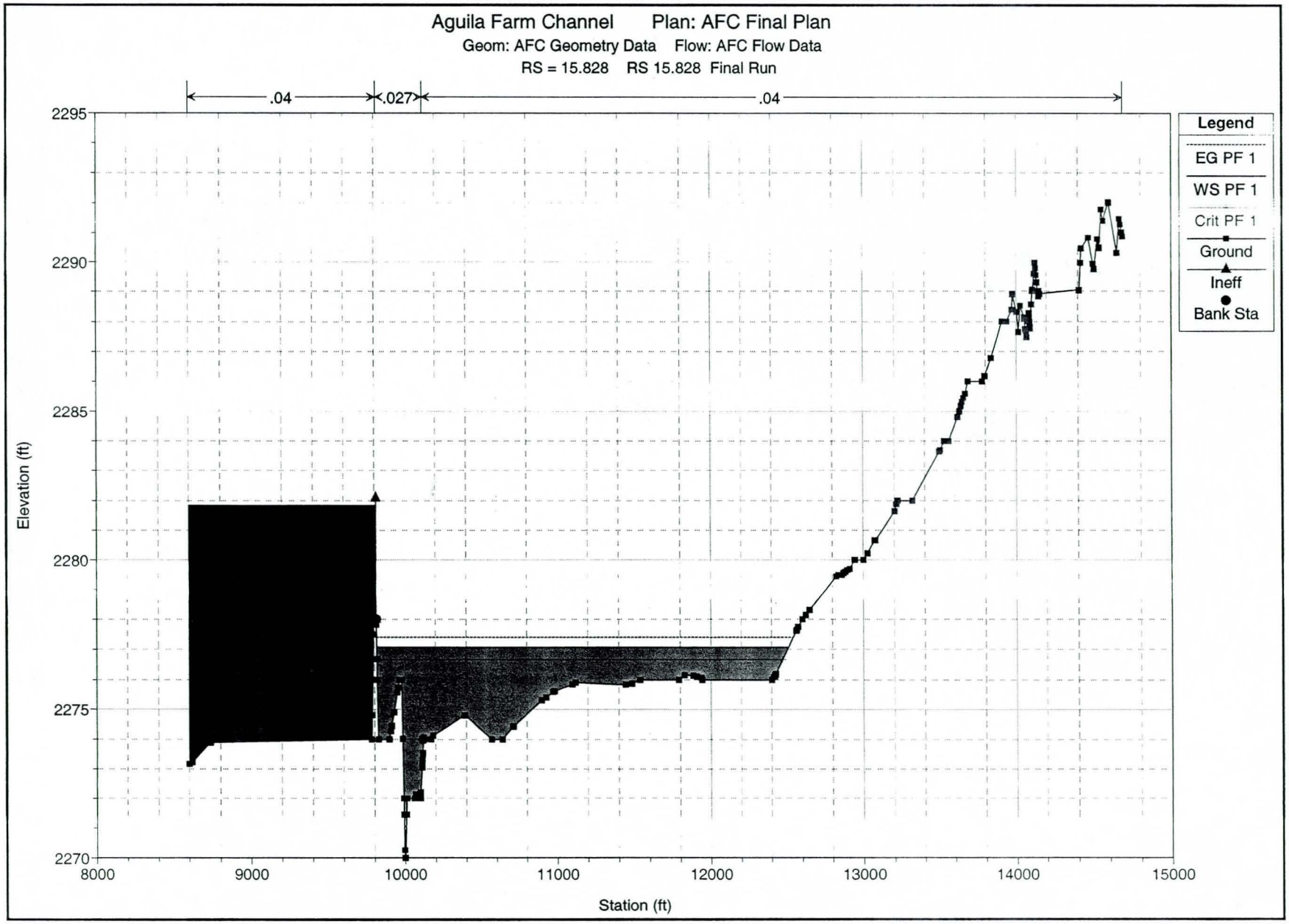

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 16.307 RS 16.307 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2305
2300
2295
2290
2285
2280
8000
9000
10000
11000
12000
13000
14000
15000

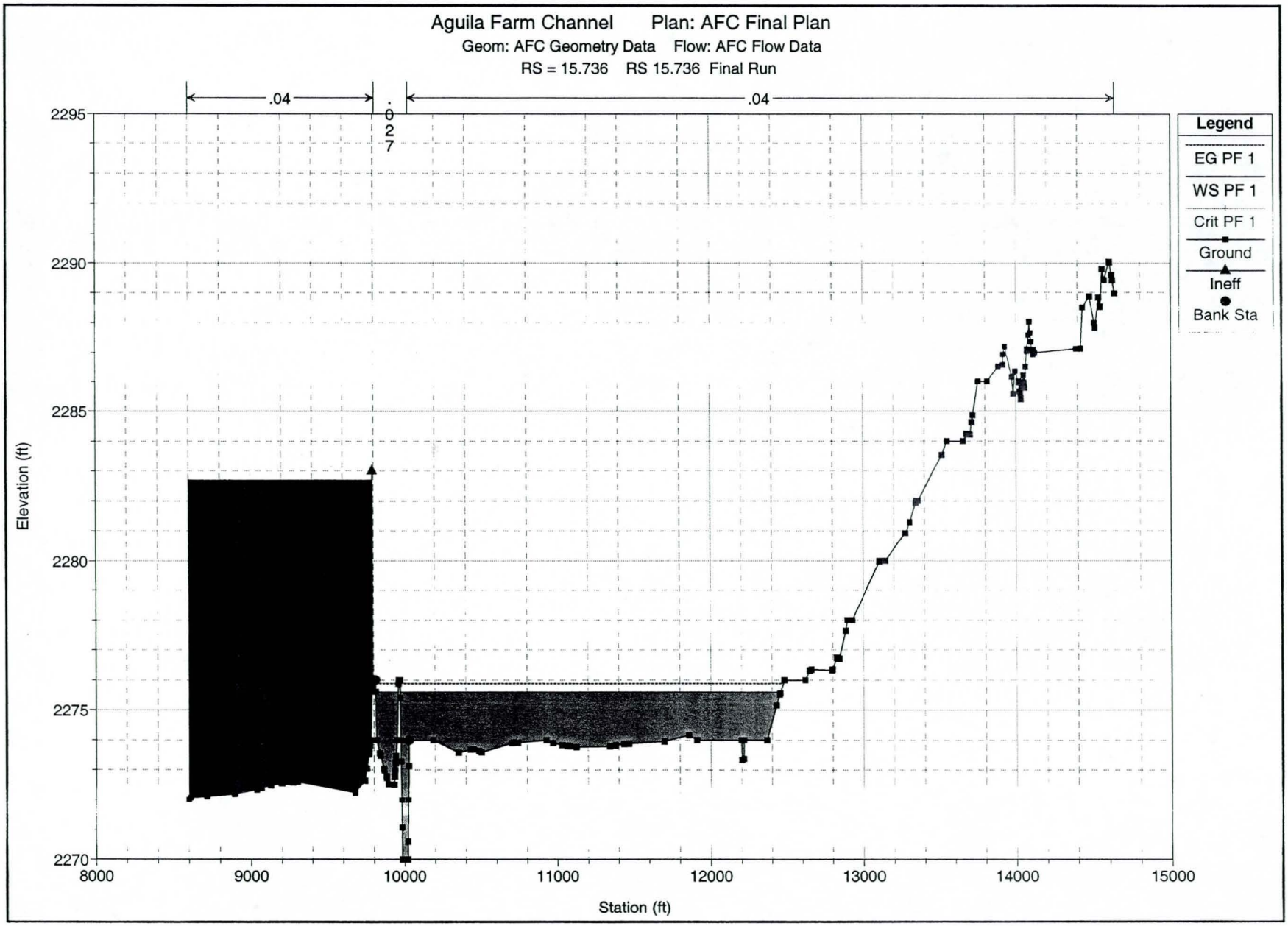

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 16.210 RS 16.210 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2305
2300
2295
2290
2285
2280
2275
8000
9000
10000
11000
12000
13000
14000
15000

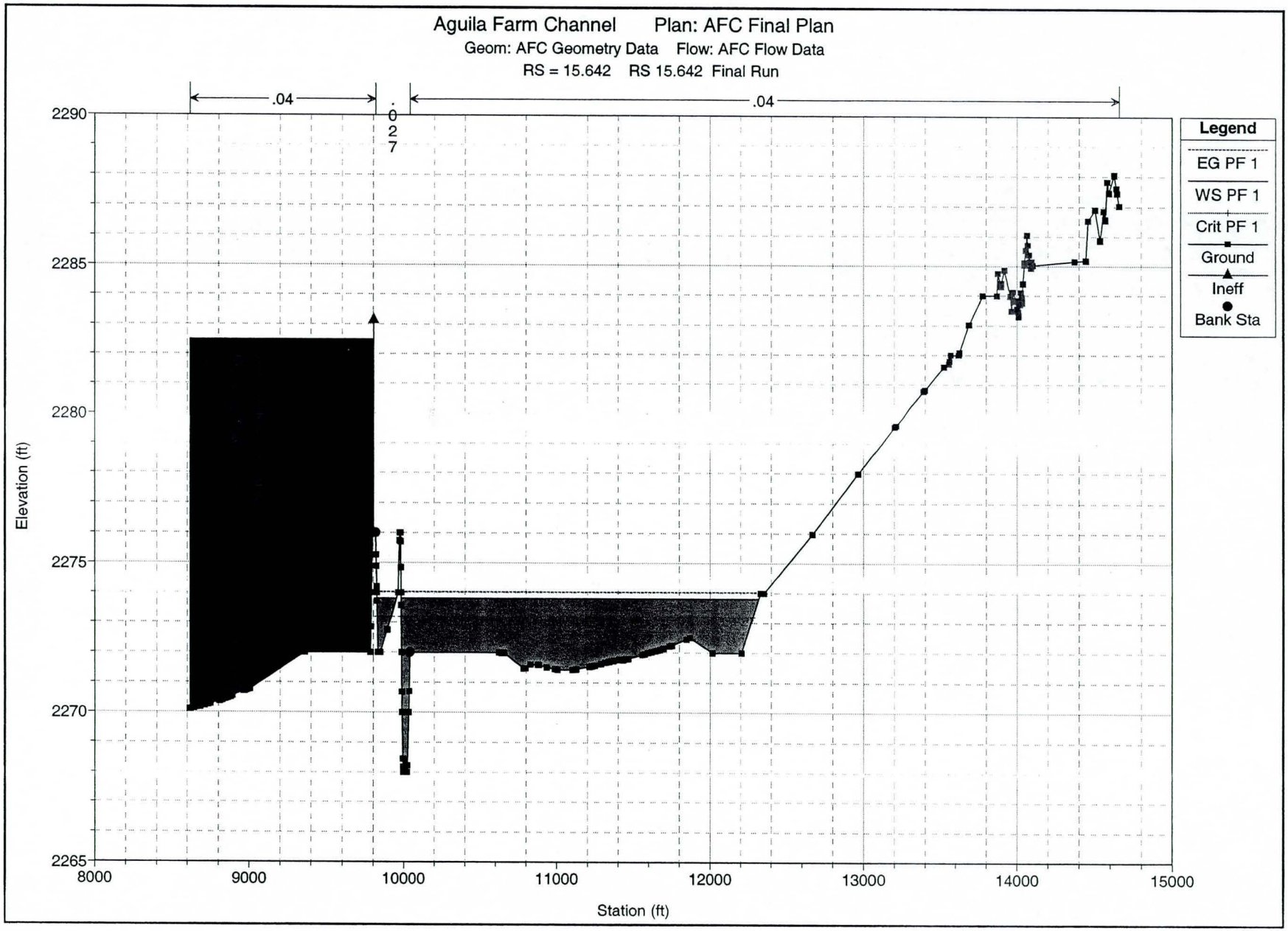

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 16.117 RS 16.117 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2300
2295
2290
2285
2280
2275
8000
9000
10000
11000
12000
13000
14000
15000

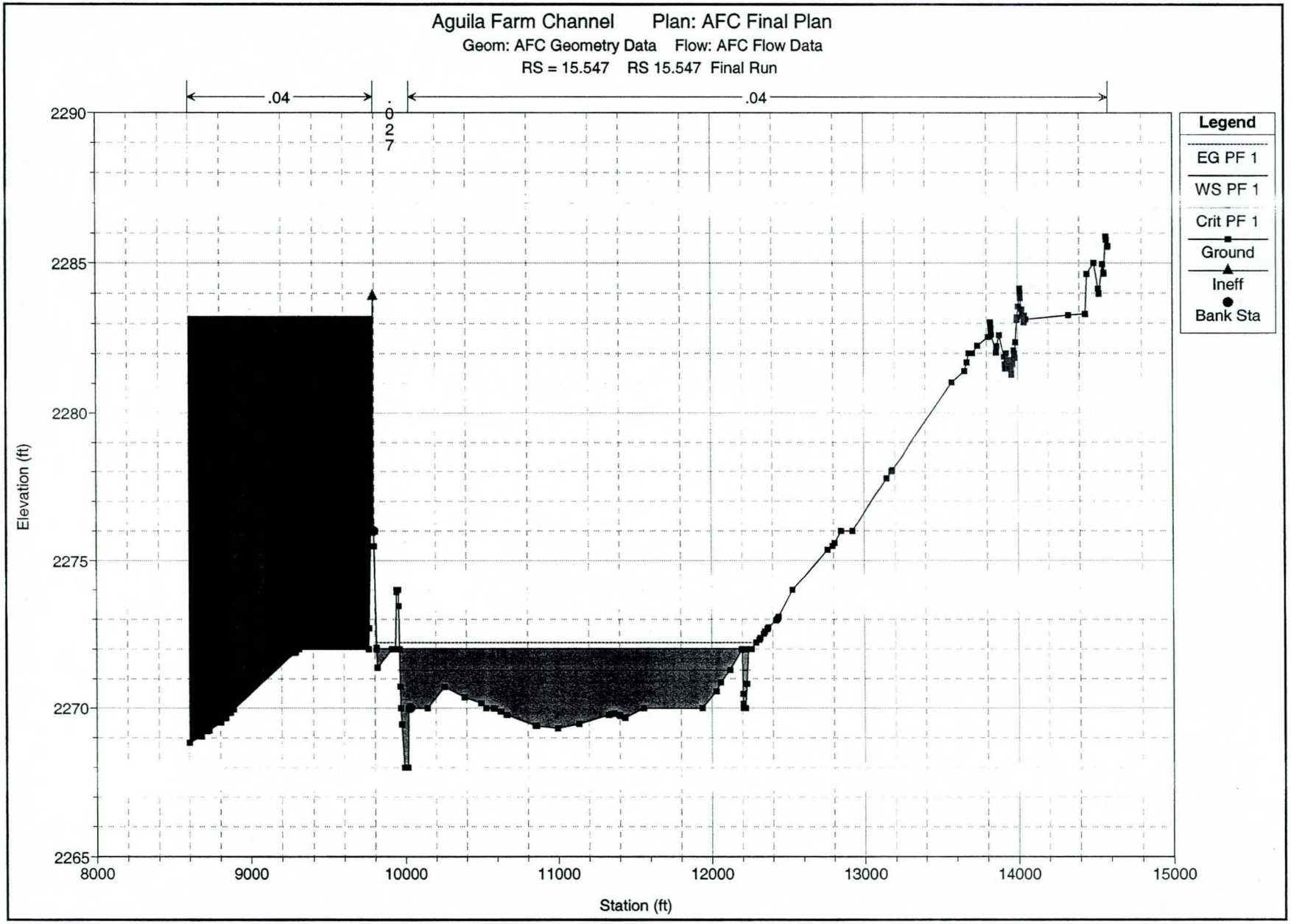

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 16.021 RS 16.021 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2300
2295
2290
2285
2280
2275
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

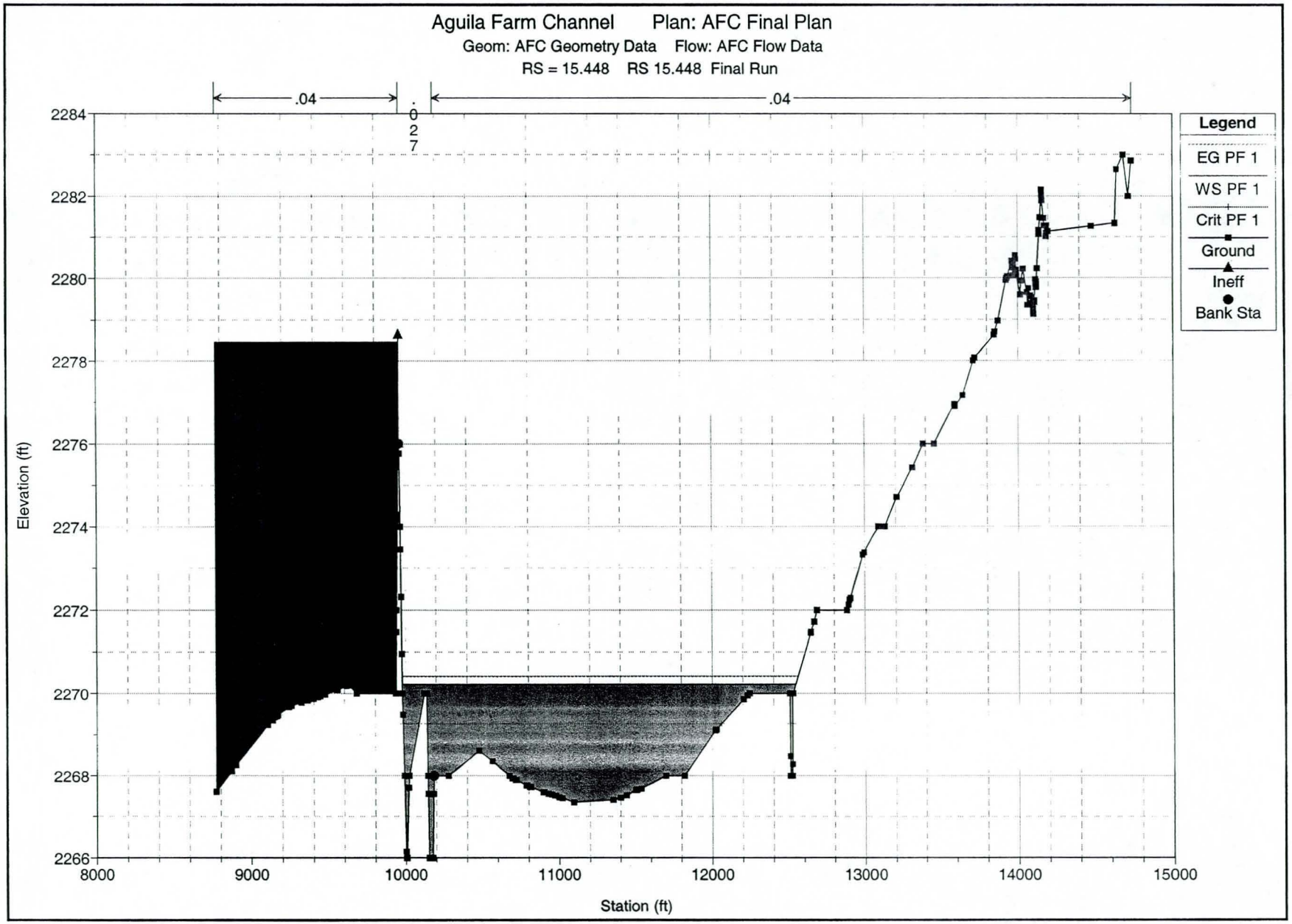

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 15.924 RS 15.924 ***Modified cross section due to stock tank*** Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2295
2290
2285
2280
2275
2270
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

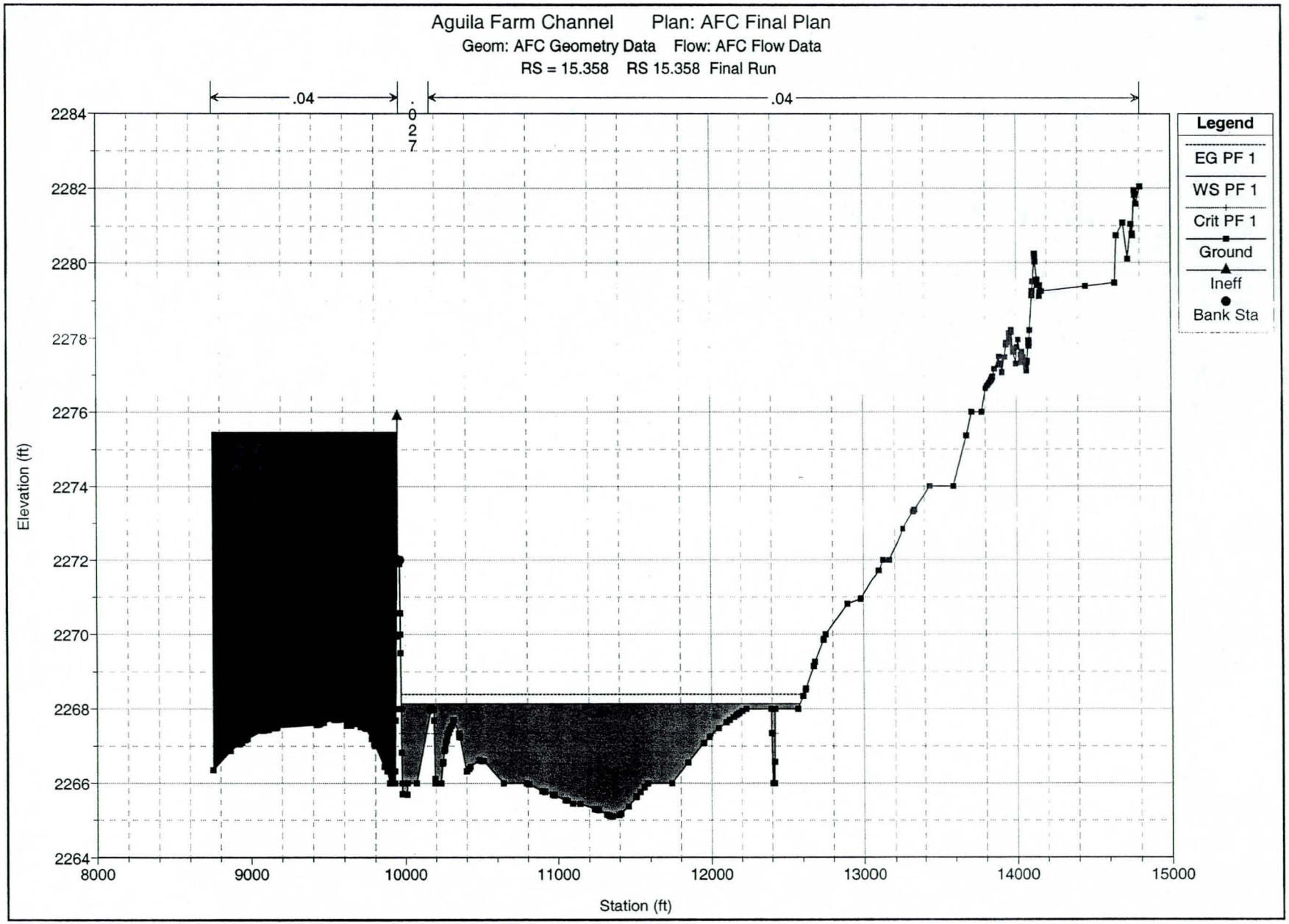

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 15.828 RS 15.828 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2295
2290
2285
2280
2275
2270
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

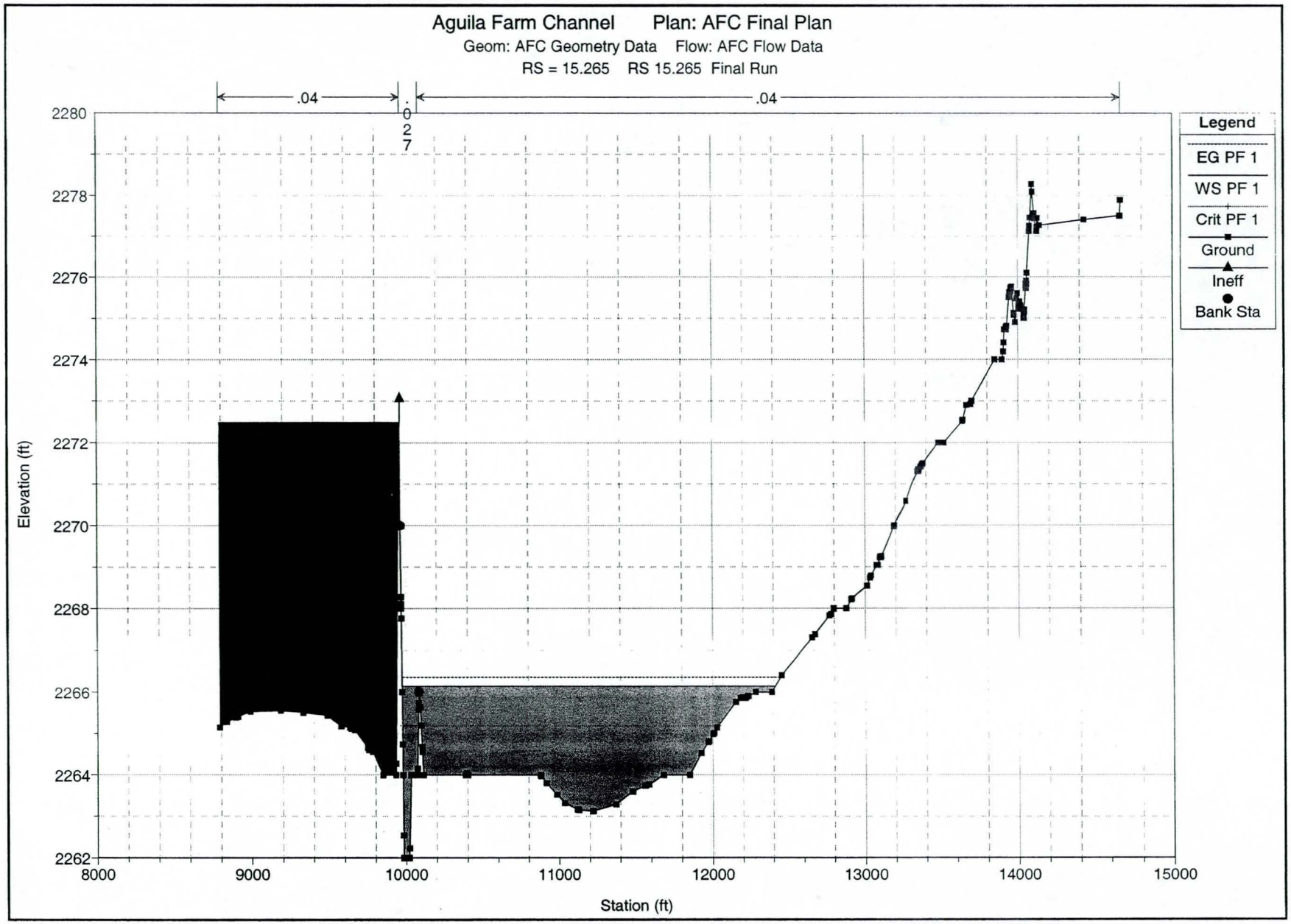

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 15.736 RS 15.736 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2295
2290
2285
2280
2275
2270
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

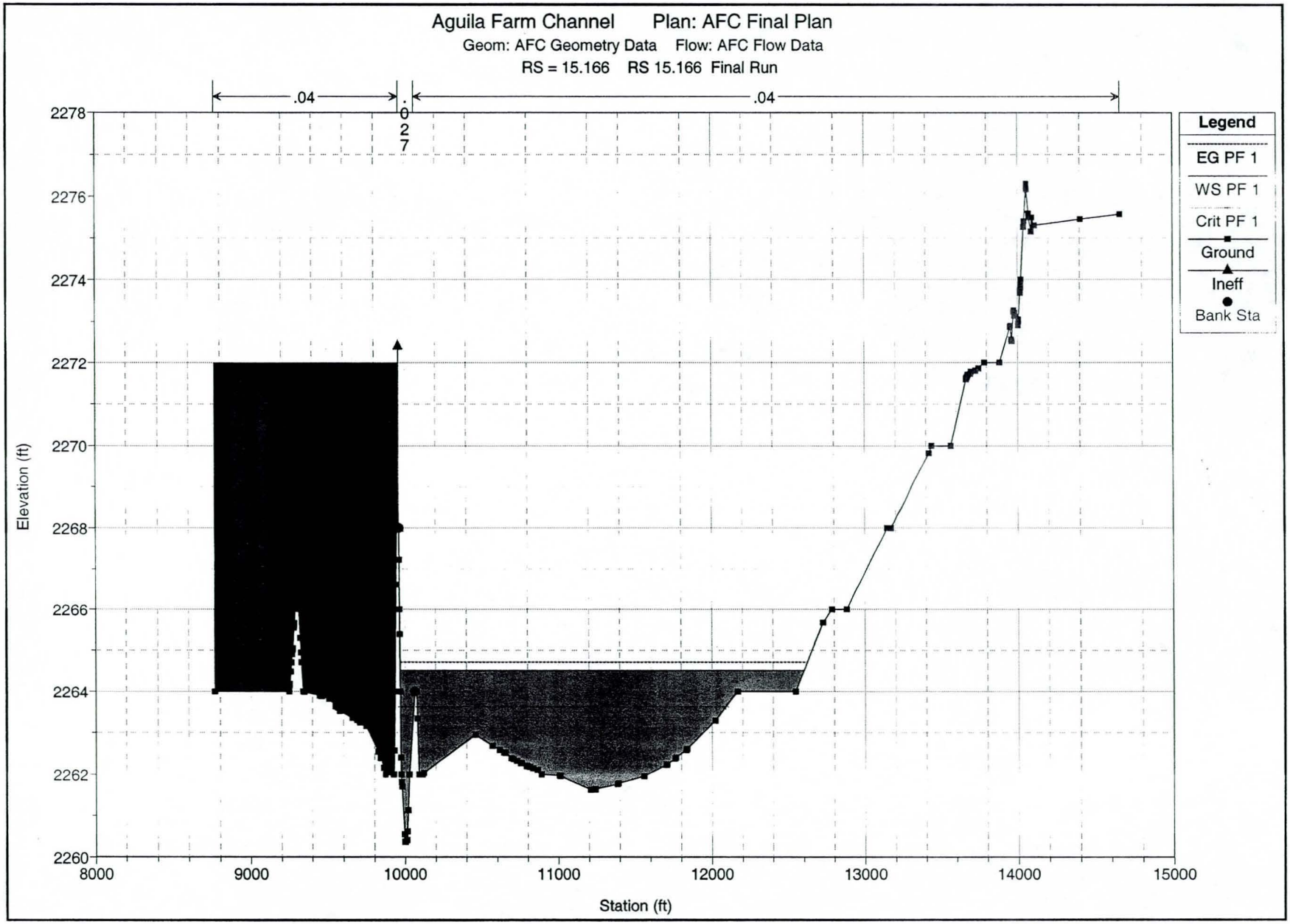

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 15.642 RS 15.642 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2290
2285
2280
2275
2270
2265
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

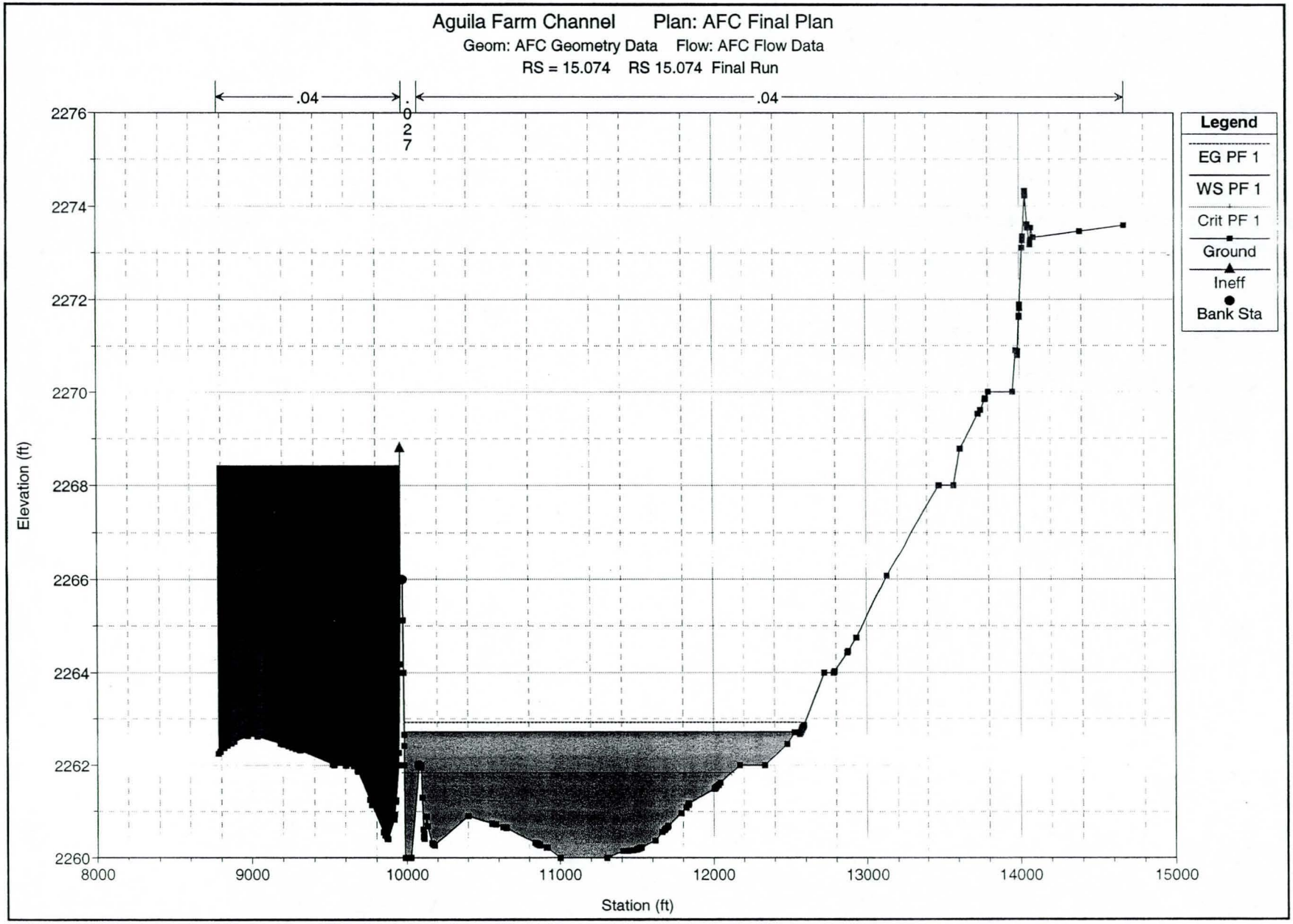

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 15.547 RS 15.547 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2290
2285
2280
2275
2270
2265
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

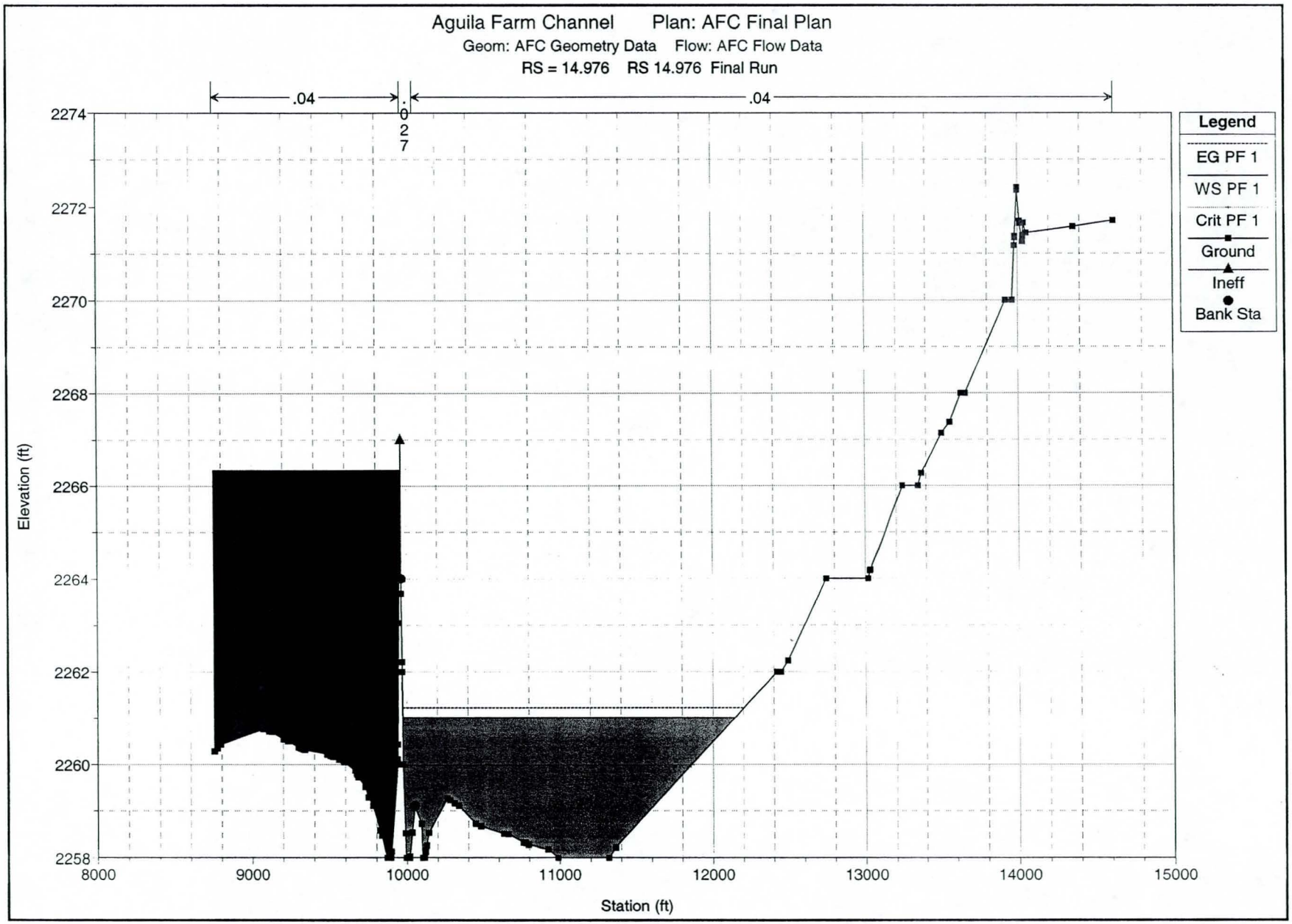

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 15.448 RS 15.448 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2284
2282
2280
2278
2276
2274
2272
2270
2268
2266
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

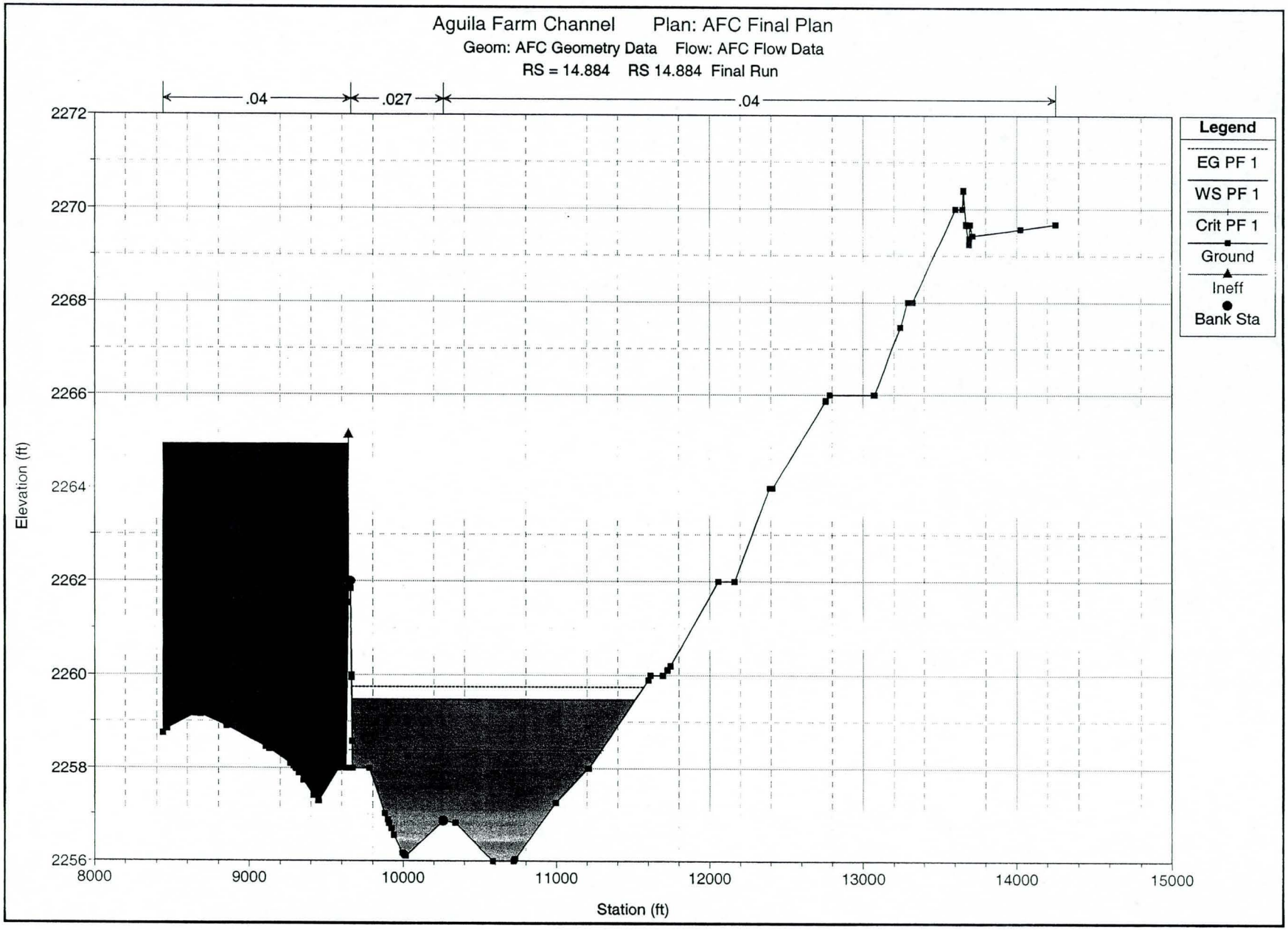

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 15.358 RS 15.358 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2284
2282
2280
2278
2276
2274
2272
2270
2268
2266
2264
8000
9000
10000
11000
12000
13000
14000
15000

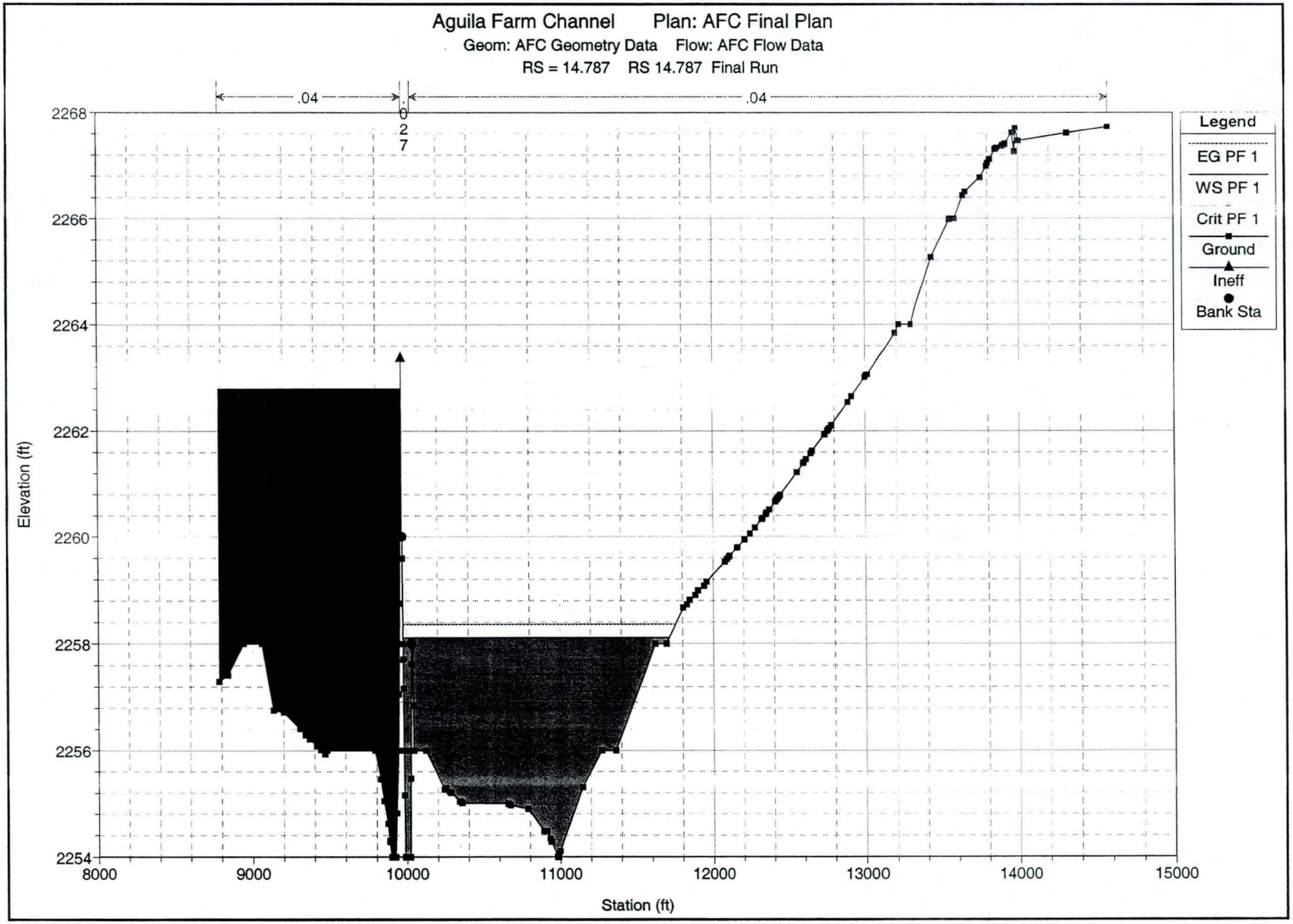

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 15.265 RS 15.265 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2280
2278
2276
2274
2272
2270
2268
2266
2264
2262
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

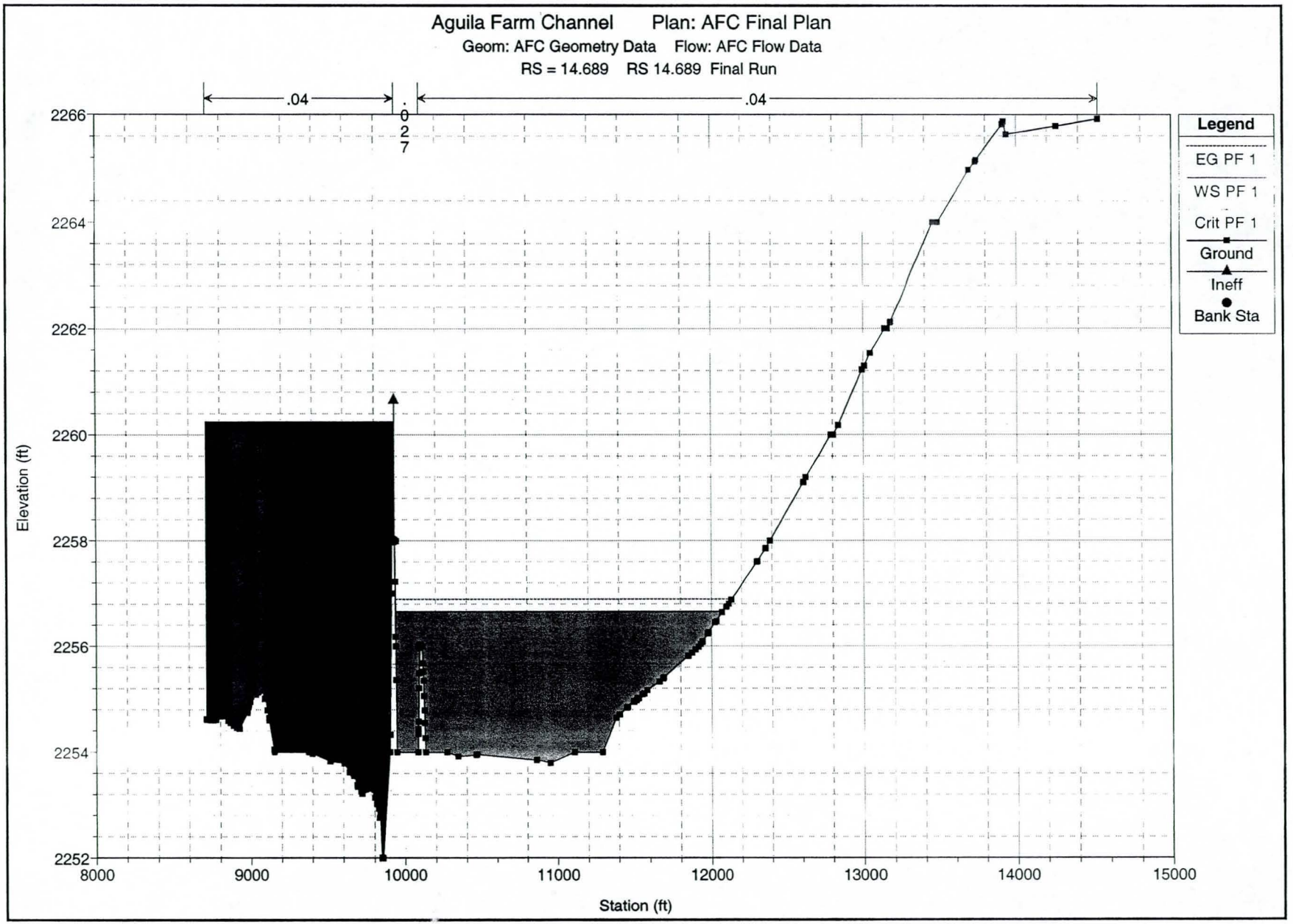

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 15.166 RS 15.166 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2278
2276
2274
2272
2270
2268
2266
2264
2262
2260
8000
9000
10000
11000
12000
13000
14000
15000

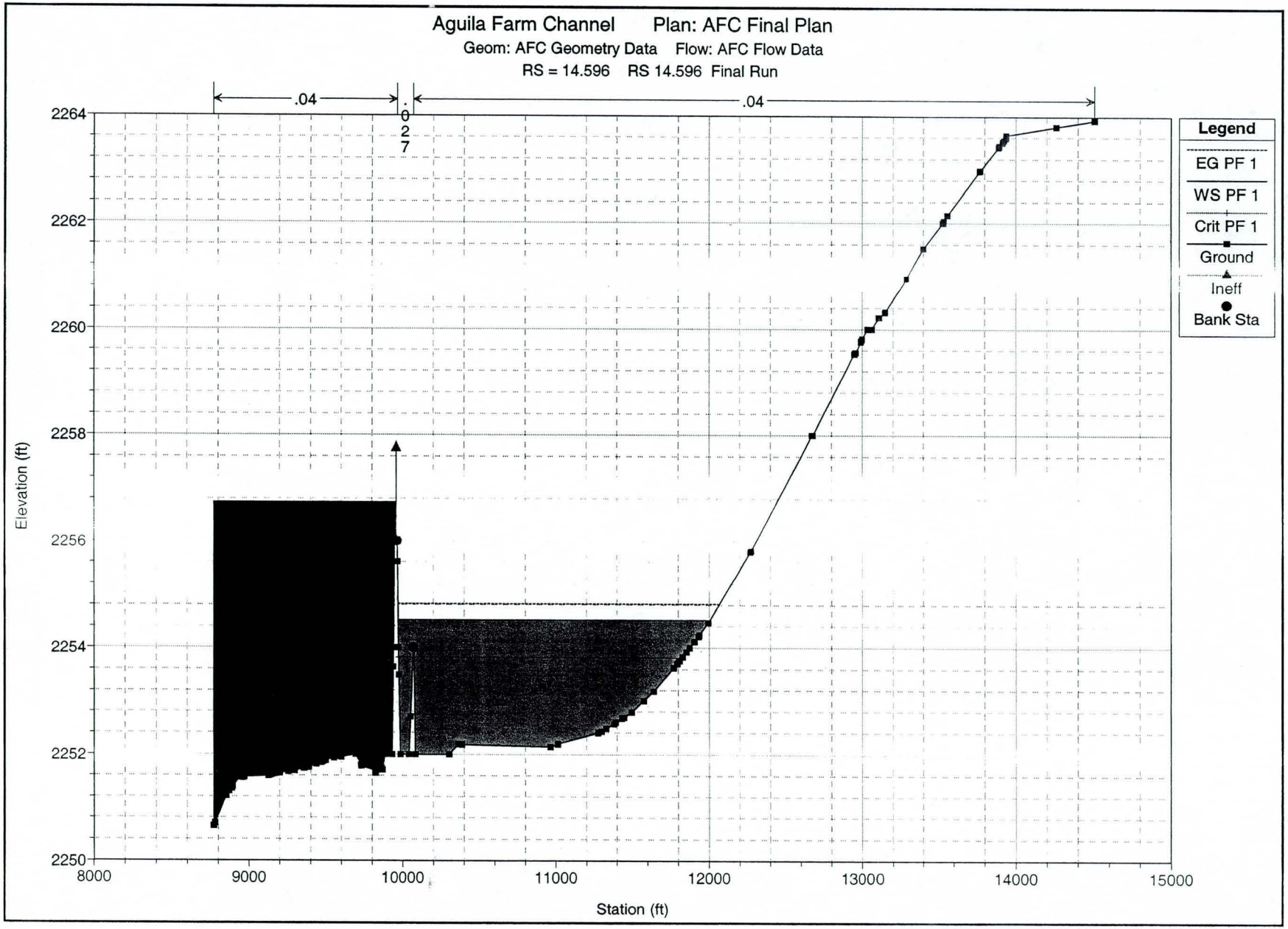

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 15.074 RS 15.074 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2276
2274
2272
2270
2268
2266
2264
2262
2260
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

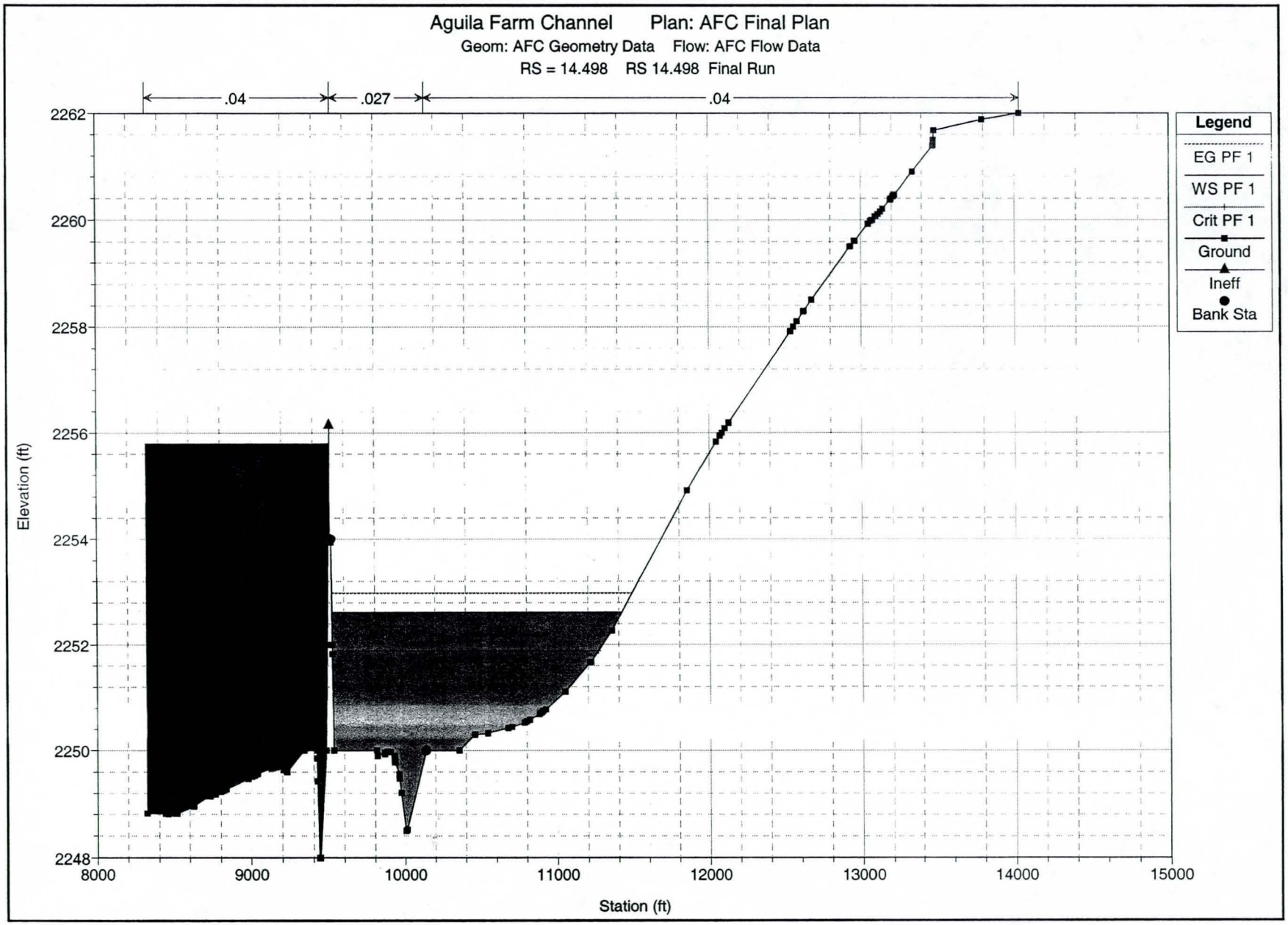

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 14.976 RS 14.976 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2274
2272
2270
2268
2266
2264
2262
2260
2258
8000
9000
10000
11000
12000
13000
14000
15000

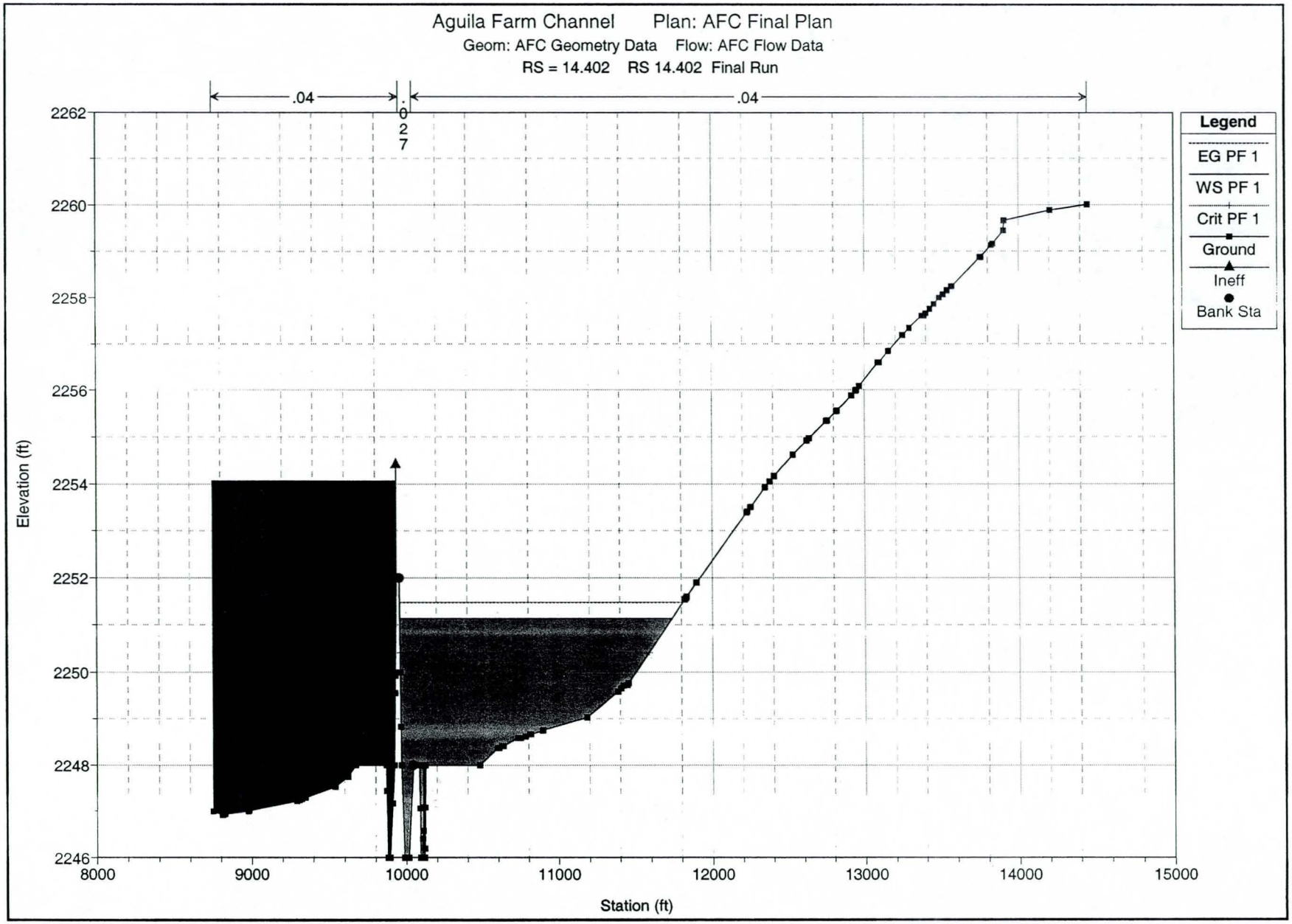

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 14.884 RS 14.884 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2272
2270
2268
2266
2264
2262
2260
2258
2256
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

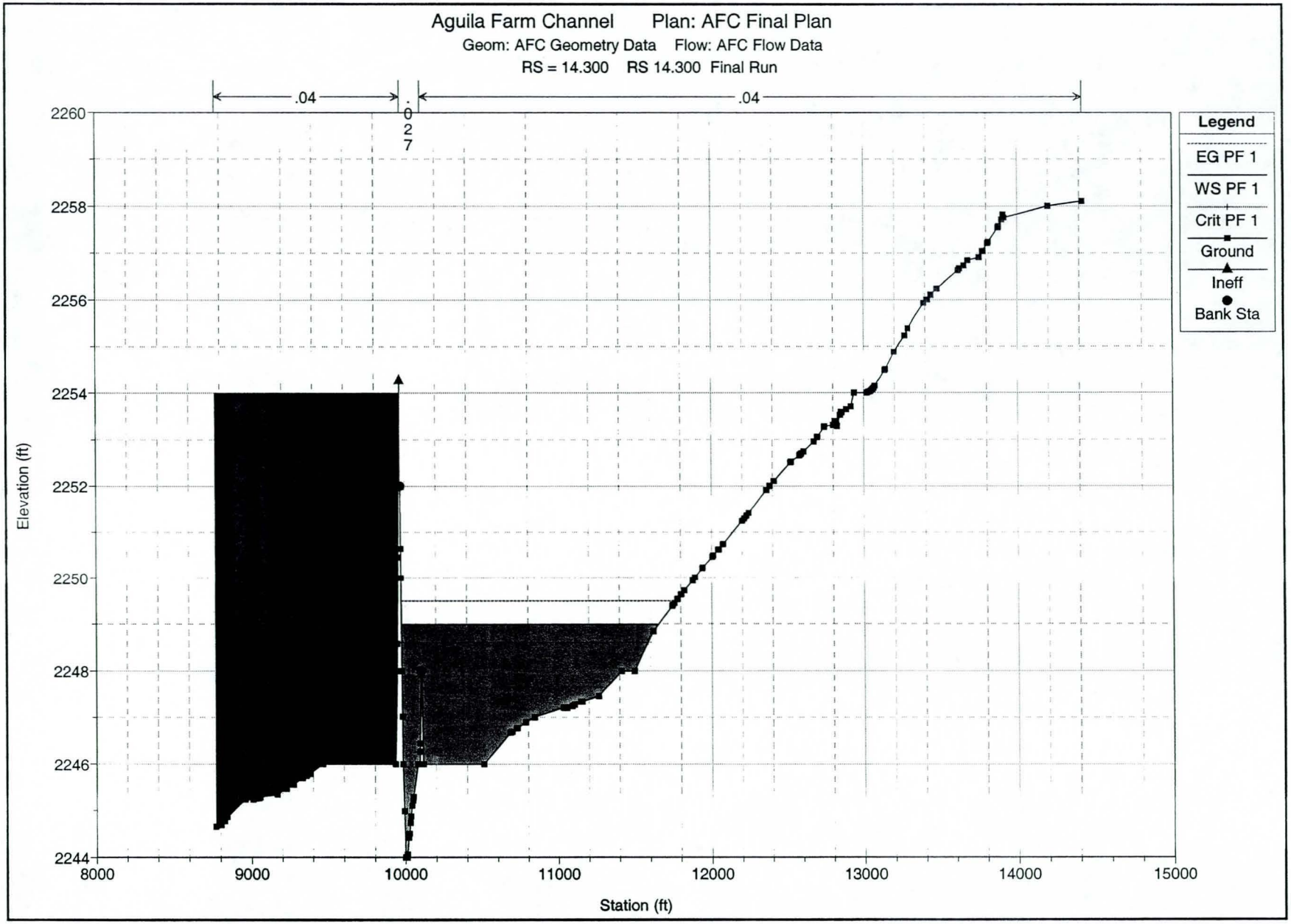

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 14.787 RS 14.787 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2268
2266
2264
2262
2260
2258
2256
2254
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

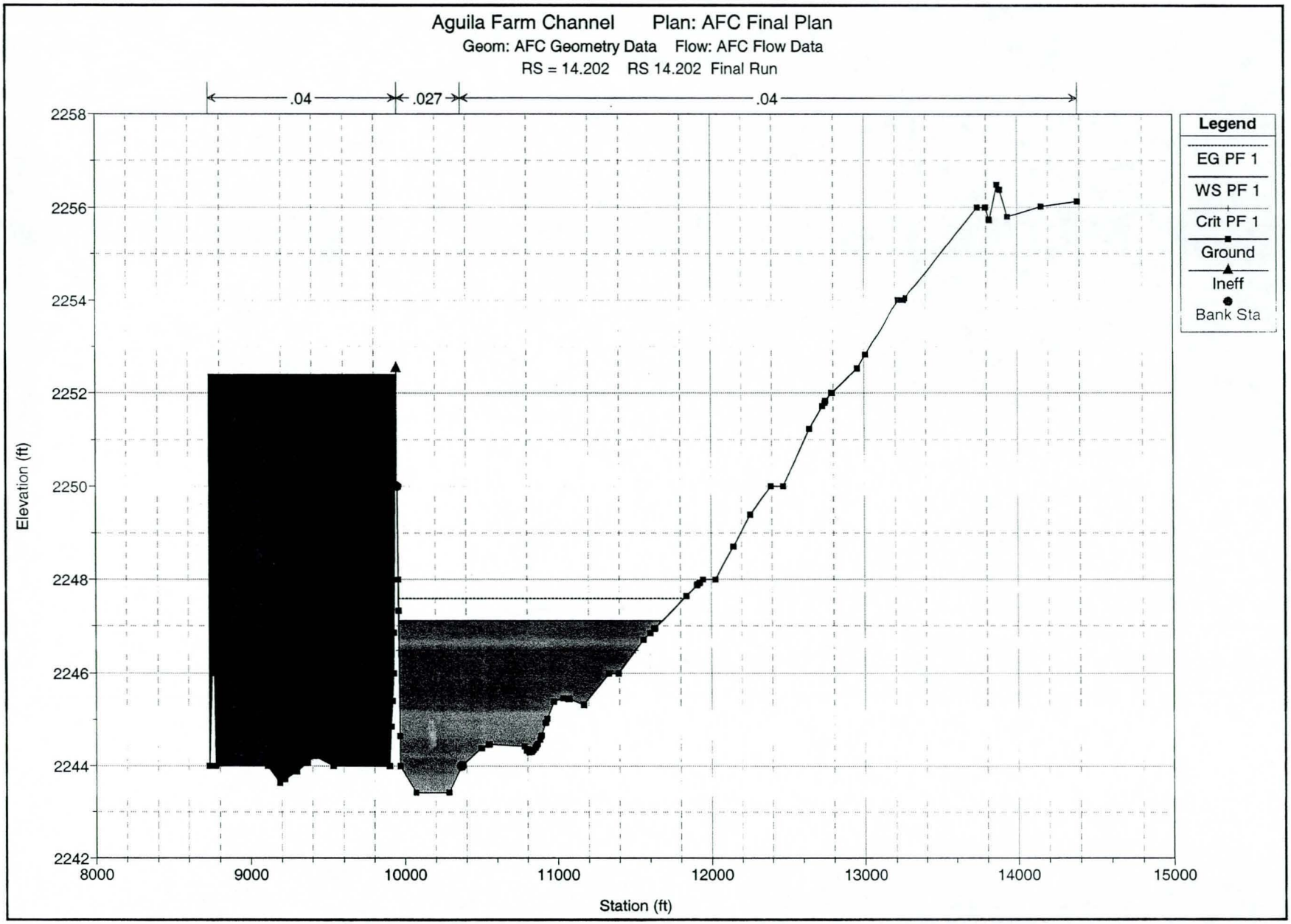

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 14.689 RS 14.689 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2266
2264
2262
2260
2258
2256
2254
2252
8000
9000
10000
11000
12000
13000
14000
15000

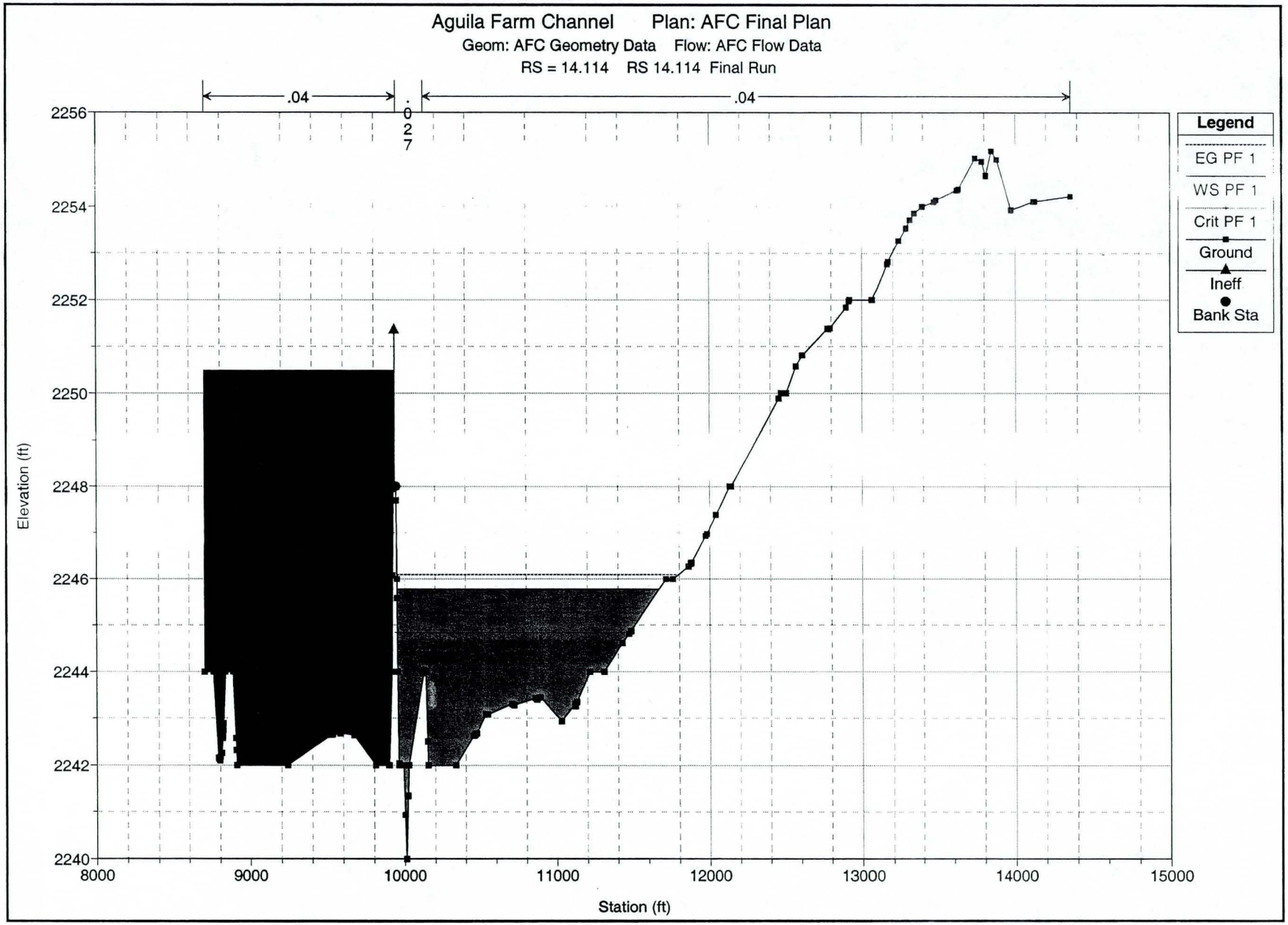

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 14.596 RS 14.596 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2264
2262
2260
2258
2256
2254
2252
2250
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

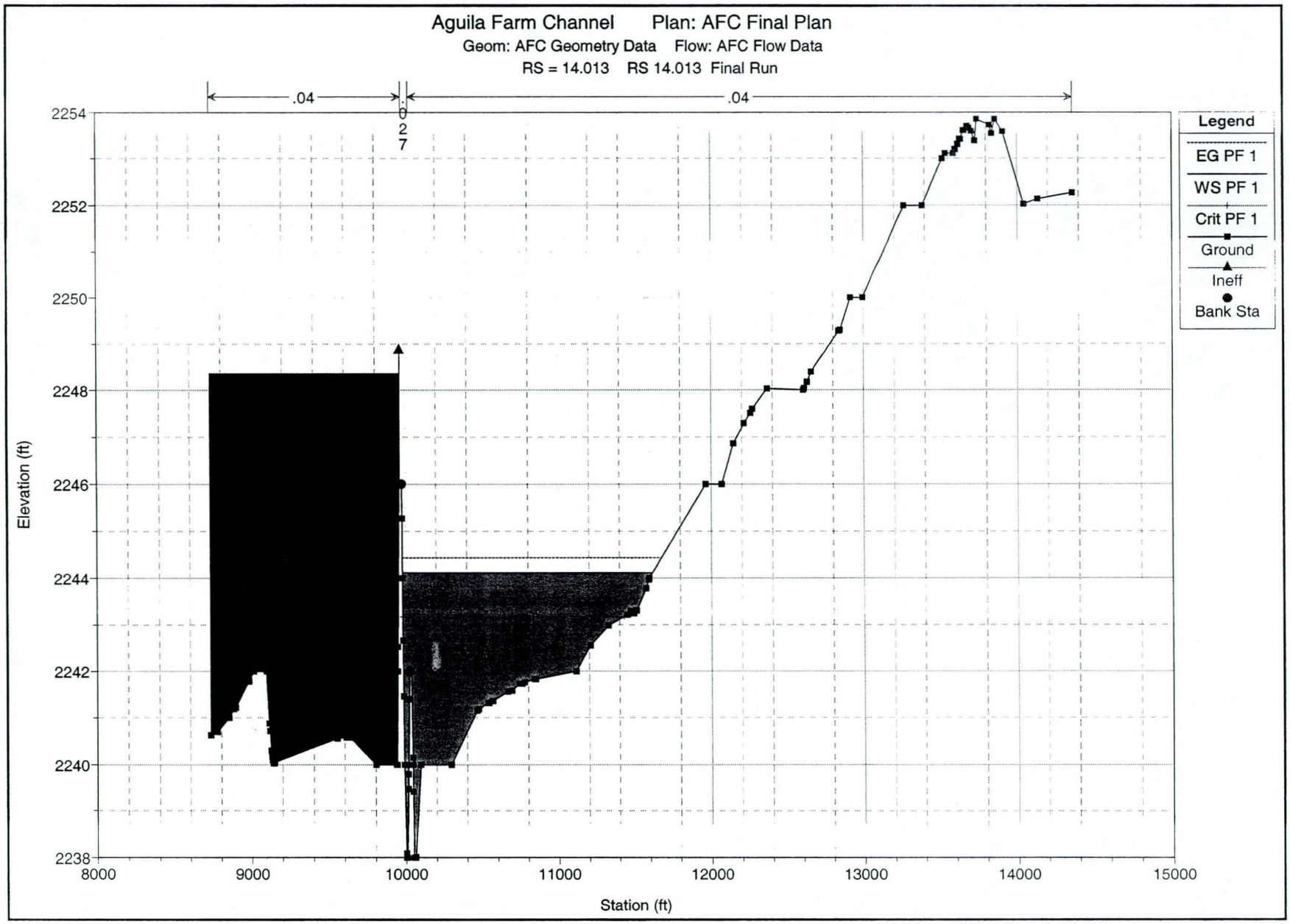

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 14.498 RS 14.498 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2262
2260
2258
2256
2254
2252
2250
2248
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

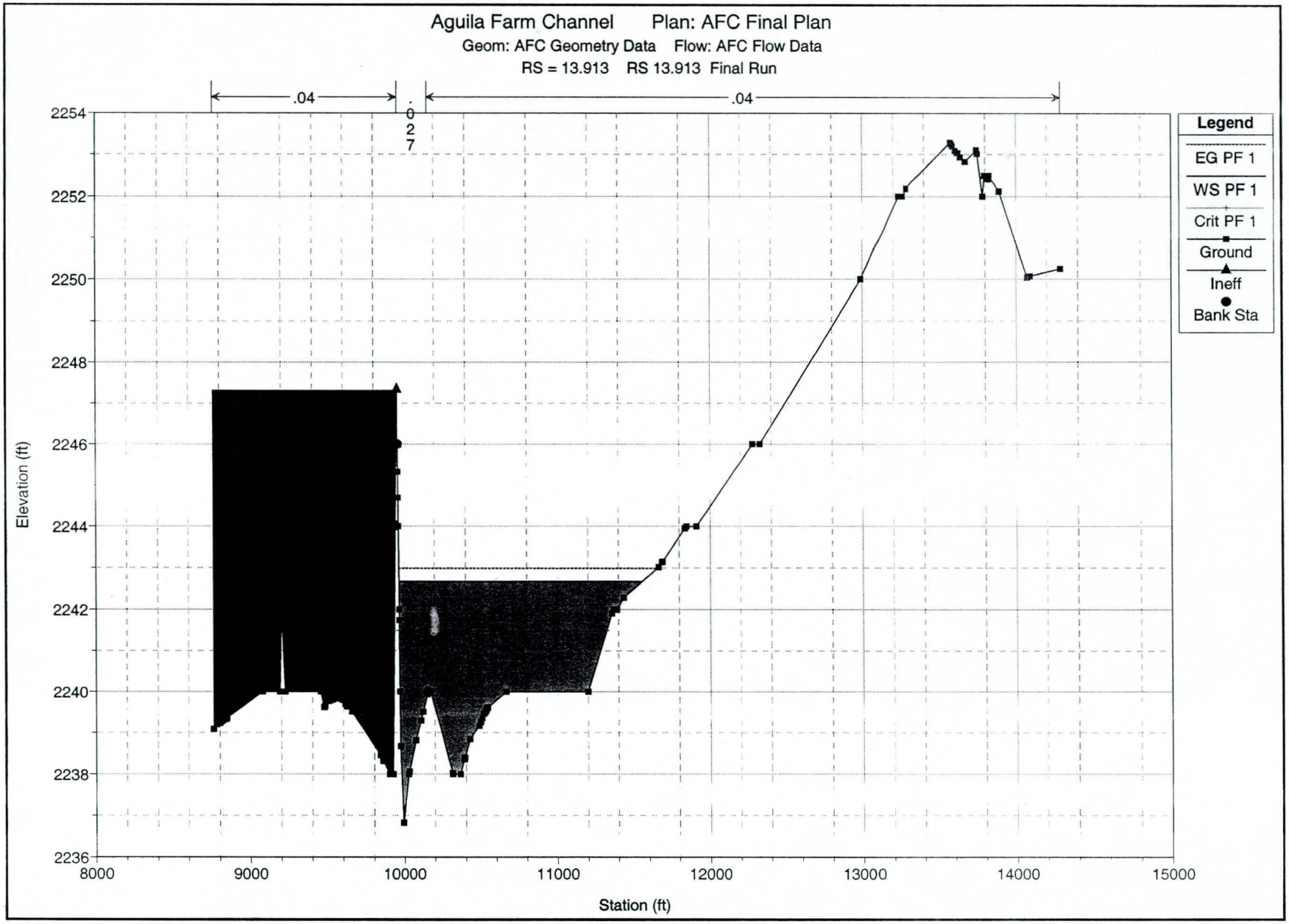

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 14.402 RS 14.402 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2262
2260
2258
2256
2254
2252
2250
2248
2246
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

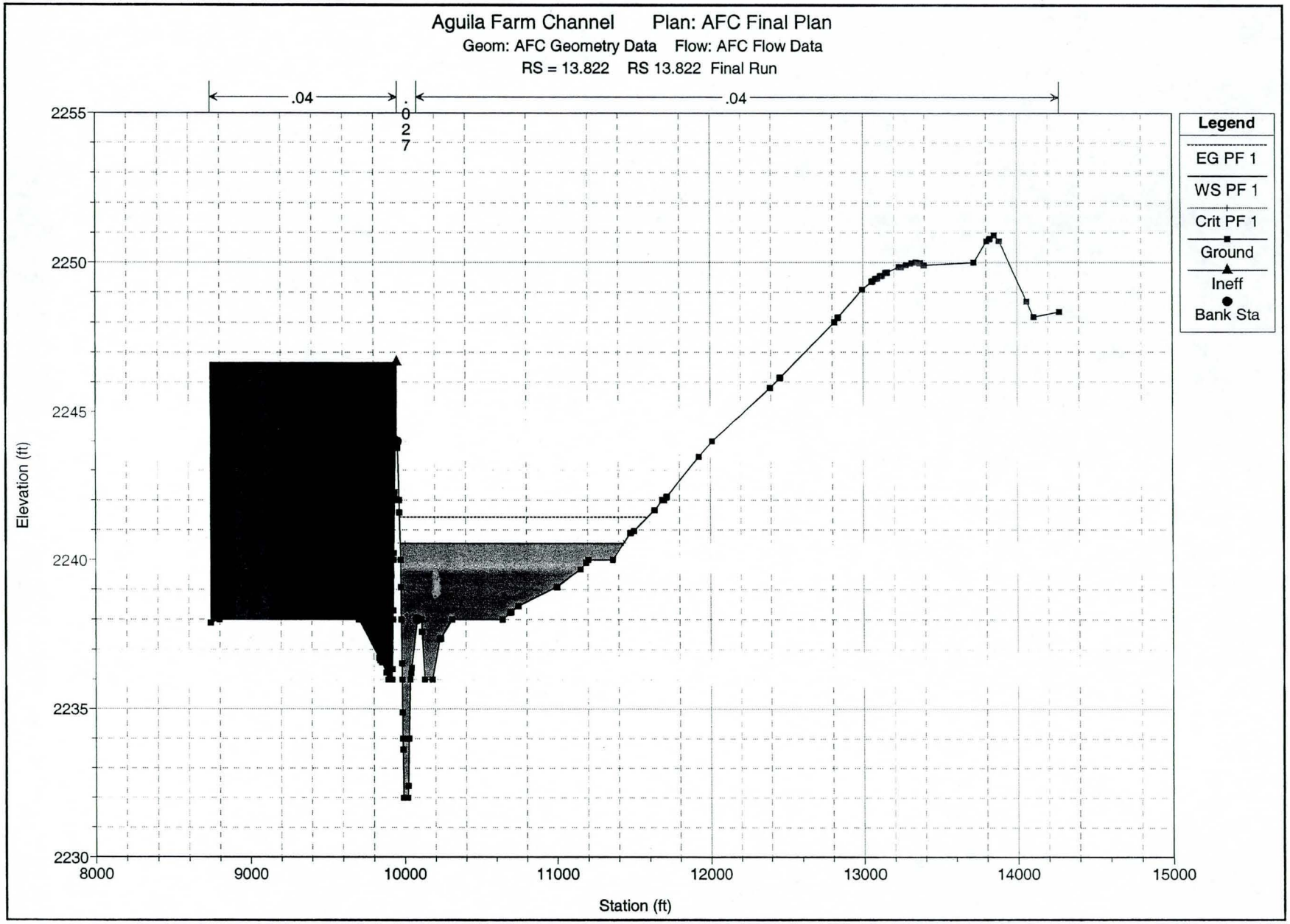

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 14.300 RS 14.300 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2260
2258
2256
2254
2252
2250
2248
2246
2244
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

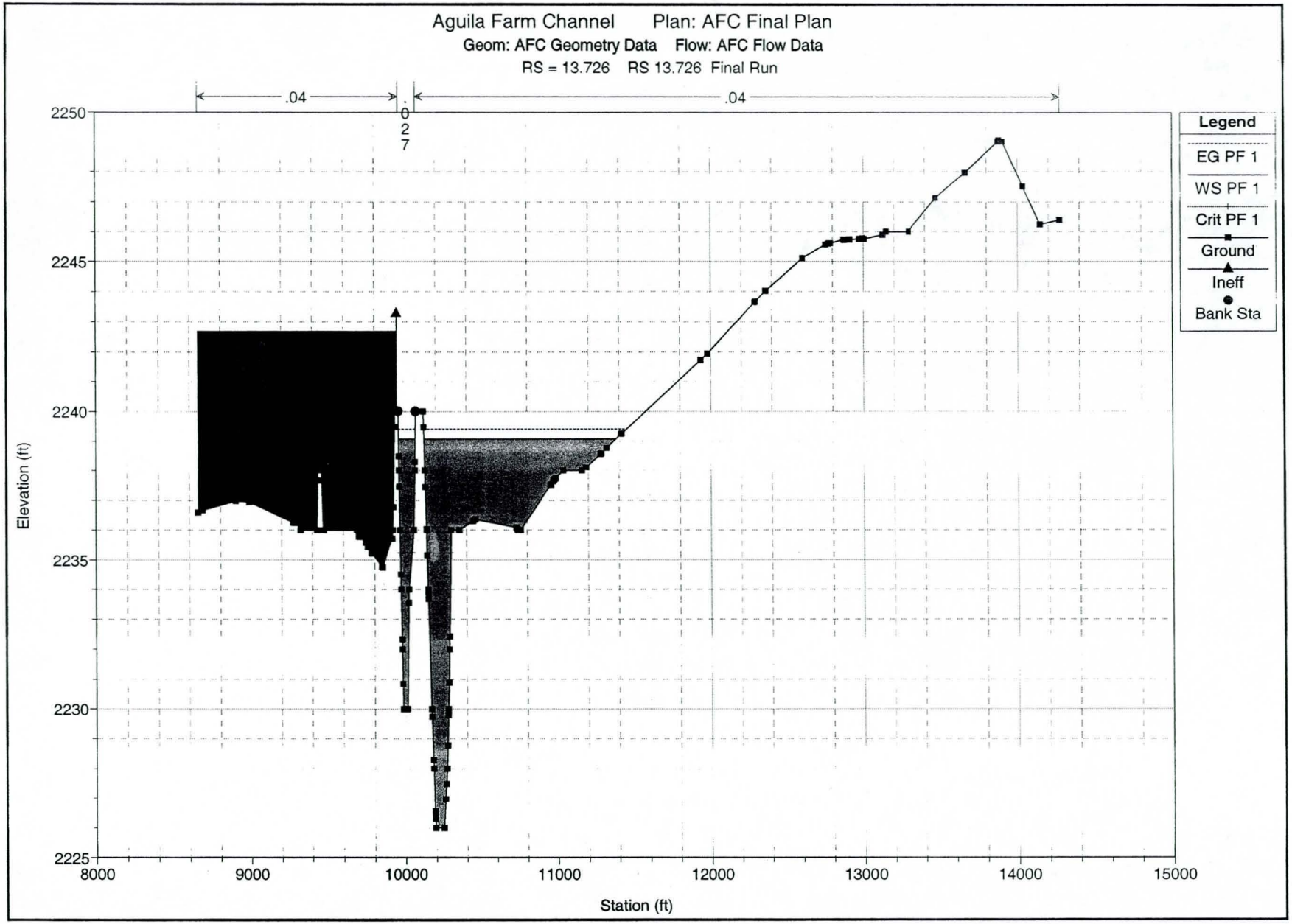

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 14.202 RS 14.202 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2258
2256
2254
2252
2250
2248
2246
2244
2242
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

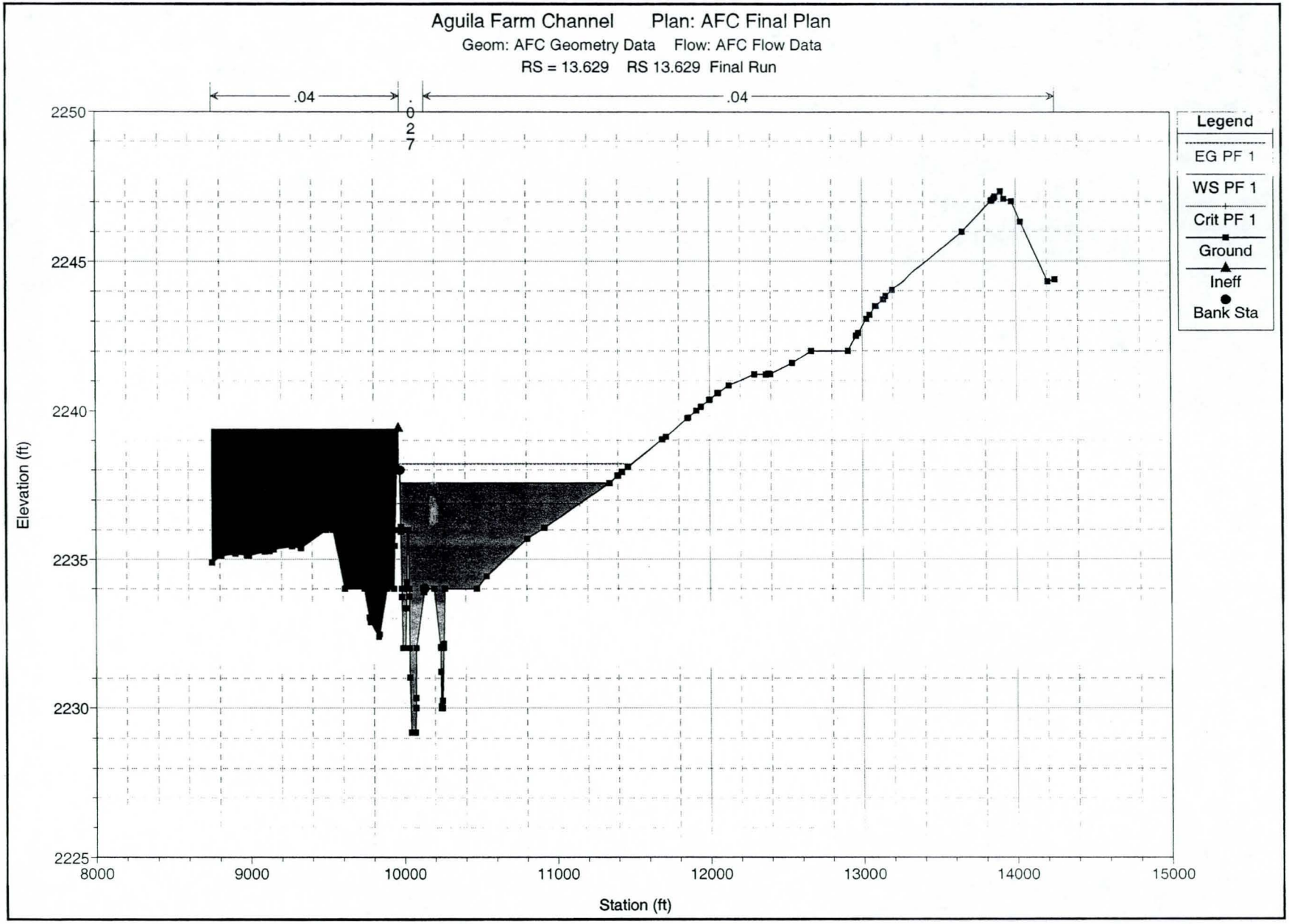

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 14.114 RS 14.114 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2256
2254
2252
2250
2248
2246
2244
2242
2240
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

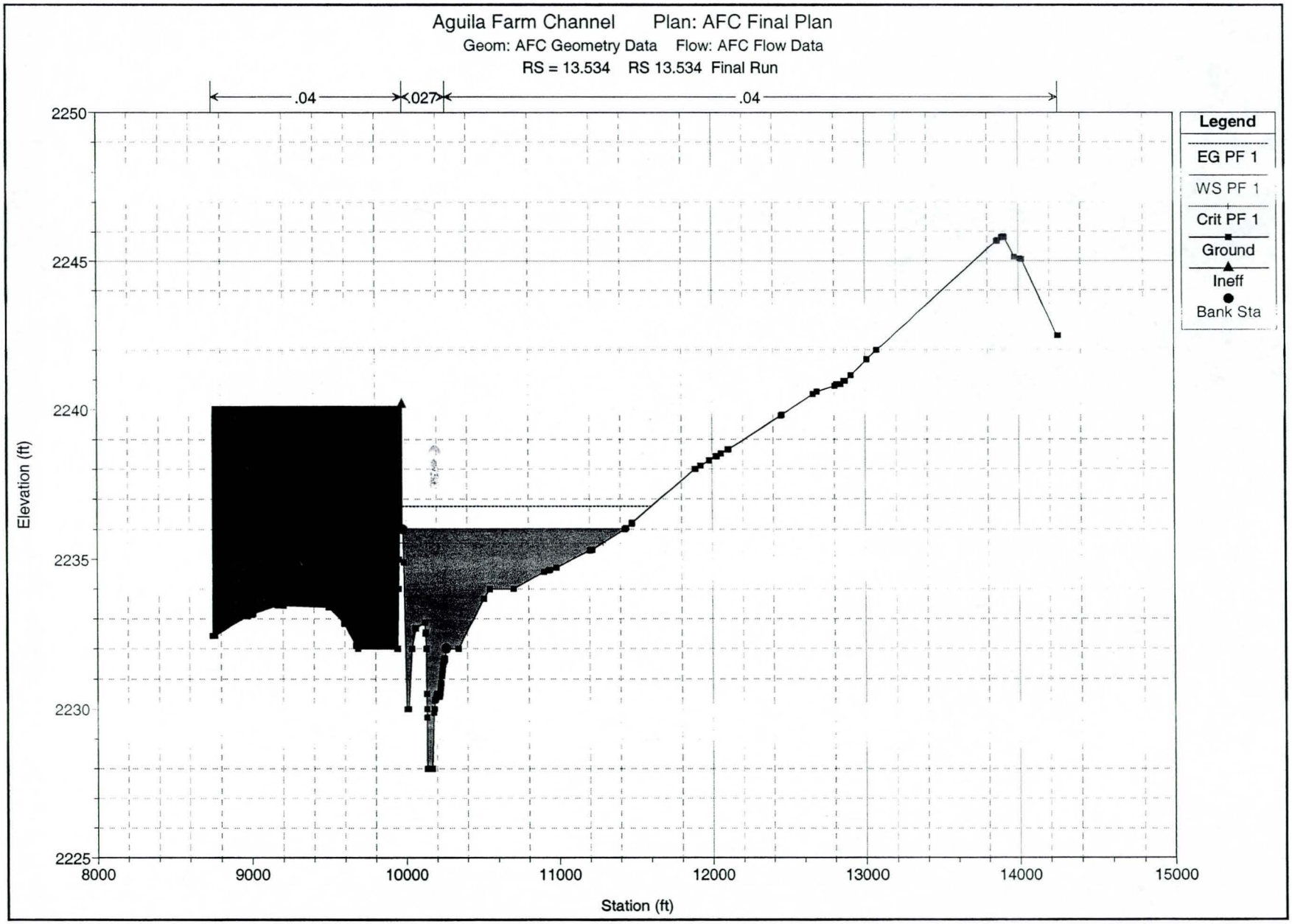

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 14.013 RS 14.013 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2254
2252
2250
2248
2246
2244
2242
2240
2238
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

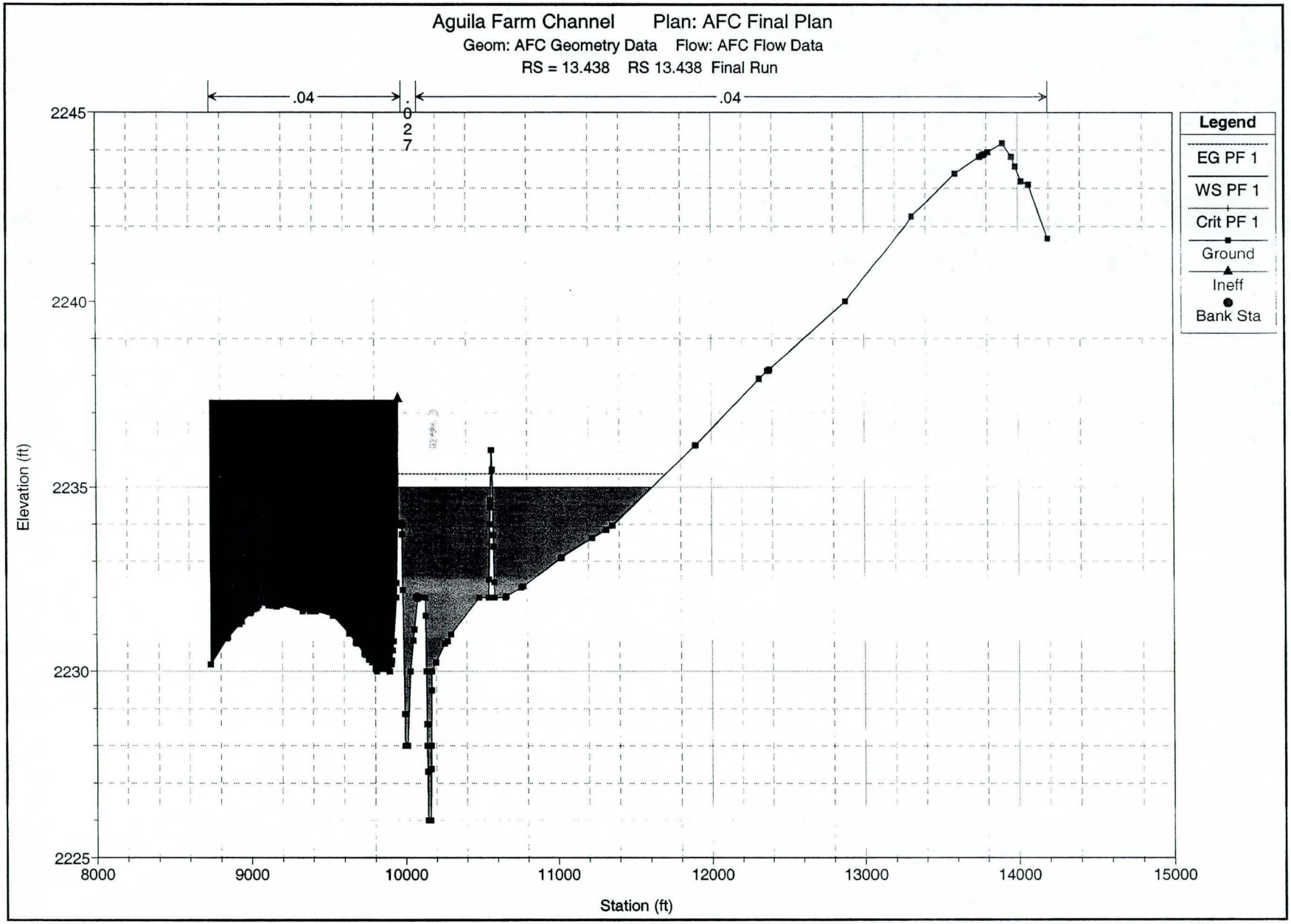

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 13.913 RS 13.913 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2254
2252
2250
2248
2246
2244
2242
2240
2238
2236
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

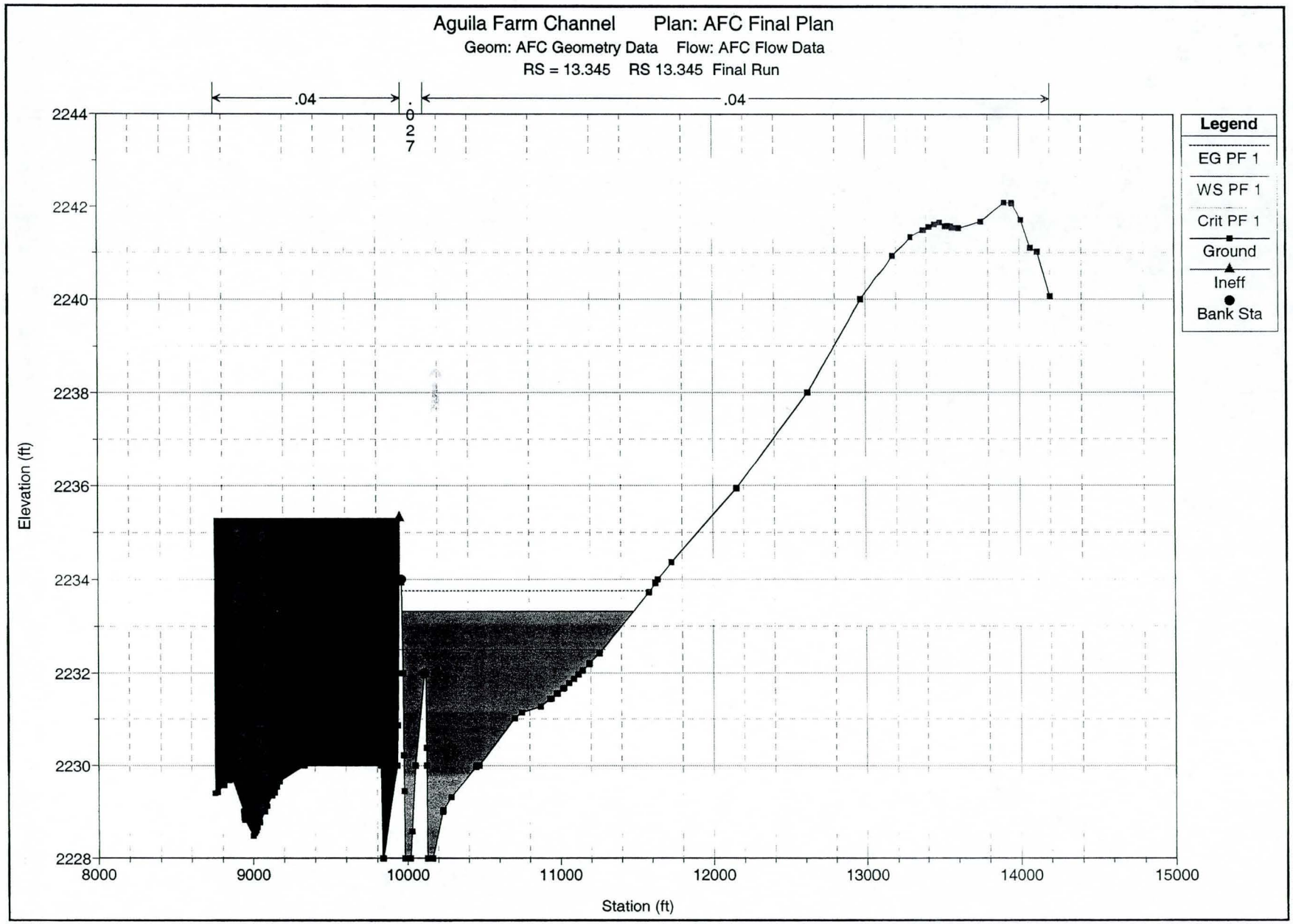

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 13.822 RS 13.822 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2255
2250
2245
2240
2235
2230
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

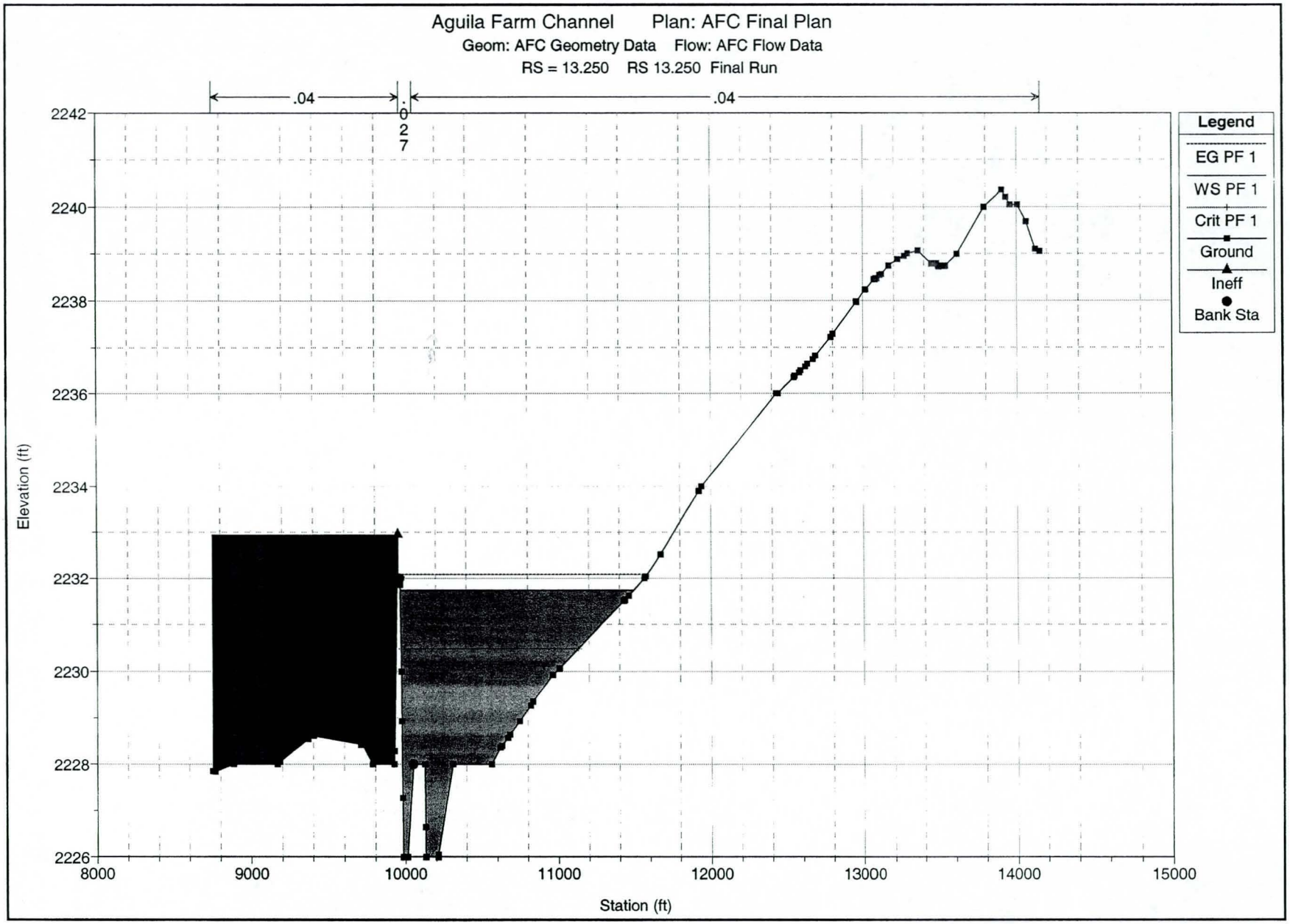

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 13.726 RS 13.726 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2250
2245
2240
2235
2230
2225
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

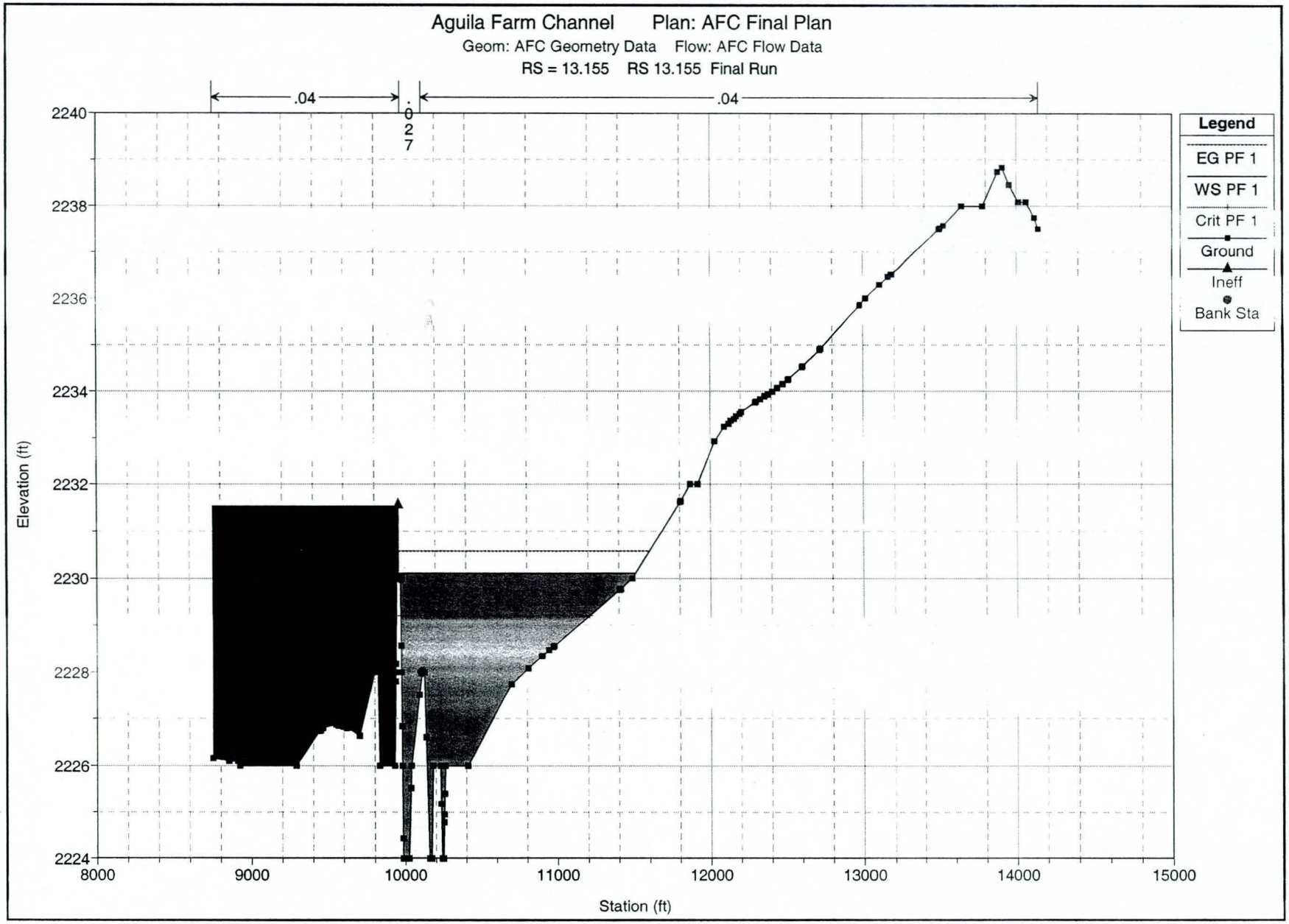

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 13.629 RS 13.629 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2250
2245
2240
2235
2230
2225
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

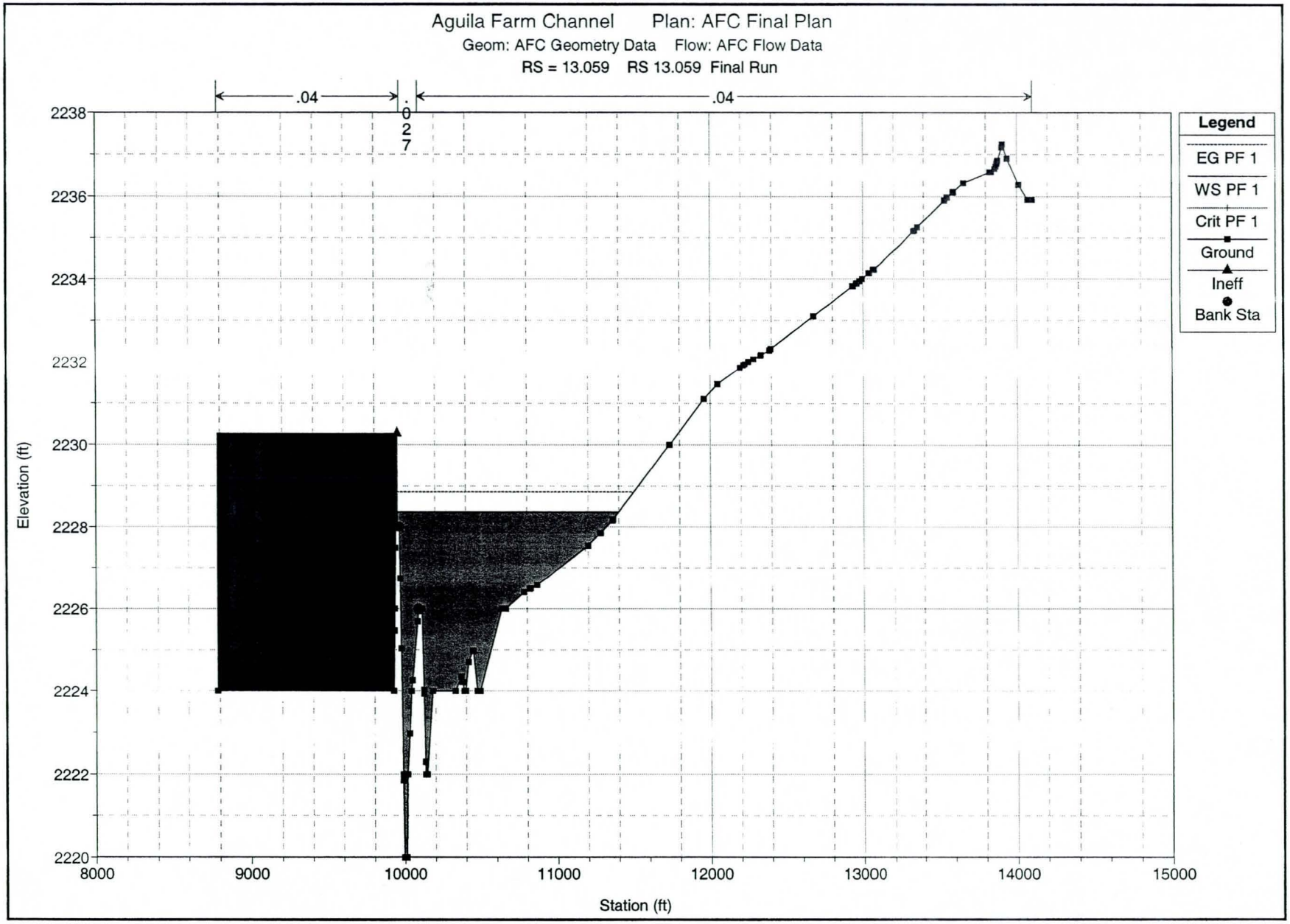

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 13.534 RS 13.534 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2250
2245
2240
2235
2230
2225
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

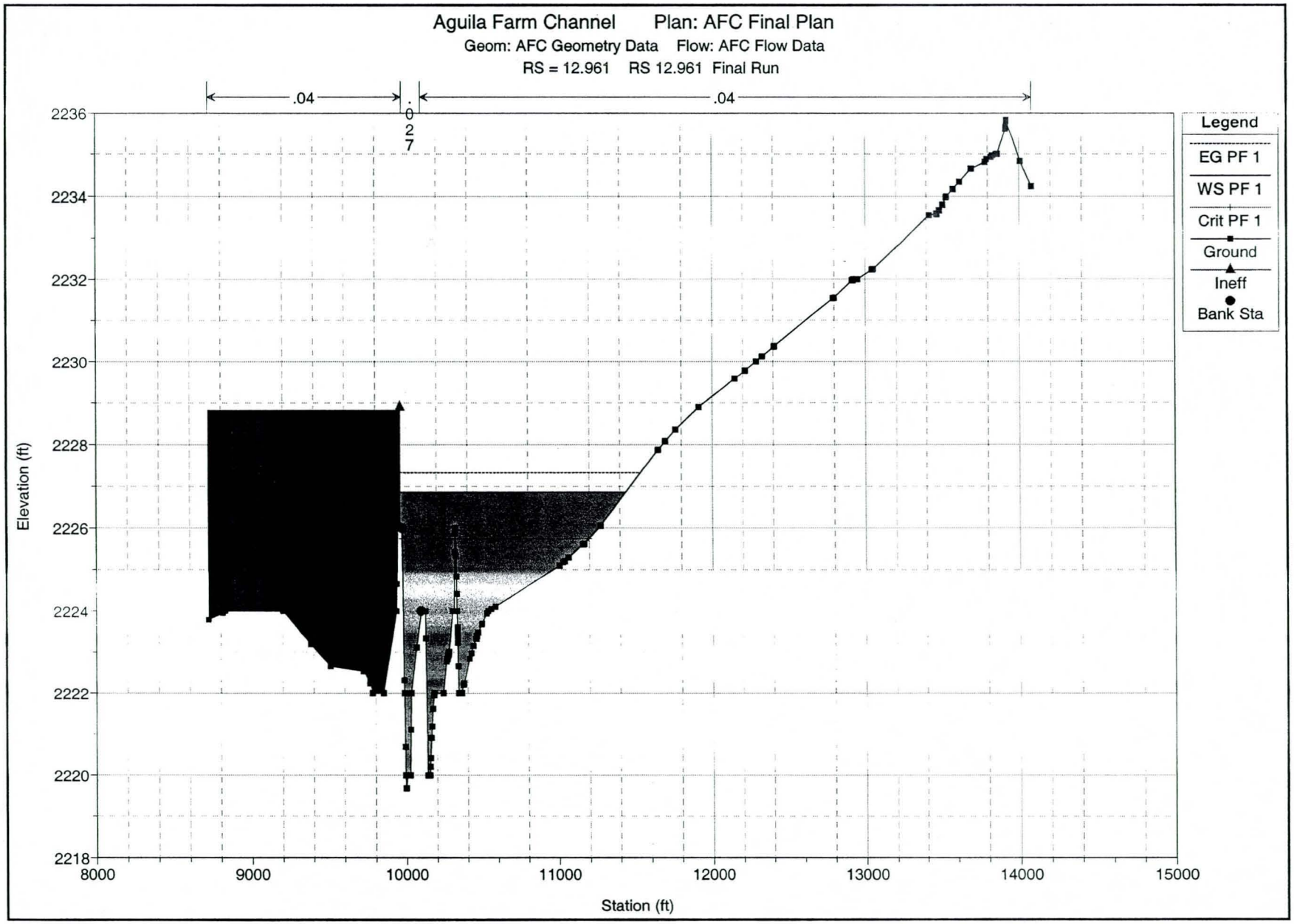

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 13.438 RS 13.438 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2245
2240
2235
2230
2225
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

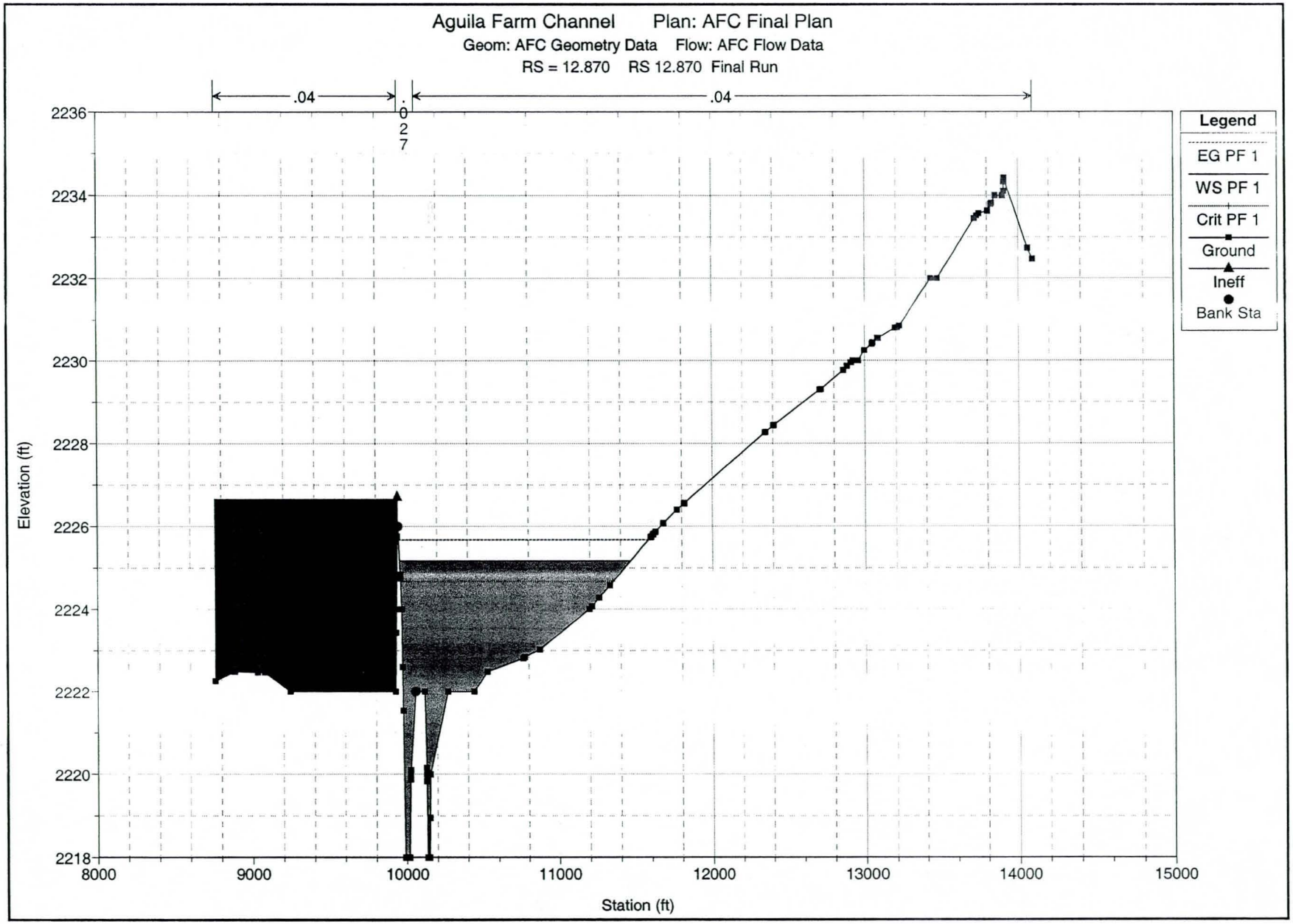

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 13.345 RS 13.345 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2244
2242
2240
2238
2236
2234
2232
2230
2228
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

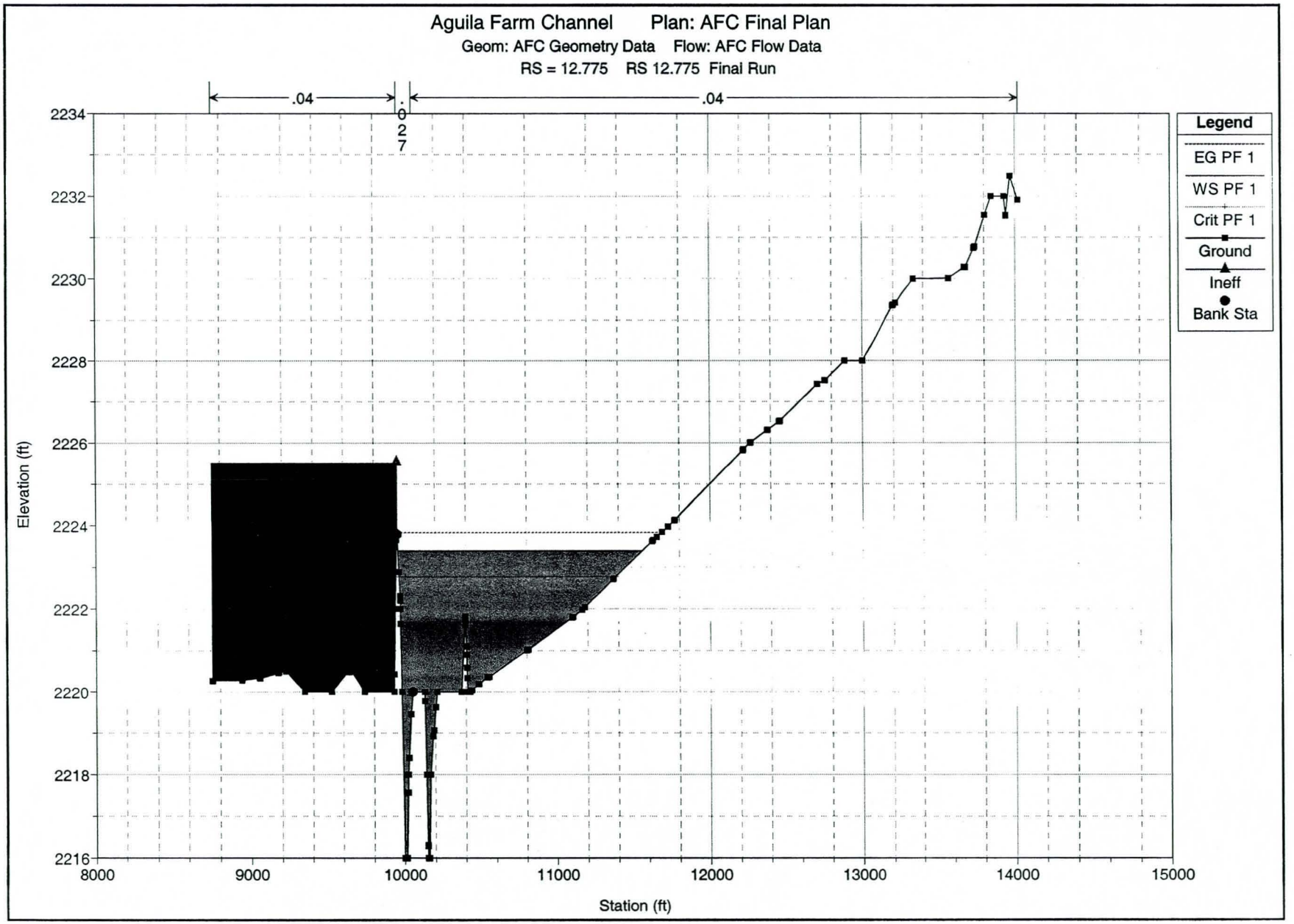

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 13.250 RS 13.250 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2242
2240
2238
2236
2234
2232
2230
2228
2226
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

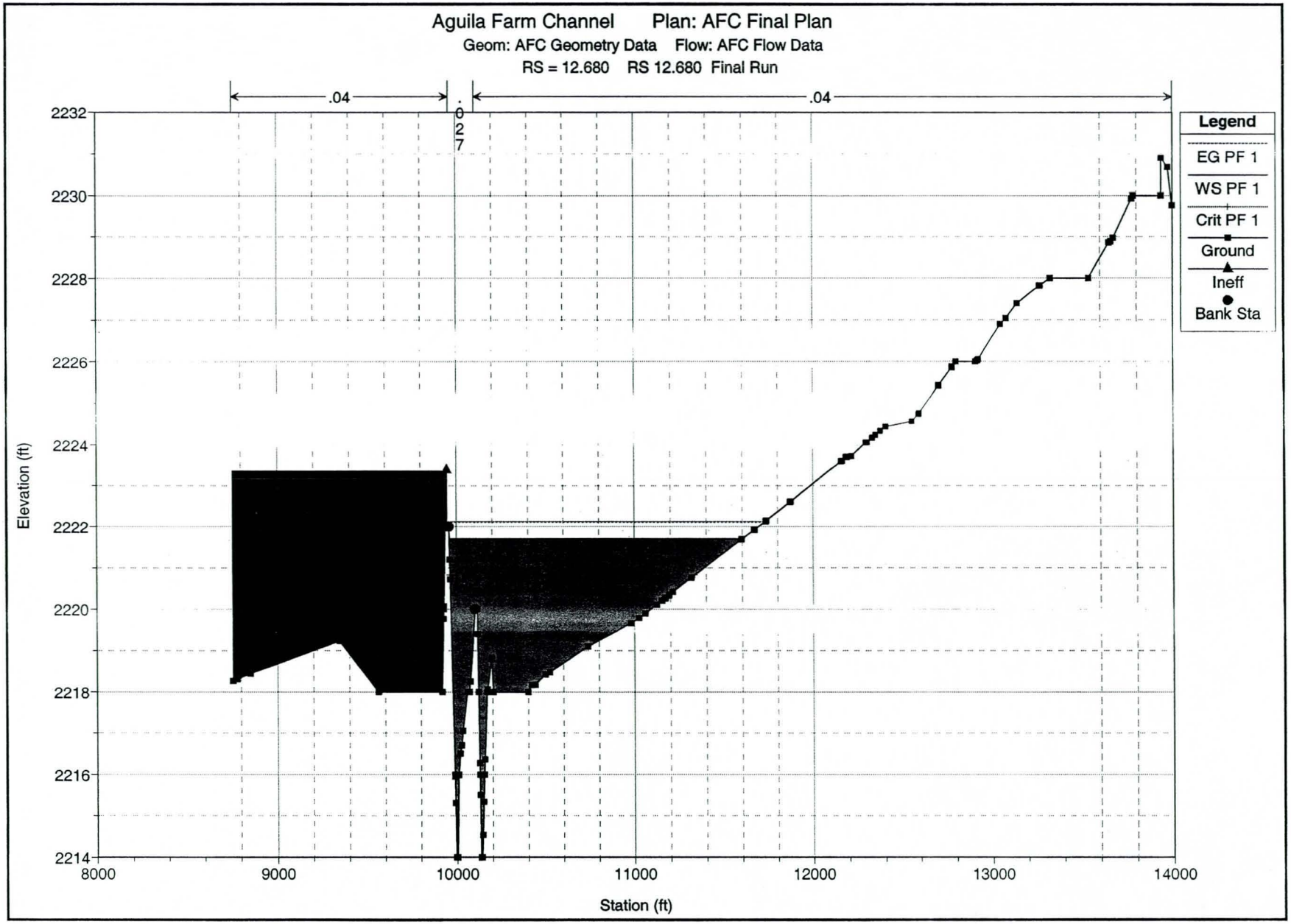

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 13.155 RS 13.155 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2240
2238
2236
2234
2232
2230
2228
2226
2224
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)


Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 13.059 RS 13.059 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2238
2236
2234
2232
2230
2228
2226
2224
2222
2220
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)


Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 12.961 RS 12.961 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2236
2234
2232
2230
2228
2226
2224
2222
2220
2218
8000
9000
10000
11000
12000
13000
14000
15000


Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 12.870 RS 12.870 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2236
2234
2232
2230
2228
2226
2224
2222
2220
2218
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)


Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 12.775 RS 12.775 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2234
2232
2230
2228
2226
2224
2222
2220
2218
2216
8000
9000
10000
11000
12000
13000
14000
15000


Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 12.680 RS 12.680 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2232
2230
2228
2226
2224
2222
2220
2218
2216
2214
8000
9000
10000
11000
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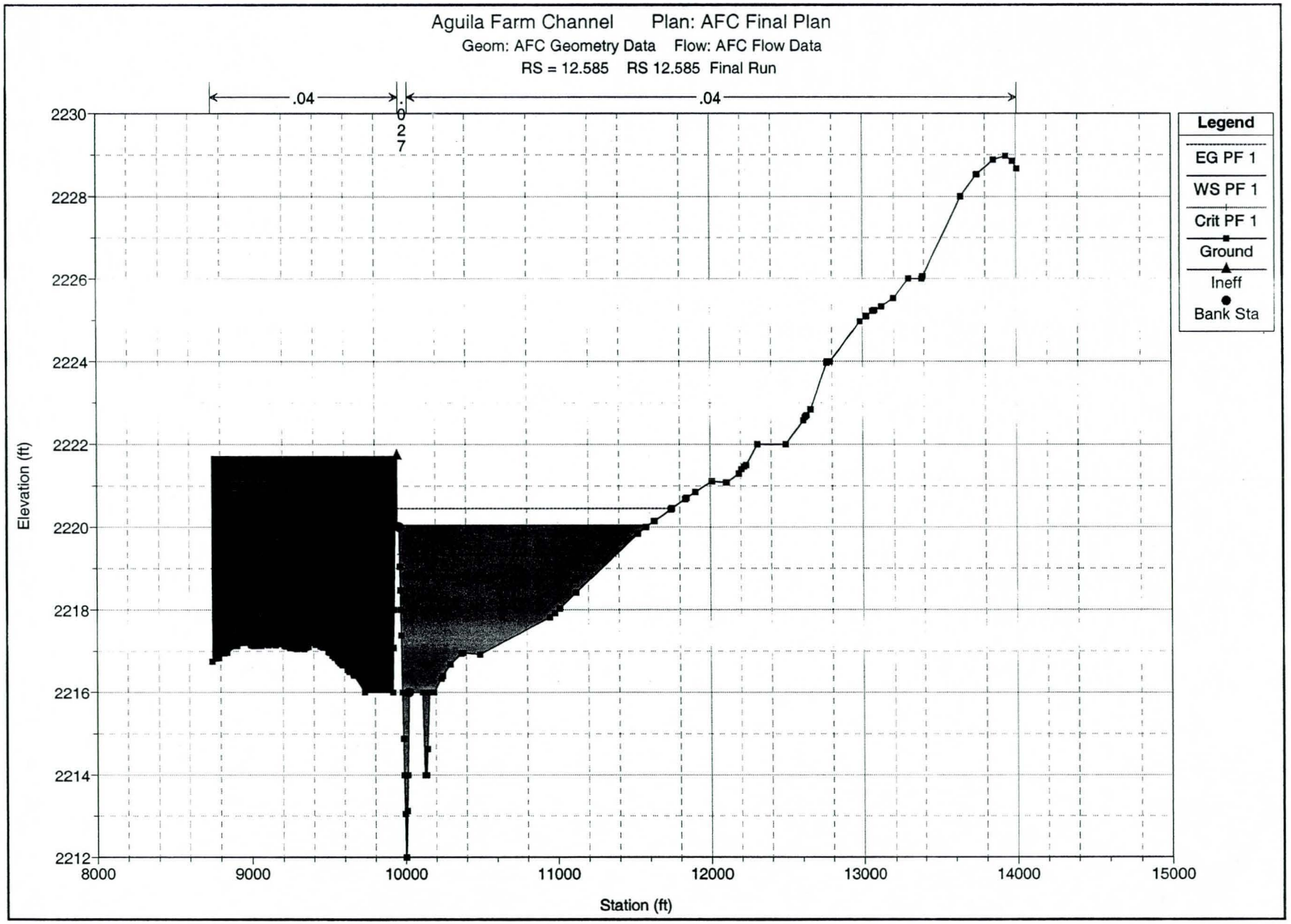
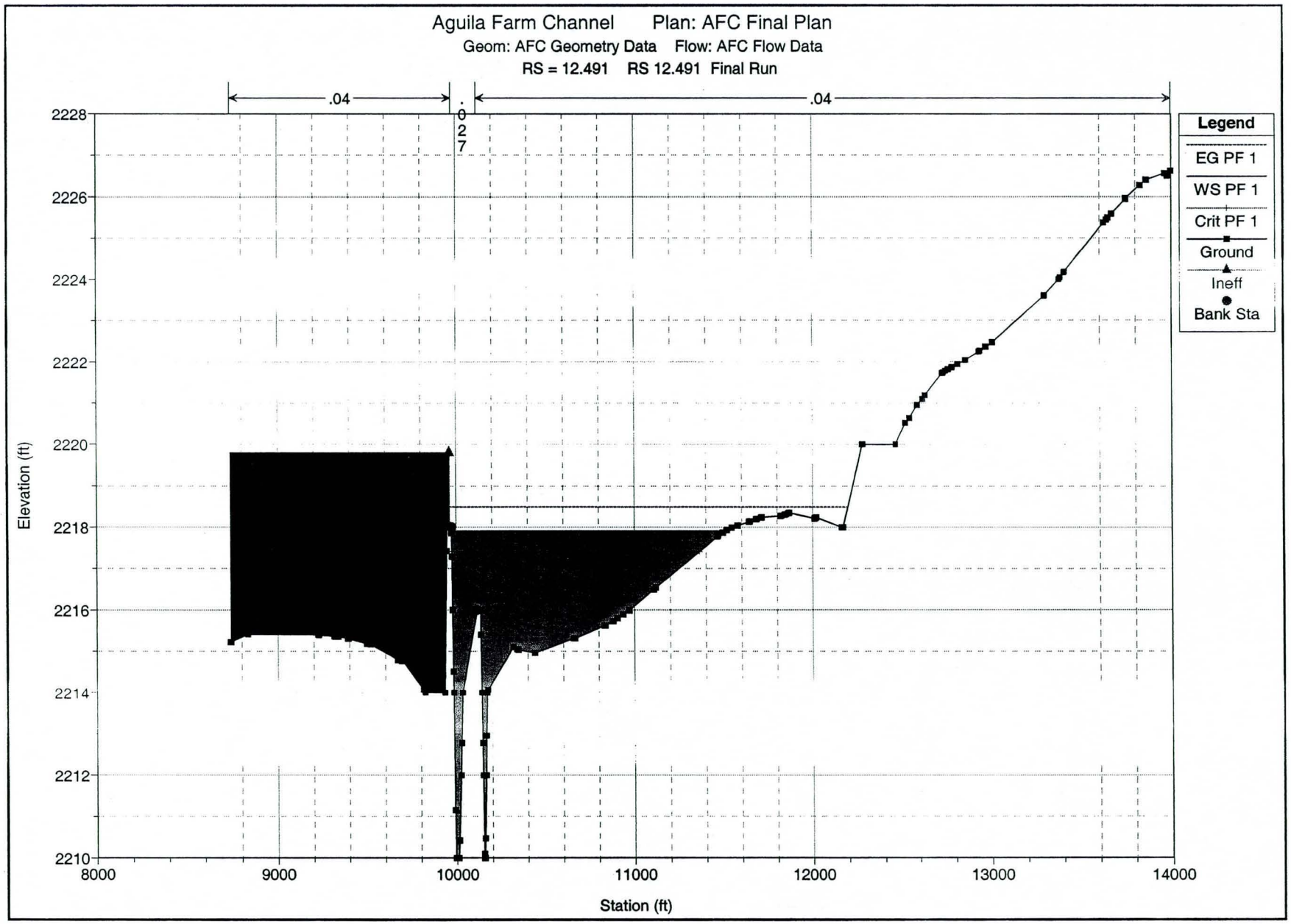
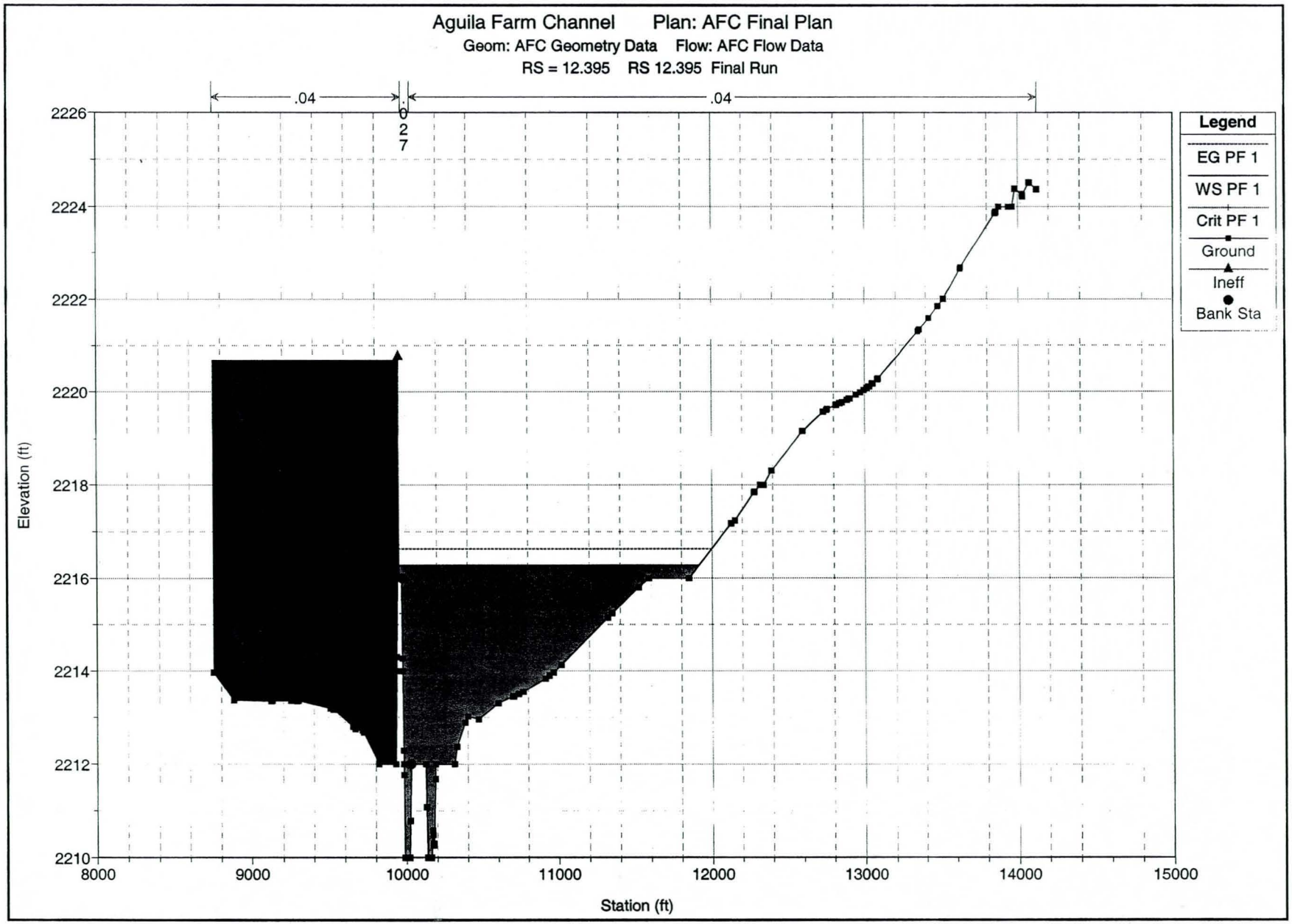
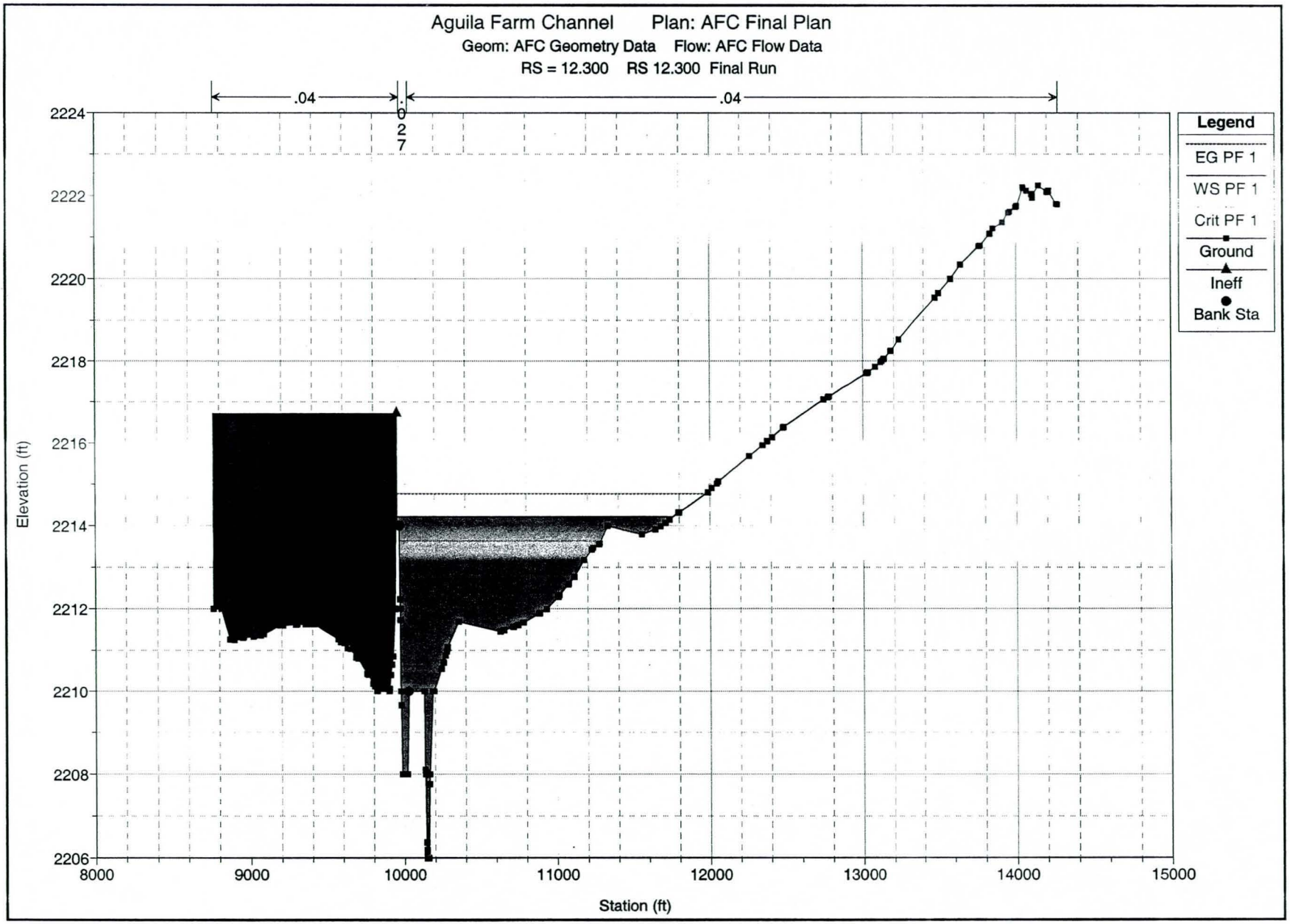
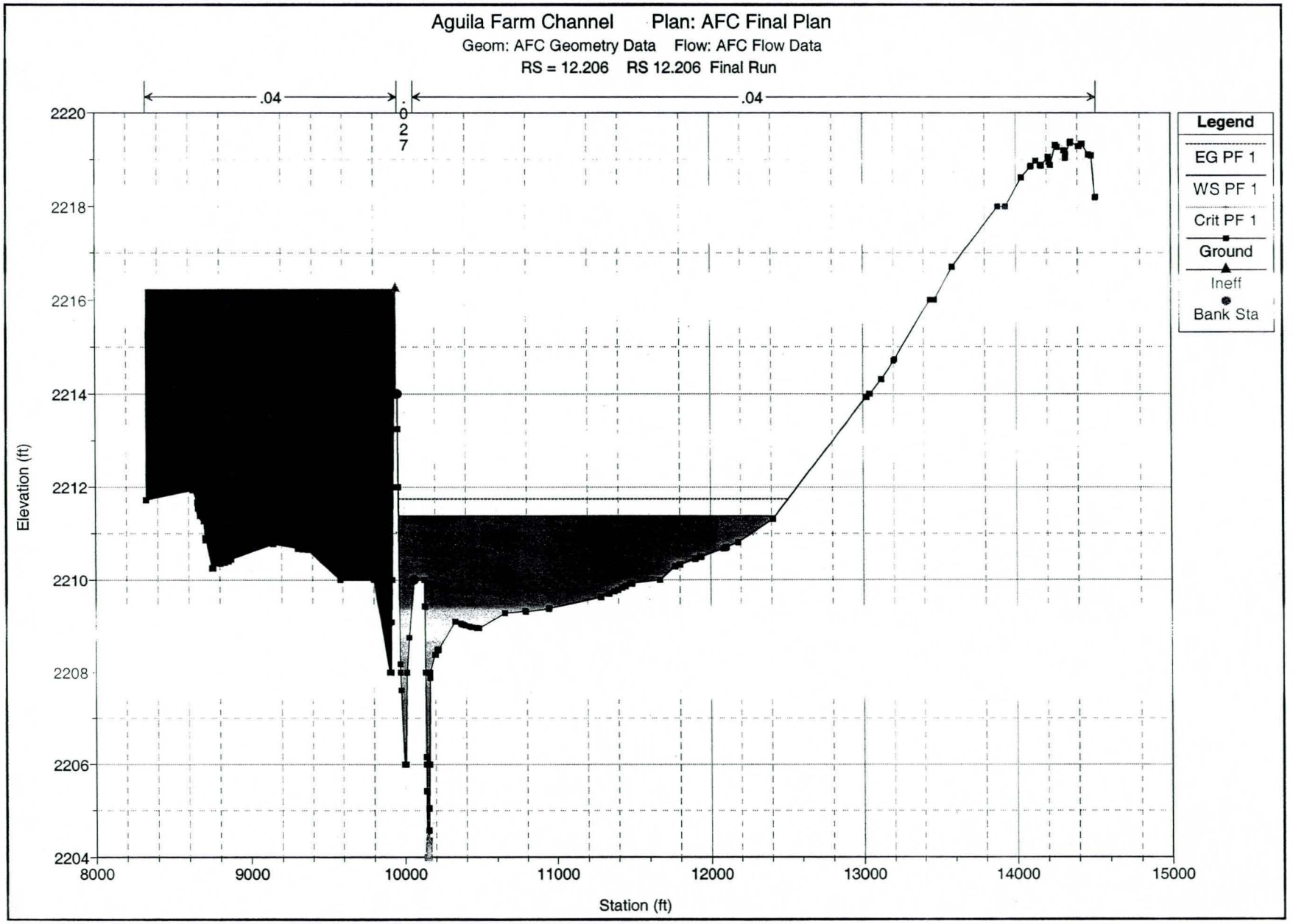
13000
14000
Station (ft)

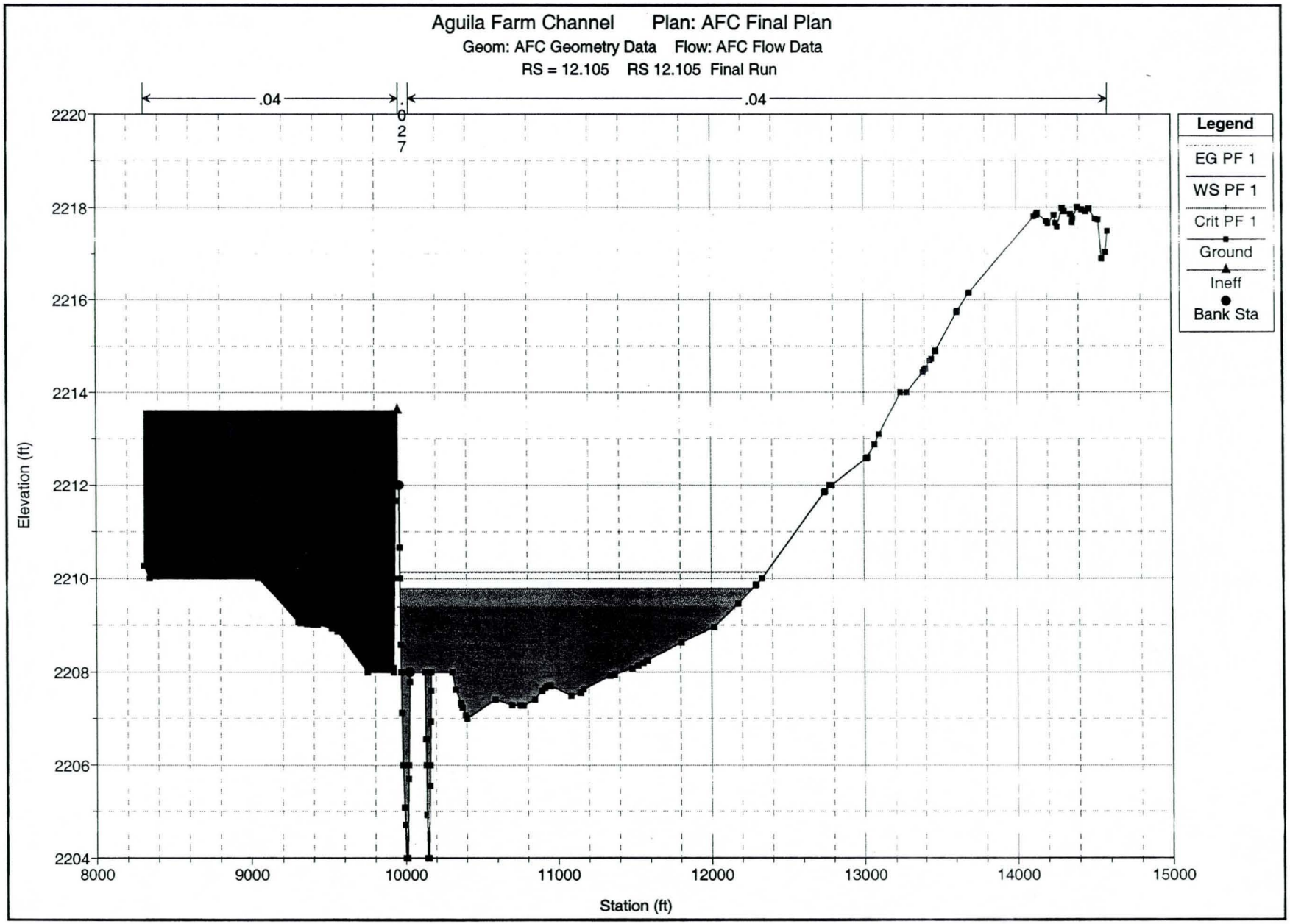

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 12.585 RS 12.585 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2230
2228
2226
2224
2222
2220
2218
2216
2214
2212
8000
9000
10000
11000
12000
13000
14000
15000

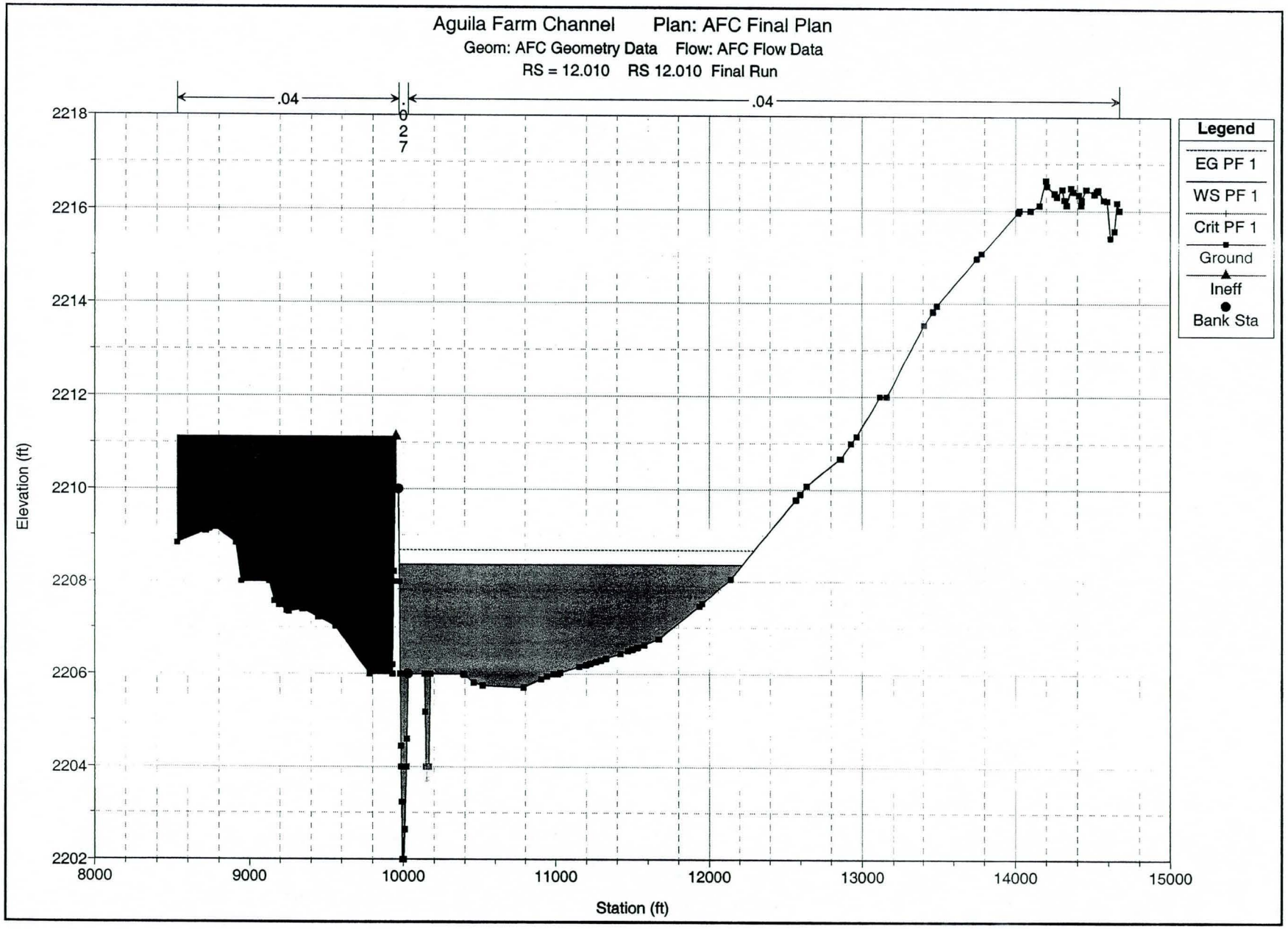

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 12.491 RS 12.491 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2228
2226
2224
2222
2220
2218
2216
2214
2212
2210
8000
9000
10000
11000
12000
13000
14000
Station (ft)

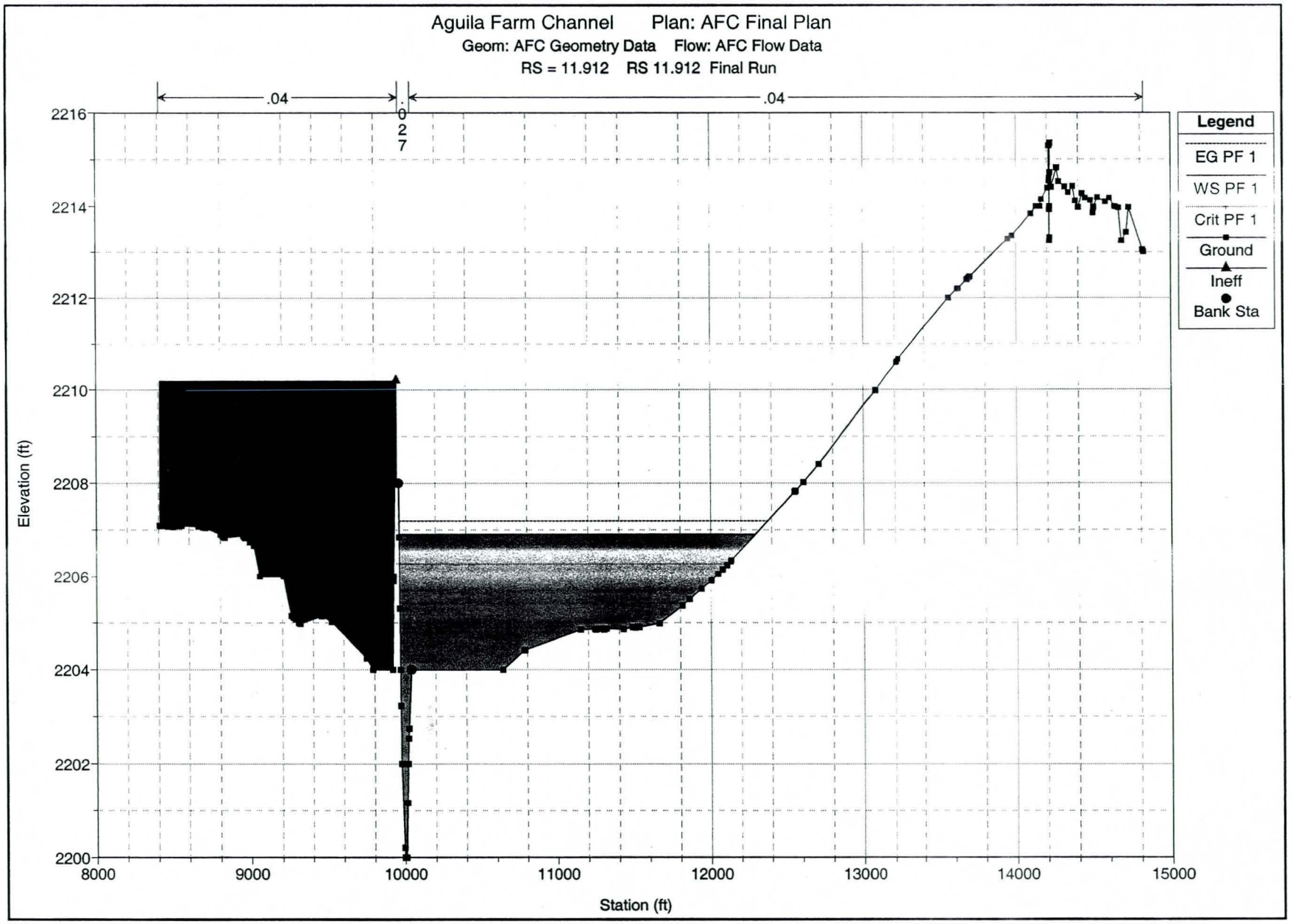

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 12.395 RS 12.395 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2226
2224
2222
2220
2218
2216
2214
2212
2210
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

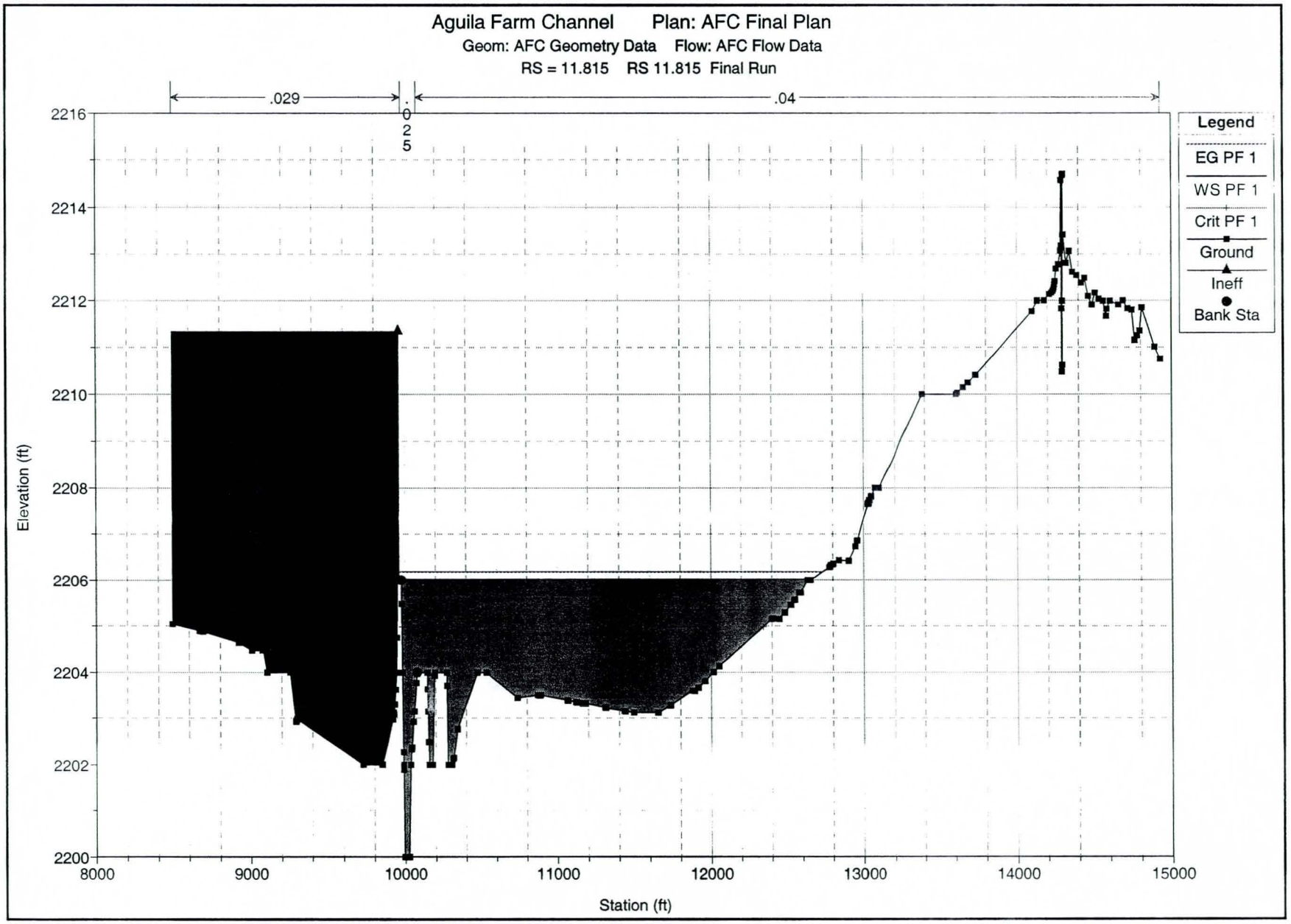

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 12.300 RS 12.300 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2224
2222
2220
2218
2216
2214
2212
2210
2208
2206
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

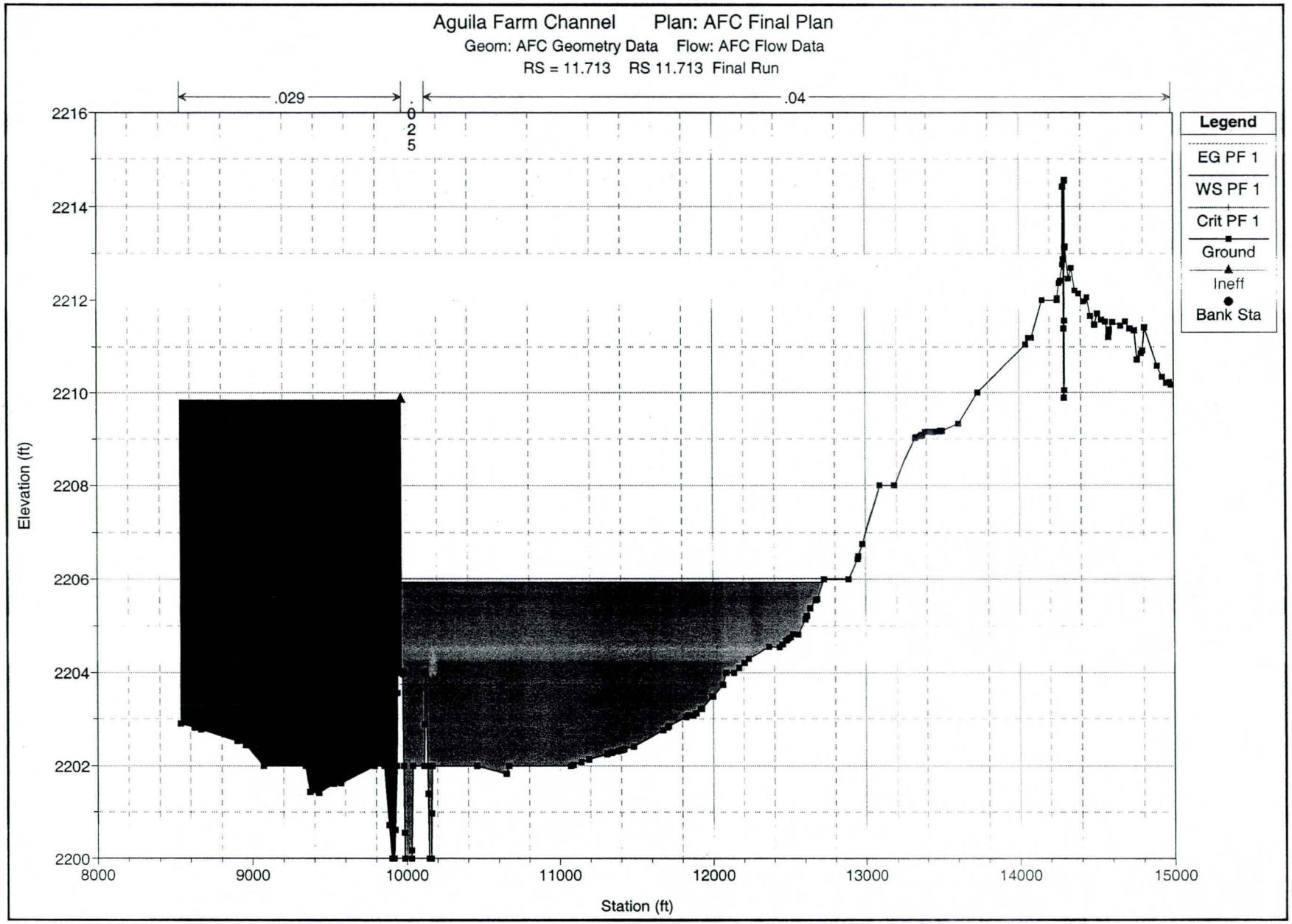

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 12.206 RS 12.206 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2220
2218
2216
2214
2212
2210
2208
2206
2204
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

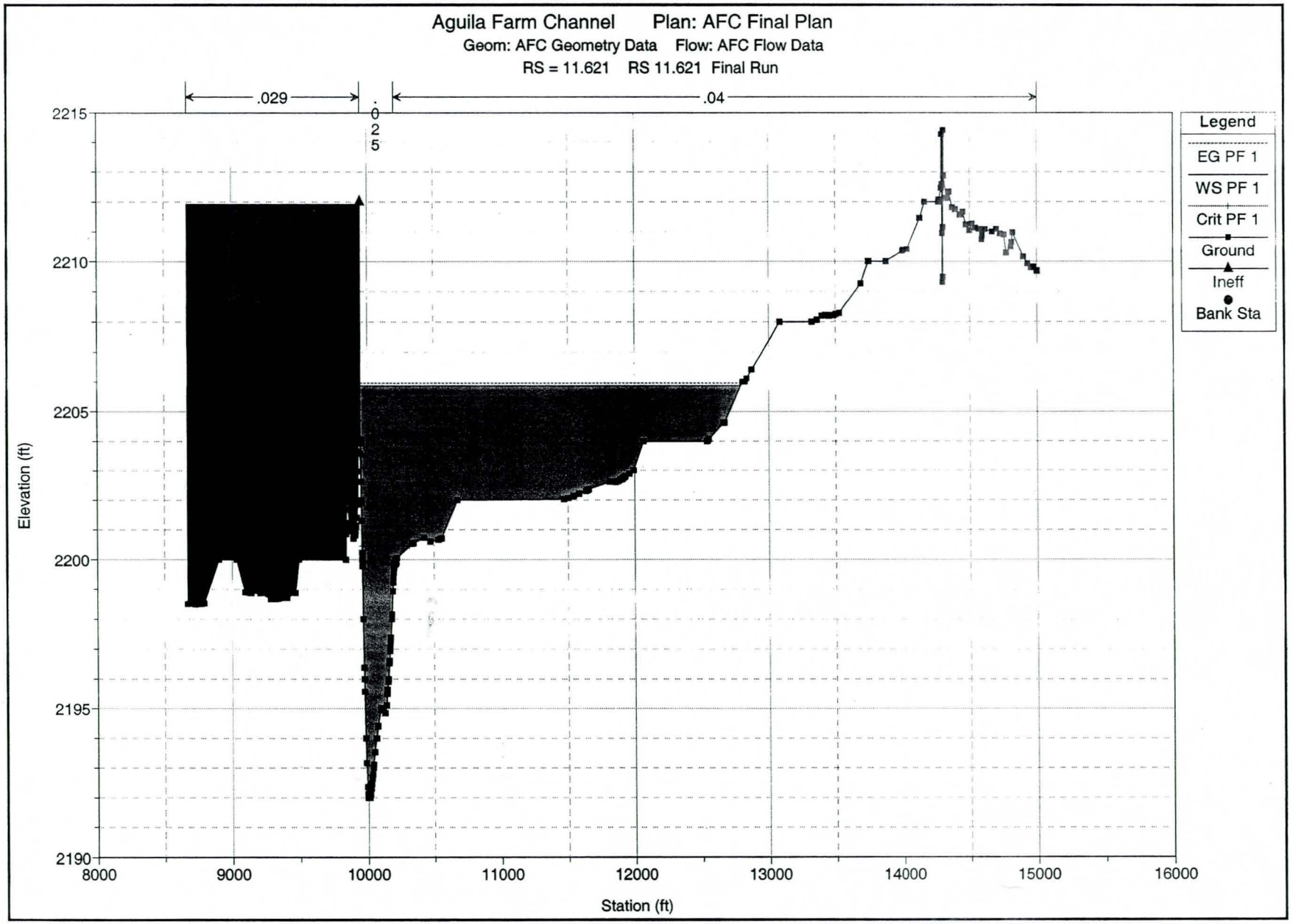

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 12.105 RS 12.105 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2220
2218
2216
2214
2212
2210
2208
2206
2204
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

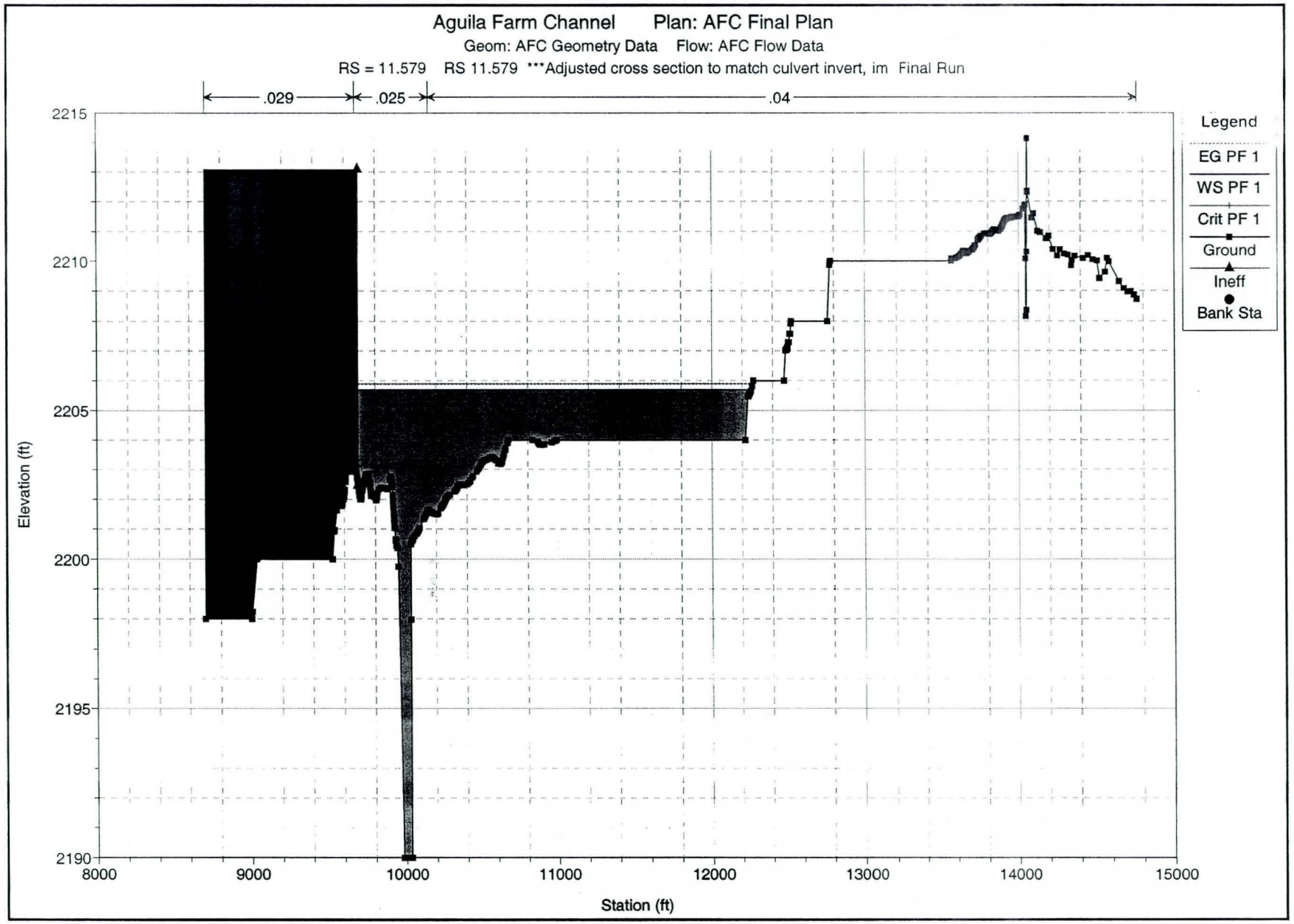

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 12.010 RS 12.010 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2218
2216
2214
2212
2210
2208
2206
2204
2202
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

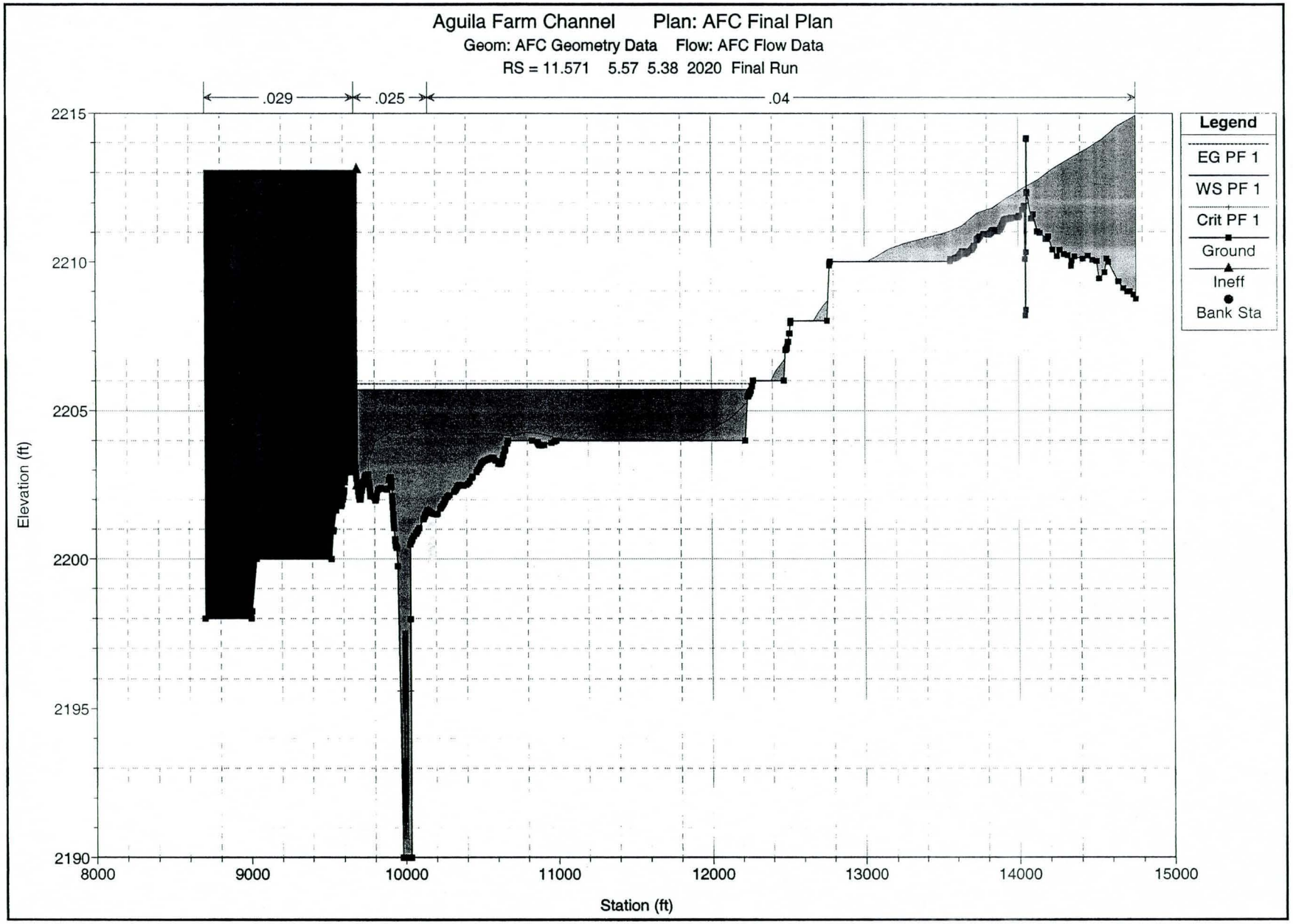

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 11.912 RS 11.912 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2216
2214
2212
2210
2208
2206
2204
2202
2200
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

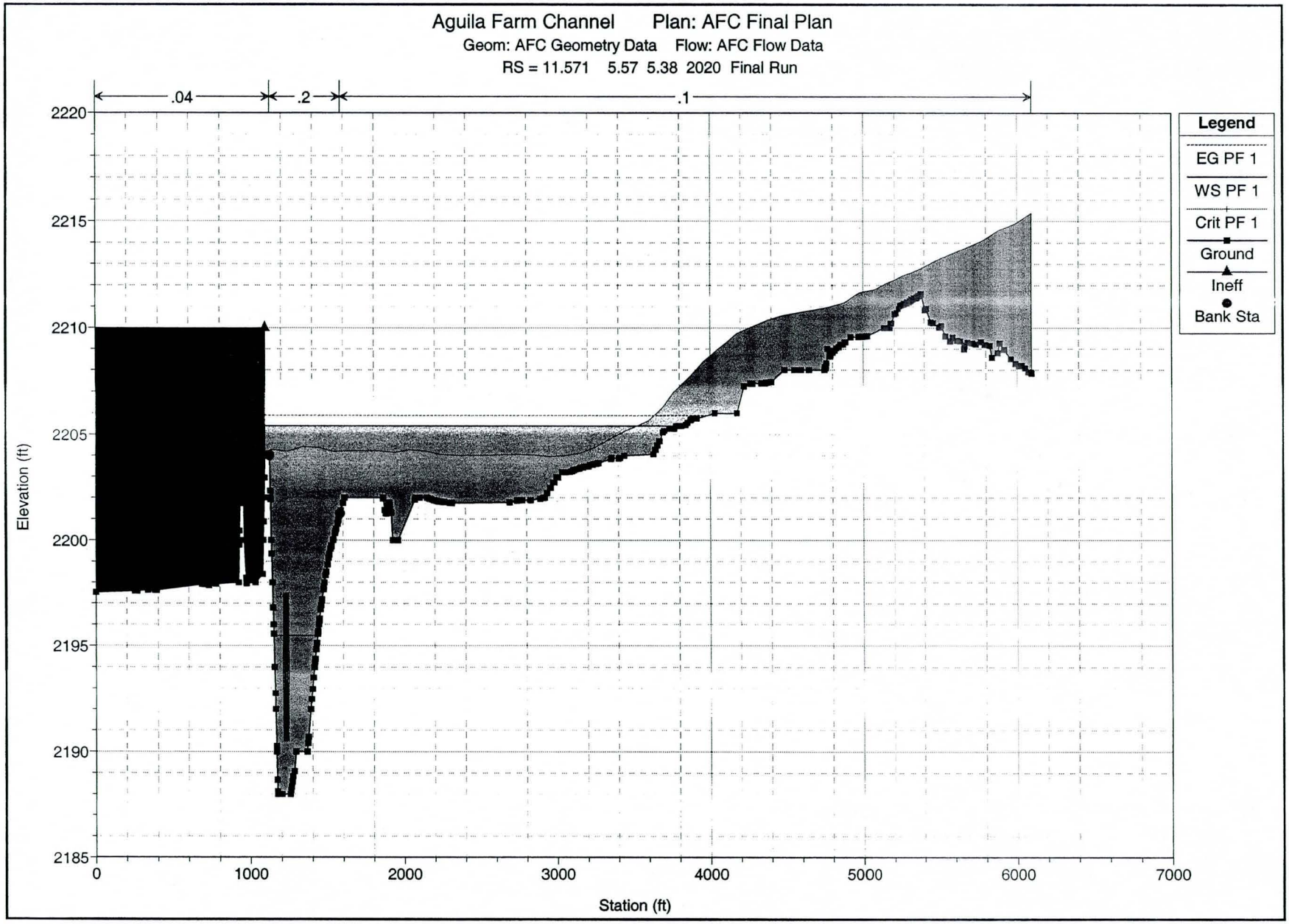

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 11.815 RS 11.815 Final Run
.029
.025
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
2216
2214
2212
2210
2208
2206
2204
2202
2200
8000
9000
10000
11000
12000
13000
14000
15000

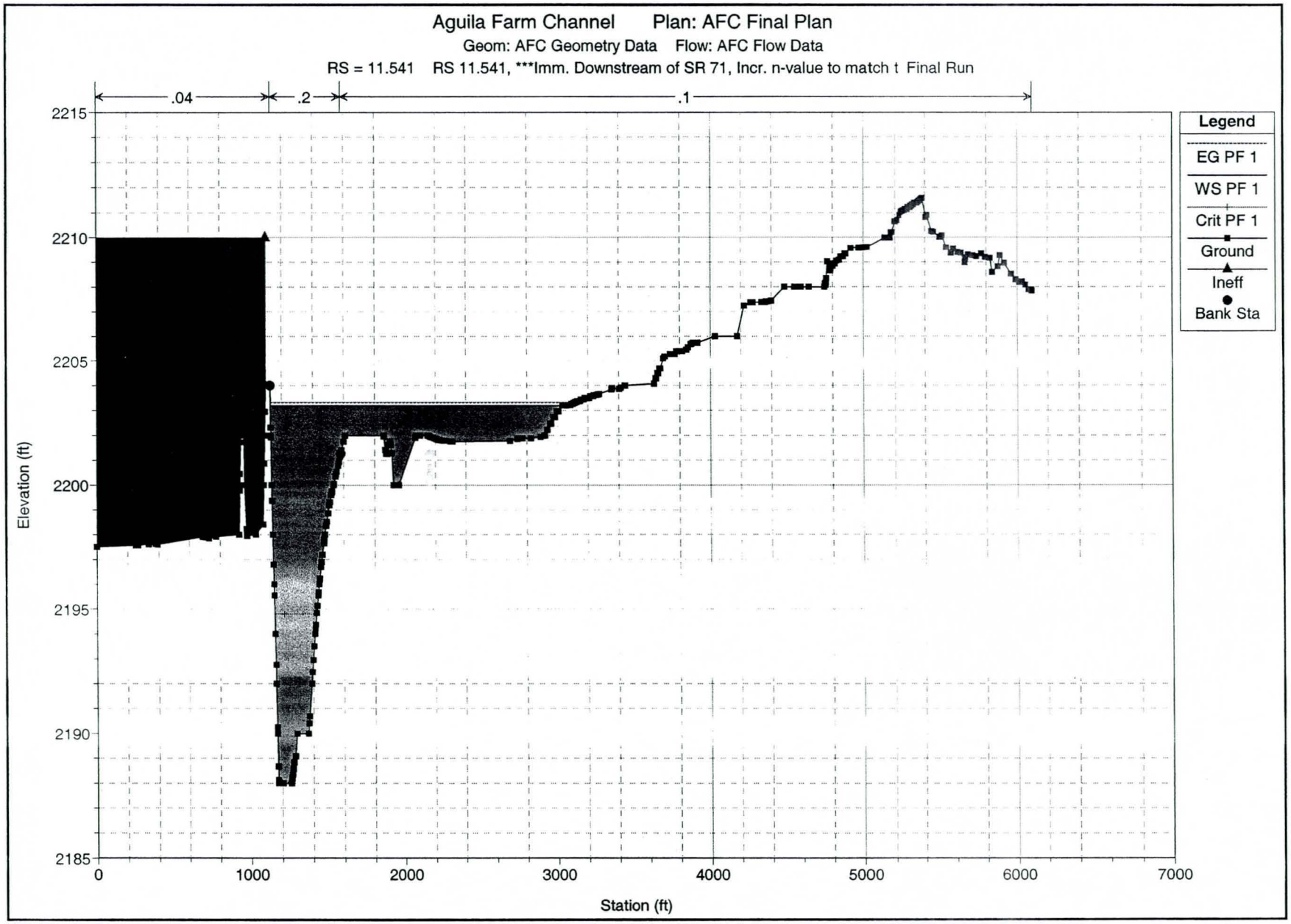

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 11.713 RS 11.713 Final Run
.029
.025
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2216
2214
2212
2210
2208
2206
2204
2202
2200
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

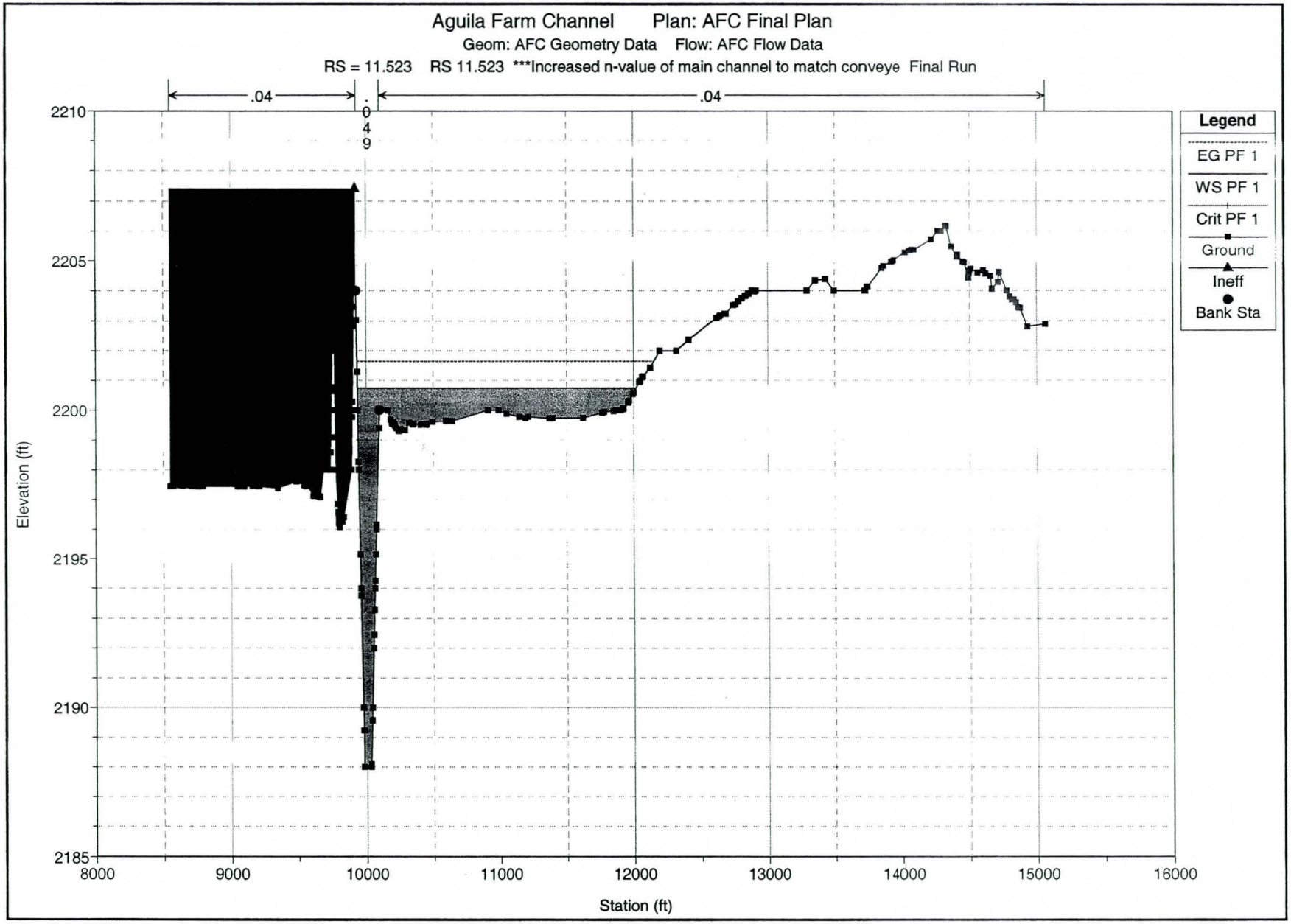

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 11.621 RS 11.621 Final Run
.029
.025
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2215
2210
2205
2200
2195
2190
8000
9000
10000
11000
12000
13000
14000
15000
16000
Station (ft)

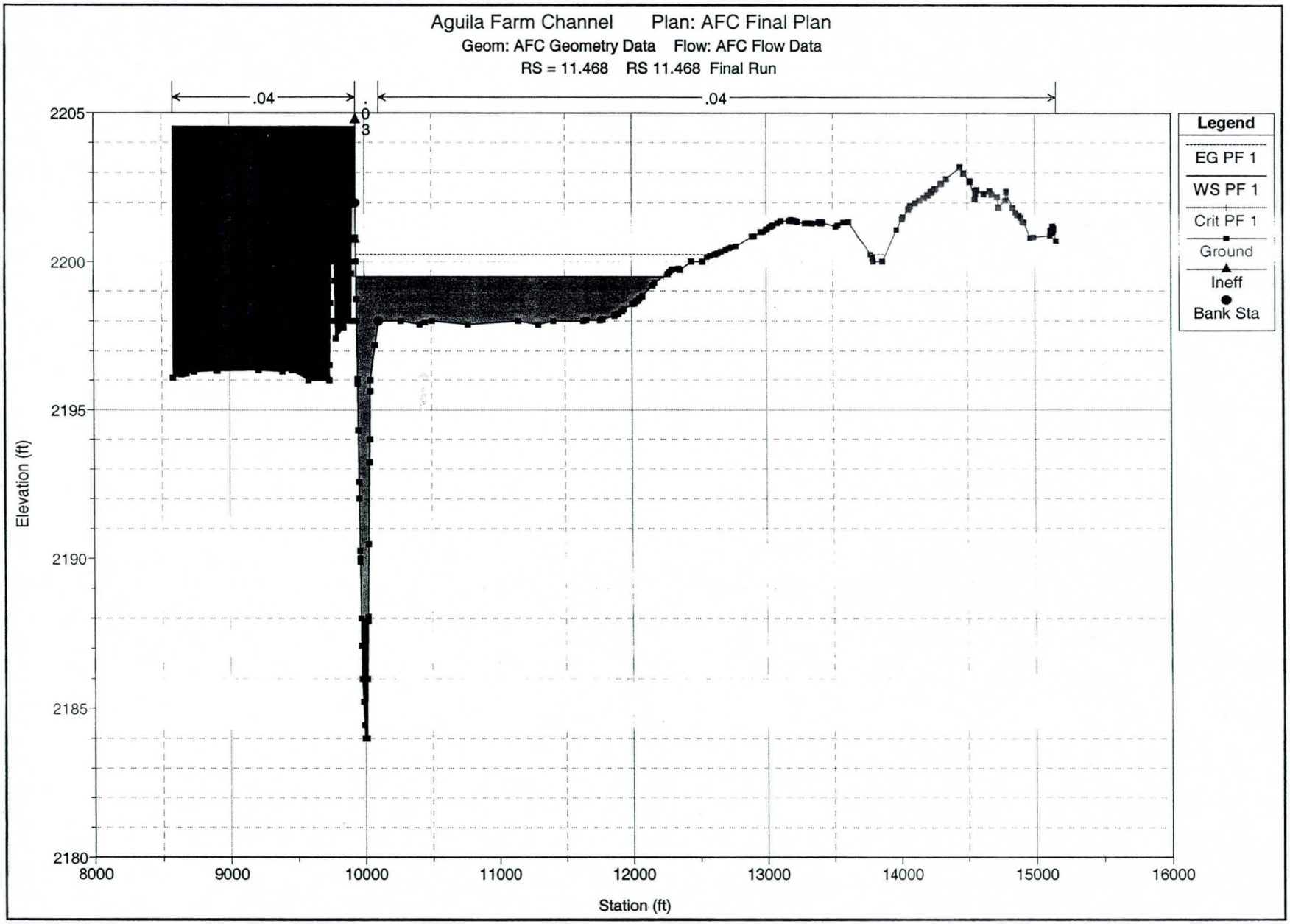

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 11.579 RS 11.579 ***Adjusted cross section to match culvert invert, im Final Run
.029
.025
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2215
2210
2205
2200
2195
2190
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

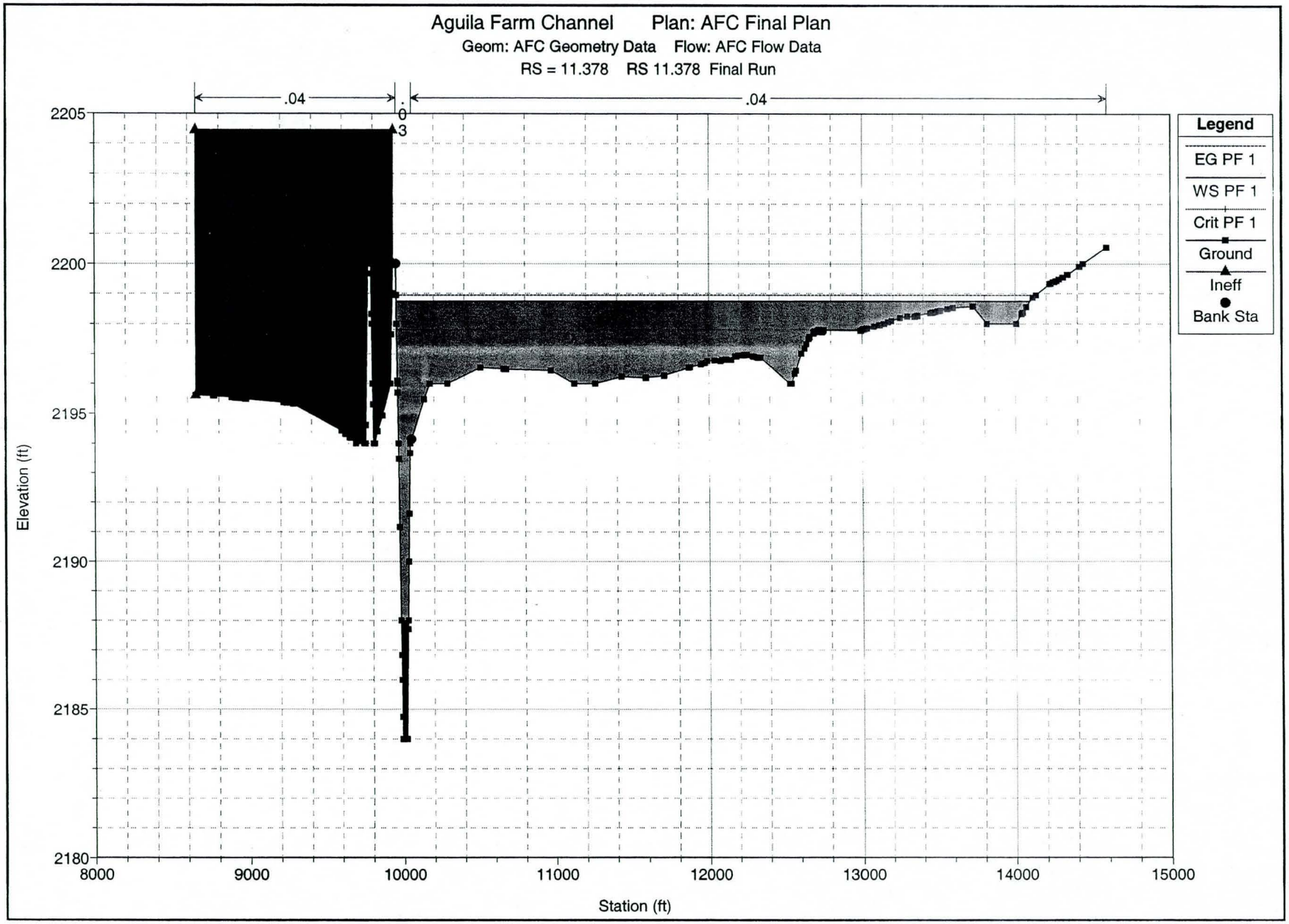

Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 11.571 5.57 5.38 2020 Final Run
.029
.025
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2215
2210
2205
2200
2195
2190
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)


Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 11.571 5.57 5.38 2020 Final Run
.04
.2
.1
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2220
2215
2210
2205
2200
2195
2190
2185
0
1000
2000
3000
4000
5000
6000
7000
Station (ft)


Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 11.541 RS 11.541, ***Imm. Downstream of SR 71, Incr. n-value to match t Final Run
.04
.2
.1
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2215
2210
2205
2200
2195
2190
2185
0
1000
2000
3000
4000
5000
6000
7000
Station (ft)


Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 11.523 RS 11.523 ***Increased n-value of main channel to match conveye Final Run
.04
.049
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2210
2205
2200
2195
2190
2185
8000
9000
10000
11000
12000
13000
14000
15000
16000
Station (ft)


Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 11.468 RS 11.468 Final Run
.04
.03
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2205
2200
2195
2190
2185
2180
8000
9000
10000
11000
12000
13000
14000
15000
16000
Station (ft)


Aguila Farm Channel Plan: AFC Final Plan
Geom: AFC Geometry Data Flow: AFC Flow Data
RS = 11.378 RS 11.378 Final Run
.04
.03
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
2205
2200
2195
2190
2185
2180
8000
9000
10000
11000
12000
13000
14000
15000
Station (ft)

HEC-RAS Version 3.1 November 2002
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: Aguila Farm Channel
Project File : Aguila_Farm_Channel.prj
Run Date and Time: 6/6/2003 11:23:50 AM

Project in English units

Project Description:
The Vertical Datum of this model is NAVD 88.
Aguila ADMP Flood Delineation
Study - Farm Channel Detailed Study
Prepared by: HDR Engineering,
Inc.
Revision Date: 3/20/2003 by LP
Prepared For: Flood Control District of
Maricopa County
6 mile detailed study area, includes floodway run
3-12-03
Adjusted cross section 5.58 to match culvert invert
***Adjusted
cross section 9.92 to account for stock tank***
****The downstream boundary
condition was obtained from URS Consultants, Inc "Flood
Delineation Study of
Upper Centennial Wash, Grass Wash and Aguila Farm Channel" in the NGVD 29
format and converted to NAVD 88 using Corpscon version 5.11.08.****
*****The
actual W.S.E. in URS's model is 2196.5 in NGVD, which was converted to the NAVD
88 with a datum correction factor of +2.25, resulting in a downstream W.S.E.
of 2198.75.*****

PLAN DATA

Plan Title: Plan 04
Plan File : g:\07162084 Aguila ADMP\TDN\HEC-RAS\Aguila Farm
Channel\Aguila_Farm_Channel.p04

Geometry Title: AFC Geometry Data
Geometry File : g:\07162084 Aguila ADMP\TDN\HEC-RAS\Aguila Farm
Channel\Aguila_Farm_Channel.g02

```
          Flow Title    : AFC Flow Data
          Flow File     : g:\07162084 Aguila ADMP\TDN\HEC-RAS\Aguila Farm
Channel\Aguila_Farm_Channel.f02

Plan Summary Information:
Number of:  Cross Sections =   69    Mulitple Openings  =    0
            Culverts       =    1    Inline Structures  =    0
            Bridges        =    0    Lateral Structures =    0

Computational Information
    Water surface calculation tolerance =  0.003
    Critical depth calculaton tolerance =  0.003
    Maximum number of interations       =  20
    Maximum difference tolerance        =  0.1
    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:     Subcritical Flow

Encroachment Data
   Equal Conveyance = True
   Left Offset      =        0
   Right Offset     =        0

River = Aguila Farm Chan Reach = Reach-1
RS      Profile           Method  Value1  Value2
17.641  PF 2                   1    975013392.13
17.547  PF 2                   1 9599.1313220.99
17.449  PF 2                   1    840011513.39
17.357  PF 2                   1    850011309.66
17.259  PF 2                   1    892511565.91
17.161  PF 2                   1    889011575.53
17.066  PF 2                   1    983012229.49
16.972  PF 2                   1    989511910.51
16.876  PF 2                   1    936011189.59
16.781  PF 2                   1    986511844.79
16.682  PF 2                   1    987512013.21
16.590  PF 2                   1    987512747.61
16.498  PF 2                   1    986512739.22
16.403  PF 2                   1 9855.4813060.67
16.307  PF 2                   1 9817.7612867.83
16.210  PF 2                   1  9810.812817.71
16.117  PF 2                   1    979512675.12
16.021  PF 2                   1    996012584.77
15.924  PF 2                   1    996512531.78
15.828  PF 2                   1    980512511.59
15.736  PF 2                   1    979512456.75
15.642  PF 2                   1    980012318.36
15.547  PF 2                   1    978012264.57
15.448  PF 2                   1    994012545.41
15.358  PF 2                   1    996012583.04
15.265  PF 2                   1    996012412.43
15.166  PF 2                   1    996012601.79
15.074  PF 2                   1    996012571.58
14.976  PF 2                   1    996012144.21
14.884  PF 2                   1    963511513.31
14.787  PF 2                   1 9971.3111714.14
14.689  PF 2                   1 9934.3812075.27
14.596  PF 2                   1    995012005.14
```

14.498	PF 2	1		950511421.15
14.402	PF 2	1		993511739.44
14.300	PF 2	1		994011654.73
14.202	PF 2	1		994011682.23
14.114	PF 2	1		9925 11668.8
14.013	PF 2	1		996511618.57
13.913	PF 2	1		995011555.86
13.822	PF 2	1		995011434.06
13.726	PF 2	1		994511382.14
13.629	PF 2	1		995511344.38
13.534	PF 2	1	9980.1	811434.22
13.438	PF 2	1		997511613.07
13.345	PF 2	1		994511483.06
13.250	PF 2	1		994511495.61
13.155	PF 2	1		996011509.06
13.059	PF 2	1		996511400.85
12.961	PF 2	1	9975.1	411438.35
12.870	PF 2	1	9944.3	211465.31
12.775	PF 2	1		995011558.53
12.680	PF 2	1		995011599.08
12.585	PF 2	1	9961.6	911594.58
12.491	PF 2	1		996011507.32
12.395	PF 2	1	9970.3	611915.26
12.300	PF 2	1	9971.0	911758.94
12.206	PF 2	1		994512427.53
12.105	PF 2	1		995012271.51
12.010	PF 2	1		995012217.15
11.912	PF 2	1		995012300.92
11.815	PF 2	1	9976.03	13000
11.713	PF 2	1	9970	12820
11.621	PF 2	1	9945	14000
11.579	PF 2	1	9670	13000
11.541	PF 2	1	1127	3603
11.523	PF 2	1	9920	12121
11.468	PF 2	1	9930	12471
11.378	PF 2	1	9935	12652

FLOW DATA

Flow Title: AFC Flow Data
Flow File : g:\07162084 Aguila ADMP\TDN\HEC-RAS\Aguila Farm Channel\Aguila_Farm_Channel.f02

Flow Data (cfs)

River	Reach	RS	PF 1	PF 2
Aguila Farm Chan	Reach-1	17.641	16900	16900

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Aguila Farm Chan	Reach-1	PF 1	Critical	
Known WS = 2198.75				
Aguila Farm Chan	Reach-1	PF 2	Critical	
Known WS = 2198.75				

GEOMETRY DATA

Geometry Title: AFC Geometry Data
Geometry File : g:\07162084 Aguila ADMP\TDN\HEC-RAS\Aguila Farm Channel\Aguila_Farm_Channel.g02

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 17.641

INPUT
Description: RS 17.641
11.64 11.45 34074.25
Station Elevation Data num= 146

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8570	2315.4	8888.35	2314.33	8919.5	2314.19	8923.15	2314.18	8960.12	2314
8960.92	2314	9007.04	2313.76	9180.97	2312.72	9185.6	2312.7	9295.44	2312
9302.95	2311.94	9303.22	2311.94	9413.31	2311.03	9527.48	2310.53	9564.45	2310.3
9569.72	2310.26	9614.3	2310	9712.31	2310	9712.62	2310.07	9721.38	2312
9722.63	2312.27	9729.12	2313.71	9730.46	2314	9739.41	2315.98	9739.53	2316
9753.31	2316	9756.92	2315.07	9760.93	2314	9766.85	2312.38	9768.23	2312
9769.63	2311.62	9775.55	2310	9945.01	231010001.03	2309.6910004.24	2309.7		
10004.64	2309.710008.33	2309.7110049.62	2309.7310165.91	231010258.13	2310				
10325.4	2309.110369.91	2308.8110424.32	2308.6210434.62	2308.610439.81	2308.6				
10444.11	2308.5910627.75	2308.5310643.92	2308.4910648.29	2308.4910716.38	2308.35				
10719.35	2308.34 10723.2	2308.3410735.62	2308.3110784.46	2308.2410787.32	2308.23				
10811.61	2308.1910816.99	2308.1910819.63	2308.1810840.74	2308.1610843.23	2308.15				
10869.96	2308.2410881.42	2308.2210883.87	2308.2410884.79	2308.2410886.01	2308.25				
10908.39	2308.2610909.87	2308.2710926.11	2308.2610928.97	2308.2810948.52	2308.27				
10949.83	2308.2810950.84	2308.2910975.34	2308.2810979.48	2308.2910996.93	2308.29				
10997.07	2308.311066.98	2308.3211145.93	2308.39 11157.2	2308.3411190.66	2308.35				
11192.27	2308.3411314.02	2308.3311338.67	2308.2511373.76	2308.2411377.18	2308.23				
11582.3	2308.3311584.85	2308.32 11773	2308.3411776.21	2308.3511779.25	2308.35				
11786.19	2308.3611789.13	2308.3611967.51	2308.612093.14	2308.512164.66	2308.23				
12168.99	2308.2312170.83	2308.2412172.62	2308.2412174.37	2308.2512176.03	2308.25				
12177.56	2308.2612183.17	2308.2612373.13	231012499.41	231012703.48	2311.41				
12709.71	2311.4212717.34	2311.4512722.46	2311.4612756.18	2311.4412766.66	2311.47				
12795.16	2311.3912804.15	2311.3912845.73	2311.1512863.35	2311.0712925.08	2310.58				
12955.52	2310.2912959.91	2310.2612981.33	2310.0712986.72	2310.0512989.45	2310				
13314.4	2310 13325.7	2310.0813328.03	2310.0913332.98	2310.1313358.85	2310.25				
13535.64	2311.3613614.94	2311.5913633.89	2311.55 13683.6	2311.813684.73	2311.8				
13701.13	2311.8613709.67	2311.8613748.58	2312 14141.7	231214463.15	2314				
14489.93	231414666.58	2314.8614894.83	231614935.35	231614936.78	2315.98				
14937.14	2316.0314938.28	2315.98 14946.9	2315.8914947.09	2315.7814973.78	2315.15				
14973.97	2315.14								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8570	.029	9753.31	.03512373.13		.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9753.3112373.13		496.71	497.6	508.2	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8570	9753.31	2317.69	F

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8570	9753.31	2317.43	15028.23	14973.97	2309.61

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2310.68	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.22	Wt. n-Val.		0.035
0.040				
W.S. Elev (ft)	2310.46	Reach Len. (ft)	496.71	497.60
508.20				
Crit W.S. (ft)	2309.76	Flow Area (sq ft)		4403.98
252.69				
E.G. Slope (ft/ft)	0.003897	Area (sq ft)		4403.98
252.69				
Q Total (cfs)	16900.00	Flow (cfs)		16587.02
312.98				
Top Width (ft)	3246.72	Top Width (ft)		2599.26
647.46				
Vel Total (ft/s)	3.63	Avg. Vel. (ft/s)		3.77
1.24				
Max Chl Dpth (ft)	2.31	Hydr. Depth (ft)		1.69
0.39				
Conv. Total (cfs)	270735.8	Conv. (cfs)		265721.8
5013.9				
Length Wtd. (ft)	497.83	Wetted Per. (ft)		2599.34
647.46				
Min Ch El (ft)	2308.15	Shear (lb/sq ft)		0.41
0.09				
Alpha	1.06	Stream Power (lb/ft s)		1.55
0.12				
Frctn Loss (ft)	2.11	Cum Volume (acre-ft)	0.81	798.31
2504.19				
C & E Loss (ft)	0.00	Cum SA (acres)	1.81	289.89
1329.84				

Warning: Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 17.547

INPUT
Description: RS 17.547
11.55 11.36 33576.64
Station Elevation Data num= 188

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8425	2312.82	8426.93	2312.81	8644.94	2312.14	8647.15	2312.13	8647.34	2312.13
8680.98	2312.02	8681.43	2312.02	8720.84	2311.9	8722.57	2311.89	8769.48	2311.75
8773.47	2311.73	8855.87	2311.48	8859.57	2311.46	8863.69	2311.45	9088.05	2310.51
9179.08	2310	9182.5	2310	9326.79	2309.1	9375.9	2308.75	9391.7	2308.66
9425.36	2308.39	9466.25	2308.09	9468.53	2308.07	9469.89	2308.07	9479.88	2308

```
 9543.93    2308 9549.06  2308.5 9564.23    2310 9574.66 2311.85 9575.48    2312
 9578.99 2312.62 9582.89 2313.32 9586.73    2314 9599.13    2314 9599.26 2313.97
 9606.52    2312 9607.79 2311.68 9614.33    2310 9627.09  2309.1 9643.55    2308
10045.74    230810070.76 2308.0810070.91 2308.0810102.46    230810110.57    2308
10121.33 2307.97 10122.3 2307.9710159.32 2307.8610161.42 2307.8510357.04 2307.71
10359.62 2307.6910400.41    2308 10501.1    2308 10600.7 2306.7110603.83 2306.69
10606.37 2306.6610608.39 2306.6510632.28 2306.37 10633.7 2306.3610635.22 2306.34
10636.47 2306.3310653.67 2306.1510654.18 2306.1510656.46 2306.1210656.83 2306.12
10657.15 2306.1110657.42 2306.1110671.33    230610934.48    230611021.66 2305.61
11039.24 2305.6511039.93 2305.6411063.52    2306 11198.6    230611200.41 2305.99
11205.82 2305.9511209.95  2305.9 11299.5 2305.5111306.28 2305.5211312.33 2305.51
11312.57 2305.5211317.81 2305.5711323.45 2305.5511494.49    230611930.66    2306
12121.62 2306.5912136.43 2306.6812142.95 2306.7312144.05 2306.7212183.75    2307
12198.97 2307.1312209.16 2307.1912213.96 2307.2412226.15  2307.312230.95 2307.35
 12246.8 2307.4212255.71 2307.52 12275.7 2307.58 12280.9 2307.6312282.43 2307.65
12306.67 2307.7112308.42 2307.7312325.73 2307.7712327.53 2307.7812337.53 2307.81
 12342.8 2307.8412343.41 2307.8512343.91 2307.8512355.69 2307.89 12457.5 2307.96
12457.77 2307.9712548.43 2307.9512557.37 2307.9212572.83  2307.912599.65 2307.87
12599.89 2307.8712660.36 2307.74 12660.5 2307.7412677.35 2307.6712828.47 2307.73
12861.87    230813068.29    230813152.57 2308.2913159.86 2308.2713161.27 2308.27
13168.95  2308.313170.82 2308.3113173.56 2308.33 13175.9 2308.3413215.39 2308.32
13216.93 2308.3313217.97 2308.3313221.51 2308.3413223.45 2308.34 13227.2 2308.38
13230.17 2308.3713345.12 2308.8813500.84 2309.7713503.08 2309.7813532.03 2309.69
13532.95 2309.6813534.76 2309.6713549.69 2309.6613552.52 2309.6513592.84    2310
13692.04    231013777.81 2310.6213779.92 2310.6313781.38 2310.6313782.16 2310.64
13783.19 2310.6413784.48 2310.6513786.04 2310.6513815.71 2310.7813817.02 2310.78
13835.05 2310.8313836.34 2310.8413837.59 2310.8413841.89 2310.8613846.98 2310.87
13863.12 2311.0113880.94 2311.0713902.26 2311.1313945.67 2311.4513951.77 2311.46
13960.94  2311.513965.63  2311.514060.98    2312 14165.3    2312 14472.4 2313.97
14476.17    2314 14502.3    231414560.82    231414624.18 2314.3114624.69 2314.31
14701.56 2314.9714702.53 2314.9714706.16 2314.9214728.29 2318.1314728.45 2317.59
14728.53 2317.3214728.71 2316.7914728.96 2316.2614729.23 2315.7414737.74 2315.65
14738.33 2315.3214821.55 2313.3414822.16 2313.33

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8425    .029 9599.13    .03512457.77     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9599.1312457.77           512.53  514.47  489.92             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8425 9598.97 2317.16        F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8425 9595.71 2315.16

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2308.56    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.22    Wt. n-Val.                          0.035
  0.040
  W.S. Elev (ft)           2308.34    Reach Len. (ft)          512.53     514.47
 489.92
  Crit W.S. (ft)           2307.55    Flow Area (sq ft)                  4298.69
 299.31
  E.G. Slope (ft/ft)      0.004645    Area (sq ft)                       4298.69
 299.31
  Q Total (cfs)           16900.00    Flow (cfs)                        16477.76
 422.24
  Top Width (ft)           3577.39    Top Width (ft)                     2819.28
```

758.12					
Vel Total (ft/s)	3.68	Avg. Vel. (ft/s)			3.83
1.41					
Max Chl Dpth (ft)	2.83	Hydr. Depth (ft)			1.52
0.39					
Conv. Total (cfs)	247959.2	Conv. (cfs)			241764.0
6195.1					
Length Wtd. (ft)	513.54	Wetted Per. (ft)			2819.31
758.12					
Min Ch El (ft)	2305.51	Shear (lb/sq ft)			0.44
0.11					
Alpha	1.06	Stream Power (lb/ft s)			1.69
0.16					
Frctn Loss (ft)	2.68	Cum Volume (acre-ft)		0.81	748.61
2500.97					
C & E Loss (ft)	0.01	Cum SA (acres)		1.81	258.94
1321.64					

Warning: Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 17.449

INPUT
Description: RS 17.449
11.45 11.26 33062.17
Station Elevation Data num= 191

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7220	2310.56	7331.22	2310.12	7334.81	2310.1	7407.7	2309.82	7411.97	2309.81
7508.75	2309.45	7608.58	2309.16	7615.79	2309.13	7749.43	2308.77	7752.18	2308.77
7802.94	2308.64	7920.44	2308.14	7944.95	2308	7961.44	2308	8048.08	2307.56
8054.54	2307.55	8076.51	2307.56	8078.84	2307.57	8155.58	2307.25	8171.11	2307.11
8175.8	2307.08	8206.44	2306.78	8211.97	2306.74	8216.04	2306.7	8263.22	2306.36
8272.53	2306.31	8312.75	2306.66	8314.69	2306.71	8316.63	2306.7	8317.85	2306.74
8319.51	2306.78	8322.07	2306.78	8324.19	2306.84	8328.18	2306.84	8333.5	2307
8338.72	2307.19	8342.58	2307.2	8347.5	2307.4	8351.17	2307.41	8359.45	2307.82
8360.22	2307.83	8363.05	2308	8367.91	2308.72	8376.71	2310	8399.42	2310
8412.88	2310	8421.8	2308	8472.68	2306.37	8487.59	2306	8711.82	2306
8741	2306.11	8790	2306.06	8790.56	2306.06	8922.11	2305.92	8923.98	2305.91
8940.4	2305.88	8942.4	2305.88	8958.25	2305.84	8959.91	2305.84	8976.12	2305.8
8976.94	2305.8	8978.27	2305.79	8994.74	2305.75	8996.96	2305.74	9013.55	2305.7
9016.96	2305.68	9044.17	2305.59	9047.7	2305.57	9080.57	2305.44	9085.88	2305.41
9175.5	2305.01	9178.87	2304.99	9182.24	2304.98	9238.91	2304.69	9348.63	2304.12
9374.75	2304	9627.58	2304	9627.94	2303.99	9713.11	2303.53	9721.33	2303.5
9758.05	2303.27	9760.06	2303.26	9818.3	2303.06	9820.02	2303.05	9820.65	2303.05
9894.36	2302.72	9979.64	2302.09	9987.35	2302.02	9990.12	230210001.08		2302
10143.05	2302.98	10149.76	2303.01	10194.36	2303.09	10238.09	2303.33	10255.3	2303.36
10258.93	2303.36	10282.13	2303.41	0289.84	2303.44	10308.02	2303.47	10350.01	2303.61
10353.45	2303.61	10361.69	2303.63	10384.68	2303.64	10388.19	2303.65	10550.52	2303.86
10556.17	2303.86	10570.22	2303.91	0572.41	2303.91	0588.58	2303.92	10589.85	2303.93
10630.61	2303.99	10656.8	2304.03	10657.17	2304.03	10698.36	2304.09	10752.5	2304.15
10753.11	2304.15	10776.27	2304.18	10788.03	2304.23	10807.92	2304.36	10826.79	2304.43

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10914.73 2304.6210930.06 2304.6210931.63 2304.6310933.41 2304.6311016.36 2304.87
11018.58 2304.8611034.46 2304.9511039.73 2304.97 11114.1 2304.7711297.03 2304.87
11308.44 2304.8911308.77 2304.8911324.27 2304.9211325.01 2304.92 11326.2 2304.91
11337.15 2304.9311338.72 2304.9311356.77 2304.9811404.17 2304.7511404.51 2304.75
11440.27 2304.3411443.15 2304.3611460.74    230411466.09    230411495.19 2304.98
11499.46 2305.1111501.17 2305.1711528.24    230611751.93    2306 11896.8 2306.76
11910.23 2306.7411912.24 2306.7511916.54 2306.7411919.08 2306.7411922.61 2306.76
11927.92 2306.7811948.55 2306.7611958.03  2306.811964.71  2306.811966.82 2306.81
11972.96 2306.7912203.88    230812526.21    230812673.34 2309.3512730.17    2310
 13102.2 2312.2513341.46 2313.4213385.52 2313.6213431.19    231413438.02    2314
 13440.1 2313.9613440.35    231413440.44    2314 13440.5 2314.0713440.53 2314.17
13440.55 2314.2713440.56 2314.3413440.59 2314.4313440.62 2314.4913440.65 2314.39
13440.67 2314.3213481.13 2320.1413481.44 2319.09 13481.6 2318.5613481.95 2317.53
13482.44  2316.513482.96  2315.513490.28 2315.4213491.27 2314.8813628.89 2311.61
 13629.9 2311.58

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    7220    .029 8412.88    .03511034.46     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       8412.8811034.46          486.43  488.58  496.12             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    7220 8412.88    2310        F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    7220 8412.88    2310
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2305.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	2305.55	Reach Len. (ft)	486.43	488.58	496.12
Crit W.S. (ft)	2305.13	Flow Area (sq ft)		3418.06	362.94
E.G. Slope (ft/ft)	0.005901	Area (sq ft)		3418.06	362.94
Q Total (cfs)	16900.00	Flow (cfs)		16039.19	860.81
Top Width (ft)	2459.28	Top Width (ft)		1980.35	478.93
Vel Total (ft/s)	4.47	Avg. Vel. (ft/s)		4.69	2.37
Max Chl Dpth (ft)	3.54	Hydr. Depth (ft)		1.73	0.76
Conv. Total (cfs)	220005.6	Conv. (cfs)		208799.4	11206.1
Length Wtd. (ft)	489.30	Wetted Per. (ft)		1980.36	478.96
Min Ch El (ft)	2302.00	Shear (lb/sq ft)		0.64	0.28
Alpha	1.06	Stream Power (lb/ft s)		2.98	0.66
Frctn Loss (ft)	1.98	Cum Volume (acre-ft)	0.81	703.04	2497.24
C & E Loss (ft)	0.04	Cum SA (acres)	1.81	230.60	1314.68

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 17.357

INPUT
Description: RS 17.357
11.36 11.17 32573.59
Station Elevation Data num= 208

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7350	2308.23	7410.69	2307.98	7411.35	2307.98	7460.37	2307.79	7464.72	2307.78
7545.36	2307.49	7547.22	2307.49	7548.17	2307.48	7895.82	2306.25	7898.9	2306.25
7903.25	2306.23	7969.8	2306	7990.61	2306	8004.81	2305.92	8007.33	2305.92
8067.07	2305.48	8096.18	2305.37	8098.93	2305.37	8117.64	2305.47	8120.1	2305.46
8181.2	2305.45	8187.29	2305.42	8303.11	2305.15	8323.93	2305.04	8390.58	2304.4
8393.22	2304.36	8397.23	2304.31	8398.27	2304.31	8403.66	2304.25	8420.88	2304
8450.68	2304	8473.96	2305.96	8474.4	2306	8475.14	2306.16	8483.61	2308
8513.52	2308	8517.27	2308	8519.65	2307.49	8526.38	2306	8530.82	2304.76
8533.59	2304	8727.17	2304	8773.91	2303.72	8787.23	2303.68	8819.58	2303.54
8820.93	2303.53	8822.42	2303.53	8850.47	2303.41	9022.87	2302.75	9029.29	2302.74
9054.33	2302.63	9122.85	2302.37	9130.56	2302.35	9142	2302.3	9148.8	2302.27
9191.43	2302.11	9193.56	2302.11	9227.4	2301.98	9227.61	2301.98	9253.71	2301.91
9254.7	2301.9	9272.9	2301.85	9274.14	2301.85	9299.75	2301.78	9302.05	2301.78
9320.08	2301.73	9320.96	2301.73	9341.79	2301.68	9343.11	2301.68	9361.98	2301.63
9364.75	2301.63	9381.95	2301.58	9386.49	2301.58	9406.47	2301.53	9409.86	2301.53
9424.04	2301.49	9426.77	2301.49	9439.15	2301.46	9441.15	2301.46	9451.87	2301.44
9453.02	2301.44	9467.01	2301.4	9467.27	2301.4	9483.97	2301.36	9486.6	2301.36
9505.62	2301.31	9511.02	2301.32	9524.14	2301.28	9532.4	2301.29	9547.03	2301.26
9554.25	2301.27	9559.68	2301.25	9818.72	2300.77	9836.5	2300.73	9841.63	2300.71
9860.63	2300.67	9881.33	2300.59	9899.36	2300.56	9916.33	2300.49	9924.92	2300.48
9938.58	2300.42	9946.54	2300.41	9963.1	2300.34	9968.25	2300.33	9974.67	2300.33
9977.42	2300.32	10000.8	2300.34	10005.89	2300.32	10006.76	2300.32	10011.06	2300.33
10013.28	2300.34	10022.18	2300.34	10048.51	2300.41	10049.87	2300.41	10078.95	2300.45
10087.5	2300.49	10107.47	2300.54	10112.37	2300.57	10129.67	2300.61	10131.98	2300.62
10194.55	2300.76	10275.21	2301.19	10405.65	2301.63	10422.92	2301.64	10425.74	2301.65
10523.29	2301.47	10524.06	2301.47	10525.18	2301.46	10535.83	2301.47	10538.05	2301.45
10538.86	2301.45	10547.26	2301.46	10598.56	230211	049.41	230211	280.32	2303.46
11285.49	2303.5	11290.46	2303.5	11297.18	2303.53	11297.95	2303.54	11345.69	2304
11532.93	230411	543.22	2304.08	11606.1	2304.23	11606.92	2304.23	11618.73	2304.26
11676.84	2304.48	11742.61	2304.79	11928.94	230612	096.33	230612	190.36	2306.54
12197.33	2306.57	12241.98	2306.85	12487.61	230812	540.87	230812	891.79	2309.82
12892.16	2309.82	12898.71	231013	077.05	231013	106.17	2310.18	13111.94	2310.16
13117.88	2310.16	13134.76	2310.38	13141	2310.43	13143.15	2310.46	13150.52	2310.54
13217.62	231213	298.89	231213	354.62	2312.71	13367.64	2312.84	13401.55	2313.29
13408.6	2313.37	13455.29	2313.98	13456.41	231413	480.15	231413	480.49	2313.85
13480.84	2313.86	13481.06	2313.86	13498.35	2313.52	13498.75	2313.53	13501.28	2314
13502.26	2314	13502.7	2314.41	13502.94	2314.81	13503.07	2315.21	13503.28	2315.99
13503.4	2316.38	13503.57	2317.15	13503.74	2317.91	13503.84	2318.29	13504.03	2319.02
13504.13	2319.39	13504.35	2319.72	13504.48	2319.31	13504.75	2318.51	13504.94	2317.72
13505.03	2317.33	13538.52	2322.18	13538.99	2320.61	13539.22	2319.83	13539.75	2318.28
13540.47	2316.75	13541.25	2315.25	13541.96	2315.24	13544.24	2315.22	13547.37	2315.18
13548.75	2314.43	13741.56	2309.85	13742.97	2309.81				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7350	.029	8517.27	.035	10598.56	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
8517.27	10598.56	519.63	519.54	502.04	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
7350	8517.27	2308	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
7350	8517.27	2308

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2303.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	2303.65	Reach Len. (ft)	519.63	519.54	502.04
Crit W.S. (ft)	2302.80	Flow Area (sq ft)		3825.03	961.61
E.G. Slope (ft/ft)	0.002942	Area (sq ft)		3825.03	961.61
Q Total (cfs)	16900.00	Flow (cfs)		14530.76	2369.24
Top Width (ft)	2516.16	Top Width (ft)		1805.06	711.10
Vel Total (ft/s)	3.53	Avg. Vel. (ft/s)		3.80	2.46
Max Chl Dpth (ft)	3.33	Hydr. Depth (ft)		2.12	1.35
Conv. Total (cfs)	311592.4	Conv. (cfs)		267909.7	43682.6
Length Wtd. (ft)	516.40	Wetted Per. (ft)		1805.07	711.10
Min Ch El (ft)	2300.32	Shear (lb/sq ft)		0.39	0.25
Alpha	1.06	Stream Power (lb/ft s)		1.48	0.61
Frctn Loss (ft)	1.51	Cum Volume (acre-ft)	0.81	662.42	2489.70
C & E Loss (ft)	0.00	Cum SA (acres)	1.81	209.37	1307.91

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 17.259

INPUT

Description: RS 17.259
11.26 11.07 32054.05
Station Elevation Data   num=   172

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7765	2306	7767.02	2306	7906.01	2305.01	8023.53	2304.63	8027.86	2304.61
8030.18	2304.61	8074.51	2304.47	8078.86	2304.45	8110.79	2304.37	8115.52	2304.35
8138.53	2304.3	8143.22	2304.28	8237.73	2304.02	8238.04	2304.02	8268.33	2303.92
8269.05	2303.92	8300.49	2303.82	8327.8	2303.65	8341.34	2303.54	8496.21	2302
8500.32	2302	8524.61	2302.21	8675.58	2302.19	8701.97	2302	8886.1	2302
8887.44	2302.38	8893.11	2304	8900.22	2306	8923.4	2306	8937.84	2306
8941.2	2305.04	8944.77	2304	8947.01	2303.21	8950.42	2302	9047.04	2302
9091.17	2301.79	9177.34	2301.52	9177.87	2301.52	9188.29	2301.5	9188.9	2301.5
9241.01	2301.37	9335.12	2301.01	9346.3	2300.99	9555.62	2300	9575.98	2299.93
9576.46	2299.93	9606.16	2299.84	9607.52	2299.83	9629.59	2299.77	9631.79	2299.77
9664.26	2299.67	9667.74	2299.67	9685.95	2299.62	9689.12	2299.62	9728.64	2299.52
9731.58	2299.52	9752.76	2299.47	9754.84	2299.47	9853.51	2299.3	10155.26	2299.39
10273.65	2299.2	10375.77	2299.37	10377.86	2299.37	10472.75	2299.6	10474.65	2299.6
10484.01	2299.62	10485.65	2299.62	10525.65	2299.69	10526.9	2299.7	10590.92	2299.8
10591.75	2299.8	10611.72	2299.84	10614.63	2299.85	10687.34	2300	11079.26	2300
11833.98	2303.35	11941.39	2303.8	11945.18	2303.82	11995.29	2304	11996.52	2304
11999.37	2304.12	11999.84	2304.15	12000.57	2304.19	12009.97	2304.65	12012.1	2304.76
12017.63	2305.01	12019.69	2305.11	12023.14	2305.24	12024.59	2305.29	12026.73	2305.37
12028.99	2305.44	12035.76	2305.74	12039.6	2305.89	12040.09	2305.91	12043.21	2306
12044.2	2306	12044.68	2306.01	12046.6	2306.06	12048.56	2306.12	12048.71	2306.12
12051.36	2306	12072.43	2306	12076.85	2305.44	12079.28	2305.08	12083.12	2304.56
12087.33	2304	12089.57	2304	12090.36	2304.1	12090.48	2304.09	12109.97	2306
12132.57	2306	12149.44	2305.33	12151.8	2305.31	12154.22	2305.28	12158.9	2305.37
12406.01	2305.1	12521.87	2305.53	12525.32	2305.55	13091.54	2308	13363.36	2309.99
13363.67	2309.99	13364.46	2310	13541.37	2311.72	13554.41	2311.83	13558.33	2311.84
13567.24	2311.92	13567.78	2311.92	13576.71	2312	13584.84	2312	13618.47	2312.28
13787.5	2314	13816.87	2314	13826.09	2314.7	13832.18	2314.91	13832.5	2314.92
13833.76	2315.77	13839.7	2314.69	13842.11	2314	13848.09	2314	13849.8	2313.26
13851.56	2313.3	13852.63	2313.32	13864.91	2313.08	13865.68	2313.09	13870.54	2314
13872.42	2314	13873.28	2314.78	13873.74	2315.55	13873.98	2316.32	13874.4	2317.83
13874.62	2318.58	13874.96	2320.06	13875.27	2321.53	13875.46	2322.25	13875.84	2323.67
13876.03	2324.37	13876.46	2325.01	13876.71	2324.22	13877.22	2322.66	13877.59	2321.16
13877.77	2320.42	13904.22	2324.24	13904.85	2322.15	13905.17	2321.11	13905.86	2319.05
13906.83	2317.01	13907.88	2315	13908.44	2315	13912.77	2314.95	13914.55	2313.97
14163.16	2308.07	14164.98	2308.02						

Manning's n Values   num=   3

Sta	n Val	Sta	n Val	Sta	n Val
7765	.029	8937.84	.035	10687.34	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
8937.84	10687.34	515.74	516.68	516.17	.1	.3

Ineffective Flow   num=   1

Sta L	Sta R	Elev	Permanent
7765	8927.68	2313.58	F

Blocked Obstructions   num=   1

Sta L	Sta R	Elev
7765	8927.67	2312.67

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2302.35	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.19	Wt. n-Val.		0.035
0.040				
W.S. Elev (ft)	2302.16	Reach Len. (ft)	515.74	516.68
516.17				
Crit W.S. (ft)	2301.21	Flow Area (sq ft)		3577.53

1372.22					
E.G. Slope (ft/ft)	0.002888	Area (sq ft)			3577.53
1372.22					
Q Total (cfs)	16900.00	Flow (cfs)			13211.97
3688.04					
Top Width (ft)	2615.94	Top Width (ft)			1737.37
878.57					
Vel Total (ft/s)	3.41	Avg. Vel. (ft/s)			3.69
2.69					
Max Chl Dpth (ft)	2.93	Hydr. Depth (ft)			2.06
1.56					
Conv. Total (cfs)	314449.4	Conv. (cfs)			245828.1
68621.3					
Length Wtd. (ft)	516.62	Wetted Per. (ft)			1737.41
878.57					
Min Ch El (ft)	2299.23	Shear (lb/sq ft)			0.37
0.28					
Alpha	1.05	Stream Power (lb/ft s)			1.37
0.76					
Frctn Loss (ft)	1.56	Cum Volume (acre-ft)		0.81	618.27
2476.25					
C & E Loss (ft)	0.00	Cum SA (acres)		1.81	188.24
1298.75					

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 17.161

INPUT
Description: RS 17.161
11.16 10.97 31537.37
Station Elevation Data num= 195

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7780	2302.89	7792.39	2302.9	7817.99	2303.05	7824.49	2303.03	7826.28	2303.03
7918.85	2302.89	7947.31	2302.96	7954.21	2302.99	8011.83	2302.91	8115.73	2302
8119.44	2301.98	8235.14	2301.62	8237.45	2301.62	8356.43	2301.11	8429.51	2300.93
8430.36	2300.92	8448.38	2300.82	8526.62	2300.44	8531.99	2300.43	8535.33	2300.41
8536.95	2300.41	8623.62	2300	8917.07	2300	8918.47	2300.16	8918.65	2300.17
8923.48	2300.56	8925.5	2300.69	8928.62	2300.92	8930.77	2301.03	8932.69	2301.16
8935.5	2301.32	8936.6	2301.38	8940.21	2301.62	8940.77	2301.66	8945.56	2301.98
8945.83	2302	8948.83	2302.26	8949.28	2302.3	8951.15	2302.47	8951.61	2302.51
8952.45	2302.59	8953.1	2302.65	8953.92	2302.7	8954.85	2302.85	8962.56	2304
8967.12	2304.5	8977.2	2304	8990.05	2304	9008.23	2304	9010.16	2303.74
9010.5	2303.74	9011.94	2303.68	9012.57	2303.69	9014.24	2303.55	9015.78	2303.38
9017.37	2303.41	9019.12	2303.26	9020.6	2303.12	9022.27	2303.14	9023.78	2303.01
9025.39	2303	9025.79	2303	9026.94	2302.9	9027.3	2302.9	9035.6	2302.68
9044.5	2302.03	9044.81	2302	9044.97	2302	9048.23	2301.75	9064.02	2300
9146.36	2300	9209.7	2299.7	9215.32	2299.68	9439.04	2298.69	9521.03	2298.41
9607.78	2298.18	9610.19	2298.18	9667.52	2298	9669.07	2298	9719.29	2297.91
9720.69	2297.91	9761.84	2297.85	9764.1	2297.85	9843.55	2297.76	9980.74	2297.7
9992.84	2297.71	10030.02	2297.66	10113.1	2297.68	10148.84	2297.73	10204.85	2297.79
10257.93	2298	10544.77	2298	10751.53	2298.74	10951.53	2299.12	11082.75	2299.43

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11086.53 2299.4311112.91  2299.511185.02 2299.53   11247 2299.7611248.35 2299.76
11348.64 2300.0811350.03 2300.08 11592.6 2300.5911607.37  2300.611619.92 2300.66
11649.92 2300.6811657.12 2300.7111663.41 2300.7111683.59  2300.8 11689.3 2300.81
12024.28 2302.2412170.78 2302.9812256.54 2303.3912276.31 2303.4612386.45    2304
12509.31    2304 12534.7 2304.1212536.72 2304.1412540.18 2304.1812577.14 2304.46
12579.08 2304.4812699.26 2305.3312712.96 2305.4412719.34 2305.4812721.66  2305.5
12957.37 2305.5312969.52 2305.5612973.53 2305.5813079.71    230613159.59    2306
13202.91 2306.3413212.72 2306.4413265.36 2306.8713272.61 2306.9413279.96 2306.99
13380.06    230813429.01    2308 13575.1    231013590.09  2310.313682.63    2312
 13757.9 2313.7313762.16 2313.8213770.07    231413770.25    231413798.17 2315.06
13821.28 2315.79 13824.1 2315.8913824.86 2315.9213825.14 2315.93 13825.2 2315.94
13825.28 2315.94 13825.4 2315.9513825.56 2315.9613826.23 2315.9813826.33 2315.98
13826.43 2315.9913826.56 2315.9913826.62    231613829.37 2317.8213842.23 2315.49
13847.43    231413850.23    231413853.35 2312.64 13858.5 2312.7713865.62 2312.63
13866.77 2312.6513874.03    231413876.84    231413878.13 2315.1713878.82 2316.32
13879.17 2317.4713879.81 2319.7313880.14 2320.8413880.64 2323.0613881.11 2325.25
13881.39 2326.3313881.95 2328.4513882.23  2329.513882.88 2330.4513883.26 2329.27
13884.02 2326.9413884.57  2324.713884.83 2323.5913904.05 2326.3713904.84 2323.73
13905.23 2322.4313906.11 2319.8313907.33 2317.2713908.64 2314.7513909.06 2314.74
13910.42 2314.7313912.28 2314.7113914.47  2313.513926.29 2313.2214182.39 2307.14

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    7780    .029 9008.23    .03511112.91     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9008.2311112.91           488.88  501.65  490.06            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    7780 8998.43 2312.75        F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    7780 8998.39 2312.39

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2300.78    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.23    Wt. n-Val.                            0.035
  0.040
  W.S. Elev (ft)           2300.55    Reach Len. (ft)          488.88     501.65
 490.06
  Crit W.S. (ft)           2299.74    Flow Area (sq ft)                   4260.04
 249.96
  E.G. Slope (ft/ft)      0.003167    Area (sq ft)                        4260.04
 249.96
  Q Total (cfs)           16900.00    Flow (cfs)                         16553.29
 346.71
  Top Width (ft)           2516.39    Top Width (ft)                      2053.89
 462.50
  Vel Total (ft/s)            3.75    Avg. Vel. (ft/s)                       3.89
   1.39
  Max Chl Dpth (ft)           2.89    Hydr. Depth (ft)                       2.07
   0.54
  Conv. Total (cfs)       300304.6    Conv. (cfs)                        294143.7
 6160.9
  Length Wtd. (ft)             501.22    Wetted Per. (ft)                    2053.93
 462.51
  Min Ch El (ft)           2297.66    Shear (lb/sq ft)                       0.41
   0.11
  Alpha                       1.06    Stream Power (lb/ft s)                 1.59
   0.15
```

Frctn Loss (ft)	1.67	Cum Volume (acre-ft)	0.81	571.79
2466.64				
C & E Loss (ft)	0.01	Cum SA (acres)	1.81	165.76
1290.80				

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 17.066

INPUT
Description: RS 17.066
11.07 10.88 31035.72
Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8670	2299.65	8683.53	2299.67	8686.14	2299.66	8698.29	2299.66	8703.23	2299.65
8709.16	2299.65	8711.43	2299.64	8721.66	2299.64	8820.25	2299.49	8863.84	2299.47
8870.87	2299.48	8879.73	2299.46	8889.01	2299.47	8971.04	2299.41	9135.7	2299.75
9139.13	2299.75	9162.67	2299.84	9166.12	2299.84	9178.9	2299.82	9179.67	2299.81
9190.55	2299.86	9191.44	2299.85	9195.5	2299.83	9195.84	2299.82	9196.6	2299.82
9197.15	2299.81	9197.85	2299.8	9198.67	2299.79	9201.9	2299.76	9202.83	2299.75
9203.58	2299.74	9204.88	2299.73	9206.9	2299.71	9214.28	2299.68	9217.52	2299.64
9224.57	2299.6	9230.18	2299.53	9236.99	2299.49	9238.49	2299.47	9247.16	2299.4
9252.69	2299.34	9265.64	2299.22	9270.13	2299.19	9277.83	2299.12	9282.35	2299.07
9378.78	2298.26	9389.54	2298.2	9406.4	2298.07	9406.72	2298.07	9416.41	2298
9499.65	2298	9517.14	2297.94	9529.41	2297.92	9582.69	2297.75	9591.41	2297.74
9634.11	2297.77	9650.59	2297.74	9702.08	2296.96	9706.11	2296.94	9709.63	2296.9
9734.14	2296.85	9735.59	2296.77	9736.76	2296.71	9739.4	2296.58	9744.65	2296.73
9745.95	2296.6	9749.3	2296.28	9751.61	2296	9762.79	2296	9765.75	2296.15
9780	2296.79	9802.13	2298	9809.19	2299.39	9812.11	2300	9821.06	2302
9836.88	2302	9838.87	2301.53	9842.51	2300.67	9845.38	2300	9853.95	2298.02
9854.01	2298	9921.03	2298	9930.15	2297.85	9930.43	2297.85	9932.26	2297.84
9946.25	2298	9955.75	2297.54	9979.74	2296.99	9982.71	2296.93	10021.85	2296.62
10023.07	2296.38	10023.28	2296.4	10025.06	2296.17	10025.22	2296.19	10025.36	2296.2
10025.46	2296.2	10027.53	2296.01	10027.6	2296.02	10028.29	2296	10032.86	2296
10040.75	2297.79	10041.66	2298	10045.78	2298	10064.42	2298.79	10071.46	2298.91
10072.98	2299.02	10077.17	2299.09	10079.71	2299.21	10082.08	2299.25	10084.37	2299.37
10085.5	2299.38	10087.48	2299.51	10089.25	2299.64	10090.83	2299.76	10091.32	2299.77
10092.39	2299.84	10093.04	2299.87	10093.3	2299.88	10094.53	2299.94	10095.18	2299.97
10095.69	2300	10126.58	2300	10127.71	2299.88	10128.64	2299.79	10132.46	2299.41
10135.97	2299.1	10141.48	2298.56	10143.45	2298.39	10147.47	2298	10160.73	2298
10175.13	2296.38	10175.44	2296.39	10175.88	2296.4	10176.48	2296.41	10177.24	2296.43
10178.97	2296.46	10179.56	2296.46	10184.56	2296.62	10187.73	2296.71	10188.37	2296.69
10190.42	2296.74	10191.5	2296.75	10194.15	2296.84	10194.76	2296.79	10195.21	2296.75
10199.21	2296.88	10199.72	2296.84	10201.45	2296.72	10206.92	2296.86	10209.71	2296.73
10213.9	2296.82	10217.58	2296.69	10220.78	2296.74	10222.48	2296.77	10227.49	2296.88
10251.22	2296.37	10258.5	2296.42	10270.41	2296.48	10297.68	2296.57	10303.14	2296.54
10303.82	2296.54	10307.6	2296.52	10310.01	2296.5	10453.81	2296.63	10487.97	2296.56
10530.02	2296.41	10659.95	2296.12	10660.7	2296.12	10691.07	2296.06	10691.59	2296.06
10722.62	2296.02	10958.86	2296	10965.96	2295.07	10975.41	2294	10979.03	2294
10980.67	2294.36	10986.16	2296	11066.85	2296	11077.05	2294.44	11078.78	2294
11082.35	2294	11085.97	2295.25	11088.21	2296	11305.59	2296	11480.07	2298
12005.4	2298	12426.22	2299.54	12544.19	2299.91	2545.42	2299.91	2546.67	2299.91

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12599.06 2300.0712600.01 2300.0712634.51 2300.1912636.29  2300.212726.43 2300.48
12731.21  2300.512881.33 2300.91   12952 2301.0112959.44 2301.0112987.95  2301.1
13038.47  2301.113054.53 2301.0713056.54 2301.0613062.48 2301.0913121.23    2302
13266.39    230213723.32    230413838.55    230413865.69 2304.12 13866.8 2304.12
13883.36 2304.2413927.35 2304.4913937.65 2304.5713941.36 2304.5913944.93 2304.62
14053.09 2305.3714118.38    230614139.39    230614147.03 2306.1214150.05 2306.16
14223.86 2307.31 14233.9 2307.4814284.92 2308.2414289.54 2308.2814448.92    2310
14482.72    2310 14584.5    231214612.61    231214620.92 2312.19 14621.1  2312.2
14621.27  2312.2 14622.4 2312.2314622.57 2312.2414623.12 2312.2614651.68 2313.21
14654.31 2312.0614661.66 2312.2414663.88  2312.214665.38 2312.2214674.93    2314
14678.63    231414680.32 2315.5414681.22 2317.0514681.69 2318.5614682.52 2321.53
14682.95 2322.9914683.61 2325.9114684.23 2328.78 14684.6  2330.214685.34 2332.99
14685.71 2334.3614686.56 2335.6114687.06 2334.0614688.06    233114688.78 2328.05
14689.13  2326.614701.46 2328.3814702.41 2325.2414702.88 2323.6814703.92 2320.58
14705.38 2317.5114706.95  2314.514707.23  2314.514708.15 2314.49 14709.4 2314.48
14711.98 2313.0514755.75 2312.0215022.56 2305.69

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8670    .029 9836.88    .03511480.07     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9836.8811480.07           491.75  495.24  491.62             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8670 9824.72 2312.18       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8670 9824.69 2311.67

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2299.11    Element                Left OB    Channel
Right OB
  Vel Head (ft)               0.29    Wt. n-Val.                         0.035
  0.040
  W.S. Elev (ft)           2298.82    Reach Len. (ft)        491.75     495.24
 491.62
  Crit W.S. (ft)           2298.06    Flow Area (sq ft)                 3623.69
 522.69
  E.G. Slope (ft/ft)      0.003509    Area (sq ft)                      3623.69
 522.69
  Q Total (cfs)           16900.00    Flow (cfs)                       15995.38
 904.62
  Top Width (ft)           2306.36    Top Width (ft)                    1556.94
 749.42
  Vel Total (ft/s)            4.08    Avg. Vel. (ft/s)                     4.41
   1.73
  Max Chl Dpth (ft)           4.82    Hydr. Depth (ft)                     2.33
   0.70
  Conv. Total (cfs)       285285.5    Conv. (cfs)                      270014.8
15270.7
  Length Wtd. (ft)          495.02    Wetted Per. (ft)                  1558.43
 749.42
  Min Ch El (ft)           2294.00    Shear (lb/sq ft)                     0.51
   0.15
  Alpha                       1.12    Stream Power (lb/ft s)               2.25
   0.26
  Frctn Loss (ft)             1.92    Cum Volume (acre-ft)        0.81     526.39
2462.29
  C & E Loss (ft)             0.01    Cum SA (acres)              1.81     144.97
1283.98
```

Warning: Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 16.972

INPUT
Description: RS 16.972
10.97 10.78 30540.48
Station Elevation Data num= 168

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8755	2296.77	8763.76	2296.77	8771.6	2296.79	8789.48	2296.78	8798.27	2296.81
8807.6	2296.81	8816.5	2296.84	8892.57	2296.97	9075.2	2297.04	9226.01	2298
9437.33	2298	9466.31	2296	9686.95	2296	9695.78	2295.88	9696.88	2295.87
9697.71	2295.85	9697.97	2295.85	9735.85	2295.34	9736.07	2295.33	9741.96	2295.25
9748.31	2295.15	9839.53	2294	9861.81	2294	9863.61	2294.48	9865.43	2294.96
9866.37	2295.22	9869.34	2296	9876.48	2297.69	9877.8	2298	9878.16	2298.06
9889.6	2300	9898.22	2300	9902.04	2299.12	9906.96	2298	9907.95	2297.77
9915.07	2296.15	9915.71	229610086.02		229610103.09		2297.510110.19		2298
10117.79	2299.6310119.66		230010138.66		230010139.42		2299.7410144.15		2298
10150.3	2297.2310167.28		2296	10182.9	2295.8510183.94		2295.8510234.06		2295.4
10244.86	2295.4310252.24		2295.37	10257.6	2295.3810273.81		2295.3610281.41		2295.31
10281.94	2295.3110307.78		2295.1710309.26		2295.1710400.88		2294.8110412.22		2294.75
10414.97	2294.7410425.28		2294.6610494.17		2294.3210638.69		2294.2910680.53		2294.34
10748.83	2294.2210785.93		229410853.57		229410873.26		2293.1910907.84		2292
10919.21	229210924.71		2293.4610926.66		229411085.07		229411139.47		2294.44
11216.88	2294.3	11221.9	2294.2811223.38		2294.2811272.32		2294.0711272.68		2294.07
11278.6	2294.0511278.87		2294.0511286.65		229411322.77		229411347.03		2294.11
11354.49	2294.1611416.06		2294.4611628.29		229611642.68		229611645.98		2296.06
11676.22	2297.0411676.72		2297.0311681.16		2297.1711899.62		2296.8112253.55		2297.81
12260.64	2297.8212330.14		229812680.73		229812868.93		2298.8612880.86		2298.9
13070.48	230013103.52		2300.1413446.83		2301.0613449.53		2301.06 13453.4		2301.05
13460.49	2301.113465.29		2301.09 13471.2		2301.0913537.73		2301.5113540.52		2301.51
13552.51	2301.5913554.53		2301.613582.49		2301.6413591.67		2301.6913601.74		2301.64
13630.04	230213683.33		230213819.02		2303.9313820.93		2303.9513821.73		2303.97
13823.67	2303.9913824.04		2303.9913824.94		230413875.81		230413940.84		2304.75
13978.86	2305.0314006.75		2305.314053.38		230614098.76		230614119.76		2306.25
14128.21	2306.41 14155.1		2306.7914210.44		230814372.23		231014437.26		2310
14501.2	2311.4514532.24		2311.9814533.91		231214587.53		231214653.51		2313.66
14671.25	2313.9514673.78		231414696.71		231414698.81		2315.9114699.93		2317.78
14700.51	2319.6514701.54		2323.3314702.07		2325.1514702.89		2328.7614703.66		2332.33
14704.12	2334.0814705.04		2337.5414705.49		2339.2514706.55		2340.7914707.16		2338.87
14708.4	2335.08 14709.3		2331.4214709.73		2329.6214715.17		2330.4114716.27		2326.74
14716.81	2324.9314718.03		2321.3214719.73		2317.7614721.55		2314.2614722.81		2314.24
14725.78	2312.6114792.17		2311.0315089.91		2303.97				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8755	.029	9898.22	.03511416.06		.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9898.2211416.06 499.69 504.26 515.56 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8755	9893.79	2312.69	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8755	9893.78	2310.8

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2297.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	2296.84	Reach Len. (ft)	499.69	504.26	515.56
Crit W.S. (ft)	2296.14	Flow Area (sq ft)		3278.31	366.44
E.G. Slope (ft/ft)	0.004300	Area (sq ft)		3278.31	366.44
Q Total (cfs)	16900.00	Flow (cfs)		15762.64	1137.36
Top Width (ft)	1727.27	Top Width (ft)		1443.94	283.33
Vel Total (ft/s)	4.64	Avg. Vel. (ft/s)		4.81	3.10
Max Chl Dpth (ft)	4.84	Hydr. Depth (ft)		2.27	1.29
Conv. Total (cfs)	257716.6	Conv. (cfs)		240372.4	17344.2
Length Wtd. (ft)	506.58	Wetted Per. (ft)		1444.41	283.35
Min Ch El (ft)	2292.00	Shear (lb/sq ft)		0.61	0.35
Alpha	1.03	Stream Power (lb/ft s)		2.93	1.08
Frctn Loss (ft)	1.45	Cum Volume (acre-ft)	0.81	487.16	2457.28
C & E Loss (ft)	0.03	Cum SA (acres)	1.81	127.91	1278.15

Warning: Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 16.876

INPUT
Description: RS 16.876

10.88 10.69 30036.22
Station Elevation Data num= 224

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8210	2294.78	8213.61	2294.78	8218.18	2294.77	8228.27	2294.77	8289.43	2294.66
8292.95	2294.66	8298.86	2294.65	8408.21	2294.72	8499.6	2294.58	8503.64	2294.58
8521.32	2294.54	8530.58	2294.54	8556.09	2294.49	8560.3	2294.49	8583.73	2294.44
8596.14	2294.44	8616.26	2294.4	8619.26	2294.4	8636.66	2294.36	8671.04	2294.47
8738.01	2294.25	8738.86	2294.26	8799.95	2294.1	8800.38	2294.1	8834.62	2294.02
8834.73	2294.02	8840.2	2294	8898.32	2293.93	8899.5	2293.92	8914.54	2293.88
8915.74	2293.88	9037.09	2293.54	9060.84	2293.52	9098.52	2293.37	9115.57	2293.35
9178.55	2292.94	9185.95	2292.88	9194.72	2292.85	9199.4	2292.81	9201.22	2292.79
9202.94	2292.78	9204.53	2292.76	9210.14	2292.72	9231.44	2292.66	9237.12	2292.6
9241.32	2292.59	9272.16	2292.23	9273.27	2292.23	9286.98	2292.06	9292.52	2292
9347.27	2292	9347.5	2292.06	9347.63	2292.09	9362.95	2295.89	9363.4	2296
9370.77	2297.89	9371.19	2298	9382.79	2298	9386.07	2297.29	9388.93	2296.66
9394.96	2295.35	9407.94	2292.48	9410.13	2292	9914.72	2292	9937.9	2291.37
9944.23	2291.21	9984.86	2290.66	9985.95	2290.72	9987.66	2290.57	9988.66	2290.62
9990.22	2290.51	9990.89	2290.55	9993.31	2290.27	9993.53	2290.28	9995.45	2290
10005.2	229010022.42	2290.6110023.63	2290.6310024.59	2290.6310039.77	2291.01				
10041.18	2291.0510053.43	2291.5210054.46	2291.5510065.32	229210071.21	2292				
10078.69	2291.510082.57	2291.2510088.97	2290.7910100.67	2290.0610101.01	2290.03				
10101.59	229010115.41	2290 10119.5	2290.210119.96	2290.2110120.22	2290.22				
10127.63	2290.5710130.59	2290.6510132.83	2290.72 10138.2	2290.9410141.39	2291.04				
10151.01	2291.410159.41	2291.7510160.77	2291.810165.24	229210168.51	2292.58				
10171.68	2293.0310175.05	2293.5510178.57	229410181.75	2294.94 10192	2298				
10263.45	229810266.59	2297.9810270.18	229810287.12	229810290.07	2297.95				
10290.46	2297.9210290.84	2297.8710295.11	2297.6410297.06	2297.3410299.92	2297.06				
10305.71	2296.0610305.85	2296.0410306.09	229610310.56	2294.2310311.11	2294				
10314.65	2293.7510318.71	2293.4510320.19	2293.3910324.08	2293.1210325.75	2293.06				
10337.6	229210485.34	229210497.18	2292.1910541.13	2292.98 10599.1	2293.92				
10600.26	2293.9410603.18	229410824.67	229410924.93	2294.3810926.24	2294.39				
10933.64	2294.4111095.19	2294.5211105.65	2294.58 11237.5	2295.95 11240	2295.99				
11240.75	229611496.74	229611553.24	2296.1211554.05	2296.1211701.68	2296.46				
11718.73	2296.51 11726.2	2296.5212034.51	2297.4912036.49	2297.4912103.02	2297.75				
12104.8	2297.7512213.76	2298.1612544.79	2298.912603.76	2298.8612683.14	2298.62				
12696.06	2298.7 12754.2	2298.3212756.21	2298.3312757.48	2298.3212759.71	2298.32				
12779.4	2298.3512780.55	2298.3512808.58	2298.612809.53	2298.612811.72	2298.63				
12836.06	2298.8112890.48	229912893.53	2299.0312946.16	2299.1613020.06	2299.74				
13020.26	2299.7413045.87	230013053.31	230013056.87	2300.0413057.25	2300.04				
13107.44	2300.6713182.14	2301.3213183.44	2301.3213209.17	2301.513235.98	2302				
13317.66	2302 13334.3	2302.3113348.96	2302.6213388.04	2303.3913413.87	2304				
13419.15	230413562.67	2306 13728	230813749.54	230813848.52	2309.76				
13850.65	2309.7913856.24	2309.9513858.23	231013902.34	231013989.92	2311.5				
13997.12	2311.5814017.94	231214044.36	2312.8314053.75	2312.9414068.35	2313.31				
14078.28	2313.52 14090.8	2313.6114093.35	2313.6614106.15	2313.7414113.61	2313.84				
14114.94	2313.8514125.62	2313.914126.37	2313.9114140.28	2313.9814141.61	2313.99				
14141.96	2313.9914144.15	231414146.61	2314 14148	2314.0614150.34	2314.19				
14150.44	231414153.83	2312.1414254.73	2309.7414532.94	2303.14					

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8210	.029	9382.79	.03510065.32		.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9382.7910065.32		492.9 503.38	496.51	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8210	9372.68	2302.77	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8210	9372.68	2302.72

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2295.71	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.25	Wt. n-Val.		0.035
0.040				
W.S. Elev (ft)	2295.45	Reach Len. (ft)	492.90	503.38
496.51				
Crit W.S. (ft)	2293.90	Flow Area (sq ft)		2442.70
2014.90				
E.G. Slope (ft/ft)	0.002046	Area (sq ft)		2442.70
2014.90				
Q Total (cfs)	16900.00	Flow (cfs)		11096.60
5803.40				
Top Width (ft)	1671.09	Top Width (ft)		670.83
1000.26				
Vel Total (ft/s)	3.79	Avg. Vel. (ft/s)		4.54
2.88				
Max Chl Dpth (ft)	5.45	Hydr. Depth (ft)		3.64
2.01				
Conv. Total (cfs)	373644.6	Conv. (cfs)		245336.3
128308.3				
Length Wtd. (ft)	499.19	Wetted Per. (ft)		671.31
1001.11				
Min Ch El (ft)	2290.00	Shear (lb/sq ft)		0.46
0.26				
Alpha	1.14	Stream Power (lb/ft s)		2.11
0.74				
Frctn Loss (ft)	1.09	Cum Volume (acre-ft)	0.81	454.04
2443.18				
C & E Loss (ft)	0.02	Cum SA (acres)	1.81	115.67
1270.56				

Warning: Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 16.781

INPUT
Description: RS 16.781
10.78 10.59 29532.84
Station Elevation Data num= 185

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8695	2292	9261.66	2292	9285.8	2291.97	9288.37	2291.98	9318.95	2291.95
9341.69	2291.89	9343.69	2291.88	9390.9	2291.79	9395.79	2291.75	9434.32	2291.67
9435.9	2291.66	9469.43	2291.58	9471.29	2291.57	9473.41	2291.55	9502.38	2291.48
9507.55	2291.44	9514.33	2291.38	9567.59	2291.2	9584.74	2291.11	9588.1	2291.1
9620.2	2290.93	9671.73	2290.85	9779.74	2290	9814.1	2290	9829.96	2291.05
9836.98	2291.43	9843.92	2292	9852.25	2293.77	9853.31	2294	9854.82	2294.32
9855.13	2294.38	9859.52	2295.29	9860.27	2295.44	9862.92	2296	9880.37	2296
9881.74	2295.67	9887.03	2294.38	9888.61	2294	9896.79	2292	9992.04	2292
9992.65	2291.8	9997.89	2290	9999.86	2289.361	0002.74	2288.41	0003.92	2288

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 10006.9    228810020.53 2289.0110030.25  2289.610031.53 2289.6810032.47 2289.75
10037.13    229010194.62    229010214.05    2289 10218.6 2288.8310224.42 2288.65
 10235.2 2288.2210236.62 2288.1710239.79 2288.1410240.74    228810263.54    2288
10282.83 2288.6110288.75 2288.7610296.42 2288.9810318.09 2289.5410331.11 2289.85
 10332.5 2289.8810337.58    229010390.14    229010691.19    229211194.49    2292
   11215 2292.1811216.31 2292.1911217.74 2292.1911229.27 2292.2911232.68 2292.31
 11246.4 2292.4211253.14 2292.4511268.75 2292.5711280.74 2292.6311404.25 2293.44
11443.32 2293.5511445.67 2293.5611467.15 2293.6211471.15 2293.6411511.65 2293.74
11524.41 2293.7911609.96    229411611.28    229411645.24 2294.0711649.28 2294.07
11706.98 2294.1811712.32  2294.211812.49 2294.3511814.71 2294.3611900.76 2294.52
12027.16 2294.7612032.33 2294.7812042.82 2294.7912058.05 2294.8412086.64 2294.88
12121.15 2294.9512135.85    229512159.28 2295.0312194.61 2295.1512208.93 2295.17
12222.25 2295.2212229.86 2295.2312249.39  2295.312263.02 2295.3212415.65 2295.76
12417.65 2295.7612436.62 2295.8212439.98 2295.8212475.79 2295.9212477.56 2295.93
12565.46 2296.1512566.79 2296.1512591.64  2296.212594.25 2296.2112656.75 2296.31
 12772.3 2296.5112869.76 2296.4512884.36 2296.4212889.19 2296.4212999.64 2296.03
 13003.9    229613233.53    229613267.71 2296.6613269.49 2296.6913302.68 2297.36
13313.02 2297.5913314.66 2297.6213316.42 2297.6613329.98 2297.9313333.14    2298
13349.87    229813559.53    2300 13590.1    230013673.01 2300.8813683.79 2301.01
13779.41    230213794.05    230213819.66 2302.4513820.92 2302.4613846.83 2302.83
13848.63 2302.8413875.12 2303.0513942.79    230414061.53    2304 14099.9 2305.58
14100.73 2305.5814101.28 2305.5914112.45    2306 14214.4    230614230.17 2306.25
14240.27 2306.3914281.57 2306.8314285.17 2306.8414293.32 2306.9714295.46 2306.98
14303.43    230714316.65    2307 14317.4 2306.9914323.73 2307.0814324.57 2307.08
14330.21 2307.1514331.16 2307.1614335.45 2307.1914335.83  2307.214338.31 2307.19
14369.75    230814439.47    2308 14451.8 2308.1514457.71 2308.21 14459.2 2308.23
14567.48  2309.314593.53 2309.41   14594 2309.4114600.46    231014606.34 2309.81
 14624.8  2311.2 14629.8 2311.0414641.64 2310.6514724.54 2308.6915002.05  2302.1

Manning's n Values          num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
    8695    .029 9880.37    .03510037.13     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       9880.3710037.13           513.24  520.79  486.28             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
    8695 9878.71 2298.78         F
Blocked Obstructions      num=        1
   Sta L   Sta R    Elev
    8695 9877.73 2298.48

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2294.60    Element                 Left OB    Channel
Right OB
  Vel Head (ft)               0.18    Wt. n-Val.                          0.035
  0.040
  W.S. Elev (ft)           2294.42    Reach Len. (ft)         513.24     520.79
 486.28
  Crit W.S. (ft)           2292.77    Flow Area (sq ft)                  475.69
4506.50
  E.G. Slope (ft/ft)      0.002317    Area (sq ft)                       475.69
4506.50
  Q Total (cfs)           16900.00    Flow (cfs)                        2086.44
14813.56
  Top Width (ft)           1957.91    Top Width (ft)                     150.25
1807.67
  Vel Total (ft/s)            3.39    Avg. Vel. (ft/s)                     4.39
   3.29
  Max Chl Dpth (ft)           6.42    Hydr. Depth (ft)                     3.17
   2.49
```

Conv. Total (cfs)	351129.7	Conv. (cfs)			43349.8
307779.8					
Length Wtd. (ft)	495.83	Wetted Per. (ft)			151.26
1807.76					
Min Ch El (ft)	2288.00	Shear (lb/sq ft)			0.45
0.36					
Alpha	1.03	Stream Power (lb/ft s)			1.99
1.19					
Frctn Loss (ft)	1.24	Cum Volume (acre-ft)		0.81	437.18
2406.02					
C & E Loss (ft)	0.01	Cum SA (acres)		1.81	110.92
1254.56					

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 16.682

INPUT
Description: RS 16.682
10.68 10.49 29012.05
Station Elevation Data num= 242

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8705	2290.17	8740.63	2290	8851.43	2290	8854.13	2289.85	8857	2290
9005.82	2290	9018.18	2289.97	9027.19	2289.94	9027.35	2289.94	9041.93	2289.9
9042.23	2289.9	9061.79	2289.84	9062.17	2289.83	9062.51	2289.83	9086.09	2289.75
9086.46	2289.75	9087.15	2289.74	9088.22	2289.72	9106.26	2289.65	9107.98	2289.63
9109.39	2289.6	9110.36	2289.59	9123.47	2289.52	9123.88	2289.51	9124.33	2289.51
9124.82	2289.5	9133.54	2289.44	9134.1	2289.43	9135.76	2289.42	9150.22	2289.29
9155.08	2289.23	9165.65	2289.13	9167.12	2289.12	9169.21	2289.1	9182.51	2289
9201.91	2288.94	9205.87	2288.92	9210.05	2288.89	9216.22	2288.86	9263.01	2289.09
9280.04	2289.24	9313.67	2289.6	9324.2	2289.66	9329.45	2289.66	9373.48	2289.59
9375.35	2289.61	9395.79	2289.57	9459.92	2289.81	9463.38	2289.81	9475.56	2289.79
9477.37	2289.79	9546.19	2289.7	9610.82	2289.35	9629.33	2289.2	9640.94	2289.17
9643.2	2289.15	9659.11	2289.09	9659.77	2289.09	9675.97	2289.03	9678.55	2289.01
9698.05	2288.95	9755.86	2288.47	9764.76	2288.42	9810.56	2288	9839.05	2288
9841.82	2288.71	9850.82	2291.04	9854.55	2292	9861.44	2293.79	9862.27	2294
9879.59	2294	9882.69	2293.26	9885.81	2292.53	9896.55	2290	9903.95	2289.18
9921.53	2288	9988.83	2288	9998.26	2286.11	9998.86	228610005.99		2286
10011.13	2287.32	10013.8	228810050.54		228810060.11		2288.6810065.55		2289.05
10094.63	229010127.96		229010136.95		228810143.78		2286.4610145.84		2286
10147.59	228610151.02		2287.2710153.15		228810191.49		2288 10218.3		2288.81
10238.22	2289.3510243.32		2289.510257.89		229010593.11		229010956.71		2290.89
10962.75	2290.9410963.89		2290.9210965.44		2290.910967.46		2290.8710970.01		2290.84
10975.94	2290.8810979.26		2290.8310983.93		2290.7710999.13		2290.5911003.15		2290.59
11007.19	2290.5611027.14		2290.4611071.52		2290.711146.48		2291.49 11149.6		2291.53
11169.55	2291.711172.45		2291.7311196.27		2291.9111215.06		229211333.29		2292
11400.62	2292.2411404.11		2292.2411424.43		2292.2711426.85		2292.2711449.59		2292.31
11451.34	2292.3111487.58		2292.3611490.34		2292.3611517.58		2292.3911521.44		2292.4
11554.36	2292.4411558.44		2292.4511569.71		2292.4611599.39		2292.4911602.95		2292.5
11628.8	2292.5211635.22		2292.5411689.12		2292.5911693.24		2292.611702.94		2292.6
11795.37	2292.7311810.46		2292.7411812.18		2292.7511893.32		2292.8411899.62		2292.84
12122.54	2293.2112127.08		2293.2112149.11		2293.2512276.49		2293.4412291.21		2293.43

```
12314.51 2293.4712378.42 2293.5512381.86 2293.5612406.14 2293.5912463.27 2293.49
12475.09 2293.5112480.07 2293.4912493.57  2293.512500.43 2293.4712513.94 2293.38
12517.42 2293.3512530.88 2293.3612534.62 2293.3312550.85 2293.3512554.74 2293.32
12557.54 2293.3212561.94 2293.3312583.76 2293.3512601.21 2293.3812604.47 2293.37
12611.74 2293.37 12617.3 2293.3512621.25 2293.3612646.61  2293.312664.16  2293.3
 12669.7 2293.3212682.64  2293.312793.48    229412989.67    229413183.62 2295.77
 13186.2 2295.7913208.06    229613224.33    229613244.28 2296.4713252.06 2296.57
13282.12 2296.9113296.57 2297.0313330.17 2297.19 13332.2 2297.18 13358.8 2297.27
13370.71 2297.3313371.37 2297.3313406.53  2297.413442.55    229813585.86    2298
13669.38  2299.9   13675    230013831.85    230013872.65 2301.2413898.58 2301.71
13902.33 2301.7413903.74 2301.7613914.48    230213993.53    230214074.21 2303.41
14075.56 2303.4214087.12 2303.5814119.88    230414184.94    230414257.83 2305.82
14264.71    230614333.76    230614382.52  2307.414385.18  2307.414389.69 2307.45
14391.42 2307.4514398.38 2307.53 14400.2 2307.5314411.77 2307.6914413.17 2307.69
14431.82    2308   14432    230814433.02 2308.0214501.13 2309.0314510.34 2309.21
14525.77 2309.4414531.21 2309.5314532.57 2309.5514533.13 2309.5514547.99 2309.74
 14548.4 2309.7414548.87 2309.7514549.08 2309.7514550.44 2309.9214552.03 2309.95
14615.27 2307.9214633.44 2309.2914638.36 2309.1314640.41 2309.0614650.01 2308.75
14702.76  2307.514952.66 2301.57

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8705    .029 9879.59    .03510153.15     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9879.5910153.15             485.5  486.16   511.8             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8705 9867.68 2297.91       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8705 9867.64  2297.4

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2293.34    Element                Left OB    Channel
Right OB
  Vel Head (ft)               0.31    Wt. n-Val.                         0.035
  0.040
  W.S. Elev (ft)           2293.03    Reach Len. (ft)        485.50     486.16
 511.80
  Crit W.S. (ft)           2291.86    Flow Area (sq ft)                 1209.51
3351.07
  E.G. Slope (ft/ft)      0.002730    Area (sq ft)                      1209.51
3351.07
  Q Total (cfs)           16900.00    Flow (cfs)                        7268.98
9631.02
  Top Width (ft)           2129.09    Top Width (ft)                     269.47
1859.62
  Vel Total (ft/s)            3.71    Avg. Vel. (ft/s)                     6.01
   2.87
  Max Chl Dpth (ft)           7.03    Hydr. Depth (ft)                     4.49
   1.80
  Conv. Total (cfs)       323468.9    Conv. (cfs)                      139129.5
184339.4
  Length Wtd. (ft)          503.21    Wetted Per. (ft)                   271.20
1859.66
  Min Ch El (ft)           2286.00    Shear (lb/sq ft)                     0.76
   0.31
  Alpha                       1.47    Stream Power (lb/ft s)               4.57
   0.88
  Frctn Loss (ft)             1.70    Cum Volume (acre-ft)      0.81     427.11
```

2362.16
C & E Loss (ft) 0.00 Cum SA (acres) 1.81 108.42
1234.09

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 16.590

INPUT
Description: RS 16.590
10.59 10.40 28525.89
Station Elevation Data num= 270

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8690	2288.09	8700.97	2288.07	8702.42	2288.07	8732.41	2288.03	8732.9	2288.03
8737.52	2288	8771.67	2288	8778.84	2287.99	8796.94	2287.97	8797.14	2287.97
8812.76	2287.95	8813.42	2287.95	8826.81	2287.92	8827.39	2287.92	8828.24	2287.91
8840.52	2287.83	8841.79	2287.82	8842.67	2287.82	8854.04	2287.7	8854.71	2287.69
8855.55	2287.69	8856.38	2287.68	8857.4	2287.68	8896.84	2287.38	8899.76	2287.37
8951.11	2288	9048.76	2288	9051.73	2287.21	9056.07	2286	9088	2286
9091.76	2287.85	9092.17	2288	9133.85	2288	9134.66	2288.19	9142.78	2290
9148.23	2290	9155.01	2288.05	9155.13	2288	9155.32	2287.98	9155.51	2287.97
9163.7	2287.33	9168.99	2287.09	9174.11	2286.73	9180.85	2286.5	9183.2	2286.35
9184.69	2286.32	9188	2286.26	9189.09	2286.19	9193.1	2286.16	9193.6	2286.13
9197.81	2286.06	9201.39	2286.07	9202.14	2286.09	9206.08	2286.12	9208.9	2286.15
9209.03	2286.15	9210.81	2286.17	9211.58	2286.17	9212.73	2286.2	9212.83	2286.2
9216.13	2286.29	9218.55	2286.36	9218.75	2286.36	9219.46	2286.39	9231.91	2286.74
9232.41	2286.73	9236.46	2286.71	9267.5	2288	9411.93	2288	9442.63	2287.84
9452.71	2287.85	9468.8	2287.82	9469.66	2287.83	9508.04	2287.77	9509.64	2287.78
9583.17	2287.7	9584.56	2287.69	9596.57	2287.68	9633.47	2287.62	9634.01	2287.61
9646.19	2287.53	9672.59	2287.48	9674.46	2287.46	9716.84	2287.09	9759.32	2286.63
9773.08	2286.55	9820.05	2286	9837.75	2286	9842.73	2287.55	9844.2	2288
9850.19	2289.87	9850.59	2290	9850.9	2290.1	9856.95	2292	9876.39	2292
9880.52	2290.84	9881.36	2290.6	9883.49	2290	9890.5	2288	9897.13	2286.09
9897.33	2286.03	9897.44	2286	9940.73	2286	9954.2	2287.17	9964.95	2288
9972.42	2289.83	9973.3	2290	9981.04	2290	9985.46	2288.65	9990.4	2287.05
9993.75	2286	9999	2284.27	9999.81	228410001.22		228410001.84		2284.15
10009.94	228610075.14		228610122.53		2287.210129.21		2287.3310137.04		2287.53
10143.92	2287.6810144.45		2287.6910149.21		2287.7510149.54		2287.7510150.36		2287.77
10151.47	2287.810155.62		2287.82 10156.7		2287.8510157.39		2287.8610161.18		2287.87
10161.63	2287.8810165.15		2287.8710165.44		2287.8810168.68		2287.8710168.97		2287.88
10171.9	2287.8610172.19		2287.8710186.69		228810380.28		228810402.28		2288.16
10404.99	2288.1710423.98		2288.3110433.79		2288.3510438.57		2288.3610453.99		2288.49
10459.74	2288.510610.33		2289.4110615.45		2289.4310627.86		2289.4510631.24		2289.46
10633.1	2289.4610635.44		2289.4710648.78		2289.4910664.89		2289.5410668.18		2289.54
10674.14	2289.5610687.98		2289.5810798.05		2289.2110835.87		2289.3410858.48		2289.02
10867.52	2289.0110922.85		2288.15 10924.9		2288.1410929.27		2288.0510932.07		2288
10936.1	228810956.68		2288.6610962.41		2288.8310983.92		2289.3910991.02		2289.59
10992.43	2289.6411009.26		229011295.43		229011317.87		2290.111319.44		2290.1
11337.21	2290.1811338.96		2290.1811590.37		2290.8211701.01		2290.94 11889.6		2290.95
11899.1	2290.9311961.33		2291.0312026.73		2290.8512049.75		2290.73 12065.2		2290.78
12070.83	2290.76 12099.2		2290.8512104.62		2290.83 12110.1		2290.8512120.86		2290.84
12137.71	2290.8612150.72		2290.8512155.29		2290.84 12162.2		2290.8412167.53		2290.86

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12219.09  2290.9 12226.1 2290.9512233.94 2290.9512337.84 2291.2612360.93 2291.26
12367.74 2291.2512511.69 2290.5612516.68 2290.5512532.13 2290.5512536.04 2290.51
12539.45 2290.5212549.96 2290.5312554.17 2290.5412557.04 2290.5412577.07 2290.39
12577.46 2290.3912579.96 2290.3812620.05 2290.4212631.73 2290.5512632.39 2290.55
12633.17 2290.5612637.25  2290.612649.19 2290.6612672.39  2290.912726.26 2291.19
12729.87 2291.2212856.69    229212986.21    229213089.49 2292.9113103.09 2292.99
13154.85 2293.0613157.12 2293.05 13168.6 2293.1313170.33 2293.1313233.32    2294
13356.66    229413386.13 2294.5513398.46 2294.72 13458.8 2295.1113460.68 2295.11
13538.81    229613630.82    229613718.46 2297.3113731.93 2297.8213732.25 2297.83
13736.73    229813805.66    229813896.57 2299.1613914.21 2299.4813925.68 2299.56
13944.87    230014197.18 2303.2514352.03  2305.514360.82  2305.6 14381.2 2305.96
14381.93 2305.9714383.56    230614417.85    230614468.31  2306.514471.19 2306.49
14475.14 2306.4914480.17 2306.4814486.28 2306.4814496.48 2306.4614508.02 2307.64
14512.53 2307.4914521.87  2307.214561.01 2307.9314623.19 2305.9314641.05 2307.27
14645.89 2307.11 14647.9 2307.0514657.34 2306.7414671.87  2306.414960.31 2299.55

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8690    .029 9876.39    .03510009.94     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9876.3910009.94           489.68  489.95     492             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8690 9868.61 2296.15         F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8690 9868.55  2295.5

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2291.64    Element                 Left OB    Channel
Right OB
  Vel Head (ft)               0.31    Wt. n-Val.                         0.035
  0.040
  W.S. Elev (ft)           2291.33    Reach Len. (ft)         489.68     489.95
 492.00
  Crit W.S. (ft)           2290.53    Flow Area (sq ft)                  560.05
4062.90
  E.G. Slope (ft/ft)      0.004283    Area (sq ft)                       560.05
4062.90
  Q Total (cfs)           16900.00    Flow (cfs)                        4049.64
12850.37
  Top Width (ft)           2869.04    Top Width (ft)                     131.17
2737.87
  Vel Total (ft/s)            3.66    Avg. Vel. (ft/s)                     7.23
   3.16
  Max Chl Dpth (ft)           7.33    Hydr. Depth (ft)                     4.27
   1.48
  Conv. Total (cfs)       258235.9    Conv. (cfs)                       61879.4
196356.6
  Length Wtd. (ft)          491.40    Wetted Per. (ft)                   133.40
2737.95
  Min Ch El (ft)           2284.00    Shear (lb/sq ft)                     1.12
   0.40
  Alpha                       1.51    Stream Power (lb/ft s)               8.12
   1.25
  Frctn Loss (ft)             1.73    Cum Volume (acre-ft)       0.81    417.23
2318.60
  C & E Loss (ft)             0.01    Cum SA (acres)             1.81    106.18
1207.08
```

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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 16.498

INPUT
Description: RS 16.498
10.50 10.31 28035.94
Station Elevation Data num= 180

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8670	2285.48	8671.98	2285.46	8683.09	2285.37	8735.92	2285.08	8740.38	2285.04
8755.69	2284.99	8759.43	2284.96	8769.67	2284.91	8772.76	2284.89	8783.26	2284.84
8786.15	2284.82	8791.73	2284.81	8793.86	2284.79	8812.53	2284.76	8817.33	2284.74
8818.92	2284.73	8873.98	2284.53	8895.65	2284.58	8895.94	2284.58	8901.36	2284.6
8901.8	2284.6	8904.54	2284.62	9009.88	2285	9023.96	2285.09	9245.17	2286
9841.72	2286	9850.48	2288.67	9854.81	2290	9872.98	2290	9873.51	2289.86
9880.48	2288.07	9880.73	2288	9882.66	2287.5	9896.25	2284	9920.88	2284
9940.53	2285.07	9953.42	2286	9962.41	2287.43	9966.31	2288	9975.37	2288
9981.79	2286.47	9983.82	2286	9986.1	2285.43	9991.71	2284	9998.28	2282.3
9999.45	228210001.61		228210006.45		2283.3210008.12		2283.7710008.92		2284
10071.64	2285.5810089.51		228610376.01		228610459.19		2286.4110464.39		2286.38
10466.62	2286.410468.96		2286.4110471.37		2286.4110473.78		2286.4210479.41		2286.42
10482.8	2286.4410485.99		2286.4410490.67		2286.4710499.61		2286.5110516.12		2286.61
10518.35	2286.6410560.99		2286.910564.13		2286.9310618.33		2287.2910677.89		2287.81
10679.4	2287.8210699.67		2287.8410700.22		2287.8510755.31		228811376.04		2288
11379.77	2288.0211380.21		2288.02 11380.7		2288.0311444.12		2288.3911447.59		2288.4
11457.97	2288.4611666.46		2289.0711783.52		2289.1311787.54		2289.1411920.34		2289.28
11945.48	2289.2512083.74		2289.2712090.51		2289.2812220.36		228912227.57		2288.97
12271.44	2288.93 12284.6		2288.912382.47		2288.4812387.15		2288.4712394.81		2288.43
12405.06	2288.4112439.61		2288.2112441.93		2288.2112449.85		2288.1612452.32		2288.16
12453.42	2288.1512455.79		2288.1512476.05		228812527.04		228812772.66		2289.89
12848.43	229012915.41		229012944.85		2290.1512949.57		2290.1812973.42		2290.28
12983.26	2290.3513066.41		2290.6813071.43		2290.6813080.39		2290.77 13083.2		2290.78
13092.29	2290.8713099.62		2290.9313109.28		2290.9813109.93		2290.9913135.73		2291.08
13144.21	2291.1513145.14		2291.1513146.09		2291.1613164.62		2291.1713183.24		2291.24
13241.64	229213381.89		229213386.65		2292.0913388.48		2292.1313405.54		2292.47
13430.6	2292.8913442.73		2293.1213498.08		229413578.56		2294 13723.6		2295.66
13726.09	2295.6813750.89		2295.9413751.51		2295.9413757.21		229613778.94		2296
13936.98	229814023.59		229814063.55		2299.1114066.35		2299.1414075.76		2299.45
14078.14	2299.514089.46		2299.8214090.05		2299.8314090.97		2299.8614096.54		2300
14143.03	2300 14202.9		2300.8514204.53		2300.86 14218		2301.0714219.99		2301.08
14222.45	2301.114256.14		2301.6214257.56		2301.6414267.07		2301.7114268.25		2301.71
14269.84	2301.714270.96		2301.714281.39		230214351.69		2303.3314378.27		2304
14443.73	230414463.03		2303.4114463.84		2303.3914490.11		2304.56 14500.6		2304.23
14501.96	2304.1914516.72		2305.6914530.33		2305.2614568.83		2305.9814629.98		2304.01
14647.52	2305.3314652.31		2305.1814654.29		2305.1114663.57		2304.8114909.58		2298.97

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8670	.029	9872.98	.03510089.51		.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9872.98	10089.51	501.05 501.08	489.57	.1	.3

```
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8670 9864.54 2297.35       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8670 9864.52 2295.97

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2289.91    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.28    Wt. n-Val.                          0.035
  0.040
  W.S. Elev (ft)           2289.63    Reach Len. (ft)          501.05     501.08
 489.57
  Crit W.S. (ft)           2288.91    Flow Area (sq ft)                   948.78
4108.60
  E.G. Slope (ft/ft)      0.002931    Area (sq ft)                        948.78
4108.60
  Q Total (cfs)           16900.00    Flow (cfs)                         5829.65
11070.35
  Top Width (ft)           2864.49    Top Width (ft)                      215.10
2649.39
  Vel Total (ft/s)            3.34    Avg. Vel. (ft/s)                      6.14
   2.69
  Max Chl Dpth (ft)           7.63    Hydr. Depth (ft)                      4.41
   1.55
  Conv. Total (cfs)       312164.6    Conv. (cfs)                       107681.1
204483.5
  Length Wtd. (ft)          492.65    Wetted Per. (ft)                    217.07
2649.41
  Min Ch El (ft)           2282.00    Shear (lb/sq ft)                      0.80
   0.28
  Alpha                       1.59    Stream Power (lb/ft s)                4.91
   0.76
  Frctn Loss (ft)             1.45    Cum Volume (acre-ft)        0.81      408.75
2272.46
  C & E Loss (ft)             0.03    Cum SA (acres)              1.81      104.23
1176.65


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:    Multiple critical depths were found at this location.  The critical depth
with the lowest, valid, water
         surface was used.

CROSS SECTION


RIVER: Aguila Farm Chan
REACH: Reach-1            RS: 16.403

INPUT
Description: RS 16.403
10.40  10.21  27534.86
Station Elevation Data    num=     168
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8660 2282.16 8670.49    2282 8687.18    2282 8689.26 2282.19 8696.39 2282.49
 8697.18 2282.54 8698.85 2282.55 8699.85 2282.61 8701.48 2282.67 8702.82 2282.75
```

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 8704.38 2282.84    8706 2282.94 8706.97 2282.99 8707.47 2283.02 8709.33 2283.14
 8711.58  2283.3 8712.66 2283.39 8716.18 2283.65 8717.14 2283.74 8720.47    2284
  8875.6    2284 9457.36 2285.71 9457.82 2285.71 9487.74    2286 9676.45    2286
 9710.69 2285.17 9721.51 2284.94 9736.88 2284.64 9744.13 2284.47 9763.37 2284.13
 9765.04 2284.09 9771.18    2284 9822.92    2284  9827.8 2285.44 9829.66    2286
 9831.15 2286.48 9836.12    2288 9855.48    2288 9855.68 2287.95 9856.29 2287.78
 9857.24 2287.52 9862.84    2286 9870.12    2284 9925.72    2284 9957.71 2285.68
 9964.07    2286 9970.74 2287.18 9975.18    2288 9976.42    2288  9981.7 2286.56
 9983.77    2286 9985.92 2285.41 9991.11    2284 9998.01 2282.0110009.33    2282
10013.12 2282.8710018.14    228410234.84    228410398.94 2285.2410454.77 2285.54
10455.95 2285.5510490.89 2285.7410495.34 2285.7710499.12 2285.7810540.63    2286
10913.22    228610915.29 2286.0110915.42 2286.0110936.93 2286.1410938.04 2286.15
10980.66 2286.3810983.36 2286.3811009.48 2286.5211014.34 2286.5311020.45 2286.56
11026.97 2286.5711032.12 2286.5911058.66 2286.7411444.66 2286.3711446.28 2286.38
11446.63 2286.3811465.03 2286.34 11486.5 2286.38 11488.3 2286.3811490.25 2286.39
11492.78 2286.3911499.73 2286.4111502.93 2286.4111505.38 2286.4211507.03 2286.42
11508.14 2286.4111509.37 2286.4111516.58 2286.49 11580.9 2286.5611635.99 2286.85
11704.86 2287.1811795.73 2287.3811890.99 2287.3511900.55 2287.3612048.38 2287.31
 12072.7 2287.3212078.43 2287.3312096.74 2287.3312201.43 2287.3412208.09 2287.35
12247.89 2287.3512254.33 2287.3612268.37 2287.36   12433 2287.5212437.59 2287.53
12442.37 2287.53 12466.5 2287.5812470.69 2287.5812487.66 2287.6212491.42 2287.62
12517.45 2287.6712520.64 2287.6812545.98 2287.7312549.28 2287.7312584.05  2287.8
12586.94  2287.812631.75 2287.8912633.09 2287.8912676.84    228813038.98    2288
13043.25 2288.0413043.57 2288.0513081.44 2288.4613150.56 2289.3813154.23 2289.44
13195.34 2289.9913196.33    2290 13197.9    229013397.61 2291.6713427.66    2292
13476.16    229213550.17 2292.7713568.74    229313580.62 2293.1213645.82    2294
13720.56    229413754.89 2294.3413757.84 2294.3613857.93    229613936.33    2296
14032.55    229814198.16 2300.3814255.07 2301.1714269.12 2301.3514326.08    2302
14372.75    230214377.27 2302.35   14420  2302.714458.69 2301.5114459.48 2301.49
14485.31 2302.6414496.96 2302.2814511.47 2303.7614524.86 2303.3314562.71 2304.04
14563.61 2304.0114602.57 2302.7614622.83  2302.114640.11 2303.4114644.79 2303.25
14646.74 2303.1914655.86 2302.8914895.65  2297.2

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8660    .029 9855.48    .03510018.14     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9855.4810018.14           502.43  503.16  512.02             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8660 9846.58 2293.27        F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8660 9846.57 2293.06

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2288.43    Element                 Left OB    Channel
Right OB
  Vel Head (ft)               0.18    Wt. n-Val.               0.029      0.035
  0.040
  W.S. Elev (ft)           2288.25    Reach Len. (ft)         502.43     503.16
 512.02
  Crit W.S. (ft)           2287.26    Flow Area (sq ft)         2.18     593.18
4918.58
  E.G. Slope (ft/ft)      0.002955    Area (sq ft)              2.18     593.18
4918.58
  Q Total (cfs)           16900.00    Flow (cfs)                2.37    3219.48
13678.15
  Top Width (ft)           3214.98    Top Width (ft)            8.91     162.66
3043.41
```

Vel Total (ft/s)	3.06	Avg. Vel. (ft/s)	1.09	5.43	2.78
Max Chl Dpth (ft)	6.24	Hydr. Depth (ft)	0.24	3.65	1.62
Conv. Total (cfs)	310899.1	Conv. (cfs)	43.6	59226.8	251628.6
Length Wtd. (ft)	509.50	Wetted Per. (ft)	8.90	164.47	3043.42
Min Ch El (ft)	2282.00	Shear (lb/sq ft)	0.05	0.67	0.30
Alpha	1.26	Stream Power (lb/ft s)	0.05	3.61	0.83
Frctn Loss (ft)	1.66	Cum Volume (acre-ft)	0.80	399.88	2221.73
C & E Loss (ft)	0.01	Cum SA (acres)	1.76	102.06	1144.66

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 16.307

INPUT
Description: RS 16.307
10.31 10.12 27031.69
Station Elevation Data num= 180

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8645	2282	8666.53	2282	8880.7	2283.21	8981.54	2283.52	8983.79	2283.52
8991.44	2283.56	8995.25	2283.56	9070.24	2284	9480.15	2284	9709.64	2282.52
9726.27	2282.37	9760.73	2282	9781.81	2282	9793.82	2285.58	9795.22	2286
9817.76	2286	9820.72	2285.21	9823.19	2284.54	9832.78	2282	9914.61	2282
9945.73	2282.89	9952.08	2283.19	9953.77	2283.23	9968.68	2284	9984.21	2284
9990.04	2282.21	9990.71	2282	9991.94	2281.62	9997.33	228010009.65		2280
10017.22	228210035.48		2282	10054.8	2282.7910058.93		2282.8210067.26		2282.67
10067.9	2282.6810085.33		2282.46	10184.1	2282.7710194.22		2282.8410322.03		2283.64
10324.37	2283.6510327.07		2283.6710379.22		228410387.22		228410429.93		2284.2
10437.54	2284.2210629.48		2284.8910782.26		2285.3710829.07		2285.5210835.92		2285.53
10840.87	2285.5510862.63		2285.610914.43		2285.6110918.96		2285.5910920.35		2285.59
10946.01	2285.5410946.89		2285.5410977.29		2285.4510978.52		2285.4510986.47		2285.46
10988.28	2285.4611071.81		2285.2811137.76		2285.3111154.29		2285.311162.61		2285.28
11321.71	2285.3311331.55		2285.3511506.57		2284.6811549.81		2284.6111585.06		2284.6
11609.41	2284.6111610.69		2284.6211632.57		2284.6211639.22		2284.6711652.42		2284.67
11664.78	2284.7611676.79		2284.7611695.71		2284.8811699.34		2284.9111717.31		2284.91
11851.8	2285.3311871.71		2285.3311875.32		2285.3411902.56		2285.3411990.75		2285.39
12206.54	2285.5812211.54		2285.5912232.39		2285.612234.18		2285.6112283.78		2285.65
12287.85	2285.6612333.87		2285.7 12336.6		2285.7112366.43		2285.7312368.24		2285.74
12434.41	2285.8112435.32		2285.8112451.69		2285.8412452.92		2285.8412471.24		2285.86
12472.61	2285.8712515.68		2285.9412516.53		2285.9412532.62		2285.9612533.01		2285.96
12553.77	228612825.15		228612893.56		2286.7212976.48		2287.5113003.97		2287.7
13043.26	228813057.62		228813068.26		2288.0613069.65		2288.0713070.74		2288.08
13092.2	2288.2413093.21		2288.2513120.85		2288.4513126.28		2288.513211.46		2288.96
13297.7	229013306.53		229013376.54		2290.4413423.34		2290.8413437.83		2290.99
13467.49	2291.2113495.11		2291.4713495.92		2291.4713558.55		229213609.65		2292

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13695.13 2293.4313718.49 2293.8713724.14 2293.9613725.77    229413812.56    2294
13873.81 2294.9413961.55 2295.8913964.79 2295.9313973.18    229614022.82 2296.66
14026.61 2296.7414044.69 2296.9614052.03 2297.0914054.65 2297.1214059.95 2297.22
14063.46  2297.314110.25    229814185.89    229814203.67 2298.3314219.11 2298.68
14270.72 2299.4614272.22 2299.4714273.84  2299.514275.38 2299.5414281.21 2299.68
14283.86  2299.814283.96 2299.81 14293.1 2299.1814293.58 2299.1614299.64 2298.73
14300.47 2298.71 14300.7 2298.7314301.45 2298.7214330.68 2298.7314331.25 2298.72
14345.14 2300.2814396.01 2300.6914434.01 2299.5314434.79 2299.5114460.17 2300.64
14471.61 2300.2814485.86 2301.7314499.01 2301.3214536.19 2302.0114537.08 2301.98
14542.15 2301.8214595.25 2300.1114612.22 2301.3914627.69 2300.8814832.99 2296.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8645    .029 9817.76    .03510058.93     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9817.7610058.93           512.04  512.44  497.65             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8645 9823.61 2292.91       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8645 9823.09 2292.62

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2286.75    Element                 Left OB    Channel
Right OB
  Vel Head (ft)               0.33    Wt. n-Val.                         0.035
  0.040
  W.S. Elev (ft)           2286.43    Reach Len. (ft)         512.04     512.44
 497.65
  Crit W.S. (ft)           2286.18    Flow Area (sq ft)                  974.32
3823.80
  E.G. Slope (ft/ft)      0.003621    Area (sq ft)                       975.32
3823.80
  Q Total (cfs)           16900.00    Flow (cfs)                        6395.77
10504.23
  Top Width (ft)           3042.61    Top Width (ft)                     235.84
2806.77
  Vel Total (ft/s)            3.52    Avg. Vel. (ft/s)                     6.56
   2.75
  Max Chl Dpth (ft)           6.43    Hydr. Depth (ft)                     4.14
   1.36
  Conv. Total (cfs)       280851.9    Conv. (cfs)                      106287.9
174564.1
  Length Wtd. (ft)          502.56    Wetted Per. (ft)                   236.55
2806.79
  Min Ch El (ft)           2280.00    Shear (lb/sq ft)                     0.93
   0.31
  Alpha                       1.69    Stream Power (lb/ft s)               6.11
   0.85
  Frctn Loss (ft)             1.85    Cum Volume (acre-ft)       0.78      390.82
2170.35
  C & E Loss (ft)             0.02    Cum SA (acres)             1.71       99.76
1110.28


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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 16.210

INPUT
Description: RS 16.210
10.21 10.02 26519.25
Station Elevation Data num= 197

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8605	2279.73	8642.33	2279.8	8675.61	2280	8699.8	2280	8758.69	2280.43
8765.35	2280.47	8904.1	2281.38	8906.98	2281.39	9012.05	2281.92	9012.64	2281.92
9111.64	2282.15	9145.63	2282.16	9242.38	2282	9276.8	2281.91	9321.35	2281.74
9350.29	2281.68	9352.78	2281.67	9353.48	2281.66	9383.02	2281.56	9383.9	2281.56
9404.9	2281.49	9405.92	2281.48	9495.31	2281.1	9498.37	2281.1	9518.24	2281.01
9547.16	2280.97	9696.42	2280	9782.12	2280	9794.94	2284	9801.98	2286
9810.8	2286	9813.99	2285.26	9819.5	2284	9822.15	2283.39	9833.83	2280.73
9837	2280	9890.57	2280	9891.08	2280.01	9966.28	2282	9966.49	2282.03
9972	2282.98	9977.99	2284	9979.51	2284	9987.63	2282	9994.83	2280.21
9996.45	2279.811	10003.66	227810	008.31	227810	011.43	2278.810	016.05	2280
10021.36	2281.461	0023.28	228210	368.87	228210	606.41	2283.181	0703.23	2283.35
10837.3	2283.061	0842.63	2283.081	0847.48	2283.071	0916.51	2283.061	0923.74	2283.08
10934.91	2283.091	0971.72	2283.181	0976.08	2283.171	0976.26	2283.171	1081.88	2283.51
11312.72	2283.361	1319.82	2283.38	11332.3	2283.361	1415.26	2283.361	1618.97	2282.44
11630.37	2282.33	11633.5	2282.331	1647.17	2282.181	1649.51	2282.18	11654.9	2282.2
11664.03	228211	667.74	228211	679.68	2282.131	1681.76	2282.131	1700.28	2282.3
11702.8	2282.31	1720.36	2282.451	1725.17	2282.461	1742.03	2282.591	1749.66	2282.6
11760.88	2282.691	1767.34	2282.71	1779.08	2282.771	1780.96	2282.791	1785.62	2282.79
11792.32	2282.841	1794.38	2282.841	1798.64	2282.871	1825.51	2283.021	1828.41	2283.04
11834.6	2283.041	1837.47	2283.061	1861.88	2283.081	1866.01	2283.11	1878.43	2283.11
11908.29	2283.25	11942.2	2283.291	1948.84	2283.321	2008.71	2283.461	2011.37	2283.47
12057.36	2283.521	2059.49	2283.521	2060.86	2283.53	12083.7	2283.551	2086.96	2283.56
12100.8	2283.571	2104.76	2283.581	2109.23	2283.581	2112.57	2283.591	2114.18	2283.59
12137.42	2283.611	2139.59	2283.621	2208.68	2283.69	12212.4	2283.71	2256.46	2283.76
12260.22	2283.761	2302.26	2283.831	2304.49	2283.83	12323.2	2283.861	2324.63	2283.86
12338	2283.881	2338.88	2283.891	2339.81	2283.891	2366.52	2283.921	2367.18	2283.93
12397.92	2283.97	12398.2	2283.97	12762.4	228412	873.04	2285.141	2963.05	2285.97
12965.79	228613	098.97	228613	274.49	2287.871	3285.98	2287.941	3286.17	2287.94
13295.88	228813	358.15	228813	469.97	2289.631	3471.89	2289.641	3472.77	2289.65
13474.21	2289.661	3496.23	2289.891	3496.59	2289.91	3506.02	2290	13514.4	2290
13548.16	2290.351	3704.82	2291.71	3709.13	2291.731	3740.43	2291.991	3741.01	2292
13758.69	229213	780.24	2292.171	3782.19	2292.191	3792.72	2292.261	3806.74	2292.38
13954.01	2294	14063.9	229414	107.79	2294.421	4138.83	2295.531	4145.91	2295.9
14148.43	229614	221.38	229614	224.14	2295.81	4234.43	2296.991	4235.08	2297.03
14251.09	2297.781	4252.21	2297.861	4260.76	2297.271	4262.36	2297.211	4268.04	2296.81
14270.11	2296.761	4270.28	2296.78	14270.7	2296.811	4272.58	2296.781	4346.05	2296.82
14346.6	2296.81	4360.26	2298.331	4410.22	2298.74	14442.2	2297.771	4447.55	2297.6
14448.32	2297.581	4473.25	2298.691	4484.49	2298.341	4498.49	2299.77	14511.4	2299.36
14513.57	2299.41	4547.92	2300.04	14548.8	2300.011	4605.94	2298.171	4622.61	2299.43
14637.81	2298.941	4804.96	2294.97						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8605	.029	9810.8	.035	10023.28	.04

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

9810.81	10023.28	491.14	493.43	520.91	.1	.3

Ineffective Flow num= 1

```
   Sta L   Sta R    Elev  Permanent
    8605  9807.5 2292.35       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8605 9807.47 2289.99

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)          2284.89    Element                Left OB    Channel
Right OB
  Vel Head (ft)              0.27    Wt. n-Val.                        0.035
  0.040
  W.S. Elev (ft)          2284.62    Reach Len. (ft)        491.14     493.43
 520.91
  Crit W.S. (ft)          2284.29    Flow Area (sq ft)                 776.41
4116.38
  E.G. Slope (ft/ft)     0.003724    Area (sq ft)                      776.41
4116.38
  Q Total (cfs)          16900.00    Flow (cfs)                       4833.15
12066.85
  Top Width (ft)          3006.02    Top Width (ft)                    206.50
2799.52
  Vel Total (ft/s)           3.45    Avg. Vel. (ft/s)                    6.22
   2.93
  Max Chl Dpth (ft)          6.62    Hydr. Depth (ft)                    3.76
   1.47
  Conv. Total (cfs)       276924.8    Conv. (cfs)                      79196.4
197728.3
  Length Wtd. (ft)          510.59    Wetted Per. (ft)                  208.48
2799.54
  Min Ch El (ft)          2278.00     Shear (lb/sq ft)                    0.87
   0.34
  Alpha                      1.44     Stream Power (lb/ft s)              5.39
   1.00
  Frctn Loss (ft)            1.94     Cum Volume (acre-ft)       0.78     380.52
2124.99
  C & E Loss (ft)            0.01     Cum SA (acres)             1.71      97.16
1078.26


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:    Multiple critical depths were found at this location.  The critical depth
with the lowest, valid, water
         surface was used.

CROSS SECTION


RIVER: Aguila Farm Chan
REACH: Reach-1            RS: 16.117

INPUT
Description: RS 16.117
10.12  9.93  26025.83
Station Elevation Data    num=     251
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8610 2277.61 8635.66 2277.61  8640.1 2277.65 8646.77 2277.63 8659.58  2277.7
  8659.8 2277.71 8662.98 2277.69 8663.19 2277.69 8663.36  2277.7 8663.58  2277.7
 8718.56    2278  8760.5    2278 8762.14 2278.02 8762.24 2278.02 8775.97 2278.17
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 8823.47 2278.58 8872.23 2278.75 8896.87 2278.92 8899.14 2278.94 8904.15    2279
 8906.96 2279.04 8911.35 2279.05 8914.71 2279.08 8918.68 2279.09 8922.44 2279.15
 8927.12 2279.14 8975.94 2279.53 8981.64 2279.52 9064.54 2279.48  9070.3 2279.47
 9196.96    2280 9392.94    2280 9396.83 2279.92 9497.81 2278.59 9671.96    2278
 9776.76    2278 9780.69 2279.04 9784.27    2280 9790.69 2281.71 9791.79    2282
 9799.31    2284 9802.69    2284 9807.69  2283.2 9814.14 2282.14 9814.98    2282
 9818.13 2281.23 9823.09    2280 9824.35 2279.68 9830.92    2278 9844.23    2278
  9960.2    2280 9961.94 2280.26 9972.14    2282 9981.48    2282 9983.27 2281.31
 9986.49    2280 9991.55 2278.31  9992.5    2278 9993.41 2277.71 9996.05 2276.85
 9998.69  227610004.16  227610005.07 2276.2110005.82 2276.1310012.56 2276.66
10034.16  227810063.03  227810066.74 2278.1910075.44 2278.5710079.58 2278.74
   10088 2279.3610091.83 2279.5510093.41 2279.6410100.42 2279.9310100.57 2279.94
10100.71 2279.9510100.81 2279.96 10113.2 2279.6910122.41 2279.8610122.93 2279.88
10126.84    2280 10150.6 2280.0710151.14 2280.0710181.04 2280.1710182.16 2280.17
10195.33 2280.2210198.22 2280.2210250.53 2280.4210253.53 2280.4210256.87 2280.43
10259.96 2280.4310465.32 2281.01 10468.9 2281.01 10488.6 2281.0510494.56 2281.05
10555.65 2281.1610559.55 2281.1610570.23 2281.18 10573.3 2281.1910575.64 2281.19
10641.51 2281.3110644.49 2281.3110647.18 2281.3210649.57 2281.3210657.08 2281.33
10659.16 2281.3410671.97 2281.36 10718.1 2281.3710721.71 2281.3610797.34 2281.43
10821.94 2281.3910925.88 2281.4110930.16 2281.4211054.81 2281.4411055.79 2281.43
11070.59 2281.4411075.67 2281.4311180.84 2281.3911189.48 2281.3611263.43 2281.52
11533.46 2281.42 11737.7 2280.4411741.36 2280.4311745.11  2280.411746.79 2280.38
11750.61 2280.3511756.83 2280.2911760.67 2280.2811779.81 2280.0911781.46 2280.09
11789.79    228011801.04    228011801.79 2280.0111806.19 2280.0511806.51 2280.05
11821.12 2280.1911822.85  2280.211848.81 2280.4311853.67 2280.4411858.15 2280.48
11862.97 2280.4911868.38 2280.5411874.27 2280.5811879.28  2280.611891.46 2280.69
11896.35  2280.711899.44 2280.7211907.89 2280.7511911.04 2280.7712042.01 2281.25
12176.86 2281.6312177.02 2281.6312245.47 2281.8512245.67 2281.8512276.35 2281.95
12276.48 2281.9512290.75 2281.9912292.69    228212349.91    228212364.99 2282.27
12427.97 2282.53 12441.3 2282.6212466.73 2282.7412473.74 2282.7912512.14 2282.97
12517.84 2283.0112545.93 2283.1512583.59 2283.41 12590.4 2283.4412596.58 2283.48
12647.35    2282 12671.9    228212680.77    228412715.82    2284 12790.3  2283.3
12790.95 2283.3112861.54 2283.7412892.81    228412954.03  2284.413127.37 2285.69
13163.77  2285.9 13178.2 2285.98 13179.5    228613287.48    228613467.15    2288
13488.83    228813566.39 2288.5513572.15 2288.6113577.32 2288.6413641.19 2288.87
13691.31    229013778.65    229013779.06 2290.0113779.19 2290.0113779.75 2290.02
13877.89    229213969.33    229214108.68 2293.8114109.01 2293.82 14113.7 2293.82
14114.05 2293.8314114.44 2293.8314115.02 2293.8414115.75 2293.8514116.26 2293.85
14116.74 2293.8614117.18 2293.8614117.73 2293.8714118.12 2293.8714122.73  2293.9
14131.85 2293.9414131.98 2293.9414144.68    229414157.48    229414160.42 2293.79
14161.38 2293.72 14177.3 2294.4414177.98 2294.4914184.48 2294.0214184.71 2294.03
14188.85 2293.7414198.31 2294.8214200.37 2294.9714200.62 2294.9914215.34 2295.68
14217.52 2295.8314225.44 2295.2914228.21 2295.18 14233.5  2294.814236.86 2294.73
14237.14 2294.7514237.81  2294.814240.88 2294.7614360.47 2294.8214361.02  2294.8
14374.42 2296.3114423.46 2296.7114460.09 2295.5914460.84 2295.5614485.31 2296.66
14489.37 2296.5314489.41 2296.5314496.34 2296.3114510.08 2297.7114522.76 2297.31
 14558.6 2297.9714559.45 2297.9514615.53 2296.1414631.89 2297.3814646.81 2296.89
14753.59 2294.35

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8610    .029 9802.69    .03510181.04     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9802.6910181.04           504.26  506.02   487.6             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8610 9804.54 2288.91        F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8610 9804.41    2288

CROSS SECTION OUTPUT  Profile #PF 1
```

E.G. Elev (ft)	2282.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	2282.61	Reach Len. (ft)	504.26	506.02	487.60
Crit W.S. (ft)	2282.28	Flow Area (sq ft)		1295.12	3155.67
E.G. Slope (ft/ft)	0.003870	Area (sq ft)		1295.12	3155.67
Q Total (cfs)	16900.00	Flow (cfs)		7862.21	9037.79
Top Width (ft)	2676.77	Top Width (ft)		369.76	2307.01
Vel Total (ft/s)	3.80	Avg. Vel. (ft/s)		6.07	2.86
Max Chl Dpth (ft)	6.61	Hydr. Depth (ft)		3.50	1.37
Conv. Total (cfs)	271655.8	Conv. (cfs)		126379.6	145276.2
Length Wtd. (ft)	493.81	Wetted Per. (ft)		371.67	2307.10
Min Ch El (ft)	2276.00	Shear (lb/sq ft)		0.84	0.33
Alpha	1.49	Stream Power (lb/ft s)		5.11	0.95
Frctn Loss (ft)	1.45	Cum Volume (acre-ft)	0.78	368.78	2081.51
C & E Loss (ft)	0.03	Cum SA (acres)	1.71	93.89	1047.72

Warning: Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 16.021

INPUT
Description: RS 16.021
10.02 9.83 25519.81
Station Elevation Data num= 209

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8770	2276	8892.11	2276	8920.29	2276.29	8988.43	2276.7	8991.95	2276.73
9054.52	2276.64	9188.17	2277.18	9356.6	2277.24	9360.94	2277.23	9372.55	2277.24
9377.2	2277.22	9389.12	2277.23	9394.08	2277.22	9443.64	2277.21	9450.4	2277.19
9453.56	2277.2	9523.98	2277.1	9537.95	2277.05	9650.53	2276.92	9653.79	2276.92
9764.49	2276.74	9771.71	2276.72	9908.43	2276	9931.67	2276	9943.99	2279.09
9947.55	2280	9956.7	2281.83	9957.69	2282	9962.88	2282	9967.03	2281
9972.73	2279.64	9977.51	2278.49	9986.87	2276.25	9987.9	227610010.94		2276
10021.77	2276.4410022.66		2276.4410094.78		227810103.54		227810111.18		2279.85
10111.79	228010112.33		2280.1310123.67		2282.8210128.69		228410130.11		2284

```
10133.32 2282.6710134.91    228210135.56 2281.7610140.95    228010146.86 2278.54
10149.39    227810286.54    227810289.73 2278.0210554.87 2278.4510565.49 2278.45
10570.29 2278.4410591.87 2278.4510594.51 2278.46 10598.9 2278.4610617.11  2278.5
10709.58 2279.1110724.09 2279.2510724.42 2279.2510781.76 2279.1710783.12 2279.14
 10784.4  2279.110786.04 2279.0710792.97 2278.9610795.22 2278.92 10797.3 2278.88
10804.04  2278.710809.72 2278.5210813.97 2278.3610820.02 2278.1210822.93    2278
10843.82    227810846.32 2278.22 10846.6 2278.2110846.77  2278.210846.99  2278.2
10856.52 2278.7710857.18 2278.7410887.78    228010900.35    228011011.83 2278.33
11013.13 2278.2811013.95 2278.2611016.57 2278.2611017.71 2278.2111022.17 2278.04
11022.37 2278.0311023.51    227811044.16    227811049.75 2278.0911050.58 2278.09
 11053.5 2278.1311054.58 2278.1411057.21 2278.1811058.36 2278.1811065.99 2278.29
11106.62  2278.811110.34  2278.8 11111.1 2278.81 11118.4 2278.8211152.82 2279.11
11155.13 2279.1211220.78 2279.1411222.76 2279.1611236.86 2279.15 11343.2 2279.64
11373.11 2279.6311376.53 2279.6411599.19 2279.5111603.62 2279.5211712.88 2279.51
11717.06 2279.5212135.16 2279.8512191.47    228012262.97    228012266.84 2279.42
12268.91  2279.112271.53 2278.6712275.48    227812279.67    227812283.85 2279.92
12284.03    228012334.44    228012425.86 2280.3412442.62 2280.3812475.83 2280.47
12481.95  2280.512683.14 2281.2612690.65  2281.312737.72 2281.4812799.43 2281.48
 12834.9    228212948.57    228213008.35 2283.0113021.64 2283.0913024.38  2283.1
13095.56 2283.5513097.83 2283.5613136.95    228413306.74    228413413.24 2284.91
13444.16 2285.1213551.82    228613592.24    228613774.36    228813775.76    2288
13855.32 2288.8813868.84 2289.0513915.92 2289.5613983.28    229014008.61    2290
14030.04 2290.2414034.18 2290.27 14034.8 2290.2714194.69    229214212.29    2292
14225.57 2292.1714227.63  2292.214253.96 2292.76 14273.8 2292.4614280.17 2291.97
14282.24 2291.9514285.04 2291.7514285.92 2291.6814300.48 2292.35 14300.6 2292.36
14302.07 2292.4714304.83 2292.2614308.03 2292.03 14308.5 2292.0614311.38 2291.86
 14312.3 2291.7914320.98 2292.7914324.36 2293.0414324.78 2293.0714338.36  2293.7
14341.55 2293.9314344.79  2293.714348.88 2293.4214352.75 2293.2614357.67 2292.92
14362.25 2292.8214363.55 2292.9214367.73 2292.8614530.67 2292.9414531.21 2292.93
14544.37  2294.414592.52  2294.814617.98 2294.0214623.34 2293.85 14628.5  2293.7
14629.24 2293.6814653.26 2294.7514657.25 2294.6214662.85 2294.45 14664.1 2294.41
14677.59 2295.7814681.64 2295.6614690.04 2295.3914725.23 2296.0414726.08 2296.02
14781.15 2294.2514797.21 2295.4614811.86 2294.98 14906.4 2292.74

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8770     .04 9962.88    .02710094.78     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9962.8810094.78           512.24  512.75  482.67             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8770 9956.58  2287.5       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8770 9956.43 2287.19

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2281.46    Element                Left OB    Channel
Right OB
  Vel Head (ft)               0.24    Wt. n-Val.                         0.027
  0.040
  W.S. Elev (ft)           2281.23    Reach Len. (ft)        512.24      512.75
 482.67
  Crit W.S. (ft)           2280.61    Flow Area (sq ft)                  524.63
4875.37
  E.G. Slope (ft/ft)      0.002309    Area (sq ft)                       524.63
4875.37
  Q Total (cfs)           16900.00    Flow (cfs)                        3528.80
13371.20
  Top Width (ft)           2687.55    Top Width (ft)                     128.68
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2558.87					
Vel Total (ft/s)	3.13	Avg. Vel. (ft/s)			6.73
2.74					
Max Chl Dpth (ft)	5.23	Hydr. Depth (ft)			4.08
1.91					
Conv. Total (cfs)	351707.6	Conv. (cfs)			73438.3
278269.3					
Length Wtd. (ft)	495.81	Wetted Per. (ft)			129.33
2560.38					
Min Ch El (ft)	2276.00	Shear (lb/sq ft)			0.58
0.27					
Alpha	1.57	Stream Power (lb/ft s)			3.93
0.75					
Frctn Loss (ft)	1.75	Cum Volume (acre-ft)		0.78	358.21
2036.56					
C & E Loss (ft)	0.10	Cum SA (acres)		1.71	91.00
1020.49					

Warning: Divided flow computed for this cross-section.
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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 15.924

INPUT
Description: RS 15.924 ***Modified cross section due to stock tank***
9.92
9.74 25007.06
Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8785	2274.39	8811.58	2274.62	8923.61	2275.28	8936.51	2275.29	9030.85	2275.57
9036.74	2275.57	9362.62	2275.41	9502.06	2275.32	9572.52	2275.41	9779.73	2274.83
9925.57	2274.05	9931.39	2274.04	9935.81	2274.18	9936.05	2274.26	9936.75	2274.47
9941.92	2276	9953.31	2279.48	9955.03	2280	9967.88	2280	9969.86	2279.38
9973.13	2278.35	9974.25	2278	9980.24	2276.1	9980.57	2276	9986.8	2274
9990.19	2273.14	9995.17	227210008.21		227210024.15		227410079.97		2274
10094.49	2275.14	10096.7	2275.3210097.59		2275.3910105.01		227610108.54		2277.07
10115.74	2279.410123.44		2281.8910148.66		227810157.01		227610159.38		2275.45
10165.69	227410254.59		227410254.88		2274.0410255.01		2274.0710255.12		2274.09
10257.04	2274.5210261.42		2275.89	10261.6	2275.9510261.74		227610267.16		2278
10282.42	2282	10290.3	228210302.31		227810302.46		2277.9610307.32		2276.71
10310.39	227610314.21		2275.1310317.52		2274.4210318.47		2274.2110319.68		2274
10319.95	227410321.84		2273.7610323.19		2273.710323.62		2273.6810325.35		2273.61
10327.25	227410330.87		227410332.54		2273.3810336.21		2273.310337.15		2273.29
10339.15	2273.3210343.69		2273.2510344.33		2273.2610348.47		2273.2510351.19		2273.31
10355.43	2273.3610368.69		2273.6910370.03		2273.7310376.34		2273.8810376.68		2273.89

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10381.35    227410384.01 2274.1210387.52 2274.4910389.78 2274.3410391.61 2274.43
 10392.6 2274.4610392.76 2274.4710393.92 2274.5710399.22 2274.9510403.39 2275.38
 10405.5 2275.5910409.36    227610412.94 2276.4710414.82 2276.7210417.96    2278
10424.67    2278   10425 2277.9810425.25    227810537.92    227810573.81    2278
10619.84 2277.7710624.63 2277.7910625.21 2277.7910628.57  2277.810629.32 2277.79
10630.28 2277.7910636.34 2277.72 10638.4 2277.7110640.55 2277.67 10642.6 2277.64
10644.28 2277.6110646.27 2277.5710652.22 2277.4810660.19 2277.34 10665.8 2277.23
10696.23 2276.7610700.13 2276.6910725.18 2276.2910725.99 2276.2810727.21 2276.25
10753.88    227610848.95    227610867.69 2276.4610921.14 2277.5910924.47 2277.67
10940.77    227810998.36    2278 11030.5 2277.25   11035 2277.1911094.55 2276.21
11095.27  2276.211106.84    227611112.94    227611116.97 2276.8211122.06    2278
11137.96    227811142.82 2277.7711143.39 2277.8111143.72 2277.8411143.92 2277.85
11144.07 2277.8711209.32    227711217.72 2277.1111234.49 2277.1411237.89 2277.18
11257.22 2277.3611267.04 2277.4411281.97 2277.4511284.52 2277.4711286.51 2277.48
 11288.6  2277.511292.07 2277.5211304.28 2277.5311306.33 2277.5411315.27 2277.55
11317.51 2277.5611319.64 2277.58 11325.2 2277.5811327.27 2277.5911339.71  2277.6
11341.49 2277.61 11356.9 2277.6211359.93 2277.6411380.47 2277.64 11383.5 2277.66
11398.07 2277.6611399.66 2277.6711410.22 2277.6711411.77 2277.68 11420.9 2277.68
11443.29 2277.7511575.21 2277.7511576.21 2277.7411609.17 2277.7611630.73 2277.67
11644.01 2277.69 11667.1 2277.74 11675.4 2277.7511703.24 2277.8411746.92 2277.88
11758.74 2277.8711786.85    227812095.28 2278.0712128.89    227812447.57    2278
12624.25 2279.5712625.75 2279.5912675.95    2280 12845.7    228012910.54 2280.54
13063.04 2281.5813076.03 2281.7413078.63 2281.7413097.31    228213097.97    2282
13228.56 2282.7513242.53  2282.813298.81 2283.1813328.57 2283.4313334.71 2283.46
13383.32 2283.8413384.13 2283.85 13403.1    228413537.91 2284.0413542.35 2284.09
13548.34 2284.0913549.26 2284.1113581.98 2284.1713582.63 2284.1713588.54 2284.19
   13592 2284.2213615.63 2284.5613634.37 2284.8813638.44 2284.9613639.29 2284.97
13642.18 2285.0313722.69    228613760.74    228613784.43 2286.2713786.71 2286.29
 13930.9    228814029.17    228814198.17    229014201.25 2289.8214215.76 2290.84
14245.89 2290.39 14246.6 2290.3414251.62 2289.9514255.75 2289.91 14258.3 2289.72
14259.09 2289.6714272.31 2290.2714272.49 2290.28 14274.8 2290.4614277.32 2290.27
14280.23 2290.0614280.93 2290.11 14284.4 2289.8614292.32 2290.77   14297 2291.11
14297.59 2291.1614310.05 2291.7414314.23 2292.0414320.99 2291.5714325.95 2291.37
 14330.5 2291.0514336.29 2290.9314336.78 2290.9614337.94 2291.0514343.22 2290.98
14549.12 2291.0914549.64 2291.0714562.56 2292.5214597.69 2292.8114609.84 2292.91
14645.17 2291.8314645.89 2291.8114669.48 2292.8614678.89 2292.5714680.11 2292.53
14693.36 2293.8814705.59 2293.4914740.14 2294.1414740.97 2294.1114795.05 2292.37
14810.82 2293.56 14825.2 2293.0914877.96 2291.84

Manning's n Values         num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
    8785     .04 9967.88    .02710282.42     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       9967.8810282.42           503.02  503.62  530.74             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8785 9963.61 2285.73       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8785 9963.65 2285.18

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2279.62    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               1.22    Wt. n-Val.                           0.027
  0.040
  W.S. Elev (ft)           2278.40    Reach Len. (ft)          503.02     503.62
 530.74
  Crit W.S. (ft)           2277.99    Flow Area (sq ft)                   1050.07
2051.01
```

E.G. Slope (ft/ft)	0.006030	Area (sq ft)		1050.07	2051.01
Q Total (cfs)	16900.00	Flow (cfs)		11240.40	5659.60
Top Width (ft)	2453.15	Top Width (ft)		262.22	2190.93
Vel Total (ft/s)	5.45	Avg. Vel. (ft/s)		10.70	2.76
Max Chl Dpth (ft)	6.40	Hydr. Depth (ft)		4.00	0.94
Conv. Total (cfs)	217627.1	Conv. (cfs)		144746.5	72880.7
Length Wtd. (ft)	516.13	Wetted Per. (ft)		264.90	2192.32
Min Ch El (ft)	2272.00	Shear (lb/sq ft)		1.49	0.35
Alpha	2.65	Stream Power (lb/ft s)		15.98	0.97
Frctn Loss (ft)	1.95	Cum Volume (acre-ft)	0.78	348.95	1998.19
C & E Loss (ft)	0.27	Cum SA (acres)	1.71	88.70	994.17

Warning: Divided flow computed for this cross-section.
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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 15.828

INPUT
Description: RS 15.828
9.83 9.64 24503.44
Station Elevation Data num= 183

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8600	2273.17	8617.77	2273.23	8728.37	2273.88	8732.73	2273.88	8735.5	2273.89
9782.2	2274	9784.95	2274.8	9789.27	2276	9794.27	2277.49	9795.97	2278
9812.36	2278	9812.98	2277.82	9816.96	2276.68	9819.32	2276	9826.04	2274
9896.73	2274	9906.4	2274.27	9912.05	2274.45	9927.9	2274.9	9948.02	2275.57
9953.47	2275.74	9960.95	2276	9978.76	2276	9984.34	2274.01	9989.96	2272
9991.62	2271.45	9995.15	2270.27	9995.94	2270	9999.25	2270	10007.1	2271.45
10010.96	227210059.36		227210065.66		2272.1410067.88		2272.0710071.15		2272
10098.7	227210099.85		2272.210109.62		2273.0510110.35		2273.1810111.68		2273.29
10113.99	2273.4910114.55		2273.5410117.74		227410168.24		2274 10181.6		2274.12
10182.02	2274.1210390.28		2274.810393.39		2274.79 10566.7		227410638.22		2274
10707.83	2274.4210712.78		2274.4310896.47		2275.310925.21		2275.410970.98		2275.59
10973.68	2275.5910982.65		2275.6110983.08		2275.6111099.46		2275.8411119.31		2275.91

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11445.59 2275.8311445.92 2275.8411486.29 2275.8711487.15 2275.8811538.57    2276
11789.99    227611827.57 2276.1511885.57 2276.1411909.16  2276.111909.79 2276.11
11910.03 2276.1111939.33 2276.0711944.67    227612402.17    227612413.33 2276.09
12420.19 2276.1112420.39 2276.11 12422.1 2276.1312422.73 2276.1412424.53 2276.16
12425.03 2276.1612426.68 2276.1812427.82 2276.1912428.19 2276.1912563.56 2277.62
12566.98 2277.6512574.43 2277.7412602.33    227812623.54 2278.1412623.82 2278.14
12624.32 2278.1512625.09 2278.1512648.51 2278.3112650.53 2278.32   12825 2279.44
12839.89  2279.512863.13 2279.4912872.18 2279.57   12874 2279.5612882.03 2279.61
12884.68 2279.6112896.83 2279.6612897.75 2279.6612914.51  2279.712946.01    2280
13001.44    228013029.16 2280.2213075.36 2280.6613201.74 2281.6513211.81 2281.88
13211.93 2281.8813219.42    228213321.26    228213495.96 2283.6513501.66 2283.69
 13527.8    2284   13558    228413616.92  2284.813618.76 2284.8113627.06 2284.98
13630.66 2285.0213637.94 2285.1613640.29 2285.1913646.56 2285.3113655.84 2285.45
13666.59 2285.5813667.22 2285.5913683.69    228613778.64    228613794.23 2286.17
13834.43 2286.7713906.78    228813939.07    228813973.06 2288.3913977.72 2288.91
14003.42 2288.3114015.32 2287.6414028.04 2288.5214054.46 2288.1314055.08 2288.08
14059.48 2287.7414065.86 2287.6814068.83 2287.4714080.56    228814084.03 2288.27
14086.28  2288.114088.88 2287.9114089.83 2287.9814092.18 2287.8114092.93 2287.76
14100.01 2288.5714106.12 2289.0114106.88 2289.0714118.11 2289.5914123.37 2289.97
14126.08 2289.78 14129.5 2289.5514135.65  2289.314139.79 2289.01 14146.9 2288.85
 14147.5  2288.914148.92 2289.01 14155.4 2288.9214408.32 2289.0514408.83 2289.03
14417.07 2289.9614421.49 2290.4514467.82 2290.8314497.47 2289.9314502.44 2289.77
14503.15 2289.7514526.26 2290.7814535.49  2290.514536.69 2290.4614549.67 2291.78
14561.65  2291.414595.51 2292.0314596.32    229214649.31  2290.314664.76 2291.47
14670.69 2291.2714678.86 2291.0114684.81 2290.87

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8600     .04 9812.36    .02710117.74     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9812.3610117.74           490.58  490.68  500.11             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8600 9810.47 2282.09       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8600 9810.46 2281.85

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2277.40    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.33    Wt. n-Val.                           0.027
  0.040
  W.S. Elev (ft)           2277.07    Reach Len. (ft)          490.58     490.68
 500.11
  Crit W.S. (ft)           2276.69    Flow Area (sq ft)                  1074.24
3838.85
  E.G. Slope (ft/ft)      0.002583    Area (sq ft)                       1074.24
3838.85
  Q Total (cfs)           16900.00    Flow (cfs)                         6971.24
9928.76
  Top Width (ft)           2695.99    Top Width (ft)                      302.15
2393.85
  Vel Total (ft/s)            3.44    Avg. Vel. (ft/s)                     6.49
   2.59
  Max Chl Dpth (ft)           7.07    Hydr. Depth (ft)                     3.56
   1.60
  Conv. Total (cfs)       332554.5    Conv. (cfs)                       137178.6
195375.9
  Length Wtd. (ft)             496.99    Wetted Per. (ft)                  303.93
```

2393.86					
Min Ch El (ft)	2270.00	Shear (lb/sq ft)			0.57
0.26					
Alpha	1.80	Stream Power (lb/ft s)			3.70
0.67					
Frctn Loss (ft)	1.51	Cum Volume (acre-ft)		0.78	336.67
1962.31					
C & E Loss (ft)	0.01	Cum SA (acres)		1.71	85.43
966.24					

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 15.736

INPUT
Description: RS 15.736
9.74 9.55 24012.75
Station Elevation Data num= 194

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8600	2272.01	8610.19	2272.07	8714.31	2272.1	8715.5	2272.11	8892.97	2272.19
8896.7	2272.2	9036.4	2272.34	9066.82	2272.39	9127.55	2272.47	9194.01	2272.55
9201.93	2272.54	9241.91	2272.59	9273.47	2272.57	9302.74	2272.6	9676	2272.24
9740.23	2272.64	9752.13	2273.04	9765.87	2273.52	9767.66	2273.58	9768.77	2273.62
9770.06	2273.67	9774.21	2273.82	9779.66	2274	9786.57	2275.73	9787.66	2276
9807.43	2276	9809.25	2276	9810.71	2275.6	9816.49	2274	9837.27	2273.56
9842.69	2273.48	9864.92	2273.03	9867.74	2272.98	9881.36	2272.79	9883.35	2272.75
9884.61	2272.73	9895.4	2272.52	9930.53	2272.5	9934.49	2272.78	9936.84	2272.99
9939.68	2273.25	9940.97	2273.22	9943.37	2273.47	9948.65	2274	9959.97	2275.88
9960.73	2276	9971	2276	9972.29	2275.39	9975.29	2274	9976.81	2273.28
9979.57	2272	9981.51	2271.08	9983.85	227010020.04		227010021.28		2270.6
10024.36	227210026.96		2273.1210029.08		227410188.24		227410351.53		2273.58
10429.76	2273.6810449.62		2273.6910484.74		2273.6410486.78		2273.6310498.31		2273.6
10500.49	2273.59	10700.9	2273.910701.54		2273.910710.73		2273.9310739.25		2273.91
10926.31	227410968.74		2273.910969.88		2273.911030.71		2273.83	11066	2273.8
11067.9	2273.81	11083.8	2273.7911123.51		2273.7611124.85		2273.7711342.76		2273.79
11343.69	2273.811379.59		2273.8211381.59		2273.8311435.14		2273.8711436.48		2273.88
11467.09	2273.88	11469.1	2273.8911697.38		2273.9511697.56		2273.9611857.38		2274.16
11909.78	227412198.62		227412203.15		2273.3312214.91		2273.3712216.14		2274
12367.02	227412430.19		2275.1512451.67		2275.51 12454.5		2275.55 12481.9		2276
12617.87	227612647.85		2276.31 12650.2		2276.3312660.97		2276.3512795.64		2276.33
12798.71	2276.3512799.25		2276.3512825.37		2276.7312825.51		2276.7312825.83		2276.74
12844.01	2276.7	12844.4	2276.7112885.92		2277.6512896.49		227812929.31		2278
13106.16	2279.9713108.34		228013141.93		228013270.42		2280.9313272.88		2280.93
13302.42	2281.2913304.41		2281.313345.21		2281.9313345.47		2281.9313345.61		2281.94
13350.32	228213359.87		228213515.66		2283.5413550.61		228413657.16		2284
13676.25	2284.2513689.05		2284.2113691.18		2284.2513698.21		2284.2213699.72		2284.22
13700.94	2284.21	13710.5	2284.6313711.11		2284.6313711.55		2284.6213712.04		2284.63
13717.92	2284.8613753.67		228613812.99		228613885.51		2286.5	13915	2286.56
13916.7	2286.5613917.34		2286.9213929.34		2287.1913974.05		2286.1513984.37		2285.57
13995.41	2286.3414018.33		228614018.87		2285.9514022.69		2285.6614031.19		2285.58
14033.19	2285.43	14033.8	2285.3914044.14		2285.8614044.47		2285.8914048.55		2286.2
14052.84	2285.8814054.04		2285.9714056.12		2285.8214056.79		2285.7714063.07		2286.49

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14070.53 2287.0314071.46  2287.114081.52 2287.5714087.81 2288.0214093.33 2287.64
14100.61 2287.3414104.37 2287.0814112.72  2286.914113.43 2286.95 14115.1 2287.08
14122.72 2286.9814389.63 2287.11   14420 2287.12 14420.5 2287.1114432.92  2288.5
14478.35 2288.8714507.43 2287.98 14512.3 2287.8414512.99 2287.8114535.66 2288.83
14544.71 2288.5414545.88 2288.5114558.61  2289.814570.36 2289.4314603.56 2290.05
14604.36 2290.0214617.66  2289.614623.02 2289.4214637.15 2288.97

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8600     .04 9809.25    .02710029.08     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9809.2510029.08           492.56   494.5   501.7             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8600 9792.71    2283       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8600 9792.66  2282.7

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2275.88    Element                Left OB    Channel
Right OB
  Vel Head (ft)               0.30    Wt. n-Val.                        0.027
  0.040
  W.S. Elev (ft)           2275.59    Reach Len. (ft)        492.56     494.50
 501.70
  Crit W.S. (ft)           2275.21    Flow Area (sq ft)                 616.80
4040.39
  E.G. Slope (ft/ft)      0.003616    Area (sq ft)                      616.80
4040.39
  Q Total (cfs)           16900.00    Flow (cfs)                       4224.65
12675.35
  Top Width (ft)           2632.30    Top Width (ft)                    204.65
2427.65
  Vel Total (ft/s)            3.63    Avg. Vel. (ft/s)                    6.85
   3.14
  Max Chl Dpth (ft)           5.59    Hydr. Depth (ft)                    3.01
   1.66
  Conv. Total (cfs)       281028.1    Conv. (cfs)                      70251.2
210776.9
  Length Wtd. (ft)          500.33    Wetted Per. (ft)                  207.17
2427.87
  Min Ch El (ft)           2270.00    Shear (lb/sq ft)                    0.67
   0.38
  Alpha                       1.45    Stream Power (lb/ft s)              4.60
   1.18
  Frctn Loss (ft)             1.82    Cum Volume (acre-ft)      0.78     327.14
1917.07
  C & E Loss (ft)             0.02    Cum SA (acres)            1.71      82.58
 938.56


Warning: Divided flow computed for this cross-section.
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:    Multiple critical depths were found at this location.  The critical depth
with the lowest, valid, water
         surface was used.
```

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 15.642

INPUT
Description: RS 15.642
9.64 9.45 23518.25
Station Elevation Data num= 206

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8615	2270.1	8641.14	2270.13	8667.46	2270.16	8680.33	2270.17	8681.41	2270.18
8704.33	2270.21	8709.21	2270.21	8728.23	2270.25	8733.78	2270.25	8745.42	2270.27
8749.03	2270.27	8804.54	2270.36	8806.9	2270.36	8809.5	2270.37	8822.54	2270.4
8825.58	2270.4	8837.05	2270.43	8840.08	2270.43	8842.94	2270.44	8845.62	2270.44
8855.8	2270.46	8858.48	2270.47	8861.05	2270.47	8869.84	2270.49	8872.37	2270.5
8879.46	2270.5	8891.53	2270.54	8962.37	2270.7	8968.99	2270.7	8979.55	2270.73
8981.93	2270.74	8986.7	2270.74	8989.3	2270.75	8991.15	2270.75	8996.18	2270.76
8997.48	2270.76	9005.06	2270.77	9360.12	2272	9781.75	2272	9784.71	2272.85
9788.57	2274	9795.5	2276	9814.34	2276	9817.13	2275.27	9818.6	2274.89
9821.21	2274.21	9822.01	2274	9823.09	2273.72	9829.67	2272	9845.5	2272
9891.63	2272.75	9961.31	2274	9970.92	2275.74	9972.34	2276	9977.25	2276
9977.73	2275.71	9979.16	2274.85	9980.58	2274	9981.27	2273.58	9983.84	2272
9985.87	2270.68	9986.93	2270	9993.65	2268.45	9994.83	2268.18	9995.55	2268
10020.26	226810021.39	2268.2310030.48	227010033.05	2270.710037.77	2272				
10621.37	227210640.06	2271.9810645.35	227210653.98	2272 10657.6	2271.98				
10782.88	2271.4710784.04	2271.4810795.41	2271.4810828.21	2271.610875.51	2271.6				
10878.85	2271.59 10882.5	2271.5910932.72	2271.5110986.41	2271.4510991.04	2271.45				
11003.43	2271.4311102.28	2271.4311123.45	2271.4411126.24	2271.4511211.44	2271.53				
11214.28	2271.5411216.91	2271.5411222.26	2271.5511229.34	2271.5511231.51	2271.56				
11245.88	2271.5711247.25	2271.5811284.25	2271.6211287.02	2271.6311313.79	2271.67				
11316.96	2271.6711320.42	2271.6811338.93	2271.711342.43	2271.7111367.57	2271.73				
11370.97	2271.7411403.15	2271.77 11406	2271.7811431.86	2271.7611451.83	2271.79				
11464.74	2271.811467.62	2271.8111559.18	2271.9411559.62	2271.9411572.95	2271.96				
11574.62	2271.9611596.22	227211616.55	2272.0311641.13	2272.0611642.14	2272.06				
11656.51	2272.08 11657.4	2272.0811670.56	2272.1 11673.2	2272.1 11695.5	2272.14				
11696.25	2272.1511734.51	2272.2211735.02	2272.2211748.36	2272.2411749.55	2272.24				
11751.84	2272.2511845.67	2272.4511867.98	2272.5112016.27	227212205.09	2272				
12329.79	227412352.14	227412667.06	2275.98 12667.5	2275.9812965.79	2277.99				
12966.3	2277.9913201.81	2279.57 13209.3	2279.6113389.77	2280.7713399.19	2280.81				
13524.5	2281.5913556.74	2281.6913561.95	2281.7813569.68	228213620.83	2282				
13625.58	2282.0713626.48	2282.0813626.59	2282.08 13687.6	2283.0213690.68	2283.02				
13777.9	228413870.49	228413876.21	2284.7613897.79	2284.3313899.19	2284.42				
13918.93	2284.8713956.79	2283.9913965.53	2283.4913974.89	2284.1413994.29	2283.85				
13994.75	2283.8213997.98	2283.5714008.62	2283.4714010.34	2283.3414010.88	2283.3				
14019.81	2283.7114020.21	2283.7414025.15	2284.12 14028.9	2283.8414030.33	2283.95				
14032.15	2283.8214032.73	2283.7714038.22	2284.4114047.03	2285.0414048.12	2285.12				
14057.03	2285.5414064.34	2286.0614069.26	2285.7214077.66	2285.3814081.04	2285.15				
14090.65	2284.9414091.46	228514093.38	2285.1514102.13	2285.0314371.93	2285.16				
14443.92	2285.1914444.42	2285.1814456.59	2286.5414501.12	2286.9114534.39	2285.89				
14535.08	2285.8714557.29	2286.8614566.16	2286.5914567.31	2286.5514579.79	2287.82				
14591.3	2287.4614623.85	2288.0614624.63	2288.0314637.67	2287.6114642.92	2287.45				
14655.85	2287.03								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8615	.04	9814.34	.02	710037.77	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9814.34 10037.77 498.95 499.29 487.91 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent

```
    8615 9801.58 2283.14        F
Blocked Obstructions     num=       1
   Sta L    Sta R    Elev
    8615 9801.44 2282.49

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2274.04    Element                Left OB     Channel
Right OB
  Vel Head (ft)               0.22    Wt. n-Val.                         0.027
  0.040
  W.S. Elev (ft)           2273.82    Reach Len. (ft)        498.95      499.29
 487.91
  Crit W.S. (ft)           2273.22    Flow Area (sq ft)                  399.52
4284.06
  E.G. Slope (ft/ft)      0.003676    Area (sq ft)                       399.52
4284.06
  Q Total (cfs)           16900.00    Flow (cfs)                        2209.33
14690.67
  Top Width (ft)           2465.79    Top Width (ft)                     185.23
2280.56
  Vel Total (ft/s)            3.61    Avg. Vel. (ft/s)                     5.53
   3.43
  Max Chl Dpth (ft)           5.82    Hydr. Depth (ft)                     2.16
   1.88
  Conv. Total (cfs)        278724.9    Conv. (cfs)                       36437.6
242287.3
  Length Wtd. (ft)          488.97    Wetted Per. (ft)                   187.28
2280.58
  Min Ch El (ft)           2268.00    Shear (lb/sq ft)                     0.49
   0.43
  Alpha                       1.09    Stream Power (lb/ft s)               2.71
   1.48
  Frctn Loss (ft)             1.81    Cum Volume (acre-ft)        0.78    321.37
1869.14
  C & E Loss (ft)             0.01    Cum SA (acres)              1.71     80.37
 911.45


Warning: Divided flow computed for this cross-section.
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:    Multiple critical depths were found at this location.  The critical depth
with the lowest, valid, water
         surface was used.

CROSS SECTION


RIVER: Aguila Farm Chan
REACH: Reach-1           RS: 15.547

INPUT
Description: RS 15.547
9.55  9.36  23018.96
Station Elevation Data    num=     172
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8600 2268.83 8676.73 2269.04 8713.44 2269.21 8726.97 2269.24 8803.33 2269.51
 8829.13 2269.65 8837.65 2269.67 8865.19 2269.83 8868.17 2269.84 8887.36 2269.95
 8887.91 2269.95 9283.48 2271.88 9288.12 2271.91 9309.68    2272 9760.27    2272
```

```
 9763.08  2272.7 9776.43    2276 9795.04    2276 9797.11 2275.48 9810.88 2272.05
  9811.1    2272 9817.49 2271.37 9911.81    2272 9935.02    2272  9943.2 2273.92
 9943.53    2274 9955.52    2274 9957.26 2273.45 9961.91    2272 9965.89 2270.73
 9968.21    2270 9975.03 2269.45 9992.55    2268 10015.5    226810019.55 2269.96
10029.61    227010143.78    227010253.49 2270.7110387.21 2270.3710494.54 2270.16
10527.64    227010574.96    2270 10584.3 2269.9810584.58 2269.9810622.09 2269.89
10624.22 2269.8910624.94 2269.8810625.97 2269.8810658.44 2269.7710661.02 2269.77
10664.24 2269.7610851.23  2269.410855.53  2269.410858.25 2269.39 10994.5 2269.31
11133.72 2269.4611326.48 2269.7611329.56 2269.76 11342.4 2269.7911344.83 2269.79
11354.68 2269.81 11356.6 2269.8111363.41 2269.8211364.97 2269.8211393.56 2269.77
11393.88 2269.7711394.64 2269.7611395.89 2269.76 11397.7 2269.7511400.38 2269.73
11432.12 2269.6811432.44 2269.6811434.16 2269.6711558.01    227011939.89    2270
12029.31 2270.5612059.43 2270.8712120.71 2271.2912193.66 2271.9912194.83    2272
12198.88    227212203.07 2270.4812203.99 2270.1512204.48    227012219.52    2270
12228.82 2270.8212240.59    2272   12261    2272 12291.1 2272.2212311.39 2272.32
12318.39 2272.3812341.28 2272.5212349.19 2272.59 12364.2 2272.6812369.94 2272.73
 12421.7 2272.9612425.31 2272.99 12431.2 2273.0112434.43 2273.0412438.88 2273.09
   12529    227412761.49 2275.3612792.71 2275.4912807.78 2275.5912850.42    2276
12925.23    227613142.18 2277.7613144.13 2277.7713175.59    227813177.26    2278
13181.13 2278.0413181.44 2278.0413181.83 2278.0513573.91 2281.0213657.08 2281.39
13671.98 2281.6813683.66    228213707.43    228213740.64 2282.2513809.49 2282.54
13823.65 2283.0313825.46  2282.913827.31 2282.8213830.32 2282.6213861.04 2282.02
13864.38 2282.2313880.64  2282.613911.83 2281.8713916.27 2281.6213919.04 2281.47
13926.74    228213942.73 2281.7613943.11 2281.7413945.77 2281.5313958.49 2281.41
13959.95  2281.3 13960.4 2281.2713967.97 2281.6213968.44 2281.6513974.22 2282.09
13977.43 2281.85 13979.1 2281.9813980.67 2281.8613981.16 2281.8313985.88 2282.37
13996.01 2283.1113997.26  2283.214005.04 2283.5614013.35 2284.1614015.27 2284.02
14017.69 2283.8514027.19 2283.47 14030.2 2283.2614041.02 2283.0314041.94  2283.1
 14044.1 2283.2614053.97 2283.1314328.18 2283.27 14439.1 2283.3214439.59  2283.3
14451.52 2284.6414495.17    228514523.11 2284.1514527.79    228414528.46 2283.98
14550.23 2284.9614558.93 2284.6814560.05 2284.6514572.29 2285.8914575.96 2285.78
14583.57 2285.5414585.56 2285.57

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8600     .04 9795.04    .02710029.61     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9795.0410029.61           521.52  521.84  513.12             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8600 9791.81 2283.91       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8600 9791.63 2283.25

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2272.23    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.20    Wt. n-Val.                           0.027
  0.040
  W.S. Elev (ft)           2272.03    Reach Len. (ft)          521.52     521.84
 513.12
  Crit W.S. (ft)           2271.43    Flow Area (sq ft)                   240.25
4456.91
  E.G. Slope (ft/ft)      0.003707    Area (sq ft)                        240.25
4456.91
  Q Total (cfs)           16900.00    Flow (cfs)                          932.11
15967.89
  Top Width (ft)           2426.86    Top Width (ft)                      191.93
2234.93
```

Vel Total (ft/s)	3.60	Avg. Vel. (ft/s)			3.88
3.58					
Max Chl Dpth (ft)	4.03	Hydr. Depth (ft)			1.25
1.99					
Conv. Total (cfs)	277585.0	Conv. (cfs)			15310.1
262274.9					
Length Wtd. (ft)	513.87	Wetted Per. (ft)			192.81
2235.39					
Min Ch El (ft)	2268.00	Shear (lb/sq ft)			0.29
0.46					
Alpha	1.00	Stream Power (lb/ft s)			1.12
1.65					
Frctn Loss (ft)	1.81	Cum Volume (acre-ft)	0.78		317.71
1820.18					
C & E Loss (ft)	0.00	Cum SA (acres)	1.71		78.21
886.16					

Warning: Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 15.448

INPUT
Description: RS 15.448
9.45 9.26 22497.13
Station Elevation Data num= 190

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8770	2267.61	8870.8	2268.11	8871.01	2268.11	8900.12	2268.26	9106.73	2269.24
9137.16	2269.35	9150.66	2269.42	9165.64	2269.45	9171.47	2269.48	9238.68	2269.67
9240.87	2269.68	9255.36	2269.7	9319.28	2269.78	9359.83	2269.83	9397.2	2269.87
9398.75	2269.87	9424.86	2269.91	9425.81	2269.91	9439.18	2269.93	9439.8	2269.93
9471.31	2269.97	9471.53	2269.97	9550.85	2270.08	9551.18	2270.09	9612.89	2270.18
9613.43	2270.18	9628.59	2270.2	9678.57	2270	9935.74	2270	9940.19	2271.48
9941.73	2272	9947.73	2274	9948.22	2274.16	9948.59	2274.29	9953.77	2276
9959.77	2276	9960.72	2275.77	9967.72	2274	9969.11	2273.45	9972.04	2272.31
9975.5	2270.95	9977.94	2270	9981.35	2269.49	9990.79	226810001.23		2266.16
10002.13		226610005.85		226610018.21	2267.7110020.55		226810122.21		2270
10138.52		227010145.34		226810146.82	2267.5610152.14		226610175.22		2266
10182.64	2267.5610184.66		226810278.79		226810478.23	2268.6210564.63			2268.36
10565.39	2268.36	10674.1		226810693.92	2267.9410698.16	2267.9410716.41			2267.9
10718.03	2267.910784.73		2267.7610788.53		2267.7610806.46	2267.7310810.69			2267.73
10813.94	2267.7210894.41		2267.610899.03		2267.6 10926.8	2267.56 10950.2			2267.54
10969.95	2267.5110976.51		2267.5110997.91		2267.48 11000.8	2267.4711018.75			2267.45
11019.56	2267.4511094.85		2267.3511352.74		2267.4111399.07	2267.46 11402.5			2267.46
11438.59	2267.52 11439.8		2267.5211500.04		2267.65 11504.6	2267.6511508.11			2267.66
11536.56	2267.6811696.91		226811819.33		226812020.06	2269.1112026.42			2269.13
12203.98	2269.8612205.14		2269.8612229.69		2269.9512230.38	2269.9512244.35			2270
12504.75	227012507.82		2268.4812508.87		2268 12520.9	226812521.34			2268.29
12523.88	2270 12527.3		2270 12645.3		2271.4612646.58	2271.4812667.85			2271.72
12686.49	227212883.01		227212892.63		2272.1312892.95	2272.1312899.99			2272.24
12906.22	2272.2812987.38		2273.32 12998		2273.3713089.27	2274 13131			2274
13206.53	2274.7113314.78		2275.4213384.54		2276 13456.5	2276 13587.2			2276.96

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13587.95 2276.9513588.97 2276.9413590.24 2276.9213591.79 2276.9113592.22 2276.91
 13594.1  2276.913643.67 2277.1713710.75    227813719.06 2278.0713846.03 2278.63
13849.54  2278.713871.01 2278.9713924.75 2279.9513927.87    228013930.88    2280
13934.51 2280.0413963.23 2280.4213965.26 2280.3113966.29 2280.2513969.74 2280.06
13970.07 2280.0513984.72 2280.5513986.03 2280.4613991.99  2280.213994.27 2280.05
14017.54 2279.5914022.94 2279.9314035.54 2280.2214059.72 2279.65 14065.3 2279.34
14071.27 2279.7514083.66 2279.5714083.96 2279.5514086.02 2279.3914100.93 2279.25
14102.11 2279.1614102.48 2279.1314108.61 2279.4114109.15 2279.4514115.82 2279.96
14117.05 2279.8714118.47 2279.7714120.38 2279.9114121.68 2279.8114122.09 2279.78
14125.99 2280.23 14137.5 2281.0714138.93 2281.1714145.51 2281.4814154.88 2282.15
14156.53 2282.0314158.61 2281.8914169.26 2281.4614171.88 2281.2814183.99 2281.02
14185.01  2281.114187.43 2281.2814198.47 2281.1414479.22 2281.2714629.18 2281.35
14629.65 2281.3314641.33 2282.6414684.06 2282.9914716.64    228214735.75 2282.85

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8770     .04 9959.77    .02710184.66     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       9959.7710184.66           478.71  479.57   488.4             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8770 9957.71 2278.63       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8770 9957.74 2278.47

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2270.42    Element                Left OB    Channel
Right OB
  Vel Head (ft)               0.19    Wt. n-Val.                        0.027
  0.040
  W.S. Elev (ft)           2270.22    Reach Len. (ft)        478.71     479.57
 488.40
  Crit W.S. (ft)           2269.29    Flow Area (sq ft)                 401.54
4515.10
  E.G. Slope (ft/ft)      0.003337    Area (sq ft)                      401.54
4515.10
  Q Total (cfs)           16900.00    Flow (cfs)                       1975.37
14924.63
  Top Width (ft)           2568.07    Top Width (ft)                    207.30
2360.77
  Vel Total (ft/s)            3.44    Avg. Vel. (ft/s)                    4.92
   3.31
  Max Chl Dpth (ft)           4.22    Hydr. Depth (ft)                    1.94
   1.91
  Conv. Total (cfs)       292546.7    Conv. (cfs)                      34194.6
258352.1
  Length Wtd. (ft)          487.40    Wetted Per. (ft)                  208.61
2361.85
  Min Ch El (ft)           2266.00    Shear (lb/sq ft)                    0.40
   0.40
  Alpha                       1.06    Stream Power (lb/ft s)              1.97
   1.32
  Frctn Loss (ft)             2.02    Cum Volume (acre-ft)        0.78    313.86
1767.34
  C & E Loss (ft)             0.01    Cum SA (acres)              1.71     75.81
 859.10
```

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 15.358

INPUT
Description: RS 15.358
9.36 9.17 22017.56
Station Elevation Data num= 265

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8750	2266.36	8865.02	2266.88	8919.42	2267.05	8925.86	2267.06	8933.27	2267.09
8940.46	2267.1	8957.56	2267.16	8965.07	2267.17	8974.43	2267.2	9072.39	2267.41
9086.22	2267.42	9090.35	2267.43	9108.85	2267.44	9113.47	2267.45	9154.35	2267.48
9157.05	2267.49	9164.19	2267.49	9167.89	2267.5	9422.78	2267.57	9433.13	2267.59
9435.44	2267.58	9445.22	2267.6	9467.14	2267.63	9534.64	2267.71	9538.94	2267.7
9543.44	2267.7	9558.43	2267.72	9561.71	2267.71	9582.96	2267.72	9615.71	2267.55
9641.58	2267.56	9643.55	2267.55	9705.34	2267.52	9709.13	2267.51	9732.18	2267.49
9738.54	2267.47	9779.28	2267.2	9793.24	2267.05	9798.9	2267.01	9859.59	2266.45
9879.28	2266.33	9897.13	2266	9928.33	2266	9929.36	2266.33	9933.68	2267.69
9934.66	2268	9940.66	2269.94	9940.86	2270	9946.88	2272	9963.76	2272
9963.95	2271.91	9966.66	2270.57	9967.82	2270	9968.83	2269.5	9971.83	2268
9974.19	2266.83	9975.89	2266	9977.63	2265.7110008.73		2265.710012.51		2266
10072.26	226610167.26		226810186.06		226810187.36		2267.6910193.86		2266.12
10194.38	226610232.21		226610244.13		2266.5410246.38		2266.5810253.77		2266.88
10258.16	2266.9310262.74		2267.110269.23		2267.1510272.79		2267.2610275.33		2267.33
10282.72	2267.37 10284.8		2267.4310292.39		2267.4610295.29		2267.5310303.02		2267.55
10310.25	2267.6910310.81		2267.710315.12		2267.710349.14		2267.3410350.81		2267.28
10352.71	2267.2510354.73		2267.2410398.43		2266.33 10400.9		2266.3310417.06		2266.4
10417.33	2266.410423.69		2266.4510482.03		2266.6310482.58		2266.6210500.41		2266.61
10500.79	2266.610512.51		2266.610642.77		226610791.44		2266 10806		2265.97
10806.52	2265.9710894.15		2265.7910908.29		2265.7810911.64		2265.76 10963.3		2265.7
10968.62	2265.7 10971.7		2265.6910972.89		2265.6811045.79		2265.5411049.17		2265.55
11057.79	2265.5311060.75		2265.5311093.77		2265.4511142.55		2265.4411235.31		2265.3
11243.54	2265.311248.51		2265.29 11260.8		2265.2811315.64		2265.15 11327.2		2265.14
11330.94	2265.1211347.57		2265.1111351.66		2265.111394.53		2265.1511396.81		2265.14
11407.4	2265.1811408.55		2265.1811456.43		2265.3711506.84		2265.6311509.08		2265.65
11532.48	2265.7611533.82		2265.7711559.94		2265.8911560.61		2265.911579.95		2265.99
11583.2	226611742.24		226611847.21		2266.5611948.32		2267.0811951.86		2267.09
11986.5	2267.25 12048.2		2267.4812098.11		2267.6412100.46		2267.6412118.01		2267.7
12120.33	2267.712146.19		2267.7812148.17		2267.7812163.52		2267.8312165.21		2267.83
12173.05	2267.8612174.22		2267.8612182.14		2267.8812182.91		2267.8912183.96		2267.89
12203.3	2267.9412204.11		2267.9412230.73		226812394.15		2268 12397.7		2267.35
12406.08	226612415.13		226612416.15		2266.5812418.66		226812569.64		2268
12602.45	2268.3412603.02		2268.3412618.94		2268.5112620.03		2268.5312621.53		2268.55
12674.11	2269.15 12682.2		2269.2612738.15		2269.85 12740.1		2269.8812752.27		2270
12895.79	2270.8212981.34		2270.9512983.13		2270.9613095.44		2271.7213123.69		2272
13166.76	227213253.77		2272.8513329.21		2273.3213335.67		2273.3713438.18		2274
13591.11	227413675.41		2275.3613709.34		227613774.49		227613800.24		2276.63
13809.31	2276.69 13816.7		2276.7213823.31		2276.7713831.76		2276.8113836.13		2276.85
13839.54	2276.8613842.93		2276.913845.34		2276.9213846.89		2276.9513857.89		2277.15
13889.04	2277.4913891.41		2277.2513901.57		2277.313902.22		2277.2813907.48		2277.07
13908.06	2277.0513926.64		2277.4713934.42		2277.8113935.64		2277.8713954.51		2278.12
13955.81	2278.0513956.48		2278.0113958.69		2277.8913958.91		2277.8813968.31		2278.21
13969.15	2278.15 13979		2277.7113980.59		2277.61 13996.8		2277.2914004.13		2277.75
14013.26	2277.9514030.78		2277.5414033.27		2277.414034.82		2277.3214039.15		2277.62

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14048.13 2277.4814048.34 2277.4714049.84 2277.3514066.82 2277.1914067.74 2277.12
14068.02  2277.1 14072.8 2277.32 14073.4 2277.3714080.91 2277.9414081.89 2277.87
14083.02 2277.7814085.17 2277.9414086.21 2277.8714086.54 2277.8414089.66  2278.2
14102.49 2279.1314104.09 2279.2514109.53  2279.5 14119.9 2280.2414121.29 2280.15
14123.04 2280.0314134.79 2279.5514137.04  2279.414150.36 2279.1114151.48  2279.2
14154.15  2279.4 14166.3 2279.2414451.96 2279.3814640.33 2279.47 14640.8 2279.46
14652.24 2280.7414694.09 2281.08   14726  2280.114746.88 2281.0414755.22 2280.78
 14756.3 2280.7414768.02 2281.9414771.54 2281.8314778.84 2281.5914803.03 2282.04

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8750     .04 9963.76    .02710167.26     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       9963.7610167.26           485.87  491.35  507.27             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8750  9952.5 2275.89       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8750 9952.43 2275.47

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2268.39    Element                Left OB    Channel
Right OB
  Vel Head (ft)               0.25    Wt. n-Val.                        0.027
  0.040
  W.S. Elev (ft)           2268.14    Reach Len. (ft)        485.87     491.35
 507.27
  Crit W.S. (ft)           2267.37    Flow Area (sq ft)                 328.98
3987.74
  E.G. Slope (ft/ft)      0.005288    Area (sq ft)                      328.98
3987.74
  Q Total (cfs)           16900.00    Flow (cfs)                       1857.82
15042.18
  Top Width (ft)           2611.49    Top Width (ft)                    195.71
2415.78
  Vel Total (ft/s)            3.92    Avg. Vel. (ft/s)                    5.65
   3.77
  Max Chl Dpth (ft)           3.04    Hydr. Depth (ft)                    1.68
   1.65
  Conv. Total (cfs)       232398.2    Conv. (cfs)                      25547.5
206850.6
  Length Wtd. (ft)          505.53    Wetted Per. (ft)                  196.26
2416.77
  Min Ch El (ft)           2265.70    Shear (lb/sq ft)                    0.55
   0.54
  Alpha                       1.06    Stream Power (lb/ft s)              3.13
   2.05
  Frctn Loss (ft)             2.02    Cum Volume (acre-ft)        0.78   309.84
1719.67
  C & E Loss (ft)             0.01    Cum SA (acres)              1.71    73.60
 832.32


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:    Multiple critical depths were found at this location.  The critical depth
with the lowest, valid, water
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surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 15.265

INPUT
Description: RS 15.265
9.26 9.08 21526.21
Station Elevation Data num= 188

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8790	2265.15	8835.32	2265.28	8894.6	2265.39	8897.97	2265.4	8909.96	2265.41
8989.07	2265.53	9183.19	2265.55	9329.47	2265.51	9332.31	2265.5	9488.52	2265.44
9576.88	2265.18	9632.02	2265.15	9640.3	2265.12	9663.79	2265.09	9749.85	2264.65
9756.62	2264.6	9760.1	2264.6	9781.2	2264.56	9849.18	2264	9933.22	2264
9934.03	2264.28	9950.74	2270	9966.59	2270	9970.4	2268.27	9970.76	2268.11
9971	2268	9971.53	2267.76	9975.37	2266	9978.1	2264.74	9979.65	2264
9982.67	2262.54	9983.77	226210019.15		226210020.72		2262.2410032.46		2264
10071.52		226410072.46	2264.1610081.02		2265.5810081.93		2265.7410083.53		2266
10087.88		226610091.77	2265.6510097.48		2265.210103.57		2264.6810105.02		2264.56
10113.04		226410386.59	226410392.31		2264.0510393.83		2264.0510401.12		2264
10874.57		2264 10879.3	2263.9810879.45		2263.9810914.68		2263.8110915.53		2263.81
10984.11	2263.53	10985.7	2263.5311034.21		2263.3211036.32		2263.3211118.68		2263.16
11121.76	2263.1711128.21		2263.1511219.96		2263.1211222.75		2263.1311370.95		2263.29
11476.95	2263.6111481.02		2263.6111559.77		2263.7511564.26		2263.7511567.11		2263.76
11581.92	2263.7811584.84		2263.7811680.78		226411851.07		226411925.13		2264.53
11971.52	2264.811976.31		2264.8212001.94		2264.9912009.68		2265.0212027.38		2265.15
12151.03	2265.7612179.92		2265.8512180.66		2265.8612194.45		2265.8812215.89		2265.85
12223.23	2265.8812223.42		2265.8812231.44		2265.9112234.99		2265.912281.89		2266
12388.29	2266 12453.1		2266.412654.22		2267.3112673.88		2267.3812766.85		2267.83
12778.87	2267.8612796.16		2267.9912796.96		226812878.91		226812913.76		2268.21
12917.97	2268.23	13012.6	2268.5413032.54		2268.7313035.08		2268.7613041.05		2268.79
13078.04	2269.0513097.43		2269.2313101.91		2269.2613187.19		2269.9813187.89		2269.99
13189.65	227013263.24		2270.5913350.34		2271.313354.67		2271.3413365.89		2271.41
13368.44	2271.4313374.68		2271.4713377.64		2271.4813378.71		2271.4913379.17		2271.49
13379.38	2271.513379.58		2271.513481.15		227213517.73		227213637.65		2272.52
13641.41	2272.5513666.26		2272.9 13691.4		2272.9213698.59		2272.9913700.43		2273
13847.92	2274 13894.9		227413904.53		2274.1913905.09		2274.1913907.91		2274.41
13911.99	2274.7213921.77		2274.7813921.92		2274.7713923.16		2274.72 13923.3		2274.72
13927.66	2274.8113943.61		2275.5113946.11		2275.6313954.07		2275.7413954.62		2275.71
13954.9	2275.6913955.83		2275.6413959.89		2275.7713960.24		2275.7513974.13		2275.13
13975	2275.0713983.89		2274.913993.23		2275.4813998.77		2275.6114009.38		2275.36
14010.89	2275.2714011.83		2275.2214014.46		2275.41 14019.9		2275.3214020.02		2275.31
14020.93	2275.2414040.06		2275.06 14040.7		2275.0214040.91		227514044.26		2275.15
14044.94	2275.2114053.32		2275.8414054.04		2275.7914054.87		2275.7314057.26		2275.91
14058.03	2275.8514058.28		2275.83 14060.6		2276.114074.79		2277.1314076.55		2277.26
14080.82	2277.4614092.22		2278.2714094.76		2278.0914107.64		2277.57 14109.5		2277.44
14124.08	2277.1314125.31		2277.2314128.23		2277.4514141.53		2277.2714429.45		2277.41
14660.55	2277.5114661.01		2277.514664.43		2277.89				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8790	.04	9966.59	.02	710083.53	.04

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

9966.59	10083.53	516.9	518.09	502.86	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8790	9964.06	2273.06	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev

8790 9963.94 2272.5

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2266.36	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.21	Wt. n-Val.		0.027
0.040				
W.S. Elev (ft)	2266.15	Reach Len. (ft)	516.90	518.09
502.86				
Crit W.S. (ft)	2265.19	Flow Area (sq ft)		304.24
4604.37				
E.G. Slope (ft/ft)	0.003122	Area (sq ft)		304.24
4604.37				
Q Total (cfs)	16900.00	Flow (cfs)		1846.23
15053.77				
Top Width (ft)	2437.34	Top Width (ft)		108.48
2328.86				
Vel Total (ft/s)	3.44	Avg. Vel. (ft/s)		6.07
3.27				
Max Chl Dpth (ft)	4.15	Hydr. Depth (ft)		2.80
1.98				
Conv. Total (cfs)	302473.3	Conv. (cfs)		33043.4
269429.8				
Length Wtd. (ft)	504.34	Wetted Per. (ft)		109.74
2328.95				
Min Ch El (ft)	2262.00	Shear (lb/sq ft)		0.54
0.39				
Alpha	1.14	Stream Power (lb/ft s)		3.28
1.26				
Frctn Loss (ft)	1.64	Cum Volume (acre-ft)	0.78	306.27
1669.64				
C & E Loss (ft)	0.00	Cum SA (acres)	1.71	71.88
804.69				

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 15.166

INPUT
Description: RS 15.166
9.17 8.98 21008.12
Station Elevation Data num= 172

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8765	2264	9247.7	2264	9251.79	2264.15	9252.29	2264.18	9252.52	2264.18
9260.63	2264.48	9264.84	2264.7	9269.77	2264.9	9272.34	2265	9273.55	2265.04
9282.06	2265.54	9283.17	2265.6	9284.34	2265.66	9289.79	2266	9312.28	2266
9323.05	2265.29	9327.98	2264.94	9331.38	2264.71	9341.09	2264	9345.2	2264
9348.55	2263.99	9449.45	2263.9	9459.12	2263.88	9462.19	2263.88	9509.97	2263.82
9548.08	2263.64	9554.91	2263.63	9555.59	2263.63	9562.94	2263.61	9574.68	2263.53
9657.43	2263.36	9687.82	2263.31	9704.81	2263.27	9707.51	2263.25	9748.65	2263.17

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 9825.31 2262.55 9837.94  2262.4 9840.17  2262.4 9841.79 2262.39 9843.34 2262.39
 9860.28 2262.16 9861.81 2262.16 9872.84    2262  9926.1    2262  9928.4 2262.58
  9934.6    2264 9943.35 2266.61 9947.98    2268 9962.01    2268 9963.57 2267.23
 9966.04    2266 9967.29 2265.39 9970.12    2264 9973.52 2262.41  9974.4    2262
 9976.99 2261.82 9978.87 2261.71 9997.01 2260.55  9999.9 2260.3710009.76 2260.41
10012.06 2260.6210017.21 2261.1310025.44    226210062.98    226410076.56    2264
10080.91 2263.3510090.05    226210112.93    226210121.17 2262.0410458.56 2262.96
10568.22 2262.6910615.45 2262.5910643.87 2262.5310652.99 2262.5210692.92 2262.39
10706.54 2262.3710707.11 2262.3710726.36 2262.3310727.32 2262.33 10752.9 2262.28
10754.11 2262.2710759.76 2262.2710791.05 2262.21 10792.4  2262.210797.71  2262.2
10810.31 2262.18 10811.8 2262.18 10831.9 2262.15 10833.4 2262.1510861.42 2262.11
10863.19 2262.11 10887.9    2262 11006.1 2261.9811011.48 2261.9611210.01 2261.63
11239.77 2261.6411239.99 2261.6511384.88 2261.77 11390.7 2261.7911558.22 2261.96
11558.73 2261.9611703.55 2262.23 11705.7 2262.2411758.47 2262.3811764.21 2262.41
11831.66 2262.59 11837.9 2262.6212021.71  2263.312167.76    226412546.54    2264
12725.55 2265.6712727.67 2265.6712785.94    226612882.22    226613142.45    2268
13169.26    2268 13420.3 2269.8213437.23    227013564.82    227013665.33  2271.6
13667.55 2271.6313668.58 2271.6313671.54 2271.6513675.71 2271.6913676.44  2271.7
13677.11  2271.713677.74 2271.7113692.89 2271.7313698.42 2271.7813725.76  2271.8
13727.04 2271.8113746.88 2271.8613747.05 2271.86 13784.8    227213883.19    2272
13950.54 2272.8613953.45 2272.8913960.96 2272.5613961.11 2272.55 13962.7 2272.52
13974.05 2273.23   13976 2273.2713979.73 2273.1813980.26 2273.1513980.59 2273.13
13981.51  2273.213983.43 2273.1713983.79 2273.1414005.07 2272.9414005.44 2272.91
14005.56  2272.914007.51 2272.9914008.25 2273.0514017.51 2273.7514017.97 2273.72
 14018.5 2273.6814021.14 2273.8714021.64 2273.84 14021.8 2273.8214023.33    2274
14040.81 2275.2714043.91 2275.4114056.35  2276.3 14057.2 2276.2414058.28 2276.17
 14072.3  2275.614073.77  2275.514089.61 2275.1614094.12  2275.514108.56 2275.31
14405.17 2275.46 14658.6 2275.58

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8765     .04 9962.01    .02710062.98     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9962.0110062.98           485.81  486.34   509.7             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8765 9959.04  2272.4        F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8765  9958.7    2272

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2264.72    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.20    Wt. n-Val.                          0.027
  0.040
  W.S. Elev (ft)           2264.52    Reach Len. (ft)          485.81     486.34
 509.70
  Crit W.S. (ft)           2263.65    Flow Area (sq ft)                   241.58
4721.19
  E.G. Slope (ft/ft)      0.003395    Area (sq ft)                        241.58
4721.19
  Q Total (cfs)           16900.00    Flow (cfs)                         1446.75
15453.25
  Top Width (ft)           2632.69    Top Width (ft)                       93.91
2538.78
  Vel Total (ft/s)            3.41    Avg. Vel. (ft/s)                     5.99
   3.27
  Max Chl Dpth (ft)           4.15    Hydr. Depth (ft)                     2.57
   1.86
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Conv. Total (cfs)	290037.0	Conv. (cfs)			24829.1
265207.9					
Length Wtd. (ft)	507.94	Wetted Per. (ft)			94.66
2538.94					
Min Ch El (ft)	2260.37	Shear (lb/sq ft)			0.54
0.39					
Alpha	1.11	Stream Power (lb/ft s)			3.24
1.29					
Frctn Loss (ft)	1.79	Cum Volume (acre-ft)		0.78	303.02
1615.82					
C & E Loss (ft)	0.00	Cum SA (acres)		1.71	70.68
776.59					

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 15.074

INPUT
Description: RS 15.074
9.07 8.89 20521.78
Station Elevation Data num= 184

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8780	2262.25	8791.71	2262.3	8793.53	2262.29	8794.42	2262.29	8817.98	2262.37
8819.6	2262.37	8837.41	2262.42	8839.81	2262.42	8861.03	2262.48	8863.09	2262.47
8866.45	2262.47	8882.45	2262.51	8884.51	2262.51	8971.66	2262.63	9034.15	2262.63
9037.26	2262.62	9183.06	2262.47	9198.94	2262.45	9232.73	2262.42	9234.57	2262.41
9235.96	2262.41	9258.17	2262.38	9282.88	2262.36	9285.03	2262.35	9309.91	2262.33
9312.77	2262.32	9516.18	2262.02	9516.66	2262.02	9526.51	2262	9600.88	2262
9603.59	2261.99	9653.15	2261.98	9676.38	2261.89	9676.74	2261.89	9677.53	2261.88
9678.86	2261.88	9680.92	2261.86	9759.27	2261.25	9770.88	2261.14	9845.65	2260.55
9857.38	2260.48	9867.64	2260.45	9871.52	2260.41	9874.14	2260.4	9913.86	2260.82
9916.6	2260.93	9924.18	2261.21	9926.66	2261.24	9945.04	2262	9946.13	2262.27
9952.96	2264	9953.7	2264.18	9960.86	2266	9975.38	2266	9977.11	2265.12
9979.33	2264	9981.97	2262.66	9982.44	2262.42	9983.27	2262	9987.21	2260
10025.92	226010077.72		226210092.15		226210092.63		2261.9510098.66		2261.3
10105.7	2260.6110107.53		2260.4510109.61		2260.5210110.95		2260.41	10127.3	2260.89
10133.65	2260.68	10162.4	2260.3110169.44		2260.2910172.83		2260.29	10178.9	2260.27
10401.17	2260.910556.29		2260.7410559.38		2260.7310581.56		2260.7210630.21		2260.66
10643.61	2260.6610651.55		2260.64	10839	2260.3210842.65		2260.3110845.96		2260.31
10848.95	2260.310851.66		2260.310854.72		2260.2910858.09		2260.2910861.75		2260.28
10866.82	2260.2810868.32		2260.2710912.58		2260.2210915.83		2260.2211000.79		2260
11303.64	226011406.89		2260.1511440.91		2260.1511445.36		2260.1611472.17		2260.16
11475.75	2260.1711495.73		2260.1811498.49		2260.1911512.33		2260.211514.69		2260.21
11526.07	2260.2211618.58		2260.3711663.39		2260.56	11678.4	2260.611684.68		2260.63
11698.04	2260.6611703.13		2260.6911787.03		2260.9611819.41		2261.0911821.24		2261.09
11833.22	2261.14	11836.4	2261.16	11838.8	2261.1712006.06		2261.49	12007.8	2261.5
12008.87	2261.512012.68		2261.5112018.78		2261.54	12032.8	2261.5712045.53		2261.62
12173.12	2262	12335.5	226212481.08		2262.4612529.91		2262.7112563.82		2262.67
12568.04	2262.7212570.22		2262.7112573.76		2262.7512576.45		2262.7712578.04		2262.79
12580.63	2262.8112581.58		2262.81	12584.1	2262.8212585.07		2262.8312586.06		2262.83
12589.11	2262.8612722.27		226412785.67		226412789.88		2264.0312874.48		2264.43
12879.29	2264.4612934.76		2264.7513129.38		2266.0813477.78		2267.9913477.95		2267.99

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13479.61    226813574.72    226813616.39 2268.7813618.27 2268.78   13735 2269.53
13750.12 2269.6113778.89 2269.8413783.19 2269.8613800.91    227013955.65    2270
13977.74  2270.9 13987.8  2270.8 13987.9 2270.7913988.47 2270.8213989.28 2270.88
13999.41 2271.6513999.61 2271.6313999.84 2271.6214002.72 2271.8314002.96 2271.81
14003.76 2271.8914020.67 2273.1114022.77 2273.2714024.69 2273.3614038.16 2274.32
14039.49 2274.2314054.64 2273.6214055.73 2273.5414072.84 2273.1814074.28 2273.28
14077.71 2273.5414093.29 2273.3414391.39 2273.4714674.32  2273.6

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8780     .04 9975.38    .02710077.72     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9975.3810077.72           518.92  519.57  486.85             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8780 9960.89 2268.79       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8780 9960.74 2268.43

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2262.92    Element                Left OB    Channel
Right OB
  Vel Head (ft)               0.20    Wt. n-Val.                        0.027
  0.040
  W.S. Elev (ft)           2262.73    Reach Len. (ft)        518.92     519.57
 486.85
  Crit W.S. (ft)           2261.84    Flow Area (sq ft)                 202.21
4643.43
  E.G. Slope (ft/ft)      0.003662    Area (sq ft)                      202.21
4643.43
  Q Total (cfs)           16900.00    Flow (cfs)                       1102.23
15797.77
  Top Width (ft)           2589.76    Top Width (ft)                    95.88
2493.88
  Vel Total (ft/s)            3.49    Avg. Vel. (ft/s)                  5.45
   3.40
  Max Chl Dpth (ft)           2.73    Hydr. Depth (ft)                  2.11
   1.86
  Conv. Total (cfs)       279272.1    Conv. (cfs)                      18214.3
261057.8
  Length Wtd. (ft)          488.95    Wetted Per. (ft)                  96.57
2493.99
  Min Ch El (ft)           2260.00    Shear (lb/sq ft)                  0.48
   0.43
  Alpha                       1.05    Stream Power (lb/ft s)            2.61
   1.45
  Frctn Loss (ft)             1.70    Cum Volume (acre-ft)      0.78    300.55
1561.03
  C & E Loss (ft)             0.00    Cum SA (acres)            1.71     69.62
 747.15


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:    Multiple critical depths were found at this location.  The critical depth
with the lowest, valid, water
         surface was used.
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CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 14.976

INPUT
Description: RS 14.976
8.98 8.79 20002.21
Station Elevation Data num= 122

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8750	2260.28	8753.81	2260.28	8769.74	2260.34	8772.64	2260.34	8794.8	2260.43
9068.12	2260.76	9106.94	2260.72	9108.74	2260.71	9126.27	2260.7	9201.59	2260.54
9230.19	2260.5	9237.94	2260.5	9302.46	2260.36	9305.02	2260.36	9315.36	2260.34
9319.62	2260.34	9322.28	2260.33	9330.82	2260.33	9333.06	2260.32	9336.32	2260.32
9340.51	2260.31	9480.62	2260.22	9481.72	2260.21	9483.34	2260.21	9503.29	2260.18
9505.12	2260.18	9517.65	2260.16	9519.67	2260.16	9558.06	2260.1	9559.48	2260.1
9588.97	2260.05	9589.76	2260.05	9661.88	2259.87	9662.23	2259.87	9671.86	2259.81
9674.59	2259.78	9681.82	2259.72	9728.02	2259.51	9748.15	2259.29	9778.2	2259.11
9821.86	2258.58	9833.9	2258.47	9869.7	2258	9893.55	2258	9896.87	2258.13
9937.67	2260	9938.08	2260.11	9939.23	2260.43	9945.09	2262	9948.6	2263.05
9951.85	2264	9965.43	2264	9966.3	2263.68	9970.23	2262.21	9970.81	2262
9976.29	2260	9988.53	2258.52	9993.23	225810015.83		2258	10016.7	2258.03
10031.74	2258.53	10032.49	2258.54	10049.25	2259.11	0093.51	2258.72	10101.18	2258
10115.11	225810121.15		2258.13	10121.33	2258.12	10127.41	2258.26	10139.98	2258.53
10262.94	2259.27	10280.45	2259.23	10282.44	2259.23	10308.77	2259.17	10310.59	2259.16
10338.39	2259.11	10447.69	2258.72	10480.84	2258.67	10484.47	2258.67	10635.08	2258.51
10661.41	2258.51	0760.23	2258.32	10773.46	2258.32	10775.59	2258.31	10794.16	2258.28
10922.85	2258.18	10986.37	225811319.04		225811362.91		2258.22	12421.07	2262
12446.51	226212492.98		2262.24	12745.42	226413019.54		226413031.39		2264.17
13031.58	2264.17	13032.38	2264.18	13034.11	2264.19	13240.28	226613349.15		2266
13369.29	2266.27	13502.88	2267.14	13556.43	2267.38	13557.64	2267.38	13629.1	2268
13657.38	226813921.09		227013963.34		2270	13979.5	2271.17	13981.77	2271.34
13982.56	2271.37	13997.04	2272.41	13997.36	2272.39	13997.77	2272.36	14014.04	2271.7
14014.76	2271.65	14033.09	2271.26	14034.63	2271.38	14038.31	2271.66	14055.02	2271.44
14358.36	2271.58	14616.49	2271.71						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8750	.04	9965.43	.02	710049.25	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9965.43 10049.25 482.32 484.42 518.56 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8750	9965.02	2266.99	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8750	9964.93	2266.35

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2261.23	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.21	Wt. n-Val.		0.027
0.040				
W.S. Elev (ft)	2261.01	Reach Len. (ft)	482.32	484.42
518.56				
Crit W.S. (ft)	2260.00	Flow Area (sq ft)		186.07
4477.21				
E.G. Slope (ft/ft)	0.003292	Area (sq ft)		186.07

4477.21					
Q Total (cfs)	16900.00	Flow (cfs)			1066.87
15833.14					
Top Width (ft)	2170.69	Top Width (ft)			75.73
2094.96					
Vel Total (ft/s)	3.62	Avg. Vel. (ft/s)			5.73
3.54					
Max Chl Dpth (ft)	3.01	Hydr. Depth (ft)			2.46
2.14					
Conv. Total (cfs)	294538.6	Conv. (cfs)			18593.7
275945.0					
Length Wtd. (ft)	509.65	Wetted Per. (ft)			76.05
2095.01					
Min Ch El (ft)	2258.00	Shear (lb/sq ft)			0.50
0.44					
Alpha	1.05	Stream Power (lb/ft s)			2.88
1.55					
Frctn Loss (ft)	1.47	Cum Volume (acre-ft)		0.78	298.23
1510.06					
C & E Loss (ft)	0.01	Cum SA (acres)		1.71	68.59
721.51					

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 14.884

INPUT
Description: RS 14.884
8.88 8.70 19517.79
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8440	2258.75	8459.48	2258.84	8467.1	2258.84	8648.98	2259.17	8683.7	2259.16
8852.42	2258.9	9105.06	2258.46	9109.17	2258.46	9129.15	2258.41	9132.01	2258.41
9265.38	2258.1	9265.64	2258.1	9285.72	2258.04	9299.55	2258	9303.74	2257.98
9303.87	2257.98	9319.65	2257.9	9320.47	2257.89	9350.36	2257.73	9416.84	2257.4
9418.83	2257.4	9448.35	2257.28	9578.05	2258	9623.47	2258	9638.86	2261.54
9640.87	2262	9653.96	2262	9654.47	2261.84	9660.14	2260	9660.31	2259.95
9664.52	2258.58	9666.32	2258	9777.59	2258	9880.25	2257.01	9899.15	2256.88
9906.84	2256.8	9922.73	2256.69	9937.9	2256.55	9993.87	2256.18	9997.6	2256.17
10002.63	2256.15	10004.6	2256.15	10005.97	2256.14	10006.85	2256.14	10007.8	2256.13
10009.98	2256.13	10011.02	2256.12	10013.01	2256.12	10013.84	2256.11	10015.81	2256.11
10016.69	2256.12	10017.6	2256.11	10262.5	2256.85	10341.89	2256.81	10583.78	2256
10719.24	2256	10723.63	2256.02	10723.91	2256.02	10725.02	2256.03	10725.43	2256.03
10729.3	2256.05	10730.8	2256.05	10995.4	2257.25	11205.47	2258	11210.98	2258
11599.8	2259.9	11614.12	2260	11695.58	2260	11723.88	2260.11	11725.78	2260.12
11726.58	2260.12	11745.01	2260.2	11745.95	2260.2	12057.55	2262	12162.43	2262
12392.41	2264	12411.6	2264	12757.12	2265.87	12758.25	2265.88	12783.72	2266
13070.97	2266	13238.73	2267.46	13292.49	2268	13327.58	2268	13603.34	2270
13648.99	2270	13654.51	2270.4	13654.63	2270.39	13672.04	2269.68	13672.37	2269.66
13691.98	2269.24	13693.64	2269.37	13697.56	2269.67	13715.44	2269.43	14024.36	2269.57
14250.99	2269.68								

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Manning's n Values          num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
    8440     .04 9653.96    .027 10262.5     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9653.96 10262.5           513.41  515.19  505.01            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8440 9641.37 2265.13       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8440 9641.35 2264.95

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2259.75    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.28    Wt. n-Val.                          0.027
  0.040
  W.S. Elev (ft)           2259.48    Reach Len. (ft)          513.41     515.19
 505.01
  Crit W.S. (ft)           2258.40    Flow Area (sq ft)                  1512.48
2832.89
  E.G. Slope (ft/ft)      0.002537    Area (sq ft)                       1512.48
2832.89
  Q Total (cfs)           16900.00    Flow (cfs)                         7757.80
9142.20
  Top Width (ft)           1851.55    Top Width (ft)                      600.74
1250.81
  Vel Total (ft/s)            3.89    Avg. Vel. (ft/s)                      5.13
   3.23
  Max Chl Dpth (ft)           3.48    Hydr. Depth (ft)                      2.52
   2.26
  Conv. Total (cfs)       335498.4    Conv. (cfs)                       154007.6
181490.8
  Length Wtd. (ft)          507.72    Wetted Per. (ft)                    600.98
1250.82
  Min Ch El (ft)           2256.11    Shear (lb/sq ft)                      0.40
   0.36
  Alpha                       1.17    Stream Power (lb/ft s)                2.04
   1.16
  Frctn Loss (ft)             1.38    Cum Volume (acre-ft)        0.78      288.79
1466.55
  C & E Loss (ft)             0.01    Cum SA (acres)              1.71       64.83
 701.59


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:    Multiple critical depths were found at this location.  The critical depth
with the lowest, valid, water
         surface was used.

CROSS SECTION


RIVER: Aguila Farm Chan
REACH: Reach-1           RS: 14.787

INPUT
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Description: RS 14.787
8.79 8.60 19002.60
Station Elevation Data num= 168

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8785	2257.3	8840.85	2257.42	8940.86	2258	9060.31	2258	9134.94	2256.76
9200.25	2256.72	9304.66	2256.41	9340.52	2256.29	9342.08	2256.29	9366.9	2256.22
9368.19	2256.21	9414.08	2256.08	9414.96	2256.08	9440.28	2256.01	9440.7	2256.01
9467.42	2255.93	9479.8	2256	9791.4	2256	9826.79	2255.46	9847	2255.05
9873.07	2254.62	9886.56	2254.3	9886.85	2254.3	9887.53	2254.29	9899.75	2254
9922.46	2254	9931.09	2254.82	9942.96	2256	9946.74	2257.06	9950.24	2258
9953.07	2258.75	9957.75	2260	9971.31	2260	9972.29	2259.59	9976.02	2258
9976.71	2257.71	9977.96	2257.17	9980.71	2256	9983.04	2255.16	9986.68	2254
10020.7	2254	10024.7	2255.47	10026.13	2256	10030.55	2257.62	10031.57	2258
10038.92	2258	10043.05	2256.85	10046.08	2256	10124.46	2256	10241.3	2255.27
10243.47	2255.27	10254.08	2255.31	10274.29	2255.22	10283.23	2255.2	10286.2	2255.21
10341.91	2255.04	10351.11	2255.03	10357.32	2255.01	10655.19	2255	10656.3	2254.99
10670.26	2254.98	10670.86	2254.97	10787.35	2254.91	10891.54	2254.48	10898.69	2254.48
10901.09	2254.47	10910.15	2254.47	10931.78	2254.34	10938.45	2254.29	10941.1	2254.29
10980.82	2254.01	10980.96	2254.01	10982.76	2254	10987.6	2254	10996.87	2254.11
11144.64	2255.31	11270.95	2256	11362.77	2256	11622.15	2258	11695.25	2258
11803.69	2258.67	11829.48	2258.73	11846.72	2258.81	11883.84	2258.91	1901.81	2258.99
11940.93	2259.07	11957.97	2259.15	12078.88	2259.53	12079.27	2259.53	12092.49	2259.58
12094.48	2259.58	12105.38	2259.62	12106.8	2259.63	12109.37	2259.63	12110.53	2259.64
12160.55	2259.79	12162.91	2259.8	12208.3	2259.94	12208.95	2259.94	12209.4	2259.95
12243.87	2260.05	12244.63	2260.06	12278.12	2260.17	12323.17	2260.33	12327.18	2260.35
12348.32	2260.42	12353.36	2260.45	12371.72	2260.51	12410.1	2260.66	12413.8	2260.68
12421.11	2260.71	12424.74	2260.72	12428.36	2260.73	12431.96	2260.75	12433.88	2260.75
12435.77	2260.76	12437.63	2260.76	12443.09	2260.79	12554.32	2261.22	12596.18	2261.39
12599.89	2261.41	12600.5	2261.41	12613.9	2261.46	12614.44	2261.47	12614.95	2261.47
12644.74	2261.58	12653.74	2261.63	12735.35	2261.93	12736.09	2261.94	12753.36	2262
12755.01	2262.01	12761.87	2262.03	12765.36	2262.05	12779.09	2262.11	2780.74	2262.11
12886.57	2262.54	12911.37	2262.65	12998.14	2263.01	13005.28	2263.05	13015.16	2263.06
13189.53	2263.84	13215.73	2264	13292.22	2264	13430.56	2265.26	13550.57	2265.98
13550.86	2265.98	13553.65	2266	13582.64	2266	13639.08	2266.44	13653.2	2266.51
13753.09	2266.77	13794.21	2266.99	13802.32	2267.05	13814.61	2267.12	13816.27	2267.12
13852.02	2267.31	13857.48	2267.32	13861.77	2267.34	13897.99	2267.37	13901.6	2267.39
13915.15	2267.41	13917.97	2267.42	13961.82	2267.62	13978.6	2267.27	13984.54	2267.71
14003.57	2267.47	14315.49	2267.61	14576.09	2267.73				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8785	.04	9971.31	.027	10031.57	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9971.31 10031.57 504.64 516.27 469.97 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8785	9967.01	2263.37	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8785	9965.5	2262.8

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2258.36	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.25	Wt. n-Val.		0.027
0.040				
W.S. Elev (ft)	2258.12	Reach Len. (ft)	504.64	516.27
469.97				
Crit W.S. (ft)	2256.93	Flow Area (sq ft)		187.11
4225.81				

E.G. Slope (ft/ft)	0.002921	Area (sq ft)			187.11
4225.81					
Q Total (cfs)	16900.00	Flow (cfs)			1225.08
15674.93					
Top Width (ft)	1738.39	Top Width (ft)			55.82
1682.57					
Vel Total (ft/s)	3.83	Avg. Vel. (ft/s)			6.55
3.71					
Max Chl Dpth (ft)	4.12	Hydr. Depth (ft)			3.35
2.51					
Conv. Total (cfs)	312680.2	Conv. (cfs)			22666.1
290014.1					
Length Wtd. (ft)	474.76	Wetted Per. (ft)			57.30
1682.86					
Min Ch El (ft)	2254.00	Shear (lb/sq ft)			0.60
0.46					
Alpha	1.08	Stream Power (lb/ft s)			3.90
1.70					
Frctn Loss (ft)	1.47	Cum Volume (acre-ft)		0.78	278.74
1425.63					
C & E Loss (ft)	0.00	Cum SA (acres)		1.71	60.95
684.59					

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 14.689

INPUT
Description: RS 14.689
8.69 8.50 18486.33
Station Elevation Data num= 188

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8710	2254.62	8713.57	2254.61	8740.16	2254.6	8745.23	2254.61	8756.66	2254.6
8761.13	2254.61	8770.77	2254.61	8803.44	2254.67	8850.63	2254.59	8856.81	2254.59
8867.02	2254.55	8874.72	2254.55	8886.78	2254.5	8891.79	2254.5	8906.03	2254.46
8922.2	2254.45	8923.63	2254.44	8973.53	2254.74	8977.23	2254.79	8980.93	2254.85
8982.5	2254.87	8983.81	2254.89	8985.83	2254.91	8992.93	2254.95	8999.27	2255.04
9025.61	2255.11	9030.73	2255.08	9032.31	2255.12	9033.34	2255.14	9037.59	2255.12
9044.35	2255.12	9047.86	2255.14	9048.71	2255.14	9050.07	2255.15	9054.18	2255.16
9066.03	2255.22	9088.55	2255	9089.86	2255.01	9093.76	2255.01	9105.14	2254.79
9105.81	2254.79	9115.99	2254.65	9116.43	2254.64	9117.19	2254.63	9118.22	2254.6
9149.49	2254.05	9149.64	2254.05	9149.78	2254.04	9150	2254.04	9153.09	2254
9375.99	2254	9398.99	2253.97	9399.66	2253.97	9399.79	2253.98	9400.02	2253.98
9515.54	2253.83	9606.06	2253.79	9639.61	2253.62	9660.14	2253.62	9661.9	2253.6
9666.49	2253.56	9668.27	2253.55	9688.04	2253.38	9689.4	2253.37	9691.03	2253.35
9712.62	2253.27	9714.51	2253.26	9718.39	2253.22	9794.86	2253.29	9801.21	2253.14
9807.25	2253.21	9813.52	2253.02	9821.66	2253.12	9823.42	2253.05	9826.07	2252.93
9830.2	2252.76	9835.08	2252.81	9847.85	2252.01	9848	2252	9854.59	2252
9902.09	2254	9903.35	2254.33	9913.61	2257	9917.4	2258	9934.38	2258
9936.94	2257.22	9940.33	2256.18	9940.93	2256	9943.03	2255.36	9947.58	2254
10083.85	2254	10085.49	2254.35	10085.88	2254.44	10086.68	2254.58	10090.23	2255.21
10092.11	2255.49	10095.48	2256	10113.07	2256	10116.04	2255.68	10118	2255.52

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10119.95 2255.3510122.96 2255.0610126.14 2254.7910128.51 2254.5510131.72 2254.27
 10134.4    2254 10272.4    2254 10344.7 2253.9210462.89 2253.9510469.17 2253.96
10858.66 2253.8510860.61 2253.8610950.67  2253.811108.76    225411291.52    2254
11380.69 2254.6511401.95 2254.7111404.66 2254.7111449.41 2254.8411456.42 2254.85
11494.75 2254.9511495.59 2254.9511497.19 2254.9611497.97 2254.9611510.84 2254.98
11519.15 2255.0111526.11 2255.0211550.23 2255.0911561.97  2255.111581.74 2255.17
11661.95 2255.3311685.32 2255.3911686.46  2255.411687.68  2255.411688.99 2255.41
11847.93 2255.8111849.83 2255.8211851.32 2255.8211872.66 2255.8811874.04 2255.88
11896.21 2255.9411896.56 2255.9411915.84 2255.9911930.51 2256.0411930.73 2256.04
11941.26 2256.0811942.25 2256.0911976.32 2256.2411982.86 2256.2612023.79 2256.45
12032.27 2256.4712070.18 2256.6412097.31 2256.7412101.72 2256.7512115.26  2256.8
12132.63 2256.8812301.63  2257.6 12305.3 2257.6112357.95 2257.8512359.21 2257.86
12386.66    225812389.15    225812608.62  2259.112611.31 2259.11 12625.5  2259.2
 12790.8    226012802.93    226012836.67 2260.1812992.81 2261.22 13007.7 2261.29
13045.38 2261.5313135.89    226213154.35    226213172.88 2262.1113175.36 2262.12
13454.57    226413486.02    226413690.24 2264.9713733.99 2265.1213739.86 2265.15
13910.54 2265.8213911.96 2265.8213912.66 2265.8313913.35 2265.8313919.17 2265.87
13937.94 2265.6314257.42 2265.79 14524.9 2265.92

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8710     .04 9934.38    .02710095.48     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9934.3810095.48           487.54  488.54  508.44             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
    8710 9931.84 2260.65        F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8710 9931.61 2260.25

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2256.89    Element                Left OB    Channel
Right OB
  Vel Head (ft)               0.23    Wt. n-Val.                         0.027
  0.040
  W.S. Elev (ft)           2256.66    Reach Len. (ft)        487.54     488.54
 508.44
  Crit W.S. (ft)           2255.68    Flow Area (sq ft)                  392.40
4180.41
  E.G. Slope (ft/ft)      0.003274    Area (sq ft)                       392.40
4180.41
  Q Total (cfs)           16900.00    Flow (cfs)                        2273.21
14626.79
  Top Width (ft)           2136.24    Top Width (ft)                     156.71
1979.53
  Vel Total (ft/s)            3.70    Avg. Vel. (ft/s)                     5.79
   3.50
  Max Chl Dpth (ft)           2.86    Hydr. Depth (ft)                     2.50
   2.11
  Conv. Total (cfs)       295334.7    Conv. (cfs)                       39725.2
255609.4
  Length Wtd. (ft)          506.32    Wetted Per. (ft)                   157.27
1979.63
  Min Ch El (ft)           2254.00    Shear (lb/sq ft)                     0.51
   0.43
  Alpha                       1.11    Stream Power (lb/ft s)               2.95
   1.51
  Frctn Loss (ft)             2.06    Cum Volume (acre-ft)       0.78     275.30
1380.28
```

C & E Loss (ft) 0.01 Cum SA (acres) 1.71 59.69
664.83

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 14.596

INPUT
Description: RS 14.596
8.60 8.41 17997.79
Station Elevation Data num= 148

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8770	2250.65	8773.1	2250.65	8778.71	2250.7	8851.83	2251.21	8871.23	2251.3
8877.69	2251.35	8889.48	2251.35	8894.72	2251.39	8939.83	2251.56	8941.87	2251.57
8945.32	2251.57	8956.35	2251.55	8959.83	2251.56	8964.81	2251.56	8968.97	2251.57
9125.78	2251.59	9128.9	2251.6	9132.43	2251.6	9135.21	2251.61	9142.55	2251.61
9145.61	2251.62	9157.63	2251.62	9161.39	2251.63	9174.89	2251.63	9179.31	2251.64
9197.9	2251.64	9200.99	2251.65	9256.28	2251.67	9260.83	2251.68	9298.62	2251.69
9357.74	2251.73	9360.03	2251.74	9386.21	2251.75	9387.26	2251.76	9435.03	2251.81
9459.54	2251.84	9460.77	2251.84	9469.43	2251.85	9470.39	2251.85	9481.16	2251.87
9494.82	2251.88	9495.31	2251.89	9549.43	2251.93	9550.11	2251.94	9591.6	2251.96
9597.67	2251.95	9690.81	2252	9727.34	2251.8	9729.27	2251.78	9820.74	2251.69
9821.53	2251.68	9821.89	2251.67	9822.29	2251.66	9822.74	2251.65	9832.46	2251.71
9848.88	2251.74	9860.85	2251.74	9867.46	2251.71	9884.69	2252	9927.96	2252
9934.6	2253.64	9936.07	2254	9944.14	2256	9957.25	2256	9963.14	2256
9964.55	2255.61	9970.29	2254	9973.62	2253.49	9983.62	225210039.68		2252
10050.15	2252.710068.14		225410073.48		225410082.13		225210302.52		2252
10361.8	2252.1910385.03		2252.1910386.08		2252.1810964.56		2252.1411011.06		2252.19
11012.68	2252.211275.68		2252.411298.27		2252.4311327.99		2252.4811382.37		2252.57
11392.21	2252.611432.89		2252.6711434.46		2252.6811446.93		2252.6911495.43		2252.79
11576.66	225311638.93		2253.1811769.21		2253.6211771.09		2253.63 11772.7		2253.63
11791.54	2253.711792.68		2253.7111794.73		2253.7111806.65		2253.7611809.11		2253.76
11826.86	2253.8311829.13		2253.8311852.29		2253.9211853.36		2253.9211873.08		2254
11874.06	225411904.39		2254.1111906.29		2254.1211931.25		2254.2111936.75		2254.24
11994.17	2254.4712268.41		2255.812274.15		2255.8212672.15		225812677.65		2258
12949.96	2259.5312956.86		2259.5612991.01		2259.7612993.52		2259.7812998.53		2259.8
13000.95	2259.82	13037	226013063.59		226013106.57		2260.2213143.33		2260.31
13147.02	2260.3313285.55		2260.9513401.37		2261.5213527.55		226213532.38		2262
13535.55	2262.0413557.99		2262.15 13558.8		2262.1513767.62		2262.9713769.54		2262.98
13771.71	2262.9813889.77		2263.4213893.67		2263.4413913.92		2263.513917.27		2263.52
13925.24	2263.5413935.58		2263.5813937.32		2263.5913937.68		2263.5913938.42		2263.62
13938.82	2263.6514258.86		2263.8114505.48		2263.93				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8770	.04	9963.14	.02	710068.14	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9963.14 10068.14 518.12 520.82 497.89 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8770	9955.81	2257.75	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8770	9955.07	2256.74

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2254.82	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.30	Wt. n-Val.		0.027
0.040				
W.S. Elev (ft)	2254.52	Reach Len. (ft)	518.12	520.82
497.89				
Crit W.S. (ft)	2253.83	Flow Area (sq ft)		206.15
3741.67				
E.G. Slope (ft/ft)	0.005218	Area (sq ft)		206.15
3741.67				
Q Total (cfs)	16900.00	Flow (cfs)		1327.41
15572.59				
Top Width (ft)	2036.67	Top Width (ft)		99.71
1936.95				
Vel Total (ft/s)	4.28	Avg. Vel. (ft/s)		6.44
4.16				
Max Chl Dpth (ft)	2.52	Hydr. Depth (ft)		2.07
1.93				
Conv. Total (cfs)	233950.2	Conv. (cfs)		18375.7
215574.5				
Length Wtd. (ft)	505.67	Wetted Per. (ft)		100.01
1937.19				
Min Ch El (ft)	2252.00	Shear (lb/sq ft)		0.67
0.63				
Alpha	1.05	Stream Power (lb/ft s)		4.32
2.62				
Frctn Loss (ft)	1.84	Cum Volume (acre-ft)	0.78	271.94
1334.05				
C & E Loss (ft)	0.01	Cum SA (acres)	1.71	58.25
641.98				

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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 14.498

INPUT
Description: RS 14.498
8.50 8.31 17476.97
Station Elevation Data num= 152

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8320	2248.82	8439.38	2248.81	8444.87	2248.82	8457.23	2248.8	8500.81	2248.81
8507.29	2248.82	8515.99	2248.81	8623.15	2248.95	8624.93	2248.96	8723.14	2249.14
8732.64	2249.14	8755.77	2249.18	8764.68	2249.18	8800.9	2249.23	8809.04	2249.25
8816.97	2249.25	8835.95	2249.28	8979.42	2249.47	9000.69	2249.51	9003.44	2249.51
9015.88	2249.53	9018.26	2249.53	9020.36	2249.54	9027.58	2249.55	9029.38	2249.55

```
 9033.59 2249.56 9038.08 2249.56 9041.43 2249.57 9130.69 2249.67  9135.3 2249.67
 9137.59 2249.68 9160.21 2249.69 9206.84 2249.64  9221.4 2249.64 9227.29 2249.61
 9230.11  2249.6 9342.17    2250 9420.14    2250 9421.44 2249.85 9425.19 2249.43
 9437.79    2248 9442.51    2248 9481.51    2250 9490.33    2252  9498.8 2253.94
 9499.07    2254 9508.04    2254 9516.51    2254 9516.73 2253.94    9524    2252
 9524.62 2251.83 9531.44    2250 9811.46    2250 9815.43  2249.9 9863.27 2249.96
 9863.53 2249.96 9864.89 2249.93 9881.26 2249.98 9902.69 2249.97 9927.32  2249.9
  9927.8 2249.89 9929.17 2249.85 9929.59 2249.83 9930.19 2249.81 9930.76  2249.8
 9931.22 2249.78 9957.66 2249.56 9957.97 2249.55 9958.45 2249.53 9959.13 2249.51
 9960.04 2249.48 9971.79 2249.21 9972.23 2249.2110003.44  2248.510009.99 2248.52
10137.86    225010357.53    225010456.99 2250.2910458.83 2250.2910461.39  2250.3
10541.75 2250.3210544.39 2250.3310675.16 2250.4210678.57 2250.4310701.47 2250.44
10782.99 2250.5210791.92 2250.5410795.58 2250.54 10799.5 2250.5510817.29 2250.57
 10819.9 2250.5810882.03 2250.6810887.26  2250.710894.67 2250.7110900.16 2250.73
10902.43 2250.73 10906.8 2250.7510922.81 2250.7711050.59  2251.111213.15 2251.66
11218.79 2251.67 11354.9 2252.2711853.03 2254.9112046.75 2255.8312071.55 2255.94
12072.42 2255.9512085.34    225612085.48    2256   12104 2256.0812104.85 2256.08
12129.22 2256.1812131.06 2256.1912535.32 2257.9112537.05 2257.9212555.07    2258
12555.75    225812578.21  2258.112579.63  2258.1 12621.1 2258.2812624.06  2258.3
12675.89 2258.5112928.18  2259.512932.65 2259.5112958.11 2259.6112960.29 2259.61
13048.34 2259.9313049.58 2259.9313063.26 2259.9813063.62 2259.9813070.71    2260
13072.53    226013092.48 2260.0713092.91 2260.0713107.15 2260.1113107.56 2260.11
13121.32 2260.1613122.95 2260.1613136.48 2260.2113138.29 2260.2113189.73 2260.38
13193.52  2260.413206.48 2260.4413210.54 2260.4613215.77 2260.4713339.23 2260.89
 13340.6  2260.913471.88 2261.3813473.54 2261.3913476.04 2261.4913478.71 2261.68
13791.84 2261.8814031.74    2262

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8320     .04 9516.51    .02710137.86     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9516.5110137.86           496.32  505.27  511.74             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8320 9507.71 2256.15       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8320 9506.94  2255.8 12571.114031.74 2253.09

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2252.98    Element                 Left OB    Channel
Right OB
  Vel Head (ft)               0.36    Wt. n-Val.                          0.027
  0.040
  W.S. Elev (ft)           2252.62    Reach Len. (ft)         496.32     505.27
 511.74
  Crit W.S. (ft)           2251.91    Flow Area (sq ft)                 1767.28
2349.59
  E.G. Slope (ft/ft)      0.002673    Area (sq ft)                      1767.28
2349.59
  Q Total (cfs)           16900.00    Flow (cfs)                       10146.39
6753.61
  Top Width (ft)           1899.43    Top Width (ft)                      616.19
1283.24
  Vel Total (ft/s)            4.11    Avg. Vel. (ft/s)                    5.74
   2.87
  Max Chl Dpth (ft)           4.12    Hydr. Depth (ft)                    2.87
   1.83
  Conv. Total (cfs)       326889.5    Conv. (cfs)                      196257.4
130632.2
```

Length Wtd. (ft)	509.24	Wetted Per. (ft)			616.56
1283.24					
Min Ch El (ft)	2248.50	Shear (lb/sq ft)			0.48
0.31					
Alpha	1.37	Stream Power (lb/ft s)			2.75
0.88					
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)		0.78	260.15
1299.24					
C & E Loss (ft)	0.00	Cum SA (acres)		1.71	53.97
623.57					

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 14.402

INPUT
Description: RS 14.402
8.40 8.21 16971.69
Station Elevation Data num= 131

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8750	2246.99	8807.64	2246.91	8814.86	2246.91	8827.62	2246.93	8976.14	2246.99
8981.98	2247	9292.77	2247.22	9303.63	2247.24	9309.45	2247.24	9321.52	2247.26
9324.64	2247.26	9344.32	2247.29	9348.89	2247.29	9537.25	2247.53	9620.98	2247.75
9671.79	2248	9869.61	2248	9872.41	2247.44	9879.36	2246	9892.68	2246
9909.94	2247.17	9921.47	2248	9927.79	2249.55	9929.3	2249.93	9929.56	2250
9937.56	2252	9952.65	2252	9956.5	2252	9962.05	2250	9965.75	2248.83
9968.28	2248	9987.05	224610014.15		224610045.02		224810085.83		2248
10089.52	2247.06	10093.4	224610103.35		224610105.21		2246.4110110.31		2246.58
10111.14	2247.0910112.66		2247.9910112.96		224810114.95		224610118.39		2246
10119.45	2246.2	10121.9	2247.0810123.29		224810481.11		224810599.55		2248.37
10607.1	2248.3710624.56		2248.4110633.66		2248.4110731.17		2248.5910748.65		2248.59
10780.31	2248.6210807.32		2248.6710816.64		2248.6710891.58		2248.7510896.05		2248.76
11182.84	2249.03	11384.1	2249.5811387.25		2249.5811405.17		2249.6511407.91		2249.65
11422.94	2249.7111447.01		2249.7211455.31		2249.7611822.88		2251.5411830.77		2251.57
11835.69	2251.611897.96		2251.911899.61		2251.912226.43		2253.3912232.72		2253.41
12250.77	2253.5	12255	2253.5112347.57		2253.9212348.61		2253.9312378.73		2254.05
12379.33	2254.0512407.38		2254.1612409.12		2254.1712531.82		2254.6212621.42		2254.92
12623.46	2254.9312636.57		2254.9712638.24		2254.9712750.28		2255.3412756.76		2255.35
12816.3	2255.55	12821.2	2255.5612914.58		2255.8812915.68		2255.8812942.06		2255.98
12942.33	2255.9812942.43		2255.9912946.41		225612947.03		225612965.04		2256.08
12966.43	2256.0813088.01		2256.5913090.33		2256.5913149.68		2256.8413154.49		2256.85
13243.4	2257.1813290.52		2257.3313374.47		2257.6	13388	2257.613399.24		2257.65
13400.43	2257.6513426.49		2257.7413427.35		2257.7513454.42		2257.85	13454.9	2257.85
13488.75	2257.9913511.56		2258.0613512.45		2258.0613537.74		2258.1413538.99		2258.15
13565.19	2258.2313567.34		2258.2413569.81		2258.2413750.68		2258.86	13754.9	2258.87
13823.45	2259.1313832.56		2259.1613903.03		2259.4513906.11		2259.6714204.68		2259.89
14449.77	2260.01								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8750	.04	9956.5	.02710045.02		.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9956.510045.02 487.36 536.58 484.9 .1 .3
Ineffective Flow num= 1
Sta L Sta R Elev Permanent
8750 9937.71 2254.41 F
Blocked Obstructions num= 1
Sta L Sta R Elev
8750 9937.7 2254.07

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2251.48	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.35	Wt. n-Val.		0.027
0.040				
W.S. Elev (ft)	2251.13	Reach Len. (ft)	487.36	536.58
484.90				
Crit W.S. (ft)	2250.42	Flow Area (sq ft)		359.39
3837.64				
E.G. Slope (ft/ft)	0.003244	Area (sq ft)		359.39
3837.64				
Q Total (cfs)	16900.00	Flow (cfs)		2904.85
13995.15				
Top Width (ft)	1780.19	Top Width (ft)		86.12
1694.07				
Vel Total (ft/s)	4.03	Avg. Vel. (ft/s)		8.08
3.65				
Max Chl Dpth (ft)	5.13	Hydr. Depth (ft)		4.17
2.27				
Conv. Total (cfs)	296704.7	Conv. (cfs)		50998.9
245705.8				
Length Wtd. (ft)	495.66	Wetted Per. (ft)		86.80
1696.06				
Min Ch El (ft)	2246.00	Shear (lb/sq ft)		0.84
0.46				
Alpha	1.37	Stream Power (lb/ft s)		6.78
1.67				
Frctn Loss (ft)	1.96	Cum Volume (acre-ft)	0.78	247.81
1262.89				
C & E Loss (ft)	0.02	Cum SA (acres)	1.71	49.90
606.08				

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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 14.300

INPUT
Description: RS 14.300
8.30 8.11 16435.11
Station Elevation Data num= 191
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

```
    8770 2244.66  8802.8 2244.69 8825.26 2244.77 8842.02 2244.86 8958.34 2245.24
 9007.46 2245.24  9014.4 2245.26 9029.57 2245.26 9036.51 2245.28 9048.01 2245.27
 9054.96 2245.29 9165.29 2245.35 9222.41 2245.47  9225.3 2245.47 9266.16 2245.56
 9271.27 2245.56 9328.27  2245.7 9330.89  2245.7 9351.21 2245.75  9353.1 2245.75
 9354.46 2245.76 9356.48 2245.76 9359.27 2245.77  9379.4 2245.79 9381.84  2245.8
 9461.31    2246 9934.05    2246 9945.84    2248 9947.64 2248.58 9951.99    2250
 9953.33 2250.45 9957.92    2252 9967.41    2252 9969.01    2252 9972.28 2250.64
 9973.83    2250 9978.74    2248 9981.23 2247.02 9983.86    2246 9991.87 2244.99
 9999.14    224410008.82    224410010.57 2244.0610020.15 2244.4210023.57 2244.51
10030.09 2244.7410033.79 2244.8810040.21 2245.1110047.21 2245.2210049.52 2245.29
10050.11  2245.310081.37    224610092.44    224610093.88 2246.2710094.96 2246.45
10104.47    224810105.74    224810106.31 2247.9210116.15    224610510.56    2246
10682.76 2246.6810687.82 2246.6910689.75  2246.710693.85  2246.710721.94 2246.77
10724.88 2246.7710727.56 2246.7810729.99 2246.7810783.84  2246.910840.54    2247
10842.78 2247.0111033.09 2247.2211037.88 2247.2111052.35 2247.22 11055.6 2247.21
11090.75 2247.2511104.84 2247.2811147.84 2247.3411156.31 2247.3411262.57 2247.46
11412.61    224811498.15    224811620.73 2248.8411744.04 2249.3911747.68 2249.41
11758.85 2249.4511776.35 2249.5311780.41 2249.5411800.41 2249.63 11804.3 2249.64
11822.73 2249.7211877.33 2249.9411877.85 2249.9511893.48 2250.01 11893.7 2250.01
11941.03 2250.2111944.11 2250.2312006.42 2250.4612011.62 2250.4912043.79 2250.61
12047.78 2250.6212073.92 2250.7312077.82 2250.7412198.35 2251.2412202.45 2251.25
12212.63 2251.2912214.24  2251.312215.53  2251.312227.41 2251.3512230.97 2251.37
 12245.2 2251.4212359.82 2251.9112360.85 2251.9112380.99    225212382.55 2252.01
12408.57 2252.1112409.56 2252.1112517.73 2252.5112522.07 2252.5212522.61 2252.53
12576.53 2252.6612580.78 2252.6812584.83 2252.6912589.36 2252.7112605.51 2252.75
12672.57 2252.9612693.68 2253.0512697.36 2253.0612739.22 2253.2712742.89 2253.28
 12799.2 2253.3112810.68  2253.412811.07  2253.4 12813.4 2253.3912821.61 2253.33
12825.13 2253.2912845.36 2253.53 12851.3 2253.5912851.47 2253.5912851.89 2253.58
12852.48 2253.5812854.13 2253.5912856.68 2253.5912886.06 2253.6512915.66 2253.71
12938.06    225413021.31    225413032.68 2254.0213032.86 2254.0213042.33 2254.03
13042.67 2254.03   13051 2254.0513051.44 2254.0513058.65 2254.0713059.13 2254.08
13065.22  2254.113066.32  2254.113073.24 2254.1513132.35 2254.4813136.85  2254.5
13195.69 2254.88 13263.9 2255.2313286.31 2255.3813391.11 2255.9313392.05 2255.93
13410.84    225613417.81    225613438.83  2256.113439.95  2256.113476.75 2256.23
13478.38 2256.2313480.07 2256.2413616.54 2256.6313625.46 2256.6713655.82 2256.73
13679.27 2256.8413752.61 2256.9113775.55 2257.0413777.75 2257.0413809.05 2257.21
13813.05 2257.2413813.34 2257.2413876.55 2257.5513877.89 2257.5613881.31 2257.58
13900.38 2257.7213907.96 2257.8313909.95 2257.8213915.43 2257.76 14197.9 2258.01
14418.18 2258.11

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8770     .04 9969.01    .02710104.47     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9969.0110104.47           516.08  517.55  512.83             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8770 9964.54 2254.27       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8770 9964.51    2254

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2249.50    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.51    Wt. n-Val.                          0.027
  0.040
  W.S. Elev (ft)           2248.99    Reach Len. (ft)          516.08     517.55
 512.83
  Crit W.S. (ft)           2248.63    Flow Area (sq ft)                   458.67
```

3086.88					
E.G. Slope (ft/ft)	0.004948	Area (sq ft)			458.67
3086.88					
Q Total (cfs)	16900.00	Flow (cfs)			4134.86
12765.14					
Top Width (ft)	1678.43	Top Width (ft)			128.16
1550.26					
Vel Total (ft/s)	4.77	Avg. Vel. (ft/s)			9.01
4.14					
Max Chl Dpth (ft)	4.99	Hydr. Depth (ft)			3.58
1.99					
Conv. Total (cfs)	240263.5	Conv. (cfs)			58784.3
181479.2					
Length Wtd. (ft)	514.78	Wetted Per. (ft)			129.06
1550.46					
Min Ch El (ft)	2244.00	Shear (lb/sq ft)			1.10
0.61					
Alpha	1.44	Stream Power (lb/ft s)			9.90
2.54					
Frctn Loss (ft)	1.90	Cum Volume (acre-ft)		0.78	242.77
1224.35					
C & E Loss (ft)	0.01	Cum SA (acres)		1.71	48.58
588.03					

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 14.202

INPUT
Description: RS 14.202
8.20 8.01 15917.56
Station Elevation Data num= 108

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8730	2244	8730.68	2244	8748	2246	8764.28	2246	8772.45	2244
9107.75	2244	9186.63	2243.63	9220.13	2243.71	9221.18	2243.71	9296.8	2243.88
9297.1	2243.88	9359.94	2244.06	9366.63	2244.07	9367.08	2244.07	9414.56	2244.21
9532.13	2244	9899.07	2244	9909.85	2244.85	9917.07	2245.4	9924.18	2246
9926.92	2246.86	9937	2250	9946.33	2250	9951.01	2250	9956.35	2248
9958.15	2247.33	9965.29	2244.65	9967.03	224410070.54		2243.4310285.55		2243.43
10369.48	224410494.19		2244.3810501.43		2244.3810544.08		2244.4610546.34		2244.46
10550.96	2244.47	10779.6	2244.4210793.34		2244.3310794.76		2244.3410796.59		2244.34
10797.42	2244.3510800.43		2244.3610810.64		2244.2910818.98		2244.34	10825.8	2244.3
10832.53	2244.33	10834	2244.3410839.02		2244.3510848.45		2244.3910852.04		2244.4
10857.28	2244.4410862.71		2244.4710865.35		2244.4810880.87		2244.5710888.33		2244.64
10891.95	2244.6610915.82		2244.9310921.16		2244.94	10928.7	2245.02	10973	2245.39
11034.19	2245.4611064.55		2245.4511068.74		2245.4411074.74		2245.44	11168.3	2245.32
11329.83	224611395.52		224611557.53		2246.7111601.77		2246.8511626.55		2246.94
11632.09	2246.9511838.66		2247.6411907.41		2247.8711908.87		2247.88	11910.5	2247.88
11911.35	2247.8911912.39		2247.8911924.69		2247.9211925.53		2247.9311927.14		2247.93
11947.28	224812028.61		224812144.41		2248.7112256.11		2249.3912393.25		2250
12473.03	225012642.57		2251.2312729.71		2251.7212743.94		2251.79	12749.5	2251.83
12788.8	225212792.62		225212955.85		2252.5213009.03		2252.82	13010	2252.82

13219.29 225413260.75 225413269.39 2254.0413270.16 2254.0413743.46 2256
13796.68 225613818.75 2255.7413820.65 2255.72 13870.3 2256.4813888.48 2256.38
13938.38 2255.814155.38 2256.0214387.33 2256.13

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8730	.04	9951.01	.02710369.48		.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9951.0110369.48 463.26 468.29 491.21 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8730	9945.86	2252.52	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8730	9945.82	2252.4

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2247.59	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.47	Wt. n-Val.		0.027
0.040				
W.S. Elev (ft)	2247.12	Reach Len. (ft)	463.26	468.29
491.21				
Crit W.S. (ft)	2246.49	Flow Area (sq ft)		1443.48
2392.78				
E.G. Slope (ft/ft)	0.002859	Area (sq ft)		1443.48
2392.78				
Q Total (cfs)	16900.00	Flow (cfs)		9808.42
7091.59				
Top Width (ft)	1723.44	Top Width (ft)		410.76
1312.68				
Vel Total (ft/s)	4.41	Avg. Vel. (ft/s)		6.79
2.96				
Max Chl Dpth (ft)	3.69	Hydr. Depth (ft)		3.51
1.82				
Conv. Total (cfs)	316087.8	Conv. (cfs)		183450.9
132636.9				
Length Wtd. (ft)	481.94	Wetted Per. (ft)		411.33
1312.69				
Min Ch El (ft)	2243.43	Shear (lb/sq ft)		0.63
0.33				
Alpha	1.57	Stream Power (lb/ft s)		4.26
0.96				
Frctn Loss (ft)	1.44	Cum Volume (acre-ft)	0.78	231.47
1192.10				
C & E Loss (ft)	0.04	Cum SA (acres)	1.71	45.38
571.17				

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 14.114

INPUT
Description: RS 14.114
8.11 7.93 15449.27
Station Elevation Data num= 134

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8700	2244	8756.7	2244	8788.71	2242.16	8789.1	2242.15	8790.15	2242.15
8791.86	2242.14	8794.26	2242.12	8797.54	2242.1	8799.11	2242.18	8800.47	2242.18
8809.5	2242.26	8809.79	2242.26	8814.38	2242.58	8815.88	2242.64	8818.28	2242.75
8821.13	2242.89	8834.82	2244	8884.48	2244	8902.72	2242.58	8905.98	2242.32
8909.72	2242	9240.8	2242	9519.69	2242.65	9524.02	2242.65	9529.45	2242.66
9576.96	2242.68	9580.9	2242.69	9668.67	2242.64	9809.19	2242	9896.85	2242
9914.76	2244	9921.76	2246.08	9928.06	2247.94	9928.25	2248	9938.69	2248
9944.83	2248	9945.63	2247.7	9950.1	2246	9951.24	2245.58	9955.47	2244
9960.76	2242.04	9960.87	2242	9992.5	224210001.82		2240.9310010.37		2240
10020.13	2241.3310020.38		2241.3510025.65		2242	10123.1	224410138.39		2244
10149.69	2242.5110152.18		224210334.94		224210450.65		2242.6310451.14		2242.63
10454.29	2242.6410460.49		2242.65	10462.7	2242.6710472.45		2242.6810533.41		2243.09
10543.8	2243.0810704.58		2243.31	10707.5	2243.310718.85		2243.2810858.81		2243.43
10869.03	2243.410880.48		2243.4410890.54		2243.45	11028.2	2242.9411117.75		2243.31
11119.28	2243.2611119.51		2243.2711119.77		2243.2611120.06		2243.2611128.51		2243.34
11129.12	2243.3511130.42		2243.3511214.88		224411307.94		224411427.07		2244.62
11472.27	2244.8211481.63		2244.8711484.92		2244.88	11714.3	2246	11757.9	2246
11861.77	2246.2711863.15		2246.2711876.77		2246.3311878.16		2246.3411881.54		2246.35
11974.64	2246.9311983.36		2246.9712042.23		2247.3912134.27		224812140.58		2248
12456.55	2249.8912457.48		2249.8912472.14		225012505.82		225012569.57		2250.57
12610.23	2250.81	12777.2	2251.3812779.59		2251.3712791.57		2251.3912897.53		2251.84
12915.47	2251.9712916.44		2251.9712920.53		2252	13065.2	225213161.79		2252.76
13167.22	2252.8113234.32		2253.27	13285.5	2253.5313288.86		2253.5413314.13		2253.72
13316.04	2253.7213343.19		2253.8613343.82		2253.8613396.06		225413470.47		2254.1
13485.31	2254.1413619.76		2254.3513626.26		2254.3513634.12		2254.37	13741.1	2255.03
13784.4	2254.9613809.29		2254.6613810.63		2254.6413845.94		2255.1813879.55		2255
13971.9	2253.9314117.91		2254.1114124.23		2254.1114356.14		2254.22		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8700	.04	9944.83	.027	10123.1	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9944.83	10123.1	530.22	532.46	498.48	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8700	9935.15	2251.35	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8700	9934.04	2250.49

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2246.10	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.32	Wt. n-Val.		0.027
0.040				
W.S. Elev (ft)	2245.78	Reach Len. (ft)	530.22	532.46
498.48				
Crit W.S. (ft)	2244.86	Flow Area (sq ft)		567.68
3576.80				
E.G. Slope (ft/ft)	0.003145	Area (sq ft)		567.68
3576.80				
Q Total (cfs)	16900.00	Flow (cfs)		3864.00

13036.00					
Top Width (ft)	1718.10	Top Width (ft)			172.40
1545.70					
Vel Total (ft/s)	4.08	Avg. Vel. (ft/s)			6.81
3.64					
Max Chl Dpth (ft)	5.78	Hydr. Depth (ft)			3.29
2.31					
Conv. Total (cfs)	301338.5	Conv. (cfs)			68897.8
232440.8					
Length Wtd. (ft)	503.92	Wetted Per. (ft)			173.34
1545.87					
Min Ch El (ft)	2240.00	Shear (lb/sq ft)			0.64
0.45					
Alpha	1.25	Stream Power (lb/ft s)			4.38
1.66					
Frctn Loss (ft)	1.66	Cum Volume (acre-ft)		0.78	220.66
1158.44					
C & E Loss (ft)	0.00	Cum SA (acres)		1.71	42.24
555.06					

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 14.013

INPUT
Description: RS 14.013
8.01 7.82 14916.81
Station Elevation Data num= 143

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8730	2240.63	8730.94	2240.63	8774.2	2240.7	8849.14	2241	8880.29	2241.19
8892.62	2241.22	8977.91	2241.78	8979.97	2241.79	9012.28	2242	9093.03	2242
9111.72	2240.88	9115.91	2240.72	9123.4	2240.3	9126.7	2240.26	9128.62	2240.17
9130.5	2240.17	9131.45	2240.13	9131.96	2240.1	9132.69	2240.12	9133.05	2240.1
9133.29	2240.09	9137.16	2240.03	9140.55	2240.03	9142.32	2240.04	9143.59	2240.04
9144.33	2240.05	9144.79	2240.05	9549.78	2240.56	9608.25	2240.59	9611.69	2240.58
9626.26	2240.58	9631.72	2240.59	9801.35	2240	9940.16	2240	9946.04	2242
9947.59	2242.53	9951.86	2244	9957.71	2246	9968.24	2246	9975.77	2246
9977.49	2245.27	9980.28	2244	9983.11	2242.67	9985.55	2241.46	9988.48	2240
10001.02	2238.09	10001.47	2238	10007.11	2238	10012.74	2239.48	10013.93	2239.8
10014.69	2240	10021.31	2241.4	10024.77	2242	10036.75	2242	10043.37	2240.15
10043.9	2240	10045.99	2239.42	10050.85	2238	10062.84	2238	10062.95	2238.01
10063.09	2238.01	10096.65	2240	10295.88	2240	10465.95	2241.16	10475.36	2241.19
10475.64	2241.19	10537.67	2241.32	10541.93	2241.32	10563.97	2241.36	10568.2	2241.36
10664.67	2241.56	10690.44	2241.58	10740.91	2241.73	10758.99	2241.73	10774.95	2241.76
10840.55	2241.83	10849.41	2241.83	11112.66	2242	11207.29	2242.56	11326.78	2242.99
11453.47	2243.22	11471.3	2243.3	11491.3	2243.27	11495.68	2243.25	11509.1	2243.32
11512.29	2243.31	11575.85	2243.78	11593.05	2243.97	11596.23	2244	11965.94	2246
12069.41	2246	12146.72	2246.87	12213.41	2247.29	12256.68	2247.51	12269.63	2247.6
12365.33	2248.03	12603	2248	12608.91	2248.03	12609.71	2248.04	12610.54	2248.04
12627.68	2248.17	12629.75	2248.18	12655.38	2248.39	12836.98	2249.28	12837.23	2249.28
12847.57	2249.3	12916.39	2250	12995.86	2250	13259.9	2252	13385.1	2252
13515.86	2253	13535.79	2253.11	13586.98	2253.11	13598.26	2253.21	13600.94	2253.19

13614.89 2253.3113618.33 2253.313629.44 2253.4213632.13 2253.4113634.67 2253.41
13652.52 2253.6113654.06 2253.613656.59 2253.613657.57 2253.6113658.63 2253.61
13674.41 2253.713675.31 2253.713676.27 2253.71 13678.6 2253.7113689.68 2253.67
13690.37 2253.6613690.78 2253.6613706.32 2253.5913728.02 2253.3813728.29 2253.38
13739.09 2253.8613822.17 2253.7313837.49 2253.5413858.13 2253.8613907.52 2253.58
14043.13 2252.0314133.23 2252.1414358.37 2252.28

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8730	.04	9975.77	.02710024.77		.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9975.7710024.77 513.85 525.61 520.14 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8730	9961.73	2248.87	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8730	9961.72	2248.36

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2244.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.027	0.040
W.S. Elev (ft)	2244.12	Reach Len. (ft)	513.85	525.61	520.14
Crit W.S. (ft)	2243.16	Flow Area (sq ft)		187.95	3881.75
E.G. Slope (ft/ft)	0.003461	Area (sq ft)		187.95	3881.75
Q Total (cfs)	16900.00	Flow (cfs)		1548.14	15351.86
Top Width (ft)	1638.56	Top Width (ft)		44.75	1593.80
Vel Total (ft/s)	4.15	Avg. Vel. (ft/s)		8.24	3.95
Max Chl Dpth (ft)	6.12	Hydr. Depth (ft)		4.20	2.44
Conv. Total (cfs)	287278.2	Conv. (cfs)		26316.4	260961.8
Length Wtd. (ft)	521.20	Wetted Per. (ft)		46.32	1594.43
Min Ch El (ft)	2238.00	Shear (lb/sq ft)		0.88	0.53
Alpha	1.18	Stream Power (lb/ft s)		7.22	2.08
Frctn Loss (ft)	1.45	Cum Volume (acre-ft)	0.78	216.05	1115.76
C & E Loss (ft)	0.00	Cum SA (acres)	1.71	40.92	537.09

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 13.913

INPUT
Description: RS 13.913
7.91 7.72 14391.20
Station Elevation Data num= 119

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8760	2239.09	8781.43	2239.2	8799.86	2239.23	8808.68	2239.27	8817.83	2239.29
8824.6	2239.32	8841.83	2239.33	8847.05	2239.36	9077.36	2240	9189.39	2240
9200.79	2241.94	9202.96	2241.84	9223.65	2240	9453.7	2240	9476.14	2239.62
9478.09	2239.63	9482.3	2239.66	9503.87	2239.77	9514.31	2239.79	9516.17	2239.79
9517.82	2239.8	9529.08	2239.8	9530.62	2239.81	9532.01	2239.81	9611.49	2239.7
9612.68	2239.7	9619.46	2239.67	9623.96	2239.64	9654.73	2239.51	9840.06	2238.46
9856.09	2238.33	9860.77	2238.32	9902.14	2238	9922.21	2238	9940.65	2243.97
9940.93	2244.06	9946.87	2246	9957	2246	9958.47	2245.32	9959.82	2244.69
9961.32	2244	9965.17	2242	9965.66	2241.74	9969.02	2240	9972.06	2238.68
9992.32	2236.821	10026.23	223810	029.63	2238.061	0029.84	2238.061	0075.05	2238.82
10107.6	2239.3	10120	2239.511	0150.03	2239.941	0154.61	224010	172.74	2240
10311.9	2238.031	0312.51	2238.021	0312.81	2238.021	0314.37	223810	364.02	2238
10389.18	2238.361	0391.04	2238.391	0392.45	2238.410	425.19	2238.85	10487.3	2239.17
10496.26	2239.251	0498.89	2239.281	0499.31	2239.281	0507.69	2239.361	0516.94	2239.46
10522.89	2239.481	0525.55	2239.511	0530.31	2239.511	0533.04	2239.541	0535.37	2239.57
10537.93	2239.591	0540.47	2239.621	0544.14	2239.611	0662.83	224011	198.51	2240
11356.27	2241.911	1367.79	224211	390.13	224211	436.52	2242.291	1664.82	2243.02
11686.7	2243.141	1691.12	2243.151	1836.21	2243.95	11836.6	2243.961	1847.26	2244
11913.43	224412	277.47	224612	326.37	224612	990.04	225013	233.54	2252
13254.28	225213	281.59	2252.181	3574.27	2253.281	3580.32	2253.24	13586	2253.19
13604.27	2253.081	3617.81	2253.031	3622.77	2253.031	3638.44	2252.931	3669.15	2252.82
13742.96	2253.091	3743.24	2253.11	3748.58	2253.011	3782.95	225213	783.84	2252
13794.76	2252.491	3816.52	2252.451	3820.33	2252.411	3820.53	2252.41	3825.94	2252.49
13891.72	2252.121	4072.35	2250.041	4090.06	2250.071	4289.11	2250.25		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8760	.04	9957	.02	710154.61	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
995	710154.61	479.73	482.8	492.16	.1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8760	9953.19	2247.34	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8760	9953.19	2247.32

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2242.99	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.32	Wt. n-Val.		0.027
0.040				
W.S. Elev (ft)	2242.67	Reach Len. (ft)	479.73	482.80
492.16				
Crit W.S. (ft)	2241.51	Flow Area (sq ft)		761.94
3583.94				
E.G. Slope (ft/ft)	0.002276	Area (sq ft)		761.94
3583.94				
Q Total (cfs)	16900.00	Flow (cfs)		5018.62

11881.38					
Top Width (ft)	1591.68	Top Width (ft)			190.73
1400.95					
Vel Total (ft/s)	3.89	Avg. Vel. (ft/s)			6.59
3.32					
Max Chl Dpth (ft)	5.85	Hydr. Depth (ft)			3.99
2.56					
Conv. Total (cfs)	354215.9	Conv. (cfs)			105187.8
249028.1					
Length Wtd. (ft)	488.94	Wetted Per. (ft)			191.78
1400.98					
Min Ch El (ft)	2236.82	Shear (lb/sq ft)			0.56
0.36					
Alpha	1.36	Stream Power (lb/ft s)			3.72
1.21					
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)	0.78		210.32
1071.19					
C & E Loss (ft)	0.06	Cum SA (acres)	1.71		39.50
519.21					

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 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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 13.822

INPUT
Description: RS 13.822
7.82 7.63 13908.41
Station Elevation Data num= 118

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8740	2237.89	8797.74	2238	9702.85	2238	9834.43	2236.73	9840.59	2236.65
9850.93	2236.58	9878.1	2236.23	9892.96	2236	9918.63	2236	9919.66	2236.35
9924.59	2238	9925.5	2238.3	9930.55	2240	9931.24	2240.23	9936.51	2242
9936.65	2242.04	9937.3	2242.26	9942.48	2244	9951.74	2244	9954.98	2244
9956.27	2243.76	9965.82	2242	9967.7	2241.58	9974.84	2240	9976.62	2239.07
9978.65	2238	9981.41	2236.55	9982.47	2236	9984.61	2234.88	9986.21	2234
9987.03	2233.63	9990.15	223210018.71		223210020.55		2232.410027.45		2234
10036.9	223610041.82		2236.2210045.94		2236.3910083.48		223810109.77		2238
10114.08	2237.5910131.51		223610182.26		223610230.14		2237.35 10230.8		2237.36
10238.62	2237.3710239.36		2237.38 10311.6		2238 10643.7		223810694.48		2238.23
10701.27	2238.2510702.38		2238.2610746.71		2238.4410997.27		2239.08 11000.9		2239.07
11152.12	2239.6911188.32		2239.9111188.74		2239.9111203.79		224011363.08		2240
11476.61	2240.8911477.72		2240.89 11479.9		2240.911480.77		2240.9111500.28		2240.96
11634.69	2241.6611635.06		2241.6611685.32		224211697.91		224211711.77		2242.09
11713.99	2242.111716.41		2242.1211926.61		2243.4712013.68		224412392.93		2245.79
12396.62	2245.812457.42		2246.1212460.38		2246.1412813.14		224812834.69		2248.14
12837.17	2248.1612996.07		2249.113056.78		2249.3613064.47		2249.3813080.84		2249.45
13092.78	2249.4713111.92		2249.5513114.25		2249.5513120.34		2249.5613140.91		2249.65
13148.97	2249.6613149.66		2249.6713152.82		2249.6713232.31		2249.8513240.82		2249.85
13274.25	2249.9213275.54		2249.9213309.98		2249.9813310.26		2249.9713310.42		2249.97

13345.39 2250.01 13347.9 225013373.36 2249.9813374.14 2249.9913374.24 2249.99
13397.36 2249.9113397.74 2249.9113719.45 225013804.18 2250.7213820.32 2250.79
13824.22 2250.813825.65 2250.8113827.38 2250.8113852.75 2250.9213885.57 2250.73
14062.8 2248.714108.83 2248.1714273.06 2248.34

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8740	.04	9954.98	.02	710083.48	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9954.9810083.48 508.14 508.2 503.69 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8740	9950.09	2246.66	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8740	9950.09	2246.65

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2241.43	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.88	Wt. n-Val.		0.027
0.040				
W.S. Elev (ft)	2240.56	Reach Len. (ft)	508.14	508.20
503.69				
Crit W.S. (ft)	2240.56	Flow Area (sq ft)		599.23
2665.74				
E.G. Slope (ft/ft)	0.004368	Area (sq ft)		599.23
2665.74				
Q Total (cfs)	16900.00	Flow (cfs)		6602.31
10297.69				
Top Width (ft)	1461.74	Top Width (ft)		111.15
1350.58				
Vel Total (ft/s)	5.18	Avg. Vel. (ft/s)		11.02
3.86				
Max Chl Dpth (ft)	8.56	Hydr. Depth (ft)		5.39
1.97				
Conv. Total (cfs)	255705.3	Conv. (cfs)		99896.2
155809.1				
Length Wtd. (ft)	505.14	Wetted Per. (ft)		113.66
1350.70				
Min Ch El (ft)	2232.00	Shear (lb/sq ft)		1.44
0.54				
Alpha	2.11	Stream Power (lb/ft s)		15.84
2.08				
Frctn Loss (ft)	1.35	Cum Volume (acre-ft)	0.78	202.77
1035.88				
C & E Loss (ft)	0.17	Cum SA (acres)	1.71	37.82
503.67				

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.
Note:   Multiple critical depths were found at this location.  The critical depth
with the lowest, valid, water
        surface was used.

CROSS SECTION


RIVER: Aguila Farm Chan
REACH: Reach-1            RS: 13.726

INPUT
Description: RS 13.726
7.73  7.54  13400.20
Station Elevation Data    num=     143
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8655 2236.59 8656.91 2236.59 8682.23 2236.66 8683.56 2236.66  8900.6 2236.98
 8987.88 2236.94 9275.63 2236.25 9284.87 2236.24 9294.53 2236.25 9324.45    2236
 9432.01    2236 9437.38 2237.67 9438.34    2238 9461.45    2238 9463.15 2237.66
 9471.85    2236 9685.47    2236 9699.03 2235.79 9699.14 2235.79 9706.56 2235.77
 9742.99 2235.58  9755.5 2235.44 9779.72 2235.25  9782.7 2235.22 9847.21 2234.78
 9852.56 2234.76 9913.54 2235.72 9918.66    2236 9921.36 2236.77 9930.94 2239.48
 9932.79    2240 9946.73    2240 9954.37    2240 9958.78 2238.49 9960.25    2238
 9961.89 2237.46 9966.15    2236 9970.73 2234.51 9972.25    2234 9977.59 2232.34
 9978.66    2232 9982.43 2230.84 9985.14    223010011.91    223010020.83 2233.55
10021.97    223410056.29    223610063.34    223810064.38 2238.2910070.45    2240
10118.67    224010121.76 2239.47 10130.6    223810133.16 2237.4410139.91 2236.03
10140.02 2236.0110144.25 2235.1610150.09    223410150.55 2233.9110151.64 2233.69
10170.12    223010171.45 2229.7410178.65 2228.2910180.13    222810188.84 2226.56
10189.48 2226.45 10189.9 2226.38 10190.2 2226.3410190.42  2226.3 10192.2    2226
10247.73    222610256.88 2226.9810262.08 2227.4910268.56    2228 10272.1 2228.77
 10277.5 2229.7910278.21 2229.9210278.58    223010282.63 2230.8910286.68    2232
10288.23 2232.44   10300    223610353.42    223610443.76  2236.310447.26 2236.32
10459.16 2236.3610730.15 2236.0910731.44 2236.0810736.43 2236.0310740.21    2236
10757.63    223610953.78 2237.5110954.87 2237.5110955.47 2237.52 10957.7 2237.53
10970.52 2237.64 10971.9 2237.6510973.94 2237.66 10975.9 2237.6810978.67  2237.7
10986.34 2237.7311038.41    223811158.42    223811185.54  2238.1 11186.3  2238.1
11279.97 2238.5611285.93 2238.5811319.74 2238.77 11414.1 2239.2411419.62 2239.26
 11934.7 2241.71 11979.5 2241.93   11981 2241.9412288.81 2243.6512292.77 2243.68
 12361.3 2244.03   12362 2244.03 12601.5 2245.1112753.66 2245.5712770.67  2245.6
12776.52 2245.62 12784.2 2245.6212871.61 2245.7412876.13 2245.7312907.69 2245.75
12911.22 2245.7412973.28 2245.7612973.91 2245.7712995.07 2245.7813006.41 2245.76
13123.47  2245.913145.05    224613292.81    224613471.19 2247.1413663.61 2247.96
13664.39 2247.9613872.29 2249.0113877.87 2249.0513880.28 2249.0613903.72 2249.02
14035.33 2247.5114145.46 2246.2514271.22  2246.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8655     .04 9954.37    .02710070.45     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9954.3710070.45           489.88  509.27  501.31            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
```

8655 9945.1 2243.27 F
Blocked Obstructions num= 1
Sta L Sta R Elev
8655 9945.07 2242.68

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2239.41	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.33	Wt. n-Val.		0.027
0.040				
W.S. Elev (ft)	2239.08	Reach Len. (ft)	489.88	509.27
501.31				
Crit W.S. (ft)	2235.29	Flow Area (sq ft)		601.25
3815.60				
E.G. Slope (ft/ft)	0.001807	Area (sq ft)		601.25
3815.60				
Q Total (cfs)	16900.00	Flow (cfs)		4291.50
12608.50				
Top Width (ft)	1368.17	Top Width (ft)		110.13
1258.04				
Vel Total (ft/s)	3.83	Avg. Vel. (ft/s)		7.14
3.30				
Max Chl Dpth (ft)	13.08	Hydr. Depth (ft)		5.46
3.03				
Conv. Total (cfs)	397572.8	Conv. (cfs)		100957.6
296615.3				
Length Wtd. (ft)	504.05	Wetted Per. (ft)		112.82
1260.44				
Min Ch El (ft)	2230.00	Shear (lb/sq ft)		0.60
0.34				
Alpha	1.44	Stream Power (lb/ft s)		4.29
1.13				
Frctn Loss (ft)	1.16	Cum Volume (acre-ft)	0.78	195.77
998.41				
C & E Loss (ft)	0.03	Cum SA (acres)	1.71	36.53
488.59				

Warning: Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 13.629

INPUT
Description: RS 13.629
7.63 7.44 12890.93
Station Elevation Data num= 117

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8750	2234.9	8809.22	2235.12	8902.16	2235.19	8974.99	2235.14	8979.45	2235.13
8989.71	2235.13	9092.15	2235.26	9102.96	2235.3	9120.05	2235.29	9122.51	2235.28
9148.46	2235.34	9269.58	2235.44	9327.6	2235.38	9491.48	2236	9537.19	2236

```
 9610.07    2234  9738.9    2234 9769.33 2233.04 9774.24 2232.97 9777.31 2232.87
 9833.08 2232.38 9838.63 2232.47 9885.52    2234 9931.74    2234 9938.91 2235.46
 9941.59    2236 9951.64    2238 9960.29    2238 9974.09    2238  9978.9  2236.1
 9979.16    2236  9979.3 2235.94 9984.24    2234 9984.92 2233.73 9989.31    2232
10005.46    223210011.41 2233.3510014.19    223410014.83 2234.22 10019.8    2236
 10028.3    223610031.01    2234 10031.4 2233.7410033.95    223210035.41 2231.02
10044.11 2229.1910070.78 2229.1910074.25    2230 10074.9 2230.3310078.22    2232
10130.19 2233.8910133.38    223410197.61    223410235.79 2232.0410236.49    2232
10238.59 2231.2110241.63 2230.0510241.79    2230 10248.8    223010249.82 2230.24
10257.34    223210258.03 2232.15 10266.3    2234   10474    223410537.23 2234.43
10803.94  2235.710915.23 2236.0710917.66 2236.07 11343.9 2237.5711396.79 2237.81
11400.47 2237.8211426.27 2237.9411427.89 2237.9411465.22  2238.111466.91 2238.11
11691.29 2239.0311715.42 2239.1211854.93 2239.7411862.07 2239.7611915.08    2240
 11915.7    224011944.43 2240.1211946.18 2240.1311999.24 2240.3512002.75 2240.37
12053.27 2240.5812057.77 2240.5912126.96 2240.84 12292.4 2241.2112369.28  2241.2
12383.83 2241.2312395.87 2241.2212538.36 2241.5912664.39    224212906.19    2242
12959.99  2242.512974.43 2242.5913028.33 2243.0613050.75 2243.1913087.95 2243.49
13134.19 2243.7213149.91 2243.8313195.79 2244.0313196.27 2244.0313196.76 2244.04
13653.16    2246 13841.5 2247.0313844.48 2247.0413846.93 2247.06 13858.8 2247.12
13866.01 2247.1713900.55 2247.3313922.82  2247.1 13972.2 2247.0214031.26 2246.34
14205.78 2244.3314251.31 2244.39

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8750     .04 9974.09    .02710133.38     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9974.0910133.38             503.7  503.96   489.6             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8750  9963.6 2239.41       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8750  9963.6 2239.39

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2238.22    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.64    Wt. n-Val.                           0.027
  0.040
  W.S. Elev (ft)           2237.57    Reach Len. (ft)          503.70     503.96
 489.60
  Crit W.S. (ft)           2236.91    Flow Area (sq ft)                   820.98
2728.66
  E.G. Slope (ft/ft)      0.003025    Area (sq ft)                        820.98
2728.66
  Q Total (cfs)           16900.00    Flow (cfs)                         7324.86
9575.14
  Top Width (ft)           1369.48    Top Width (ft)                      158.21
1211.27
  Vel Total (ft/s)            4.76    Avg. Vel. (ft/s)                     8.92
   3.51
  Max Chl Dpth (ft)           8.38    Hydr. Depth (ft)                     5.19
   2.25
  Conv. Total (cfs)       307295.4    Conv. (cfs)                       133189.2
174106.3
  Length Wtd. (ft)          497.48    Wetted Per. (ft)                    162.21
1212.15
  Min Ch El (ft)           2229.19    Shear (lb/sq ft)                     0.96
   0.43
  Alpha                       1.83    Stream Power (lb/ft s)               8.53
```

1.49					
Frctn Loss (ft)	1.44	Cum Volume (acre-ft)	0.78	187.46	960.75
C & E Loss (ft)	0.01	Cum SA (acres)	1.71	34.96	474.38

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: Aguila Farm Chan
REACH: Reach-1 RS: 13.534

INPUT
Description: RS 13.534
7.53 7.35 12386.98
Station Elevation Data num= 143

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8745	2232.43	8748.32	2232.43	8749.87	2232.44	8760.5	2232.44	8970.4	2233.09
9000.44	2233.14	9007.64	2233.17	9166	2233.45	9202.66	2233.44	9495.93	2233.39
9593.01	2232.85	9596.67	2232.82	9669.74	2232.1	9670.29	2232.1	9676	2232.12
9677.27	2232.1	9682.99	2232	9942.71	2232	9949.66	2234	9953.08	2234.99
9956.53	2236	9963.42	2236	9980.18	2236	9984.12	2234.9	10001.9	2230
10015.25	223	10035.67	223	210060.96	2232.68	10121.93	2232.87	10125.66	2232.51
10126.68	2232.54	10131.58	223	210133.26	2230.5	10133.8	223	010134.09	2229.71
10135.86	222	810167.64	222	810179.41	2229.87	10180.15	223	010183.37	2230
10185.43	2230.28	10189.21	2230.31	10189.57	2230.31	10189.89	2230.32	10192.68	2230.35
10193.15	2230.37	10194.99	2230.41	10195.41	2230.42	10196.35	2230.46	10196.71	2230.47
10198.12	2230.49	10198.37	2230.51	10200.24	2230.51	10200.95	2230.51	0203.32	2230.51
10205.62	2230.51	0206.79	2230.49	10209.07	2230.46	10211.39	2230.42	10212.75	2230.4
10215.14	2230.43	10216.07	2230.42	10218.54	2230.51	10219.18	2230.51	10219.81	2230.54
10222.28	2230.67	10223.92	2230.75	10226.01	2230.86	10231.1	2231.1	10232.51	2231.17
10235.86	2231.31	10237.32	2231.41	10240.09	2231.49	10241.34	2231.59	10243.07	2231.6
10245.63	2231.58	10246.83	2231.67	10250.42	2231.63	10251.19	2231.68	10261.91	2232
10342.04	223	210507.16	2233.67	10544.69	2233.99	10545.73	2234	10702	2234
10901.51	2234.58	10930.57	2234.62	10932.93	2234.63	10934.76	2234.63	10940.46	2234.65
10982.87	2234.72	11200.76	2235.29	11207.76	2235.3	11212.98	2235.32	11216.58	2235.32
11428.72	223	611437.48	2236.04	11437.93	2236.04	11474.86	2236.19	11478.35	2236.21
11889.24	2238	11893	2238.01	11893.19	2238.01	11924.29	2238.12	11926.11	2238.12
11981.54	2238.31	2024.96	2238.43	12030.64	2238.44	12059.65	2238.53	12103.46	2238.66
12109.34	2238.67	12450.74	2239.79	12457.16	2239.82	12659.77	2240.51	2686.48	2240.58
12802.57	2240.78	12813.55	2240.83	12840.9	2240.83	12861.34	2240.94	12869.65	2240.94
12907.42	2241.13	12909.49	2241.13	13011	2241.66	13012.34	2241.67	13073.99	2241.99
13075.18	224	213858.46	2245.68	13862.1	2245.69	13865.25	2245.71	13890.02	2245.8
13892.11	2245.81	13894.77	2245.81	13896.58	2245.82	13899.01	2245.82	13901.93	2245.83
13903.81	2245.84	13904.78	2245.84	13909.73	2245.81	13975.93	2245.14	14010.13	2245.08
14023.59	2245.06	14249.08	2242.47	14258.22	2242.48				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8745	.04	9980.18	.02	10261.91	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9980.18	10261.91	503.56	503.59	489.42	.1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8745	9972.78	2240.16	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8745	9972.79	2240.12

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2236.77	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.74	Wt. n-Val.	0.040	0.027
0.040				
W.S. Elev (ft)	2236.02	Reach Len. (ft)	503.56	503.59
489.42				
Crit W.S. (ft)	2235.59	Flow Area (sq ft)	0.17	1361.40
2016.76				
E.G. Slope (ft/ft)	0.002783	Area (sq ft)	0.17	1361.40
2016.76				
Q Total (cfs)	16900.00	Flow (cfs)	0.03	11223.86
5676.12				
Top Width (ft)	1460.90	Top Width (ft)	7.39	281.73
1171.78				
Vel Total (ft/s)	5.00	Avg. Vel. (ft/s)	0.16	8.24
2.81				
Max Chl Dpth (ft)	8.02	Hydr. Depth (ft)	0.02	4.83
1.72				
Conv. Total (cfs)	320353.0	Conv. (cfs)	0.5	212757.2
107595.3				
Length Wtd. (ft)	495.70	Wetted Per. (ft)	7.41	284.50
1171.79				
Min Ch El (ft)	2228.00	Shear (lb/sq ft)	0.00	0.83
0.30				
Alpha	1.91	Stream Power (lb/ft s)	0.00	6.85
0.84				
Frctn Loss (ft)	1.29	Cum Volume (acre-ft)	0.78	174.83
934.09				
C & E Loss (ft)	0.11	Cum SA (acres)	1.67	32.42
460.99				

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: Aguila Farm Chan
REACH: Reach-1 RS: 13.438

INPUT
Description: RS 13.438
7.44 7.25 11883.38
Station Elevation Data num= 129

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8735	2230.19	8840.69	2230.88	8848.59	2230.91	8923.34	2231.27	8934.08	2231.34
8938.55	2231.34	8993.03	2231.57	8997.81	2231.6	9020.34	2231.67	9023.68	2231.69
9037.79	2231.71	9048.88	2231.78	9051.06	2231.79	9111.82	2231.78	9114.24	2231.79
9136.81	2231.77	9142.4	2231.79	9145.4	2231.81	9167.59	2231.75	9187.29	2231.79
9190.04	2231.8	9333.78	2231.62	9380.13	2231.62	9386.94	2231.63	9414.83	2231.62
9419.47	2231.63	9528.72	2231.5	9631.76	2231.02	9675.14	2230.77	9682.27	2230.75
9729.92	2230.47	9738.74	2230.44	9760.52	2230.31	9781.78	2230.24	9803.57	2230.06
9804.48	2230.06	9805.09	2230.05	9805.8	2230.05	9811.45	2230	9895.72	2230
9904.32	2230.19	9906.09	2230.28	9908.13	2230.29	9913.06	2230.56	9919.74	2230.81

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 9939.24    2232 9941.09  2232.4 9948.43    2234 9962.99    2234 9978.16    2234
 9978.96 2233.73 9983.43 2232.21 9993.23 2228.85 9995.69    222810009.72    2228
10030.06    223010048.23 2230.8310056.41 2231.1310078.63    223210129.44    2232
10130.49 2231.5110133.78    223010136.86 2228.5810138.11    222810140.27 2227.31
10143.83    222610160.35    222610163.75 2227.38 10165.2    222810168.54 2229.48
 10169.6    223010197.09 2230.2410197.43 2230.24 10255.2 2230.75 10273.5 2230.81
10297.37    223110483.26    2232 10543.6    223210546.27  2232.510553.88    2234
 10556.1 2234.4610557.03 2234.6510563.49    223610566.93    223610569.36 2235.46
10577.15 2233.7110578.55  2233.410582.92 2232.4210584.84    223210655.26    2232
10664.21 2232.0410762.26 2232.28 10772.2 2232.3110775.73 2232.31 11018.3 2233.08
11025.19 2233.1111223.63 2233.6311315.18 2233.8511315.57 2233.8511355.64 2233.97
11355.97 2233.9711895.09 2236.12 11898.7 2236.1312313.77  2237.912315.07  2237.9
12315.62 2237.9112369.15 2238.1112374.35 2238.1212375.17 2238.1312379.72 2238.14
12383.53 2238.1612880.14    224012880.45    224013311.76 2242.2613593.84 2243.38
13755.29 2243.8213756.27 2243.8213772.72 2243.8613774.58 2243.8613786.58 2243.89
 13787.8 2243.8913808.73 2243.9413809.63 2243.9413904.24 2244.1813960.22 2243.82
13985.34 2243.5714024.04 2243.1814069.99  2243.114192.73 2241.69

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8735     .04 9978.16    .02710078.63     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9978.1610078.63           492.26  492.73  519.16             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
    8735 9954.12 2237.37       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8735  9954.1 2237.34
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2235.36	Element	Left OB	Channel
Vel Head (ft)	0.36	Wt. n-Val.	0.040	0.027
W.S. Elev (ft)	2235.00	Reach Len. (ft)	492.26	492.73
Crit W.S. (ft)	2234.00	Flow Area (sq ft)	23.93	482.29
E.G. Slope (ft/ft)	0.002455	Area (sq ft)	23.95	482.29
Q Total (cfs)	16900.00	Flow (cfs)	43.92	3714.19
Top Width (ft)	1646.29	Top Width (ft)	24.06	100.47
Vel Total (ft/s)	4.08	Avg. Vel. (ft/s)	1.84	7.70
Max Chl Dpth (ft)	9.00	Hydr. Depth (ft)	1.00	4.80
Conv. Total (cfs)	341099.9	Conv. (cfs)	886.5	74965.1
Length Wtd. (ft)	513.04	Wetted Per. (ft)	24.04	101.61
Min Ch El (ft)	2228.00	Shear (lb/sq ft)	0.15	0.73
Alpha	1.39	Stream Power (lb/ft s)	0.28	5.60
Frctn Loss (ft)	1.59	Cum Volume (acre-ft)	0.64	164.17
C & E Loss (ft)	0.01	Cum SA (acres)	1.49	30.21

Right OB	
0.040	
519.16	
3635.89	
3635.89	
13141.89	
1521.76	
3.61	
2.39	
265248.3	
1524.45	
0.37	
1.32	
902.33	

445.86

Warning: Divided flow computed for this cross-section.
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: Aguila Farm Chan
REACH: Reach-1 RS: 13.345

INPUT
Description: RS 13.345
7.35 7.16 11390.65
Station Elevation Data num= 119

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8750	2229.4	8767.22	2229.42	8806.45	2229.58	8809.87	2229.57	8839.49	2229.68
8842.88	2229.68	8860.43	2229.73	8935.81	2229	8936.99	2228.94	8938.16	2228.87
8939.71	2228.93	8940.67	2228.87	8941.55	2228.83	8943.08	2228.82	8943.7	2228.82
8999.5	2228.48	9009.36	2228.54	9013.34	2228.57	9019.43	2228.6	9027.07	2228.67
9044.07	2228.77	9077.47	2229	9091.04	2229.12	9122.07	2229.35	9139.74	2229.41
9154.26	2229.54	9171.57	2229.65	9173.62	2229.66	9332.65	2230	9824.01	2230
9835.53	2228	9840.03	2228	9932.56	2230	9936.03	2230.87	9940.59	2232
9948.47	2234	9959.83	2234	9963.79	2234	9964.09	2233.94	9973.21	2232
9976.88	2230.22	9978.49	2229.45	9981.51	222810017.01		222810026.59		2228.58
10050.65	223010111.62		223210122.82		223210125.26		2230.3810125.84		2230
10128.84	222810161.58		222810229.79		222910231.49		2229.0210232.79		2229.03
10284.85	2229.3210286.87		2229.32	10447.6	2229.9710451.54		223010468.82		2230
10701.39	2231.0210702.15		2231.02	10747.8	2231.1510872.67		2231.2810933.24		2231.44
10941	2231.4510975.28		2231.5510981.59		2231.5611015.92		2231.6611020.72		2231.68
11023.82	2231.6811056.65		2231.7811057.83		2231.7811090.01		2231.8811090.12		2231.88
11119.02	2231.9711119.31		2231.97	11145.4	2232.0511146.67		2232.0611189.14		2232.19
11192.71	2232.2111257.24		2232.4211581.45		2233.7211585.33		2233.7311624.72		2233.92
11625.84	2233.93	11640.7	223411641.04		223411731.49		2234.3712151.93		2235.93
12153.34	2235.9412619.14		223812620.02		223812969.04		2240	13175.7	2240.93
13298.17	2241.3413377.04		2241.4913383.51		2241.4913415.76		2241.5613420.39		2241.56
13452.27	2241.6213486.91		2241.66	13521.6	2241.5813522.16		2241.5813523.08		2241.57
13539.35	2241.5913540.56		2241.5813559.03		2241.5813566.72		2241.5413607.54		2241.54
13610.16	2241.5313754.03		2241.6813903.46		2242.0913951.72		2242.0913954.47		2242.07
14010.94	2241.72	14072.3	2241.114116.48		2241.02	14199.7	2240.06		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8750	.04	9963.79	.02	710111.62	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9963.7910111.62 501.18 501.14 498.77 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8750	9951.35	2235.31	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8750	9951.38	2235.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 2233.76 Element Left OB Channel Right OB

Vel Head (ft)	0.44	Wt. n-Val.			0.027
0.040					
W.S. Elev (ft)	2233.32	Reach Len. (ft)	501.18	501.14	
498.77					
Crit W.S. (ft)	2232.54	Flow Area (sq ft)			507.69
3138.68					
E.G. Slope (ft/ft)	0.004018	Area (sq ft)			507.69
3138.68					
Q Total (cfs)	16900.00	Flow (cfs)			4069.35
12830.65					
Top Width (ft)	1515.65	Top Width (ft)			144.63
1371.02					
Vel Total (ft/s)	4.63	Avg. Vel. (ft/s)			8.02
4.09					
Max Chl Dpth (ft)	5.32	Hydr. Depth (ft)			3.51
2.29					
Conv. Total (cfs)	266603.7	Conv. (cfs)			64195.4
202408.2					
Length Wtd. (ft)	499.27	Wetted Per. (ft)			145.78
1372.24					
Min Ch El (ft)	2228.00	Shear (lb/sq ft)			0.87
0.57					
Alpha	1.31	Stream Power (lb/ft s)			7.00
2.35					
Frctn Loss (ft)	1.65	Cum Volume (acre-ft)	0.51	158.57	
861.96					
C & E Loss (ft)	0.03	Cum SA (acres)	1.35	28.82	
428.62					

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: Aguila Farm Chan
REACH: Reach-1 RS: 13.250

INPUT
Description: RS 13.250
7.25 7.06 10889.52
Station Elevation Data num= 105

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8750	2227.85	8764.52	2227.84	8885.18	2228	9168.59	2228	9182.07	2228.05
9183.49	2228.05	9366.38	2228.54	9402.65	2228.61	9705.95	2228.42	9708.76	2228.41
9714.72	2228.42	9783.86	2228	9926.66	2228	9928.09	2228.28	9946.7	2232
9965.57	2232	9966.23	2232	9966.88	2231.85	9974.54	2230	9977.22	2228.93
9981.39	2227.27	9984.56	222610011.39		222610051.93		222810127.62		2228
10131.38	2226.6410133.28		222610211.98		222610212.68		2226.0510311.24		2228
10563.24		222810621.29	2228.3610630.08		2228.3910670.12		2228.5710681.76		2228.64
10746.41	2228.9310818.63		2229.2710831.69		2229.3510833.03		2229.3610962.43		2229.93
11005.15	2230.0611005.88		2230.0711007.66		2230.0711428.86		2231.5111434.07		2231.52
11437.91	2231.5411462.83		2231.6211567.36		223211575.25		2232.0411575.94		2232.04
11673.22	2232.51 11920.5		2233.8911923.72		2233.911938.72		223411941.16		2234
12429.36		223612440.32		223612545.71	2236.3512551.18		2236.3812579.79		2236.45
12590.17	2236.5 12620.8		2236.58 12633.7		2236.6412670.17		2236.7412685.45		2236.82
12787.32	2237.2212801.13		2237.2912957.11		2237.9712957.37		2237.9712957.59		2237.98
12957.78	2237.98 13016.1		2238.2313020.82		2238.2413076.13		2238.4513086.73		2238.47
13106.91	2238.5413118.01		2238.5613168.16		2238.7413222.59		2238.8813267.22		2238.95
13273.17	2238.9513294.33		2239	13363	2239.0613448.96		2238.7813456.08		2238.79

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13458.06 2238.7813468.26 2238.7913470.45 2238.7813483.83 2238.7913494.68 2238.74
13497.98 2238.7213517.23 2238.7413534.95 2238.7313536.22 2238.7413540.64 2238.74
13614.52 2238.9913789.55    224013789.94    224013905.55 2240.3613931.02 2240.21
13958.06 2240.0514006.76 2240.0514063.65 2239.6914122.61  2239.114152.52 2239.05

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8750     .04 9966.23    .02710051.93     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       9966.2310051.93           502.97  502.94  480.26             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8750 9953.18 2232.95       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8750  9953.2 2232.94

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2232.09    Element                Left OB    Channel
Right OB
  Vel Head (ft)               0.35    Wt. n-Val.                        0.027
  0.040
  W.S. Elev (ft)           2231.74    Reach Len. (ft)        502.97     502.94
 480.26
  Crit W.S. (ft)           2230.51    Flow Area (sq ft)                 389.83
3749.65
  E.G. Slope (ft/ft)      0.002753    Area (sq ft)                      389.83
3749.65
  Q Total (cfs)           16900.00    Flow (cfs)                       3092.44
13807.56
  Top Width (ft)           1528.27    Top Width (ft)                     84.59
1443.68
  Vel Total (ft/s)            4.08    Avg. Vel. (ft/s)                    7.93
   3.68
  Max Chl Dpth (ft)           5.74    Hydr. Depth (ft)                    4.61
   2.60
  Conv. Total (cfs)       322081.8    Conv. (cfs)                      58936.0
263145.8
  Length Wtd. (ft)          485.57    Wetted Per. (ft)                   85.62
1444.06
  Min Ch El (ft)           2226.00    Shear (lb/sq ft)                    0.78
   0.45
  Alpha                       1.36    Stream Power (lb/ft s)              6.21
   1.64
  Frctn Loss (ft)             1.50    Cum Volume (acre-ft)      0.51     153.41
 822.52
  C & E Loss (ft)             0.01    Cum SA (acres)            1.35      27.50
 412.50


Warning: The cross section had to be extended vertically during the critical depth
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.

CROSS SECTION
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RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 13.155

INPUT
Description: RS 13.155
7.15 6.97 10386.58
Station Elevation Data num= 128

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8750	2226.16	8852.63	2226.11	8853.48	2226.1	8910.33	2226.1	8924.92	2226
9291.38	2226	9440.6	2226.74	9449.52	2226.75	9460.71	2226.8	9464.52	2226.81
9548.81	2226.88	9564.8	2226.85	9574.29	2226.87	9596.02	2226.83	9600.94	2226.84
9617.26	2226.8	9622.27	2226.81	9701.89	2226.64	9800.8	2228	9821.26	2228
9832.47	2226	9930.8	2226	9937.96	2227.8	9938.75	2228	9939.45	2228.18
9946.59	2230	9968.2	2230	9971.64	2230	9975.33	2228.57	9976.68	2228
9979.24	2226.84	9981.14	2226	9984.55	2224.43	9985.49	222410022.26		2224
10035.66	2225.5210039.67		222610093.28		2227.5110112.15		222810126.24		2228
10137.75	2226.6110158.97		222410171.38		222410181.98		2226	10230	2226
10233.98	2225.1810240.06		222410248.02		222410253.19		2224.7810254.29		2224.95
10257.34	2225.410261.94		222610410.05		222610697.44		2227.7410698.25		2227.74
10807.41	2228.0810809.58		2228.0910896.75		2228.3410902.68		2228.3510944.46		2228.47
10946.2	2228.4710971.33		2228.5410976.45		2228.5610979.73		2228.5611406.13		2229.75
11410.61	2229.7711414.04		2229.77	11488.1	223011802.72		2231.6211808.02		2231.64
11868.16	223211918.46		223212027.67		2232.9312092.06		2233.2412121.89		2233.3
12136.31	2233.3712156.86		2233.4112169.46		2233.4712194.24		2233.52	12204.4	2233.56
12295.78	2233.7612301.09		2233.7812328.17		2233.8312355.73		2233.89	12357.7	2233.9
12378.79	2233.9312379.81		2233.94	12406.7	2233.9912407.11		2233.9912437.36		2234.06
12438.68	2234.07	12472.9	2234.1512475.53		2234.16	12507.5	2234.2412512.58		2234.26
12602.24	2234.5112606.85		2234.5312716.37		2234.8912720.46		2234.9112724.65		2234.92
12976.68	2235.8412980.71		2235.8613016.87		2235.9913017.07		2235.9913019.59		2236
13019.97	223613101.03		2236.2913104.59		2236.2913158.27		2236.46	13161.3	2236.46
13178.4	2236.5113183.31		2236.5113492.68		2237.4913494.41		2237.4913495.88		2237.5
13498.11	2237.513502.49		2237.5213523.09		2237.57	13640.9	223813777.19		2238
13878.13	2238.7413908.21		2238.8313908.48		2238.8313952.33		2238.4614014.47		2238.09
14061.23	2238.0914115.87		2237.7514140.26		2237.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8750	.04	9971.64	.02710112.15		.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9971.6410112.15 504.21 505.17 530.95 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8750	9958.19	2231.56	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8750	9958.23	2231.54

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2230.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.47	Wt. n-Val.	0.040	0.027	0.040
W.S. Elev (ft)	2230.11	Reach Len. (ft)	504.21	505.17	530.95
Crit W.S. (ft)	2229.23	Flow Area (sq ft)	1.45	579.44	3176.31
E.G. Slope (ft/ft)	0.003506	Area (sq ft)	1.45	579.44	3176.31
Q Total (cfs)	16900.00	Flow (cfs)	0.72	4823.60	12075.69

Top Width (ft)	1550.83	Top Width (ft)	13.41	140.51	1396.91
Vel Total (ft/s)	4.50	Avg. Vel. (ft/s)	0.50	8.32	3.80
Max Chl Dpth (ft)	6.11	Hydr. Depth (ft)	0.11	4.12	2.27
Conv. Total (cfs)	285436.5	Conv. (cfs)	12.1	81469.3	203955.2
Length Wtd. (ft)	523.46	Wetted Per. (ft)	13.52	141.90	1397.69
Min Ch El (ft)	2224.00	Shear (lb/sq ft)	0.02	0.89	0.50
Alpha	1.49	Stream Power (lb/ft s)	0.01	7.44	1.89
Frctn Loss (ft)	1.72	Cum Volume (acre-ft)	0.50	147.82	784.34
C & E Loss (ft)	0.00	Cum SA (acres)	1.27	26.20	396.84

Warning: The cross section had to be extended vertically during the critical depth 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.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 13.059

INPUT
Description: RS 13.059
7.06 6.87 9881.413
Station Elevation Data num= 112

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8785	2224	9926.47	2224	9932.14	2225.47	9934.24	2226	9939.94	2227.49
9941.87	2228	9964.88	2228	9967.67	2228	9972.03	2226.74	9977.99	2225.03
9988.49	2222	9988.98	2221.86	9995.42	222010009.08		222010015.46		2222
10028	2222.98	10040.05	222410047.67		2224.26	10081.71	2225.69	10087.85	2225.94
10089.21	222610112.38		222610123.01		2224.03	10123.16	222410123.58		2223.93
10132.86	2222.31	10134.61	222210144.11		222210180.53		222410329.19		2224
10368.29	2224.34	10368.59	2224.35	10376.7	2224.22	10387.26	222410396.45		2224
10414.61	2224.71	10444.08	2224.98	10446.08	2224.98	10447.12	2224.97	10448.28	2224.97
10473.77	222410492.14		2224	10633.9	222610660.05		222610779.32		2226.4
10817.49	2226.48	10823.15	2226.5	10865.9	2226.58	11198.42	2227.54	11279.15	2227.85
11281.86	2227.85	11359.16	2228.16	11362.8	2228.18	11734.54	223011735.35		2230
11960	2231.11	12048.66	2231.46	12191.85	2231.85	12194.01	2231.86	12214.66	2231.91
12215.77	2231.91	12216.66	2231.92	12226.92	2231.94	12227.61	2231.94	12248.1	2231.99
12250.95	223212281.73		2232.06	12283.3	2232.06	12327.01	2232.15	12332.04	2232.17
12387.58	2232.28	12395.44	2232.31	12673.35	2233.1	12675.7	2233.11	12932.96	2233.83
12936.08	2233.83	12956.93	2233.89	12958.85	2233.91	12977.99	2233.95	12978.69	2233.95
12995.73	223412996.15		223413040.91		2234.14	13042.72	2234.14	13067.54	2234.22
13068.73	2234.22	13069.19	2234.23	13071.37	2234.23	13332.37	2235.16	13340.41	2235.18
13359.68	2235.26	13531.91	2235.91	13533.73	2235.91	13550.09	2235.97	13550.56	2235.97
13588.07	2236.09	13589.89	2236.11	13591.69	2236.11	13656.27	2236.31	13825.05	2236.57
13835.98	2236.57	13858.24	2236.65	13864.93	2236.71	13870.24	2236.77	13872.29	2236.81
13876.54	2236.85	13904.09	2237.17	13906.69	2237.24	13937.93	2236.91	14011.91	2236.27
14071.28	2235.92	14099.75	2235.92						

Manning's n Values num= 3

```
     Sta   n Val     Sta   n Val     Sta   n Val
    8785     .04 9967.67    .02710089.21     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9967.6710089.21           517.48  517.57  497.81            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8785 9952.24 2230.28       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8785 9952.24 2230.28

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2228.86    Element                Left OB    Channel
Right OB
  Vel Head (ft)               0.49    Wt. n-Val.              0.040      0.027
  0.040
  W.S. Elev (ft)           2228.37    Reach Len. (ft)        517.48     517.57
 497.81
  Crit W.S. (ft)           2227.51    Flow Area (sq ft)        5.65     581.51
3193.29
  E.G. Slope (ft/ft)      0.003074    Area (sq ft)             5.65     581.51
3193.29
  Q Total (cfs)           16900.00    Flow (cfs)               5.87    4995.19
11898.94
  Top Width (ft)           1448.66    Top Width (ft)          15.43     121.54
1311.69
  Vel Total (ft/s)            4.47    Avg. Vel. (ft/s)         1.04       8.59
   3.73
  Max Chl Dpth (ft)           8.37    Hydr. Depth (ft)         0.37       4.78
   2.43
  Conv. Total (cfs)       304827.6    Conv. (cfs)              105.9    90098.9
214622.9
  Length Wtd. (ft)          503.60    Wetted Per. (ft)        15.80     123.10
1312.16
  Min Ch El (ft)           2220.00    Shear (lb/sq ft)         0.07       0.91
   0.47
  Alpha                       1.58    Stream Power (lb/ft s)   0.07       7.79
   1.74
  Frctn Loss (ft)             1.52    Cum Volume (acre-ft)     0.46     141.08
 745.52
  C & E Loss (ft)             0.01    Cum SA (acres)           1.11      24.68
 380.34


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:    Multiple critical depths were found at this location.  The critical depth
with the lowest, valid, water
         surface was used.

CROSS SECTION


RIVER: Aguila Farm Chan
REACH: Reach-1           RS: 12.961

INPUT
Description: RS 12.961
```

```
6.96  6.77  9363.847
Station Elevation Data    num=     155
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8720 2223.79 8812.74 2223.95  8828.8    2224 9200.13    2224 9382.03 2223.19
 9507.32 2222.66 9720.79 2222.53 9722.85 2222.55 9762.81 2222.24 9763.58 2222.25
 9764.25 2222.27  9764.8 2222.28 9765.16 2222.28 9765.65 2222.29 9766.28  2222.3
 9779.43    2222 9851.53    2222 9937.34    2224 9940.07 2224.65 9945.51    2226
 9968.52    2226 9975.14    2226 9986.29 2222.32 9987.27    2222 9991.25 2220.69
 9993.36    2220 9996.91 2219.6810001.88    222010023.06    222010027.06 2221.11
10030.36    2222 10067.4 2223.1110099.42    222410125.71    222410127.98 2223.33
10139.34    2220 10151.7    222010153.98 2220.2110156.21 2220.4210161.63 2220.91
 10166.2 2221.1910171.63 2221.6210179.07 2221.9510179.22 2221.9610180.08    2222
10239.95    2222 10261.5 2222.7710264.15 2222.8210267.45 2222.8210269.66 2222.86
10271.39  2222.910273.05 2222.9110274.14 2222.9310275.73 2222.9710277.21 2222.95
10278.75 2223.0110302.52    222410314.22    222410318.89 2225.4210320.37 2225.88
10320.92    222610322.81    2226   10323 2225.9710325.94 2225.3310328.73 2224.83
10330.76 2224.4210333.06    2224 10335.1 2223.6110335.45 2223.5510335.89 2223.48
10336.44 2223.3810337.21 2223.2310340.09 2222.6610342.57    222210359.52    2222
10372.03 2222.2110374.63 2222.24   10414 2222.8410426.11 2222.9710438.28 2223.15
10456.45 2223.3210460.68 2223.3810468.87 2223.48 10492.9 2223.6710493.95 2223.69
10495.06  2223.710527.22 2223.9410527.52 2223.9410527.82 2223.9510535.73    2224
10556.29 2224.0510557.65 2224.0510585.76 2224.1111005.47  2225.111027.94 2225.18
11039.66  2225.211063.34 2225.2911159.37 2225.6111166.32 2225.6211271.59 2226.05
11272.33 2226.0511273.24 2226.0611645.89 2227.87 11649.4 2227.8811694.48 2228.08
11696.05 2228.0911760.76 2228.36   11913  2228.912148.06 2229.5812213.42 2229.77
12214.24 2229.7812216.46 2229.7812287.99    223012288.32    223012325.57 2230.12
12327.57 2230.1212329.32 2230.1312403.95 2230.3612408.38 2230.3812791.75 2231.54
12797.47 2231.55 12916.6 2231.9712921.09 2231.9712924.31    2232   12952    2232
13044.33 2232.2313049.81 2232.2513418.34 2233.5513466.59 2233.5913469.98 2233.57
13484.02 2233.6713486.31 2233.6613506.38 2233.8113507.45  2233.813508.32 2233.79
13529.48 2233.9813532.09    223413574.77 2234.1713574.93 2234.1713616.28 2234.34
13692.94 2234.6513780.46 2234.81 13791.7 2234.8813820.85 2234.9313830.64 2234.97
13852.74    223513858.77    223513859.36    223513860.79 2235.0113912.35 2235.62
 13912.5 2235.66 13917.7 2235.7913917.94 2235.8414007.92 2234.8314078.47 2234.23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8720     .04 9975.14    .02710099.42     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9975.1410099.42             480.7  481.34  500.45             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8720 9962.32  2228.9        F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8720 9962.34 2228.83

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2227.33    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.46    Wt. n-Val.                0.040      0.027
  0.040
  W.S. Elev (ft)           2226.86    Reach Len. (ft)          480.70     481.34
 500.45
  Crit W.S. (ft)           2225.96    Flow Area (sq ft)         11.03     583.78
3267.36
  E.G. Slope (ft/ft)      0.002978    Area (sq ft)              11.03     583.78
3267.36
  Q Total (cfs)           16900.00    Flow (cfs)                19.40    4883.66
11996.94
```

Top Width (ft)	1476.01	Top Width (ft)	12.80	124.28 1338.93
Vel Total (ft/s)	4.38	Avg. Vel. (ft/s)	1.76	8.37 3.67
Max Chl Dpth (ft)	7.18	Hydr. Depth (ft)	0.86	4.70 2.44
Conv. Total (cfs)	309695.7	Conv. (cfs)	355.5	89494.0 219846.1
Length Wtd. (ft)	495.22	Wetted Per. (ft)	13.66	125.57 1340.34
Min Ch El (ft)	2219.68	Shear (lb/sq ft)	0.15	0.86 0.45
Alpha	1.56	Stream Power (lb/ft s)	0.26	7.23 1.66
Frctn Loss (ft)	1.63	Cum Volume (acre-ft)	0.36	134.16 708.61
C & E Loss (ft)	0.01	Cum SA (acres)	0.94	23.22 365.19

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: Aguila Farm Chan
REACH: Reach-1 RS: 12.870

INPUT
Description: RS 12.870
6.87 6.68 8882.507
Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8760	2222.26	8881.18	2222.49	9031.12	2222.47	9076.64	2222.47	9242.43	2222
9925.38	2222	9930.71	2223.43	9932.9	2224	9939.42	2225.76	9940.34	2226
9944.32	2226	9959.85	2224.85	9961.33	2224.74	9968.54	2224	9973.35	2222.6
9976.86	2221.54	9988.66	221810014.49		2218	10022.1	2219.8810022.58		2220
10024.21	2220.110057.81		222210117.71		222210127.64		2220.1610128.52		2220
10128.98	2219.8410134.31		221810145.59		221810148.38		2218.9510151.66		2220
10269.26	222210440.66		222210528.15		2222.4910763.34		2222.81 10773.4		2222.84
10872.82	2223.0211196.92		222411211.55		2224.0611212.78		2224.0711213.88		2224.07
11260.2	2224.2811328.49		2224.5811596.21		2225.7411600.34		2225.7511610.35		2225.8
11613.6	2225.8111614.92		2225.8211626.73		2225.8611628.55		2225.8711678.48		2226.07
11679.92	2226.0811769.72		2226.411815.53		2226.5511817.63		2226.5612347.37		2228.26
12352.29	2228.2712402.18		2228.4312407.36		2228.4412705.68		2229.312712.99		2229.31
12859.44	2229.7612882.85		2229.8612884.14		2229.8612885.08		2229.8712908.94		2229.95
12910.91	2229.9512923.89		223012958.08		223012997.34		2230.2513045.93		2230.41
13051.66	2230.4413082.11		2230.5513191.62		2230.813205.78		2230.8113219.71		2230.85
13431.59	223213474.05		223213717.17		2233.4513732.48		2233.5213747.25		2233.57
13803.76	2233.6313826.03		2233.7913829.49		2233.8213829.81		2233.8213853.65		2234
13901.93	223413910.79		2234.113911.52		2234.3213912.52		2234.3413912.93		2234.41
14062.21	2232.7314092.66		2232.47						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8760	.04	9944.32	.02	710057.81	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9944.32 10057.81 502.35 502.31 493.46 .1 .3
Ineffective Flow num= 1

```
   Sta L   Sta R    Elev  Permanent
    8760 9941.69  2226.7       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8760 9941.42 2226.66

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2225.69    Element                Left OB    Channel
Right OB
  Vel Head (ft)               0.51    Wt. n-Val.                        0.027
  0.040
  W.S. Elev (ft)           2225.17    Reach Len. (ft)        502.35     502.31
 493.46
  Crit W.S. (ft)           2224.68    Flow Area (sq ft)                 472.72
3214.55
  E.G. Slope (ft/ft)      0.003679    Area (sq ft)                      472.72
3214.55
  Q Total (cfs)           16900.00    Flow (cfs)                       4342.81
12557.19
  Top Width (ft)           1509.64    Top Width (ft)                    102.31
1407.33
  Vel Total (ft/s)            4.58    Avg. Vel. (ft/s)                    9.19
   3.91
  Max Chl Dpth (ft)           7.17    Hydr. Depth (ft)                    4.62
   2.28
  Conv. Total (cfs)       278625.9    Conv. (cfs)                      71598.8
207027.1
  Length Wtd. (ft)          495.53    Wetted Per. (ft)                  103.54
1408.19
  Min Ch El (ft)           2218.00    Shear (lb/sq ft)                    1.05
   0.52
  Alpha                       1.57    Stream Power (lb/ft s)              9.63
   2.05
  Frctn Loss (ft)             1.83    Cum Volume (acre-ft)       0.30     128.32
 671.37
  C & E Loss (ft)             0.02    Cum SA (acres)             0.87      21.97
 349.41


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:    Multiple critical depths were found at this location.  The critical depth
with the lowest, valid, water
         surface was used.

CROSS SECTION


RIVER: Aguila Farm Chan
REACH: Reach-1            RS: 12.775

INPUT
Description: RS 12.775
6.77  6.59  8380.196
Station Elevation Data    num=     117
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8750 2220.27 8750.88 2220.26 8753.06 2220.27 8937.68 2220.28 9051.12 2220.34
  9054.5 2220.33  9172.9 2220.46 9179.34 2220.48 9223.53  2220.5 9344.75    2220
 9521.42    2220 9625.72 2220.48 9637.57 2220.48 9651.48  2220.5 9736.87    2220
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 9931.15    2220 9932.69 2220.43 9938.13    2222 9949.35 2223.65 9950.43 2223.81
 9953.99 2223.79 9964.01 2222.89 9971.45 2222.31  9972.7 2222.22  9972.8  2222.2
 9974.02    2222 9975.57 2221.64 9982.45    2220 9999.46    221610012.59    2216
10019.11 2217.5710020.83    221810025.94  2218.410039.74 2219.4610051.26    2220
10129.63    222010130.81 2219.7810140.16    2218 10148.1  2216.310149.54    2216
 10157.8    221610167.15    221810183.71 2218.9310189.83 2219.0710201.71 2219.63
 10210.8    222010371.14    2220 10395.1 2221.78 10396.8 2221.8210397.52 2221.73
10398.59 2221.61 10403.7  2221.110405.33  2220.910407.62 2220.5910409.06 2220.34
10411.29    222010427.76    222010439.39 2220.0410440.24 2220.0410482.65 2220.19
10485.81 2220.19 10539.6 2220.3510541.12 2220.3510549.51 2220.3710552.78 2220.37
10799.87 2221.0110809.05 2221.0211098.06 2221.7911104.31  2221.811162.42 2221.98
11162.78 2221.9811179.79 2222.0411180.39 2222.0411365.38 2222.7111369.16 2222.73
11622.25 2223.6211628.78 2223.6511651.86 2223.7211686.09 2223.8411687.79 2223.84
11725.88 2223.9711726.68 2223.9711768.01 2224.1211770.05 2224.1312216.18 2225.82
12219.91 2225.8412263.81    222612267.77 2226.0112268.09 2226.0112377.12 2226.31
12379.18 2226.3112381.28 2226.3212456.42 2226.5212460.31 2226.5412705.47 2227.43
12753.89 2227.5212756.42 2227.5212884.75    222813002.88    222813195.92 2229.36
13199.96 2229.3813215.49 2229.4313335.57    223013566.72 2230.0113669.52 2230.28
13676.74 2230.2813732.39 2230.7413734.39 2230.7613737.28 2230.78 13804.6 2231.54
13845.36    223213928.92    223213941.19 2231.5413941.59 2231.5213942.35 2231.52
13969.84 2232.48 14020.7 2231.91

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8750     .04 9953.99    .02710051.26     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9953.9910051.26           498.41  498.47  500.76             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8750 9951.92 2225.54       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8750 9951.52 2225.51

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2223.84    Element                Left OB    Channel
Right OB
  Vel Head (ft)               0.44    Wt. n-Val.                         0.027
  0.040
  W.S. Elev (ft)           2223.40    Reach Len. (ft)        498.41     498.47
 500.76
  Crit W.S. (ft)           2222.79    Flow Area (sq ft)                  402.56
3420.66
  E.G. Slope (ft/ft)      0.003700    Area (sq ft)                       402.56
3420.66
  Q Total (cfs)           16900.00    Flow (cfs)                        3555.08
13344.92
  Top Width (ft)           1599.72    Top Width (ft)                     92.87
1506.85
  Vel Total (ft/s)            4.42    Avg. Vel. (ft/s)                    8.83
   3.90
  Max Chl Dpth (ft)           7.39    Hydr. Depth (ft)                    4.33
   2.27
  Conv. Total (cfs)       277851.5    Conv. (cfs)                       58448.8
219402.8
  Length Wtd. (ft)          500.21    Wetted Per. (ft)                   93.94
1507.70
  Min Ch El (ft)           2216.00    Shear (lb/sq ft)                    0.99
   0.52
  Alpha                       1.45    Stream Power (lb/ft s)              8.74
```

2.04					
Frctn Loss (ft)		1.71	Cum Volume (acre-ft)	0.30	123.28
633.79					
C & E Loss (ft)		0.01	Cum SA (acres)	0.87	20.85
332.91					

Warning: The cross section had to be extended vertically during the critical depth 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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 12.680

INPUT
Description: RS 12.680
6.68 6.49 7881.729
Station Elevation Data num= 133

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8755	2218.27	8756.45	2218.27	8776.01	2218.31	8779.95	2218.31	8849.95	2218.45
9342.84	2219.23	9562.84	2218	9919.09	2218	9927.72	2219.77	9928.81	2220
9929.11	2220.07	9938.39	2222	9959.49	2222	9963.33	2221.2	9965.67	2220.72
9988.34	2216	9988.5	2215.96	9990.99	2215.31	9996.57	221410001.51		2214
10007.81	2215.99	10008.63	221610018.18		2216.51	10024.88	2216.71	10032.53	2217.06
10059.49	221810070.44		221810075.07		2218.26	10102.85	222010116.02		2220
10117.81	2219.41	10121.94	221810127.05		2216.28	10127.87	221610129.42		2215.51
10134.38	221410140.18		221410143.05		2214.53	10148.4	2215.34	10152.66	2216
10155.18	2216.37	10168.06	221810171.53		221810171.95		2218.07	10195.01	2218.83
10195.81	2218.81	10204.43	221810398.12		221810419.05		2218.17	10439.87	2218.18
10496.9	2218.43	10520.63	2218.48	10736.83	2219.11	10977.97	2219.66	10980.75	2219.66
11022.5	2219.79	11025.16	2219.79	11058.48	2219.91	11060.15	2219.91	11120.73	2220.11
11122.46	2220.11	11150.47	2220.21	11152.86	2220.21	11168.49	2220.26	11172.78	2220.28
11189.61	2220.33	11193.02	2220.35	11212.92	2220.42	11314.64	2220.76	11316.07	2220.77
11594.36	2221.69	11595.75	2221.69	11597.3	2221.7	11667	2221.92	11668.08	2221.92
11669.29	2221.93	11732.2	2222.13	11735.58	2222.15	11869.47	2222.61	11873.91	2222.61
12158.77	2223.61	12162.96	2223.61	12164.08	2223.61	12186.57	2223.71	12190.22	2223.71
12214.92	2223.73	12296.81	2224.06	12297.72	2224.06	12326.55	2224.17	12328.44	2224.18
12345.44	2224.24	12347.04	2224.25	12372.54	2224.34	12374.21	2224.35	12403.15	2224.45
12553.46	2224.57	12589.7	2224.74	12590.5	2224.74	12593.36	2224.76	12593.75	2224.77
12701.41	2225.43	12702.27	2225.44	12774.46	2225.86	12775.95	2225.88	12797.21	2226
12905.47	222612912.47		2226.02	12915.8	2226.02	12917.93	2226.03	12918.3	2226.03
12918.69	2226.04	12919.37	2226.04	12920.53	2226.05	12922.59	2226.06	13045.47	2226.9
13078.83	2227.04	13140.7	2227.41	13264.38	2227.82	13265.85	2227.82	13267.08	2227.83
13268.08	2227.83	13324.44	222813539.04		222813649.17		2228.86	13658.18	2228.89
13658.98	2228.91	13672.26	2228.98	13775.87	2229.93	13783.76	223013935.13		2230
13937.15	2230.91	13972.01	2230.68	13995.99	2229.77				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8755	.04	9959.49	.02	710102.85	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9959.49	10102.85	501.69	501.75	498.5	.1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8755	9947.86	2223.38	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8755	9948.05	2223.36

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	2222.12	Element			
Vel Head (ft)	0.41	Wt. n-Val.		0.027	0.040
W.S. Elev (ft)	2221.71	Reach Len. (ft)	501.69	501.75	498.50
Crit W.S. (ft)	2220.88	Flow Area (sq ft)		582.78	3400.16
E.G. Slope (ft/ft)	0.003174	Area (sq ft)		582.78	3400.16
Q Total (cfs)	16900.00	Flow (cfs)		4606.17	12293.83
Top Width (ft)	1637.86	Top Width (ft)		141.94	1495.92
Vel Total (ft/s)	4.24	Avg. Vel. (ft/s)		7.90	3.62
Max Chl Dpth (ft)	7.70	Hydr. Depth (ft)		4.11	2.27
Conv. Total (cfs)	299990.1	Conv. (cfs)		81763.6	218226.4
Length Wtd. (ft)	499.22	Wetted Per. (ft)		143.18	1497.23
Min Ch El (ft)	2214.00	Shear (lb/sq ft)		0.81	0.45
Alpha	1.47	Stream Power (lb/ft s)		6.37	1.63
Frctn Loss (ft)	1.66	Cum Volume (acre-ft)	0.30	117.64	594.58
C & E Loss (ft)	0.00	Cum SA (acres)	0.87	19.50	315.65

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: Aguila Farm Chan
REACH: Reach-1 RS: 12.585

INPUT
Description: RS 12.585
6.59 6.40 7379.980
Station Elevation Data num= 171

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8745	2216.75	8772.05	2216.82	8789.82	2216.83	8823.84	2216.94	8843.6	2216.96
8904.29	2217.12	8992.46	2217.15	8995.4	2217.14	9002.25	2217.14	9005.56	2217.13
9008.81	2217.13	9012.14	2217.12	9015.56	2217.12	9033.27	2217.16	9039.53	2217.16
9042.22	2217.15	9044.6	2217.15	9047.45	2217.14	9050.77	2217.14	9054.58	2217.13
9058.04	2217.13	9061.14	2217.12	9087.16	2217.17	9089.65	2217.17	9093.1	2217.16
9097.54	2217.16	9107.19	2217.14	9128.48	2217.18	9131.08	2217.17	9134.69	2217.17

```
 9153.79 2217.14 9181.42 2217.17 9209.89 2217.12  9218.9 2217.12 9220.43 2217.11
 9225.43 2217.11 9246.49 2217.07 9283.82 2217.07 9288.06 2217.06 9291.19 2217.06
 9293.17 2217.05 9306.52 2217.08 9313.89 2217.06 9326.58 2217.08 9339.42 2217.05
 9351.17 2217.08 9353.12 2217.08 9364.21 2217.11 9366.76  2217.1 9387.65 2217.21
 9390.44  2217.2 9393.89  2217.2 9412.55 2217.15 9422.91 2217.18 9426.82 2217.16
 9443.78 2217.11 9455.26  2217.1  9463.1 2217.08 9495.11 2216.98 9504.89 2216.96
 9521.72 2216.89 9524.16 2216.89 9529.13 2216.88  9535.9 2216.84 9554.36  2216.8
  9558.8 2216.76 9566.67 2216.75 9571.45 2216.71 9581.69 2216.69 9586.67 2216.66
 9619.64 2216.55 9625.31 2216.54 9629.72 2216.51 9632.18  2216.5 9634.24  2216.5
 9656.07 2216.45 9659.88 2216.42 9662.72 2216.41 9731.33    2216 9916.64    2216
 9921.25 2217.08 9925.25    2218 9934.34    2220 9961.69    2220 9965.77 2219.05
 9968.29 2218.47 9970.39    2218 9973.32 2217.38 9979.68    2216 9985.02 2214.89
 9989.56    2214 9995.01 2213.05 9999.97    221210002.54    221210008.42 2213.12
10012.64    221410022.87    221610113.27    221610126.48    2214 10135.7    2214
10141.79 2214.6410155.27    221610186.63    221610235.86 2216.3410237.49 2216.34
10245.81  2216.410296.23 2216.6810369.14 2216.9410381.53 2216.9610489.51 2216.92
10946.76 2217.8210979.52 2217.92 10980.4 2217.9211011.91 2218.0311013.09 2218.03
11118.23 2218.4211524.01 2219.8411525.62 2219.8411578.47    222011579.32    2220
11630.51 2220.1511633.42 2220.1511739.32 2220.4311743.53 2220.4511744.75 2220.45
11747.11 2220.4611836.92 2220.6811844.83 2220.7111902.29 2220.8512011.43 2221.11
12106.89 2221.0812187.86 2221.2912204.68  2221.412221.14 2221.4612221.48 2221.46
12234.63  2221.512310.78    222212496.25    222212611.16 2222.5812620.66 2222.65
12626.21 2222.6812632.75  2222.712658.29 2222.8412764.65 2223.9712767.33    2224
12786.59    222412983.95 2224.9713023.69 2225.0913025.37  2225.113063.06 2225.22
13065.84 2225.2213072.94 2225.2413073.41 2225.2413117.23 2225.3213118.08 2225.32
13119.55 2225.3313121.61 2225.3313196.03 2225.5313302.36    222613386.23    2226
13391.15 2226.04   13392 2226.0513393.82 2226.06 13641.3    222813744.75 2228.52
13749.12 2228.5313853.77 2228.8813934.94 2228.9713976.84 2228.8513978.73 2228.85
14006.96 2228.67

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8745     .04 9961.69    .02710022.87     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       9961.6910022.87           498.13  498.65  514.25             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8745 9947.68 2221.73       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8745  9947.8 2221.72

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2220.46    Element                 Left OB    Channel
Right OB
  Vel Head (ft)               0.42    Wt. n-Val.               0.040      0.027
  0.040
  W.S. Elev (ft)           2220.05    Reach Len. (ft)         498.13     498.65
 514.25
  Crit W.S. (ft)           2219.36    Flow Area (sq ft)         0.63     303.90
3661.16
  E.G. Slope (ft/ft)      0.003467    Area (sq ft)              0.63     303.90
3661.16
  Q Total (cfs)           16900.00    Flow (cfs)                0.17    2829.47
14070.36
  Top Width (ft)           1646.94    Top Width (ft)           13.89      61.18
1571.87
  Vel Total (ft/s)            4.26    Avg. Vel. (ft/s)          0.28       9.31
   3.84
  Max Chl Dpth (ft)           8.05    Hydr. Depth (ft)          0.05       4.97
```

2.33					
Conv. Total (cfs)	287004.1	Conv. (cfs)	2.9	48051.5	238949.7
Length Wtd. (ft)	510.45	Wetted Per. (ft)	13.94	62.40	1572.13
Min Ch El (ft)	2212.00	Shear (lb/sq ft)	0.01	1.05	0.50
Alpha	1.48	Stream Power (lb/ft s)	0.00	9.82	1.94
Frctn Loss (ft)	1.95	Cum Volume (acre-ft)	0.30	112.53	554.18
C & E Loss (ft)	0.02	Cum SA (acres)	0.79	18.33	298.09

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: Aguila Farm Chan
REACH: Reach-1 RS: 12.491

INPUT
Description: RS 12.491
6.49 6.30 6881.331
Station Elevation Data num= 143

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8740	2215.22	8834.5	2215.41	9224.14	2215.4	9228.87	2215.39	9314.24	2215.36
9318.87	2215.35	9337.32	2215.35	9390.14	2215.31	9392.93	2215.3	9497.44	2215.18
9516.76	2215.17	9669.94	2214.79	9692.72	2214.76	9699.9	2214.76	9814.58	2214.07
9823.84	2214	9934.3	2214	9946.6	2217.43	9948.66	2218	9974.36	2218
9974.71	2217.86	9976.18	2217.29	9979.48	2216	9983.26	2214.51	9984.57	2214
9991.77	2211.15	9994.69	221010009.74		221010014.22		2210.4210023.99		2212
10028.37	2212.7810035.09		221410116.03		221610135.36		221610137.17		2215.4
10141.53	2214	10145	2212.7810147.27		221210152.48		2210.1110152.78		2210
10157.01	221010158.68		2210.4710164.18		221210168.01		2212.9610171.87		2214
10175.37	2214.07	10318.7	2215.110340.95		2215.0510345.98		2215.03	10439.5	2214.96
10657.04	2215.3110664.06		2215.3110830.89		2215.6210835.78		2215.6210876.87		2215.73
10879.29	2215.7310902.42		2215.810904.19		2215.810934.56		2215.8910936.17		2215.89
10968.66	2215.99	10968.8	2215.9911104.18		2216.4911106.63		2216.4911117.89		2216.54
11462.83	2217.7811466.69		2217.811491.62		2217.8711493.51		2217.8711514.66		2217.93
11515.91	2217.9311516.72		2217.9411543.93		2217.9911544.09		2217.9911576.71		2218.04
11577.79	2218.0411641.34		2218.1311644.74		2218.1411680.55		2218.19	11684	2218.2
11708.66	2218.2311711.09		2218.2411817.92		2218.2711820.37		2218.28	11840.4	2218.3
11843.93	2218.3111847.31		2218.3111861.46		2218.3411864.79		2218.3411867.34		2218.35
12009.79	2218.2112011.23		2218.2212013.37		2218.2312015.63		2218.2312017.95		2218.24
12161.94	221812170.76		221812278.39		222012460.36		222012520.07		2220.52
12544.28	2220.6412587.04		2220.9612617.14		2221.112629.95		2221.1912726.16		2221.72
12728.51	2221.7212731.74		2221.7412733.19		2221.7412745.04		2221.7812758.56		2221.81
12760.93	2221.8212779.59		2221.8612781.68		2221.8712811.84		2221.9412812.98		2221.94
12854.7	2222.0412855.96		2222.0412931.86		2222.25	12936.2	2222.27	12968.5	2222.36
12970.29	2222.3713006.85		2222.4713292.75		2223.613294.14		2223.6113375.57		2224
13381.88	2224.04	13382.3	2224.0413403.19		2224.1613405.89		2224.1813624.04		2225.38
13639.56	2225.4513647.33		2225.513667.27		2225.59	13668.5	2225.613746.06		2225.95
13746.8	2225.9613825.95		2226.2713860.53		2226.413960.56		2226.5613969.42		2226.55
13974.54	2226.5313976.65		2226.513994.09		2226.62				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

8740 .04 9974.36 .02710116.03 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9974.3610116.03 504.05 504.18 505.54 .1 .3
Ineffective Flow num= 1
Sta L Sta R Elev Permanent
8740 9961.7 2219.8 F
Blocked Obstructions num= 1
Sta L Sta R Elev
8740 9961.7 2219.8

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2218.49	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.58	Wt. n-Val.		0.027
0.040				
W.S. Elev (ft)	2217.91	Reach Len. (ft)	504.05	504.18
505.54				
Crit W.S. (ft)	2217.45	Flow Area (sq ft)		588.26
2909.21				
E.G. Slope (ft/ft)	0.004238	Area (sq ft)		588.26
2909.21				
Q Total (cfs)	16900.00	Flow (cfs)		5403.62
11496.38				
Top Width (ft)	1532.65	Top Width (ft)		141.44
1391.21				
Vel Total (ft/s)	4.83	Avg. Vel. (ft/s)		9.19
3.95				
Max Chl Dpth (ft)	7.91	Hydr. Depth (ft)		4.16
2.09				
Conv. Total (cfs)	259599.5	Conv. (cfs)		83004.6
176595.0				
Length Wtd. (ft)	505.21	Wetted Per. (ft)		143.29
1392.75				
Min Ch El (ft)	2210.00	Shear (lb/sq ft)		1.09
0.55				
Alpha	1.61	Stream Power (lb/ft s)		9.98
2.18				
Frctn Loss (ft)	1.79	Cum Volume (acre-ft)	0.29	107.43
515.40				
C & E Loss (ft)	0.07	Cum SA (acres)	0.71	17.17
280.60				

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 12.395

INPUT
Description: RS 12.395
6.40 6.21 6377.146

Station Elevation Data num= 141

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8750	2213.97	8883.92	2213.37	9126.24	2213.35	9132.32	2213.36	9249.9	2213.36
9258.31	2213.37	9260.39	2213.36	9291.08	2213.35	9298.81	2213.36	9506.24	2213.2
9525.64	2213.17	9530.48	2213.17	9651.2	2212.8	9657.76	2212.8	9666.83	2212.75
9712.41	2212.72	9719.86	2212.68	9818.52	2212.02	9818.69	2212.02	9820.88	2212
9929.13	2212	9936.36	2214	9937.45	2214.3	9943.47	2216	9964.07	2216
9970.36	2216	9975.39	2214.27	9976.16	2214	9981.09	2212.29	9981.92	2212
9982.61	2211.77	9987.84	221010018.57		221010022.66		2210.7810028.95		2212
10124.89	221210130.47		2211.0810136.59		221010158.42		221010167.74		2210.58
10170.32	2210.4810173.53		2210.2910175.22		2210.2910175.82		2210.2710186.38		2211.68
10188.01	221210314.61		221210329.75		2212.3710382.43		2212.8910401.46		2213.02
10471.84	2212.9610602.78		2213.3110699.08		2213.4510704.39		2213.4510706.01		2213.46
10734.11	2213.510736.11		2213.510738.55		2213.5110763.68		2213.5510767.78		2213.55
10911.31	2213.8410912.91		2213.8410938.09		2213.910938.69		2213.9110964.77		2213.97
10965.1	2213.9711016.37		2214.1311317.64		2215.1511344.42		2215.2511347.35		2215.25
11518.99	2215.811520.51		2215.811586.84		221611848.47		221612126.54		2217.17
12150.42	2217.2312277.23		2217.84 12278.4		2217.8412279.41		2217.8512281.05		2217.85
12318.36	221812340.94		221812393.65		2218.3 12594.4		2219.1612596.72		2219.16
12730.36	2219.5712752.12		2219.61 12756.9		2219.63 12812.9		2219.7112816.39		2219.72
12836.38	2219.7512839.02		2219.7512853.05		2219.7712855.02		2219.77 12884.8		2219.82
12886.98	2219.8212901.18		2219.8512903.45		2219.8512944.33		2219.9312945.62		2219.93
12972.76	2219.9812972.99		2219.9812995.75		2220.0312996.18		2220.0313013.59		2220.07
13014.56	2220.0813026.13		2220.1113027.47		2220.1113048.02		2220.1713050.01		2220.18
13078.31	2220.2613080.49		2220.2713081.97		2220.2713082.64		2220.2813350.74		2221.3
13356.33	2221.3313360.66		2221.3413420.55		2221.5913478.58		2221.8413482.03		2221.85
13516.51	222213516.75		222213625.71		2222.6513629.61		2222.6813850.83		2223.86
13853.35	2223.8713854.86		2223.8813855.66		2223.8913857.09		2223.8913857.64		2223.9
13875.82	222413939.33		222413963.65		222413982.49		2224.3814027.78		2224.26
14030.23	2224.2214030.57		2224.2314030.74		2224.2414071.57		2224.51 14077.3		2224.5
14121.98	2224.37								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8750	.04	9970.36	.02710028.95		.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9970.3610028.95		504.65	504.74 519.37	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8750	9951.37	2220.76	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8750	9951.08	2220.68

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2216.64	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.35	Wt. n-Val.	0.040	0.027
0.040				
W.S. Elev (ft)	2216.28	Reach Len. (ft)	504.65	504.74
519.37				
Crit W.S. (ft)	2215.30	Flow Area (sq ft)	5.34	305.44
4128.00				
E.G. Slope (ft/ft)	0.003003	Area (sq ft)	5.42	305.44
4128.00				
Q Total (cfs)	16900.00	Flow (cfs)	4.66	2732.54
14162.80				
Top Width (ft)	1964.18	Top Width (ft)	19.28	58.59
1886.31				
Vel Total (ft/s)	3.81	Avg. Vel. (ft/s)	0.87	8.95

3.43					
Max Chl Dpth (ft)	6.28	Hydr. Depth (ft)	0.28	5.21	
2.19					
Conv. Total (cfs)	308398.8	Conv. (cfs)	85.0	49864.6	
258449.2					
Length Wtd. (ft)	516.76	Wetted Per. (ft)	18.99	59.78	
1886.64					
Min Ch El (ft)	2210.00	Shear (lb/sq ft)	0.05	0.96	
0.41					
Alpha	1.57	Stream Power (lb/ft s)	0.05	8.57	
1.41					
Frctn Loss (ft)	1.85	Cum Volume (acre-ft)	0.26	102.25	
474.56					
C & E Loss (ft)	0.02	Cum SA (acres)	0.60	16.02	
261.59					

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 12.300

INPUT
Description: RS 12.300
6.30 6.11 5872.403
Station Elevation Data num= 175

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8760	2212	8812.36	2212	8867.21	2211.25	8868.99	2211.26	8894.11	2211.24
8910.95	2211.31	8948.04	2211.29	8954.03	2211.31	9015.91	2211.32	9021.99	2211.34
9064.63	2211.35	9070.38	2211.38	9082.97	2211.38	9188.25	2211.59	9199.61	2211.6
9206.43	2211.59	9293.98	2211.61	9299.94	2211.62	9353.34	2211.62	9357.44	2211.63
9386.36	2211.62	9389.07	2211.63	9413.04	2211.62	9569.18	2211.26	9583.35	2211.19
9606.97	2211.17	9628.47	2211.05	9648.34	2211.03	9683.28	2210.82	9698.29	2210.8
9756.24	2210.43	9763.99	2210.41	9794.73	2210.19	9797.42	2210.19	9805.72	2210.12
9807.56	2210.12	9822.02	2210	9900.37	2210	9901.96	2210.03	9902.55	2210.07
9911.32	2210.4	9918.9	2210.65	9925.54	2210.85	9939.34	2211.99	9939.45	2212.01
9947.36	2214	9960.47	2214	9971.09	2214	9974.16	2212.23	9974.55	2212
9975.04	2211.72	9978.02	2210	9979.36	2209.66	9986.52	220810016.09		2208
10027.3	221010129.21		221010134.96		2208.11	10135.3	220810144.32		2206.37
10145.37	2206.1910145.77		2206.1210146.33		220610155.37		2206	10162	2207.76
10162.96	220810184.53		221010193.08		221010242.51		2210.5510243.55		2210.55
10256.29	2210.710256.71		2210.710269.25		2210.87	10269.6	2210.8710277.22		2210.97
10281.69	2211.0410283.87		2211.0710355.99		2211.6810629.32		2211.4510652.91		2211.48
10712.41	2211.5610715.54		2211.5610738.05		2211.610745.52		2211.610775.47		2211.66
10781.03	2211.6610883.09		2211.8810885.21		2211.8910929.85		2211.9910929.99		2211.99
11006.94	2212.2911012.78		2212.3311071.21		2212.5911074.41		2212.611111.68		2212.77
11176.12	2213.1811225.68		2213.4211228.58		2213.4311236.02		2213.4711271.73		2213.55
11274.67	2213.5511278.62		2213.5711331.06		221411556.35		2213.7911643.08		2213.91
11644.46	2213.9111678.91		2213.9911679.06		2213.9911707.34		2214.0711710.08		2214.07
11735.24	2214.1511793.47		2214.3111800.08		2214.3211987.75		2214.8	12013.4	2214.9
12047.96	2215.0112058.01		2215.0612258.51		2215.6812346.25		2215.9512347.46		2215.95
12377.04	2216.0412377.81		2216.0512407.83		2216.1412478.61		2216.3812483.99		2216.39
12742.29	2217.0612772.06		2217.1112777.27		2217.1313025.06		2217.713029.56		2217.72
13075.67	2217.8613077.75		2217.8613111.92		2217.9713112.33		2217.9713120.02		2218

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13121.35    221813130.73 2218.0413131.49 2218.0413133.11 2218.0513134.83 2218.05
13136.02 2218.0613176.61 2218.2513179.79 2218.2613235.39 2218.5313474.17 2219.55
13475.62 2219.5513499.17 2219.6613499.55 2219.6613577.64    222013578.61    2220
13643.41 2220.3413761.82 2220.7813770.34  2220.813830.12 2221.0813833.41 2221.09
13851.37 2221.2113913.08 2221.3613951.53 2221.5913953.04 2221.5913959.81 2221.62
13996.96 2221.7314003.32 2221.7614004.53 2221.7414044.75  2222.214048.47 2222.17
14068.49 2222.1214100.02 2222.04 14105.6 2221.9514106.37 2221.9814106.75 2221.99
14144.08 2222.2414197.68 2222.0914210.68 2222.1214257.65 2221.8114266.73 2221.79

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
    8760     .04 9971.09    .027 10027.3     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9971.09 10027.3           482.93   495.2  660.92             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8760 9954.54 2216.73       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8760 9954.62 2216.72

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2214.77    Element                Left OB    Channel
Right OB
  Vel Head (ft)               0.55    Wt. n-Val.              0.040      0.027
  0.040
  W.S. Elev (ft)           2214.21    Reach Len. (ft)        482.93     495.20
 660.92
  Crit W.S. (ft)           2213.64    Flow Area (sq ft)        3.53     301.97
3486.06
  E.G. Slope (ft/ft)      0.004339    Area (sq ft)             3.53     301.97
3486.06
  Q Total (cfs)           16900.00    Flow (cfs)               3.06    3299.91
13597.03
  Top Width (ft)           1803.97    Top Width (ft)          16.47      56.21
1731.29
  Vel Total (ft/s)            4.46    Avg. Vel. (ft/s)         0.87      10.93
   3.90
  Max Chl Dpth (ft)           8.21    Hydr. Depth (ft)         0.21       5.37
   2.01
  Conv. Total (cfs)       256573.5    Conv. (cfs)             46.5     50098.8
206428.2
  Length Wtd. (ft)          631.20    Wetted Per. (ft)        16.68      57.69
1732.15
  Min Ch El (ft)           2208.00    Shear (lb/sq ft)         0.06       1.42
   0.55
  Alpha                       1.79    Stream Power (lb/ft s)   0.05      15.49
   2.13
  Frctn Loss (ft)             2.96    Cum Volume (acre-ft)     0.21      98.74
 429.17
  C & E Loss (ft)             0.06    Cum SA (acres)           0.39      15.35
 240.02


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
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```
RIVER: Aguila Farm Chan
REACH: Reach-1            RS: 12.206

INPUT
Description: RS 12.206
6.21  6.02  5377.207
Station Elevation Data    num=     166
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8325 2211.72 8623.34 2211.93 8655.07 2211.67 8655.85 2211.65 8659.73 2211.54
 8666.03  2211.6 8667.79 2211.54 8669.21  2211.5 8669.84 2211.48 8670.95 2211.44
 8672.75 2211.38 8688.19  2211.4 8689.25 2211.36 8692.78 2211.36 8693.57 2211.34
  8694.4 2211.34 8696.94 2211.26 8706.75  2210.9 8707.83 2210.85 8709.36 2210.89
 8749.09 2210.25 8753.01 2210.26 8757.82 2210.25 8794.24 2210.37 8803.75 2210.35
  8816.6 2210.39    8820 2210.39 8822.39 2210.38 8826.02 2210.38 8828.98 2210.37
 8832.69 2210.37 8845.51 2210.41 8854.62 2210.41 8856.74  2210.4 8869.03 2210.45
 8870.98 2210.45 8872.52 2210.44 9144.89 2210.77 9305.77 2210.68 9309.41 2210.67
 9330.05 2210.67 9336.11 2210.66 9367.15 2210.65 9582.69    2210 9800.08    2210
 9901.08    2208 9911.75    2208 9915.94 2209.09 9919.36    2210 9927.08    2212
 9934.88    2214 9947.06    2214 9956.47    2214 9958.35 2213.25 9961.52    2212
 9971.01 2208.18 9971.47    2208 9976.33 2207.61  9997.6    220610005.05    2206
10014.87    220810030.64 2208.7610061.03    221010130.37    221010131.72 2209.43
10134.79    220810138.39 2206.1610138.69    220610139.81 2205.4210142.53    2204
10150.88    220410151.46 2204.1710151.74 2204.2410152.21 2204.3510153.08 2204.57
10154.91 2205.0410158.61    220610164.64 2207.8810165.03    220810197.25 2208.39
10202.63 2208.3810211.82 2208.4910217.68 2208.4810220.38  2208.510328.62  2209.1
10364.42 2209.0610372.32 2209.0410378.72 2209.0410391.98 2209.0210421.33    2209
10435.67 2208.9810470.43 2208.9610471.28 2208.9710487.19 2208.9610656.53 2209.29
10788.66 2209.3310794.44 2209.3210944.86 2209.38 10949.5 2209.3911286.28 2209.63
11333.96  2209.711339.85  2209.711370.38 2209.7511373.82 2209.7511395.02 2209.78
11396.72 2209.7811422.39 2209.8311422.75 2209.8311444.32 2209.8611445.58 2209.87
11474.09 2209.9211486.76 2209.9211488.13 2209.9311669.55    221011766.23 2210.29
11769.46 2210.2911771.18  2210.311797.46 2210.3311800.94 2210.3311897.17 2210.45
11900.78 2210.4611930.92 2210.4911931.78  2210.5 11937.7  2210.512085.64 2210.68
12097.03 2210.6912104.81 2210.7112181.86 2210.8112408.09 2211.3112410.26 2211.31
13020.04 2213.93 13021.6 2213.9313038.46    221413043.79    221413118.52 2214.31
13198.08  2214.713207.81 2214.7313441.89    221613471.12    221613586.32  2216.7
13883.44    221813934.26    221814035.59 2218.6114096.05 2218.8414099.76 2218.86
14131.03 2218.9714161.28 2218.8814165.94 2218.86 14209.8 2219.0514216.77 2218.94
 14224.3 2218.8814258.57  2219.314268.21 2219.2614312.83 2219.19 14322.4 2219.03
14323.72 2219.0814324.37 2219.1114355.09 2219.3514357.11 2219.37 14410.4 2219.28
14427.94 2219.3314470.12  2219.114487.28 2219.0814511.18  2218.214511.44 2218.19
14516.05 2218.21

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8325     .04 9956.47    .02710061.03     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9956.4710061.03           535.71  534.57  302.89             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8325 9946.51 2216.25       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8325 9946.56 2216.24

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2211.75    Element                 Left OB    Channel
Right OB
```

Vel Head (ft)	0.36	Wt. n-Val.		0.027
0.040				
W.S. Elev (ft)	2211.39	Reach Len. (ft)	535.71	534.57
302.89				
Crit W.S. (ft)	2211.04	Flow Area (sq ft)		320.54
3853.43				
E.G. Slope (ft/ft)	0.005101	Area (sq ft)		320.54
3853.43				
Q Total (cfs)	16900.00	Flow (cfs)		2758.17
14141.83				
Top Width (ft)	2464.54	Top Width (ft)		97.98
2366.56				
Vel Total (ft/s)	4.05	Avg. Vel. (ft/s)		8.60
3.67				
Max Chl Dpth (ft)	7.38	Hydr. Depth (ft)		3.27
1.63				
Conv. Total (cfs)	236632.8	Conv. (cfs)		38619.7
198013.1				
Length Wtd. (ft)	337.08	Wetted Per. (ft)		98.96
2368.53				
Min Ch El (ft)	2206.00	Shear (lb/sq ft)		1.03
0.52				
Alpha	1.42	Stream Power (lb/ft s)		8.88
1.90				
Frctn Loss (ft)	1.61	Cum Volume (acre-ft)	0.19	95.20
373.49				
C & E Loss (ft)	0.00	Cum SA (acres)	0.30	14.47
208.93				

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 12.105

INPUT
Description: RS 12.105
6.10 5.92 4842.634
Station Elevation Data num= 144

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8310	2210.27	8344.48	2210	9047.68	2210	9303.35	2209.06	9315.16	2209.04
9348.79	2209.04	9358.12	2209.02	9393.9	2209.02	9398.44	2209.01	9422.08	2209.02
9426.18	2209.01	9522.01	2208.93	9555.96	2208.87	9750.58	2208	9921.57	2208
9921.96	2208.09	9930.03	2210	9936.92	2211.66	9938.32	2212	9948.24	2212
9960.86	2212	9964.51	2210.66	9966.32	2210	9970.17	2208.59	9971.77	2208
9975.72	2207.13	9980.75	2206	9990.34	2205.08	9994.33	2204.71	10001.66	2204
10009.57	2204	10017.17	2205.7	10018.53	2206	10026.57	2207.79	10027.49	2208
10128.1	2208	10133.36	2206.56	10135.34	2206	10139.54	2204.92	10142.98	2204
10151.51	2204	10157.86	2205.55	10159.69	2206	10163.77	2206.94	10166.73	2207.6
10168.43	2208	10305.7	2208	10327.78	2207.62	10328.06	2207.62	10361.16	2207.34
10364.84	2207.31	10371.86	2207.24	10372.05	2207.24	10392.54	2207.07	10403.08	2207
10588.81	2207.41	10696.67	2207.29	10751.24	2207.29	10754.38	2207.28	10773.02	2207.28
10846.98	2207.41	10891.94	2207.6	10894.08	2207.59	10911.92	2207.66	10913.38	2207.66
10926.48	2207.71	10938.66	2207.71	10941.08	2207.72	10948.66	2207.71	10949.08	2207.71

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11083.23 2207.4911143.55 2207.5511144.71 2207.5611161.32 2207.6311340.21 2207.93
 11367.1 2207.9511367.42 2207.9611481.71 2208.0811482.94 2208.0811518.99 2208.14
11520.93 2208.1411522.59 2208.1511552.48  2208.211554.31  2208.211577.84 2208.25
11581.39 2208.2511805.74 2208.6412017.22 2208.9612019.46 2208.9612177.04 2209.46
 12178.4 2209.4612291.89 2209.8512297.06 2209.8612332.93    221012334.06    2210
12739.45 2211.8412745.17 2211.8612774.83    2212 12790.8    221213014.89 2212.58
13019.64  2212.613066.77 2212.8813095.61  2213.113238.34    221413282.37    2214
13389.42 2214.4313397.52 2214.4813408.62 2214.51 13436.4 2214.68 13446.3 2214.72
13471.53 2214.8913473.03 2214.8913474.73 2214.9113613.65 2215.7313617.58 2215.76
13691.11 2216.1413694.41 2216.1514114.71 2217.8114131.31 2217.8414132.08 2217.84
14133.27 2217.8514133.57 2217.8514136.98 2217.8914137.45 2217.8814195.48 2217.71
14205.02 2217.6614244.81 2217.8414254.64 2217.6714265.28 2217.5914296.94 2217.99
14309.29 2217.9214350.82 2217.8614362.25 2217.6814364.61 2217.7714395.27 2218.01
 14423.6 2217.96 14448.5 2217.9214468.25 2217.9814508.18 2217.7614527.13 2217.74
14549.84  2216.914550.09 2216.8914574.07 2217.03 14586.8 2217.49

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8310     .04 9960.86    .02710027.49     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9960.8610027.49          505.26  503.01  346.16             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
    8310 9951.74 2213.62        F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8310 9951.74 2213.62

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2210.13    Element                 Left OB    Channel
Right OB
  Vel Head (ft)               0.35    Wt. n-Val.                         0.027
  0.040
  W.S. Elev (ft)           2209.78    Reach Len. (ft)         505.26     503.01
 346.16
  Crit W.S. (ft)           2209.41    Flow Area (sq ft)                  242.58
4006.87
  E.G. Slope (ft/ft)      0.004487    Area (sq ft)                       242.58
4006.87
  Q Total (cfs)           16900.00    Flow (cfs)                        2229.11
14670.89
  Top Width (ft)           2304.44    Top Width (ft)                     60.57
2243.88
  Vel Total (ft/s)            3.98    Avg. Vel. (ft/s)                    9.19
   3.66
  Max Chl Dpth (ft)           5.78    Hydr. Depth (ft)                    4.01
   1.79
  Conv. Total (cfs)       252296.6    Conv. (cfs)                       33277.9
219018.7
  Length Wtd. (ft)          366.97    Wetted Per. (ft)                   61.64
2244.88
  Min Ch El (ft)           2204.00    Shear (lb/sq ft)                    1.10
   0.50
  Alpha                       1.44    Stream Power (lb/ft s)              10.13
   1.83
  Frctn Loss (ft)             1.44    Cum Volume (acre-ft)      0.19      91.74
 346.16
  C & E Loss (ft)             0.01    Cum SA (acres)            0.30      13.50
 192.90
```

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 12.010

INPUT
Description: RS 12.010
6.01 5.82 4339.624
Station Elevation Data num= 139

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8530	2208.82	8712.13	2209.08	8718.36	2209.08	8732.78	2209.12	8736.8	2209.12
8742.43	2209.14	8772.9	2209.16	8908.72	2208.82	8909.58	2208.83	8944.41	2208
9127.09	2208	9160.91	2207.57	9191.77	2207.48	9193.36	2207.49	9242.2	2207.36
9244.4	2207.37	9257.87	2207.34	9344.99	2207.39	9445.1	2207.22	9448.33	2207.22
9558.68	2207.02	9779.88	2206	9928.47	2206	9929.33	2206.2	9936.97	2208
9937.95	2208.22	9945.8	2210	9954.69	2210	9969.66	2210	9974.86	2208
9979.96	2206	9983.65	2204.45	9984.75	2204	9988.8	2203.23	9992.91	2202
10002.82	220	210009.52	2202.64	10019.32	220	410022.84	2204.6	10030.97	2206
10138.23	220	610141.61	2205.18	10146.75	220	410165.53	220	410175.23	2206
10390.53	220	610397.46	2205.98	10459.39	2205.81	10517.98	2205.75	10518.11	2205.75
10788.41	2205.71	10904.92	2205.89	10942.69	2205.95	10942.88	2205.95	10983.64	2206
11014.36	220	611028.89	2206.03	11029.27	2206.03	11152.24	2206.16	11195.74	2206.19
11199.51	2206.21	1223.87	2206.22	11227.54	2206.23	11260.47	2206.26	11263.95	2206.27
11291.73	2206.29	11294.9	2206.31	1325.36	2206.33	11329.1	2206.34	11423.28	2206.44
11470.15	2206.51	1495.44	2206.53	11499.64	2206.54	11502.39	2206.54	11528.11	2206.57
11530.9	2206.58	11534.66	2206.58	11575.93	2206.63	11667.9	2206.76	11670.9	2206.76
11936.32	2207.47	11954.91	2207.53	12139.08	2208.05	12140.26	2208.06	12142.17	2208.06
12567.74	2209.77	12571.29	2209.78	12596.15	2209.89	12597.93	2209.91	2639.36	2210.08
12640.46	2210.08	12854.09	2210.67	12863.52	2210.67	12929	221	12964.69	2211.15
13111.75	221	213157.08	221	213406.29	2213.53	13462.84	2213.81	13465.5	2213.82
13466.4	2213.83	13467.21	2213.83	13489.99	2213.94	13490.51	2213.94	13491.22	2213.95
13749.47	2214.95	13753.36	2214.97	13779.9	2215.07	13781.86	2215.07	14016.91	2215.96
14017.58	2215.96	14018.25	2215.97	14026.89	221	614094.92	221	614154.16	2216.11
14196.39	2216.64	14202.21	2216.52	14252.25	2216.37	14267.36	2216.31	4302.49	2216.45
14315.61	2216.23	14329.79	2216.12	14358.46	2216.48	14373.91	2216.41	4411.92	2216.34
14425.47	2216.12	14427.34	2216.21	14428.27	2216.23	14456.55	2216.45	14509.71	2216.36
14523.52	2216.41	14532	2216.44	14569.36	2216.23	14590.34	2216.21	14611.7	2215.42
14611.94	2215.41	14638.27	2215.57	14655.11	2216.17	14670.9	2216.01		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8530	.04	9969.66	.027	10030.97	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9969.66 10030.97 512.49 516.8 504.81 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8530	9952.36	2211.13	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8530	9952.34	2211.13

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2208.68	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.32	Wt. n-Val.		0.027
0.040				
W.S. Elev (ft)	2208.36	Reach Len. (ft)	512.49	516.80
504.81				
Crit W.S. (ft)	2207.86	Flow Area (sq ft)		258.35
4279.33				
E.G. Slope (ft/ft)	0.003468	Area (sq ft)		258.35
4279.33				
Q Total (cfs)	16900.00	Flow (cfs)		2255.19
14644.81				
Top Width (ft)	2243.97	Top Width (ft)		57.06
2186.91				
Vel Total (ft/s)	3.72	Avg. Vel. (ft/s)		8.73
3.42				
Max Chl Dpth (ft)	6.36	Hydr. Depth (ft)		4.53
1.96				
Conv. Total (cfs)	286958.5	Conv. (cfs)		38292.6
248665.9				
Length Wtd. (ft)	506.66	Wetted Per. (ft)		58.45
2187.35				
Min Ch El (ft)	2202.00	Shear (lb/sq ft)		0.96
0.42				
Alpha	1.46	Stream Power (lb/ft s)		8.35
1.45				
Frctn Loss (ft)	1.48	Cum Volume (acre-ft)	0.19	88.85
313.24				
C & E Loss (ft)	0.01	Cum SA (acres)	0.30	12.82
175.30				

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 11.912

INPUT
Description: RS 11.912
5.91 5.72 3822.819
Station Elevation Data num= 162

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8410	2207.09	8416.2	2207.08	8425.98	2207.09	8461.52	2207.07	8466.12	2207.08
8496.31	2207.06	8531.74	2207.09	8540.43	2207.08	8550.24	2207.09	8659.11	2207.07
8685.26	2207.06	8690.3	2207.05	8700	2207.05	8703.61	2207.04	8802.68	2206.9
8814.74	2206.86	8817.12	2206.86	8828.34	2206.83	8949.61	2206.87	8955.88	2206.84
8962.93	2206.82	8968.51	2206.84	8993.51	2206.73	8998.73	2206.75	9017.67	2206.65
9056.99	2206	9206.35	2206	9257.27	2205.15	9267.76	2205.12	9269.55	2205.13
9275.66	2205.1	9277.46	2205.11	9285.95	2205.07	9287.83	2205.09	9305.73	2205
9307.94	2205.02	9316.05	2204.98	9455.94	2205.14	9522.28	2205.02	9747.52	2204.24
9789.45	2204	9919.09	2204	9927.39	2205.9	9927.85	2206	9936.48	2208
9942.39	2208	9961.02	2208	9963.6	2206.84	9966.99	2205.31	9969.91	2204

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 9971.71 2203.23 9974.72    2202 9995.04 2200.21 9997.12    220010006.87    2200
10013.29 2201.1710017.51    220210020.67 2202.54 10024.2 2202.7510040.28    2204
10640.96    220410780.68 2204.41 10784.5 2204.4110786.02 2204.4211149.92 2204.86
11243.41 2204.8711251.12 2204.8611277.14 2204.8811301.89 2204.8611315.99 2204.88
 11429.2 2204.8711490.48 2204.9111506.22  2204.911519.73 2204.9211531.33 2204.91
11663.01 2204.9911812.61 2205.3711813.58 2205.3811859.63 2205.5111861.78 2205.51
11938.78 2205.7312004.07 2205.91 12005.3 2205.9212048.83 2206.0512050.52 2206.05
12078.26 2206.1412080.14 2206.1512105.97 2206.2312107.76 2206.2412108.34 2206.24
12132.12 2206.32   12133 2206.3312134.02 2206.3312135.21 2206.3412550.25 2207.81
12553.55 2207.8312555.96 2207.8312608.07 2208.0212608.22 2208.0212707.33 2208.41
13074.38 2209.9813075.86 2209.9913076.02 2209.9913210.89 2210.5913217.22 2210.61
13226.32 2210.66 13561.1    221213562.03    2212 13620.3  2212.213625.44 2212.21
13682.11  2212.413686.61 2212.4113693.74 2212.4413698.13 2212.4513699.18 2212.45
13703.44 2212.4713704.42 2212.4713946.94 2213.2913973.67 2213.3614095.49 2213.84
14130.36    221414153.44    221414162.43 2214.15 14204.3 2214.3914211.09 2214.54
14212.43 2215.2914212.74 2215.2914213.36  2214.614214.28 2213.9314214.68 2213.25
 14216.3 2213.3214216.62    221414217.24 2215.3414218.12 2215.3514218.39 2214.71
14218.67 2214.7214228.48 2214.4114261.28 2214.8214274.92 2214.53 14313.3 2214.42
14336.54  2214.314364.87 2214.4314382.78 2214.1214402.12 2213.9814426.45 2214.28
14446.41 2214.1814479.27 2214.1314495.93 2213.8614498.23 2213.9514499.38 2213.99
14524.18 2214.1914577.24  2214.114603.23 2214.1814636.84    221414642.17 2213.99
14660.79 2213.9714680.18 2213.2514680.39 2213.2514710.16 2213.4314725.59 2213.98
 14816.2 2213.0514821.69 2213.01

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8410     .04 9961.02    .02710040.28     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9961.0210040.28           510.75  508.66  489.69             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8410 9947.21 2210.21       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8410 9946.87  2210.2

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2207.19    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.28    Wt. n-Val.                           0.027
  0.040
  W.S. Elev (ft)           2206.91    Reach Len. (ft)          510.75     508.66
 489.69
  Crit W.S. (ft)           2206.29    Flow Area (sq ft)                    377.27
4645.61
  E.G. Slope (ft/ft)      0.002490    Area (sq ft)                         377.27
4645.61
  Q Total (cfs)           16900.00    Flow (cfs)                          2957.53
13942.47
  Top Width (ft)           2332.17    Top Width (ft)                        76.83
2255.34
  Vel Total (ft/s)            3.36    Avg. Vel. (ft/s)                      7.84
   3.00
  Max Chl Dpth (ft)           6.91    Hydr. Depth (ft)                      4.91
   2.06
  Conv. Total (cfs)       338645.4    Conv. (cfs)                         59263.6
279381.8
  Length Wtd. (ft)          492.72    Wetted Per. (ft)                      78.23
2255.34
  Min Ch El (ft)           2200.00    Shear (lb/sq ft)                      0.75
```

0.32					
Alpha		1.61	Stream Power (lb/ft s)		5.88
0.96					
Frctn	Loss (ft)	0.97	Cum Volume (acre-ft)	0.19	85.08
261.52					
C & E	Loss (ft)	0.04	Cum SA (acres)	0.30	12.03
149.56					

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: Aguila Farm Chan
REACH: Reach-1 RS: 11.815

INPUT
Description: RS 11.815
5.82 5.63 3314.156
Station Elevation Data num= 184

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8490	2205.04	8665.34	2204.9	8670.77	2204.89	8687.12	2204.89	8689.05	2204.88
8919.84	2204.64	9007.49	2204.47	9076.36	2204.47	9080.84	2204.48	9106.92	2204
9256.11	2204	9292.81	2202.92	9295.97	2202.94	9299.18	2202.98	9725.29	2202
9849.33	2202	9849.78	2202.01	9918.89	2202.97	9922.5	2203.13	9926.2	2203.08
9930.18	2203.3	9936.17	2203.62	9943	2204	9945.94	2204.75	9950.89	2206
9957.46	2206	9976.03	2206	9977.71	2205.48	9982.64	2204	9987.74	2202.27
9988.54	2202	9988.88	2201.89	9994.54	2200	10022.9	220	10033.24	2202
10039.58	2202.33	10040.43	2202.37	10051.25	2202.92	10057.39	2203.15	10071.2	2203.77
10076.29	2203.97	10077.35	2204	10144.9	220	10147.15	2203.63	10149.75	2203.15
10153.63	2202.49	10156.14	220	10176.81	220	10191.92	2203.93	10192.1	2203.95
10192.83	220	10272.87	220	10273.86	2203.71	10279.62	220	10305.11	2202
10313.71	2202.13	10313.91	2202.13	10314.91	2202.15	10340.99	2202.77	10341.76	2202.76
10473.17	220	10531.75	220	10737.53	2203.44	10872.3	2203.5	10880.88	2203.49
10888.52	2203.51	11063.33	2203.39	11067.61	2203.38	11121.17	2203.35	11124.6	2203.34
11158.8	2203.33	11162.96	2203.32	11181.89	2203.32	11309.14	2203.24	11311.51	2203.23
11434.04	2203.16	11438.78	2203.15	11496.44	2203.13	11653.11	2203.12	11733.11	2203.28
11734.83	2203.29	11877.71	2203.6	11891.72	2203.59	11914.22	2203.67	11916.18	2203.66
11958.69	2203.81	11960.15	2203.81	12015.31	2204.01	12015.45	2204.01	12052.09	2204.13
12053.84	2204.14	12399.81	2205.15	12408.4	2205.16	12448.76	2205.15	12483.01	2205.3
12485.74	2205.29	12522.38	2205.46	12526.47	2205.46	12546.76	2205.56	12551.68	2205.57
12579.42	2205.72	12588.16	2205.72	12633.68	220	12654.24	220	12776.09	2206.28
12781.59	2206.3	12786.09	2206.33	12799.3	2206.34	12802.16	2206.36	12802.83	2206.36
12838.83	2206.43	12903.95	2206.42	12946.68	2206.73	12957.06	2206.85	12959.86	2206.86
13027.08	2207.65	13029.12	2207.66	13031.2	2207.68	13035.55	2207.73	13044.66	2207.8
13046.03	2207.82	13069.84	220	13098.95	220	13385.91	221	13606.33	2210
13614.77	2210.03	13614.97	2210.03	13651.23	2210.15	13652.88	2210.15	13682.32	2210.25
13685.98	2210.25	13732.5	2210.41	13734.59	2210.41	14098.91	2211.77	14132.21	2211.99
14132.34	2211.99	14132.92	221	14178.07	221	14212.09	2212.13	14225.1	2212.16
14233.46	2212.2	14237.44	2212.23	14240.97	2212.28	14243.99	2212.34	14246.47	2212.41
14254.77	2212.68	14270.13	2212.77	14283.76	2213.07	14286.45	2214.57	14287.08	2214.57
14288.31	2213.18	14290.17	2211.83	14290.97	2210.48	14294.23	2210.62	14294.87	2211.99
14296.11	2214.68	14297.89	2214.7	14298.42	2213.41	14298.98	2213.42	14318.69	2212.8
14339.52	2213.06	14360.7	2212.61	14387.79	2212.54	14418.88	2212.38	14440.63	2212.48
14463.15	2212.09	14487.49	2211.91	14507.59	2212.16	14531.91	2212.03	14559.78	2211.99
14579.44	2211.67	14583.5	2211.82	14604.94	2211.99	14657.86	2211.91	14687.44	2212
14717.39	2211.83	14744.22	2211.81	14761.68	2211.16	14761.87	2211.15	14778.18	2211.25
14794.96	2211.35	14809.01	2211.85	14891.54	2211.01	14926.21	2210.75		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8490	.029	9976.03	.025	10077.35	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9976.03	10077.35	540.42	539.83 101.66	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8490	9959.04	2211.35	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8490	9959.07	2211.34

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2206.19	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.16	Wt. n-Val.	0.029	0.025
0.040				
W.S. Elev (ft)	2206.03	Reach Len. (ft)	540.42	539.83
101.66				
Crit W.S. (ft)	2205.01	Flow Area (sq ft)	0.44	408.80
5748.73				
E.G. Slope (ft/ft)	0.001584	Area (sq ft)	0.44	408.80
5748.73				
Q Total (cfs)	16900.00	Flow (cfs)	0.08	2432.12
14467.80				
Top Width (ft)	2706.43	Top Width (ft)	16.96	101.32
2588.15				
Vel Total (ft/s)	2.74	Avg. Vel. (ft/s)	0.18	5.95
2.52				
Max Chl Dpth (ft)	6.03	Hydr. Depth (ft)	0.03	4.03
2.22				
Conv. Total (cfs)	424597.0	Conv. (cfs)	2.0	61104.7
363490.3				
Length Wtd. (ft)	166.45	Wetted Per. (ft)	16.99	102.51
2588.77				
Min Ch El (ft)	2200.00	Shear (lb/sq ft)	0.00	0.39
0.22				
Alpha	1.40	Stream Power (lb/ft s)	0.00	2.35
0.55				
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	0.19	80.49
203.10				
C & E Loss (ft)	0.03	Cum SA (acres)	0.20	10.99
122.33				

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.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 11.713

INPUT
Description: RS 11.713
5.71 5.52 2774.327

Station Elevation Data num= 177

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8535	2202.9	8624.02	2202.82	8628.82	2202.81	8635.14	2202.81	8665.64	2202.77
8899.38	2202.53	8903.99	2202.53	8955.79	2202.44	8960.27	2202.44	9072.07	2202
9343.21	2202	9371.79	2201.44	9427.61	2201.42	9523.93	2201.61	9569.71	2201.62
9787.78	2202	9852.11	2202	9882.3	2200.72	9900.74	2200	9916.19	2200
9922.99	2200.62	9934.88	2202	9940.14	2203.56	9941.6	2204	9953.42	2204
9974.5	2204	9979.99	2202	9983.75	2200.56	9985.24	220010029.79		2200
10030.55	2200.1810039.35		2202	10112.9	220210117.44		2202.8910122.59		2204
10126.04	220410135.92		220210138.69		2201.410145.48		220010158.61		2200
10162.59	2200.9710166.37		220210457.44		220210650.43		2201.8310666.09		2202
11071.19	220211087.54		2202.0211138.39		2202.0811139.39		2202.08 11187.7		2202.13
11189.74	2202.14 11307.1		2202.2511310.68		2202.2611336.57		2202.2811340.75		2202.29
11376.56	2202.31 11381.4		2202.32 11395.7		2202.3311399.51		2202.3411409.13		2202.34
11414.12	2202.3511416.73		2202.3511420.26		2202.3611480.97		2202.4111674.59		2202.76
11702.6	2202.8211710.87		2202.85 11824.9		2203.04 11838.2		2203.0811870.21		2203.07
11885.4	2203.1211890.54		2203.1211919.22		2203.2211925.13		2203.2211995.23		2203.48
11999.59	2203.4912065.79		2203.7412085.02		2204 12135.7		220412168.75		2204.1
12169.88	2204.1112202.37		2204.2112205.42		2204.2112232.88		2204.312365.87		2204.56
12435.3	2204.5512451.54		2204.6112456.94		2204.6112474.29		2204.6912484.23		2204.7
12493.9	2204.7412508.14		2204.7612521.56		2204.8312557.99		2204.8212605.19		2205.14
12613.15	2205.2112615.08		2205.2212636.15		2205.3812671.71		2205.5512672.81		2205.55
12683.36	2205.5712683.75		2205.5712725.71		220612888.54		220612948.65		2206.43
12953.26	2206.4912981.19		2206.7613089.34		220813185.11		220813328.82		2209.02
13332.78	2209.0413360.39		2209.0613368.12		2209.0813370.91		2209.0813372.32		2209.09
13374.97	2209.0913391.65		2209.15 13409		2209.16 13442.6		2209.1513447.94		2209.16
13487.91	2209.1613489.58		2209.1713491.21		2209.17 13492.8		2209.1813494.34		2209.18
13501.44	2209.1713607.52		2209.3313731.22		221014043.71		2211.0514063.55		2211.19
14079.93	2211.19 14152.5		221214248.51		221214249.97		2212.04 14260.2		2212.37
14268.63	2212.4214283.72		2212.76 14286.7		2214.42 14287.4		2214.4214288.77		2212.88
14290.83	2211.3914291.71		2209.8914295.32		2210.0514296.02		2211.56 14297.4		2214.54
14299.37	2214.5614299.96		2213.1314300.58		2213.15 14322.4		2212.46 14340.7		2212.69
14363.49	2212.2114388.21		2212.1414420.98		2211.9714441.35		2212.0614464.85		2211.66
14490.26	2211.4714509.48		2211.7114534.73		2211.5814561.56		2211.5414581.87		2211.21
14584.67	2211.3214586.06		2211.37 14606.8		2211.5314659.73		2211.4514690.07		2211.54
14719.28	2211.3914746.71		2211.3514763.79		2210.7214763.98		2210.7114788.94		2210.86
14797.77	2210.9214811.54		2211.4114892.45		2210.5814924.93		2210.3414951.07		2210.21
14970.79	2210.2314982.36		2210.17						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8535	.029	9974.5	.02510122.59		.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9974.510122.59		509.94	485.2 100.96	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
8535	9967.01	2209.86	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8535	9966.64	2209.85

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2206.02	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.08	Wt. n-Val.	0.029	0.025
0.040				
W.S. Elev (ft)	2205.94	Reach Len. (ft)	509.94	485.20
100.96				
Crit W.S. (ft)	2203.76	Flow Area (sq ft)	14.55	672.81
7902.74				

E.G. Slope (ft/ft)	0.000541	Area (sq ft)	15.27	672.81 7902.74
Q Total (cfs)	16900.00	Flow (cfs)	27.01	2538.58 14334.41
Top Width (ft)	2753.52	Top Width (ft)	7.86	148.09 2597.57
Vel Total (ft/s)	1.97	Avg. Vel. (ft/s)	1.86	3.77 1.81
Max Chl Dpth (ft)	5.94	Hydr. Depth (ft)	1.94	4.54 3.04
Conv. Total (cfs)	726583.6	Conv. (cfs)	1161.2	109141.4 616281.0
Length Wtd. (ft)	229.18	Wetted Per. (ft)	7.49	149.22 2598.24
Min Ch El (ft)	2200.00	Shear (lb/sq ft)	0.07	0.15 0.10
Alpha	1.27	Stream Power (lb/ft s)	0.12	0.57 0.19
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.09	73.79 187.17
C & E Loss (ft)	0.00	Cum SA (acres)	0.05	9.44 116.28

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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 11.621

INPUT
Description: RS 11.621
5.62 5.43 2289.123
Station Elevation Data num= 256

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8670	2198.51	8682.06	2198.52	8726.13	2198.49	8738.19	2198.5	8741.59	2198.51
8773.61	2198.51	8778.27	2198.52	8784.61	2198.52	8789.77	2198.53	8793.7	2198.53
8901.15	2200	9031.37	2200	9093.2	2198.9	9120.44	2198.89	9124.82	2198.88
9136.76	2198.88	9139.8	2198.87	9204.55	2198.87	9282.17	2198.67	9290.42	2198.68
9302.77	2198.67	9311.93	2198.68	9321.67	2198.67	9331.92	2198.69	9339.03	2198.68
9358.46	2198.71	9367.45	2198.71	9372.58	2198.72	9404.15	2198.71	9464.72	2198.88
9491.82	2200	9837.19	2200	9839.28	2200.86	9842.2	2202	9852.93	2202
9856.73	2201.68	9862.11	2201.24	9863.67	2201.12	9864.16	2201.12	9865.37	2201.03
9866.27	2200.95	9867.18	2200.97	9894.68	2200.71	9896.9	2200.79	9899.19	2200.82
9903.45	2200.84	9908.35	2200.83	9910.48	2200.95	9910.69	2200.95	9913.59	2201.12
9914.38	2201.13	9915.79	2201.14	9919.51	2201.4	9920.9	2201.41	9926.04	2201.85
9927.45	2202	9927.75	2202	9929.8	2202.98	9931.83	2204	9936.36	2204
9946.05	2204	9951.47	2202.62	9953.97	2202	9954.25	2201.91	9955.96	2201.3
9959.03	2200.23	9959.66	2200	9960.24	2199.78	9965	2198	9970.5	2196.38
9971.81	2196	9973.45	2195.57	9979.51	2194	9985.6	2193.16	9992.13	2192.36
9993.87	2192.13	9994.09	2192.1	9994.2	2192.09	9994.3	2192.08	9995.53	2192
10010.18	219210015.22		2192.1110019.96		2192.3210024.33		2192.4810027.62		2192.65
10030.87	2192.7810035.68		219310037.83		2193.1110046.68		2193.5310058.35		2194
10062.66	219410070.78		2194.410072.16		2194.4210091.81		2194.9510096.67		2195.02

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10123.93 2194.8510134.29 2195.11 10139.8 2195.4910142.28 2195.6410147.76 2195.91
10149.69    219610156.94 2196.5310158.17 2196.6110162.54 2196.9410164.34 2197.05
10166.36  2197.210168.42 2197.3210169.26 2197.3910177.63    219810177.78    2198
10178.94 2198.1110179.43 2198.1610186.77 2198.9310189.99 2199.2310190.93 2199.32
10192.75 2199.4710194.05 2199.5610194.88 2199.6210196.38 2199.6810196.88 2199.71
10199.46 2199.7710199.76 2199.7910203.54 2199.8410203.72 2199.8510205.03    2200
10213.06    220010218.15 2200.0610333.57 2200.5410341.89 2200.5610342.31 2200.55
10344.14 2200.5510425.33 2200.7410472.15 2200.6110532.46 2200.6710546.63  2200.7
10548.23  2200.710549.19 2200.7110550.24 2200.71 10555.7 2200.7210673.47    2202
11469.43 2202.0311501.05 2202.0711503.95 2202.0711537.77 2202.1311540.71 2202.13
11541.61 2202.1411542.79 2202.1411578.62 2202.2111581.74 2202.2111635.39 2202.31
11645.59 2202.3411648.97 2202.3411653.52 2202.3611811.37 2202.6211859.25 2202.61
11867.96 2202.64 11875.9 2202.6411888.67 2202.6811892.28  2202.711902.14  2202.7
11909.62 2202.7211913.62 2202.7411923.22 2202.7711929.01  2202.811959.34 2202.89
11990.36 2203.0112063.89    2204 12538.4    220412538.63 2204.0112543.53 2204.02
12543.69 2204.0212543.88 2204.0312551.77 2204.0812661.45 2204.6212664.86 2204.62
12669.09 2204.6312670.31 2204.6412804.06    220612823.52    220612834.34 2206.11
12871.64 2206.4112873.57 2206.41   13084    220813323.18    220813360.99 2208.05
13363.99 2208.0713364.15 2208.0713399.59 2208.1913400.17 2208.1913424.58 2208.22
13429.81 2208.2213450.94 2208.1913456.75 2208.1913468.09 2208.2113478.11 2208.22
13479.38 2208.2113482.19 2208.2213490.21 2208.2213503.87 2208.2613505.43 2208.26
13528.66 2208.2913691.79 2209.2613747.33    2210 13873.7    221013997.42 2210.36
14000.01 2210.3814004.17  2210.414036.25 2210.4114130.16 2211.4614131.07 2211.46
14167.46    221214270.09    221214272.39 2212.0714274.08 2212.0814290.59 2212.46
14293.85 2214.2714294.62 2214.2714296.11 2212.5814298.37 2210.9514299.33 2209.31
14303.28 2209.4914304.05 2211.1514305.56  2214.414307.71 2214.4214308.36 2212.86
14309.03 2212.88 14332.9 2212.1314348.73 2212.3314373.08 2211.8114395.47 2211.75
14429.86 2211.5714448.87 2211.6614473.33 2211.2414499.77 2211.0414518.13 2211.27
14544.28 2211.1314570.08 2211.0914591.01 2210.75 14593.9 2210.8714595.33 2210.92
14615.38 2211.0814668.29    221114699.36 2211.0914727.82 2210.9414755.85  2210.9
14772.53 2210.2914772.72 2210.2814807.19 2210.4914811.85 2210.6614820.68 2210.98
14899.94 2210.1614931.75 2209.9314957.36  2209.814976.67 2209.8214999.29  2209.7
 15001.8 2209.68

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8670    .029 9946.05    .02510203.72     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       9946.0510203.72           208.14  225.12  201.93             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8670 9947.67    2212        F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8670 9947.69 2211.93

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2205.96    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.09    Wt. n-Val.                          0.025
  0.040
  W.S. Elev (ft)           2205.87    Reach Len. (ft)          208.14     225.12
 201.93
  Crit W.S. (ft)           2200.48    Flow Area (sq ft)                  2687.52
8605.15
  E.G. Slope (ft/ft)      0.000132    Area (sq ft)                       2687.52
8605.15
  Q Total (cfs)           16900.00    Flow (cfs)                         8712.00
8188.00
  Top Width (ft)           2843.89    Top Width (ft)                      256.03
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2587.86			
Vel Total (ft/s)	1.50	Avg. Vel. (ft/s)	3.24
0.95			
Max Chl Dpth (ft)	13.87	Hydr. Depth (ft)	10.50
3.33			
Conv. Total (cfs)	1469866.0	Conv. (cfs)	757720.8
712145.5			
Length Wtd. (ft)	215.49	Wetted Per. (ft)	260.13
2587.89			
Min Ch El (ft)	2192.00	Shear (lb/sq ft)	0.09
0.03			
Alpha	2.61	Stream Power (lb/ft s)	0.28
0.03			
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	55.07
168.04			
C & E Loss (ft)	0.01	Cum SA (acres)	7.19
110.27			

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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 11.579

INPUT
Description: RS 11.579 ***Adjusted cross section to match culvert invert, imm. upstream of SR 71****
5.58 5.39 2064.001
Station Elevation Data num= 480

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8700	2198	9000.08	2198	9001.76	2198.23	9003.05	2198.23	9004.18	2198.24
9034.83	2200	9521.29	2200	9532.64	2200.92	9534.43	2200.97	9550.97	2201.63
9560.33	2201.84	9561.8	2201.85	9564.04	2201.84	9564.49	2201.85	9567.5	2201.82
9567.9	2201.83	9569.89	2201.8	9570.46	2201.81	9583.04	2201.78	9587.08	2201.84
9595.05	2202	9597.23	2202.1	9599.95	2202.21	9601.08	2202.25	9601.29	2202.26
9601.67	2202.27	9602.69	2202.32	9606.35	2202.58	9608.29	2202.7	9608.92	2202.76
9611.13	2202.9	9612.47	2202.98	9613.61	2203.04	9613.86	2203.06	9614.08	2203.08
9614.63	2203.12	9614.83	2203.13	9619.23	2203.34	9620.54	2203.33	9620.94	2203.33
9621.98	2203.31	9622.19	2203.31	9622.97	2203.29	9623.46	2203.27	9623.76	2203.26
9624.96	2203.25	9625.57	2203.22	9627.72	2203.2	9628.44	2203.18	9629.31	2203.15
9633.14	2203.11	9634.02	2203.11	9636.12	2203.06	9637.03	2203.08	9638.35	2203.02
9639.05	2203.04	9639.49	2203.07	9642.55	2202.95	9642.92	2202.95	9643.29	2202.94
9643.61	2202.97	9646.42	2202.92	9647.74	2202.93	9648.29	2202.98	9650.08	2202.98
9651.07	2202.99	9665.95	2203.11	9667.64	2203.12	9668.17	2203.08	9669.55	2203.08
9670.66	2203.07	9671.51	2203.03	9673.47	2203.02	9674.71	2202.98	9676.09	2202.92
9678.64	2202.9	9680.05	2202.83	9681.71	2202.72	9684.32	2202.7	9686.25	2202.58
9688.99	2202.44	9690.11	2202.43	9693.48	2202.27	9694.28	2202.27	9697.75	2202.13
9701.68	2202.02	9703.32	2202	9707.96	2202	9709.24	2202.01	9713.42	2202.14
9717.11	2202.31	9718.39	2202.31	9720.92	2202.42	9722.13	2202.48	9723.04	2202.52
9724.43	2202.56	9726.37	2202.56	9728.86	2202.63	9730.67	2202.63	9734.08	2202.72
9736.59	2202.78	9738.23	2202.78	9740.17	2202.8	9741.58	2202.8	9742.65	2202.81
9743.09	2202.81	9743.92	2202.83	9745.87	2202.83	9746.19	2202.84	9748.98	2202.84
9749.35	2202.83	9751.66	2202.84	9755.18	2202.84	9757.13	2202.86	9758.8	2202.85

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 9763.18 2202.61 9764.52  2202.5 9766.11 2202.52 9767.71  2202.4 9768.62 2202.41
 9770.66 2202.27 9772.59 2202.17 9772.85 2202.17 9774.34 2202.11 9789.95 2202.12
 9795.51 2202.09 9795.87 2202.09 9800.83 2202.05 9805.32 2201.97  9809.5 2201.98
 9813.62 2202.07  9817.1 2202.23 9821.85 2202.33 9824.15 2202.33 9830.62 2202.38
 9842.54  2202.4 9859.46 2202.37 9862.06 2202.36 9864.97 2202.38 9881.99 2202.34
 9883.17 2202.37 9896.01 2202.66 9900.36 2202.75 9902.04 2202.76 9903.58 2202.73
 9904.97 2202.76 9906.34 2202.69 9906.56  2202.7 9907.63 2202.65 9908.52 2202.62
  9910.5 2202.43 9913.01 2202.13 9914.74 2201.95 9916.84 2201.76 9917.15 2201.73
 9919.68 2201.52 9921.83 2201.36 9922.87 2201.28 9924.64 2201.16 9926.26 2201.04
  9931.8 2200.66 9932.75 2200.62 9933.69 2200.61 9937.37 2200.45 9938.13 2200.46
 9942.52 2200.38 9943.77 2200.38  9950.8 2199.76 9979.58    219010004.01    2190
10032.28    219010032.28 2197.9810032.49  2200.510038.35  2200.610042.09 2200.63
10046.11 2200.69 10055.4 2200.7710067.95 2200.8510070.17 2200.8710072.47 2200.88
10079.86 2200.9410082.43 2200.9710090.57 2201.0410118.16 2201.3410121.22 2201.38
10126.13 2201.4310130.46 2201.4910137.66 2201.5510139.98 2201.5610144.97 2201.59
10150.32  2201.610152.56  2201.610159.23 2201.5910160.83 2201.5910168.75 2201.57
10170.92 2201.5710179.95 2201.5310181.58 2201.5310188.87 2201.5110203.73  2201.5
10210.59 2201.53 10228.7  2201.710234.69 2201.7410235.19 2201.7510235.52 2201.75
10235.94 2201.7610242.46  2201.810242.96 2201.8110249.52 2201.8610256.33 2201.93
10256.55 2201.9610261.64    220210263.34 2202.0210270.83 2202.0810271.15 2202.09
10279.29 2202.1310280.06 2202.1310289.02 2202.1510290.12 2202.1510319.15 2202.26
10326.62 2202.3110328.87 2202.3210335.21 2202.3810340.13 2202.4410341.92 2202.45
10342.35 2202.4610348.17 2202.4910350.12 2202.4910356.83  2202.510359.07  2202.5
 10366.8 2202.4810378.25 2202.4710399.23  2202.510407.12 2202.5410411.21 2202.55
10419.04 2202.6110421.88 2202.6210433.59 2202.7310440.03 2202.7810464.33 2202.93
10472.87 2203.0110479.74 2203.0510483.46  2203.110491.19 2203.1710494.14 2203.21
10495.57 2203.2210498.36 2203.2510499.73 2203.2610504.49 2203.2710509.44 2203.31
10517.84 2203.3210520.29 2203.3310522.76 2203.3310534.88 2203.3510537.31 2203.36
10539.71 2203.3610548.52 2203.3810550.88 2203.3910556.22  2203.410558.53 2203.41
10560.25 2203.41   10562 2203.4210564.24 2203.4210566.01 2203.4310570.02 2203.43
10575.98  2203.410578.48  2203.410588.17 2203.3310591.11 2203.32   10607 2203.21
10610.43 2203.2210613.46 2203.2510621.93  2203.210624.85 2203.2610629.58 2203.24
10632.22  2203.310633.13 2203.3110637.74 2203.42 10641.9 2203.4910643.43 2203.53
10651.72 2203.6610652.82 2203.6910653.82 2203.7110667.21  2203.910667.56 2203.91
10667.84 2203.9110673.33    220410830.17    220410864.69 2203.9510865.49 2203.95
10866.84 2203.9410867.16 2203.9310869.11 2203.9110871.56 2203.8710878.65 2203.85
10879.58 2203.8410891.27 2203.8410892.05 2203.8310892.68 2203.8310909.02 2203.85
10909.36 2203.8610956.96 2203.92 10957.6 2203.9210977.17 2203.9710977.49 2203.97
10990.82    2204 12220.5    220412236.38 2205.47 12239.5 2205.4712241.92 2205.48
12243.47 2205.5212245.19 2205.5512246.71 2205.5512248.49 2205.5712249.42 2205.57
 12251.3 2205.5812255.61 2205.65 12256.7 2205.66 12263.9 2205.8112264.66 2205.82
12271.57    220612475.11    2206 12485.9 2207.0112486.25 2207.0212489.78 2207.02
12491.09 2207.0712495.43 2207.0612497.51 2207.14 12501.7 2207.2912505.31 2207.29
12511.91 2207.5712514.28 2207.5712519.49 2207.9212520.26    220812758.33    2208
12773.19 2209.8712775.06 2209.9612775.41 2209.9612778.42    221013560.63    2210
13561.55 2210.0913582.85 2210.0813583.13 2210.0913593.89  2210.113594.29 2210.11
13602.06 2210.1213602.42 2210.1213602.69 2210.1313609.69 2210.1513610.17 2210.15
13616.43 2210.1713616.93 2210.1813622.42 2210.21 13623.6 2210.23 13632.4 2210.27
13635.73 2210.2913638.23 2210.3413642.54 2210.3413647.97 2210.31 13649.8 2210.35
13660.88 2210.2513661.62 2210.2813664.32 2210.2713664.82 2210.2713668.51 2210.28
13669.49  2210.313676.29 2210.3113678.34 2210.3313694.81 2210.3713698.34 2210.39
13702.21  2210.413703.26 2210.4113706.65 2210.4513709.73 2210.4713715.49 2210.53
13717.74 2210.5413733.87 2210.72 13737.6 2210.7513741.09 2210.7713743.38 2210.79
13746.95  2210.813751.97 2210.8413756.74 2210.85 13775.6 2210.9213778.65 2210.92
13782.18 2210.9313785.22 2210.9313787.69 2210.9413790.69 2210.9313796.71 2210.93
13800.45 2210.9213803.42 2210.9213807.83 2210.9113810.83 2210.9113817.95 2210.93
13821.43 2210.9713824.99 2210.9713827.96 2211.02   13832 2211.0213835.05 2211.05
13838.12 2211.0713842.66 2211.0613850.31 2211.0613853.39 2211.0513857.63 2211.06
 13860.5 2211.0413864.62 2211.0613867.25 2211.0313869.98 2211.0213881.85 2211.07
13884.48 2211.09 13886.9 2211.1413892.51 2211.1613894.83 2211.22 13899.6 2211.24
13901.76  2211.313905.49 2211.3113907.95 2211.3713910.44 2211.3613913.09 2211.41
13918.08  2211.413920.99 2211.4413928.58 2211.4313930.67 2211.4513940.74 2211.44
13942.11 2211.4513942.67 2211.4513943.49 2211.4613944.54 2211.4713954.34 2211.46
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 9763.18 2202.61 9764.52  2202.5 9766.11 2202.52 9767.71  2202.4 9768.62 2202.41
 9770.66 2202.27 9772.59 2202.17 9772.85 2202.17 9774.34 2202.11 9789.95 2202.12
 9795.51 2202.09 9795.87 2202.09 9800.83 2202.05 9805.32 2201.97  9809.5 2201.98
 9813.62 2202.07  9817.1 2202.23 9821.85 2202.33 9824.15 2202.33 9830.62 2202.38
 9842.54  2202.4 9859.46 2202.37 9862.06 2202.36 9864.97 2202.38 9881.99 2202.34
 9883.17 2202.37 9896.01 2202.66 9900.36 2202.75 9902.04 2202.76 9903.58 2202.73
 9904.97 2202.76 9906.34 2202.69 9906.56  2202.7 9907.63 2202.65 9908.52 2202.62
  9910.5 2202.43 9913.01 2202.13 9914.74 2201.95 9916.84 2201.76 9917.15 2201.73
 9919.68 2201.52 9921.83 2201.36 9922.87 2201.28 9924.64 2201.16 9926.26 2201.04
  9931.8 2200.66 9932.75 2200.62 9933.69 2200.61 9937.37 2200.45 9938.13 2200.46
 9942.52 2200.38 9943.77 2200.38  9950.8 2199.76 9979.58    219010004.01    2190
10032.28    219010032.28 2197.9810032.49  2200.510038.35  2200.610042.09 2200.63
10046.11 2200.69 10055.4 2200.7710067.95 2200.8510070.17 2200.8710072.47 2200.88
10079.86 2200.9410082.43 2200.9710090.57 2201.0410118.16 2201.3410121.22 2201.38
10126.13 2201.4310130.46 2201.4910137.66 2201.5510139.98 2201.5610144.97 2201.59
10150.32  2201.610152.56  2201.610159.23 2201.5910160.83 2201.5910168.75 2201.57
10170.92 2201.5710179.95 2201.5310181.58 2201.5310188.87 2201.5110203.73  2201.5
10210.59 2201.53 10228.7  2201.710234.69 2201.7410235.19 2201.7510235.52 2201.75
10235.94 2201.7610242.46  2201.810242.96 2201.8110249.52 2201.8610256.33 2201.93
10256.55 2201.9610261.64    220210263.34 2202.0210270.83 2202.0810271.15 2202.09
10279.29 2202.1310280.06 2202.1310289.02 2202.1510290.12 2202.1510319.15 2202.26
10326.62 2202.3110328.87 2202.3210335.21 2202.3810340.13 2202.4410341.92 2202.45
10342.35 2202.4610348.17 2202.4910350.12 2202.4910356.83  2202.510359.07  2202.5
 10366.8 2202.4810378.25 2202.4710399.23  2202.510407.12 2202.5410411.21 2202.55
10419.04 2202.6110421.88 2202.6210433.59 2202.7310440.03 2202.7810464.33 2202.93
10472.87 2203.0110479.74 2203.0510483.46  2203.110491.19 2203.1710494.14 2203.21
10495.57 2203.2210498.36 2203.2510499.73 2203.2610504.49 2203.2710509.44 2203.31
10517.84 2203.3210520.29 2203.3310522.76 2203.3310534.88 2203.3510537.31 2203.36
10539.71 2203.3610548.52 2203.3810550.88 2203.3910556.22  2203.410558.53 2203.41
10560.25 2203.41   10562 2203.4210564.24 2203.4210566.01 2203.4310570.02 2203.43
10575.98  2203.410578.48  2203.410588.17 2203.3310591.11 2203.32   10607 2203.21
10610.43 2203.2210613.46 2203.2510621.93  2203.210624.85 2203.2610629.58 2203.24
10632.22  2203.310633.13 2203.3110637.74 2203.42 10641.9 2203.4910643.43 2203.53
10651.72 2203.6610652.82 2203.6910653.82 2203.7110667.21  2203.910667.56 2203.91
10667.84 2203.9110673.33    220410830.17    220410864.69 2203.9510865.49 2203.95
10866.84 2203.9410867.16 2203.9310869.11 2203.9110871.56 2203.8710878.65 2203.85
10879.58 2203.8410891.27 2203.8410892.05 2203.8310892.68 2203.8310909.02 2203.85
10909.36 2203.8610956.96 2203.92 10957.6 2203.9210977.17 2203.9710977.49 2203.97
10990.82    2204 12220.5    220412236.38 2205.47 12239.5 2205.4712241.92 2205.48
12243.47 2205.5212245.19 2205.5512246.71 2205.5512248.49 2205.5712249.42 2205.57
 12251.3 2205.5812255.61 2205.65 12256.7 2205.66 12263.9 2205.8112264.66 2205.82
12271.57    220612475.11    2206 12485.9 2207.0112486.25 2207.0212489.78 2207.02
12491.09 2207.0712495.43 2207.0612497.51 2207.14 12501.7 2207.2912505.31 2207.29
12511.91 2207.5712514.28 2207.5712519.49 2207.9212520.26    220812758.33    2208
12773.19 2209.8712775.06 2209.9612775.41 2209.9612778.42    221013560.63    2210
13561.55 2210.0913582.85 2210.0813583.13 2210.0913593.89  2210.113594.29 2210.11
13602.06 2210.1213602.42 2210.1213602.69 2210.1313609.69 2210.1513610.17 2210.15
13616.43 2210.1713616.93 2210.1813622.42 2210.21 13623.6 2210.23 13632.4 2210.27
13635.73 2210.2913638.23 2210.3413642.54 2210.3413647.97 2210.31 13649.8 2210.35
13660.88 2210.2513661.62 2210.2813664.32 2210.2713664.82 2210.2713668.51 2210.28
13669.49  2210.313676.29 2210.3113678.34 2210.3313694.81 2210.3713698.34 2210.39
13702.21  2210.413703.26 2210.4113706.65 2210.4513709.73 2210.4713715.49 2210.53
13717.74 2210.5413733.87 2210.72 13737.6 2210.7513741.09 2210.7713743.38 2210.79
13746.95  2210.813751.97 2210.8413756.74 2210.85 13775.6 2210.9213778.65 2210.92
13782.18 2210.9313785.22 2210.9313787.69 2210.9413790.69 2210.9313796.71 2210.93
13800.45 2210.9213803.42 2210.9213807.83 2210.9113810.83 2210.9113817.95 2210.93
13821.43 2210.9713824.99 2210.9713827.96 2211.02   13832 2211.0213835.05 2211.05
13838.12 2211.0713842.66 2211.0613850.31 2211.0613853.39 2211.0513857.63 2211.06
 13860.5 2211.0413864.62 2211.0613867.25 2211.0313869.98 2211.0213881.85 2211.07
13884.48 2211.09 13886.9 2211.1413892.51 2211.1613894.83 2211.22 13899.6 2211.24
13901.76  2211.313905.49 2211.3113907.95 2211.3713910.44 2211.3613913.09 2211.41
13918.08  2211.413920.99 2211.4413928.58 2211.4313930.67 2211.4513940.74 2211.44
13942.11 2211.4513942.67 2211.4513943.49 2211.4613944.54 2211.4713954.34 2211.46
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13955.72 2211.4713957.35 2211.4913980.24 2211.4913983.04  2211.513998.31  2211.5
13999.76 2211.5114001.54 2211.5114005.93 2211.5514009.48 2211.5514027.15 2211.76
14028.75 2211.76 14038.9 2211.8714039.62 2211.8714042.26 2211.8914044.94 2210.08
14046.07 2208.16 14050.7 2208.37 14051.6 2210.3114053.37 2214.1214055.89 2214.15
14056.65 2212.3214057.45 2212.3414085.42 2211.4614096.29  2211.614123.76 2211.02
14141.49 2210.9714179.13 2210.7714195.42 2210.85 14221.8  2210.414250.31 2210.18
14266.92 2210.3914294.88 2210.2514318.62 2210.2114340.79 2209.8514345.37 2210.03
14364.03 2210.17 14416.9 2210.0914449.45 2210.1914476.42 2210.0514505.63 2210.01
14521.52 2209.4214557.54 2209.6314570.47  2210.114582.08 2209.9814646.41 2209.32
 14676.9 2209.0914701.44 2208.9714719.94 2208.9914741.61 2208.8714757.75 2208.73

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8700    .029 9667.64    .02510150.32     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9667.6410150.32           200.64  200.64  200.64             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8700 9688.28 2213.09       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8700 9688.29 2213.08

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2205.90    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.19    Wt. n-Val.                           0.025
  0.040
  W.S. Elev (ft)           2205.71    Reach Len. (ft)          200.64     200.64
 200.64
  Crit W.S. (ft)           2203.64    Flow Area (sq ft)                  2619.79
4291.00
  E.G. Slope (ft/ft)      0.000521    Area (sq ft)                       2619.79
4291.00
  Q Total (cfs)           16900.00    Flow (cfs)                        11058.01
5841.99
  Top Width (ft)           2570.94    Top Width (ft)                      462.03
2108.91
  Vel Total (ft/s)            2.45    Avg. Vel. (ft/s)                      4.22
   1.36
  Max Chl Dpth (ft)          15.71    Hydr. Depth (ft)                      5.67
   2.03
  Conv. Total (cfs)       740415.1    Conv. (cfs)                       484468.6
255946.5
  Length Wtd. (ft)          200.64    Wetted Per. (ft)                    477.36
2109.00
  Min Ch El (ft)           2190.00    Shear (lb/sq ft)                      0.18
   0.07
  Alpha                       2.06    Stream Power (lb/ft s)                0.75
   0.09
  Frctn Loss (ft)                     Cum Volume (acre-ft)                 41.36
 138.15
  C & E Loss (ft)                     Cum SA (acres)                        5.34
  99.39


Note:    Multiple critical depths were found at this location.  The critical depth
with the lowest, valid,
         energy was used.
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CULVERT

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 11.571

INPUT
Description: 5.57 5.38 2020
Distance from Upstream XS = 25
Deck/Roadway Width = 36
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 62

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
9760	2203.31		9803.5	2203.96		9901.02	2204.29	
10001.42	2204.2		10099.59	2204.42		10199.83	2204.39	
10297.91	2204.2		10397.62	2204.23		10498.7	2204.24	
10597.97	2204.23		10697.95	2204.16		10795.83	2204.28	
10901.73	2204.22		11003.1	2204.06		11104.23	2204.02	
11205.45	2204.02		11305.47	2204.02		11407.04	2204.05	
11507.18	2204.06		11607.19	2204.04		11707.89	2203.96	
11808.93	2204		11910.7	2204.12		12012.65	2204.41	
12113.92	2204.71		12215.44	2205.19		12359.52	2205.65	
12419.74	2206.3		12523.55	2206.99		12628.16	2207.68	
12730.62	2208.49		12834.71	2209.11		12937.3	2209.74	
13137.8	2210.37		13237.85	2210.59		13338.44	2210.72	
13437.85	2210.85		13535.19	2210.99		13634.71	2211.2	
13734.61	2211.65		13832	2211.82		13929.37	2212.17	
14029.99	2212.47		14129.41	2212.76		14232.22	2213.15	
14333.91	2213.47		14438.95	2213.78		14539.52	2214.11	
14641.87	2214.58		14746.76	2214.88		14850.52	2215.36	
15055.52	2216.08		15267.18	2216.73		15570.31	2217.6	
15781.27	2218.18		15987.84	2218.65		16194.16	2219.1	
16404.97	2219.81		16607.97	2220.4		16815.05	2220.87	
17231.61	2222.28		17541.09	2223.23				

Upstream Bridge Cross Section Data
Station Elevation Data num= 480

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8700	2198	9000.08	2198	9001.76	2198.23	9003.05	2198.23	9004.18	2198.24
9034.83	2200	9521.29	2200	9532.64	2200.92	9534.43	2200.97	9550.97	2201.63
9560.33	2201.84	9561.8	2201.85	9564.04	2201.84	9564.49	2201.85	9567.5	2201.82
9567.9	2201.83	9569.89	2201.8	9570.46	2201.81	9583.04	2201.78	9587.08	2201.84
9595.05	2202	9597.23	2202.1	9599.95	2202.21	9601.08	2202.25	9601.29	2202.26
9601.67	2202.27	9602.69	2202.32	9606.35	2202.58	9608.29	2202.7	9608.92	2202.76
9611.13	2202.9	9612.47	2202.98	9613.61	2203.04	9613.86	2203.06	9614.08	2203.08
9614.63	2203.12	9614.83	2203.13	9619.23	2203.34	9620.54	2203.33	9620.94	2203.33
9621.98	2203.31	9622.19	2203.31	9622.97	2203.29	9623.46	2203.27	9623.76	2203.26
9624.96	2203.25	9625.57	2203.22	9627.72	2203.2	9628.44	2203.18	9629.31	2203.15
9633.14	2203.11	9634.02	2203.11	9636.12	2203.06	9637.03	2203.08	9638.35	2203.02
9639.05	2203.04	9639.49	2203.07	9642.55	2202.95	9642.92	2202.95	9643.29	2202.94
9643.61	2202.97	9646.42	2202.92	9647.74	2202.93	9648.29	2202.98	9650.08	2202.98
9651.07	2202.99	9665.95	2203.11	9667.64	2203.12	9668.17	2203.08	9669.55	2203.08
9670.66	2203.07	9671.51	2203.03	9673.47	2203.02	9674.71	2202.98	9676.09	2202.92
9678.64	2202.9	9680.05	2202.83	9681.71	2202.72	9684.32	2202.7	9686.25	2202.58
9688.99	2202.44	9690.11	2202.43	9693.48	2202.27	9694.28	2202.27	9697.75	2202.13
9701.68	2202.02	9703.32	2202	9707.96	2202	9709.24	2202.01	9713.42	2202.14
9717.11	2202.31	9718.39	2202.31	9720.92	2202.42	9722.13	2202.48	9723.04	2202.52
9724.43	2202.56	9726.37	2202.56	9728.86	2202.63	9730.67	2202.63	9734.08	2202.72
9736.59	2202.78	9738.23	2202.78	9740.17	2202.8	9741.58	2202.8	9742.65	2202.81
9743.09	2202.81	9743.92	2202.83	9745.87	2202.83	9746.19	2202.84	9748.98	2202.84
9749.35	2202.83	9751.66	2202.84	9755.18	2202.84	9757.13	2202.86	9758.8	2202.85

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13955.72 2211.4713957.35 2211.4913980.24 2211.4913983.04  2211.513998.31  2211.5
13999.76 2211.5114001.54 2211.5114005.93 2211.5514009.48 2211.5514027.15 2211.76
14028.75 2211.76 14038.9 2211.8714039.62 2211.8714042.26 2211.8914044.94 2210.08
14046.07 2208.16 14050.7 2208.37 14051.6 2210.3114053.37 2214.1214055.89 2214.15
14056.65 2212.3214057.45 2212.3414085.42 2211.4614096.29  2211.614123.76 2211.02
14141.49 2210.9714179.13 2210.7714195.42 2210.85 14221.8  2210.414250.31 2210.18
14266.92 2210.3914294.88 2210.2514318.62 2210.2114340.79 2209.8514345.37 2210.03
14364.03 2210.17 14416.9 2210.0914449.45 2210.1914476.42 2210.0514505.63 2210.01
14521.52 2209.4214557.54 2209.6314570.47  2210.114582.08 2209.9814646.41 2209.32
 14676.9 2209.0914701.44 2208.9714719.94 2208.9914741.61 2208.8714757.75 2208.73

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8700    .029 9667.64    .02510150.32     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9667.6410150.32            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8700 9688.28 2213.09       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    8700 9688.29 2213.08

Downstream  Deck/Roadway Coordinates
    num=      62
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    1000 2203.31          1043.5 2203.96         1141.02 2204.29
 1241.12  2204.2         1339.59 2204.42         1439.83 2204.39
 1537.91  2204.2         1637.62 2204.23          1738.7 2204.24
 1837.97 2204.23         1937.95 2204.16         2035.83 2204.28
 2141.73 2204.22          2243.1 2204.06         2344.23 2204.02
 2445.45 2204.02         2545.47 2204.02         2647.04 2204.05
    2747 2204.06            2847 2204.04            2948 2203.96
  3048.9    2204          3150.7 2204.12         3252.65 2204.41
 3323.92 2204.71         3455.44 2205.19          3599.5 2205.65
 3695.74  2206.3         3763.55 2206.99         3868.16 2207.68
  3970.6 2208.49          4074.7 2209.11          4177.3 2209.74
  4377.8 2210.37         4477.85 2210.59          4578.4 2210.72
  4677.8 2210.85         4775.19 2210.99         4874.71  2211.2
  4974.6 2211.65            5072 2211.82         5169.37 2212.17
 5269.99 2212.47         5369.41 2212.76         5472.22 2213.15
 5573.91 2213.47         5678.95 2213.78         5779.52 2214.11
 5881.87 2214.58         5986.76 2214.88         6090.52 2215.36
 6295.52 2216.08         6507.18 2216.73         6810.31  2217.6
 7021.27 2218.18         7227.84 2218.65         7434.16  2219.1
 7644.97 2219.81         7847.97  2220.4         8055.05 2220.87
 8471.61 2222.28         8781.09 2223.23

Downstream Bridge Cross Section Data
Station Elevation Data    num=     399
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2197.51  252.01 2197.58  260.25 2197.58  265.25 2197.58  334.47 2197.62
  381.04 2197.63  391.55 2197.61  685.79 2197.91  702.67 2197.89  702.93 2197.89
   705.3  2197.9  721.92 2197.91  728.84 2197.85  774.65 2197.92  922.46    2198
  927.88 2199.78  928.53    2200  929.87 2200.44  934.57    2202  955.61    2202
  956.32 2201.72  960.51    2200  972.53 2198.23  973.92    2198  974.63 2197.95
  974.69 2197.96 1031.73    2198 1079.44 2198.41 1084.45    2200 1086.87 2200.87
  1090.1    2202 1092.97 2202.95 1096.43    2204 1102.24    2204 1125.36    2204
 1129.84 2202.32  1130.7    2202 1130.93 2201.92 1136.05    2200 1137.89 2199.37
  1142.2    2198 1145.95  2196.8 1148.47    2196 1149.88 2195.55 1154.74    2194
 1158.64 2192.76 1161.02    2192 1166.54 2190.25 1167.33    2190  1171.5 2188.67
  1173.2 2188.13 1173.63    2188 1175.68    2188 1202.02    2188 1256.03    2188
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1258.98	2188.17	1259.46	2188.18	1261.58	2188.32	1262.99	2188.35	1265.99	2188.56
1267.71	2188.59	1271.05	2188.82	1272.39	2188.84	1281.22	2189.08	1293.1	2190
1366.55	2190	1370.96	2190.4	1374.01	2190.68	1388.62	2192	1393.86	2192.47
1399.3	2192.95	1405.68	2193.51	1411.65	2194	1414.54	2194.23	1416.38	2194.37
1422.75	2194.84	1426.92	2195.12	1433.03	2195.55	1434.91	2195.67	1439.82	2196
1442.36	2196.17	1443.08	2196.22	1443.81	2196.26	1450.94	2196.71	1454.86	2196.91
1459.88	2197.19	1469.77	2197.66	1471.61	2197.75	1472.79	2197.8	1477.09	2198
1484.76	2198.35	1488.54	2198.52	1497.39	2198.86	1504.59	2199.18	1509.28	2199.32
1516.41	2199.6	1521.31	2199.71	1522.92	2199.74	1533.22	2200	1534.21	2200.02
1534.33	2200.03	1545.98	2200.34	1549.26	2200.43	1552.91	2200.53	1561.93	2200.78
1566.99	2200.92	1568.12	2200.95	1575.38	2201.15	1578.86	2201.25	1584.73	2201.39
1597.29	2201.74	1606.65	2201.99	1606.69	2202	1607.39	2201.99	1607.41	2201.99
1608.48	2202	1859.83	2202	1860.75	2201.96	1860.98	2201.96	1871.38	2201.41
1877.36	2201.26	1885.12	2201.25	1890.21	2201.3	1895.55	2201.63	1900.52	2201.77
1902.14	2201.77	1905.24	2201.61	1906.7	2201.62	1909.15	2201.29	1913.36	2201.29
1924.34	2200	1930.32	2200	1941.58	2200	1945.75	2200	1960.02	2200
2067.96	2201.91	2073.81	2202	2073.83	2202	2074.11	2202	2081.55	2202
2085.12	2202	2090.29	2202	2093.51	2202	2095.55	2202	2100.3	2202
2148.12	2202	2150.2	2201.99	2162.82	2201.96	2163.24	2201.96	2170.17	2201.94
2180.59	2201.92	2181.11	2201.92	2194.96	2201.88	2195.31	2201.88	2205.87	2201.86
2206.97	2201.86	2214.52	2201.84	2219.06	2201.83	2225.38	2201.82	2233.45	2201.81
2235.79	2201.81	2245.71	2201.8	2253.92	2201.79	2260.48	2201.79	2264.18	2201.79
2298.74	2201.76	2307.07	2201.75	2312.24	2201.75	2690.02	2201.78	2737.31	2201.86
2739.58	2201.87	2741.08	2201.87	2747.18	2201.88	2748.67	2201.88	2749.43	2201.88
2750.44	2201.88	2758.64	2201.88	2770.58	2201.88	2825.37	2201.88	2889.24	2201.94
2889.37	2201.94	2911	2201.99	2911.1	2201.99	2914.79	2202	2918	2202
2931.64	2202.21	2933.54	2202.22	2951.07	2202.46	2954.74	2202.47	2957.94	2202.47
2971.65	2202.73	2983.06	2202.73	2994.22	2202.97	2999.5	2202.97	3005.08	2202.96
3030.99	2203.22	3037.08	2203.21	3045.82	2203.21	3056.08	2203.2	3061.93	2203.22
3073.92	2203.22	3084.05	2203.22	3090	2203.26	3098.65	2203.26	3103.7	2203.3
3110.71	2203.3	3114.92	2203.34	3123.12	2203.34	3126.63	2203.37	3136.09	2203.37
3146.62	2203.38	3151.84	2203.43	3171.51	2203.44	3177.93	2203.5	3180.09	2203.5
3198.39	2203.49	3202.44	2203.5	3205.89	2203.5	3213.35	2203.57	3216.33	2203.57
3222.82	2203.57	3232.87	2203.57	3237.73	2203.61	3251.68	2203.62	3261.17	2203.63
3264.21	2203.65	3269.52	2203.65	3271.01	2203.66	3352.01	2203.85	3352.6	2203.86
3352.95	2203.86	3354.04	2203.87	3355.58	2203.88	3357.36	2203.9	3402.15	2203.87
3413.92	2203.91	3439.98	2204	3441.51	2204	3630.8	2204.07	3631.19	2204.07
3642.13	2204.28	3643.46	2204.28	3644.55	2204.28	3653.48	2204.49	3655.72	2204.49
3658.29	2204.49	3665.92	2204.69	3669.99	2204.69	3673.1	2204.69	3693.19	2205.09
3699.93	2205.17	3703.6	2205.17	3737.66	2205.27	3742.04	2205.27	3749.53	2205.27
3760.12	2205.27	3767.4	2205.27	3776.52	2205.39	3780.86	2205.39	3789.02	2205.4
3792.47	2205.4	3801.25	2205.4	3815.34	2205.4	3843.24	2205.45	3854.16	2205.55
3871.82	2205.67	3875.31	2205.69	3876.9	2205.69	3879.71	2205.71	3887.33	2205.74
3896.16	2205.74	3903.71	2205.74	3909.96	2205.74	3914.92	2205.74	4030.57	2206
4175.94	2206	4221.25	2207.25	4263.77	2207.38	4276.27	2207.38	4335.66	2207.39
4347.79	2207.39	4359.85	2207.39	4364.84	2207.42	4374.09	2207.42	4397.52	2207.45
4399.87	2207.45	4484.73	2208	4551.43	2208	4588.9	2208	4591.93	2208
4644.51	2208	4746.26	2208	4749.34	2208.12	4749.83	2208.14	4754.61	2208.09
4754.85	2208.1	4755	2208.11	4756.94	2208.18	4758.47	2208.33	4765.67	2209.02
4783.65	2208.65	4787.6	2208.73	4794.17	2208.84	4800.63	2208.84	4807.34	2208.94
4814.57	2208.94	4823.44	2209.05	4841.27	2209.09	4842.46	2209.1	4851.5	2209.22
4858.51	2209.22	4864.97	2209.23	4870.85	2209.23	4879.82	2209.34	4885.58	2209.34
4919.6	2209.57	4970.68	2209.58	4975.02	2209.58	4977.34	2209.59	4979.3	2209.59
4984.65	2209.59	4993.36	2209.59	4995.99	2209.6	5008.15	2209.6	5022.39	2209.61
5134.78	2210	5155.9	2210	5156.04	2210	5160.34	2210	5167.31	2210
5176.03	2210.21	5176.88	2210.21	5177.04	2210.21	5177.6	2210.21	5199.92	2210.65
5202.88	2210.65	5215.24	2210.7	5229.93	2210.9	5240.29	2211.02	5243.25	2211.04
5244.84	2211.04	5247.76	2211.07	5251.55	2211.07	5254.32	2211.07	5257.3	2211.1
5259.09	2211.1	5259.82	2211.1	5262.81	2211.1	5268.08	2211.1	5272.46	2211.15
5280.32	2211.15	5286.26	2211.15	5292.03	2211.22	5301.86	2211.22	5308.46	2211.28
5313.25	2211.28	5319.92	2211.34	5326.23	2211.34	5332.96	2211.4	5346.28	2211.4
5353.21	2211.44	5355.11	2211.44	5362.89	2211.49	5370.96	2211.53	5378.99	2211.58
5382.19	2211.59	5406.57	2210.83	5412.74	2210.91	5443.19	2210.26	5456.48	2210.23

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 5497.22 2210.02 5510.93 2210.08 5539.13  2209.6  5569.6 2209.37 5584.56 2209.55
 5614.24  2209.4 5636.03 2209.37 5659.38 2208.99 5662.61 2209.12 5664.21 2209.18
 5681.55 2209.31 5712.11 2209.27 5734.38 2209.23 5768.34 2209.34 5793.89  2209.2
 5824.23 2209.16 5839.38  2208.6 5839.54 2208.59 5876.69 2208.82 5889.09 2209.27
 5918.13 2208.97  5961.9 2208.52 5991.13  2208.3 6014.66 2208.19  6032.4 2208.21
 6053.18 2208.09 6074.76  2207.9 6090.33 2207.89 6094.88 2207.84

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04 1125.36      .2 1578.86      .1

Bank Sta: Left   Right    Coeff Contr.   Expan.
       1125.36 1578.86             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0 1096.43    2210       T
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0 1096.43    2210

Upstream Embankment side slope                =       0 horiz. to 1.0 vertical
Downstream Embankment side slope              =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =      .95
Elevation at which weir flow begins           = 2203.81
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      Circular       7
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 1 - Headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef
Exit Loss Coef
                 5    86.5     .024     .024        0                    .5
     .8
Number of Barrels =  4
Upstream   Elevation =  2190.6
Centerline Stations
    Sta.    Sta.    Sta.    Sta.
    9980    9990   10000   10010
Downstream Elevation =  2190.49
Centerline Stations
    Sta.    Sta.    Sta.    Sta.
    1214    1224    1234    1244

CULVERT OUTPUT  Profile #PF 1  Culv Group:  Culvert #1

  Q Culv Group (cfs)       1435.86    Culv Full Len (ft)         86.50
  # Barrels                      4    Culv Vel US (ft/s)          9.33
  Q Barrel (cfs)            358.96    Culv Vel DS (ft/s)          9.33
  E.G. US. (ft)            2205.90    Culv Inv El Up (ft)      2190.60
  W.S. US. (ft)            2205.71    Culv Inv El Dn (ft)      2190.49
  E.G. DS (ft)             2203.32    Culv Frctn Ls (ft)          0.93
  W.S. DS (ft)             2203.19    Culv Exit Loss (ft)         0.98
  Delta EG (ft)               2.59    Culv Entr Loss (ft)         0.68
  Delta WS (ft)               2.52    Q Weir (cfs)            15464.14
  E.G. IC (ft)             2205.81    Weir Sta Lft (ft)        9688.29
  E.G. OC (ft)             2205.90    Weir Sta Rgt (ft)       12267.57
  Culvert Control           Outlet    Weir Submerg                0.02
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Culv WS Inlet (ft)	2197.60	Weir Max Depth (ft)	3.90
Culv WS Outlet (ft)	2197.49	Weir Avg Depth (ft)	1.72
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	4441.37
Culv Crt Depth (ft)	4.99	Min El Weir Flow (ft)	2203.97

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 11.541

INPUT
Description: RS 11.541, ***Imm. Downstream of SR 71, Incr. n-value to match top width***
Station Elevation Data num= 399

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2197.51	252.01	2197.58	260.25	2197.58	265.25	2197.58	334.47	2197.62
381.04	2197.63	391.55	2197.61	685.79	2197.91	702.67	2197.89	702.93	2197.89
705.3	2197.9	721.92	2197.91	728.84	2197.85	774.65	2197.92	922.46	2198
927.88	2199.78	928.53	2200	929.87	2200.44	934.57	2202	955.61	2202
956.32	2201.72	960.51	2200	972.53	2198.23	973.92	2198	974.63	2197.95
974.69	2197.96	1031.73	2198	1079.44	2198.41	1084.45	2200	1086.87	2200.87
1090.1	2202	1092.97	2202.95	1096.43	2204	1102.24	2204	1125.36	2204
1129.84	2202.32	1130.7	2202	1130.93	2201.92	1136.05	2200	1137.89	2199.37
1142.2	2198	1145.95	2196.8	1148.47	2196	1149.88	2195.55	1154.74	2194
1158.64	2192.76	1161.02	2192	1166.54	2190.25	1167.33	2190	1171.5	2188.67
1173.2	2188.13	1173.63	2188	1175.68	2188	1202.02	2188	1256.03	2188
1258.98	2188.17	1259.46	2188.18	1261.58	2188.32	1262.99	2188.35	1265.99	2188.56
1267.71	2188.59	1271.05	2188.82	1272.39	2188.84	1281.22	2189.08	1293.1	2190
1366.55	2190	1370.96	2190.4	1374.01	2190.68	1388.62	2192	1393.86	2192.47
1399.3	2192.95	1405.68	2193.51	1411.65	2194	1414.54	2194.23	1416.38	2194.37
1422.75	2194.84	1426.92	2195.12	1433.03	2195.55	1434.91	2195.67	1439.82	2196
1442.36	2196.17	1443.08	2196.22	1443.81	2196.26	1450.94	2196.71	1454.86	2196.91
1459.88	2197.19	1469.77	2197.66	1471.61	2197.75	1472.79	2197.8	1477.09	2198
1484.76	2198.35	1488.54	2198.52	1497.39	2198.86	1504.59	2199.18	1509.28	2199.32
1516.41	2199.6	1521.31	2199.71	1522.92	2199.74	1533.22	2200	1534.21	2200.02
1534.33	2200.03	1545.98	2200.34	1549.26	2200.43	1552.91	2200.53	1561.93	2200.78
1566.99	2200.92	1568.12	2200.95	1575.38	2201.15	1578.86	2201.25	1584.73	2201.39
1597.29	2201.74	1606.65	2201.99	1606.69	2202	1607.39	2201.99	1607.41	2201.99
1608.48	2202	1859.83	2202	1860.75	2201.96	1860.98	2201.96	1871.38	2201.41
1877.36	2201.26	1885.12	2201.25	1890.21	2201.3	1895.55	2201.63	1900.52	2201.77
1902.14	2201.77	1905.24	2201.61	1906.7	2201.62	1909.15	2201.29	1913.36	2201.29
1924.34	2200	1930.32	2200	1941.58	2200	1945.75	2200	1960.02	2200
2067.96	2201.91	2073.81	2202	2073.83	2202	2074.11	2202	2081.55	2202
2085.12	2202	2090.29	2202	2093.51	2202	2095.55	2202	2100.3	2202
2148.12	2202	2150.2	2201.99	2162.82	2201.96	2163.24	2201.96	2170.17	2201.94
2180.59	2201.92	2181.11	2201.92	2194.96	2201.88	2195.31	2201.88	2205.87	2201.86
2206.97	2201.86	2214.52	2201.84	2219.06	2201.83	2225.38	2201.82	2233.45	2201.81
2235.79	2201.81	2245.71	2201.8	2253.92	2201.79	2260.48	2201.79	2264.18	2201.79
2298.74	2201.76	2307.07	2201.75	2312.24	2201.75	2690.02	2201.78	2737.31	2201.86
2739.58	2201.87	2741.08	2201.87	2747.18	2201.88	2748.67	2201.88	2749.43	2201.88
2750.44	2201.88	2758.64	2201.88	2770.58	2201.88	2825.37	2201.88	2889.24	2201.94
2889.37	2201.94	2911	2201.99	2911.1	2201.99	2914.79	2202	2918	2202
2931.64	2202.21	2933.54	2202.22	2951.07	2202.46	2954.74	2202.47	2957.94	2202.47
2971.65	2202.73	2983.06	2202.73	2994.22	2202.97	2999.5	2202.97	3005.08	2202.96
3030.99	2203.22	3037.08	2203.21	3045.82	2203.21	3056.08	2203.2	3061.93	2203.22
3073.92	2203.22	3084.05	2203.22	3090	2203.26	3098.65	2203.26	3103.7	2203.3
3110.71	2203.3	3114.92	2203.34	3123.12	2203.34	3126.63	2203.37	3136.09	2203.37
3146.62	2203.38	3151.84	2203.43	3171.51	2203.44	3177.93	2203.5	3180.09	2203.5
3198.39	2203.49	3202.44	2203.5	3205.89	2203.5	3213.35	2203.57	3216.33	2203.57
3222.82	2203.57	3232.87	2203.57	3237.73	2203.61	3251.68	2203.62	3261.17	2203.63
3264.21	2203.65	3269.52	2203.65	3271.01	2203.66	3352.01	2203.85	3352.6	2203.86

3352.95	2203.86	3354.04	2203.87	3355.58	2203.88	3357.36	2203.9	3402.15	2203.87
3413.92	2203.91	3439.98	2204	3441.51	2204	3630.8	2204.07	3631.19	2204.07
3642.13	2204.28	3643.46	2204.28	3644.55	2204.28	3653.48	2204.49	3655.72	2204.49
3658.29	2204.49	3665.92	2204.69	3669.99	2204.69	3673.1	2204.69	3693.19	2205.09
3699.93	2205.17	3703.6	2205.17	3737.66	2205.27	3742.04	2205.27	3749.53	2205.27
3760.12	2205.27	3767.4	2205.27	3776.52	2205.39	3780.86	2205.39	3789.02	2205.4
3792.47	2205.4	3801.25	2205.4	3815.34	2205.4	3843.24	2205.45	3854.16	2205.55
3871.82	2205.67	3875.31	2205.69	3876.9	2205.69	3879.71	2205.71	3887.33	2205.74
3896.16	2205.74	3903.71	2205.74	3909.96	2205.74	3914.92	2205.74	4030.57	2206
4175.94	2206	4221.25	2207.25	4263.77	2207.38	4276.27	2207.38	4335.66	2207.39
4347.79	2207.39	4359.85	2207.39	4364.84	2207.42	4374.09	2207.42	4397.52	2207.45
4399.87	2207.45	4484.73	2208	4551.43	2208	4588.9	2208	4591.93	2208
4644.51	2208	4746.26	2208	4749.34	2208.12	4749.83	2208.14	4754.61	2208.09
4754.85	2208.1	4755	2208.11	4756.94	2208.18	4758.47	2208.33	4765.67	2209.02
4783.65	2208.65	4787.6	2208.73	4794.17	2208.84	4800.63	2208.84	4807.34	2208.94
4814.57	2208.94	4823.44	2209.05	4841.27	2209.09	4842.46	2209.1	4851.5	2209.22
4858.51	2209.22	4864.97	2209.23	4870.85	2209.23	4879.82	2209.34	4885.58	2209.34
4919.6	2209.57	4970.68	2209.58	4975.02	2209.58	4977.34	2209.59	4979.3	2209.59
4984.65	2209.59	4993.36	2209.59	4995.99	2209.6	5008.15	2209.6	5022.39	2209.61
5134.78	2210	5155.9	2210	5156.04	2210	5160.34	2210	5167.31	2210
5176.03	2210.21	5176.88	2210.21	5177.04	2210.21	5177.6	2210.21	5199.92	2210.65
5202.88	2210.65	5215.24	2210.7	5229.93	2210.9	5240.29	2211.02	5243.25	2211.04
5244.84	2211.04	5247.76	2211.07	5251.55	2211.07	5254.32	2211.07	5257.3	2211.1
5259.09	2211.1	5259.82	2211.1	5262.81	2211.1	5268.08	2211.1	5272.46	2211.15
5280.32	2211.15	5286.26	2211.15	5292.03	2211.22	5301.86	2211.22	5308.46	2211.28
5313.25	2211.28	5319.92	2211.34	5326.23	2211.34	5332.96	2211.4	5346.28	2211.4
5353.21	2211.44	5355.11	2211.44	5362.89	2211.49	5370.96	2211.53	5378.99	2211.58
5382.19	2211.59	5406.57	2210.83	5412.74	2210.91	5443.19	2210.26	5456.48	2210.23
5497.22	2210.02	5510.93	2210.08	5539.13	2209.6	5569.6	2209.37	5584.56	2209.55
5614.24	2209.4	5636.03	2209.37	5659.38	2208.99	5662.61	2209.12	5664.21	2209.18
5681.55	2209.31	5712.11	2209.27	5734.38	2209.23	5768.34	2209.34	5793.89	2209.2
5824.23	2209.16	5839.38	2208.6	5839.54	2208.59	5876.69	2208.82	5889.09	2209.27
5918.13	2208.97	5961.9	2208.52	5991.13	2208.3	6014.66	2208.19	6032.4	2208.21
6053.18	2208.09	6074.76	2207.9	6090.33	2207.89	6094.88	2207.84		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	1125.36	.2	1578.86	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1125.36	1578.86	95.04	95.04 760	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	1096.43	2210	T

Blocked Obstructions num= 1

Sta L	Sta R	Elev
0	1096.43	2210

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	2203.32	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.12	Wt. n-Val.		0.200
0.100				
W.S. Elev (ft)	2203.19	Reach Len. (ft)	95.04	95.04
760.00				
Crit W.S. (ft)		Flow Area (sq ft)		4417.32
2032.72				
E.G. Slope (ft/ft)	0.008135	Area (sq ft)		4417.32
2032.72				
Q Total (cfs)	16900.00	Flow (cfs)		13486.75
3413.25				

Top Width (ft)	1900.65	Top Width (ft)	451.34
1449.31			
Vel Total (ft/s)	2.62	Avg. Vel. (ft/s)	3.05
1.68			
Max Chl Dpth (ft)	15.19	Hydr. Depth (ft)	9.79
1.40			
Conv. Total (cfs)	187371.1	Conv. (cfs)	149528.2
37842.8			
Length Wtd. (ft)	254.43	Wetted Per. (ft)	454.21
1449.48			
Min Ch El (ft)	2188.00	Shear (lb/sq ft)	4.94
0.71			
Alpha	1.17	Stream Power (lb/ft s)	15.08
1.20			
Frctn Loss (ft)	1.60	Cum Volume (acre-ft)	25.15
123.58			
C & E Loss (ft)	0.08	Cum SA (acres)	3.23
91.19			

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 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: Aguila Farm Chan
REACH: Reach-1 RS: 11.523

INPUT
Description: RS 11.523 ***Increased n-value of main channel to match conveyence***
5.52 5.33 1773.067
Station Elevation Data num= 245

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8550	2197.44	8552.59	2197.44	8558.05	2197.45	8564.95	2197.45	8569.59	2197.44
8572.04	2197.44	8592.29	2197.48	8597.24	2197.47	8601.69	2197.48	8637.94	2197.46
8643.05	2197.45	8666.39	2197.47	8705.82	2197.45	8710.92	2197.44	8716.77	2197.45
8722.72	2197.44	8755.56	2197.43	8759.14	2197.44	8765.04	2197.43	8770.08	2197.44
8791.72	2197.44	9048.49	2197.43	9077.02	2197.44	9082.4	2197.43	9089.9	2197.44
9096.67	2197.43	9158.97	2197.46	9163.84	2197.45	9207.54	2197.45	9211.25	2197.44
9349.97	2197.38	9484.48	2197.61	9488.61	2197.61	9491.72	2197.62	9493.79	2197.62
9544.49	2197.48	9546.53	2197.49	9547.75	2197.48	9549.63	2197.48	9554.19	2197.46
9555.89	2197.46	9559.49	2197.44	9569.47	2197.45	9611.78	2197.13	9623.38	2197.14
9625.14	2197.12	9641.97	2197.14	9644.43	2197.11	9656.52	2197.11	9659.8	2197.07
9684.96	2198	9733.66	2198	9735.78	2198.58	9737.57	2199.09	9740.81	2200
9743.1	2200.63	9748.16	2202	9754.78	2202	9766.52	2202	9769.78	2200.78
9771.77	2200	9774.4	2199.09	9776.96	2198	9789.03	2196.85	9792.07	2196.58
9793.29	2196.54	9795.59	2196.34	9797	2196.22	9797.84	2196.25	9798.56	2196.19
9802.95	2196.08	9804.13	2196.1	9822.6	2196.25	9833.09	2196.4	9891.26	2198
9896.07	2199.77	9896.7	2200	9897.44	2200.28	9904.25	2202.82	9905.95	2203.47
9907.35	2204	9925.32	2204	9928.45	2203.02	9934.09	2201.29	9938.39	2200
9944.24	2198.27	9945.16	2198	9954.97	2195.15	9959.05	2194	9959.89	2193.76
9973.17	2190	9975.91	2189.23	9980.23	218810031.22		218810031.38		2188.03
10031.72	2188.09	10039.66	2189.57	10041.99	219010052.76		219210055.19		2192.45
10059.85	2193.29	10063.87	219410065.32		2194.26	10070.64	2195.15	10075.92	2196
10076.44	2196.08	10076.94	2196.16	10097.74	2199.41	0101.65	220010160.95		2200
10161.57	2199.99	10183.13	2199.68	10191.58	2199.58	10195.48	2199.54	10200.33	2199.61

```
10204.62 2199.5710209.02 2199.5410213.51  2199.510218.04 2199.4710225.98  2199.4
10243.07 2199.3110246.78  2199.310253.38 2199.3710256.04 2199.3610257.39 2199.36
10270.38 2199.3310289.98 2199.3310322.66 2199.5810323.74 2199.5810350.31 2199.53
 10355.1 2199.5510407.55 2199.5110413.42 2199.5310446.96 2199.5110453.46 2199.54
10492.96 2199.6110596.83 2199.64 10599.3 2199.6510640.79 2199.6410911.24    2200
10989.86    220011049.26 2199.8811146.85 2199.7711148.95 2199.7811193.55 2199.73
11212.44 2199.78 11372.1 2199.7211376.27 2199.73 11390.8 2199.72 11398.1 2199.74
11623.23 2199.7411766.68 2199.9111767.32 2199.9111782.07 2199.9411853.23 2199.97
11870.14    220011905.75    220011922.32 2200.04 11923.1 2200.0411924.05 2200.05
11925.32 2200.0711960.88 2200.25 11965.3 2200.3111994.45 2200.5312000.31 2200.59
12043.08 2200.9512048.05 2200.9812063.26 2201.1112069.44 2201.13 12122.7 2201.42
12193.03    2202 12316.3    220212408.88 2202.36 12615.4 2203.0912636.53 2203.14
12643.59 2203.1812676.69 2203.2312684.81 2203.2312739.82 2203.5212744.36 2203.52
12760.36 2203.55 12778.6 2203.6512782.48 2203.6612802.78 2203.7512806.49 2203.76
12809.32 2203.7612830.65 2203.8312837.59 2203.8412855.38 2203.9112857.04  2203.9
12881.76    220412894.09    220412901.29 2203.9812911.85    220413294.26    2204
13355.64 2204.3413359.82 2204.35 13431.4 2204.3913496.17    220413724.84    2204
13741.75 2204.1413845.39 2204.7513861.05 2204.8213915.41 2204.9613917.46 2204.97
13929.97    220513933.68 2205.0214025.47 2205.2814050.89 2205.3414062.57 2205.35
14068.99 2205.3814090.49 2205.3714216.34 2205.7314265.34    220614288.74    2206
14322.18 2206.1814326.79 2206.1614327.32 2206.1614364.87 2205.4814405.65 2205.13
14412.03 2205.2114450.81 2204.9714462.35 2204.9414492.03 2204.4314496.13 2204.58
14498.17 2204.6614508.53 2204.7314561.27  2204.614602.98 2204.6814620.81 2204.57
14657.45 2204.4914668.49 2204.0714668.62 2204.0614713.15 2204.2914722.59 2204.62
14777.81    220414799.86 2203.8114817.56 2203.7114830.88 2203.7114846.45 2203.61
14862.58 2203.4514866.94 2203.4414874.19 2203.4314929.15  2202.815062.31 2202.89

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8550     .04 9925.32    .04910101.65     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9925.3210101.65           283.14  290.81  536.51             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8550 9919.74 2207.41       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8550 9919.31  2207.412177.4715062.31    2198

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2201.64    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.89    Wt. n-Val.                           0.049
  0.040
  W.S. Elev (ft)           2200.75    Reach Len. (ft)          283.14     290.81
 536.51
  Crit W.S. (ft)           2199.01    Flow Area (sq ft)                  1392.60
1836.07
  E.G. Slope (ft/ft)      0.005007    Area (sq ft)                       1392.60
1836.07
  Q Total (cfs)           16900.00    Flow (cfs)                        12211.43
4688.57
  Top Width (ft)           2083.25    Top Width (ft)                       165.76
1917.49
  Vel Total (ft/s)            5.23    Avg. Vel. (ft/s)                     8.77
   2.55
  Max Chl Dpth (ft)          12.75    Hydr. Depth (ft)                     8.40
   0.96
  Conv. Total (cfs)       238838.7    Conv. (cfs)                       172577.7
66261.0
```

Length Wtd. (ft)	376.05	Wetted Per. (ft)	168.57
1917.50			
Min Ch El (ft)	2188.00	Shear (lb/sq ft)	2.58
0.30			
Alpha	2.09	Stream Power (lb/ft s)	22.64
0.76			
Frctn Loss (ft)	1.35	Cum Volume (acre-ft)	18.81
89.83			
C & E Loss (ft)	0.04	Cum SA (acres)	2.56
61.82			

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 11.468

INPUT
Description: RS 11.468
5.47 5.28 1482.204
Station Elevation Data num= 243

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8580	2196.08	8641.82	2196.19	8642.47	2196.19	8657.76	2196.21	8661.28	2196.21
8676.7	2196.23	8677.72	2196.22	8679.41	2196.22	8735.5	2196.28	8901.24	2196.32
8909.43	2196.31	9208.89	2196.34	9388.71	2196.29	9456.78	2196.34	9581.32	2196
9735.91	2196	9737.9	2196.51	9743.45	2198	9745.83	2198.6	9751.03	2200
9757.07	2200	9775.73	2200	9777.99	2199.35	9782.61	2198	9785.23	2197.42
9845.28	2197.78	9852.28	2198	9899.25	2198	9902.87	2199.6	9903.78	2200
9908.16	2201.94	9908.29	2202	9930.58	2202	9933.61	2200.83	9935.83	2200
9939.14	2198.74	9941.11	2198	9946.31	2196.03	9946.4	2196	9946.71	2195.88
9950.89	2194.31	9955.52	2192.56	9957.02	2192	9961.64	2190.26	9962.34	2190
9962.63	2189.89	9967.66	2188	9970.07	2187.09	9972.98	2186	9981.73	2185.22
9990.22	2184.44	9994.52	218410010.04		218410015.39		218610020.56		2187.91
10020.81	218810020.98		2188.0610027.69		2190.4810035.43		2193.2310037.61		2194
10042.2	2195.6310043.26		219610077.35		2197.210104.23		219810272.78		2198
10413.31	2197.8810453.87		2197.95 10503.6		219810774.66		2197.8811149.85		2198
11299.23	2197.87 11414.3		2198 11636		219811659.58		2198.0311761.94		2198.02
11777.52	2198.0411778.11		2198.0411781.06		2198.0511870.42		2198.1811872.58		2198.2
11896.8	2198.2311899.63		2198.2511927.81		2198.3211940.44		2198.3912004.23		2198.57
12018.68	2198.5912030.75		2198.6612043.89		2198.6912054.97		2198.7612077.64		2198.83
12152.59	2199.1912166.71		2199.2912267.59		2199.5812280.19		2199.6512295.65		2199.71
12300.62	2199.7412348.15		2199.7712356.04		2199.72 12359		2199.7212443.13		2200
12524.3	220012560.01		2200.1612582.85		2200.2 12583.7		2200.212615.79		2200.24
12616.94	2200.2412618.41		2200.2512621.26		2200.2512623.07		2200.2612635.63		2200.28
12638.16	2200.2912660.94		2200.3312663.01		2200.33 12664.6		2200.3412696.42		2200.39
12697.6	2200.412720.66		2200.4512724.25		2200.4512739.74		2200.49 12774.8		2200.52
12894.41	2200.8612911.58		2200.87 12959.4		2201.0112979.23		2201.0213000.14		2201.1
13004.4	2201.1113007.84		2201.1113027.07		2201.1813028.86		2201.1813039.64		2201.21
13041.3	2201.2113042.81		2201.2213044.18		2201.22 13050.5		2201.2513085.34		2201.32
13109.58	2201.3913171.88		2201.413185.76		2201.4313193.22		2201.3913205.56		2201.41
13213.44	2201.3813224.29		2201.3913232.62		2201.3613290.13		2201.3113306.19		2201.32
13313.05	2201.3113335.31		2201.3213345.62		2201.313392.28		2201.3413394.59		2201.36
13399.74	2201.3213404.51		2201.36 13412.6		2201.313419.83		2201.3513520.22		2201.19
13535.81	2201.25 13577.1		2201.34 13613.3		2201.3613618.87		2201.3513774.34		2200.24

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13775.92 2200.2413786.33  2200.113790.66 2200.1313793.15    220013862.44    2200
 13971.9 2201.0914014.69 2201.4514021.68 2201.5214061.37 2201.7714064.04 2201.79
14073.48 2201.8814075.95  2201.914077.14  2201.914113.75 2201.9914113.89 2201.99
14145.35 2202.07 14146.7 2202.08 14148.4 2202.0814177.86 2202.1714180.34 2202.17
14206.28 2202.25 14208.2 2202.2614230.05 2202.3414230.49 2202.3414233.14 2202.35
14238.34 2202.3614257.55 2202.4414267.57 2202.46 14301.2 2202.6114310.66 2202.63
14345.66 2202.7814346.04 2202.7814446.54 2203.1714446.99 2203.1814473.23 2202.96
14475.18 2202.9814518.72 2202.7114525.02 2202.6914557.97 2202.1214562.53 2202.29
14564.79 2202.3814571.62 2202.4214624.42 2202.2914670.06 2202.3814684.09 2202.28
 14723.9 2202.1914732.95 2201.8514733.04 2201.8414781.27 2202.0814789.28 2202.36
14836.11 2201.83 14854.8 2201.67 14869.8 2201.5814881.08 2201.5814894.27  2201.5
14907.93 2201.3614917.76 2201.3414964.27 2200.8114988.97 2200.8414991.43 2200.84
15109.45 2200.8915110.84 2201.0415115.94 2201.08 15119.2 2200.9815119.75 2200.97
15119.82 2200.9715122.37 2201.0815122.79 2201.0615123.38 2201.0515123.51 2201.04
15124.94 2201.1915125.37 2201.1715126.26 2201.1515129.98 2201.2215130.07 2201.21
15131.56 2201.1615132.16 2201.15 15135.9 2201.02 15137.6 2201.1515138.06 2201.14
15138.25 2201.1315139.15  2201.115155.83 2200.71

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8580     .04 9930.58     .0310104.23     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9930.5810104.23           433.51  477.29  520.08             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8580 9933.81 2204.77       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 8473.59 9933.84 2204.56 9966.9410021.32 2187.99

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2200.25    Element                 Left OB    Channel
Right OB
  Vel Head (ft)               0.76    Wt. n-Val.                         0.030
  0.040
  W.S. Elev (ft)           2199.49    Reach Len. (ft)         433.51     477.29
 520.08
  Crit W.S. (ft)           2199.49    Flow Area (sq ft)                 1103.81
2942.37
  E.G. Slope (ft/ft)      0.002698    Area (sq ft)                      1103.81
2942.37
  Q Total (cfs)           16900.00    Flow (cfs)                        9862.15
7037.85
  Top Width (ft)           2299.17    Top Width (ft)                     167.06
2132.11
  Vel Total (ft/s)            4.18    Avg. Vel. (ft/s)                    8.93
   2.39
  Max Chl Dpth (ft)          11.50    Hydr. Depth (ft)                    6.61
   1.38
  Conv. Total (cfs)       325339.0    Conv. (cfs)                     189854.6
135484.4
  Length Wtd. (ft)           501.36    Wetted Per. (ft)                  170.57
2132.11
  Min Ch El (ft)           2187.99    Shear (lb/sq ft)                    1.09
   0.23
  Alpha                       2.81    Stream Power (lb/ft s)              9.74
   0.56
  Frctn Loss (ft)             0.75    Cum Volume (acre-ft)               10.48
  60.41
  C & E Loss (ft)             0.17    Cum SA (acres)                      1.45
```

36.88

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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water
surface was used.

CROSS SECTION

RIVER: Aguila Farm Chan
REACH: Reach-1 RS: 11.378

INPUT
Description: RS 11.378
5.38 5.19 1004.884
Station Elevation Data num= 190

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8650	2195.61	8763.89	2195.6	8769.4	2195.59	8884.85	2195.54	8888.32	2195.53
8901.29	2195.53	8905.25	2195.52	8916.14	2195.52	8920.66	2195.51	8939.23	2195.51
8944.33	2195.5	8970.33	2195.49	8974.67	2195.48	9218.57	2195.37	9235.29	2195.36
9238.98	2195.35	9279.82	2195.32	9595.09	2194.43	9618.16	2194.32	9622.5	2194.31
9647.4	2194.2	9650.35	2194.2	9652.99	2194.19	9688.72	2194	9741.53	2194
9750.45	2194	9752.39	2194.61	9768.02	2199.67	9769.03	2200	9788.05	2200
9792.71	2198.33	9793.62	2198	9799.11	2196	9801.01	2195.3	9804.57	2194
9812.22	2194	9827.62	2194.41	9860.96	2194.93	9914.77	2196	9921.44	2197.65
9926.98	2199.01	9930.76	2200	9950.39	2200	9953.23	2198.95	9955.74	2198
9960.37	2196.09	9960.59	2196	9961.32	2195.7	9965.42	2194	9966.64	2193.49
9972.26	2191.17	9979.91	2188	9982.72	2186.84	9984.74	2186	9987.79	2184.74
9989.57	218	410015.87	218	410026.09	2187.71	0026.93	218	810032.43	2190
10036.84	2191.62	10042.41	2193.68	10043.28	2194	10049.5	2194.12	10051.24	2194.14
10134.63	2195.47	10172.34	2196	10288.8	219	610506.57	2196.53	10661.04	2196.49
10665.71	2196.48	10677.08	2196.48	10969.98	2196.44	11121.61	219	611258.56	2196
11430.6	2196.23	11586.6	2196.19	11589.25	2196.21	1705.59	2196.26	11708.5	2196.27
11869.1	2196.53	11875.89	2196.55	11949.26	2196.64	11959.74	2196.68	11974.03	2196.69
11989.83	2196.76	12037.4	2196.78	12076.9	2196.75	12087.34	2196.8	12106.49	2196.79
12114.58	2196.82	12147.8	2196.79	12173.07	2196.92	12181.44	2196.91	12185.43	2196.92
12191.94	2196.95	12225.04	2196.95	12232.1	2196.97	12247.11	2196.96	12252.78	2196.97
12290.63	2196.92	12296.78	2196.91	12317.09	2196.89	12325.37	2196.86	12341.59	2196.88
12532.14	219	612544.96	219	612563.77	2196.33	12572.37	2196.43	12608.52	2197.01
12630.04	2197.19	12640.23	2197.33	12655.01	2197.51	2660.73	2197.54	12663.28	2197.57
12687.07	2197.68	12689.39	2197.71	2691.75	2197.73	12694.03	2197.75	12714.91	2197.74
12716.59	2197.75	12718.54	2197.77	12719.37	2197.78	12720.36	2197.79	12722.99	2197.81

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12743.31 2197.7312745.71 2197.75 12748.3 2197.7612751.04 2197.7812753.86 2197.79
12992.49 2197.7813005.04 2197.8113007.47 2197.8213010.49 2197.8213015.19 2197.83
13018.72 2197.8313028.03 2197.8513029.34 2197.85 13073.4 2197.9113074.45 2197.91
13108.03 2197.9613113.19 2197.9513138.19    219813139.88    219813166.25 2198.05
13166.53 2198.0513189.46 2198.0913189.69 2198.0913248.74 2198.1913249.14 2198.19
13297.06 2198.2413343.65 2198.23 13346.8 2198.2513361.63 2198.2613363.51 2198.27
13447.69 2198.36 13462.7 2198.3713465.64 2198.3813479.79 2198.3913498.03 2198.42
 13501.8 2198.42 13514.1 2198.4413559.22 2198.4913562.39 2198.49 13594.7 2198.53
13725.96 2198.5813814.88    219814005.68    219814042.29 2198.3314049.33 2198.37
14070.98 2198.56 14113.9 2198.8714134.78 2198.95   14220 2199.3314226.52 2199.34
14240.57 2199.3914250.97  2199.414259.32 2199.4314266.15 2199.4314279.45 2199.48
14281.44 2199.4814304.11 2199.5514309.05 2199.5514334.46 2199.6414339.74 2199.64
 14412.3 2199.9114413.48 2199.9114435.63    220014436.13    220014588.09 2200.55

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8650     .04 9950.39     .0310051.24     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9950.3910051.24          1039.91 1004.88 1441.37              .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    8650 9932.14 2204.45       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  8642.6 9930.98 2204.47 9978.9410026.91    2188

CROSS SECTION OUTPUT  Profile #PF 1


  E.G. Elev (ft)           2198.95    Element                 Left OB    Channel
Right OB
  Vel Head (ft)               0.20    Wt. n-Val.                          0.030
  0.040
  W.S. Elev (ft)           2198.75    Reach Len. (ft)

  Crit W.S. (ft)           2197.79    Flow Area (sq ft)                  809.20
7176.27
  E.G. Slope (ft/ft)      0.000939    Area (sq ft)                       809.20
7176.27
  Q Total (cfs)           16900.00    Flow (cfs)                        4928.71
11971.29
  Top Width (ft)           4143.52    Top Width (ft)                      97.48
4046.03
  Vel Total (ft/s)            2.12    Avg. Vel. (ft/s)                    6.09
   1.67
  Max Chl Dpth (ft)          10.76    Hydr. Depth (ft)                    8.30
   1.77
  Conv. Total (cfs)       551429.8    Conv. (cfs)                      160818.7
390611.1
  Length Wtd. (ft)                    Wetted Per. (ft)                  100.68
4046.07
  Min Ch El (ft)           2187.99    Shear (lb/sq ft)                    0.47
   0.10
  Alpha                       2.86    Stream Power (lb/ft s)              2.87
   0.17
  Frctn Loss (ft)                     Cum Volume (acre-ft)

  C & E Loss (ft)                     Cum SA (acres)
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Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

SUMMARY OF MANNING'S N VALUES

River:Aguila Farm Chan

Reach	River Sta.	n1	n2	n3
Reach-1	17.641	.029	.035	.04
Reach-1	17.547	.029	.035	.04
Reach-1	17.449	.029	.035	.04
Reach-1	17.357	.029	.035	.04
Reach-1	17.259	.029	.035	.04
Reach-1	17.161	.029	.035	.04
Reach-1	17.066	.029	.035	.04
Reach-1	16.972	.029	.035	.04
Reach-1	16.876	.029	.035	.04
Reach-1	16.781	.029	.035	.04
Reach-1	16.682	.029	.035	.04
Reach-1	16.590	.029	.035	.04
Reach-1	16.498	.029	.035	.04
Reach-1	16.403	.029	.035	.04
Reach-1	16.307	.029	.035	.04
Reach-1	16.210	.029	.035	.04
Reach-1	16.117	.029	.035	.04
Reach-1	16.021	.04	.027	.04
Reach-1	15.924	.04	.027	.04
Reach-1	15.828	.04	.027	.04
Reach-1	15.736	.04	.027	.04
Reach-1	15.642	.04	.027	.04
Reach-1	15.547	.04	.027	.04
Reach-1	15.448	.04	.027	.04
Reach-1	15.358	.04	.027	.04
Reach-1	15.265	.04	.027	.04
Reach-1	15.166	.04	.027	.04
Reach-1	15.074	.04	.027	.04
Reach-1	14.976	.04	.027	.04
Reach-1	14.884	.04	.027	.04
Reach-1	14.787	.04	.027	.04
Reach-1	14.689	.04	.027	.04
Reach-1	14.596	.04	.027	.04
Reach-1	14.498	.04	.027	.04
Reach-1	14.402	.04	.027	.04
Reach-1	14.300	.04	.027	.04
Reach-1	14.202	.04	.027	.04
Reach-1	14.114	.04	.027	.04
Reach-1	14.013	.04	.027	.04
Reach-1	13.913	.04	.027	.04
Reach-1	13.822	.04	.027	.04
Reach-1	13.726	.04	.027	.04
Reach-1	13.629	.04	.027	.04
Reach-1	13.534	.04	.027	.04
Reach-1	13.438	.04	.027	.04
Reach-1	13.345	.04	.027	.04
Reach-1	13.250	.04	.027	.04
Reach-1	13.155	.04	.027	.04
Reach-1	13.059	.04	.027	.04
Reach-1	12.961	.04	.027	.04
Reach-1	12.870	.04	.027	.04

Reach-1	12.775	.04	.027	.04
Reach-1	12.680	.04	.027	.04
Reach-1	12.585	.04	.027	.04
Reach-1	12.491	.04	.027	.04
Reach-1	12.395	.04	.027	.04
Reach-1	12.300	.04	.027	.04
Reach-1	12.206	.04	.027	.04
Reach-1	12.105	.04	.027	.04
Reach-1	12.010	.04	.027	.04
Reach-1	11.912	.04	.027	.04
Reach-1	11.815	.029	.025	.04
Reach-1	11.713	.029	.025	.04
Reach-1	11.621	.029	.025	.04
Reach-1	11.579	.029	.025	.04
Reach-1	11.571	Culvert		
Reach-1	11.541	.04	.2	.1
Reach-1	11.523	.04	.049	.04
Reach-1	11.468	.04	.03	.04
Reach-1	11.378	.04	.03	.04

SUMMARY OF REACH LENGTHS

River: Aguila Farm Chan

Reach	River Sta.	Left	Channel	Right
Reach-1	17.641	496.71	497.6	508.2
Reach-1	17.547	512.53	514.47	489.92
Reach-1	17.449	486.43	488.58	496.12
Reach-1	17.357	519.63	519.54	502.04
Reach-1	17.259	515.74	516.68	516.17
Reach-1	17.161	488.88	501.65	490.06
Reach-1	17.066	491.75	495.24	491.62
Reach-1	16.972	499.69	504.26	515.56
Reach-1	16.876	492.9	503.38	496.51
Reach-1	16.781	513.24	520.79	486.28
Reach-1	16.682	485.5	486.16	511.8
Reach-1	16.590	489.68	489.95	492
Reach-1	16.498	501.05	501.08	489.57
Reach-1	16.403	502.43	503.16	512.02
Reach-1	16.307	512.04	512.44	497.65
Reach-1	16.210	491.14	493.43	520.91
Reach-1	16.117	504.26	506.02	487.6
Reach-1	16.021	512.24	512.75	482.67
Reach-1	15.924	503.02	503.62	530.74
Reach-1	15.828	490.58	490.68	500.11
Reach-1	15.736	492.56	494.5	501.7
Reach-1	15.642	498.95	499.29	487.91
Reach-1	15.547	521.52	521.84	513.12
Reach-1	15.448	478.71	479.57	488.4
Reach-1	15.358	485.87	491.35	507.27
Reach-1	15.265	516.9	518.09	502.86
Reach-1	15.166	485.81	486.34	509.7
Reach-1	15.074	518.92	519.57	486.85
Reach-1	14.976	482.32	484.42	518.56
Reach-1	14.884	513.41	515.19	505.01
Reach-1	14.787	504.64	516.27	469.97
Reach-1	14.689	487.54	488.54	508.44
Reach-1	14.596	518.12	520.82	497.89
Reach-1	14.498	496.32	505.27	511.74

Reach-1	14.402	487.36	536.58	484.9
Reach-1	14.300	516.08	517.55	512.83
Reach-1	14.202	463.26	468.29	491.21
Reach-1	14.114	530.22	532.46	498.48
Reach-1	14.013	513.85	525.61	520.14
Reach-1	13.913	479.73	482.8	492.16
Reach-1	13.822	508.14	508.2	503.69
Reach-1	13.726	489.88	509.27	501.31
Reach-1	13.629	503.7	503.96	489.6
Reach-1	13.534	503.56	503.59	489.42
Reach-1	13.438	492.26	492.73	519.16
Reach-1	13.345	501.18	501.14	498.77
Reach-1	13.250	502.97	502.94	480.26
Reach-1	13.155	504.21	505.17	530.95
Reach-1	13.059	517.48	517.57	497.81
Reach-1	12.961	480.7	481.34	500.45
Reach-1	12.870	502.35	502.31	493.46
Reach-1	12.775	498.41	498.47	500.76
Reach-1	12.680	501.69	501.75	498.5
Reach-1	12.585	498.13	498.65	514.25
Reach-1	12.491	504.05	504.18	505.54
Reach-1	12.395	504.65	504.74	519.37
Reach-1	12.300	482.93	495.2	660.92
Reach-1	12.206	535.71	534.57	302.89
Reach-1	12.105	505.26	503.01	346.16
Reach-1	12.010	512.49	516.8	504.81
Reach-1	11.912	510.75	508.66	489.69
Reach-1	11.815	540.42	539.83	101.66
Reach-1	11.713	509.94	485.2	100.96
Reach-1	11.621	208.14	225.12	201.93
Reach-1	11.579	200.64	200.64	200.64
Reach-1	11.571	Culvert		
Reach-1	11.541	95.04	95.04	760
Reach-1	11.523	283.14	290.81	536.51
Reach-1	11.468	433.51	477.29	520.08
Reach-1	11.378	1039.91	1004.88	1441.37

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Aguila Farm Chan

Reach	River Sta.	Contr.	Expan.
Reach-1	17.641	.1	.3
Reach-1	17.547	.1	.3
Reach-1	17.449	.1	.3
Reach-1	17.357	.1	.3
Reach-1	17.259	.1	.3
Reach-1	17.161	.1	.3
Reach-1	17.066	.1	.3
Reach-1	16.972	.1	.3
Reach-1	16.876	.1	.3
Reach-1	16.781	.1	.3
Reach-1	16.682	.1	.3
Reach-1	16.590	.1	.3
Reach-1	16.498	.1	.3
Reach-1	16.403	.1	.3
Reach-1	16.307	.1	.3
Reach-1	16.210	.1	.3
Reach-1	16.117	.1	.3

Reach-1	16.021	.1	.3
Reach-1	15.924	.1	.3
Reach-1	15.828	.1	.3
Reach-1	15.736	.1	.3
Reach-1	15.642	.1	.3
Reach-1	15.547	.1	.3
Reach-1	15.448	.1	.3
Reach-1	15.358	.1	.3
Reach-1	15.265	.1	.3
Reach-1	15.166	.1	.3
Reach-1	15.074	.1	.3
Reach-1	14.976	.1	.3
Reach-1	14.884	.1	.3
Reach-1	14.787	.1	.3
Reach-1	14.689	.1	.3
Reach-1	14.596	.1	.3
Reach-1	14.498	.1	.3
Reach-1	14.402	.1	.3
Reach-1	14.300	.1	.3
Reach-1	14.202	.1	.3
Reach-1	14.114	.1	.3
Reach-1	14.013	.1	.3
Reach-1	13.913	.1	.3
Reach-1	13.822	.1	.3
Reach-1	13.726	.1	.3
Reach-1	13.629	.1	.3
Reach-1	13.534	.1	.3
Reach-1	13.438	.1	.3
Reach-1	13.345	.1	.3
Reach-1	13.250	.1	.3
Reach-1	13.155	.1	.3
Reach-1	13.059	.1	.3
Reach-1	12.961	.1	.3
Reach-1	12.870	.1	.3
Reach-1	12.775	.1	.3
Reach-1	12.680	.1	.3
Reach-1	12.585	.1	.3
Reach-1	12.491	.1	.3
Reach-1	12.395	.1	.3
Reach-1	12.300	.1	.3
Reach-1	12.206	.1	.3
Reach-1	12.105	.1	.3
Reach-1	12.010	.1	.3
Reach-1	11.912	.1	.3
Reach-1	11.815	.1	.3
Reach-1	11.713	.1	.3
Reach-1	11.621	.1	.3
Reach-1	11.579	.1	.3
Reach-1	11.571	Culvert	
Reach-1	11.541	.1	.3
Reach-1	11.523	.1	.3
Reach-1	11.468	.1	.3
Reach-1	11.378	.1	.3

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : AFC

River: Aguila Farm Chan Reach: Reach-1 RS: 17.641 Profile: PF 1
Warning:Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 17.547 Profile: PF 1
Warning:Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 17.449 Profile: PF 1
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 17.357 Profile: PF 1
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 17.259 Profile: PF 1
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 17.161 Profile: PF 1
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 17.066 Profile: PF 1
Warning:Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 16.972 Profile: PF 1
Warning:Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 16.876 Profile: PF 1
Warning:Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 16.781 Profile: PF 1
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 16.682 Profile: PF 1
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 16.590 Profile: PF 1
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 16.498 Profile: PF 1
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 16.403 Profile: PF 1
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 16.307 Profile: PF 1
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 16.210 Profile: PF 1
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 16.117 Profile: PF 1
Warning:Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 16.021 Profile: PF 1

Warning:Divided flow computed for this cross-section.
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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.

River: Aguila Farm Chan Reach: Reach-1 RS: 15.924 Profile: PF 1
Warning:Divided flow computed for this cross-section.
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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.

River: Aguila Farm Chan Reach: Reach-1 RS: 15.828 Profile: PF 1
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.

River: Aguila Farm Chan Reach: Reach-1 RS: 15.736 Profile: PF 1
Warning:Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.

River: Aguila Farm Chan Reach: Reach-1 RS: 15.642 Profile: PF 1
Warning:Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.

River: Aguila Farm Chan Reach: Reach-1 RS: 15.547 Profile: PF 1
Warning:Divided flow computed for this cross-section.
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.

River: Aguila Farm Chan Reach: Reach-1 RS: 15.448 Profile: PF 1
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.

River: Aguila Farm Chan Reach: Reach-1   RS: 15.358   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.
River: Aguila Farm Chan Reach: Reach-1   RS: 15.265   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.
River: Aguila Farm Chan Reach: Reach-1   RS: 15.166   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.
River: Aguila Farm Chan Reach: Reach-1   RS: 15.074   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.
River: Aguila Farm Chan Reach: Reach-1   RS: 14.976   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.
River: Aguila Farm Chan Reach: Reach-1   RS: 14.884   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.
River: Aguila Farm Chan Reach: Reach-1   RS: 14.787   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.
River: Aguila Farm Chan Reach: Reach-1   RS: 14.689   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.
River: Aguila Farm Chan Reach: Reach-1   RS: 14.596   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.

River: Aguila Farm Chan Reach: Reach-1   RS: 14.498   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.
River: Aguila Farm Chan Reach: Reach-1   RS: 14.402   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.
River: Aguila Farm Chan Reach: Reach-1   RS: 14.300   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.
River: Aguila Farm Chan Reach: Reach-1   RS: 14.202   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.
River: Aguila Farm Chan Reach: Reach-1   RS: 14.114   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.
River: Aguila Farm Chan Reach: Reach-1   RS: 14.013   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.
River: Aguila Farm Chan Reach: Reach-1   RS: 13.913   Profile: PF 1
     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 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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
             used.
River: Aguila Farm Chan Reach: Reach-1   RS: 13.822   Profile: PF 1
     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.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: Aguila Farm Chan Reach: Reach-1 RS: 13.726 Profile: PF 1

Warning:Divided flow computed for this cross-section.

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: Aguila Farm Chan Reach: Reach-1 RS: 13.629 Profile: PF 1

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.

River: Aguila Farm Chan Reach: Reach-1 RS: 13.534 Profile: PF 1

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.

River: Aguila Farm Chan Reach: Reach-1 RS: 13.438 Profile: PF 1

Warning:Divided flow computed for this cross-section.

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.

River: Aguila Farm Chan Reach: Reach-1 RS: 13.345 Profile: PF 1

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.

River: Aguila Farm Chan Reach: Reach-1 RS: 13.250 Profile: PF 1

Warning:The cross section had to be extended vertically during the critical depth 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.

River: Aguila Farm Chan Reach: Reach-1 RS: 13.155 Profile: PF 1

Warning:The cross section had to be extended vertically during the critical depth 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.

River: Aguila Farm Chan Reach: Reach-1 RS: 13.059 Profile: PF 1

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: Aguila Farm Chan Reach: Reach-1 RS: 12.961 Profile: PF 1

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.

River: Aguila Farm Chan Reach: Reach-1 RS: 12.870 Profile: PF 1

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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: Aguila Farm Chan Reach: Reach-1   RS: 12.775   Profile: PF 1
     Warning:The cross section had to be extended vertically during the critical depth 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.
     Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
               used.
River: Aguila Farm Chan Reach: Reach-1   RS: 12.680   Profile: PF 1
     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.
River: Aguila Farm Chan Reach: Reach-1   RS: 12.585   Profile: PF 1
     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.
River: Aguila Farm Chan Reach: Reach-1   RS: 12.491   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
               used.
River: Aguila Farm Chan Reach: Reach-1   RS: 12.395   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
               used.
River: Aguila Farm Chan Reach: Reach-1   RS: 12.300   Profile: PF 1
     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.
River: Aguila Farm Chan Reach: Reach-1   RS: 12.206   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
               used.
River: Aguila Farm Chan Reach: Reach-1   RS: 12.105   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
               used.
River: Aguila Farm Chan Reach: Reach-1   RS: 12.010   Profile: PF 1
     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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
               used.
River: Aguila Farm Chan Reach: Reach-1   RS: 11.912   Profile: PF 1
     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.
River: Aguila Farm Chan Reach: Reach-1   RS: 11.815   Profile: PF 1
     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.
River: Aguila Farm Chan Reach: Reach-1 RS: 11.713 Profile: PF 1
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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 11.621 Profile: PF 1
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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 11.579 Profile: PF 1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: Aguila Farm Chan Reach: Reach-1 RS: 11.541 Profile: PF 1
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 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.
River: Aguila Farm Chan Reach: Reach-1 RS: 11.523 Profile: PF 1
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: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 11.468 Profile: PF 1
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.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: Aguila Farm Chan Reach: Reach-1 RS: 11.378 Profile: PF 1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\HEC-RAS\Detailed\laj032003.prj
Plan File: C:\Aguila\HEC-RAS\Detailed\laj032003.p09
Geometry File: C:\Aguila\HEC-RAS\Detailed\laj032003.g04
Flow File: C:\Aguila\HEC-RAS\Detailed\laj032003.f04
Report File: C:\Aguila\HEC-RAS\Detailed\laj032003.xs
Selected profiles: PF 1;PF 2
Date: 3/28/2003
Time: 10:28:21 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Aguila Farm Chan,Reach-1						
17.641	496.71	497.6	508.2	3246.31	16900	D,B
17.547	512.53	514.47	489.92	3579.28	16900	D,B
17.449	486.43	488.58	496.12	2459.28	16900	B
17.357	519.63	519.54	502.04	2516.16	16900	B
17.259	515.74	516.68	516.17	2615.94	16900	B
17.161	488.88	501.65	490.06	2516.51	16900	B
17.066	491.75	495.24	491.62	2306.36	16900	D,B
16.972	499.69	504.26	515.56	1727.52	16900	D,E,B
16.876	492.9	503.38	496.51	1671.09	16900	D,E,B
16.781	513.24	520.79	486.28	1957.91	16900	E,B
16.682	485.5	486.16	511.8	2129.53	16900	E,B
16.59	489.68	489.95	492	2868.84	16900	E,B
16.498	501.05	501.08	489.57	2864.82	16900	E,B
16.403	502.43	503.16	512.02	3214.09	16900	E,B
16.307	512.04	512.44	497.65	3044.22	16900	E,B
16.21	491.14	493.43	520.91	3000.7	16900	E,B
16.117	504.26	506.02	487.6	2705.63	16900	D,E,B
16.021	512.24	512.75	482.67	2594.57	16900	D,E,B
15.924	503.02	503.62	530.74	2499.78	16900	D,E,C,B
15.828	490.58	490.68	500.11	2695.99	16900	E,B
15.736	492.56	494.5	501.7	2632.32	16900	D,E,B
15.642	498.95	499.29	487.91	2465.85	16900	D,E,B
15.547	521.52	521.84	513.12	2426.89	16900	D,E,B
15.448	478.71	479.57	488.4	2568.05	16900	E,B
15.358	485.87	491.35	507.27	2611.49	16900	E,B
15.265	516.9	518.09	502.86	2437.38	16900	E,B
15.166	485.81	486.34	509.7	2632.72	16900	E,B
15.074	518.92	519.57	486.85	2589.74	16900	E,B
14.976	482.32	484.42	518.56	2170.69	16900	E,B
14.884	513.41	515.19	505.01	1851.55	16900	E,B
14.787	504.64	516.27	469.97	1738.39	16900	E,B
14.689	487.54	488.54	508.44	2136.24	16900	E,B
14.596	518.12	520.82	497.89	2036.77	16900	E,B
14.498	496.32	505.27	511.74	1899.47	16900	E,B
14.402	487.36	536.58	484.9	1780.55	16900	E,B
14.3	516.08	517.55	512.83	1678.43	16900	E,B
14.202	463.26	468.29	491.21	1723.52	16900	E,B
14.114	530.22	532.46	498.48	1718.1	16900	E,B
14.013	513.85	525.61	520.14	1638.56	16900	E,B
13.913	479.73	482.8	492.16	1591.99	16900	E,B
13.822	508.14	508.2	503.69	1461.74	16900	E,C,B
13.726	489.88	509.27	501.31	1368.17	16900	D,E,B
13.629	503.7	503.96	489.6	1369.21	16900	E,B
13.534	503.56	503.59	489.42	1461.43	16900	E,B
13.438	492.26	492.73	519.16	1646.21	16900	D,E,B
13.345	501.18	501.14	498.77	1516.08	16900	E,B
13.25	502.97	502.94	480.26	1528.27	16900	E,B
13.155	504.21	505.17	530.95	1550.87	16900	E,B
13.059	517.48	517.57	497.81	1448.61	16900	E,B
12.961	480.7	481.34	500.45	1476.01	16900	E,B

12.87	502.35	502.31	493.46	1509.82	16900	E,B
12.775	498.41	498.47	500.76	1600.15	16900	E,B
12.68	501.69	501.75	498.5	1638.18	16900	E,B
12.585	498.13	498.65	514.25	1646.78	16900	E,B
12.491	504.05	504.18	505.54	1532.74	16900	E,B
12.395	504.65	504.74	519.37	1963.89	16900	E,B
12.3	482.93	495.2	660.92	1804.32	16900	E,B
12.206	535.71	534.57	302.89	2464.49	16900	B
12.105	505.26	503.01	346.16	2304.44	16900	B
12.01	512.49	516.8	504.81	2243.72	16900	B
11.912	510.75	508.66	489.69	2331.82	16900	B
11.815	540.42	539.83	101.66	2702.61	16900	E,B
11.713	509.94	485.2	100.96	2752.34	16900	E,B
11.621	208.14	225.12	201.93	2842.97	16900	E,B
11.579	200.64	200.64	200.64	2570.4	16900	E,B
11.571	Culvert #1-Up					
11.571	Culvert #1-Dn					
11.541	95.04	95.04	760	1900.93	16900	E,B
11.523	283.14	290.81	536.51	2083.19	16900	E,B
11.468	433.51	477.29	520.08	2299.52	16900	E,C,B
11.378	1039.91	1004.88	1441.37	4143.52	16900	E,B

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 11.541
XS DT 03 Right overbank distance is greater than the channel distance by more than five times. Right overbank distance may be in error.

RS: 11.378
XS DT 01 Both right and left overbank distances are longer than the channel distance.

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

XS DC 02 Constant dicharge used for the Aguila Farm Chan,Reach-1

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Aguila Farm Chan,Reach-1
Known WS = 2198.75 is specified as the downstream boundary for profile PF 1

```
XS BC 02 The name of the stream is Aguila Farm Chan,Reach-1
         Critical is specified as the upstream boundary
         for profile PF 1

XS BC 02 The name of the stream is Aguila Farm Chan,Reach-1
         Known WS = 2198.75 is specified as the downstream boundary
         for profile PF 2

XS BC 02 The name of the stream is Aguila Farm Chan,Reach-1
         Critical is specified as the upstream boundary
         for profile PF 2

---END---
```

CHECK-RAS Program: Structure Check

Project File: C:\Aguila\HEC-RAS\Detailed\laj032003.prj
Plan File: C:\Aguila\HEC-RAS\Detailed\laj032003.p09
Geometry File: C:\Aguila\HEC-RAS\Detailed\laj032003.g04
Flow File: C:\Aguila\HEC-RAS\Detailed\laj032003.f04
Report File: C:\Aguila\HEC-RAS\Detailed\laj032003.br
Selected profiles: PF 1;PF 2
Date: 3/28/2003
Time: 10:28:22 AM

RS	MaxLoChord	MnTpRd	EGEL	WSEL	MinChEl	Structure
Aguila Farm Chan,Reach-1						
17.641			2310.68	2310.46	2308.15	
17.547			2308.56	2308.34	2305.51	
17.449			2305.87	2305.55	2302	
17.357			2303.86	2303.65	2300.32	
17.259			2302.35	2302.16	2299.23	
17.161			2300.78	2300.55	2297.66	
17.066			2299.11	2298.82	2294	
16.972			2297.19	2296.84	2292	
16.876			2295.71	2295.45	2290	
16.781			2294.6	2294.42	2288	
16.682			2293.34	2293.03	2286	
16.59			2291.64	2291.33	2284	
16.498			2289.91	2289.63	2282	
16.403			2288.42	2288.24	2282	
16.307			2286.76	2286.45	2280	
16.21			2284.86	2284.57	2278	
16.117			2283.01	2282.73	2276	
16.021			2281.26	2280.89	2276	
15.924			2279.43	2278.75	2272	
15.828			2277.4	2277.07	2270	
15.736			2275.88	2275.59	2270	
15.642			2274.04	2273.82	2268	
15.547			2272.23	2272.03	2268	
15.448			2270.42	2270.22	2266	
15.358			2268.39	2268.14	2265.7	
15.265			2266.36	2266.15	2262	
15.166			2264.72	2264.52	2260.37	
15.074			2262.92	2262.73	2260	
14.976			2261.23	2261.01	2258	
14.884			2259.75	2259.48	2256.11	
14.787			2258.36	2258.12	2254	
14.689			2256.89	2256.66	2254	
14.596			2254.82	2254.52	2252	
14.498			2252.98	2252.62	2248.5	
14.402			2251.48	2251.14	2246	
14.3			2249.5	2248.99	2244	
14.202			2247.59	2247.12	2243.43	
14.114			2246.1	2245.78	2240	
14.013			2244.44	2244.12	2238	
13.913			2242.99	2242.67	2236.82	
13.822			2241.43	2240.56	2232	
13.726			2239.41	2239.08	2230	
13.629			2238.22	2237.57	2229.19	
13.534			2236.77	2236.03	2228	
13.438			2235.36	2235	2228	
13.345			2233.76	2233.33	2228	
13.25			2232.09	2231.74	2226	
13.155			2230.58	2230.11	2224	
13.059			2228.86	2228.37	2220	
12.961			2227.33	2226.86	2219.68	
12.87			2225.69	2225.17	2218	
12.775			2223.84	2223.4	2216	

12.68			2222.12	2221.71	2214	
12.585			2220.46	2220.05	2212	
12.491			2218.49	2217.91	2210	
12.395			2216.64	2216.28	2210	
12.3			2214.77	2214.22	2208	
12.206			2211.75	2211.38	2206	
12.105			2210.13	2209.78	2204	
12.01			2208.68	2208.36	2202	
11.912			2207.19	2206.91	2200	
11.815			2206.18	2206.02	2200	
11.713			2206.01	2205.94	2200	
11.621			2205.96	2205.86	2192	
11.579			2205.89	2205.7	2190	
11.571	16	2198	0	2205.8	9	Culvert #1-Up
11.571	7	2197.51	0	0	0	Culvert #1-Dn
11.541			2203.32	2203.19	2188	
11.523			2201.64	2200.75	2188	
11.468			2200.25	2199.49	2187.99	
11.378			2198.95	2198.75	2187.99	

RIVER/REACH: Aguila Farm Chan, Reach-1
RIVER STATION: 11.571
TYPE OF STRUCTURE: Culvert

Description:	5.57 5.38 2020
Distance from Upstream XS:	25
Deck/Roadway Width:	36
Weir Coefficient:	2.6
Maximum allowable submergence for weir flow:	0.95
Elevation at which weir flow begins:	2203.81
Weir crest shape:	Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	11.621	225.12	2205.86	0	2205.96	2842.97	
4	11.621	225.12	2205.86	0	2205.96	2842.97	
3	11.579	200.64	2205.7	0	2205.89	2570.4	
3	11.579	200.64	2205.7	0	2205.89	2570.4	
	11.571	86.50	2205.8	0	0	0	Culvert #1-Up
	11.571	109.14	0	0	0	0	Culvert #1-Dn
	11.571	86.50	2205.8	0	0	0	Culvert #1-Up
	11.571	109.14	0	0	0	0	Culvert #1-Dn
2	11.541	95.04	2203.19	0	2203.32	1900.93	
2	11.541	95.04	2203.19	0	2203.32	1900.93	
1	11.523	290.81	2200.75	0	2201.64	2083.19	
1	11.523	290.81	2200.75	0	2201.64	2083.19	

	Ineffective Flow, Section 3 Sta L	Sta R	Elev	Ineffective Flow, Section 2 Sta L	Sta R	Elev
1	888	0	0	888	0	0

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Culvert Group					0	U
					0	D
			0	0		U

```
                                        0         0                              D
--------------------------------------------------------------------------------

CULVERT:
Culvert Name: Culvert #1
Shape:        Circular       Rise:      7         Span:          0         Barrels:
0
FHWA Chart #: # 2 - Corrugated Metal Pipe C
FHWA Scale #: # 1 - Headwall
Solution Crit:Highest U.S. EG

UpstrmDist:     5         Length:         86.5     n-Value:       0.024
EntLossCoef:    0.5       ExtLossCoef:    0.8      CulvInvElU     9         CulvInvElD
0
LCntStaU:       9980      RCntStaU:       10010    LCntStaD       1214      RCntStaD
1244


--------------------------------------------------------------------------------
Culv Area:      0         CulvQ:          1432.6   MinTopRd:      0
                0                         1432.6                  0
--------------------------------------------------------------------------------

                    LAbutSt    RAbutSt    LMnTpRd    RMnTpRd    MnTpRd     MxLoCd
--------------------------------------------------------------------------------
Culvert #1          9976.5     10013.5    2198       2204       2198       16        U
                    1210.5     1247.5     2197.51    2203.96    2197.51    7         D
                    9976.5     10013.5    2198       2204       2198       16        U
                    1210.5     1247.5     2197.51    2203.96    2197.51    7         D
--------------------------------------------------------------------------------

Name           Q Total.  Q Struc    Q Weir     Selected Method      Flow Type
--------------------------------------------------------------------------------
Culvert #1               1432.6     0          Highest U.S. EG      UNKNOWN
                         1432.6     0          Highest U.S. EG      UNKNOWN
--------------------------------------------------------------------------------

GEOMETRIC CHECK
-----------------

RS:         11.571
ST GD 03    The starting station of 9760 from upstream road/weir data
            is greater than the starting station of 8700 from upstream internal
            section/ secion 3.
            The high chord elevation of 2203.31 for the starting road/weir station is
            greater than the ground elevation of 2202.784 for the same ground station.
            The road/weir profile may need to be extended.

RS:         11.571
ST GD 03    The starting station of 1000 from downstream road/weir data
            is greater than the starting station of 0 from downstream internal
            section.
            The high chord elevation of 2203.31 for the starting road/weir station is
            greater than the ground elevation of 2197.978 for the same ground station.
            The road/weir profile may need to be extended.

TYPE OF FLOW CHECK
------------------


RS:         11.571 This is Culvert #1
CV TF 01    Type of flow is UNKNOWN.
            CHECKRAS can not find MxLoCd or MnTpRd elevation
            or the given conditions do not satisfy the type of flow
            specified in the CHECK-RAS program.
            Please review the ground and road data, and encroachment stations.
```

```
          or please review the messages, CV LF 01,CV PF 01, , CV LW 01
          CV PW 01 for culverts to determine the type of flow.


RS:       11.571 This is Culvert #1
CV TF 01  Type of flow is UNKNOWN.
          CHECKRAS can not find MxLoCd or MnTpRd elevation
          or the given conditions do not satisfy the type of flow
          specified in the CHECK-RAS program.
          Please review the ground and road data, and encroachment stations.
          or please review the messages, CV LF 01,CV PF 01, , CV LW 01
          CV PW 01 for culverts to determine the type of flow.

---END
```

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\HEC-RAS\Detailed\laj032003.prj
Plan File: C:\Aguila\HEC-RAS\Detailed\laj032003.p09
Geometry File: C:\Aguila\HEC-RAS\Detailed\laj032003.g04
Flow File: C:\Aguila\HEC-RAS\Detailed\laj032003.f04
Report File: C:\Aguila\HEC-RAS\Detailed\laj032003.nt
Selected profiles: PF 1;PF 2
Date: 3/28/2003
Time: 10:28:19 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Aguila Farm Chan,Reach-1						
17.641		0.029	0.035	0.04	0.1	0.3
17.547		0.029	0.035	0.04	0.1	0.3
17.449		0.029	0.035	0.04	0.1	0.3
17.357		0.029	0.035	0.04	0.1	0.3
17.259		0.029	0.035	0.04	0.1	0.3
17.161		0.029	0.035	0.04	0.1	0.3
17.066		0.029	0.035	0.04	0.1	0.3
16.972		0.029	0.035	0.04	0.1	0.3
16.876		0.029	0.035	0.04	0.1	0.3
16.781		0.029	0.035	0.04	0.1	0.3
16.682		0.029	0.035	0.04	0.1	0.3
16.59		0.029	0.035	0.04	0.1	0.3
16.498		0.029	0.035	0.04	0.1	0.3
16.403		0.029	0.035	0.04	0.1	0.3
16.307		0.029	0.035	0.04	0.1	0.3
16.21		0.029	0.035	0.04	0.1	0.3
16.117		0.029	0.035	0.04	0.1	0.3
16.021		0.04	0.027	0.04	0.1	0.3
15.924		0.04	0.027	0.04	0.1	0.3
15.828		0.04	0.027	0.04	0.1	0.3
15.736		0.04	0.027	0.04	0.1	0.3
15.642		0.04	0.027	0.04	0.1	0.3
15.547		0.04	0.027	0.04	0.1	0.3
15.448		0.04	0.027	0.04	0.1	0.3
15.358		0.04	0.027	0.04	0.1	0.3
15.265		0.04	0.027	0.04	0.1	0.3
15.166		0.04	0.027	0.04	0.1	0.3
15.074		0.04	0.027	0.04	0.1	0.3
14.976		0.04	0.027	0.04	0.1	0.3
14.884		0.04	0.027	0.04	0.1	0.3
14.787		0.04	0.027	0.04	0.1	0.3
14.689		0.04	0.027	0.04	0.1	0.3
14.596		0.04	0.027	0.04	0.1	0.3
14.498		0.04	0.027	0.04	0.1	0.3
14.402		0.04	0.027	0.04	0.1	0.3
14.3		0.04	0.027	0.04	0.1	0.3
14.202		0.04	0.027	0.04	0.1	0.3
14.114		0.04	0.027	0.04	0.1	0.3
14.013		0.04	0.027	0.04	0.1	0.3
13.913		0.04	0.027	0.04	0.1	0.3
13.822		0.04	0.027	0.04	0.1	0.3
13.726		0.04	0.027	0.04	0.1	0.3
13.629		0.04	0.027	0.04	0.1	0.3
13.534		0.04	0.027	0.04	0.1	0.3
13.438		0.04	0.027	0.04	0.1	0.3
13.345		0.04	0.027	0.04	0.1	0.3
13.25		0.04	0.027	0.04	0.1	0.3
13.155		0.04	0.027	0.04	0.1	0.3
13.059		0.04	0.027	0.04	0.1	0.3
12.961		0.04	0.027	0.04	0.1	0.3
12.87		0.04	0.027	0.04	0.1	0.3

12.775		0.04	0.027	0.04	0.1	0.3
12.68		0.04	0.027	0.04	0.1	0.3
12.585		0.04	0.027	0.04	0.1	0.3
12.491		0.04	0.027	0.04	0.1	0.3
12.395		0.04	0.027	0.04	0.1	0.3
12.3		0.04	0.027	0.04	0.1	0.3
12.206		0.04	0.027	0.04	0.1	0.3
12.105		0.04	0.027	0.04	0.1	0.3
12.01		0.04	0.027	0.04	0.1	0.3
11.912		0.04	0.027	0.04	0.1	0.3
11.815		0.029	0.025	0.04	0.1	0.3
11.713		0.029	0.025	0.04	0.1	0.3
11.621		0.029	0.025	0.04	0.1	0.3
11.579		0.029	0.025	0.04	0.1	0.3
11.571	Culvert-Up	0.029	0.025	0.04	0.1	0.3
11.571	Culvert-Dn	0.04	0.2	0.1	0.1	0.3
11.541		0.04	0.2	0.1	0.1	0.3
11.523		0.04	0.049	0.04	0.1	0.3
11.468		0.04	0.03	0.04	0.1	0.3
11.378		0.04	0.03	0.04	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.029	0.04
Right Overbank n Value:	0.04	0.1
Channel n Value:	0.025	0.2
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

RS: 17.641
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 17.547
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 17.449
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 17.357
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 17.259
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 17.161
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 17.066
NT RC 01 Left overbank n value is less than 0.035

```
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      16.972
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      16.876
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      16.781
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      16.682
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      16.59
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      16.498
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      16.403
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      16.307
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      16.21
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      16.117
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      11.815
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11.815
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      11.713
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
```

```
         The n value should be reevaluated.

RS:       11.713
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11.621
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11.621
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11.579
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11.579
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11.571
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11.571
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11.571
NT RC 04 Channel n value is more than 0.1
         The n value of the channel is usually between 0.025 and 0.10.
         The n value should be reevaluated if it is not obtained by averaging the n
values
         of the low flow channel and the bank slopes.

RS:       11.541
NT RC 04 Channel n value is more than 0.1
         The n value of the channel is usually between 0.025 and 0.10.
         The n value should be reevaluated if it is not obtained by averaging the n
values
         of the low flow channel and the bank slopes.

TRANSITION LOSS COEFFICIENT CHECK
---------------------------------

RS:       11.621
NT TL 01 This is section 4
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       11.579
NT TL 01 This is section 3
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.
```

```
RS:       11.541
NT TL 01 This is section 2
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

ROUGHNESS COEFFICIENT AT STRUCTURES
-----------------------------------

---END---
```

CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: C:\Aguila\HEC-RAS\Detailed\laj032003.prj
Plan File: C:\Aguila\HEC-RAS\Detailed\laj032003.p09
Geometry File: C:\Aguila\HEC-RAS\Detailed\laj032003.g04
Flow File: C:\Aguila\HEC-RAS\Detailed\laj032003.f04
Report File: C:\Aguila\HEC-RAS\Detailed\laj032003.fw
Selected profiles: PF 1;PF 2
Date: 3/28/2003
Time: 10:28:21 AM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Aguila Farm Chan,Reach-1							
17.641					9773.87	13392.13	
17.641	1	0	9750	13392.13	9773.87	13392.13	
17.547					9638.48	13220.99	
17.547	1	0	9599.13	13220.99	9638.48	13220.99	
17.449					9054.11	11513.39	
17.449	1	0	8400	11513.39	9054.11	11513.39	
17.357					8793.5	11309.66	
17.357	1	0	8500	11309.66	8793.44	11309.66	
17.259					8949.97	11565.91	
17.259	1	0	8925	11565.91	8949.97	11565.85	
17.161					9059.02	11575.53	
17.161	1	0	8890	11575.53	9059.02	11575.53	
17.066					9850.49	12229.49	
17.066	1	0	9830	12229.49	9850.49	12229.49	
16.972					9912.03	11910.51	
16.972	1	0	9895	11910.51	9912.03	11910.51	
16.876					9394.49	11189.59	
16.876	1	0	9360	11189.59	9394.49	11189.59	
16.781					9886.88	11844.79	
16.781	1	0	9865	11844.79	9886.88	11844.66	
16.682					9883.68	12013.21	
16.682	1	0	9875	12013.21	9883.67	12013.21	
16.59					9878.78	12747.61	
16.59	1	0	9875	12747.61	9878.78	12747.61	
16.498					9874.4	12739.22	
16.498	1	0	9865	12739.22	9874.4	12739.22	
16.403					9846.58	13060.67	
16.403	1	0	9855.48	13060.67	9855.48	13060.67	
16.307					9823.61	12867.83	
16.307	1	0	9817.76	12867.83	9823.61	12867.83	
16.21					9817.01	12817.71	
16.21	1	0	9810.8	12817.71	9817.02	12817.52	
16.117					9810.58	12675.12	
16.117	1	0.01	9795	12675.12	9810.55	12675.12	
16.021					9967.5	12584.77	
16.021	1	-0.01	9960	12584.77	9967.54	12582	
15.924					9971.87	12531.78	
15.924	1	0.01	9965	12531.78	9971.83	12531.78	
15.828					9815.6	12511.59	
15.828	1	0	9805	12511.59	9815.6	12511.59	
15.736					9810.76	12456.75	
15.736	1	0	9795	12456.75	9810.76	12456.75	
15.642					9822.72	12318.36	
15.642	1	0	9800	12318.36	9822.72	12318.34	
15.547					9810.99	12264.57	
15.547	1	0	9780	12264.57	9810.99	12264.57	
15.448					9977.36	12545.41	
15.448	1	0	9940	12545.41	9977.36	12545.41	
15.358					9971.55	12583.04	
15.358	1	0	9960	12583.04	9971.55	12583.02	
15.265					9975.05	12412.43	

15.265	1	0	9960	12412.43	9975.05	12412.43
15.166					9969.07	12601.79
15.166	1	0	9960	12601.79	9969.07	12601.73
15.074					9981.84	12571.58
15.074	1	0	9960	12571.58	9981.84	12571.58
14.976					9973.52	12144.21
14.976	1	0	9960	12144.21	9973.52	12144.21
14.884					9661.76	11513.31
14.884	1	0	9635	11513.31	9661.76	11513.26
14.787					9975.75	11714.14
14.787	1	0	9971.31	11714.14	9975.75	11714.14
14.689					9938.77	12075.01
14.689	1	0	9934.38	12075.27	9938.78	12074.75
14.596					9968.42	12005.19
14.596	1	0	9950	12005.14	9968.43	12004.99
14.498					9521.67	11421.15
14.498	1	0	9505	11421.15	9521.67	11421.1
14.402					9958.9	11739.44
14.402	1	0	9935	11739.44	9958.9	11739.09
14.3					9976.31	11654.73
14.3	1	0	9940	11654.73	9976.31	11654.57
14.202					9958.72	11682.23
14.202	1	0	9940	11682.23	9958.72	11682.01
14.114					9950.7	11668.8
14.114	1	0	9925	11668.8	9950.7	11668.75
14.013					9980.02	11618.57
14.013	1	0	9965	11618.57	9980.01	11618.57
13.913					9963.88	11555.86
13.913	1	-0.03	9950	11555.86	9963.94	11546.09
13.822					9972.33	11434.06
13.822	1	0.05	9950	11434.06	9972.1	11434.06
13.726					9957.06	11382.14
13.726	1	0	9945	11382.14	9957.06	11382.09
13.629					9975.17	11344.38
13.629	1	0	9955	11344.38	9975.18	11344.22
13.534					9972.79	11434.22
13.534	1	0	9980.18	11434.22	9980.18	11434.22
13.438					9954.12	11613.07
13.438	1	0	9975	11613.07	9975	11613.07
13.345					9966.98	11483.06
13.345	1	0	9945	11483.06	9966.98	11482.76
13.25					9967.34	11495.61
13.25	1	0	9945	11495.61	9967.35	11495.21
13.155					9958.23	11509.1
13.155	1	0	9960	11509.06	9960	11509.06
13.059					9952.24	11400.85
13.059	1	0	9965	11400.85	9965	11400.85
12.961					9962.34	11438.35
12.961	1	0	9975.14	11438.35	9975.14	11438.35
12.87					9955.49	11465.31
12.87	1	0	9944.32	11465.31	9955.5	11465.08
12.775					9958.38	11558.53
12.775	1	0	9950	11558.53	9958.38	11558.39
12.68					9960.9	11599.08
12.68	1	0	9950	11599.08	9960.9	11599.08
12.585					9947.8	11594.58
12.585	1	0	9961.69	11594.58	9961.69	11594.58
12.491					9974.59	11507.32
12.491	1	0	9960	11507.32	9974.59	11507.24
12.395					9951.37	11915.26
12.395	1	0	9970.36	11915.26	9970.36	11915.26
12.3					9954.62	11758.94
12.3	1	0	9971.09	11758.94	9971.09	11758.94
12.206					9963.05	12427.53
12.206	1	0	9945	12427.53	9963.05	12427.53
12.105					9966.92	12271.37
12.105	1	0	9950	12271.51	9966.92	12271.15

12.01					9973.92	12217.63	
12.01	1	0	9950	12217.15	9973.91	12217.15	
11.912					9963.45	12295.27	
11.912	1	0	9950	12300.92	9963.45	12295.27	
11.815					9959.07	12661.68	
11.815	1	0	9976.03	13000	9976.03	12661.68	
11.713					9967.01	12719.35	
11.713	1	0	9970	12820	9970	12719.32	
11.621					9947.69	12790.66	
11.621	1	0	9945	14000	9947.69	12790.66	
11.579					9688.29	12258.69	
11.579	1	0	9670	13000	9688.29	12258.69	
11.571					0	0	Culvert #1-Up
11.571					0	0	Culvert #1-Dn
11.571	0	0	0	0	0	0	Culvert #1-Up
11.571	0	0	0	0	0	0	Culvert #1-Dn
11.541					1127.51	3028.44	
11.541	1	0	1127	3603	1127.51	3028.44	
11.523					9935.9	12019.08	
11.523	1	0	9920	12121	9935.9	12019.08	
11.468					9937.17	12236.68	
11.468	1	0	9930	12471	9937.17	12236.68	
11.378					9953.76	14097.27	
11.378	1	0	9935	12652	9953.76	12652	

ENCROACHMENT METHOD CHECK

RS: 11.571
FW EM 01 Floodway encroachment method is not selected at this section.

FLOODWAY WIDTH CHECK

RS: 16.972
FW FW 03 The right channel bank station may not be at the proper location.

RS: 16.307
FW FW 03 The right channel bank station may not be at the proper location.

RS: 14.689
FW FW 04 Ending station (12075.01) of 1% annual chance floodplain is greater than the right channel bank station (10095.48).
However, the right encroachment station (12075.27) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 12.105
FW FW 04 Ending station (12271.37) of 1% annual chance floodplain is greater than the right channel bank station (10027.49).
However, the right encroachment station (12271.51) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 11.912
FW FW 04 Ending station (12295.27) of 1% annual chance floodplain is greater than the right channel bank station (10040.28).
However, the right encroachment station (12300.92) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 11.815

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FW FW 04  Ending station (12661.68) of 1% annual chance floodplain is
          greater than the right channel bank station (10077.35).
          However, the right encroachment station (13000) is outside of 1% annual
          chance floodplain.
          The right encroachment station should be adjusted.

RS:       11.713
FW FW 04  Ending station (12719.35) of 1% annual chance floodplain is
          greater than the right channel bank station (10122.59).
          However, the right encroachment station (12820) is outside of 1% annual
          chance floodplain.
          The right encroachment station should be adjusted.

RS:       11.621
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       11.621
FW FW 04  Ending station (12790.66) of 1% annual chance floodplain is
          greater than the right channel bank station (10203.72).
          However, the right encroachment station (14000) is outside of 1% annual
          chance floodplain.
          The right encroachment station should be adjusted.

RS:       11.523
FW FW 04  Ending station (12019.08) of 1% annual chance floodplain is
          greater than the right channel bank station (10101.65).
          However, the right encroachment station (12121) is outside of 1% annual
          chance floodplain.
          The right encroachment station should be adjusted.

RS:       11.468
FW FW 04  Ending station (12236.68) of 1% annual chance floodplain is
          greater than the right channel bank station (10104.23).
          However, the right encroachment station (12471) is outside of 1% annual
          chance floodplain.
          The right encroachment station should be adjusted.

RS:       11.378
FW FW 03  The right channel bank station may not be at the proper
          location.


SURCHARGE CHECK
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DISCHARGE CHECK
---------------


STARTING WATER-SURFACE ELEVATION CHECK
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FW SW 04  The name of the stream is Aguila Farm Chan
          Encroachment method 1 is used.
          The difference in conveyance between the floodway profile and the
          natural profile is more than 1%.
          Normal Depth option with the same energy slope as the natural
          profile must be used for the floodway profile and rerun the plan.
          This message is not applicable for the revisions.

---END---
```
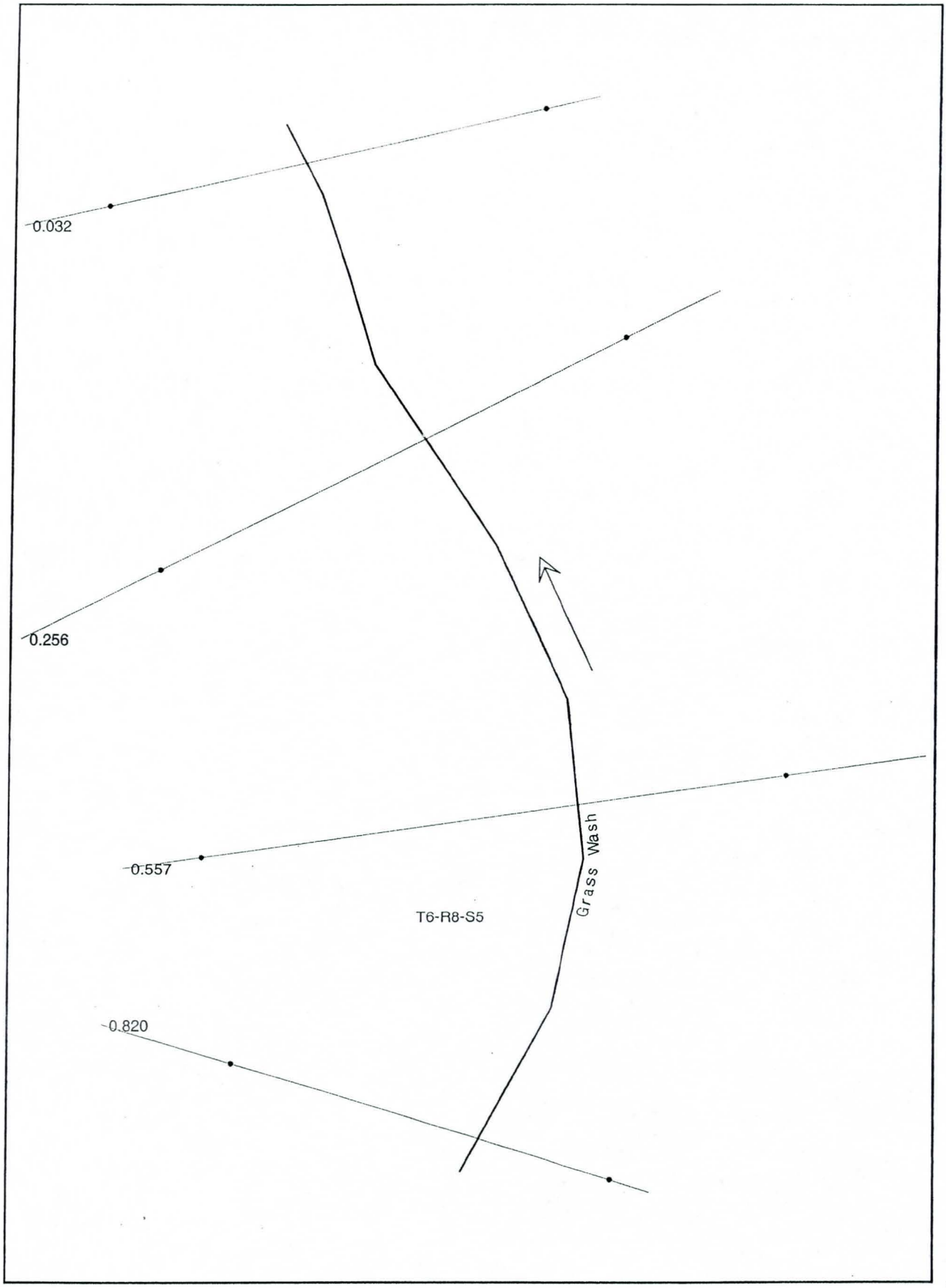
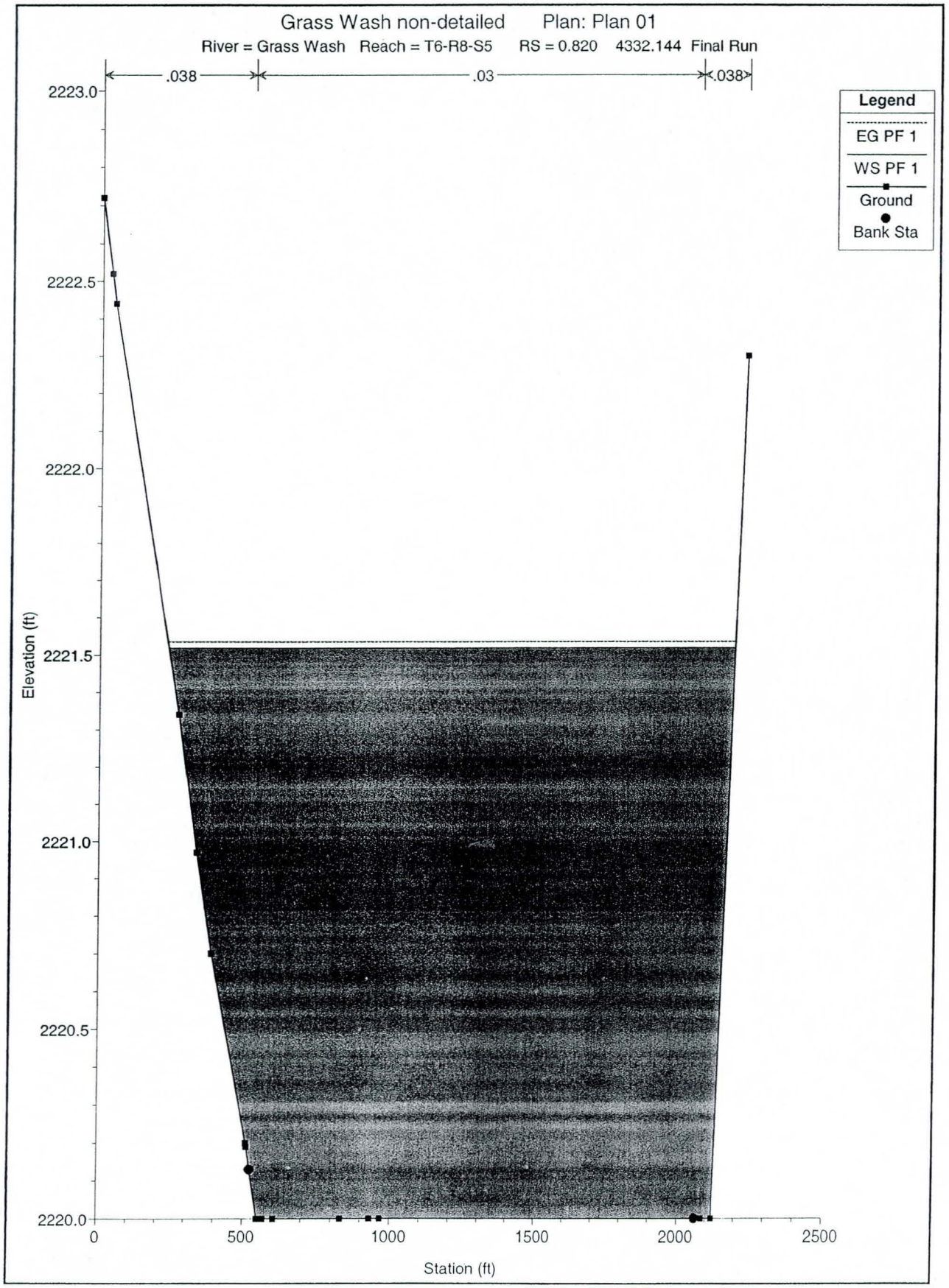
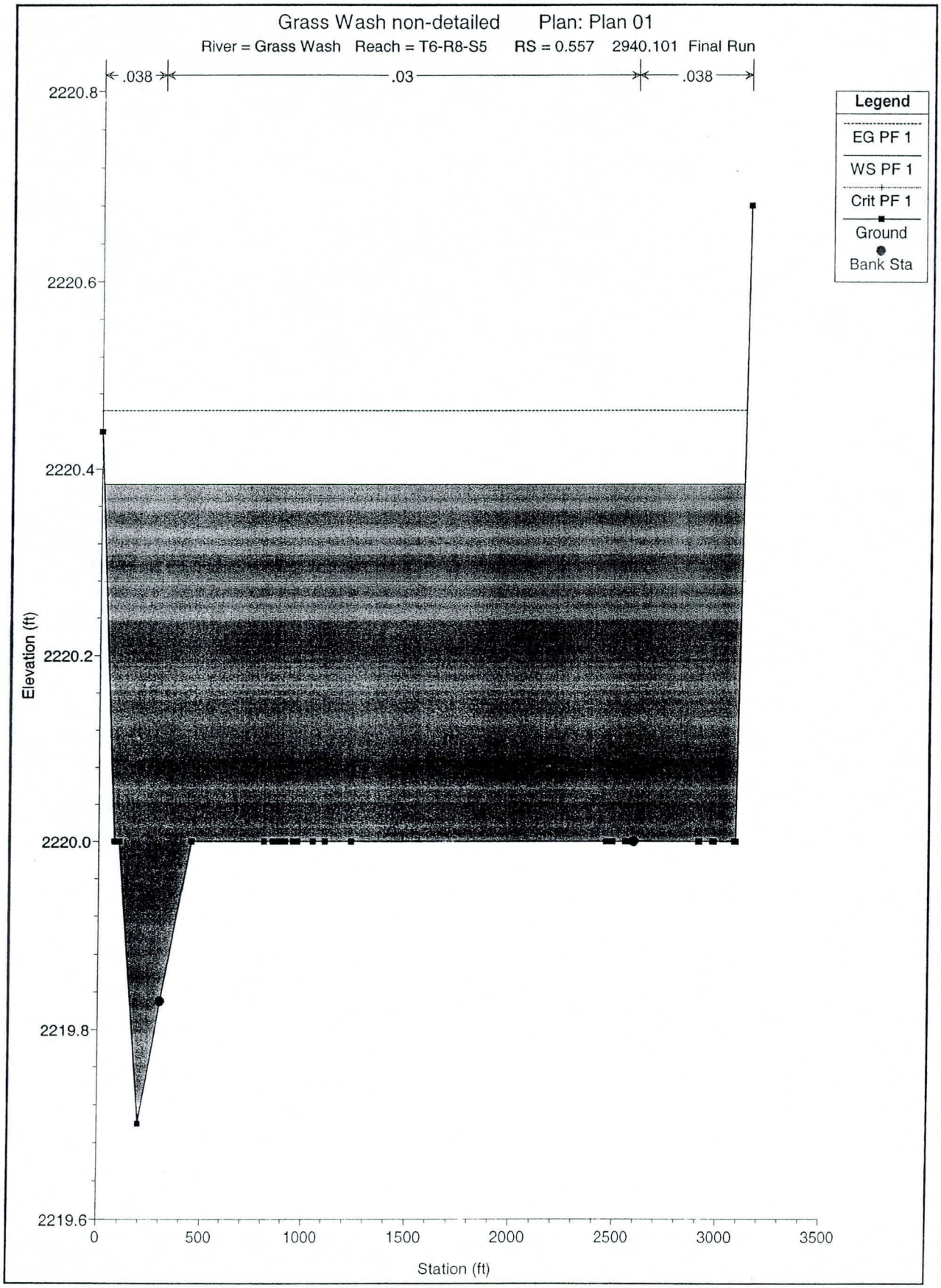
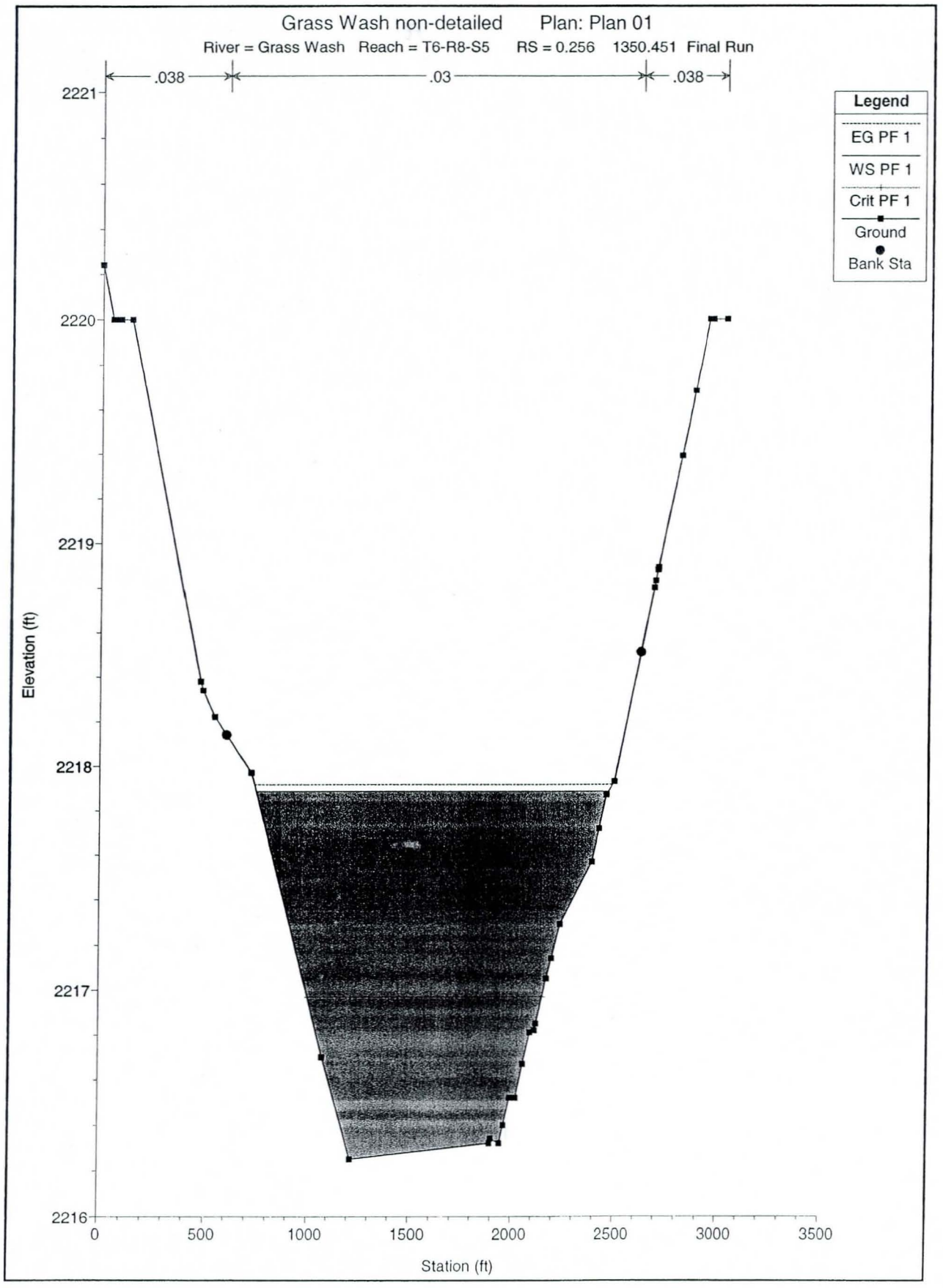

HEC-RAS Plan: Plan 01 River: Grass Wash Reach: T6-R8-S5 Profile: PF 1

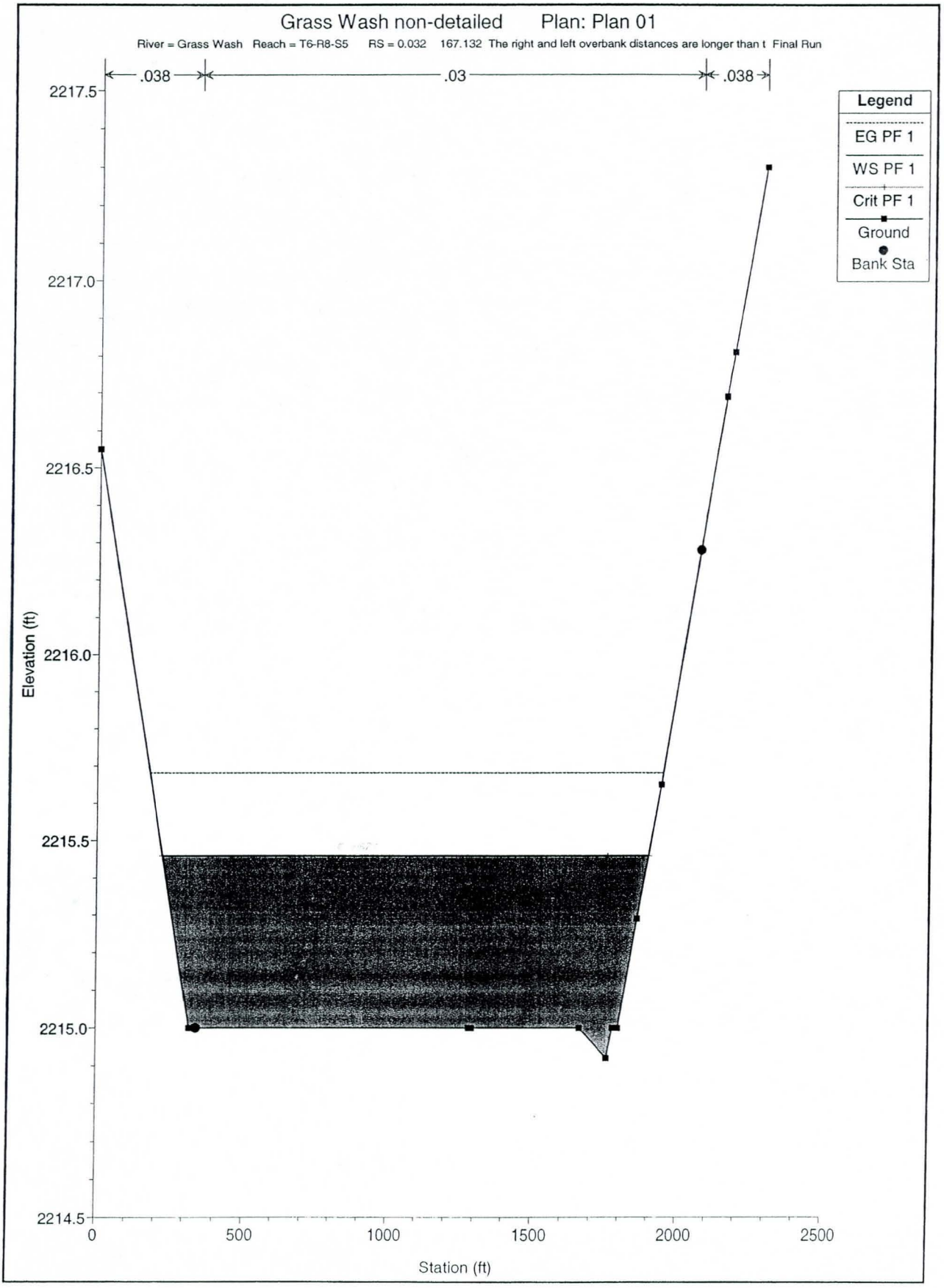
Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T6-R8-S5	0.820	2731.00	2221.52		1.08	1952.70	1.52	0.15	236.66	2189.36
T6-R8-S5	0.557	2731.00	2220.38	2220.28	2.34	3103.37	0.68	0.66	9.46	3112.83
T6-R8-S5	0.256	2731.00	2217.89	2216.97	1.39	1722.76	1.64	0.23	746.00	2468.76
T6-R8-S5	0.032	2731.00	2215.46	2215.46	3.82	1674.79	0.54	1.01	223.67	1898.46


0.032
0.256
0.557
0.820
Grass Wash
T6-R8-S5


Grass Wash non-detailed Plan: Plan 01
River = Grass Wash Reach = T6-R8-S5 RS = 0.820 4332.144 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
2223.0
2222.5
2222.0
2221.5
2221.0
2220.5
2220.0
0
500
1000
1500
2000
2500
Station (ft)


Grass Wash non-detailed Plan: Plan 01
River = Grass Wash Reach = T6-R8-S5 RS = 0.557 2940.101 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2220.8
2220.6
2220.4
2220.2
2220.0
2219.8
2219.6
Elevation (ft)
0
500
1000
1500
2000
2500
3000
3500
Station (ft)


Grass Wash non-detailed Plan: Plan 01
River = Grass Wash Reach = T6-R8-S5 RS = 0.256 1350.451 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2221
2220
2219
2218
2217
2216
0
500
1000
1500
2000
2500
3000
3500
Station (ft)


Grass Wash non-detailed Plan: Plan 01
River = Grass Wash Reach = T6-R8-S5 RS = 0.032 167.132 The right and left overbank distances are longer than t Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2217.5
2217.0
2216.5
2216.0
2215.5
2215.0
2214.5
0
500
1000
1500
2000
2500
Station (ft)

Plan: Plan 01 Grass Wash T6-R8-S5 RS: 0.820 Profile: PF 1

E.G. Elev (ft)	2221.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.038	0.030	0.038
W.S. Elev (ft)	2221.52	Reach Len. (ft)	762.85	1392.04	1764.83
Crit W.S. (ft)		Flow Area (sq ft)	208.86	2338.28	139.72
E.G. Slope (ft/ft)	0.000273	Area (sq ft)	208.86	2338.28	139.72
Q Total (cfs)	2731.00	Flow (cfs)	109.36	2524.79	96.85
Top Width (ft)	1952.70	Top Width (ft)	285.96	1541.17	125.57
Vel Total (ft/s)	1.02	Avg. Vel. (ft/s)	0.52	1.08	0.69
Max Chl Dpth (ft)	1.52	Hydr. Depth (ft)	0.73	1.52	1.11
Conv. Total (cfs)	165410.1	Conv. (cfs)	6623.7	152920.7	5865.7
Length Wtd. (ft)	1375.83	Wetted Per. (ft)	285.96	1541.17	125.59
Min Ch El (ft)	2220.00	Shear (lb/sq ft)	0.01	0.03	0.02
Alpha	1.07	Stream Power (lb/ft s)	0.01	0.03	0.01
Frctn Loss (ft)	1.07	Cum Volume (acre-ft)	5.35	139.69	10.87
C & E Loss (ft)	0.01	Cum SA (acres)	10.73	179.07	24.12

Errors Warnings and Notes

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.

Plan: Plan 01 Grass Wash T6-R8-S5 RS: 0.557 Profile: PF 1

E.G. Elev (ft)	2220.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.038	0.030	0.038
W.S. Elev (ft)	2220.38	Reach Len. (ft)	1105.45	1589.65	1853.44
Crit W.S. (ft)	2220.28	Flow Area (sq ft)	139.15	891.60	193.62
E.G. Slope (ft/ft)	0.007875	Area (sq ft)	139.15	891.60	193.62
Q Total (cfs)	2731.00	Flow (cfs)	294.89	2088.21	347.90
Top Width (ft)	3103.37	Top Width (ft)	291.57	2292.19	519.61
Vel Total (ft/s)	2.23	Avg. Vel. (ft/s)	2.12	2.34	1.80
Max Chl Dpth (ft)	0.68	Hydr. Depth (ft)	0.48	0.39	0.37
Conv. Total (cfs)	30775.3	Conv. (cfs)	3323.1	23531.7	3920.5
Length Wtd. (ft)	1580.31	Wetted Per. (ft)	291.57	2292.19	519.61
Min Ch El (ft)	2219.83	Shear (lb/sq ft)	0.23	0.19	0.18
Alpha	1.02	Stream Power (lb/ft s)	0.50	0.45	0.33
Frctn Loss (ft)	2.53	Cum Volume (acre-ft)	2.31	88.08	4.12
C & E Loss (ft)	0.01	Cum SA (acres)	5.67	117.81	11.05

Errors Warnings and Notes

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.

Plan: Plan 01 Grass Wash T6-R8-S5 RS: 0.256 Profile: PF 1

E.G. Elev (ft)	2217.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.		0.030	
W.S. Elev (ft)	2217.89	Reach Len. (ft)	1465.10	1183.32	925.27
Crit W.S. (ft)	2216.97	Flow Area (sq ft)		1958.65	
E.G. Slope (ft/ft)	0.000668	Area (sq ft)		1958.65	
Q Total (cfs)	2731.00	Flow (cfs)		2731.00	
Top Width (ft)	1722.76	Top Width (ft)		1722.76	

Plan: Plan 01 Grass Wash T6-R8-S5 RS: 0.256 Profile: PF 1 (Continued)

Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)		1.39	
Max Chl Dpth (ft)	1.64	Hydr. Depth (ft)		1.14	
Conv. Total (cfs)	105677.4	Conv. (cfs)		105677.4	
Length Wtd. (ft)	1186.94	Wetted Per. (ft)		1722.77	
Min Ch El (ft)	2216.25	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)		0.07	
Frctn Loss (ft)	2.22	Cum Volume (acre-ft)	0.54	36.07	
C & E Loss (ft)	0.02	Cum SA (acres)	1.97	44.56	

Errors Warnings and Notes

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.

Plan: Plan 01 Grass Wash T6-R8-S5 RS: 0.032 Profile: PF 1

E.G. Elev (ft)	2215.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.038	0.030	
W.S. Elev (ft)	2215.46	Reach Len. (ft)			
Crit W.S. (ft)	2215.46	Flow Area (sq ft)	32.22	697.05	
E.G. Slope (ft/ft)	0.017351	Area (sq ft)	32.22	697.05	
Q Total (cfs)	2731.00	Flow (cfs)	70.15	2660.85	
Top Width (ft)	1674.79	Top Width (ft)	117.24	1557.55	
Vel Total (ft/s)	3.74	Avg. Vel. (ft/s)	2.18	3.82	
Max Chl Dpth (ft)	0.54	Hydr. Depth (ft)	0.27	0.45	
Conv. Total (cfs)	20732.7	Conv. (cfs)	532.5	20200.2	
Length Wtd. (ft)		Wetted Per. (ft)	117.24	1557.55	
Min Ch El (ft)	2214.92	Shear (lb/sq ft)	0.30	0.48	
Alpha	1.02	Stream Power (lb/ft s)	0.65	1.85	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Grass Wash\HEC-RAS\grasswash.prj
Plan File: C:\Aguila\Hec-GeoRAS\Grass Wash\HEC-RAS\grasswash.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Grass Wash\HEC-RAS\grasswash.g01
Flow File: C:\Aguila\Hec-GeoRAS\Grass Wash\HEC-RAS\grasswash.f01
Report File: C:\Aguila\Hec-GeoRAS\Grass Wash\HEC-RAS\grasswash.nt
Selected profiles: PF 1
Date: 1/15/2003
Time: 9:11:01 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Grass Wash,T6-R8-S5						
.82		0.038	0.03	0.038	0.1	0.3
.557		0.038	0.03	0.038	0.1	0.3
.256		0.038	0.03	0.038	0.1	0.3
.032		0.038	0.03	0.038	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.038	0.038
Right Overbank n Value:	0.038	0.038
Channel n Value:	0.03	0.03
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Grass Wash\HEC-RAS\grasswash.prj
Plan File: C:\Aguila\Hec-GeoRAS\Grass Wash\HEC-RAS\grasswash.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Grass Wash\HEC-RAS\grasswash.g01
Flow File: C:\Aguila\Hec-GeoRAS\Grass Wash\HEC-RAS\grasswash.f01
Report File: C:\Aguila\Hec-GeoRAS\Grass Wash\HEC-RAS\grasswash.xs
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Date: 1/15/2003
Time: 9:11:01 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Grass Wash,T6-R8-S5						
0.82	762.85	1392.04	1764.83	1952.7	2731	
0.557	1105.45	1589.65	1853.44	3103.37	2731	
0.256	1465.1	1183.32	925.27	1722.76	2731	
0.032	216.31	167.13	200.54	1674.79	2731	C

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 0.032
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

XS DC 02 Constant dicharge used for the Grass Wash,T6-R8-S5

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Grass Wash,T6-R8-S5
Known WS = 2213.25 is specified as the downstream boundary
for profile PF 1

---END---

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

Explanation:
Cross sections were cut in order to take in channel geometry.

DISCHARGE CHECK

Warning:
Constant discharge used for the reach.

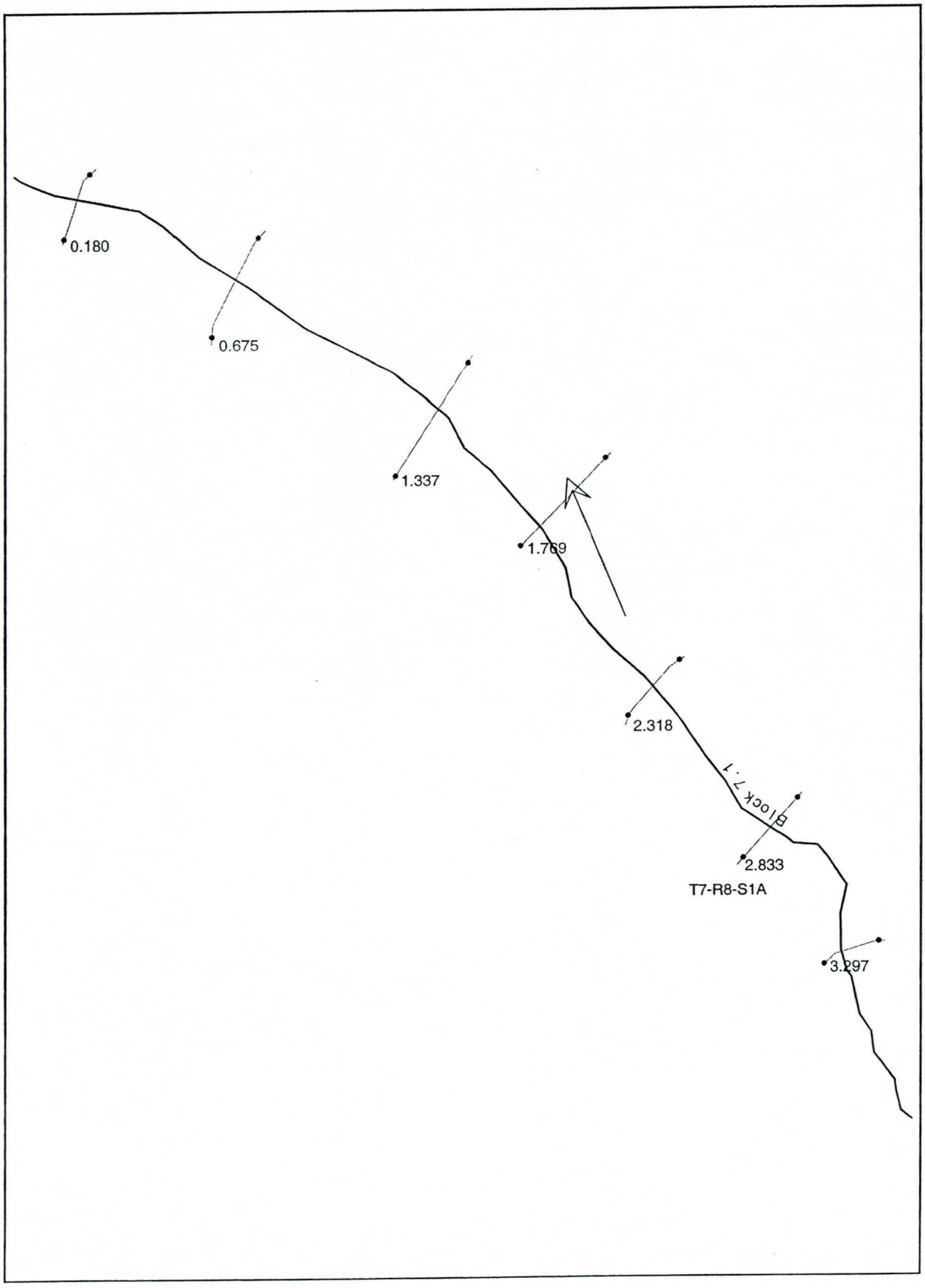
Explanation:
The discharge was determined from the regression equations for the sub basin. The Flood Control District of Maricopa County also approved the peak discharge values.

BOUNDARY CONDITION CHECK

Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

HEC-RAS Plan: Plan 01 River: Block 7.1 Reach: T7-R8-S1A Profile: PF 1

Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R8-S1A	3.297	3283.00	2417.20	2417.20	6.53	388.78	2.20	1.01	94.78	483.56
T7-R8-S1A	2.833	3283.00	2397.42	2396.79	3.89	555.98	2.42	0.56	343.29	899.27
T7-R8-S1A	2.318	3283.00	2378.04	2378.02	4.49	1182.82	1.03	0.96	15.11	1197.93
T7-R8-S1A	1.769	3283.00	2357.27	2356.87	2.80	1288.19	1.46	0.52	174.95	1463.14
T7-R8-S1A	1.337	3283.00	2339.82	2339.82	4.30	1341.53	1.07	1.00	240.30	1581.83
T7-R8-S1A	0.675	3283.00	2319.73	2319.25	2.28	1676.54	1.64	0.42	50.19	1726.74
T7-R8-S1A	0.180	3283.00	2304.63	2304.63	4.80	1031.24	1.50	1.02	111.26	1142.50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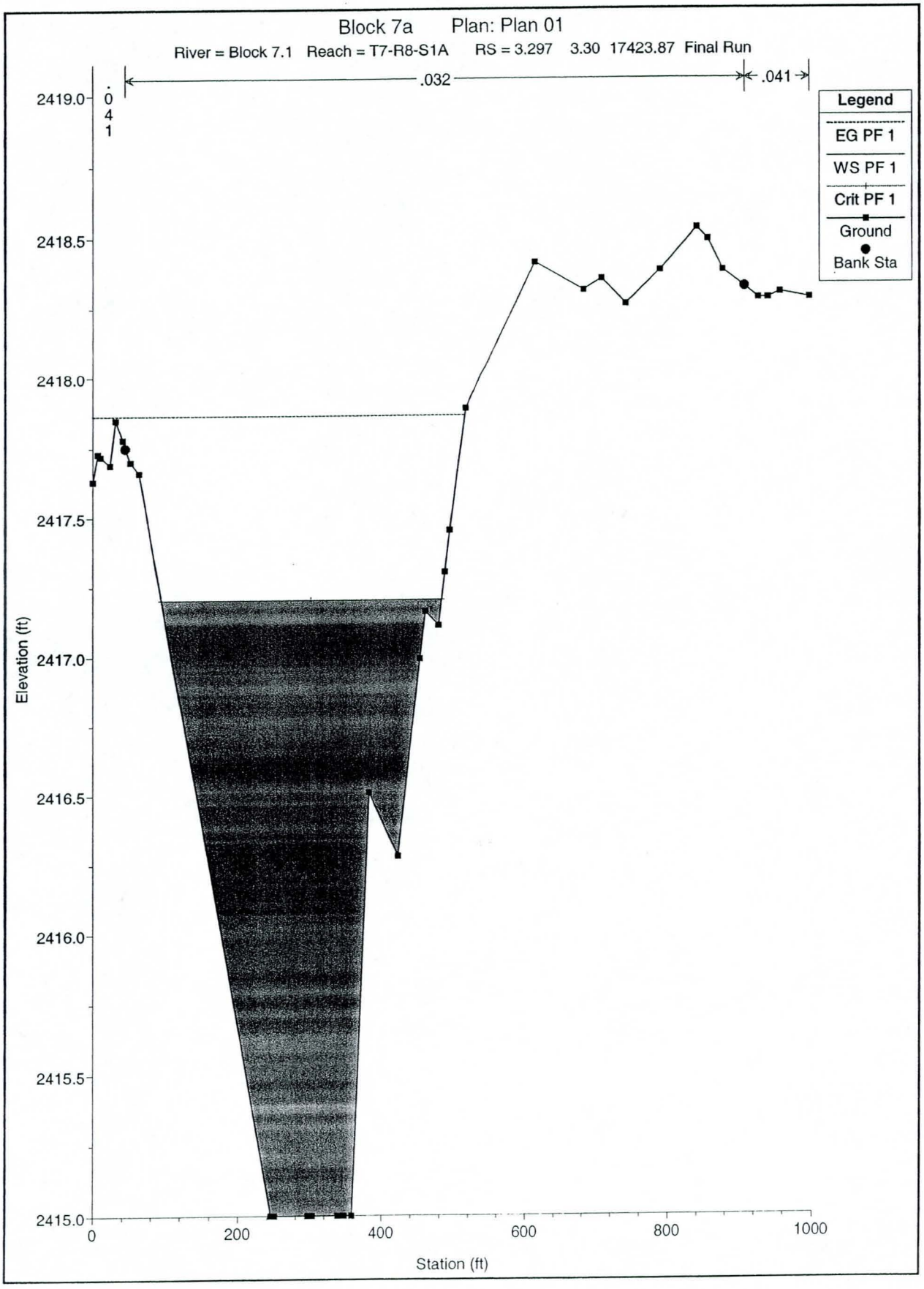
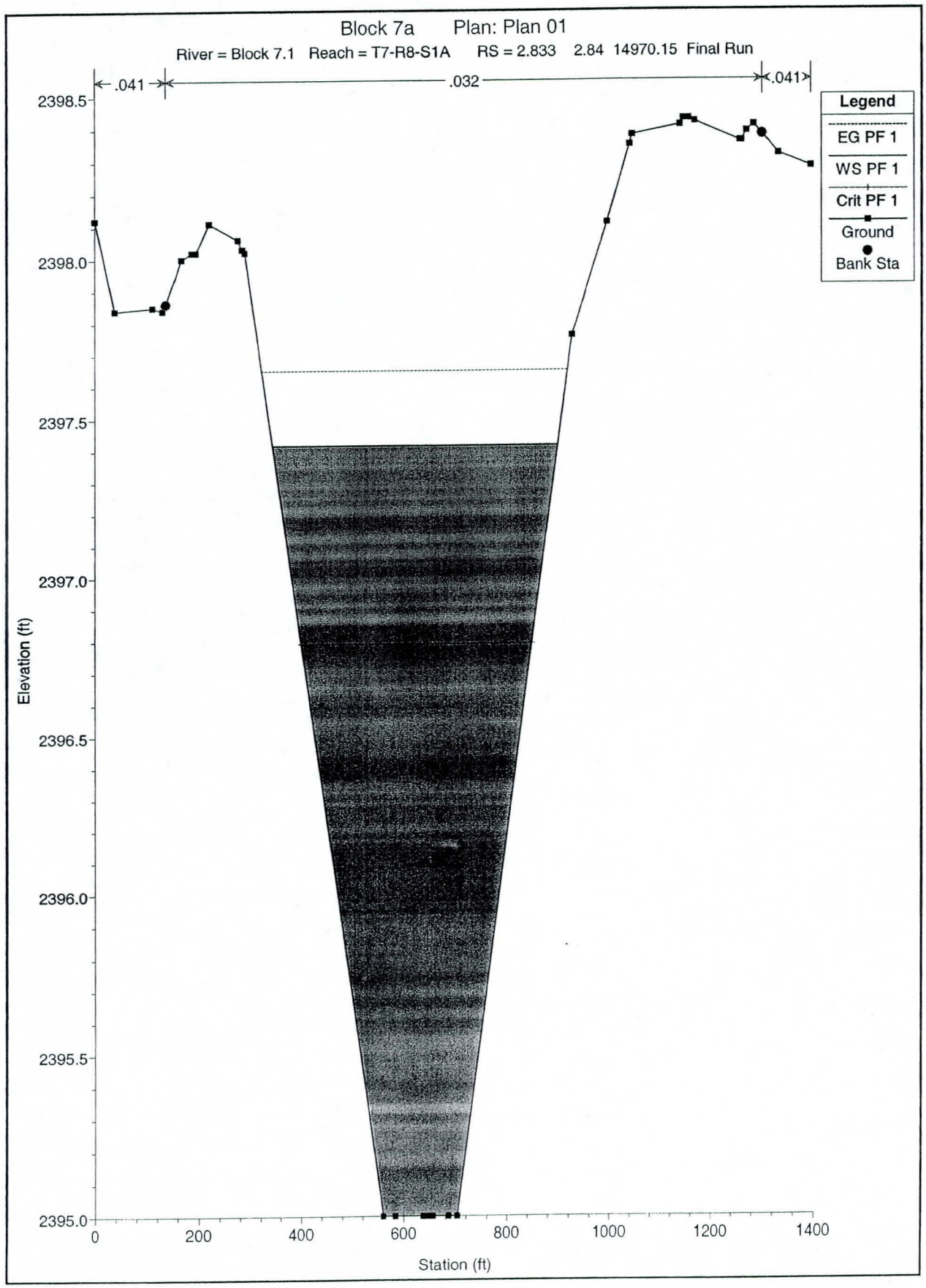
0.675
1.337
1.769
2.318
Block 7.1
2.833
T7-R8-S1A
3.297


Block 7a Plan: Plan 01
River = Block 7.1 Reach = T7-R8-S1A RS = 3.297 3.30 17423.87 Final Run
.032
.041
.041
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2419.0
2418.5
2418.0
2417.5
2417.0
2416.5
2416.0
2415.5
2415.0
Elevation (ft)
0
200
400
600
800
1000
Station (ft)


Block 7a Plan: Plan 01
River = Block 7.1 Reach = T7-R8-S1A RS = 2.833 2.84 14970.15 Final Run
.041
.032
.041
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2398.5
2398.0
2397.5
2397.0
2396.5
2396.0
2395.5
2395.0
Elevation (ft)
0
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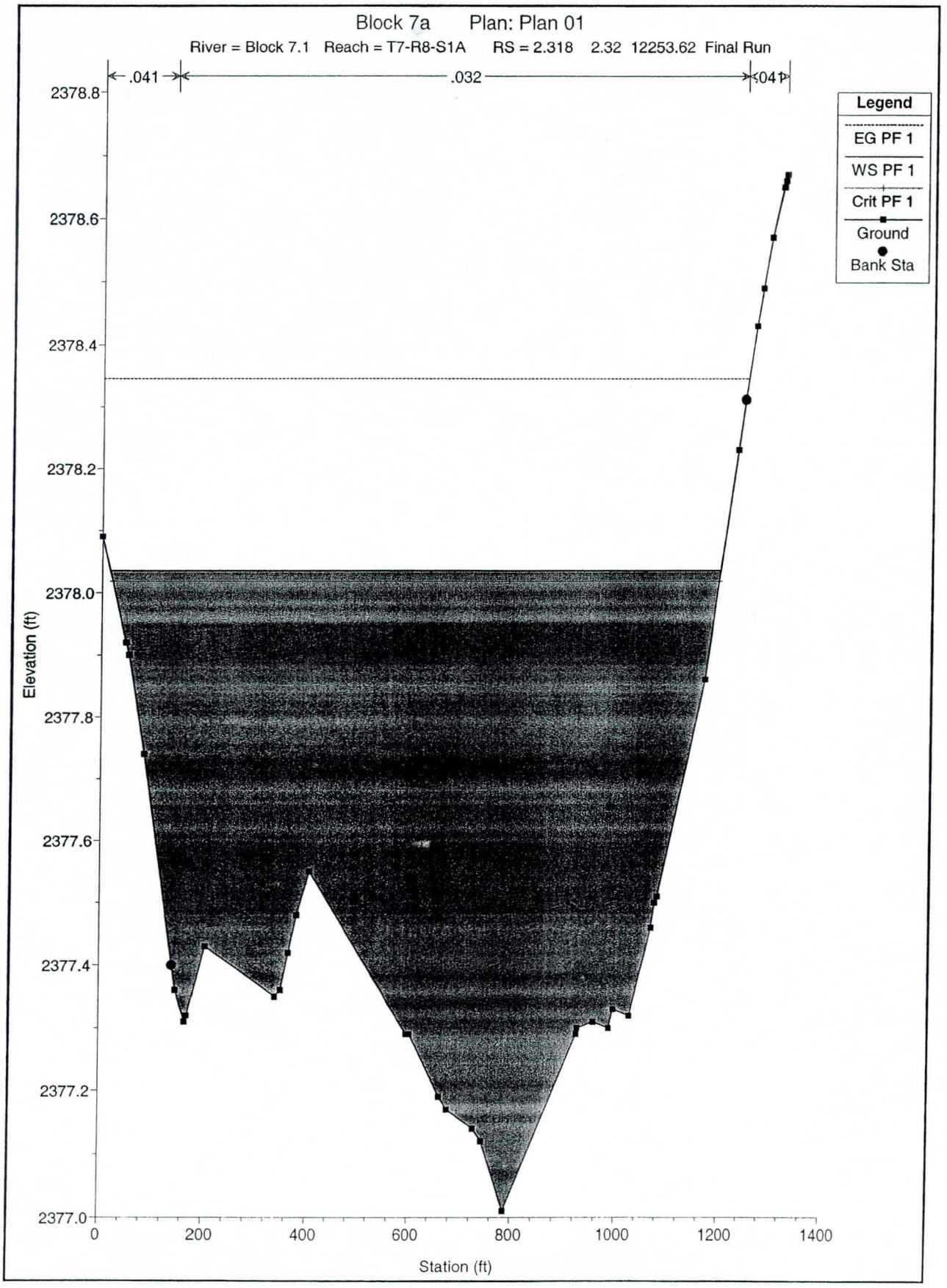
400
600
800
1000
1200
1400
Station (ft)


Block 7a Plan: Plan 01
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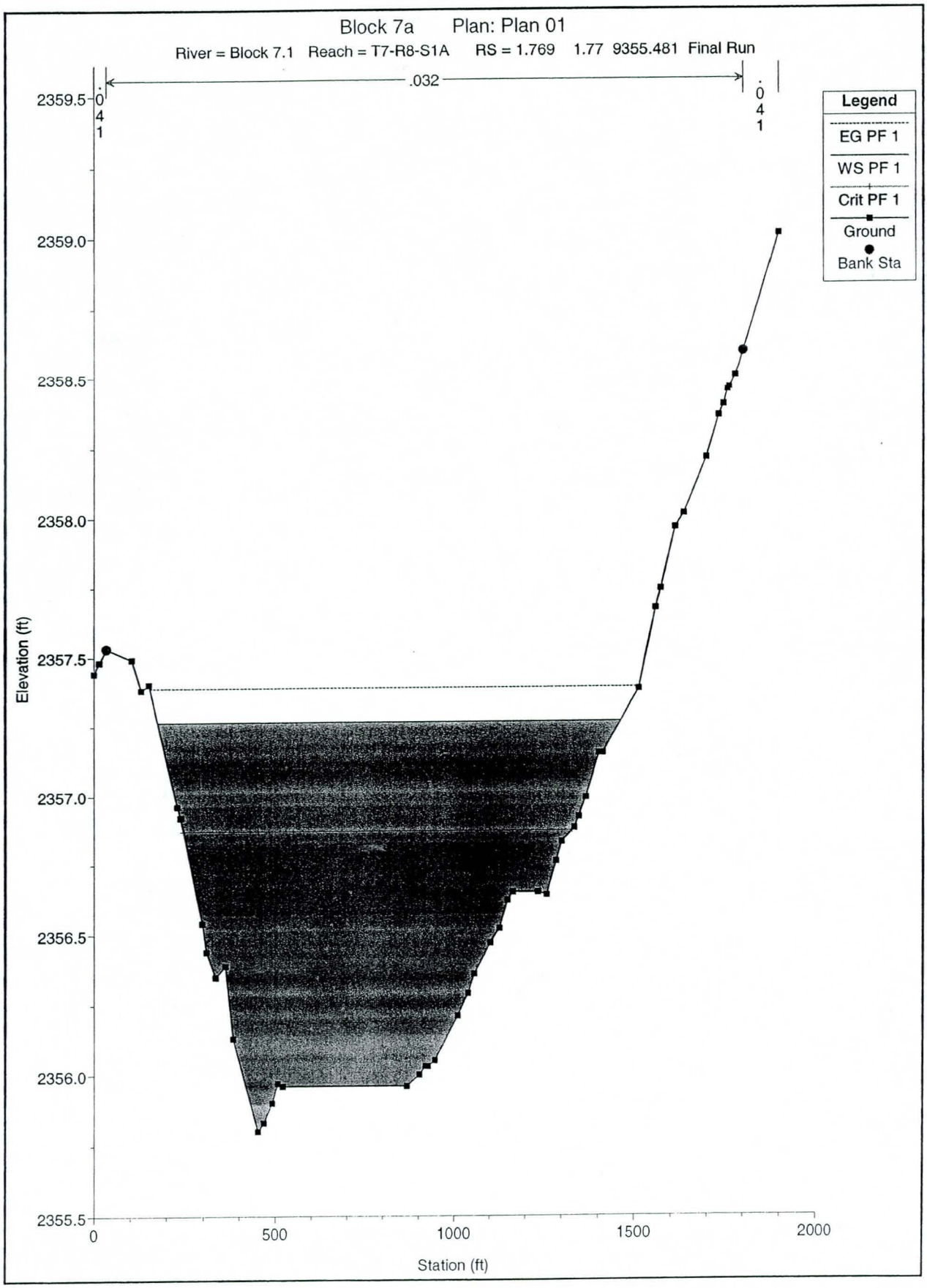
.041
.032
.041
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2378.8
2378.6
2378.4
2378.2
2378.0
2377.8
2377.6
2377.4
2377.2
2377.0
Elevation (ft)
0
200
400
600
800
1000
1200
1400
Station (ft)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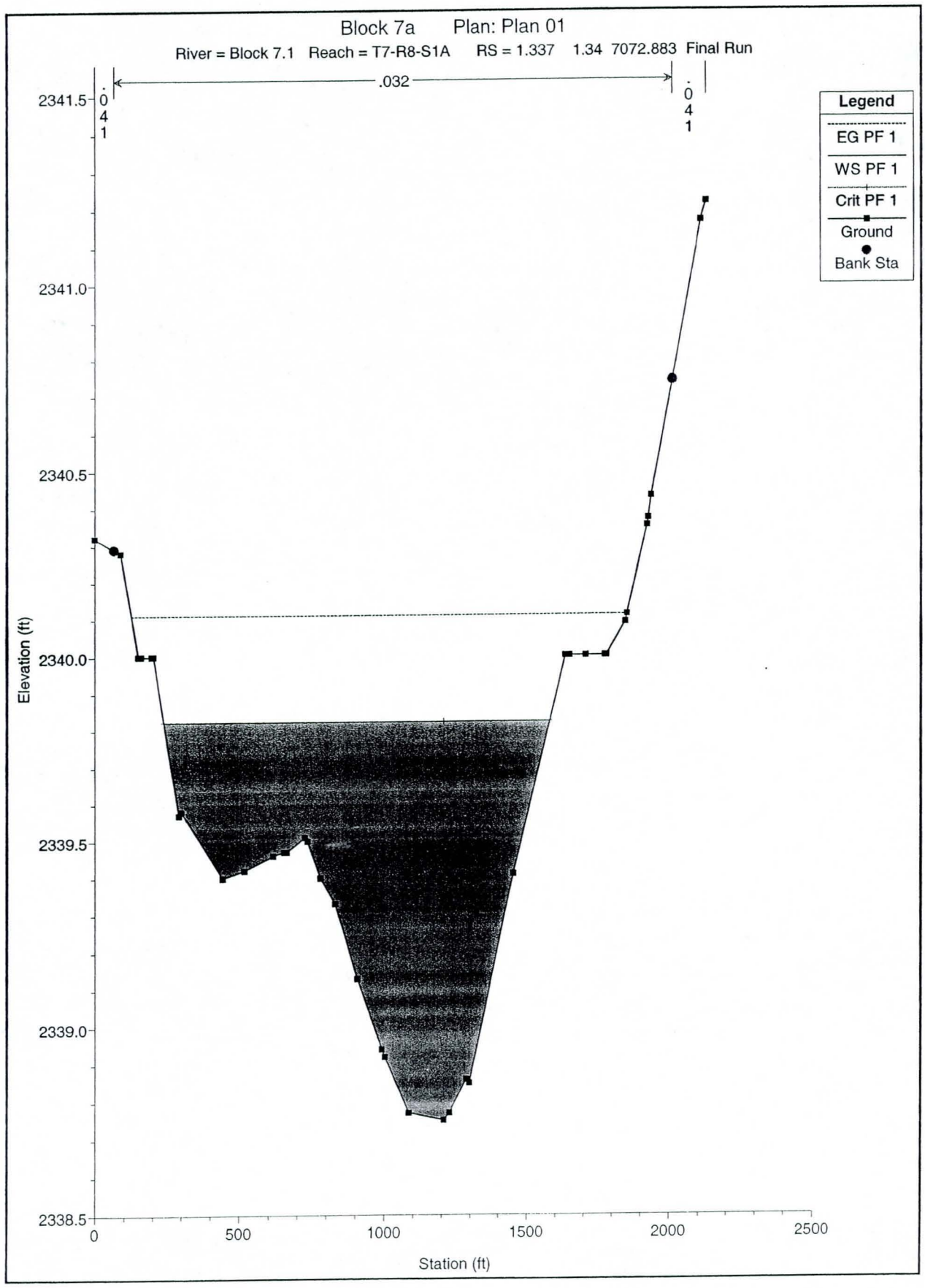
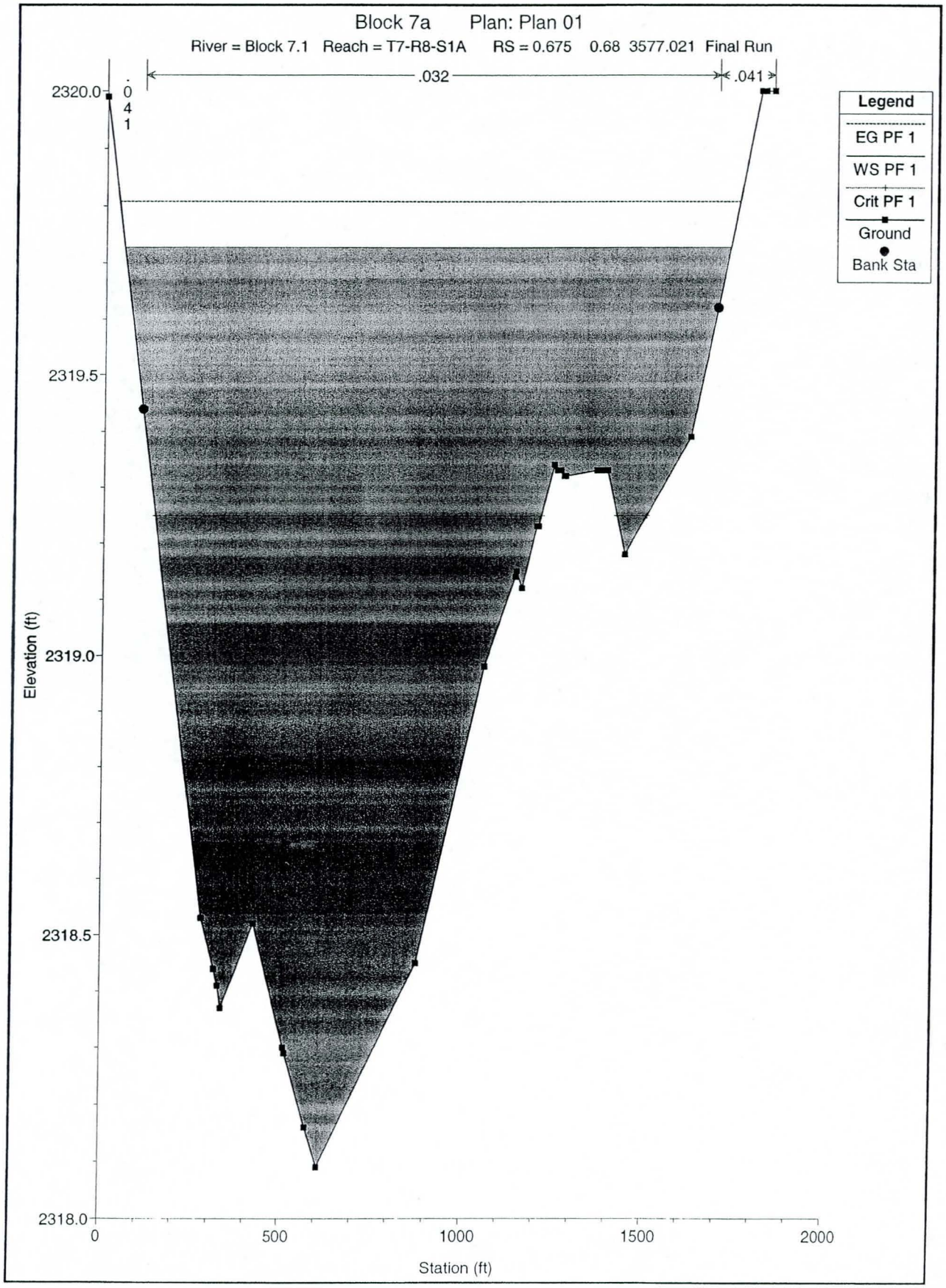
River = Block 7.1 Reach = T7-R8-S1A RS = 1.769 1.77 9355.481 Final Run
.032
.041
.041
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2359.5
2359.0
2358.5
2358.0
2357.5
2357.0
2356.5
2356.0
2355.5
Elevation (ft)
0
500
1000
1500
2000
Station (ft)


Block 7a Plan: Plan 01
River = Block 7.1 Reach = T7-R8-S1A RS = 1.337 1.34 7072.883 Final Run
.041
.032
.041
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2341.5
2341.0
2340.5
2340.0
2339.5
2339.0
2338.5
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)


Block 7a Plan: Plan 01
River = Block 7.1 Reach = T7-R8-S1A RS = 0.675 0.68 3577.021 Final Run
.032
.041
.041
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2320.0
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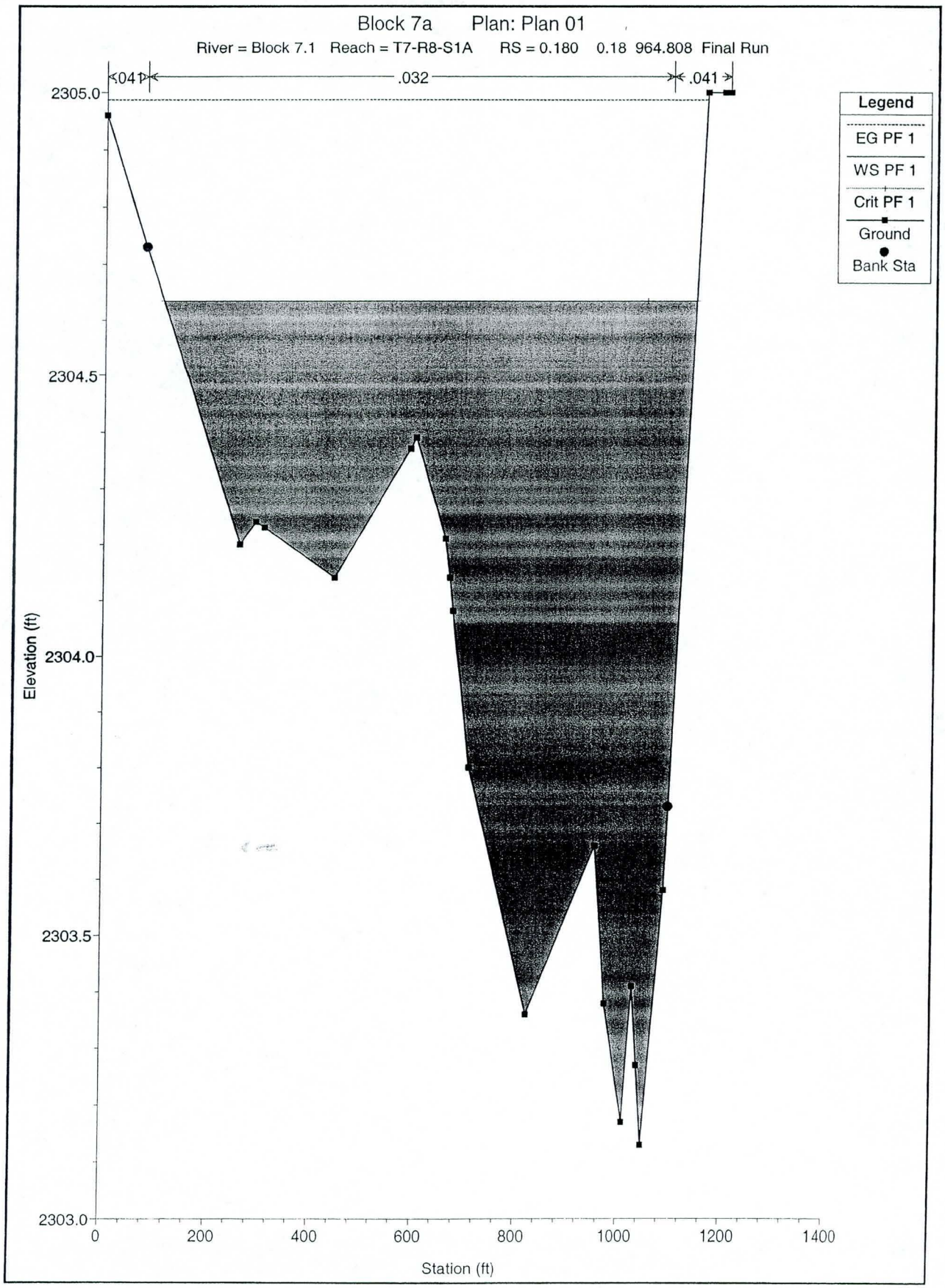
2319.0
2318.5
2318.0
Elevation (ft)
0
500
1000
1500
2000
Station (ft)


Block 7a Plan: Plan 01
River = Block 7.1 Reach = T7-R8-S1A RS = 0.180 0.18 964.808 Final Run
.041
.032
.041
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2305.0
2304.5
2304.0
2303.5
2303.0
Elevation (ft)
0
200
400
600
800
1000
1200
1400
Station (ft)

Plan: Plan 01 Block 7.1 T7-R8-S1A RS: 3.297 Profile: PF 1

E.G. Elev (ft)	2417.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.		0.032	
W.S. Elev (ft)	2417.20	Reach Len. (ft)	1937.31	2453.72	2412.03
Crit W.S. (ft)	2417.20	Flow Area (sq ft)		502.59	
E.G. Slope (ft/ft)	0.014056	Area (sq ft)		502.59	
Q Total (cfs)	3283.00	Flow (cfs)		3283.00	
Top Width (ft)	388.78	Top Width (ft)		388.78	
Vel Total (ft/s)	6.53	Avg. Vel. (ft/s)		6.53	
Max Chl Dpth (ft)	2.20	Hydr. Depth (ft)		1.29	
Conv. Total (cfs)	27691.5	Conv. (cfs)		27691.5	
Length Wtd. (ft)	2453.72	Wetted Per. (ft)		388.85	
Min Ch El (ft)	2415.00	Shear (lb/sq ft)		1.13	
Alpha	1.00	Stream Power (lb/ft s)		7.41	
Frctn Loss (ft)	16.77	Cum Volume (acre-ft)	2.83	351.72	0.75
C & E Loss (ft)	0.13	Cum SA (acres)	11.81	418.53	3.69

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.1 T7-R8-S1A RS: 2.833 Profile: PF 1

E.G. Elev (ft)	2397.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.032	
W.S. Elev (ft)	2397.42	Reach Len. (ft)	2650.07	2716.53	2637.25
Crit W.S. (ft)	2396.79	Flow Area (sq ft)		843.72	
E.G. Slope (ft/ft)	0.004027	Area (sq ft)		843.72	
Q Total (cfs)	3283.00	Flow (cfs)		3283.00	
Top Width (ft)	555.98	Top Width (ft)		555.98	
Vel Total (ft/s)	3.89	Avg. Vel. (ft/s)		3.89	
Max Chl Dpth (ft)	2.42	Hydr. Depth (ft)		1.52	
Conv. Total (cfs)	51735.4	Conv. (cfs)		51735.4	
Length Wtd. (ft)	2715.82	Wetted Per. (ft)		556.01	
Min Ch El (ft)	2395.00	Shear (lb/sq ft)		0.38	
Alpha	1.00	Stream Power (lb/ft s)		1.48	
Frctn Loss (ft)	19.30	Cum Volume (acre-ft)	2.83	313.80	0.75
C & E Loss (ft)	0.01	Cum SA (acres)	11.81	391.92	3.69

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.1 T7-R8-S1A RS: 2.318 Profile: PF 1

E.G. Elev (ft)	2378.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.	0.041	0.032	
W.S. Elev (ft)	2378.04	Reach Len. (ft)	2946.29	2898.14	3139.73
Crit W.S. (ft)	2378.02	Flow Area (sq ft)	35.82	714.96	
E.G. Slope (ft/ft)	0.015764	Area (sq ft)	35.82	714.96	
Q Total (cfs)	3283.00	Flow (cfs)	70.42	3212.58	
Top Width (ft)	1182.82	Top Width (ft)	126.15	1056.67	
Vel Total (ft/s)	4.37	Avg. Vel. (ft/s)	1.97	4.49	
Max Chl Dpth (ft)	1.03	Hydr. Depth (ft)	0.28	0.68	
Conv. Total (cfs)	26147.7	Conv. (cfs)	560.8	25586.9	
Length Wtd. (ft)	2898.66	Wetted Per. (ft)	126.15	1056.67	
Min Ch El (ft)	2377.01	Shear (lb/sq ft)	0.28	0.67	
Alpha	1.04	Stream Power (lb/ft s)	0.55	2.99	
Frctn Loss (ft)	20.90	Cum Volume (acre-ft)	1.75	265.19	0.75
C & E Loss (ft)	0.06	Cum SA (acres)	7.98	341.64	3.69

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.1 T7-R8-S1A RS: 1.769 Profile: PF 1

E.G. Elev (ft)	2357.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.032	
W.S. Elev (ft)	2357.27	Reach Len. (ft)	2081.58	2282.60	2458.30
Crit W.S. (ft)	2356.87	Flow Area (sq ft)		1173.22	
E.G. Slope (ft/ft)	0.004114	Area (sq ft)		1173.22	
Q Total (cfs)	3283.00	Flow (cfs)		3283.00	
Top Width (ft)	1288.19	Top Width (ft)		1288.19	
Vel Total (ft/s)	2.80	Avg. Vel. (ft/s)		2.80	
Max Chl Dpth (ft)	1.46	Hydr. Depth (ft)		0.91	
Conv. Total (cfs)	51186.8	Conv. (cfs)		51186.8	
Length Wtd. (ft)	2282.60	Wetted Per. (ft)		1288.20	
Min Ch El (ft)	2355.80	Shear (lb/sq ft)		0.23	
Alpha	1.00	Stream Power (lb/ft s)		0.65	
Frctn Loss (ft)	17.25	Cum Volume (acre-ft)	0.53	202.38	0.75
C & E Loss (ft)	0.02	Cum SA (acres)	3.71	263.63	3.69

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.1 T7-R8-S1A RS: 1.337 Profile: PF 1

E.G. Elev (ft)	2340.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.032	
W.S. Elev (ft)	2339.82	Reach Len. (ft)	3307.92	3495.86	3529.41
Crit W.S. (ft)	2339.82	Flow Area (sq ft)		763.42	
E.G. Slope (ft/ft)	0.018188	Area (sq ft)		763.42	
Q Total (cfs)	3283.00	Flow (cfs)		3283.00	
Top Width (ft)	1341.53	Top Width (ft)		1341.53	

Plan: Plan 01 Block 7.1 T7-R8-S1A RS: 1.337 Profile: PF 1 (Continued)

Vel Total (ft/s)	4.30	Avg. Vel. (ft/s)		4.30	
Max Chl Dpth (ft)	1.07	Hydr. Depth (ft)		0.57	
Conv. Total (cfs)	24343.3	Conv. (cfs)		24343.3	
Length Wtd. (ft)	3495.74	Wetted Per. (ft)		1341.54	
Min Ch El (ft)	2338.75	Shear (lb/sq ft)		0.65	
Alpha	1.00	Stream Power (lb/ft s)		2.78	
Frctn Loss (ft)	19.93	Cum Volume (acre-ft)	0.53	151.64	0.75
C & E Loss (ft)	0.06	Cum SA (acres)	3.71	194.73	3.69

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.1 T7-R8-S1A RS: 0.675 Profile: PF 1

E.G. Elev (ft)	2319.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.041	0.032	0.041
W.S. Elev (ft)	2319.73	Reach Len. (ft)	2571.02	2612.21	2575.72
Crit W.S. (ft)	2319.25	Flow Area (sq ft)	7.91	1438.82	1.75
E.G. Slope (ft/ft)	0.002748	Area (sq ft)	7.91	1438.82	1.75
Q Total (cfs)	3283.00	Flow (cfs)	4.12	3278.40	0.47
Top Width (ft)	1676.54	Top Width (ft)	55.00	1588.89	32.66
Vel Total (ft/s)	2.27	Avg. Vel. (ft/s)	0.52	2.28	0.27
Max Chl Dpth (ft)	1.64	Hydr. Depth (ft)	0.14	0.91	0.05
Conv. Total (cfs)	62623.1	Conv. (cfs)	78.7	62535.4	9.0
Length Wtd. (ft)	2611.84	Wetted Per. (ft)	55.00	1588.90	32.66
Min Ch El (ft)	2318.09	Shear (lb/sq ft)	0.02	0.16	0.01
Alpha	1.01	Stream Power (lb/ft s)	0.01	0.35	0.00
Frctn Loss (ft)	14.79	Cum Volume (acre-ft)	0.23	63.27	0.68
C & E Loss (ft)	0.03	Cum SA (acres)	1.62	77.14	2.36

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.1 T7-R8-S1A RS: 0.180 Profile: PF 1

E.G. Elev (ft)	2304.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.		0.032	0.041
W.S. Elev (ft)	2304.63	Reach Len. (ft)			
Crit W.S. (ft)	2304.63	Flow Area (sq ft)		671.38	21.37
E.G. Slope (ft/ft)	0.017784	Area (sq ft)		671.38	21.37
Q Total (cfs)	3283.00	Flow (cfs)		3222.17	60.83
Top Width (ft)	1031.24	Top Width (ft)		983.96	47.28
Vel Total (ft/s)	4.74	Avg. Vel. (ft/s)		4.80	2.85
Max Chl Dpth (ft)	1.50	Hydr. Depth (ft)		0.68	0.45

Plan: Plan 01 Block 7.1 T7-R8-S1A RS: 0.180 Profile: PF 1 (Continued)

Conv. Total (cfs)	24618.4	Conv. (cfs)		24162.3	456.2
Length Wtd. (ft)		Wetted Per. (ft)		983.98	47.29
Min Ch El (ft)	2303.13	Shear (lb/sq ft)		0.76	0.50
Alpha	1.01	Stream Power (lb/ft s)		3.64	1.43
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 7\Block7a\Hec-Ras\block7a.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 7\Block7a\Hec-Ras\block7a.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 7\Block7a\Hec-Ras\block7a.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 7\Block7a\Hec-Ras\block7a.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 7\Block7a\Hec-Ras\block7a.nt
Selected profiles: PF 1
Date: 1/15/2003
Time: 8:47:25 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block 7.1,T7-R8-S1A						
3.297		0.041	0.032	0.041	0.1	0.3
2.833		0.041	0.032	0.041	0.1	0.3
2.318		0.041	0.032	0.041	0.1	0.3
1.769		0.041	0.032	0.041	0.1	0.3
1.337		0.041	0.032	0.041	0.1	0.3
.675		0.041	0.032	0.041	0.1	0.3
.18		0.041	0.032	0.041	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.041	0.041
Right Overbank n Value:	0.041	0.041
Channel n Value:	0.032	0.032
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 7\Block7a\Hec-Ras\block7a.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 7\Block7a\Hec-Ras\block7a.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 7\Block7a\Hec-Ras\block7a.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 7\Block7a\Hec-Ras\block7a.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 7\Block7a\Hec-Ras\block7a.xs
Selected profiles: PF 1
Date: 1/15/2003
Time: 8:47:26 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Block 7.1,T7-R8-S1A						

3.297	1937.31	2453.72	2412.03	388.78	3283	C
2.833	2650.07	2716.53	2637.25	555.98	3283	
2.318	2946.29	2898.14	3139.73	1182.82	3283	
1.769	2081.58	2282.6	2458.3	1288.19	3283	
1.337	3307.92	3495.86	3529.41	1341.53	3283	C
0.675	2571.02	2612.21	2575.72	1676.54	3283	
0.18	1490.4	955.38	355.33	1031.24	3283	C

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 2.318
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

XS DC 02 Constant dicharge used for the Block 7.1,T7-R8-S1A

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Block 7.1,T7-R8-S1A
Known WS = 2300.6 is specified as the downstream boundary
for profile PF 1

---END---

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

Explanation:
Cross sections were cut in order to take in channel geometry.

DISCHARGE CHECK

Warning:
Constant discharge used for the reach.

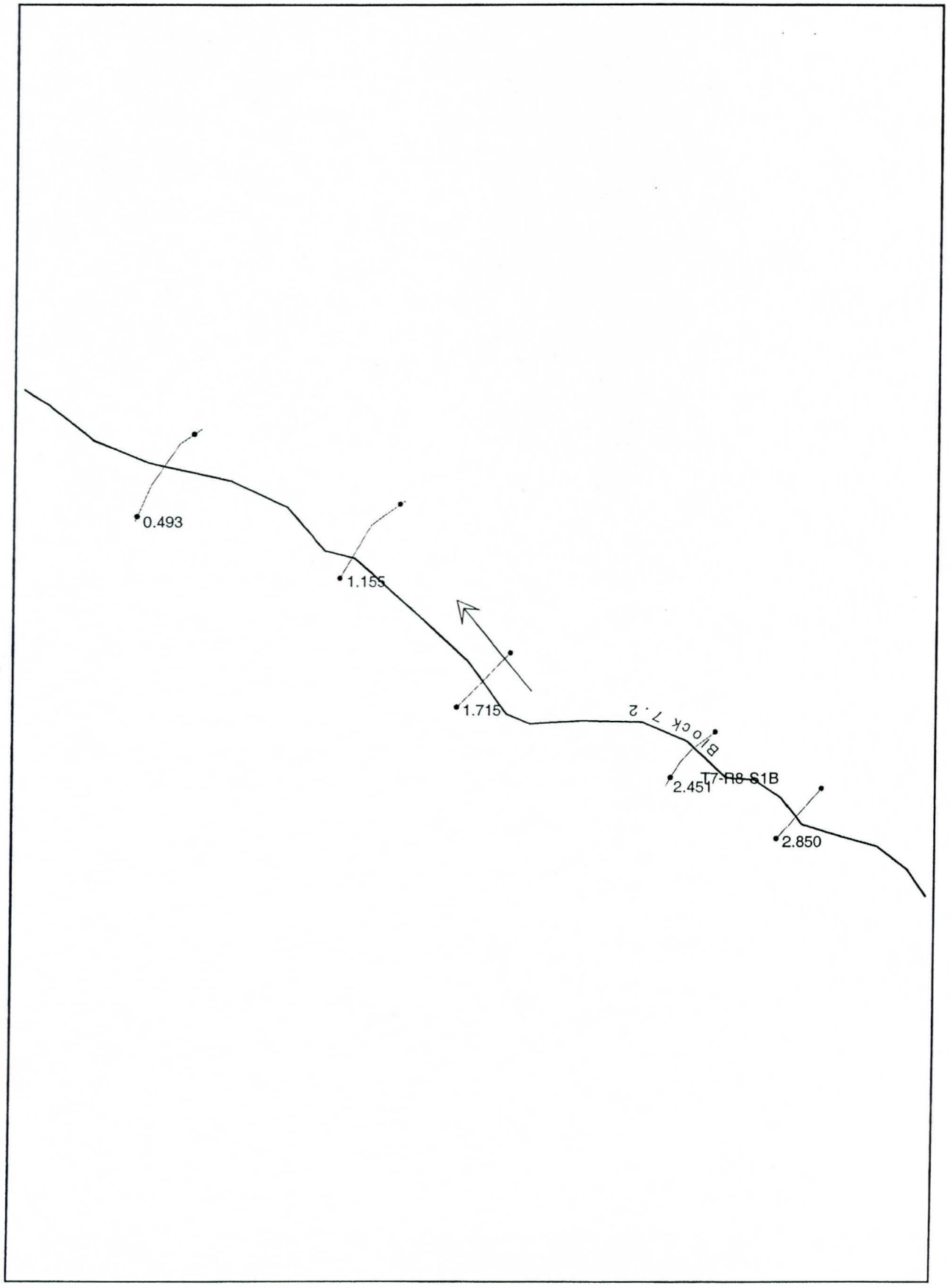
Explanation:
The discharge was determined from the regression equations for the sub basin. The Flood Control District of Maricopa County also approved the peak discharge values.

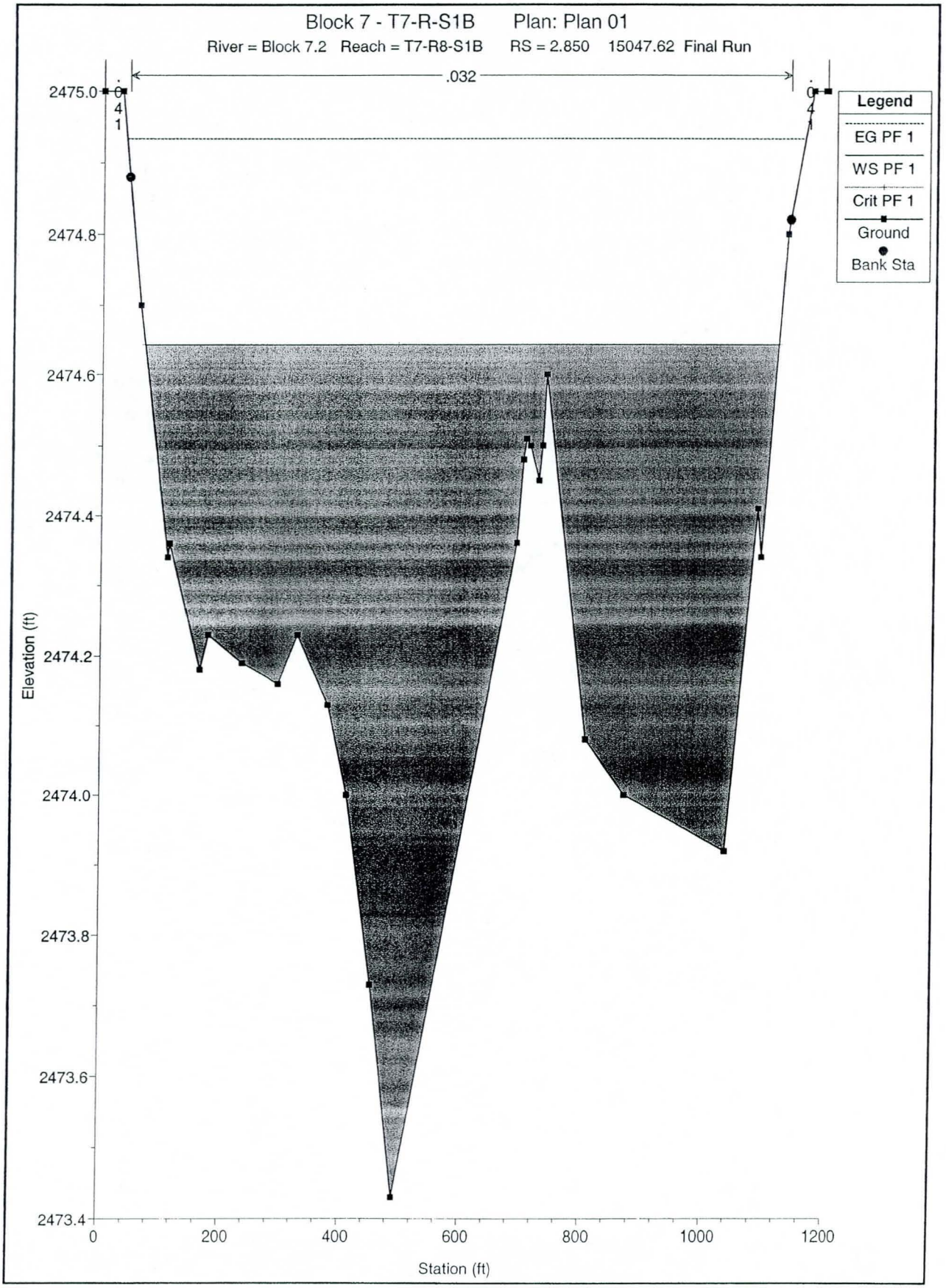
BOUNDARY CONDITION CHECK

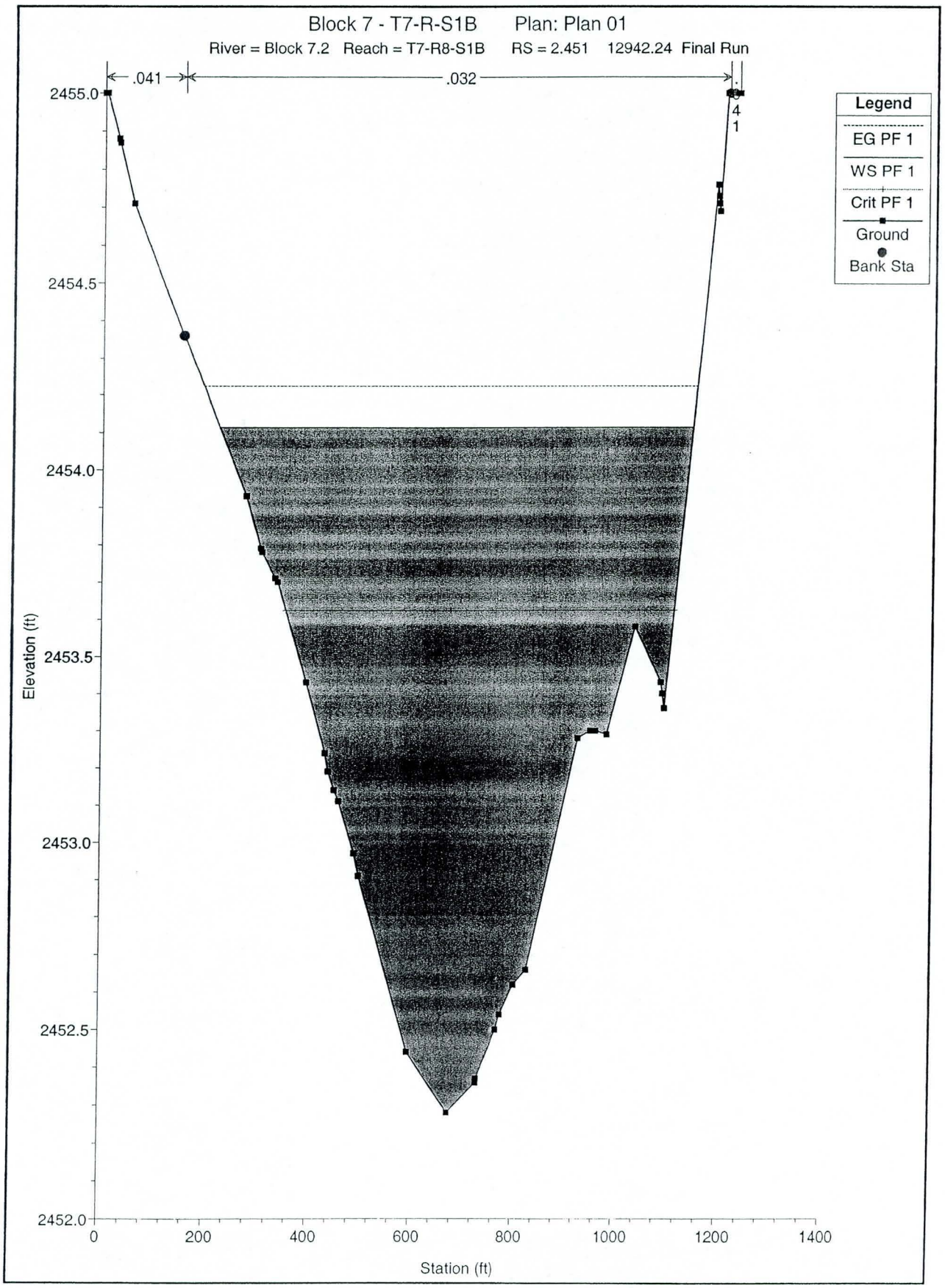
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

HEC-RAS Plan: Plan 01 River: Block 7.2 Reach: T7-R8-S1B Profile: PF 1

Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R8-S1B	2.850	2486.00	2474.64	2474.64	4.32	1048.46	1.21	1.03	70.16	1118.62
T7-R8-S1B	2.451	2486.00	2454.11	2453.62	2.65	921.99	1.83	0.46	224.54	1146.53
T7-R8-S1B	1.715	2486.00	2429.32	2429.32	4.42	943.73	0.98	1.01	91.12	1034.84
T7-R8-S1B	1.155	2486.00	2403.84	2403.35	2.96	780.62	1.76	0.50	661.71	1442.33
T7-R8-S1B	0.493	2486.00	2378.79	2378.79	4.00	1266.57	1.02	1.00	435.88	1702.45


0.493
1.155
1.715
Block 7 . 2
2.451
T7-R8-S1B
2.850


Block 7 - T7-R-S1B Plan: Plan 01
River = Block 7.2 Reach = T7-R8-S1B RS = 2.850 15047.62 Final Run
.032
.041
.041
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2475.0
2474.8
2474.6
2474.4
2474.2
2474.0
2473.8
2473.6
2473.4
Elevation (ft)
0
200
400
600
800
1000
1200
Station (ft)


Block 7 - T7-R-S1B Plan: Plan 01
River = Block 7.2 Reach = T7-R8-S1B RS = 2.451 12942.24 Final Run
.041
.032
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2455.0
2454.5
2454.0
2453.5
2453.0
2452.5
2452.0
Elevation (ft)
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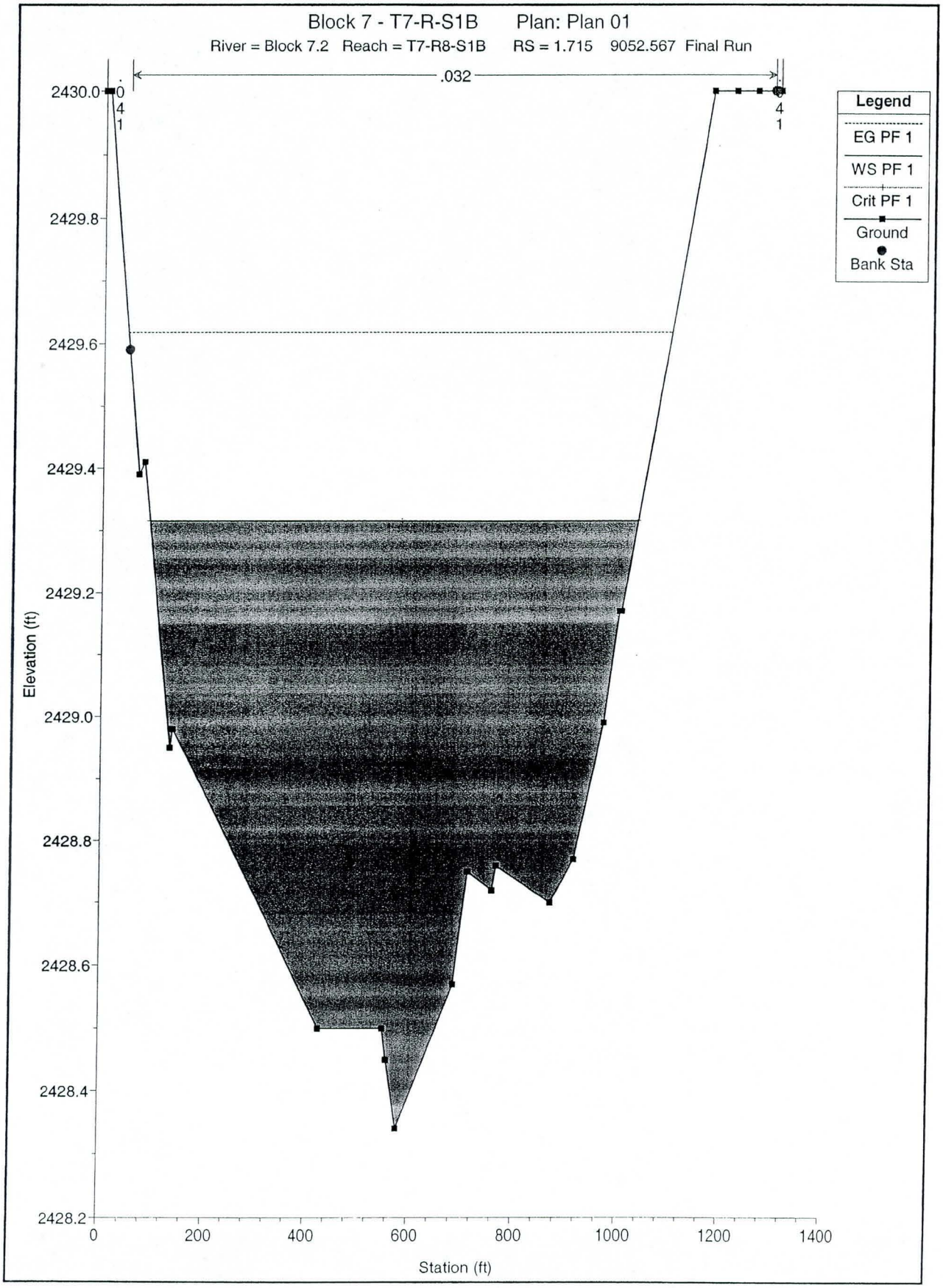
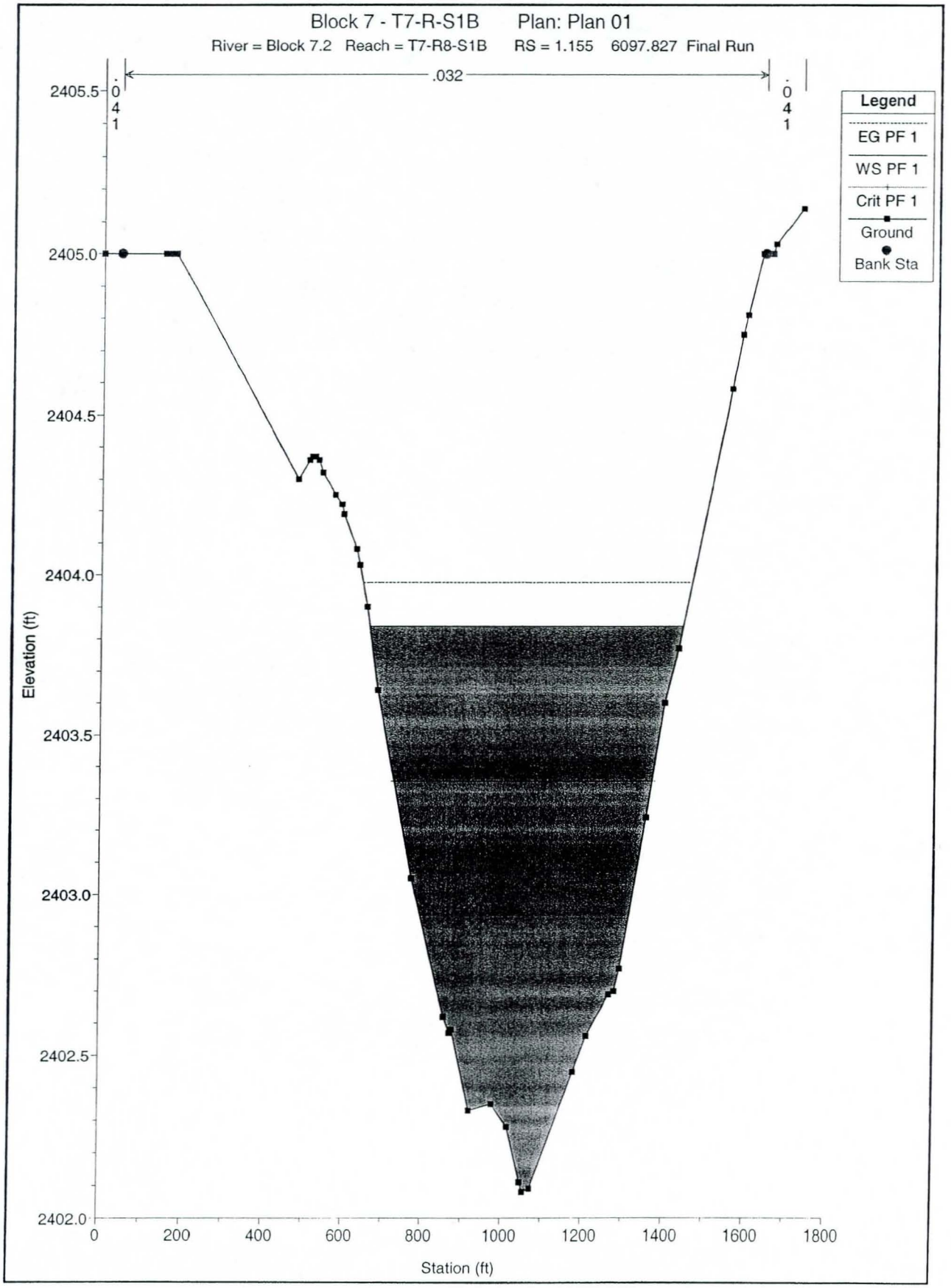
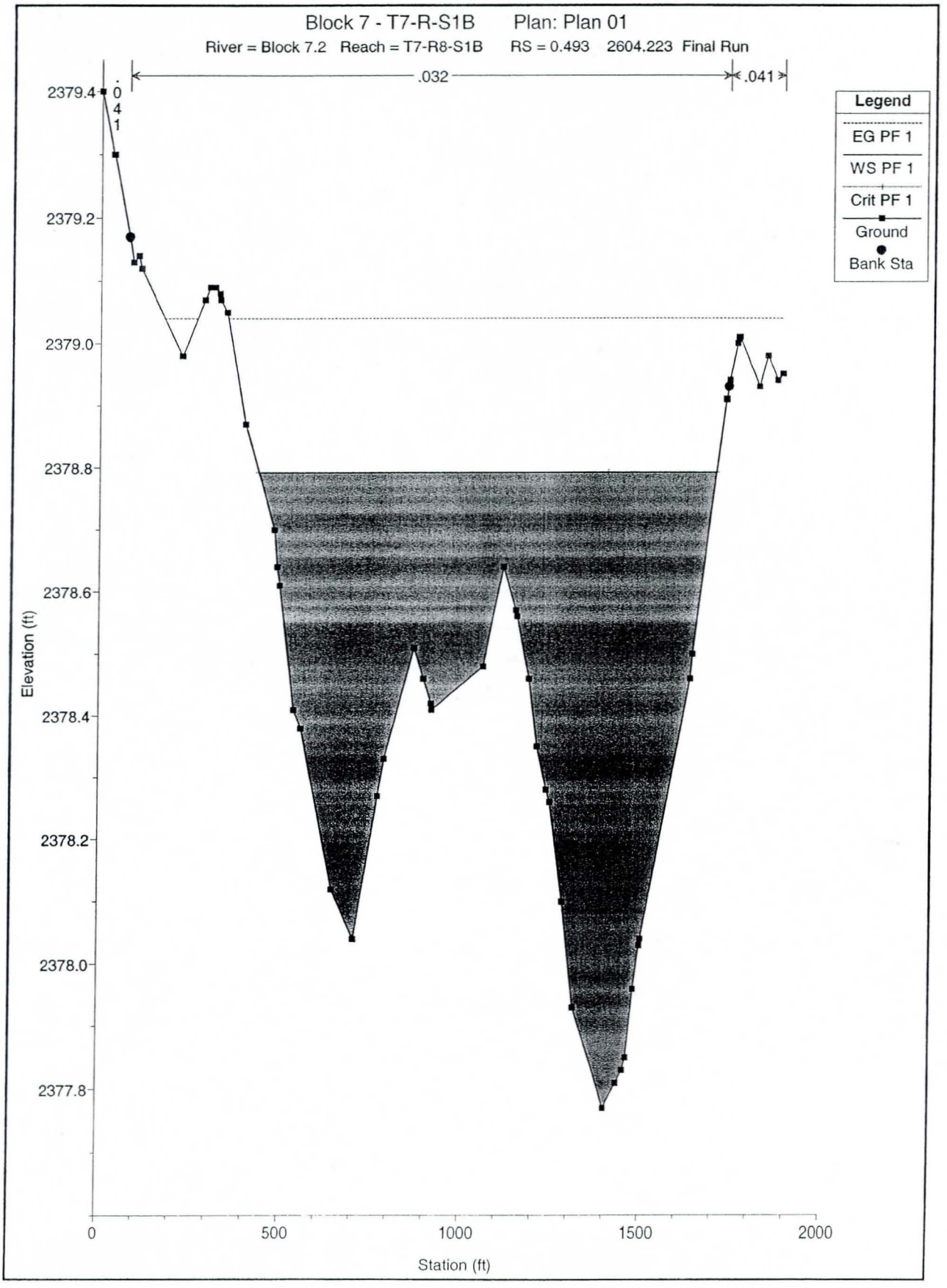
400
600
800
1000
1200
1400
Station (ft)


Block 7 - T7-R-S1B Plan: Plan 01
River = Block 7.2 Reach = T7-R8-S1B RS = 1.715 9052.567 Final Run
.032
.041
.041
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2430.0
2429.8
2429.6
2429.4
2429.2
2429.0
2428.8
2428.6
2428.4
2428.2
Elevation (ft)
0
200
400
600
800
1000
1200
1400
Station (ft)


Block 7 - T7-R-S1B Plan: Plan 01
River = Block 7.2 Reach = T7-R8-S1B RS = 1.155 6097.827 Final Run
.032
.041
.041
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2405.5
2405.0
2404.5
2404.0
2403.5
2403.0
2402.5
2402.0
Elevation (ft)
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)


Block 7 - T7-R-S1B Plan: Plan 01
River = Block 7.2 Reach = T7-R8-S1B RS = 0.493 2604.223 Final Run
.032
.041
.041
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2379.4
2379.2
2379.0
2378.8
2378.6
2378.4
2378.2
2378.0
2377.8
Elevation (ft)
0
500
1000
1500
2000
Station (ft)

Plan: Plan 01 Block 7.2 T7-R8-S1B RS: 2.850 Profile: PF 1

E.G. Elev (ft)	2474.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.032	
W.S. Elev (ft)	2474.64	Reach Len. (ft)	1993.06	2105.39	1975.09
Crit W.S. (ft)	2474.64	Flow Area (sq ft)		575.19	
E.G. Slope (ft/ft)	0.019291	Area (sq ft)		575.19	
Q Total (cfs)	2486.00	Flow (cfs)		2486.00	
Top Width (ft)	1048.46	Top Width (ft)		1048.46	
Vel Total (ft/s)	4.32	Avg. Vel. (ft/s)		4.32	
Max Chl Dpth (ft)	1.21	Hydr. Depth (ft)		0.55	
Conv. Total (cfs)	17898.7	Conv. (cfs)		17898.7	
Length Wtd. (ft)	2105.39	Wetted Per. (ft)		1048.47	
Min Ch El (ft)	2473.43	Shear (lb/sq ft)		0.66	
Alpha	1.00	Stream Power (lb/ft s)		2.86	
Frctn Loss (ft)	13.57	Cum Volume (acre-ft)		209.69	
C & E Loss (ft)	0.05	Cum SA (acres)		271.49	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.2 T7-R8-S1B RS: 2.451 Profile: PF 1

E.G. Elev (ft)	2454.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.032	
W.S. Elev (ft)	2454.11	Reach Len. (ft)	3740.88	3889.68	3614.70
Crit W.S. (ft)	2453.62	Flow Area (sq ft)		937.56	
E.G. Slope (ft/ft)	0.003189	Area (sq ft)		937.56	
Q Total (cfs)	2486.00	Flow (cfs)		2486.00	
Top Width (ft)	921.99	Top Width (ft)		921.99	
Vel Total (ft/s)	2.65	Avg. Vel. (ft/s)		2.65	
Max Chl Dpth (ft)	1.83	Hydr. Depth (ft)		1.02	
Conv. Total (cfs)	44023.7	Conv. (cfs)		44023.7	
Length Wtd. (ft)	3889.68	Wetted Per. (ft)		922.01	
Min Ch El (ft)	2452.28	Shear (lb/sq ft)		0.20	
Alpha	1.00	Stream Power (lb/ft s)		0.54	
Frctn Loss (ft)	24.58	Cum Volume (acre-ft)		173.14	
C & E Loss (ft)	0.02	Cum SA (acres)		223.88	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.2 T7-R8-S1B RS: 1.715 Profile: PF 1

E.G. Elev (ft)	2429.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.032	
W.S. Elev (ft)	2429.32	Reach Len. (ft)	2837.22	2954.74	3045.96
Crit W.S. (ft)	2429.32	Flow Area (sq ft)		562.85	
E.G. Slope (ft/ft)	0.018022	Area (sq ft)		562.85	
Q Total (cfs)	2486.00	Flow (cfs)		2486.00	
Top Width (ft)	943.73	Top Width (ft)		943.73	
Vel Total (ft/s)	4.42	Avg. Vel. (ft/s)		4.42	
Max Chl Dpth (ft)	0.98	Hydr. Depth (ft)		0.60	
Conv. Total (cfs)	18518.1	Conv. (cfs)		18518.1	
Length Wtd. (ft)	2954.74	Wetted Per. (ft)		943.73	
Min Ch El (ft)	2428.34	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		2.96	
Frctn Loss (ft)	20.70	Cum Volume (acre-ft)		106.15	
C & E Loss (ft)	0.05	Cum SA (acres)		140.58	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.2 T7-R8-S1B RS: 1.155 Profile: PF 1

E.G. Elev (ft)	2403.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.032	
W.S. Elev (ft)	2403.84	Reach Len. (ft)	3406.42	3493.60	3491.21
Crit W.S. (ft)	2403.35	Flow Area (sq ft)		839.17	
E.G. Slope (ft/ft)	0.003696	Area (sq ft)		839.17	
Q Total (cfs)	2486.00	Flow (cfs)		2486.00	
Top Width (ft)	780.62	Top Width (ft)		780.62	
Vel Total (ft/s)	2.96	Avg. Vel. (ft/s)		2.96	
Max Chl Dpth (ft)	1.76	Hydr. Depth (ft)		1.08	
Conv. Total (cfs)	40891.6	Conv. (cfs)		40891.6	
Length Wtd. (ft)	3493.60	Wetted Per. (ft)		780.63	
Min Ch El (ft)	2402.08	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		0.73	
Frctn Loss (ft)	24.92	Cum Volume (acre-ft)		58.60	
C & E Loss (ft)	0.01	Cum SA (acres)		82.09	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.2 T7-R8-S1B RS: 0.493 Profile: PF 1

E.G. Elev (ft)	2379.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.032	
W.S. Elev (ft)	2378.79	Reach Len. (ft)			
Crit W.S. (ft)	2378.79	Flow Area (sq ft)		622.03	
E.G. Slope (ft/ft)	0.019118	Area (sq ft)		622.03	
Q Total (cfs)	2486.00	Flow (cfs)		2486.00	
Top Width (ft)	1266.57	Top Width (ft)		1266.57	
Vel Total (ft/s)	4.00	Avg. Vel. (ft/s)		4.00	
Max Chl Dpth (ft)	1.02	Hydr. Depth (ft)		0.49	
Conv. Total (cfs)	17979.7	Conv. (cfs)		17979.7	
Length Wtd. (ft)		Wetted Per. (ft)		1266.57	
Min Ch El (ft)	2377.77	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.34	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 7\Block7b\HEC-RAS\Block_7b.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 7\Block7b\HEC-RAS\Block_7b.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 7\Block7b\HEC-RAS\Block_7b.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 7\Block7b\HEC-RAS\Block_7b.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 7\Block7b\HEC-RAS\Block_7b.nt
Selected profiles: PF 1
Date: 1/15/2003
Time: 8:44:55 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block 7.2,T7-R8-S1B						
2.85		0.041	0.032	0.041	0.1	0.3
2.451		0.041	0.032	0.041	0.1	0.3
1.715		0.041	0.032	0.041	0.1	0.3
1.155		0.041	0.032	0.041	0.1	0.3
.493		0.041	0.032	0.041	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.041	0.041
Right Overbank n Value:	0.041	0.041
Channel n Value:	0.032	0.032
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 7\Block7b\HEC-RAS\Block_7b.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 7\Block7b\HEC-RAS\Block_7b.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 7\Block7b\HEC-RAS\Block_7b.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 7\Block7b\HEC-RAS\Block_7b.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 7\Block7b\HEC-RAS\Block_7b.xs
Selected profiles: PF 1
Date: 1/15/2003
Time: 8:44:57 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Block 7.2,T7-R8-S1B						
2.85	1993.06	2105.39	1975.09	1048.46	2486	C
2.451	3740.88	3889.68	3614.7	921.99	2486	
1.715	2837.22	2954.74	3045.96	943.73	2486	C

1.155	3406.42	3493.6	3491.21	780.62	2486	
0.493	2777.1	2604.22	2665.31	1266.57	2486	C

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 0.493
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

XS DC 02 Constant dicharge used for the Block 7.2,T7-R8-S1B

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Block 7.2,T7-R8-S1B
Known WS = 2357.3 is specified as the downstream boundary
for profile PF 1

---END---

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

Explanation:
Cross sections were cut in order to take in channel geometry.

DISCHARGE CHECK

Warning:
Constant discharge used for the reach.

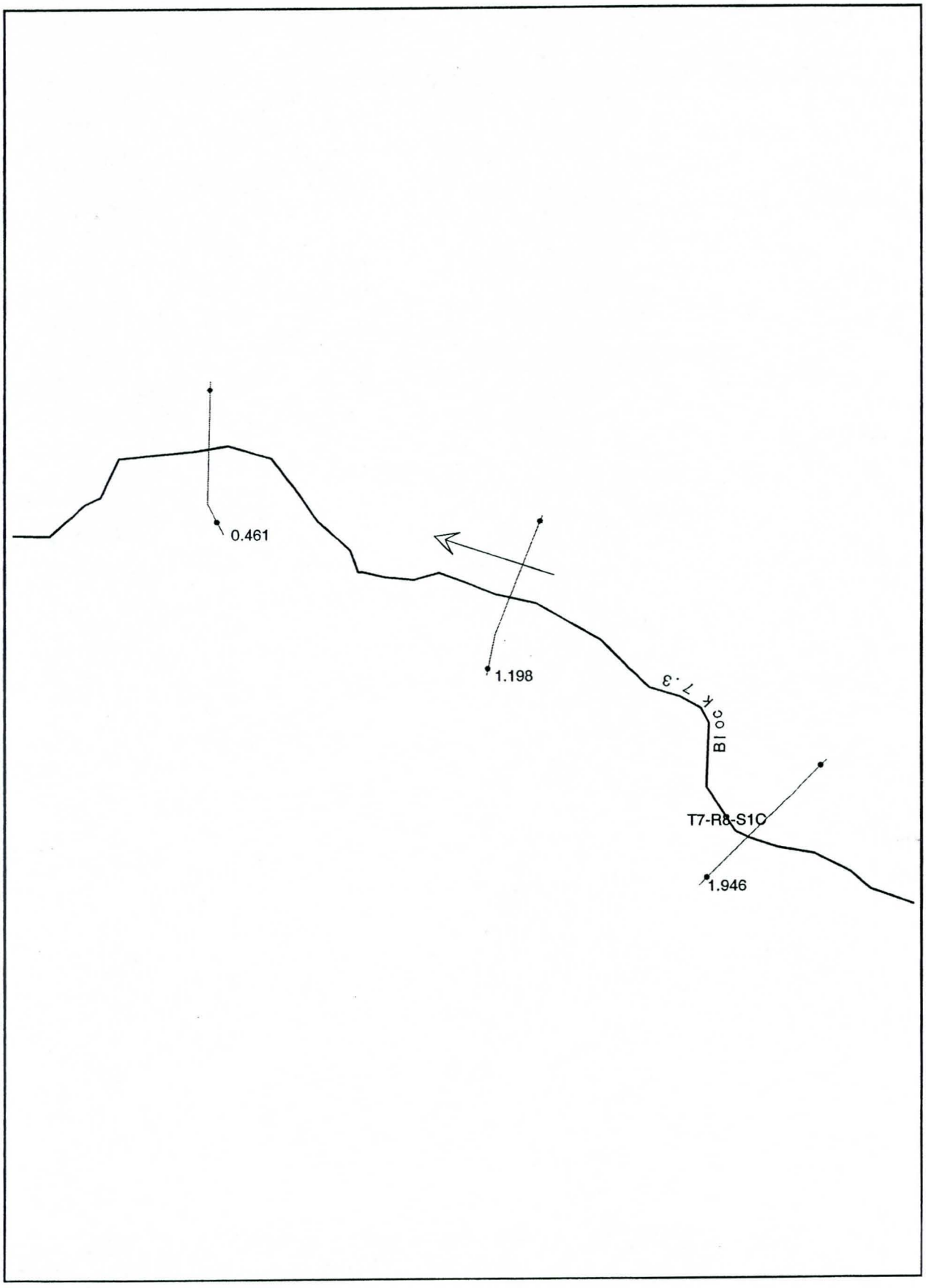
Explanation:
The discharge was determined from the regression equations for the sub basin. The Flood Control District of Maricopa County also approved the peak discharge values.

BOUNDARY CONDITION CHECK

Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

HEC-RAS Plan: Plan 01 River: Block 7.3 Reach: T7-R8-S1C Profile: PF 1

Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Depth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R8-S1C	1.946	7777.00	2359.35	2359.35	5.90	1244.51	2.35	1.01	312.44	1556.95
T7-R8-S1C	1.198	7777.00	2337.59	2336.66	3.00	1579.40	2.59	0.41	122.04	1701.44
T7-R8-S1C	0.461	7777.00	2315.95	2315.95	5.82	1333.60	1.97	1.02	236.99	1570.59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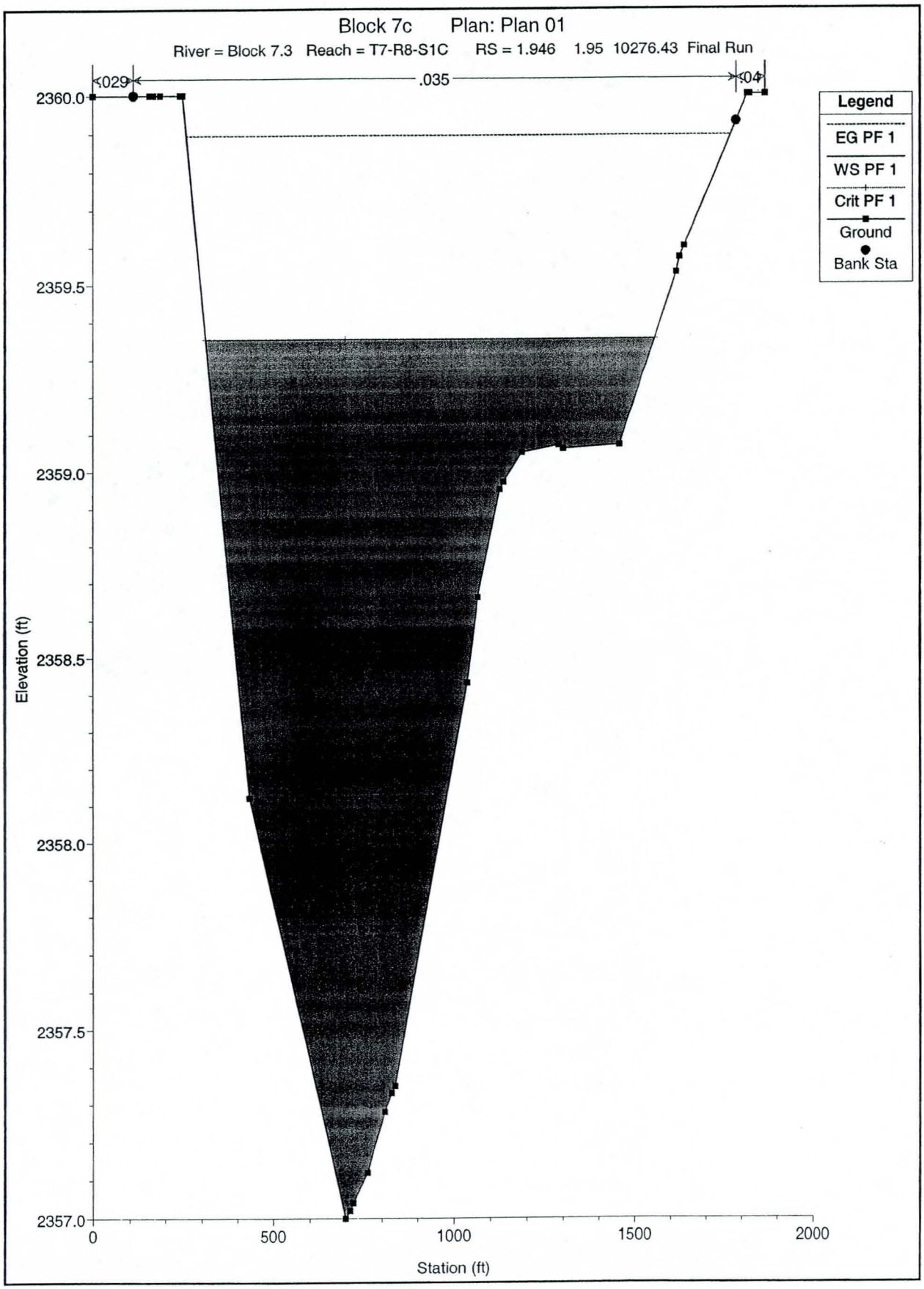
1.198
K 7.3
B1 oc
T7-R8-S1C
1.946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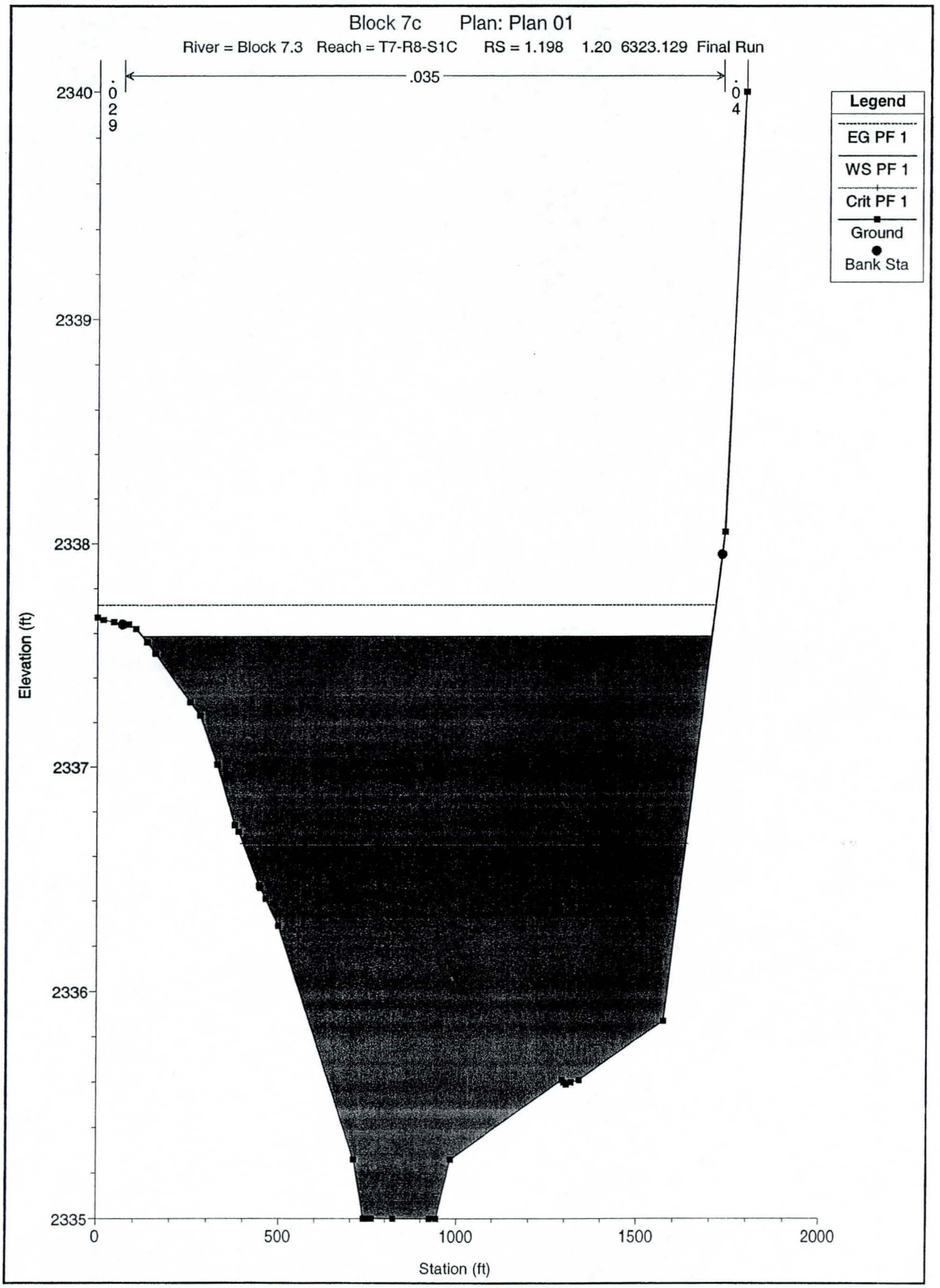
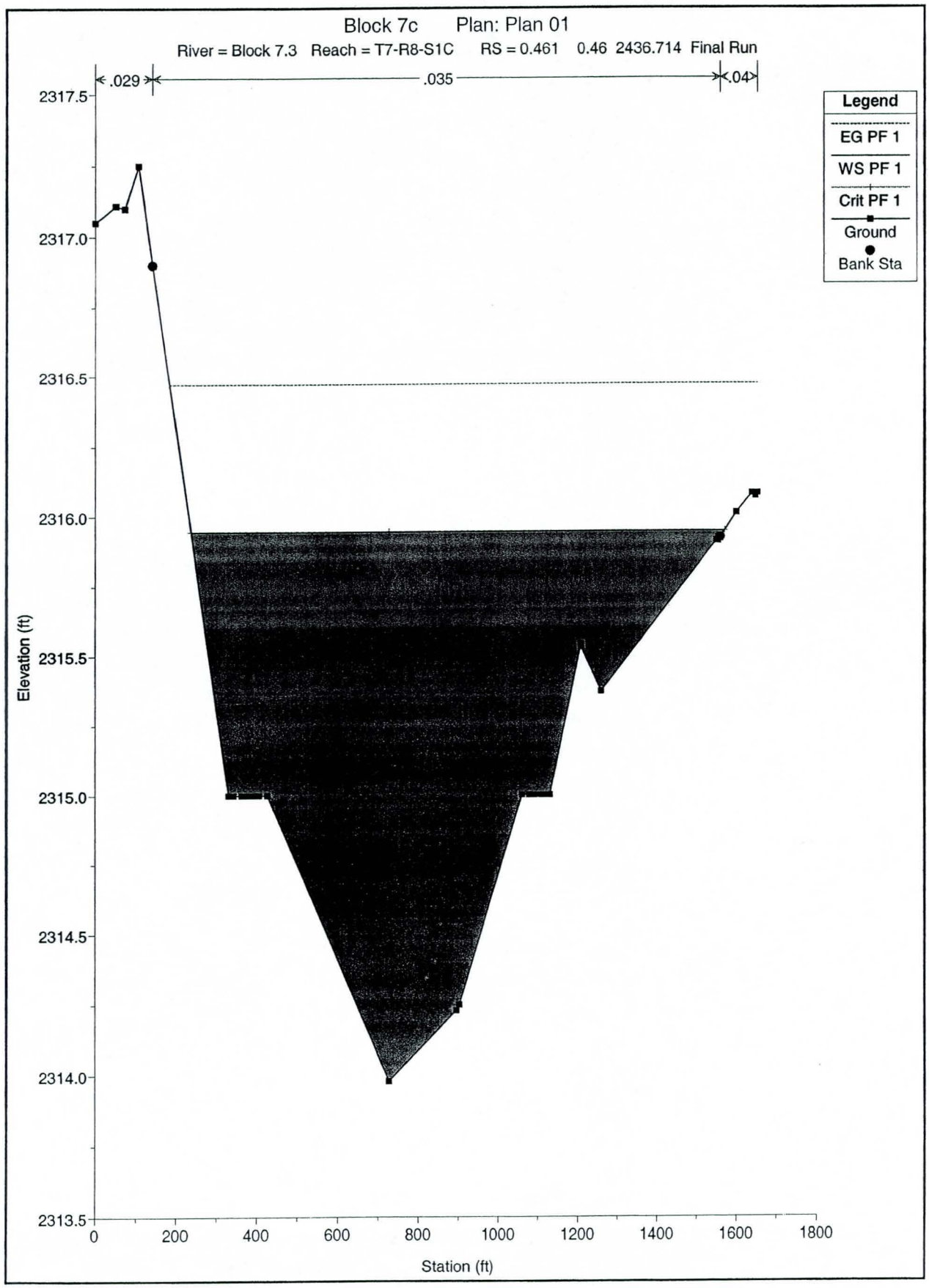
River = Block 7.3 Reach = T7-R8-S1C RS = 1.946 1.95 10276.43 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2360.0
2359.5
2359.0
2358.5
2358.0
2357.5
2357.0
Elevation (ft)
0
500
1000
1500
2000
Station (ft)


Block 7c Plan: Plan 01
River = Block 7.3 Reach = T7-R8-S1C RS = 1.198 1.20 6323.129 Final Run
.035
.029
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2340
2339
2338
2337
2336
2335
0
500
1000
1500
2000
Station (ft)


Block 7c Plan: Plan 01
River = Block 7.3 Reach = T7-R8-S1C RS = 0.461 0.46 2436.714 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2317.5
2317.0
2316.5
2316.0
2315.5
2315.0
2314.5
2314.0
2313.5
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)

Plan: Plan 01 Block 7.3 T7-R8-S1C RS: 1.946 Profile: PF 1

E.G. Elev (ft)	2359.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.54	Wt. n-Val.		0.035	
W.S. Elev (ft)	2359.35	Reach Len. (ft)	3206.38	3953.31	3951.37
Crit W.S. (ft)	2359.35	Flow Area (sq ft)		1317.99	
E.G. Slope (ft/ft)	0.017895	Area (sq ft)		1317.99	
Q Total (cfs)	7777.00	Flow (cfs)		7777.00	
Top Width (ft)	1244.51	Top Width (ft)		1244.51	
Vel Total (ft/s)	5.90	Avg. Vel. (ft/s)		5.90	
Max Chl Dpth (ft)	2.35	Hydr. Depth (ft)		1.06	
Conv. Total (cfs)	58135.8	Conv. (cfs)		58135.8	
Length Wtd. (ft)	3953.31	Wetted Per. (ft)		1244.52	
Min Ch El (ft)	2357.00	Shear (lb/sq ft)		1.18	
Alpha	1.00	Stream Power (lb/ft s)		6.98	
Frctn Loss (ft)	21.36	Cum Volume (acre-ft)		352.97	0.01
C & E Loss (ft)	0.12	Cum SA (acres)		257.59	0.49

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.3 T7-R8-S1C RS: 1.198 Profile: PF 1

E.G. Elev (ft)	2337.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.035	
W.S. Elev (ft)	2337.59	Reach Len. (ft)	3182.38	3886.42	3806.71
Crit W.S. (ft)	2336.66	Flow Area (sq ft)		2595.77	
E.G. Slope (ft/ft)	0.002568	Area (sq ft)		2595.77	
Q Total (cfs)	7777.00	Flow (cfs)		7777.00	
Top Width (ft)	1579.40	Top Width (ft)		1579.40	
Vel Total (ft/s)	3.00	Avg. Vel. (ft/s)		3.00	
Max Chl Dpth (ft)	2.59	Hydr. Depth (ft)		1.64	
Conv. Total (cfs)	153475.6	Conv. (cfs)		153475.6	
Length Wtd. (ft)	3886.42	Wetted Per. (ft)		1579.42	
Min Ch El (ft)	2335.00	Shear (lb/sq ft)		0.26	
Alpha	1.00	Stream Power (lb/ft s)		0.79	
Frctn Loss (ft)	21.21	Cum Volume (acre-ft)		175.37	0.01
C & E Loss (ft)	0.04	Cum SA (acres)		129.45	0.49

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.3 T7-R8-S1C RS: 0.461 Profile: PF 1

E.G. Elev (ft)	2316.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.53	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	2315.95	Reach Len. (ft)			
Crit W.S. (ft)	2315.95	Flow Area (sq ft)		1335.38	0.14
E.G. Slope (ft/ft)	0.018573	Area (sq ft)		1335.38	0.14
Q Total (cfs)	7777.00	Flow (cfs)		7776.96	0.04
Top Width (ft)	1333.60	Top Width (ft)		1322.36	11.24
Vel Total (ft/s)	5.82	Avg. Vel. (ft/s)		5.82	0.27
Max Chl Dpth (ft)	1.97	Hydr. Depth (ft)		1.01	0.01
Conv. Total (cfs)	57064.5	Conv. (cfs)		57064.3	0.3
Length Wtd. (ft)		Wetted Per. (ft)		1322.37	11.24
Min Ch El (ft)	2313.98	Shear (lb/sq ft)		1.17	0.01
Alpha	1.00	Stream Power (lb/ft s)		6.82	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 7\Block7c\HEC-RAS\Block_7c.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 7\Block7c\HEC-RAS\Block_7c.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 7\Block7c\HEC-RAS\Block_7c.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 7\Block7c\HEC-RAS\Block_7c.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 7\Block7c\HEC-RAS\Block_7c.nt
Selected profiles: PF 1
Date: 1/15/2003
Time: 8:42:24 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block 7.3,T7-R8-S1C						
1.946		0.029	0.035	0.04	0.1	0.3
1.198		0.029	0.035	0.04	0.1	0.3
.461		0.029	0.035	0.04	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.029	0.029
Right Overbank n Value:	0.04	0.04
Channel n Value:	0.035	0.035
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

RS: 1.946
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.198
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 7\Block7c\HEC-RAS\Block_7c.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 7\Block7c\HEC-RAS\Block_7c.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 7\Block7c\HEC-RAS\Block_7c.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 7\Block7c\HEC-RAS\Block_7c.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 7\Block7c\HEC-RAS\Block_7c.xs
Selected profiles: PF 1
Date: 1/15/2003

Time: 8:42:25 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Block 7.3,T7-R8-S1C						
1.946	3206.38	3953.31	3951.37	1244.51	7777	C
1.198	3182.38	3886.42	3806.71	1579.4	7777	
0.461	2643.8	2436.71	2525.06	1333.6	7777	C

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 0.461
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

XS DC 02 Constant dicharge used for the Block 7.3,T7-R8-S1C

LOCATION CHECK

RS: 1.198
XS LC 01 Lenchl Up/TopwdthAct Dn = 2.91
MaxChlDpth Up/MaxChlDpth Dn = 1.31
TopwdthAct Up/TopwdthAct Dn = 1.18
This cross section is located too far upstream from the
critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Block 7.3,T7-R8-S1C
Known WS = 2310.46 is specified as the downstream boundary
for profile PF 1

---END---

ROUGHNESS COEFFICIENT CHECK

Explanation:
All Manning's n-values were field verified and approved

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

Explanation:
Cross sections were cut in order to take in channel geometry.

DISCHARGE CHECK

Warning:
Constant discharge used for the reach.

Explanation:
The discharge was determined from the regression equations for the sub basin. The Flood Control District of Maricopa County also approved the peak discharge values.

LOCATION CHECK

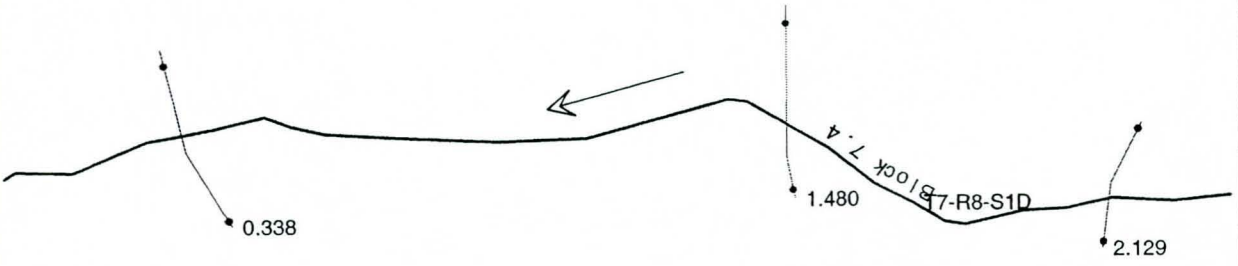
Non-detailed study; cross-sections located 2000-3000 feet apart.

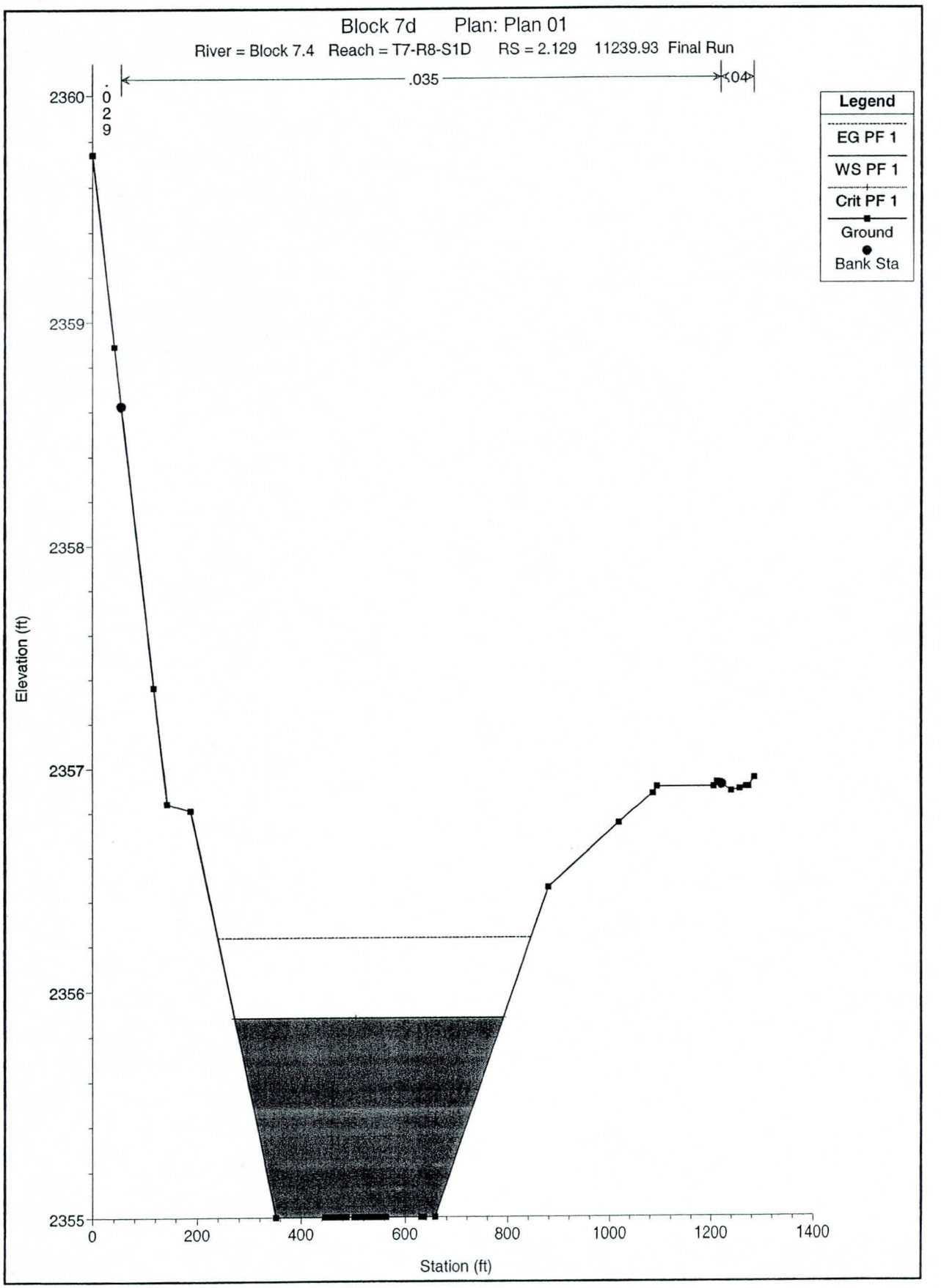
BOUNDARY CONDITION CHECK

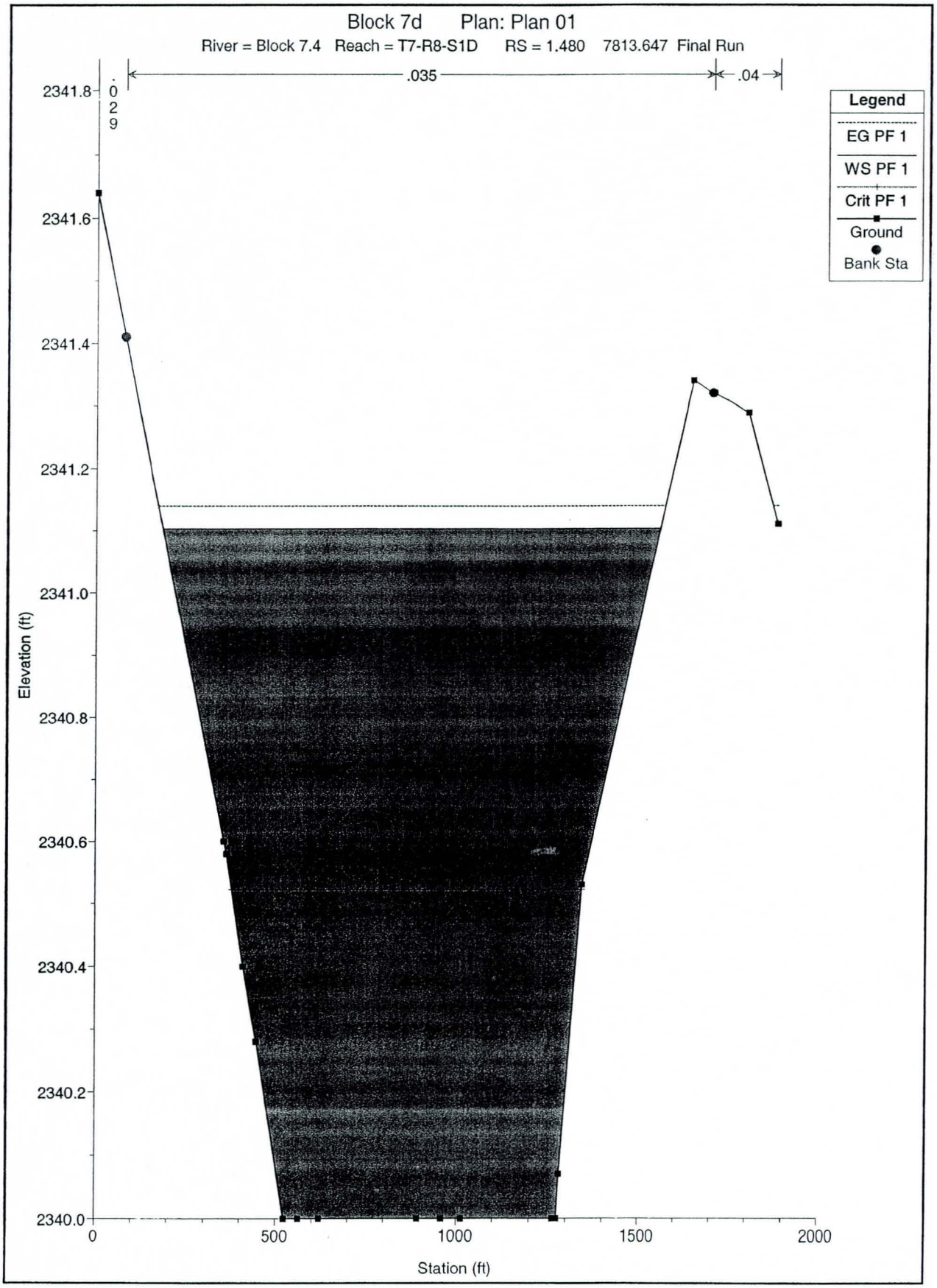
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

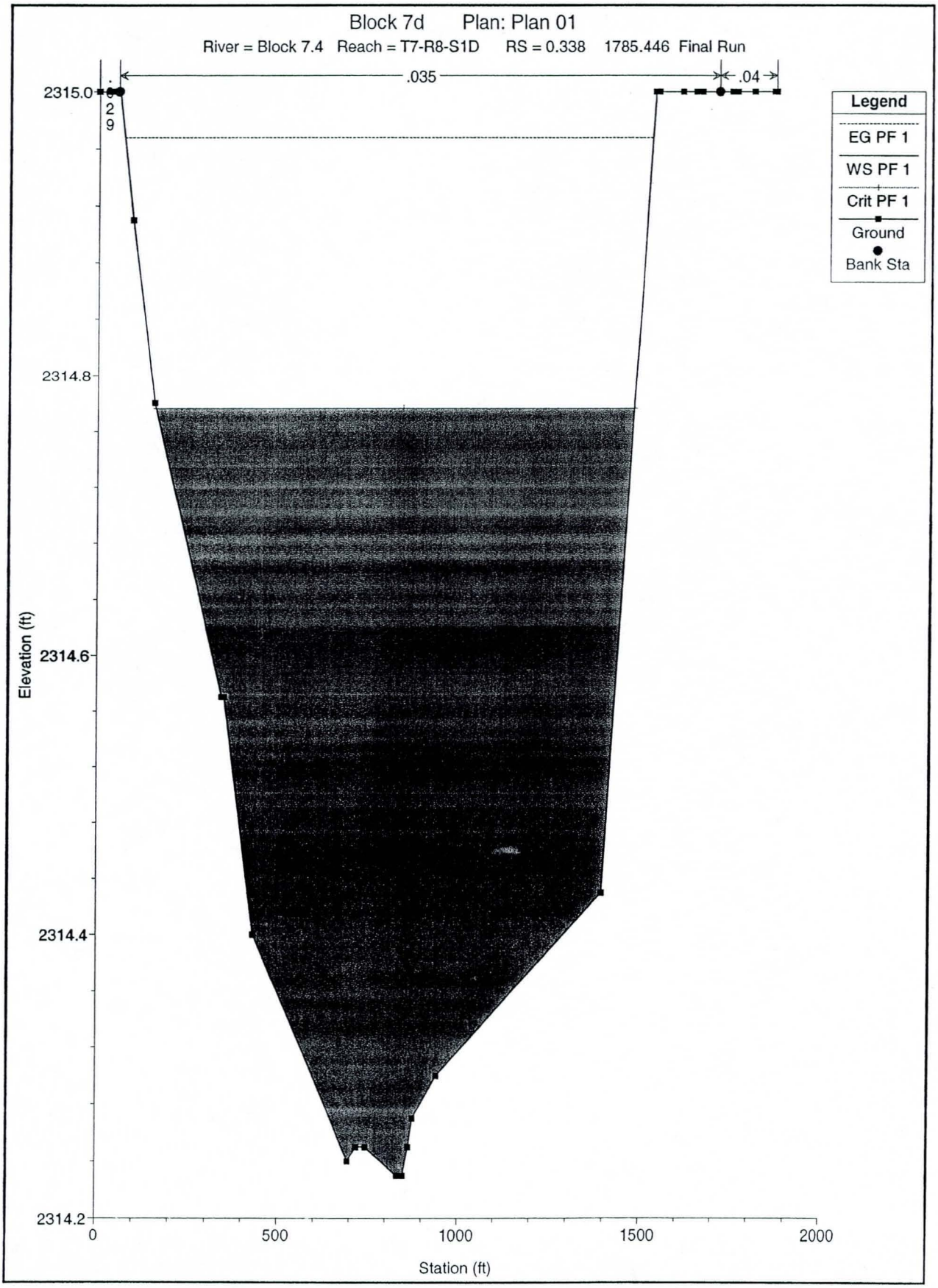
HEC-RAS Plan: Plan 01 River: Block 7.4 Reach: T7-R8-S1D Profile: PF 1

Reach	River Sta	Q Total (cfs)	W.S. Elev (ft)	Crit W.S. (ft)	Vel Chnl (ft/s)	Top Width (ft)	Max Chl Dpth (ft)	Flow Area Ch (sq ft)	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)
T7-R8-S1D	2.129	1736.00	2355.88	2355.88	4.76	519.88	0.88	364.33	272.08	791.96
T7-R8-S1D	1.480	1736.00	2341.10	2340.52	1.54	1374.57	1.10	1125.13	183.55	1558.12
T7-R8-S1D	0.338	1736.00	2314.78	2314.78	3.51	1321.32	0.55	494.60	159.12	1480.44


0.338
1.480
Block 7.4
17-R8-S1D
2.129


Block 7d Plan: Plan 01
River = Block 7.4 Reach = T7-R8-S1D RS = 2.129 11239.93 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2360
2359
2358
2357
2356
2355
0
200
400
600
800
1000
1200
1400
Station (ft)


Block 7d Plan: Plan 01
River = Block 7.4 Reach = T7-R8-S1D RS = 1.480 7813.647 Final Run
.035
.04
.029
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2341.8
2341.6
2341.4
2341.2
2341.0
2340.8
2340.6
2340.4
2340.2
2340.0
Elevation (ft)
0
500
1000
1500
2000
Station (ft)


Block 7d Plan: Plan 01
River = Block 7.4 Reach = T7-R8-S1D RS = 0.338 1785.446 Final Run
.035
.04
2315.0
2314.8
2314.6
2314.4
2314.2
Elevation (ft)
0
500
1000
1500
2000
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta

Plan: Plan 01 Block 7.4 T7-R8-S1D RS: 2.129 Profile: PF 1

E.G. Elev (ft)	2356.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.		0.035	
W.S. Elev (ft)	2355.88	Reach Len. (ft)	3188.40	3426.29	3597.37
Crit W.S. (ft)	2355.88	Flow Area (sq ft)		364.33	
E.G. Slope (ft/ft)	0.020237	Area (sq ft)		364.33	
Q Total (cfs)	1736.00	Flow (cfs)		1736.00	
Top Width (ft)	519.88	Top Width (ft)		519.88	
Vel Total (ft/s)	4.76	Avg. Vel. (ft/s)		4.76	
Max Chl Dpth (ft)	0.88	Hydr. Depth (ft)		0.70	
Conv. Total (cfs)	12203.3	Conv. (cfs)		12203.3	
Length Wtd. (ft)	3426.29	Wetted Per. (ft)		519.89	
Min Ch El (ft)	2355.00	Shear (lb/sq ft)		0.89	
Alpha	1.00	Stream Power (lb/ft s)		4.22	
Frctn Loss (ft)	14.16	Cum Volume (acre-ft)		170.66	
C & E Loss (ft)	0.09	Cum SA (acres)		261.05	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.4 T7-R8-S1D RS: 1.480 Profile: PF 1

E.G. Elev (ft)	2341.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.		0.035	
W.S. Elev (ft)	2341.10	Reach Len. (ft)	5484.84	6028.48	6069.67
Crit W.S. (ft)	2340.52	Flow Area (sq ft)		1125.13	
E.G. Slope (ft/ft)	0.001725	Area (sq ft)		1125.13	
Q Total (cfs)	1736.00	Flow (cfs)		1736.00	
Top Width (ft)	1374.57	Top Width (ft)		1374.57	
Vel Total (ft/s)	1.54	Avg. Vel. (ft/s)		1.54	
Max Chl Dpth (ft)	1.10	Hydr. Depth (ft)		0.82	
Conv. Total (cfs)	41797.7	Conv. (cfs)		41797.7	
Length Wtd. (ft)	6028.48	Wetted Per. (ft)		1374.57	
Min Ch El (ft)	2340.00	Shear (lb/sq ft)		0.09	
Alpha	1.00	Stream Power (lb/ft s)		0.14	
Frctn Loss (ft)	26.16	Cum Volume (acre-ft)		112.08	
C & E Loss (ft)	0.02	Cum SA (acres)		186.55	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.4 T7-R8-S1D RS: 0.338 Profile: PF 1

E.G. Elev (ft)	2314.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.035	
W.S. Elev (ft)	2314.78	Reach Len. (ft)			
Crit W.S. (ft)	2314.78	Flow Area (sq ft)		494.60	
E.G. Slope (ft/ft)	0.025337	Area (sq ft)		494.60	
Q Total (cfs)	1736.00	Flow (cfs)		1736.00	
Top Width (ft)	1321.32	Top Width (ft)		1321.32	
Vel Total (ft/s)	3.51	Avg. Vel. (ft/s)		3.51	
Max Chl Dpth (ft)	0.55	Hydr. Depth (ft)		0.37	
Conv. Total (cfs)	10906.3	Conv. (cfs)		10906.3	
Length Wtd. (ft)		Wetted Per. (ft)		1321.33	
Min Ch El (ft)	2314.23	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		2.08	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 7\Block7d\HEC-RAS\block7d.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 7\Block7d\HEC-RAS\block7d.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 7\Block7d\HEC-RAS\block7d.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 7\Block7d\HEC-RAS\block7d.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 7\Block7d\HEC-RAS\block7d.nt
Selected profiles: PF 1
Date: 1/15/2003
Time: 7:22:26 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block 7.4,T7-R8-S1D						
2.129		0.029	0.035	0.04	0.1	0.3
1.48		0.029	0.035	0.04	0.1	0.3
.338		0.029	0.035	0.04	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.029	0.029
Right Overbank n Value:	0.04	0.04
Channel n Value:	0.035	0.035
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

RS: 2.129
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.48
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 7\Block7d\HEC-RAS\block7d.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 7\Block7d\HEC-RAS\block7d.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 7\Block7d\HEC-RAS\block7d.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 7\Block7d\HEC-RAS\block7d.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 7\Block7d\HEC-RAS\block7d.xs
Selected profiles: PF 1
Date: 1/15/2003

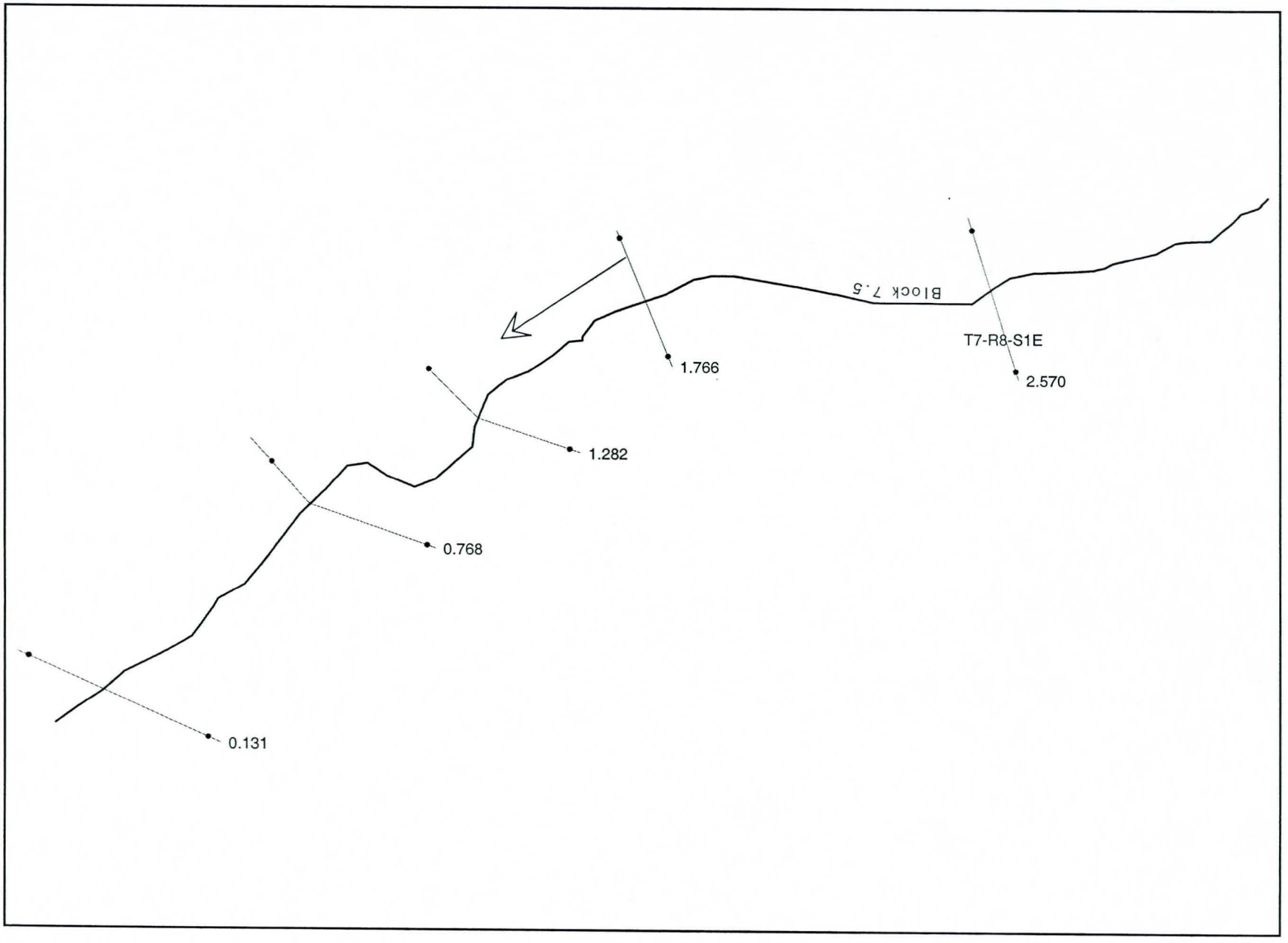
The discharge was determined from the regression equations for the sub basin. The Flood Control District of Maricopa County also approved the peak discharge values.

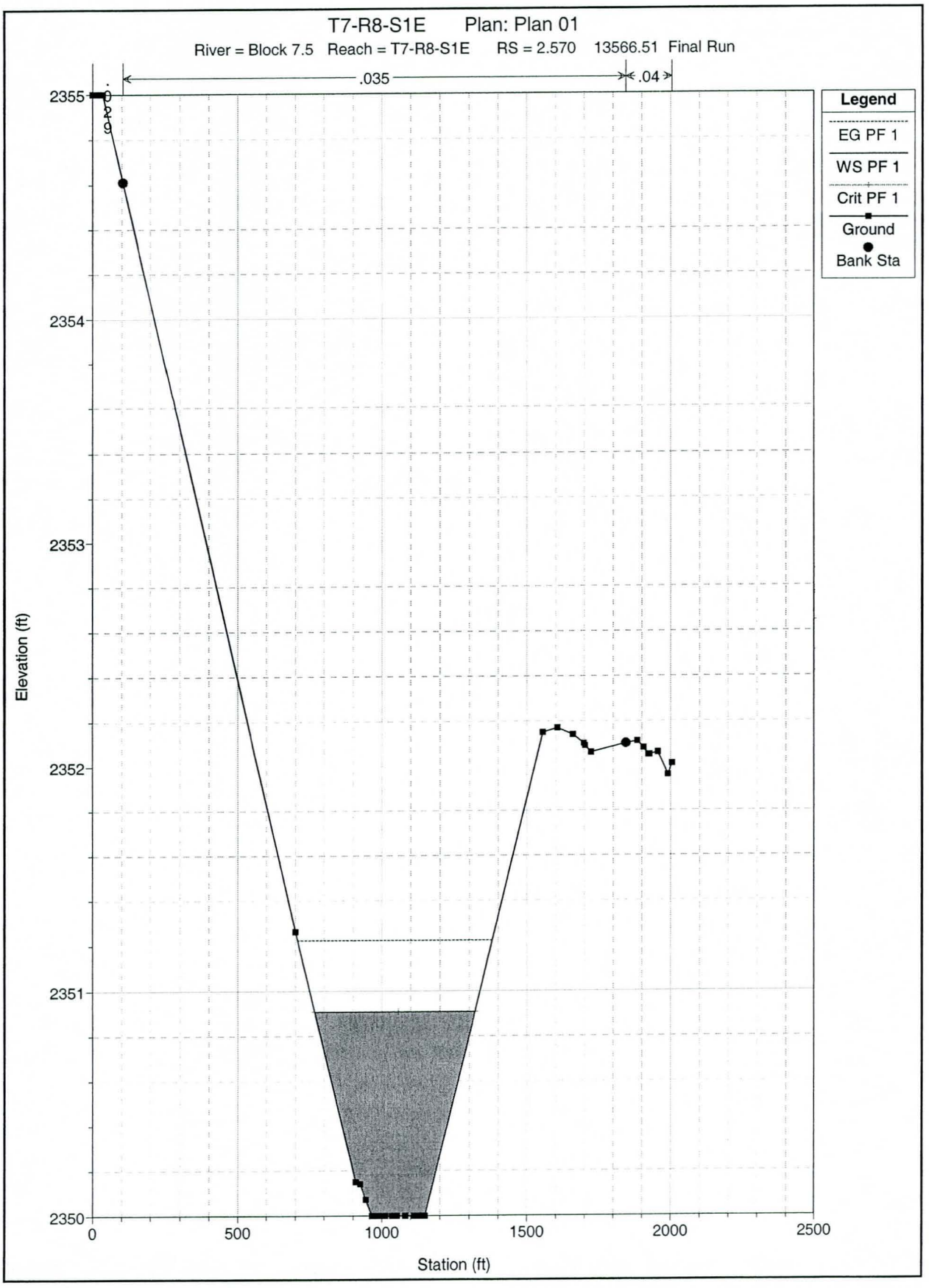
LOCATION CHECK
BOUNDARY CONDITION CHECK

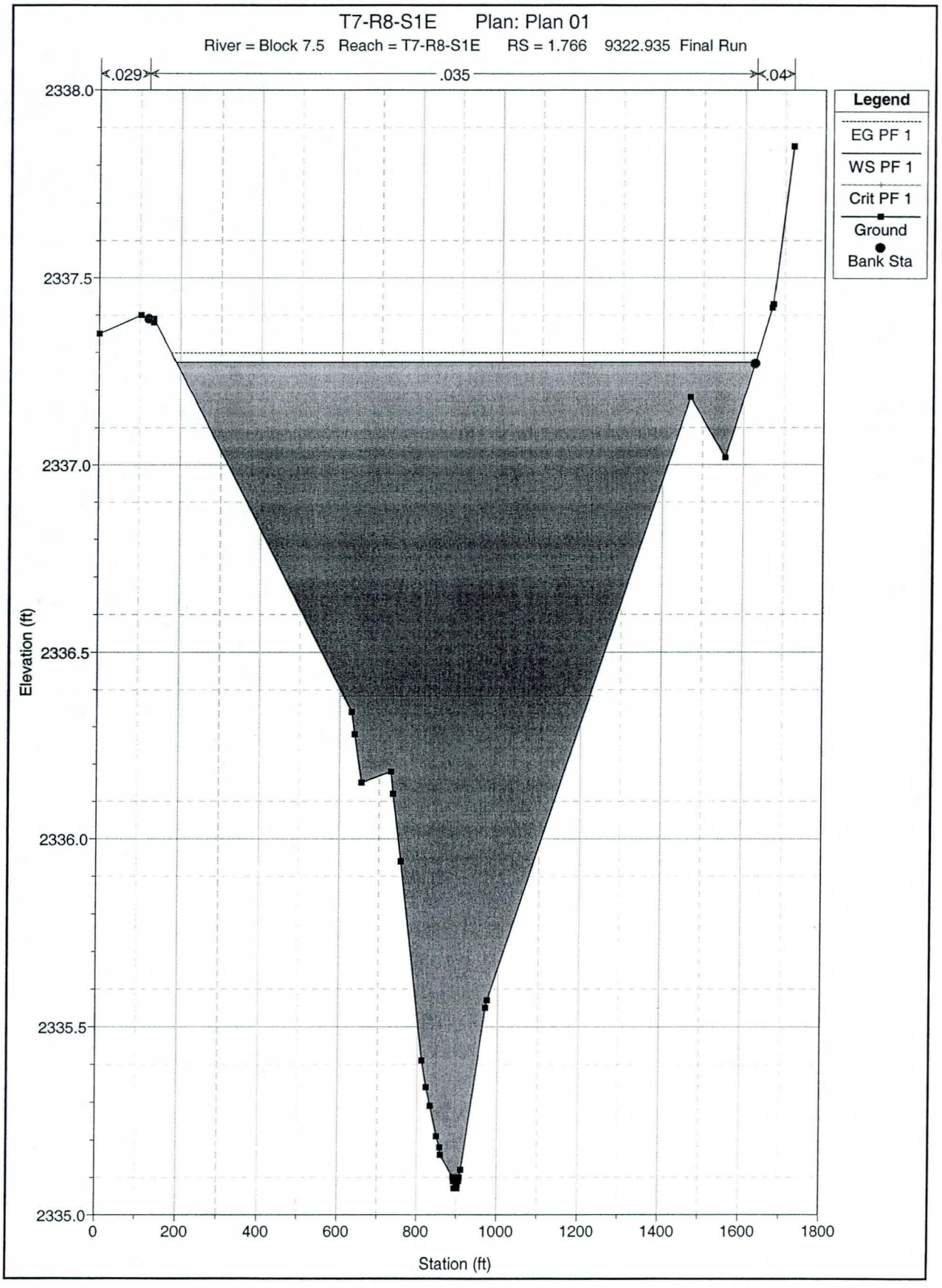
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

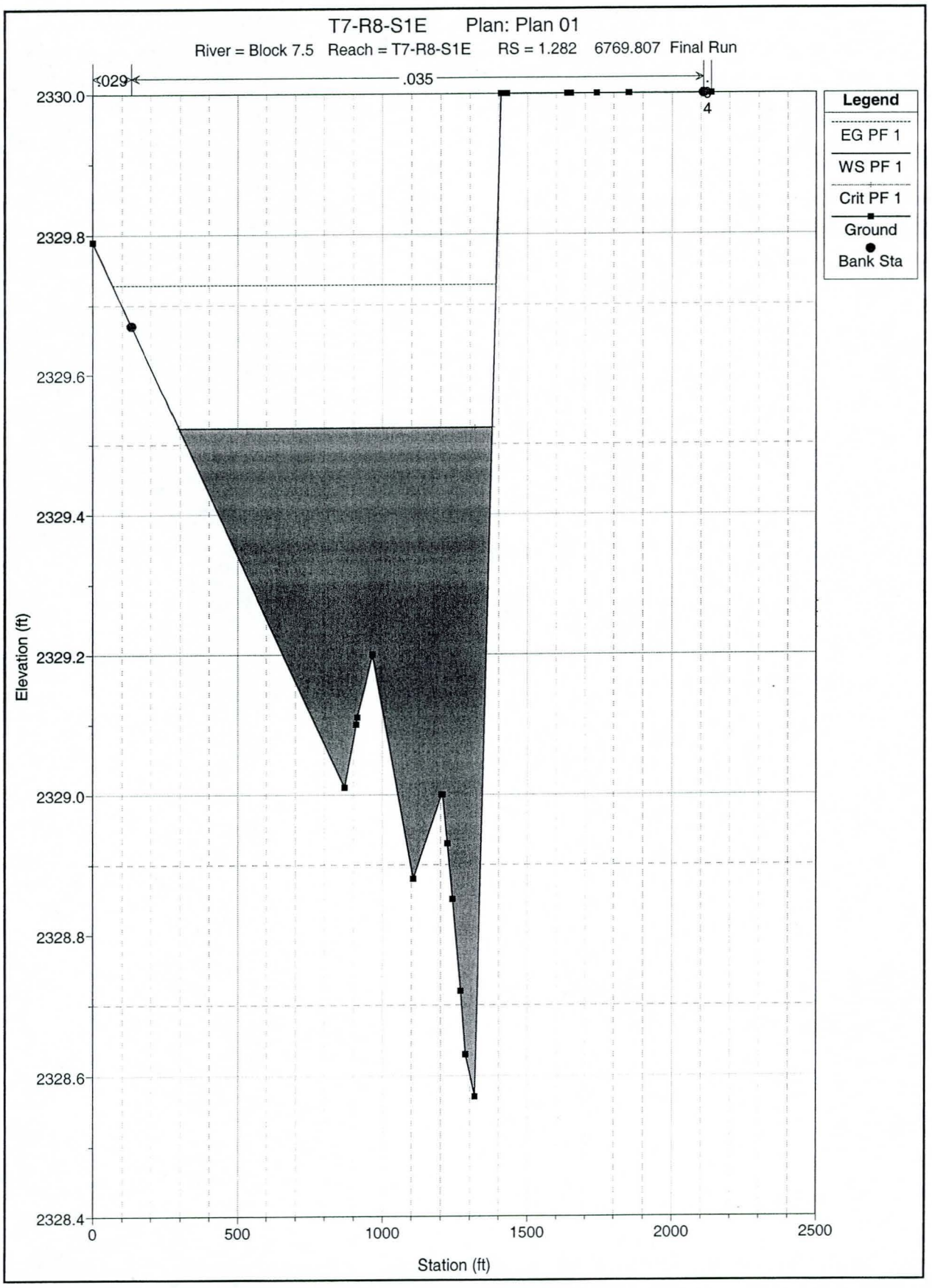
HEC-RAS Plan: Plan 01 River: Block 7.5 Reach: T7-R8-S1E Profile: PF 1

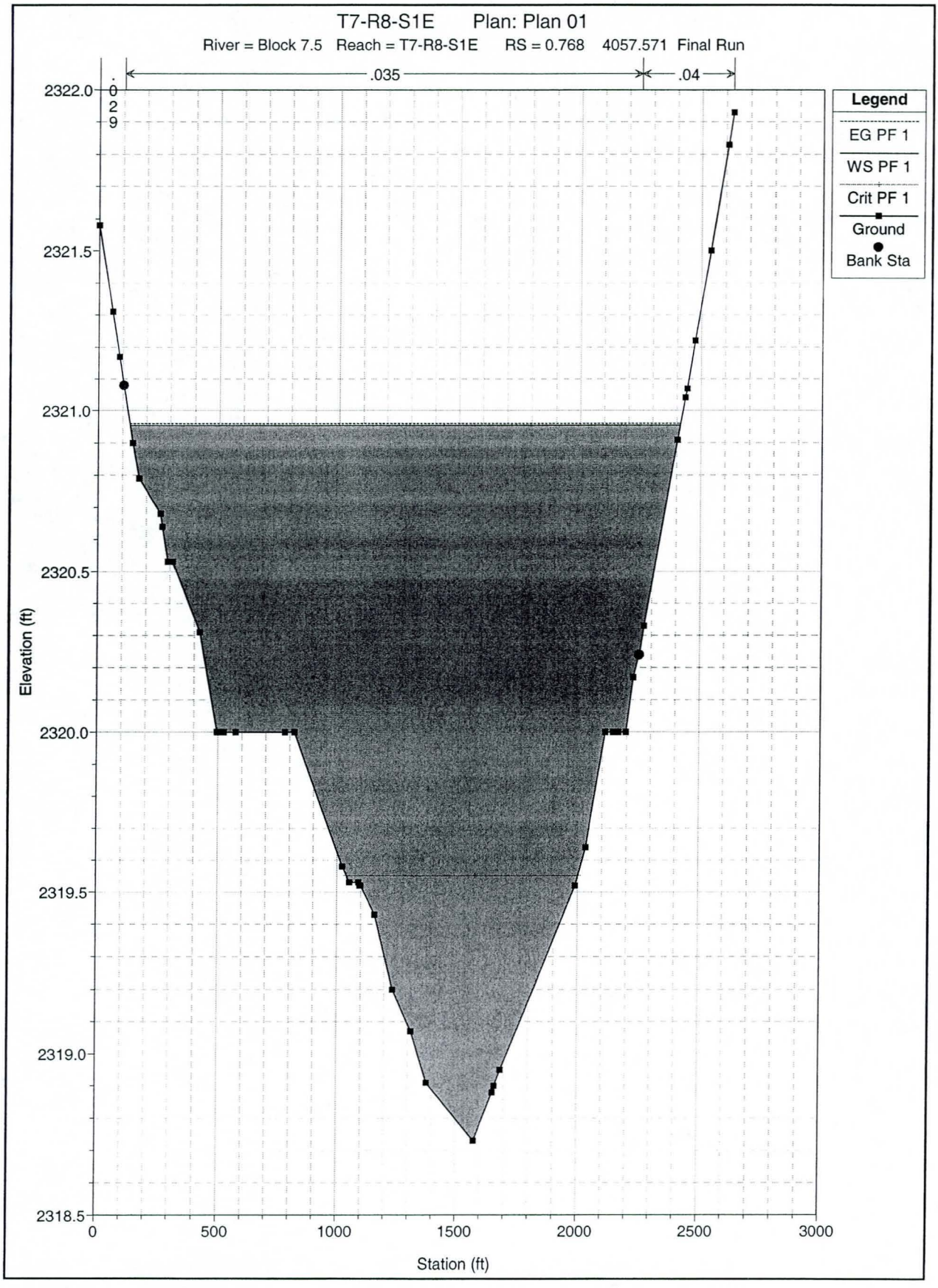
Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R8-S1E	2.570	1548.00	2350.91	2350.91	4.50	553.52	0.91	1.01	766.79	1320.30
T7-R8-S1E	1.766	1548.00	2337.28	2336.38	1.26	1441.33	2.20	0.24	189.09	1630.42
T7-R8-S1E	1.282	1548.00	2329.52	2329.52	3.63	1081.06	0.95	1.02	296.09	1377.16
T7-R8-S1E	0.768	1548.00	2320.96	2319.55	0.56	2283.21	2.23	0.09	131.52	2414.73
T7-R8-S1E	0.131	10999.00	2309.64	2309.64	5.75	1893.04	1.51	1.01	250.83	2143.87

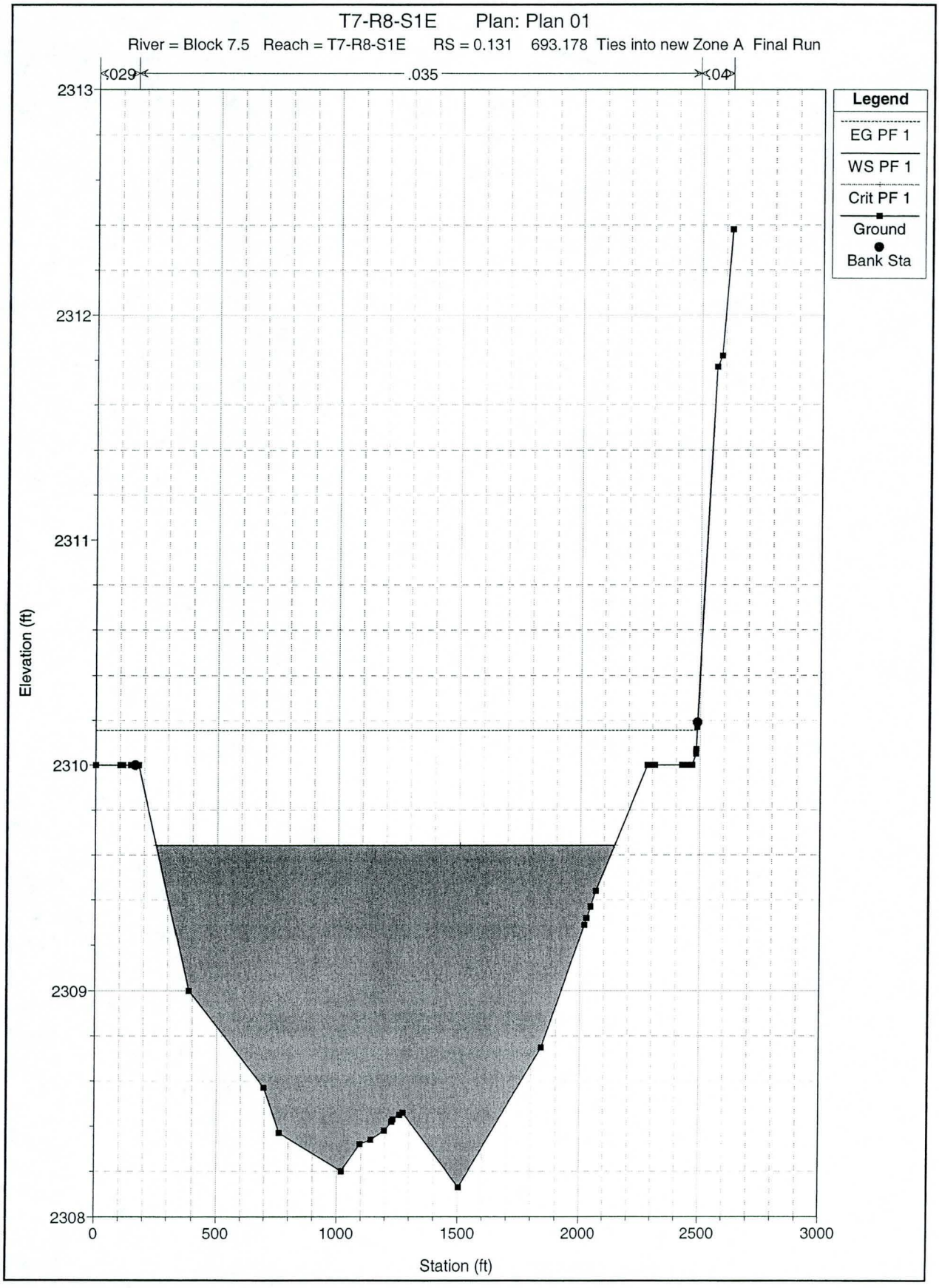

Block 7.5
T7-R8-S1E
1.766
2.570
1.282
0.768
0.131


T7-R8-S1E Plan: Plan 01
River = Block 7.5 Reach = T7-R8-S1E RS = 2.570 13566.51 Final Run
.035
.04
.029
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2355
2354
2353
2352
2351
2350
0
500
1000
1500
2000
2500
Station (ft)


T7-R8-S1E Plan: Plan 01
River = Block 7.5 Reach = T7-R8-S1E RS = 1.766 9322.935 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2338.0
2337.5
2337.0
2336.5
2336.0
2335.5
2335.0
0
200
400
600
800
1000
1200
1400
1600
1800


T7-R8-S1E Plan: Plan 01
River = Block 7.5 Reach = T7-R8-S1E RS = 1.282 6769.807 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2330.0
2329.8
2329.6
2329.4
2329.2
2329.0
2328.8
2328.6
2328.4
0
500
1000
1500
2000
2500
Station (ft)


T7-R8-S1E Plan: Plan 01
River = Block 7.5 Reach = T7-R8-S1E RS = 0.768 4057.571 Final Run
.035
.04
.029
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2322.0
2321.5
2321.0
2320.5
2320.0
2319.5
2319.0
2318.5
0
500
1000
1500
2000
2500
3000
Station (ft)


T7-R8-S1E Plan: Plan 01
River = Block 7.5 Reach = T7-R8-S1E RS = 0.131 693.178 Ties into new Zone A Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2313
2312
2311
2310
2309
2308
0
500
1000
1500
2000
2500
3000
Station (ft)

Plan: Plan 01 Block 7.5 T7-R8-S1E RS: 2.570 Profile: PF 1

E.G. Elev (ft)	2351.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.035	
W.S. Elev (ft)	2350.91	Reach Len. (ft)	4122.00	4244.19	4188.17
Crit W.S. (ft)	2350.91	Flow Area (sq ft)		344.12	
E.G. Slope (ft/ft)	0.021159	Area (sq ft)		344.12	
Q Total (cfs)	1548.00	Flow (cfs)		1548.00	
Top Width (ft)	553.52	Top Width (ft)		553.52	
Vel Total (ft/s)	4.50	Avg. Vel. (ft/s)		4.50	
Max Chl Dpth (ft)	0.91	Hydr. Depth (ft)		0.62	
Conv. Total (cfs)	10642.0	Conv. (cfs)		10642.0	
Length Wtd. (ft)	4244.19	Wetted Per. (ft)		553.52	
Min Ch El (ft)	2350.00	Shear (lb/sq ft)		0.82	
Alpha	1.00	Stream Power (lb/ft s)		3.69	
Frctn Loss (ft)	12.15	Cum Volume (acre-ft)		404.54	3.91
C & E Loss (ft)	0.09	Cum SA (acres)		425.60	11.20

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.5 T7-R8-S1E RS: 1.766 Profile: PF 1

E.G. Elev (ft)	2337.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.035	0.000
W.S. Elev (ft)	2337.28	Reach Len. (ft)	1573.20	2553.13	2768.15
Crit W.S. (ft)	2336.38	Flow Area (sq ft)		1233.35	0.00
E.G. Slope (ft/ft)	0.001075	Area (sq ft)		1233.35	0.00
Q Total (cfs)	1548.00	Flow (cfs)		1548.00	0.00
Top Width (ft)	1441.33	Top Width (ft)		1440.05	1.28
Vel Total (ft/s)	1.26	Avg. Vel. (ft/s)		1.26	0.02
Max Chl Dpth (ft)	2.20	Hydr. Depth (ft)		0.86	0.00
Conv. Total (cfs)	47223.0	Conv. (cfs)		47223.0	0.0
Length Wtd. (ft)	2553.13	Wetted Per. (ft)		1440.06	1.28
Min Ch El (ft)	2335.07	Shear (lb/sq ft)		0.06	
Alpha	1.00	Stream Power (lb/ft s)		0.07	
Frctn Loss (ft)	7.55	Cum Volume (acre-ft)		327.69	3.91
C & E Loss (ft)	0.02	Cum SA (acres)		328.49	11.14

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.5 T7-R8-S1E RS: 1.282 Profile: PF 1

E.G. Elev (ft)	2329.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.035	
W.S. Elev (ft)	2329.52	Reach Len. (ft)	2031.19	2712.24	2169.01
Crit W.S. (ft)	2329.52	Flow Area (sq ft)		425.93	
E.G. Slope (ft/ft)	0.025373	Area (sq ft)		425.93	
Q Total (cfs)	1548.00	Flow (cfs)		1548.00	
Top Width (ft)	1081.06	Top Width (ft)		1081.06	
Vel Total (ft/s)	3.63	Avg. Vel. (ft/s)		3.63	
Max Chl Dpth (ft)	0.95	Hydr. Depth (ft)		0.39	
Conv. Total (cfs)	9718.2	Conv. (cfs)		9718.2	
Length Wtd. (ft)	2710.17	Wetted Per. (ft)		1081.07	
Min Ch El (ft)	2328.57	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		2.27	
Frctn Loss (ft)	1.16	Cum Volume (acre-ft)		279.06	3.91
C & E Loss (ft)	0.06	Cum SA (acres)		254.60	11.10

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.5 T7-R8-S1E RS: 0.768 Profile: PF 1

E.G. Elev (ft)	2320.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	2320.96	Reach Len. (ft)	3451.74	3364.39	3739.42
Crit W.S. (ft)	2319.55	Flow Area (sq ft)		2751.43	57.67
E.G. Slope (ft/ft)	0.000122	Area (sq ft)		2751.43	57.67
Q Total (cfs)	1548.00	Flow (cfs)		1536.19	11.81
Top Width (ft)	2283.21	Top Width (ft)		2119.58	163.63
Vel Total (ft/s)	0.55	Avg. Vel. (ft/s)		0.56	0.20
Max Chl Dpth (ft)	2.23	Hydr. Depth (ft)		1.30	0.35
Conv. Total (cfs)	140072.0	Conv. (cfs)		139003.1	1069.0
Length Wtd. (ft)	3364.74	Wetted Per. (ft)		2119.58	163.63
Min Ch El (ft)	2318.73	Shear (lb/sq ft)		0.01	0.00
Alpha	1.02	Stream Power (lb/ft s)		0.01	0.00
Frctn Loss (ft)	10.76	Cum Volume (acre-ft)		180.15	2.48
C & E Loss (ft)	0.05	Cum SA (acres)		154.96	7.02

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.5 T7-R8-S1E RS: 0.131 Profile: PF 1

E.G. Elev (ft)	2310.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.		0.035	
W.S. Elev (ft)	2309.64	Reach Len. (ft)			
Crit W.S. (ft)	2309.64	Flow Area (sq ft)		1913.38	
E.G. Slope (ft/ft)	0.018074	Area (sq ft)		1913.38	
Q Total (cfs)	10999.00	Flow (cfs)		10999.00	
Top Width (ft)	1893.04	Top Width (ft)		1893.04	
Vel Total (ft/s)	5.75	Avg. Vel. (ft/s)		5.75	
Max Chl Dpth (ft)	1.51	Hydr. Depth (ft)		1.01	
Conv. Total (cfs)	81813.3	Conv. (cfs)		81813.3	
Length Wtd. (ft)		Wetted Per. (ft)		1893.04	
Min Ch El (ft)	2308.13	Shear (lb/sq ft)		1.14	
Alpha	1.00	Stream Power (lb/ft s)		6.56	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 7\Block7e\T7R8S1E.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 7\Block7e\T7R8S1E.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 7\Block7e\T7R8S1E.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 7\Block7e\T7R8S1E.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 7\Block7e\T7R8S1E.nt
Selected profiles: PF 1
Date: 12/2/2003
Time: 9:43:00 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block 7.5,T7-R8-S1E						
2.570		0.029	0.035	0.04	0.1	0.3
1.766		0.029	0.035	0.04	0.1	0.3
1.282		0.029	0.035	0.04	0.1	0.3
.768		0.029	0.035	0.04	0.1	0.3
.131		0.029	0.035	0.04	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.029	0.029
Right Overbank n Value:	0.04	0.04
Channel n Value:	0.035	0.035
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

RS: 2.570
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.766
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.282
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.768
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 7\Block7e\T7R8S1E.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 7\Block7e\T7R8S1E.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 7\Block7e\T7R8S1E.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 7\Block7e\T7R8S1E.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 7\Block7e\T7R8S1E.xs
Selected profiles: PF 1
Date: 12/2/2003
Time: 9:43:02 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Block 7.5,T7-R8-S1E						
2.570	4122	4244.19	4188.17	553.52	1548	C
1.766	1573.2	2553.13	2768.15	1441.33	1548	
1.282	2031.19	2712.24	2169.01	1081.06	1548	C
0.768	3451.74	3364.39	3739.42	2283.21	1548	
0.131	1248.24	693.18	696.4	1893.04	10999	C

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 0.768
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

RS: 0.131
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

LOCATION CHECK

RS: 1.766
XS LC 01 Lenchl Up/TopwdthAct Dn = 2.36
MaxChlDpth Up/MaxChlDpth Dn = 2.32
TopwdthAct Up/TopwdthAct Dn = 1.33
This cross section is located too far upstream from the
critical depth cross section.

RS: 0.768
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.78

```
          MaxChlDpth Up/MaxChlDpth Dn = 1.48
          TopwdthAct Up/TopwdthAct Dn = 1.21
          This cross section is located too far upstream from the
          critical depth cross section.


BOUNDARY CONDITION CHECK
------------------------

XS BC 02 The name of the stream is Block 7.5,T7-R8-S1E
          Known WS = 2305.2 is specified as the downstream boundary
          for profile PF 1

---END---
```

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

ROUGHNESS COEFFICIENT CHECK

Explanation:
All Manning's n-values were field verified and approved

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

Explanation:
Cross sections were cut in order to take in channel geometry.

LOCATION CHECK

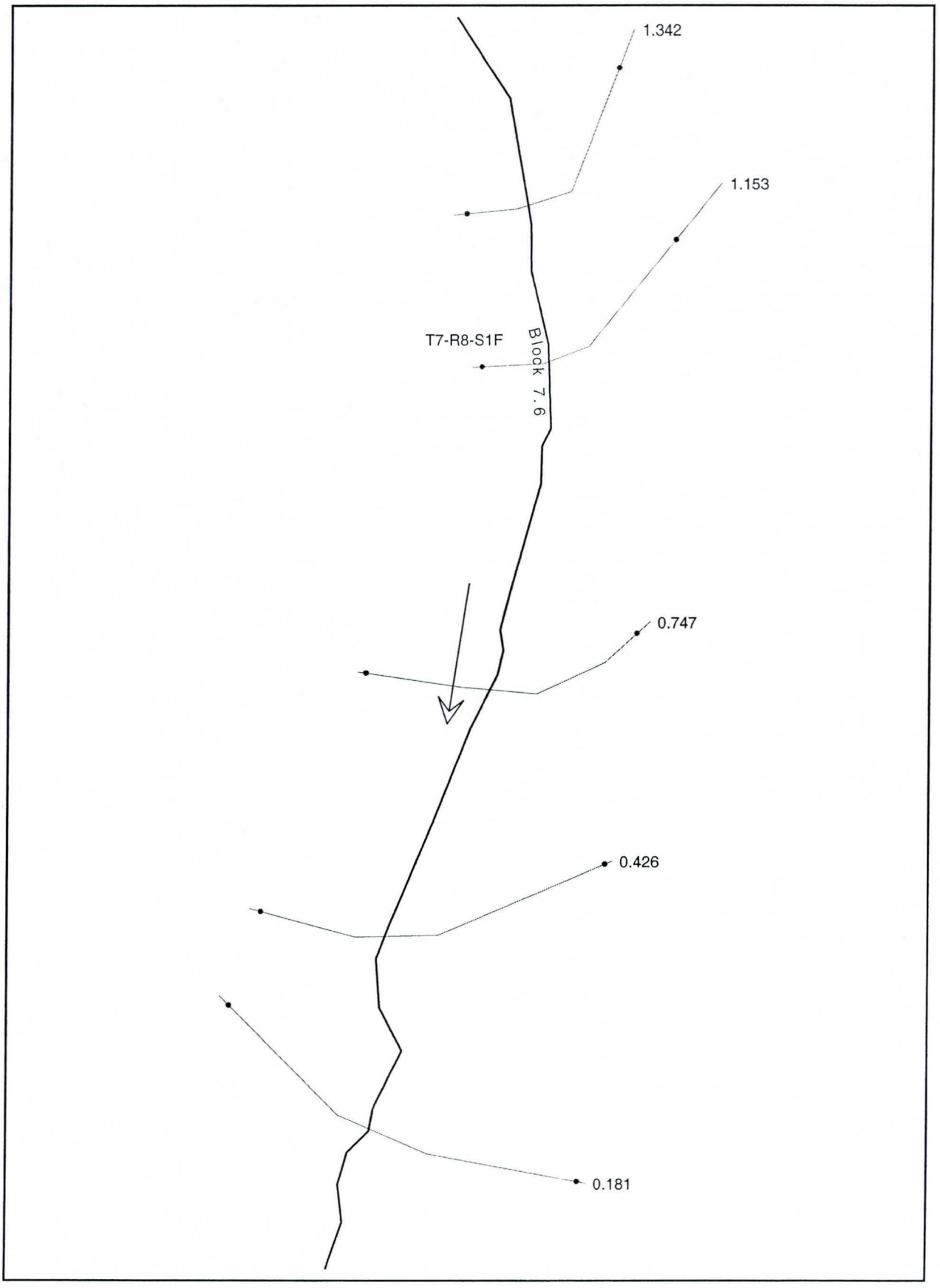
Non-detailed study; cross-sections located 2000-3000 feet apart.

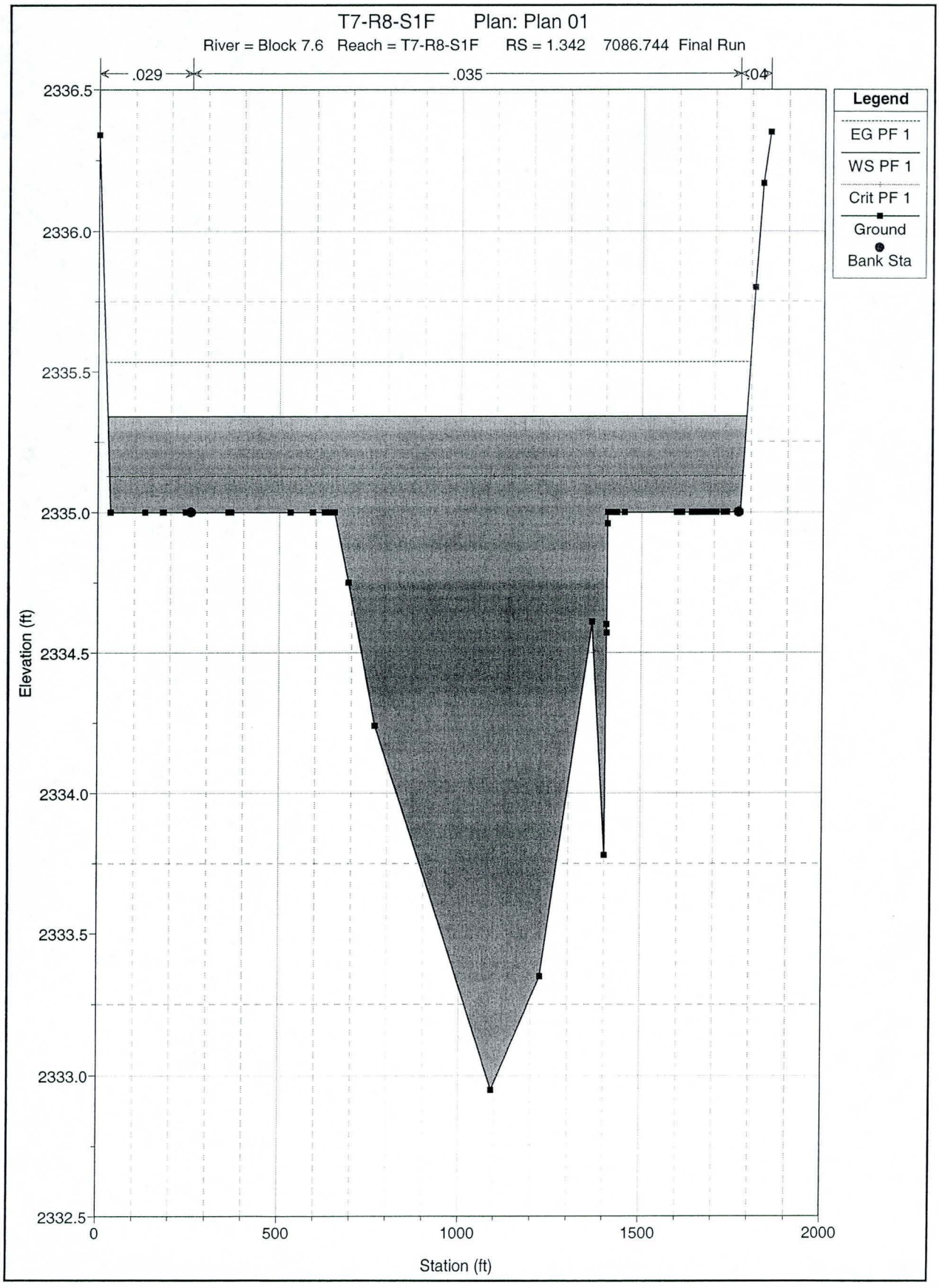
BOUNDARY CONDITION CHECK

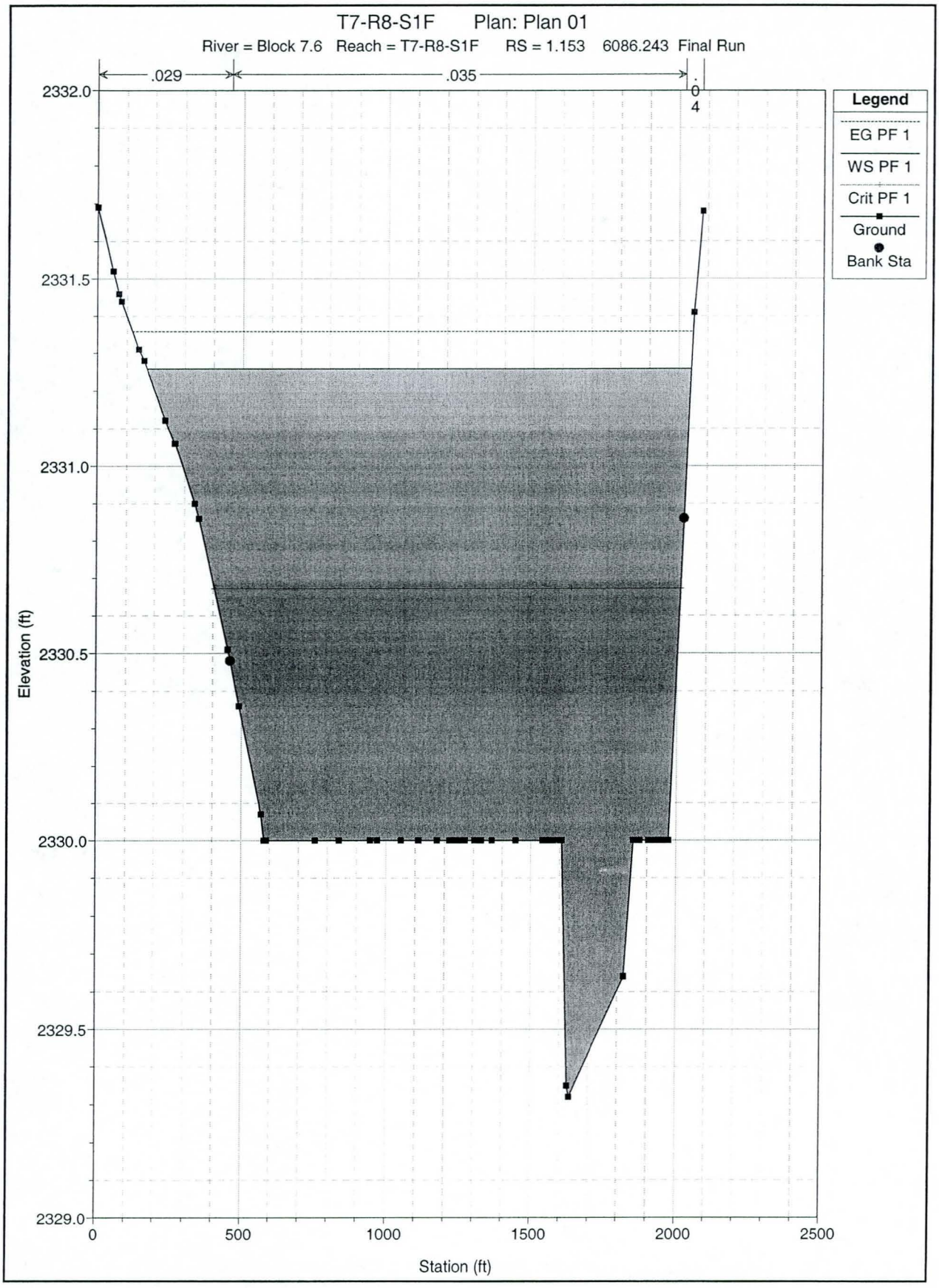
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

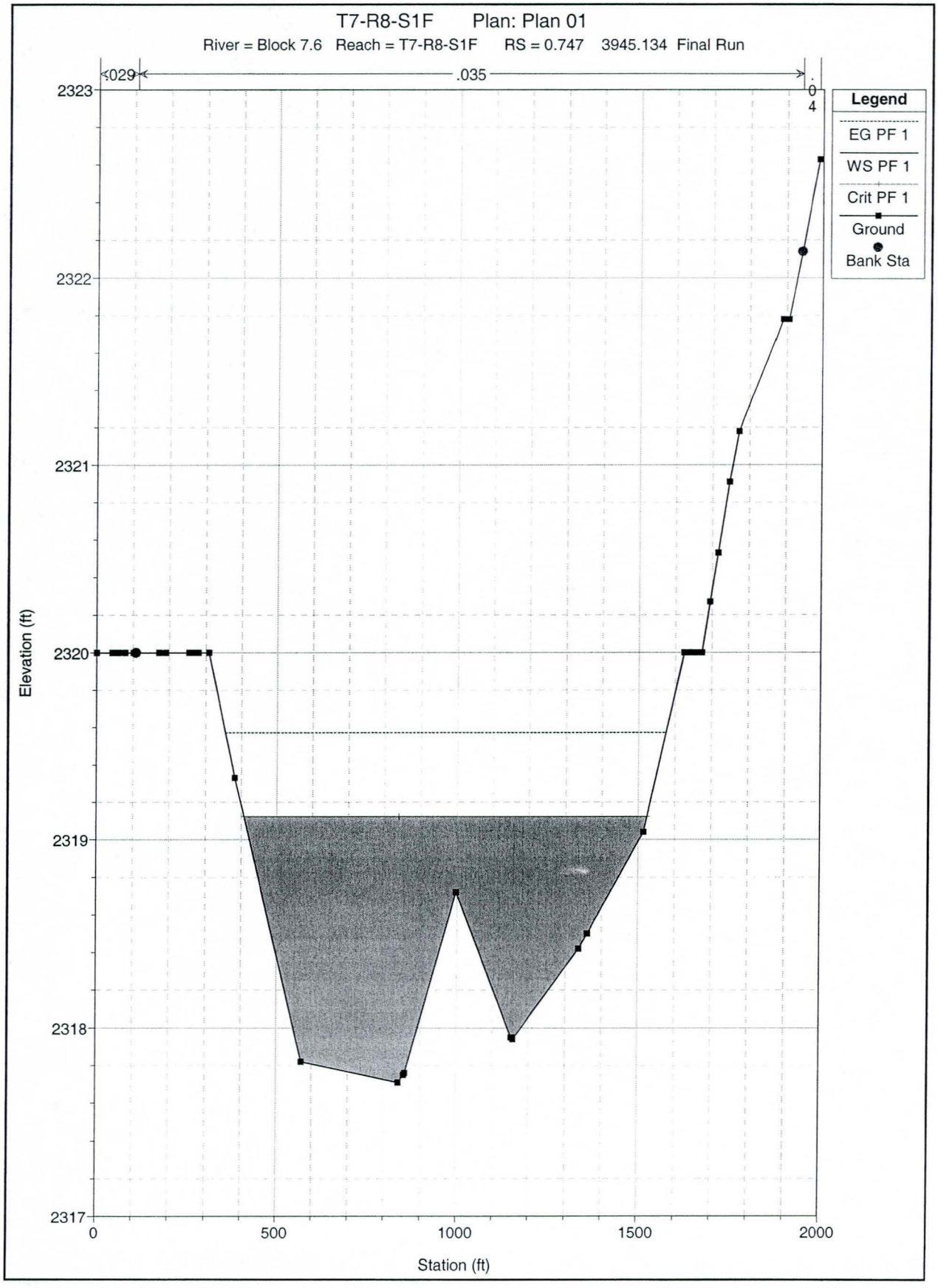
HEC-RAS Plan: Plan 01 River: Block 7.6 Reach: T7-R8-S1F Profile: PF 1

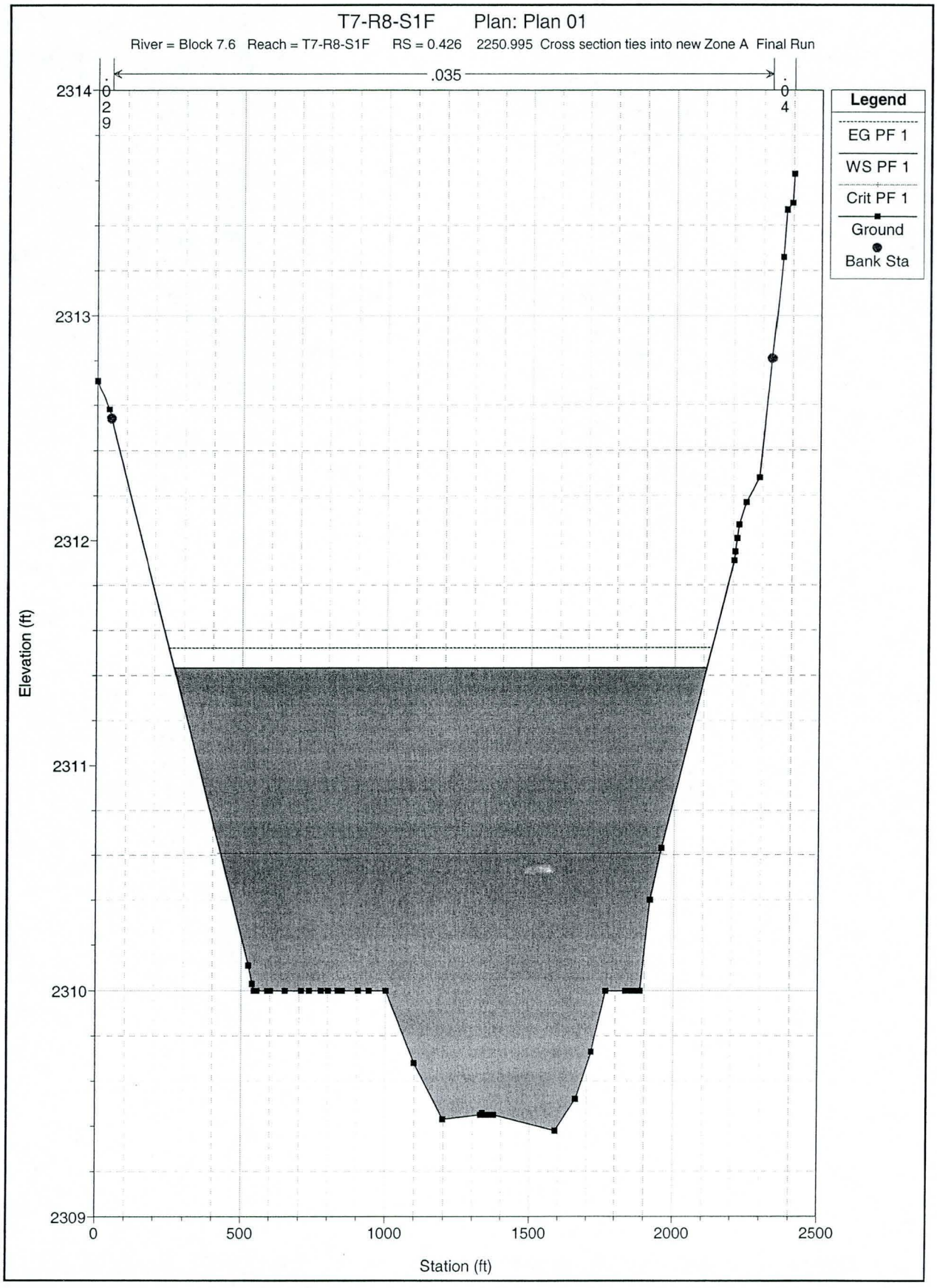
Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Max Chl Dpth	Top Width	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R8-S1F	1.342	5322.00	2335.34	2335.13	3.60	2.39	1762.73	0.65	25.28	1788.01
T7-R8-S1F	1.153	5322.00	2331.26	2330.67	2.56	1.94	1874.25	0.40	169.91	2044.16
T7-R8-S1F	0.747	5322.00	2319.12	2319.12	5.38	1.41	1116.79	1.01	407.62	1524.41
T7-R8-S1F	0.426	6215.00	2311.43	2310.61	2.38	2.05	1846.24	0.35	264.95	2111.18
T7-R8-S1F	0.181	6215.00	2305.17	2305.17	4.27	1.27	2675.15	1.00	0.00	2675.15

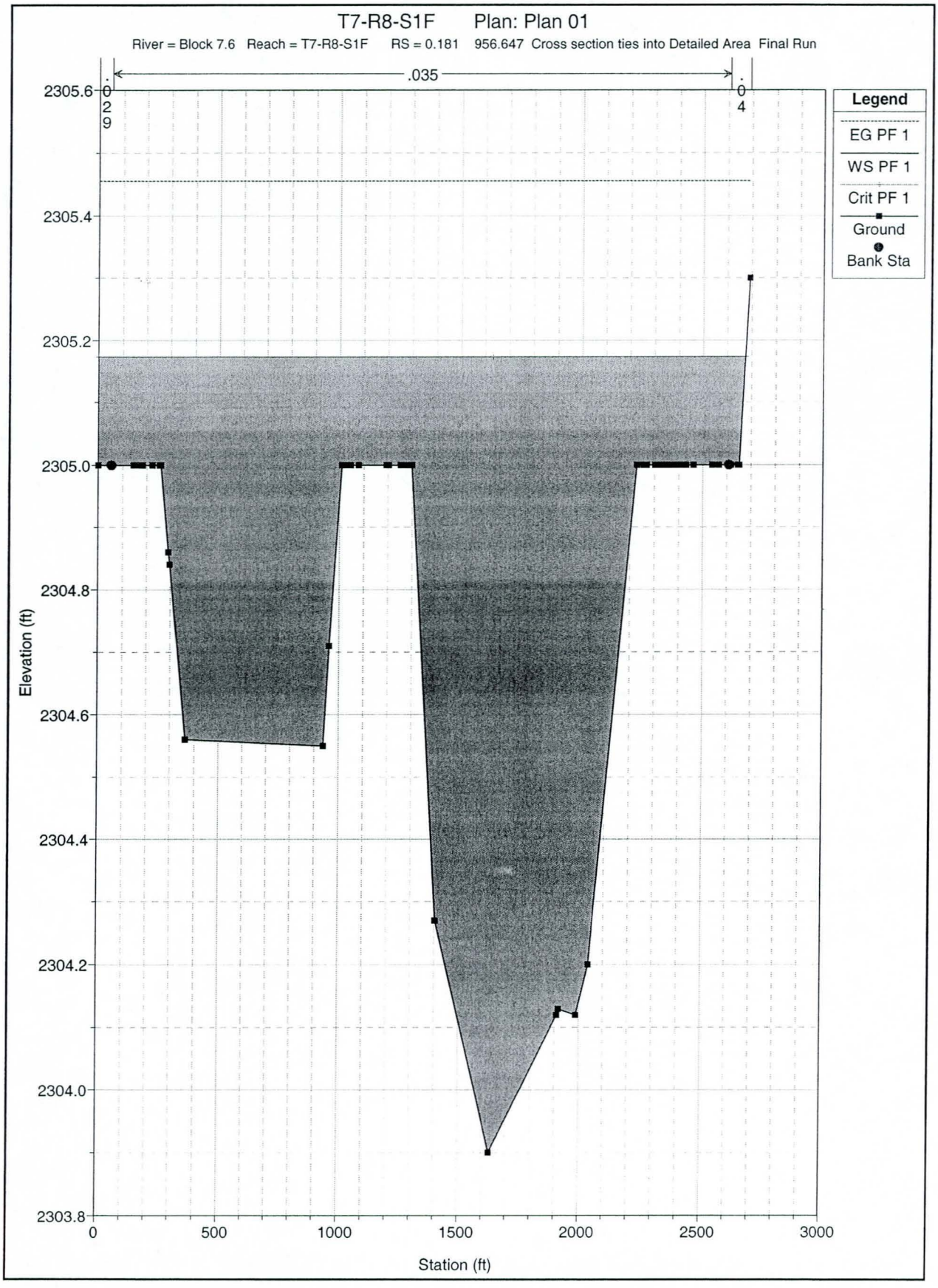

1.342
1.153
T7-R8-S1F
Block 7.6
0.747
0.426
0.181


T7-R8-S1F Plan: Plan 01
River = Block 7.6 Reach = T7-R8-S1F RS = 1.342 7086.744 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2336.5
2336.0
2335.5
2335.0
2334.5
2334.0
2333.5
2333.0
2332.5
0
500
1000
1500
2000
Station (ft)


T7-R8-S1F Plan: Plan 01
River = Block 7.6 Reach = T7-R8-S1F RS = 1.153 6086.243 Final Run
.029
.035
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2332.0
2331.5
2331.0
2330.5
2330.0
2329.5
2329.0
0
500
1000
1500
2000
2500
Station (ft)


T7-R8-S1F Plan: Plan 01
River = Block 7.6 Reach = T7-R8-S1F RS = 0.747 3945.134 Final Run
.029
.035
.0
4
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2323
2322
2321
2320
2319
2318
2317
0
500
1000
1500
2000
Station (ft)


T7-R8-S1F Plan: Plan 01
River = Block 7.6 Reach = T7-R8-S1F RS = 0.426 2250.995 Cross section ties into new Zone A Final Run
.035
.029
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2314
2313
2312
2311
2310
2309
0
500
1000
1500
2000
2500
Station (ft)


T7-R8-S1F Plan: Plan 01
River = Block 7.6 Reach = T7-R8-S1F RS = 0.181 956.647 Cross section ties into Detailed Area Final Run
.035
.029
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2305.6
2305.4
2305.2
2305.0
2304.8
2304.6
2304.4
2304.2
2304.0
2303.8
0
500
1000
1500
2000
2500
3000
Station (ft)

Plan: Plan 01 Block 7.6 T7-R8-S1F RS: 1.342 Profile: PF 1

E.G. Elev (ft)	2335.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.029	0.035	0.040
W.S. Elev (ft)	2335.34	Reach Len. (ft)	1154.58	1000.50	971.66
Crit W.S. (ft)	2335.13	Flow Area (sq ft)	76.23	1432.08	3.98
E.G. Slope (ft/ft)	0.007727	Area (sq ft)	76.23	1432.08	3.98
Q Total (cfs)	5322.00	Flow (cfs)	164.35	5153.24	4.42
Top Width (ft)	1762.73	Top Width (ft)	230.19	1512.40	20.15
Vel Total (ft/s)	3.52	Avg. Vel. (ft/s)	2.16	3.60	1.11
Max Chl Dpth (ft)	2.39	Hydr. Depth (ft)	0.33	0.95	0.20
Conv. Total (cfs)	60542.6	Conv. (cfs)	1869.6	58622.8	50.2
Length Wtd. (ft)	1004.68	Wetted Per. (ft)	230.19	1512.56	20.15
Min Ch El (ft)	2332.95	Shear (lb/sq ft)	0.16	0.46	0.10
Alpha	1.02	Stream Power (lb/ft s)	0.34	1.64	0.11
Frctn Loss (ft)	4.15	Cum Volume (acre-ft)	5.39	244.20	0.26
C & E Loss (ft)	0.03	Cum SA (acres)	16.47	224.15	1.46

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.6 T7-R8-S1F RS: 1.153 Profile: PF 1

E.G. Elev (ft)	2331.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.029	0.035	0.040
W.S. Elev (ft)	2331.26	Reach Len. (ft)	2498.85	2141.11	2062.83
Crit W.S. (ft)	2330.67	Flow Area (sq ft)	99.35	2029.39	4.42
E.G. Slope (ft/ft)	0.002562	Area (sq ft)	99.35	2029.39	4.42
Q Total (cfs)	5322.00	Flow (cfs)	126.07	5193.10	2.84
Top Width (ft)	1874.25	Top Width (ft)	290.29	1561.77	22.19
Vel Total (ft/s)	2.49	Avg. Vel. (ft/s)	1.27	2.56	0.64
Max Chl Dpth (ft)	1.94	Hydr. Depth (ft)	0.34	1.30	0.20
Conv. Total (cfs)	105140.2	Conv. (cfs)	2490.6	102593.6	56.0
Length Wtd. (ft)	2145.33	Wetted Per. (ft)	290.29	1561.79	22.19
Min Ch El (ft)	2329.32	Shear (lb/sq ft)	0.05	0.21	0.03
Alpha	1.03	Stream Power (lb/ft s)	0.07	0.53	0.02
Frctn Loss (ft)	11.75	Cum Volume (acre-ft)	3.07	204.44	0.17
C & E Loss (ft)	0.04	Cum SA (acres)	9.58	188.84	0.98

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.6 T7-R8-S1F RS: 0.747 Profile: PF 1

E.G. Elev (ft)	2319.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.		0.035	
W.S. Elev (ft)	2319.12	Reach Len. (ft)	1494.23	1694.14	1639.90
Crit W.S. (ft)	2319.12	Flow Area (sq ft)		988.64	
E.G. Slope (ft/ft)	0.018915	Area (sq ft)		988.64	
Q Total (cfs)	5322.00	Flow (cfs)		5322.00	
Top Width (ft)	1116.79	Top Width (ft)		1116.79	

Plan: Plan 01 Block 7.6 T7-R8-S1F RS: 0.747 Profile: PF 1 (Continued)

Vel Total (ft/s)	5.38	Avg. Vel. (ft/s)		5.38	
Max Chl Dpth (ft)	1.41	Hydr. Depth (ft)		0.89	
Conv. Total (cfs)	38696.8	Conv. (cfs)		38696.8	
Length Wtd. (ft)	1694.14	Wetted Per. (ft)		1116.80	
Min Ch El (ft)	2317.71	Shear (lb/sq ft)		1.05	
Alpha	1.00	Stream Power (lb/ft s)		5.63	
Frctn Loss (ft)	7.09	Cum Volume (acre-ft)	0.22	130.27	0.07
C & E Loss (ft)	0.11	Cum SA (acres)	1.25	123.01	0.46

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.6 T7-R8-S1F RS: 0.426 Profile: PF 1

E.G. Elev (ft)	2311.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.035	
W.S. Elev (ft)	2311.43	Reach Len. (ft)	2021.93	1294.35	604.46
Crit W.S. (ft)	2310.61	Flow Area (sq ft)		2610.06	
E.G. Slope (ft/ft)	0.001983	Area (sq ft)		2610.06	
Q Total (cfs)	6215.00	Flow (cfs)		6215.00	
Top Width (ft)	1846.24	Top Width (ft)		1846.24	
Vel Total (ft/s)	2.38	Avg. Vel. (ft/s)		2.38	
Max Chl Dpth (ft)	2.05	Hydr. Depth (ft)		1.41	
Conv. Total (cfs)	139578.8	Conv. (cfs)		139578.8	
Length Wtd. (ft)	1294.86	Wetted Per. (ft)		1846.25	
Min Ch El (ft)	2309.38	Shear (lb/sq ft)		0.17	
Alpha	1.00	Stream Power (lb/ft s)		0.42	
Frctn Loss (ft)	6.04	Cum Volume (acre-ft)	0.22	60.29	0.07
C & E Loss (ft)	0.02	Cum SA (acres)	1.25	65.39	0.46

Errors Warnings and Notes

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.

Plan: Plan 01 Block 7.6 T7-R8-S1F RS: 0.181 Profile: PF 1

E.G. Elev (ft)	2305.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.029	0.035	0.040
W.S. Elev (ft)	2305.17	Reach Len. (ft)			
Crit W.S. (ft)	2305.17	Flow Area (sq ft)	9.37	1448.02	9.42
E.G. Slope (ft/ft)	0.021543	Area (sq ft)	9.37	1448.02	9.42
Q Total (cfs)	6215.00	Flow (cfs)	21.93	6179.05	14.02
Top Width (ft)	2675.15	Top Width (ft)	53.85	2555.18	66.12
Vel Total (ft/s)	4.24	Avg. Vel. (ft/s)	2.34	4.27	1.49
Max Chl Dpth (ft)	1.27	Hydr. Depth (ft)	0.17	0.57	0.14

Plan: Plan 01 Block 7.6 T7-R8-S1F RS: 0.181 Profile: PF 1 (Continued)

Conv. Total (cfs)	42343.6	Conv. (cfs)	149.4	42098.7	95.5
Length Wtd. (ft)		Wetted Per. (ft)	54.02	2555.19	66.12
Min Ch El (ft)	2303.90	Shear (lb/sq ft)	0.23	0.76	0.19
Alpha	1.01	Stream Power (lb/ft s)	0.55	3.25	0.29
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 7\Block7f\ArcView\T7R8S1F.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 7\Block7f\ArcView\T7R8S1F.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 7\Block7f\ArcView\T7R8S1F.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 7\Block7f\ArcView\T7R8S1F.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 7\Block7f\ArcView\T7R8S1F.nt
Selected profiles: PF 1
Date: 12/2/2003
Time: 10:37:50 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block 7.6,T7-R8-S1F						
1.342		0.029	0.035	0.04	0.1	0.3
1.153		0.029	0.035	0.04	0.1	0.3
.747		0.029	0.035	0.04	0.1	0.3
.426		0.029	0.035	0.04	0.1	0.3
.181		0.029	0.035	0.04	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.029	0.029
Right Overbank n Value:	0.04	0.04
Channel n Value:	0.035	0.035
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

RS: 1.342
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.153
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.747
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.426
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 7\Block7f\ArcView\T7R8S1F.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 7\Block7f\ArcView\T7R8S1F.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 7\Block7f\ArcView\T7R8S1F.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 7\Block7f\ArcView\T7R8S1F.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 7\Block7f\ArcView\T7R8S1F.xs
Selected profiles: PF 1
Date: 12/2/2003
Time: 10:37:51 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Block 7.6,T7-R8-S1F						
1.342	1154.58	1000.5	971.66	1762.73	5322	
1.153	2498.85	2141.11	2062.83	1874.25	5322	
0.747	1494.23	1694.14	1639.9	1116.79	5322	C
0.426	2021.93	1294.35	604.46	1846.24	6215	
0.181	316.69	836.13	2200.24	2675.15	6215	E,C

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

LOCATION CHECK

RS: 1.153
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.92
MaxChlDpth Up/MaxChlDpth Dn = 1.38
TopwdthAct Up/TopwdthAct Dn = 1.68
This cross section is located too far upstream from the
critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Block 7.6,T7-R8-S1F
Known WS = 2301.6 is specified as the downstream boundary
for profile PF 1

---END---

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

ROUGHNESS COEFFICIENT CHECK

Explanation:
All Manning's n-values were field verified and approved

LOCATION CHECK

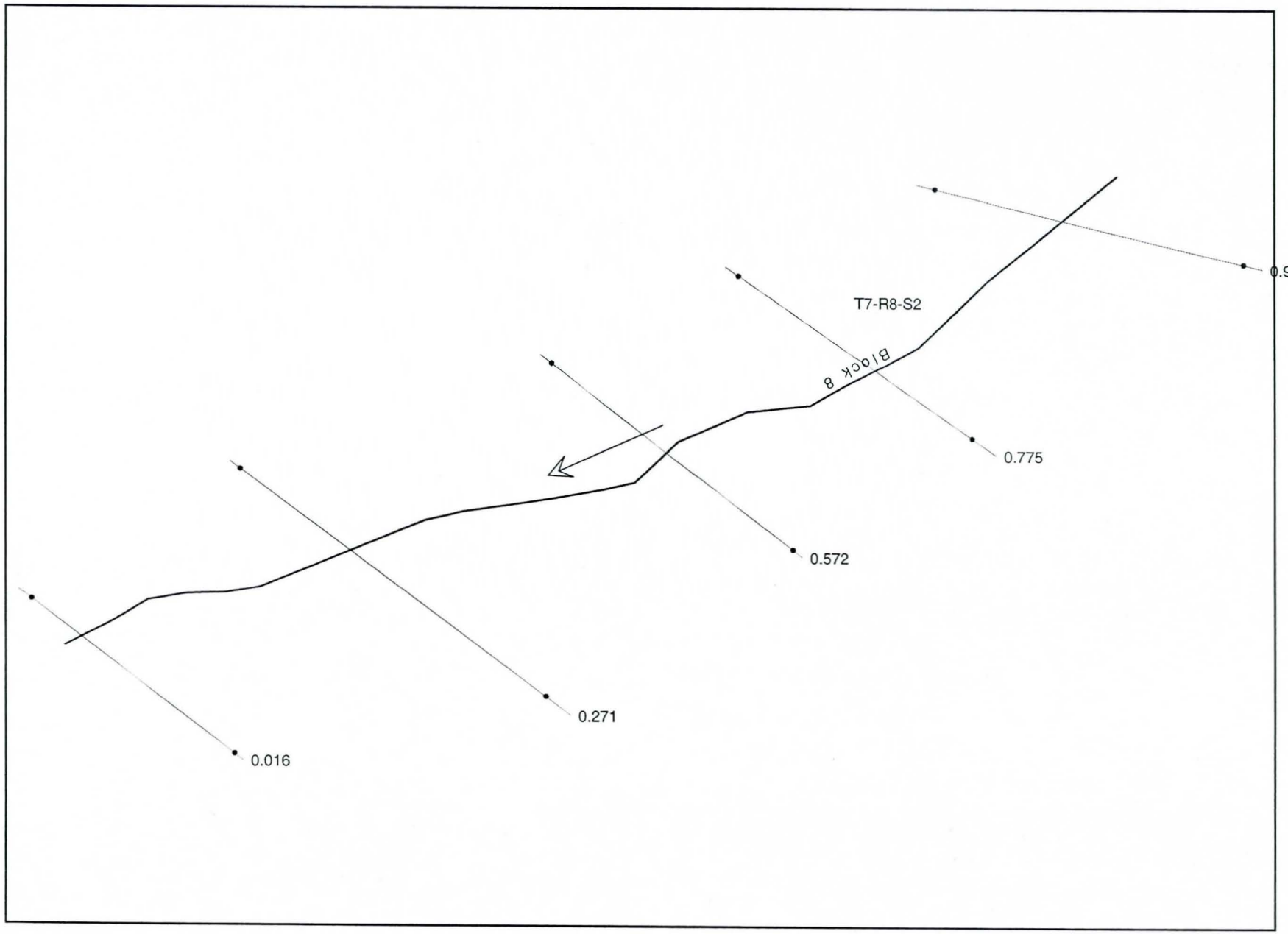
Non-detailed study; cross-sections located 2000-3000 feet apart.

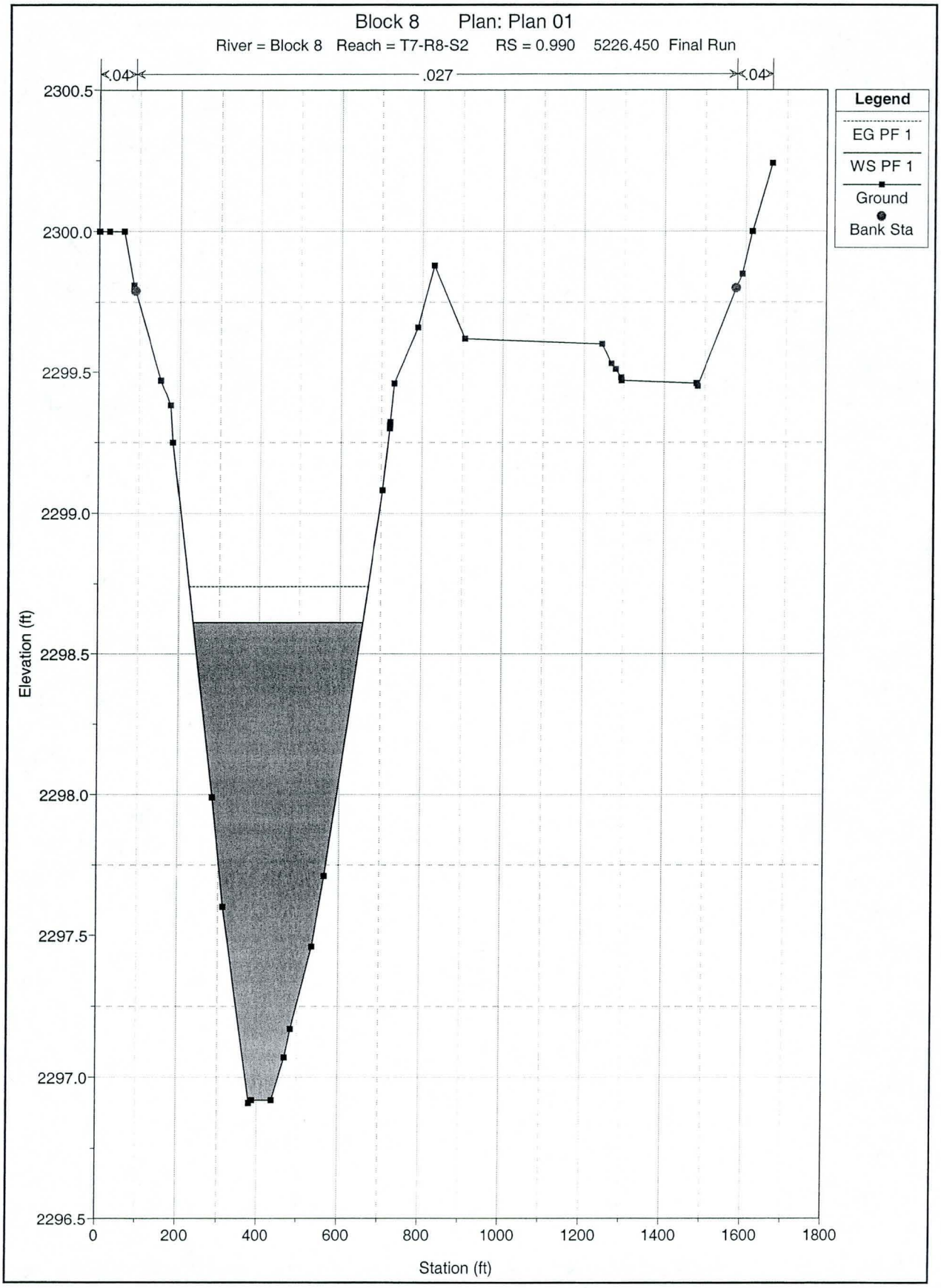
BOUNDARY CONDITION CHECK

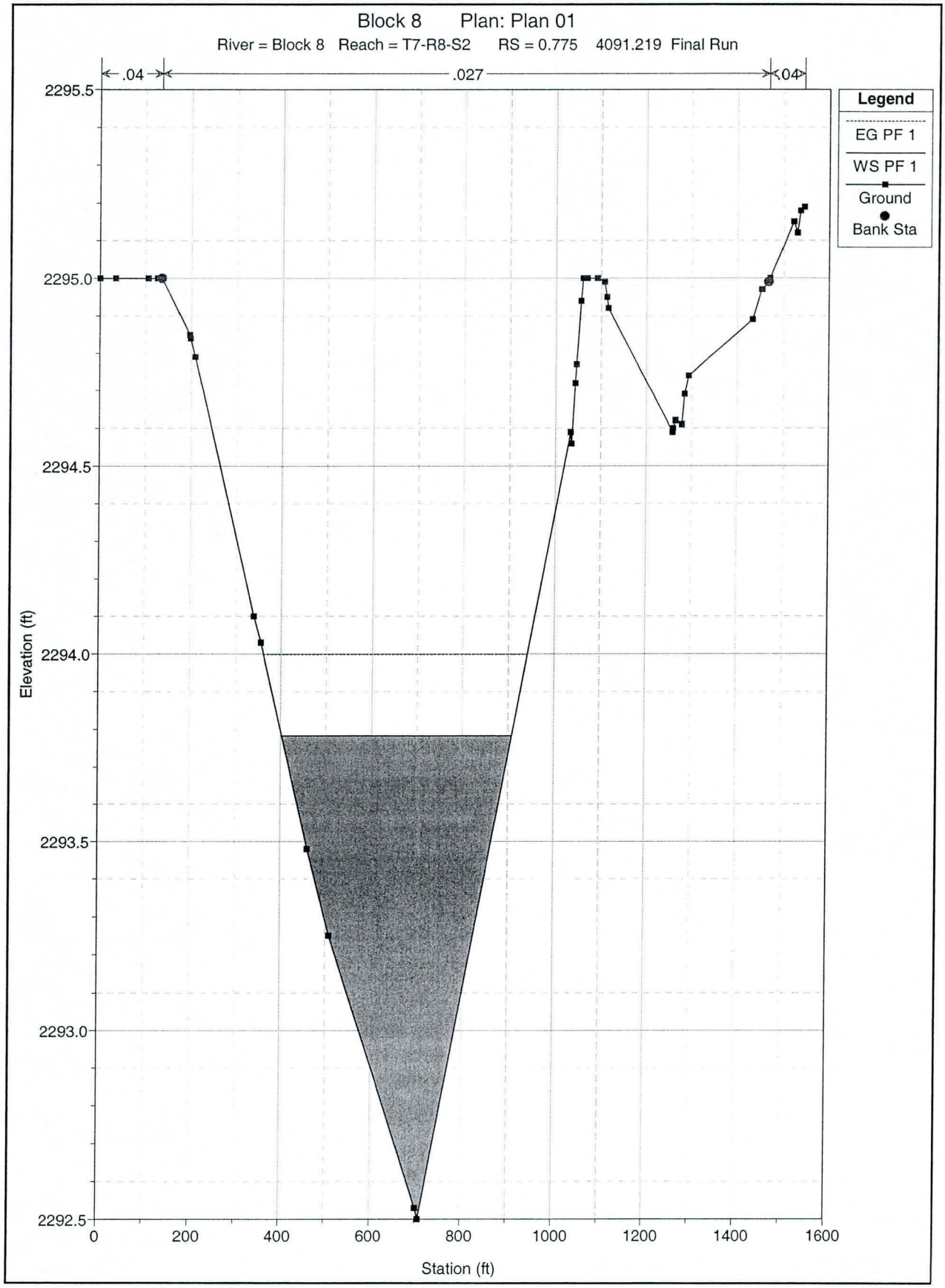
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

HEC-RAS Plan: Plan 01 River: Block 8 Reach: T7-R8-S2 Profile: PF 1

Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R8-S2	0.990	1259.00	2298.61		2.87	421.50	1.70	0.50	234.78	656.27
T7-R8-S2	0.775	1259.00	2293.78		3.72	505.72	1.28	0.80	402.03	907.75
T7-R8-S2	0.572	1259.00	2289.59	2289.24	2.02	968.47	1.23	0.45	277.70	1246.17
T7-R8-S2	0.271	1259.00	2283.32	2283.21	2.97	825.99	0.94	0.73	715.55	1541.55
T7-R8-S2	0.016	1259.00	2280.10	2279.49	1.51	1316.38	1.51	0.32	0.00	1316.38


T7-R8-S2
Block 8
0.990
0.775
0.572
0.271
0.016


Block 8 Plan: Plan 01
River = Block 8 Reach = T7-R8-S2 RS = 0.990 5226.450 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
2300.5
2300.0
2299.5
2299.0
2298.5
2298.0
2297.5
2297.0
2296.5
Elevation (ft)
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)


Block 8 Plan: Plan 01
River = Block 8 Reach = T7-R8-S2 RS = 0.775 4091.219 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
2295.5
2295.0
2294.5
2294.0
2293.5
2293.0
2292.5
Elevation (ft)
0
200
400
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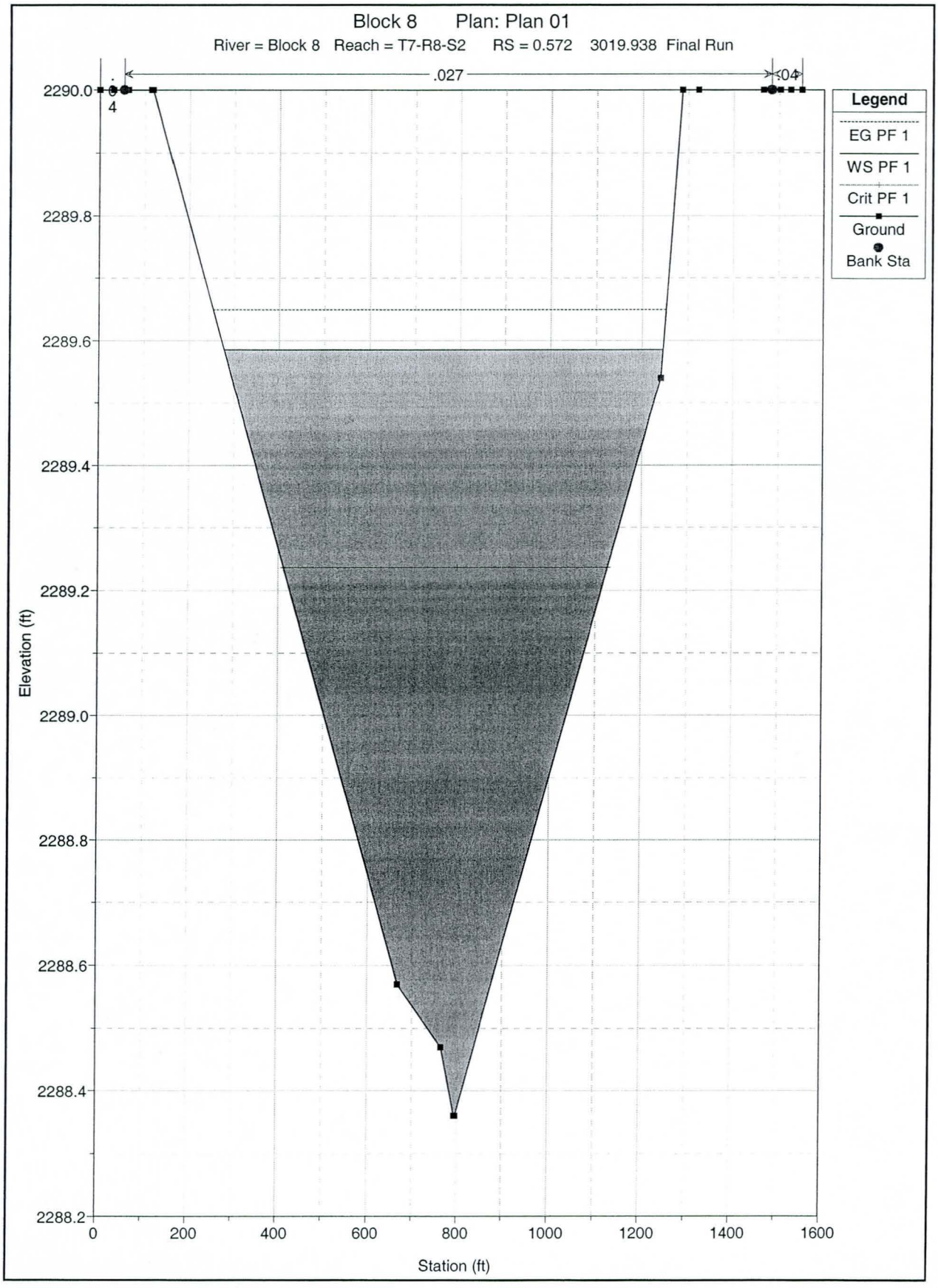
1200
1400
1600
Station (ft)


Block 8 Plan: Plan 01
River = Block 8 Reach = T7-R8-S2 RS = 0.572 3019.938 Final Run
.027
.04
.0
4
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2290.0
2289.8
2289.6
2289.4
2289.2
2289.0
2288.8
2288.6
2288.4
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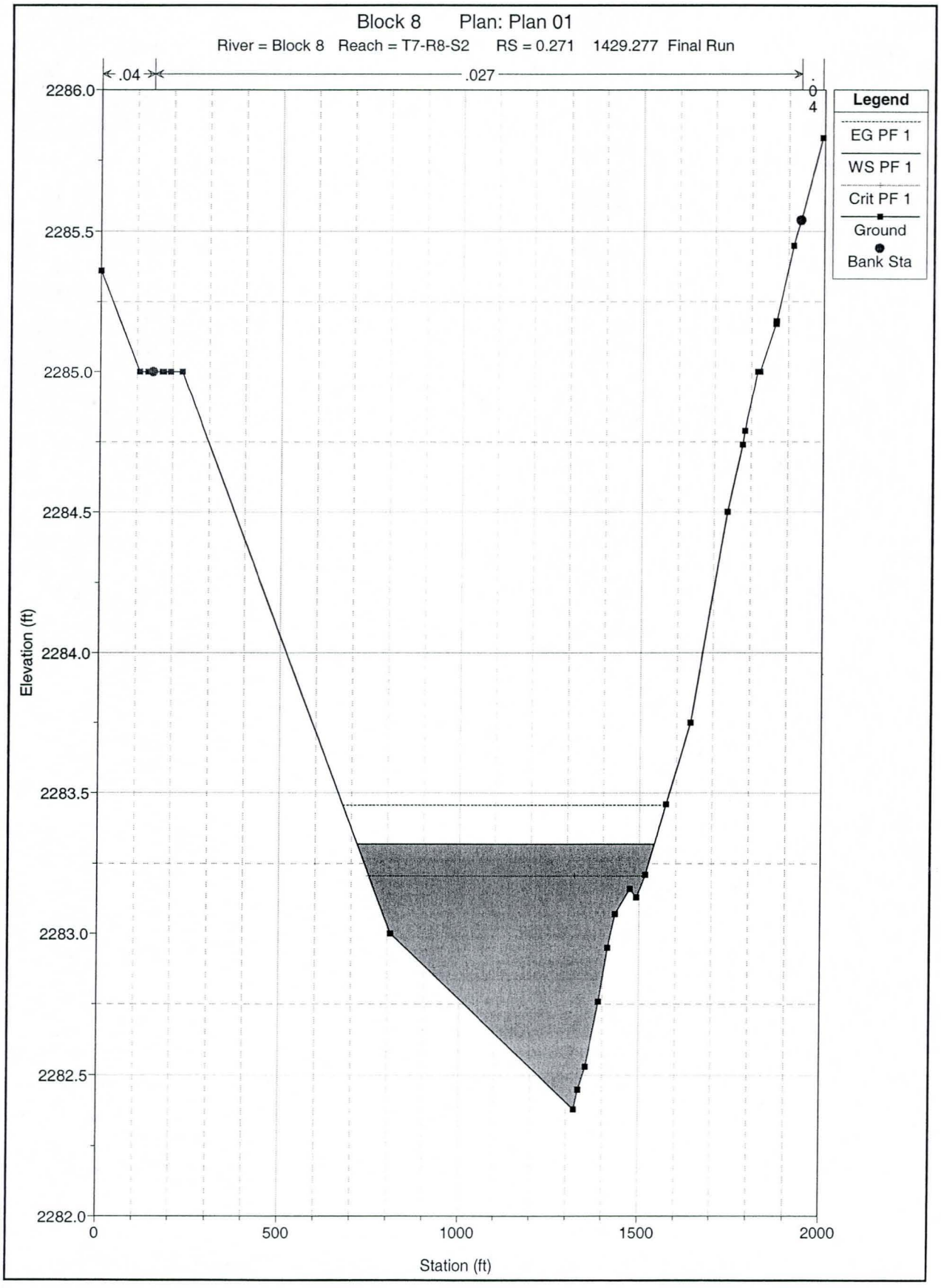
1200
1400
1600
Station (ft)


Block 8 Plan: Plan 01
River = Block 8 Reach = T7-R8-S2 RS = 0.271 1429.277 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2286.0
2285.5
2285.0
2284.5
2284.0
2283.5
2283.0
2282.5
2282.0
Elevation (ft)
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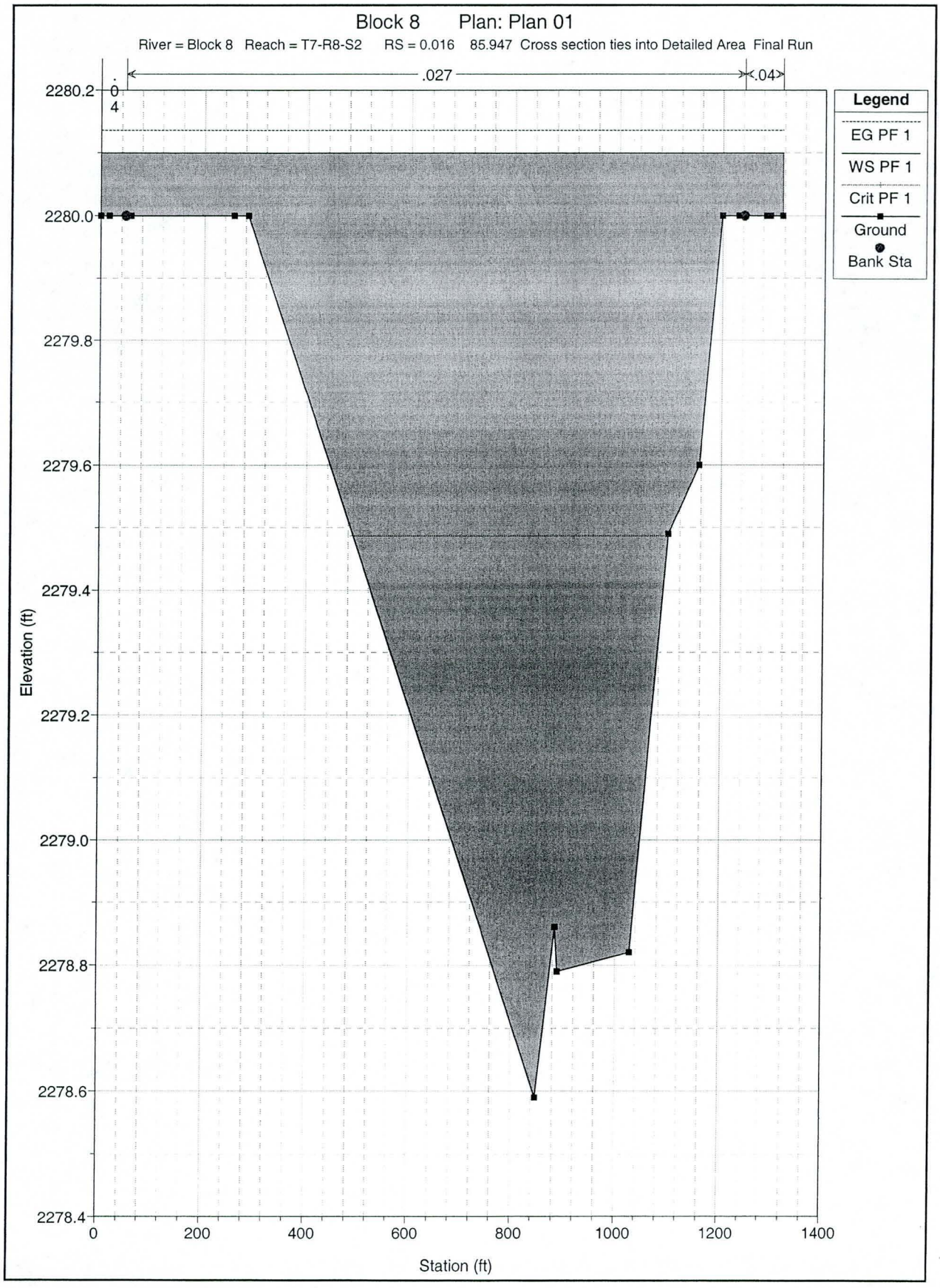
1500
2000
Station (ft)


Block 8 Plan: Plan 01
River = Block 8 Reach = T7-R8-S2 RS = 0.016 85.947 Cross section ties into Detailed Area Final Run
.027
.04
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2280.2
2280.0
2279.8
2279.6
2279.4
2279.2
2279.0
2278.8
2278.6
2278.4
0
200
400
600
800
1000
1200
1400

Plan: Plan 01 Block 8 T7-R8-S2 RS: 0.990 Profile: PF 1

E.G. Elev (ft)	2298.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.027	
W.S. Elev (ft)	2298.61	Reach Len. (ft)	1533.79	1134.70	994.41
Crit W.S. (ft)		Flow Area (sq ft)		438.04	
E.G. Slope (ft/ft)	0.002591	Area (sq ft)		438.04	
Q Total (cfs)	1259.00	Flow (cfs)		1259.00	
Top Width (ft)	421.50	Top Width (ft)		421.50	
Vel Total (ft/s)	2.87	Avg. Vel. (ft/s)		2.87	
Max Chl Dpth (ft)	1.70	Hydr. Depth (ft)		1.04	
Conv. Total (cfs)	24733.6	Conv. (cfs)		24733.6	
Length Wtd. (ft)	1134.70	Wetted Per. (ft)		421.51	
Min Ch El (ft)	2296.91	Shear (lb/sq ft)		0.17	
Alpha	1.00	Stream Power (lb/ft s)		0.48	
Frctn Loss (ft)	4.74	Cum Volume (acre-ft)	0.08	60.34	0.10
C & E Loss (ft)	0.01	Cum SA (acres)	0.84	94.15	0.98

Errors Warnings and Notes

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.

Plan: Plan 01 Block 8 T7-R8-S2 RS: 0.775 Profile: PF 1

E.G. Elev (ft)	2294.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.		0.027	
W.S. Elev (ft)	2293.78	Reach Len. (ft)	997.40	1070.82	967.54
Crit W.S. (ft)		Flow Area (sq ft)		338.24	
E.G. Slope (ft/ft)	0.007821	Area (sq ft)		338.24	
Q Total (cfs)	1259.00	Flow (cfs)		1259.00	
Top Width (ft)	505.72	Top Width (ft)		505.72	
Vel Total (ft/s)	3.72	Avg. Vel. (ft/s)		3.72	
Max Chl Dpth (ft)	1.28	Hydr. Depth (ft)		0.67	
Conv. Total (cfs)	14236.1	Conv. (cfs)		14236.1	
Length Wtd. (ft)	1070.82	Wetted Per. (ft)		505.73	
Min Ch El (ft)	2292.50	Shear (lb/sq ft)		0.33	
Alpha	1.00	Stream Power (lb/ft s)		1.22	
Frctn Loss (ft)	4.31	Cum Volume (acre-ft)	0.08	50.23	0.10
C & E Loss (ft)	0.05	Cum SA (acres)	0.84	82.07	0.98

Errors Warnings and Notes

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.

Plan: Plan 01 Block 8 T7-R8-S2 RS: 0.572 Profile: PF 1

E.G. Elev (ft)	2289.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.027	
W.S. Elev (ft)	2289.59	Reach Len. (ft)	1347.53	1592.92	1543.58
Crit W.S. (ft)	2289.24	Flow Area (sq ft)		621.78	
E.G. Slope (ft/ft)	0.002444	Area (sq ft)		621.78	
Q Total (cfs)	1259.00	Flow (cfs)		1259.00	
Top Width (ft)	968.47	Top Width (ft)		968.47	

Plan: Plan 01 Block 8 T7-R8-S2 RS: 0.572 Profile: PF 1 (Continued)

Vel Total (ft/s)	2.02	Avg. Vel. (ft/s)		2.02	
Max Chl Dpth (ft)	1.23	Hydr. Depth (ft)		0.64	
Conv. Total (cfs)	25466.6	Conv. (cfs)		25466.6	
Length Wtd. (ft)	1592.92	Wetted Per. (ft)		968.47	
Min Ch El (ft)	2288.36	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.20	
Frctn Loss (ft)	6.18	Cum Volume (acre-ft)	0.08	38.43	0.10
C & E Loss (ft)	0.01	Cum SA (acres)	0.84	63.95	0.98

Errors Warnings and Notes

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.

Plan: Plan 01 Block 8 T7-R8-S2 RS: 0.271 Profile: PF 1

E.G. Elev (ft)	2283.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.027	
W.S. Elev (ft)	2283.32	Reach Len. (ft)	1501.63	1343.01	1157.41
Crit W.S. (ft)	2283.21	Flow Area (sq ft)		423.86	
E.G. Slope (ft/ft)	0.007091	Area (sq ft)		423.86	
Q Total (cfs)	1259.00	Flow (cfs)		1259.00	
Top Width (ft)	825.99	Top Width (ft)		825.99	
Vel Total (ft/s)	2.97	Avg. Vel. (ft/s)		2.97	
Max Chl Dpth (ft)	0.94	Hydr. Depth (ft)		0.51	
Conv. Total (cfs)	14951.5	Conv. (cfs)		14951.5	
Length Wtd. (ft)	1342.94	Wetted Per. (ft)		826.00	
Min Ch El (ft)	2282.38	Shear (lb/sq ft)		0.23	
Alpha	1.00	Stream Power (lb/ft s)		0.67	
Frctn Loss (ft)	3.30	Cum Volume (acre-ft)	0.08	19.31	0.10
C & E Loss (ft)	0.03	Cum SA (acres)	0.84	31.14	0.98

Errors Warnings and Notes

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.

Plan: Plan 01 Block 8 T7-R8-S2 RS: 0.016 Profile: PF 1

E.G. Elev (ft)	2280.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.040	0.027	0.040
W.S. Elev (ft)	2280.10	Reach Len. (ft)			
Crit W.S. (ft)	2279.49	Flow Area (sq ft)	4.88	828.98	7.38
E.G. Slope (ft/ft)	0.001232	Area (sq ft)	4.88	828.98	7.38
Q Total (cfs)	1259.00	Flow (cfs)	1.37	1255.56	2.07
Top Width (ft)	1316.38	Top Width (ft)	48.71	1193.95	73.72
Vel Total (ft/s)	1.50	Avg. Vel. (ft/s)	0.28	1.51	0.28
Max Chl Dpth (ft)	1.51	Hydr. Depth (ft)	0.10	0.69	0.10
Conv. Total (cfs)	35870.5	Conv. (cfs)	39.0	35772.5	59.0
Length Wtd. (ft)		Wetted Per. (ft)	48.81	1193.96	73.82
Min Ch El (ft)	2278.59	Shear (lb/sq ft)	0.01	0.05	0.01
Alpha	1.02	Stream Power (lb/ft s)	0.00	0.08	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			

Plan: Plan 01 Block 8 T7-R8-S2 RS: 0.016 Profile: PF 1 (Continued)

C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 8\Hec-Ras\Block8b.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 8\Hec-Ras\Block8b.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 8\Hec-Ras\Block8b.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 8\Hec-Ras\Block8b.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 8\Hec-Ras\Block8b.nt
Selected profiles: PF 1
Date: 1/15/2003
Time: 8:29:22 AM

SECNO STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block 8,T7-R8-S2					
.99	0.04	0.027	0.04	0.1	0.3
.775	0.04	0.027	0.04	0.1	0.3
.572	0.04	0.027	0.04	0.1	0.3
.271	0.04	0.027	0.04	0.1	0.3
.016	0.04	0.027	0.04	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.04	0.04
Right Overbank n Value:	0.04	0.04
Channel n Value:	0.027	0.027
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 8\Hec-Ras\Block8b.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 8\Hec-Ras\Block8b.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 8\Hec-Ras\Block8b.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 8\Hec-Ras\Block8b.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 8\Hec-Ras\Block8b.xs
Selected profiles: PF 1
Date: 1/15/2003
Time: 8:29:22 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Block 8,T7-R8-S2						

0.99	1533.79	1134.7	994.41	421.5	1259	
0.775	997.4	1070.82	967.54	505.72	1259	
0.572	1347.53	1592.92	1543.58	968.47	1259	
0.271	1501.63	1343.01	1157.41	825.99	1259	
0.016	202.94	97.45	15.37	1316.38	1259	E

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

XS DC 02 Constant dicharge used for the Block 8,T7-R8-S2

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Block 8,T7-R8-S2
Known WS = 2280.1 is specified as the downstream boundary
for profile PF 1

---END---

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

DISCHARGE CHECK

Warning:
Constant discharge used for the reach.

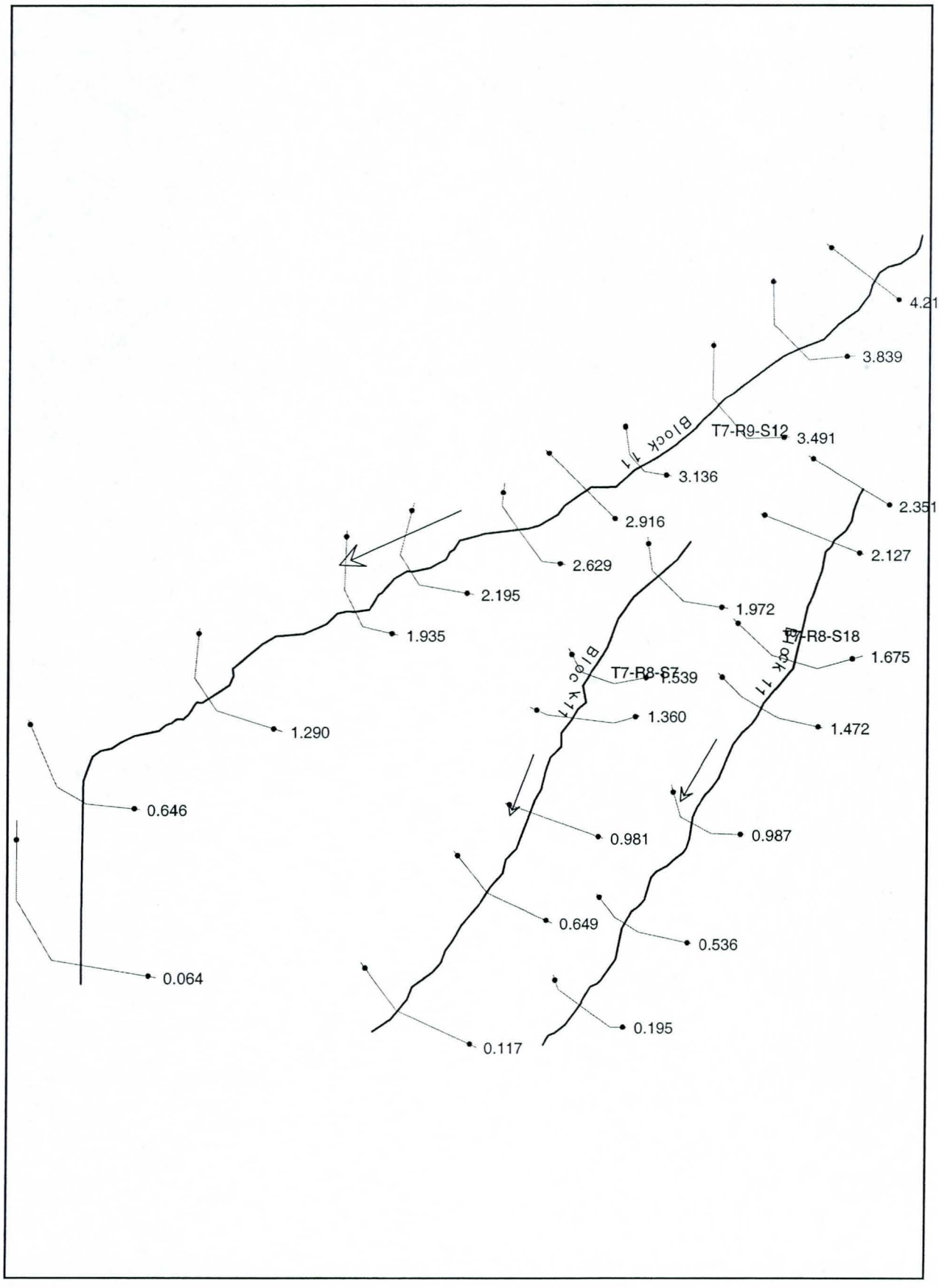
Explanation:
The discharge was determined from the regression equations for the sub basin. The Flood Control District of Maricopa County also approved the peak discharge values.

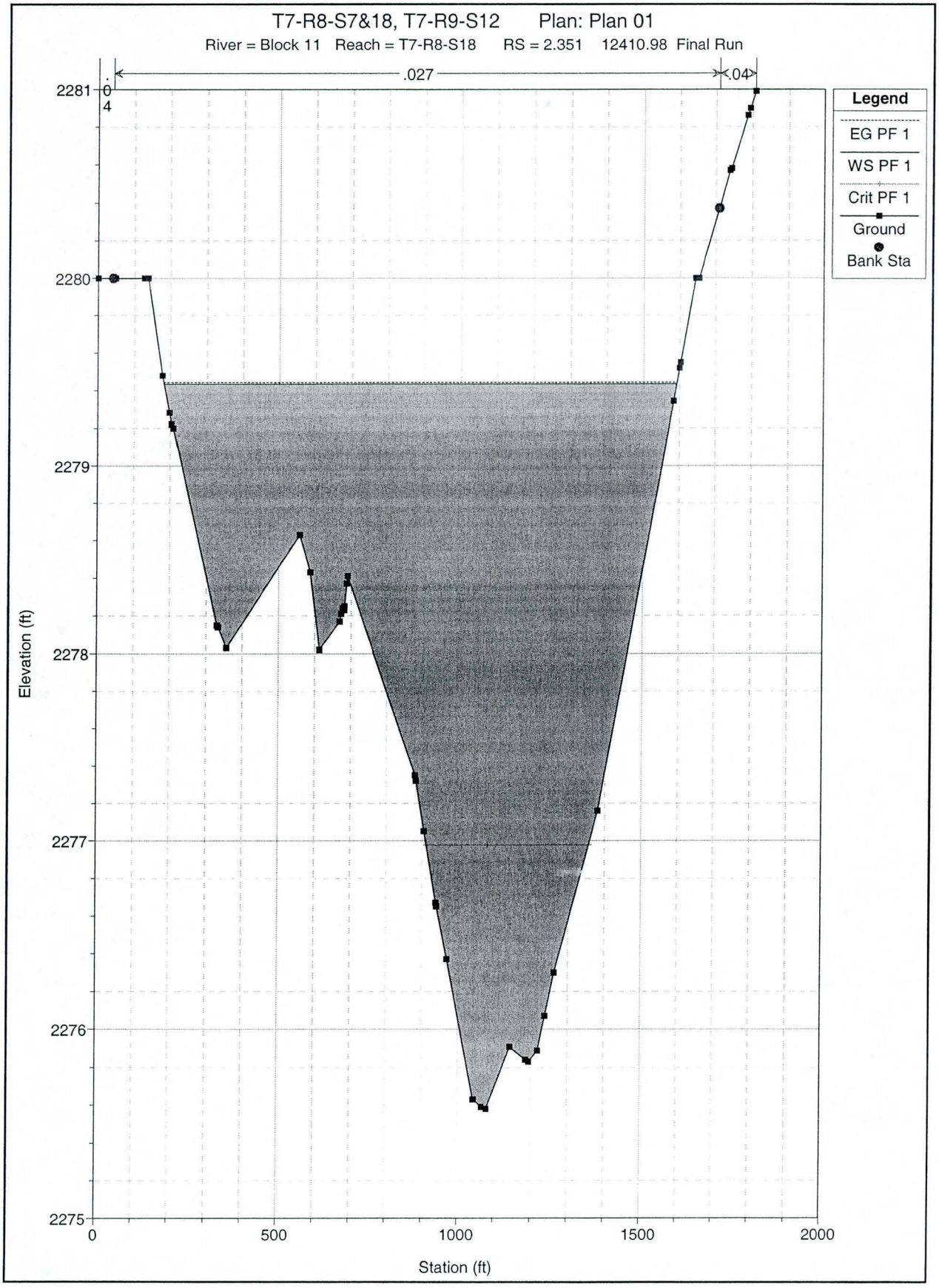
BOUNDARY CONDITION CHECK

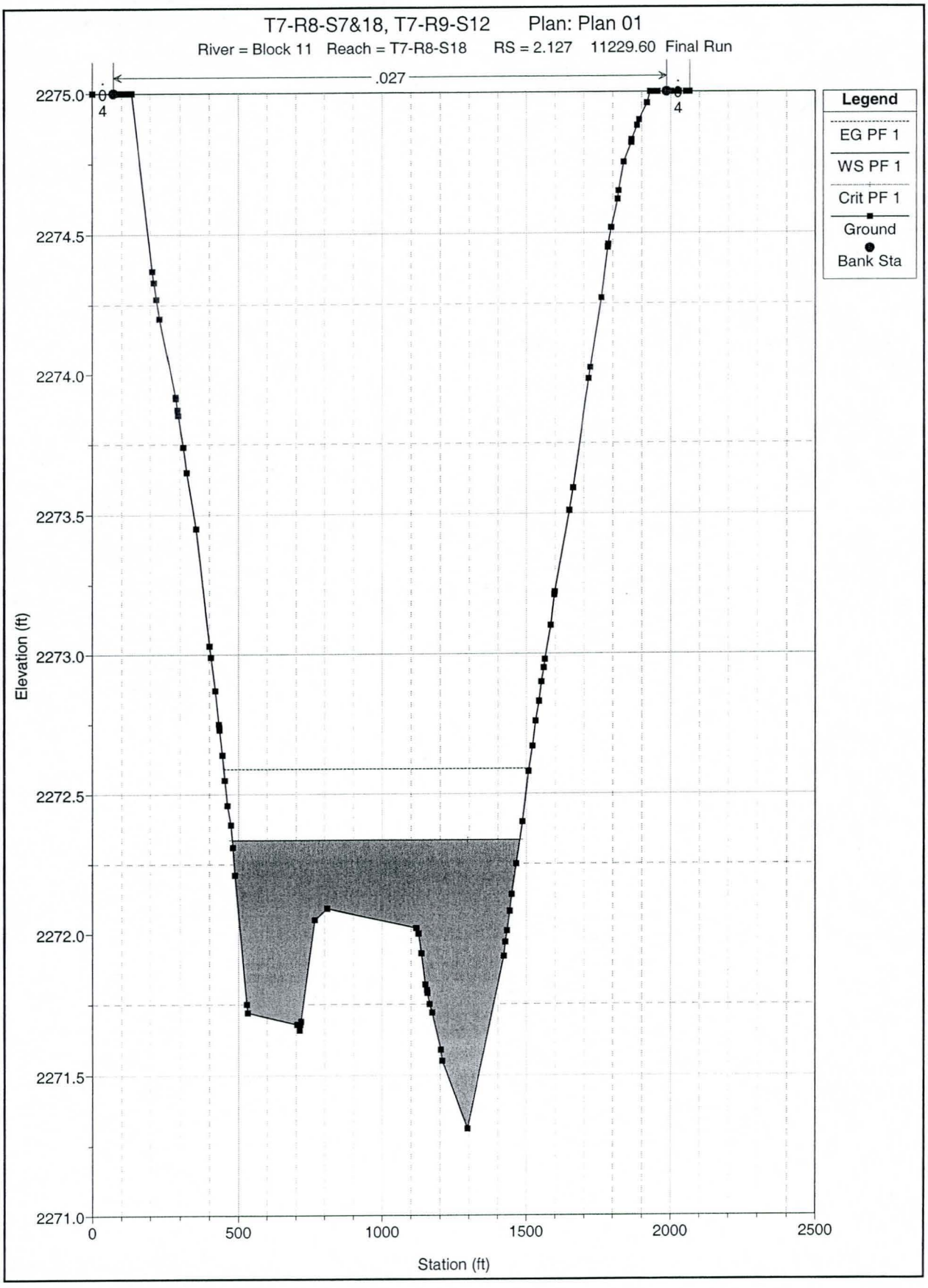
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

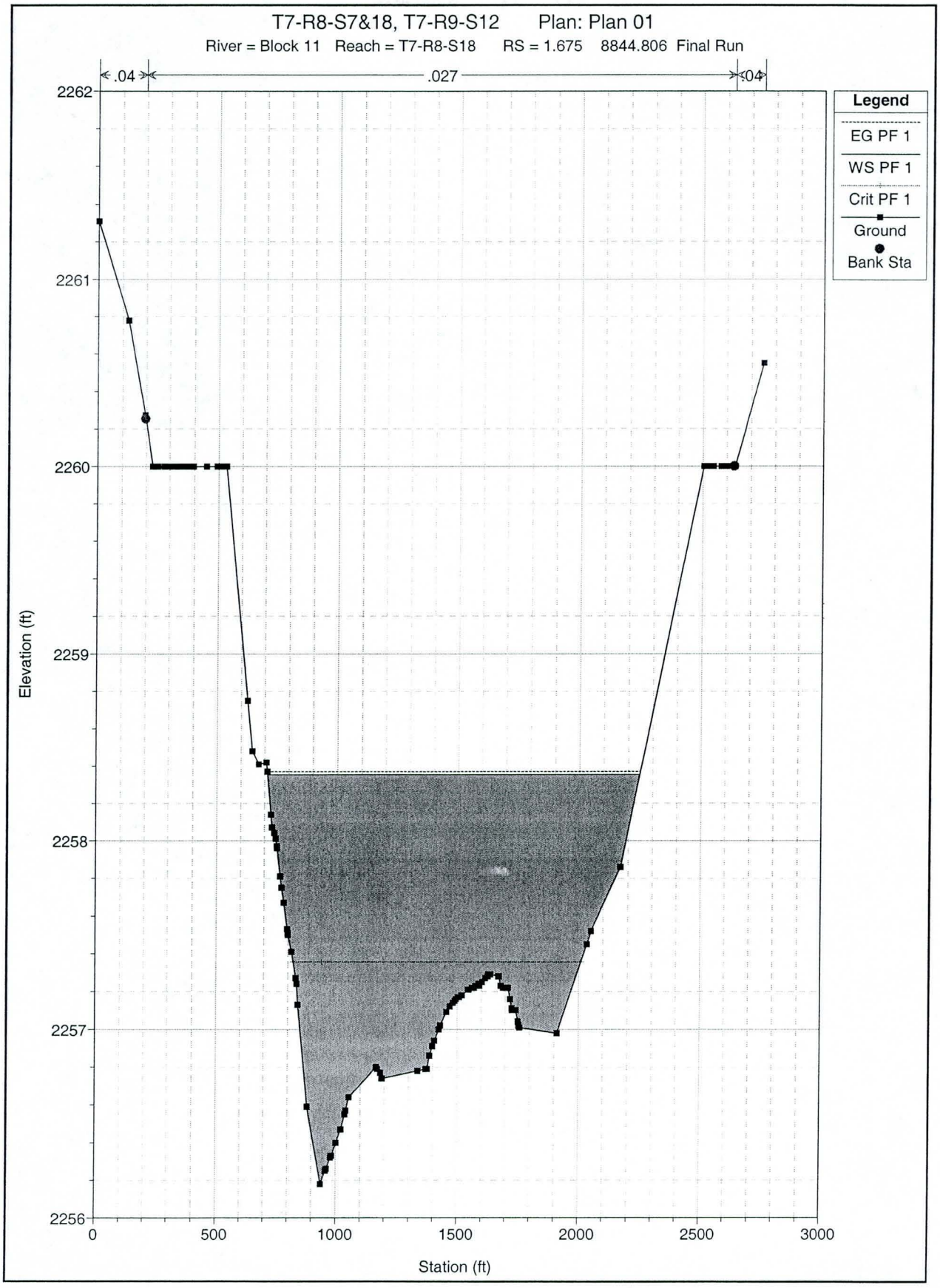
HEC-RAS Plan: Plan 01 Profile: PF 1

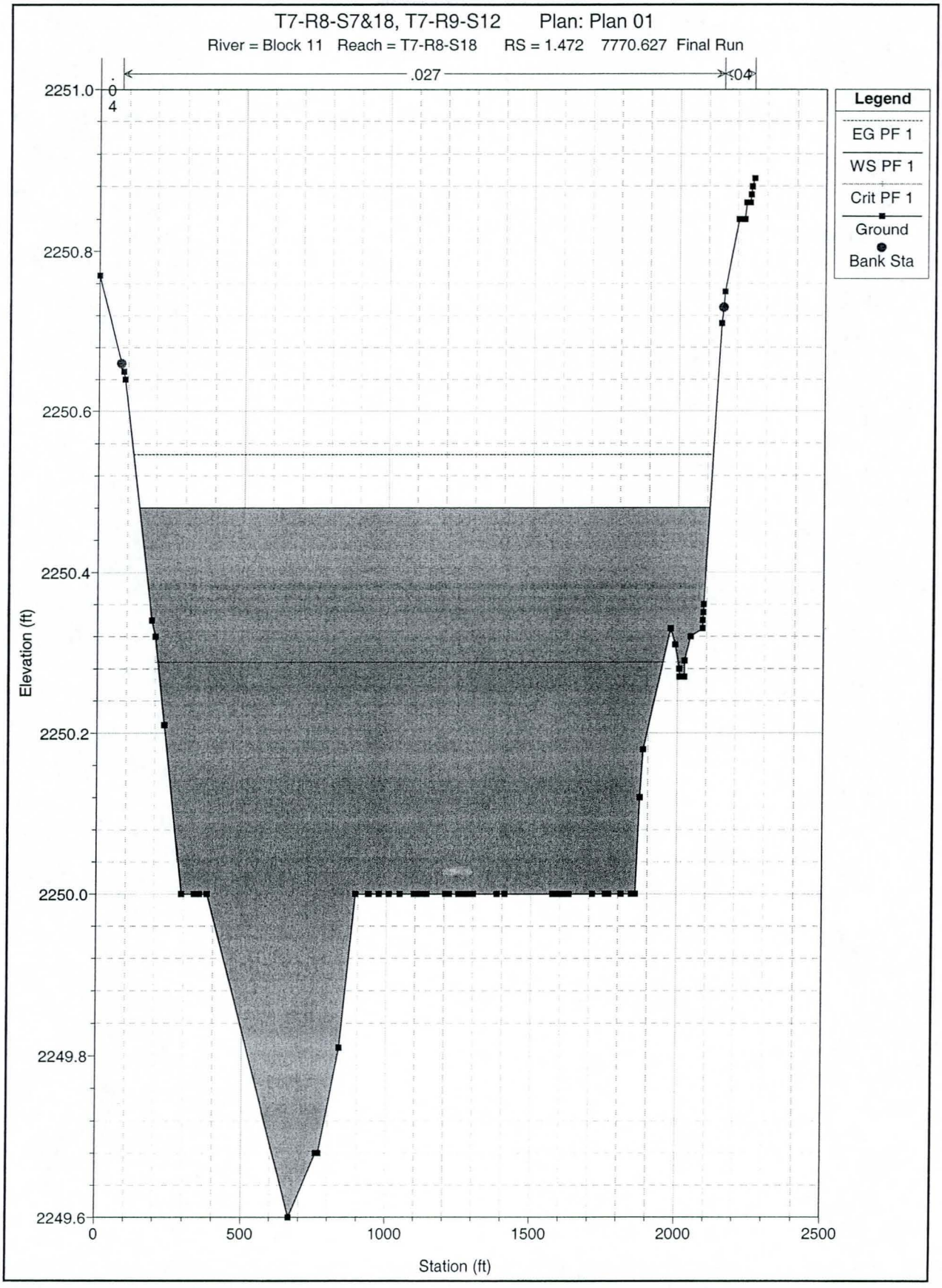
Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R8-S18	2.351	1970.00	2279.44	2276.98	0.74	1409.82	3.85	0.10	182.85	1592.67
T7-R8-S18	2.127	1970.00	2272.34	2272.34	4.04	997.99	1.03	1.02	478.42	1476.41
T7-R8-S18	1.675	1970.00	2258.35	2257.36	1.03	1535.26	2.17	0.16	711.74	2247.00
T7-R8-S18	1.472	1970.00	2250.48	2250.29	2.06	1967.56	0.88	0.52	141.44	2109.00
T7-R8-S18	0.987	1970.00	2239.47	2238.48	1.19	1519.94	2.16	0.20	270.45	1790.39
T7-R8-S18	0.536	1970.00	2229.76	2229.44	2.16	1383.06	1.06	0.47	414.69	1797.75
T7-R8-S18	0.195	1970.00	2220.06	2220.06	3.60	1423.92	0.70	1.02	253.99	1677.92
T7-R8-S7	1.972	1259.00	2260.50	2260.18	1.50	1460.29	1.05	0.35	394.56	1854.84
T7-R8-S7	1.539	1259.00	2244.33		1.20	1031.88	1.71	0.21	435.94	1467.81
T7-R8-S7	1.360	1259.00	2239.50	2238.69	1.01	1459.56	1.62	0.19	270.70	1730.26
T7-R8-S7	0.981	1259.00	2227.28	2226.42	1.75	637.03	2.09	0.29	877.71	1514.74
T7-R8-S7	0.649	1259.00	2223.77	2223.77	3.58	903.51	0.70	1.01	845.43	1748.95
T7-R8-S7	0.117	1259.00	2209.29	2209.29	3.11	1334.93	0.66	1.00	1088.85	2423.77
T7-R9-S12	4.216	11742.00	2299.30	2298.42	4.13	1370.60	3.63	0.50	249.77	1620.37
T7-R9-S12	3.839	11742.00	2290.95	2290.80	5.30	1828.13	2.08	0.85	467.45	2295.58
T7-R9-S12	3.491	11742.00	2280.33	2279.57	4.24	1975.04	3.89	0.63	415.49	2390.53
T7-R9-S12	3.136	11742.00	2269.51	2269.28	6.49	1002.19	2.93	0.85	343.00	1345.19
T7-R9-S12	2.916	11742.00	2259.22	2259.22	7.56	890.69	3.30	1.01	903.49	1794.18
T7-R9-S12	2.629	11742.00	2250.16		2.70	1747.36	5.16	0.30	118.40	1865.76
T7-R9-S12	2.195	11742.00	2238.57	2236.99	2.68	1816.55	3.57	0.30	355.29	2171.85
T7-R9-S12	1.935	11742.00	2229.68	2227.68	2.59	1855.75	4.68	0.29	299.54	2155.29
T7-R9-S12	1.290	11814.00	2208.90	2208.90	6.71	1278.02	2.26	1.01	1093.11	2371.13
T7-R9-S12	0.646	11814.00	2193.81	2191.23	2.03	1840.81	8.81	0.20	732.65	2573.46
T7-R9-S12	0.064	11814.00	2186.25	2184.22	1.58	3268.93	5.14	0.18	1340.87	4609.79

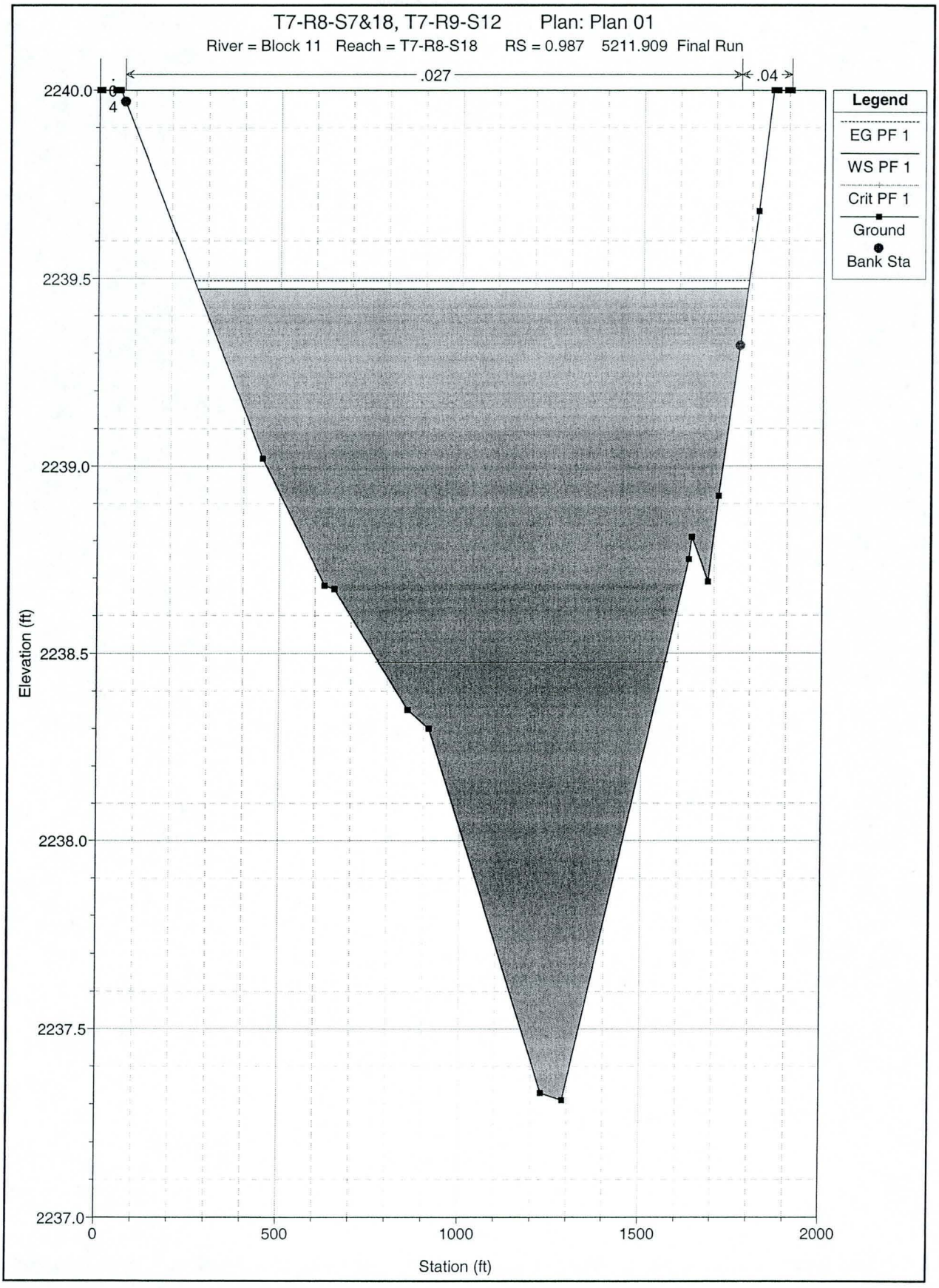

4.216
3.839
Block 11
T7-R9-S12
3.491
3.136
2.351
2.916
2.127
2.629
2.195
1.972
1.935
T7-R8-S18
1.675
Block 11
T7-R8-S7
1.539
Block 11
1.360
1.472
1.290
0.646
0.981
0.987
0.649
0.536
0.064
0.195
0.117

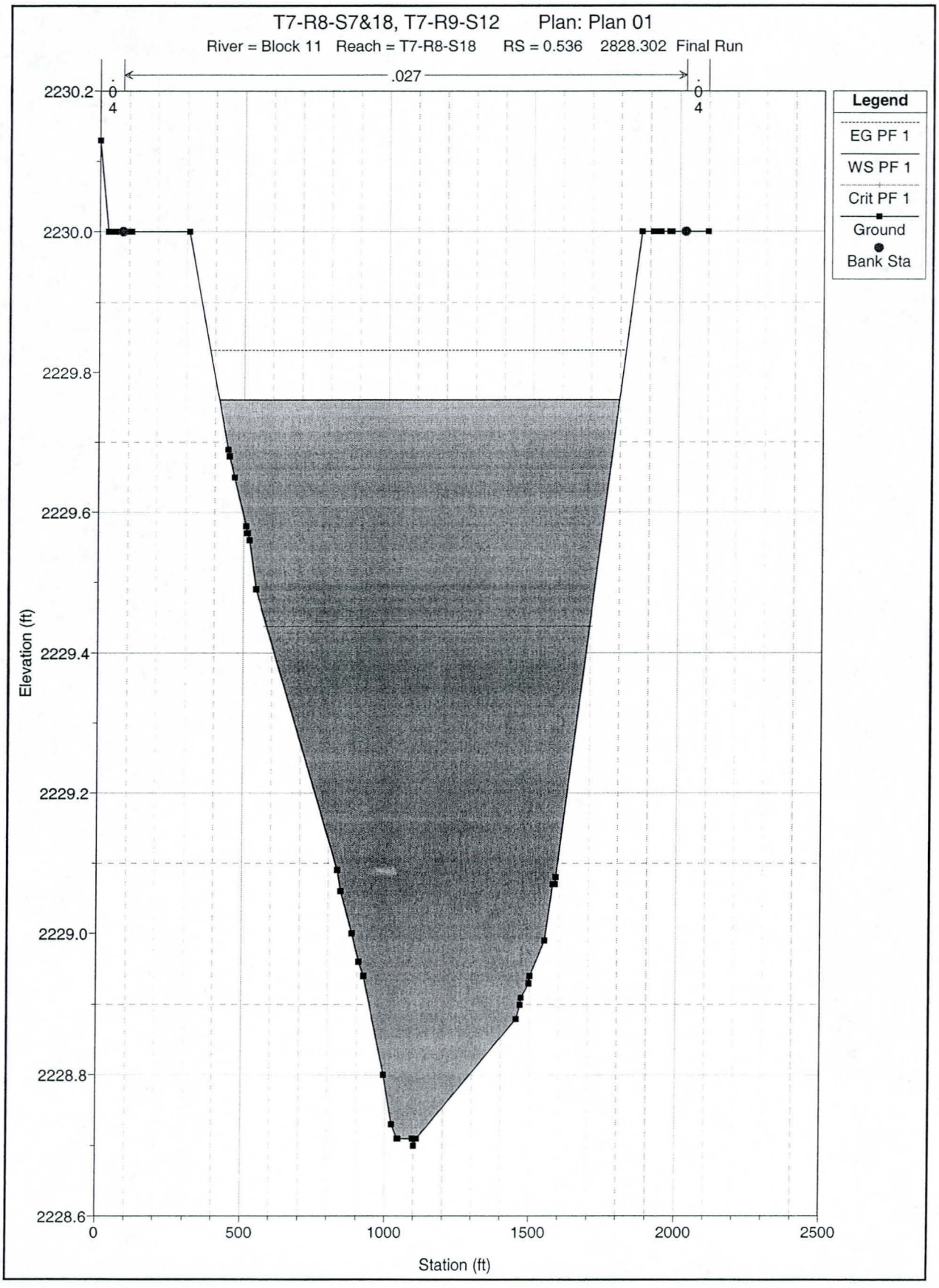

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R8-S18 RS = 2.351 12410.98 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2281
2280
2279
2278
2277
2276
2275
0
500
1000
1500
2000
Station (ft)

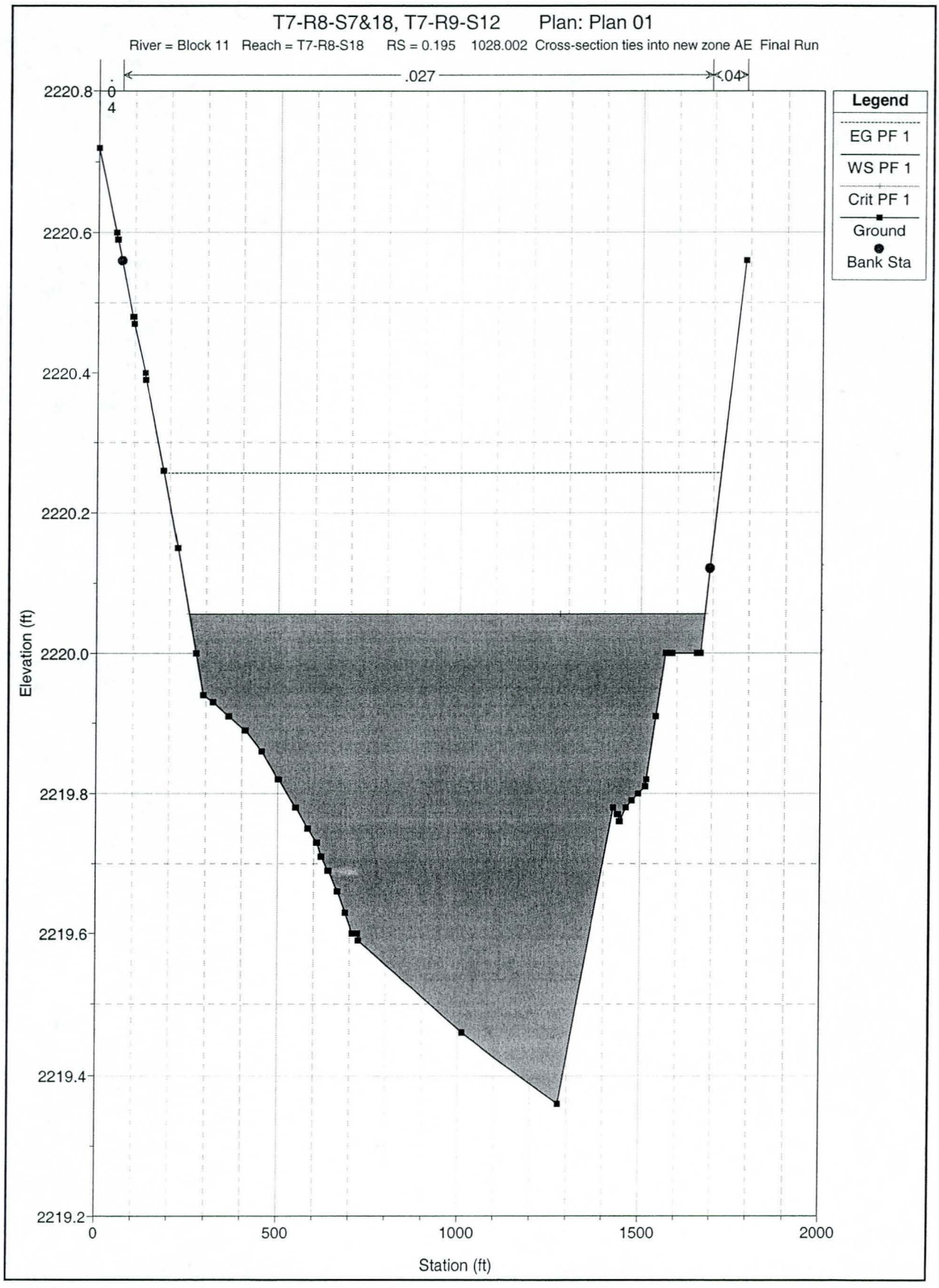

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R8-S18 RS = 2.127 11229.60 Final Run
.027
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2275.0
2274.5
2274.0
2273.5
2273.0
2272.5
2272.0
2271.5
2271.0
0
500
1000
1500
2000
2500

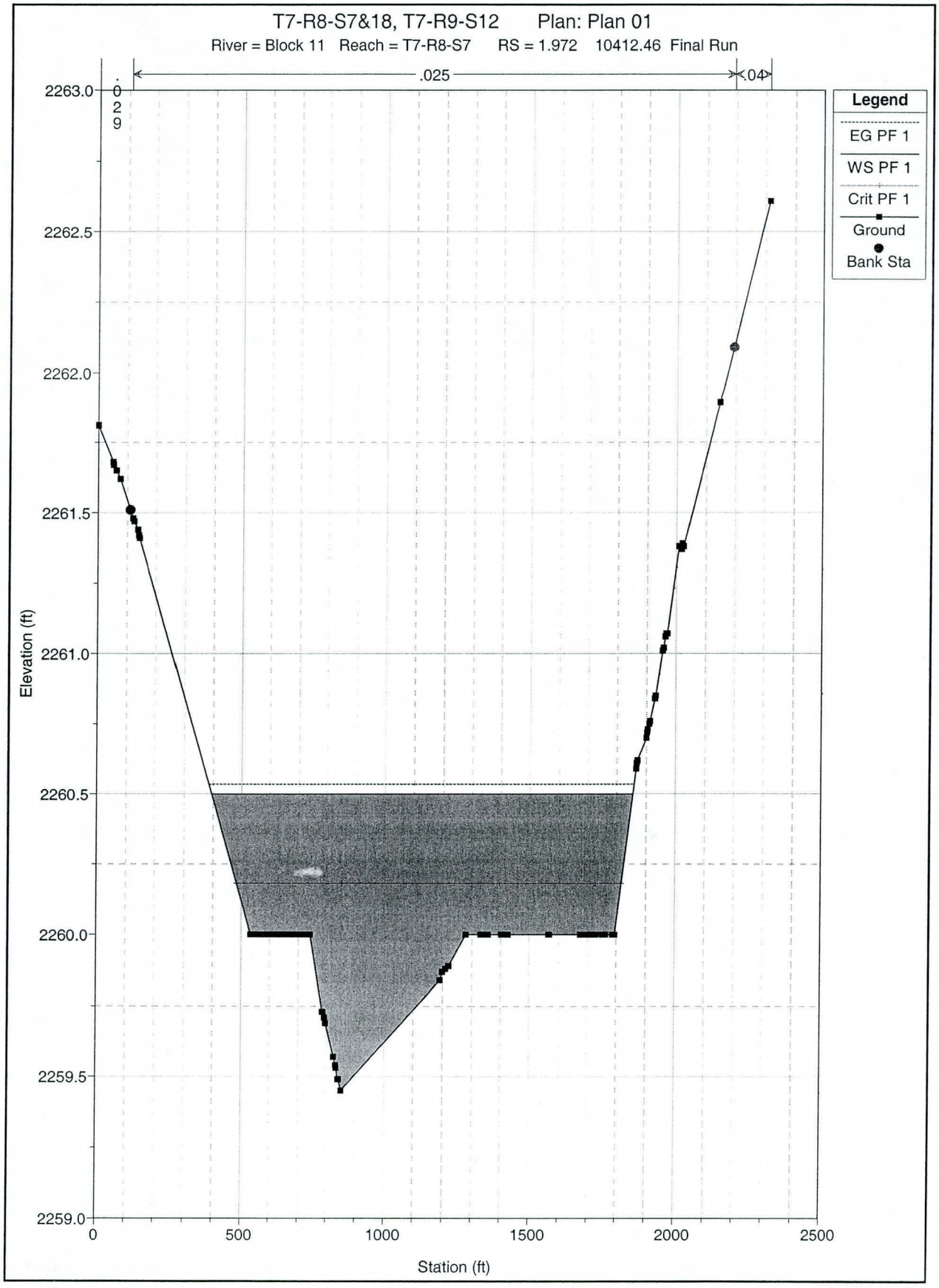

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R8-S18 RS = 1.675 8844.806 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2262
2261
2260
2259
2258
2257
2256
0
500
1000
1500
2000
2500
3000
Station (ft)

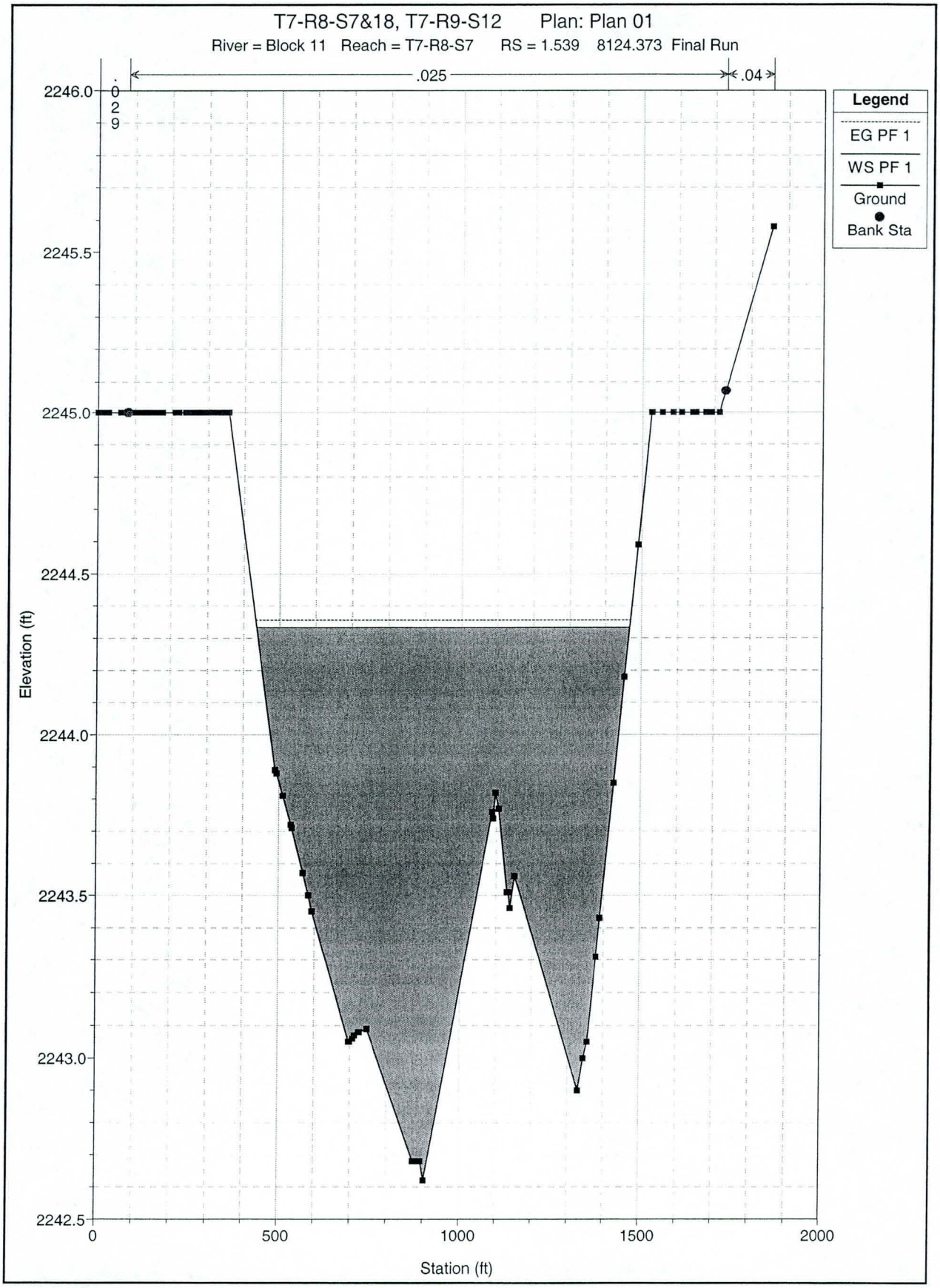

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R8-S18 RS = 1.472 7770.627 Final Run
.027
.04
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2251.0
2250.8
2250.6
2250.4
2250.2
2250.0
2249.8
2249.6
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)

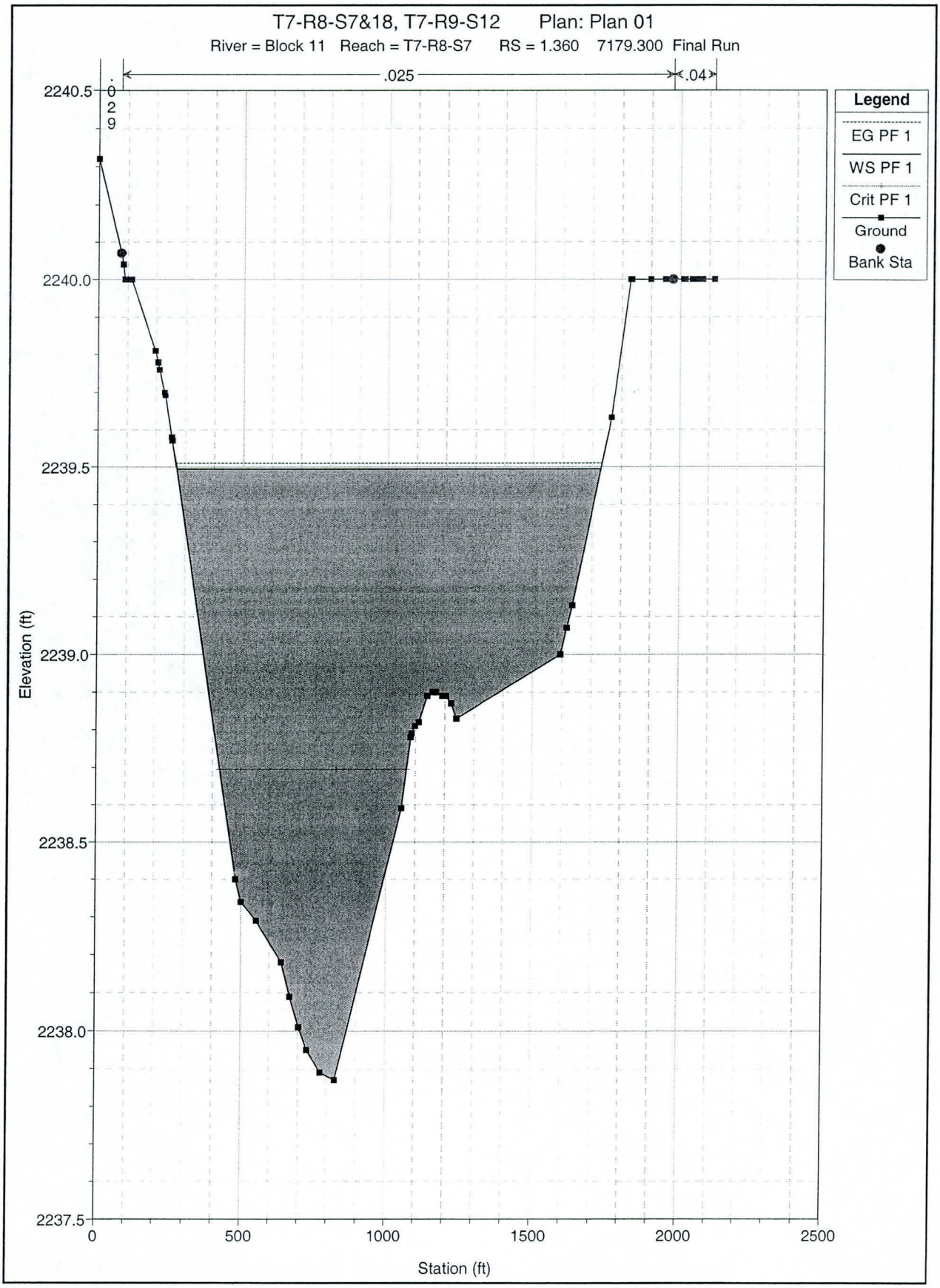

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R8-S18 RS = 0.987 5211.909 Final Run
.027
.04
.06
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2240.0
2239.5
2239.0
2238.5
2238.0
2237.5
2237.0
Elevation (ft)
0
500
1000
1500
2000
Station (ft)

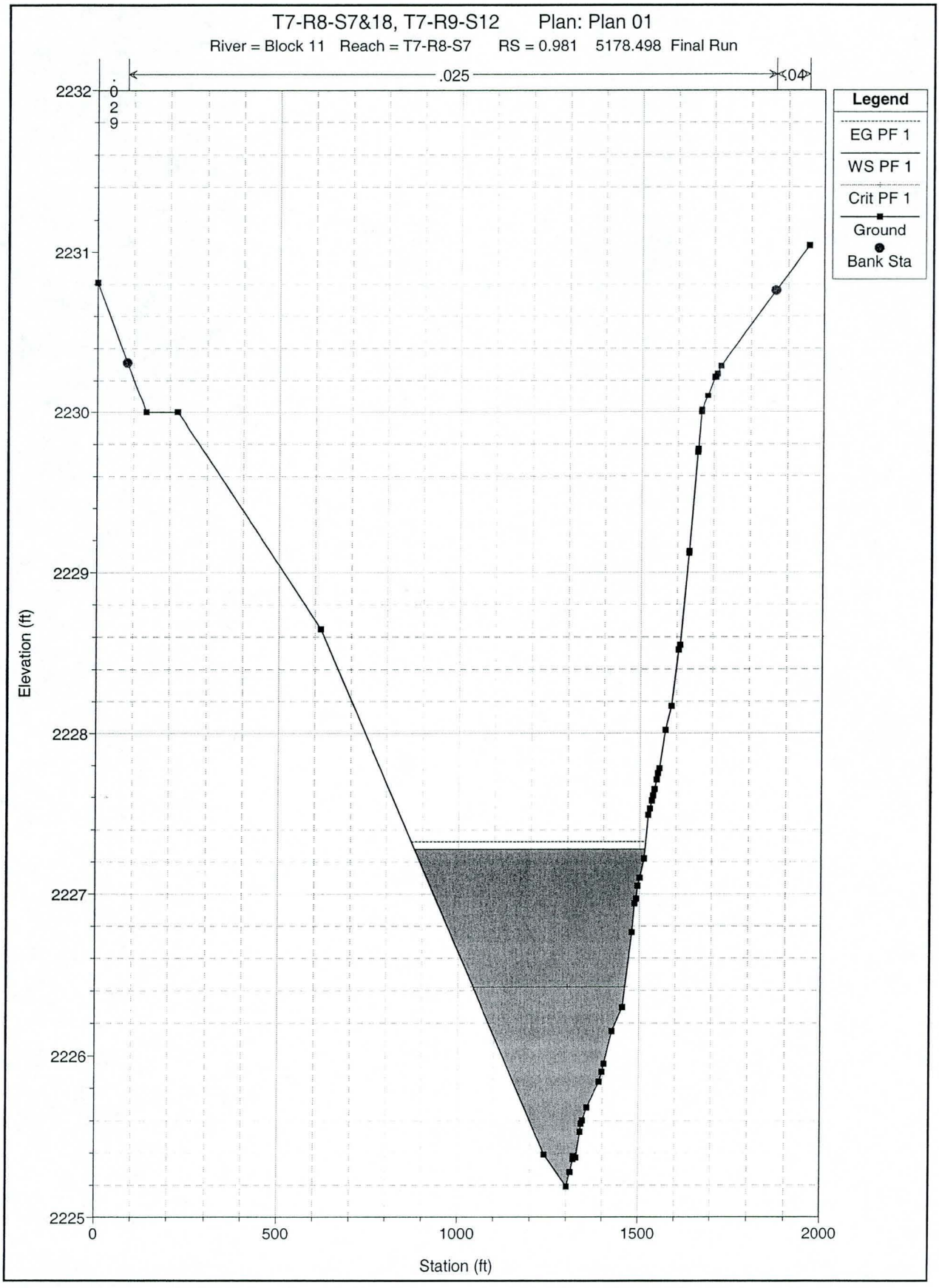

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R8-S18 RS = 0.536 2828.302 Final Run
.027
.04
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2230.2
2230.0
2229.8
2229.6
2229.4
2229.2
2229.0
2228.8
2228.6
0
500
1000
1500
2000
2500
Station (ft)

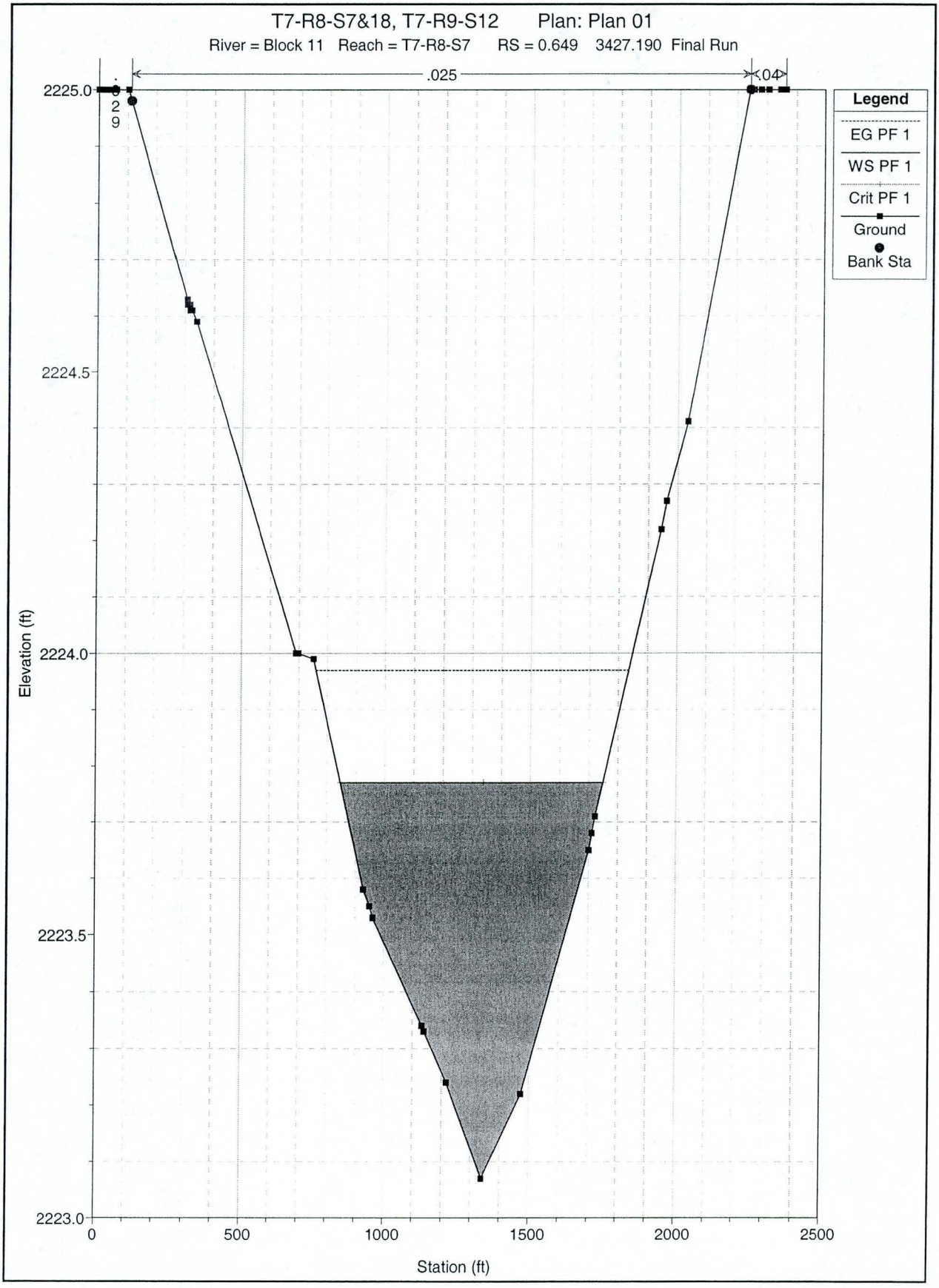

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R8-S18 RS = 0.195 1028.002 Cross-section ties into new zone AE Final Run
.027
.04
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2220.8
2220.6
2220.4
2220.2
2220.0
2219.8
2219.6
2219.4
2219.2
0
500
1000
1500
2000
Station (ft)

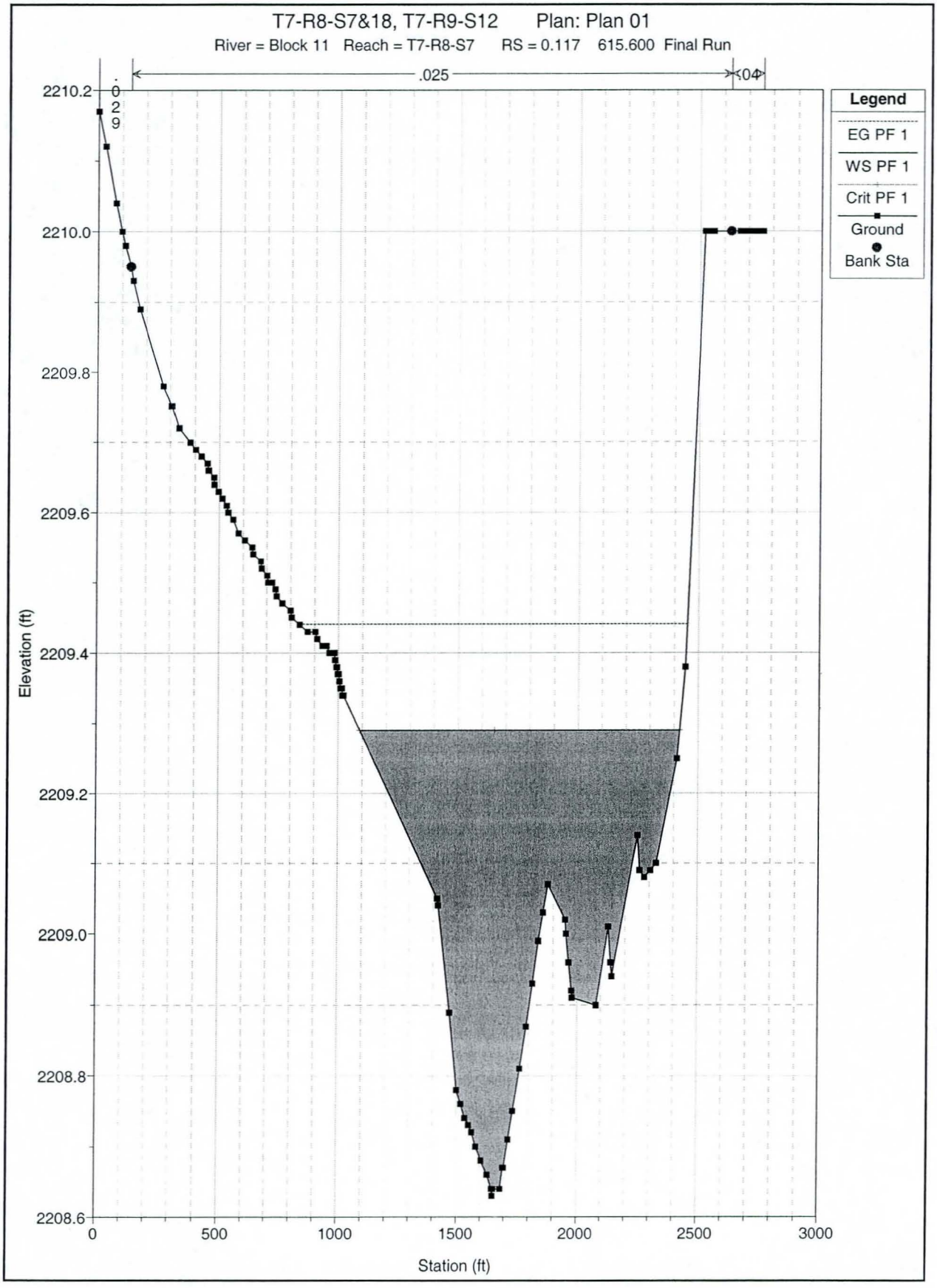

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R8-S7 RS = 1.972 10412.46 Final Run
.029
.025
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2263.0
2262.5
2262.0
2261.5
2261.0
2260.5
2260.0
2259.5
2259.0
0
500
1000
1500
2000
2500

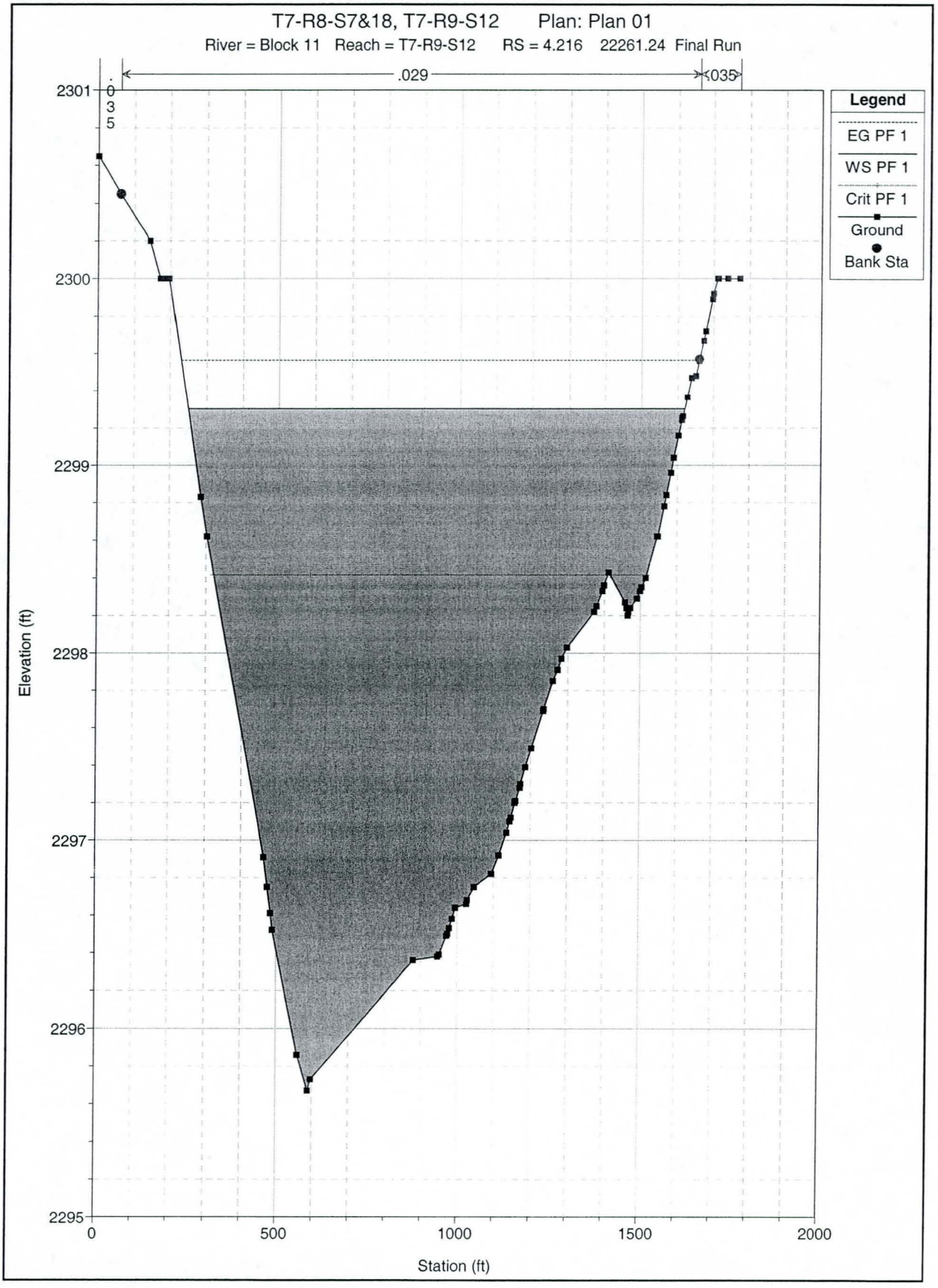

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R8-S7 RS = 1.539 8124.373 Final Run
.029
.025
.04
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
2246.0
2245.5
2245.0
2244.5
2244.0
2243.5
2243.0
2242.5
Elevation (ft)
0
500
1000
1500
2000
Station (ft)

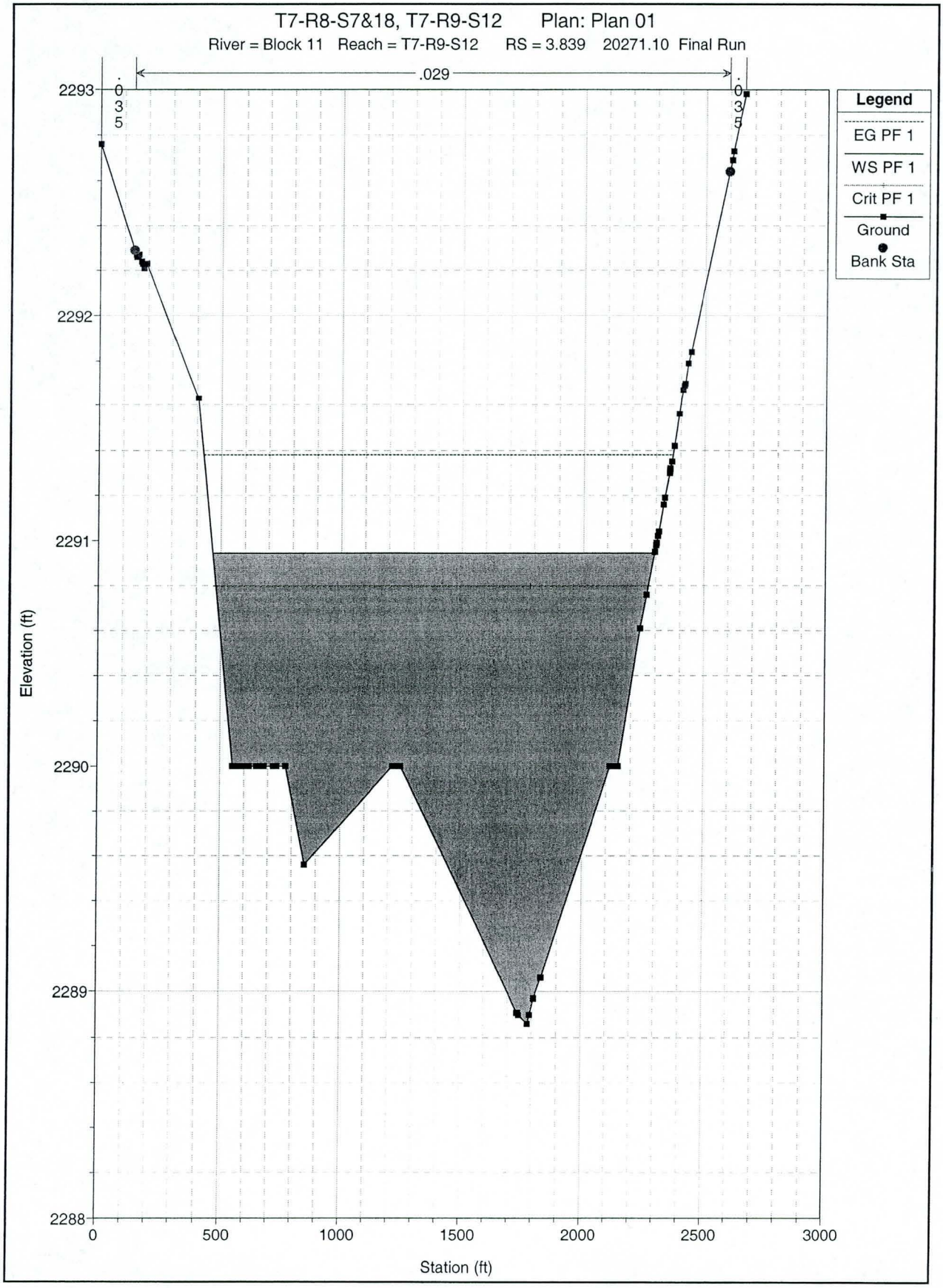

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R8-S7 RS = 1.360 7179.300 Final Run
.029
.025
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2240.5
2240.0
2239.5
2239.0
2238.5
2238.0
2237.5
0
500
1000
1500
2000
2500
Station (ft)

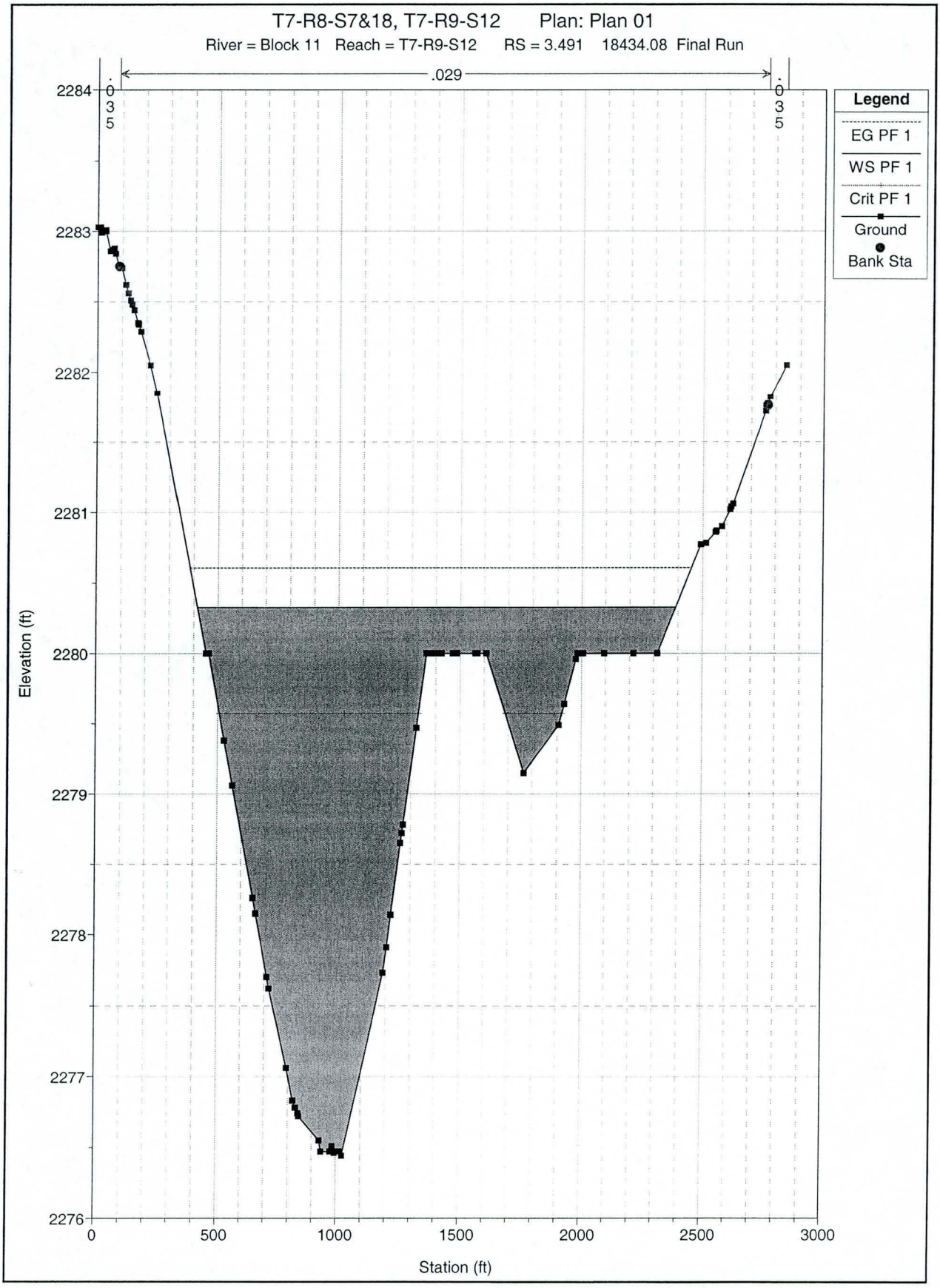

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R8-S7 RS = 0.981 5178.498 Final Run
.025
.04
.029
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2232
2231
2230
2229
2228
2227
2226
2225
0
500
1000
1500
2000

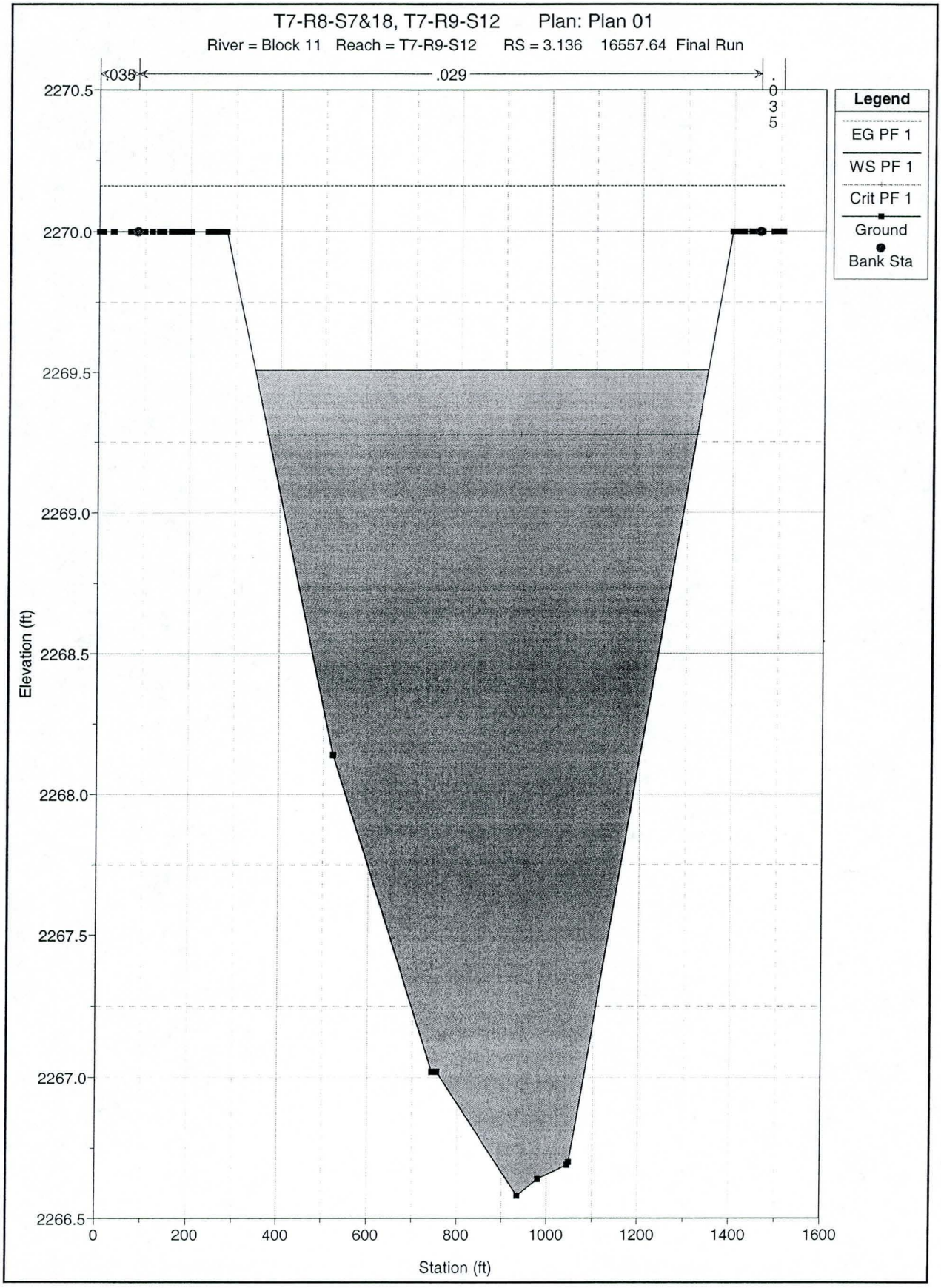

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R8-S7 RS = 0.649 3427.190 Final Run
.025
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2225.0
2224.5
2224.0
2223.5
2223.0
0
500
1000
1500
2000
2500

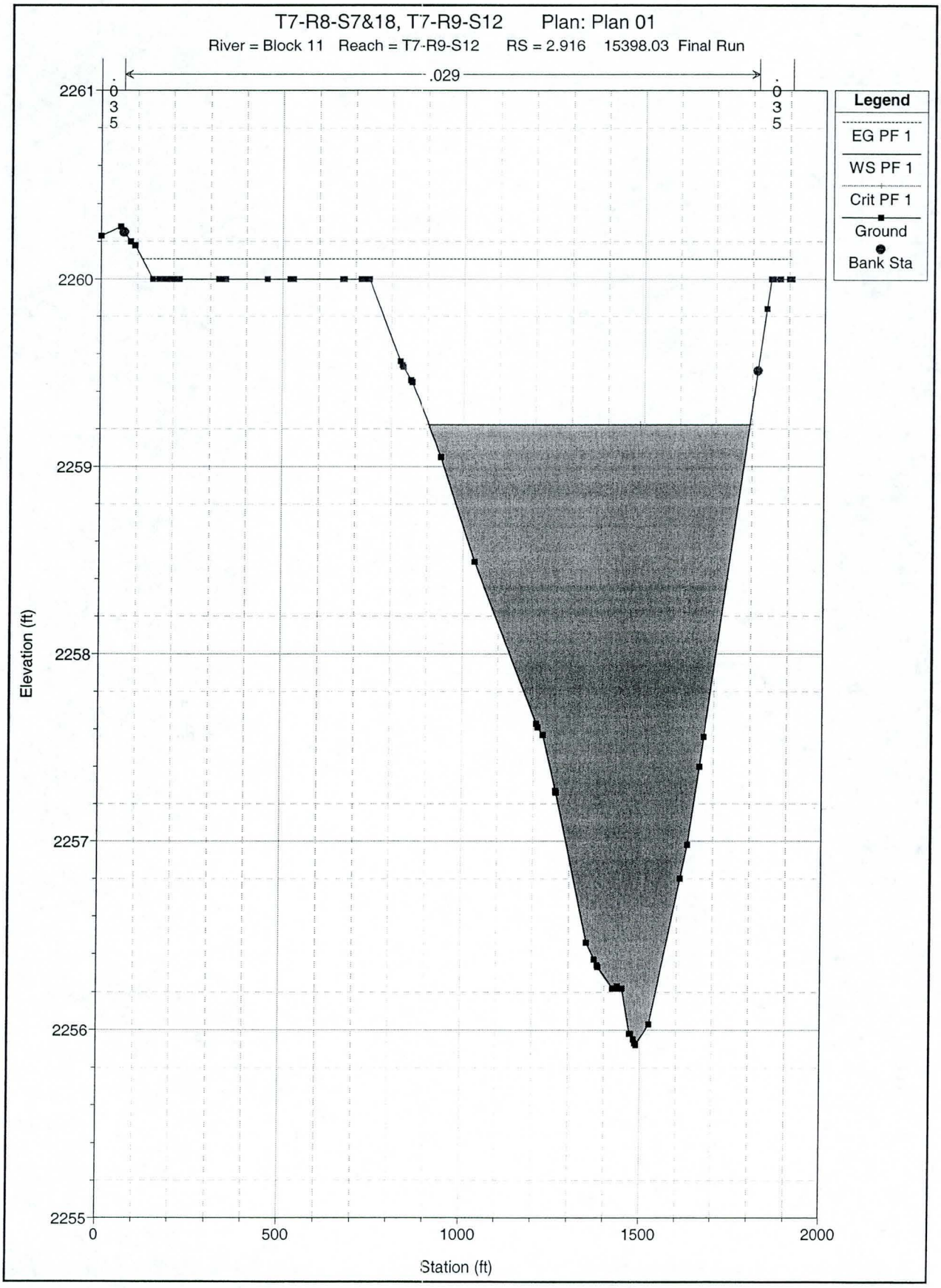

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R8-S7 RS = 0.117 615.600 Final Run
.025
.04
.029
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2210.2
2210.0
2209.8
2209.6
2209.4
2209.2
2209.0
2208.8
2208.6
0
500
1000
1500
2000
2500
3000

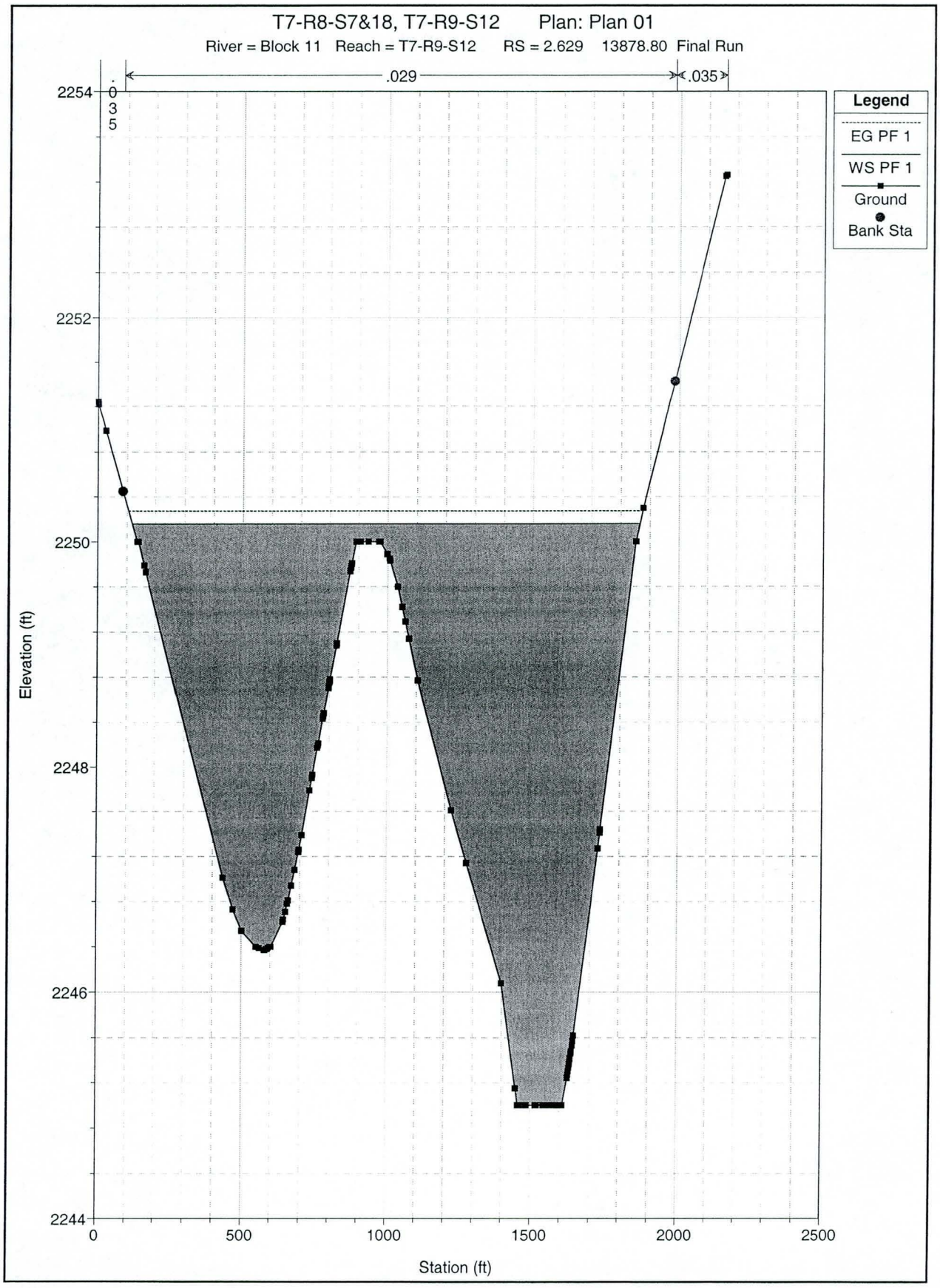

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R9-S12 RS = 4.216 22261.24 Final Run
.035
.029
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2301
2300
2299
2298
2297
2296
2295
0
500
1000
1500
2000
Station (ft)

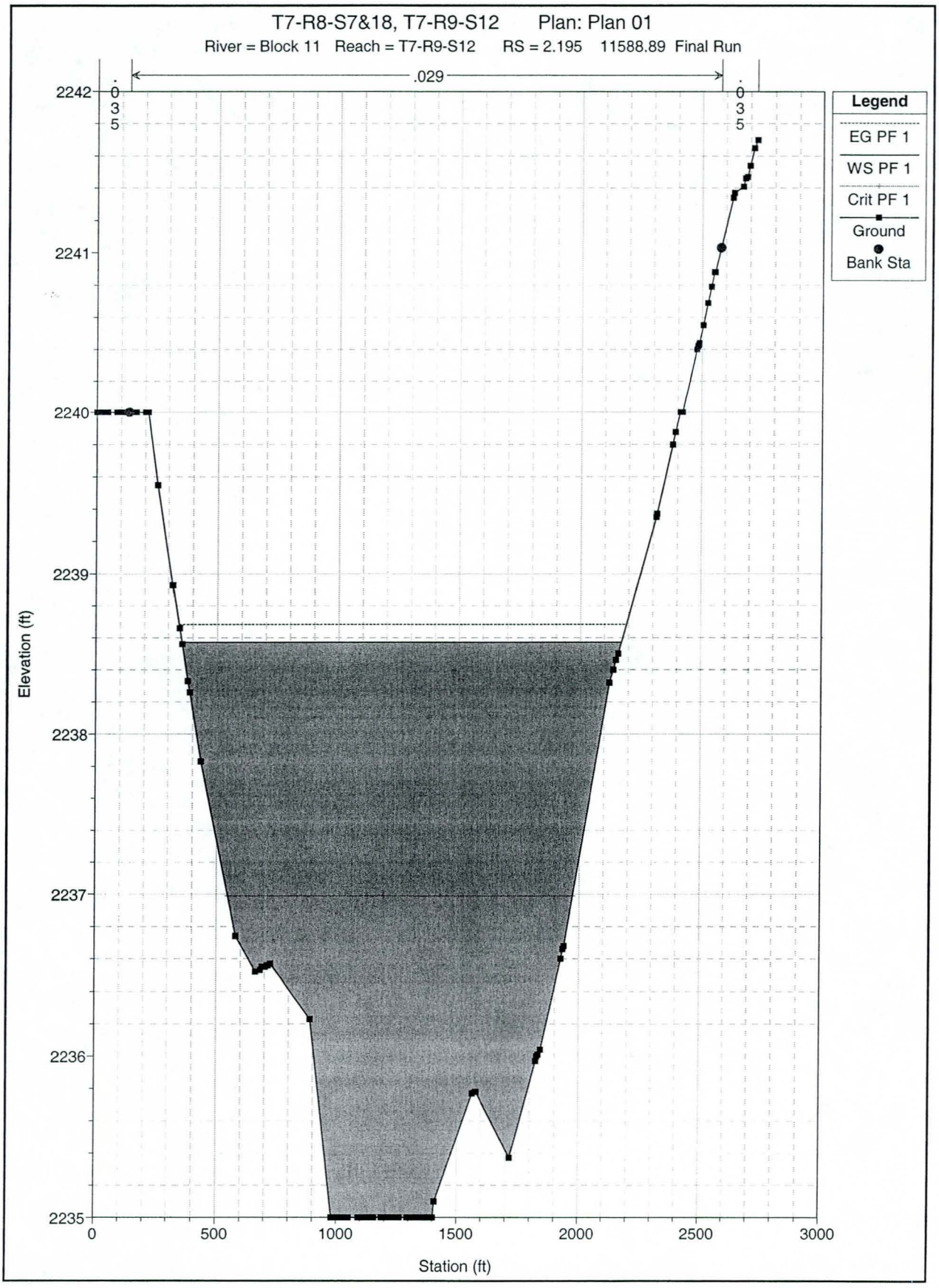

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R9-S12 RS = 3.839 20271.10 Final Run
.029
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2293
2292
2291
2290
2289
2288
Elevation (ft)
0
500
1000
1500
2000
2500
3000
Station (ft)

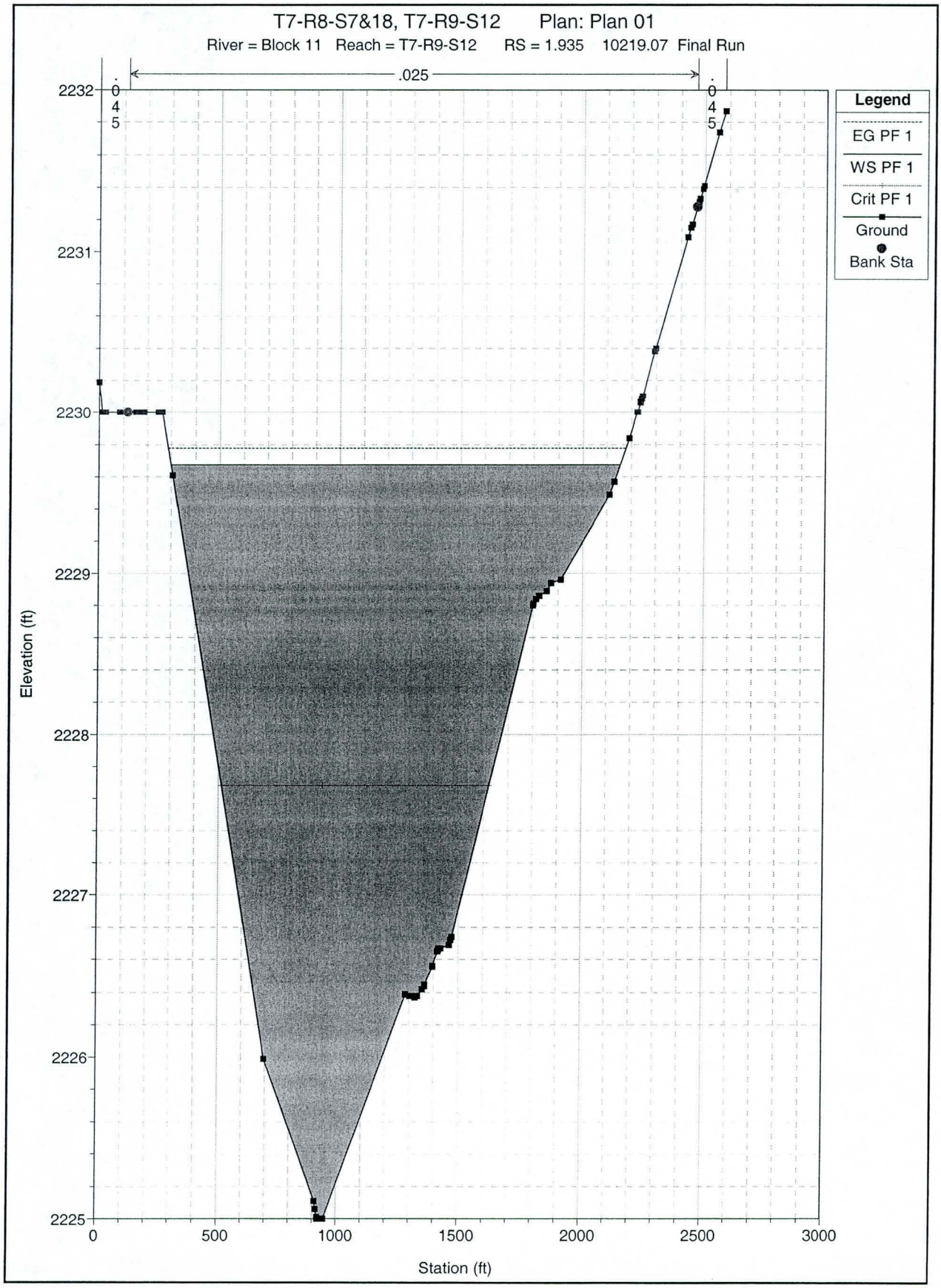

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R9-S12 RS = 3.491 18434.08 Final Run
.029
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2284
2283
2282
2281
2280
2279
2278
2277
2276
0
500
1000
1500
2000
2500
3000

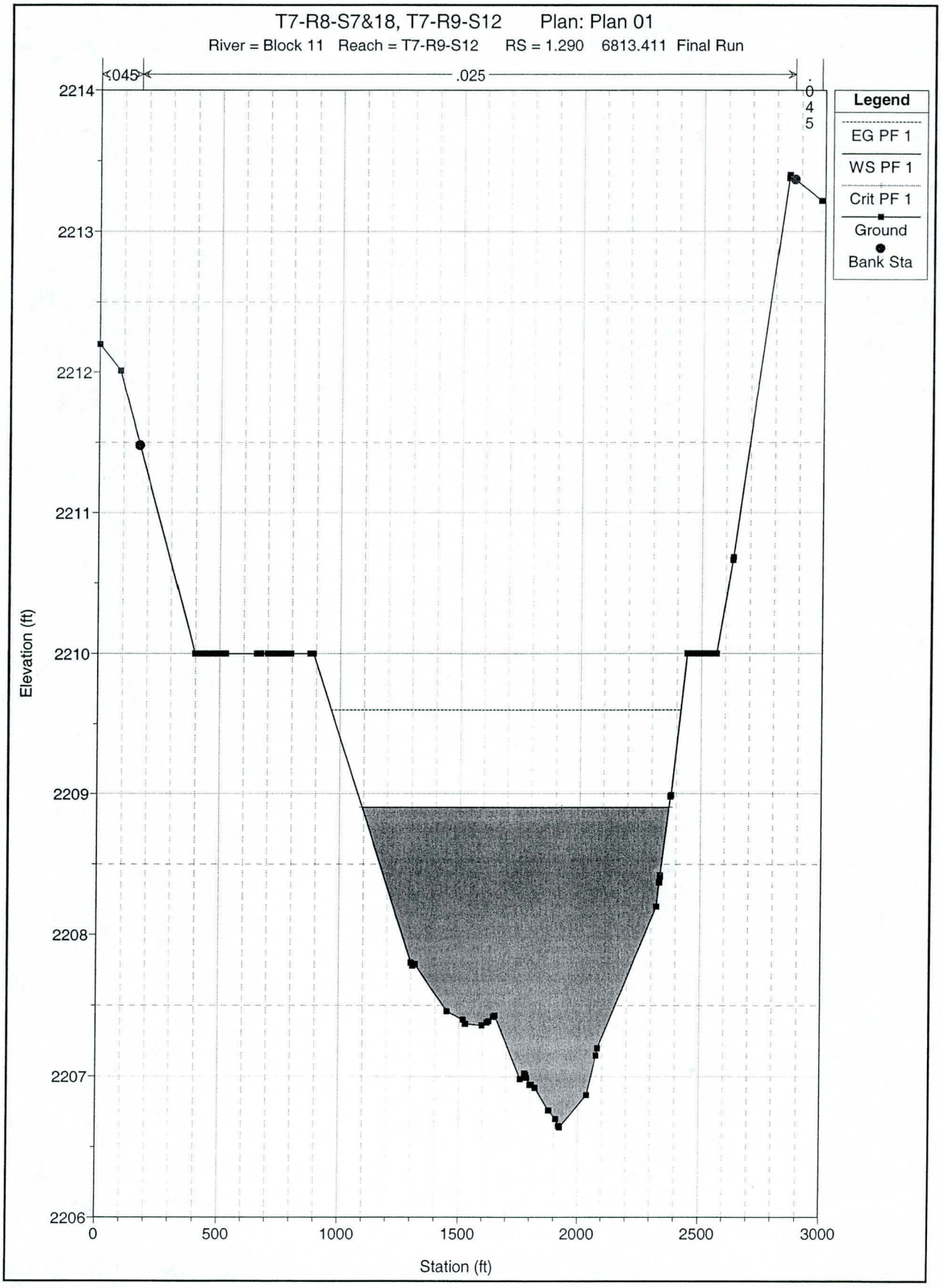

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R9-S12 RS = 3.136 16557.64 Final Run
.035
.029
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2270.5
2270.0
2269.5
2269.0
2268.5
2268.0
2267.5
2267.0
2266.5
0
200
400
600
800
1000
1200
1400
1600
Station (ft)

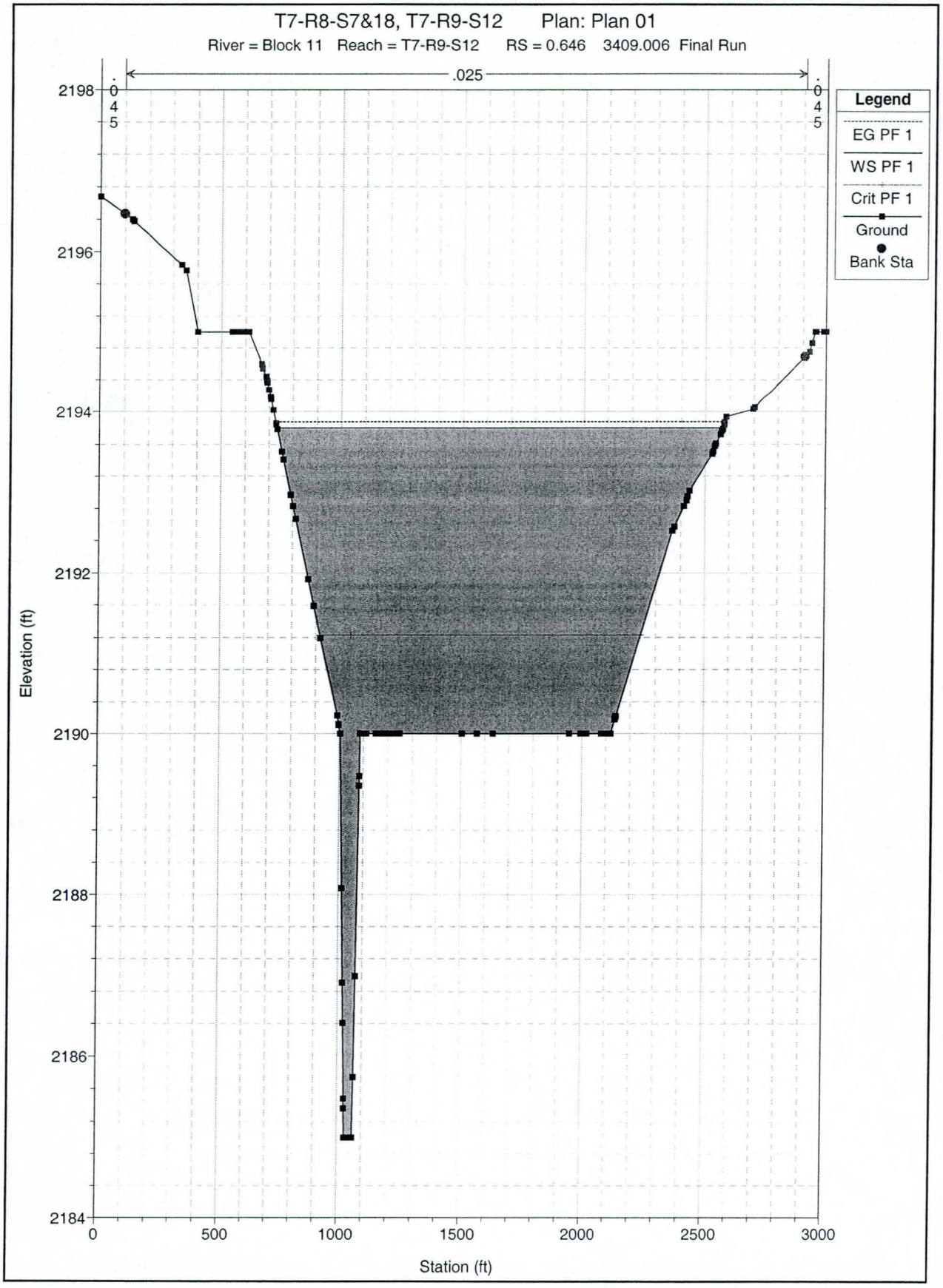

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R9-S12 RS = 2.916 15398.03 Final Run
.029
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2261
2260
2259
2258
2257
2256
2255
0
500
1000
1500
2000
Station (ft)

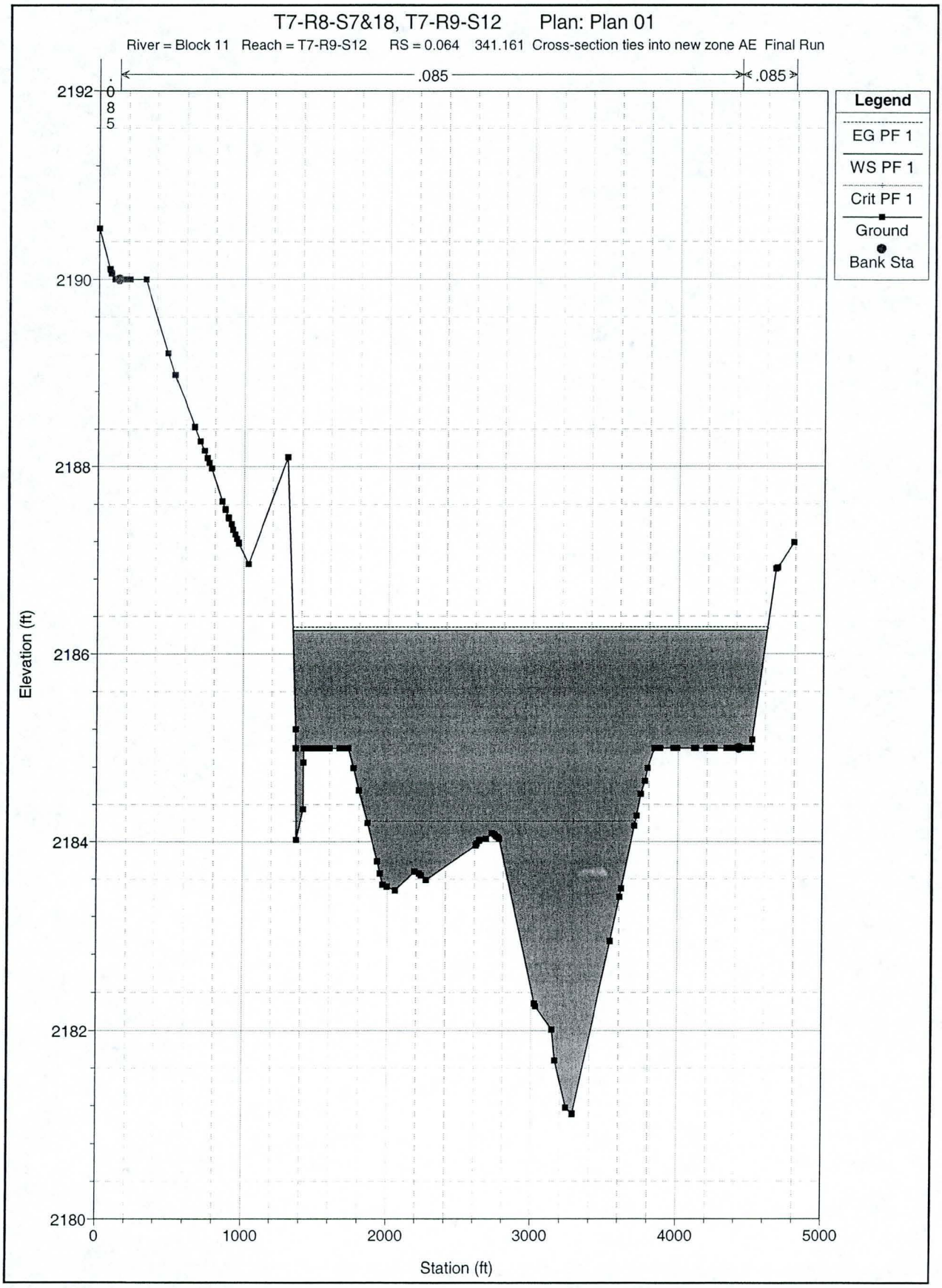

T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R9-S12 RS = 2.629 13878.80 Final Run
.029
.035
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2254
2252
2250
2248
2246
2244
0
500
1000
1500
2000
2500


T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R9-S12 RS = 2.195 11588.89 Final Run
.029
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2242
2241
2240
2239
2238
2237
2236
2235
0
500
1000
1500
2000
2500
3000


T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R9-S12 RS = 1.935 10219.07 Final Run
.025
.045
.045
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2232
2231
2230
2229
2228
2227
2226
2225
0
500
1000
1500
2000
2500
3000


T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R9-S12 RS = 1.290 6813.411 Final Run
.045
.025
.045
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2214
2213
2212
2211
2210
2209
2208
2207
2206
0
500
1000
1500
2000
2500
3000


T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R9-S12 RS = 0.646 3409.006 Final Run
.025
.045
.045
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2198
2196
2194
2192
2190
2188
2186
2184
0
500
1000
1500
2000
2500
3000
Station (ft)


T7-R8-S7&18, T7-R9-S12 Plan: Plan 01
River = Block 11 Reach = T7-R9-S12 RS = 0.064 341.161 Cross-section ties into new zone AE Final Run
.085
.085
.085
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2192
2190
2188
2186
2184
2182
2180
0
1000
2000
3000
4000
5000
Station (ft)

Plan: Plan 01 Block 11 T7-R8-S18 RS: 2.351 Profile: PF 1

E.G. Elev (ft)	2279.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.027	
W.S. Elev (ft)	2279.44	Reach Len. (ft)	24699.80	24956.62	23653.00
Crit W.S. (ft)	2276.98	Flow Area (sq ft)		2645.69	
E.G. Slope (ft/ft)	0.000079	Area (sq ft)		2645.69	
Q Total (cfs)	1970.00	Flow (cfs)		1970.00	
Top Width (ft)	1409.82	Top Width (ft)		1409.82	
Vel Total (ft/s)	0.74	Avg. Vel. (ft/s)		0.74	
Max Chl Dpth (ft)	3.85	Hydr. Depth (ft)		1.88	
Conv. Total (cfs)	221518.8	Conv. (cfs)		221518.8	
Length Wtd. (ft)	24956.62	Wetted Per. (ft)		1409.87	
Min Ch El (ft)	2275.58	Shear (lb/sq ft)		0.01	
Alpha	1.00	Stream Power (lb/ft s)		0.01	
Frctn Loss (ft)	6.83	Cum Volume (acre-ft)		2354.47	0.45
C & E Loss (ft)	0.02	Cum SA (acres)		2438.60	5.91

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R8-S18 RS: 2.127 Profile: PF 1

E.G. Elev (ft)	2272.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.027	
W.S. Elev (ft)	2272.34	Reach Len. (ft)	12067.71	12167.81	11622.77
Crit W.S. (ft)	2272.34	Flow Area (sq ft)		487.62	
E.G. Slope (ft/ft)	0.014003	Area (sq ft)		487.62	
Q Total (cfs)	1970.00	Flow (cfs)		1970.00	
Top Width (ft)	997.99	Top Width (ft)		997.99	
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)		4.04	
Max Chl Dpth (ft)	1.03	Hydr. Depth (ft)		0.49	
Conv. Total (cfs)	16647.6	Conv. (cfs)		16647.6	
Length Wtd. (ft)	12167.81	Wetted Per. (ft)		998.00	
Min Ch El (ft)	2271.31	Shear (lb/sq ft)		0.43	
Alpha	1.00	Stream Power (lb/ft s)		1.73	
Frctn Loss (ft)	9.78	Cum Volume (acre-ft)		1456.90	0.45
C & E Loss (ft)	0.07	Cum SA (acres)		1748.85	5.91

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R8-S18 RS: 1.675 Profile: PF 1

E.G. Elev (ft)	2258.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.027	
W.S. Elev (ft)	2258.35	Reach Len. (ft)	12055.12	12071.10	12070.51
Crit W.S. (ft)	2257.36	Flow Area (sq ft)		1917.03	
E.G. Slope (ft/ft)	0.000259	Area (sq ft)		1917.03	
Q Total (cfs)	1970.00	Flow (cfs)		1970.00	
Top Width (ft)	1535.26	Top Width (ft)		1535.26	
Vel Total (ft/s)	1.03	Avg. Vel. (ft/s)		1.03	
Max Chl Dpth (ft)	2.17	Hydr. Depth (ft)		1.25	
Conv. Total (cfs)	122336.0	Conv. (cfs)		122336.0	
Length Wtd. (ft)	12071.10	Wetted Per. (ft)		1535.28	
Min Ch El (ft)	2256.18	Shear (lb/sq ft)		0.02	
Alpha	1.00	Stream Power (lb/ft s)		0.02	
Frctn Loss (ft)	7.82	Cum Volume (acre-ft)		1121.04	0.45
C & E Loss (ft)	0.00	Cum SA (acres)		1395.03	5.91

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R8-S18 RS: 1.472 Profile: PF 1

E.G. Elev (ft)	2250.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.027	
W.S. Elev (ft)	2250.48	Reach Len. (ft)	11332.99	11942.00	12306.99
Crit W.S. (ft)	2250.29	Flow Area (sq ft)		955.06	
E.G. Slope (ft/ft)	0.003682	Area (sq ft)		955.06	
Q Total (cfs)	1970.00	Flow (cfs)		1970.00	
Top Width (ft)	1967.56	Top Width (ft)		1967.56	
Vel Total (ft/s)	2.06	Avg. Vel. (ft/s)		2.06	
Max Chl Dpth (ft)	0.88	Hydr. Depth (ft)		0.49	
Conv. Total (cfs)	32463.7	Conv. (cfs)		32463.7	
Length Wtd. (ft)	11942.02	Wetted Per. (ft)		1967.56	
Min Ch El (ft)	2249.60	Shear (lb/sq ft)		0.11	
Alpha	1.00	Stream Power (lb/ft s)		0.23	
Frctn Loss (ft)	11.04	Cum Volume (acre-ft)		723.10	0.45
C & E Loss (ft)	0.01	Cum SA (acres)		909.69	5.91

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R8-S18 RS: 0.987 Profile: PF 1

E.G. Elev (ft)	2239.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.027	0.040
W.S. Elev (ft)	2239.47	Reach Len. (ft)	11236.83	11384.08	11857.29
Crit W.S. (ft)	2238.48	Flow Area (sq ft)		1652.93	1.63
E.G. Slope (ft/ft)	0.000411	Area (sq ft)		1652.93	1.63
Q Total (cfs)	1970.00	Flow (cfs)		1969.78	0.22
Top Width (ft)	1519.94	Top Width (ft)		1498.65	21.29

Plan: Plan 01 Block 11 T7-R8-S18 RS: 0.987 Profile: PF 1 (Continued)

Vel Total (ft/s)	1.19	Avg. Vel. (ft/s)		1.19	0.14
Max Chl Dpth (ft)	2.16	Hydr. Depth (ft)		1.10	0.08
Conv. Total (cfs)	97118.6	Conv. (cfs)		97107.7	10.9
Length Wtd. (ft)	11384.11	Wetted Per. (ft)		1498.66	21.29
Min Ch El (ft)	2237.31	Shear (lb/sq ft)		0.03	0.00
Alpha	1.00	Stream Power (lb/ft s)		0.03	0.00
Frctn Loss (ft)	9.66	Cum Volume (acre-ft)		365.60	0.22
C & E Loss (ft)	0.01	Cum SA (acres)		434.56	2.90

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R8-S18 RS: 0.536 Profile: PF 1

E.G. Elev (ft)	2229.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.027	
W.S. Elev (ft)	2229.76	Reach Len. (ft)	1972.94	1800.30	1728.05
Crit W.S. (ft)	2229.44	Flow Area (sq ft)		913.88	
E.G. Slope (ft/ft)	0.002666	Area (sq ft)		913.88	
Q Total (cfs)	1970.00	Flow (cfs)		1970.00	
Top Width (ft)	1383.06	Top Width (ft)		1383.06	
Vel Total (ft/s)	2.16	Avg. Vel. (ft/s)		2.16	
Max Chl Dpth (ft)	1.06	Hydr. Depth (ft)		0.66	
Conv. Total (cfs)	38155.1	Conv. (cfs)		38155.1	
Length Wtd. (ft)	1800.30	Wetted Per. (ft)		1383.06	
Min Ch El (ft)	2228.70	Shear (lb/sq ft)		0.11	
Alpha	1.00	Stream Power (lb/ft s)		0.24	
Frctn Loss (ft)	9.56	Cum Volume (acre-ft)		30.20	
C & E Loss (ft)	0.01	Cum SA (acres)		58.01	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R8-S18 RS: 0.195 Profile: PF 1

E.G. Elev (ft)	2220.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.027	
W.S. Elev (ft)	2220.06	Reach Len. (ft)			
Crit W.S. (ft)	2220.06	Flow Area (sq ft)		547.34	
E.G. Slope (ft/ft)	0.015304	Area (sq ft)		547.34	
Q Total (cfs)	1970.00	Flow (cfs)		1970.00	
Top Width (ft)	1423.92	Top Width (ft)		1423.92	
Vel Total (ft/s)	3.60	Avg. Vel. (ft/s)		3.60	
Max Chl Dpth (ft)	0.70	Hydr. Depth (ft)		0.38	
Conv. Total (cfs)	15924.5	Conv. (cfs)		15924.5	
Length Wtd. (ft)		Wetted Per. (ft)		1423.92	
Min Ch El (ft)	2219.36	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		1.32	
Frctn Loss (ft)		Cum Volume (acre-ft)			

Plan: Plan 01 Block 11 T7-R8-S18 RS: 0.195 Profile: PF 1 (Continued)

C & E Loss (ft)		Cum SA (acres)			

Plan: Plan 01 Block 11 T7-R8-S7 RS: 1.972 Profile: PF 1

E.G. Elev (ft)	2260.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.		0.025	
W.S. Elev (ft)	2260.50	Reach Len. (ft)	24278.09	24281.73	22724.63
Crit W.S. (ft)	2260.18	Flow Area (sq ft)		840.92	
E.G. Slope (ft/ft)	0.001324	Area (sq ft)		840.92	
Q Total (cfs)	1259.00	Flow (cfs)		1259.00	
Top Width (ft)	1460.29	Top Width (ft)		1460.29	
Vel Total (ft/s)	1.50	Avg. Vel. (ft/s)		1.50	
Max Chl Dpth (ft)	1.05	Hydr. Depth (ft)		0.58	
Conv. Total (cfs)	34595.4	Conv. (cfs)		34595.4	
Length Wtd. (ft)	24281.73	Wetted Per. (ft)		1460.29	
Min Ch El (ft)	2259.45	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)		0.07	
Frctn Loss (ft)	16.17	Cum Volume (acre-ft)		1643.83	
C & E Loss (ft)	0.00	Cum SA (acres)		2298.40	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R8-S7 RS: 1.539 Profile: PF 1

E.G. Elev (ft)	2244.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.025	
W.S. Elev (ft)	2244.33	Reach Len. (ft)	13292.18	12760.90	12574.41
Crit W.S. (ft)		Flow Area (sq ft)		1048.36	
E.G. Slope (ft/ft)	0.000400	Area (sq ft)		1048.36	
Q Total (cfs)	1259.00	Flow (cfs)		1259.00	
Top Width (ft)	1031.88	Top Width (ft)		1031.88	
Vel Total (ft/s)	1.20	Avg. Vel. (ft/s)		1.20	
Max Chl Dpth (ft)	1.71	Hydr. Depth (ft)		1.02	
Conv. Total (cfs)	62972.2	Conv. (cfs)		62972.2	
Length Wtd. (ft)	12760.90	Wetted Per. (ft)		1031.90	
Min Ch El (ft)	2242.62	Shear (lb/sq ft)		0.03	
Alpha	1.00	Stream Power (lb/ft s)		0.03	
Frctn Loss (ft)	4.84	Cum Volume (acre-ft)		1117.25	
C & E Loss (ft)	0.00	Cum SA (acres)		1603.79	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R8-S7 RS: 1.360 Profile: PF 1

E.G. Elev (ft)	2239.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.025	
W.S. Elev (ft)	2239.50	Reach Len. (ft)	24397.36	24454.24	22219.15
Crit W.S. (ft)	2238.69	Flow Area (sq ft)		1241.94	
E.G. Slope (ft/ft)	0.000361	Area (sq ft)		1241.94	
Q Total (cfs)	1259.00	Flow (cfs)		1259.00	

Plan: Plan 01 Block 11 T7-R8-S7 RS: 1.360 Profile: PF 1 (Continued)

Top Width (ft)	1459.56	Top Width (ft)		1459.56	
Vel Total (ft/s)	1.01	Avg. Vel. (ft/s)		1.01	
Max Chl Dpth (ft)	1.62	Hydr. Depth (ft)		0.85	
Conv. Total (cfs)	66283.8	Conv. (cfs)		66283.8	
Length Wtd. (ft)	24454.24	Wetted Per. (ft)		1459.56	
Min Ch El (ft)	2237.87	Shear (lb/sq ft)		0.02	
Alpha	1.00	Stream Power (lb/ft s)		0.02	
Frctn Loss (ft)	12.18	Cum Volume (acre-ft)		781.78	
C & E Loss (ft)	0.00	Cum SA (acres)		1238.86	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R8-S7 RS: 0.981 Profile: PF 1

E.G. Elev (ft)	2227.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.025	
W.S. Elev (ft)	2227.28	Reach Len. (ft)	1858.46	1751.31	1350.58
Crit W.S. (ft)	2226.42	Flow Area (sq ft)		721.05	
E.G. Slope (ft/ft)	0.000732	Area (sq ft)		721.05	
Q Total (cfs)	1259.00	Flow (cfs)		1259.00	
Top Width (ft)	637.03	Top Width (ft)		637.03	
Vel Total (ft/s)	1.75	Avg. Vel. (ft/s)		1.75	
Max Chl Dpth (ft)	2.09	Hydr. Depth (ft)		1.13	
Conv. Total (cfs)	46545.9	Conv. (cfs)		46545.9	
Length Wtd. (ft)	1751.31	Wetted Per. (ft)		637.05	
Min Ch El (ft)	2225.19	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)		0.09	
Frctn Loss (ft)	3.34	Cum Volume (acre-ft)		230.78	
C & E Loss (ft)	0.02	Cum SA (acres)		650.36	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R8-S7 RS: 0.649 Profile: PF 1

E.G. Elev (ft)	2223.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.025	
W.S. Elev (ft)	2223.77	Reach Len. (ft)	23318.18	24106.53	22611.40
Crit W.S. (ft)	2223.77	Flow Area (sq ft)		351.46	
E.G. Slope (ft/ft)	0.012792	Area (sq ft)		351.46	
Q Total (cfs)	1259.00	Flow (cfs)		1259.00	
Top Width (ft)	903.51	Top Width (ft)		903.51	
Vel Total (ft/s)	3.58	Avg. Vel. (ft/s)		3.58	
Max Chl Dpth (ft)	0.70	Hydr. Depth (ft)		0.39	
Conv. Total (cfs)	11131.7	Conv. (cfs)		11131.7	
Length Wtd. (ft)		Wetted Per. (ft)		903.51	
Min Ch El (ft)	2223.07	Shear (lb/sq ft)		0.31	
Alpha	1.00	Stream Power (lb/ft s)		1.11	

Plan: Plan 01 Block 11 T7-R8-S7 RS: 0.649 Profile: PF 1 (Continued)

Frctn Loss (ft)		Cum Volume (acre-ft)		209.22	
C & E Loss (ft)		Cum SA (acres)		619.39	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R8-S7 RS: 0.117 Profile: PF 1

E.G. Elev (ft)	2209.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.		0.025	
W.S. Elev (ft)	2209.29	Reach Len. (ft)			
Crit W.S. (ft)	2209.29	Flow Area (sq ft)		404.65	
E.G. Slope (ft/ft)	0.013457	Area (sq ft)		404.65	
Q Total (cfs)	1259.00	Flow (cfs)		1259.00	
Top Width (ft)	1334.93	Top Width (ft)		1334.93	
Vel Total (ft/s)	3.11	Avg. Vel. (ft/s)		3.11	
Max Chl Dpth (ft)	0.66	Hydr. Depth (ft)		0.30	
Conv. Total (cfs)	10853.0	Conv. (cfs)		10853.0	
Length Wtd. (ft)		Wetted Per. (ft)		1334.93	
Min Ch El (ft)	2208.63	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		0.79	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Plan: Plan 01 Block 11 T7-R9-S12 RS: 4.216 Profile: PF 1

E.G. Elev (ft)	2299.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.029	
W.S. Elev (ft)	2299.30	Reach Len. (ft)	1370.26	1990.14	1208.23
Crit W.S. (ft)	2298.42	Flow Area (sq ft)		2846.35	
E.G. Slope (ft/ft)	0.002447	Area (sq ft)		2846.35	
Q Total (cfs)	11742.00	Flow (cfs)		11742.00	
Top Width (ft)	1370.60	Top Width (ft)		1370.60	
Vel Total (ft/s)	4.13	Avg. Vel. (ft/s)		4.13	
Max Chl Dpth (ft)	3.63	Hydr. Depth (ft)		2.08	
Conv. Total (cfs)	237390.3	Conv. (cfs)		237390.3	
Length Wtd. (ft)	1990.14	Wetted Per. (ft)		1370.64	
Min Ch El (ft)	2295.67	Shear (lb/sq ft)		0.32	
Alpha	1.00	Stream Power (lb/ft s)		1.31	
Frctn Loss (ft)	8.17	Cum Volume (acre-ft)		7354.27	28.21
C & E Loss (ft)	0.02	Cum SA (acres)		3128.10	31.46

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R9-S12 RS: 3.839 Profile: PF 1

E.G. Elev (ft)	2291.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.		0.029	
W.S. Elev (ft)	2290.95	Reach Len. (ft)	1968.60	1837.03	1653.53
Crit W.S. (ft)	2290.80	Flow Area (sq ft)		2216.97	
E.G. Slope (ft/ft)	0.008262	Area (sq ft)		2216.97	
Q Total (cfs)	11742.00	Flow (cfs)		11742.00	
Top Width (ft)	1828.13	Top Width (ft)		1828.13	
Vel Total (ft/s)	5.30	Avg. Vel. (ft/s)		5.30	
Max Chl Dpth (ft)	2.08	Hydr. Depth (ft)		1.21	
Conv. Total (cfs)	129178.7	Conv. (cfs)		129178.7	
Length Wtd. (ft)	1837.03	Wetted Per. (ft)		1828.15	
Min Ch El (ft)	2288.86	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		3.31	
Frctn Loss (ft)	10.74	Cum Volume (acre-ft)		7238.60	28.21
C & E Loss (ft)	0.05	Cum SA (acres)		3055.03	31.46

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R9-S12 RS: 3.491 Profile: PF 1

E.G. Elev (ft)	2280.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.029	
W.S. Elev (ft)	2280.33	Reach Len. (ft)	2278.81	1876.44	2266.67
Crit W.S. (ft)	2279.57	Flow Area (sq ft)		2771.54	
E.G. Slope (ft/ft)	0.004352	Area (sq ft)		2771.54	
Q Total (cfs)	11742.00	Flow (cfs)		11742.00	
Top Width (ft)	1975.04	Top Width (ft)		1975.04	
Vel Total (ft/s)	4.24	Avg. Vel. (ft/s)		4.24	
Max Chl Dpth (ft)	3.89	Hydr. Depth (ft)		1.40	
Conv. Total (cfs)	177995.6	Conv. (cfs)		177995.6	
Length Wtd. (ft)	1876.44	Wetted Per. (ft)		1975.09	
Min Ch El (ft)	2276.44	Shear (lb/sq ft)		0.38	
Alpha	1.00	Stream Power (lb/ft s)		1.62	
Frctn Loss (ft)	10.41	Cum Volume (acre-ft)		7133.41	28.21
C & E Loss (ft)	0.04	Cum SA (acres)		2974.84	31.46

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R9-S12 RS: 3.136 Profile: PF 1

E.G. Elev (ft)	2270.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.029	
W.S. Elev (ft)	2269.51	Reach Len. (ft)	1302.12	1159.62	1533.94
Crit W.S. (ft)	2269.28	Flow Area (sq ft)		1808.29	
E.G. Slope (ft/ft)	0.007312	Area (sq ft)		1808.29	
Q Total (cfs)	11742.00	Flow (cfs)		11742.00	
Top Width (ft)	1002.19	Top Width (ft)		1002.19	
Vel Total (ft/s)	6.49	Avg. Vel. (ft/s)		6.49	
Max Chl Dpth (ft)	2.93	Hydr. Depth (ft)		1.80	
Conv. Total (cfs)	137321.3	Conv. (cfs)		137321.3	
Length Wtd. (ft)	1159.62	Wetted Per. (ft)		1002.21	

Plan: Plan 01 Block 11 T7-R9-S12 RS: 3.136 Profile: PF 1 (Continued)

Min Ch El (ft)	2266.58	Shear (lb/sq ft)		0.82	
Alpha	1.00	Stream Power (lb/ft s)		5.35	
Frctn Loss (ft)	10.03	Cum Volume (acre-ft)		7034.77	28.21
C & E Loss (ft)	0.02	Cum SA (acres)		2910.71	31.46

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R9-S12 RS: 2.916 Profile: PF 1

E.G. Elev (ft)	2260.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.89	Wt. n-Val.		0.029	
W.S. Elev (ft)	2259.22	Reach Len. (ft)	1310.49	1519.23	1077.16
Crit W.S. (ft)	2259.22	Flow Area (sq ft)		1552.81	
E.G. Slope (ft/ft)	0.010380	Area (sq ft)		1552.81	
Q Total (cfs)	11742.00	Flow (cfs)		11742.00	
Top Width (ft)	890.69	Top Width (ft)		890.69	
Vel Total (ft/s)	7.56	Avg. Vel. (ft/s)		7.56	
Max Chl Dpth (ft)	3.30	Hydr. Depth (ft)		1.74	
Conv. Total (cfs)	115248.0	Conv. (cfs)		115248.0	
Length Wtd. (ft)	1519.23	Wetted Per. (ft)		890.72	
Min Ch El (ft)	2255.92	Shear (lb/sq ft)		1.13	
Alpha	1.00	Stream Power (lb/ft s)		8.54	
Frctn Loss (ft)	3.03	Cum Volume (acre-ft)		6990.03	28.21
C & E Loss (ft)	0.23	Cum SA (acres)		2885.52	31.46

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R9-S12 RS: 2.629 Profile: PF 1

E.G. Elev (ft)	2250.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.029	
W.S. Elev (ft)	2250.16	Reach Len. (ft)	13079.79	13890.17	15114.88
Crit W.S. (ft)		Flow Area (sq ft)		4355.84	
E.G. Slope (ft/ft)	0.000819	Area (sq ft)		4355.84	
Q Total (cfs)	11742.00	Flow (cfs)		11742.00	
Top Width (ft)	1747.36	Top Width (ft)		1747.36	
Vel Total (ft/s)	2.70	Avg. Vel. (ft/s)		2.70	
Max Chl Dpth (ft)	5.16	Hydr. Depth (ft)		2.49	
Conv. Total (cfs)	410305.1	Conv. (cfs)		410305.1	
Length Wtd. (ft)	13890.17	Wetted Per. (ft)		1747.49	
Min Ch El (ft)	2245.00	Shear (lb/sq ft)		0.13	
Alpha	1.00	Stream Power (lb/ft s)		0.34	

Plan: Plan 01 Block 11 T7-R9-S12 RS: 2.629 Profile: PF 1 (Continued)

Frctn Loss (ft)	11.58	Cum Volume (acre-ft)		6887.00	28.21
C & E Loss (ft)	0.00	Cum SA (acres)		2839.51	31.46

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R9-S12 RS: 2.195 Profile: PF 1

E.G. Elev (ft)	2238.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.029	
W.S. Elev (ft)	2238.57	Reach Len. (ft)	12270.15	12781.63	14739.57
Crit W.S. (ft)	2236.99	Flow Area (sq ft)		4375.69	
E.G. Slope (ft/ft)	0.000849	Area (sq ft)		4375.69	
Q Total (cfs)	11742.00	Flow (cfs)		11742.00	
Top Width (ft)	1816.55	Top Width (ft)		1816.55	
Vel Total (ft/s)	2.68	Avg. Vel. (ft/s)		2.68	
Max Chl Dpth (ft)	3.57	Hydr. Depth (ft)		2.41	
Conv. Total (cfs)	402875.9	Conv. (cfs)		402875.9	
Length Wtd. (ft)	12781.63	Wetted Per. (ft)		1816.58	
Min Ch El (ft)	2235.00	Shear (lb/sq ft)		0.13	
Alpha	1.00	Stream Power (lb/ft s)		0.34	
Frctn Loss (ft)	8.89	Cum Volume (acre-ft)		5494.86	28.21
C & E Loss (ft)	0.00	Cum SA (acres)		2271.29	31.46

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R9-S12 RS: 1.935 Profile: PF 1

E.G. Elev (ft)	2229.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.025	
W.S. Elev (ft)	2229.68	Reach Len. (ft)	12630.84	13796.62	15483.62
Crit W.S. (ft)	2227.68	Flow Area (sq ft)		4525.90	
E.G. Slope (ft/ft)	0.000580	Area (sq ft)		4525.90	
Q Total (cfs)	11742.00	Flow (cfs)		11742.00	
Top Width (ft)	1855.75	Top Width (ft)		1855.75	
Vel Total (ft/s)	2.59	Avg. Vel. (ft/s)		2.59	
Max Chl Dpth (ft)	4.68	Hydr. Depth (ft)		2.44	
Conv. Total (cfs)	487393.6	Conv. (cfs)		487393.6	
Length Wtd. (ft)	13796.62	Wetted Per. (ft)		1855.78	
Min Ch El (ft)	2225.00	Shear (lb/sq ft)		0.09	
Alpha	1.00	Stream Power (lb/ft s)		0.23	
Frctn Loss (ft)	20.11	Cum Volume (acre-ft)		4188.89	28.21
C & E Loss (ft)	0.06	Cum SA (acres)		1732.52	31.46

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R9-S12 RS: 1.290 Profile: PF 1

E.G. Elev (ft)	2209.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.		0.025	
W.S. Elev (ft)	2208.90	Reach Len. (ft)	13770.55	14023.84	15534.15
Crit W.S. (ft)	2208.90	Flow Area (sq ft)		1760.41	
E.G. Slope (ft/ft)	0.008318	Area (sq ft)		1760.41	
Q Total (cfs)	11814.00	Flow (cfs)		11814.00	
Top Width (ft)	1278.02	Top Width (ft)		1278.02	
Vel Total (ft/s)	6.71	Avg. Vel. (ft/s)		6.71	
Max Chl Dpth (ft)	2.26	Hydr. Depth (ft)		1.38	
Conv. Total (cfs)	129533.5	Conv. (cfs)		129533.5	
Length Wtd. (ft)	14023.84	Wetted Per. (ft)		1278.03	
Min Ch El (ft)	2206.64	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		4.80	
Frctn Loss (ft)	10.27	Cum Volume (acre-ft)		3193.37	28.21
C & E Loss (ft)	0.19	Cum SA (acres)		1236.25	31.46

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R9-S12 RS: 0.646 Profile: PF 1

E.G. Elev (ft)	2193.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.025	
W.S. Elev (ft)	2193.81	Reach Len. (ft)	12882.55	13003.05	14381.70
Crit W.S. (ft)	2191.23	Flow Area (sq ft)		5814.86	
E.G. Slope (ft/ft)	0.000252	Area (sq ft)		5814.86	
Q Total (cfs)	11814.00	Flow (cfs)		11814.00	
Top Width (ft)	1840.81	Top Width (ft)		1840.81	
Vel Total (ft/s)	2.03	Avg. Vel. (ft/s)		2.03	
Max Chl Dpth (ft)	8.81	Hydr. Depth (ft)		3.16	
Conv. Total (cfs)	743785.9	Conv. (cfs)		743785.9	
Length Wtd. (ft)	13011.18	Wetted Per. (ft)		1841.87	
Min Ch El (ft)	2185.00	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)		0.10	
Frctn Loss (ft)	7.58	Cum Volume (acre-ft)		1973.96	28.21
C & E Loss (ft)	0.01	Cum SA (acres)		734.20	31.46

Errors Warnings and Notes

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.

Plan: Plan 01 Block 11 T7-R9-S12 RS: 0.064 Profile: PF 1

E.G. Elev (ft)	2186.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.		0.085	0.085
W.S. Elev (ft)	2186.25	Reach Len. (ft)			
Crit W.S. (ft)	2184.22	Flow Area (sq ft)		7410.62	170.86
E.G. Slope (ft/ft)	0.002517	Area (sq ft)		7410.62	170.86
Q Total (cfs)	11814.00	Flow (cfs)		11674.68	139.32
Top Width (ft)	3268.93	Top Width (ft)		3078.33	190.60
Vel Total (ft/s)	1.56	Avg. Vel. (ft/s)		1.58	0.82
Max Chl Dpth (ft)	5.14	Hydr. Depth (ft)		2.41	0.90
Conv. Total (cfs)	235462.8	Conv. (cfs)		232686.0	2776.8
Length Wtd. (ft)		Wetted Per. (ft)		3078.54	190.61
Min Ch El (ft)	2181.11	Shear (lb/sq ft)		0.38	0.14
Alpha	1.01	Stream Power (lb/ft s)		0.60	0.11
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 11\ArcView\Block11.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 11\ArcView\Block11.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 11\ArcView\Block11.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 11\ArcView\Block11.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 11\ArcView\Block11.nt
Selected profiles: PF 1
Date: 12/3/2003
Time: 9:08:12 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block 11,T7-R8-S18						
2.351		0.04	0.027	0.04	0.1	0.3
2.127		0.04	0.027	0.04	0.1	0.3
1.675		0.04	0.027	0.04	0.1	0.3
1.472		0.04	0.027	0.04	0.1	0.3
.987		0.04	0.027	0.04	0.1	0.3
.536		0.04	0.027	0.04	0.1	0.3
Block 11,T7-R8-S7						
.195		0.04	0.027	0.04	0.1	0.3
1.972		0.029	0.025	0.04	0.1	0.3
1.539		0.029	0.025	0.04	0.1	0.3
1.36		0.029	0.025	0.04	0.1	0.3
.981		0.029	0.025	0.04	0.1	0.3
.649		0.029	0.025	0.04	0.1	0.3
Block 11,T7-R9-S12						
.117		0.029	0.025	0.04	0.1	0.3
4.216		0.035	0.029	0.035	0.1	0.3
3.839		0.035	0.029	0.035	0.1	0.3
3.491		0.035	0.029	0.035	0.1	0.3
3.136		0.035	0.029	0.035	0.1	0.3
2.916		0.035	0.029	0.035	0.1	0.3
2.629		0.035	0.029	0.035	0.1	0.3
2.195		0.035	0.029	0.035	0.1	0.3
1.935		0.045	0.025	0.045	0.1	0.3
1.29		0.045	0.025	0.045	0.1	0.3
.646		0.045	0.025	0.045	0.1	0.3
.064		0.085	0.085	0.085	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.029	0.085
Right Overbank n Value:	0.035	0.085
Channel n Value:	0.025	0.085
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

RS: 1.972
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.972
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

```
RS:       1.539
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:        1.539
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       1.36
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:        1.36
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       0.981
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:        0.981
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       0.649
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:        0.649
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       0.117
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:        0.117
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:        1.935
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:        1.29
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.
```

RS: 0.646
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 11\ArcView\Block11.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 11\ArcView\Block11.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 11\ArcView\Block11.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 11\ArcView\Block11.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 11\ArcView\Block11.xs
Selected profiles: PF 1
Date: 12/3/2003
Time: 9:09:40 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Block 11,T7-R8-S18						
2.351	24699.8	24956.62	23653	1409.82	1970	
2.127	12067.71	12167.81	11622.77	997.99	1970	C
1.675	12055.12	12071.1	12070.51	1535.26	1970	
1.472	11332.99	11942	12306.99	1967.56	1970	
0.987	11236.83	11384.08	11857.29	1519.94	1970	
0.536	1972.94	1800.3	1728.05	1383.06	1970	
0.195	11555.2	11762.96	11740.43	1423.92	1970	C
Block 11,T7-R8-S7						
1.972	24278.09	24281.73	22724.63	1460.29	1259	
1.539	13292.18	12760.9	12574.41	1031.88	1259	
1.36	24397.36	24454.24	22219.15	1459.56	1259	
0.981	1858.46	1751.31	1350.58	637.03	1259	
0.649	23318.18	24106.53	22611.4	903.51	1259	C
0.117	23774.49	24362.9	21963.84	1334.93	1259	C
Block 11,T7-R9-S12						
4.216	1370.26	1990.14	1208.23	1370.6	11742	
3.839	1968.6	1837.03	1653.53	1828.13	11742	
3.491	2278.81	1876.44	2266.67	1975.04	11742	
3.136	1302.12	1159.62	1533.94	1002.19	11742	
2.916	1310.49	1519.23	1077.16	890.69	11742	C
2.629	13079.79	13890.17	15114.88	1747.36	11742	
2.195	12270.15	12781.63	14739.57	1816.55	11742	
1.935	12630.84	13796.62	15483.62	1855.75	11742	
1.29	13770.55	14023.84	15534.15	1278.02	11814	C
0.646	12882.55	13003.05	14381.7	1840.81	11814	
0.064	215.07	351.49	2565.09	3268.93	11814	

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 3.491
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

RS: 3.136
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

XS DC 02 Constant dicharge used for the Block 11,T7-R8-S18

XS DC 02 Constant dicharge used for the Block 11,T7-R8-S7

LOCATION CHECK

RS: 2.351
XS LC 01 Lenchl Up/TopwdthAct Dn = 25.01
MaxChlDpth Up/MaxChlDpth Dn = 3.74
TopwdthAct Up/TopwdthAct Dn = 1.41
This cross section is located too far upstream from the
critical depth cross section.

RS: 1.935
XS LC 01 Lenchl Up/TopwdthAct Dn = 10.80
MaxChlDpth Up/MaxChlDpth Dn = 2.07
TopwdthAct Up/TopwdthAct Dn = 1.45
This cross section is located too far upstream from the
critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Block 11,T7-R8-S18
Known WS = 2214.2 is specified as the downstream boundary
for profile PF 1

XS BC 02 The name of the stream is Block 11,T7-R8-S7
Known WS = 2205.9 is specified as the downstream boundary
for profile PF 1

XS BC 02 The name of the stream is Block 11,T7-R9-S12
Known WS = 2186.25 is specified as the downstream boundary
for profile PF 1

---END---

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

ROUGHNESS COEFFICIENT CHECK

Explanation:
All Manning's n-values were field verified and approved

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

Explanation:
Cross sections were cut in order to take in channel geometry.

DISCHARGE CHECK

Warning:
Constant discharge used for the reach.

Explanation:
The discharge was determined from the regression equations for the sub basin. The Flood Control District of Maricopa County also approved the peak discharge values.

LOCATION CHECK

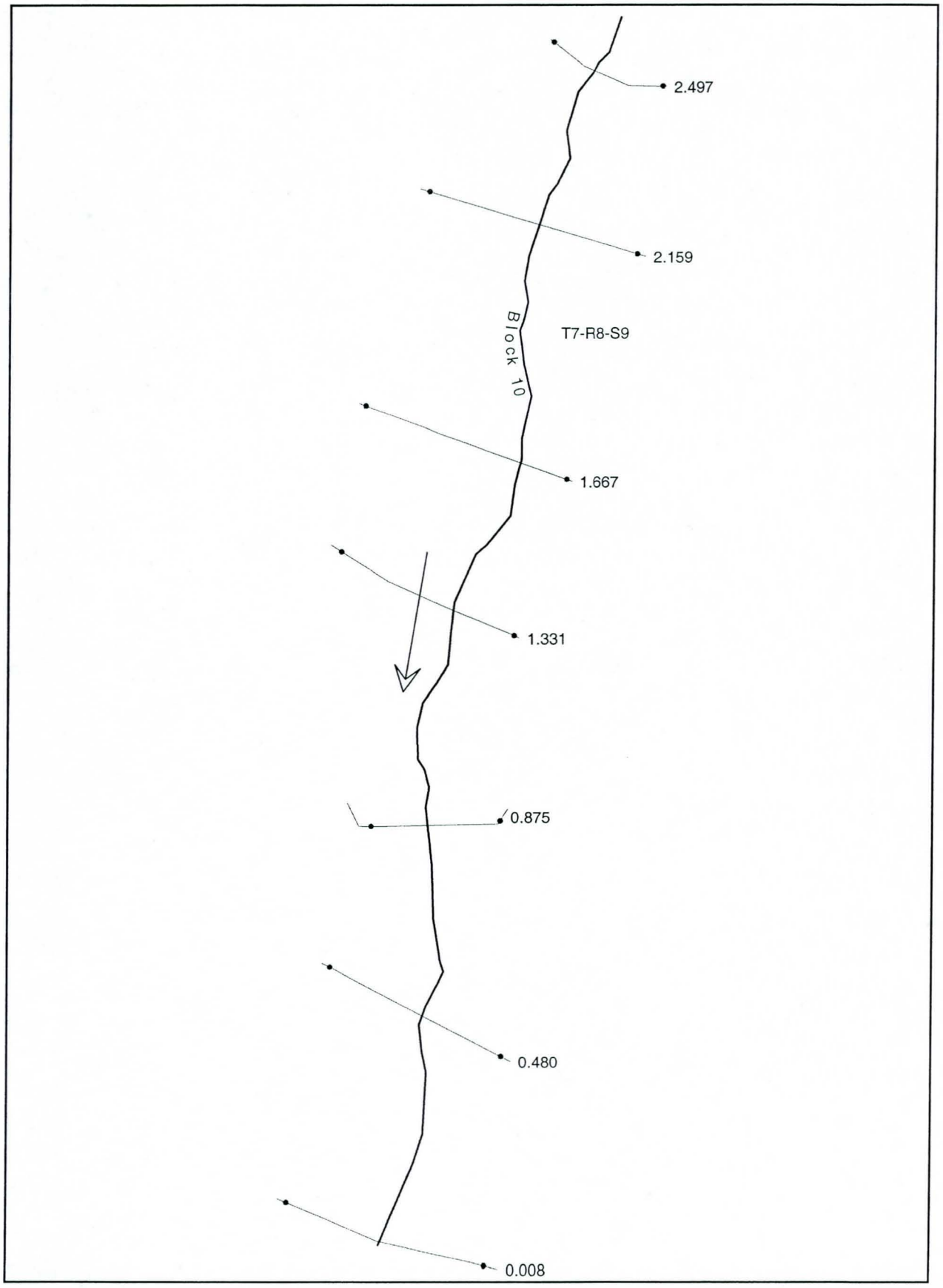
Non-detailed study; cross-sections located 2000-3000 feet apart.

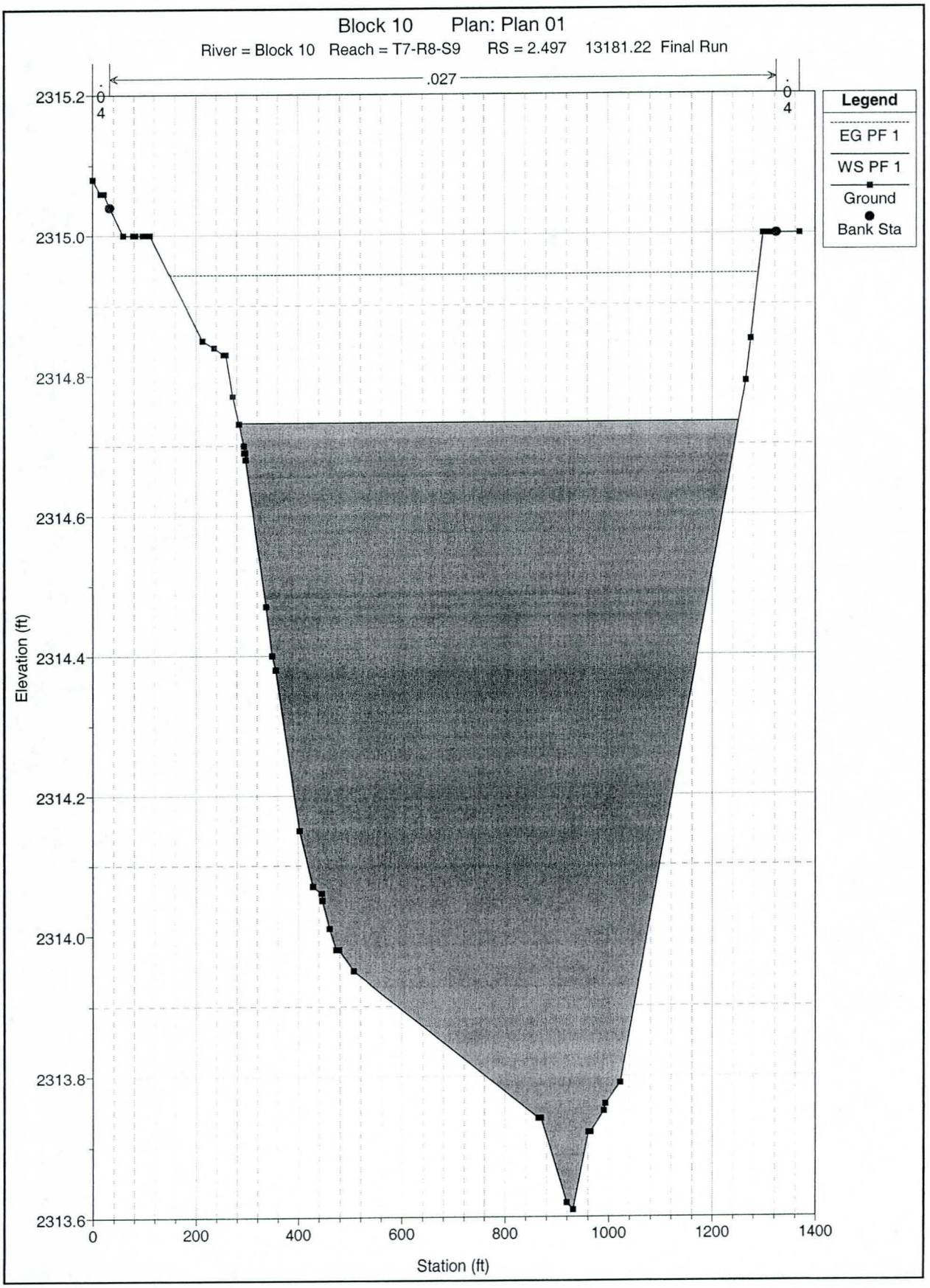
BOUNDARY CONDITION CHECK

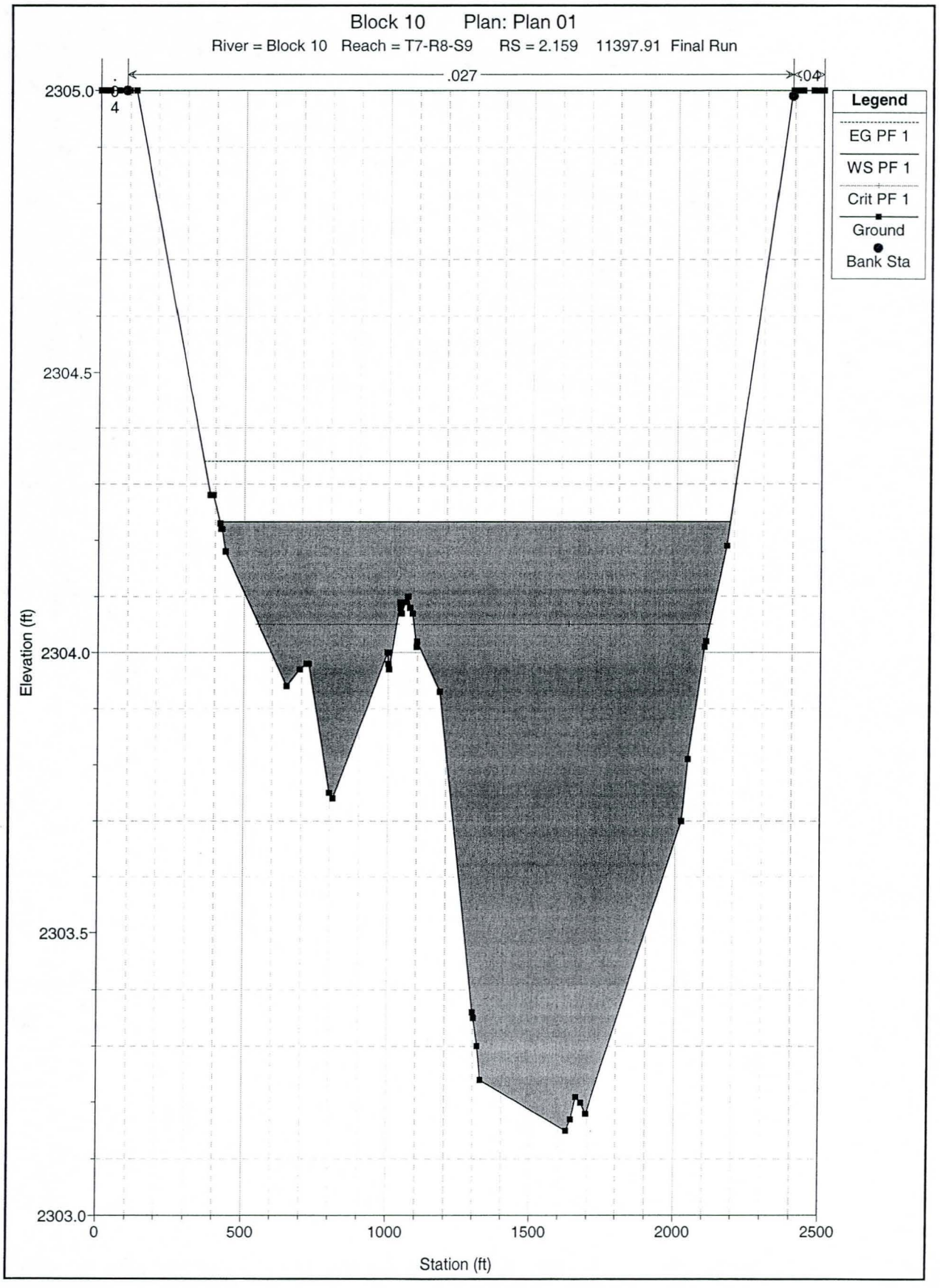
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

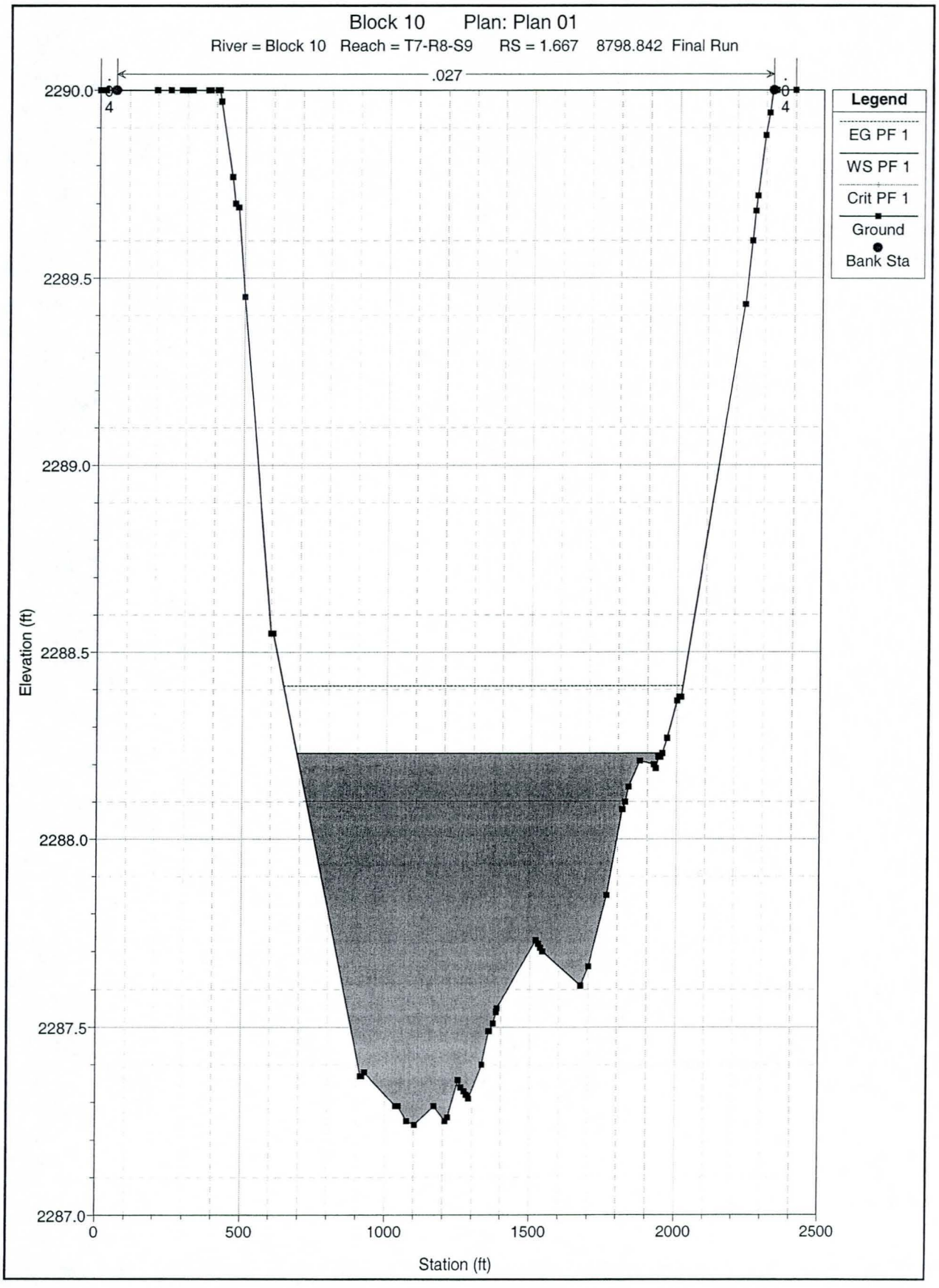
HEC-RAS Plan: Plan 01 River: Block 10 Reach: T7-R8-S9 Profile: PF 1

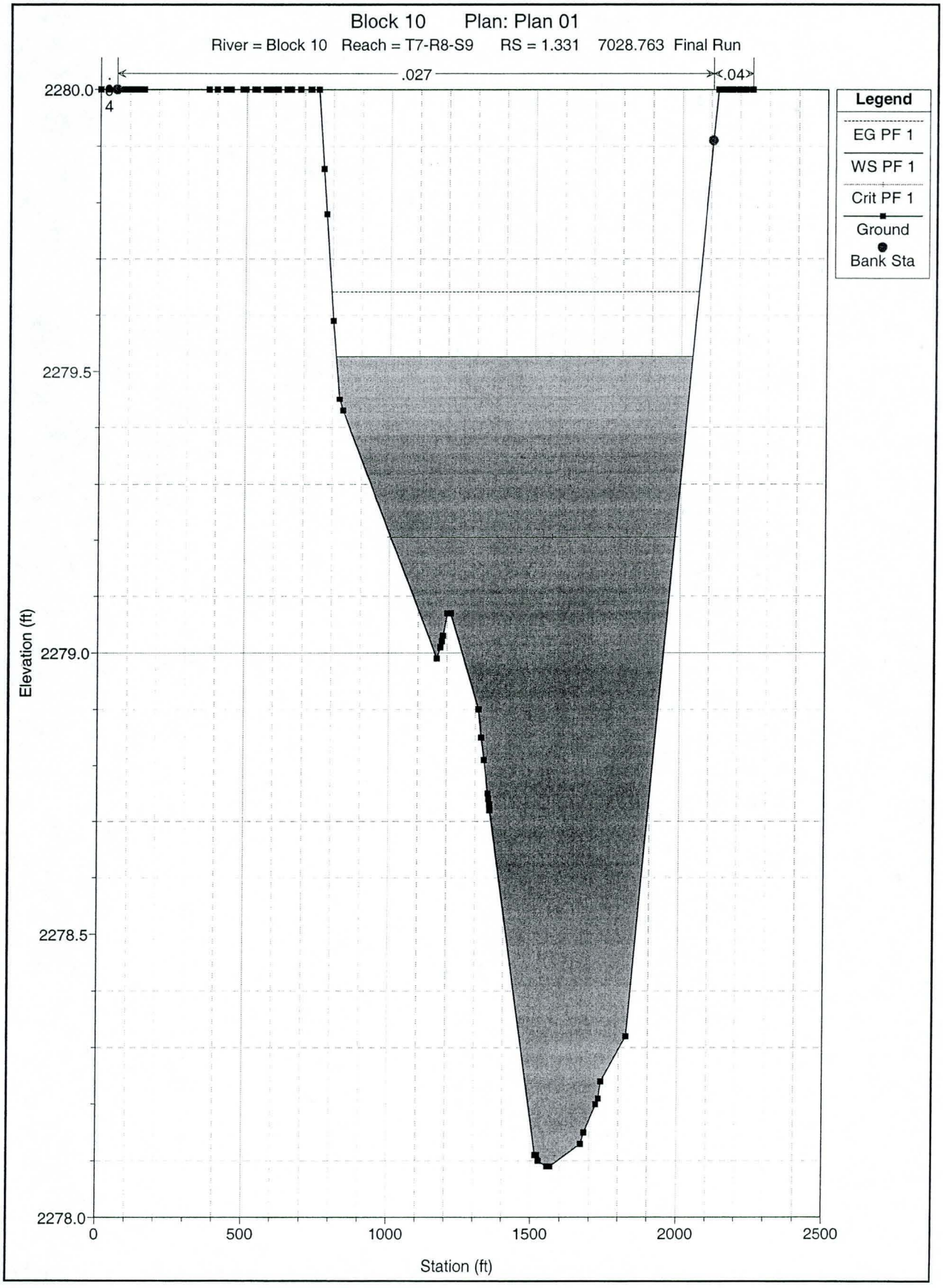
Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R8-S9	2.497	2568.00	2314.73		3.70	967.36	1.12	0.77	283.81	1251.17
T7-R8-S9	2.159	2568.00	2304.23	2304.05	2.63	1770.06	1.08	0.63	415.63	2185.69
T7-R8-S9	1.667	2568.00	2288.23	2288.10	3.40	1260.63	0.99	0.77	690.35	1950.98
T7-R8-S9	1.331	2568.00	2279.53	2279.21	2.72	1227.17	1.44	0.55	812.22	2039.39
T7-R8-S9	0.875	2568.00	2265.14	2265.14	4.23	1270.56	1.07	0.97	89.71	1360.27
T7-R8-S9	0.480	2568.00	2254.90	2254.46	1.96	1829.68	1.58	0.40	369.36	2199.03
T7-R8-S9	0.008	2568.00	2244.38	2244.38	3.86	1484.29	1.01	1.02	472.97	1957.26

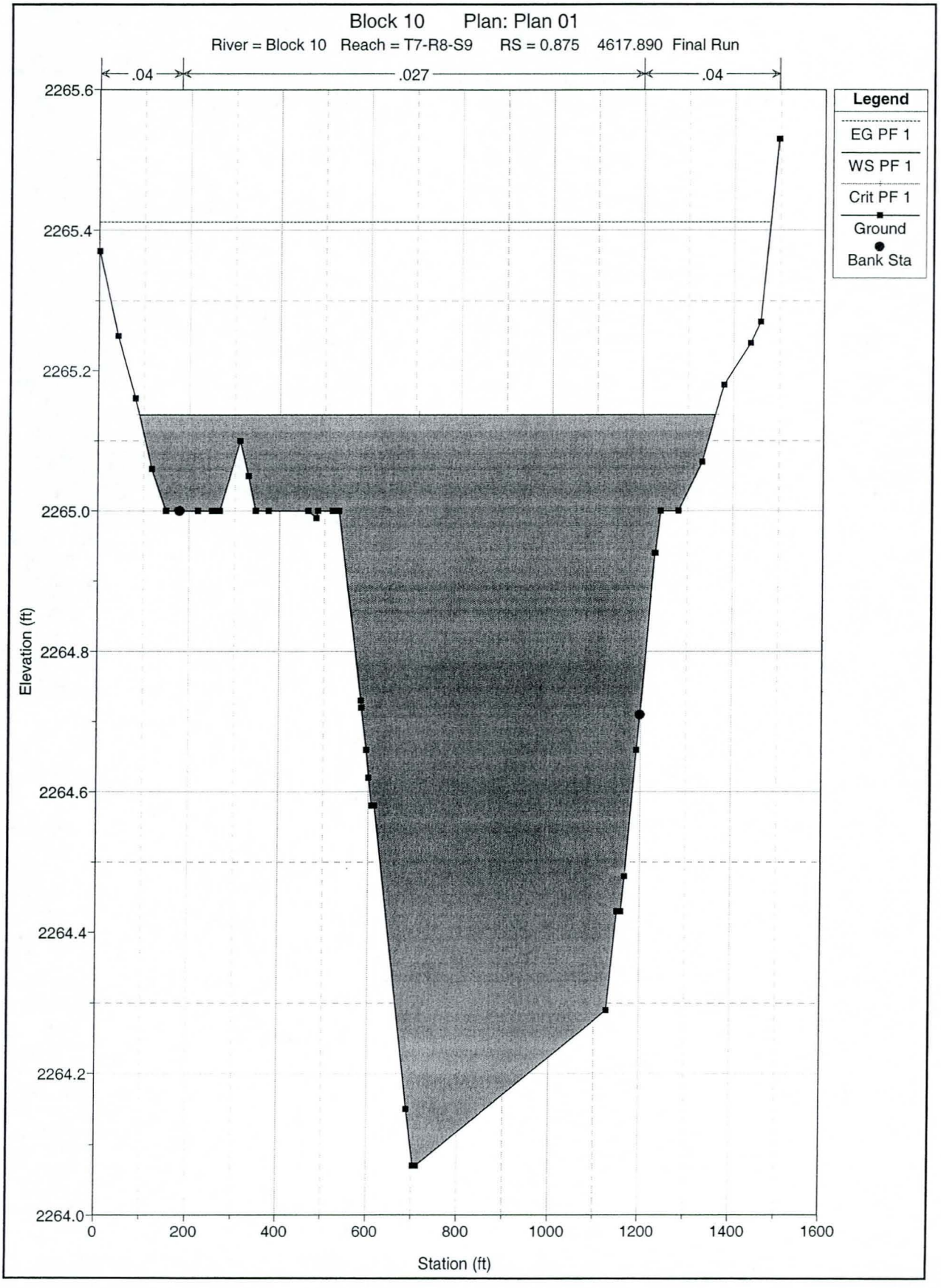

2.497
2.159
Block 10
T7-R8-S9
1.667
1.331
0.875
0.480
0.008

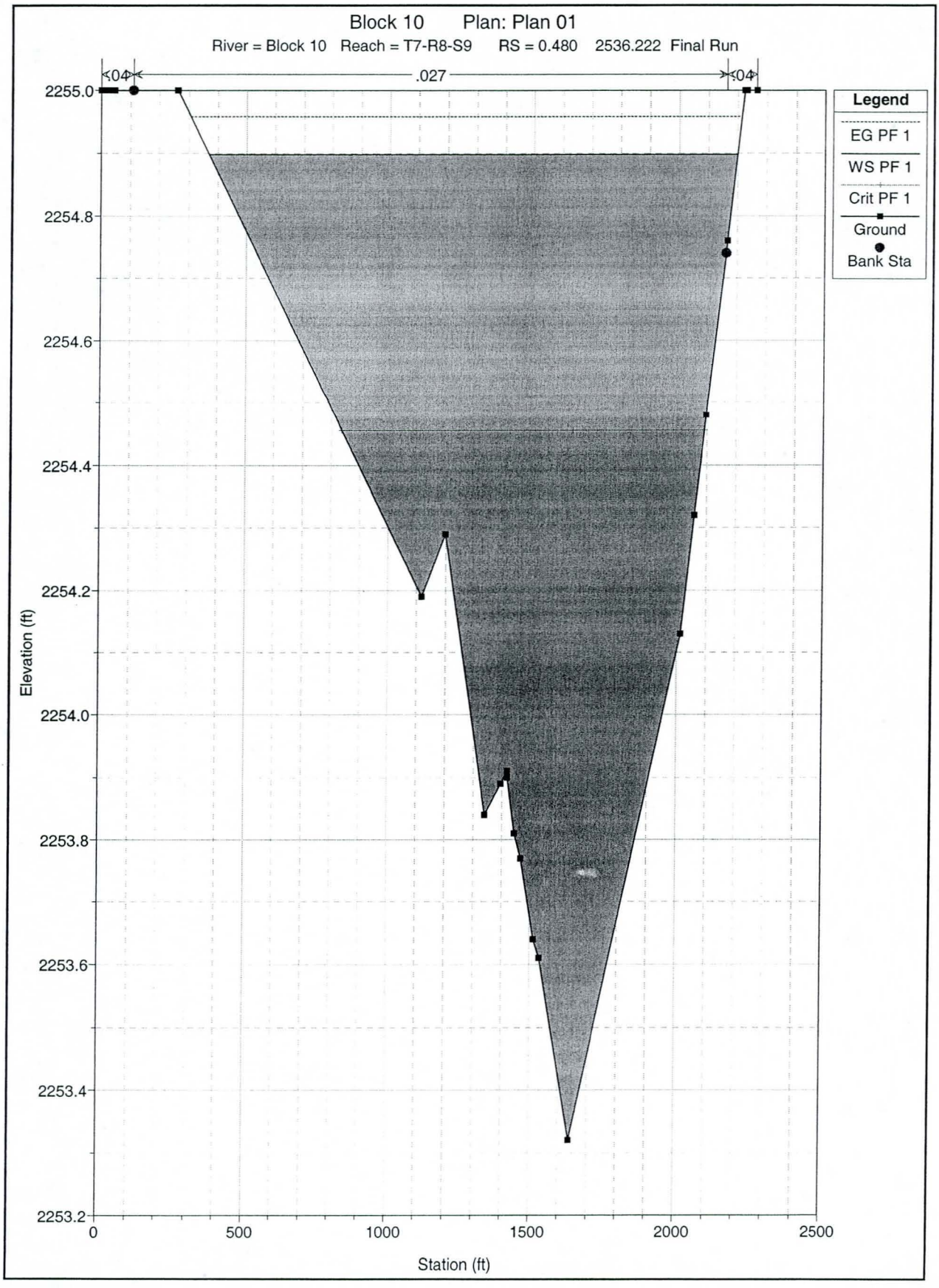

Block 10 Plan: Plan 01
River = Block 10 Reach = T7-R8-S9 RS = 2.497 13181.22 Final Run
.027
.04
.04
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
2315.2
2315.0
2314.8
2314.6
2314.4
2314.2
2314.0
2313.8
2313.6
Elevation (ft)
0
200
400
600
800
1000
1200
1400
Station (ft)

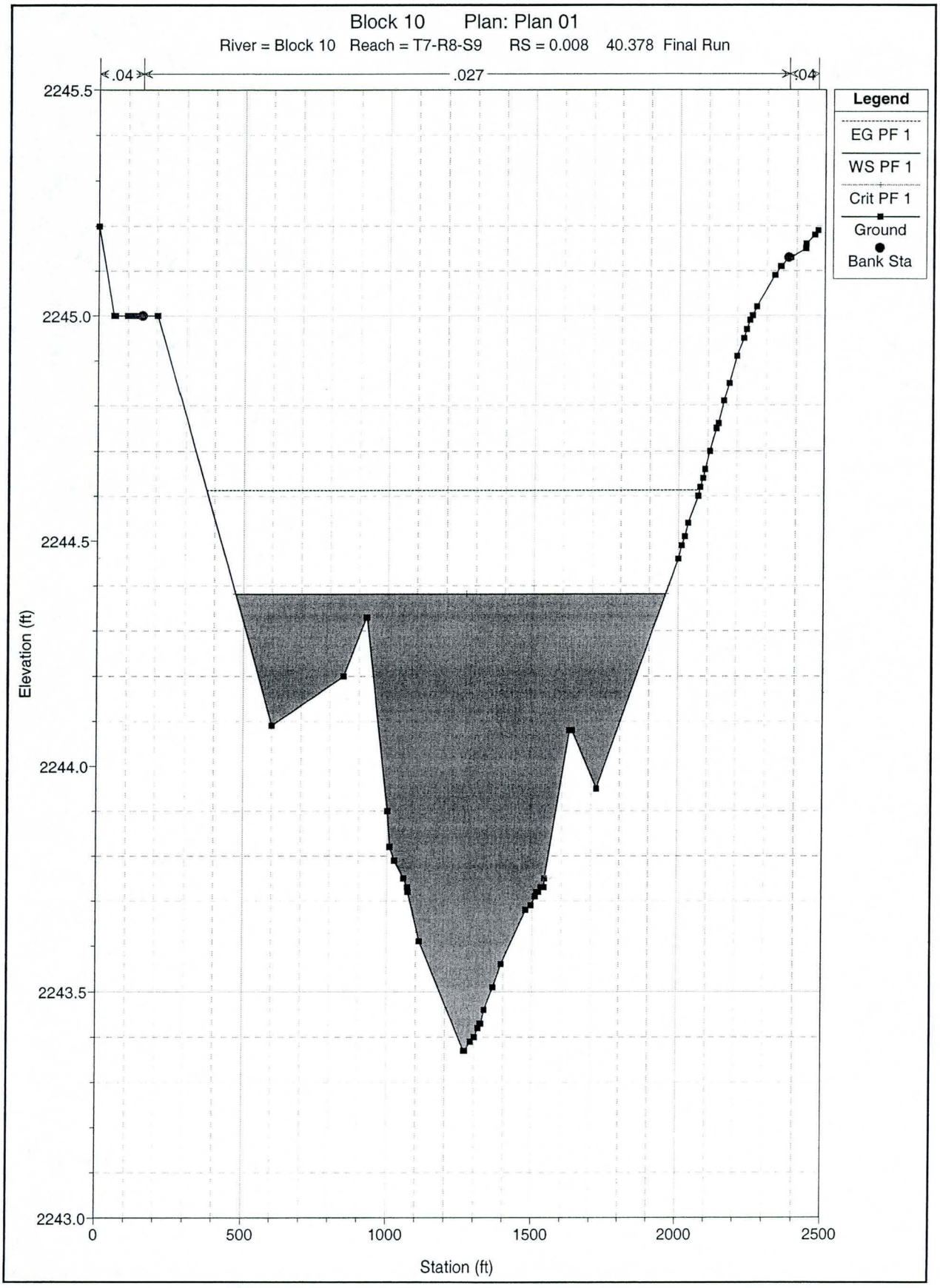

Block 10 Plan: Plan 01
River = Block 10 Reach = T7-R8-S9 RS = 2.159 11397.91 Final Run
.027
.04
.0
4
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2305.0
2304.5
2304.0
2303.5
2303.0
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)


Block 10 Plan: Plan 01
River = Block 10 Reach = T7-R8-S9 RS = 1.667 8798.842 Final Run
.027
.0
4
.0
4
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2290.0
2289.5
2289.0
2288.5
2288.0
2287.5
2287.0
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)


Block 10 Plan: Plan 01
River = Block 10 Reach = T7-R8-S9 RS = 1.331 7028.763 Final Run
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2280.0
2279.5
2279.0
2278.5
2278.0
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)


Block 10 Plan: Plan 01
River = Block 10 Reach = T7-R8-S9 RS = 0.875 4617.890 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2265.6
2265.4
2265.2
2265.0
2264.8
2264.6
2264.4
2264.2
2264.0
Elevation (ft)
0
200
400
600
800
1000
1200
1400
1600
Station (ft)


Block 10 Plan: Plan 01
River = Block 10 Reach = T7-R8-S9 RS = 0.480 2536.222 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2255.0
2254.8
2254.6
2254.4
2254.2
2254.0
2253.8
2253.6
2253.4
2253.2
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)


Block 10 Plan: Plan 01
River = Block 10 Reach = T7-R8-S9 RS = 0.008 40.378 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2245.5
2245.0
2244.5
2244.0
2243.5
2243.0
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)

Plan: Plan 01 Block 10 T7-R8-S9 RS: 2.497 Profile: PF 1

E.G. Elev (ft)	2314.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.027	
W.S. Elev (ft)	2314.73	Reach Len. (ft)	1806.01	1783.31	2060.32
Crit W.S. (ft)		Flow Area (sq ft)		694.29	
E.G. Slope (ft/ft)	0.007029	Area (sq ft)		694.29	
Q Total (cfs)	2568.00	Flow (cfs)		2568.00	
Top Width (ft)	967.36	Top Width (ft)		967.36	
Vel Total (ft/s)	3.70	Avg. Vel. (ft/s)		3.70	
Max Chl Dpth (ft)	1.12	Hydr. Depth (ft)		0.72	
Conv. Total (cfs)	30629.8	Conv. (cfs)		30629.8	
Length Wtd. (ft)	1783.31	Wetted Per. (ft)		967.36	
Min Ch El (ft)	2313.61	Shear (lb/sq ft)		0.31	
Alpha	1.00	Stream Power (lb/ft s)		1.16	
Frctn Loss (ft)	10.57	Cum Volume (acre-ft)	0.44	265.11	1.34
C & E Loss (ft)	0.03	Cum SA (acres)	4.67	420.30	10.21

Errors Warnings and Notes

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.

Plan: Plan 01 Block 10 T7-R8-S9 RS: 2.159 Profile: PF 1

E.G. Elev (ft)	2304.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.027	
W.S. Elev (ft)	2304.23	Reach Len. (ft)	2513.79	2599.07	2388.63
Crit W.S. (ft)	2304.05	Flow Area (sq ft)		975.33	
E.G. Slope (ft/ft)	0.005067	Area (sq ft)		975.33	
Q Total (cfs)	2568.00	Flow (cfs)		2568.00	
Top Width (ft)	1770.06	Top Width (ft)		1770.06	
Vel Total (ft/s)	2.63	Avg. Vel. (ft/s)		2.63	
Max Chl Dpth (ft)	1.08	Hydr. Depth (ft)		0.55	
Conv. Total (cfs)	36076.7	Conv. (cfs)		36076.7	
Length Wtd. (ft)	2599.07	Wetted Per. (ft)		1770.07	
Min Ch El (ft)	2303.15	Shear (lb/sq ft)		0.17	
Alpha	1.00	Stream Power (lb/ft s)		0.46	
Frctn Loss (ft)	16.04	Cum Volume (acre-ft)	0.44	230.94	1.34
C & E Loss (ft)	0.01	Cum SA (acres)	4.67	364.27	10.21

Errors Warnings and Notes

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.

Plan: Plan 01 Block 10 T7-R8-S9 RS: 1.667 Profile: PF 1

E.G. Elev (ft)	2288.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.		0.027	
W.S. Elev (ft)	2288.23	Reach Len. (ft)	1755.00	1770.08	1544.55
Crit W.S. (ft)	2288.10	Flow Area (sq ft)		755.39	
E.G. Slope (ft/ft)	0.007553	Area (sq ft)		755.39	
Q Total (cfs)	2568.00	Flow (cfs)		2568.00	
Top Width (ft)	1260.63	Top Width (ft)		1260.63	
Vel Total (ft/s)	3.40	Avg. Vel. (ft/s)		3.40	

Plan: Plan 01 Block 10 T7-R8-S9 RS: 1.667 Profile: PF 1 (Continued)

Max Chl Dpth (ft)	0.99	Hydr. Depth (ft)		0.60	
Conv. Total (cfs)	29547.9	Conv. (cfs)		29547.9	
Length Wtd. (ft)	1770.08	Wetted Per. (ft)		1260.63	
Min Ch El (ft)	2287.24	Shear (lb/sq ft)		0.28	
Alpha	1.00	Stream Power (lb/ft s)		0.96	
Frctn Loss (ft)	8.75	Cum Volume (acre-ft)	0.44	179.31	1.34
C & E Loss (ft)	0.02	Cum SA (acres)	4.67	273.85	10.21

Errors Warnings and Notes

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.

Plan: Plan 01 Block 10 T7-R8-S9 RS: 1.331 Profile: PF 1

E.G. Elev (ft)	2279.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.027	
W.S. Elev (ft)	2279.53	Reach Len. (ft)	2030.17	2410.87	3008.14
Crit W.S. (ft)	2279.21	Flow Area (sq ft)		942.59	
E.G. Slope (ft/ft)	0.003484	Area (sq ft)		942.59	
Q Total (cfs)	2568.00	Flow (cfs)		2568.00	
Top Width (ft)	1227.17	Top Width (ft)		1227.17	
Vel Total (ft/s)	2.72	Avg. Vel. (ft/s)		2.72	
Max Chl Dpth (ft)	1.44	Hydr. Depth (ft)		0.77	
Conv. Total (cfs)	43507.5	Conv. (cfs)		43507.5	
Length Wtd. (ft)	2413.29	Wetted Per. (ft)		1227.17	
Min Ch El (ft)	2278.09	Shear (lb/sq ft)		0.17	
Alpha	1.00	Stream Power (lb/ft s)		0.46	
Frctn Loss (ft)	14.21	Cum Volume (acre-ft)	0.44	144.81	1.34
C & E Loss (ft)	0.02	Cum SA (acres)	4.67	223.31	10.21

Errors Warnings and Notes

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.

Plan: Plan 01 Block 10 T7-R8-S9 RS: 0.875 Profile: PF 1

E.G. Elev (ft)	2265.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.040	0.027	0.040
W.S. Elev (ft)	2265.14	Reach Len. (ft)	2505.10	2081.67	1578.05
Crit W.S. (ft)	2265.14	Flow Area (sq ft)	8.50	598.83	22.92
E.G. Slope (ft/ft)	0.012029	Area (sq ft)	8.50	598.83	22.92
Q Total (cfs)	2568.00	Flow (cfs)	7.20	2535.40	25.40
Top Width (ft)	1270.56	Top Width (ft)	89.67	1019.27	161.62
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)	0.85	4.23	1.11
Max Chl Dpth (ft)	1.07	Hydr. Depth (ft)	0.09	0.59	0.14
Conv. Total (cfs)	23414.7	Conv. (cfs)	65.7	23117.5	231.6
Length Wtd. (ft)	2079.69	Wetted Per. (ft)	89.67	1019.27	161.62
Min Ch El (ft)	2264.07	Shear (lb/sq ft)	0.07	0.44	0.11
Alpha	1.07	Stream Power (lb/ft s)	0.06	1.87	0.12
Frctn Loss (ft)	8.20	Cum Volume (acre-ft)	0.24	102.15	0.54
C & E Loss (ft)	0.06	Cum SA (acres)	2.58	161.14	4.63

Errors Warnings and Notes

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

Errors Warnings and Notes (Continued)

	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.

Plan: Plan 01 Block 10 T7-R8-S9 RS: 0.480 Profile: PF 1

E.G. Elev (ft)	2254.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.027	0.040
W.S. Elev (ft)	2254.90	Reach Len. (ft)	2208.75	2496.44	2537.58
Crit W.S. (ft)	2254.46	Flow Area (sq ft)		1308.71	2.74
E.G. Slope (ft/ft)	0.001934	Area (sq ft)		1308.71	2.74
Q Total (cfs)	2568.00	Flow (cfs)		2567.20	0.80
Top Width (ft)	1829.68	Top Width (ft)		1793.61	36.06
Vel Total (ft/s)	1.96	Avg. Vel. (ft/s)		1.96	0.29
Max Chl Dpth (ft)	1.58	Hydr. Depth (ft)		0.73	0.08
Conv. Total (cfs)	58391.9	Conv. (cfs)		58373.6	18.3
Length Wtd. (ft)	2496.45	Wetted Per. (ft)		1793.62	36.06
Min Ch El (ft)	2253.32	Shear (lb/sq ft)		0.09	0.01
Alpha	1.00	Stream Power (lb/ft s)		0.17	0.00
Frctn Loss (ft)	10.33	Cum Volume (acre-ft)		56.57	0.08
C & E Loss (ft)	0.02	Cum SA (acres)		93.93	1.05

Errors Warnings and Notes

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.

Plan: Plan 01 Block 10 T7-R8-S9 RS: 0.008 Profile: PF 1

E.G. Elev (ft)	2244.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.027	
W.S. Elev (ft)	2244.38	Reach Len. (ft)			
Crit W.S. (ft)	2244.38	Flow Area (sq ft)		665.50	
E.G. Slope (ft/ft)	0.014326	Area (sq ft)		665.50	
Q Total (cfs)	2568.00	Flow (cfs)		2568.00	
Top Width (ft)	1484.29	Top Width (ft)		1484.29	
Vel Total (ft/s)	3.86	Avg. Vel. (ft/s)		3.86	
Max Chl Dpth (ft)	1.01	Hydr. Depth (ft)		0.45	
Conv. Total (cfs)	21455.3	Conv. (cfs)		21455.3	
Length Wtd. (ft)		Wetted Per. (ft)		1484.29	
Min Ch El (ft)	2243.37	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		1.55	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 10\HEC-RAS\block10.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 10\HEC-RAS\block10.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 10\HEC-RAS\block10.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 10\HEC-RAS\block10.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 10\HEC-RAS\block10.nt
Selected profiles: PF 1
Date: 12/4/2003
Time: 7:48:43 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block 10,T7-R8-S9						
2.497		0.04	0.027	0.04	0.1	0.3
2.159		0.04	0.027	0.04	0.1	0.3
1.667		0.04	0.027	0.04	0.1	0.3
1.331		0.04	0.027	0.04	0.1	0.3
.875		0.04	0.027	0.04	0.1	0.3
.48		0.04	0.027	0.04	0.1	0.3
.008		0.04	0.027	0.04	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.04	0.04
Right Overbank n Value:	0.04	0.04
Channel n Value:	0.027	0.027
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 10\HEC-RAS\block10.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 10\HEC-RAS\block10.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 10\HEC-RAS\block10.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 10\HEC-RAS\block10.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 10\HEC-RAS\block10.xs
Selected profiles: PF 1
Date: 12/4/2003
Time: 7:48:44 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Block 10,T7-R8-S9						
2.497	1806.01	1783.31	2060.32	967.36	2568	
2.159	2513.79	2599.07	2388.63	1770.06	2568	
1.667	1755	1770.08	1544.55	1260.63	2568	

```
 1.331    2030.17   2410.87   3008.14   1227.17        2568
 0.875    2505.1    2081.67   1578.05   1270.56        2568     C
 0.48     2208.75   2496.44   2537.58   1829.68        2568
 0.008    126.17    53.9      113.07    1484.29        2568     C
-------------------------------------------------------------------------------
B=blocked obstruction      XS SC 05
C=critial depth            XS SC 03
D=divided flow             XS SC 01
E=cross section extended   XS SC 02
K=known water-surface      XS SC 04


DISTANCE CHECK
----------------

RS:       2.497
XS DT 01 Both right and left overbank distances are
         longer than the channel distance.

RS:       0.008
XS DT 01 Both right and left overbank distances are
         longer than the channel distance.


SPACING CHECK
--------------


INEFFECTIVE FLOW CHECK
-----------------------


DISCHARGE CHECK
----------------

XS DC 02 Constant dicharge used for the Block 10,T7-R8-S9


LOCATION CHECK
---------------

RS:       0.48
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.68
         MaxChlDpth Up/MaxChlDpth Dn = 1.56
         TopwdthAct Up/TopwdthAct Dn = 1.23
         This cross section is located too far upstream from the
         critical depth cross section.


BOUNDARY CONDITION CHECK
------------------------

XS BC 02 The name of the stream is Block 10,T7-R8-S9
         Known WS = 2243.1 is specified as the downstream boundary
         for profile PF 1

---END---
```

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

Explanation:
Cross sections were cut in order to take in channel geometry.

DISCHARGE CHECK

Warning:
Constant discharge used for the reach.

Explanation:
The discharge was determined from the regression equations for the sub basin. The Flood Control District of Maricopa County also approved the peak discharge values.

LOCATION CHECK

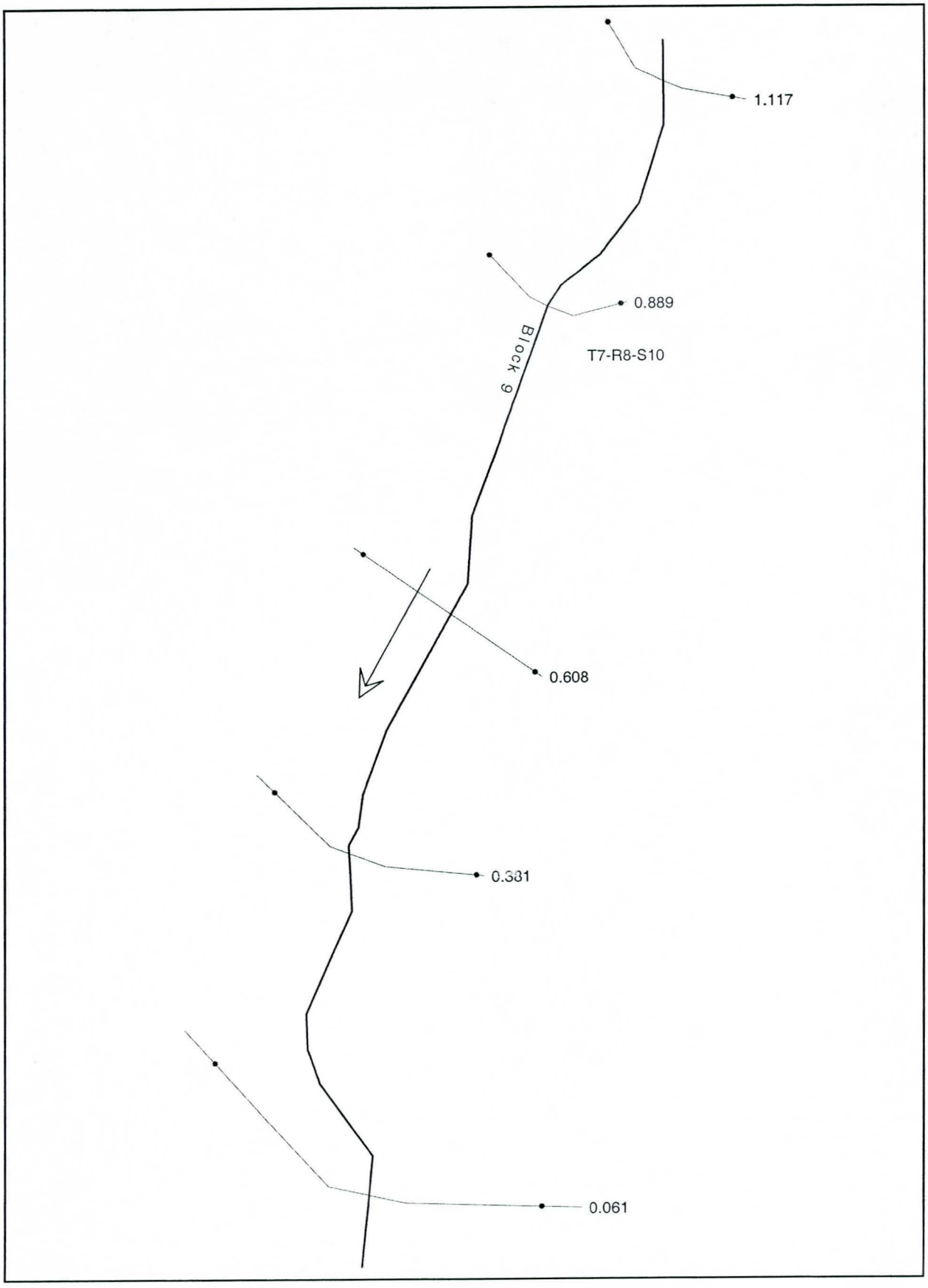
Non-detailed study; cross-sections located 2000-3000 feet apart.

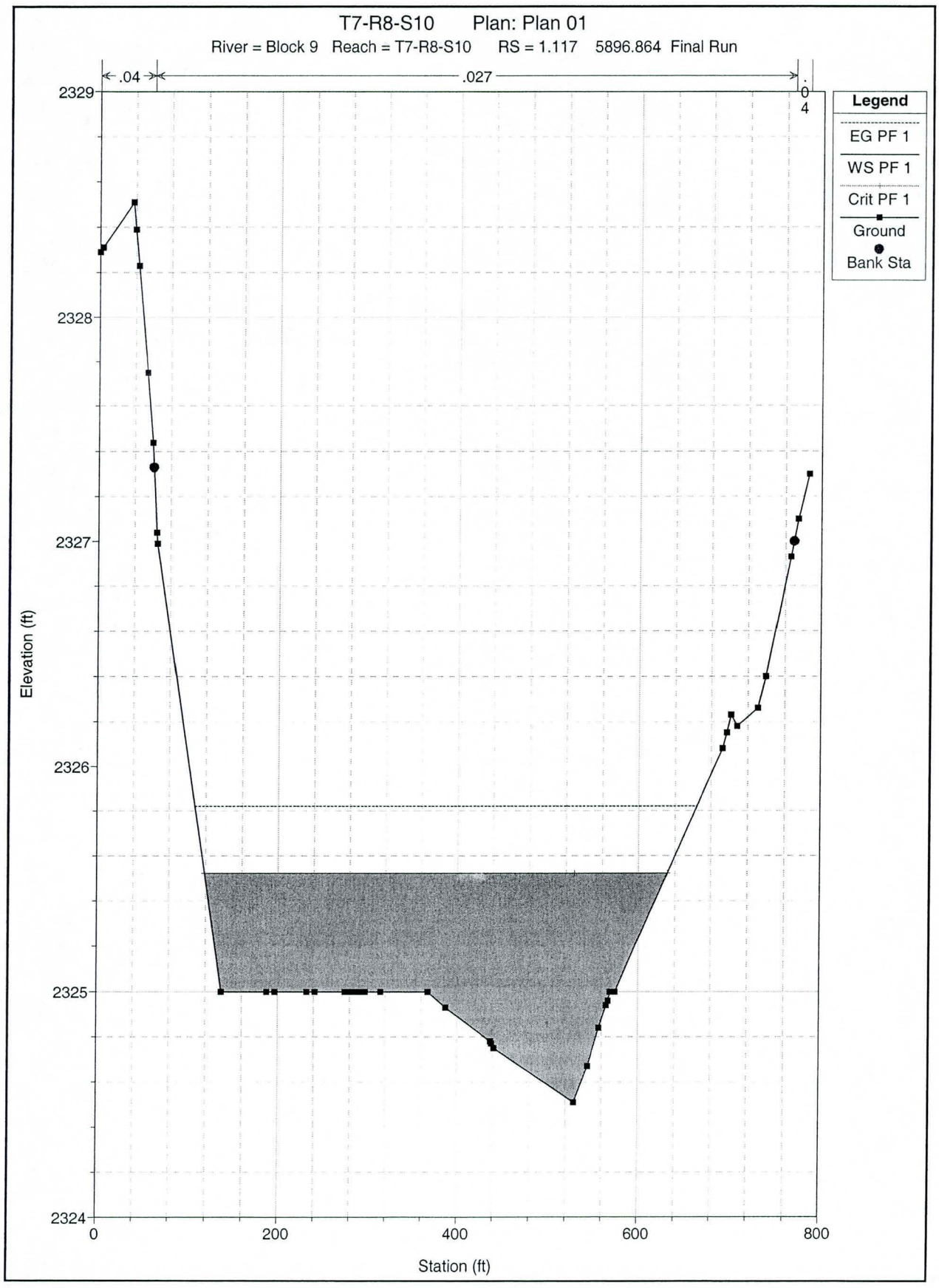
BOUNDARY CONDITION CHECK

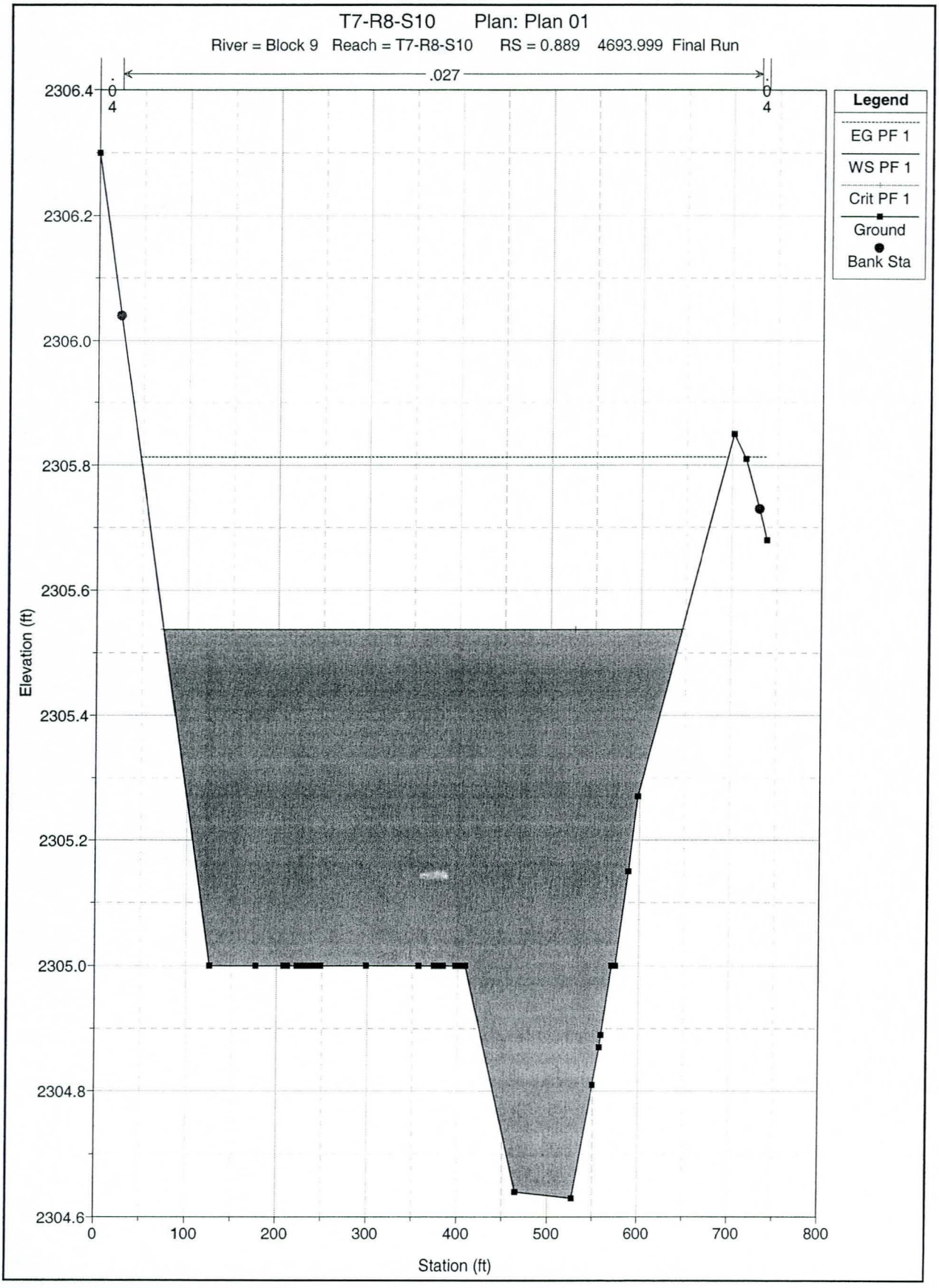
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

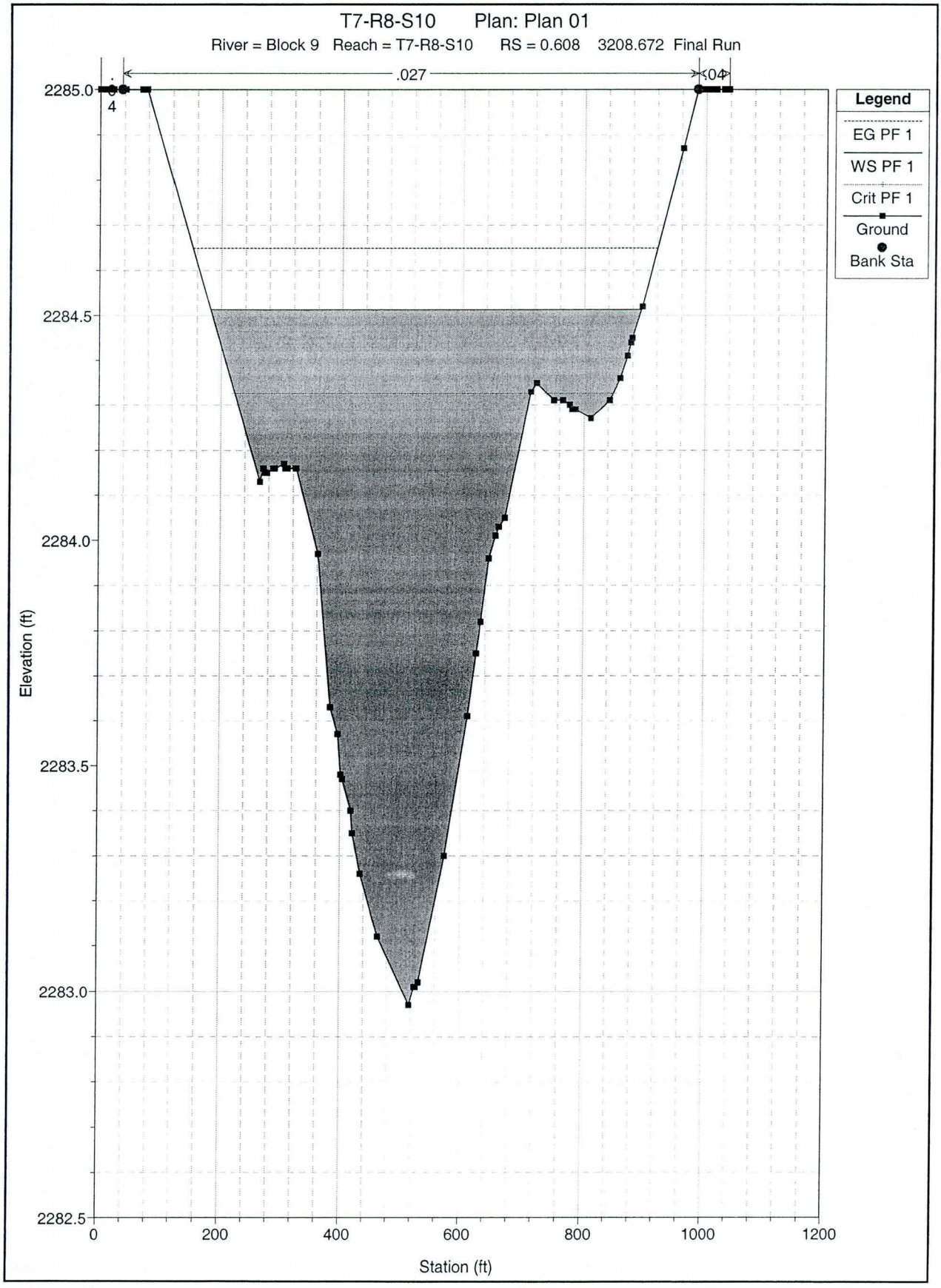
HEC-RAS Plan: Plan 01 River: Block 9 Reach: T7-R8-S10 Profile: PF 1

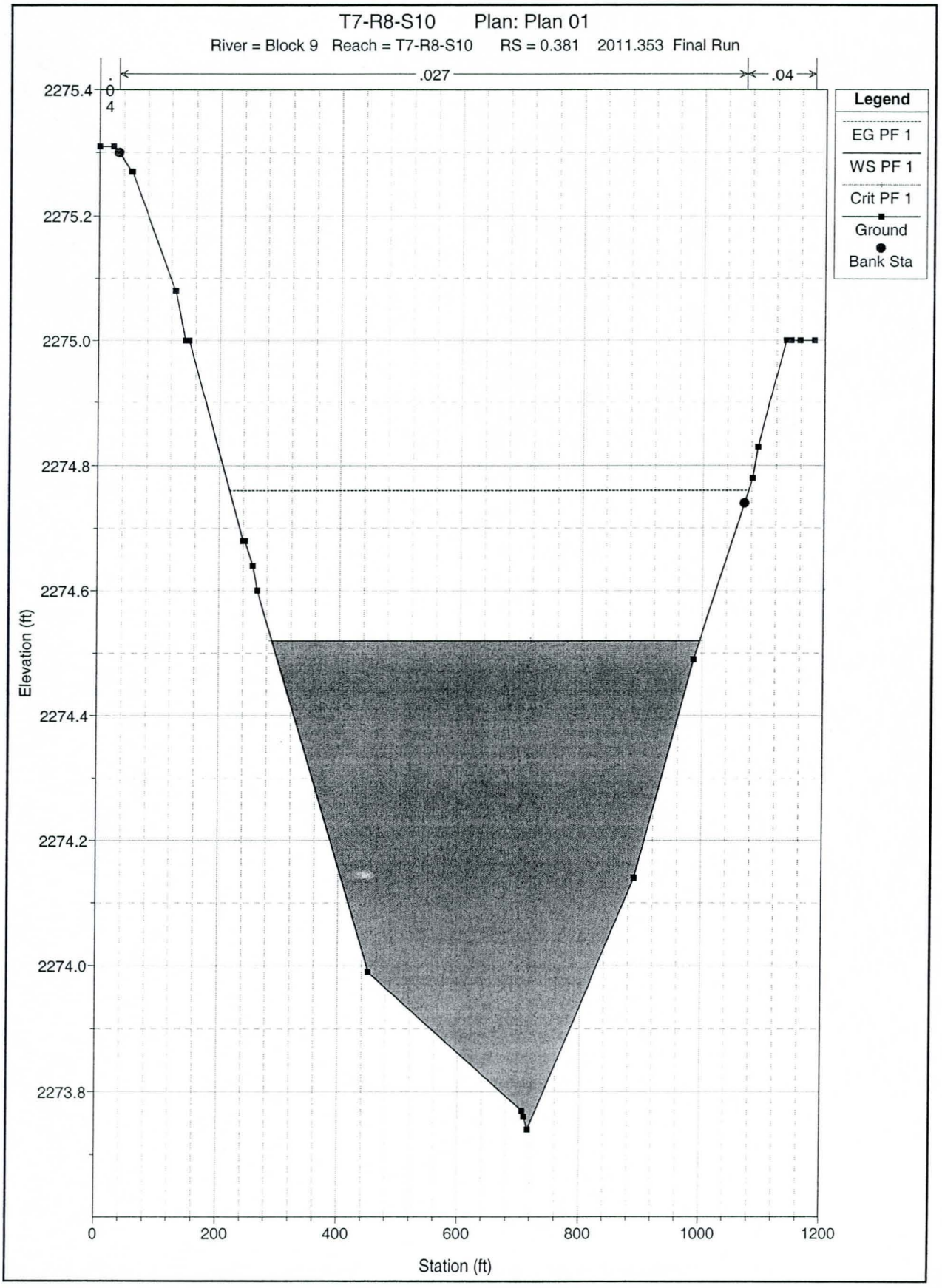
Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R8-S10	1.117	1317.00	2325.52	2325.52	4.39	512.99	1.01	1.01	118.67	631.66
T7-R8-S10	0.889	1317.00	2305.54	2305.54	4.22	572.25	0.91	1.01	73.86	646.11
T7-R8-S10	0.608	1317.00	2284.51	2284.33	2.97	711.90	1.54	0.66	182.67	894.57
T7-R8-S10	0.381	1317.00	2274.52	2274.52	3.94	707.22	0.78	1.01	288.58	995.80
T7-R8-S10	0.061	1317.00	2264.20	2263.35	1.09	1297.49	1.71	0.20	462.44	1759.93

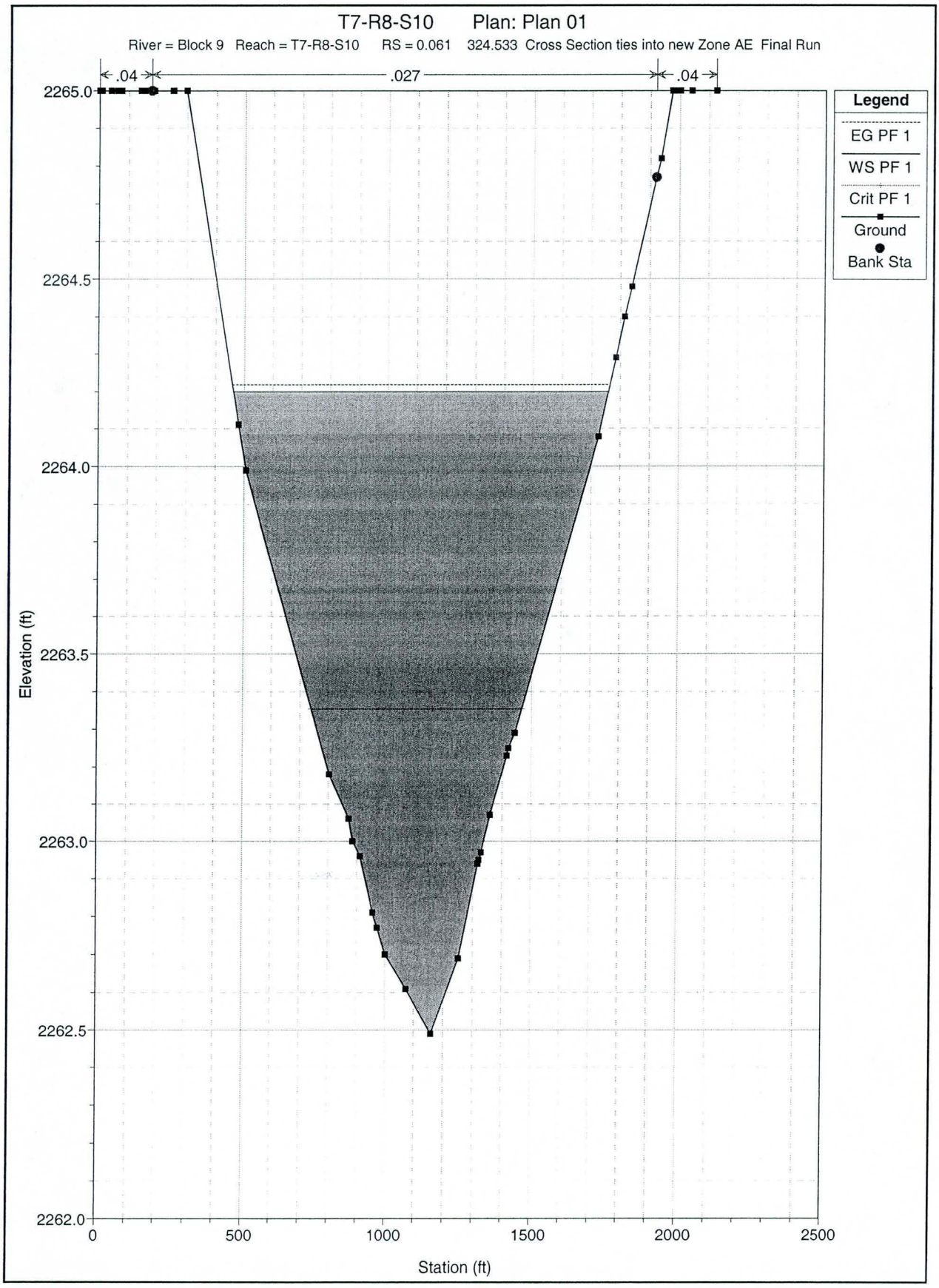

1.117
0.889
Block 9
T7-R8-S10
0.608
0.331
0.061


T7-R8-S10 Plan: Plan 01
River = Block 9 Reach = T7-R8-S10 RS = 1.117 5896.864 Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2329
2328
2327
2326
2325
2324
0
200
400
600
800


T7-R8-S10 Plan: Plan 01
River = Block 9 Reach = T7-R8-S10 RS = 0.889 4693.999 Final Run
.027
.04
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2306.4
2306.2
2306.0
2305.8
2305.6
2305.4
2305.2
2305.0
2304.8
2304.6
0
100
200
300
400
500
600
700
800


T7-R8-S10 Plan: Plan 01
River = Block 9 Reach = T7-R8-S10 RS = 0.608 3208.672 Final Run
.027
.04
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2285.0
2284.5
2284.0
2283.5
2283.0
2282.5
Elevation (ft)
0
200
400
600
800
1000
1200
Station (ft)


T7-R8-S10 Plan: Plan 01
River = Block 9 Reach = T7-R8-S10 RS = 0.381 2011.353 Final Run
.027
.04
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2275.4
2275.2
2275.0
2274.8
2274.6
2274.4
2274.2
2274.0
2273.8
0
200
400
600
800
1000
1200
Station (ft)


T7-R8-S10 Plan: Plan 01
River = Block 9 Reach = T7-R8-S10 RS = 0.061 324.533 Cross Section ties into new Zone AE Final Run
.04
.027
.04
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2265.0
2264.5
2264.0
2263.5
2263.0
2262.5
2262.0
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)

Plan: Plan 01 Block 9 T7-R8-S10 RS: 1.117 Profile: PF 1

E.G. Elev (ft)	2325.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.027	
W.S. Elev (ft)	2325.52	Reach Len. (ft)	2804.64	1202.86	1152.07
Crit W.S. (ft)	2325.52	Flow Area (sq ft)		299.74	
E.G. Slope (ft/ft)	0.013050	Area (sq ft)		299.74	
Q Total (cfs)	1317.00	Flow (cfs)		1317.00	
Top Width (ft)	512.99	Top Width (ft)		512.99	
Vel Total (ft/s)	4.39	Avg. Vel. (ft/s)		4.39	
Max Chl Dpth (ft)	1.01	Hydr. Depth (ft)		0.58	
Conv. Total (cfs)	11528.8	Conv. (cfs)		11528.8	
Length Wtd. (ft)	1202.86	Wetted Per. (ft)		513.00	
Min Ch El (ft)	2324.51	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		2.09	
Frctn Loss (ft)	15.77	Cum Volume (acre-ft)		61.93	
C & E Loss (ft)	0.01	Cum SA (acres)		95.20	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 9 T7-R8-S10 RS: 0.889 Profile: PF 1

E.G. Elev (ft)	2305.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.027	
W.S. Elev (ft)	2305.54	Reach Len. (ft)	955.19	1485.33	1152.07
Crit W.S. (ft)	2305.54	Flow Area (sq ft)		312.32	
E.G. Slope (ft/ft)	0.013163	Area (sq ft)		312.32	
Q Total (cfs)	1317.00	Flow (cfs)		1317.00	
Top Width (ft)	572.25	Top Width (ft)		572.25	
Vel Total (ft/s)	4.22	Avg. Vel. (ft/s)		4.22	
Max Chl Dpth (ft)	0.91	Hydr. Depth (ft)		0.55	
Conv. Total (cfs)	11478.9	Conv. (cfs)		11478.9	
Length Wtd. (ft)	1485.33	Wetted Per. (ft)		572.25	
Min Ch El (ft)	2304.63	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		1.89	
Frctn Loss (ft)	12.00	Cum Volume (acre-ft)		53.48	
C & E Loss (ft)	0.04	Cum SA (acres)		80.21	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 9 T7-R8-S10 RS: 0.608 Profile: PF 1

E.G. Elev (ft)	2284.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.027	
W.S. Elev (ft)	2284.51	Reach Len. (ft)	955.19	1197.32	1152.07
Crit W.S. (ft)	2284.33	Flow Area (sq ft)		443.78	
E.G. Slope (ft/ft)	0.005461	Area (sq ft)		443.78	
Q Total (cfs)	1317.00	Flow (cfs)		1317.00	
Top Width (ft)	711.90	Top Width (ft)		711.90	
Vel Total (ft/s)	2.97	Avg. Vel. (ft/s)		2.97	
Max Chl Dpth (ft)	1.54	Hydr. Depth (ft)		0.62	
Conv. Total (cfs)	17822.3	Conv. (cfs)		17822.3	
Length Wtd. (ft)	1197.32	Wetted Per. (ft)		711.91	
Min Ch El (ft)	2282.97	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		0.63	
Frctn Loss (ft)	9.88	Cum Volume (acre-ft)		40.59	
C & E Loss (ft)	0.01	Cum SA (acres)		58.32	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 9 T7-R8-S10 RS: 0.381 Profile: PF 1

E.G. Elev (ft)	2274.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.027	
W.S. Elev (ft)	2274.52	Reach Len. (ft)	1545.98	1686.84	1277.88
Crit W.S. (ft)	2274.52	Flow Area (sq ft)		334.50	
E.G. Slope (ft/ft)	0.013888	Area (sq ft)		334.50	
Q Total (cfs)	1317.00	Flow (cfs)		1317.00	
Top Width (ft)	707.22	Top Width (ft)		707.22	
Vel Total (ft/s)	3.94	Avg. Vel. (ft/s)		3.94	
Max Chl Dpth (ft)	0.78	Hydr. Depth (ft)		0.47	
Conv. Total (cfs)	11175.4	Conv. (cfs)		11175.4	
Length Wtd. (ft)	1686.84	Wetted Per. (ft)		707.22	
Min Ch El (ft)	2273.74	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		1.61	
Frctn Loss (ft)	2.10	Cum Volume (acre-ft)		29.89	
C & E Loss (ft)	0.07	Cum SA (acres)		38.82	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 9 T7-R8-S10 RS: 0.061 Profile: PF 1

E.G. Elev (ft)	2264.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.027	
W.S. Elev (ft)	2264.20	Reach Len. (ft)			
Crit W.S. (ft)	2263.35	Flow Area (sq ft)		1209.22	
E.G. Slope (ft/ft)	0.000430	Area (sq ft)		1209.22	
Q Total (cfs)	1317.00	Flow (cfs)		1317.00	
Top Width (ft)	1297.49	Top Width (ft)		1297.49	
Vel Total (ft/s)	1.09	Avg. Vel. (ft/s)		1.09	
Max Chl Dpth (ft)	1.71	Hydr. Depth (ft)		0.93	
Conv. Total (cfs)	63494.8	Conv. (cfs)		63494.8	
Length Wtd. (ft)		Wetted Per. (ft)		1297.50	
Min Ch El (ft)	2262.49	Shear (lb/sq ft)		0.03	
Alpha	1.00	Stream Power (lb/ft s)		0.03	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 9\ArcView\T7R8S10.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 9\ArcView\T7R8S10.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 9\ArcView\T7R8S10.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 9\ArcView\T7R8S10.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 9\ArcView\T7R8S10.nt
Selected profiles: PF 1
Date: 12/3/2003
Time: 9:39:34 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block 9,T7-R8-S10						
1.117		0.04	0.027	0.04	0.1	0.3
.889		0.04	0.027	0.04	0.1	0.3
.608		0.04	0.027	0.04	0.1	0.3
.381		0.04	0.027	0.04	0.1	0.3
.061		0.04	0.027	0.04	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.04	0.04
Right Overbank n Value:	0.04	0.04
Channel n Value:	0.027	0.027
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 9\ArcView\T7R8S10.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 9\ArcView\T7R8S10.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 9\ArcView\T7R8S10.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 9\ArcView\T7R8S10.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 9\ArcView\T7R8S10.xs
Selected profiles: PF 1
Date: 12/2/2003
Time: 1:57:59 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Block 9,T7-R8-S10						
1.117	2804.64	1202.86	1152.07	512.99	1317	C
0.889	955.19	1485.33	1152.07	572.25	1317	C
0.608	955.19	1197.32	1152.07	711.9	1317	
0.381	1545.98	1686.84	1277.88	707.22	1317	C
0.061	416.78	329.18	920.41	1297.49	1317	

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 0.061
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

XS DC 02 Constant dicharge used for the Block 9,T7-R8-S10

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Block 9,T7-R8-S10
Known WS = 2264.2 is specified as the downstream boundary
for profile PF 1

---END---

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

Explanation:
Cross sections were cut in order to take in channel geometry.

DISCHARGE CHECK

Warning:
Constant discharge used for the reach.

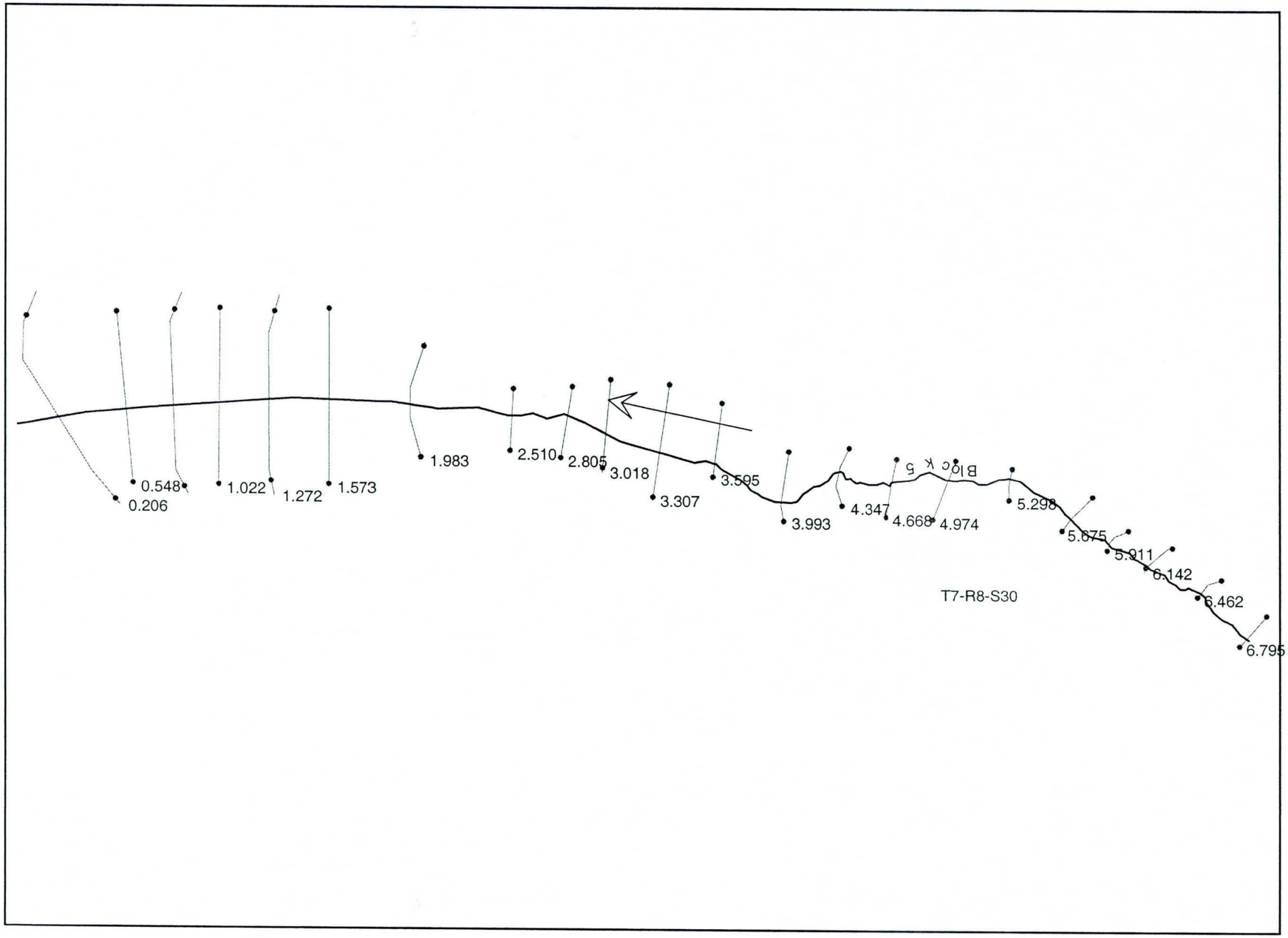
Explanation:
The discharge was determined from the regression equations for the sub basin. The Flood Control District of Maricopa County also approved the peak discharge values.

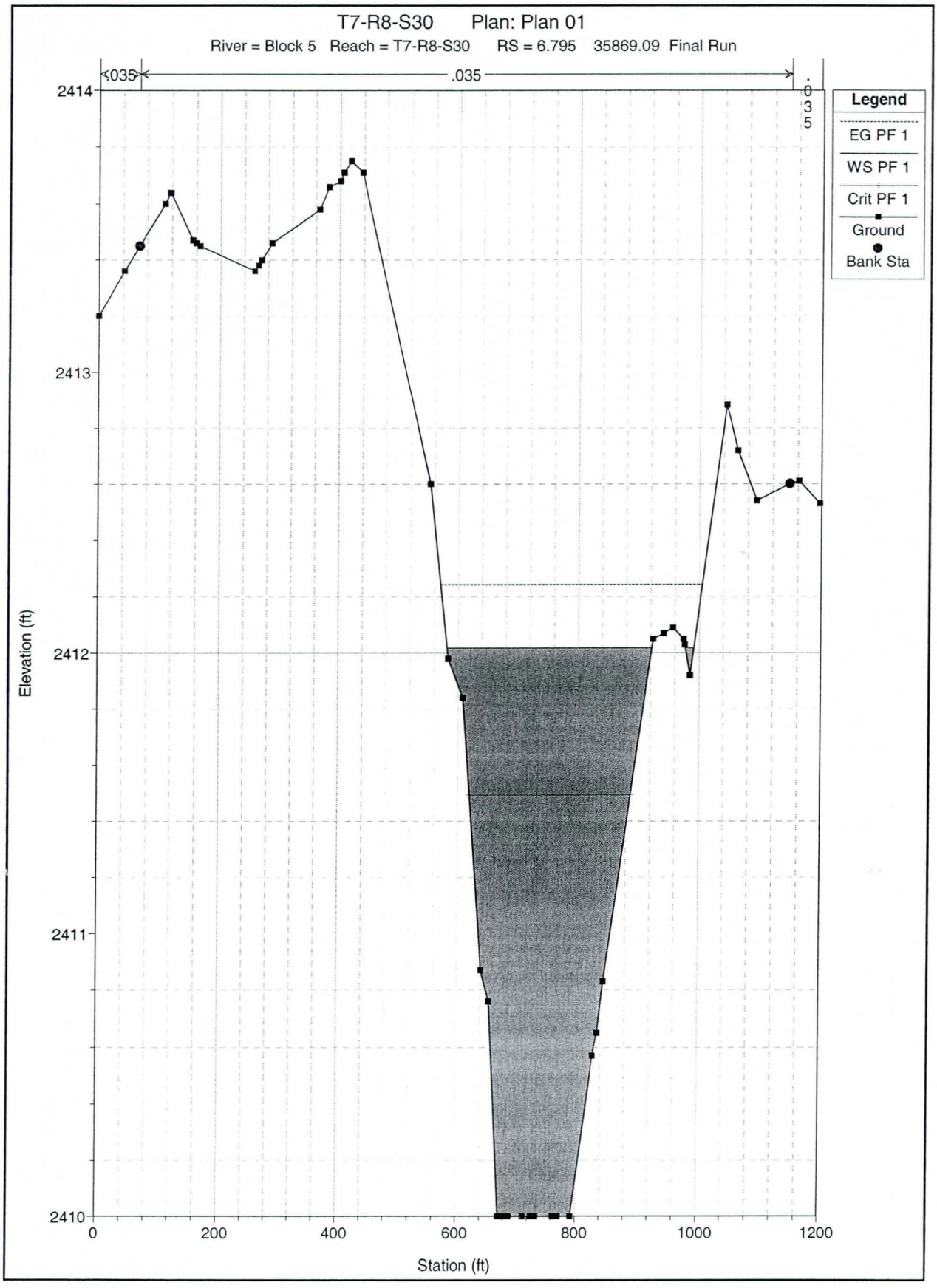
BOUNDARY CONDITION CHECK

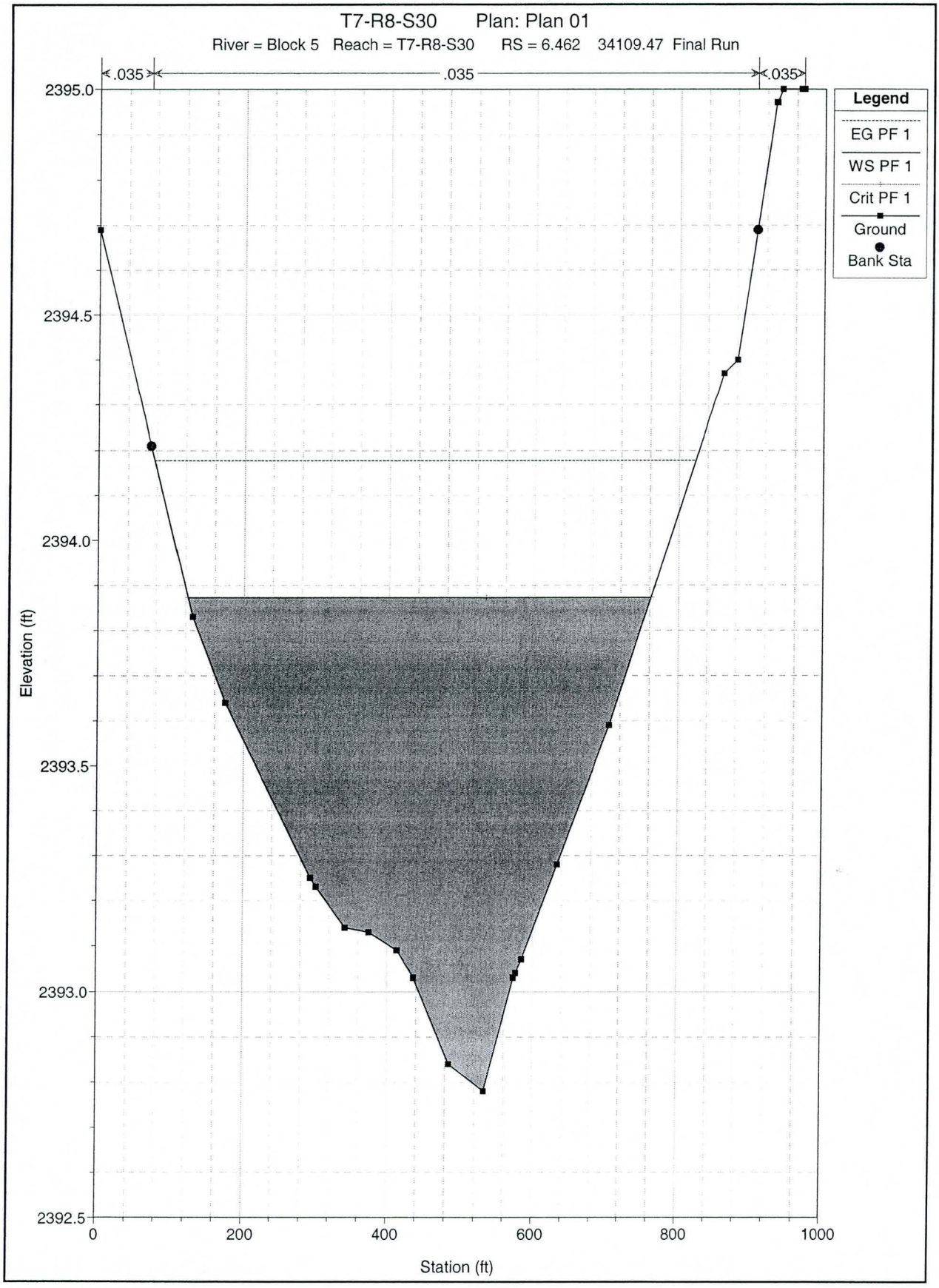
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

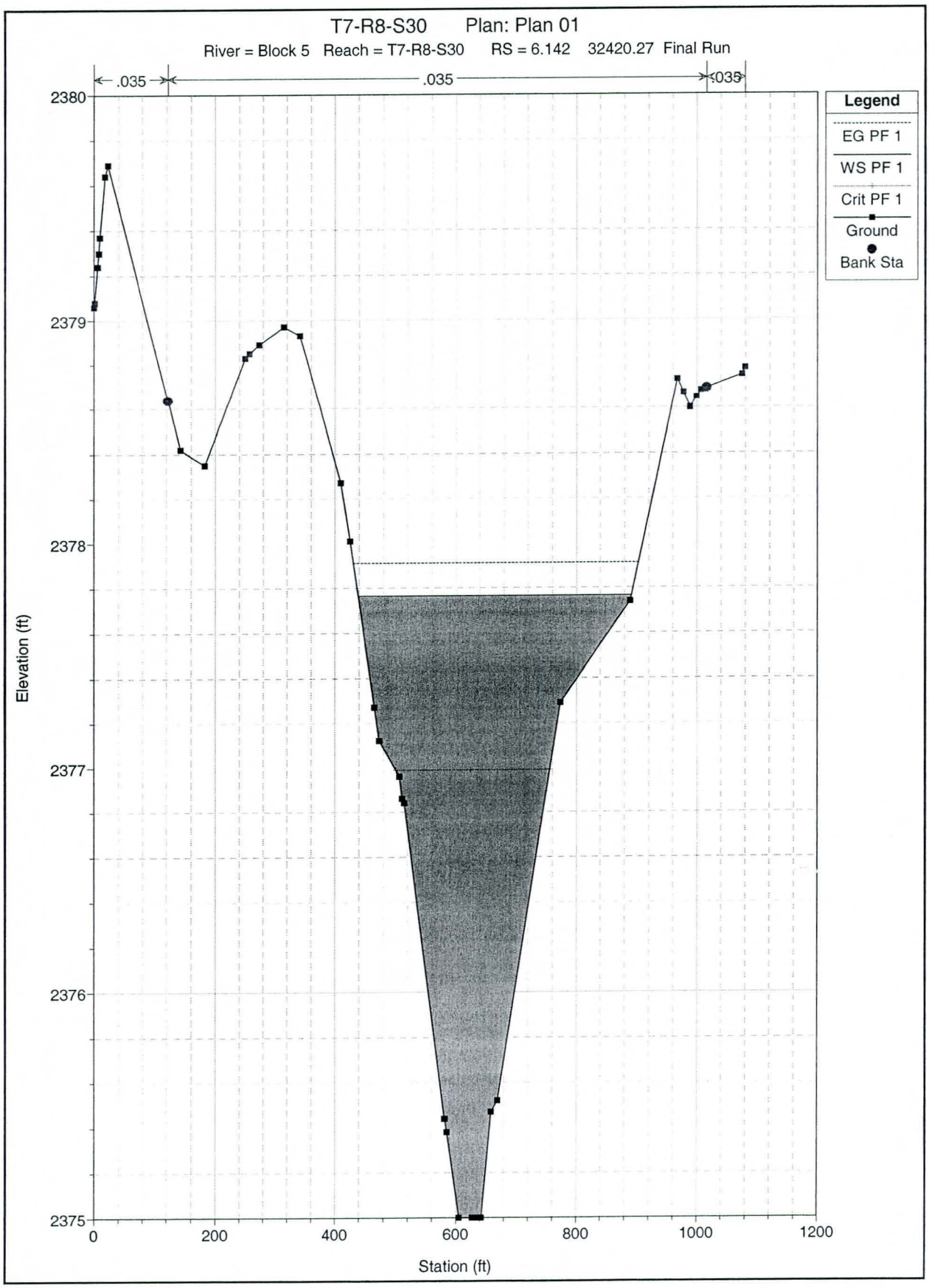
HEC-RAS Plan: Plan 01 River: Block 5 Reach: T7-R8-S30 Profile: PF 1

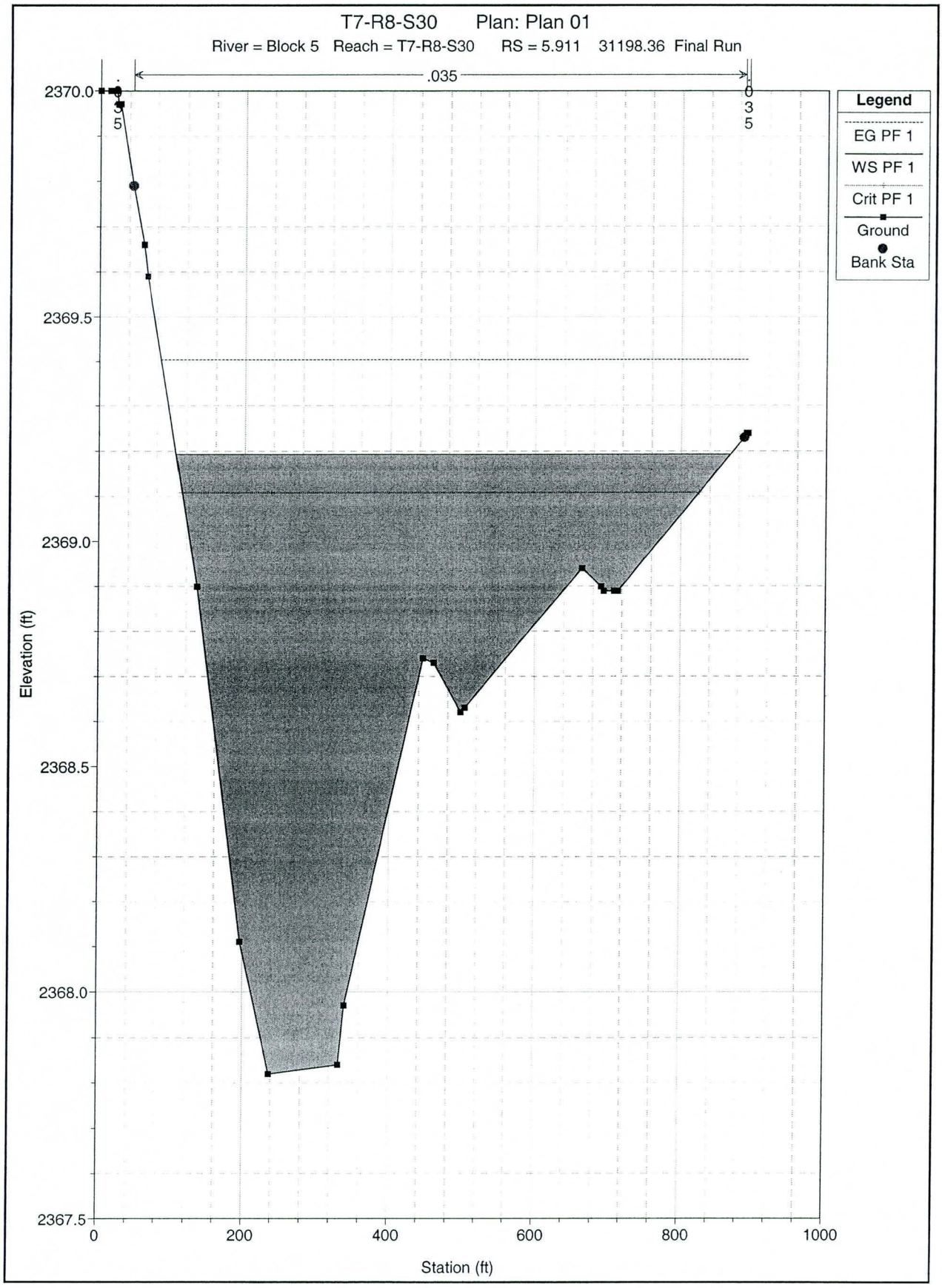
Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R8-S30	6.795	1689.00	2412.02	2411.49	3.81	355.10	2.02	0.60	580.82	991.07
T7-R8-S30	6.462	1689.00	2393.87	2393.87	4.43	638.90	1.09	1.01	123.11	762.01
T7-R8-S30	6.142	1689.00	2377.77	2376.99	3.06	453.25	2.77	0.49	438.14	891.38
T7-R8-S30	5.911	1689.00	2369.19	2369.11	3.69	762.85	1.37	0.84	105.31	868.16
T7-R8-S30	5.675	1689.00	2357.09	2356.71	3.70	421.16	2.09	0.63	367.86	789.02
T7-R8-S30	5.298	1689.00	2338.70	2338.59	3.96	583.39	1.26	0.82	167.27	750.67
T7-R8-S30	4.974	1689.00	2323.87	2323.61	2.31	1273.07	0.93	0.54	271.51	1544.59
T7-R8-S30	4.668	1689.00	2313.55	2313.35	2.24	1434.69	1.01	0.55	128.68	1563.37
T7-R8-S30	4.347	1689.00	2303.66	2303.25	2.39	1022.66	1.51	0.51	255.65	1278.31
T7-R8-S30	3.993	1689.00	2291.84	2291.59	2.98	799.41	1.67	0.62	382.68	1182.09
T7-R8-S30	3.595	1689.00	2276.86	2276.46	3.61	431.60	1.86	0.61	754.44	1186.04
T7-R8-S30	3.307	1689.00	2266.45	2266.11	3.83	404.69	1.45	0.65	2263.90	2668.59
T7-R8-S30	3.018	1689.00	2256.93	2256.68	2.28	1214.99	1.05	0.51	765.41	1980.40
T7-R8-S30	2.805	1689.00	2251.49	2250.97	3.01	487.03	1.49	0.49	786.80	1273.83
T7-R8-S30	2.510	1689.00	2242.83	2242.38	3.73	450.84	2.82	0.66	758.79	1209.63
T7-R8-S30	1.983	1689.00	2228.11	2227.87	1.64	2132.72	0.80	0.42	489.90	2622.62
T7-R8-S30	1.573	3268.00	2215.88	2215.63	2.87	1563.12	0.88	0.59	302.05	1865.17
T7-R8-S30	1.272	3268.00	2209.68		0.82	4495.59	1.59	0.15	384.90	4880.49
T7-R8-S30	1.022	3268.00	2202.42	2201.97	1.64	3565.02	1.49	0.39	249.49	4117.25
T7-R8-S30	0.788	3268.00	2197.82	2196.84	0.70	4497.52	2.14	0.12	539.25	5036.77
T7-R8-S30	0.548	3268.00	2192.74		1.68	4192.98	0.66	0.43	269.65	4462.63
T7-R8-S30	0.206	3268.00	2186.25	2185.32	0.71	3933.43	1.25	0.12	1715.53	5648.96

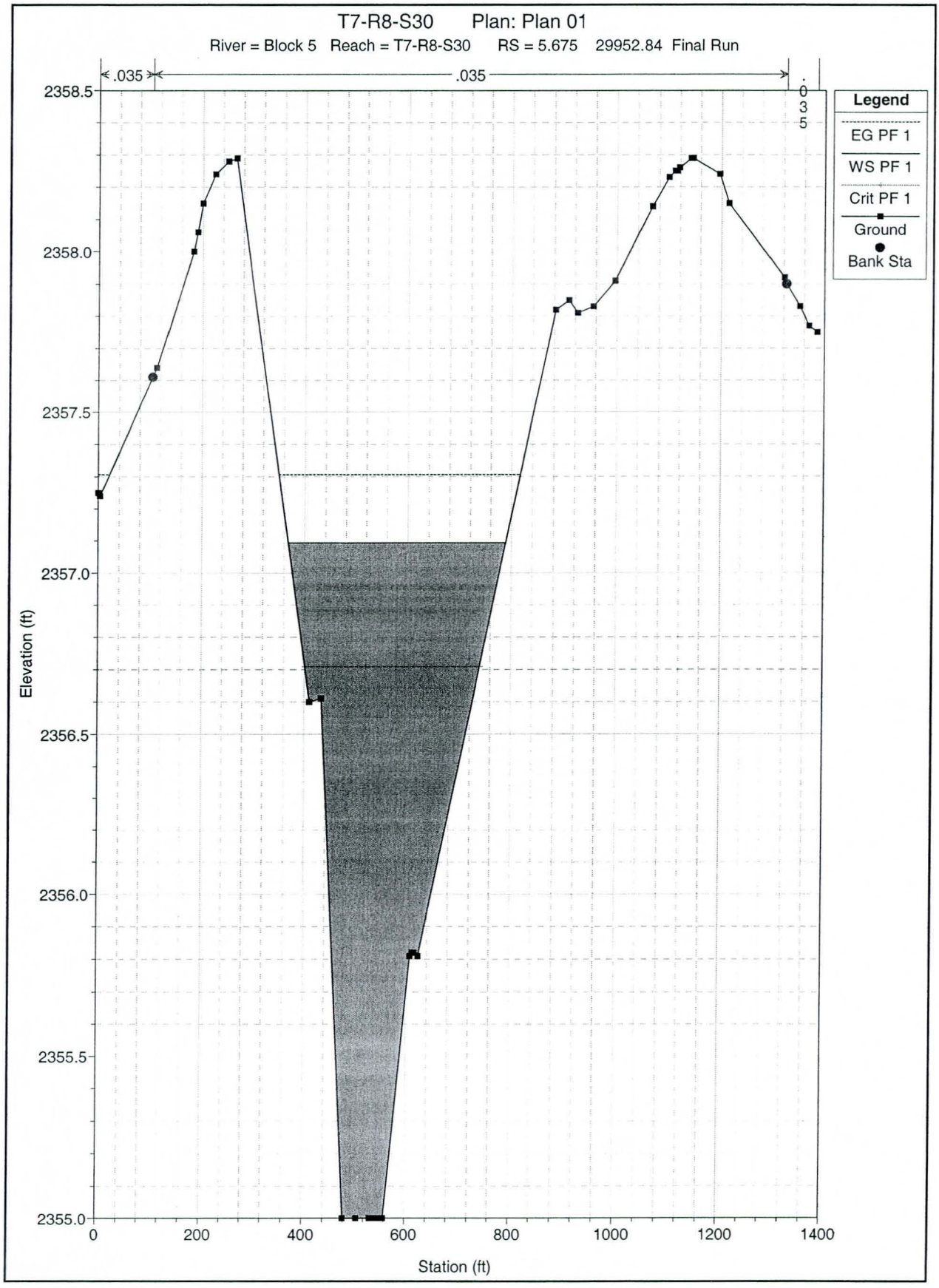

0.206
0.548
1.022
1.272
1.573
1.983
2.510
2.805
3.018
3.307
3.595
3.993
4.347
4.668
4.974
Block 5
5.298
5.675
5.911
6.142
6.462
6.795
T7-R8-S30

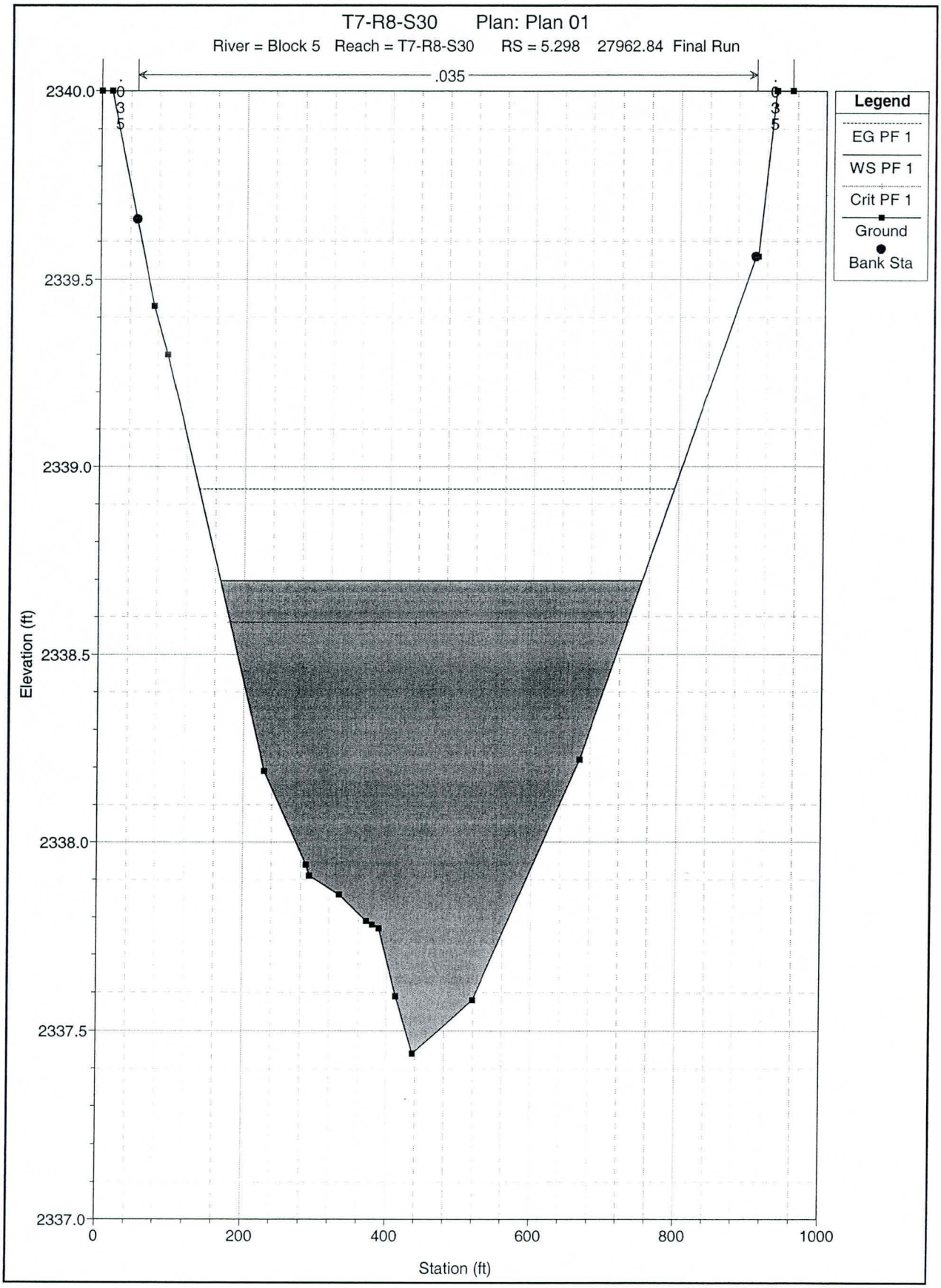

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 6.795 35869.09 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2414
2413
2412
2411
2410
0
200
400
600
800
1000
1200
Station (ft)

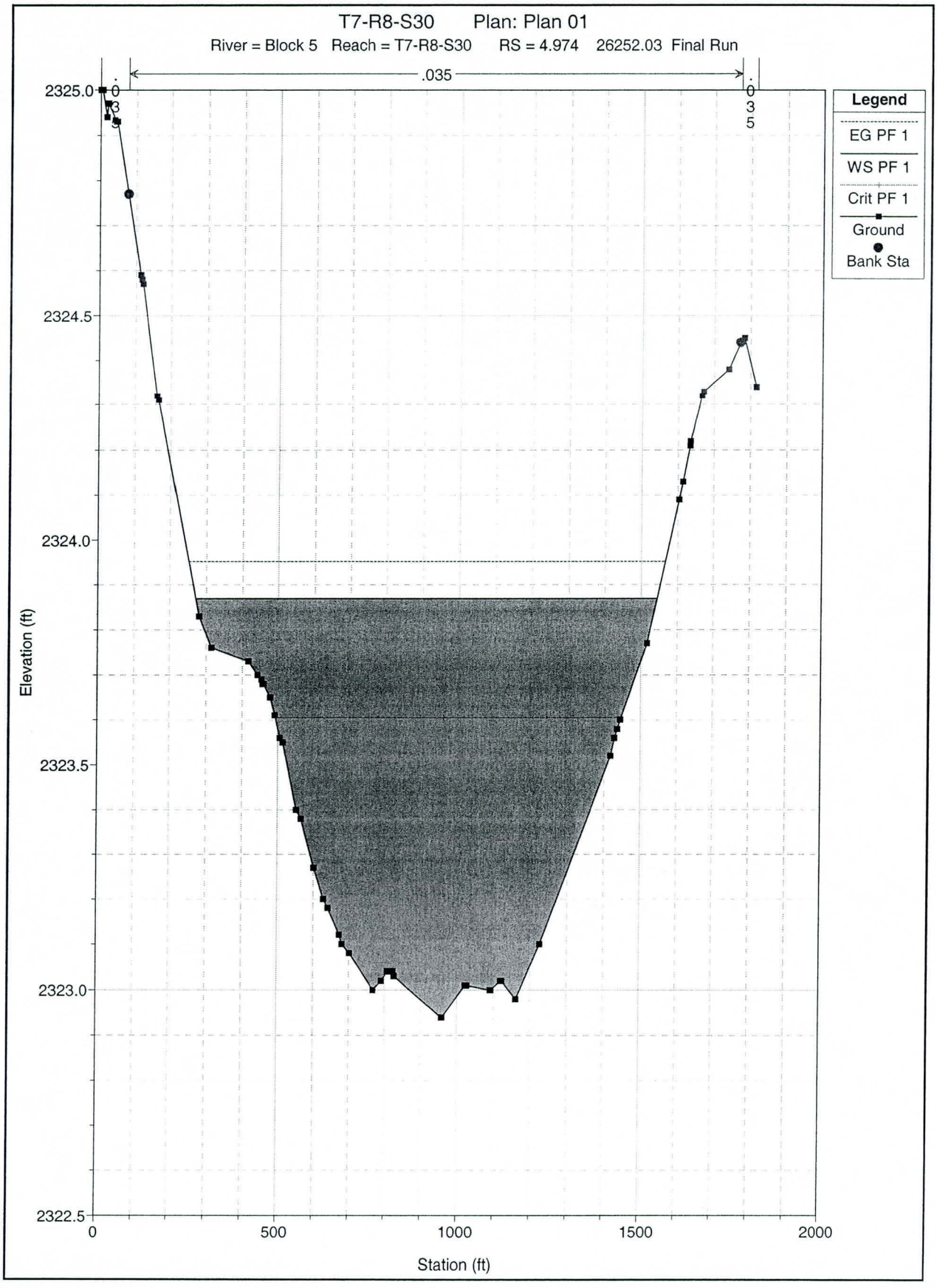

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 6.462 34109.47 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2395.0
2394.5
2394.0
2393.5
2393.0
2392.5
Elevation (ft)
0
200
400
600
800
1000
Station (ft)

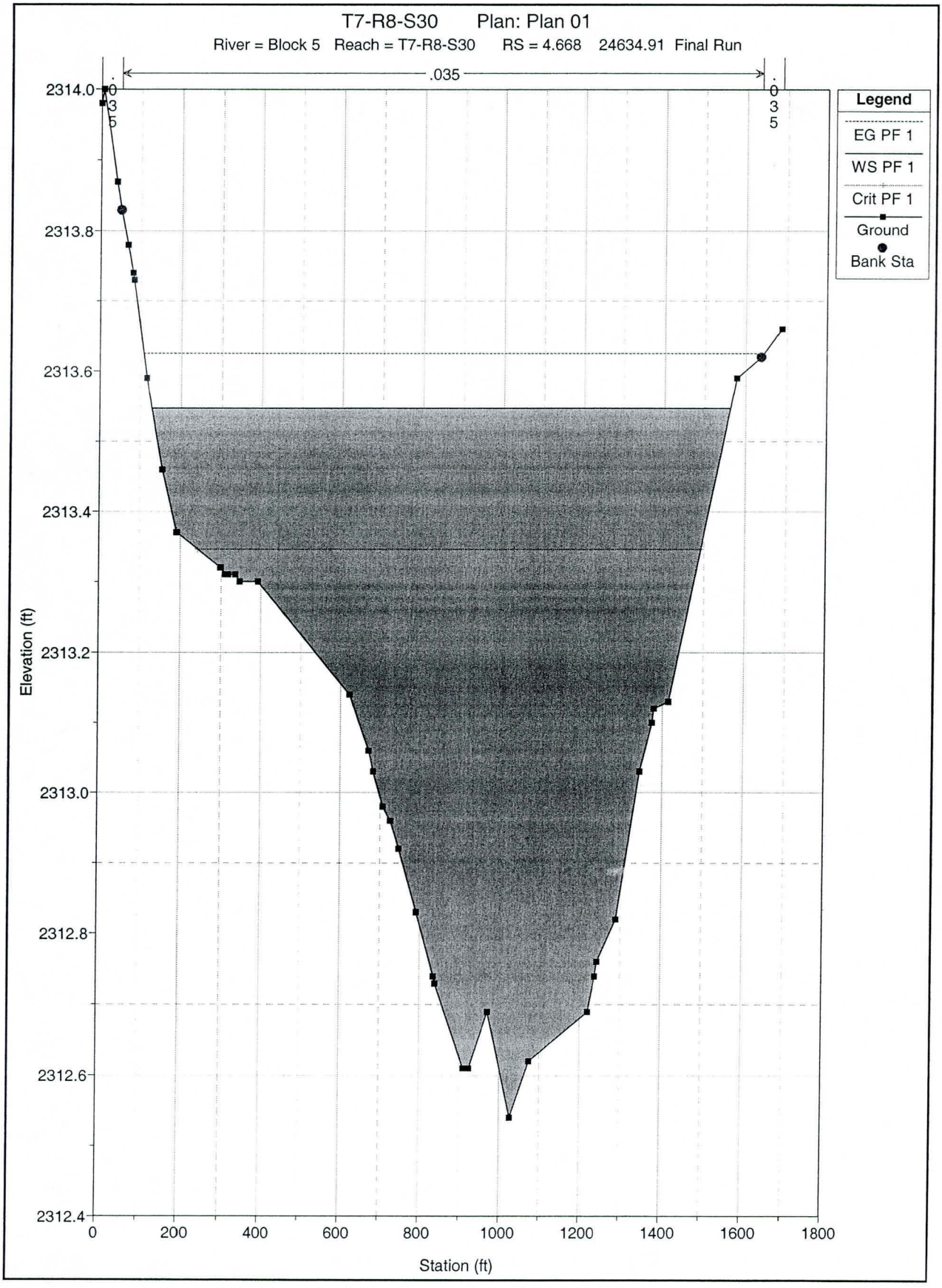

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 6.142 32420.27 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2380
2379
2378
2377
2376
2375
0
200
400
600
800
1000
1200

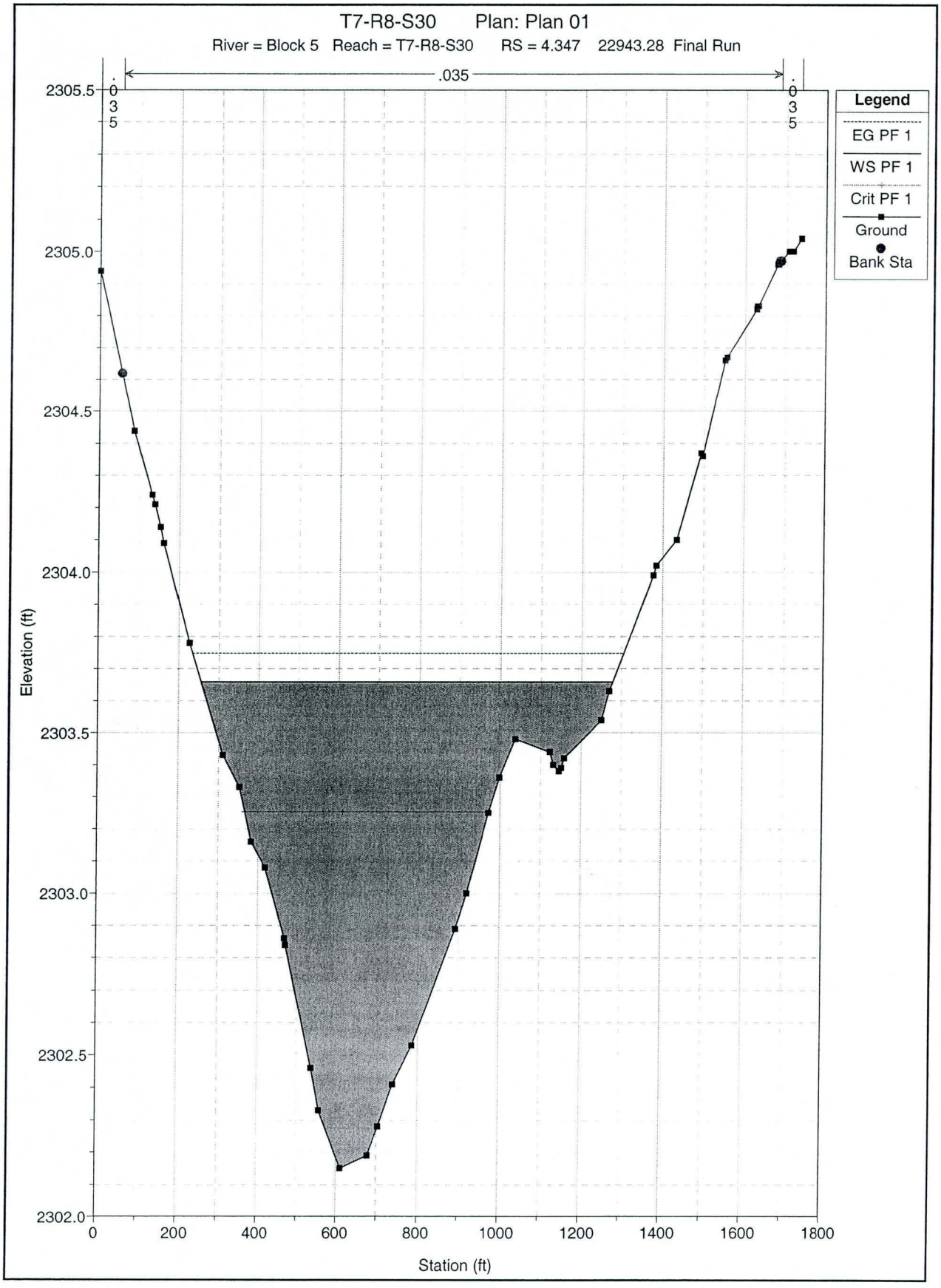

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 5.911 31198.36 Final Run
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2370.0
2369.5
2369.0
2368.5
2368.0
2367.5
Elevation (ft)
0
200
400
600
800
1000
Station (ft)

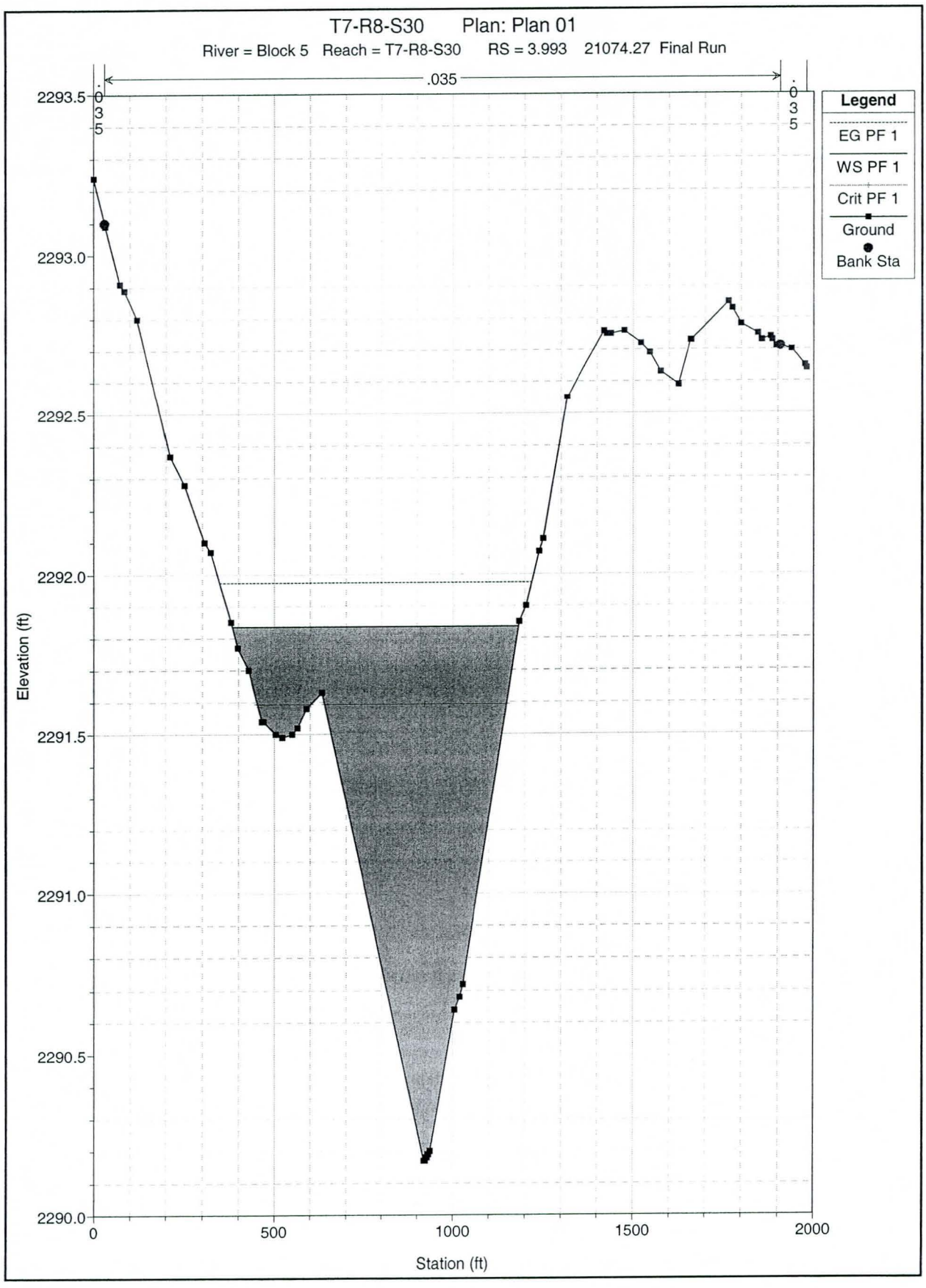

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 5.675 29952.84 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2358.5
2358.0
2357.5
2357.0
2356.5
2356.0
2355.5
2355.0
0
200
400
600
800
1000
1200
1400

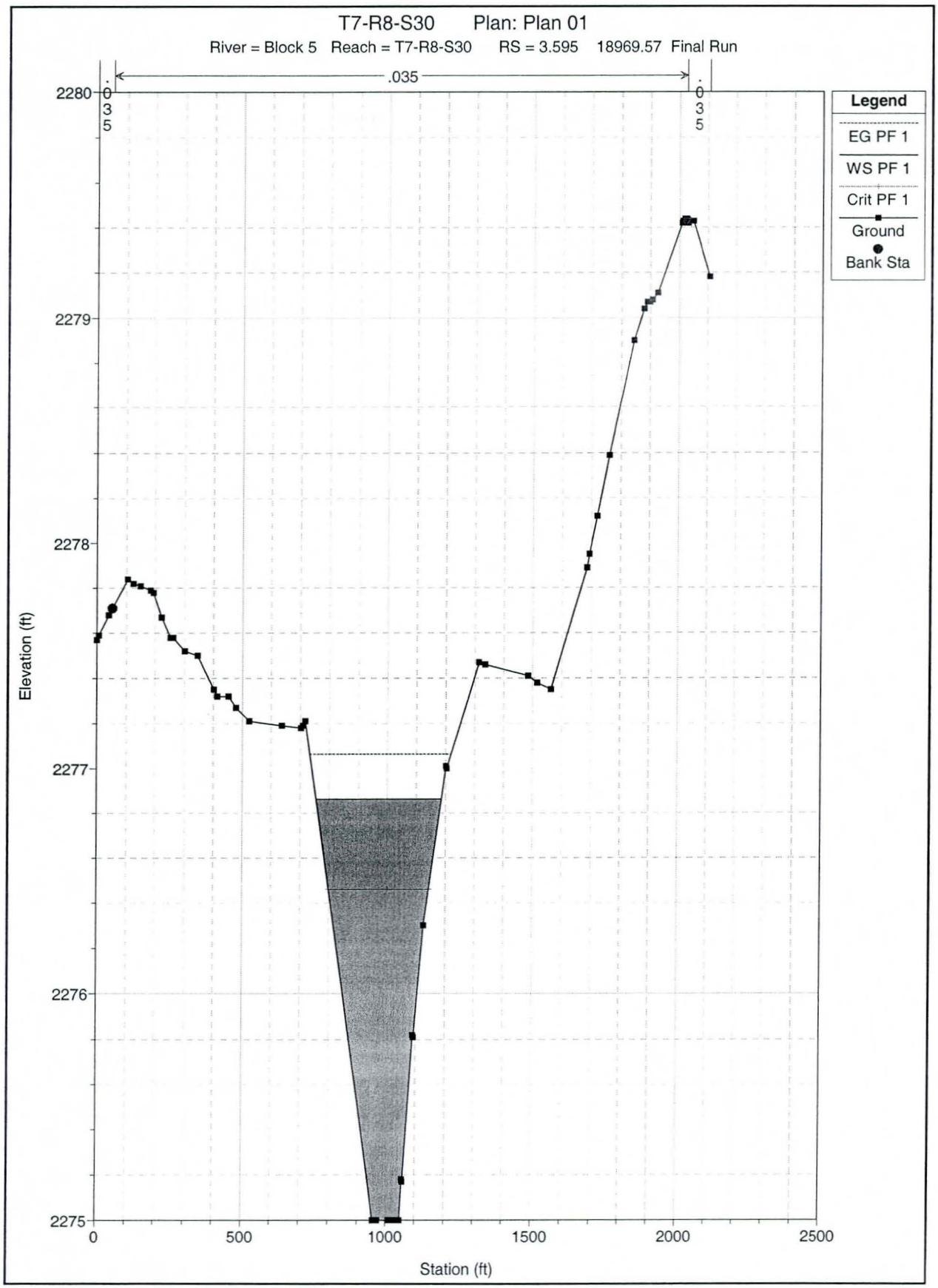

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 5.298 27962.84 Final Run
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2340.0
2339.5
2339.0
2338.5
2338.0
2337.5
2337.0
0
200
400
600
800
1000
Station (ft)

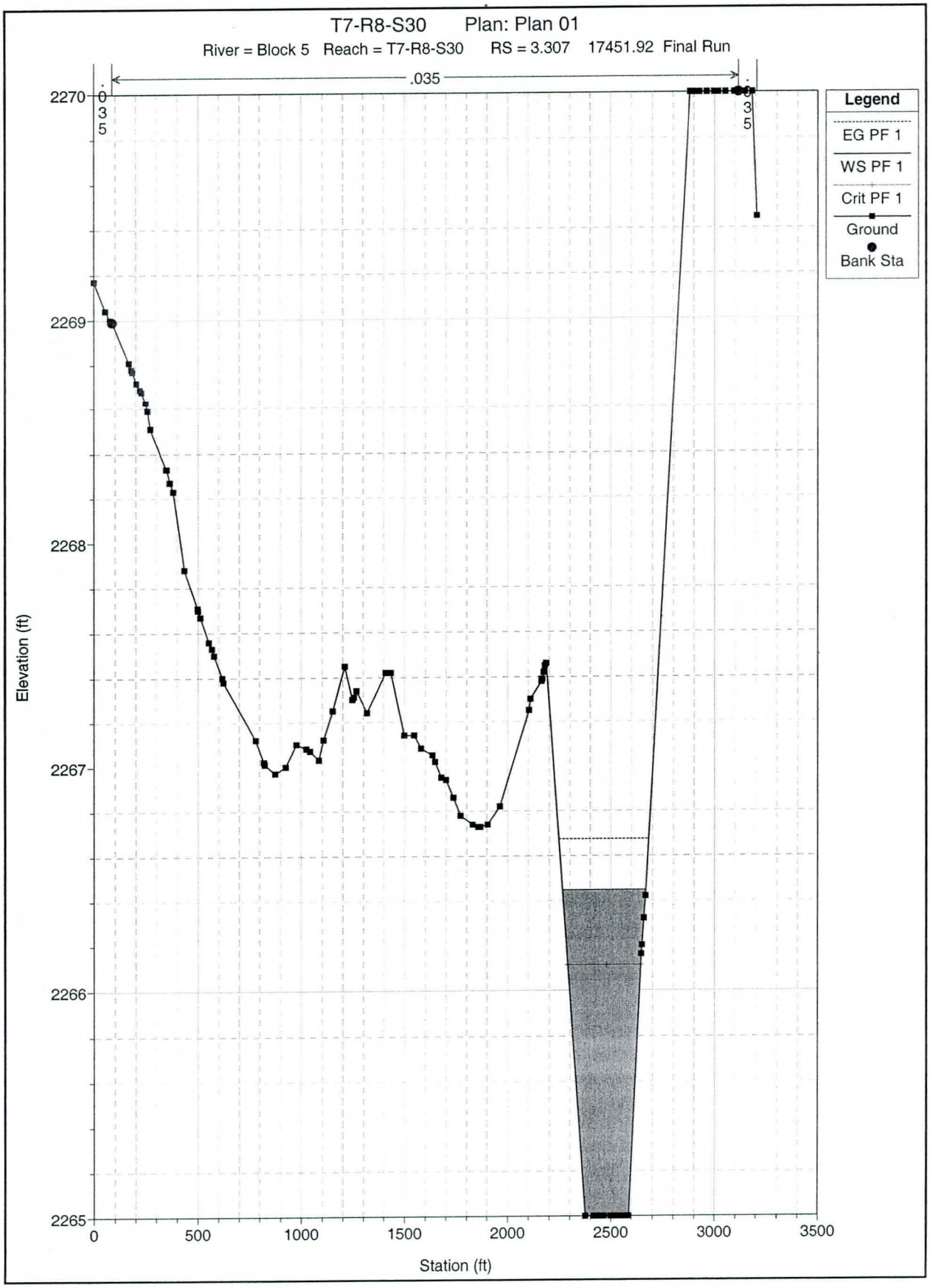

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 4.974 26252.03 Final Run
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2325.0
2324.5
2324.0
2323.5
2323.0
2322.5
Elevation (ft)
0
500
1000
1500
2000
Station (ft)

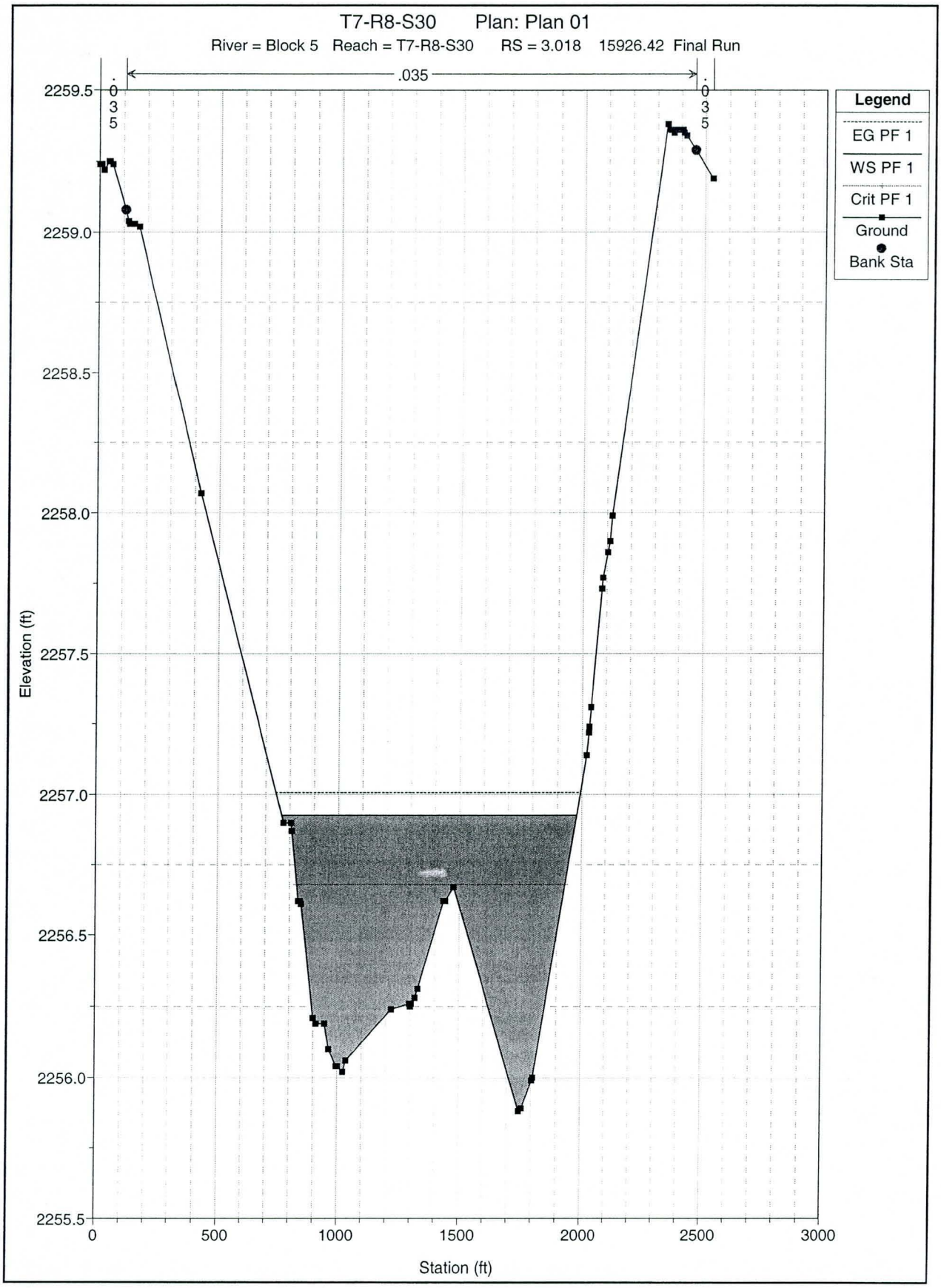

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 4.668 24634.91 Final Run
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2314.0
2313.8
2313.6
2313.4
2313.2
2313.0
2312.8
2312.6
2312.4
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)

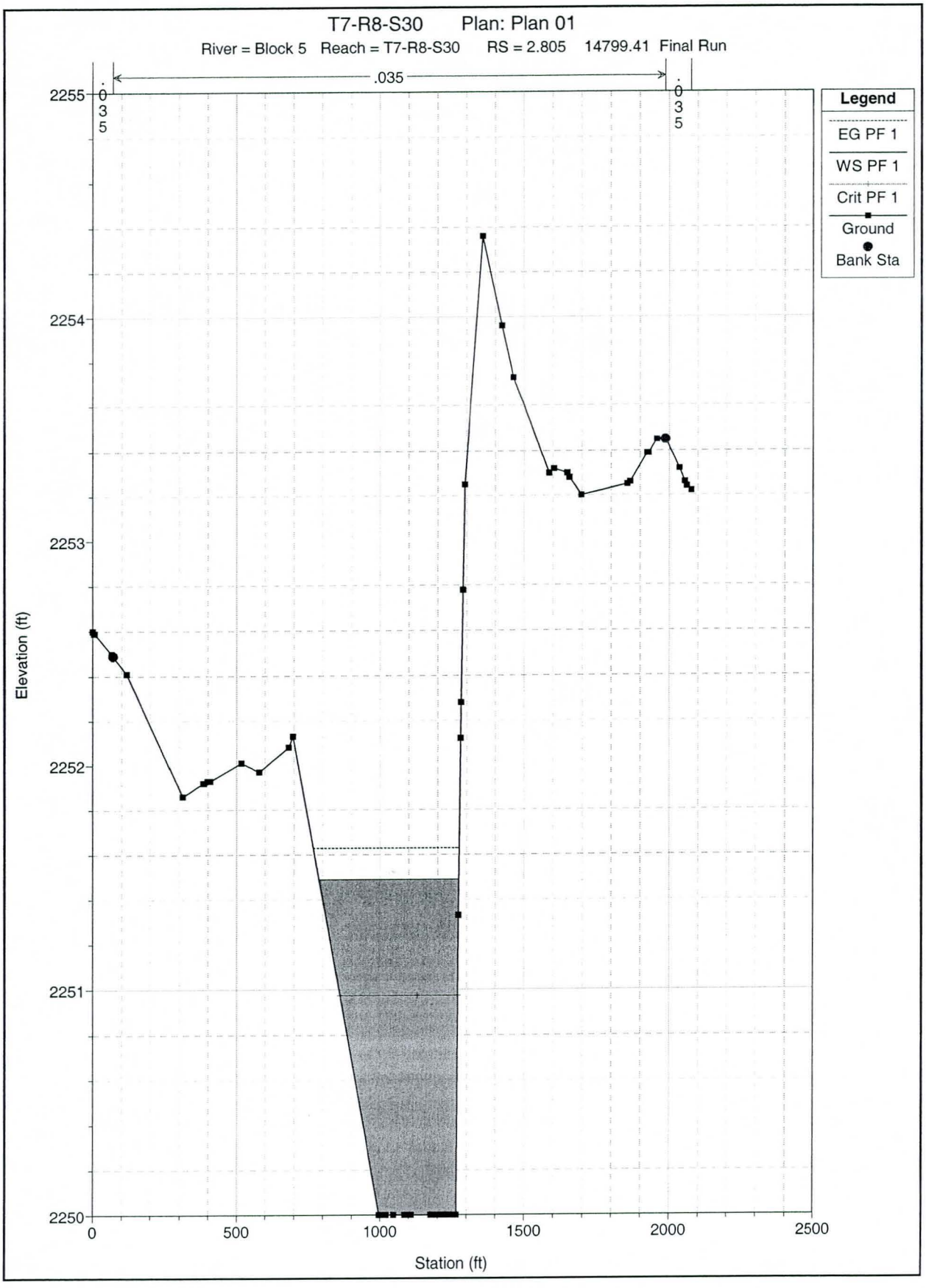

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 4.347 22943.28 Final Run
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2305.5
2305.0
2304.5
2304.0
2303.5
2303.0
2302.5
2302.0
0
200
400
600
800
1000
1200
1400
1600
1800

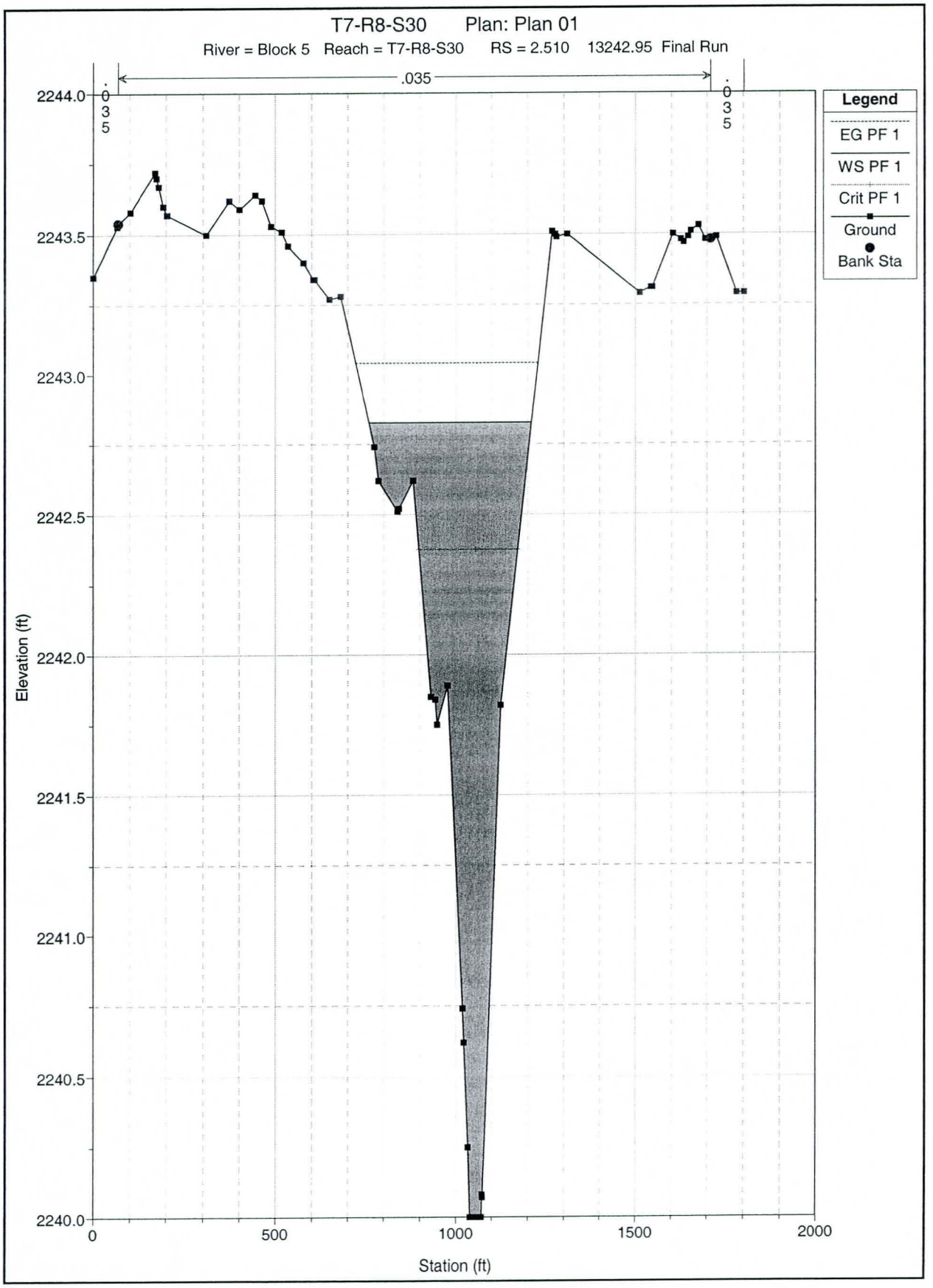

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 3.993 21074.27 Final Run
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2293.5
2293.0
2292.5
2292.0
2291.5
2291.0
2290.5
2290.0
Elevation (ft)
0
500
1000
1500
2000
Station (ft)

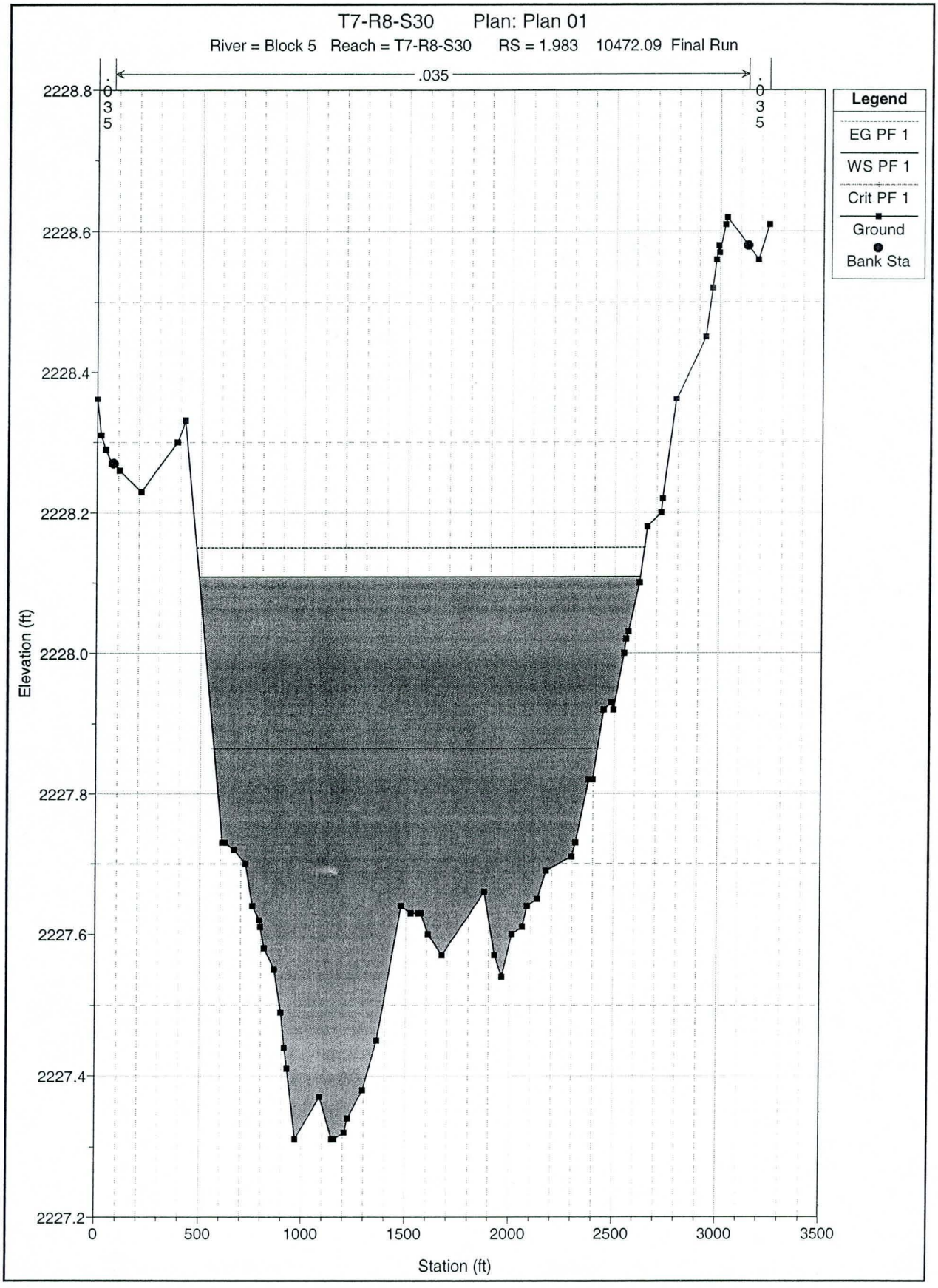

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 3.595 18969.57 Final Run
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2280
2279
2278
2277
2276
2275
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)

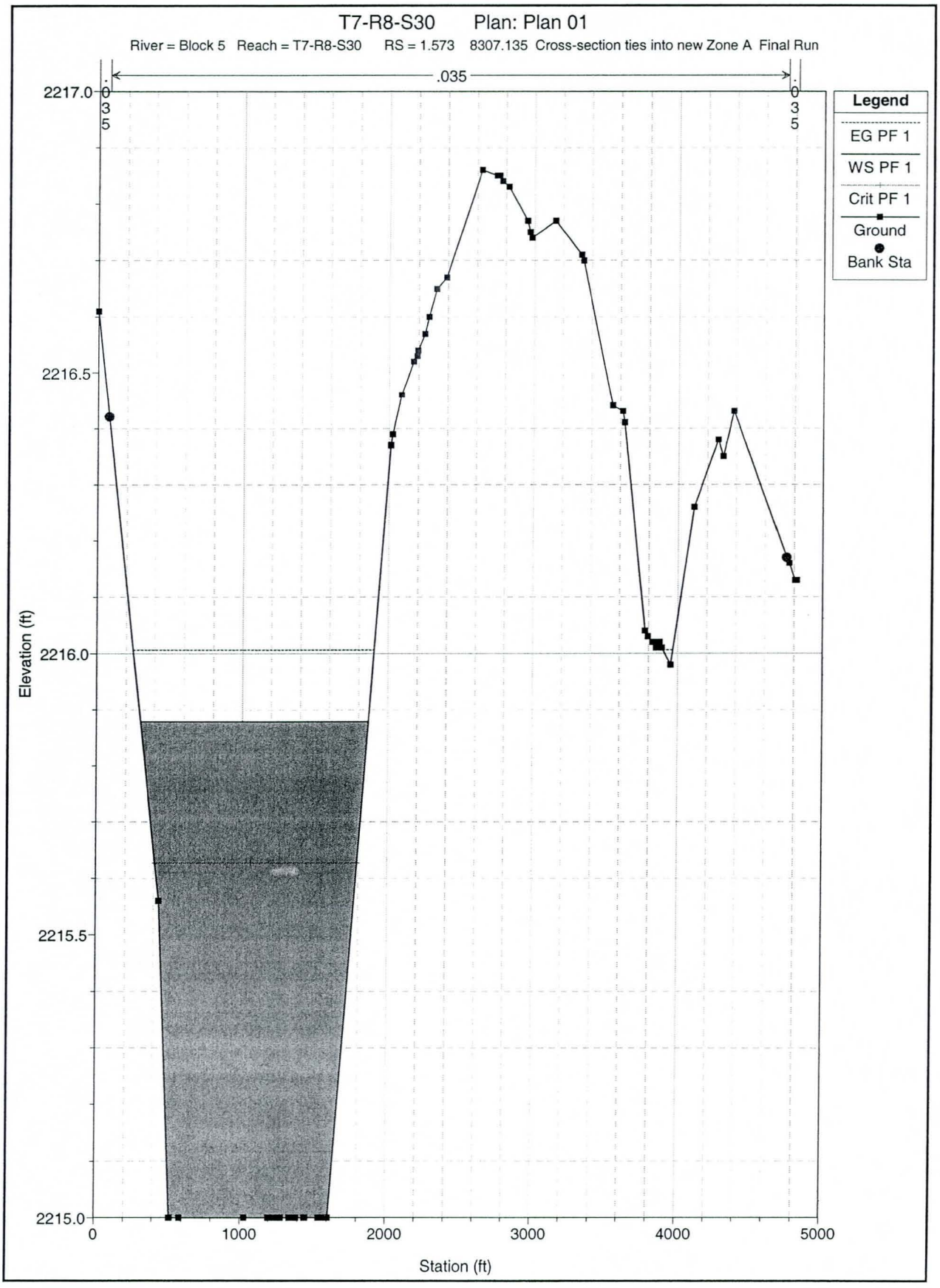

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 3.307 17451.92 Final Run
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2270
2269
2268
2267
2266
2265
0
500
1000
1500
2000
2500
3000
3500
Station (ft)

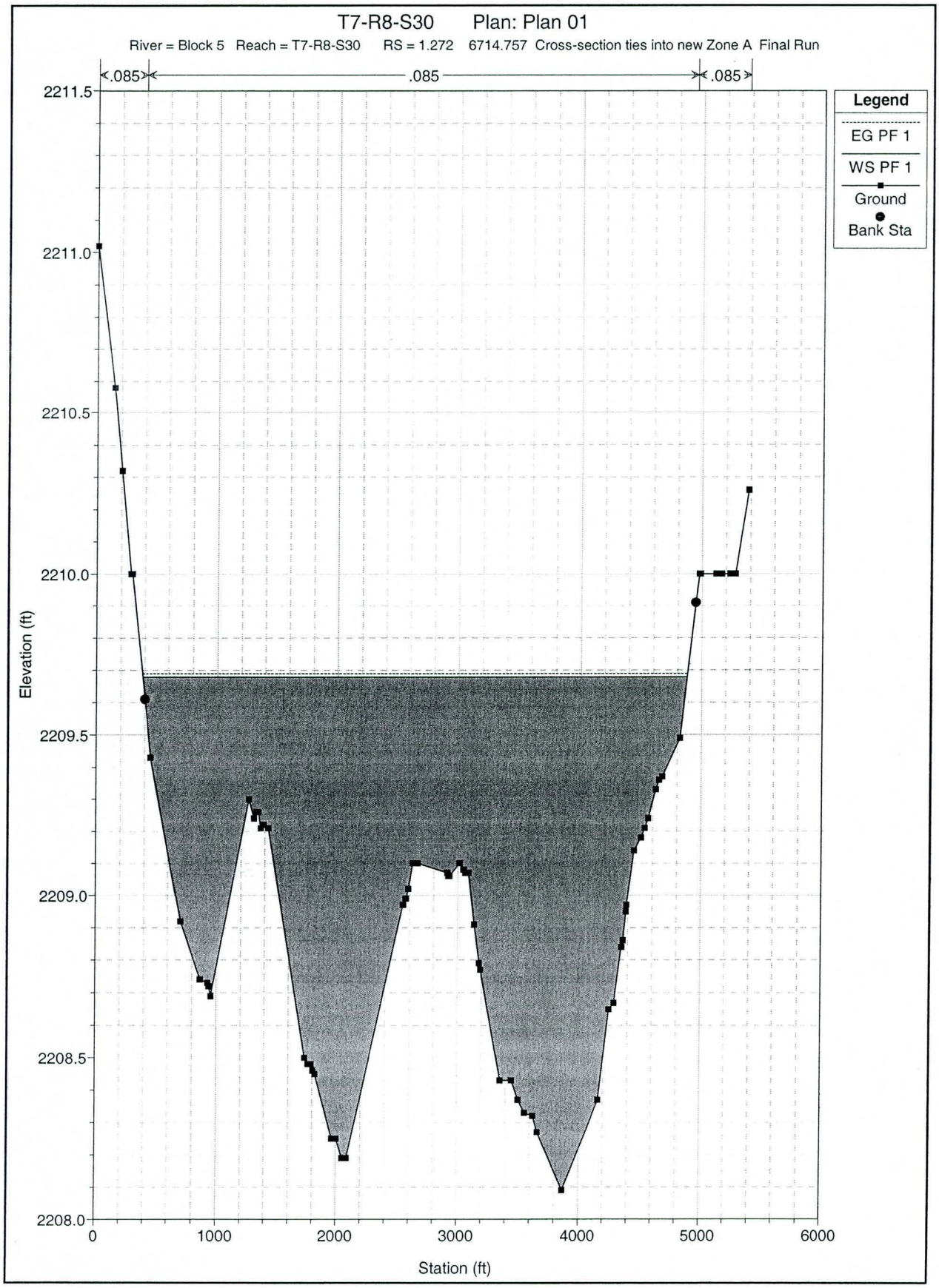

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 3.018 15926.42 Final Run
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2259.5
2259.0
2258.5
2258.0
2257.5
2257.0
2256.5
2256.0
2255.5
0
500
1000
1500
2000
2500
3000

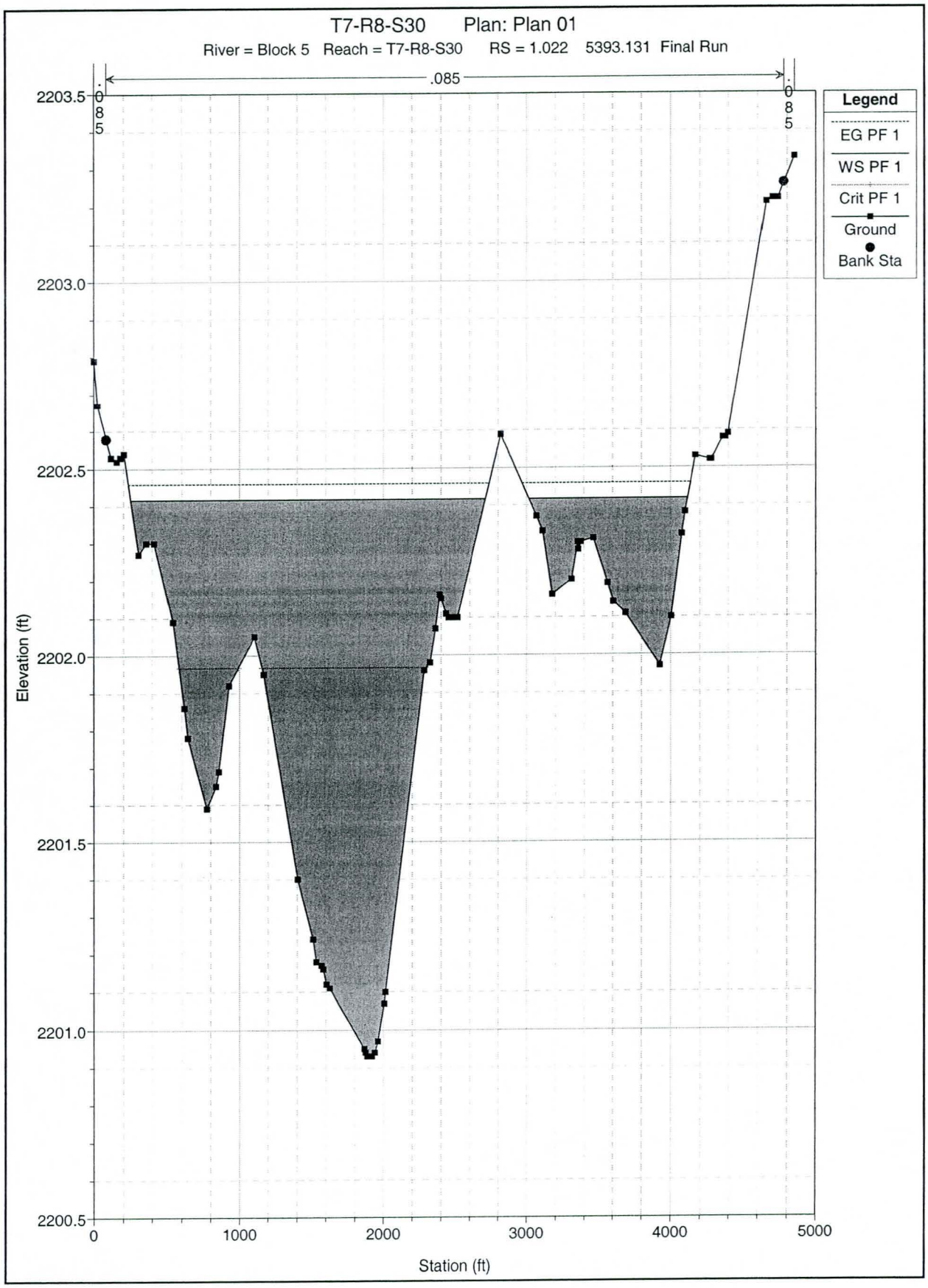

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 2.805 14799.41 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2255
2254
2253
2252
2251
2250
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)

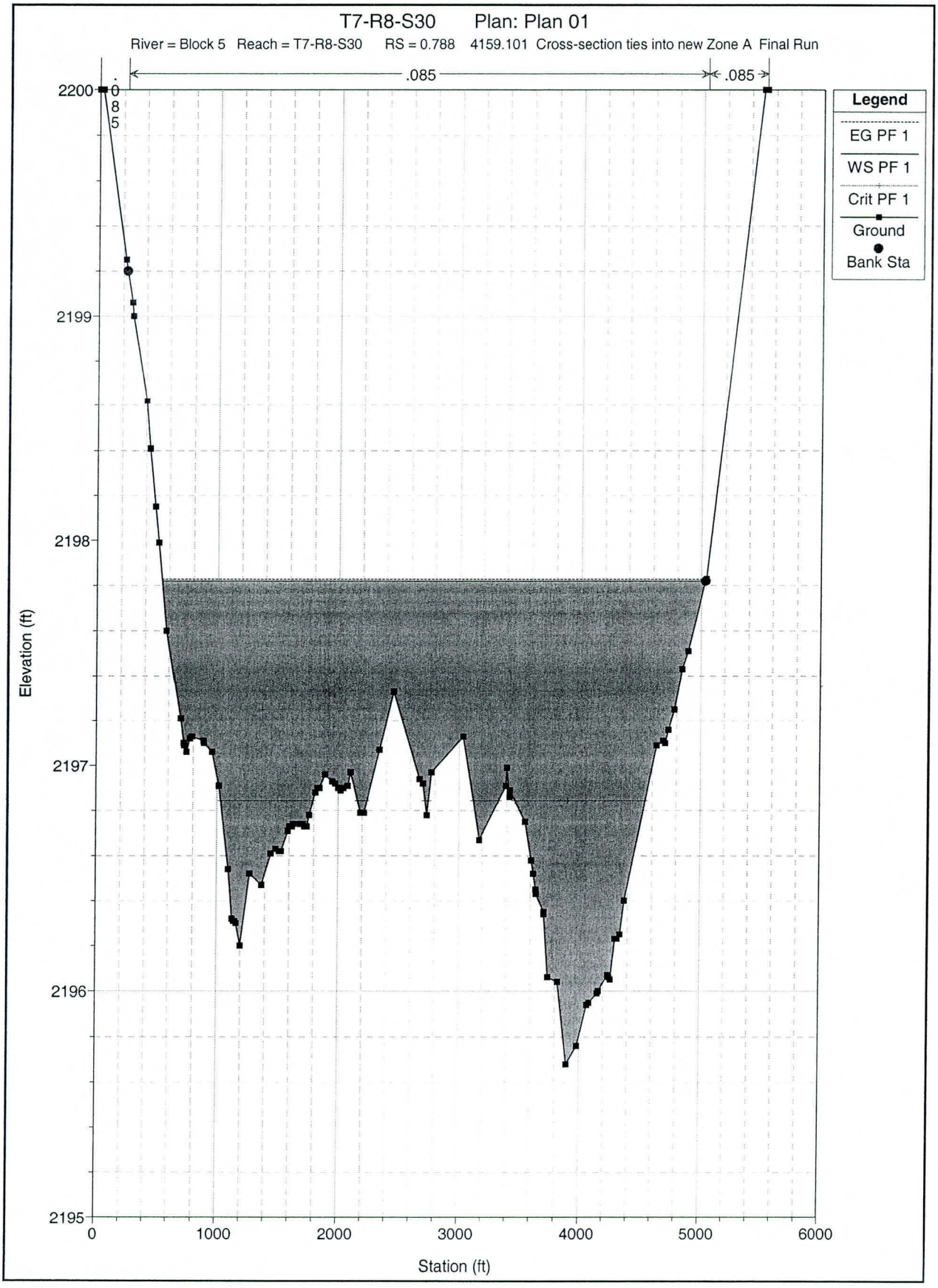

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 2.510 13242.95 Final Run
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2244.0
2243.5
2243.0
2242.5
2242.0
2241.5
2241.0
2240.5
2240.0
0
500
1000
1500
2000
Station (ft)

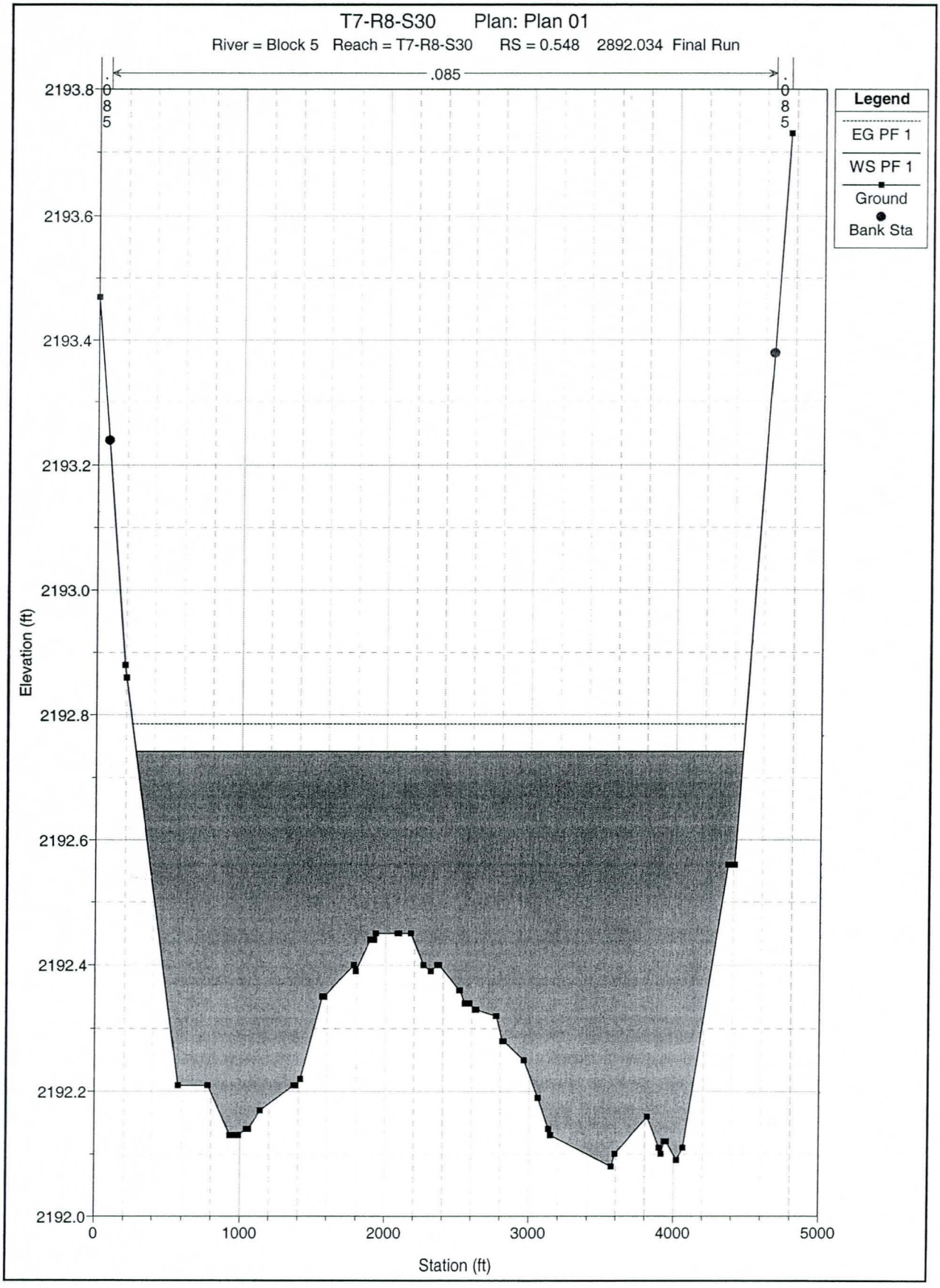

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 1.983 10472.09 Final Run
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2228.8
2228.6
2228.4
2228.2
2228.0
2227.8
2227.6
2227.4
2227.2
0
500
1000
1500
2000
2500
3000
3500
Station (ft)

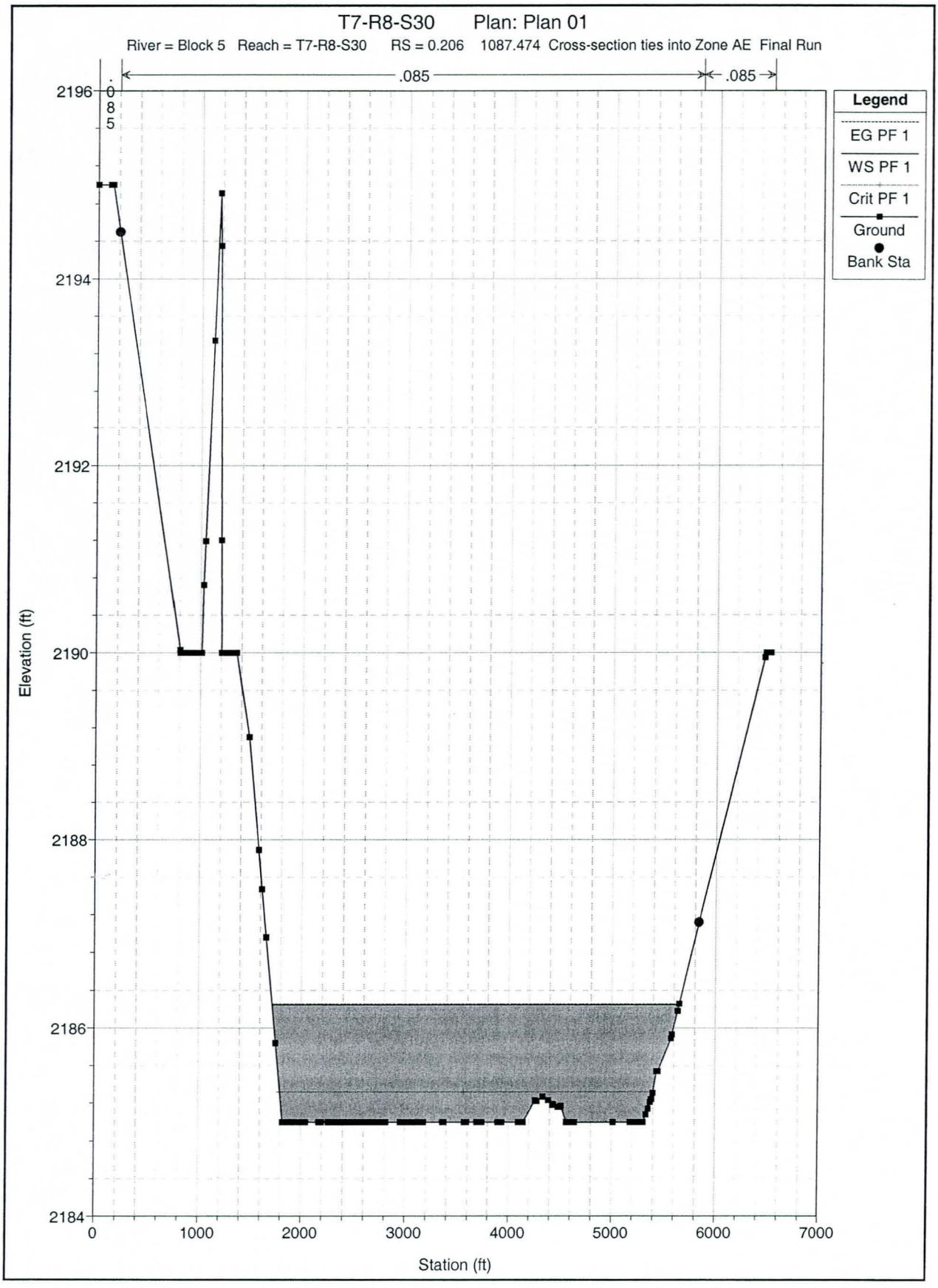

T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 1.573 8307.135 Cross-section ties into new Zone A Final Run
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2217.0
2216.5
2216.0
2215.5
2215.0
Elevation (ft)
0
1000
2000
3000
4000
5000
Station (ft)


T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 1.272 6714.757 Cross-section ties into new Zone A Final Run
.085
.085
.085
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
2211.5
2211.0
2210.5
2210.0
2209.5
2209.0
2208.5
2208.0
0
1000
2000
3000
4000
5000
6000
Station (ft)


T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 1.022 5393.131 Final Run
.085
.085
.085
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2203.5
2203.0
2202.5
2202.0
2201.5
2201.0
2200.5
0
1000
2000
3000
4000
5000
Station (ft)


T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 0.788 4159.101 Cross-section ties into new Zone A Final Run
.085
.085
.085
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2200
2199
2198
2197
2196
2195
0
1000
2000
3000
4000
5000
6000
Station (ft)


T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 0.548 2892.034 Final Run
.085
.085
.085
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
2193.8
2193.6
2193.4
2193.2
2193.0
2192.8
2192.6
2192.4
2192.2
2192.0
0
1000
2000
3000
4000
5000
Station (ft)


T7-R8-S30 Plan: Plan 01
River = Block 5 Reach = T7-R8-S30 RS = 0.206 1087.474 Cross-section ties into Zone AE Final Run
.085
.085
.085
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2196
2194
2192
2190
2188
2186
2184
0
1000
2000
3000
4000
5000
6000
7000
Station (ft)

Plan: Plan 01 Block 5 T7-R8-S30 RS: 6.795 Profile: PF 1

E.G. Elev (ft)	2412.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.		0.035	
W.S. Elev (ft)	2412.02	Reach Len. (ft)	1703.92	1759.62	1499.06
Crit W.S. (ft)	2411.49	Flow Area (sq ft)		443.87	
E.G. Slope (ft/ft)	0.005967	Area (sq ft)		443.87	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	355.10	Top Width (ft)		355.10	
Vel Total (ft/s)	3.81	Avg. Vel. (ft/s)		3.81	
Max Chl Dpth (ft)	2.02	Hydr. Depth (ft)		1.25	
Conv. Total (cfs)	21865.1	Conv. (cfs)		21865.1	
Length Wtd. (ft)	1759.62	Wetted Per. (ft)		355.15	
Min Ch El (ft)	2410.00	Shear (lb/sq ft)		0.47	
Alpha	1.00	Stream Power (lb/ft s)		1.77	
Frctn Loss (ft)	18.06	Cum Volume (acre-ft)	0.02	895.88	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.65	1198.74	0.01

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 6.462 Profile: PF 1

E.G. Elev (ft)	2394.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.035	
W.S. Elev (ft)	2393.87	Reach Len. (ft)	1582.23	1689.20	1547.76
Crit W.S. (ft)	2393.87	Flow Area (sq ft)		381.44	
E.G. Slope (ft/ft)	0.021640	Area (sq ft)		381.44	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	638.90	Top Width (ft)		638.90	
Vel Total (ft/s)	4.43	Avg. Vel. (ft/s)		4.43	
Max Chl Dpth (ft)	1.09	Hydr. Depth (ft)		0.60	
Conv. Total (cfs)	11481.7	Conv. (cfs)		11481.7	
Length Wtd. (ft)	1689.20	Wetted Per. (ft)		638.91	
Min Ch El (ft)	2392.78	Shear (lb/sq ft)		0.81	
Alpha	1.00	Stream Power (lb/ft s)		3.57	
Frctn Loss (ft)	13.22	Cum Volume (acre-ft)	0.02	879.21	0.00
C & E Loss (ft)	0.05	Cum SA (acres)	0.65	1178.67	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 6.142 Profile: PF 1

E.G. Elev (ft)	2377.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.		0.035	
W.S. Elev (ft)	2377.77	Reach Len. (ft)	1123.51	1221.91	1288.49
Crit W.S. (ft)	2376.99	Flow Area (sq ft)		551.76	
E.G. Slope (ft/ft)	0.004000	Area (sq ft)		551.76	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	453.25	Top Width (ft)		453.25	
Vel Total (ft/s)	3.06	Avg. Vel. (ft/s)		3.06	
Max Chl Dpth (ft)	2.77	Hydr. Depth (ft)		1.22	
Conv. Total (cfs)	26704.5	Conv. (cfs)		26704.5	
Length Wtd. (ft)	1221.91	Wetted Per. (ft)		453.30	
Min Ch El (ft)	2375.00	Shear (lb/sq ft)		0.30	
Alpha	1.00	Stream Power (lb/ft s)		0.93	
Frctn Loss (ft)	8.50	Cum Volume (acre-ft)	0.02	861.12	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.65	1157.49	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 5.911 Profile: PF 1

E.G. Elev (ft)	2369.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.035	
W.S. Elev (ft)	2369.19	Reach Len. (ft)	1335.10	1245.53	1302.90
Crit W.S. (ft)	2369.11	Flow Area (sq ft)		457.25	
E.G. Slope (ft/ft)	0.014980	Area (sq ft)		457.25	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	762.85	Top Width (ft)		762.85	
Vel Total (ft/s)	3.69	Avg. Vel. (ft/s)		3.69	
Max Chl Dpth (ft)	1.37	Hydr. Depth (ft)		0.60	
Conv. Total (cfs)	13800.0	Conv. (cfs)		13800.0	
Length Wtd. (ft)	1245.53	Wetted Per. (ft)		762.86	
Min Ch El (ft)	2367.82	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		2.07	
Frctn Loss (ft)	12.10	Cum Volume (acre-ft)	0.02	846.96	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.65	1140.44	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 5.675 Profile: PF 1

E.G. Elev (ft)	2357.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.035	
W.S. Elev (ft)	2357.09	Reach Len. (ft)	1604.15	1990.00	2302.55
Crit W.S. (ft)	2356.71	Flow Area (sq ft)		456.89	
E.G. Slope (ft/ft)	0.006803	Area (sq ft)		456.89	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	421.16	Top Width (ft)		421.16	

Plan: Plan 01 Block 5 T7-R8-S30 RS: 5.675 Profile: PF 1 (Continued)

Vel Total (ft/s)	3.70	Avg. Vel. (ft/s)		3.70	
Max Chl Dpth (ft)	2.09	Hydr. Depth (ft)		1.08	
Conv. Total (cfs)	20478.2	Conv. (cfs)		20478.2	
Length Wtd. (ft)	1990.00	Wetted Per. (ft)		421.20	
Min Ch El (ft)	2355.00	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		1.70	
Frctn Loss (ft)	18.36	Cum Volume (acre-ft)	0.02	833.89	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.65	1123.51	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 5.298 Profile: PF 1

E.G. Elev (ft)	2338.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.035	
W.S. Elev (ft)	2338.70	Reach Len. (ft)	2124.69	1710.81	1521.30
Crit W.S. (ft)	2338.59	Flow Area (sq ft)		426.37	
E.G. Slope (ft/ft)	0.013225	Area (sq ft)		426.37	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	583.39	Top Width (ft)		583.39	
Vel Total (ft/s)	3.96	Avg. Vel. (ft/s)		3.96	
Max Chl Dpth (ft)	1.26	Hydr. Depth (ft)		0.73	
Conv. Total (cfs)	14687.0	Conv. (cfs)		14687.0	
Length Wtd. (ft)	1710.81	Wetted Per. (ft)		583.40	
Min Ch El (ft)	2337.44	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		2.39	
Frctn Loss (ft)	14.94	Cum Volume (acre-ft)	0.02	813.72	0.00
C & E Loss (ft)	0.05	Cum SA (acres)	0.65	1100.56	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 4.974 Profile: PF 1

E.G. Elev (ft)	2323.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.035	
W.S. Elev (ft)	2323.87	Reach Len. (ft)	1264.35	1617.12	1581.91
Crit W.S. (ft)	2323.61	Flow Area (sq ft)		731.47	
E.G. Slope (ft/ft)	0.006193	Area (sq ft)		731.47	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	1273.07	Top Width (ft)		1273.07	
Vel Total (ft/s)	2.31	Avg. Vel. (ft/s)		2.31	
Max Chl Dpth (ft)	0.93	Hydr. Depth (ft)		0.57	
Conv. Total (cfs)	21462.7	Conv. (cfs)		21462.7	
Length Wtd. (ft)	1617.12	Wetted Per. (ft)		1273.08	
Min Ch El (ft)	2322.94	Shear (lb/sq ft)		0.22	
Alpha	1.00	Stream Power (lb/ft s)		0.51	
Frctn Loss (ft)	10.33	Cum Volume (acre-ft)	0.02	790.98	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.65	1064.11	0.01

Errors Warnings and Notes

Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

Errors Warnings and Notes (Continued)

	section. This may indicate the need for additional cross sections.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 4.668 Profile: PF 1

E.G. Elev (ft)	2313.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.035	
W.S. Elev (ft)	2313.55	Reach Len. (ft)	1178.30	1691.63	1305.32
Crit W.S. (ft)	2313.35	Flow Area (sq ft)		753.12	
E.G. Slope (ft/ft)	0.006590	Area (sq ft)		753.12	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	1434.69	Top Width (ft)		1434.69	
Vel Total (ft/s)	2.24	Avg. Vel. (ft/s)		2.24	
Max Chl Dpth (ft)	1.01	Hydr. Depth (ft)		0.52	
Conv. Total (cfs)	20806.2	Conv. (cfs)		20806.2	
Length Wtd. (ft)	1691.63	Wetted Per. (ft)		1434.69	
Min Ch El (ft)	2312.54	Shear (lb/sq ft)		0.22	
Alpha	1.00	Stream Power (lb/ft s)		0.48	
Frctn Loss (ft)	9.88	Cum Volume (acre-ft)	0.02	763.42	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.65	1013.84	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 4.347 Profile: PF 1

E.G. Elev (ft)	2303.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.035	
W.S. Elev (ft)	2303.66	Reach Len. (ft)	1632.67	1869.01	1634.01
Crit W.S. (ft)	2303.25	Flow Area (sq ft)		705.80	
E.G. Slope (ft/ft)	0.005209	Area (sq ft)		705.80	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	1022.66	Top Width (ft)		1022.66	
Vel Total (ft/s)	2.39	Avg. Vel. (ft/s)		2.39	
Max Chl Dpth (ft)	1.51	Hydr. Depth (ft)		0.69	
Conv. Total (cfs)	23401.6	Conv. (cfs)		23401.6	
Length Wtd. (ft)	1869.01	Wetted Per. (ft)		1022.66	
Min Ch El (ft)	2302.15	Shear (lb/sq ft)		0.22	
Alpha	1.00	Stream Power (lb/ft s)		0.54	
Frctn Loss (ft)	11.77	Cum Volume (acre-ft)	0.02	735.10	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.65	966.13	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 3.993 Profile: PF 1

E.G. Elev (ft)	2291.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.035	
W.S. Elev (ft)	2291.84	Reach Len. (ft)	2236.85	2104.70	2210.51
Crit W.S. (ft)	2291.59	Flow Area (sq ft)		567.31	
E.G. Slope (ft/ft)	0.007769	Area (sq ft)		567.31	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	799.41	Top Width (ft)		799.41	
Vel Total (ft/s)	2.98	Avg. Vel. (ft/s)		2.98	

Plan: Plan 01 Block 5 T7-R8-S30 RS: 3.993 Profile: PF 1 (Continued)

Max Chl Dpth (ft)	1.67	Hydr. Depth (ft)		0.71	
Conv. Total (cfs)	19162.3	Conv. (cfs)		19162.3	
Length Wtd. (ft)	2104.70	Wetted Per. (ft)		799.42	
Min Ch El (ft)	2290.17	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		1.02	
Frctn Loss (ft)	14.90	Cum Volume (acre-ft)	0.02	707.78	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.65	927.04	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 3.595 Profile: PF 1

E.G. Elev (ft)	2277.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.035	
W.S. Elev (ft)	2276.86	Reach Len. (ft)	1706.04	1517.65	1474.71
Crit W.S. (ft)	2276.46	Flow Area (sq ft)		468.21	
E.G. Slope (ft/ft)	0.006477	Area (sq ft)		468.21	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	431.60	Top Width (ft)		431.60	
Vel Total (ft/s)	3.61	Avg. Vel. (ft/s)		3.61	
Max Chl Dpth (ft)	1.86	Hydr. Depth (ft)		1.08	
Conv. Total (cfs)	20986.2	Conv. (cfs)		20986.2	
Length Wtd. (ft)	1517.65	Wetted Per. (ft)		431.62	
Min Ch El (ft)	2275.00	Shear (lb/sq ft)		0.44	
Alpha	1.00	Stream Power (lb/ft s)		1.58	
Frctn Loss (ft)	10.39	Cum Volume (acre-ft)	0.02	682.77	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.65	897.30	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 3.307 Profile: PF 1

E.G. Elev (ft)	2266.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.035	
W.S. Elev (ft)	2266.45	Reach Len. (ft)	1557.36	1525.50	1578.44
Crit W.S. (ft)	2266.11	Flow Area (sq ft)		441.26	
E.G. Slope (ft/ft)	0.007243	Area (sq ft)		441.26	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	404.69	Top Width (ft)		404.69	
Vel Total (ft/s)	3.83	Avg. Vel. (ft/s)		3.83	
Max Chl Dpth (ft)	1.45	Hydr. Depth (ft)		1.09	
Conv. Total (cfs)	19845.3	Conv. (cfs)		19845.3	
Length Wtd. (ft)	1525.50	Wetted Per. (ft)		404.71	
Min Ch El (ft)	2265.00	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		1.89	
Frctn Loss (ft)	9.62	Cum Volume (acre-ft)	0.02	666.92	0.00
C & E Loss (ft)	0.04	Cum SA (acres)	0.65	882.73	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 3.018 Profile: PF 1

E.G. Elev (ft)	2257.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.035	
W.S. Elev (ft)	2256.93	Reach Len. (ft)	1154.08	1126.82	1036.34
Crit W.S. (ft)	2256.68	Flow Area (sq ft)		742.25	
E.G. Slope (ft/ft)	0.005542	Area (sq ft)		742.25	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	1214.99	Top Width (ft)		1214.99	
Vel Total (ft/s)	2.28	Avg. Vel. (ft/s)		2.28	
Max Chl Dpth (ft)	1.05	Hydr. Depth (ft)		0.61	
Conv. Total (cfs)	22687.9	Conv. (cfs)		22687.9	
Length Wtd. (ft)	1126.82	Wetted Per. (ft)		1215.00	
Min Ch El (ft)	2255.88	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		0.48	
Frctn Loss (ft)	5.37	Cum Volume (acre-ft)	0.02	646.20	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.65	854.37	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 2.805 Profile: PF 1

E.G. Elev (ft)	2251.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.035	
W.S. Elev (ft)	2251.49	Reach Len. (ft)	1371.30	1557.30	1597.29
Crit W.S. (ft)	2250.97	Flow Area (sq ft)		561.87	
E.G. Slope (ft/ft)	0.004145	Area (sq ft)		561.87	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	487.03	Top Width (ft)		487.03	
Vel Total (ft/s)	3.01	Avg. Vel. (ft/s)		3.01	
Max Chl Dpth (ft)	1.49	Hydr. Depth (ft)		1.15	
Conv. Total (cfs)	26234.7	Conv. (cfs)		26234.7	
Length Wtd. (ft)	1557.30	Wetted Per. (ft)		487.15	
Min Ch El (ft)	2250.00	Shear (lb/sq ft)		0.30	
Alpha	1.00	Stream Power (lb/ft s)		0.90	
Frctn Loss (ft)	8.58	Cum Volume (acre-ft)	0.02	629.33	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.65	832.36	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 2.510 Profile: PF 1

E.G. Elev (ft)	2243.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.		0.035	
W.S. Elev (ft)	2242.83	Reach Len. (ft)	2384.05	2780.00	2632.54
Crit W.S. (ft)	2242.38	Flow Area (sq ft)		452.81	
E.G. Slope (ft/ft)	0.007676	Area (sq ft)		452.81	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	450.84	Top Width (ft)		450.84	
Vel Total (ft/s)	3.73	Avg. Vel. (ft/s)		3.73	
Max Chl Dpth (ft)	2.82	Hydr. Depth (ft)		1.00	
Conv. Total (cfs)	19277.6	Conv. (cfs)		19277.6	
Length Wtd. (ft)	2780.00	Wetted Per. (ft)		450.91	

Plan: Plan 01 Block 5 T7-R8-S30 RS: 2.510 Profile: PF 1 (Continued)

Min Ch El (ft)	2240.00	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		1.80	
Frctn Loss (ft)	14.84	Cum Volume (acre-ft)	0.02	611.19	0.00
C & E Loss (ft)	0.05	Cum SA (acres)	0.65	815.59	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 1.983 Profile: PF 1

E.G. Elev (ft)	2228.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.		0.035	
W.S. Elev (ft)	2228.11	Reach Len. (ft)	2578.02	2164.44	2726.26
Crit W.S. (ft)	2227.87	Flow Area (sq ft)		1030.96	
E.G. Slope (ft/ft)	0.003925	Area (sq ft)		1030.96	
Q Total (cfs)	1689.00	Flow (cfs)		1689.00	
Top Width (ft)	2132.72	Top Width (ft)		2132.72	
Vel Total (ft/s)	1.64	Avg. Vel. (ft/s)		1.64	
Max Chl Dpth (ft)	0.80	Hydr. Depth (ft)		0.48	
Conv. Total (cfs)	26959.3	Conv. (cfs)		26959.3	
Length Wtd. (ft)	2164.44	Wetted Per. (ft)		2132.72	
Min Ch El (ft)	2227.31	Shear (lb/sq ft)		0.12	
Alpha	1.00	Stream Power (lb/ft s)		0.19	
Frctn Loss (ft)	12.14	Cum Volume (acre-ft)	0.02	563.85	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.65	733.15	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 1.573 Profile: PF 1

E.G. Elev (ft)	2216.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.035	
W.S. Elev (ft)	2215.88	Reach Len. (ft)	1554.33	1592.24	1424.11
Crit W.S. (ft)	2215.63	Flow Area (sq ft)		1140.44	
E.G. Slope (ft/ft)	0.006936	Area (sq ft)		1140.44	
Q Total (cfs)	3268.00	Flow (cfs)		3268.00	
Top Width (ft)	1563.12	Top Width (ft)		1563.12	
Vel Total (ft/s)	2.87	Avg. Vel. (ft/s)		2.87	
Max Chl Dpth (ft)	0.88	Hydr. Depth (ft)		0.73	
Conv. Total (cfs)	39239.0	Conv. (cfs)		39239.0	
Length Wtd. (ft)	1592.24	Wetted Per. (ft)		1563.12	
Min Ch El (ft)	2215.00	Shear (lb/sq ft)		0.32	
Alpha	1.00	Stream Power (lb/ft s)		0.91	
Frctn Loss (ft)	6.28	Cum Volume (acre-ft)	0.02	509.90	0.00
C & E Loss (ft)	0.04	Cum SA (acres)	0.65	641.33	0.01

Errors Warnings and Notes

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

Errors Warnings and Notes (Continued)

	section. This may indicate the need for additional cross sections.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 1.272 Profile: PF 1

E.G. Elev (ft)	2209.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.085	0.085	
W.S. Elev (ft)	2209.68	Reach Len. (ft)	1401.42	1321.63	1474.68
Crit W.S. (ft)		Flow Area (sq ft)	0.66	3998.19	
E.G. Slope (ft/ft)	0.002542	Area (sq ft)	0.66	3998.19	
Q Total (cfs)	3268.00	Flow (cfs)	0.06	3267.94	
Top Width (ft)	4495.59	Top Width (ft)	19.02	4476.57	
Vel Total (ft/s)	0.82	Avg. Vel. (ft/s)	0.09	0.82	
Max Chl Dpth (ft)	1.59	Hydr. Depth (ft)	0.03	0.89	
Conv. Total (cfs)	64822.5	Conv. (cfs)	1.2	64821.3	
Length Wtd. (ft)	1321.63	Wetted Per. (ft)	19.02	4476.57	
Min Ch El (ft)	2208.09	Shear (lb/sq ft)	0.01	0.14	
Alpha	1.00	Stream Power (lb/ft s)	0.00	0.12	
Frctn Loss (ft)	7.23	Cum Volume (acre-ft)	0.01	415.99	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.31	530.95	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 1.022 Profile: PF 1

E.G. Elev (ft)	2202.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.		0.085	
W.S. Elev (ft)	2202.42	Reach Len. (ft)	903.81	1234.03	1188.65
Crit W.S. (ft)	2201.97	Flow Area (sq ft)		1989.02	
E.G. Slope (ft/ft)	0.019232	Area (sq ft)		1989.02	
Q Total (cfs)	3268.00	Flow (cfs)		3268.00	
Top Width (ft)	3565.02	Top Width (ft)		3565.02	
Vel Total (ft/s)	1.64	Avg. Vel. (ft/s)		1.64	
Max Chl Dpth (ft)	1.49	Hydr. Depth (ft)		0.56	
Conv. Total (cfs)	23565.0	Conv. (cfs)		23565.0	
Length Wtd. (ft)	1234.03	Wetted Per. (ft)		3565.02	
Min Ch El (ft)	2200.93	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		1.10	
Frctn Loss (ft)	4.62	Cum Volume (acre-ft)		325.16	0.00
C & E Loss (ft)	0.01	Cum SA (acres)		408.95	0.01

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 0.788 Profile: PF 1

E.G. Elev (ft)	2197.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.085	
W.S. Elev (ft)	2197.82	Reach Len. (ft)	1384.96	1267.07	1581.60
Crit W.S. (ft)	2196.84	Flow Area (sq ft)		4654.74	
E.G. Slope (ft/ft)	0.001541	Area (sq ft)		4654.74	0.00
Q Total (cfs)	3268.00	Flow (cfs)		3268.00	
Top Width (ft)	4497.52	Top Width (ft)		4497.10	0.42
Vel Total (ft/s)	0.70	Avg. Vel. (ft/s)		0.70	
Max Chl Dpth (ft)	2.14	Hydr. Depth (ft)		1.04	
Conv. Total (cfs)	83262.0	Conv. (cfs)		83262.0	
Length Wtd. (ft)	1267.07	Wetted Per. (ft)		4497.11	
Min Ch El (ft)	2195.68	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.07	
Frctn Loss (ft)	5.04	Cum Volume (acre-ft)		231.05	0.00
C & E Loss (ft)	0.00	Cum SA (acres)		294.76	0.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 0.548 Profile: PF 1

E.G. Elev (ft)	2192.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.		0.085	
W.S. Elev (ft)	2192.74	Reach Len. (ft)	617.50	1805.01	2359.54
Crit W.S. (ft)		Flow Area (sq ft)		1945.70	
E.G. Slope (ft/ft)	0.025695	Area (sq ft)		1945.70	
Q Total (cfs)	3268.00	Flow (cfs)		3268.00	
Top Width (ft)	4192.98	Top Width (ft)		4192.98	
Vel Total (ft/s)	1.68	Avg. Vel. (ft/s)		1.68	
Max Chl Dpth (ft)	0.66	Hydr. Depth (ft)		0.46	
Conv. Total (cfs)	20387.0	Conv. (cfs)		20387.0	
Length Wtd. (ft)	1805.01	Wetted Per. (ft)		4192.98	
Min Ch El (ft)	2192.08	Shear (lb/sq ft)		0.74	
Alpha	1.00	Stream Power (lb/ft s)		1.25	
Frctn Loss (ft)	6.52	Cum Volume (acre-ft)		135.05	
C & E Loss (ft)	0.01	Cum SA (acres)		168.37	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 5 T7-R8-S30 RS: 0.206 Profile: PF 1

E.G. Elev (ft)	2186.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.085	
W.S. Elev (ft)	2186.25	Reach Len. (ft)			
Crit W.S. (ft)	2185.32	Flow Area (sq ft)		4572.78	
E.G. Slope (ft/ft)	0.001367	Area (sq ft)		4572.78	
Q Total (cfs)	3268.00	Flow (cfs)		3268.00	
Top Width (ft)	3933.43	Top Width (ft)		3933.43	

Plan: Plan 01 Block 5 T7-R8-S30 RS: 0.206 Profile: PF 1 (Continued)

Vel Total (ft/s)	0.71	Avg. Vel. (ft/s)		0.71	
Max Chl Dpth (ft)	1.25	Hydr. Depth (ft)		1.16	
Conv. Total (cfs)	88381.6	Conv. (cfs)		88381.6	
Length Wtd. (ft)		Wetted Per. (ft)		3933.44	
Min Ch El (ft)	2185.00	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.07	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 5\ArcView\T7R8S30.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 5\ArcView\T7R8S30.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 5\ArcView\T7R8S30.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 5\ArcView\T7R8S30.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 5\ArcView\T7R8S30.nt
Selected profiles: PF 1
Date: 12/5/2003
Time: 7:32:01 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block 5,T7-R8-S30						
6.795		0.035	0.035	0.035	0.1	0.3
6.462		0.035	0.035	0.035	0.1	0.3
6.142		0.035	0.035	0.035	0.1	0.3
5.911		0.035	0.035	0.035	0.1	0.3
5.675		0.035	0.035	0.035	0.1	0.3
5.298		0.035	0.035	0.035	0.1	0.3
4.974		0.035	0.035	0.035	0.1	0.3
4.668		0.035	0.035	0.035	0.1	0.3
4.347		0.035	0.035	0.035	0.1	0.3
3.993		0.035	0.035	0.035	0.1	0.3
3.595		0.035	0.035	0.035	0.1	0.3
3.307		0.035	0.035	0.035	0.1	0.3
3.018		0.035	0.035	0.035	0.1	0.3
2.805		0.035	0.035	0.035	0.1	0.3
2.51		0.035	0.035	0.035	0.1	0.3
1.983		0.035	0.035	0.035	0.1	0.3
1.573		0.035	0.035	0.035	0.1	0.3
1.272		0.085	0.085	0.085	0.1	0.3
1.022		0.085	0.085	0.085	0.1	0.3
.788		0.085	0.085	0.085	0.1	0.3
.548		0.085	0.085	0.085	0.1	0.3
.206		0.085	0.085	0.085	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.035	0.085
Right Overbank n Value:	0.035	0.085
Channel n Value:	0.035	0.085
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 5\ArcView\T7R8S30.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 5\ArcView\T7R8S30.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 5\ArcView\T7R8S30.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 5\ArcView\T7R8S30.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 5\ArcView\T7R8S30.xs
Selected profiles: PF 1
Date: 12/5/2003
Time: 7:32:02 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Block 5,T7-R8-S30						
6.795	1703.92	1759.62	1499.06	355.1	1689	D
6.462	1582.23	1689.2	1547.76	638.9	1689	C
6.142	1123.51	1221.91	1288.49	453.25	1689	
5.911	1335.1	1245.53	1302.9	762.85	1689	
5.675	1604.15	1990	2302.55	421.16	1689	
5.298	2124.69	1710.81	1521.3	583.39	1689	
4.974	1264.35	1617.12	1581.91	1273.07	1689	
4.668	1178.3	1691.63	1305.32	1434.69	1689	
4.347	1632.67	1869.01	1634.01	1022.66	1689	
3.993	2236.85	2104.7	2210.51	799.41	1689	
3.595	1706.04	1517.65	1474.71	431.6	1689	
3.307	1557.36	1525.5	1578.44	404.69	1689	
3.018	1154.08	1126.82	1036.34	1214.99	1689	
2.805	1371.3	1557.3	1597.29	487.03	1689	
2.51	2384.05	2780	2632.54	450.84	1689	
1.983	2578.02	2164.44	2726.26	2132.72	1689	
1.573	1554.33	1592.24	1424.11	1563.12	3268	
1.272	1401.42	1321.63	1474.68	4495.59	3268	
1.022	903.81	1234.03	1188.65	3565.02	3268	D
0.788	1384.96	1267.07	1581.6	4497.52	3268	
0.548	617.5	1805.01	2359.54	4192.98	3268	
0.206	1313.84	1086.92	2014.68	3933.43	3268	

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 5.911
XS DT 01 Both right and left overbank distances are longer than the channel distance.

RS: 3.993
XS DT 01 Both right and left overbank distances are longer than the channel distance.

RS: 3.307
XS DT 01 Both right and left overbank distances are longer than the channel distance.

RS: 1.983
XS DT 01 Both right and left overbank distances are longer than the channel distance.

```
RS:       1.272
XS DT 01 Both right and left overbank distances are
         longer than the channel distance.

RS:       0.788
XS DT 01 Both right and left overbank distances are
         longer than the channel distance.

RS:       0.206
XS DT 01 Both right and left overbank distances are
         longer than the channel distance.


SPACING CHECK
--------------


INEFFECTIVE FLOW CHECK
----------------------


DISCHARGE CHECK
---------------


LOCATION CHECK
--------------


BOUNDARY CONDITION CHECK
------------------------

XS BC 02 The name of the stream is Block 5,T7-R8-S30
         Known WS = 2186.25 is specified as the downstream boundary
         for profile PF 1

---END---
```

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

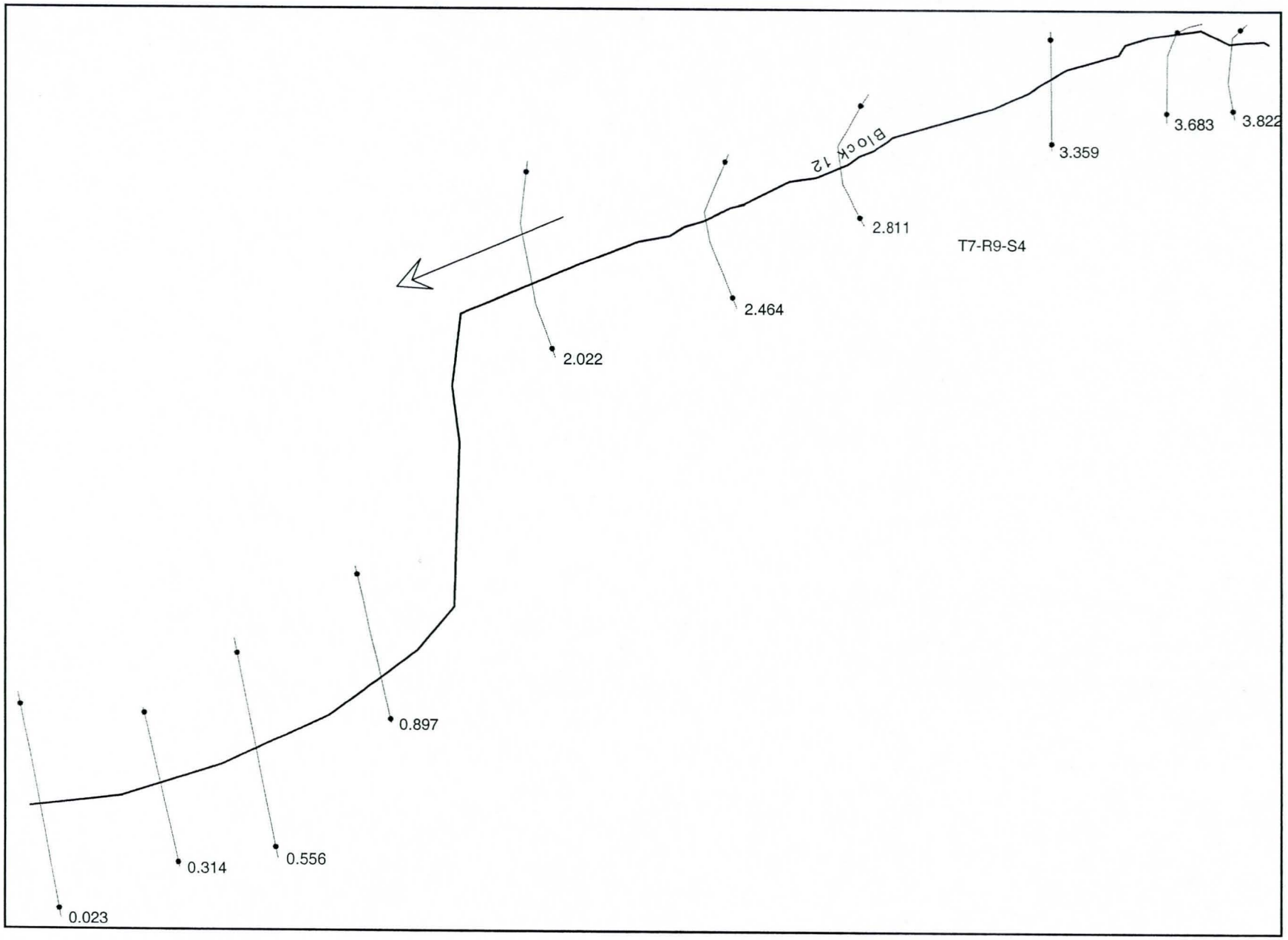
Explanation:
Cross sections were cut in order to take in channel geometry.

BOUNDARY CONDITION CHECK

Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

HEC-RAS Plan: Plan 02 River: Block 12 Reach: T7-R9-S4 Profile: PF 1

Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R9-S4	3.822	2966.00	2209.86	2209.86	4.90	832.49	1.14	1.01	340.58	1173.08
T7-R9-S4	3.683	2966.00	2205.22	2204.83	3.36	1276.84	1.85	0.65	0.68	1277.52
T7-R9-S4	3.359	2966.00	2194.97	2194.93	4.14	1233.78	0.89	0.94	191.65	1425.42
T7-R9-S4	2.811	2966.00	2180.40	2180.14	2.79	1519.81	1.40	0.56	269.94	1789.75
T7-R9-S4	2.464	2966.00	2170.13	2170.13	3.78	1942.06	0.86	1.01	58.60	2000.67
T7-R9-S4	2.022	2966.00	2159.42	2159.04	2.19	1918.18	1.28	0.46	396.15	2314.33
T7-R9-S4	0.897	2966.00	2142.54		2.99	1367.99	2.30	0.62	287.73	1701.79
T7-R9-S4	0.556	2966.00	2131.86	2131.85	4.99	744.04	1.86	0.99	472.50	2155.12
T7-R9-S4	0.314	2966.00	2124.70	2123.82	7.24	121.96	4.70	0.70	1026.41	1244.63
T7-R9-S4	0.023	2966.00	2125.25	2120.41	0.23	2863.31	5.25	0.02	0.00	2863.31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0.314
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0.897
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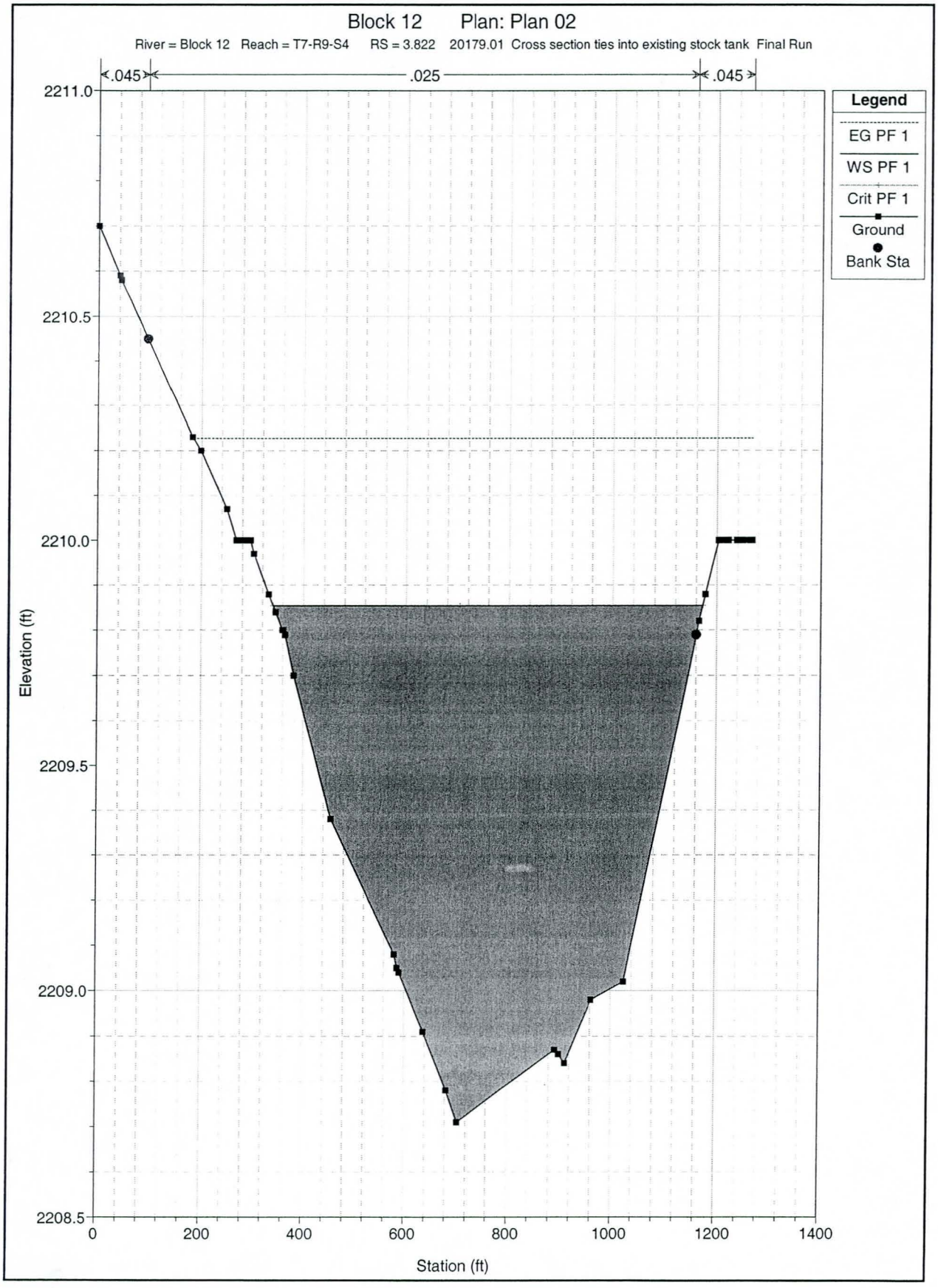
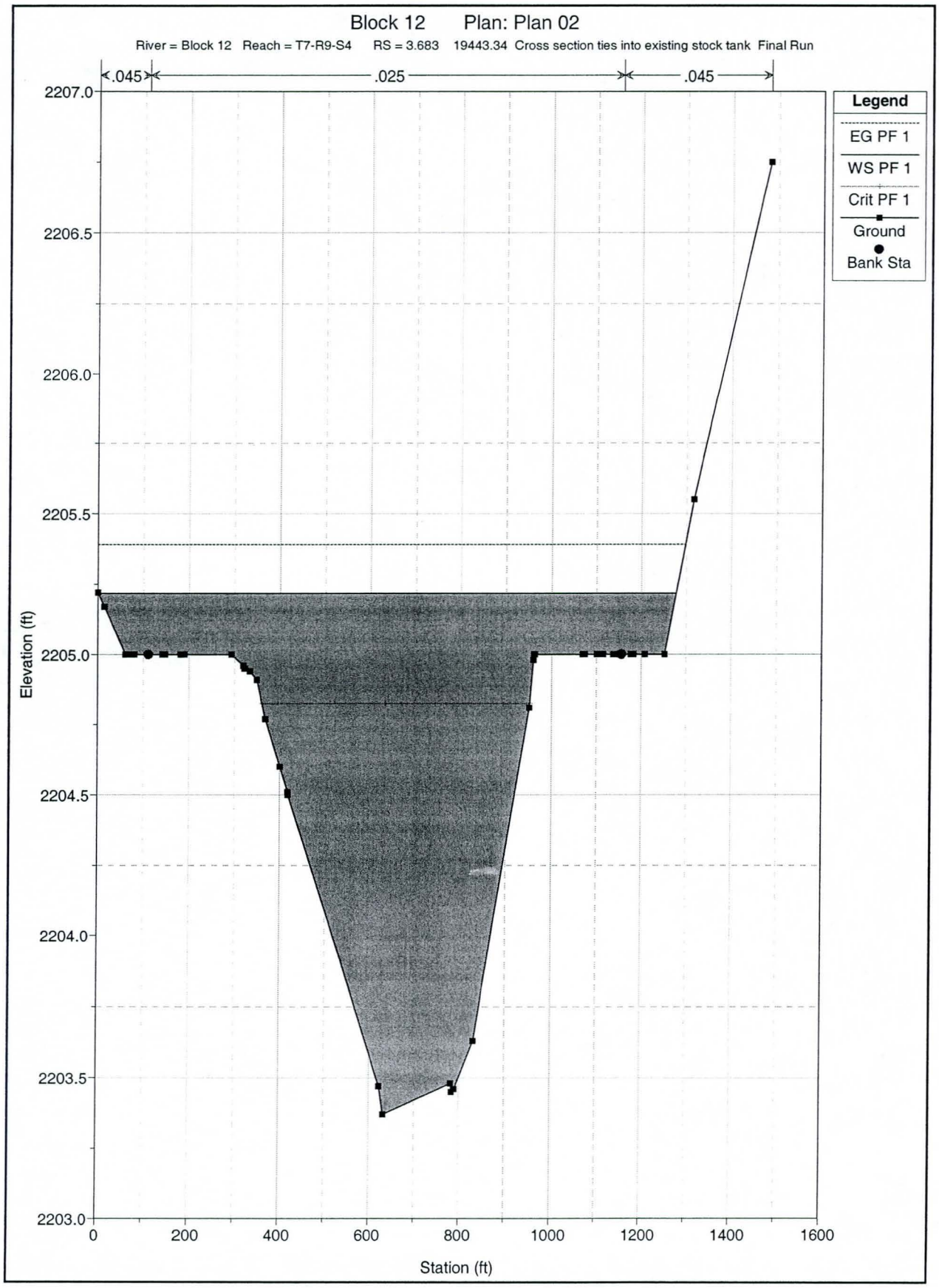
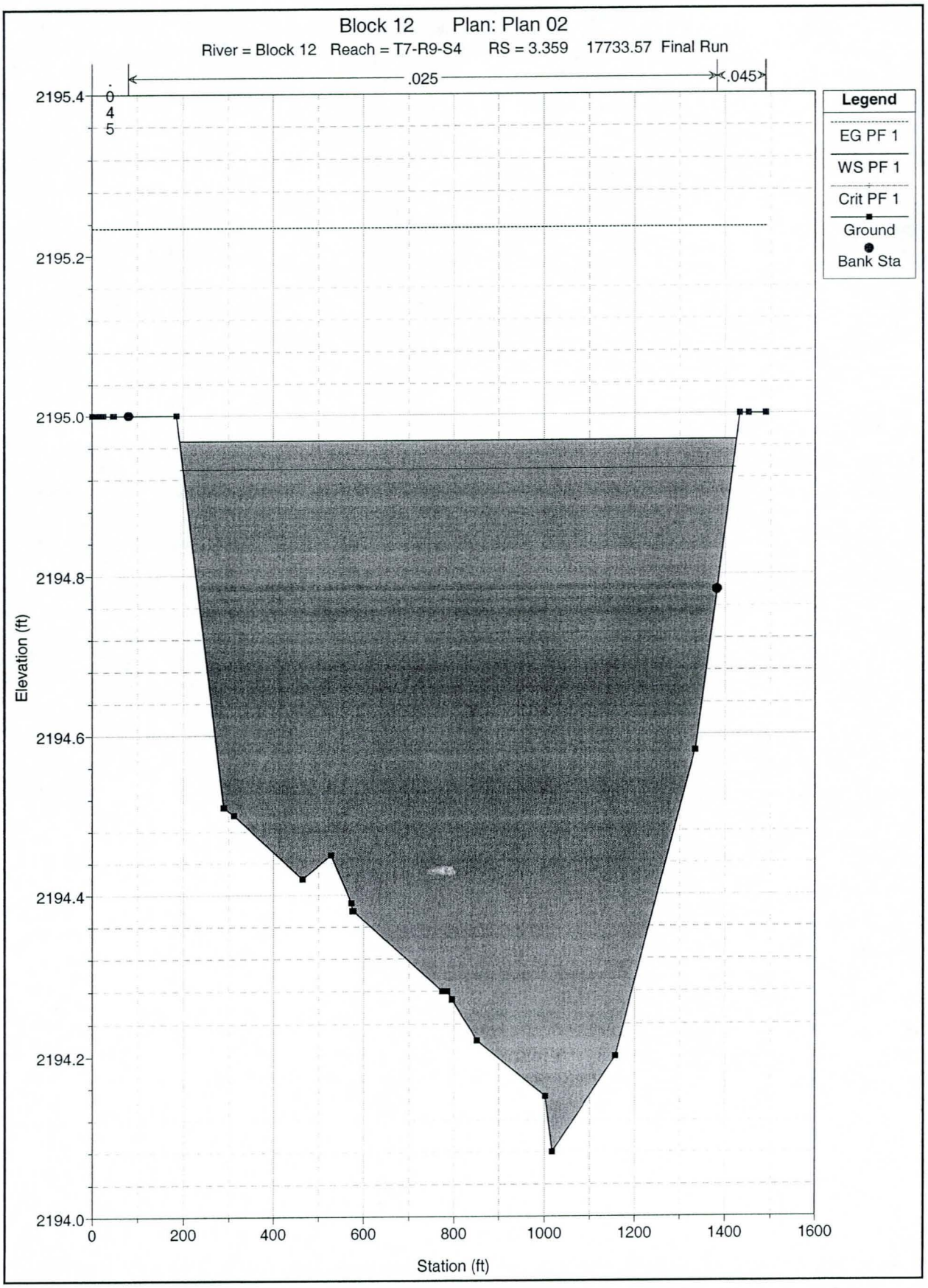
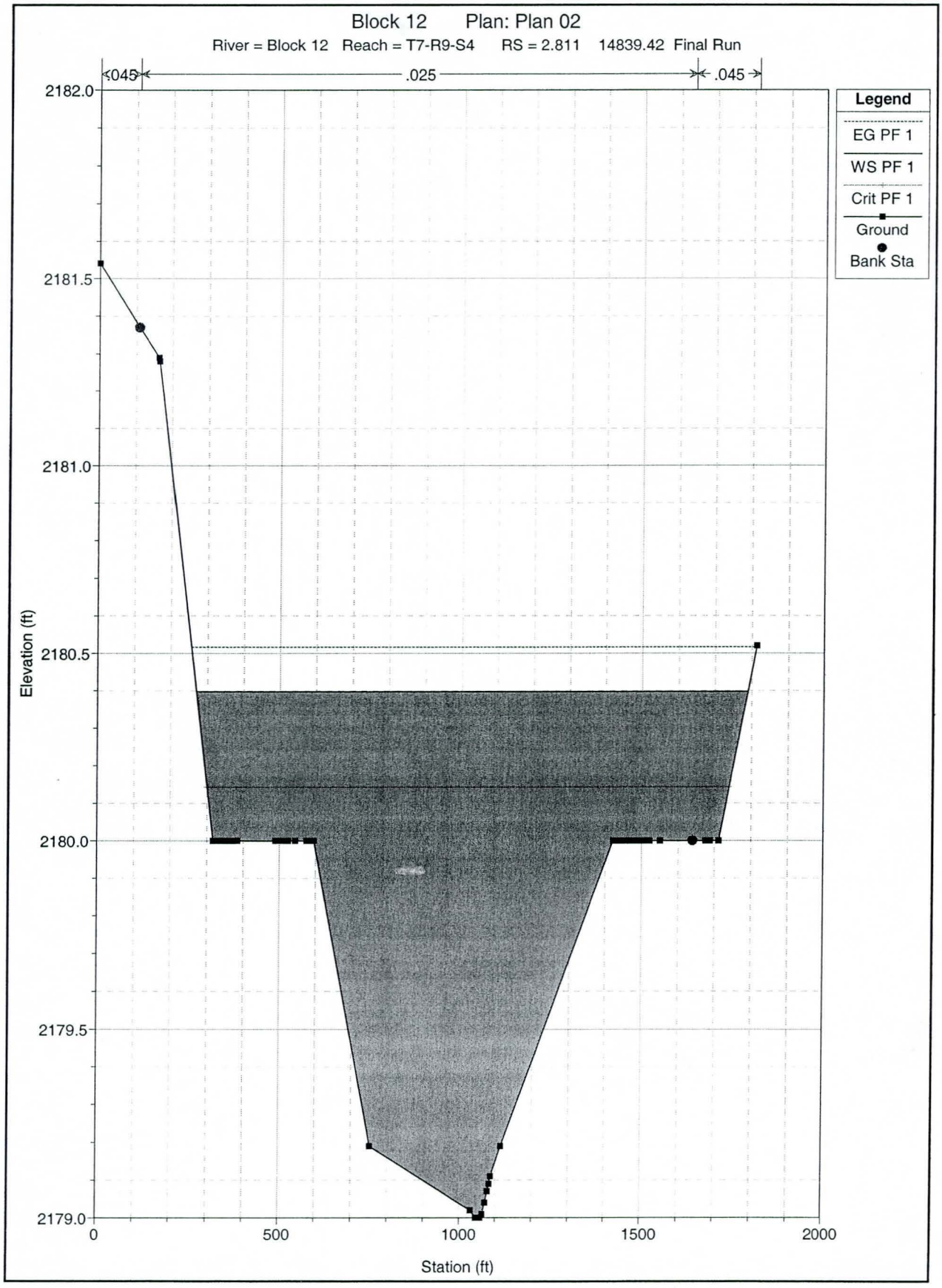
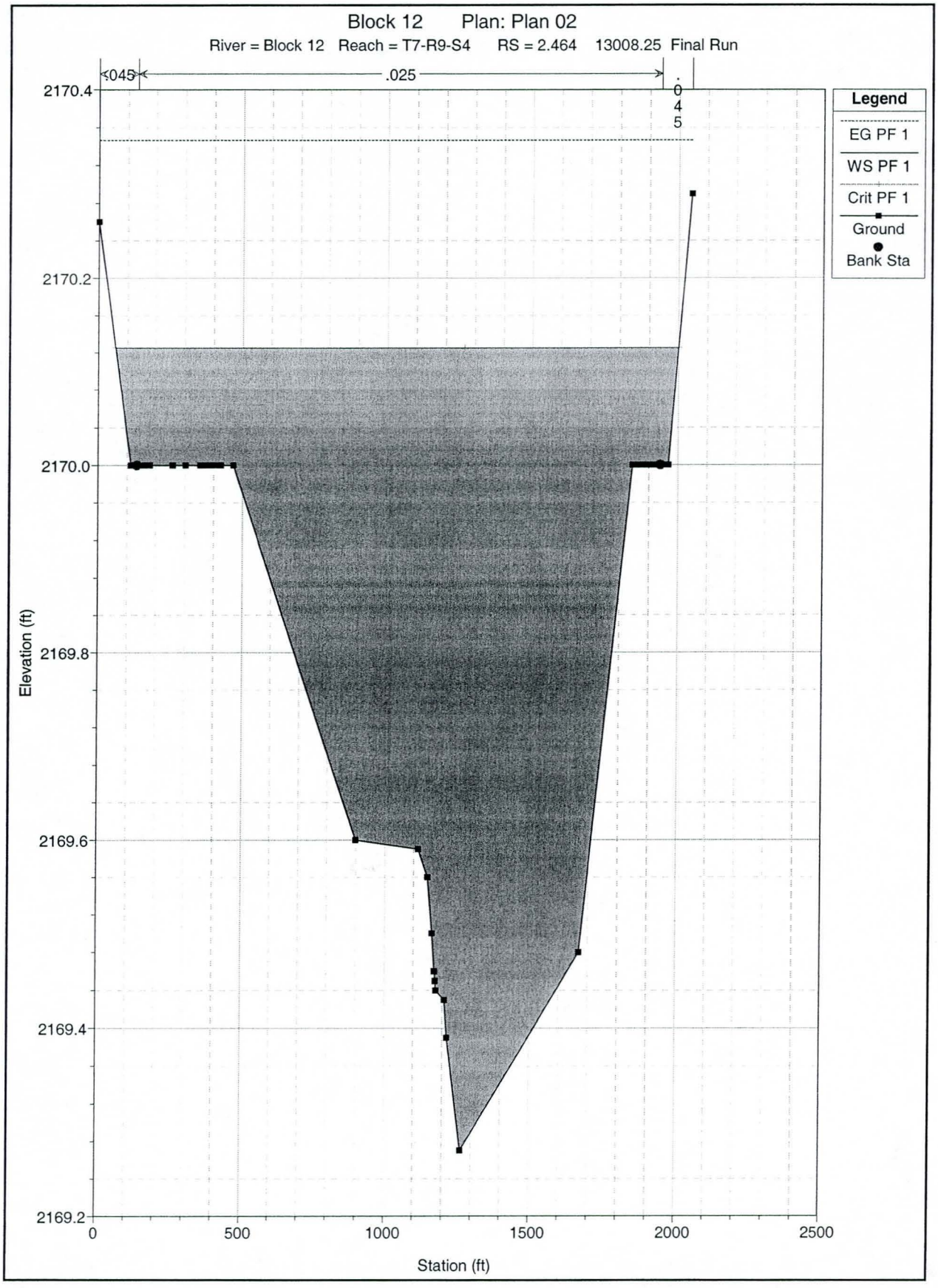
2.464
2.811
3.359
3.683
3.822
Block 12
T7-R9-S4

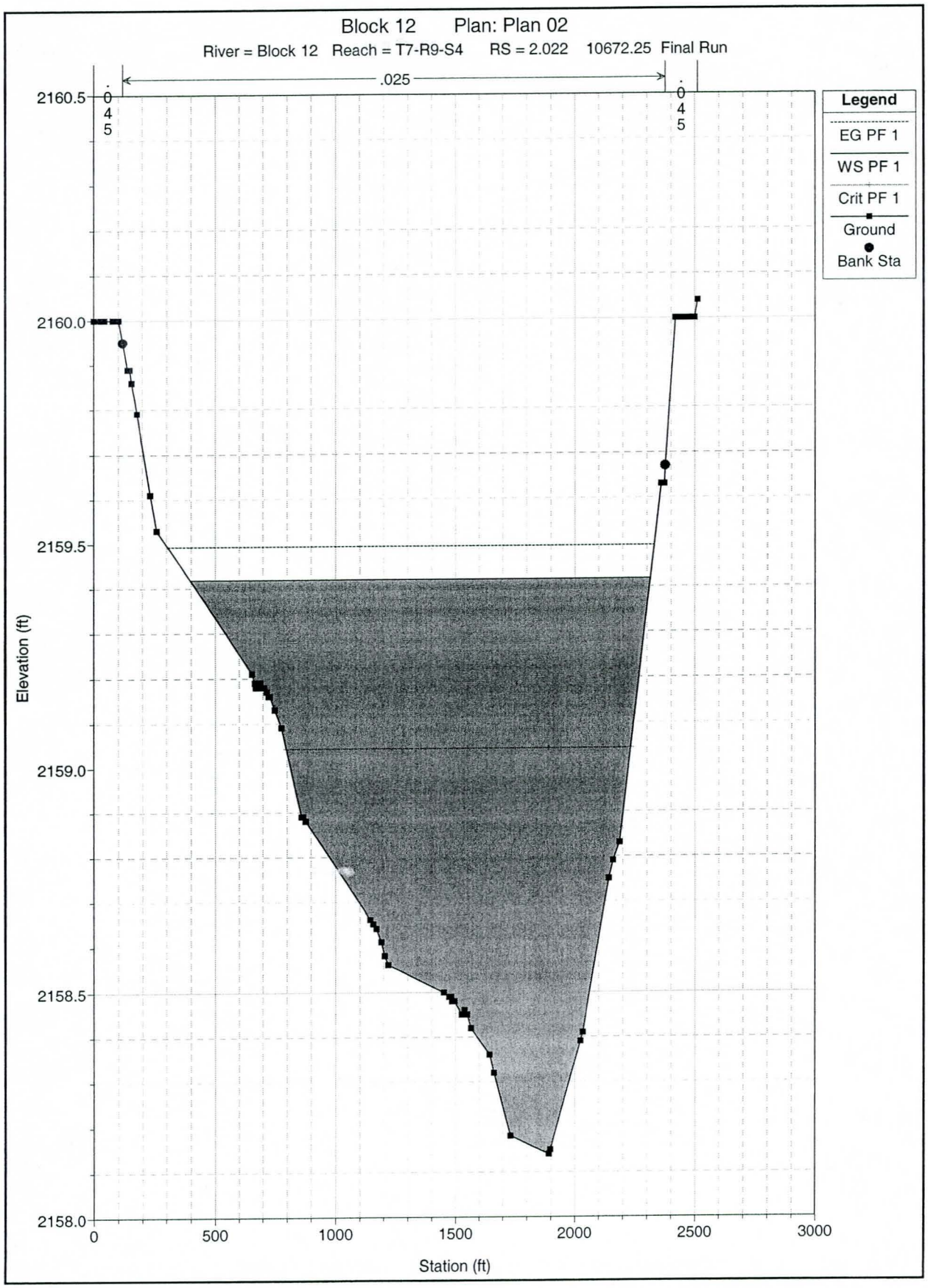

Block 12 Plan: Plan 02
River = Block 12 Reach = T7-R9-S4 RS = 3.822 20179.01 Cross section ties into existing stock tank Final Run
.045
.025
.045
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2211.0
2210.5
2210.0
2209.5
2209.0
2208.5
Elevation (ft)
0
200
400
600
800
1000
1200
1400
Station (ft)

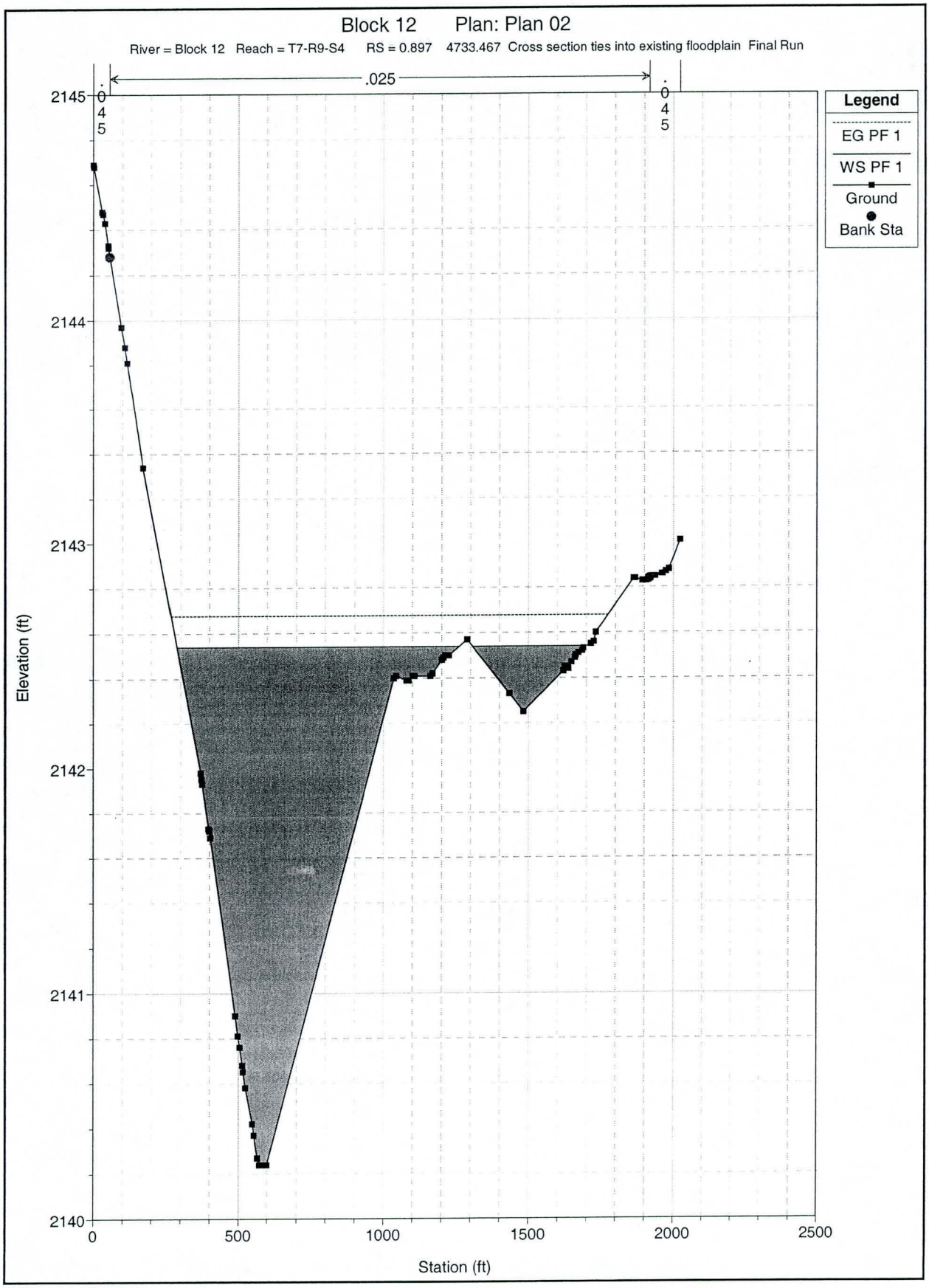

Block 12 Plan: Plan 02
River = Block 12 Reach = T7-R9-S4 RS = 3.683 19443.34 Cross section ties into existing stock tank Final Run
.045
.025
.045
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2207.0
2206.5
2206.0
2205.5
2205.0
2204.5
2204.0
2203.5
2203.0
0
200
400
600
800
1000
1200
1400
1600

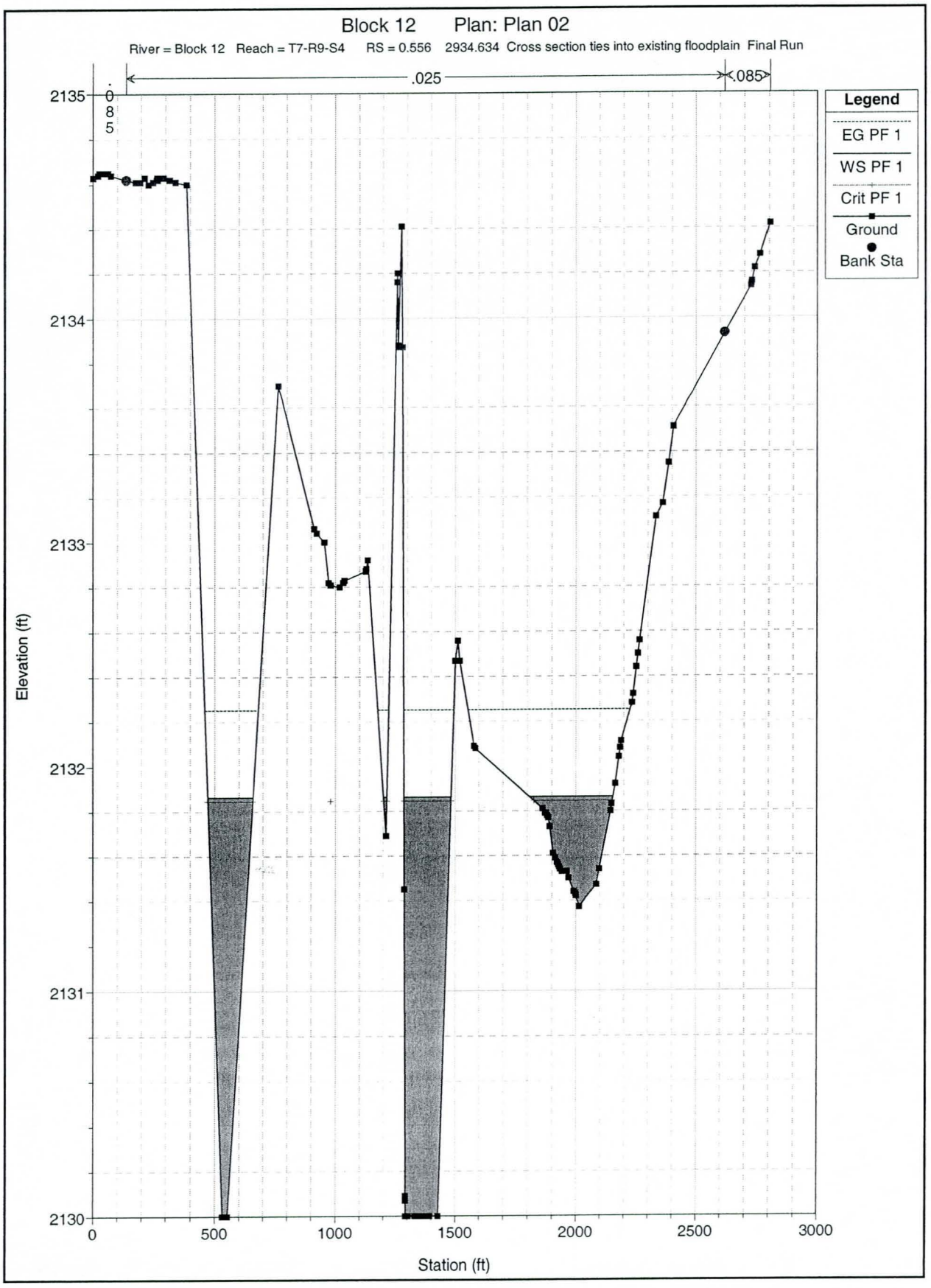

Block 12 Plan: Plan 02
River = Block 12 Reach = T7-R9-S4 RS = 3.359 17733.57 Final Run
.025
.045
.045
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2195.4
2195.2
2195.0
2194.8
2194.6
2194.4
2194.2
2194.0
0
200
400
600
800
1000
1200
1400
1600

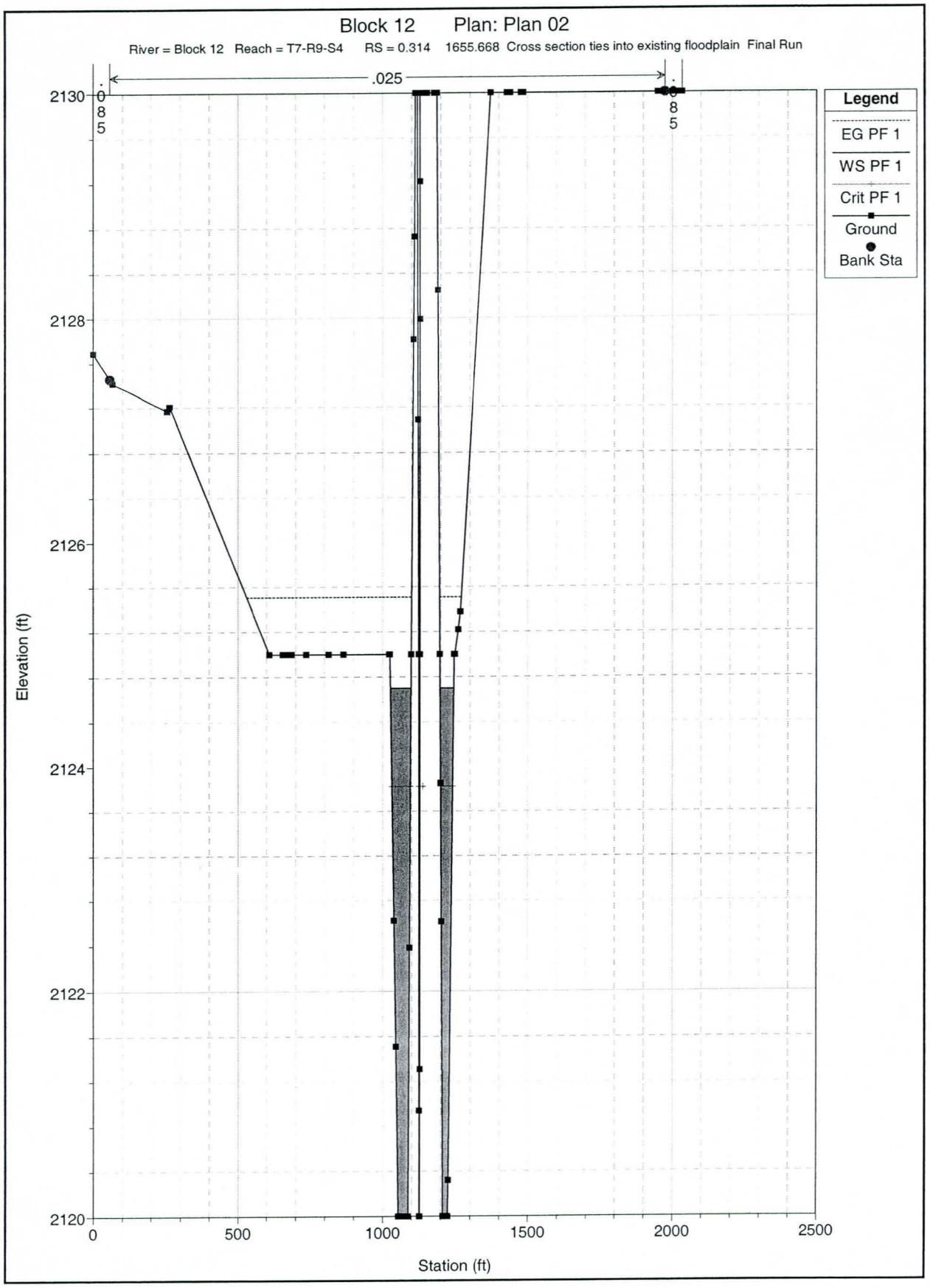

Block 12 Plan: Plan 02
River = Block 12 Reach = T7-R9-S4 RS = 2.811 14839.42 Final Run
.045
.025
.045
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2182.0
2181.5
2181.0
2180.5
2180.0
2179.5
2179.0
0
500
1000
1500
2000
Station (ft)

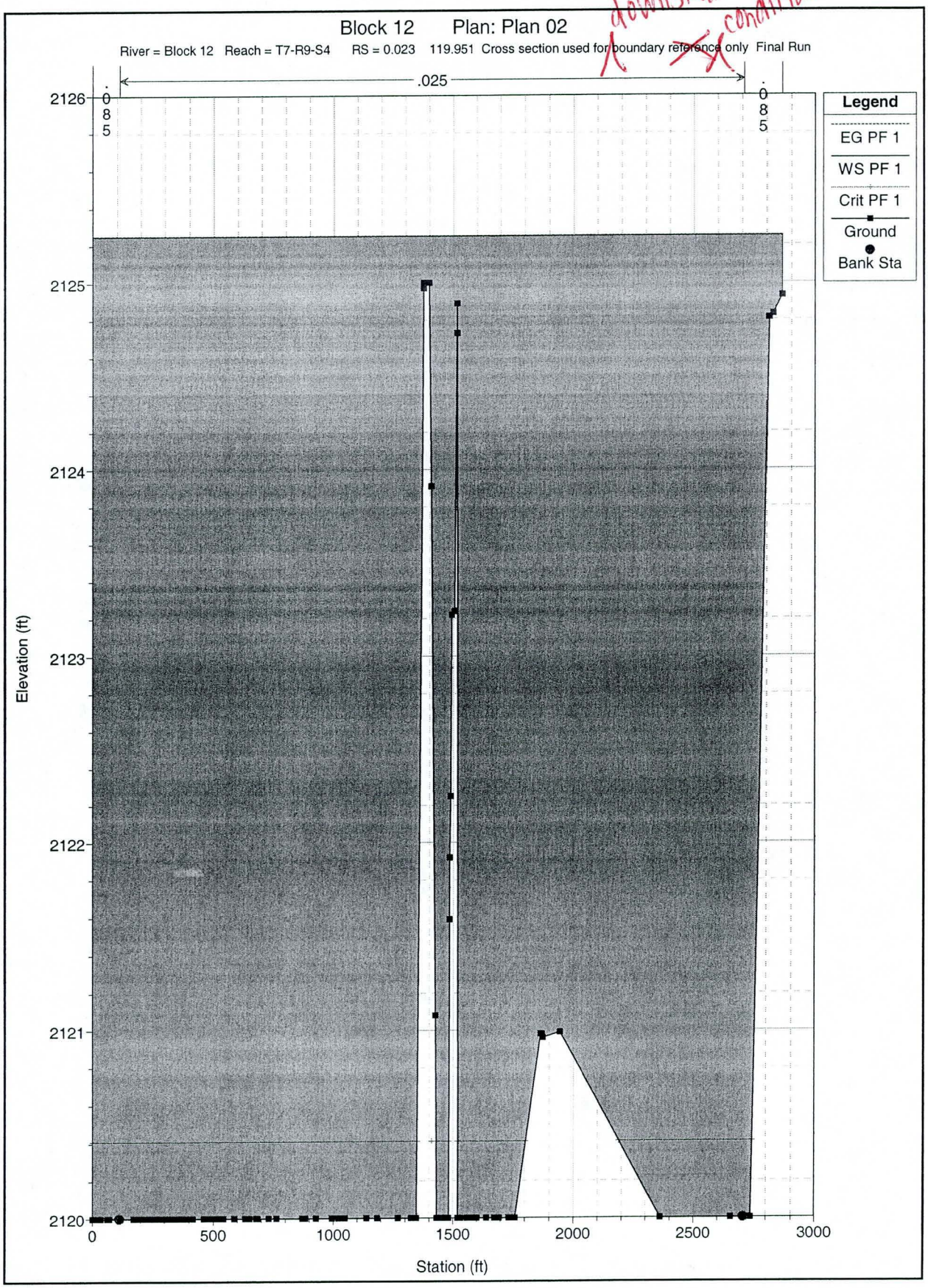

Block 12 Plan: Plan 02
River = Block 12 Reach = T7-R9-S4 RS = 2.464 13008.25 Final Run
.045
.025
.045
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2170.4
2170.2
2170.0
2169.8
2169.6
2169.4
2169.2
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)


Block 12 Plan: Plan 02
River = Block 12 Reach = T7-R9-S4 RS = 2.022 10672.25 Final Run
.025
.045
.045
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2160.5
2160.0
2159.5
2159.0
2158.5
2158.0
Elevation (ft)
0
500
1000
1500
2000
2500
3000
Station (ft)


Block 12 Plan: Plan 02
River = Block 12 Reach = T7-R9-S4 RS = 0.897 4733.467 Cross section ties into existing floodplain Final Run
.025
.045
.045
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
2145
2144
2143
2142
2141
2140
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)


Block 12 Plan: Plan 02
River = Block 12 Reach = T7-R9-S4 RS = 0.556 2934.634 Cross section ties into existing floodplain Final Run
.025
.085
.085
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2135
2134
2133
2132
2131
2130
0
500
1000
1500
2000
2500
3000


Block 12 Plan: Plan 02
River = Block 12 Reach = T7-R9-S4 RS = 0.314 1655.668 Cross section ties into existing floodplain Final Run
.025
.085
.085
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2130
2128
2126
2124
2122
2120
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)


Block 12 Plan: Plan 02
River = Block 12 Reach = T7-R9-S4 RS = 0.023 119.951 Cross section used for boundary reference only Final Run
downstream condition
.025
.085
.085
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2126
2125
2124
2123
2122
2121
2120
0
500
1000
1500
2000
2500
3000
Station (ft)

Plan: Plan 02 Block 12 T7-R9-S4 RS: 3.822 Profile: PF 1

E.G. Elev (ft)	2210.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.		0.025	0.045
W.S. Elev (ft)	2209.86	Reach Len. (ft)	832.54	735.66	764.23
Crit W.S. (ft)	2209.86	Flow Area (sq ft)		605.29	0.38
E.G. Slope (ft/ft)	0.010193	Area (sq ft)		605.29	0.38
Q Total (cfs)	2966.00	Flow (cfs)		2965.87	0.13
Top Width (ft)	832.49	Top Width (ft)		820.33	12.16
Vel Total (ft/s)	4.90	Avg. Vel. (ft/s)		4.90	0.33
Max Chl Dpth (ft)	1.14	Hydr. Depth (ft)		0.74	0.03
Conv. Total (cfs)	29378.1	Conv. (cfs)		29376.8	1.3
Length Wtd. (ft)	735.92	Wetted Per. (ft)		820.33	12.17
Min Ch El (ft)	2208.71	Shear (lb/sq ft)		0.47	0.02
Alpha	1.00	Stream Power (lb/ft s)		2.30	0.01
Frctn Loss (ft)	4.48	Cum Volume (acre-ft)	11.57	640.62	10.04
C & E Loss (ft)	0.06	Cum SA (acres)	8.73	639.53	18.80

Errors Warnings and Notes

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.

Plan: Plan 02 Block 12 T7-R9-S4 RS: 3.683 Profile: PF 1

E.G. Elev (ft)	2205.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.045	0.025	0.045
W.S. Elev (ft)	2205.22	Reach Len. (ft)	1490.99	1709.78	1651.91
Crit W.S. (ft)	2204.83	Flow Area (sq ft)	17.51	875.33	23.71
E.G. Slope (ft/ft)	0.004038	Area (sq ft)	17.51	875.33	23.71
Q Total (cfs)	2966.00	Flow (cfs)	10.75	2938.52	16.73
Top Width (ft)	1276.84	Top Width (ft)	110.61	1044.65	121.58
Vel Total (ft/s)	3.24	Avg. Vel. (ft/s)	0.61	3.36	0.71
Max Chl Dpth (ft)	1.85	Hydr. Depth (ft)	0.16	0.84	0.19
Conv. Total (cfs)	46672.9	Conv. (cfs)	169.2	46240.5	263.2
Length Wtd. (ft)	1709.19	Wetted Per. (ft)	110.61	1044.66	121.58
Min Ch El (ft)	2203.37	Shear (lb/sq ft)	0.04	0.21	0.05
Alpha	1.07	Stream Power (lb/ft s)	0.02	0.71	0.03
Frctn Loss (ft)	10.15	Cum Volume (acre-ft)	11.40	628.12	9.83
C & E Loss (ft)	0.01	Cum SA (acres)	7.68	623.78	17.63

Errors Warnings and Notes

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.

Plan: Plan 02 Block 12 T7-R9-S4 RS: 3.359 Profile: PF 1

E.G. Elev (ft)	2195.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.025	0.045
W.S. Elev (ft)	2194.97	Reach Len. (ft)	2565.43	2894.14	2468.72
Crit W.S. (ft)	2194.93	Flow Area (sq ft)		715.57	4.05
E.G. Slope (ft/ft)	0.009573	Area (sq ft)		715.57	4.05
Q Total (cfs)	2966.00	Flow (cfs)		2963.29	2.71
Top Width (ft)	1233.78	Top Width (ft)		1190.78	43.00
Vel Total (ft/s)	4.12	Avg. Vel. (ft/s)		4.14	0.67
Max Chl Dpth (ft)	0.89	Hydr. Depth (ft)		0.60	0.09
Conv. Total (cfs)	30314.5	Conv. (cfs)		30286.8	27.7
Length Wtd. (ft)	2891.36	Wetted Per. (ft)		1190.78	43.00
Min Ch El (ft)	2194.08	Shear (lb/sq ft)		0.36	0.06
Alpha	1.01	Stream Power (lb/ft s)		1.49	0.04
Frctn Loss (ft)	14.68	Cum Volume (acre-ft)	11.10	596.90	9.31
C & E Loss (ft)	0.04	Cum SA (acres)	5.78	579.91	14.51

Errors Warnings and Notes

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.

Plan: Plan 02 Block 12 T7-R9-S4 RS: 2.811 Profile: PF 1

E.G. Elev (ft)	2180.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.025	0.045
W.S. Elev (ft)	2180.40	Reach Len. (ft)	1891.03	1831.17	1888.71
Crit W.S. (ft)	2180.14	Flow Area (sq ft)		1050.37	44.08
E.G. Slope (ft/ft)	0.003138	Area (sq ft)		1050.37	44.08
Q Total (cfs)	2966.00	Flow (cfs)		2929.96	36.04
Top Width (ft)	1519.81	Top Width (ft)		1369.80	150.01
Vel Total (ft/s)	2.71	Avg. Vel. (ft/s)		2.79	0.82
Max Chl Dpth (ft)	1.40	Hydr. Depth (ft)		0.77	0.29
Conv. Total (cfs)	52945.8	Conv. (cfs)		52302.5	643.3
Length Wtd. (ft)	1831.60	Wetted Per. (ft)		1369.81	150.01
Min Ch El (ft)	2179.00	Shear (lb/sq ft)		0.15	0.06
Alpha	1.05	Stream Power (lb/ft s)		0.42	0.05
Frctn Loss (ft)	10.16	Cum Volume (acre-ft)	11.10	538.23	7.94
C & E Loss (ft)	0.01	Cum SA (acres)	5.78	494.84	9.04

Errors Warnings and Notes

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.

Plan: Plan 02 Block 12 T7-R9-S4 RS: 2.464 Profile: PF 1

E.G. Elev (ft)	2170.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.045	0.025	0.045
W.S. Elev (ft)	2170.13	Reach Len. (ft)	2360.19	2336.00	2509.93
Crit W.S. (ft)	2170.13	Flow Area (sq ft)	6.15	782.51	5.47
E.G. Slope (ft/ft)	0.012329	Area (sq ft)	6.15	782.51	5.47
Q Total (cfs)	2966.00	Flow (cfs)	4.21	2957.75	4.05
Top Width (ft)	1942.06	Top Width (ft)	76.34	1805.38	60.35

Plan: Plan 02 Block 12 T7-R9-S4 RS: 2.464 Profile: PF 1 (Continued)

Vel Total (ft/s)	3.73	Avg. Vel. (ft/s)	0.68	3.78	0.74
Max Chl Dpth (ft)	0.86	Hydr. Depth (ft)	0.08	0.43	0.09
Conv. Total (cfs)	26712.0	Conv. (cfs)	37.9	26637.7	36.5
Length Wtd. (ft)	2336.14	Wetted Per. (ft)	76.34	1805.38	60.35
Min Ch El (ft)	2169.27	Shear (lb/sq ft)	0.06	0.33	0.07
Alpha	1.02	Stream Power (lb/ft s)	0.04	1.26	0.05
Frctn Loss (ft)	10.03	Cum Volume (acre-ft)	10.97	499.71	6.87
C & E Loss (ft)	0.04	Cum SA (acres)	4.13	428.10	4.48

Errors Warnings and Notes

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.

Plan: Plan 02 Block 12 T7-R9-S4 RS: 2.022 Profile: PF 1

E.G. Elev (ft)	2159.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.025	
W.S. Elev (ft)	2159.42	Reach Len. (ft)	5187.73	5938.79	6096.04
Crit W.S. (ft)	2159.04	Flow Area (sq ft)		1354.43	
E.G. Slope (ft/ft)	0.002159	Area (sq ft)		1354.43	
Q Total (cfs)	2966.00	Flow (cfs)		2966.00	
Top Width (ft)	1918.18	Top Width (ft)		1918.18	
Vel Total (ft/s)	2.19	Avg. Vel. (ft/s)		2.19	
Max Chl Dpth (ft)	1.28	Hydr. Depth (ft)		0.71	
Conv. Total (cfs)	63834.9	Conv. (cfs)		63834.9	
Length Wtd. (ft)	5938.79	Wetted Per. (ft)		1918.18	
Min Ch El (ft)	2158.14	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.21	
Frctn Loss (ft)	16.81	Cum Volume (acre-ft)	10.80	442.41	6.71
C & E Loss (ft)	0.01	Cum SA (acres)	2.06	328.26	2.74

Errors Warnings and Notes

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.

Plan: Plan 02 Block 12 T7-R9-S4 RS: 0.897 Profile: PF 1

E.G. Elev (ft)	2142.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.025	
W.S. Elev (ft)	2142.54	Reach Len. (ft)	2187.47	1798.83	1780.96
Crit W.S. (ft)		Flow Area (sq ft)		992.86	
E.G. Slope (ft/ft)	0.003873	Area (sq ft)		992.86	
Q Total (cfs)	2966.00	Flow (cfs)		2966.00	
Top Width (ft)	1367.99	Top Width (ft)		1367.99	
Vel Total (ft/s)	2.99	Avg. Vel. (ft/s)		2.99	
Max Chl Dpth (ft)	2.30	Hydr. Depth (ft)		0.73	
Conv. Total (cfs)	47659.2	Conv. (cfs)		47659.2	
Length Wtd. (ft)	1798.83	Wetted Per. (ft)		1368.00	

Plan: Plan 02 Block 12 T7-R9-S4 RS: 0.897 Profile: PF 1 (Continued)

Min Ch El (ft)	2140.24	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.52	
Frctn Loss (ft)	10.40	Cum Volume (acre-ft)	10.80	282.40	6.71
C & E Loss (ft)	0.02	Cum SA (acres)	2.06	104.25	2.74

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
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.

Plan: Plan 02 Block 12 T7-R9-S4 RS: 0.556 Profile: PF 1

E.G. Elev (ft)	2132.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.		0.025	
W.S. Elev (ft)	2131.86	Reach Len. (ft)	1248.67	1278.97	1382.95
Crit W.S. (ft)	2131.85	Flow Area (sq ft)		593.87	
E.G. Slope (ft/ft)	0.009542	Area (sq ft)		593.87	
Q Total (cfs)	2966.00	Flow (cfs)		2966.00	
Top Width (ft)	744.04	Top Width (ft)		744.04	
Vel Total (ft/s)	4.99	Avg. Vel. (ft/s)		4.99	
Max Chl Dpth (ft)	1.86	Hydr. Depth (ft)		0.80	
Conv. Total (cfs)	30363.1	Conv. (cfs)		30363.1	
Length Wtd. (ft)	1278.97	Wetted Per. (ft)		744.38	
Min Ch El (ft)	2130.00	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		2.37	
Frctn Loss (ft)	6.70	Cum Volume (acre-ft)	10.80	249.64	6.71
C & E Loss (ft)	0.04	Cum SA (acres)	2.06	60.64	2.74

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
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.

Plan: Plan 02 Block 12 T7-R9-S4 RS: 0.314 Profile: PF 1

E.G. Elev (ft)	2125.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.81	Wt. n-Val.		0.025	
W.S. Elev (ft)	2124.70	Reach Len. (ft)	1605.12	1535.72	1543.12
Crit W.S. (ft)	2123.82	Flow Area (sq ft)		409.77	
E.G. Slope (ft/ft)	0.003302	Area (sq ft)		409.77	
Q Total (cfs)	2966.00	Flow (cfs)		2966.00	
Top Width (ft)	121.96	Top Width (ft)		121.96	
Vel Total (ft/s)	7.24	Avg. Vel. (ft/s)		7.24	
Max Chl Dpth (ft)	4.70	Hydr. Depth (ft)		3.36	
Conv. Total (cfs)	51616.6	Conv. (cfs)		51616.6	
Length Wtd. (ft)	1536.20	Wetted Per. (ft)		132.81	
Min Ch El (ft)	2120.00	Shear (lb/sq ft)		0.64	
Alpha	1.00	Stream Power (lb/ft s)		4.60	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	10.80	234.90	6.71
C & E Loss (ft)	0.24	Cum SA (acres)	2.06	47.93	2.74

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.

Errors Warnings and Notes (Continued)

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.

Plan: Plan 02 Block 12 T7-R9-S4 RS: 0.023 Profile: PF 1

E.G. Elev (ft)	2125.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.085	0.025	0.085
W.S. Elev (ft)	2125.25	Reach Len. (ft)			
Crit W.S. (ft)	2120.41	Flow Area (sq ft)	586.27	12916.00	378.88
E.G. Slope (ft/ft)	0.000002	Area (sq ft)	586.27	12916.00	378.88
Q Total (cfs)	2966.00	Flow (cfs)	39.11	2911.24	15.65
Top Width (ft)	2863.31	Top Width (ft)	111.67	2597.02	154.62
Vel Total (ft/s)	0.21	Avg. Vel. (ft/s)	0.07	0.23	0.04
Max Chl Dpth (ft)	5.25	Hydr. Depth (ft)	5.25	4.97	2.45
Conv. Total (cfs)	2276721.0	Conv. (cfs)	30024.6	2234683.0	12013.4
Length Wtd. (ft)		Wetted Per. (ft)	116.92	2600.63	155.10
Min Ch El (ft)	2120.00	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.09	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 12\ArcView\T7R9S4.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 12\ArcView\T7R9S4.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 12\ArcView\T7R9S4.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 12\ArcView\T7R9S4.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 12\ArcView\T7R9S4.nt
Selected profiles: PF 1
Date: 12/4/2003
Time: 3:10:35 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block 12,T7-R9-S4						
3.822		0.045	0.025	0.045	0.1	0.3
3.664		0.045	0.025	0.045	0.1	0.3
3.359		0.045	0.025	0.045	0.1	0.3
2.81		0.045	0.025	0.045	0.1	0.3
2.464		0.045	0.025	0.045	0.1	0.3
2.021		0.045	0.025	0.045	0.1	0.3
.896		0.045	0.025	0.045	0.1	0.3
.556		0.085	0.025	0.085	0.1	0.3
.314		0.085	0.085	0.085	0.1	0.3
.023		0.085	0.085	0.085	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.045	0.085
Right Overbank n Value:	0.045	0.085
Channel n Value:	0.025	0.085
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

RS: 3.822
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a concrete lined channel.

RS: 3.664
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a concrete lined channel.

RS: 3.359
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a concrete lined channel.

RS: 2.81
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a concrete lined channel.

RS: 2.464
NT RC 03 Channel n value is equal to or less than 0.025

```
          The n value of the channel is usually larger than 0.025.
          The n value should be reevaluated it if is not representing a
          concrete lined channel.

RS:        2.021
NT RC 03 Channel n value is equal to or less than 0.025
          The n value of the channel is usually larger than 0.025.
          The n value should be reevaluated it if is not representing a
          concrete lined channel.

RS:        0.896
NT RC 03 Channel n value is equal to or less than 0.025
          The n value of the channel is usually larger than 0.025.
          The n value should be reevaluated it if is not representing a
          concrete lined channel.

RS:        0.556
NT RC 03 Channel n value is equal to or less than 0.025
          The n value of the channel is usually larger than 0.025.
          The n value should be reevaluated it if is not representing a
          concrete lined channel.

TRANSITION LOSS COEFFICIENT CHECK
---------------------------------

ROUGHNESS COEFFICIENT AT STRUCTURES
-----------------------------------

---END---
```

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 12\ArcView\T7R9S4.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 12\ArcView\T7R9S4.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 12\ArcView\T7R9S4.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 12\ArcView\T7R9S4.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 12\ArcView\T7R9S4.xs
Selected profiles: PF 1
Date: 12/4/2003
Time: 3:10:35 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Block 12,T7-R9-S4						
3.822	832.54	831.87	928.53	866.27	2966	
3.664	1490.99	1613.57	1487.6	1292.92	2966	
3.359	2565.43	2894.14	2468.72	1235.39	2966	
2.81	1891.03	1831.17	1888.71	1518.97	2966	
2.464	2360.19	2336	2509.93	1944.12	2966	C
2.021	5187.73	5938.79	6096.04	2086.89	2966	
0.896	2187.47	1798.83	1780.96	583.17	2966	C
0.556	1248.67	1278.97	1382.95	1219.89	2966	D
0.314	1605.12	1535.72	1543.12	123.92	2966	D
0.023	670.48	119.95	502.72	2863.31	2966	E

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

```
DISTANCE CHECK
---------------

RS:       3.822
XS DT 01 Both right and left overbank distances are
         longer than the channel distance.

RS:       2.81
XS DT 01 Both right and left overbank distances are
         longer than the channel distance.

RS:       2.464
XS DT 01 Both right and left overbank distances are
         longer than the channel distance.

RS:       0.314
XS DT 01 Both right and left overbank distances are
         longer than the channel distance.

RS:       0.023
XS DT 01 Both right and left overbank distances are
         longer than the channel distance.


SPACING CHECK
--------------

RS:       0.556
XS SP 01 Diff. HV = 0.65 ; Kratio = 0.25 ; Depth Ratio = 2.02
         TopWdthAct ratio = 0.10 ; Length Chl Up / 500 = 2.56
         Change in HV > 0.5
         K ratio < 0.7 or K ratio > 1.4
         Depth ratio < 0.9 or Depth ratio > 1.1
         TopWdthAct ratio < 0.5 or TopWdthAct ratio > 2.0
         and Length Chnl up / 500 > 1.1
         addtional cross sections may need to be added between
         river station up and river station dn.


INEFFECTIVE FLOW CHECK
-----------------------


DISCHARGE CHECK
----------------

XS DC 02 Constant dicharge used for the Block 12,T7-R9-S4


LOCATION CHECK
---------------


BOUNDARY CONDITION CHECK
------------------------

XS BC 02 The name of the stream is Block 12,T7-R9-S4
         Known WS = 2125.25 is specified as the downstream boundary
         for profile PF 1

---END---
```

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

ROUGHNESS COEFFICIENT CHECK

Explanation:
All Manning's n-values were field verified and approved.

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

Explanation:
Cross sections were cut in order to take in channel geometry.

SPACING CHECK

Explanation:
Non-detailed study, warning occurs at downstream end new farm fields.

DISCHARGE CHECK

Warning:
Constant discharge used for the reach.

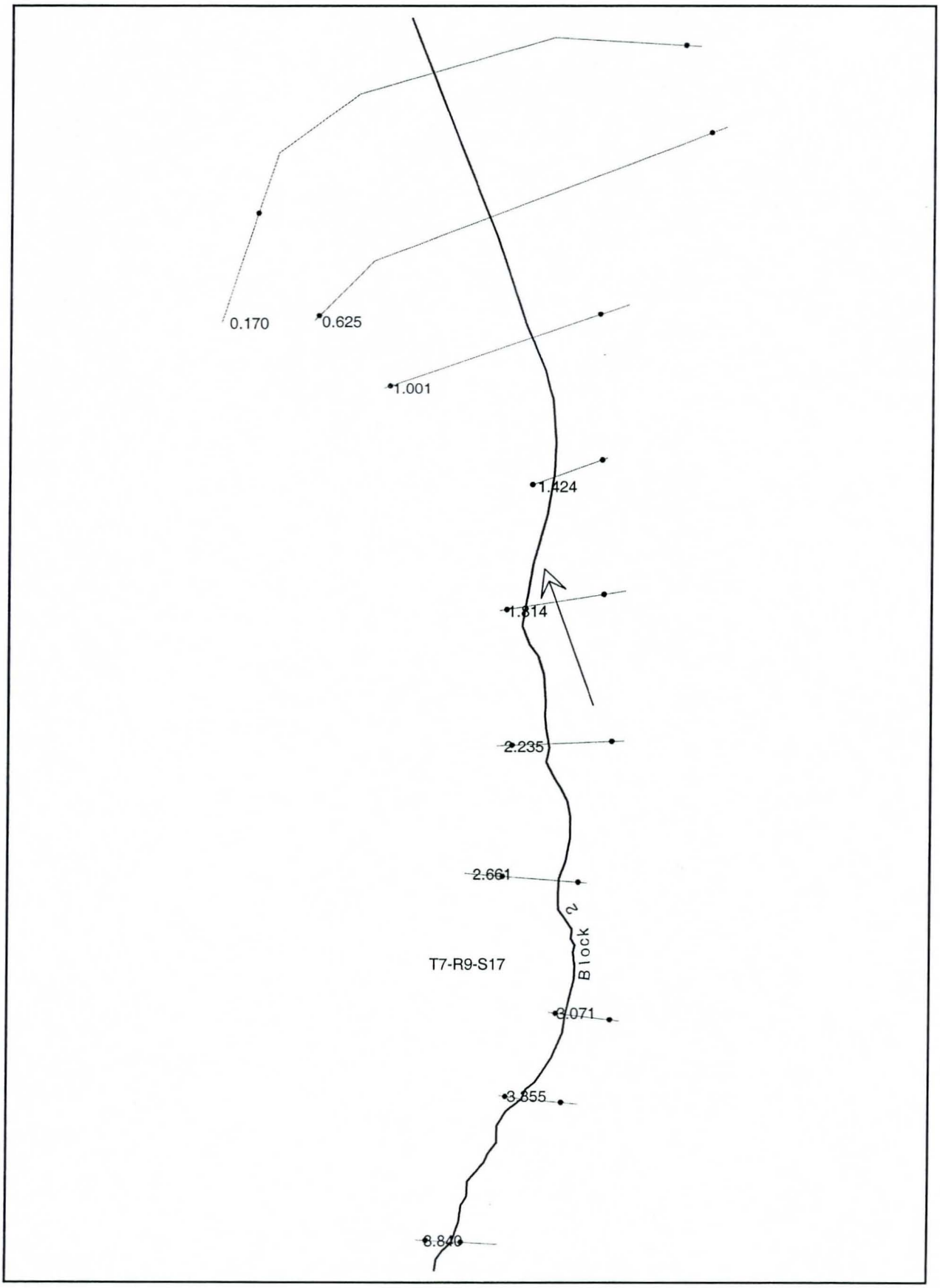
Explanation:
The discharge was determined from the regression equations for the sub basin. The Flood Control District of Maricopa County also approved the peak discharge values.

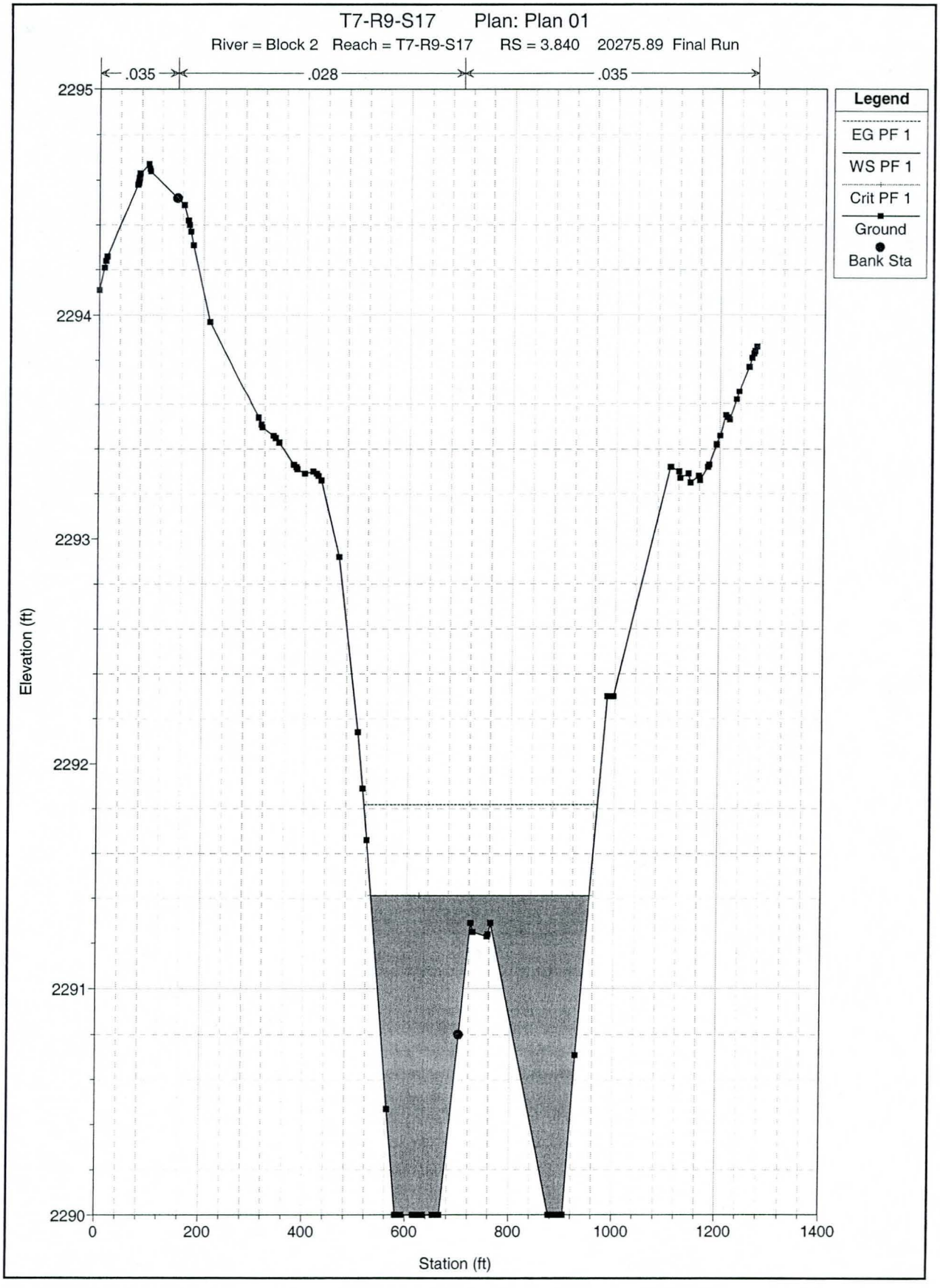
BOUNDARY CONDITION CHECK

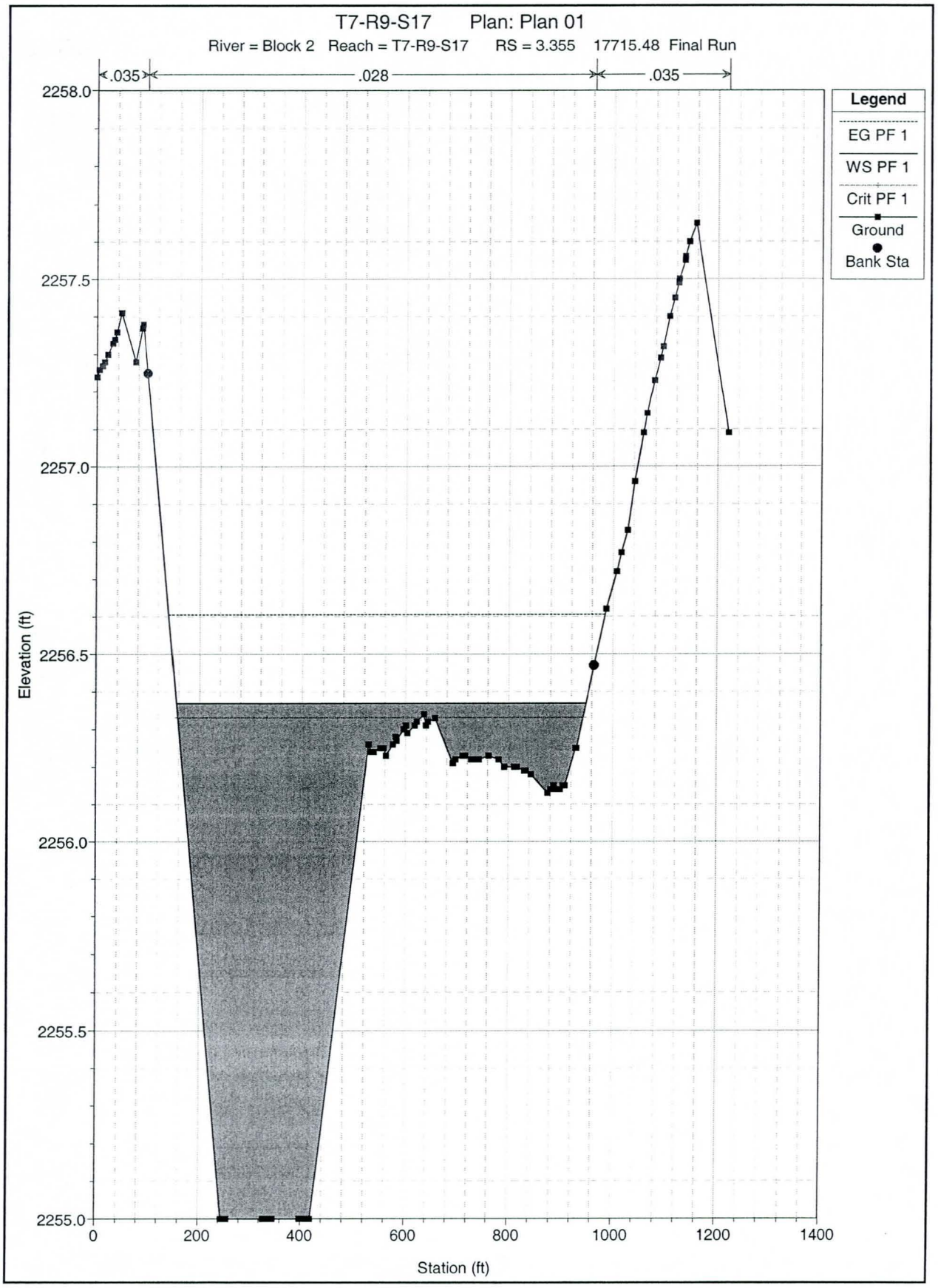
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

HEC-RAS Plan: Plan 01 River: Block 2 Reach: T7-R9-S17 Profile: PF 1

Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R9-S17	3.840	1709.00	2291.41	2291.41	5.83	422.54	1.41	0.97	530.02	952.57
T7-R9-S17	3.355	1709.00	2256.37	2256.33	3.90	793.65	1.37	0.93	155.05	948.70
T7-R9-S17	3.071	1709.00	2237.61	2237.61	5.17	413.61	2.61	1.02	153.26	754.05
T7-R9-S17	2.661	1709.00	2212.07	2211.93	4.92	337.04	2.07	0.85	1257.84	1594.87
T7-R9-S17	2.235	1709.00	2187.72	2187.72	3.92	926.81	0.98	1.01	363.81	1339.68
T7-R9-S17	1.814	1709.00	2167.69	2167.12	3.85	323.99	2.69	0.58	1060.13	1384.12
T7-R9-S17	1.424	1709.00	2154.69	2154.69	3.97	889.33	0.81	1.01	243.89	1133.22
T7-R9-S17	1.001	1709.00	2137.47	2135.79	0.69	1744.85	2.47	0.10	517.39	2262.24
T7-R9-S17	0.625	4439.00	2126.18		2.80	1589.19	1.18	0.50	1270.87	5971.03
T7-R9-S17	0.170	4439.00	2126.25	2116.28	0.09	8426.37	11.25	0.01	192.61	8618.98


0.170
0.625
1.001
1.424
1.814
2.235
2.661
T7-R9-S17
Block 2
3.071
3.855
4.840


T7-R9-S17 Plan: Plan 01
River = Block 2 Reach = T7-R9-S17 RS = 3.840 20275.89 Final Run
.035
.028
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2295
2294
2293
2292
2291
2290
0
200
400
600
800
1000
1200
1400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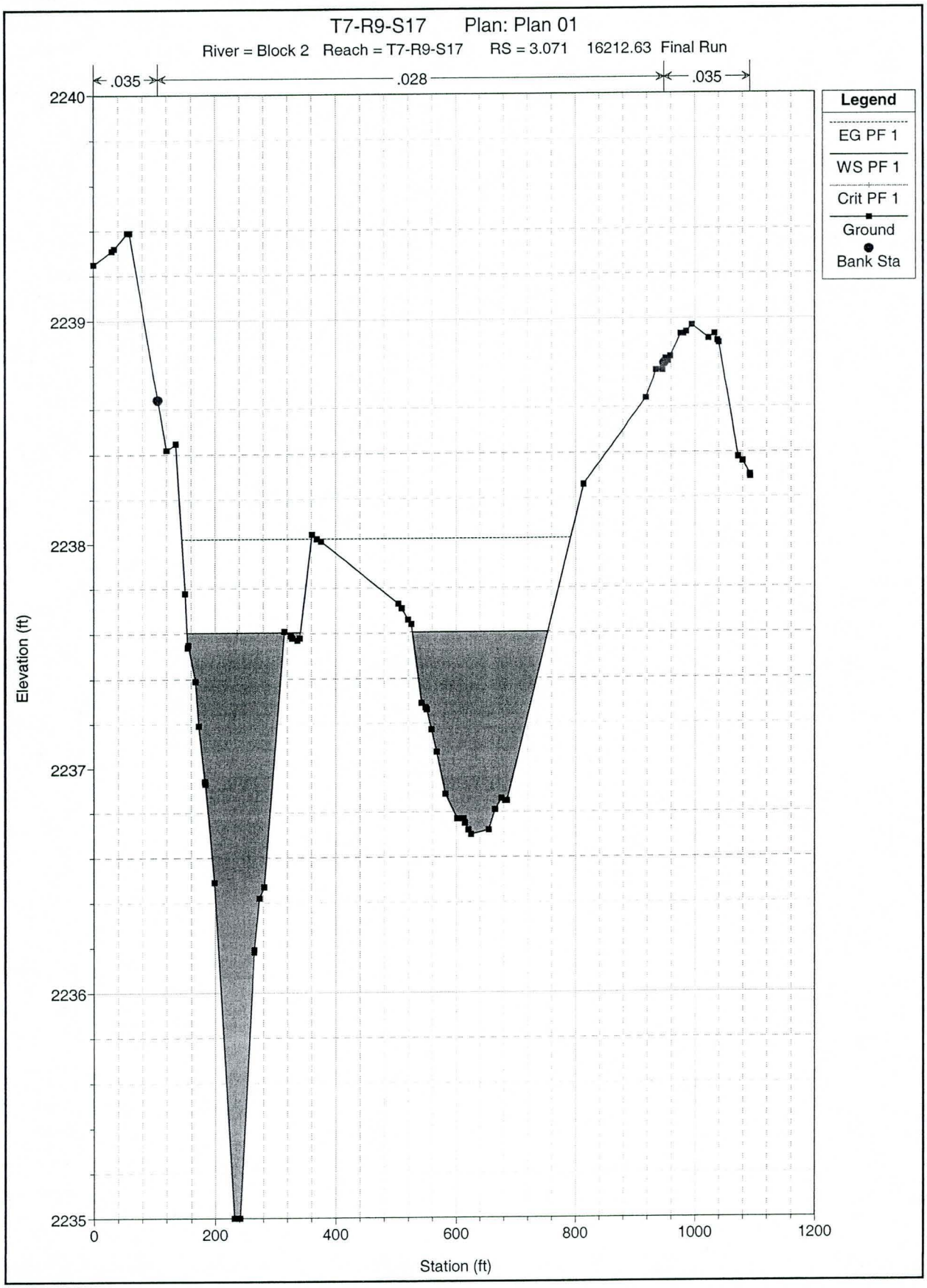
River = Block 2 Reach = T7-R9-S17 RS = 3.355 17715.48 Final Run
.035
.028
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2258.0
2257.5
2257.0
2256.5
2256.0
2255.5
2255.0
Elevation (ft)
0
200
400
600
800
1000
1200
1400
Station (ft)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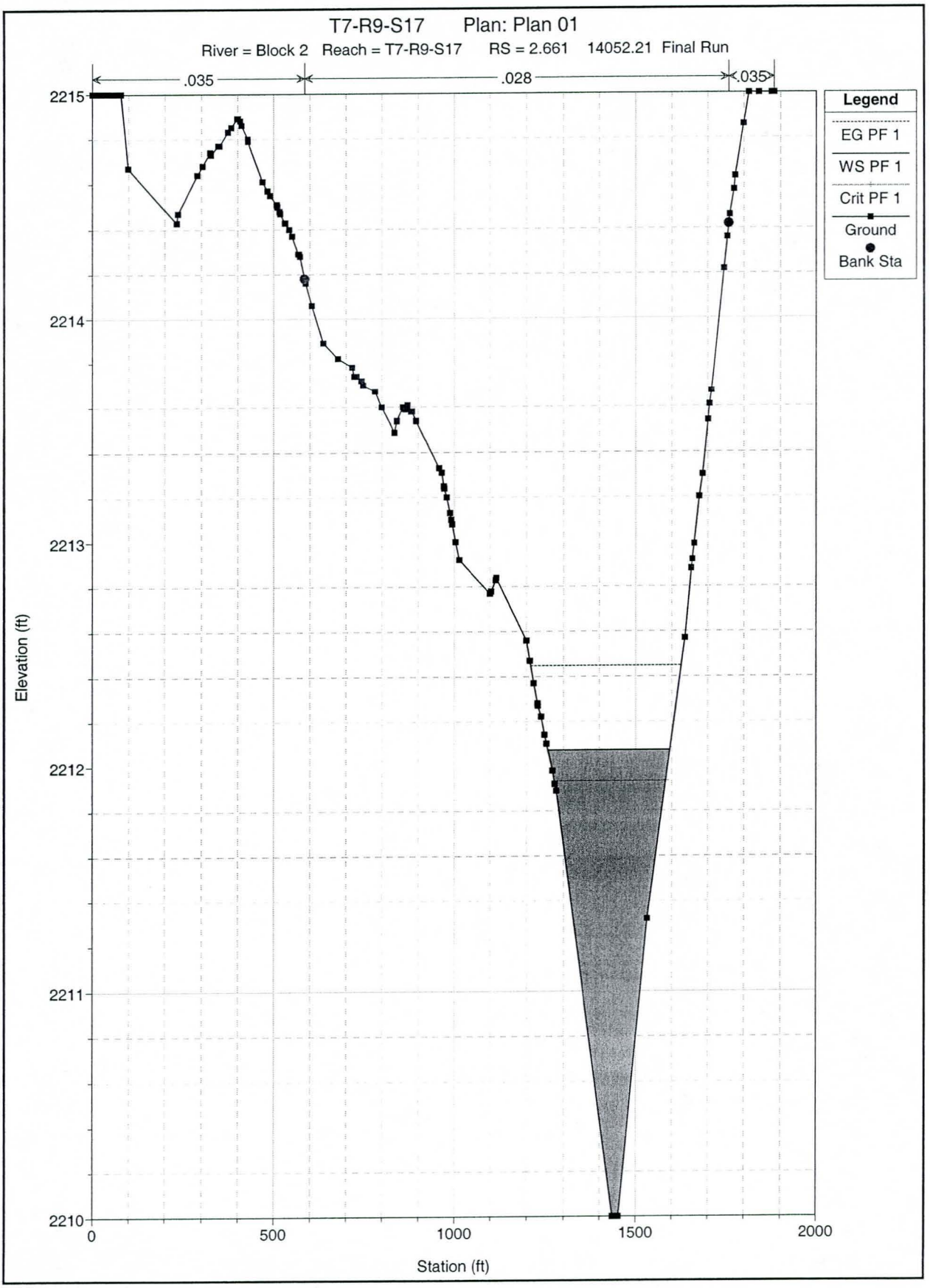
River = Block 2 Reach = T7-R9-S17 RS = 3.071 16212.63 Final Run
.035
.028
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2240
2239
2238
2237
2236
2235
0
200
400
600
800
1000
1200
Station (ft)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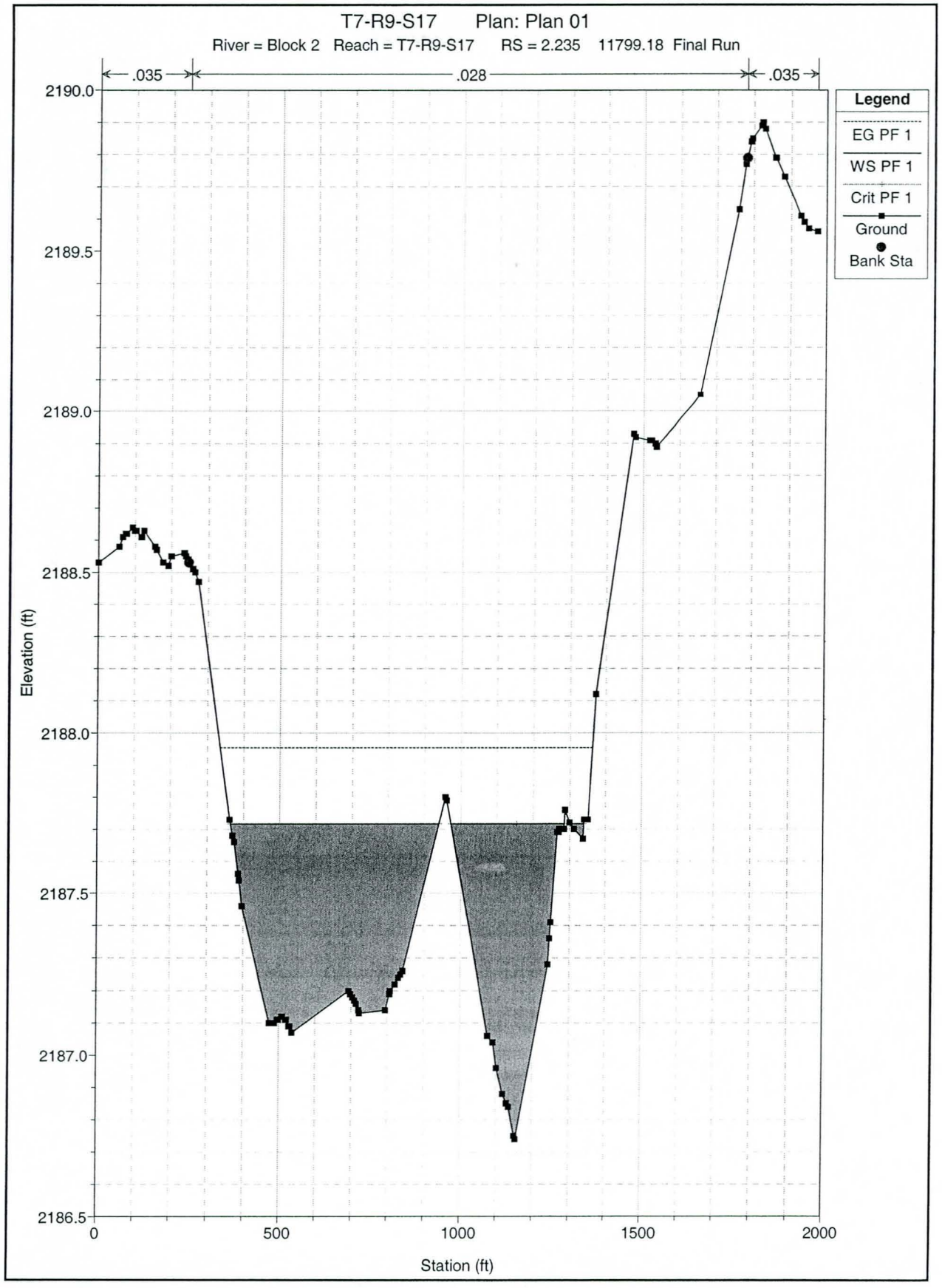
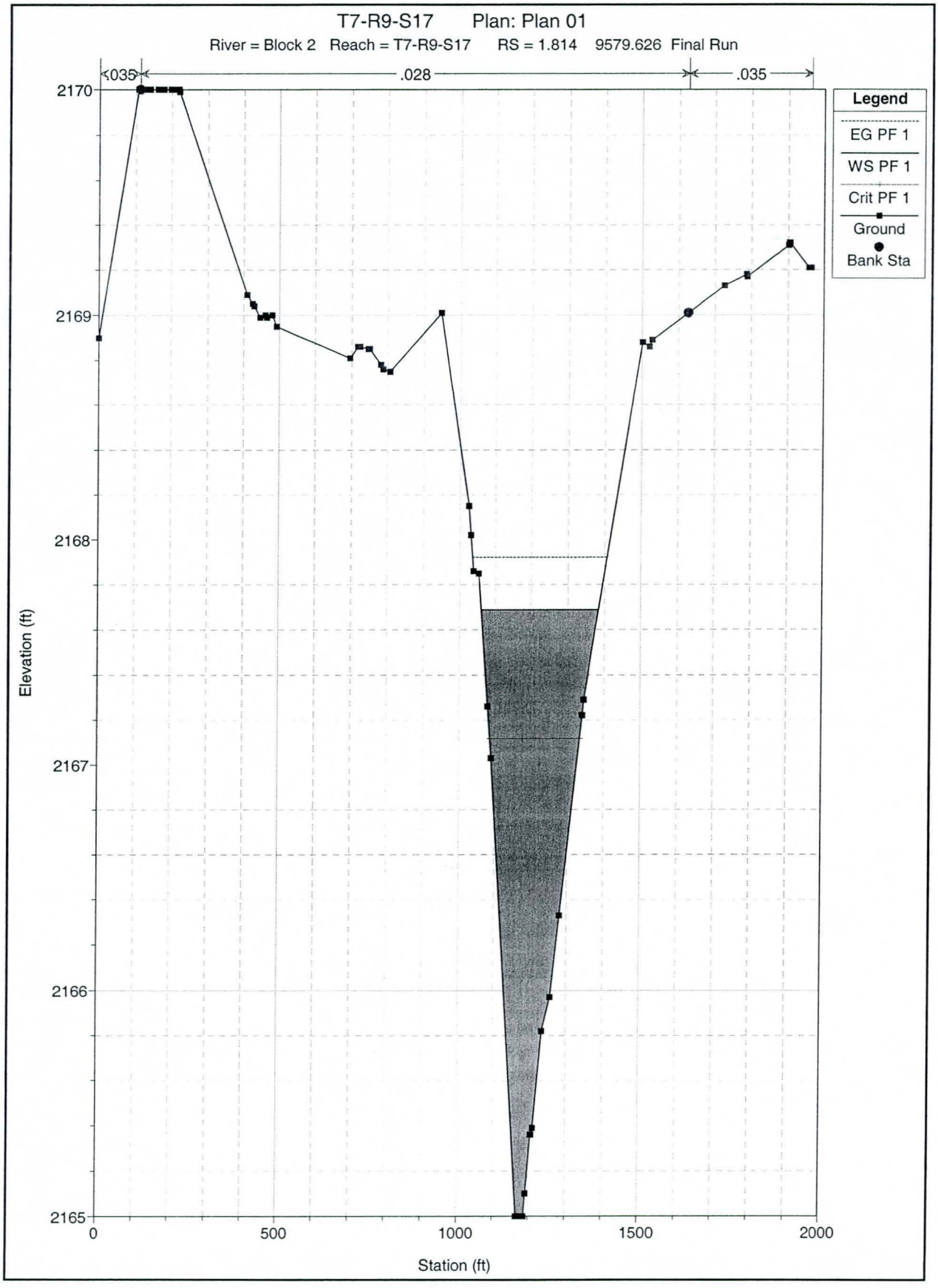
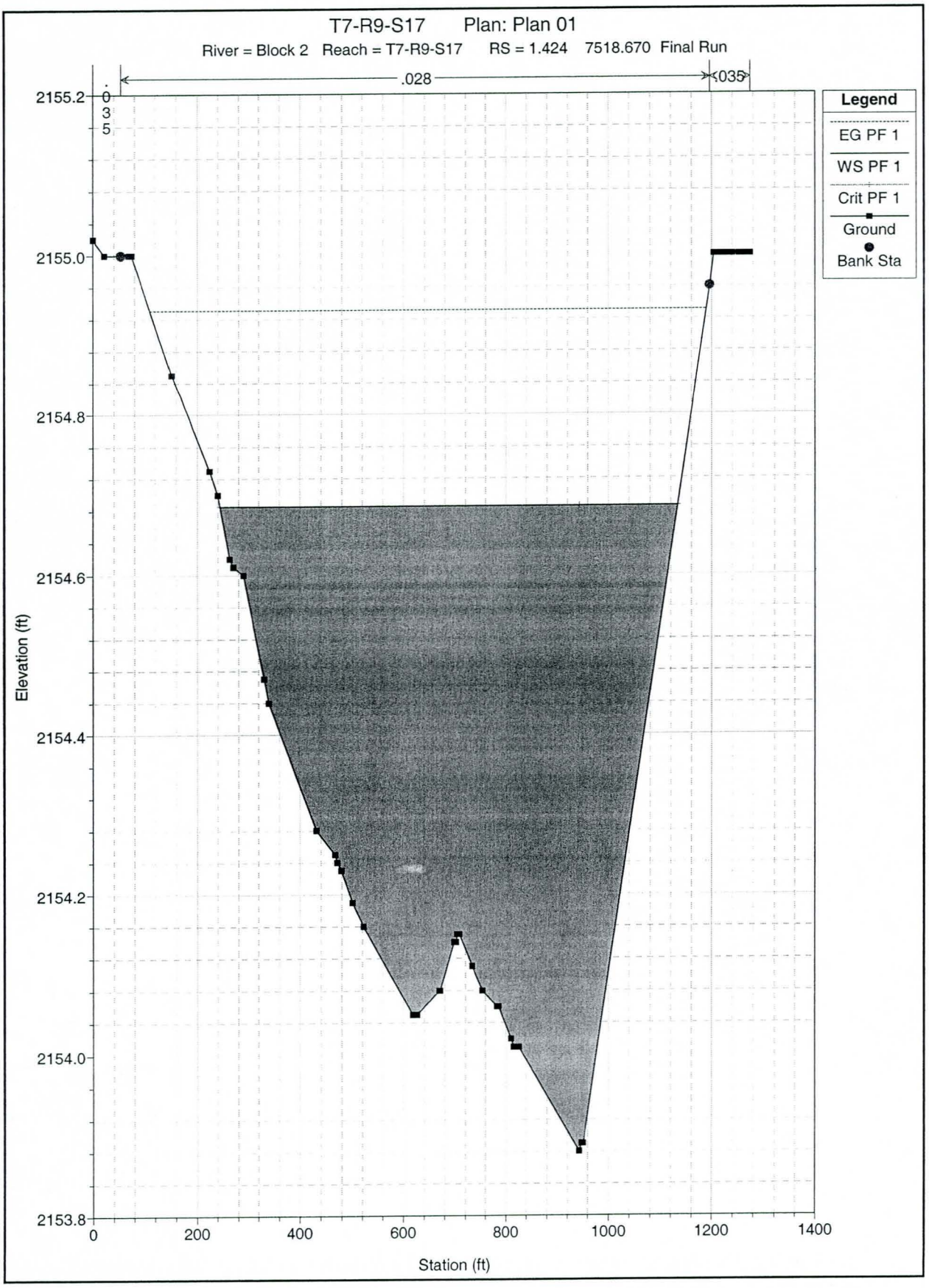
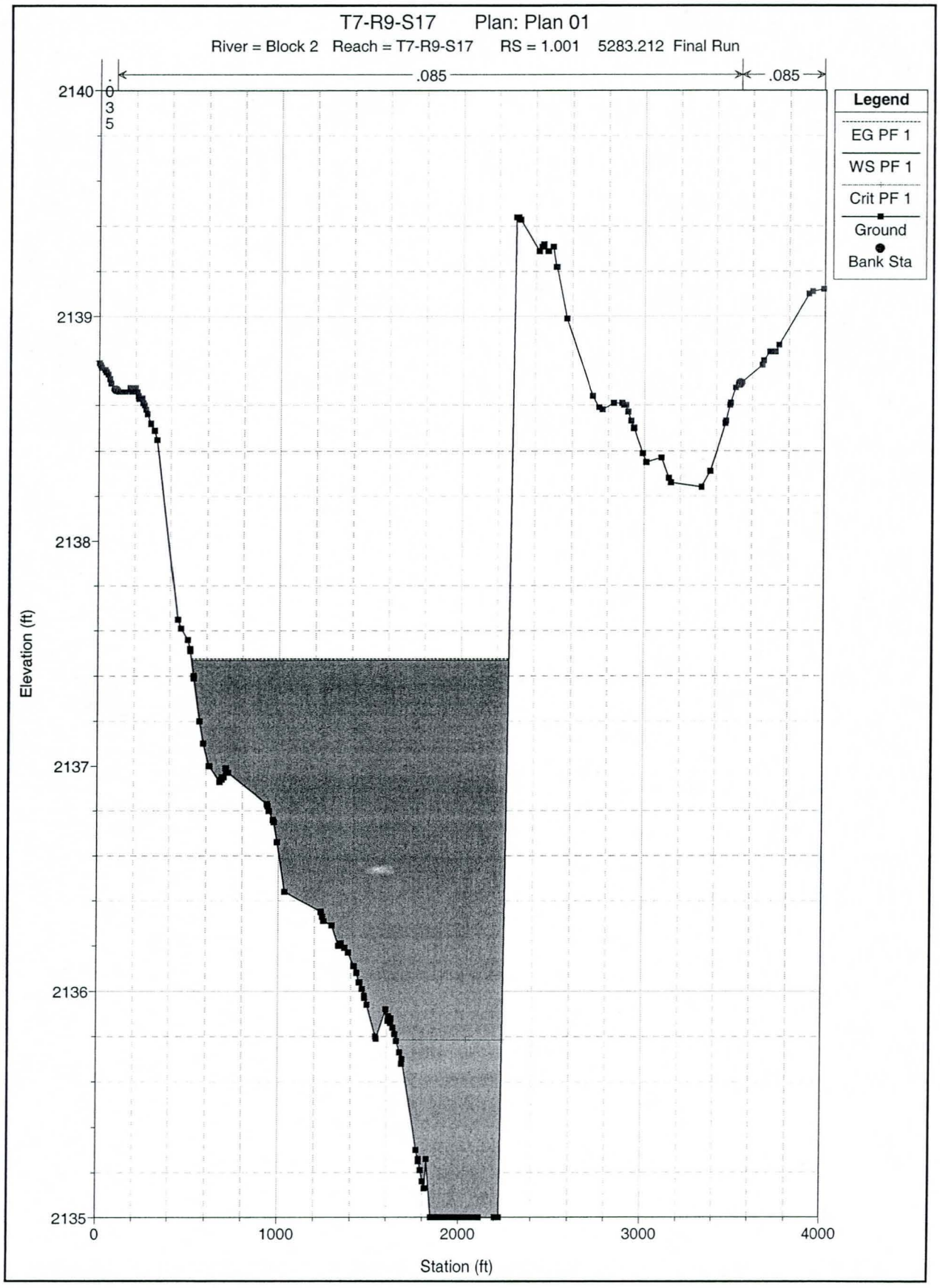
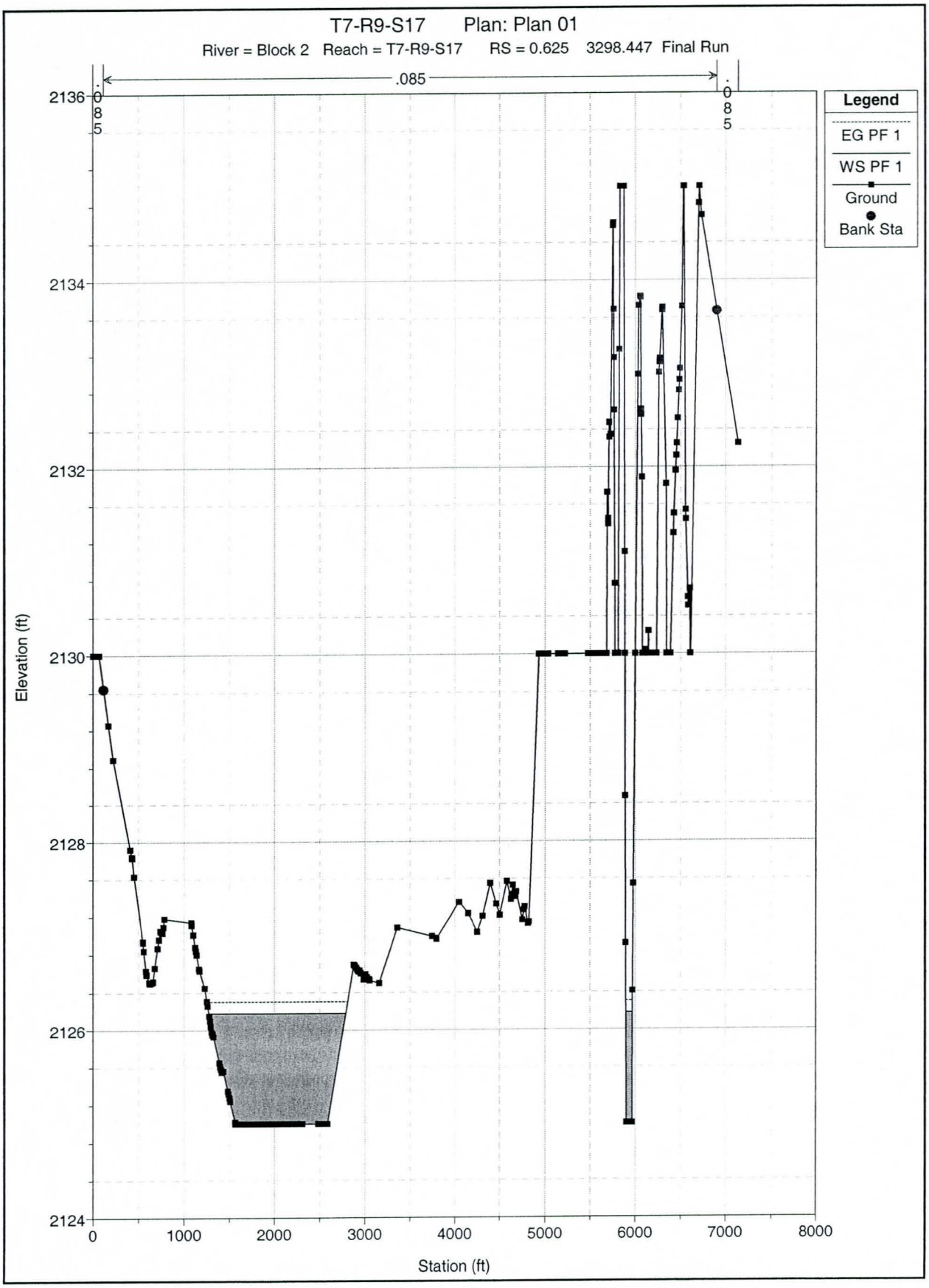
River = Block 2 Reach = T7-R9-S17 RS = 2.661 14052.21 Final Run
.035
.028
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2215
2214
2213
2212
2211
2210
0
500
1000
1500
2000
Station (ft)

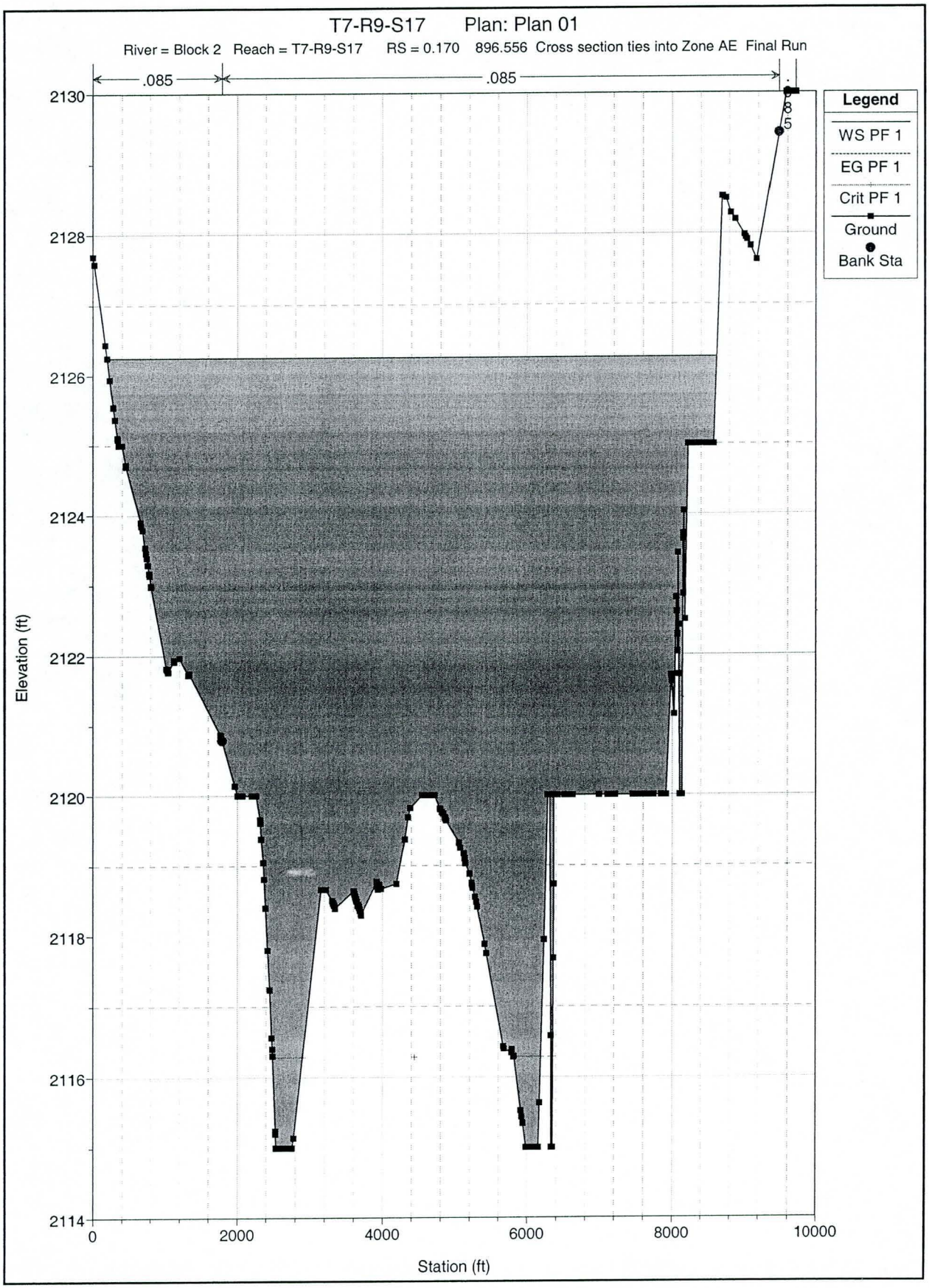

T7-R9-S17 Plan: Plan 01
River = Block 2 Reach = T7-R9-S17 RS = 2.235 11799.18 Final Run
.035
.028
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2190.0
2189.5
2189.0
2188.5
2188.0
2187.5
2187.0
2186.5
Elevation (ft)
0
500
1000
1500
2000
Station (ft)


T7-R9-S17 Plan: Plan 01
River = Block 2 Reach = T7-R9-S17 RS = 1.814 9579.626 Final Run
.035
.028
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2170
2169
2168
2167
2166
2165
0
500
1000
1500
2000
Station (ft)


T7-R9-S17 Plan: Plan 01
River = Block 2 Reach = T7-R9-S17 RS = 1.424 7518.670 Final Run
.028
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2155.2
2155.0
2154.8
2154.6
2154.4
2154.2
2154.0
2153.8
0
200
400
600
800
1000
1200
1400
Station (ft)


T7-R9-S17 Plan: Plan 01
River = Block 2 Reach = T7-R9-S17 RS = 1.001 5283.212 Final Run
.085
.085
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2140
2139
2138
2137
2136
2135
Elevation (ft)
0
1000
2000
3000
4000
Station (ft)


T7-R9-S17 Plan: Plan 01
River = Block 2 Reach = T7-R9-S17 RS = 0.625 3298.447 Final Run
.085
.085
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
2136
2134
2132
2130
2128
2126
2124
0
1000
2000
3000
4000
5000
6000
7000
8000
Station (ft)


T7-R9-S17 Plan: Plan 01
River = Block 2 Reach = T7-R9-S17 RS = 0.170 896.556 Cross section ties into Zone AE Final Run
.085
.085
Legend
WS PF 1
EG PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2130
2128
2126
2124
2122
2120
2118
2116
2114
0
2000
4000
6000
8000
10000

Plan: Plan 01 Block 2 T7-R9-S17 RS: 3.840 Profile: PF 1

E.G. Elev (ft)	2291.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.		0.028	0.035
W.S. Elev (ft)	2291.41	Reach Len. (ft)	2558.40	2560.41	2576.66
Crit W.S. (ft)	2291.41	Flow Area (sq ft)		192.15	174.23
E.G. Slope (ft/ft)	0.010343	Area (sq ft)		192.15	174.23
Q Total (cfs)	1709.00	Flow (cfs)		1119.76	589.24
Top Width (ft)	422.54	Top Width (ft)		171.25	251.30
Vel Total (ft/s)	4.66	Avg. Vel. (ft/s)		5.83	3.38
Max Chl Dpth (ft)	1.41	Hydr. Depth (ft)		1.12	0.69
Conv. Total (cfs)	16803.9	Conv. (cfs)		11010.1	5793.7
Length Wtd. (ft)	2563.21	Wetted Per. (ft)		171.27	251.33
Min Ch El (ft)	2290.00	Shear (lb/sq ft)		0.72	0.45
Alpha	1.20	Stream Power (lb/ft s)		4.22	1.51
Frctn Loss (ft)	28.45	Cum Volume (acre-ft)	115.75	1660.31	5.15
C & E Loss (ft)	0.05	Cum SA (acres)	33.57	536.75	7.43

Errors Warnings and Notes

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.

Plan: Plan 01 Block 2 T7-R9-S17 RS: 3.355 Profile: PF 1

E.G. Elev (ft)	2256.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.028	
W.S. Elev (ft)	2256.37	Reach Len. (ft)	1497.37	1502.85	1445.61
Crit W.S. (ft)	2256.33	Flow Area (sq ft)		438.00	
E.G. Slope (ft/ft)	0.011943	Area (sq ft)		438.00	
Q Total (cfs)	1709.00	Flow (cfs)		1709.00	
Top Width (ft)	793.65	Top Width (ft)		793.65	
Vel Total (ft/s)	3.90	Avg. Vel. (ft/s)		3.90	
Max Chl Dpth (ft)	1.37	Hydr. Depth (ft)		0.55	
Conv. Total (cfs)	15638.5	Conv. (cfs)		15638.5	
Length Wtd. (ft)	1502.85	Wetted Per. (ft)		793.67	
Min Ch El (ft)	2255.00	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		1.61	
Frctn Loss (ft)	18.56	Cum Volume (acre-ft)	115.75	1641.79	
C & E Loss (ft)	0.02	Cum SA (acres)	33.57	508.39	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 2 T7-R9-S17 RS: 3.071 Profile: PF 1

E.G. Elev (ft)	2238.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.		0.028	
W.S. Elev (ft)	2237.61	Reach Len. (ft)	2516.41	2160.42	2194.71
Crit W.S. (ft)	2237.61	Flow Area (sq ft)		330.69	
E.G. Slope (ft/ft)	0.012784	Area (sq ft)		330.69	
Q Total (cfs)	1709.00	Flow (cfs)		1709.00	

Plan: Plan 01 Block 2 T7-R9-S17 RS: 3.071 Profile: PF 1 (Continued)

Top Width (ft)	413.61	Top Width (ft)		413.61	
Vel Total (ft/s)	5.17	Avg. Vel. (ft/s)		5.17	
Max Chl Dpth (ft)	2.61	Hydr. Depth (ft)		0.80	
Conv. Total (cfs)	15114.8	Conv. (cfs)		15114.8	
Length Wtd. (ft)	2160.42	Wetted Per. (ft)		413.73	
Min Ch El (ft)	2235.00	Shear (lb/sq ft)		0.64	
Alpha	1.00	Stream Power (lb/ft s)		3.30	
Frctn Loss (ft)	21.96	Cum Volume (acre-ft)	115.75	1628.53	
C & E Loss (ft)	0.01	Cum SA (acres)	33.57	487.56	

Errors Warnings and Notes

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:	Divided flow computed for this cross-section.
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.

Plan: Plan 01 Block 2 T7-R9-S17 RS: 2.661 Profile: PF 1

E.G. Elev (ft)	2212.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.028	
W.S. Elev (ft)	2212.07	Reach Len. (ft)	2062.05	2253.04	2265.88
Crit W.S. (ft)	2211.93	Flow Area (sq ft)		347.16	
E.G. Slope (ft/ft)	0.008273	Area (sq ft)		347.16	
Q Total (cfs)	1709.00	Flow (cfs)		1709.00	
Top Width (ft)	337.04	Top Width (ft)		337.04	
Vel Total (ft/s)	4.92	Avg. Vel. (ft/s)		4.92	
Max Chl Dpth (ft)	2.07	Hydr. Depth (ft)		1.03	
Conv. Total (cfs)	18789.3	Conv. (cfs)		18789.3	
Length Wtd. (ft)	2253.04	Wetted Per. (ft)		337.07	
Min Ch El (ft)	2210.00	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		2.62	
Frctn Loss (ft)	24.45	Cum Volume (acre-ft)	115.75	1611.72	
C & E Loss (ft)	0.04	Cum SA (acres)	33.57	468.95	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 2 T7-R9-S17 RS: 2.235 Profile: PF 1

E.G. Elev (ft)	2187.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.028	
W.S. Elev (ft)	2187.72	Reach Len. (ft)	2107.12	2219.56	2288.69
Crit W.S. (ft)	2187.72	Flow Area (sq ft)		436.44	
E.G. Slope (ft/ft)	0.014862	Area (sq ft)		436.44	
Q Total (cfs)	1709.00	Flow (cfs)		1709.00	
Top Width (ft)	926.81	Top Width (ft)		926.81	
Vel Total (ft/s)	3.92	Avg. Vel. (ft/s)		3.92	
Max Chl Dpth (ft)	0.98	Hydr. Depth (ft)		0.47	
Conv. Total (cfs)	14018.6	Conv. (cfs)		14018.6	
Length Wtd. (ft)	2219.56	Wetted Per. (ft)		926.83	

Plan: Plan 01 Block 2 T7-R9-S17 RS: 2.235 Profile: PF 1 (Continued)

Min Ch El (ft)	2186.74	Shear (lb/sq ft)		0.44	
Alpha	1.00	Stream Power (lb/ft s)		1.71	
Frctn Loss (ft)	14.01	Cum Volume (acre-ft)	115.75	1591.46	
C & E Loss (ft)	0.00	Cum SA (acres)	33.57	436.26	

Errors Warnings and Notes

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:	Divided flow computed for this cross-section.
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.

Plan: Plan 01 Block 2 T7-R9-S17 RS: 1.814 Profile: PF 1

E.G. Elev (ft)	2167.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.028	
W.S. Elev (ft)	2167.69	Reach Len. (ft)	1971.04	2060.96	2106.61
Crit W.S. (ft)	2167.12	Flow Area (sq ft)		443.37	
E.G. Slope (ft/ft)	0.003473	Area (sq ft)		443.37	
Q Total (cfs)	1709.00	Flow (cfs)		1709.00	
Top Width (ft)	323.99	Top Width (ft)		323.99	
Vel Total (ft/s)	3.85	Avg. Vel. (ft/s)		3.85	
Max Chl Dpth (ft)	2.69	Hydr. Depth (ft)		1.37	
Conv. Total (cfs)	28999.0	Conv. (cfs)		28999.0	
Length Wtd. (ft)	2060.96	Wetted Per. (ft)		324.04	
Min Ch El (ft)	2165.00	Shear (lb/sq ft)		0.30	
Alpha	1.00	Stream Power (lb/ft s)		1.14	
Frctn Loss (ft)	12.99	Cum Volume (acre-ft)	115.75	1569.04	
C & E Loss (ft)	0.00	Cum SA (acres)	33.57	404.40	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 2 T7-R9-S17 RS: 1.424 Profile: PF 1

E.G. Elev (ft)	2154.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.028	
W.S. Elev (ft)	2154.69	Reach Len. (ft)	2734.47	2234.93	2390.56
Crit W.S. (ft)	2154.69	Flow Area (sq ft)		429.99	
E.G. Slope (ft/ft)	0.014781	Area (sq ft)		429.99	
Q Total (cfs)	1709.00	Flow (cfs)		1709.00	
Top Width (ft)	889.33	Top Width (ft)		889.33	
Vel Total (ft/s)	3.97	Avg. Vel. (ft/s)		3.97	
Max Chl Dpth (ft)	0.81	Hydr. Depth (ft)		0.48	
Conv. Total (cfs)	14056.8	Conv. (cfs)		14056.8	
Length Wtd. (ft)	2234.93	Wetted Per. (ft)		889.33	
Min Ch El (ft)	2153.88	Shear (lb/sq ft)		0.45	

Plan: Plan 01 Block 2 T7-R9-S17 RS: 1.424 Profile: PF 1 (Continued)

Alpha	1.00	Stream Power (lb/ft s)		1.77	
Frctn Loss (ft)	5.57	Cum Volume (acre-ft)	115.75	1548.38	
C & E Loss (ft)	0.07	Cum SA (acres)	33.57	375.69	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 2 T7-R9-S17 RS: 1.001 Profile: PF 1

E.G. Elev (ft)	2137.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.085	
W.S. Elev (ft)	2137.47	Reach Len. (ft)	1521.16	1984.33	3074.91
Crit W.S. (ft)	2135.79	Flow Area (sq ft)		2468.52	
E.G. Slope (ft/ft)	0.000988	Area (sq ft)		2468.52	
Q Total (cfs)	1709.00	Flow (cfs)		1709.00	
Top Width (ft)	1744.85	Top Width (ft)		1744.85	
Vel Total (ft/s)	0.69	Avg. Vel. (ft/s)		0.69	
Max Chl Dpth (ft)	2.47	Hydr. Depth (ft)		1.41	
Conv. Total (cfs)	54381.2	Conv. (cfs)		54381.2	
Length Wtd. (ft)	1984.33	Wetted Per. (ft)		1744.94	
Min Ch El (ft)	2135.00	Shear (lb/sq ft)		0.09	
Alpha	1.00	Stream Power (lb/ft s)		0.06	
Frctn Loss (ft)	11.16	Cum Volume (acre-ft)	115.75	1474.03	
C & E Loss (ft)	0.01	Cum SA (acres)	33.57	308.12	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 2 T7-R9-S17 RS: 0.625 Profile: PF 1

E.G. Elev (ft)	2126.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.085	
W.S. Elev (ft)	2126.18	Reach Len. (ft)	1833.06	2402.27	1384.72
Crit W.S. (ft)		Flow Area (sq ft)		1582.83	
E.G. Slope (ft/ft)	0.025881	Area (sq ft)		1582.83	
Q Total (cfs)	4439.00	Flow (cfs)		4439.00	
Top Width (ft)	1589.19	Top Width (ft)		1589.19	
Vel Total (ft/s)	2.80	Avg. Vel. (ft/s)		2.80	
Max Chl Dpth (ft)	1.18	Hydr. Depth (ft)		1.00	
Conv. Total (cfs)	27592.6	Conv. (cfs)		27592.6	
Length Wtd. (ft)	2383.64	Wetted Per. (ft)		1589.49	
Min Ch El (ft)	2125.00	Shear (lb/sq ft)		1.61	
Alpha	1.00	Stream Power (lb/ft s)		4.51	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	115.75	1381.75	

Plan: Plan 01 Block 2 T7-R9-S17 RS: 0.625 Profile: PF 1 (Continued)

C & E Loss (ft)	0.04	Cum SA (acres)	33.57	232.18	

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
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.

Plan: Plan 01 Block 2 T7-R9-S17 RS: 0.170 Profile: PF 1

E.G. Elev (ft)	2126.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.085	0.085	
W.S. Elev (ft)	2126.25	Reach Len. (ft)			
Crit W.S. (ft)	2116.28	Flow Area (sq ft)	5501.40	48527.29	
E.G. Slope (ft/ft)	0.000002	Area (sq ft)	5501.40	48527.29	
Q Total (cfs)	4439.00	Flow (cfs)	290.55	4148.45	
Top Width (ft)	8426.37	Top Width (ft)	1595.45	6830.92	
Vel Total (ft/s)	0.08	Avg. Vel. (ft/s)	0.05	0.09	
Max Chl Dpth (ft)	11.25	Hydr. Depth (ft)	3.45	7.10	
Conv. Total (cfs)	3353553.0	Conv. (cfs)	219502.7	3134050.0	
Length Wtd. (ft)		Wetted Per. (ft)	1595.47	6833.93	
Min Ch El (ft)	2115.00	Shear (lb/sq ft)	0.00	0.00	
Alpha	1.04	Stream Power (lb/ft s)	0.00	0.00	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 2\ArcView\T7R9S17.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 2\ArcView\T7R9S17.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 2\ArcView\T7R9S17.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 2\ArcView\T7R9S17.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 2\ArcView\T7R9S17.nt
Selected profiles: PF 1
Date: 12/4/2003
Time: 2:51:01 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block 2,T7-R9-S17						
3.84		0.035	0.028	0.035	0.1	0.3
3.355		0.035	0.028	0.035	0.1	0.3
3.071		0.035	0.028	0.035	0.1	0.3
2.661		0.035	0.028	0.035	0.1	0.3
2.235		0.035	0.028	0.035	0.1	0.3
1.814		0.035	0.028	0.035	0.1	0.3
1.424		0.035	0.028	0.035	0.1	0.3
1.001		0.035	0.085	0.085	0.1	0.3
.625		0.085	0.085	0.085	0.1	0.3
.17		0.085	0.085	0.085	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.035	0.085
Right Overbank n Value:	0.035	0.085
Channel n Value:	0.028	0.085
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 2\ArcView\T7R9S17.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 2\ArcView\T7R9S17.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 2\ArcView\T7R9S17.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 2\ArcView\T7R9S17.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 2\ArcView\T7R9S17.xs
Selected profiles: PF 1
Date: 12/4/2003
Time: 2:51:02 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Block 2,T7-R9-S17						
3.84	2558.4	2560.41	2576.66	422.54	1709	C

3.355	1497.37	1502.85	1445.61	793.65	1709	
3.071	2516.41	2160.42	2194.71	413.61	1709	D,C
2.661	2062.05	2253.04	2265.88	337.04	1709	
2.235	2107.12	2219.56	2288.69	926.81	1709	D,C
1.814	1971.04	2060.96	2106.61	323.99	1709	
1.424	2734.47	2234.93	2390.56	889.33	1709	C
1.001	1521.16	1984.33	3074.91	1744.85	1709	
0.625	1833.06	2402.27	1384.72	1589.19	4439	D
0.17	3149.57	871.82	2456.83	8426.37	4439	

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 3.071
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

RS: 1.424
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

RS: 0.17
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Block 2,T7-R9-S17
Known WS = 2126.25 is specified as the downstream boundary
for profile PF 1

---END---

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

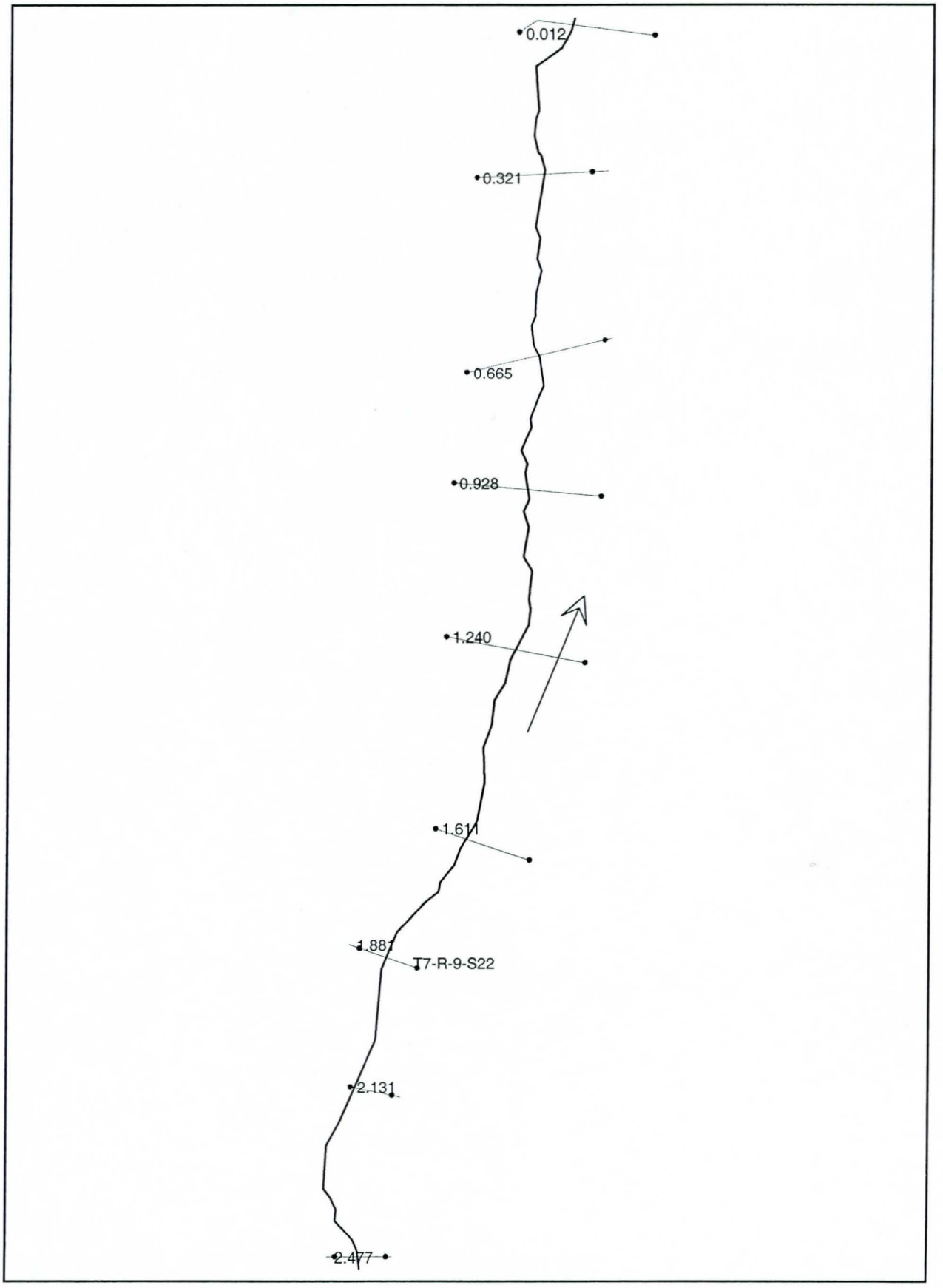
Explanation:
Cross sections were cut in order to take in channel geometry.

BOUNDARY CONDITION CHECK

Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

HEC-RAS Plan: plan 3 River: Reach: T7-R-9-S22 Profile: PF 1

Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R-9-S22	2.477	1357.00	2282.82	2282.75	5.22	259.52	2.82	0.92	129.13	388.65
T7-R-9-S22	2.131	1357.00	2262.78	2262.40	5.25	163.92	2.77	0.74	47.52	211.44
T7-R-9-S22	1.881	1357.00	2247.12	2247.12	5.95	211.01	2.12	1.01	356.11	567.12
T7-R-9-S22	1.611	1357.00	2232.33	2231.89	3.49	368.70	2.33	0.60	302.13	670.82
T7-R-9-S22	1.240	1357.00	2212.05	2212.05	5.04	345.20	1.40	1.01	583.52	928.72
T7-R-9-S22	0.928	1357.00	2198.57	2198.08	2.67	510.60	1.77	0.47	573.19	1083.79
T7-R-9-S22	0.665	1357.00	2187.43	2187.43	4.13	623.12	1.19	1.00	575.03	1198.15
T7-R-9-S22	0.321	1357.00	2173.37	2172.83	2.07	741.24	2.26	0.37	493.13	1234.37
T7-R-9-S22	0.012	1357.00	2164.04	2164.04	3.57	996.72	0.82	1.02	336.69	1343.03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1.240
1.611
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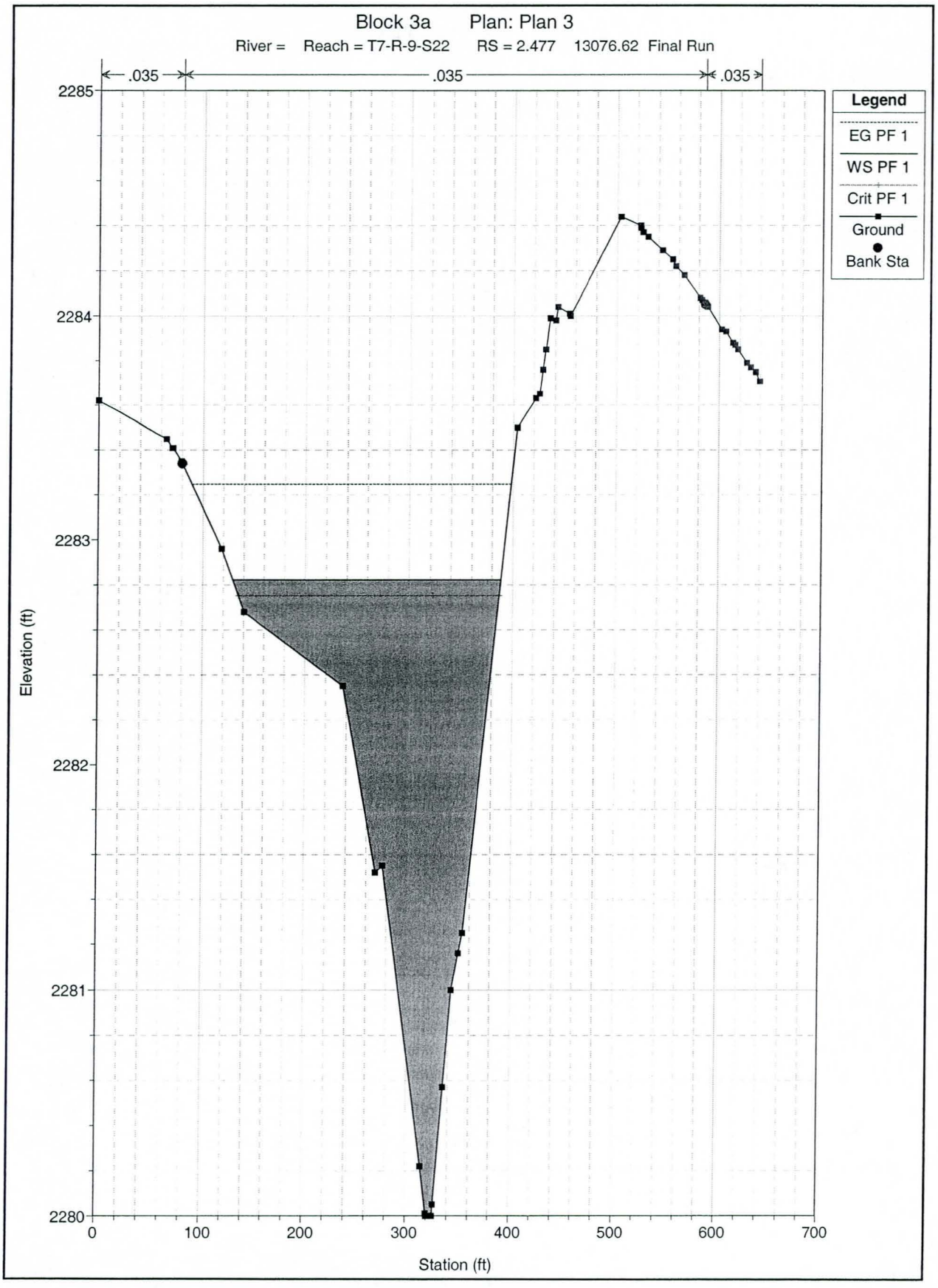
T7-R-9-S22
2.131
2.477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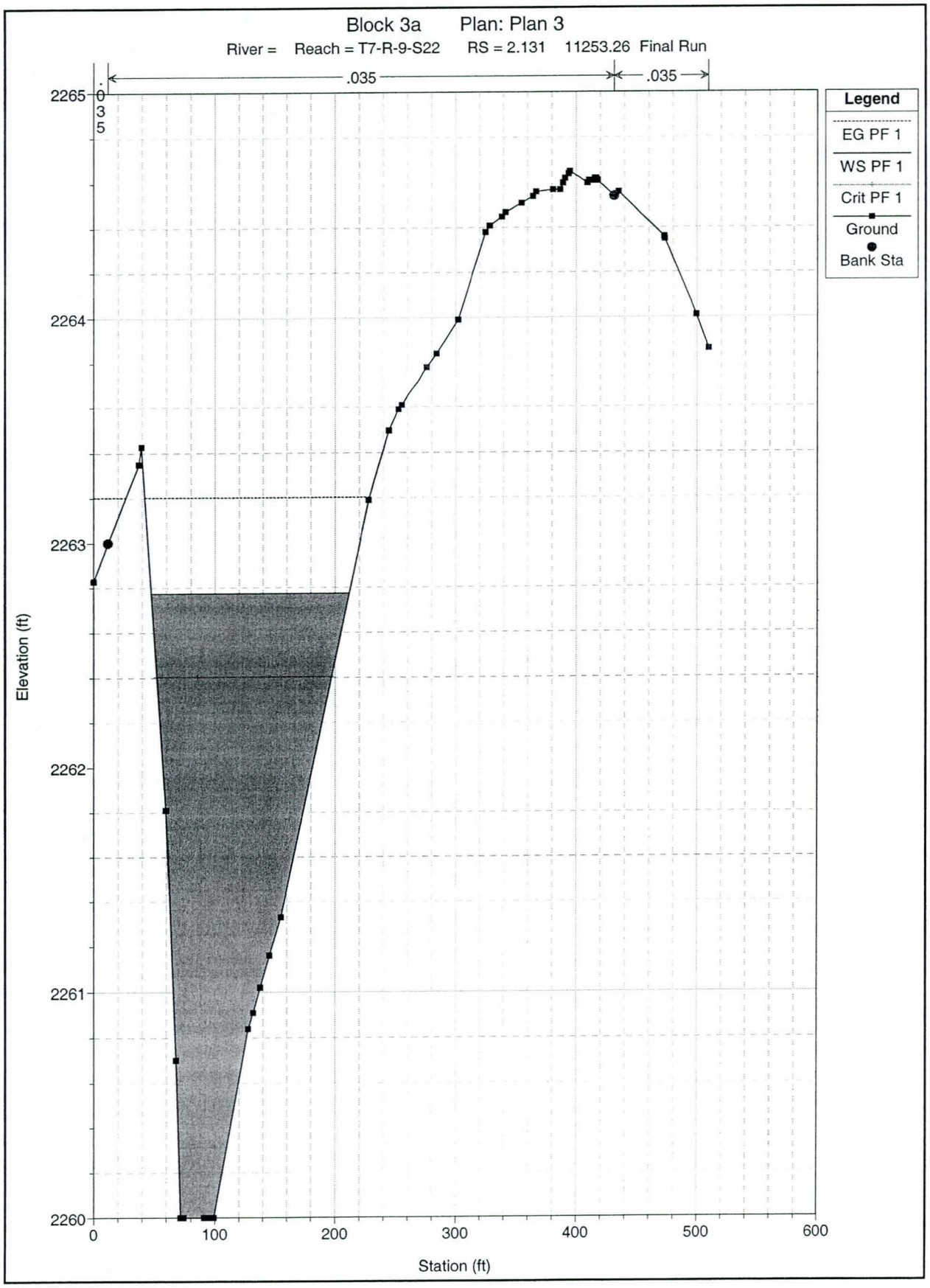
River = Reach = T7-R-9-S22 RS = 2.477 13076.62 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2285
2284
2283
2282
2281
2280
Elevation (ft)
0
100
200
300
400
500
600
700
Station (ft)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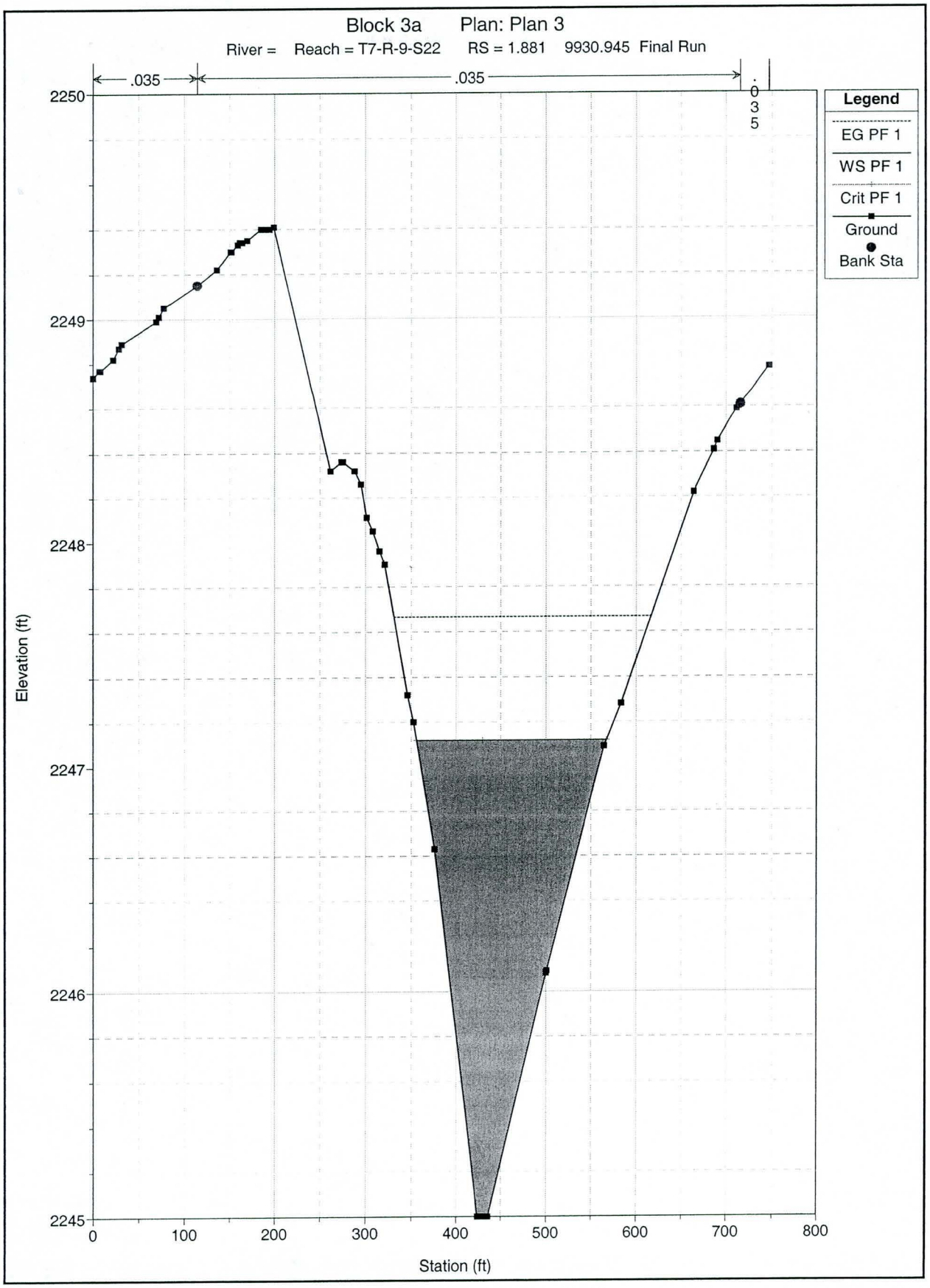
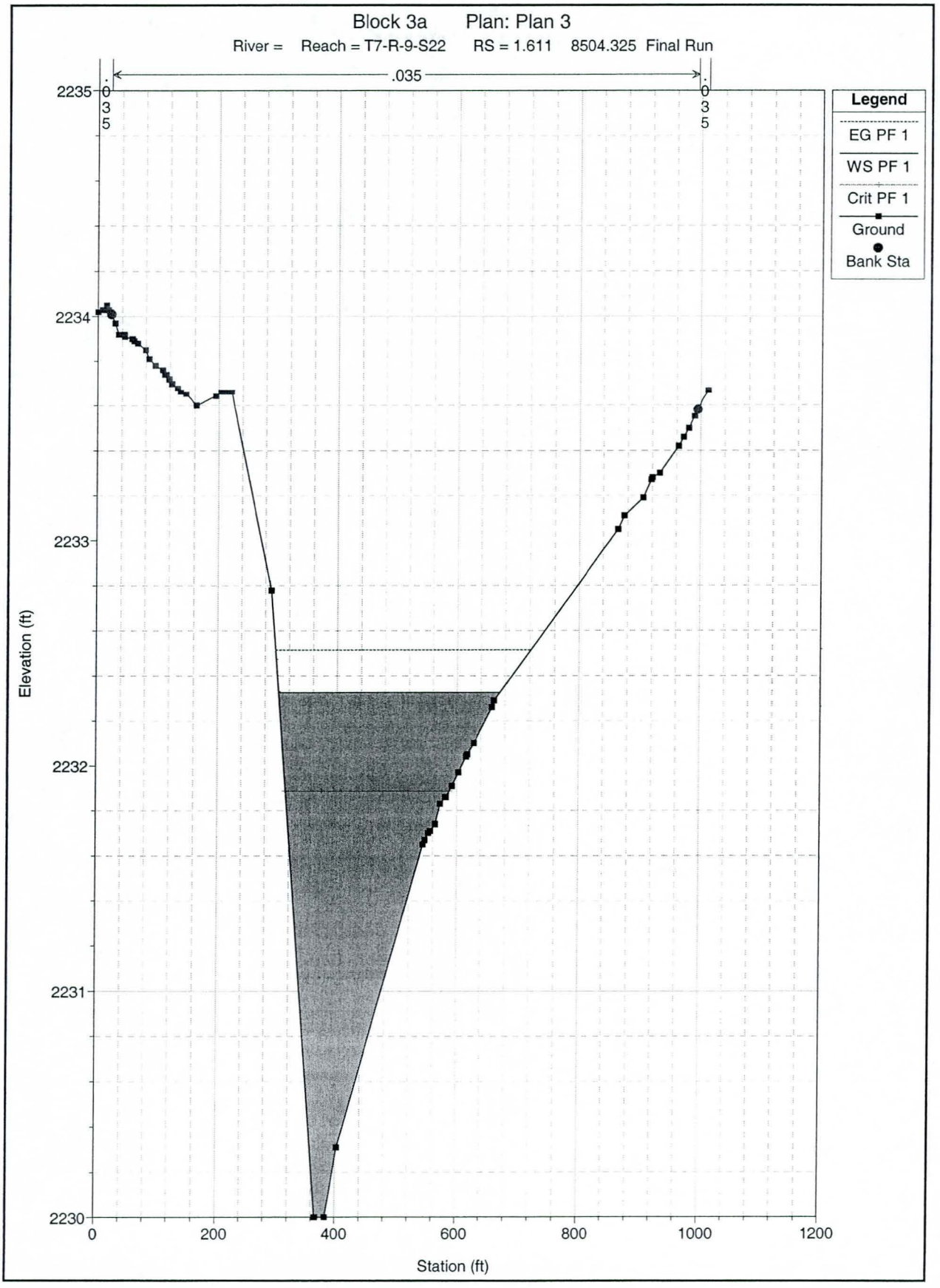
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2265
2264
2263
2262
2261
2260
0
100
200
300
400
500
600


Block 3a Plan: Plan 3
River = Reach = T7-R-9-S22 RS = 1.881 9930.945 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2250
2249
2248
2247
2246
2245
Elevation (ft)
0
100
200
300
400
500
600
700
800
Station (ft)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River = Reach = T7-R-9-S22 RS = 1.611 8504.325 Final Run
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.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
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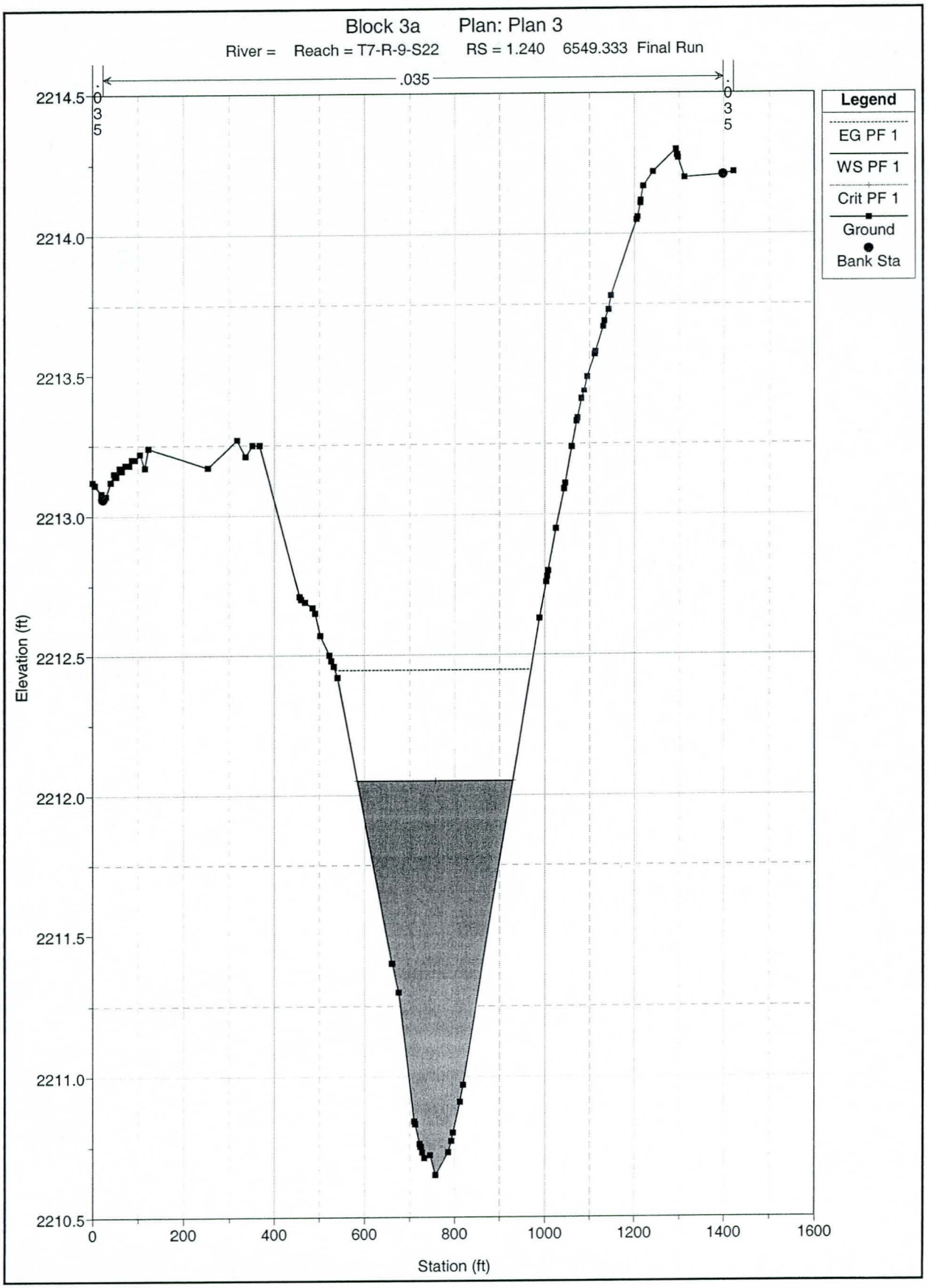
2234
2233
2232
2231
2230
0
200
400
600
800
1000
1200
Station (ft)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.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
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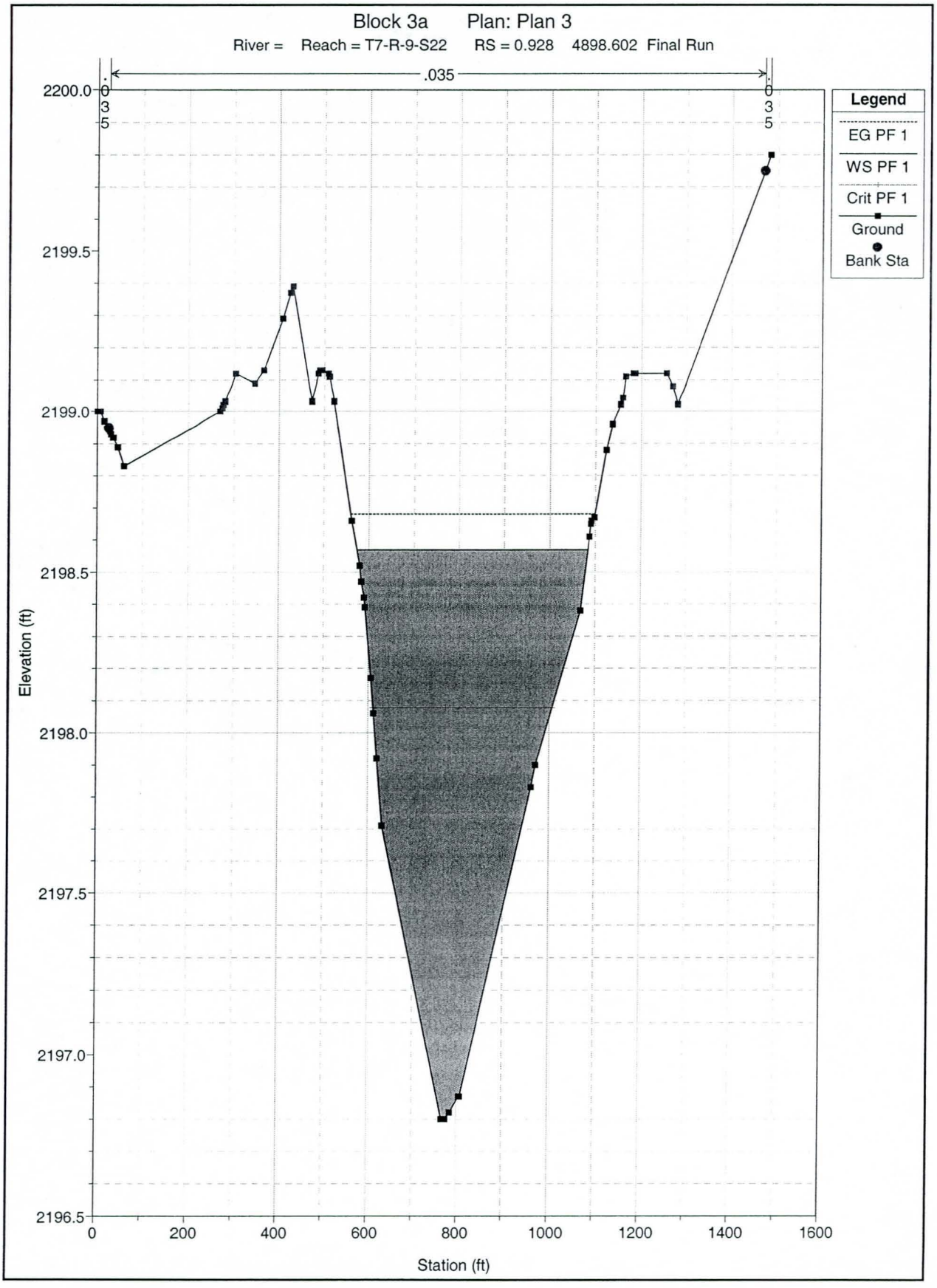
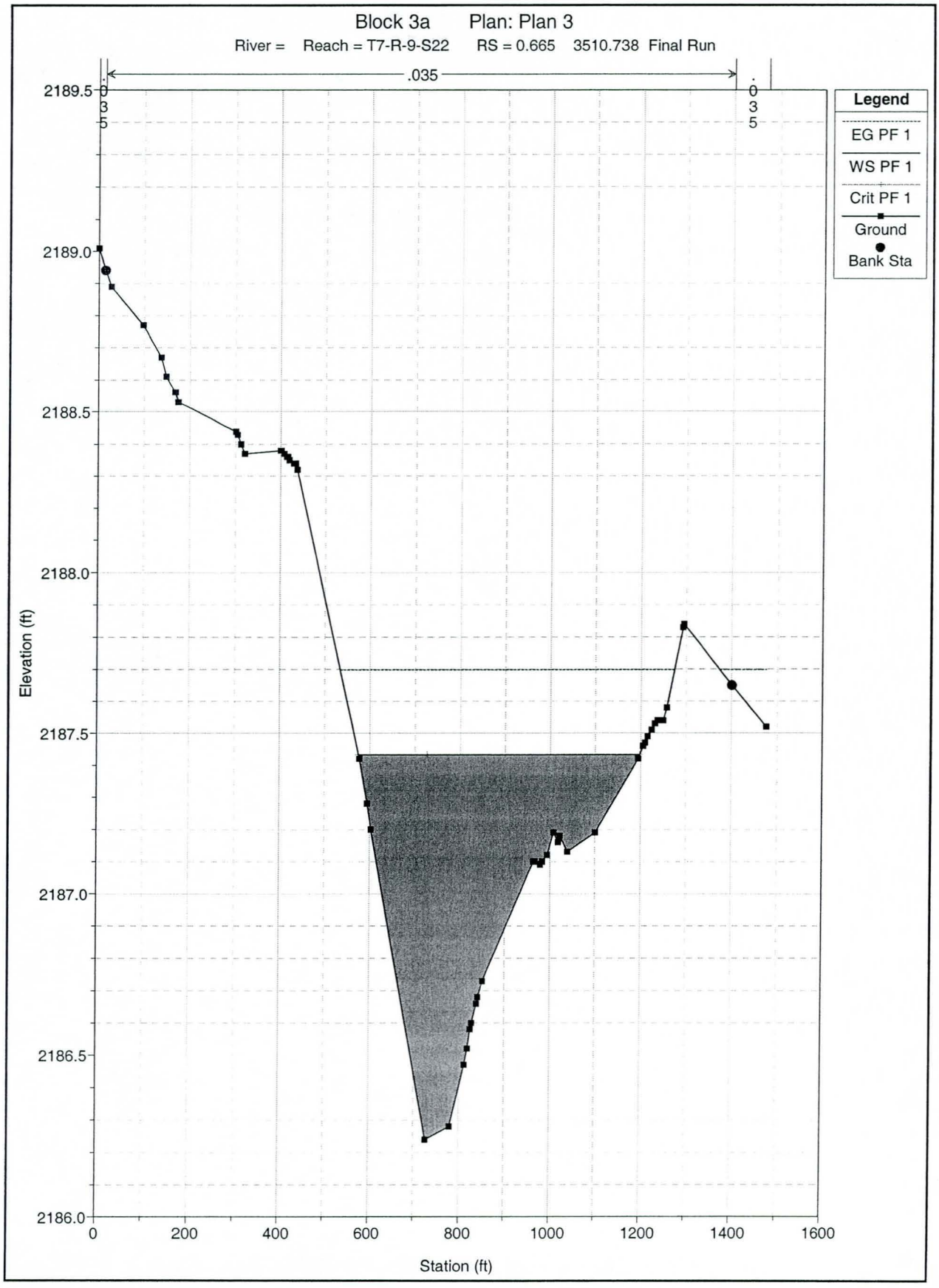
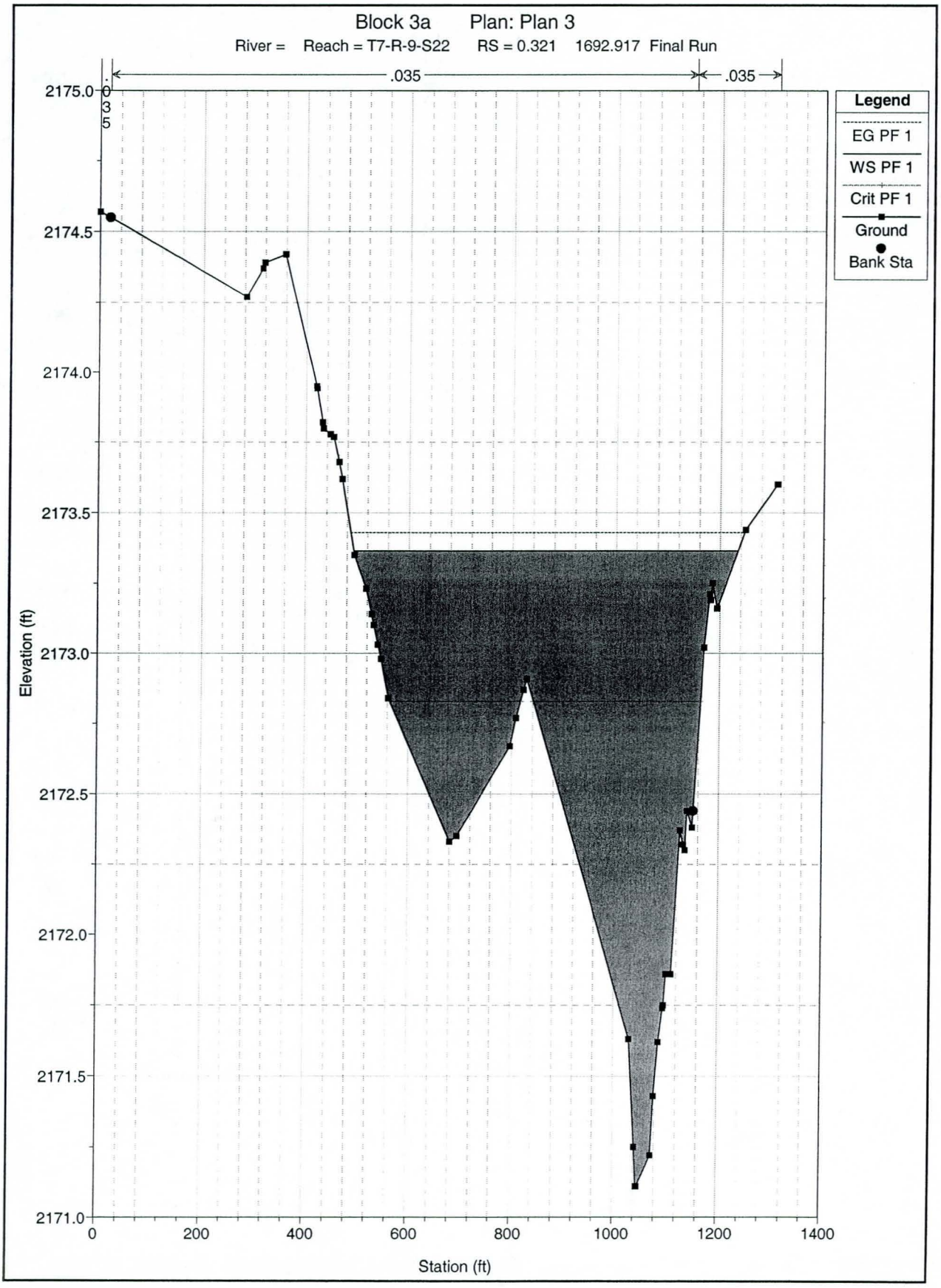
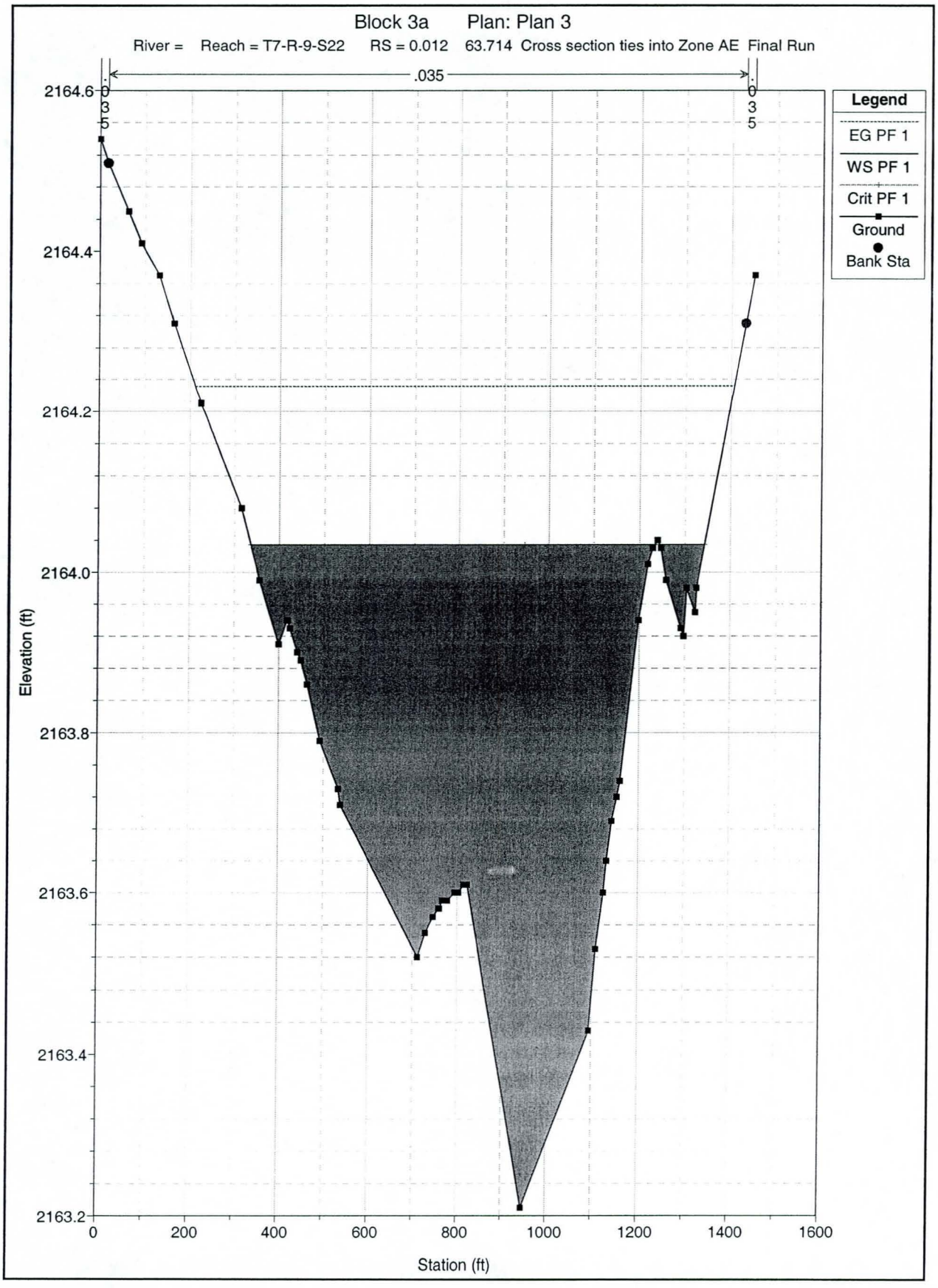
2214.0
2213.5
2213.0
2212.5
2212.0
2211.5
2211.0
2210.5
0
200
400
600
800
1000
1200
1400
1600
Station (ft)


Block 3a Plan: Plan 3
River = Reach = T7-R-9-S22 RS = 0.928 4898.602 Final Run
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2200.0
2199.5
2199.0
2198.5
2198.0
2197.5
2197.0
2196.5
Elevation (ft)
0
200
400
600
800
1000
1200
1400
1600
Station (ft)


Block 3a Plan: Plan 3
River = Reach = T7-R-9-S22 RS = 0.665 3510.738 Final Run
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2189.5
2189.0
2188.5
2188.0
2187.5
2187.0
2186.5
2186.0
Elevation (ft)
0
200
400
600
800
1000
1200
1400
1600
Station (ft)


Block 3a Plan: Plan 3
River = Reach = T7-R-9-S22 RS = 0.321 1692.917 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2175.0
2174.5
2174.0
2173.5
2173.0
2172.5
2172.0
2171.5
2171.0
0
200
400
600
800
1000
1200
1400
Station (ft)


Block 3a Plan: Plan 3
River = Reach = T7-R-9-S22 RS = 0.012 63.714 Cross section ties into Zone AE Final Run
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2164.6
2164.4
2164.2
2164.0
2163.8
2163.6
2163.4
2163.2
Elevation (ft)
0
200
400
600
800
1000
1200
1400
1600
Station (ft)

Plan: plan 3 T7-R-9-S22 RS: 2.477 Profile: PF 1

E.G. Elev (ft)	2283.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.		0.035	
W.S. Elev (ft)	2282.82	Reach Len. (ft)	1832.44	1823.36	1677.21
Crit W.S. (ft)	2282.75	Flow Area (sq ft)		259.82	
E.G. Slope (ft/ft)	0.015118	Area (sq ft)		259.82	
Q Total (cfs)	1357.00	Flow (cfs)		1357.00	
Top Width (ft)	259.52	Top Width (ft)		259.52	
Vel Total (ft/s)	5.22	Avg. Vel. (ft/s)		5.22	
Max Chl Dpth (ft)	2.82	Hydr. Depth (ft)		1.00	
Conv. Total (cfs)	11036.4	Conv. (cfs)		11036.4	
Length Wtd. (ft)	1823.36	Wetted Per. (ft)		259.62	
Min Ch El (ft)	2280.00	Shear (lb/sq ft)		0.94	
Alpha	1.00	Stream Power (lb/ft s)		4.93	
Frctn Loss (ft)	20.04	Cum Volume (acre-ft)		110.76	0.75
C & E Loss (ft)	0.00	Cum SA (acres)		132.02	2.95

Errors Warnings and Notes

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.

Plan: plan 3 T7-R-9-S22 RS: 2.131 Profile: PF 1

E.G. Elev (ft)	2263.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.		0.035	
W.S. Elev (ft)	2262.78	Reach Len. (ft)	1409.96	1322.32	1274.92
Crit W.S. (ft)	2262.40	Flow Area (sq ft)		258.43	
E.G. Slope (ft/ft)	0.008351	Area (sq ft)		258.43	
Q Total (cfs)	1357.00	Flow (cfs)		1357.00	
Top Width (ft)	163.92	Top Width (ft)		163.92	
Vel Total (ft/s)	5.25	Avg. Vel. (ft/s)		5.25	
Max Chl Dpth (ft)	2.77	Hydr. Depth (ft)		1.58	
Conv. Total (cfs)	14849.6	Conv. (cfs)		14849.6	
Length Wtd. (ft)	1322.32	Wetted Per. (ft)		164.13	
Min Ch El (ft)	2260.00	Shear (lb/sq ft)		0.82	
Alpha	1.00	Stream Power (lb/ft s)		4.31	
Frctn Loss (ft)	15.52	Cum Volume (acre-ft)		99.91	0.75
C & E Loss (ft)	0.01	Cum SA (acres)		123.16	2.95

Errors Warnings and Notes

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.

Plan: plan 3 T7-R-9-S22 RS: 1.881 Profile: PF 1

E.G. Elev (ft)	2247.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.		0.035	
W.S. Elev (ft)	2247.12	Reach Len. (ft)	1386.39	1426.62	1553.99
Crit W.S. (ft)	2247.12	Flow Area (sq ft)		228.12	
E.G. Slope (ft/ft)	0.017700	Area (sq ft)		228.12	
Q Total (cfs)	1357.00	Flow (cfs)		1357.00	
Top Width (ft)	211.01	Top Width (ft)		211.01	
Vel Total (ft/s)	5.95	Avg. Vel. (ft/s)		5.95	
Max Chl Dpth (ft)	2.12	Hydr. Depth (ft)		1.08	

Plan: plan 3 T7-R-9-S22 RS: 1.881 Profile: PF 1 (Continued)

Conv. Total (cfs)	10200.0	Conv. (cfs)		10200.0	
Length Wtd. (ft)	1426.62	Wetted Per. (ft)		211.06	
Min Ch El (ft)	2245.00	Shear (lb/sq ft)		1.19	
Alpha	1.00	Stream Power (lb/ft s)		7.10	
Frctn Loss (ft)	14.08	Cum Volume (acre-ft)		92.53	0.75
C & E Loss (ft)	0.11	Cum SA (acres)		117.47	2.95

Errors Warnings and Notes

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.

Plan: plan 3 T7-R-9-S22 RS: 1.611 Profile: PF 1

E.G. Elev (ft)	2232.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.035	
W.S. Elev (ft)	2232.33	Reach Len. (ft)	1882.62	1954.99	2010.69
Crit W.S. (ft)	2231.89	Flow Area (sq ft)		389.07	
E.G. Slope (ft/ft)	0.006283	Area (sq ft)		389.07	
Q Total (cfs)	1357.00	Flow (cfs)		1357.00	
Top Width (ft)	368.70	Top Width (ft)		368.70	
Vel Total (ft/s)	3.49	Avg. Vel. (ft/s)		3.49	
Max Chl Dpth (ft)	2.33	Hydr. Depth (ft)		1.06	
Conv. Total (cfs)	17119.5	Conv. (cfs)		17119.5	
Length Wtd. (ft)	1954.99	Wetted Per. (ft)		368.75	
Min Ch El (ft)	2230.00	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		1.44	
Frctn Loss (ft)	20.05	Cum Volume (acre-ft)		82.42	0.75
C & E Loss (ft)	0.02	Cum SA (acres)		107.97	2.95

Errors Warnings and Notes

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.

Plan: plan 3 T7-R-9-S22 RS: 1.240 Profile: PF 1

E.G. Elev (ft)	2212.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.		0.035	
W.S. Elev (ft)	2212.05	Reach Len. (ft)	1512.07	1650.73	1636.50
Crit W.S. (ft)	2212.05	Flow Area (sq ft)		269.16	
E.G. Slope (ft/ft)	0.019651	Area (sq ft)		269.16	
Q Total (cfs)	1357.00	Flow (cfs)		1357.00	
Top Width (ft)	345.20	Top Width (ft)		345.20	
Vel Total (ft/s)	5.04	Avg. Vel. (ft/s)		5.04	
Max Chl Dpth (ft)	1.40	Hydr. Depth (ft)		0.78	
Conv. Total (cfs)	9680.2	Conv. (cfs)		9680.2	
Length Wtd. (ft)	1650.73	Wetted Per. (ft)		345.21	

Plan: plan 3 T7-R-9-S22 RS: 1.240 Profile: PF 1 (Continued)

Min Ch El (ft)	2210.65	Shear (lb/sq ft)		0.96	
Alpha	1.00	Stream Power (lb/ft s)		4.82	
Frctn Loss (ft)	12.55	Cum Volume (acre-ft)		67.65	0.75
C & E Loss (ft)	0.09	Cum SA (acres)		91.95	2.95

Errors Warnings and Notes

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.

Plan: plan 3 T7-R-9-S22 RS: 0.928 Profile: PF 1

E.G. Elev (ft)	2198.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.035	
W.S. Elev (ft)	2198.57	Reach Len. (ft)	1102.77	1387.86	1552.76
Crit W.S. (ft)	2198.08	Flow Area (sq ft)		507.31	
E.G. Slope (ft/ft)	0.004004	Area (sq ft)		507.31	
Q Total (cfs)	1357.00	Flow (cfs)		1357.00	
Top Width (ft)	510.60	Top Width (ft)		510.60	
Vel Total (ft/s)	2.67	Avg. Vel. (ft/s)		2.67	
Max Chl Dpth (ft)	1.77	Hydr. Depth (ft)		0.99	
Conv. Total (cfs)	21445.2	Conv. (cfs)		21445.2	
Length Wtd. (ft)	1387.86	Wetted Per. (ft)		510.61	
Min Ch El (ft)	2196.80	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		0.66	
Frctn Loss (ft)	10.97	Cum Volume (acre-ft)		52.94	0.75
C & E Loss (ft)	0.02	Cum SA (acres)		75.74	2.95

Errors Warnings and Notes

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.

Plan: plan 3 T7-R-9-S22 RS: 0.665 Profile: PF 1

E.G. Elev (ft)	2187.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.035	
W.S. Elev (ft)	2187.43	Reach Len. (ft)	1903.21	1817.82	1714.48
Crit W.S. (ft)	2187.43	Flow Area (sq ft)		328.21	
E.G. Slope (ft/ft)	0.022297	Area (sq ft)		328.21	
Q Total (cfs)	1357.00	Flow (cfs)		1357.00	
Top Width (ft)	623.12	Top Width (ft)		623.12	
Vel Total (ft/s)	4.13	Avg. Vel. (ft/s)		4.13	
Max Chl Dpth (ft)	1.19	Hydr. Depth (ft)		0.53	
Conv. Total (cfs)	9087.7	Conv. (cfs)		9087.7	
Length Wtd. (ft)	1817.15	Wetted Per. (ft)		623.13	
Min Ch El (ft)	2186.24	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		3.03	

Plan: plan 3 T7-R-9-S22 RS: 0.665 Profile: PF 1 (Continued)

Frctn Loss (ft)	9.93	Cum Volume (acre-ft)		39.63	0.75
C & E Loss (ft)	0.06	Cum SA (acres)		57.68	2.95

Errors Warnings and Notes

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.

Plan: plan 3 T7-R-9-S22 RS: 0.321 Profile: PF 1

E.G. Elev (ft)	2173.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.035	0.035
W.S. Elev (ft)	2173.37	Reach Len. (ft)	1587.88	1629.34	1369.36
Crit W.S. (ft)	2172.83	Flow Area (sq ft)		648.49	21.05
E.G. Slope (ft/ft)	0.002413	Area (sq ft)		648.49	21.05
Q Total (cfs)	1357.00	Flow (cfs)		1339.45	17.55
Top Width (ft)	741.24	Top Width (ft)		657.98	83.26
Vel Total (ft/s)	2.03	Avg. Vel. (ft/s)		2.07	0.83
Max Chl Dpth (ft)	2.26	Hydr. Depth (ft)		0.99	0.25
Conv. Total (cfs)	27622.5	Conv. (cfs)		27265.2	357.3
Length Wtd. (ft)	1627.66	Wetted Per. (ft)		658.02	83.27
Min Ch El (ft)	2171.11	Shear (lb/sq ft)		0.15	0.04
Alpha	1.03	Stream Power (lb/ft s)		0.31	0.03
Frctn Loss (ft)	9.19	Cum Volume (acre-ft)		19.25	0.33
C & E Loss (ft)	0.01	Cum SA (acres)		30.95	1.31

Errors Warnings and Notes

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.

Plan: plan 3 T7-R-9-S22 RS: 0.012 Profile: PF 1

E.G. Elev (ft)	2164.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.035	
W.S. Elev (ft)	2164.04	Reach Len. (ft)			
Crit W.S. (ft)	2164.04	Flow Area (sq ft)		380.55	
E.G. Slope (ft/ft)	0.025469	Area (sq ft)		380.55	
Q Total (cfs)	1357.00	Flow (cfs)		1357.00	
Top Width (ft)	996.72	Top Width (ft)		996.72	
Vel Total (ft/s)	3.57	Avg. Vel. (ft/s)		3.57	
Max Chl Dpth (ft)	0.82	Hydr. Depth (ft)		0.38	
Conv. Total (cfs)	8503.0	Conv. (cfs)		8503.0	
Length Wtd. (ft)		Wetted Per. (ft)		996.73	
Min Ch El (ft)	2163.21	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		2.16	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\ArcView\HEC-GeoRAS\Block3\Hec-Ras\block3f.prj
Plan File: C:\Aguila\ArcView\HEC-GeoRAS\Block3\Hec-Ras\block3f.p01
Geometry File: C:\Aguila\ArcView\HEC-GeoRAS\Block3\Hec-Ras\block3f.g01
Flow File: C:\Aguila\ArcView\HEC-GeoRAS\Block3\Hec-Ras\block3f.f01
Report File: C:\Aguila\ArcView\HEC-GeoRAS\Block3\Hec-Ras\block3f.nt
Selected profiles: PF 1
Date: 12/03/2003
Time: 2:21:15 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach 1,T7-R9-S22						
2.477		0.035	0.035	0.035	0.1	0.3
2.131		0.035	0.035	0.035	0.1	0.3
1.881		0.035	0.035	0.035	0.1	0.3
1.611		0.035	0.035	0.035	0.1	0.3
1.24		0.035	0.035	0.035	0.1	0.3
.928		0.035	0.035	0.035	0.1	0.3
.665		0.035	0.035	0.035	0.1	0.3
.321		0.035	0.035	0.035	0.1	0.3
.012		0.035	0.035	0.035	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.035	0.035
Right Overbank n Value:	0.035	0.035
Channel n Value:	0.035	0.035
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\ArcView\HEC-GeoRAS\Block3\Hec-Ras\block3f.prj
Plan File: C:\Aguila\ArcView\HEC-GeoRAS\Block3\Hec-Ras\block3f.p01
Geometry File: C:\Aguila\ArcView\HEC-GeoRAS\Block3\Hec-Ras\block3f.g01
Flow File: C:\Aguila\ArcView\HEC-GeoRAS\Block3\Hec-Ras\block3f.f01
Report File: C:\Aguila\ArcView\HEC-GeoRAS\Block3\Hec-Ras\block3f.xs
Selected profiles: PF 1
Date: 12/03/2003
Time: 2:21:36 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach 1,T7-R9-S22						
2.477	3135.37	1827.32	1677.89	259.64	1357	
2.131	1386.39	1318.36	1274.24	164.24	1357	
1.881	1386.39	1426.62	1553.99	211.01	1357	C
1.611	1882.62	1954.99	2010.69	368.7	1357	
1.24	1512.07	1650.73	1636.5	345.2	1357	C
0.928	1102.77	1387.86	1552.76	510.6	1357	
0.665	1903.21	1817.82	1735.99	623.12	1357	C
0.321	1587.88	1629.34	1386.21	738.98	1357	
0.012	306.24	64.12	231.22	997.98	1357	D,E,C

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 0.012
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 0.321
XS DC 05 There is no flow on the right overbank at the downstream
cross section. There is no flow on the left overbank at this section.

XS DC 02 Constant dicharge used for the Reach 1,T7-R9-S22

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach 1,T7-R9-S22
Known WS = 2162.25 is specified as the downstream boundary
for profile PF 1

---END---

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

Explanation:
Cross sections were cut in order to take in channel geometry.

DISCHARGE CHECK

Warning:
Constant discharge used for the reach.

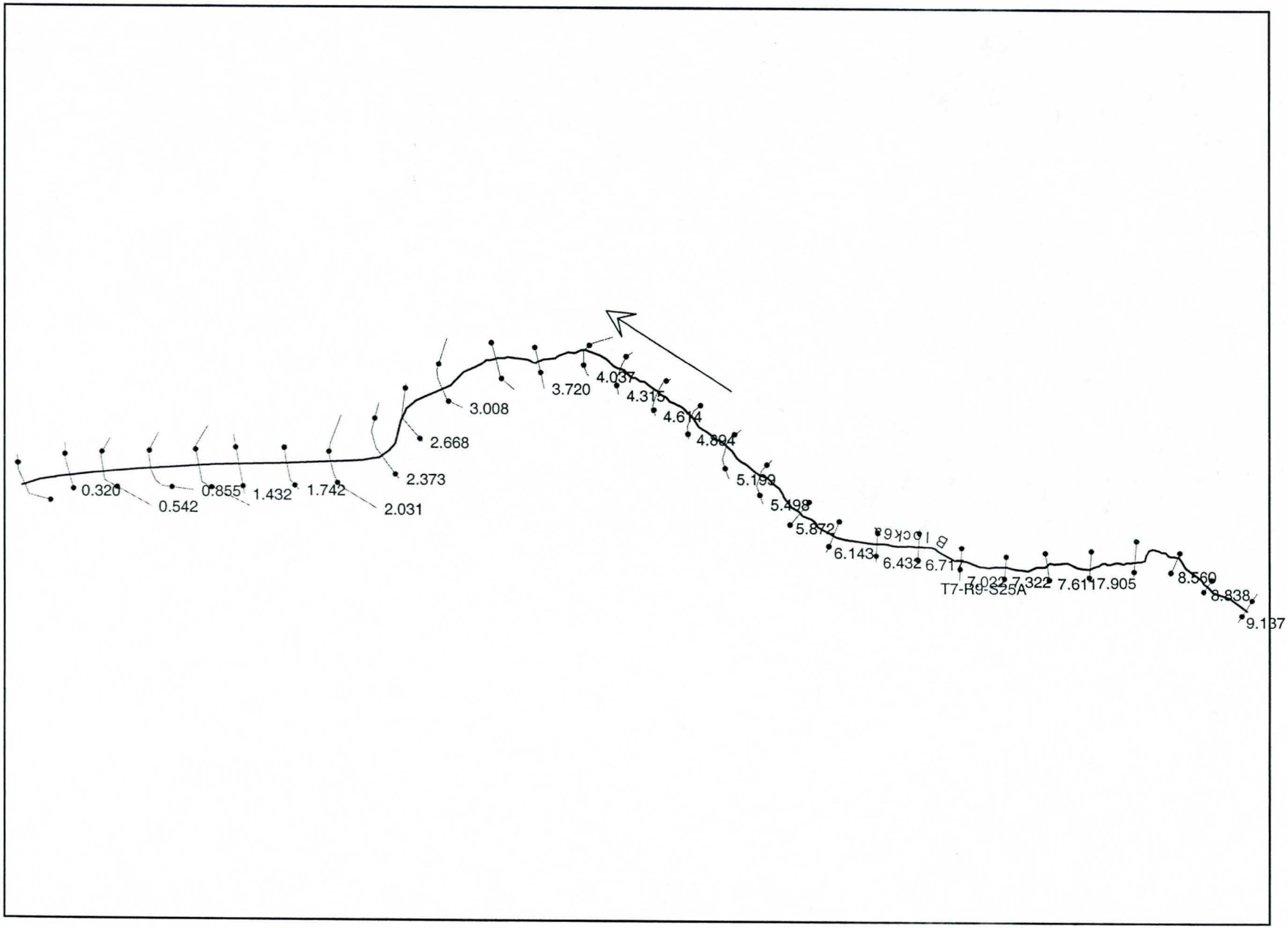
Explanation:
The discharge was determined from the regression equations for the sub basin. The Flood Control District of Maricopa County also approved the peak discharge values.

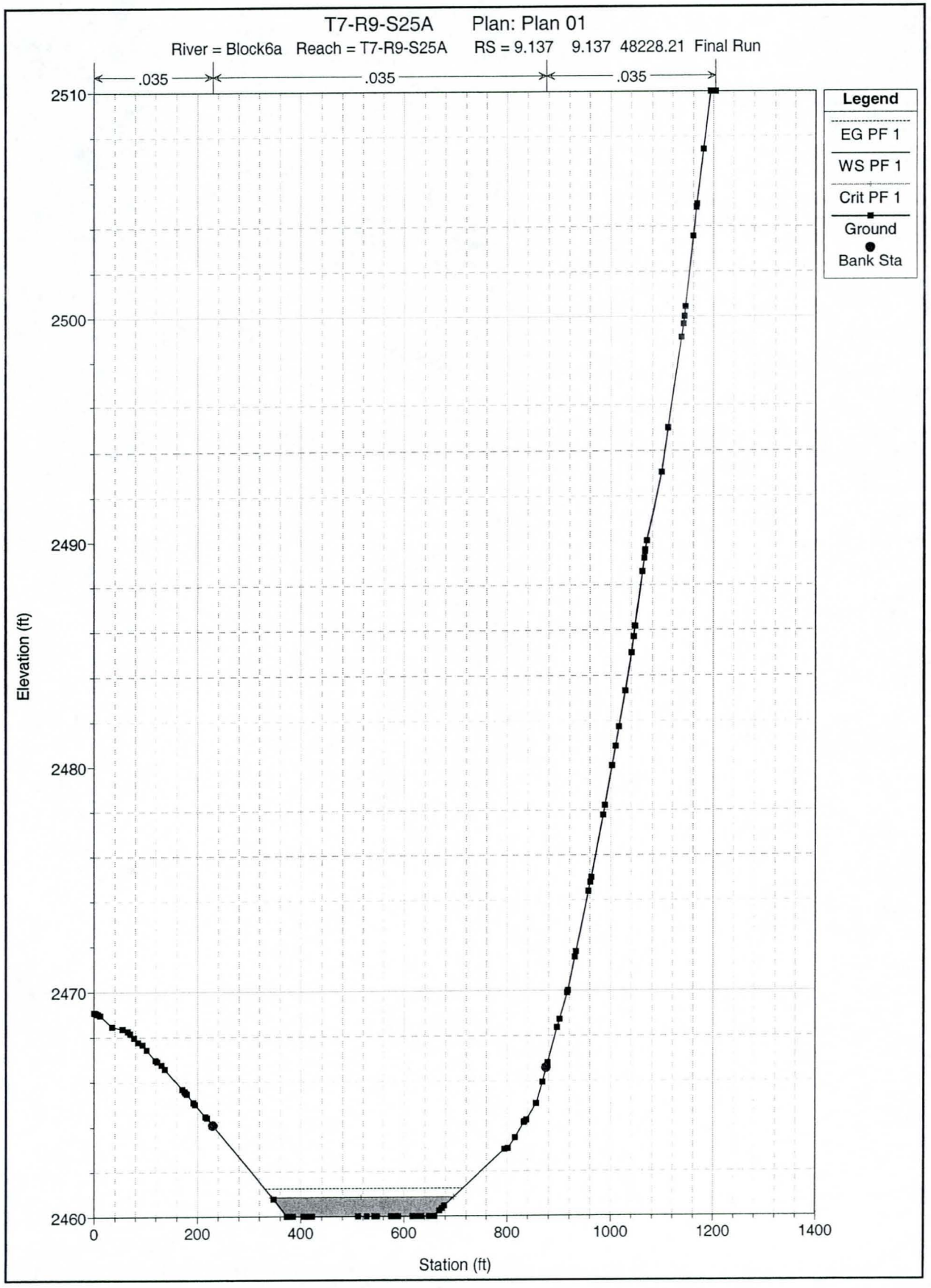
BOUNDARY CONDITION CHECK

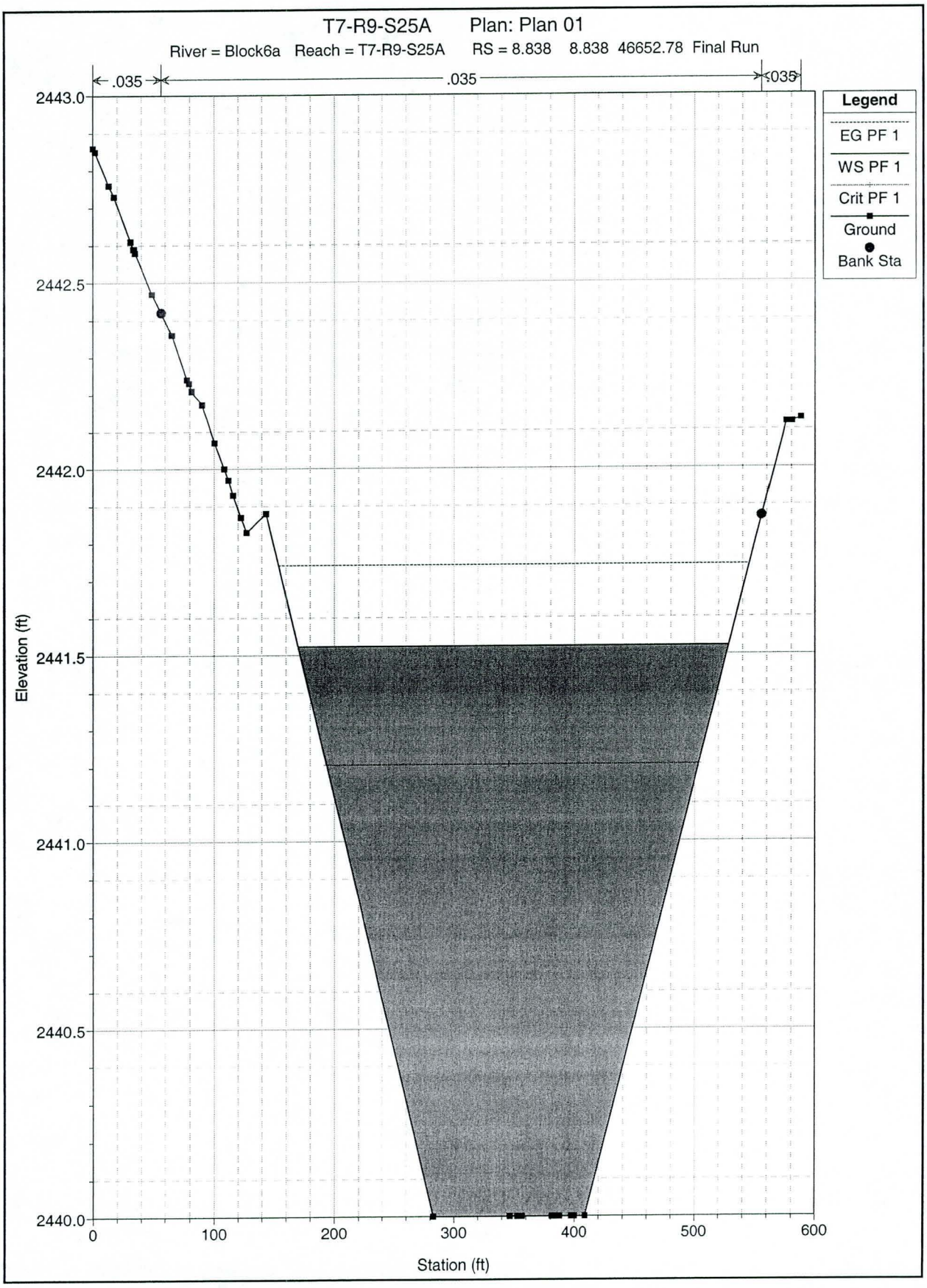
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

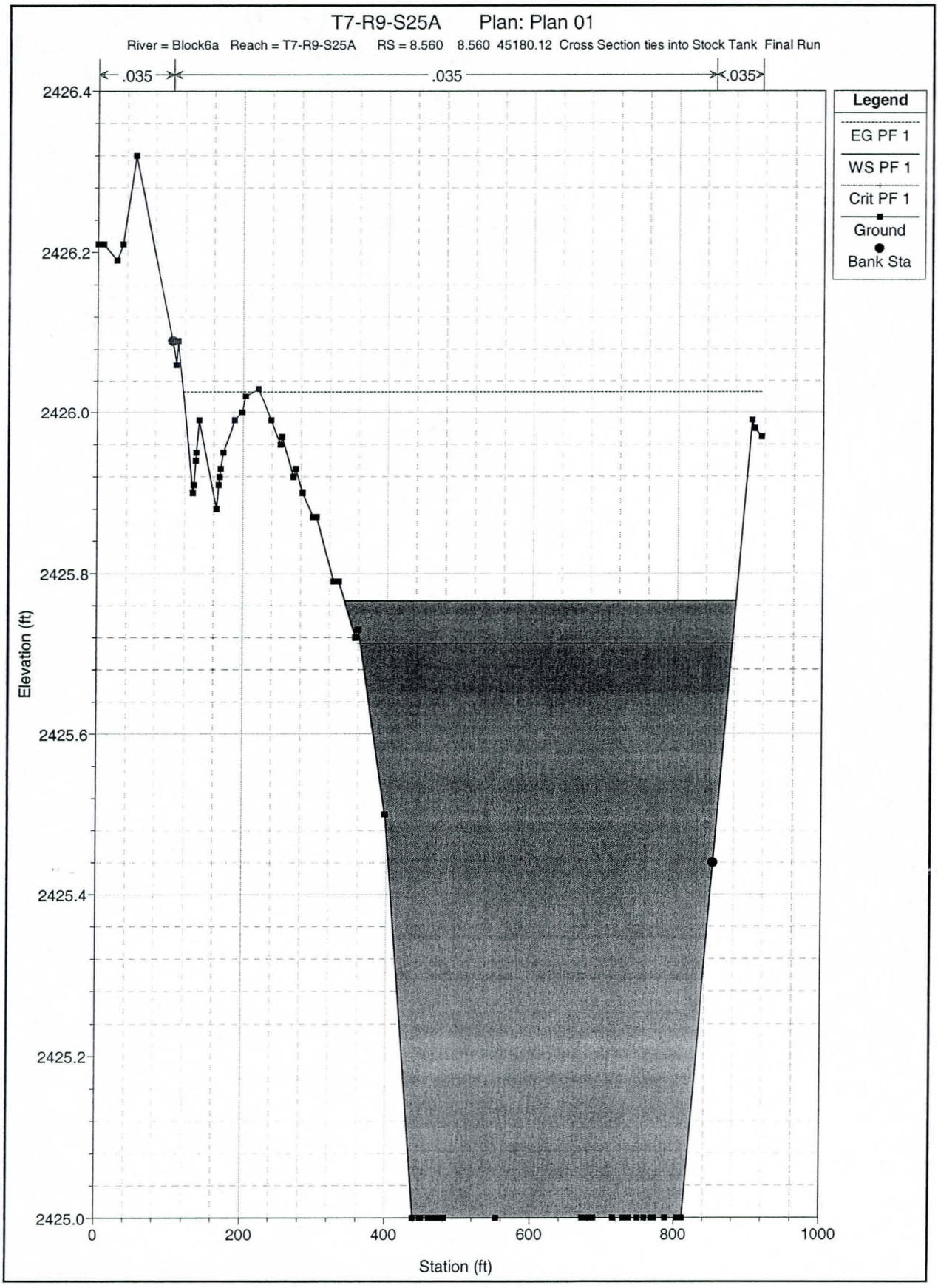
HEC-RAS Plan: Plan 01 River: Block6a Reach: T7-R9-S25A Profile: PF 1

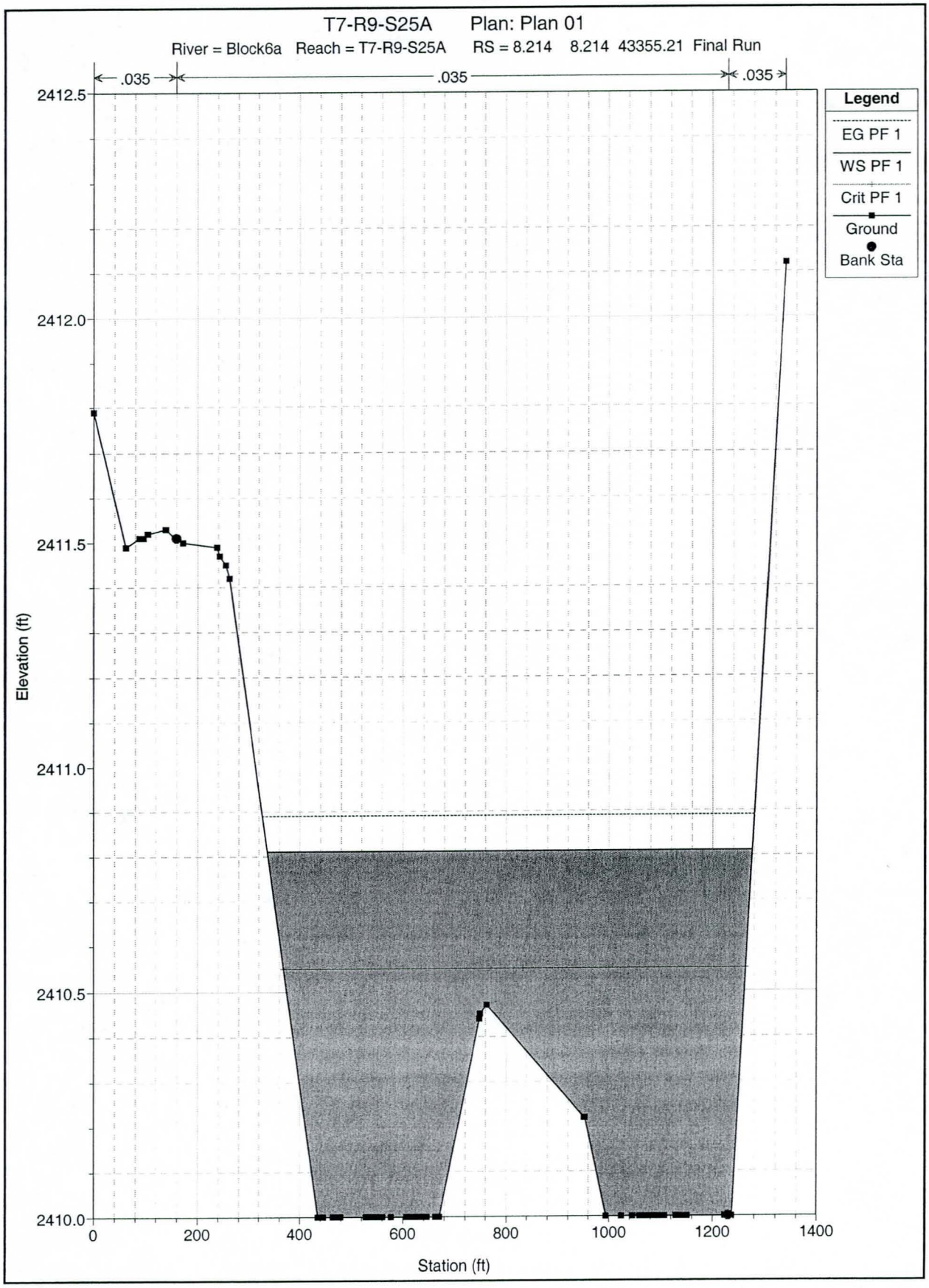
Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R9-S25A	9.137	1381.00	2460.86	2460.86	5.04	351.90	0.86	1.01	344.16	696.06
T7-R9-S25A	8.838	1381.00	2441.52	2441.21	3.74	358.43	1.52	0.65	169.98	528.41
T7-R9-S25A	8.560	1381.00	2425.77	2425.71	4.11	541.11	0.77	0.89	340.57	881.68
T7-R9-S25A	8.214	1381.00	2410.81	2410.55	2.27	939.86	0.81	0.49	336.10	1275.96
T7-R9-S25A	7.905	1381.00	2395.58	2395.58	4.15	637.28	0.58	1.01	302.47	939.74
T7-R9-S25A	7.611	1381.00	2381 38		2.98	426.22	1.38	0.50	497.41	923.63
T7-R9-S25A	7.322	1381.00	2371.15	2370.97	4.14	372.66	1.15	0.77	258.08	630.74
T7-R9-S25A	7.022	1381.00	2357.98		5.93	97.71	2.98	0.68	679.47	777.18
T7-R9-S25A	6.717	1381.00	2342.48	2342.48	6.35	173.89	2.48	1.00	438.43	649.52
T7-R9-S25A	6.432	1381.00	2331.46	2330.95	3.11	370.70	1.45	0.50	373.20	743.89
T7-R9-S25A	6.143	1381.00	2318.96	2318.96	4.38	537.01	0.81	1.01	320.87	857.88
T7-R9-S25A	5.872	1381.00	2306.86	2306.12	2.07	579.14	1.86	0.34	475.44	1054.58
T7-R9-S25A	5.498	1381.00	2297.31	2297.31	3.60	1004.99	0.83	1.01	261.31	1266.30
T7-R9-S25A	5.199	1381.00	2287.62		1.51	1141.75	1.06	0.30	497.07	1638.82
T7-R9-S25A	4.894	3124.00	2276.56	2276.56	4.58	1050.78	0.90	1.00	187.05	1237.82
T7-R9-S25A	4.614	3124.00	2267.09	2266.57	2.45	1256.35	1.51	0.41	110.37	1366.72
T7-R9-S25A	4.315	3124.00	2257.46	2257.44	4.20	1384.35	0.90	0.92	192.63	1576.98
T7-R9-S25A	4.037	3124.00	2250.60	2250.09	2.08	1624.15	4.39	0.36	36.29	1761.39
T7-R9-S25A	3.720	3124.00	2242.06	2242.06	4.88	967.09	1.25	0.95	341.84	1308.92
T7-R9-S25A	3.425	5845.00	2238.13	2237.01	2.49	1525.57	2.69	0.32	180.94	1706.52
T7-R9-S25A	3.008	5845.00	2230.00	2230.00	5.04	2379.33	1.23	0.98	412.95	2792.28
T7-R9-S25A	2.668	5845.00	2223.84	2222.17	2.08	1389.76	3.58	0.26	612.52	2062.09
T7-R9-S25A	2.373	5845.00	2220.81	2220.44	3.48	1584.48	1.63	0.56	1062.44	2646.92
T7-R9-S25A	2.031	5845.00	2215.64	2215.08	2.27	3073.46	5.64	0.33	528.67	3602.14
T7-R9-S25A	1.742	5845.00	2209.00	2209.00	5.55	1093.02	1.65	1.01	38.66	1131.67
T7-R9-S25A	1.432	5845.00	2202.77		2.44	1092.74	2.77	0.29	138.15	1230.89
T7-R9-S25A	1.170	5845.00	2200.26	2199.76	2.71	3112.09	1.53	0.45	335.67	3447.76
T7-R9-S25A	0.855	5845.00	2195.69	2195.08	2.40	2253.97	1.83	0.37	687.22	2941.19
T7-R9-S25A	0.542	5845.00	2190.93	2190.56	2.47	2958.34	0.93	0.45	136.68	3095.03
T7-R9-S25A	0.320	5845.00	2188.02	2186.97	2.60	1491.32	2.90	0.33	145.94	1637.26
T7-R9-S25A	0.016	5845.00	2181.50	2181.50	5.95	902.10	1.49	1.00	1090.98	1993.08

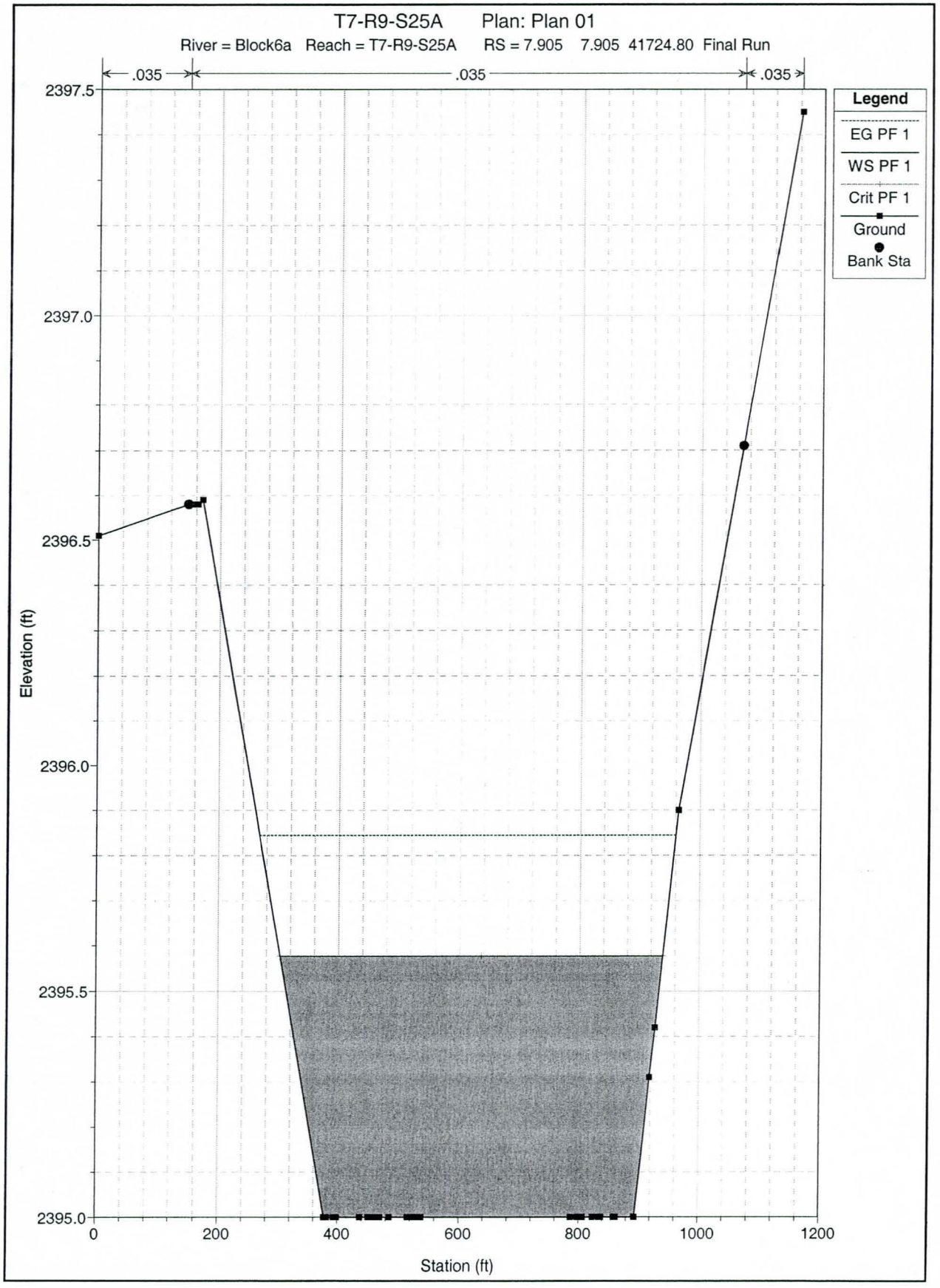

0.320
0.542
0.855
1.432
1.742
2.031
2.373
2.668
3.008
3.720
4.037
4.315
4.614
4.894
5.199
5.498
5.872
6.143
6.432
6.717
7.022
7.322
7.611
7.905
8.560
8.838
9.137
T7-R9-S25A

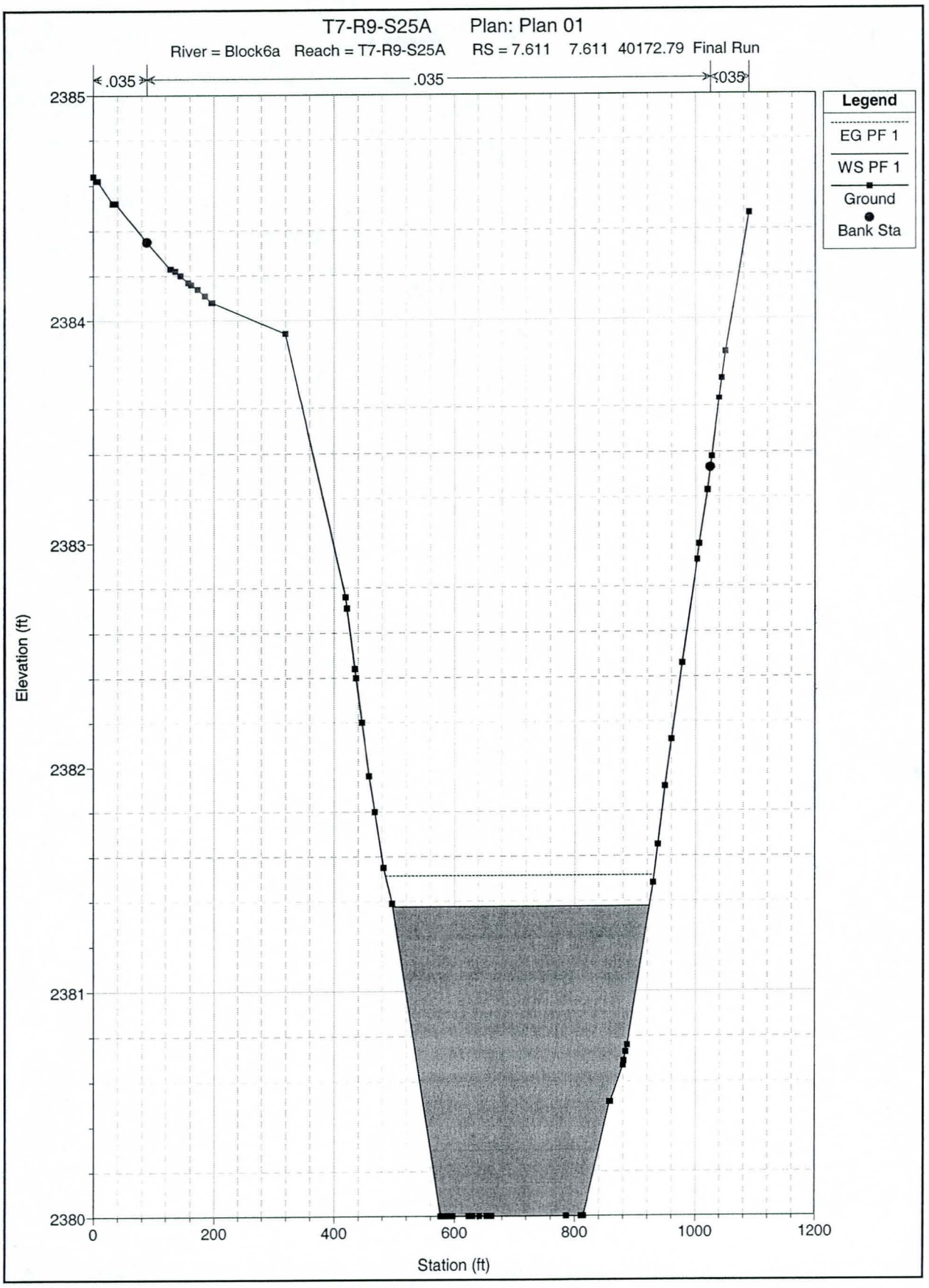

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 9.137 9.137 48228.21 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2510
2500
2490
2480
2470
2460
Elevation (ft)
0
200
400
600
800
1000
1200
1400
Station (ft)

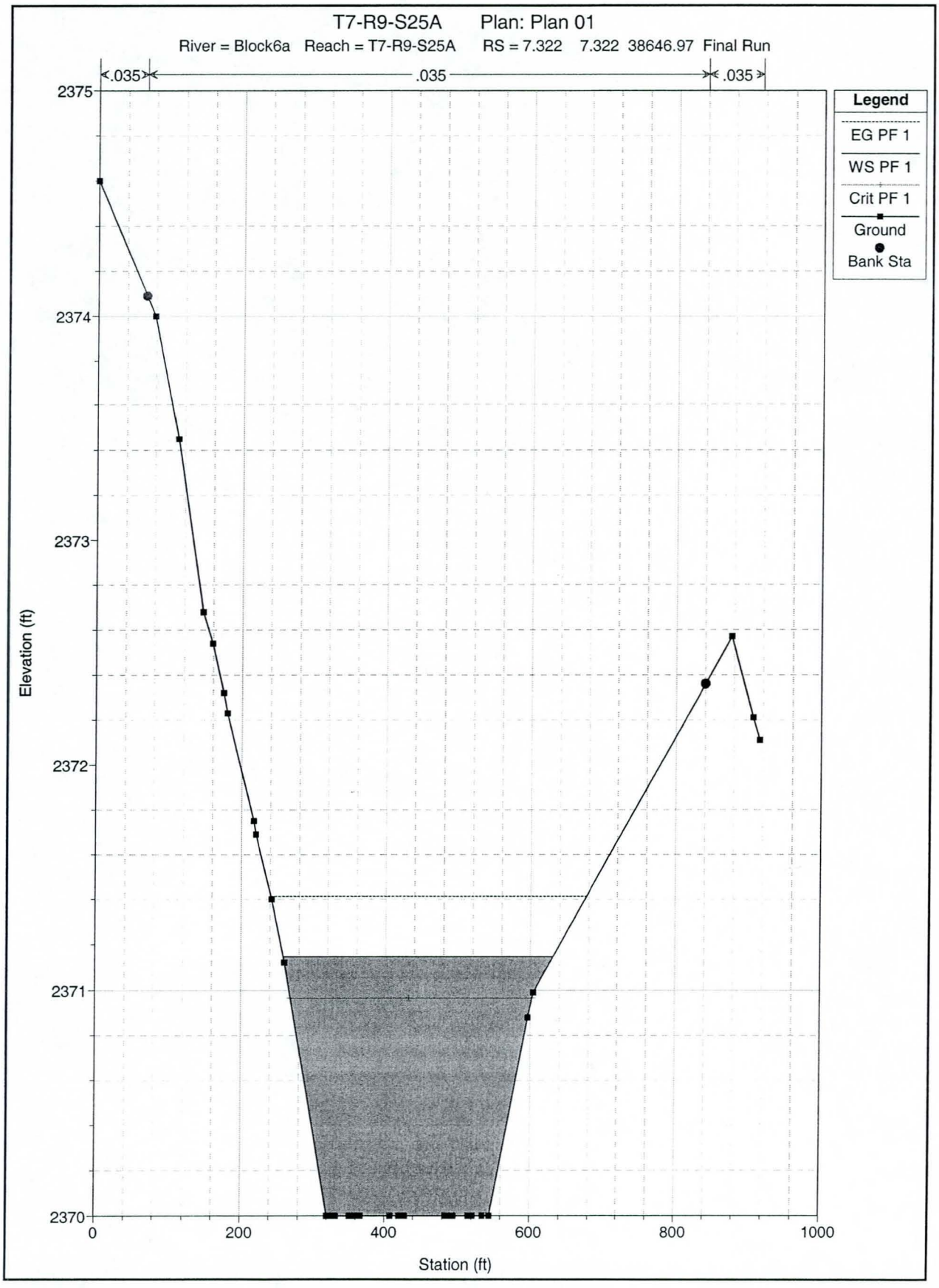

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 8.838 8.838 46652.78 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2443.0
2442.5
2442.0
2441.5
2441.0
2440.5
2440.0
Elevation (ft)
0
100
200
300
400
500
600
Station (ft)

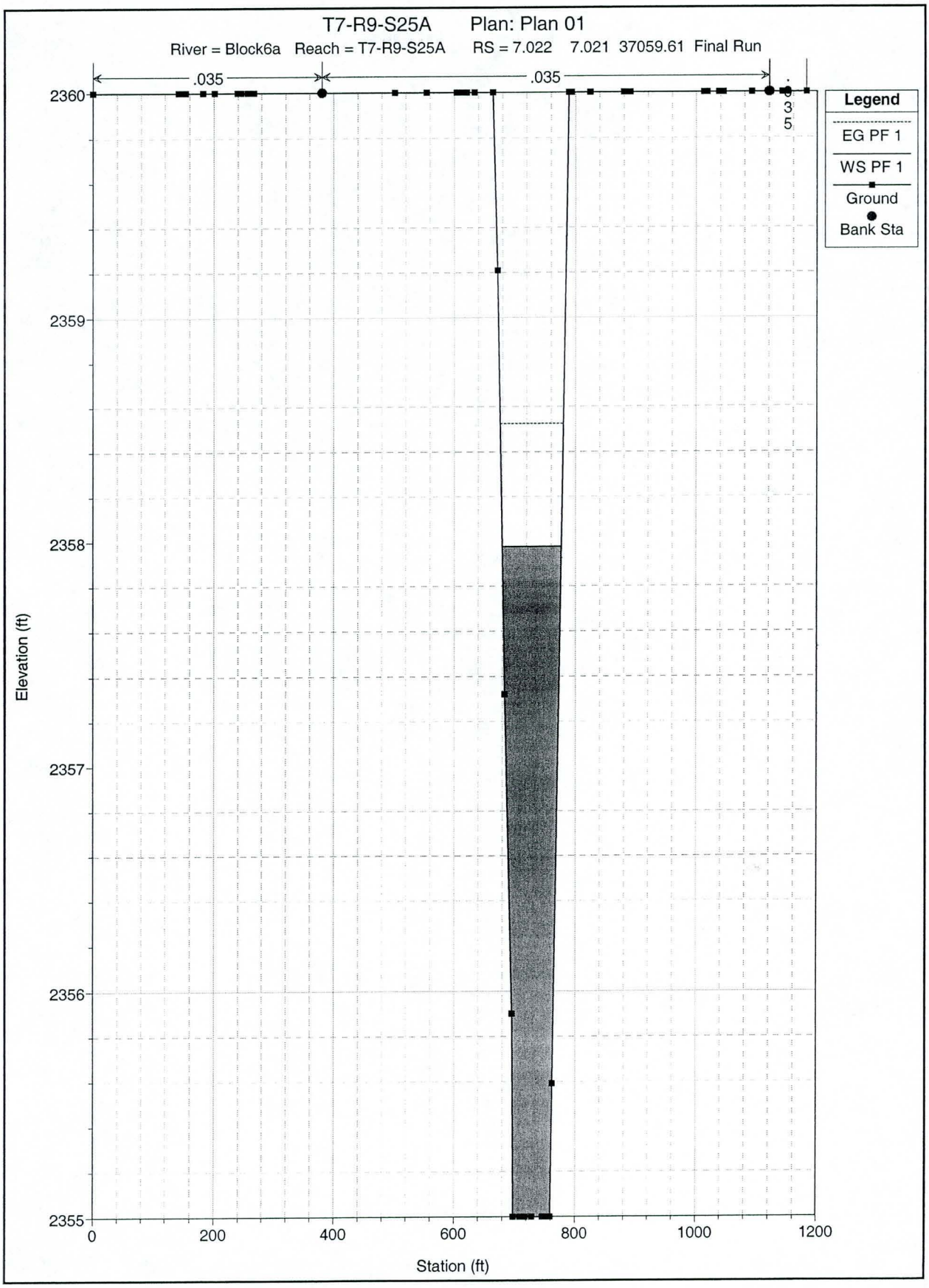

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 8.560 8.560 45180.12 Cross Section ties into Stock Tank Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2426.4
2426.2
2426.0
2425.8
2425.6
2425.4
2425.2
2425.0
Elevation (ft)
0
200
400
600
800
1000
Station (ft)

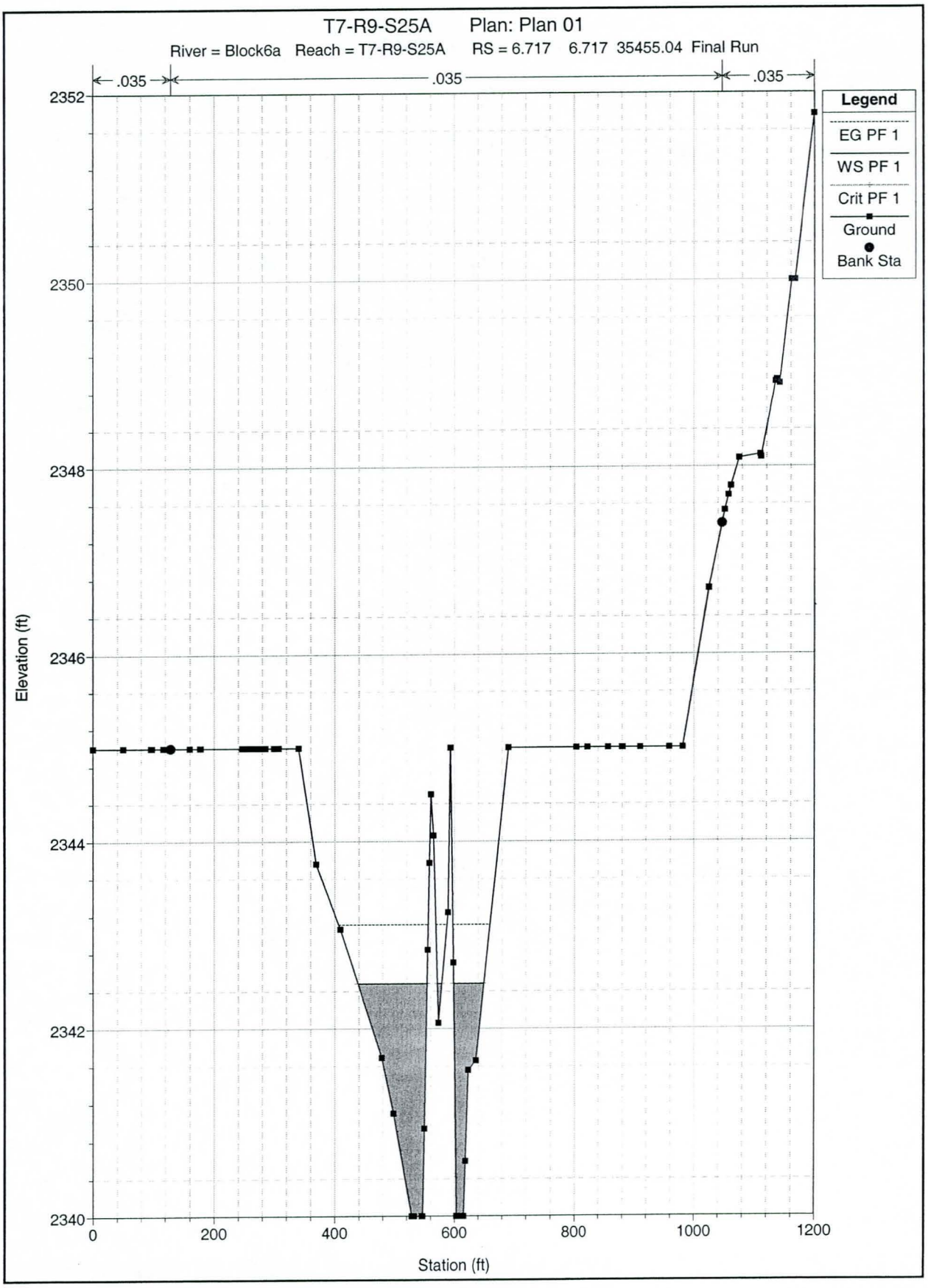

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 8.214 8.214 43355.21 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2412.5
2412.0
2411.5
2411.0
2410.5
2410.0
Elevation (ft)
0
200
400
600
800
1000
1200
1400
Station (ft)

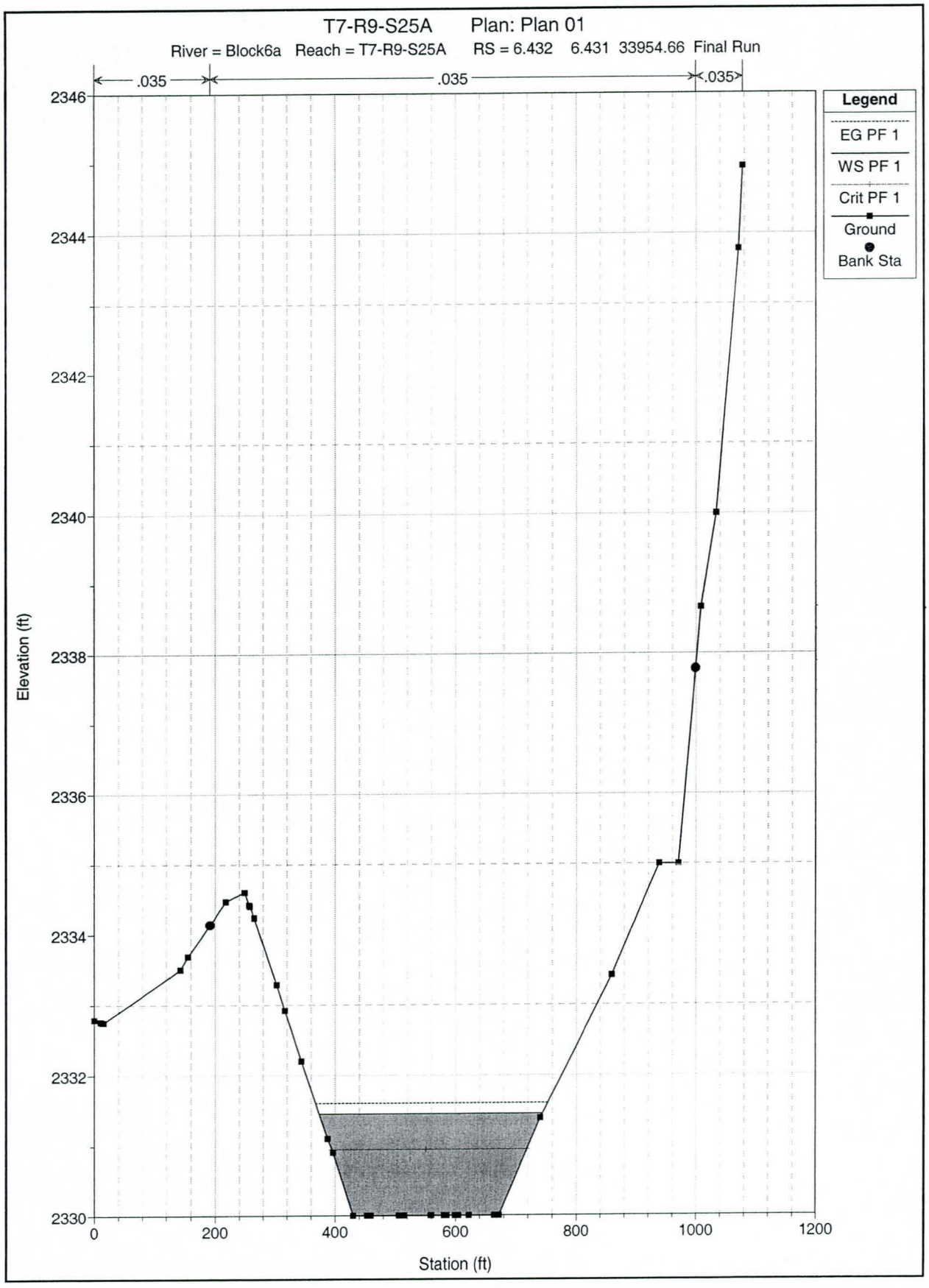

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 7.905 7.905 41724.80 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2397.5
2397.0
2396.5
2396.0
2395.5
2395.0
Elevation (ft)
0
200
400
600
800
1000
1200
Station (ft)

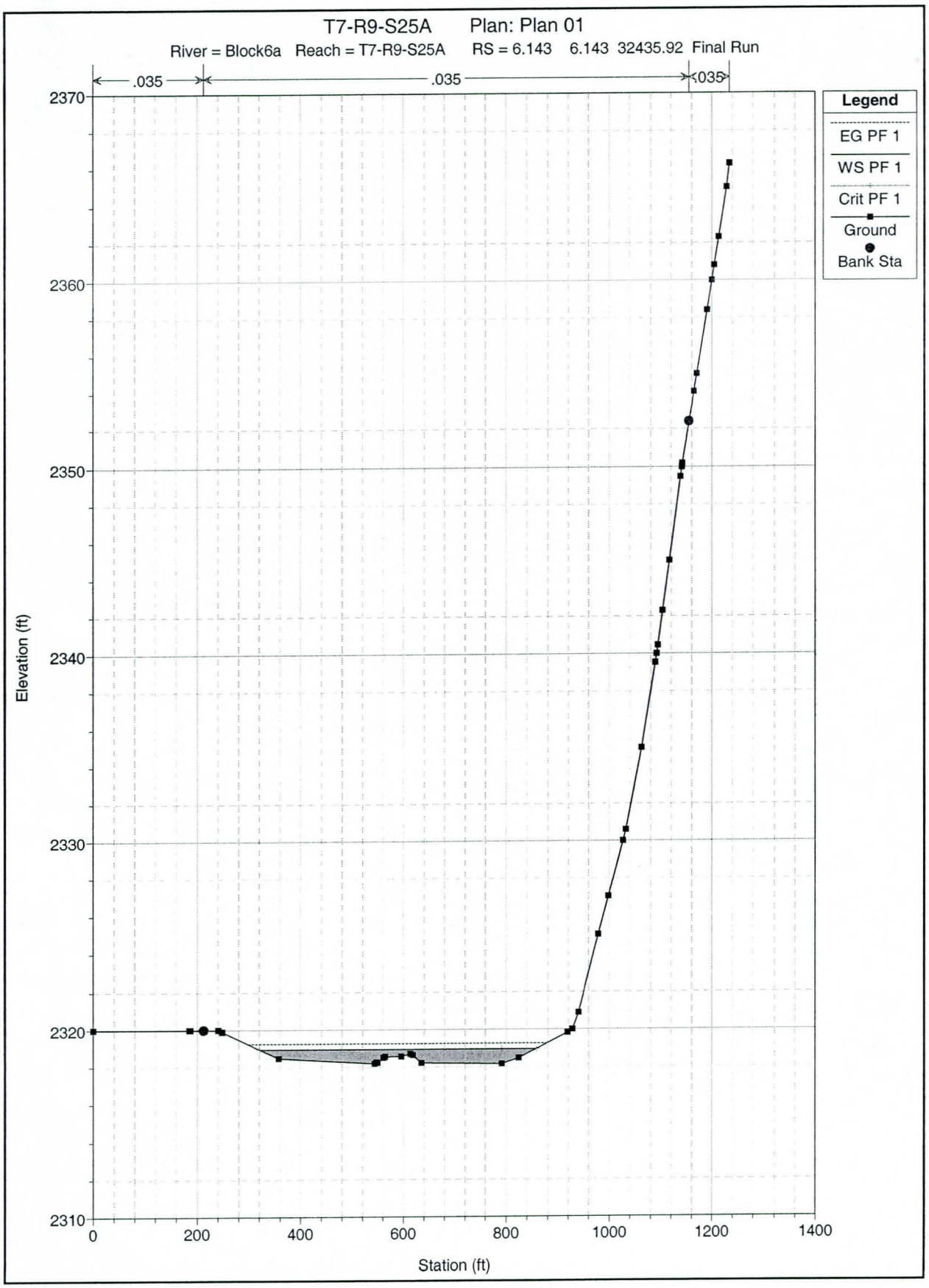

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 7.611 7.611 40172.79 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
2385
2384
2383
2382
2381
2380
Elevation (ft)
0
200
400
600
800
1000
1200
Station (ft)

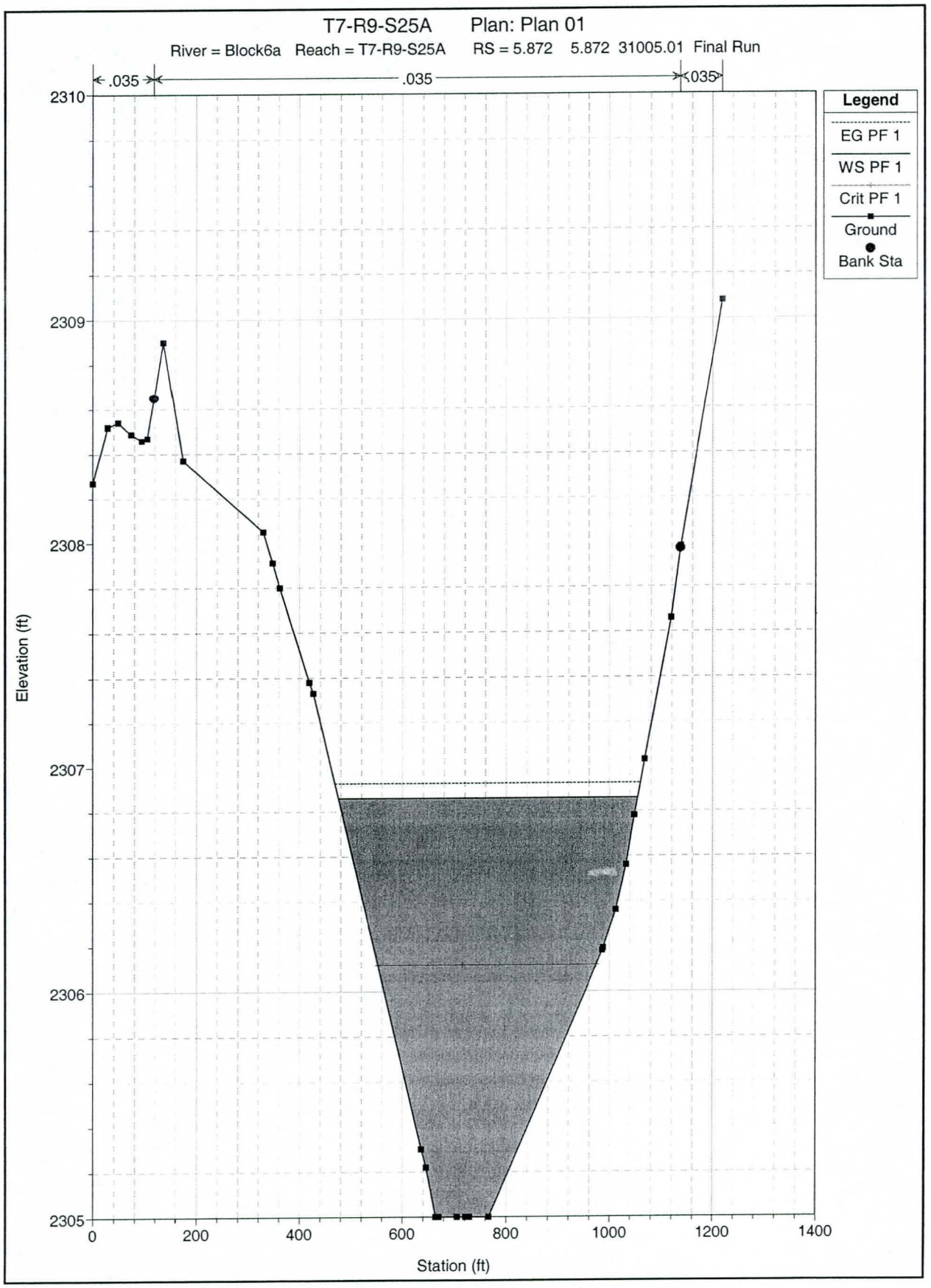

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 7.322 7.322 38646.97 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2375
2374
2373
2372
2371
2370
Elevation (ft)
0
200
400
600
800
1000
Station (ft)

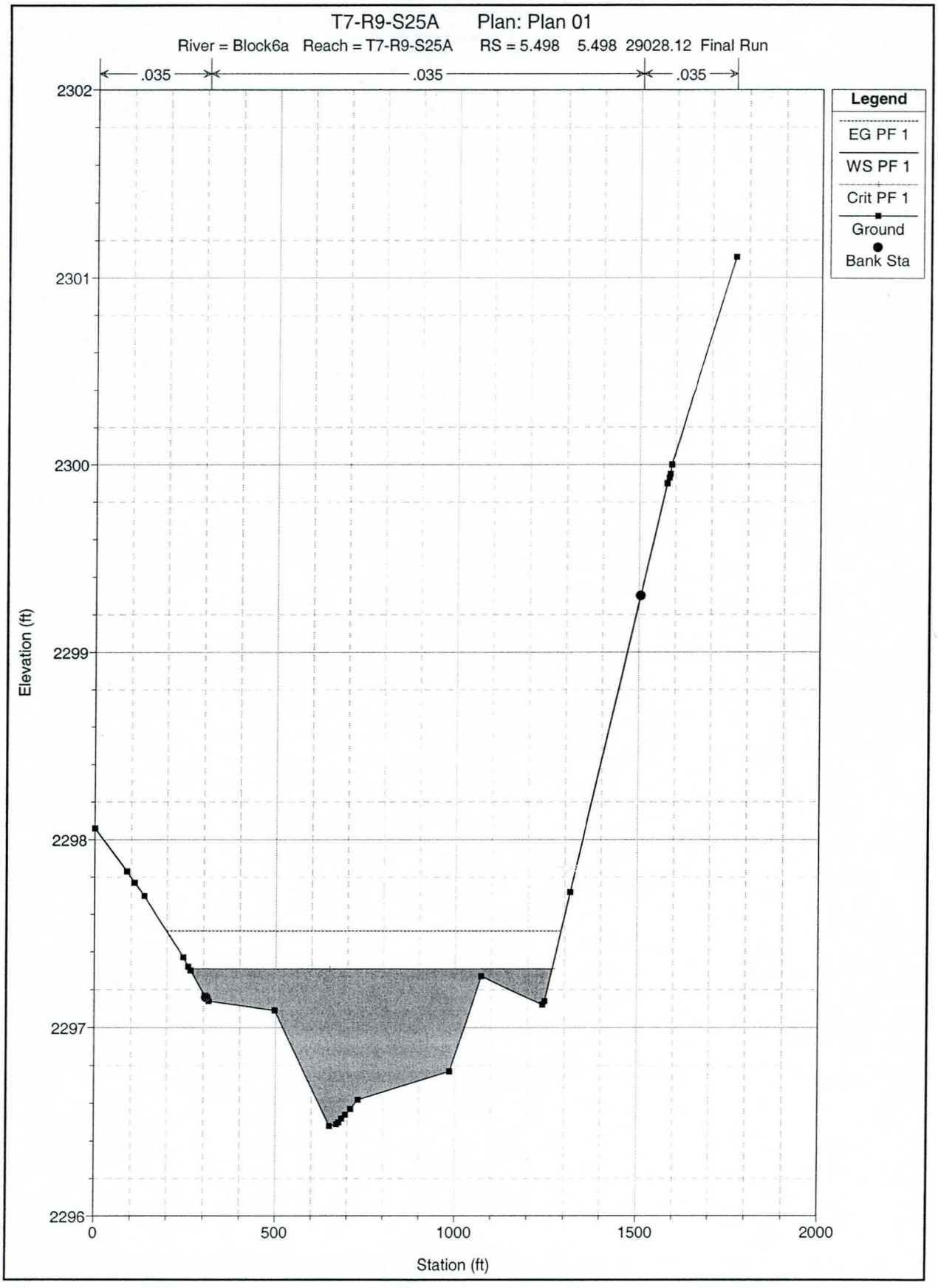

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 7.022 7.021 37059.61 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
2360
2359
2358
2357
2356
2355
Elevation (ft)
0
200
400
600
800
1000
1200
Station (ft)

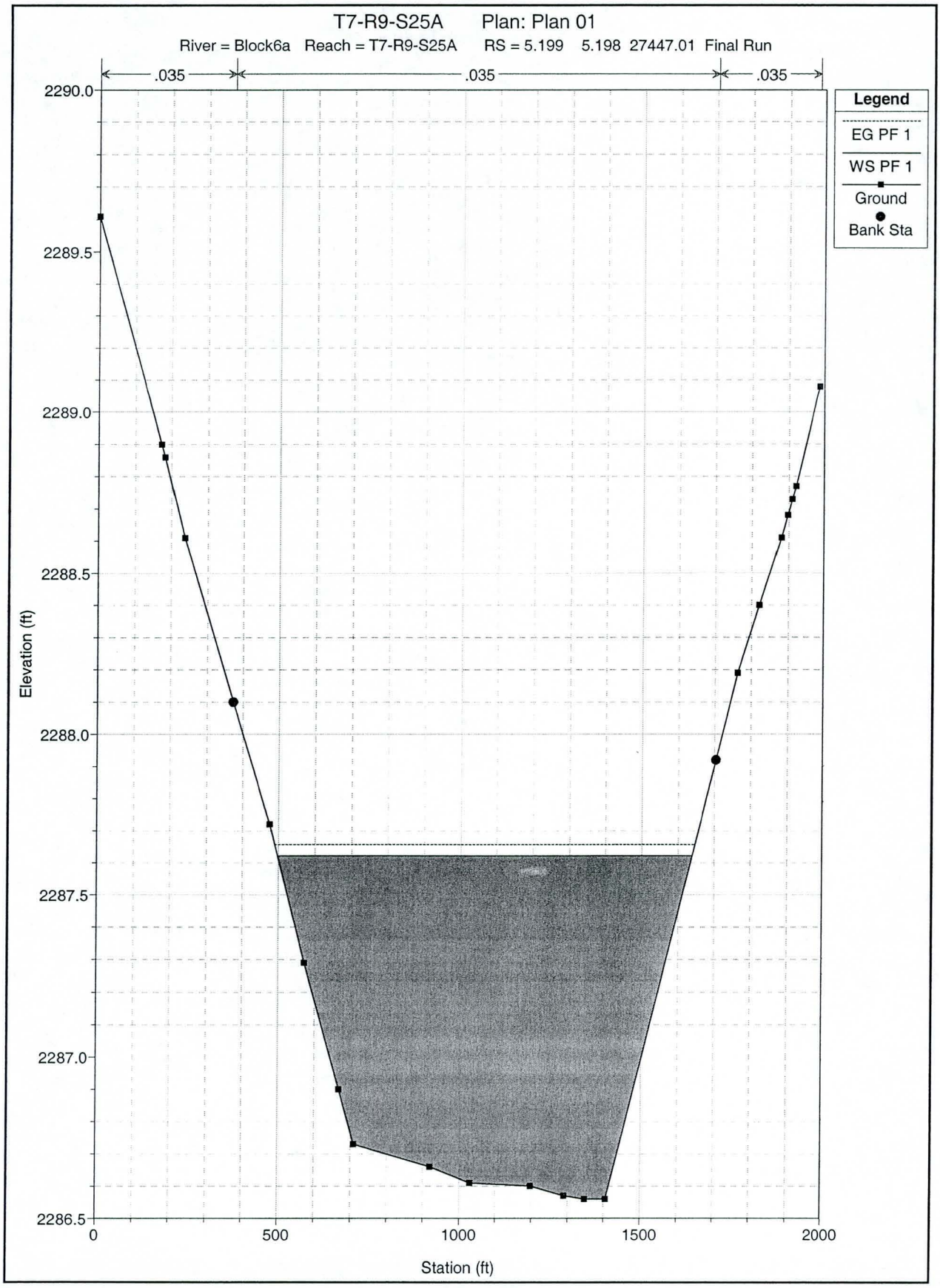

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 6.717 6.717 35455.04 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2352
2350
2348
2346
2344
2342
2340
0
200
400
600
800
1000
1200
Station (ft)

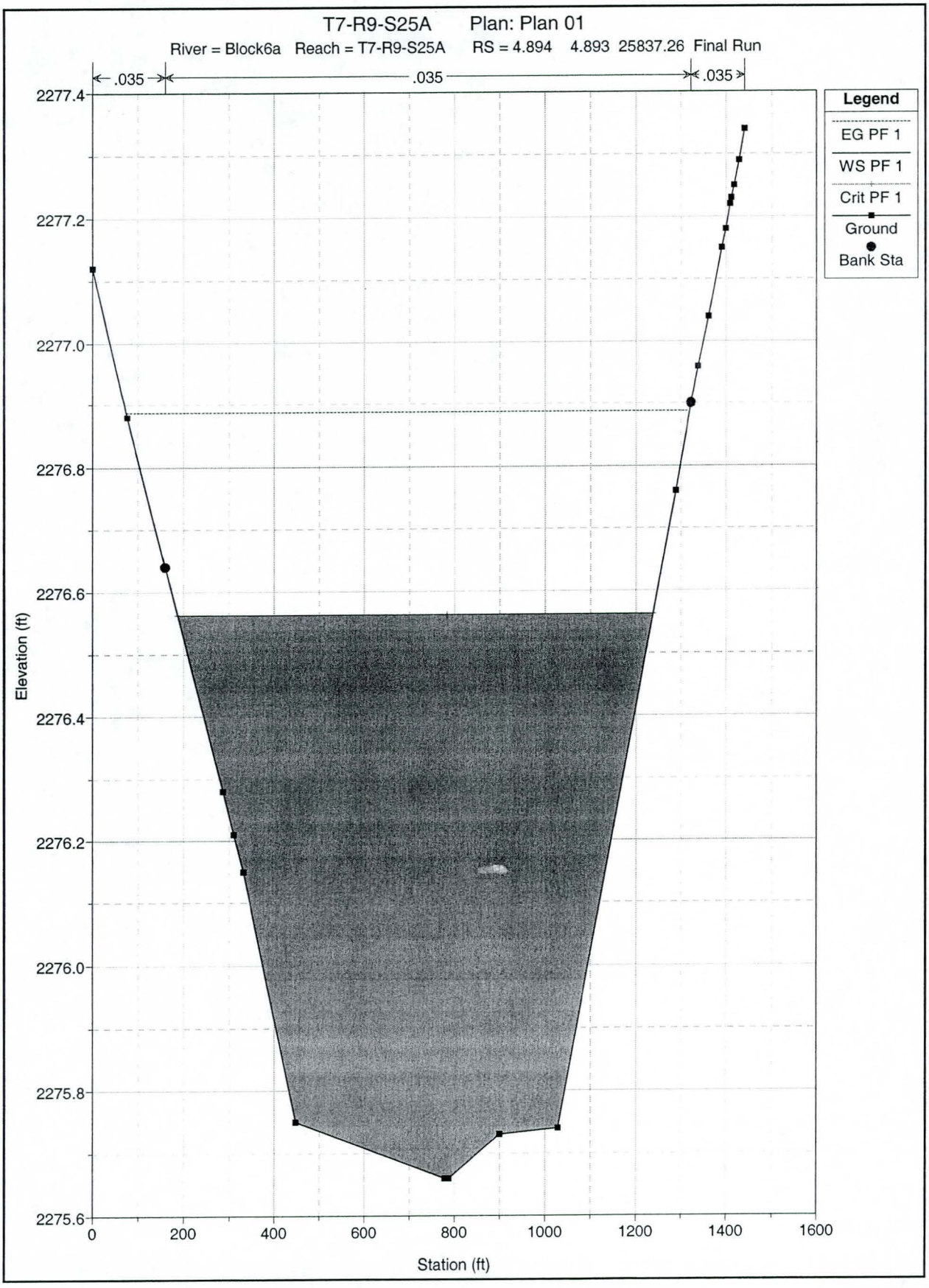

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 6.432 6.431 33954.66 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2346
2344
2342
2340
2338
2336
2334
2332
2330
0
200
400
600
800
1000
1200
Station (ft)

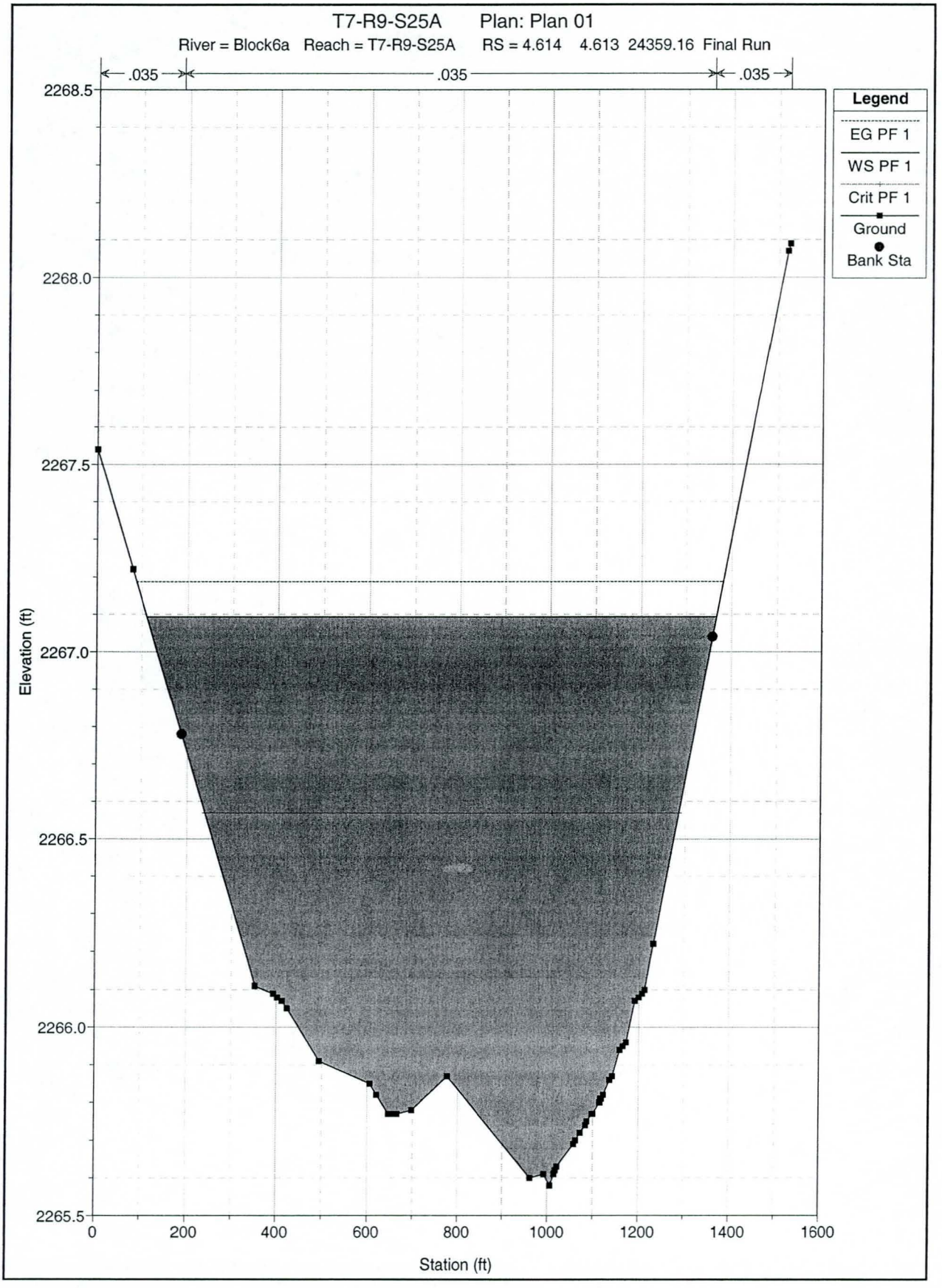

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 6.143 6.143 32435.92 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2370
2360
2350
2340
2330
2320
2310
0
200
400
600
800
1000
1200
1400
Station (ft)

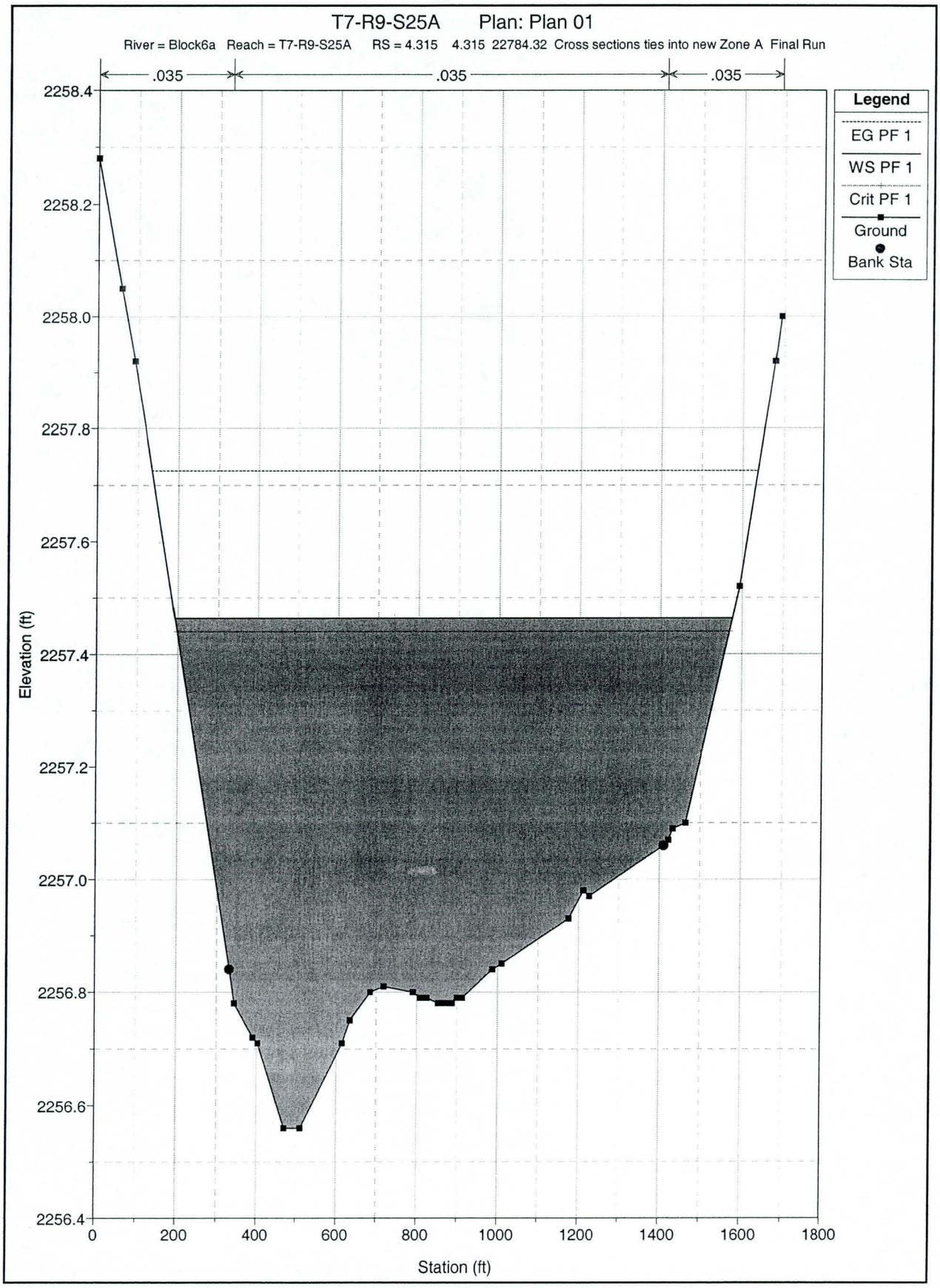

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 5.872 5.872 31005.01 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2310
2309
2308
2307
2306
2305
0
200
400
600
800
1000
1200
1400
Station (ft)


T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 5.498 5.498 29028.12 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2302
2301
2300
2299
2298
2297
2296
Elevation (ft)
0
500
1000
1500
2000
Station (ft)


T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 5.199 5.198 27447.01 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
2290.0
2289.5
2289.0
2288.5
2288.0
2287.5
2287.0
2286.5
Elevation (ft)
0
500
1000
1500
2000
Station (ft)


T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 4.894 4.893 25837.26 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2277.4
2277.2
2277.0
2276.8
2276.6
2276.4
2276.2
2276.0
2275.8
2275.6
0
200
400
600
800
1000
1200
1400
1600
Station (ft)


T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 4.614 4.613 24359.16 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2268.5
2268.0
2267.5
2267.0
2266.5
2266.0
2265.5
Elevation (ft)
0
200
400
600
800
1000
1200
1400
1600
Station (ft)


T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 4.315 4.315 22784.32 Cross sections ties into new Zone A Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2258.4
2258.2
2258.0
2257.8
2257.6
2257.4
2257.2
2257.0
2256.8
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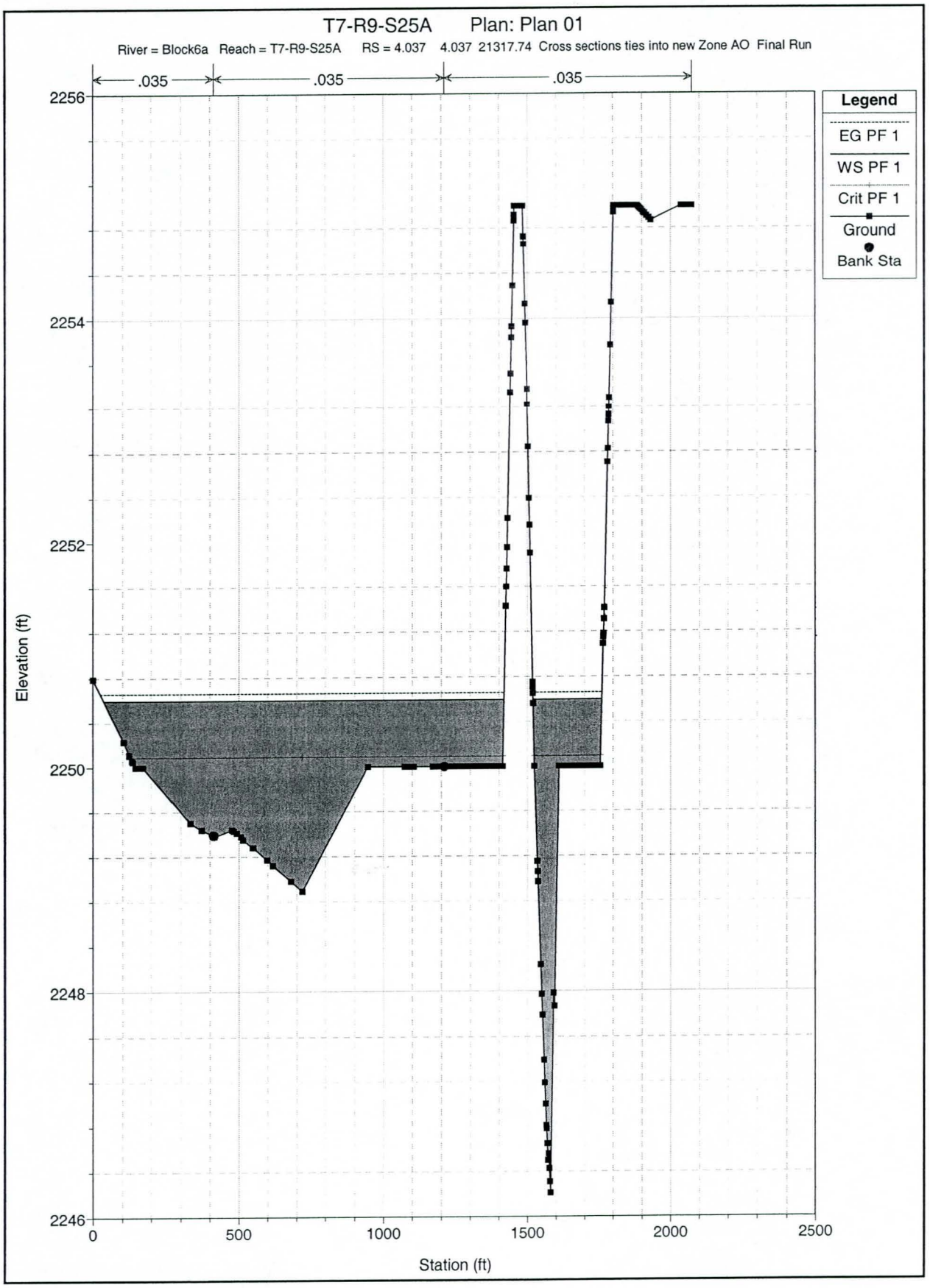
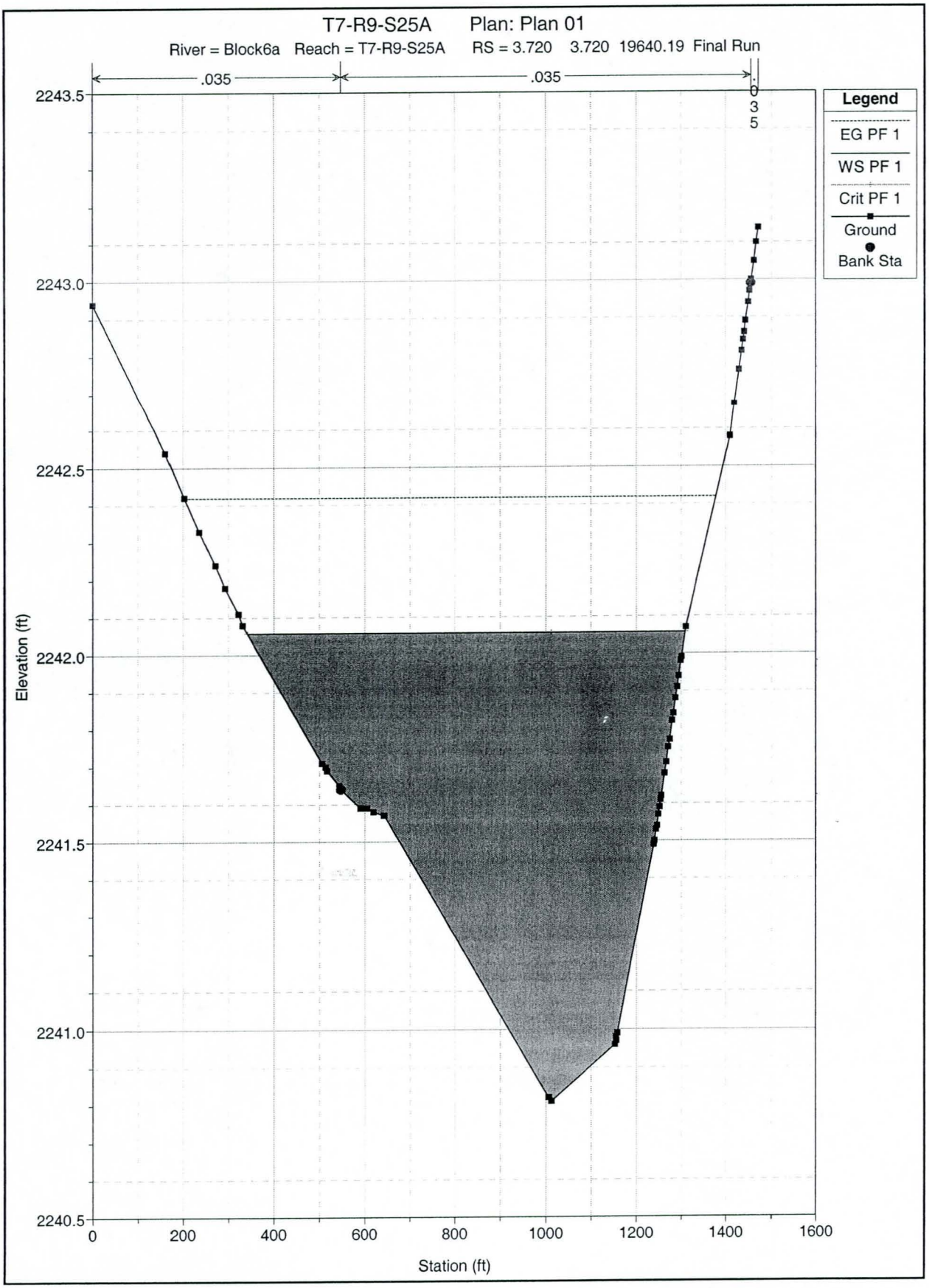
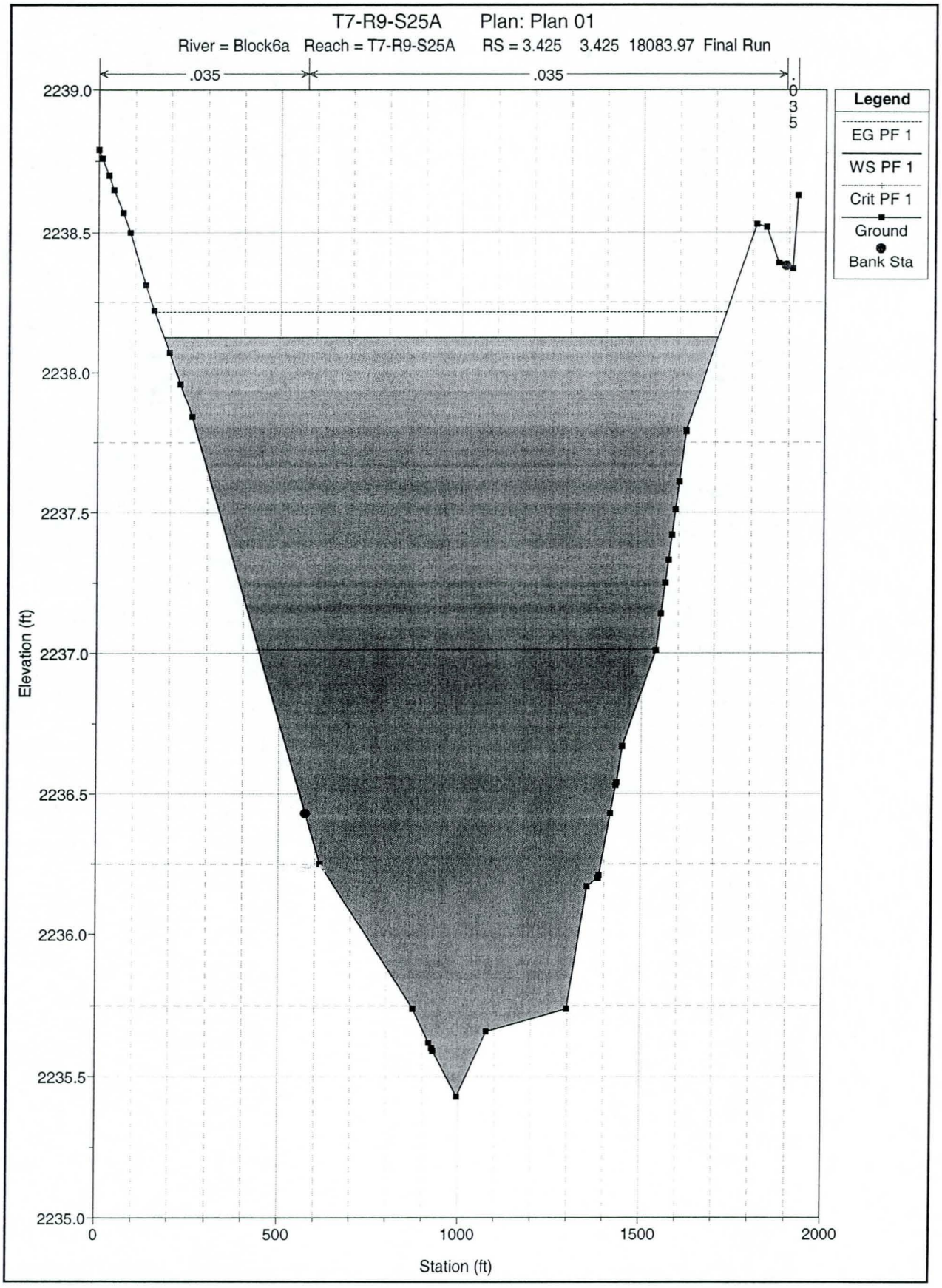
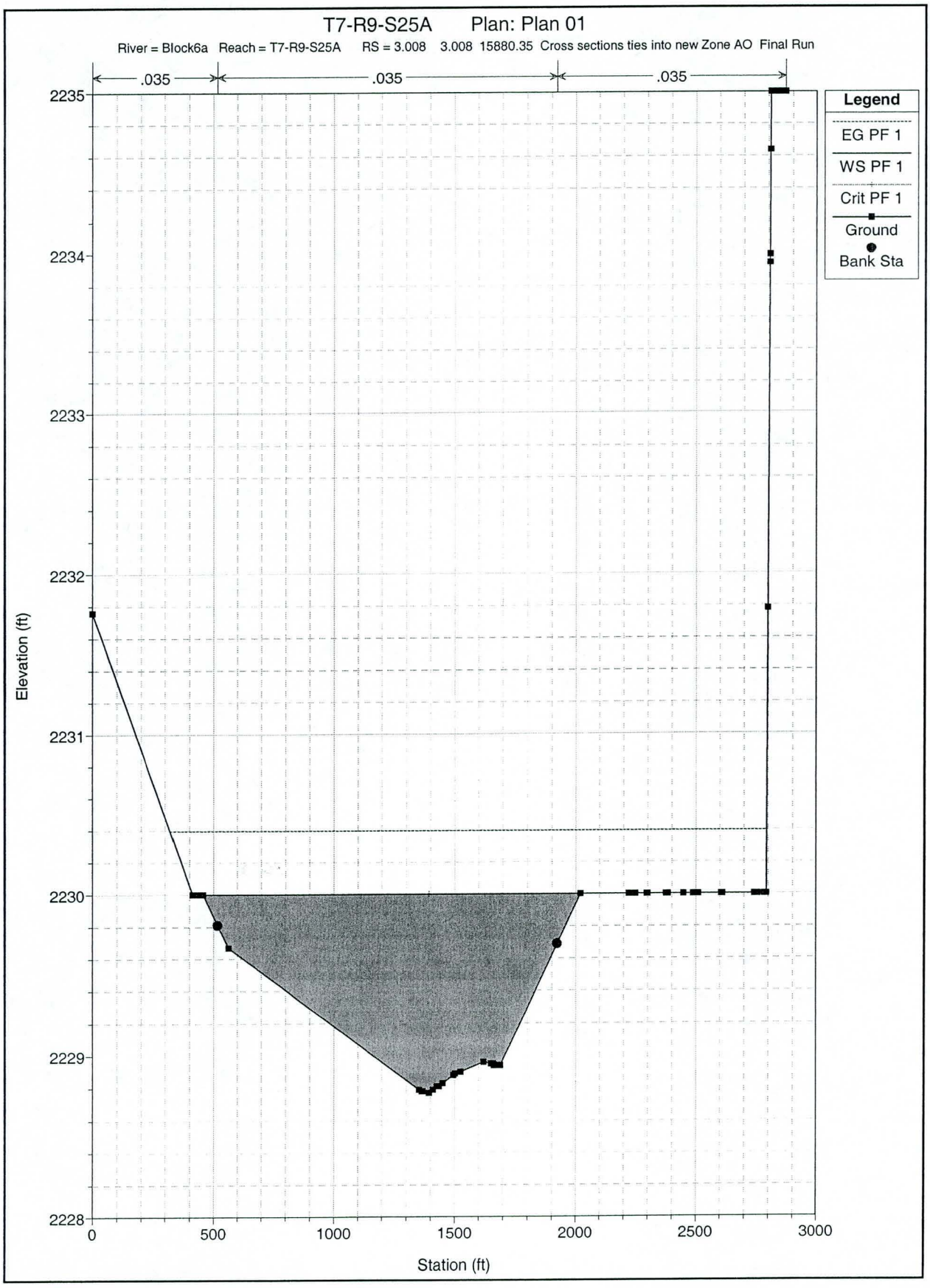
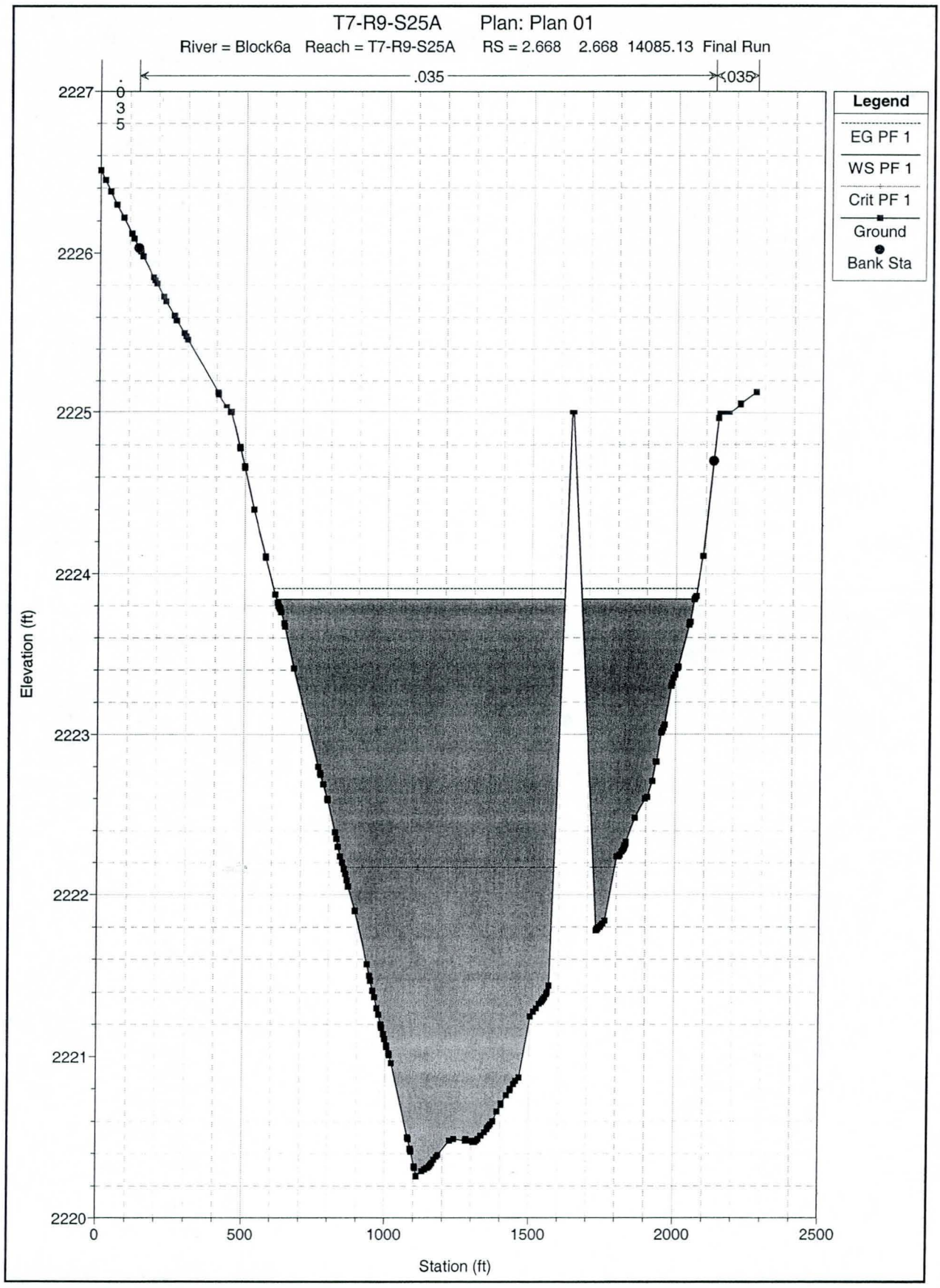
2256.4
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)

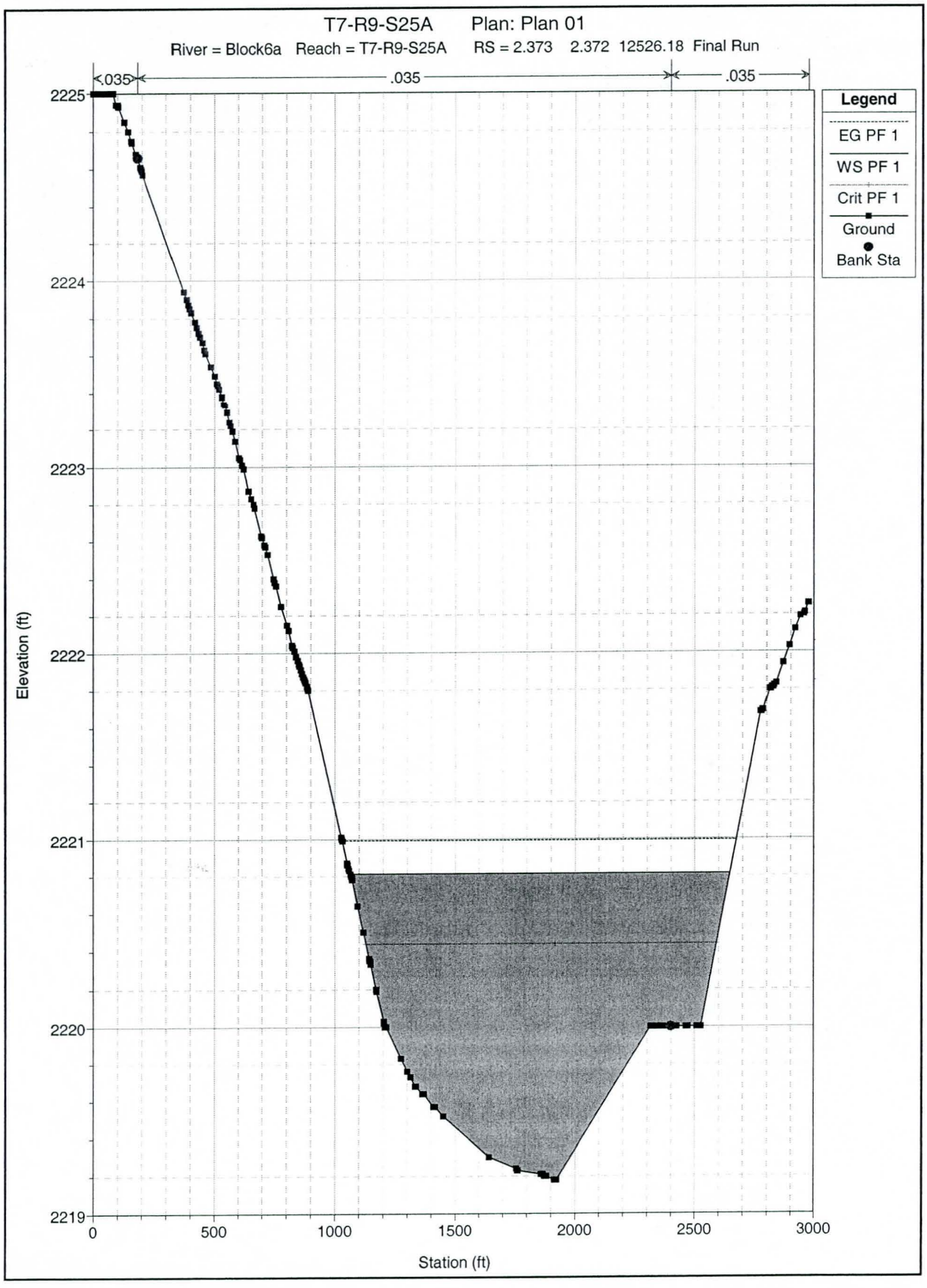

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 4.037 4.037 21317.74 Cross sections ties into new Zone AO Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2256
2254
2252
2250
2248
2246
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)

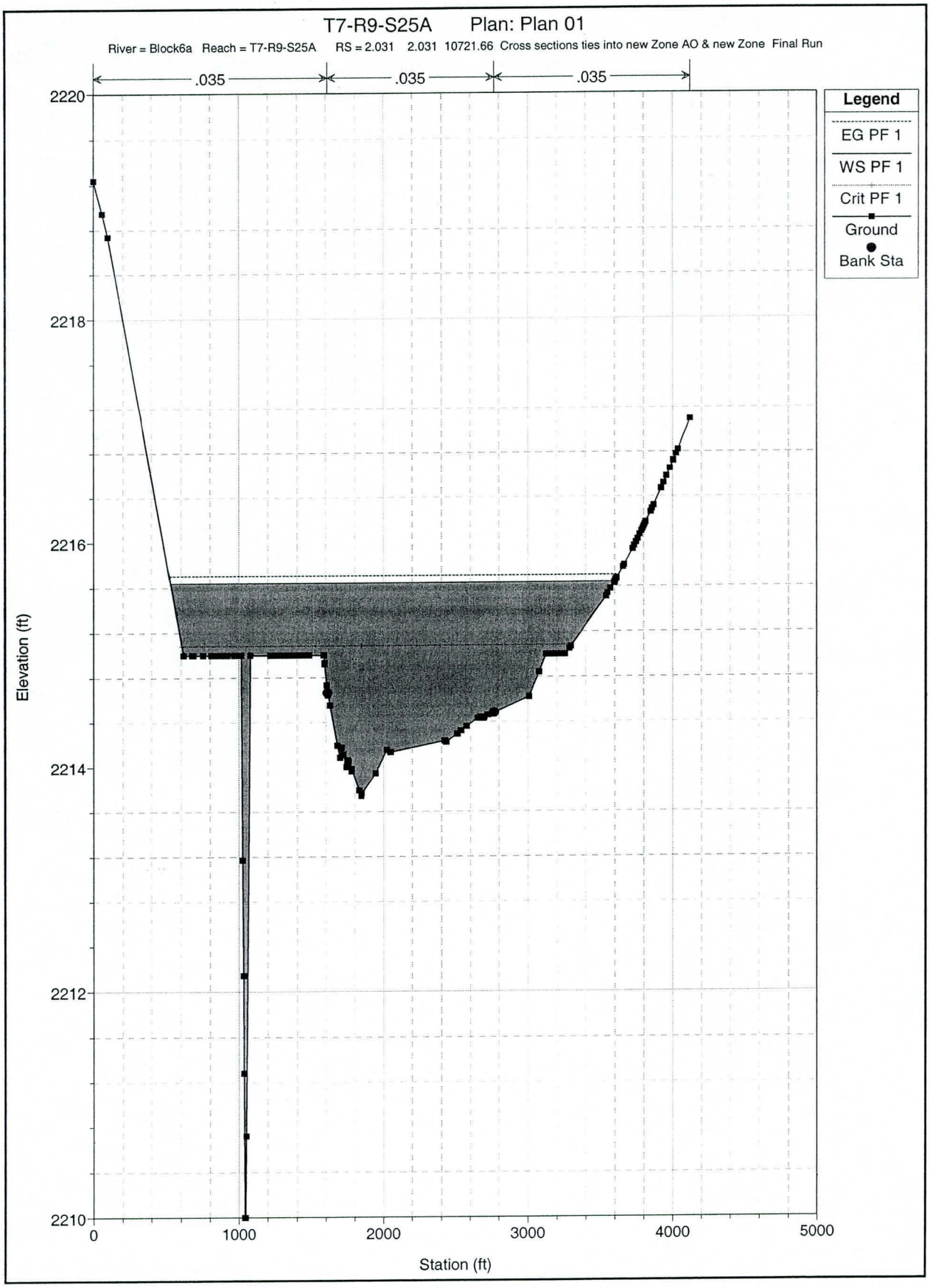

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 3.720 3.720 19640.19 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2243.5
2243.0
2242.5
2242.0
2241.5
2241.0
2240.5
Elevation (ft)
0
200
400
600
800
1000
1200
1400
1600
Station (ft)

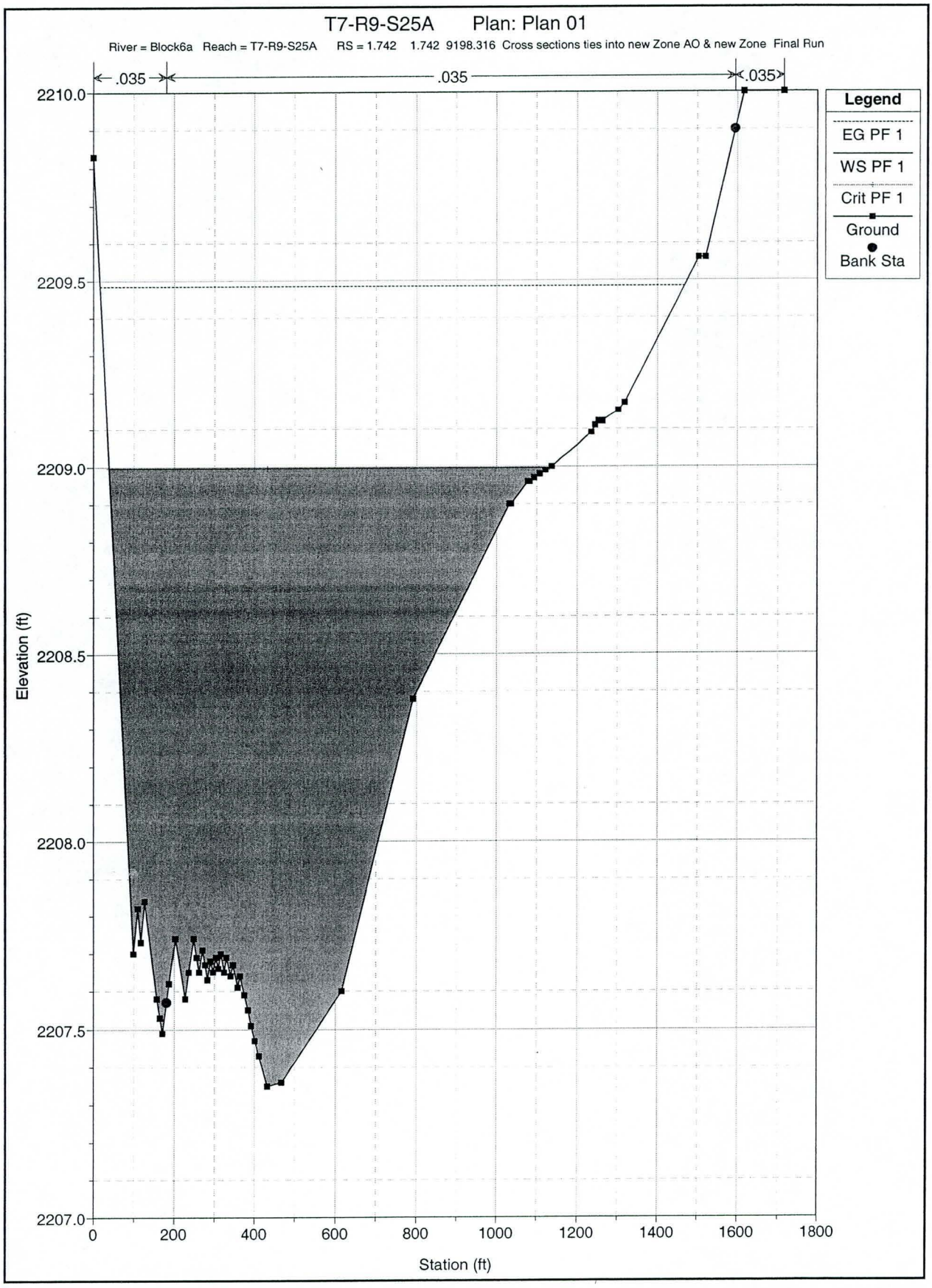

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 3.425 3.425 18083.97 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2239.0
2238.5
2238.0
2237.5
2237.0
2236.5
2236.0
2235.5
2235.0
Elevation (ft)
0
500
1000
1500
2000
Station (ft)

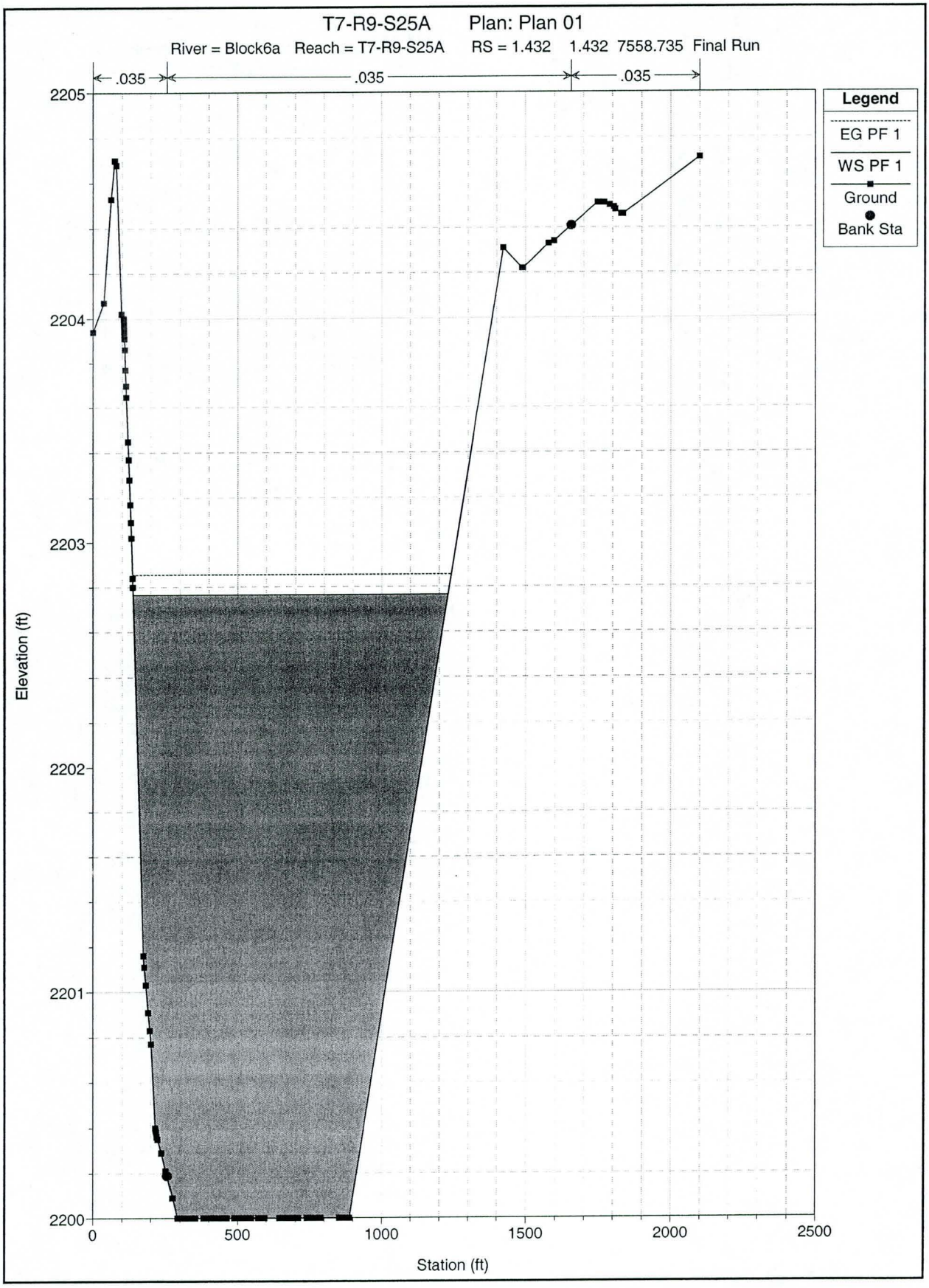

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 3.008 3.008 15880.35 Cross sections ties into new Zone AO Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2235
2234
2233
2232
2231
2230
2229
2228
Elevation (ft)
0
500
1000
1500
2000
2500
3000
Station (ft)

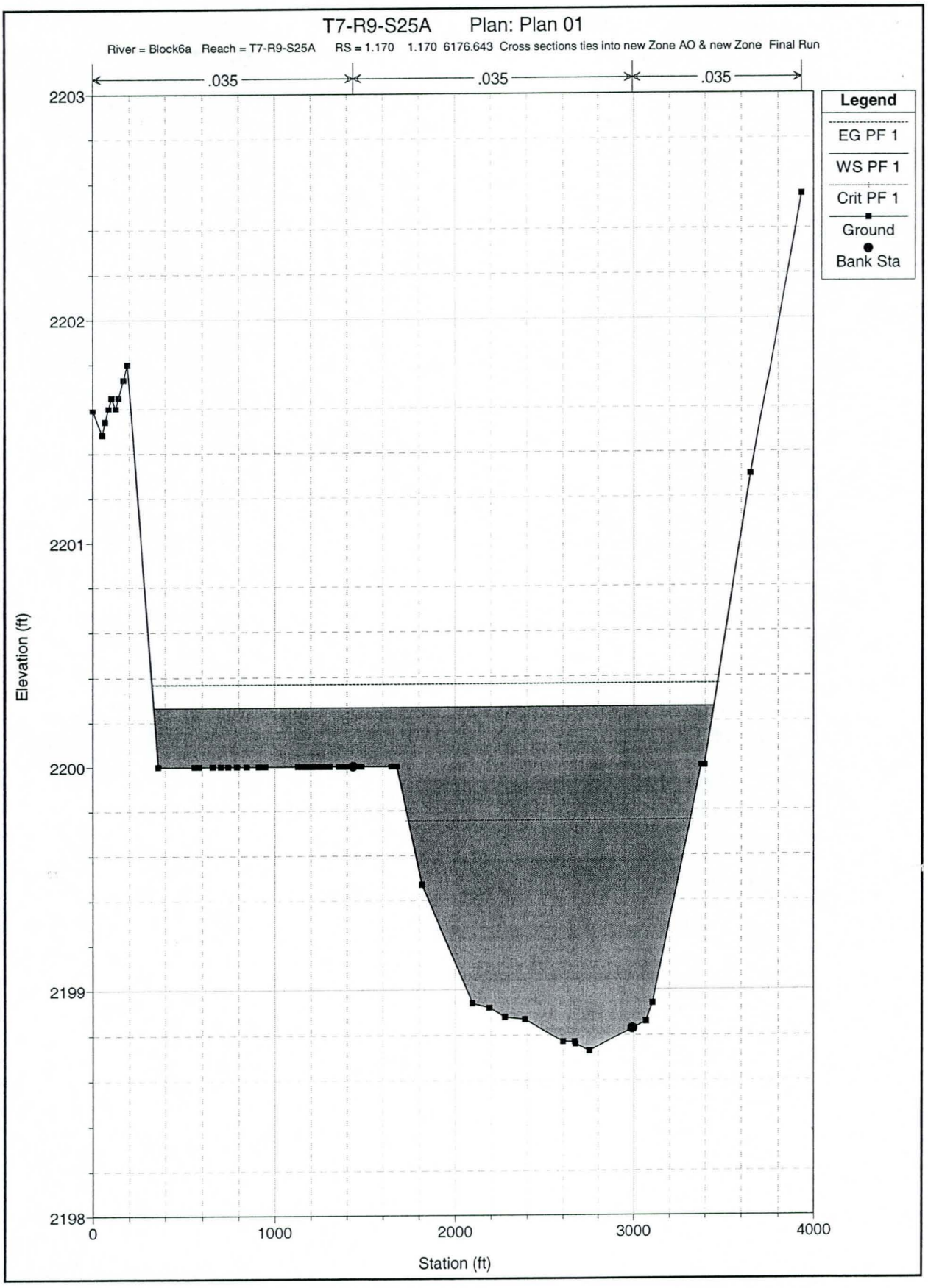

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 2.668 2.668 14085.13 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2227
2226
2225
2224
2223
2222
2221
2220
0
500
1000
1500
2000
2500

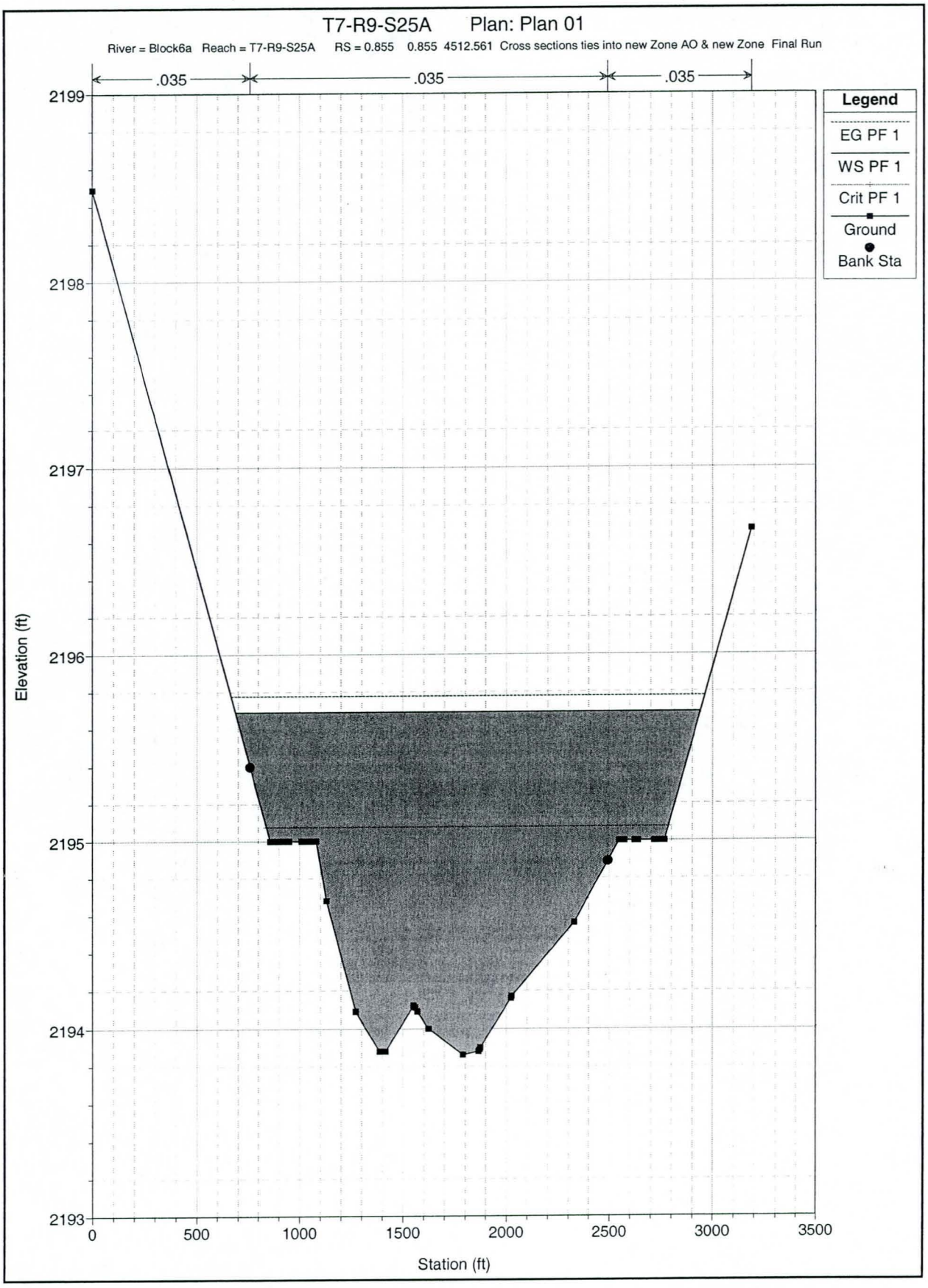

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 2.373 2.372 12526.18 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2225
2224
2223
2222
2221
2220
2219
0
500
1000
1500
2000
2500
3000
Station (ft)

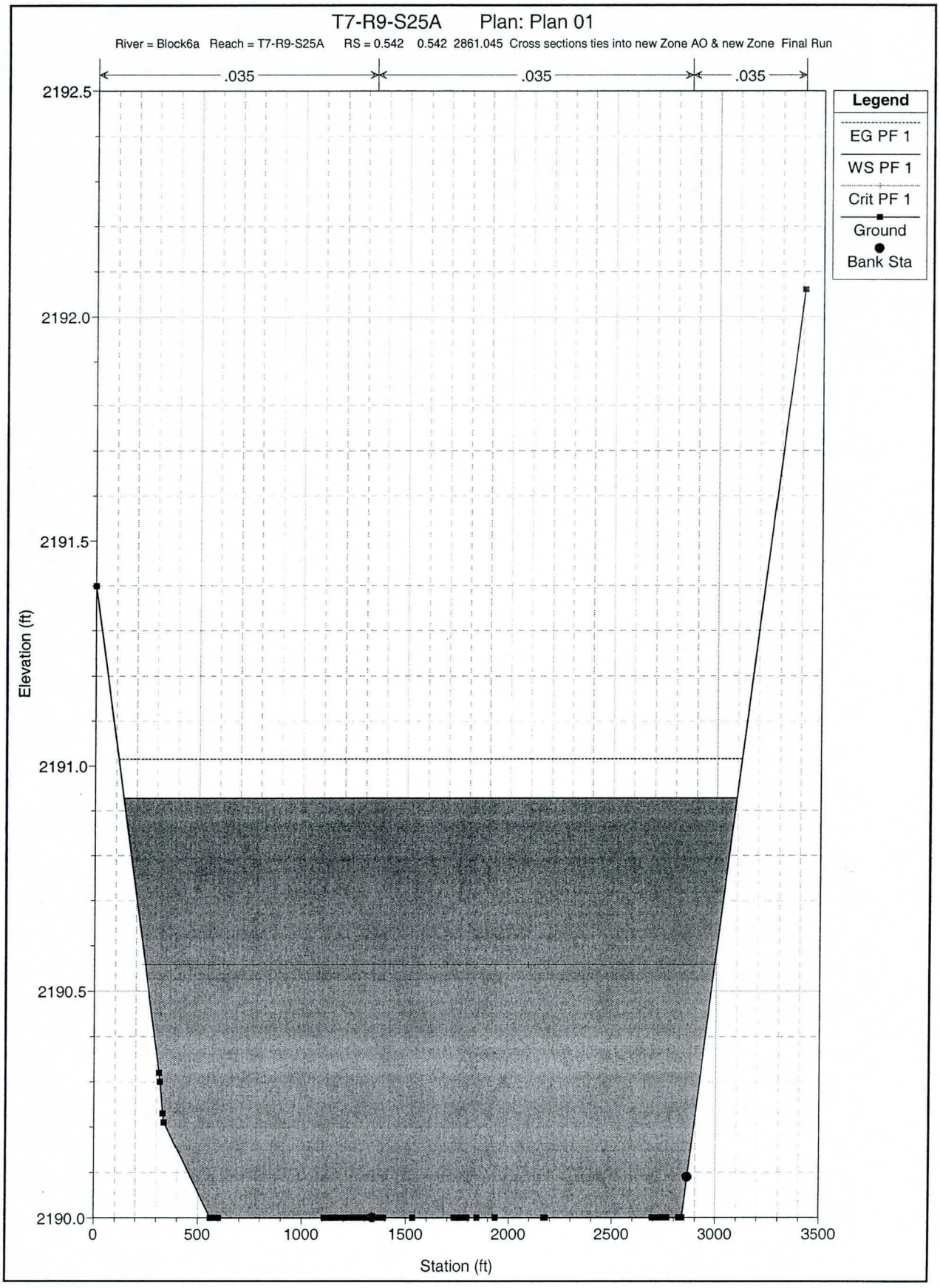

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 2.031 2.031 10721.66 Cross sections ties into new Zone AO & new Zone Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2220
2218
2216
2214
2212
2210
Elevation (ft)
0
1000
2000
3000
4000
5000
Station (ft)

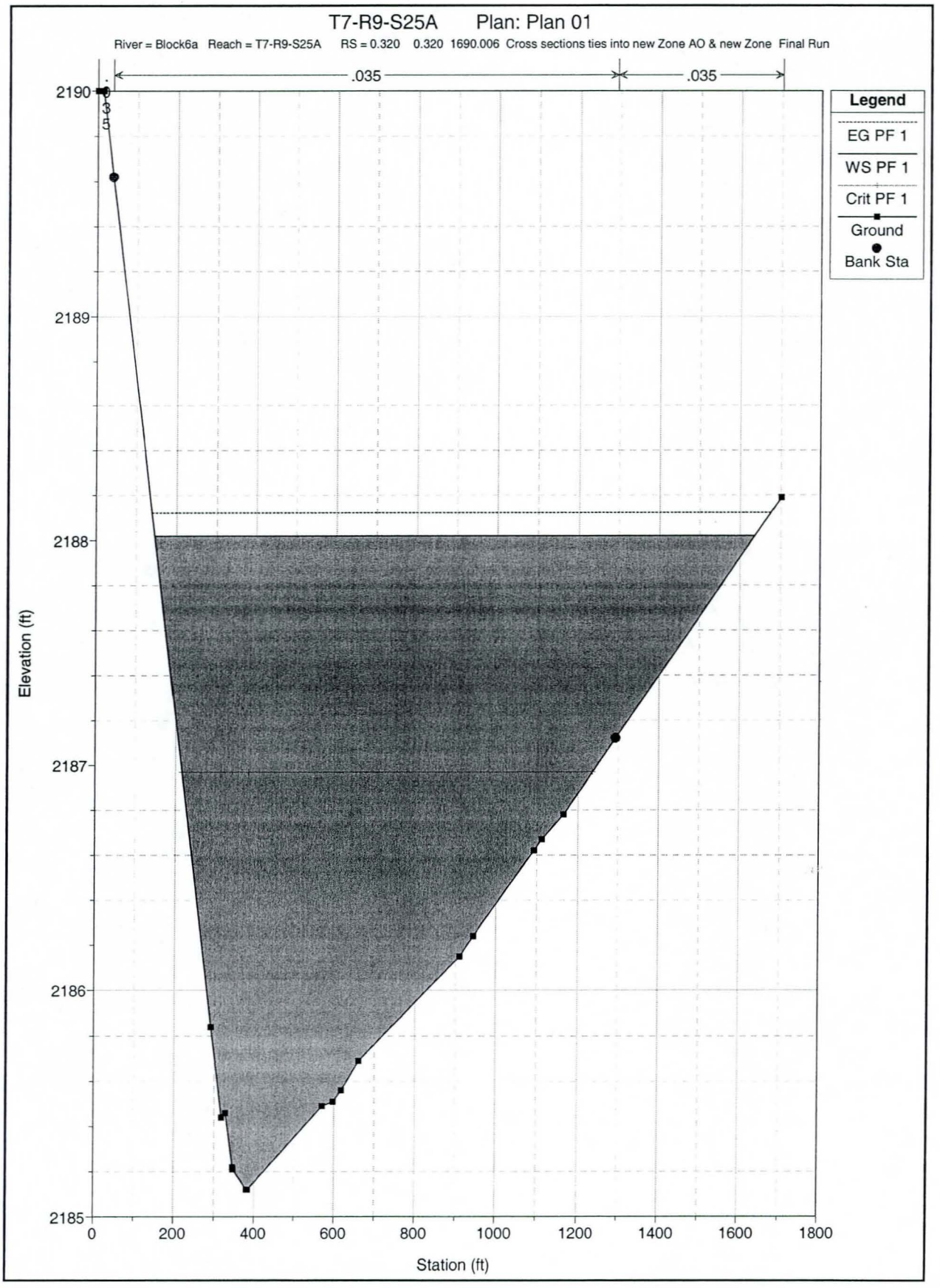

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 1.742 1.742 9198.316 Cross sections ties into new Zone AO & new Zone Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2210.0
2209.5
2209.0
2208.5
2208.0
2207.5
2207.0
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)

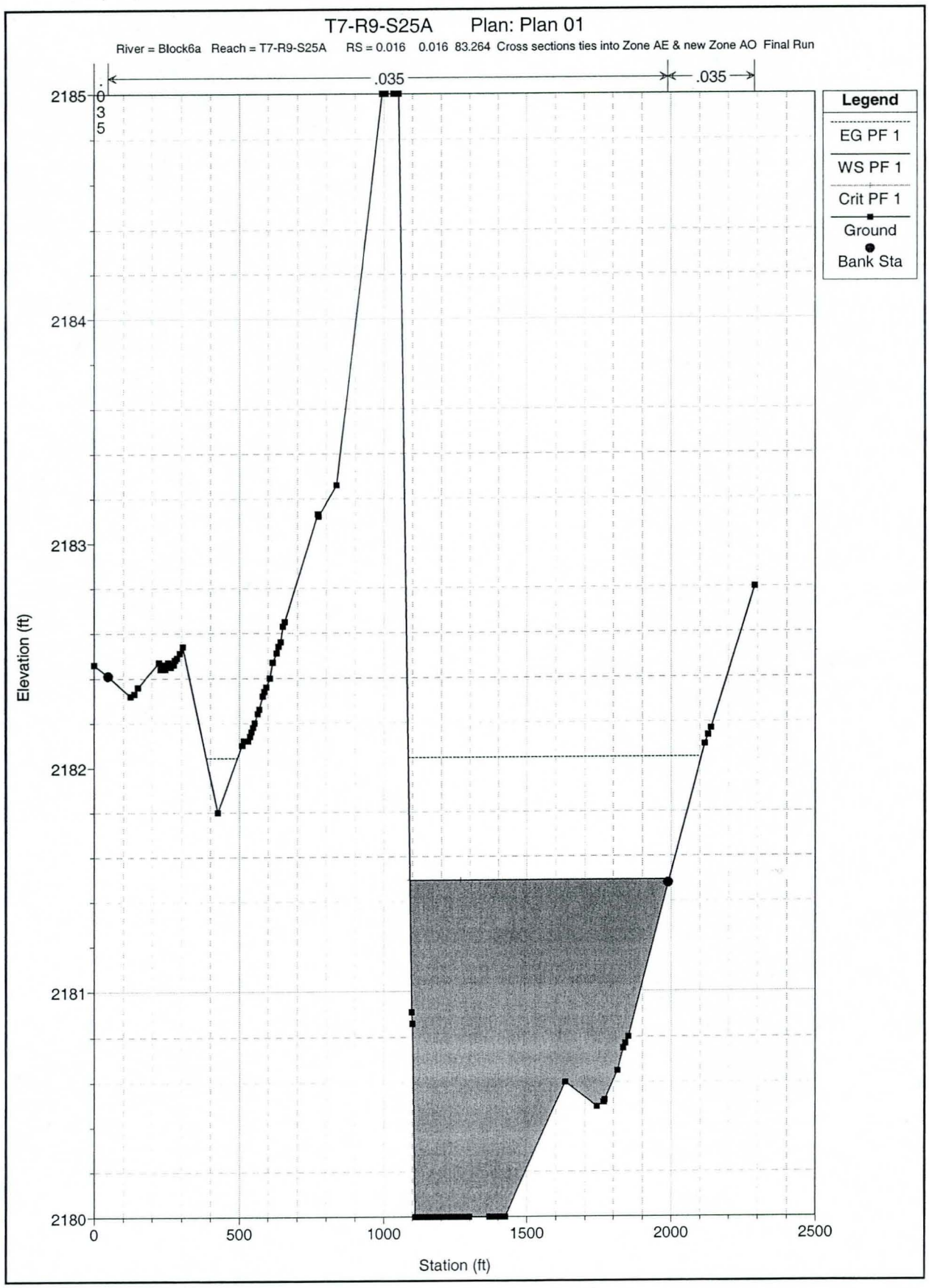

T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 1.432 1.432 7558.735 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
2205
2204
2203
2202
2201
2200
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)


T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 1.170 1.170 6176.643 Cross sections ties into new Zone AO & new Zone Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2203
2202
2201
2200
2199
2198
Elevation (ft)
0
1000
2000
3000
4000
Station (ft)


T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 0.855 0.855 4512.561 Cross sections ties into new Zone AO & new Zone Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2199
2198
2197
2196
2195
2194
2193
0
500
1000
1500
2000
2500
3000
3500
Station (ft)


T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 0.542 0.542 2861.045 Cross sections ties into new Zone AO & new Zone Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2192.5
2192.0
2191.5
2191.0
2190.5
2190.0
Elevation (ft)
0
500
1000
1500
2000
2500
3000
3500
Station (ft)


T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 0.320 0.320 1690.006 Cross sections ties into new Zone AO & new Zone Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2190
2189
2188
2187
2186
2185
0
200
400
600
800
1000
1200
1400
1600
1800


T7-R9-S25A Plan: Plan 01
River = Block6a Reach = T7-R9-S25A RS = 0.016 0.016 83.264 Cross sections ties into Zone AE & new Zone AO Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2185
2184
2183
2182
2181
2180
0
500
1000
1500
2000
2500

Plan: Plan 01 Block6a T7-R9-S25A RS: 9.137 Profile: PF 1

E.G. Elev (ft)	2461.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.		0.035	
W.S. Elev (ft)	2460.86	Reach Len. (ft)	1547.31	1575.43	1553.79
Crit W.S. (ft)	2460.86	Flow Area (sq ft)		274.17	
E.G. Slope (ft/ft)	0.019637	Area (sq ft)		274.17	
Q Total (cfs)	1381.00	Flow (cfs)		1381.00	
Top Width (ft)	351.90	Top Width (ft)		351.90	
Vel Total (ft/s)	5.04	Avg. Vel. (ft/s)		5.04	
Max Chl Dpth (ft)	0.86	Hydr. Depth (ft)		0.78	
Conv. Total (cfs)	9855.0	Conv. (cfs)		9855.0	
Length Wtd. (ft)	1575.43	Wetted Per. (ft)		351.92	
Min Ch El (ft)	2460.00	Shear (lb/sq ft)		0.96	
Alpha	1.00	Stream Power (lb/ft s)		4.81	
Frctn Loss (ft)	18.01	Cum Volume (acre-ft)	118.72	1129.09	80.14
C & E Loss (ft)	0.05	Cum SA (acres)	182.82	997.07	157.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 8.838 Profile: PF 1

E.G. Elev (ft)	2441.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.		0.035	
W.S. Elev (ft)	2441.52	Reach Len. (ft)	1320.50	1472.66	1449.34
Crit W.S. (ft)	2441.21	Flow Area (sq ft)		369.06	
E.G. Slope (ft/ft)	0.007472	Area (sq ft)		369.06	
Q Total (cfs)	1381.00	Flow (cfs)		1381.00	
Top Width (ft)	358.43	Top Width (ft)		358.43	
Vel Total (ft/s)	3.74	Avg. Vel. (ft/s)		3.74	
Max Chl Dpth (ft)	1.52	Hydr. Depth (ft)		1.03	
Conv. Total (cfs)	15975.9	Conv. (cfs)		15975.9	
Length Wtd. (ft)	1472.59	Wetted Per. (ft)		358.45	
Min Ch El (ft)	2440.00	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		1.80	
Frctn Loss (ft)	15.71	Cum Volume (acre-ft)	118.72	1117.46	80.14
C & E Loss (ft)	0.00	Cum SA (acres)	182.82	984.23	157.01

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 8.560 Profile: PF 1

E.G. Elev (ft)	2426.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.035	0.035
W.S. Elev (ft)	2425.77	Reach Len. (ft)	1296.65	1824.90	1598.97
Crit W.S. (ft)	2425.71	Flow Area (sq ft)		334.38	4.95
E.G. Slope (ft/ft)	0.016453	Area (sq ft)		334.38	4.95
Q Total (cfs)	1381.00	Flow (cfs)		1372.96	8.04
Top Width (ft)	541.11	Top Width (ft)		510.73	30.38
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)		4.11	1.62
Max Chl Dpth (ft)	0.77	Hydr. Depth (ft)		0.65	0.16
Conv. Total (cfs)	10766.4	Conv. (cfs)		10703.7	62.7
Length Wtd. (ft)	1821.12	Wetted Per. (ft)		510.74	30.38
Min Ch El (ft)	2425.00	Shear (lb/sq ft)		0.67	0.17
Alpha	1.01	Stream Power (lb/ft s)		2.76	0.27
Frctn Loss (ft)	15.08	Cum Volume (acre-ft)	118.72	1105.57	80.06
C & E Loss (ft)	0.05	Cum SA (acres)	182.82	969.54	156.51

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 8.214 Profile: PF 1

E.G. Elev (ft)	2410.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.035	0.035
W.S. Elev (ft)	2410.81	Reach Len. (ft)	1555.34	1630.42	1587.53
Crit W.S. (ft)	2410.55	Flow Area (sq ft)		590.98	21.30
E.G. Slope (ft/ft)	0.004973	Area (sq ft)		590.98	21.30
Q Total (cfs)	1381.00	Flow (cfs)		1342.85	38.15
Top Width (ft)	939.86	Top Width (ft)		893.83	46.03
Vel Total (ft/s)	2.26	Avg. Vel. (ft/s)		2.27	1.79
Max Chl Dpth (ft)	0.81	Hydr. Depth (ft)		0.66	0.46
Conv. Total (cfs)	19582.9	Conv. (cfs)		19042.0	540.9
Length Wtd. (ft)	1629.83	Wetted Per. (ft)		893.83	46.04
Min Ch El (ft)	2410.00	Shear (lb/sq ft)		0.21	0.14
Alpha	1.00	Stream Power (lb/ft s)		0.47	0.26
Frctn Loss (ft)	15.03	Cum Volume (acre-ft)	118.72	1086.18	79.58
C & E Loss (ft)	0.02	Cum SA (acres)	182.82	940.12	155.10

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 7.905 Profile: PF 1

E.G. Elev (ft)	2395.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.035	
W.S. Elev (ft)	2395.58	Reach Len. (ft)	1376.12	1552.01	1602.08
Crit W.S. (ft)	2395.58	Flow Area (sq ft)		333.11	

Plan: Plan 01 Block6a T7-R9-S25A RS: 7.905 Profile: PF 1 (Continued)

E.G. Slope (ft/ft)	0.022648	Area (sq ft)		333.11	
Q Total (cfs)	1381.00	Flow (cfs)		1381.00	
Top Width (ft)	637.28	Top Width (ft)		637.28	
Vel Total (ft/s)	4.15	Avg. Vel. (ft/s)		4.15	
Max Chl Dpth (ft)	0.58	Hydr. Depth (ft)		0.52	
Conv. Total (cfs)	9176.6	Conv. (cfs)		9176.6	
Length Wtd. (ft)	1552.01	Wetted Per. (ft)		637.28	
Min Ch El (ft)	2395.00	Shear (lb/sq ft)		0.74	
Alpha	1.00	Stream Power (lb/ft s)		3.06	
Frctn Loss (ft)	13.14	Cum Volume (acre-ft)	118.72	1068.89	79.19
C & E Loss (ft)	0.04	Cum SA (acres)	182.82	911.46	154.27

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 7.611 Profile: PF 1

E.G. Elev (ft)	2381.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.035	
W.S. Elev (ft)	2381.38	Reach Len. (ft)	1574.53	1525.82	1372.31
Crit W.S. (ft)		Flow Area (sq ft)		463.87	
E.G. Slope (ft/ft)	0.004393	Area (sq ft)		463.87	
Q Total (cfs)	1381.00	Flow (cfs)		1381.00	
Top Width (ft)	426.22	Top Width (ft)		426.22	
Vel Total (ft/s)	2.98	Avg. Vel. (ft/s)		2.98	
Max Chl Dpth (ft)	1.38	Hydr. Depth (ft)		1.09	
Conv. Total (cfs)	20835.7	Conv. (cfs)		20835.7	
Length Wtd. (ft)	1525.82	Wetted Per. (ft)		426.24	
Min Ch El (ft)	2380.00	Shear (lb/sq ft)		0.30	
Alpha	1.00	Stream Power (lb/ft s)		0.89	
Frctn Loss (ft)	10.09	Cum Volume (acre-ft)	118.72	1054.69	79.19
C & E Loss (ft)	0.01	Cum SA (acres)	182.82	892.52	154.27

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 7.322 Profile: PF 1

E.G. Elev (ft)	2371.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.035	
W.S. Elev (ft)	2371.15	Reach Len. (ft)	1572.36	1587.36	1573.58
Crit W.S. (ft)	2370.97	Flow Area (sq ft)		333.21	
E.G. Slope (ft/ft)	0.011064	Area (sq ft)		333.21	
Q Total (cfs)	1381.00	Flow (cfs)		1381.00	

Plan: Plan 01 Block6a T7-R9-S25A RS: 7.322 Profile: PF 1 (Continued)

Top Width (ft)	372.66	Top Width (ft)		372.66	
Vel Total (ft/s)	4.14	Avg. Vel. (ft/s)		4.14	
Max Chl Dpth (ft)	1.15	Hydr. Depth (ft)		0.89	
Conv. Total (cfs)	13129.0	Conv. (cfs)		13129.0	
Length Wtd. (ft)	1587.36	Wetted Per. (ft)		372.68	
Min Ch El (ft)	2370.00	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		2.56	
Frctn Loss (ft)	12.86	Cum Volume (acre-ft)	118.72	1040.73	79.19
C & E Loss (ft)	0.03	Cum SA (acres)	182.82	878.52	154.27

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 7.022 Profile: PF 1

E.G. Elev (ft)	2358.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.		0.035	
W.S. Elev (ft)	2357.98	Reach Len. (ft)	1514.09	1608.18	1568.01
Crit W.S. (ft)		Flow Area (sq ft)		232.74	
E.G. Slope (ft/ft)	0.006188	Area (sq ft)		232.74	
Q Total (cfs)	1381.00	Flow (cfs)		1381.00	
Top Width (ft)	97.71	Top Width (ft)		97.71	
Vel Total (ft/s)	5.93	Avg. Vel. (ft/s)		5.93	
Max Chl Dpth (ft)	2.98	Hydr. Depth (ft)		2.38	
Conv. Total (cfs)	17556.2	Conv. (cfs)		17556.2	
Length Wtd. (ft)	1608.18	Wetted Per. (ft)		98.27	
Min Ch El (ft)	2355.00	Shear (lb/sq ft)		0.91	
Alpha	1.00	Stream Power (lb/ft s)		5.43	
Frctn Loss (ft)	15.41	Cum Volume (acre-ft)	118.72	1030.42	79.19
C & E Loss (ft)	0.01	Cum SA (acres)	182.82	869.95	154.27

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 6.717 Profile: PF 1

E.G. Elev (ft)	2343.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.		0.035	
W.S. Elev (ft)	2342.48	Reach Len. (ft)	1489.28	1507.17	1498.00
Crit W.S. (ft)	2342.48	Flow Area (sq ft)		217.47	
E.G. Slope (ft/ft)	0.016774	Area (sq ft)		217.47	
Q Total (cfs)	1381.00	Flow (cfs)		1381.00	
Top Width (ft)	173.89	Top Width (ft)		173.89	
Vel Total (ft/s)	6.35	Avg. Vel. (ft/s)		6.35	
Max Chl Dpth (ft)	2.48	Hydr. Depth (ft)		1.25	
Conv. Total (cfs)	10663.0	Conv. (cfs)		10663.0	
Length Wtd. (ft)	1507.17	Wetted Per. (ft)		175.22	
Min Ch El (ft)	2340.00	Shear (lb/sq ft)		1.30	
Alpha	1.00	Stream Power (lb/ft s)		8.25	
Frctn Loss (ft)	11.27	Cum Volume (acre-ft)	118.72	1022.11	79.19
C & E Loss (ft)	0.14	Cum SA (acres)	182.82	864.94	154.27

Errors Warnings and Notes

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

Errors Warnings and Notes (Continued)

	program selected the water surface that had the least amount of error between computed
	and assumed values.
Warning:	Divided flow computed for this cross-section.
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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 6.432 Profile: PF 1

E.G. Elev (ft)	2331.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.		0.035	
W.S. Elev (ft)	2331.46	Reach Len. (ft)	1654.71	1521.36	1347.13
Crit W.S. (ft)	2330.95	Flow Area (sq ft)		444.26	
E.G. Slope (ft/ft)	0.004212	Area (sq ft)		444.26	
Q Total (cfs)	1381.00	Flow (cfs)		1381.00	
Top Width (ft)	370.70	Top Width (ft)		370.70	
Vel Total (ft/s)	3.11	Avg. Vel. (ft/s)		3.11	
Max Chl Dpth (ft)	1.45	Hydr. Depth (ft)		1.20	
Conv. Total (cfs)	21279.3	Conv. (cfs)		21279.3	
Length Wtd. (ft)	1521.36	Wetted Per. (ft)		370.73	
Min Ch El (ft)	2330.00	Shear (lb/sq ft)		0.32	
Alpha	1.00	Stream Power (lb/ft s)		0.98	
Frctn Loss (ft)	12.34	Cum Volume (acre-ft)	118.72	1010.66	79.19
C & E Loss (ft)	0.01	Cum SA (acres)	182.82	855.52	154.27

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 6.143 Profile: PF 1

E.G. Elev (ft)	2319.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.035	
W.S. Elev (ft)	2318.96	Reach Len. (ft)	1561.65	1430.91	1242.96
Crit W.S. (ft)	2318.96	Flow Area (sq ft)		315.48	
E.G. Slope (ft/ft)	0.021609	Area (sq ft)		315.48	
Q Total (cfs)	1381.00	Flow (cfs)		1381.00	
Top Width (ft)	537.01	Top Width (ft)		537.01	
Vel Total (ft/s)	4.38	Avg. Vel. (ft/s)		4.38	
Max Chl Dpth (ft)	0.81	Hydr. Depth (ft)		0.59	
Conv. Total (cfs)	9394.6	Conv. (cfs)		9394.6	
Length Wtd. (ft)	1430.91	Wetted Per. (ft)		537.03	
Min Ch El (ft)	2318.15	Shear (lb/sq ft)		0.79	
Alpha	1.00	Stream Power (lb/ft s)		3.47	
Frctn Loss (ft)	6.61	Cum Volume (acre-ft)	118.72	997.39	79.19
C & E Loss (ft)	0.07	Cum SA (acres)	182.82	839.67	154.27

Errors Warnings and Notes

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

Errors Warnings and Notes (Continued)

	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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 5.872 Profile: PF 1

E.G. Elev (ft)	2306.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.035	
W.S. Elev (ft)	2306.86	Reach Len. (ft)	1428.05	1976.88	1977.33
Crit W.S. (ft)	2306.12	Flow Area (sq ft)		668.50	
E.G. Slope (ft/ft)	0.001956	Area (sq ft)		668.50	
Q Total (cfs)	1381.00	Flow (cfs)		1381.00	
Top Width (ft)	579.14	Top Width (ft)		579.14	
Vel Total (ft/s)	2.07	Avg. Vel. (ft/s)		2.07	
Max Chl Dpth (ft)	1.86	Hydr. Depth (ft)		1.15	
Conv. Total (cfs)	31229.4	Conv. (cfs)		31229.4	
Length Wtd. (ft)	1976.05	Wetted Per. (ft)		579.16	
Min Ch El (ft)	2305.00	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.29	
Frctn Loss (ft)	9.40	Cum Volume (acre-ft)	118.72	981.23	79.19
C & E Loss (ft)	0.01	Cum SA (acres)	182.82	821.33	154.27

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 5.498 Profile: PF 1

E.G. Elev (ft)	2297.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.035	0.035	
W.S. Elev (ft)	2297.31	Reach Len. (ft)	1562.42	1581.11	1530.63
Crit W.S. (ft)	2297.31	Flow Area (sq ft)	3.48	382.18	
E.G. Slope (ft/ft)	0.024562	Area (sq ft)	3.48	382.18	
Q Total (cfs)	1381.00	Flow (cfs)	4.16	1376.84	
Top Width (ft)	1004.99	Top Width (ft)	45.74	959.25	
Vel Total (ft/s)	3.58	Avg. Vel. (ft/s)	1.19	3.60	
Max Chl Dpth (ft)	0.83	Hydr. Depth (ft)	0.08	0.40	
Conv. Total (cfs)	8811.8	Conv. (cfs)	26.5	8785.3	
Length Wtd. (ft)	1581.08	Wetted Per. (ft)	45.74	959.25	
Min Ch El (ft)	2296.48	Shear (lb/sq ft)	0.12	0.61	
Alpha	1.01	Stream Power (lb/ft s)	0.14	2.20	
Frctn Loss (ft)	6.77	Cum Volume (acre-ft)	118.66	957.39	79.19
C & E Loss (ft)	0.05	Cum SA (acres)	182.07	786.43	154.27

Errors Warnings and Notes

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

Errors Warnings and Notes (Continued)

	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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 5.199 Profile: PF 1

E.G. Elev (ft)	2287.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.		0.035	
W.S. Elev (ft)	2287.62	Reach Len. (ft)	1744.94	1609.75	1564.48
Crit W.S. (ft)		Flow Area (sq ft)		913.11	
E.G. Slope (ft/ft)	0.001710	Area (sq ft)		913.11	
Q Total (cfs)	1381.00	Flow (cfs)		1381.00	
Top Width (ft)	1141.75	Top Width (ft)		1141.75	
Vel Total (ft/s)	1.51	Avg. Vel. (ft/s)		1.51	
Max Chl Dpth (ft)	1.06	Hydr. Depth (ft)		0.80	
Conv. Total (cfs)	33400.4	Conv. (cfs)		33400.4	
Length Wtd. (ft)	1609.75	Wetted Per. (ft)		1141.75	
Min Ch El (ft)	2286.56	Shear (lb/sq ft)		0.09	
Alpha	1.00	Stream Power (lb/ft s)		0.13	
Frctn Loss (ft)	10.74	Cum Volume (acre-ft)	118.60	933.88	79.19
C & E Loss (ft)	0.03	Cum SA (acres)	181.25	748.30	154.27

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 4.894 Profile: PF 1

E.G. Elev (ft)	2276.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.		0.035	
W.S. Elev (ft)	2276.56	Reach Len. (ft)	1461.44	1478.10	1458.76
Crit W.S. (ft)	2276.56	Flow Area (sq ft)		682.78	
E.G. Slope (ft/ft)	0.020637	Area (sq ft)		682.78	
Q Total (cfs)	3124.00	Flow (cfs)		3124.00	
Top Width (ft)	1050.78	Top Width (ft)		1050.78	
Vel Total (ft/s)	4.58	Avg. Vel. (ft/s)		4.58	
Max Chl Dpth (ft)	0.90	Hydr. Depth (ft)		0.65	
Conv. Total (cfs)	21746.3	Conv. (cfs)		21746.3	
Length Wtd. (ft)	1478.08	Wetted Per. (ft)		1050.78	
Min Ch El (ft)	2275.66	Shear (lb/sq ft)		0.84	
Alpha	1.00	Stream Power (lb/ft s)		3.83	
Frctn Loss (ft)	9.28	Cum Volume (acre-ft)	118.60	904.39	79.19
C & E Loss (ft)	0.07	Cum SA (acres)	181.25	707.78	154.27

Errors Warnings and Notes

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

Errors Warnings and Notes (Continued)

	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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 4.614 Profile: PF 1

E.G. Elev (ft)	2267.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.035	0.035	0.035
W.S. Elev (ft)	2267.09	Reach Len. (ft)	1553.31	1574.84	1628.28
Crit W.S. (ft)	2266.57	Flow Area (sq ft)	12.10	1270.31	0.23
E.G. Slope (ft/ft)	0.002994	Area (sq ft)	12.10	1270.31	0.23
Q Total (cfs)	3124.00	Flow (cfs)	8.17	3115.78	0.05
Top Width (ft)	1256.35	Top Width (ft)	77.14	1170.80	8.41
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)	0.68	2.45	0.21
Max Chl Dpth (ft)	1.51	Hydr. Depth (ft)	0.16	1.08	0.03
Conv. Total (cfs)	57095.0	Conv. (cfs)	149.4	56944.7	0.9
Length Wtd. (ft)	1575.19	Wetted Per. (ft)	77.14	1170.81	8.41
Min Ch El (ft)	2265.58	Shear (lb/sq ft)	0.03	0.20	0.01
Alpha	1.01	Stream Power (lb/ft s)	0.02	0.50	0.00
Frctn Loss (ft)	9.45	Cum Volume (acre-ft)	118.39	871.26	79.19
C & E Loss (ft)	0.02	Cum SA (acres)	179.95	670.09	154.13

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 4.315 Profile: PF 1

E.G. Elev (ft)	2257.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	0.035	0.035	0.035
W.S. Elev (ft)	2257.46	Reach Len. (ft)	1371.63	1466.58	1382.03
Crit W.S. (ft)	2257.44	Flow Area (sq ft)	43.43	695.98	40.83
E.G. Slope (ft/ft)	0.017536	Area (sq ft)	43.43	695.98	40.83
Q Total (cfs)	3124.00	Flow (cfs)	112.28	2921.81	89.91
Top Width (ft)	1384.35	Top Width (ft)	139.24	1078.56	166.55
Vel Total (ft/s)	4.00	Avg. Vel. (ft/s)	2.59	4.20	2.20
Max Chl Dpth (ft)	0.90	Hydr. Depth (ft)	0.31	0.65	0.25
Conv. Total (cfs)	23591.2	Conv. (cfs)	847.9	22064.4	679.0
Length Wtd. (ft)	1444.27	Wetted Per. (ft)	139.24	1078.56	166.55
Min Ch El (ft)	2256.56	Shear (lb/sq ft)	0.34	0.71	0.27
Alpha	1.05	Stream Power (lb/ft s)	0.88	2.97	0.59
Frctn Loss (ft)	7.01	Cum Volume (acre-ft)	117.40	835.71	78.42
C & E Loss (ft)	0.06	Cum SA (acres)	176.10	629.43	150.86

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 4.037 Profile: PF 1

E.G. Elev (ft)	2250.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.035	0.035	0.035
W.S. Elev (ft)	2250.60	Reach Len. (ft)	1523.71	1677.55	1908.36
Crit W.S. (ft)	2250.09	Flow Area (sq ft)	276.58	841.03	437.57
E.G. Slope (ft/ft)	0.002233	Area (sq ft)	276.58	841.03	437.57
Q Total (cfs)	3124.00	Flow (cfs)	451.88	1746.94	925.18
Top Width (ft)	1624.15	Top Width (ft)	376.28	798.20	449.67
Vel Total (ft/s)	2.01	Avg. Vel. (ft/s)	1.63	2.08	2.11
Max Chl Dpth (ft)	4.39	Hydr. Depth (ft)	0.74	1.05	0.97
Conv. Total (cfs)	66115.6	Conv. (cfs)	9563.5	36971.7	19580.4
Length Wtd. (ft)	1698.40	Wetted Per. (ft)	376.28	798.20	450.22
Min Ch El (ft)	2248.89	Shear (lb/sq ft)	0.10	0.15	0.14
Alpha	1.02	Stream Power (lb/ft s)	0.17	0.31	0.29
Frctn Loss (ft)	8.21	Cum Volume (acre-ft)	112.36	809.84	70.83
C & E Loss (ft)	0.03	Cum SA (acres)	167.98	597.84	141.08

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 3.720 Profile: PF 1

E.G. Elev (ft)	2242.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.035	0.035	
W.S. Elev (ft)	2242.06	Reach Len. (ft)	1387.58	1556.22	1542.00
Crit W.S. (ft)	2242.06	Flow Area (sq ft)	44.45	621.66	
E.G. Slope (ft/ft)	0.017326	Area (sq ft)	44.45	621.66	
Q Total (cfs)	3124.00	Flow (cfs)	89.50	3034.50	
Top Width (ft)	967.09	Top Width (ft)	205.57	761.51	
Vel Total (ft/s)	4.69	Avg. Vel. (ft/s)	2.01	4.88	
Max Chl Dpth (ft)	1.25	Hydr. Depth (ft)	0.22	0.82	
Conv. Total (cfs)	23733.3	Conv. (cfs)	679.9	23053.4	
Length Wtd. (ft)	1545.88	Wetted Per. (ft)	205.58	761.52	
Min Ch El (ft)	2240.81	Shear (lb/sq ft)	0.23	0.88	
Alpha	1.06	Stream Power (lb/ft s)	0.47	4.31	
Frctn Loss (ft)	3.98	Cum Volume (acre-ft)	106.75	781.67	61.24
C & E Loss (ft)	0.08	Cum SA (acres)	157.80	567.80	131.23

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 3.425 Profile: PF 1

E.G. Elev (ft)	2238.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.035	0.035	
W.S. Elev (ft)	2238.13	Reach Len. (ft)	2050.98	2203.62	1994.21
Crit W.S. (ft)	2237.01	Flow Area (sq ft)	323.00	2160.61	
E.G. Slope (ft/ft)	0.001458	Area (sq ft)	323.00	2160.61	
Q Total (cfs)	5845.00	Flow (cfs)	460.23	5384.77	
Top Width (ft)	1525.57	Top Width (ft)	392.02	1133.56	
Vel Total (ft/s)	2.35	Avg. Vel. (ft/s)	1.42	2.49	
Max Chl Dpth (ft)	2.69	Hydr. Depth (ft)	0.82	1.91	
Conv. Total (cfs)	153064.8	Conv. (cfs)	12052.1	141012.7	
Length Wtd. (ft)	2197.44	Wetted Per. (ft)	392.02	1133.57	
Min Ch El (ft)	2235.43	Shear (lb/sq ft)	0.08	0.17	
Alpha	1.06	Stream Power (lb/ft s)	0.11	0.43	
Frctn Loss (ft)	7.79	Cum Volume (acre-ft)	100.90	731.97	61.24
C & E Loss (ft)	0.03	Cum SA (acres)	148.28	533.95	131.23

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 3.008 Profile: PF 1

E.G. Elev (ft)	2230.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.035	0.035	0.035
W.S. Elev (ft)	2230.00	Reach Len. (ft)	1661.43	1795.22	1442.95
Crit W.S. (ft)	2230.00	Flow Area (sq ft)	5.82	1157.72	15.67
E.G. Slope (ft/ft)	0.018255	Area (sq ft)	5.82	1157.72	15.67
Q Total (cfs)	5845.00	Flow (cfs)	4.90	5833.92	6.18
Top Width (ft)	2379.33	Top Width (ft)	103.55	1406.04	869.74
Vel Total (ft/s)	4.96	Avg. Vel. (ft/s)	0.84	5.04	0.39
Max Chl Dpth (ft)	1.23	Hydr. Depth (ft)	0.06	0.82	0.02
Conv. Total (cfs)	43260.4	Conv. (cfs)	36.3	43178.4	45.7
Length Wtd. (ft)	1794.98	Wetted Per. (ft)	103.55	1406.04	869.74
Min Ch El (ft)	2228.77	Shear (lb/sq ft)	0.06	0.94	0.02
Alpha	1.03	Stream Power (lb/ft s)	0.05	4.73	0.01
Frctn Loss (ft)	4.47	Cum Volume (acre-ft)	93.16	648.04	60.89
C & E Loss (ft)	0.10	Cum SA (acres)	136.62	469.72	111.32

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 2.668 Profile: PF 1

E.G. Elev (ft)	2223.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.035	
W.S. Elev (ft)	2223.84	Reach Len. (ft)	1508.78	1558.95	1516.26
Crit W.S. (ft)	2222.17	Flow Area (sq ft)		2812.33	
E.G. Slope (ft/ft)	0.000936	Area (sq ft)		2812.33	
Q Total (cfs)	5845.00	Flow (cfs)		5845.00	
Top Width (ft)	1389.76	Top Width (ft)		1389.76	
Vel Total (ft/s)	2.08	Avg. Vel. (ft/s)		2.08	
Max Chl Dpth (ft)	3.58	Hydr. Depth (ft)		2.02	
Conv. Total (cfs)	191008.7	Conv. (cfs)		191008.7	
Length Wtd. (ft)	1557.71	Wetted Per. (ft)		1389.88	
Min Ch El (ft)	2220.26	Shear (lb/sq ft)		0.12	
Alpha	1.00	Stream Power (lb/ft s)		0.25	
Frctn Loss (ft)	2.90	Cum Volume (acre-ft)	93.05	566.23	60.63
C & E Loss (ft)	0.01	Cum SA (acres)	134.64	412.11	96.92

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 2.373 Profile: PF 1

E.G. Elev (ft)	2220.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.		0.035	0.035
W.S. Elev (ft)	2220.81	Reach Len. (ft)	2098.10	1804.52	2101.04
Crit W.S. (ft)	2220.44	Flow Area (sq ft)		1582.86	151.45
E.G. Slope (ft/ft)	0.005362	Area (sq ft)		1582.86	151.45
Q Total (cfs)	5845.00	Flow (cfs)		5505.09	339.91
Top Width (ft)	1584.48	Top Width (ft)		1337.59	246.89
Vel Total (ft/s)	3.37	Avg. Vel. (ft/s)		3.48	2.24
Max Chl Dpth (ft)	1.63	Hydr. Depth (ft)		1.18	0.61
Conv. Total (cfs)	79824.4	Conv. (cfs)		75182.3	4642.2
Length Wtd. (ft)	1863.76	Wetted Per. (ft)		1337.60	246.89
Min Ch El (ft)	2219.18	Shear (lb/sq ft)		0.40	0.21
Alpha	1.03	Stream Power (lb/ft s)		1.38	0.46
Frctn Loss (ft)	5.25	Cum Volume (acre-ft)	93.05	487.58	57.99
C & E Loss (ft)	0.04	Cum SA (acres)	134.64	363.30	92.62

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 2.031 Profile: PF 1

E.G. Elev (ft)	2215.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.035	0.035	0.035
W.S. Elev (ft)	2215.64	Reach Len. (ft)	1489.89	1523.34	1554.08
Crit W.S. (ft)	2215.08	Flow Area (sq ft)	841.53	1687.94	556.14
E.G. Slope (ft/ft)	0.001734	Area (sq ft)	841.53	1687.94	556.14
Q Total (cfs)	5845.00	Flow (cfs)	1257.28	3836.83	750.89

Plan: Plan 01 Block6a T7-R9-S25A RS: 2.031 Profile: PF 1 (Continued)

Top Width (ft)	3073.46	Top Width (ft)	1082.38	1157.81	833.27
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)	1.49	2.27	1.35
Max Chl Dpth (ft)	5.64	Hydr. Depth (ft)	0.78	1.46	0.67
Conv. Total (cfs)	140359.6	Conv. (cfs)	30191.7	92136.2	18031.7
Length Wtd. (ft)	1519.21	Wetted Per. (ft)	1083.27	1157.82	833.28
Min Ch El (ft)	2213.74	Shear (lb/sq ft)	0.08	0.16	0.07
Alpha	1.14	Stream Power (lb/ft s)	0.13	0.36	0.10
Frctn Loss (ft)	6.18	Cum Volume (acre-ft)	72.78	419.83	40.93
C & E Loss (ft)	0.04	Cum SA (acres)	108.58	311.61	66.57

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 1.742 Profile: PF 1

E.G. Elev (ft)	2209.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.49	Wt. n-Val.	0.035	0.035	
W.S. Elev (ft)	2209.00	Reach Len. (ft)	1779.52	1639.58	1674.47
Crit W.S. (ft)	2209.00	Flow Area (sq ft)	148.36	894.95	
E.G. Slope (ft/ft)	0.018507	Area (sq ft)	148.36	894.95	
Q Total (cfs)	5845.00	Flow (cfs)	877.23	4967.77	
Top Width (ft)	1093.02	Top Width (ft)	143.19	949.82	
Vel Total (ft/s)	5.60	Avg. Vel. (ft/s)	5.91	5.55	
Max Chl Dpth (ft)	1.65	Hydr. Depth (ft)	1.04	0.94	
Conv. Total (cfs)	42965.2	Conv. (cfs)	6448.3	36516.9	
Length Wtd. (ft)	1655.29	Wetted Per. (ft)	143.21	949.83	
Min Ch El (ft)	2207.35	Shear (lb/sq ft)	1.20	1.09	
Alpha	1.00	Stream Power (lb/ft s)	7.08	6.04	
Frctn Loss (ft)	4.73	Cum Volume (acre-ft)	55.85	374.67	31.01
C & E Loss (ft)	0.12	Cum SA (acres)	87.62	274.76	51.70

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 1.432 Profile: PF 1

E.G. Elev (ft)	2202.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.035	0.035	
W.S. Elev (ft)	2202.77	Reach Len. (ft)	1086.51	1382.09	1379.44
Crit W.S. (ft)		Flow Area (sq ft)	209.97	2216.33	
E.G. Slope (ft/ft)	0.001106	Area (sq ft)	209.97	2216.33	
Q Total (cfs)	5845.00	Flow (cfs)	434.85	5410.15	
Top Width (ft)	1092.74	Top Width (ft)	118.12	974.62	
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)	2.07	2.44	

Plan: Plan 01 Block6a T7-R9-S25A RS: 1.432 Profile: PF 1 (Continued)

Max Chl Dpth (ft)	2.77	Hydr. Depth (ft)	1.78	2.27	
Conv. Total (cfs)	175792.3	Conv. (cfs)	13078.3	162714.0	
Length Wtd. (ft)	1363.40	Wetted Per. (ft)	118.16	974.63	
Min Ch El (ft)	2200.00	Shear (lb/sq ft)	0.12	0.16	
Alpha	1.01	Stream Power (lb/ft s)	0.25	0.38	
Frctn Loss (ft)	2.49	Cum Volume (acre-ft)	48.53	316.12	31.01
C & E Loss (ft)	0.00	Cum SA (acres)	82.28	238.54	51.70

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 1.170 Profile: PF 1

E.G. Elev (ft)	2200.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.035	0.035	0.035
W.S. Elev (ft)	2200.26	Reach Len. (ft)	1489.30	1664.08	1600.78
Crit W.S. (ft)	2199.76	Flow Area (sq ft)	286.57	1726.97	382.93
E.G. Slope (ft/ft)	0.003561	Area (sq ft)	286.57	1726.97	382.93
Q Total (cfs)	5845.00	Flow (cfs)	296.42	4682.37	866.21
Top Width (ft)	3112.09	Top Width (ft)	1098.42	1559.81	453.86
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)	1.03	2.71	2.26
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.26	1.11	0.84
Conv. Total (cfs)	97949.8	Conv. (cfs)	4967.4	78466.6	14515.8
Length Wtd. (ft)	1653.01	Wetted Per. (ft)	1098.42	1559.81	453.86
Min Ch El (ft)	2198.73	Shear (lb/sq ft)	0.06	0.25	0.19
Alpha	1.13	Stream Power (lb/ft s)	0.06	0.67	0.42
Frctn Loss (ft)	4.59	Cum Volume (acre-ft)	42.34	253.56	24.94
C & E Loss (ft)	0.01	Cum SA (acres)	67.11	198.34	44.52

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 0.855 Profile: PF 1

E.G. Elev (ft)	2195.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.035	0.035	0.035
W.S. Elev (ft)	2195.69	Reach Len. (ft)	1794.96	1651.52	1647.32
Crit W.S. (ft)	2195.08	Flow Area (sq ft)	10.45	2285.09	252.17
E.G. Slope (ft/ft)	0.002222	Area (sq ft)	10.45	2285.09	252.17
Q Total (cfs)	5845.00	Flow (cfs)	5.80	5495.07	344.14
Top Width (ft)	2253.97	Top Width (ft)	71.65	1734.56	447.76
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)	0.55	2.40	1.36
Max Chl Dpth (ft)	1.83	Hydr. Depth (ft)	0.15	1.32	0.56
Conv. Total (cfs)	124008.0	Conv. (cfs)	123.0	116583.8	7301.2
Length Wtd. (ft)	1678.54	Wetted Per. (ft)	71.65	1734.56	447.76
Min Ch El (ft)	2193.86	Shear (lb/sq ft)	0.02	0.18	0.08
Alpha	1.05	Stream Power (lb/ft s)	0.01	0.44	0.11
Frctn Loss (ft)	4.76	Cum Volume (acre-ft)	37.26	176.93	13.27
C & E Loss (ft)	0.00	Cum SA (acres)	47.11	135.41	27.95

Errors Warnings and Notes

Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

Errors Warnings and Notes (Continued)

	section. This may indicate the need for additional cross sections.

Plan: Plan 01 Block6a T7-R9-S25A RS: 0.542 Profile: PF 1

E.G. Elev (ft)	2191.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.035	0.035	0.035
W.S. Elev (ft)	2190.93	Reach Len. (ft)	1509.96	1171.04	1289.54
Crit W.S. (ft)	2190.56	Flow Area (sq ft)	976.54	1412.72	97.18
E.G. Slope (ft/ft)	0.003752	Area (sq ft)	976.54	1412.72	97.18
Q Total (cfs)	5845.00	Flow (cfs)	2210.08	3493.43	141.49
Top Width (ft)	2958.34	Top Width (ft)	1202.83	1523.56	231.95
Vel Total (ft/s)	2.35	Avg. Vel. (ft/s)	2.26	2.47	1.46
Max Chl Dpth (ft)	0.93	Hydr. Depth (ft)	0.81	0.93	0.42
Conv. Total (cfs)	95422.1	Conv. (cfs)	36080.6	57031.7	2309.9
Length Wtd. (ft)	1238.11	Wetted Per. (ft)	1202.83	1523.56	231.96
Min Ch El (ft)	2190.00	Shear (lb/sq ft)	0.19	0.22	0.10
Alpha	1.02	Stream Power (lb/ft s)	0.43	0.54	0.14
Frctn Loss (ft)	2.89	Cum Volume (acre-ft)	16.93	106.83	6.67
C & E Loss (ft)	0.00	Cum SA (acres)	20.85	73.65	15.10

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 0.320 Profile: PF 1

E.G. Elev (ft)	2188.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.035	0.035
W.S. Elev (ft)	2188.02	Reach Len. (ft)	922.18	1606.74	1651.71
Crit W.S. (ft)	2186.97	Flow Area (sq ft)		2186.51	154.84
E.G. Slope (ft/ft)	0.001591	Area (sq ft)		2186.51	154.84
Q Total (cfs)	5845.00	Flow (cfs)		5690.95	154.05
Top Width (ft)	1491.32	Top Width (ft)		1147.46	343.85
Vel Total (ft/s)	2.50	Avg. Vel. (ft/s)		2.60	0.99
Max Chl Dpth (ft)	2.90	Hydr. Depth (ft)		1.91	0.45
Conv. Total (cfs)	146537.1	Conv. (cfs)		142675.0	3862.2
Length Wtd. (ft)	1607.33	Wetted Per. (ft)		1147.49	343.86
Min Ch El (ft)	2185.12	Shear (lb/sq ft)		0.19	0.04
Alpha	1.06	Stream Power (lb/ft s)		0.49	0.04
Frctn Loss (ft)	6.03	Cum Volume (acre-ft)		58.45	2.94
C & E Loss (ft)	0.04	Cum SA (acres)		37.74	6.58

Errors Warnings and Notes

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.

Plan: Plan 01 Block6a T7-R9-S25A RS: 0.016 Profile: PF 1

E.G. Elev (ft)	2182.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.		0.035	0.035
W.S. Elev (ft)	2181.50	Reach Len. (ft)			
Crit W.S. (ft)	2181.50	Flow Area (sq ft)		982.62	0.02

Plan: Plan 01 Block6a T7-R9-S25A RS: 0.016 Profile: PF 1 (Continued)

E.G. Slope (ft/ft)	0.017440	Area (sq ft)		982.62	0.02
Q Total (cfs)	5845.00	Flow (cfs)		5845.00	0.00
Top Width (ft)	902.10	Top Width (ft)		899.09	3.01
Vel Total (ft/s)	5.95	Avg. Vel. (ft/s)		5.95	0.21
Max Chl Dpth (ft)	1.49	Hydr. Depth (ft)		1.09	0.01
Conv. Total (cfs)	44260.2	Conv. (cfs)		44260.1	0.0
Length Wtd. (ft)		Wetted Per. (ft)		899.16	3.01
Min Ch El (ft)	2180.00	Shear (lb/sq ft)		1.19	0.01
Alpha	1.00	Stream Power (lb/ft s)		7.08	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Errors Warnings and Notes

Warning:	User specified water surface is not possible for the specified flow regime. The program used
	critical depth as the starting water surface.

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6a\Hec-Ras\T7R9S25A.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6a\Hec-Ras\T7R9S25A.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6a\Hec-Ras\T7R9S25A.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6a\Hec-Ras\T7R9S25A.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6a\Hec-Ras\T7R9S25A.nt
Selected profiles: PF 1
Date: 12/9/2003
Time: 12:38:15 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block6a,T7-R9-S25A						
9.137		0.035	0.035	0.035	0.1	0.3
8.838		0.035	0.035	0.035	0.1	0.3
8.56		0.035	0.035	0.035	0.1	0.3
8.214		0.035	0.035	0.035	0.1	0.3
7.905		0.035	0.035	0.035	0.1	0.3
7.611		0.035	0.035	0.035	0.1	0.3
7.322		0.035	0.035	0.035	0.1	0.3
7.022		0.035	0.035	0.035	0.1	0.3
6.717		0.035	0.035	0.035	0.1	0.3
6.432		0.035	0.035	0.035	0.1	0.3
6.143		0.035	0.035	0.035	0.1	0.3
5.872		0.035	0.035	0.035	0.1	0.3
5.498		0.035	0.035	0.035	0.1	0.3
5.199		0.035	0.035	0.035	0.1	0.3
4.894		0.035	0.035	0.035	0.1	0.3
4.614		0.035	0.035	0.035	0.1	0.3
4.315		0.035	0.035	0.035	0.1	0.3
4.037		0.035	0.035	0.035	0.1	0.3
3.72		0.035	0.035	0.035	0.1	0.3
3.425		0.035	0.035	0.035	0.1	0.3
3.008		0.035	0.035	0.035	0.1	0.3
2.668		0.035	0.035	0.035	0.1	0.3
2.373		0.035	0.035	0.035	0.1	0.3
2.031		0.035	0.035	0.035	0.1	0.3
1.742		0.035	0.035	0.035	0.1	0.3
1.432		0.035	0.035	0.035	0.1	0.3
1.17		0.035	0.035	0.035	0.1	0.3
.855		0.035	0.035	0.035	0.1	0.3
.542		0.035	0.035	0.035	0.1	0.3
.32		0.035	0.035	0.035	0.1	0.3
.016		0.035	0.035	0.035	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.035	0.035
Right Overbank n Value:	0.035	0.035
Channel n Value:	0.035	0.035
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6a\Hec-Ras\T7R9S25A.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6a\Hec-Ras\T7R9S25A.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6a\Hec-Ras\T7R9S25A.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6a\Hec-Ras\T7R9S25A.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6a\Hec-Ras\T7R9S25A.xs
Selected profiles: PF 1
Date: 12/9/2003
Time: 12:38:16 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Block6a,T7-R9-S25A						
9.137	1547.31	1575.43	1553.79	351.9	1381	C
8.838	1320.5	1472.66	1449.34	358.43	1381	
8.56	1296.65	1824.9	1598.97	541.11	1381	
8.214	1555.34	1630.42	1587.53	939.86	1381	
7.905	1376.12	1552.01	1602.08	637.28	1381	C
7.611	1574.53	1525.82	1372.31	426.22	1381	
7.322	1572.36	1587.36	1573.58	372.66	1381	
7.022	1514.09	1608.18	1568.01	97.71	1381	
6.717	1489.28	1507.17	1498	173.89	1381	D,C
6.432	1654.71	1521.36	1347.13	370.7	1381	
6.143	1561.65	1430.91	1242.96	537.01	1381	C
5.872	1428.05	1976.88	1977.33	579.14	1381	
5.498	1562.42	1581.11	1530.63	1004.99	1381	C
5.199	1744.94	1609.75	1564.48	1141.75	1381	
4.894	1461.44	1478.1	1458.76	1050.78	3124	C
4.614	1553.31	1574.84	1628.28	1256.35	3124	
4.315	1371.63	1466.58	1382.03	1384.35	3124	
4.037	1523.71	1677.55	1908.36	1624.15	3124	D
3.72	1387.58	1556.22	1542	967.09	3124	C
3.425	2050.98	2203.62	1994.21	1525.57	5845	
3.008	1661.43	1795.22	1442.95	2379.33	5845	C
2.668	1508.78	1558.95	1516.26	1389.76	5845	D
2.373	2098.1	1804.52	2101.04	1584.48	5845	
2.031	1489.89	1523.34	1554.08	3073.46	5845	
1.742	1779.52	1639.58	1674.47	1093.02	5845	C
1.432	1086.51	1382.09	1379.44	1092.74	5845	
1.17	1489.3	1664.08	1600.78	3112.09	5845	
0.855	1794.96	1651.52	1647.32	2253.97	5845	
0.542	1509.96	1171.04	1289.54	2958.34	5845	
0.32	922.18	1606.74	1651.71	1491.32	5845	
0.016	731.26	83.26	170.66	902.1	5845	C

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 2.373
XS DT 01 Both right and left overbank distances are longer than the channel distance.

RS: 1.742
XS DT 01 Both right and left overbank distances are longer than the channel distance.

```
RS:       0.542
XS DT 01 Both right and left overbank distances are
         longer than the channel distance.

RS:       0.016
XS DT 01 Both right and left overbank distances are
         longer than the channel distance.


SPACING CHECK
-------------


INEFFECTIVE FLOW CHECK
----------------------


DISCHARGE CHECK
---------------


LOCATION CHECK
--------------

RS:       8.214
XS LC 01 Lenchl Up/TopwdthAct Dn = 2.56
         MaxChlDpth Up/MaxChlDpth Dn = 1.40
         TopwdthAct Up/TopwdthAct Dn = 1.47
         This cross section is located too far upstream from the
         critical depth cross section.

RS:       4.037
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.73
         MaxChlDpth Up/MaxChlDpth Dn = 3.51
         TopwdthAct Up/TopwdthAct Dn = 1.68
         This cross section is located too far upstream from the
         critical depth cross section.

RS:       2.031
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.39
         MaxChlDpth Up/MaxChlDpth Dn = 3.42
         TopwdthAct Up/TopwdthAct Dn = 2.81
         This cross section is located too far upstream from the
         critical depth cross section.

RS:       0.32
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.78
         MaxChlDpth Up/MaxChlDpth Dn = 1.95
         TopwdthAct Up/TopwdthAct Dn = 1.65
         This cross section is located too far upstream from the
         critical depth cross section.


BOUNDARY CONDITION CHECK
------------------------

XS BC 02 The name of the stream is Block6a,T7-R9-S25A
         Known WS = 2180.25 is specified as the downstream boundary
         for profile PF 1

---END---
```

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

Explanation:
Cross sections were cut in order to take in channel geometry.

DISCHARGE CHECK

Warning:
Constant discharge used for the reach.

Explanation:
The discharge was determined from the regression equations for the sub basin. The Flood Control District of Maricopa County also approved the peak discharge values.

LOCATION CHECK

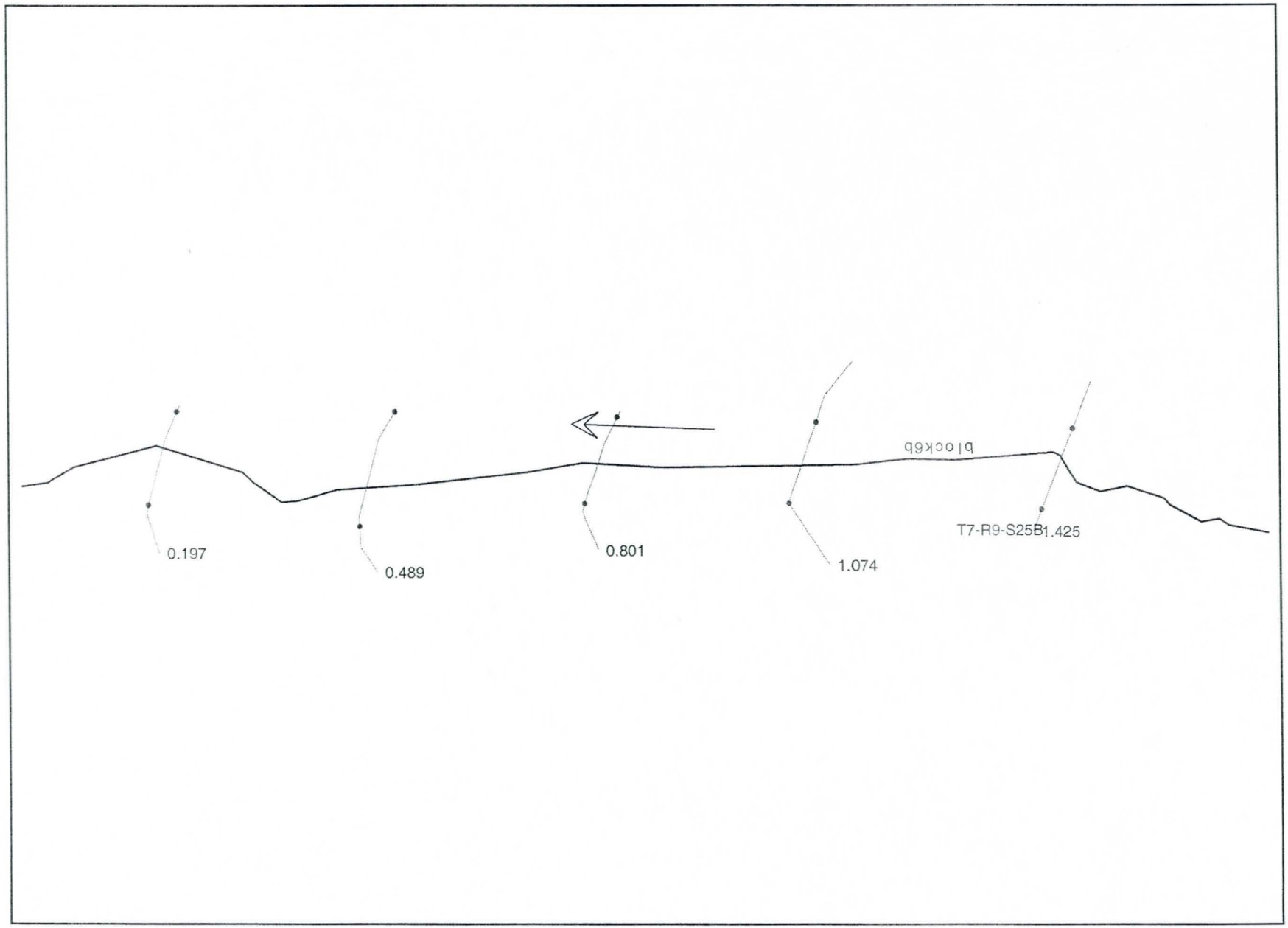
Non-detailed study; cross-sections located 2000-3000 feet apart.

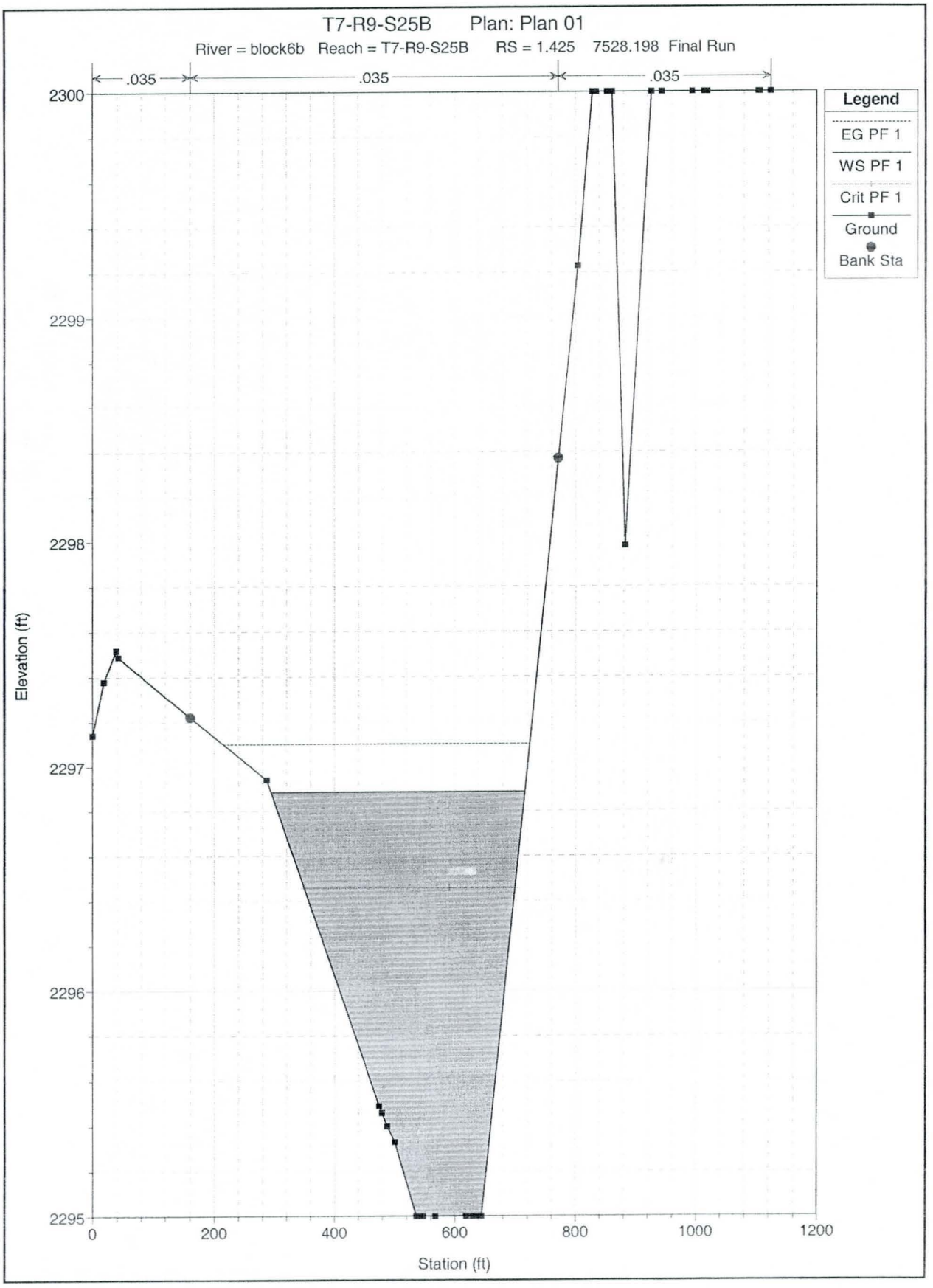
BOUNDARY CONDITION CHECK

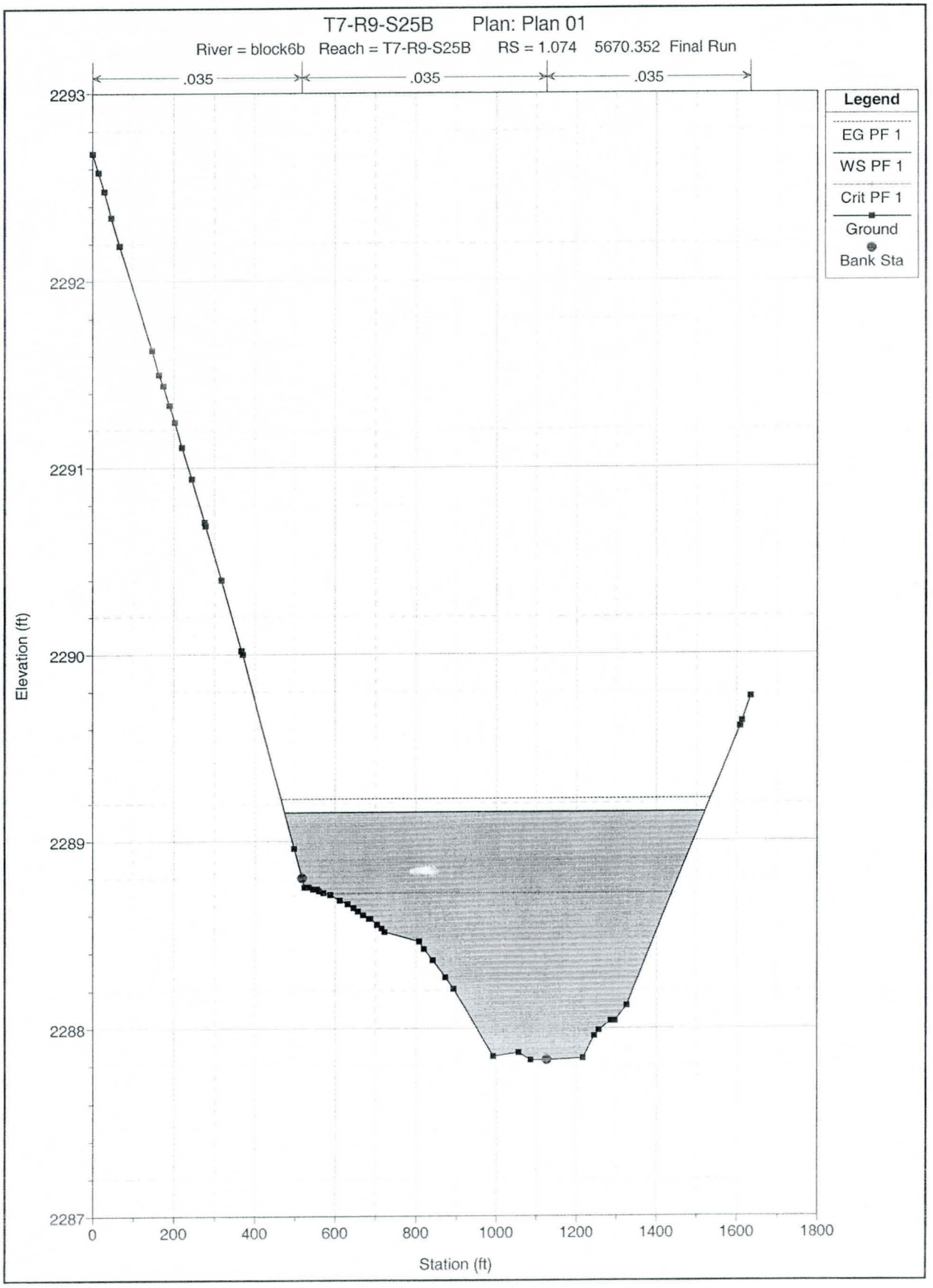
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

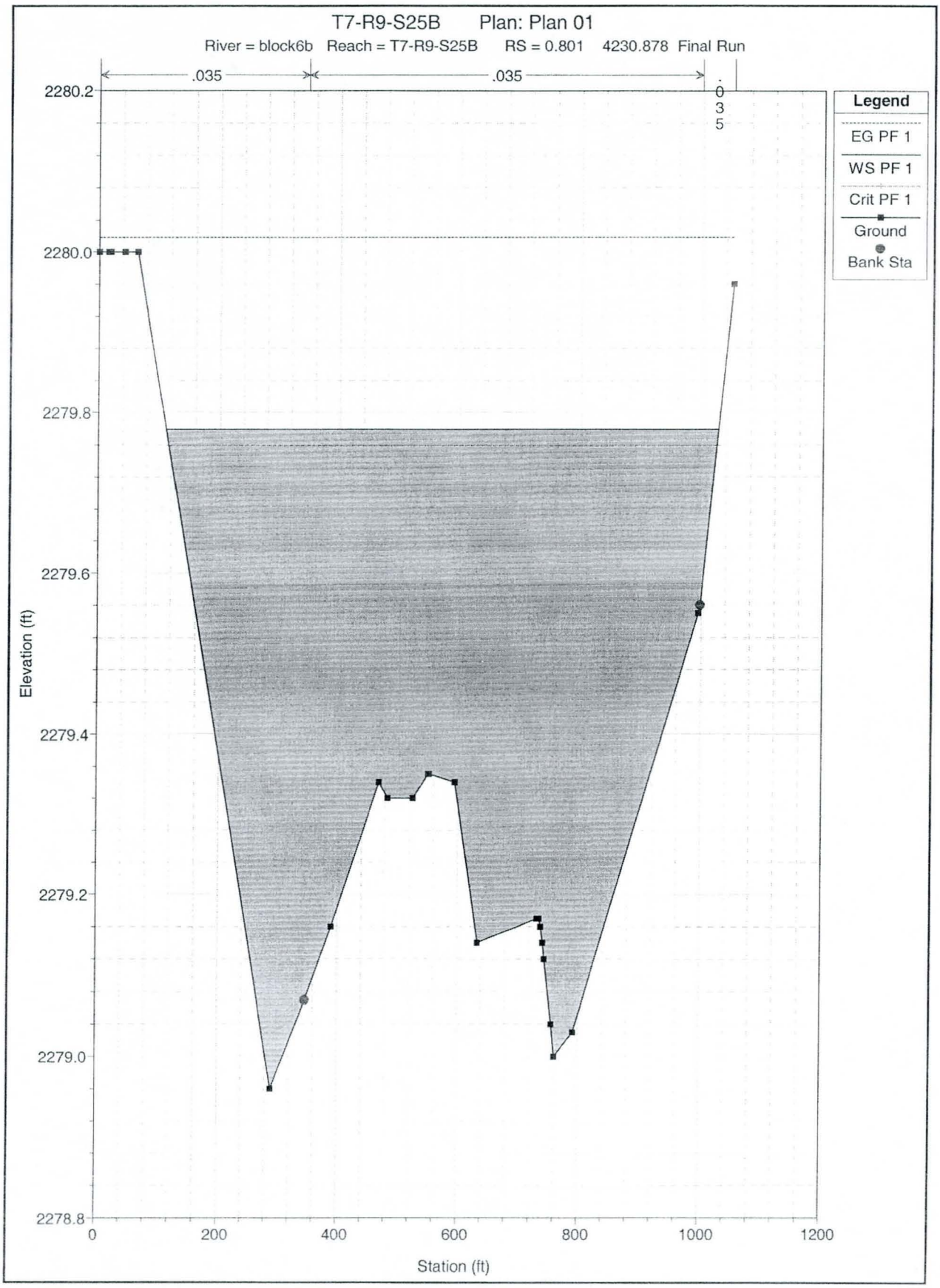
HEC-RAS Plan: Plan 01 River: block6b Reach: T7-R9-S25B Profile: PF 1

Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R9-S25B	1.425	1846.00	2296.89	2296.46	3.71	422.12	1.89	0.60	293.77	715.89
T7-R9-S25B	1.074	1846.00	2289.16	2288.72	2.11	1047.89	1.33	0.40	474.26	1522.16
T7-R9-S25B	0.801	1846.00	2279.78	2279.76	3.99	915.33	0.82	0.96	112.00	1027.33
T7-R9-S25B	0.489	1846.00	2269.54	2269.10	2.12	1082.01	1.40	0.40	80.40	1162.41
T7-R9-S25B	0.197	1846.00	2259.57	2259.57	4.31	844.27	0.83	0.98	152.09	996.36


block6b
0.197
0.489
0.801
1.074
T7-R9-S25B1.425


T7-R9-S25B Plan: Plan 01
River = block6b Reach = T7-R9-S25B RS = 1.425 7528.198 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2300
2299
2298
2297
2296
2295
Elevation (ft)
0
200
400
600
800
1000
1200
Station (ft)


T7-R9-S25B Plan: Plan 01
River = block6b Reach = T7-R9-S25B RS = 1.074 5670.352 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2293
2292
2291
2290
2289
2288
2287
Elevation (ft)
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)


T7-R9-S25B Plan: Plan 01
River = block6b Reach = T7-R9-S25B RS = 0.801 4230.878 Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2280.2
2280.0
2279.8
2279.6
2279.4
2279.2
2279.0
2278.8
Elevation (ft)
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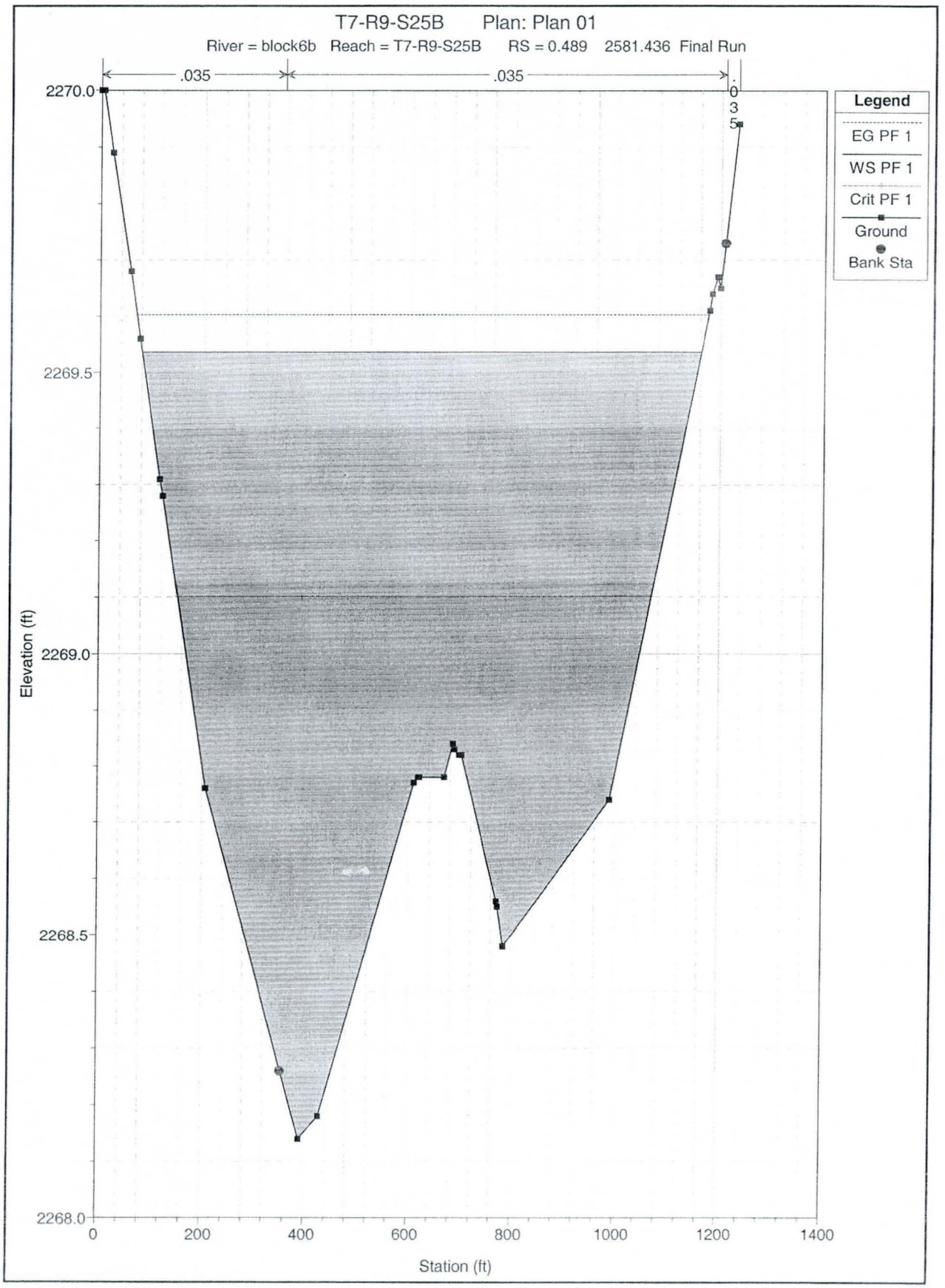
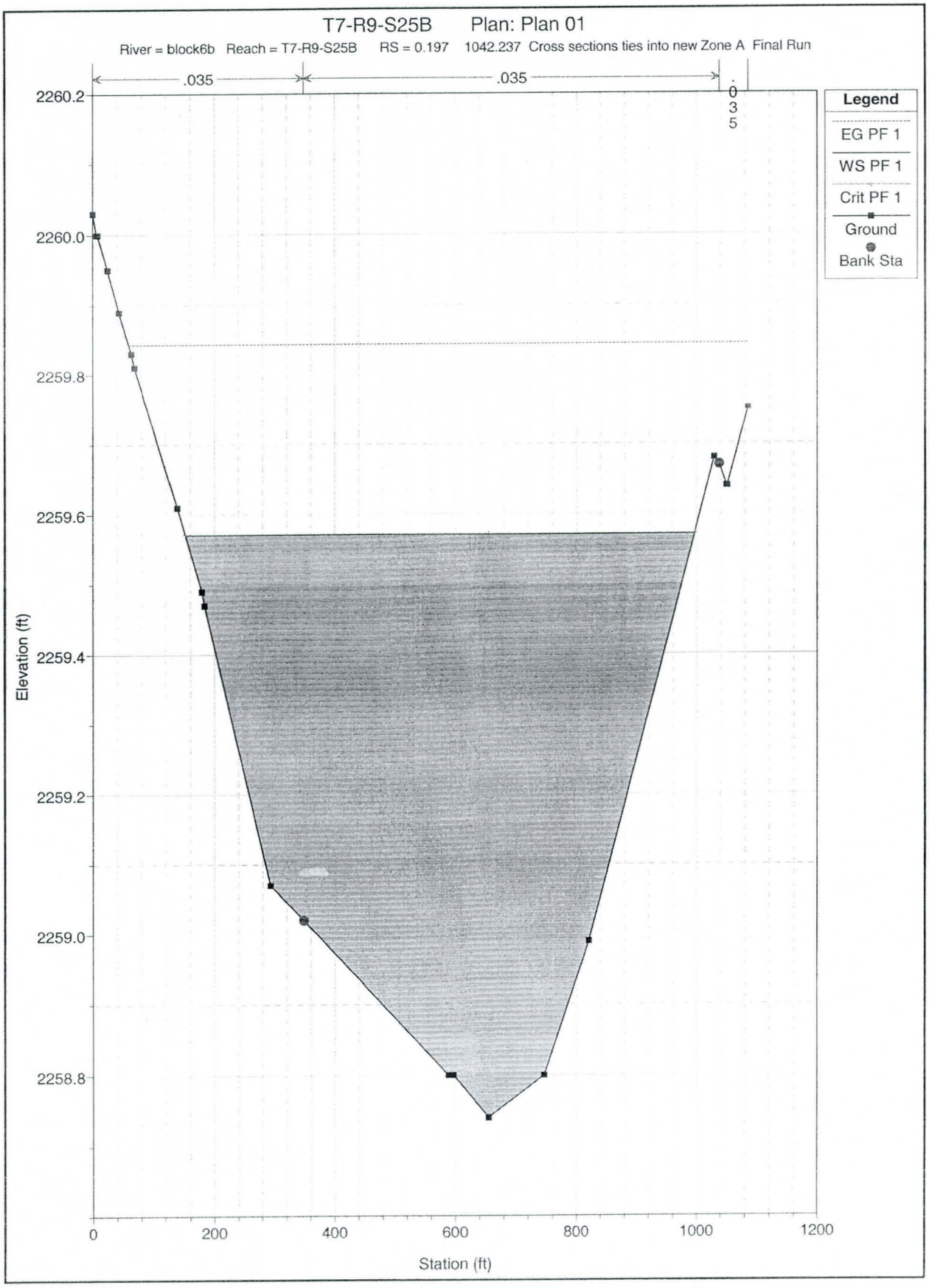
200
400
600
800
1000
1200
Station (ft)


T7-R9-S25B Plan: Plan 01
River = block6b Reach = T7-R9-S25B RS = 0.489 2581.436 Final Run
.035
.035
.035
2270.0
2269.5
2269.0
2268.5
2268.0
Elevation (ft)
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta


T7-R9-S25B Plan: Plan 01
River = block6b Reach = T7-R9-S25B RS = 0.197 1042.237 Cross sections ties into new Zone A Final Run
.035
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2260.2
2260.0
2259.8
2259.6
2259.4
2259.2
2259.0
2258.8
Elevation (ft)
0
200
400
600
800
1000
1200
Station (ft)

Plan: Plan 01 block6b T7-R9-S25B RS: 1.425 Profile: PF 1

E.G. Elev (ft)	2297.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.035	
W.S. Elev (ft)	2296.89	Reach Len. (ft)	1631.45	1857.85	1830.39
Crit W.S. (ft)	2296.46	Flow Area (sq ft)		497.73	
E.G. Slope (ft/ft)	0.006127	Area (sq ft)		497.73	
Q Total (cfs)	1846.00	Flow (cfs)		1846.00	
Top Width (ft)	422.12	Top Width (ft)		422.12	
Vel Total (ft/s)	3.71	Avg. Vel. (ft/s)		3.71	
Max Chl Dpth (ft)	1.89	Hydr. Depth (ft)		1.18	
Conv. Total (cfs)	23583.2	Conv. (cfs)		23583.2	
Length Wtd. (ft)	1851.91	Wetted Per. (ft)		422.15	
Min Ch El (ft)	2295.00	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		1.67	
Frctn Loss (ft)	7.83	Cum Volume (acre-ft)	12.66	74.79	13.05
C & E Loss (ft)	0.04	Cum SA (acres)	23.11	96.15	15.75

Errors Warnings and Notes

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.

Plan: Plan 01 block6b T7-R9-S25B RS: 1.074 Profile: PF 1

E.G. Elev (ft)	2289.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.035	0.035	0.035
W.S. Elev (ft)	2289.16	Reach Len. (ft)	1494.36	1439.47	1415.70
Crit W.S. (ft)	2288.72	Flow Area (sq ft)	7.79	515.05	347.32
E.G. Slope (ft/ft)	0.003094	Area (sq ft)	7.79	515.05	347.32
Q Total (cfs)	1846.00	Flow (cfs)	5.82	1088.96	751.22
Top Width (ft)	1047.89	Top Width (ft)	43.78	607.92	396.20
Vel Total (ft/s)	2.12	Avg. Vel. (ft/s)	0.75	2.11	2.16
Max Chl Dpth (ft)	1.33	Hydr. Depth (ft)	0.18	0.85	0.88
Conv. Total (cfs)	33189.4	Conv. (cfs)	104.7	19578.5	13506.2
Length Wtd. (ft)	1441.18	Wetted Per. (ft)	43.78	607.92	396.20
Min Ch El (ft)	2287.83	Shear (lb/sq ft)	0.03	0.16	0.17
Alpha	1.01	Stream Power (lb/ft s)	0.03	0.35	0.37
Frctn Loss (ft)	9.19	Cum Volume (acre-ft)	12.52	53.19	5.75
C & E Loss (ft)	0.02	Cum SA (acres)	22.29	74.19	7.43

Errors Warnings and Notes

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.

Plan: Plan 01 block6b T7-R9-S25B RS: 0.801 Profile: PF 1

E.G. Elev (ft)	2280.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.035	0.035	0.035
W.S. Elev (ft)	2279.78	Reach Len. (ft)	1615.74	1649.44	1579.90
Crit W.S. (ft)	2279.76	Flow Area (sq ft)	116.20	352.49	3.14
E.G. Slope (ft/ft)	0.020008	Area (sq ft)	116.20	352.49	3.14
Q Total (cfs)	1846.00	Flow (cfs)	436.51	1405.17	4.32
Top Width (ft)	915.33	Top Width (ft)	234.87	651.71	28.75
Vel Total (ft/s)	3.91	Avg. Vel. (ft/s)	3.76	3.99	1.37
Max Chl Dpth (ft)	0.82	Hydr. Depth (ft)	0.49	0.54	0.11

Plan: Plan 01 block6b T7-R9-S25B RS: 0.801 Profile: PF 1 (Continued)

Conv. Total (cfs)	13050.5	Conv. (cfs)	3086.0	9934.0	30.5
Length Wtd. (ft)	1641.90	Wetted Per. (ft)	234.87	651.71	28.75
Min Ch El (ft)	2279.00	Shear (lb/sq ft)	0.62	0.68	0.14
Alpha	1.01	Stream Power (lb/ft s)	2.32	2.69	0.19
Frctn Loss (ft)	10.36	Cum Volume (acre-ft)	10.39	38.86	0.06
C & E Loss (ft)	0.05	Cum SA (acres)	17.51	53.38	0.52

Errors Warnings and Notes

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.

Plan: Plan 01 block6b T7-R9-S25B RS: 0.489 Profile: PF 1

E.G. Elev (ft)	2269.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.035	0.035	
W.S. Elev (ft)	2269.54	Reach Len. (ft)	1497.77	1539.20	1529.59
Crit W.S. (ft)	2269.10	Flow Area (sq ft)	199.89	692.87	
E.G. Slope (ft/ft)	0.003050	Area (sq ft)	199.89	692.87	
Q Total (cfs)	1846.00	Flow (cfs)	380.18	1465.82	
Top Width (ft)	1082.01	Top Width (ft)	273.59	808.42	
Vel Total (ft/s)	2.07	Avg. Vel. (ft/s)	1.90	2.12	
Max Chl Dpth (ft)	1.40	Hydr. Depth (ft)	0.73	0.86	
Conv. Total (cfs)	33425.2	Conv. (cfs)	6883.8	26541.4	
Length Wtd. (ft)	1532.89	Wetted Per. (ft)	273.59	808.43	
Min Ch El (ft)	2268.14	Shear (lb/sq ft)	0.14	0.16	
Alpha	1.01	Stream Power (lb/ft s)	0.26	0.35	
Frctn Loss (ft)	9.74	Cum Volume (acre-ft)	4.53	19.07	
C & E Loss (ft)	0.02	Cum SA (acres)	8.08	25.73	

Errors Warnings and Notes

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.

Plan: Plan 01 block6b T7-R9-S25B RS: 0.197 Profile: PF 1

E.G. Elev (ft)	2259.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.	0.035	0.035	
W.S. Elev (ft)	2259.57	Reach Len. (ft)			
Crit W.S. (ft)	2259.57	Flow Area (sq ft)	63.60	386.44	
E.G. Slope (ft/ft)	0.020483	Area (sq ft)	63.60	386.44	
Q Total (cfs)	1846.00	Flow (cfs)	182.29	1663.71	
Top Width (ft)	844.27	Top Width (ft)	196.33	647.94	
Vel Total (ft/s)	4.10	Avg. Vel. (ft/s)	2.87	4.31	
Max Chl Dpth (ft)	0.83	Hydr. Depth (ft)	0.32	0.60	
Conv. Total (cfs)	12898.4	Conv. (cfs)	1273.7	11624.7	
Length Wtd. (ft)		Wetted Per. (ft)	196.33	647.94	
Min Ch El (ft)	2258.74	Shear (lb/sq ft)	0.41	0.76	
Alpha	1.04	Stream Power (lb/ft s)	1.19	3.28	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6b\Hec-Ras\T7R9S25B.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6b\Hec-Ras\T7R9S25B.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6b\Hec-Ras\T7R9S25B.g02
Flow File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6b\Hec-Ras\T7R9S25B.f02
Report File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6b\Hec-Ras\T7R9S25B.nt
Selected profiles: PF 1
Date: 12/9/2003
Time: 3:02:03 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
block6b,T7-R9-S25B						
1.425		0.035	0.035	0.035	0.1	0.3
1.074		0.035	0.035	0.035	0.1	0.3
.801		0.035	0.035	0.035	0.1	0.3
.489		0.035	0.035	0.035	0.1	0.3
.197		0.035	0.035	0.035	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.035	0.035
Right Overbank n Value:	0.035	0.035
Channel n Value:	0.035	0.035
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6b\Hec-Ras\T7R9S25B.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6b\Hec-Ras\T7R9S25B.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6b\Hec-Ras\T7R9S25B.g02
Flow File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6b\Hec-Ras\T7R9S25B.f02
Report File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6b\Hec-Ras\T7R9S25B.xs
Selected profiles: PF 1
Date: 12/9/2003
Time: 3:02:03 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
block6b,T7-R9-S25B						
1.425	1631.45	1857.85	1830.39	422.12	1846	
1.074	1494.36	1439.47	1415.7	1047.89	1846	
0.801	1615.74	1649.44	1579.9	915.33	1846	

```
 0.489    1497.77   1539.2    1529.59   1082.01        1846
 0.197    704.6     1042.24   1279.85   844.27         1846     C
---------------------------------------------------------------------------
B=blocked obstruction      XS SC 05
C=critial depth            XS SC 03
D=divided flow             XS SC 01
E=cross section extended   XS SC 02
K=known water-surface      XS SC 04


DISTANCE CHECK
----------------


SPACING CHECK
--------------


INEFFECTIVE FLOW CHECK
-----------------------


DISCHARGE CHECK
----------------

XS DC 02 Constant dicharge used for the block6b,T7-R9-S25B


LOCATION CHECK
---------------

RS:      0.489
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.82
         MaxChlDpth Up/MaxChlDpth Dn = 1.69
         TopwdthAct Up/TopwdthAct Dn = 1.28
         This cross section is located too far upstream from the
         critical depth cross section.


BOUNDARY CONDITION CHECK
-------------------------

XS BC 02 The name of the stream is block6b,T7-R9-S25B
         Known WS = 2257.67 is specified as the downstream boundary
         for profile PF 1

---END---
```

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

DISCHARGE CHECK

Warning:
Constant discharge used for the reach.

Explanation:
The discharge was determined from the regression equations for the sub basin. The Flood Control District of Maricopa County also approved the peak discharge values.

LOCATION CHECK

Non-detailed study; cross-sections located 2000-3000 feet apart.

BOUNDARY CONDITION CHECK

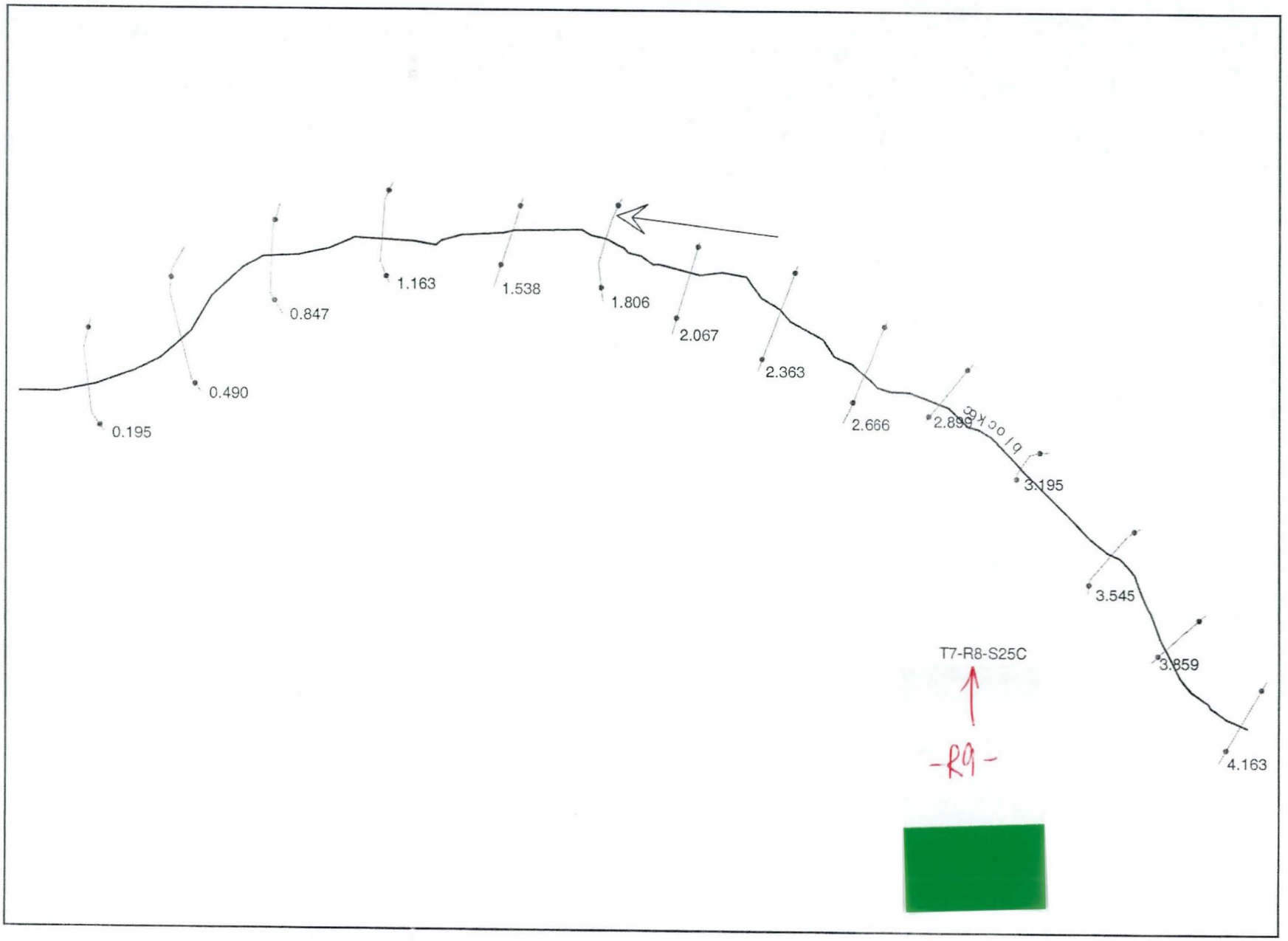
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

HEC-RAS Plan: Block 6c4 Pl River: block6c Reach: T7-R8-S25C Profile: PF 1

Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R8-S25C	4.163	2658.00	2395.15	2394.79	3.74	784.29	2.46	0.69	213.99	998.28
T7-R8-S25C	3.859	2658.00	2381.13	2381.10	4.61	828.93	1.13	0.92	203.12	1032.05
T7-R8-S25C	3.545	2658.00	2368.44	2368.18	3.43	867.33	1.62	0.63	101.29	968.62
T7-R8-S25C	3.195	2658.00	2354.18	2354.14	5.17	596.91	1.37	0.93	86.39	683.30
T7-R8-S25C	2.899	2658.00	2341.76	2341.45	4.08	585.95	1.76	0.68	204.19	790.14
T7-R8-S25C	2.666	2658.00	2331.22	2331.20	5.19	578.84	1.22	0.97	504.95	1083.79
T7-R8-S25C	2.363	2658.00	2321.38	2320.94	3.07	837.41	2.12	0.53	363.41	1200.82
T7-R8-S25C	2.067	3271.00	2311.78	2311.68	4.52	1062.95	1.78	0.85	7.47	1070.42
T7-R8-S25C	1.806	3271.00	2301.64		4.17	663.77	1.64	0.67	426.41	1090.18
T7-R8-S25C	1.538	3271.00	2291.66		5.68	416.08	1.66	0.85	804.83	1220.91
T7-R8-S25C	1.163	3271.00	2282.91	2282.42	2.60	1411.21	1.58	0.46	122.43	1533.64
T7-R8-S25C	0.847	3271.00	2274.74	2274.67	3.83	1476.61	0.83	0.82	107.42	1584.03
T7-R8-S25C	0.490	3271.00	2267.95	2267.48	2.02	2070.48	1.35	0.37	127.16	2197.64
T7-R8-S25C	0.195	3271.00	2261.22	2261.22	4.14	1567.42	0.73	0.99	0.00	1567.42

↑

SHOULD BE
-R9-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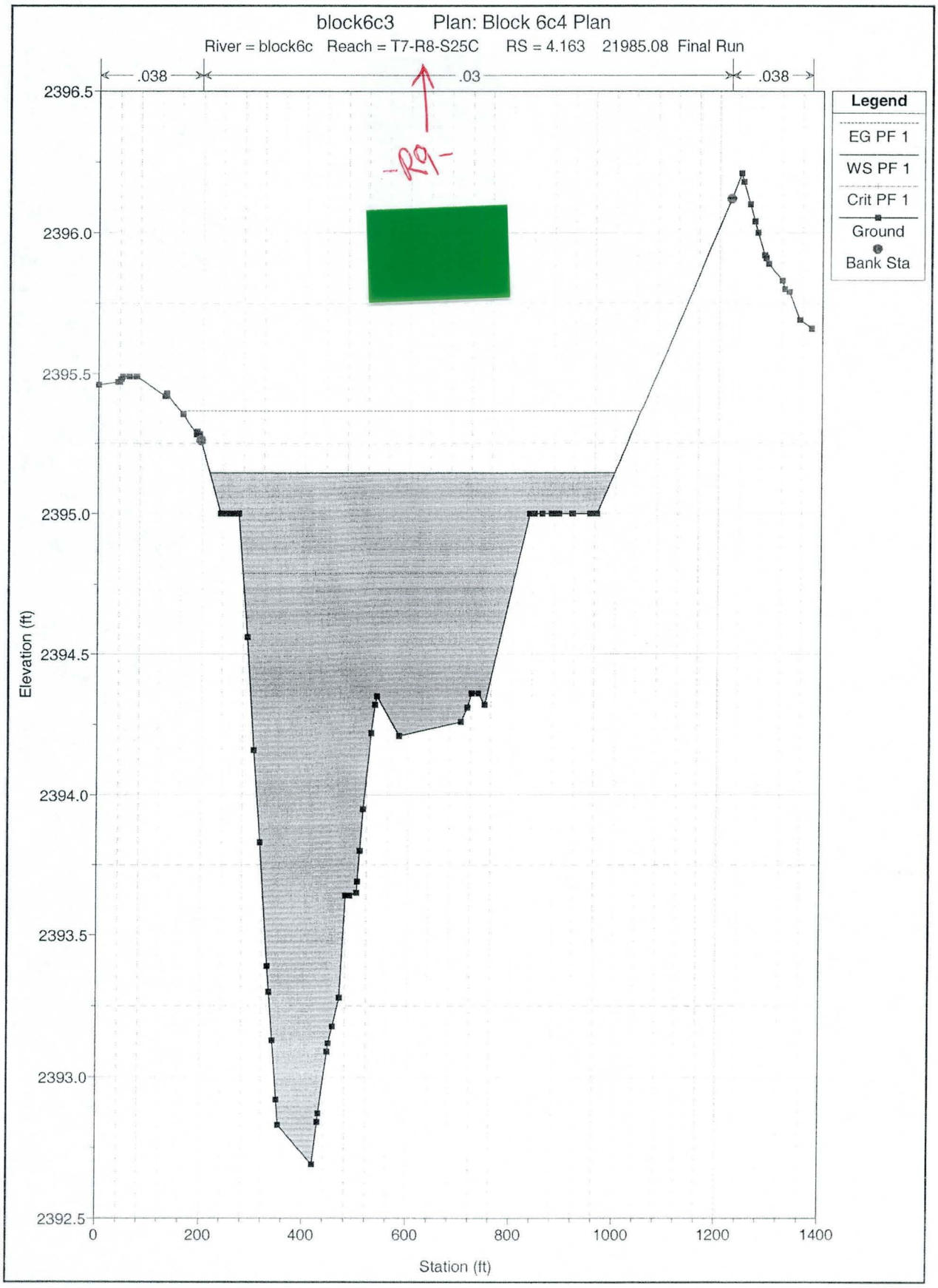
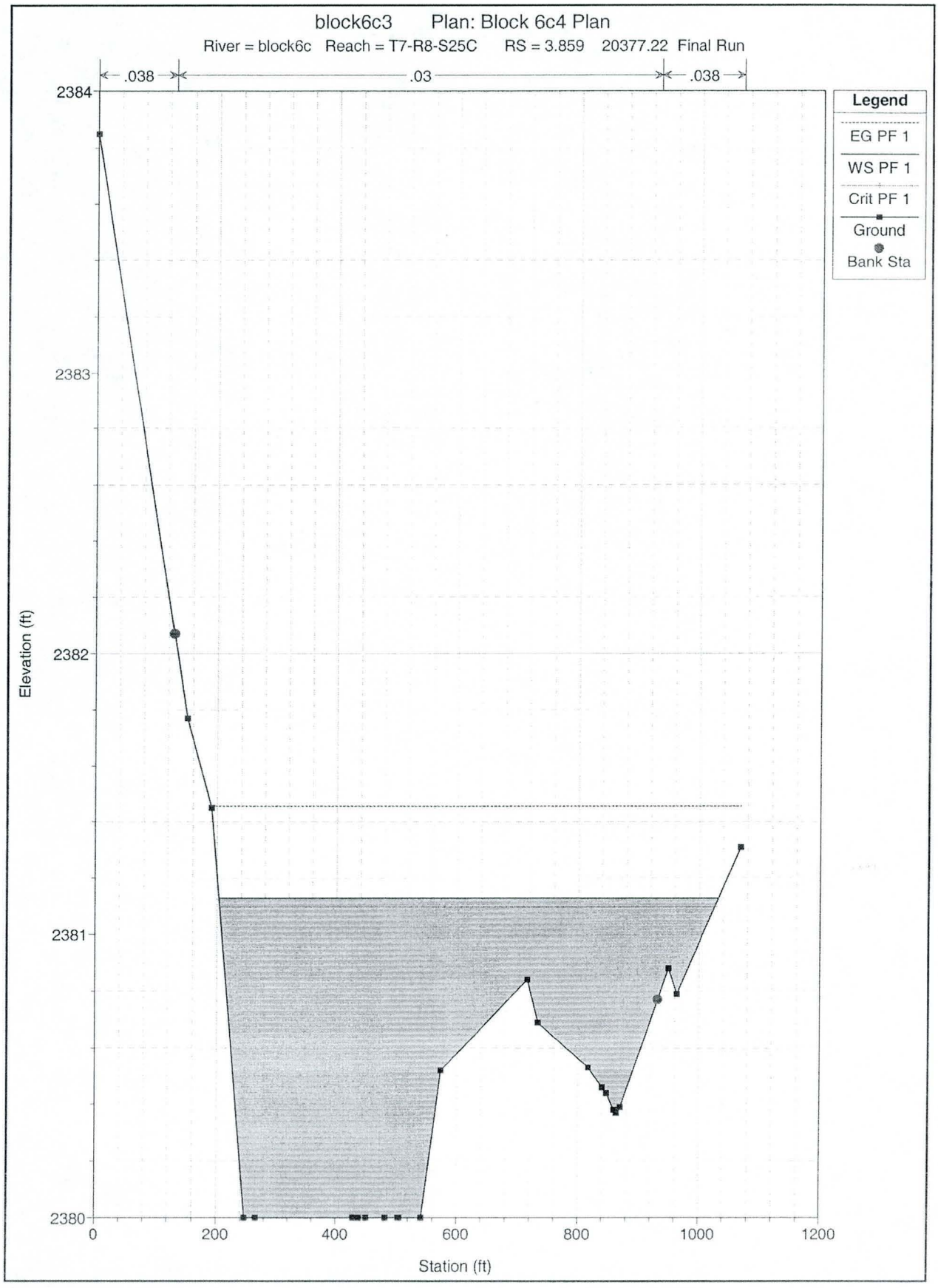
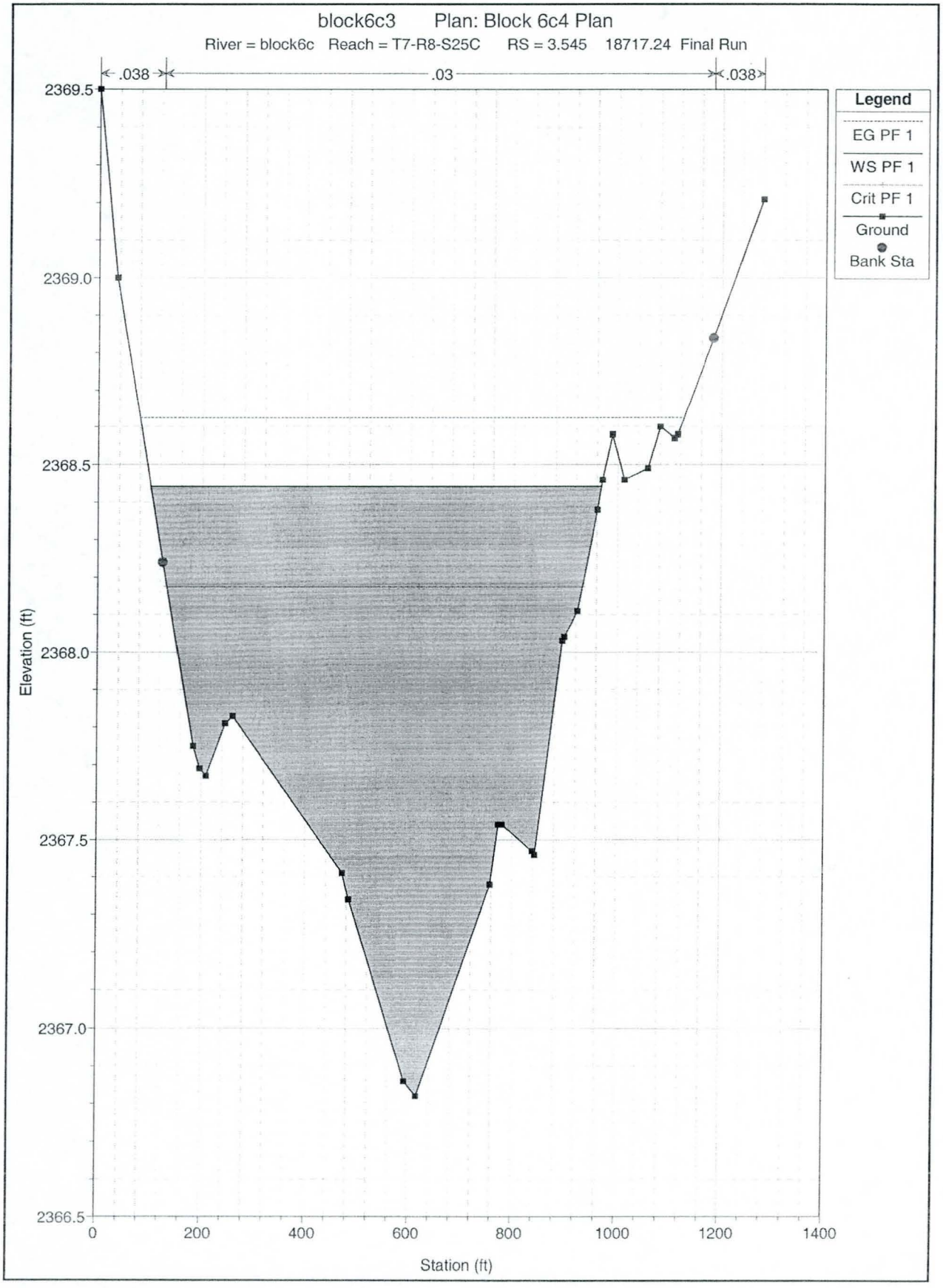
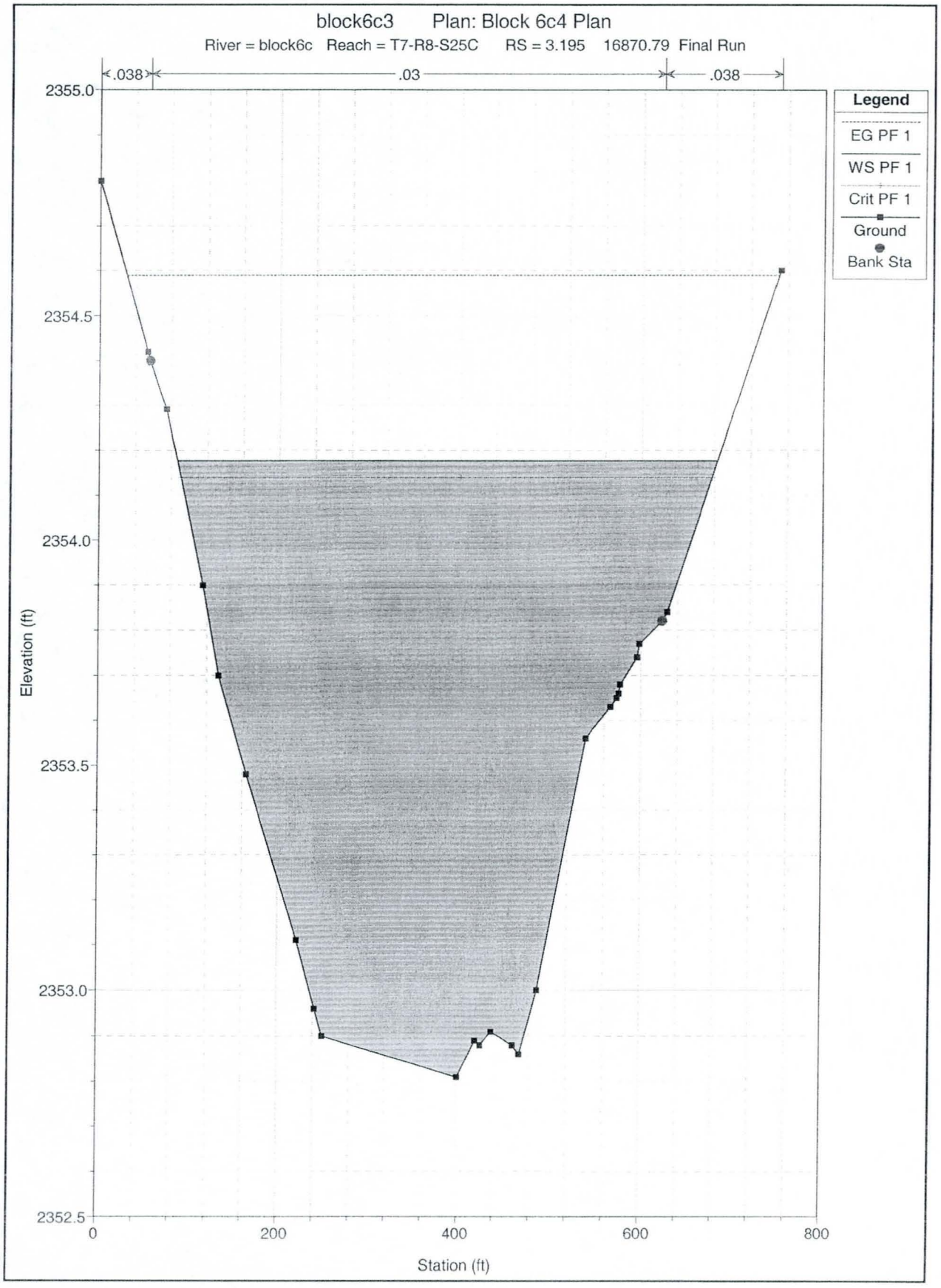
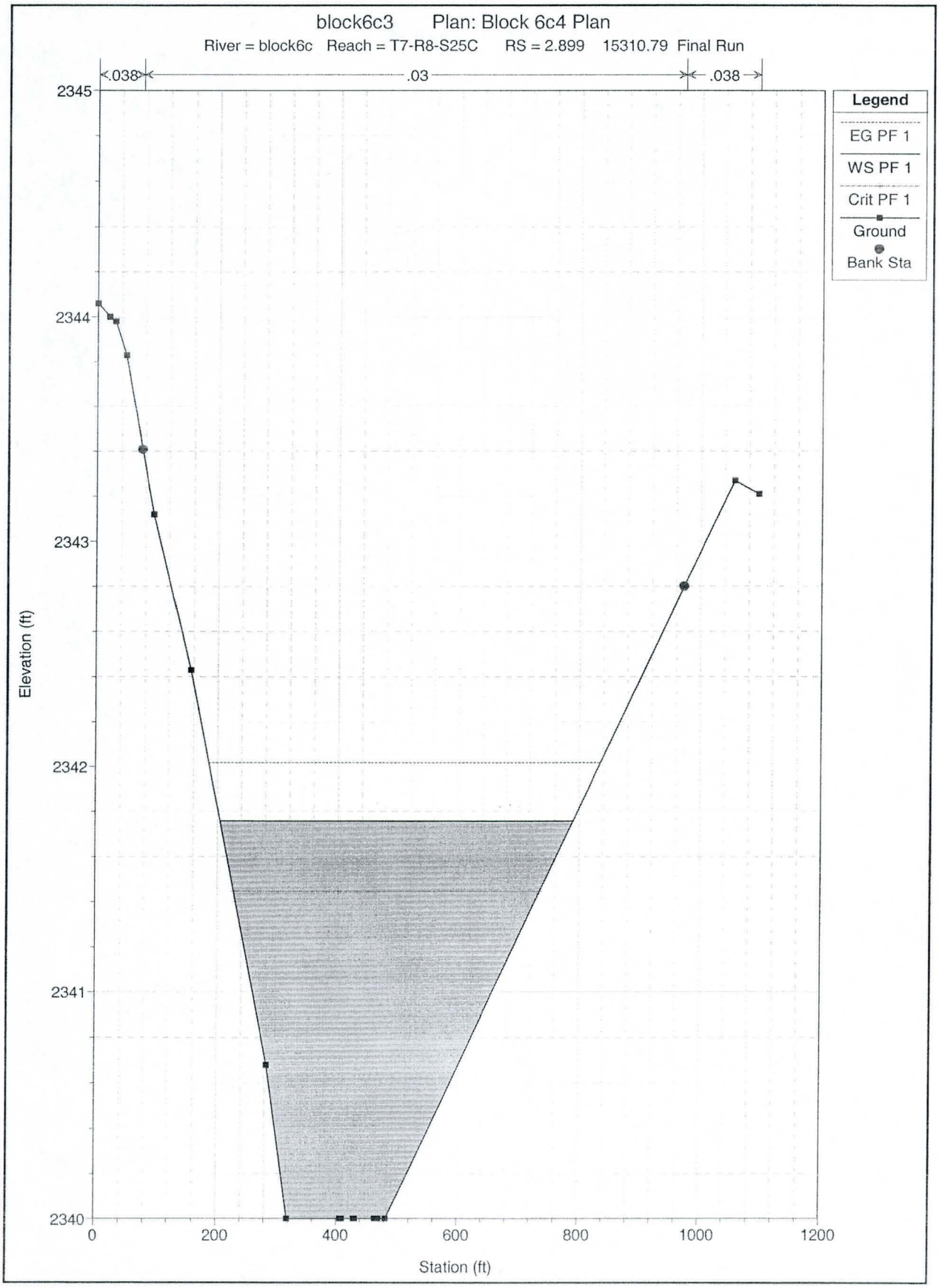
0.490
0.847
1.163
1.538
1.806
2.067
2.363
2.666
2.898
3.195
3.545
3.859
4.163
T7-R8-S25C
-R9-

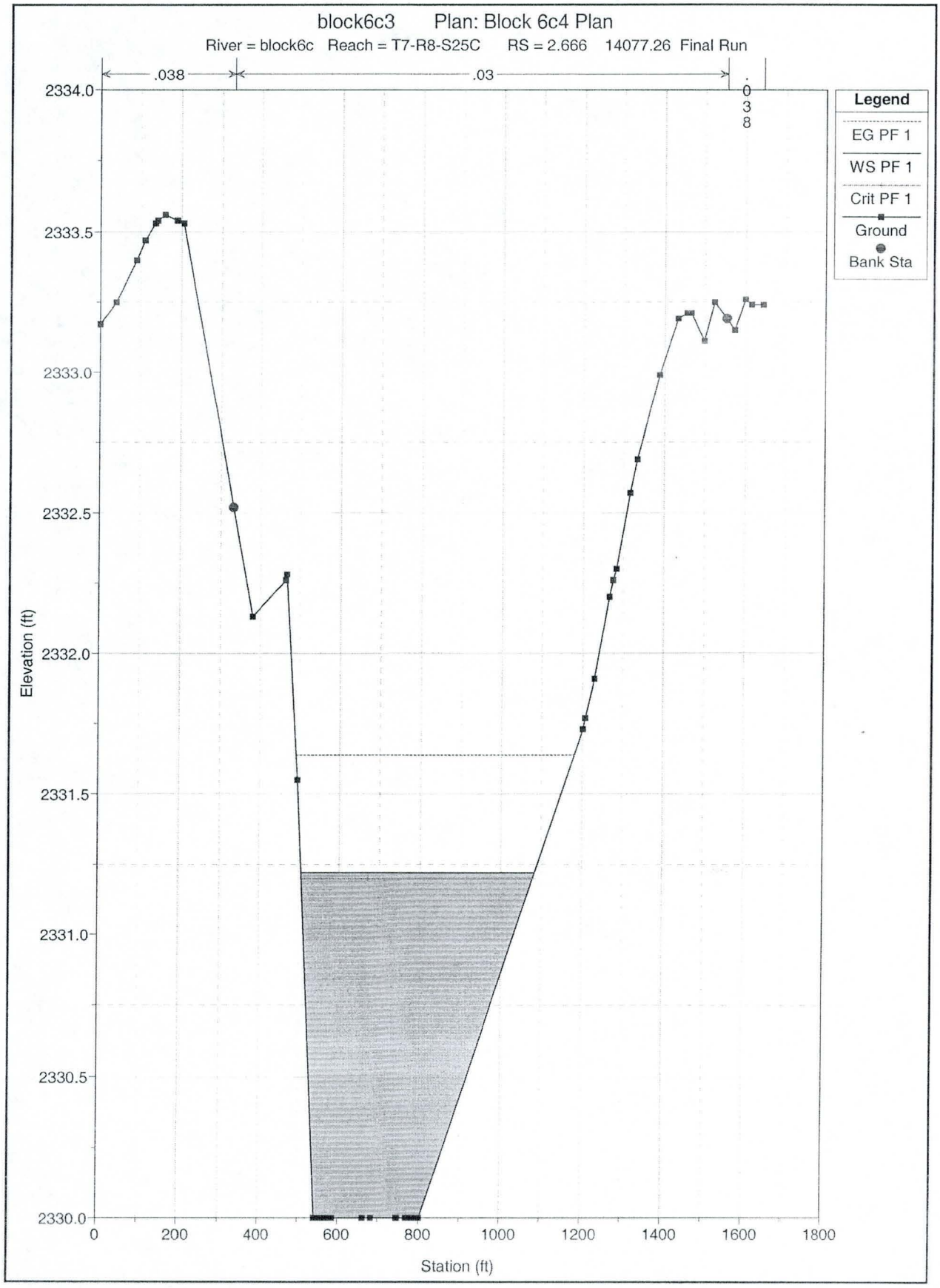

block6c3 Plan: Block 6c4 Plan
River = block6c Reach = T7-R8-S25C RS = 4.163 21985.08 Final Run
.038
.03
.038
-R9-
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2396.5
2396.0
2395.5
2395.0
2394.5
2394.0
2393.5
2393.0
2392.5
0
200
400
600
800
1000
1200
1400
Station (ft)


block6c3 Plan: Block 6c4 Plan
River = block6c Reach = T7-R8-S25C RS = 3.859 20377.22 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2384
2383
2382
2381
2380
0
200
400
600
800
1000
1200
Station (ft)


block6c3 Plan: Block 6c4 Plan
River = block6c Reach = T7-R8-S25C RS = 3.545 18717.24 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2369.5
2369.0
2368.5
2368.0
2367.5
2367.0
2366.5
Elevation (ft)
0
200
400
600
800
1000
1200
1400
Station (ft)


block6c3 Plan: Block 6c4 Plan
River = block6c Reach = T7-R8-S25C RS = 3.195 16870.79 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2355.0
2354.5
2354.0
2353.5
2353.0
2352.5
Elevation (ft)
0
200
400
600
800
Station (ft)


block6c3 Plan: Block 6c4 Plan
River = block6c Reach = T7-R8-S25C RS = 2.899 15310.79 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2345
2344
2343
2342
2341
2340
Elevation (ft)
0
200
400
600
800
1000
1200
Station (ft)


block6c3 Plan: Block 6c4 Plan
River = block6c Reach = T7-R8-S25C RS = 2.666 14077.26 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2334.0
2333.5
2333.0
2332.5
2332.0
2331.5
2331.0
2330.5
2330.0
Elevation (ft)
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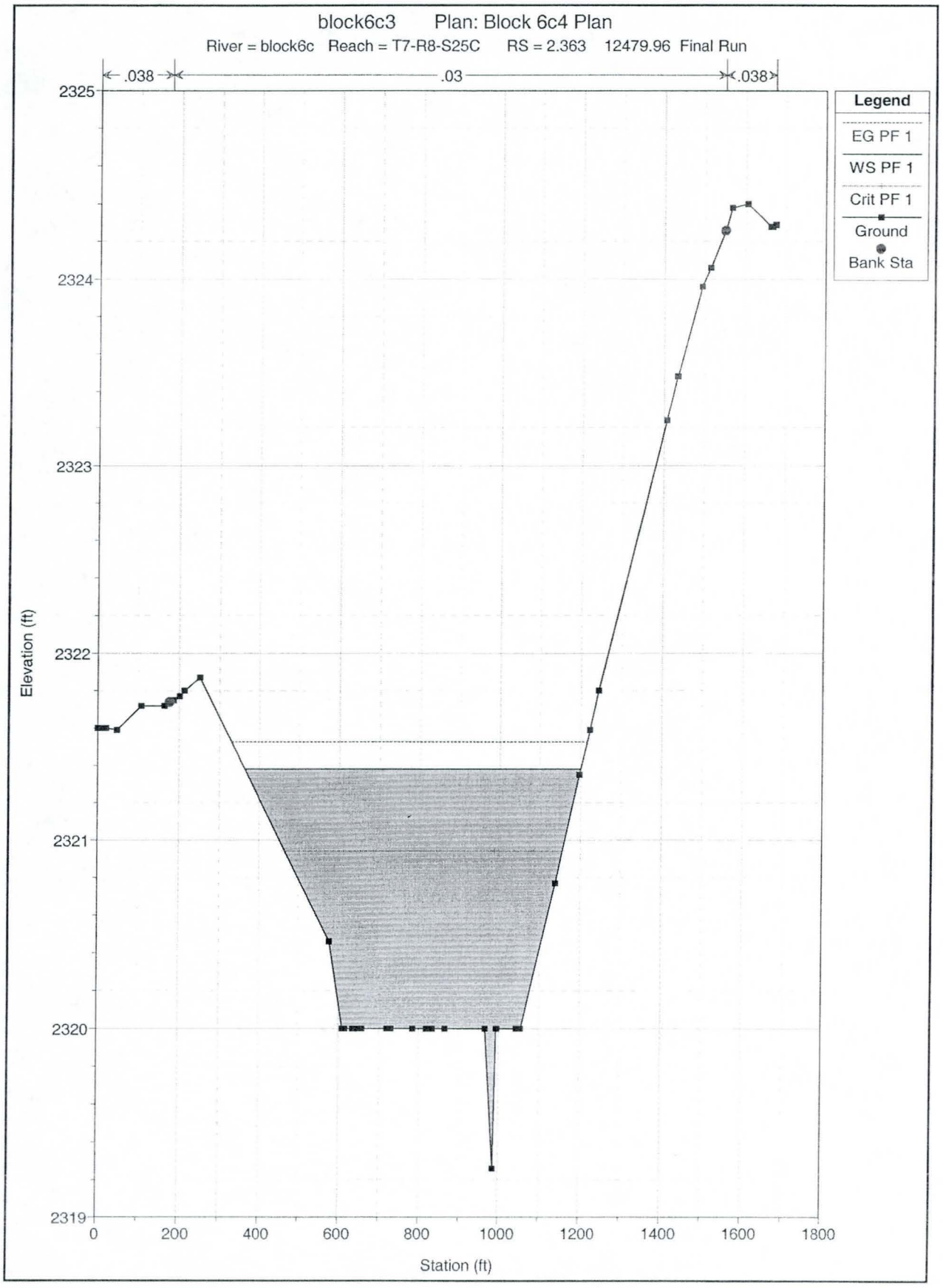
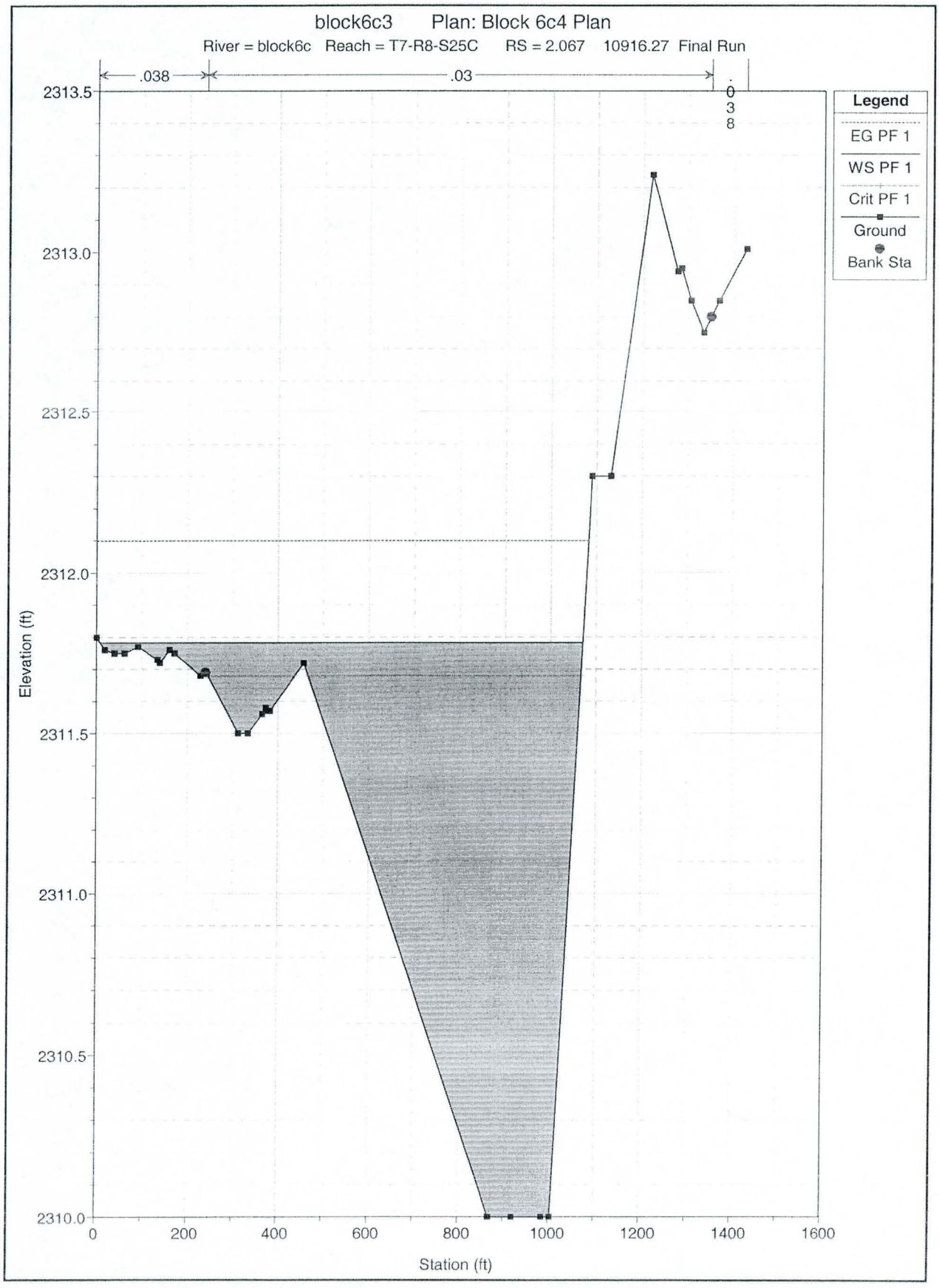
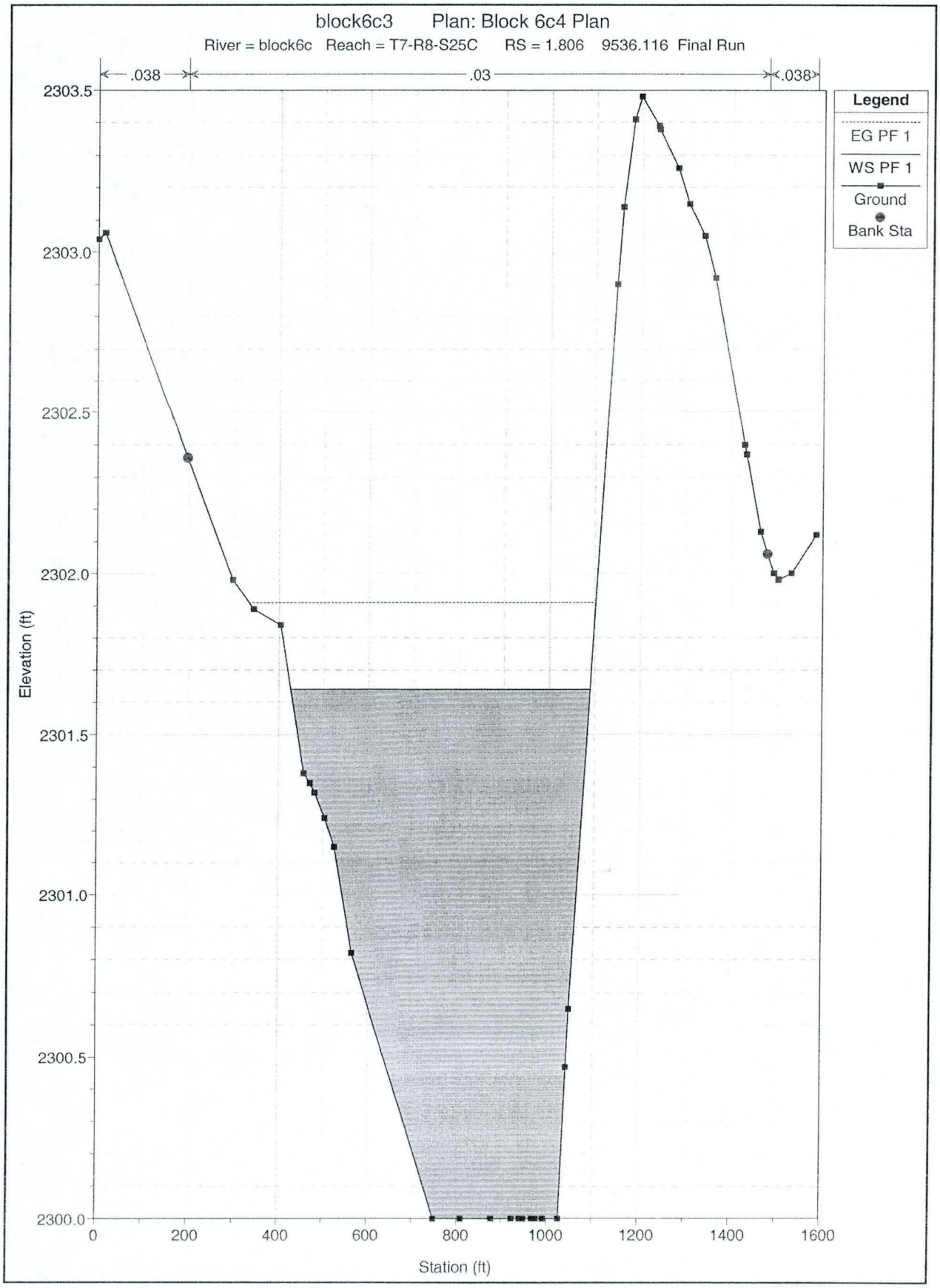
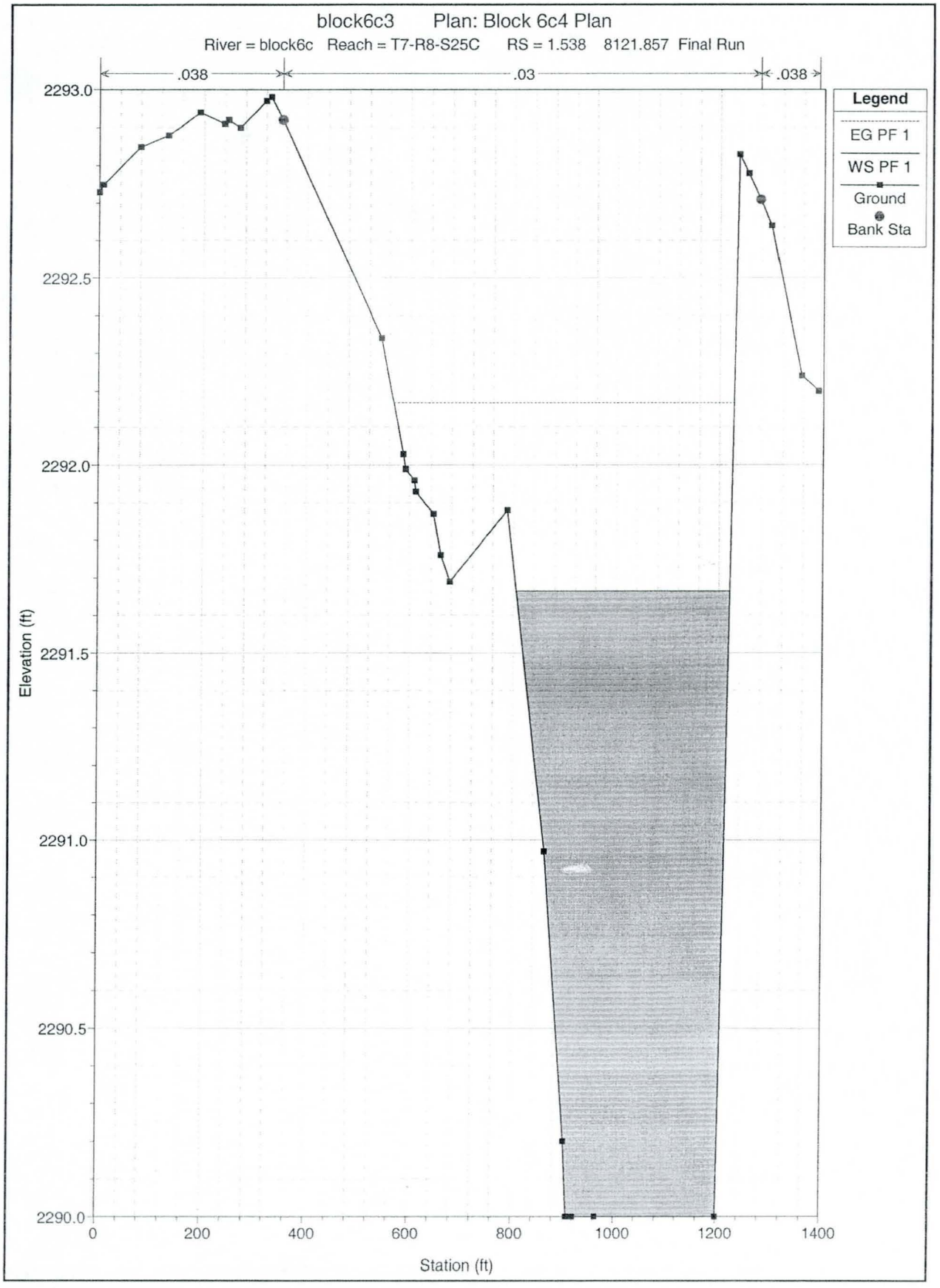
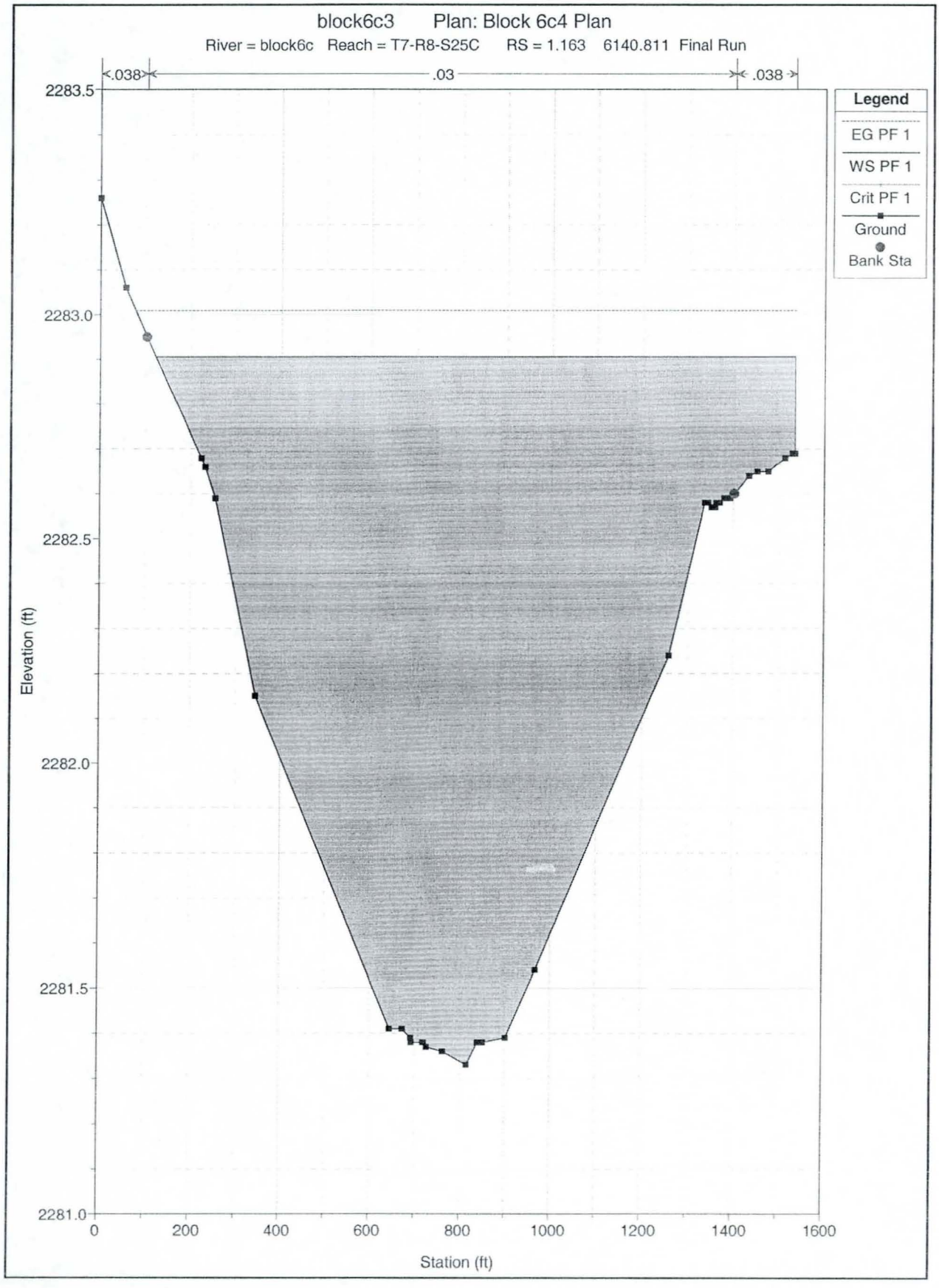
1000
1200
1400
1600
1800
Station (ft)

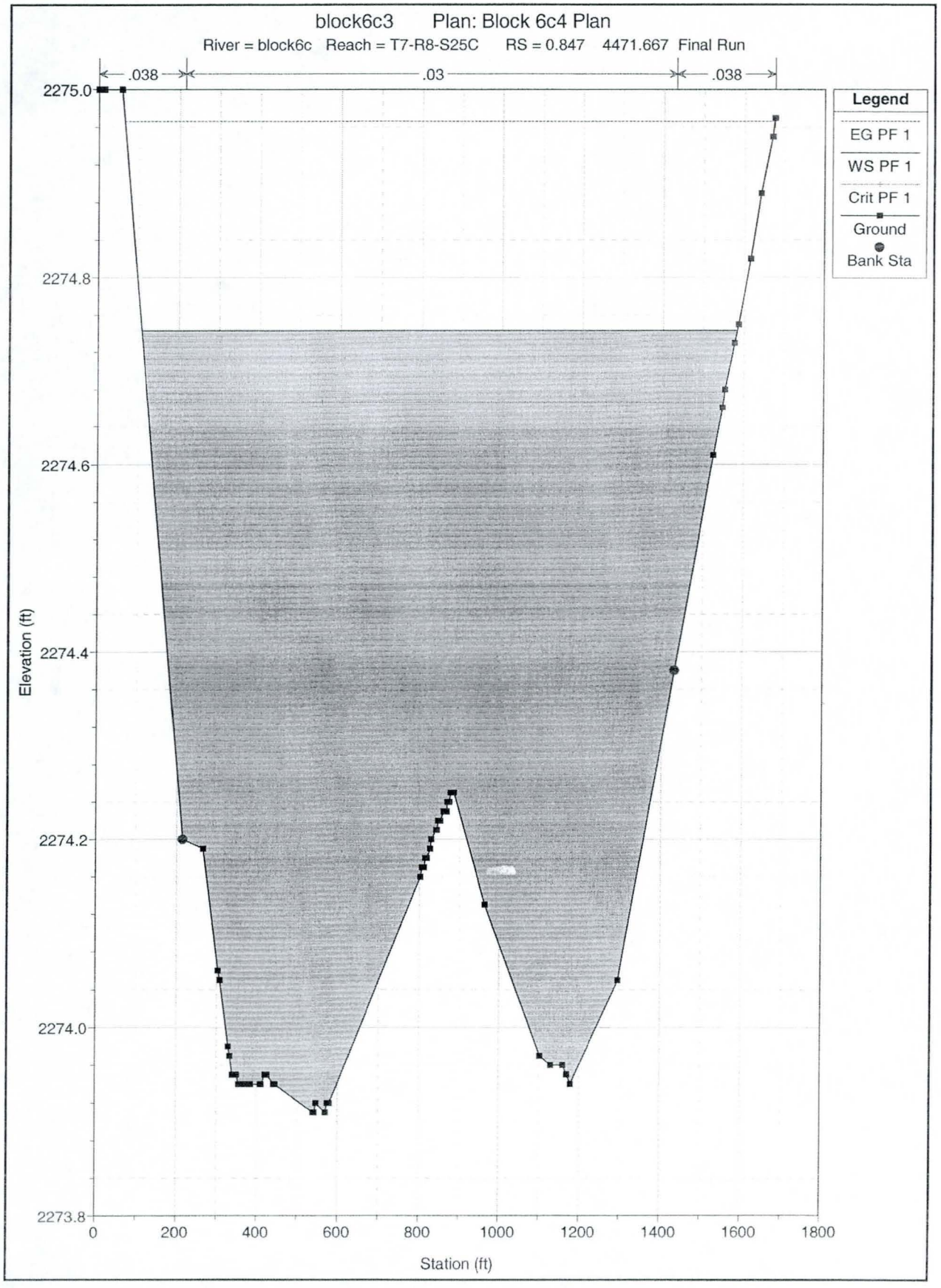

block6c3 Plan: Block 6c4 Plan
River = block6c Reach = T7-R8-S25C RS = 2.363 12479.96 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2325
2324
2323
2322
2321
2320
2319
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)

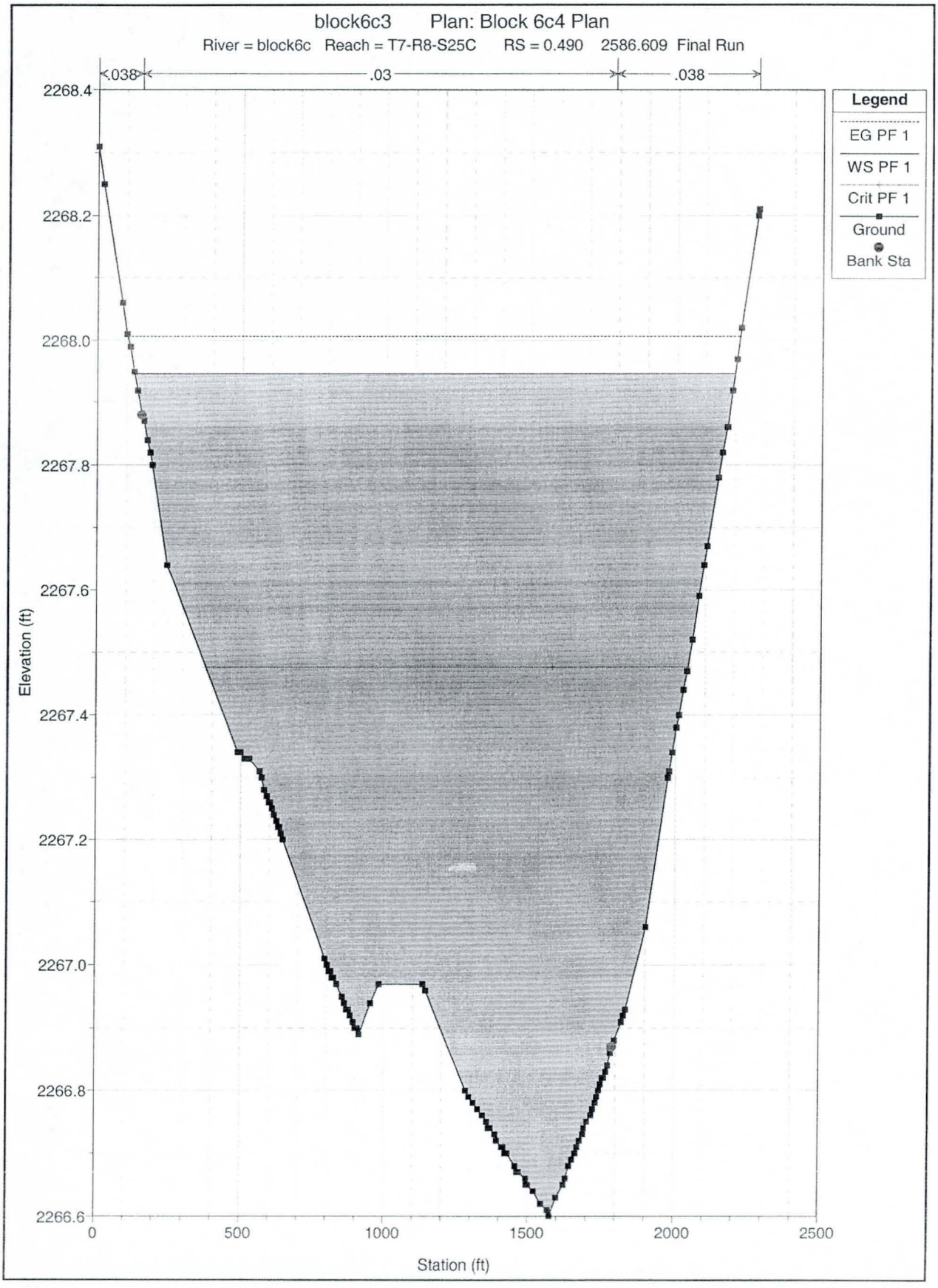

block6c3 Plan: Block 6c4 Plan
River = block6c Reach = T7-R8-S25C RS = 2.067 10916.27 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2313.5
2313.0
2312.5
2312.0
2311.5
2311.0
2310.5
2310.0
Elevation (ft)
0
200
400
600
800
1000
1200
1400
1600
Station (ft)

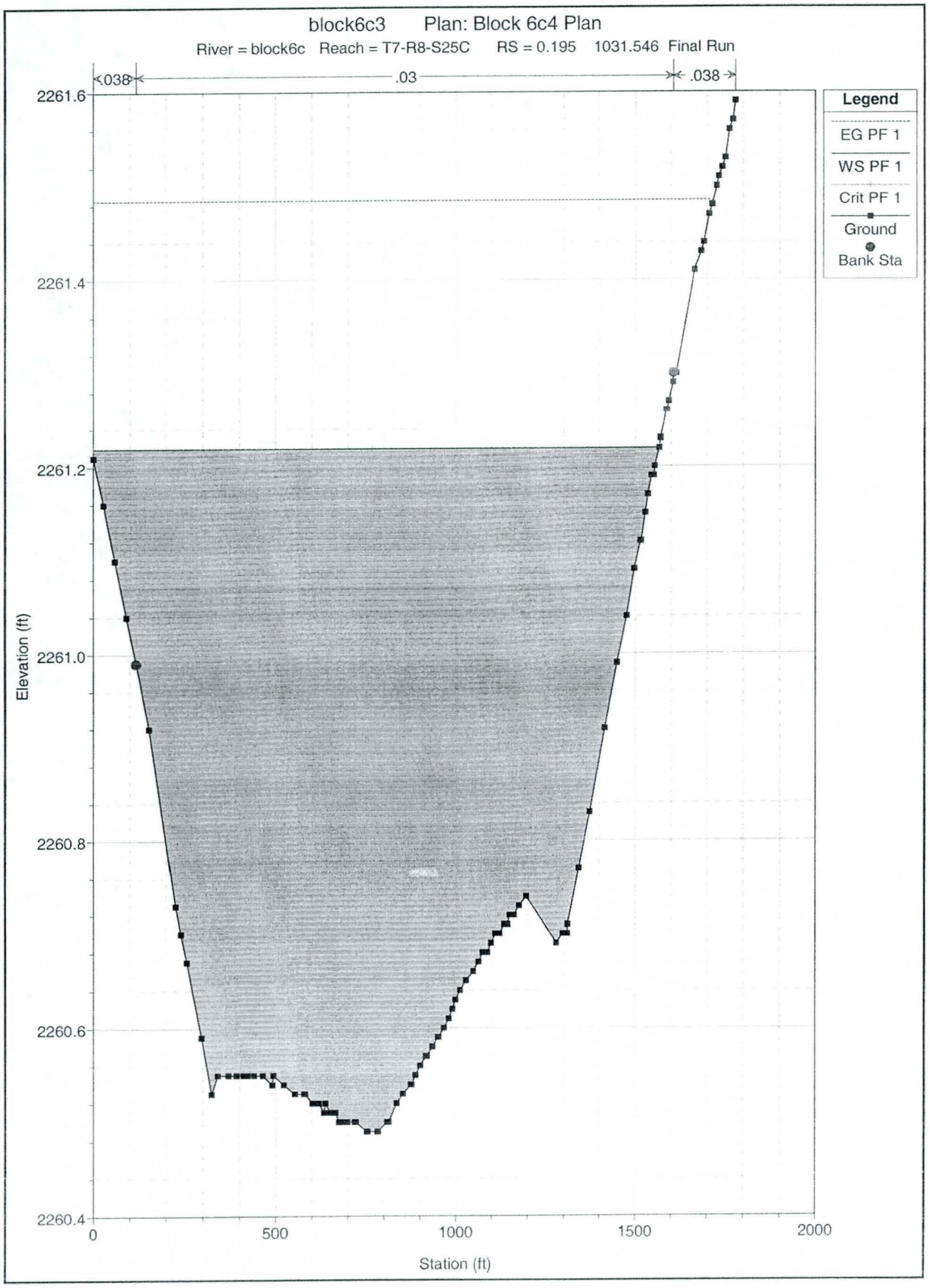

block6c3 Plan: Block 6c4 Plan
River = block6c Reach = T7-R8-S25C RS = 1.806 9536.116 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
2303.5
2303.0
2302.5
2302.0
2301.5
2301.0
2300.5
2300.0
Elevation (ft)
0
200
400
600
800
1000
1200
1400
1600
Station (ft)


block6c3 Plan: Block 6c4 Plan
River = block6c Reach = T7-R8-S25C RS = 1.538 8121.857 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
2293.0
2292.5
2292.0
2291.5
2291.0
2290.5
2290.0
Elevation (ft)
0
200
400
600
800
1000
1200
1400
Station (ft)


block6c3 Plan: Block 6c4 Plan
River = block6c Reach = T7-R8-S25C RS = 1.163 6140.811 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2283.5
2283.0
2282.5
2282.0
2281.5
2281.0
Elevation (ft)
0
200
400
600
800
1000
1200
1400
1600
Station (ft)


block6c3 Plan: Block 6c4 Plan
River = block6c Reach = T7-R8-S25C RS = 0.847 4471.667 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2275.0
2274.8
2274.6
2274.4
2274.2
2274.0
2273.8
Elevation (ft)
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)


block6c3 Plan: Block 6c4 Plan
River = block6c Reach = T7-R8-S25C RS = 0.490 2586.609 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2268.4
2268.2
2268.0
2267.8
2267.6
2267.4
2267.2
2267.0
2266.8
2266.6
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)


block6c3 Plan: Block 6c4 Plan
River = block6c Reach = T7-R8-S25C RS = 0.195 1031.546 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2261.6
2261.4
2261.2
2261.0
2260.8
2260.6
2260.4
Elevation (ft)
0
500
1000
1500
2000
Station (ft)

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 4.163 Profile: PF 1

E.G. Elev (ft)	2395.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.		0.030	
W.S. Elev (ft)	2395.15	Reach Len. (ft)	1698.27	1607.86	1362.39
Crit W.S. (ft)	2394.79	Flow Area (sq ft)		710.51	
E.G. Slope (ft/ft)	0.006508	Area (sq ft)		710.51	
Q Total (cfs)	2658.00	Flow (cfs)		2658.00	
Top Width (ft)	784.29	Top Width (ft)		784.29	
Vel Total (ft/s)	3.74	Avg. Vel. (ft/s)		3.74	
Max Chl Dpth (ft)	2.46	Hydr. Depth (ft)		0.91	
Conv. Total (cfs)	32947.7	Conv. (cfs)		32947.7	
Length Wtd. (ft)	1606.37	Wetted Per. (ft)		784.34	
Min Ch El (ft)	2392.69	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		1.38	
Frctn Loss (ft)	13.89	Cum Volume (acre-ft)	1.82	385.30	12.56
C & E Loss (ft)	0.01	Cum SA (acres)	15.10	424.01	32.50

Errors Warnings and Notes

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.

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 3.859 Profile: PF 1

E.G. Elev (ft)	2381.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.		0.030	0.038
W.S. Elev (ft)	2381.13	Reach Len. (ft)	1463.64	1659.99	1615.82
Crit W.S. (ft)	2381.10	Flow Area (sq ft)		569.30	21.15
E.G. Slope (ft/ft)	0.012051	Area (sq ft)		569.30	21.15
Q Total (cfs)	2658.00	Flow (cfs)		2625.83	32.17
Top Width (ft)	828.93	Top Width (ft)		728.65	100.28
Vel Total (ft/s)	4.50	Avg. Vel. (ft/s)		4.61	1.52
Max Chl Dpth (ft)	1.13	Hydr. Depth (ft)		0.78	0.21
Conv. Total (cfs)	24212.7	Conv. (cfs)		23919.6	293.1
Length Wtd. (ft)	1659.67	Wetted Per. (ft)		728.67	100.29
Min Ch El (ft)	2380.00	Shear (lb/sq ft)		0.59	0.16
Alpha	1.04	Stream Power (lb/ft s)		2.71	0.24
Frctn Loss (ft)	12.79	Cum Volume (acre-ft)	1.82	361.68	12.23
C & E Loss (ft)	0.04	Cum SA (acres)	15.10	396.09	30.93

Errors Warnings and Notes

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.

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 3.545 Profile: PF 1

E.G. Elev (ft)	2368.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.038	0.030	
W.S. Elev (ft)	2368.44	Reach Len. (ft)	1917.22	1846.44	1836.86
Crit W.S. (ft)	2368.18	Flow Area (sq ft)	2.45	775.55	
E.G. Slope (ft/ft)	0.005347	Area (sq ft)	2.45	775.55	
Q Total (cfs)	2658.00	Flow (cfs)	1.52	2656.48	
Top Width (ft)	867.33	Top Width (ft)	24.09	843.24	
Vel Total (ft/s)	3.42	Avg. Vel. (ft/s)	0.62	3.43	
Max Chl Dpth (ft)	1.62	Hydr. Depth (ft)	0.10	0.92	

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 3.545 Profile: PF 1 (Continued)

Conv. Total (cfs)	36349.9	Conv. (cfs)	20.8	36329.0	
Length Wtd. (ft)	1846.43	Wetted Per. (ft)	24.09	843.25	
Min Ch El (ft)	2366.82	Shear (lb/sq ft)	0.03	0.31	
Alpha	1.00	Stream Power (lb/ft s)	0.02	1.05	
Frctn Loss (ft)	14.01	Cum Volume (acre-ft)	1.78	336.05	11.84
C & E Loss (ft)	0.02	Cum SA (acres)	14.70	366.14	29.07

Errors Warnings and Notes

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.

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 3.195 Profile: PF 1

E.G. Elev (ft)	2354.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.		0.030	0.038
W.S. Elev (ft)	2354.18	Reach Len. (ft)	1583.55	1560.01	1618.26
Crit W.S. (ft)	2354.14	Flow Area (sq ft)		511.49	11.15
E.G. Slope (ft/ft)	0.011603	Area (sq ft)		511.49	11.15
Q Total (cfs)	2658.00	Flow (cfs)		2642.73	15.27
Top Width (ft)	596.91	Top Width (ft)		536.73	60.18
Vel Total (ft/s)	5.09	Avg. Vel. (ft/s)		5.17	1.37
Max Chl Dpth (ft)	1.37	Hydr. Depth (ft)		0.95	0.19
Conv. Total (cfs)	24675.7	Conv. (cfs)		24534.0	141.8
Length Wtd. (ft)	1560.18	Wetted Per. (ft)		536.74	60.18
Min Ch El (ft)	2352.81	Shear (lb/sq ft)		0.69	0.13
Alpha	1.03	Stream Power (lb/ft s)		3.57	0.18
Frctn Loss (ft)	12.53	Cum Volume (acre-ft)	1.73	308.77	11.60
C & E Loss (ft)	0.05	Cum SA (acres)	14.17	336.89	27.81

Errors Warnings and Notes

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.

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 2.899 Profile: PF 1

E.G. Elev (ft)	2342.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.030	
W.S. Elev (ft)	2341.76	Reach Len. (ft)	1190.37	1233.53	1397.59
Crit W.S. (ft)	2341.45	Flow Area (sq ft)		651.74	
E.G. Slope (ft/ft)	0.005883	Area (sq ft)		651.74	
Q Total (cfs)	2658.00	Flow (cfs)		2658.00	
Top Width (ft)	585.95	Top Width (ft)		585.95	
Vel Total (ft/s)	4.08	Avg. Vel. (ft/s)		4.08	
Max Chl Dpth (ft)	1.76	Hydr. Depth (ft)		1.11	
Conv. Total (cfs)	34653.3	Conv. (cfs)		34653.3	
Length Wtd. (ft)	1233.53	Wetted Per. (ft)		585.96	
Min Ch El (ft)	2340.00	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		1.67	
Frctn Loss (ft)	10.36	Cum Volume (acre-ft)	1.73	287.94	11.39
C & E Loss (ft)	0.02	Cum SA (acres)	14.17	316.79	26.69

Errors Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less

Errors Warnings and Notes (Continued)

	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.

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 2.666 Profile: PF 1

E.G. Elev (ft)	2331.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.		0.030	
W.S. Elev (ft)	2331.22	Reach Len. (ft)	1477.01	1597.30	1537.73
Crit W.S. (ft)	2331.20	Flow Area (sq ft)		511.75	
E.G. Slope (ft/ft)	0.012960	Area (sq ft)		511.75	
Q Total (cfs)	2658.00	Flow (cfs)		2658.00	
Top Width (ft)	578.84	Top Width (ft)		578.84	
Vel Total (ft/s)	5.19	Avg. Vel. (ft/s)		5.19	
Max Chl Dpth (ft)	1.22	Hydr. Depth (ft)		0.88	
Conv. Total (cfs)	23348.3	Conv. (cfs)		23348.3	
Length Wtd. (ft)	1597.30	Wetted Per. (ft)		578.87	
Min Ch El (ft)	2330.00	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		3.72	
Frctn Loss (ft)	10.03	Cum Volume (acre-ft)	1.73	271.47	11.39
C & E Loss (ft)	0.08	Cum SA (acres)	14.17	300.30	26.69

Errors Warnings and Notes

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.

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 2.363 Profile: PF 1

E.G. Elev (ft)	2321.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.		0.030	
W.S. Elev (ft)	2321.38	Reach Len. (ft)	1402.05	1563.70	1481.76
Crit W.S. (ft)	2320.94	Flow Area (sq ft)		864.54	
E.G. Slope (ft/ft)	0.003693	Area (sq ft)		864.54	
Q Total (cfs)	2658.00	Flow (cfs)		2658.00	
Top Width (ft)	837.41	Top Width (ft)		837.41	
Vel Total (ft/s)	3.07	Avg. Vel. (ft/s)		3.07	
Max Chl Dpth (ft)	2.12	Hydr. Depth (ft)		1.03	
Conv. Total (cfs)	43739.2	Conv. (cfs)		43739.2	
Length Wtd. (ft)	1563.57	Wetted Per. (ft)		837.47	
Min Ch El (ft)	2319.26	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		0.73	
Frctn Loss (ft)	9.41	Cum Volume (acre-ft)	1.73	246.24	11.39
C & E Loss (ft)	0.02	Cum SA (acres)	14.17	274.33	26.69

Errors Warnings and Notes

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.

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 2.067 Profile: PF 1

E.G. Elev (ft)	2312.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.	0.038	0.030	
W.S. Elev (ft)	2311.78	Reach Len. (ft)	1188.47	1380.15	1331.15
Crit W.S. (ft)	2311.68	Flow Area (sq ft)	10.12	722.90	

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 2.067 Profile: PF 1 (Continued)

E.G. Slope (ft/ft)	0.010013	Area (sq ft)	10.12	722.90	
Q Total (cfs)	3271.00	Flow (cfs)	4.90	3266.10	
Top Width (ft)	1062.95	Top Width (ft)	232.38	830.57	
Vel Total (ft/s)	4.46	Avg. Vel. (ft/s)	0.48	4.52	
Max Chl Dpth (ft)	1.78	Hydr. Depth (ft)	0.04	0.87	
Conv. Total (cfs)	32688.3	Conv. (cfs)	49.0	32639.3	
Length Wtd. (ft)	1380.01	Wetted Per. (ft)	232.38	830.59	
Min Ch El (ft)	2310.00	Shear (lb/sq ft)	0.03	0.54	
Alpha	1.02	Stream Power (lb/ft s)	0.01	2.46	
Frctn Loss (ft)	10.17	Cum Volume (acre-ft)	1.56	217.74	11.39
C & E Loss (ft)	0.01	Cum SA (acres)	10.43	244.39	26.69

Errors Warnings and Notes

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.

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 1.806 Profile: PF 1

E.G. Elev (ft)	2301.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.030	
W.S. Elev (ft)	2301.64	Reach Len. (ft)	1544.68	1414.26	1488.45
Crit W.S. (ft)		Flow Area (sq ft)		785.21	
E.G. Slope (ft/ft)	0.005654	Area (sq ft)		785.21	
Q Total (cfs)	3271.00	Flow (cfs)		3271.00	
Top Width (ft)	663.77	Top Width (ft)		663.77	
Vel Total (ft/s)	4.17	Avg. Vel. (ft/s)		4.17	
Max Chl Dpth (ft)	1.64	Hydr. Depth (ft)		1.18	
Conv. Total (cfs)	43500.5	Conv. (cfs)		43500.5	
Length Wtd. (ft)	1414.26	Wetted Per. (ft)		663.80	
Min Ch El (ft)	2300.00	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		1.74	
Frctn Loss (ft)	9.72	Cum Volume (acre-ft)	1.43	193.85	11.39
C & E Loss (ft)	0.02	Cum SA (acres)	7.26	220.72	26.69

Errors Warnings and Notes

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.

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 1.538 Profile: PF 1

E.G. Elev (ft)	2292.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.		0.030	
W.S. Elev (ft)	2291.66	Reach Len. (ft)	1689.97	1981.05	1970.65
Crit W.S. (ft)		Flow Area (sq ft)		575.72	
E.G. Slope (ft/ft)	0.008536	Area (sq ft)		575.72	
Q Total (cfs)	3271.00	Flow (cfs)		3271.00	
Top Width (ft)	416.08	Top Width (ft)		416.08	
Vel Total (ft/s)	5.68	Avg. Vel. (ft/s)		5.68	
Max Chl Dpth (ft)	1.66	Hydr. Depth (ft)		1.38	
Conv. Total (cfs)	35404.6	Conv. (cfs)		35404.6	
Length Wtd. (ft)	1981.01	Wetted Per. (ft)		416.16	
Min Ch El (ft)	2290.00	Shear (lb/sq ft)		0.74	
Alpha	1.00	Stream Power (lb/ft s)		4.19	
Frctn Loss (ft)	9.04	Cum Volume (acre-ft)	1.43	171.76	11.39
C & E Loss (ft)	0.12	Cum SA (acres)	7.26	203.19	26.69

Errors Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less

Errors Warnings and Notes (Continued)

	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.

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 1.163 Profile: PF 1

E.G. Elev (ft)	2283.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.030	0.038
W.S. Elev (ft)	2282.91	Reach Len. (ft)	1705.13	1669.14	1725.21
Crit W.S. (ft)	2282.42	Flow Area (sq ft)		1249.58	33.44
E.G. Slope (ft/ft)	0.002833	Area (sq ft)		1249.58	33.44
Q Total (cfs)	3271.00	Flow (cfs)		3243.15	27.85
Top Width (ft)	1411.21	Top Width (ft)		1279.32	131.89
Vel Total (ft/s)	2.55	Avg. Vel. (ft/s)		2.60	0.83
Max Chl Dpth (ft)	1.58	Hydr. Depth (ft)		0.98	0.25
Conv. Total (cfs)	61452.2	Conv. (cfs)		60929.0	523.2
Length Wtd. (ft)	1669.93	Wetted Per. (ft)		1279.33	132.11
Min Ch El (ft)	2281.33	Shear (lb/sq ft)		0.17	0.04
Alpha	1.03	Stream Power (lb/ft s)		0.45	0.04
Frctn Loss (ft)	8.03	Cum Volume (acre-ft)	1.43	130.25	10.64
C & E Loss (ft)	0.01	Cum SA (acres)	7.26	164.64	23.70

Errors Warnings and Notes

Warning:	The cross-section end points had to be extended vertically for the computed water surface.
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.

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 0.847 Profile: PF 1

E.G. Elev (ft)	2274.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.038	0.030	0.038
W.S. Elev (ft)	2274.74	Reach Len. (ft)	1710.97	1885.06	1763.47
Crit W.S. (ft)	2274.67	Flow Area (sq ft)	29.13	833.54	27.12
E.G. Slope (ft/ft)	0.009894	Area (sq ft)	29.13	833.54	27.12
Q Total (cfs)	3271.00	Flow (cfs)	47.62	3189.97	33.41
Top Width (ft)	1476.61	Top Width (ft)	106.94	1217.53	152.14
Vel Total (ft/s)	3.68	Avg. Vel. (ft/s)	1.63	3.83	1.23
Max Chl Dpth (ft)	0.83	Hydr. Depth (ft)	0.27	0.68	0.18
Conv. Total (cfs)	32884.7	Conv. (cfs)	478.7	32070.1	335.9
Length Wtd. (ft)	1877.74	Wetted Per. (ft)	106.94	1217.53	152.14
Min Ch El (ft)	2273.91	Shear (lb/sq ft)	0.17	0.42	0.11
Alpha	1.06	Stream Power (lb/ft s)	0.28	1.62	0.14
Frctn Loss (ft)	6.91	Cum Volume (acre-ft)	0.86	90.34	9.44
C & E Loss (ft)	0.05	Cum SA (acres)	5.16	116.80	18.08

Errors Warnings and Notes

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.

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 0.490 Profile: PF 1

E.G. Elev (ft)	2268.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.038	0.030	0.038
W.S. Elev (ft)	2267.95	Reach Len. (ft)	1563.83	1555.06	1426.16
Crit W.S. (ft)	2267.48	Flow Area (sq ft)	0.83	1475.61	242.80
E.G. Slope (ft/ft)	0.001905	Area (sq ft)	0.83	1475.61	242.80
Q Total (cfs)	3271.00	Flow (cfs)	0.14	2978.53	292.33
Top Width (ft)	2070.48	Top Width (ft)	25.44	1635.33	409.71
Vel Total (ft/s)	1.90	Avg. Vel. (ft/s)	0.17	2.02	1.20
Max Chl Dpth (ft)	1.35	Hydr. Depth (ft)	0.03	0.90	0.59
Conv. Total (cfs)	74949.8	Conv. (cfs)	3.3	68248.2	6698.3
Length Wtd. (ft)	1549.32	Wetted Per. (ft)	25.44	1635.33	409.72
Min Ch El (ft)	2266.60	Shear (lb/sq ft)	0.00	0.11	0.07
Alpha	1.06	Stream Power (lb/ft s)	0.00	0.22	0.08
Frctn Loss (ft)	6.50	Cum Volume (acre-ft)	0.27	40.38	3.97
C & E Loss (ft)	0.02	Cum SA (acres)	2.56	55.07	6.71

Errors Warnings and Notes

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.

Plan: Block 6c4 Pl block6c T7-R8-S25C RS: 0.195 Profile: PF 1

E.G. Elev (ft)	2261.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	0.038	0.030	
W.S. Elev (ft)	2261.22	Reach Len. (ft)			
Crit W.S. (ft)	2261.22	Flow Area (sq ft)	14.09	786.55	
E.G. Slope (ft/ft)	0.015771	Area (sq ft)	14.09	786.55	
Q Total (cfs)	3271.00	Flow (cfs)	16.83	3254.17	
Top Width (ft)	1567.42	Top Width (ft)	117.42	1450.00	
Vel Total (ft/s)	4.09	Avg. Vel. (ft/s)	1.19	4.14	
Max Chl Dpth (ft)	0.73	Hydr. Depth (ft)	0.12	0.54	
Conv. Total (cfs)	26046.5	Conv. (cfs)	134.0	25912.5	
Length Wtd. (ft)		Wetted Per. (ft)	117.43	1450.00	
Min Ch El (ft)	2260.49	Shear (lb/sq ft)	0.12	0.53	
Alpha	1.02	Stream Power (lb/ft s)	0.14	2.21	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6c\Hec-Ras\block6c3.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6c\Hec-Ras\block6c3.p05
Geometry File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6c\Hec-Ras\block6c3.g05
Flow File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6c\Hec-Ras\block6c3.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6c\Hec-Ras\block6c3.nt
Selected profiles: PF 1
Date: 1/15/2003
Time: 3:48:13 PM

SECNO STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
block6c,T7-R8-S25C					
4.163	0.038	0.03	0.038	0.1	0.3
3.859	0.038	0.03	0.038	0.1	0.3
3.545	0.038	0.03	0.038	0.1	0.3
3.195	0.038	0.03	0.038	0.1	0.3
2.899	0.038	0.03	0.038	0.1	0.3
2.666	0.038	0.03	0.038	0.1	0.3
2.363	0.038	0.03	0.038	0.1	0.3
2.067	0.038	0.03	0.038	0.1	0.3
1.806	0.038	0.03	0.038	0.1	0.3
1.538	0.038	0.03	0.038	0.1	0.3
1.163	0.038	0.03	0.038	0.1	0.3
.847	0.038	0.03	0.038	0.1	0.3
.49	0.038	0.03	0.038	0.1	0.3
.195	0.038	0.03	0.038	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.038	0.038
Right Overbank n Value:	0.038	0.038
Channel n Value:	0.03	0.03
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6c\Hec-Ras\block6c3.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6c\Hec-Ras\block6c3.p05
Geometry File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6c\Hec-Ras\block6c3.g05
Flow File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6c\Hec-Ras\block6c3.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6c\Hec-Ras\block6c3.xs
Selected profiles: PF 1
Date: 1/15/2003
Time: 3:50:24 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
block6c,T7-R8-S25C						
4.163	1698.27	1607.86	1362.39	784.29	2658	

3.859	1463.64	1659.99	1615.82	828.93	2658	
3.545	1917.22	1846.44	1836.86	867.33	2658	
3.195	1583.55	1560.01	1618.26	596.91	2658	
2.899	1190.37	1233.53	1397.59	585.95	2658	
2.666	1477.01	1597.3	1537.73	578.84	2658	
2.363	1402.05	1563.7	1481.76	837.41	2658	
2.067	1188.47	1380.15	1331.15	1062.95	3271	
1.806	1544.68	1414.26	1488.45	663.77	3271	
1.538	1689.97	1981.05	1970.65	416.08	3271	
1.163	1705.13	1669.14	1725.21	1411.21	3271	E
0.847	1710.97	1885.06	1763.47	1476.61	3271	
0.49	1563.83	1555.06	1426.16	2070.48	3271	
0.195	1172	1031.55	1057.95	1567.42	3271	E,C

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 3.195
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

RS: 1.806
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

RS: 1.163
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

RS: 0.195
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 3.859
XS DC 05 There is no flow on the right overbank at the downstream
cross section. There is no flow on the left overbank at this section.

RS: 3.545
XS DC 04 There is no flow on the left overbank at the downstream
cross section. There is no flow on the right overbank at this section.

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is block6c,T7-R8-S25C
Known WS = 2258.5 is specified as the downstream boundary
for profile PF 1

---END---

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

Explanation:
Cross sections were cut in order to take in channel geometry.

DISCHARGE CHECK

Warning:
Constant discharge used for the reach.

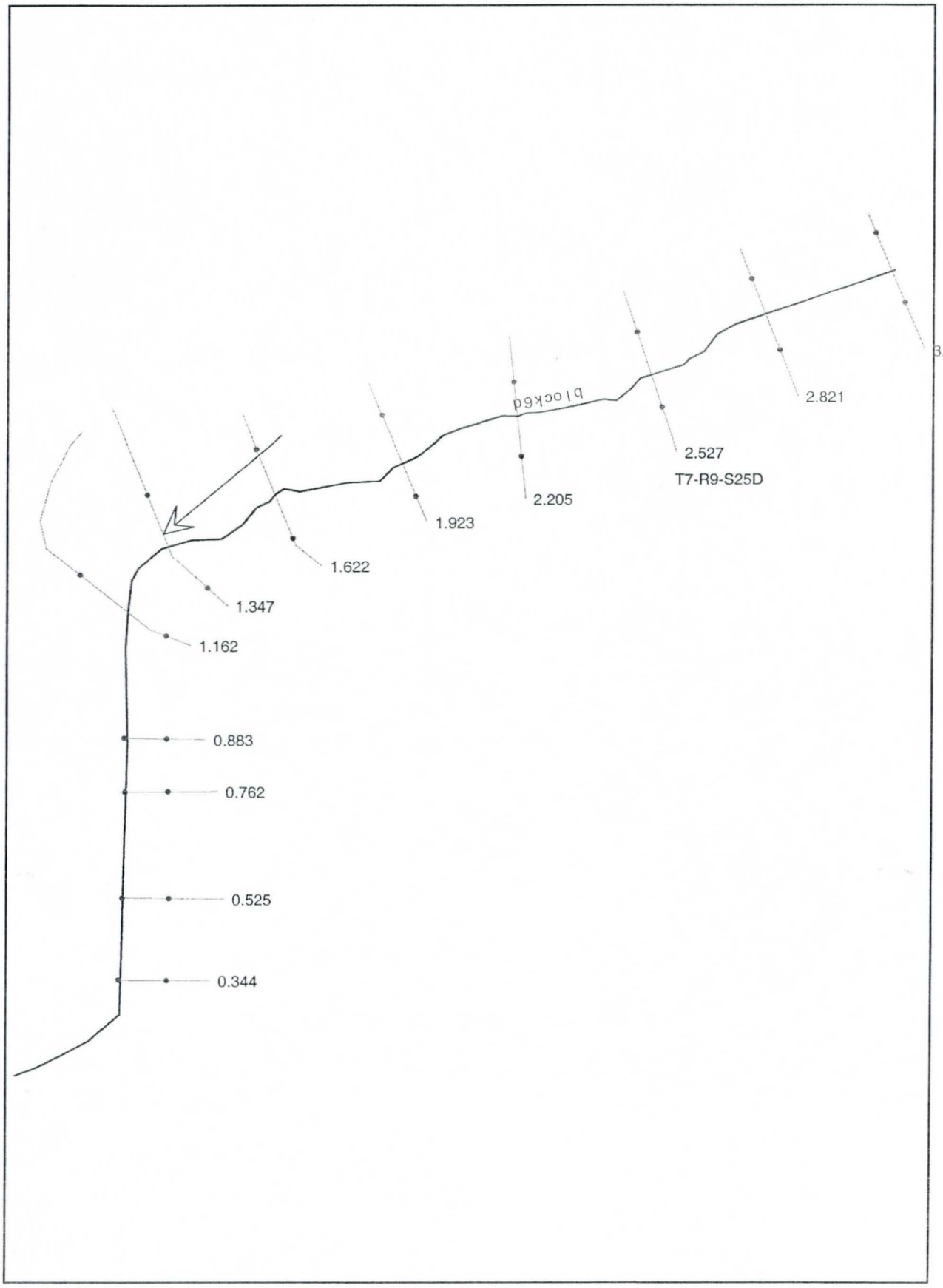
Explanation:
The discharge was determined from the regression equations for the sub basin. The Flood Control District of Maricopa County also approved the peak discharge values.

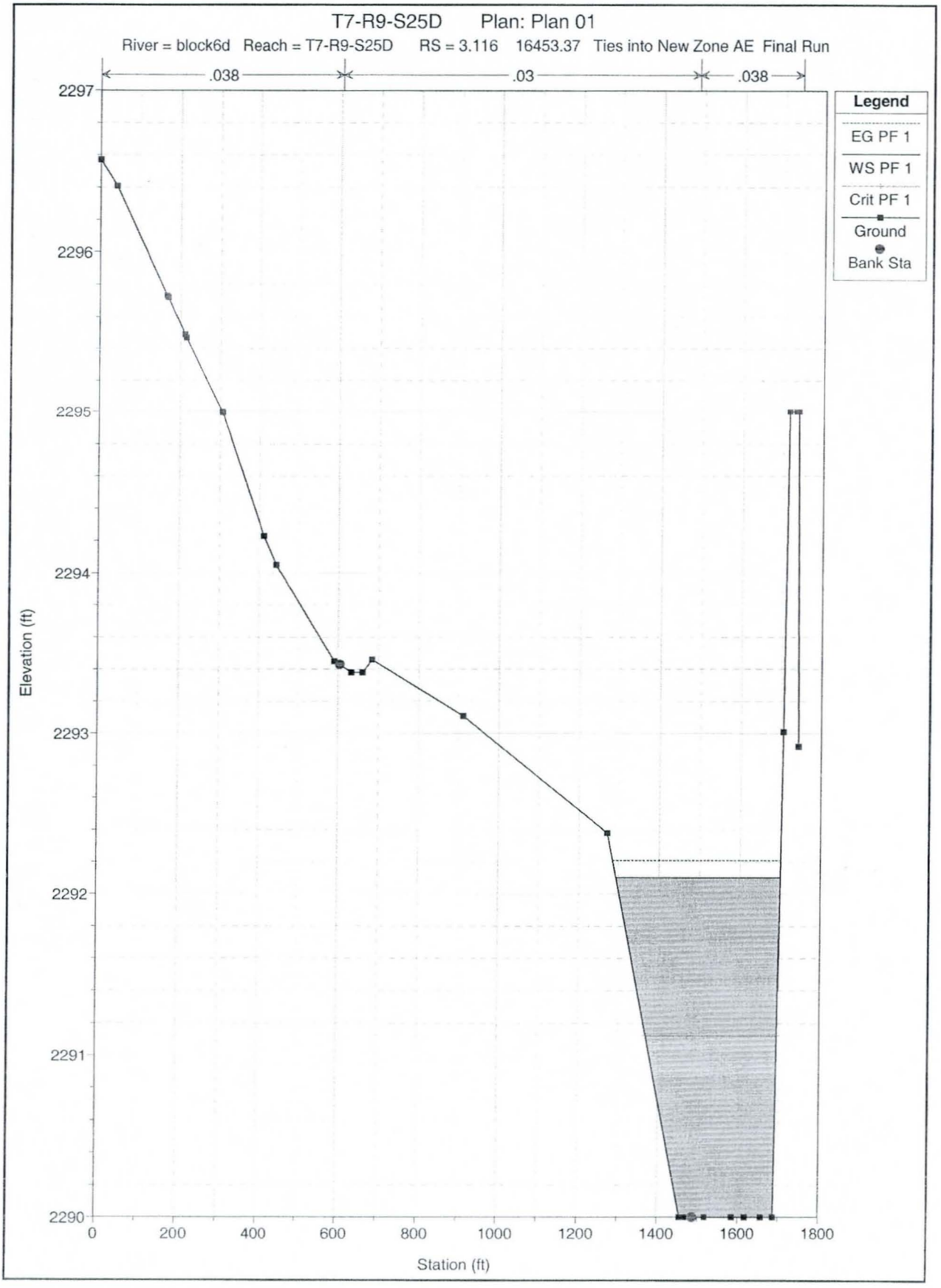
BOUNDARY CONDITION CHECK

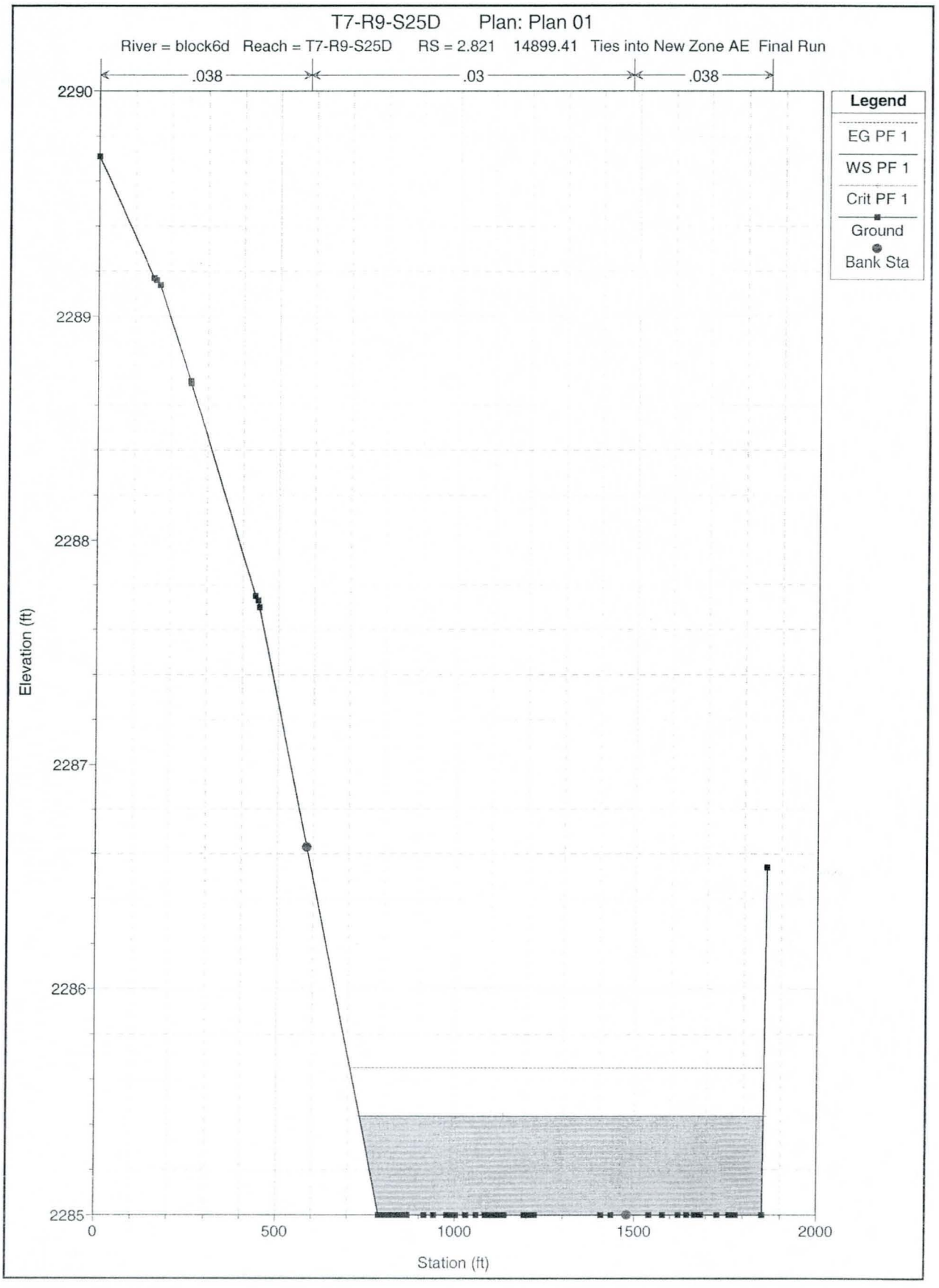
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

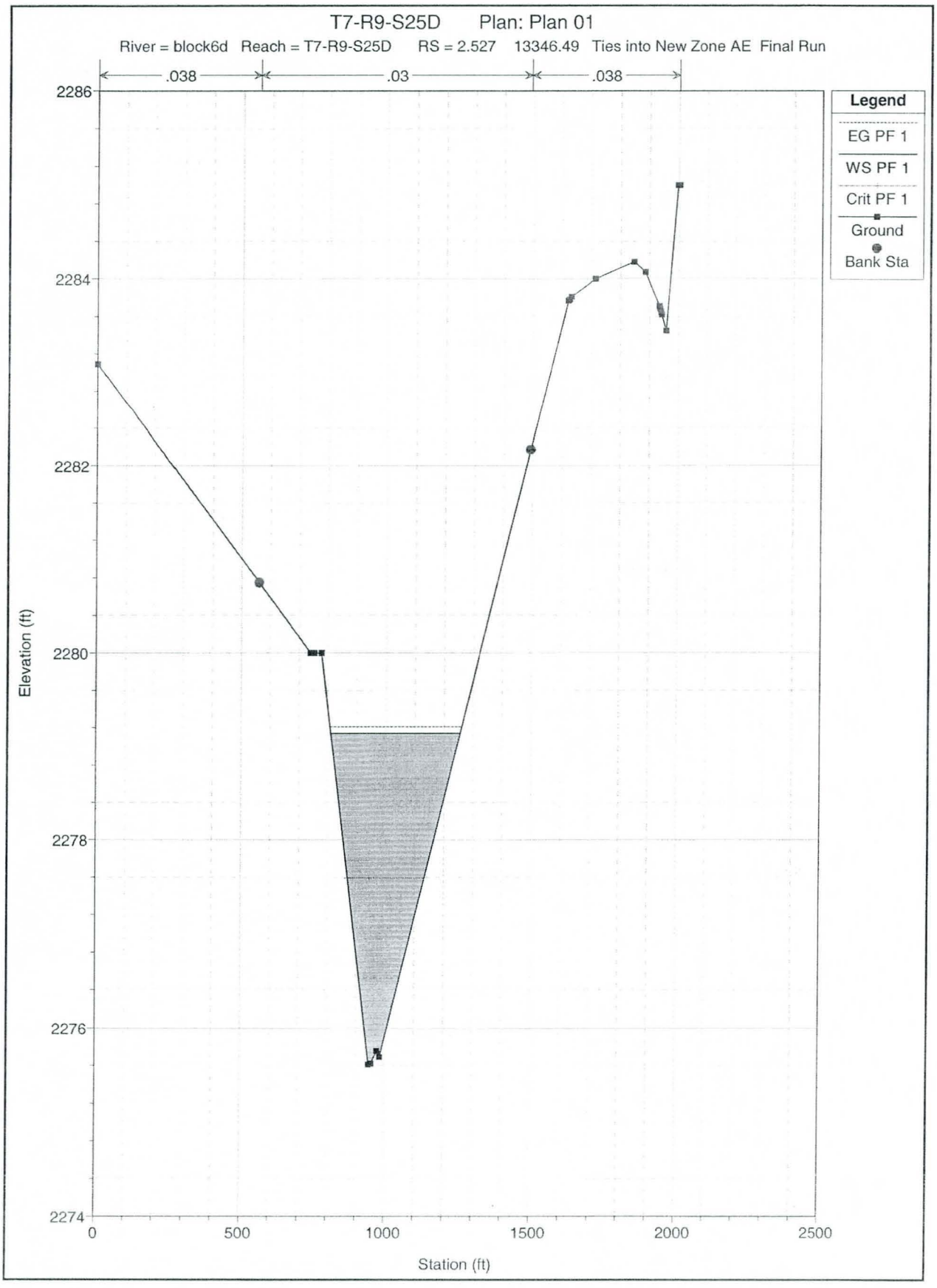
HEC-RAS Plan: Plan 01 River: block6d Reach: T7-R9-S25D Profile: PF 1

Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R9-S25D	3.116	1756.00	2292.10	2291.12	2.44	406.49	2.10	0.39	1292.70	1699.19
T7-R9-S25D	2.821	1756.00	2285.44	2285.44	3.93	1122.13	0.44	1.07	732.79	1854.92
T7-R9-S25D	2.527	1756.00	2279.14	2277.59	2.08	445.97	3.53	0.27	809.61	1255.59
T7-R9-S25D	2.205	1756.00	2276.74		2.79	685.64	1.74	0.50	741.45	1427.09
T7-R9-S25D	1.923	1756.00	2271.47	2271.09	2.77	751.75	1.46	0.53	528.48	1280.23
T7-R9-S25D	1.622	1756.00	2267.35	2266.81	2.09	985.71	1.60	0.37	345.27	1330.98
T7-R9-S25D	1.347	1756.00	2261.14	2261.14	4.62	578.04	1.14	1.00	583.91	1161.95
T7-R9-S25D	1.162	1756.00	2261.12	2257.78	0.46	3316.72	6.12	0.06	103.11	3419.83
T7-R9-S25D	0.883	1756.00	2260.54	2260.54	4.46	888.98	1.06	1.03	93.06	982.05
T7-R9-S25D	0.762	1756.00	2258.73		1.53	678.21	3.27	0.18	416.74	1094.95
T7-R9-S25D	0.525	1756.00	2258.30		1.54	726.21	3.30	0.19	422.07	1148.28
T7-R9-S25D	0.344	1756.00	2256.83	2256.83	5.50	346.62	1.83	1.01	620.14	966.75


block6d
3.116
2.821
2.527
T7-R9-S25D
2.205
1.923
1.622
1.347
1.162
0.883
0.762
0.525
0.344


T7-R9-S25D Plan: Plan 01
River = block6d Reach = T7-R9-S25D RS = 3.116 16453.37 Ties into New Zone AE Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2297
2296
2295
2294
2293
2292
2291
2290
0
200
400
600
800
1000
1200
1400
1600
1800


T7-R9-S25D Plan: Plan 01
River = block6d Reach = T7-R9-S25D RS = 2.821 14899.41 Ties into New Zone AE Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2290
2289
2288
2287
2286
2285
Elevation (ft)
0
500
1000
1500
2000
Station (ft)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River = block6d Reach = T7-R9-S25D RS = 2.527 13346.49 Ties into New Zone AE Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
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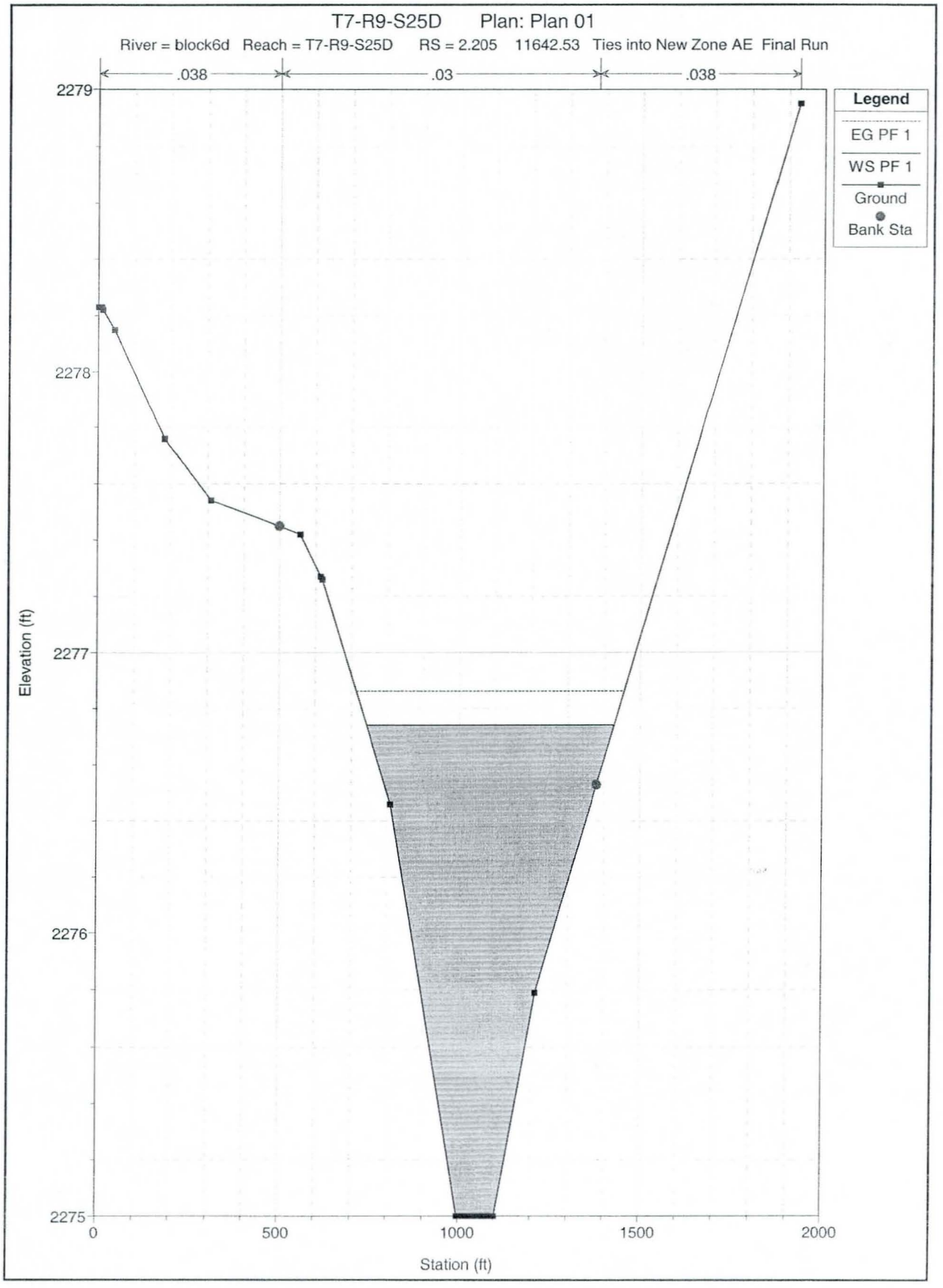
2284
2282
2280
2278
2276
2274
0
500
1000
1500
2000
2500
Station (ft)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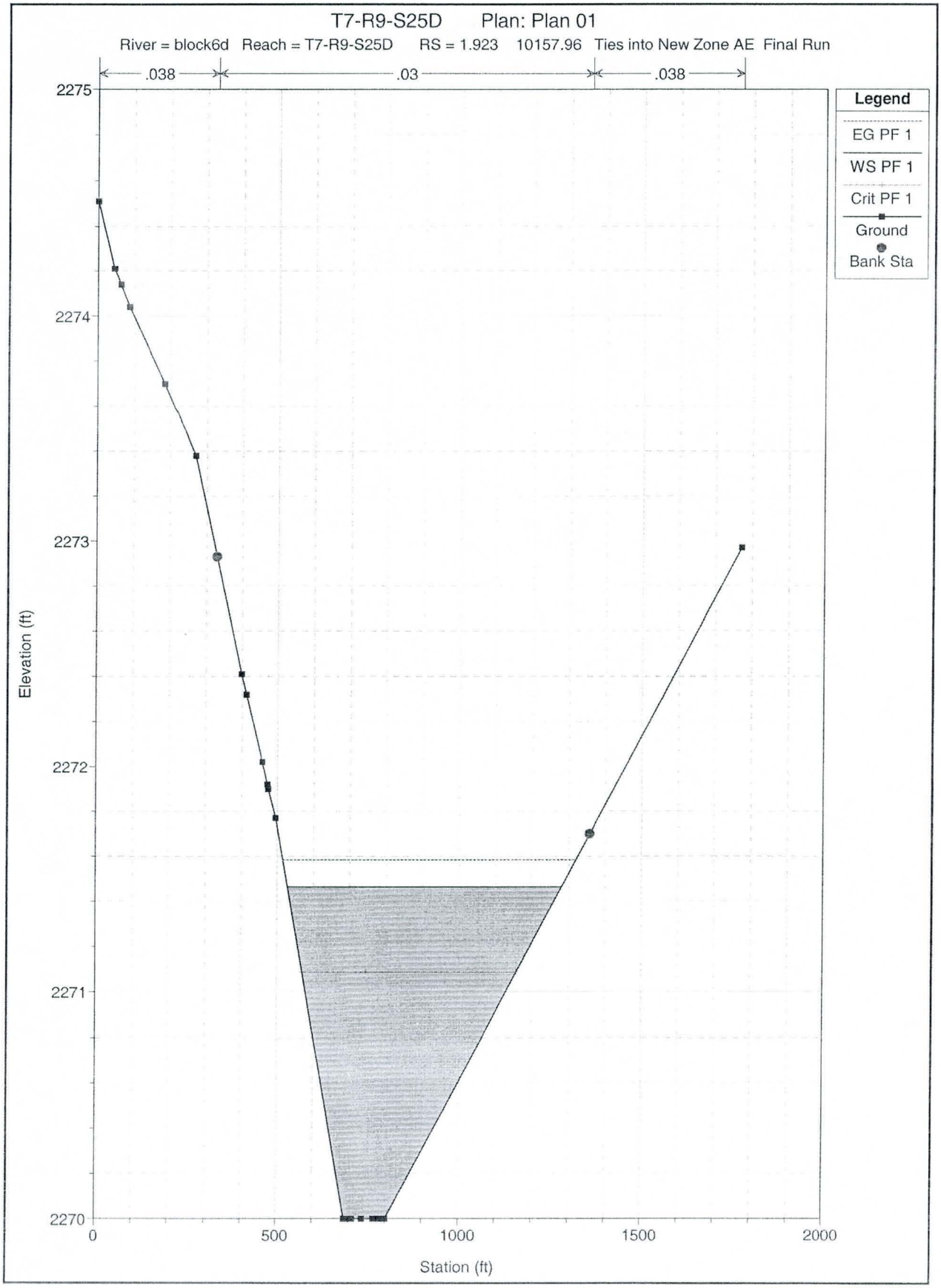
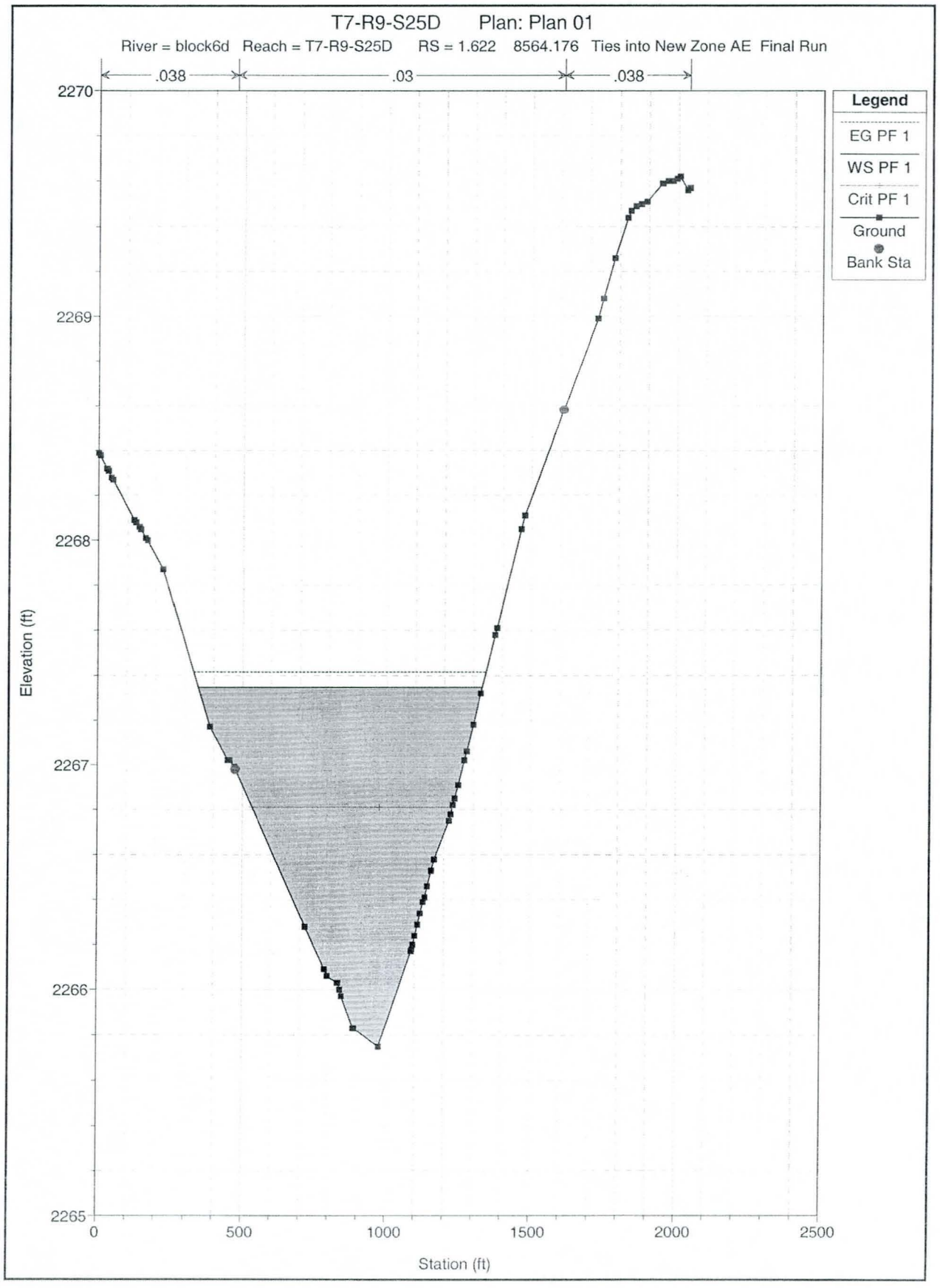
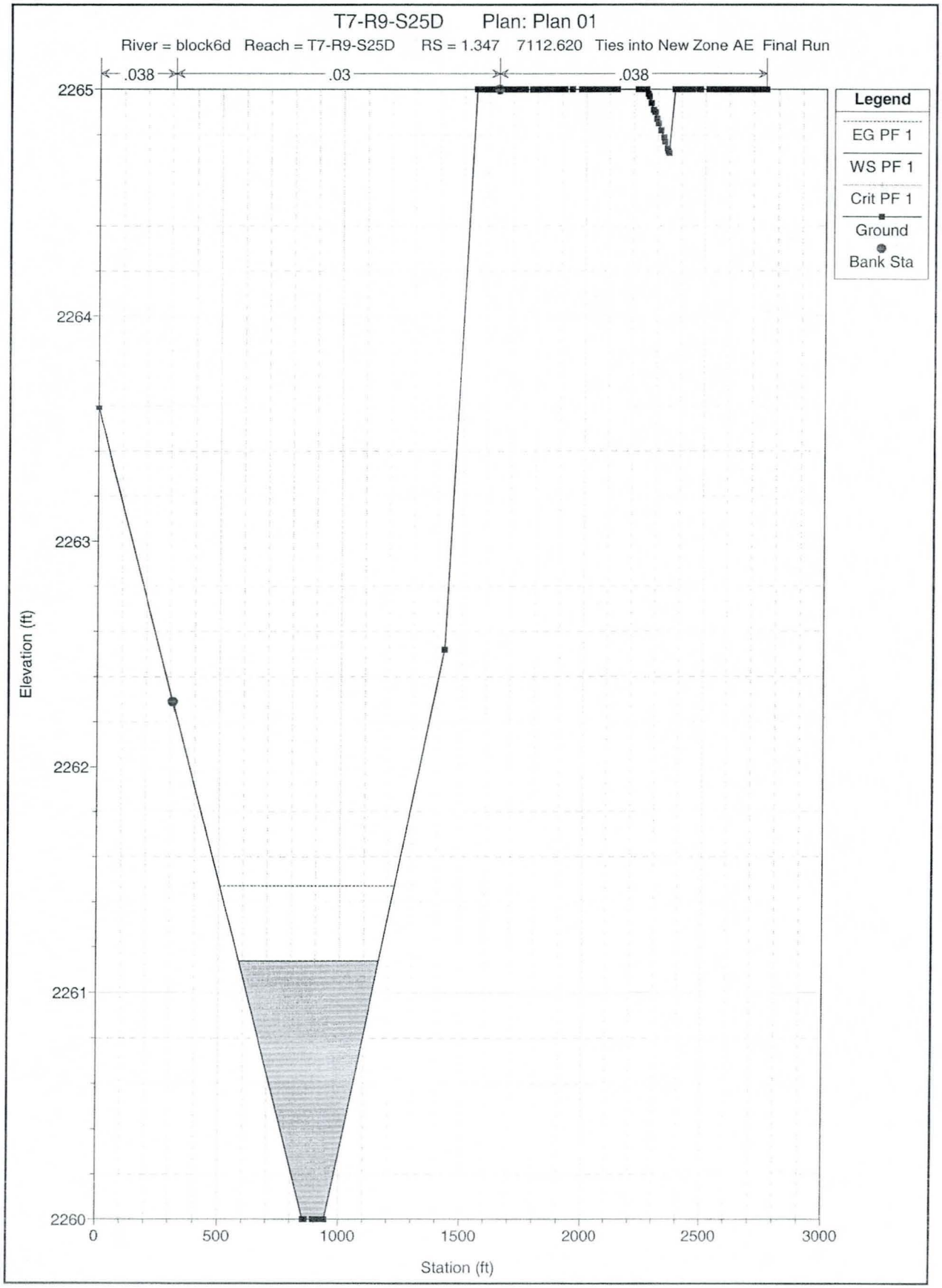
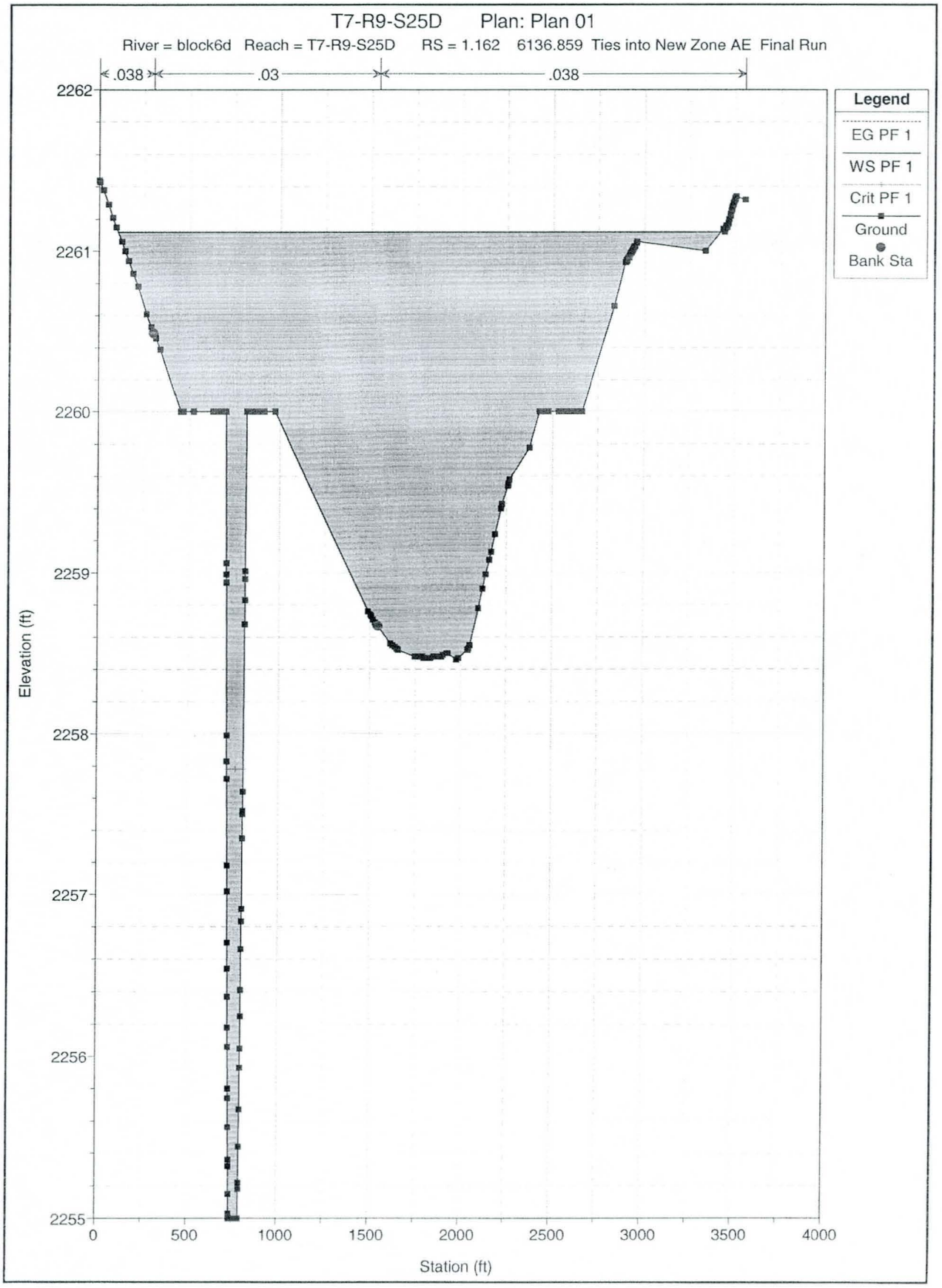
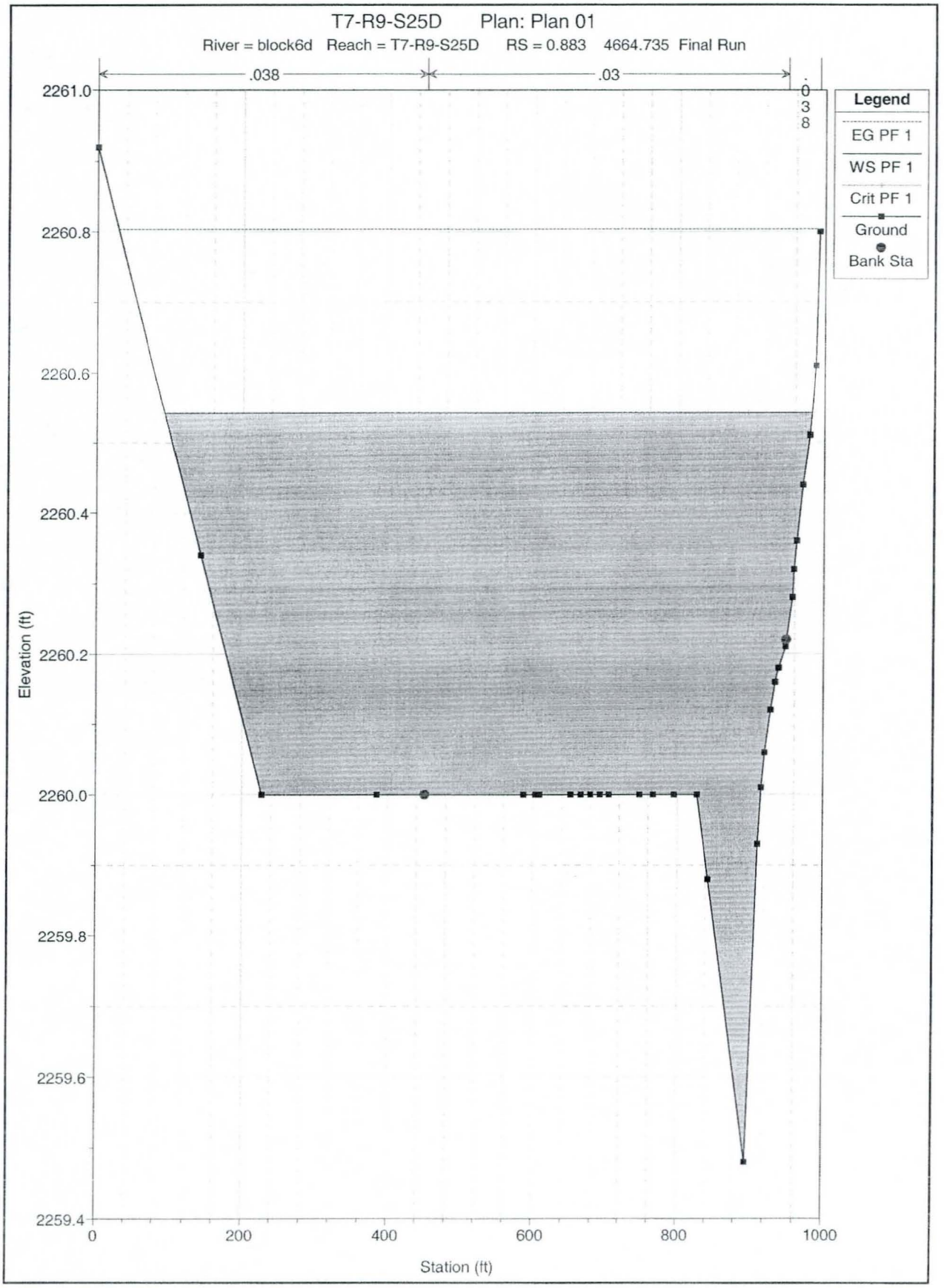
River = block6d Reach = T7-R9-S25D RS = 2.205 11642.53 Ties into New Zone AE Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
2279
2278
2277
2276
2275
Elevation (ft)
0
500
1000
1500
2000
Station (ft)

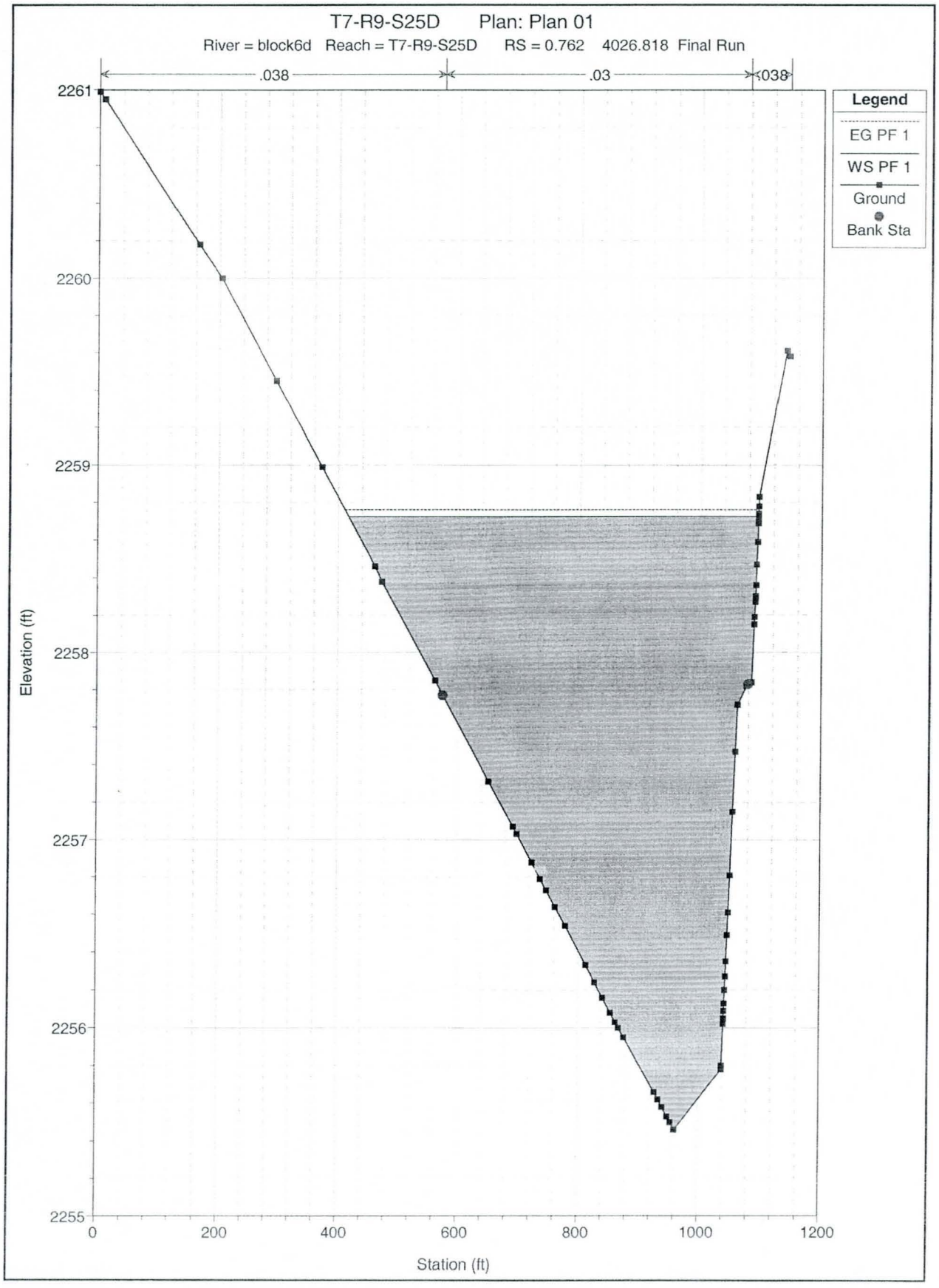

T7-R9-S25D Plan: Plan 01
River = block6d Reach = T7-R9-S25D RS = 1.923 10157.96 Ties into New Zone AE Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2275
2274
2273
2272
2271
2270
Elevation (ft)
0
500
1000
1500
2000
Station (ft)

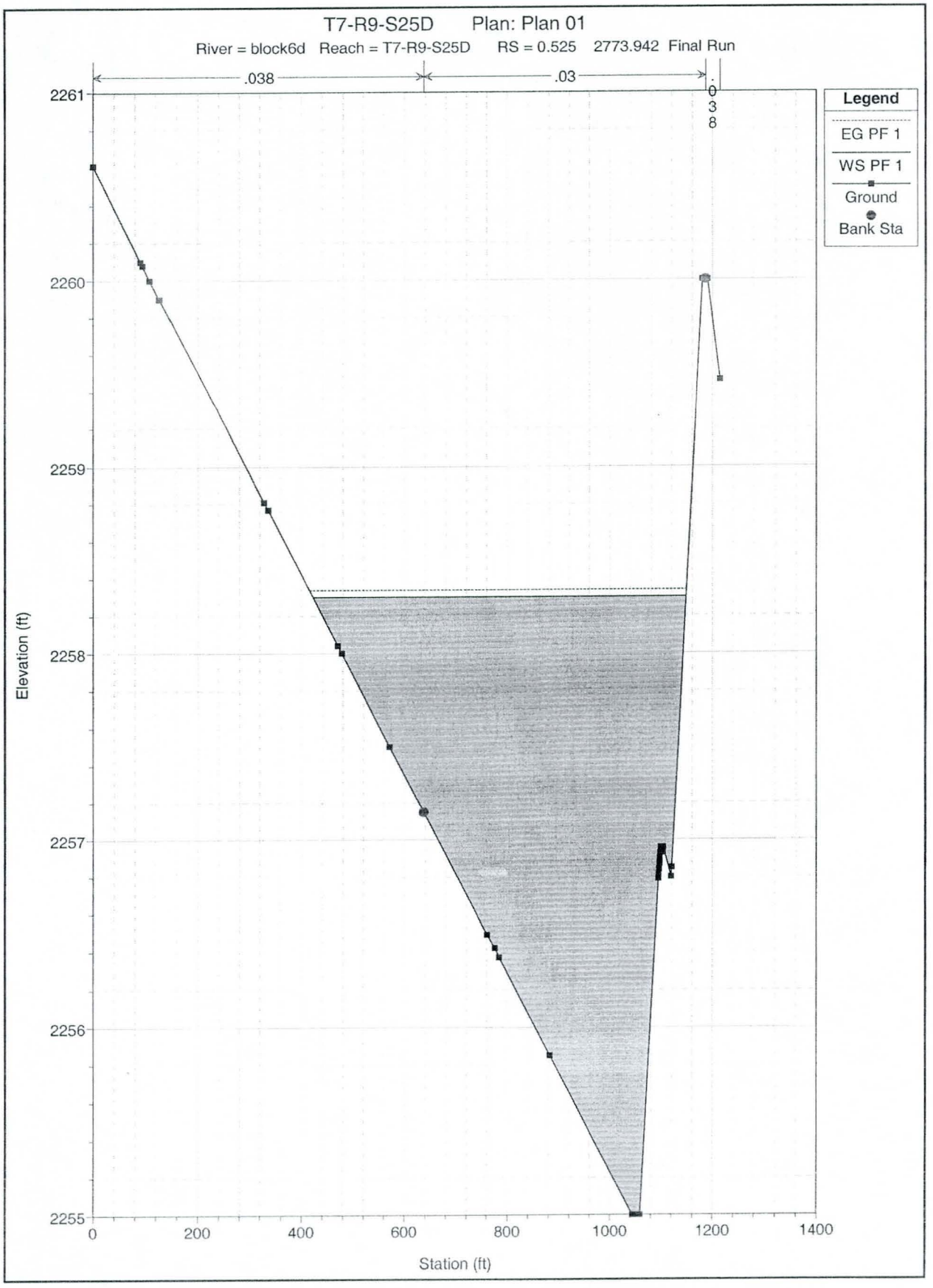

T7-R9-S25D Plan: Plan 01
River = block6d Reach = T7-R9-S25D RS = 1.622 8564.176 Ties into New Zone AE Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2270
2269
2268
2267
2266
2265
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)

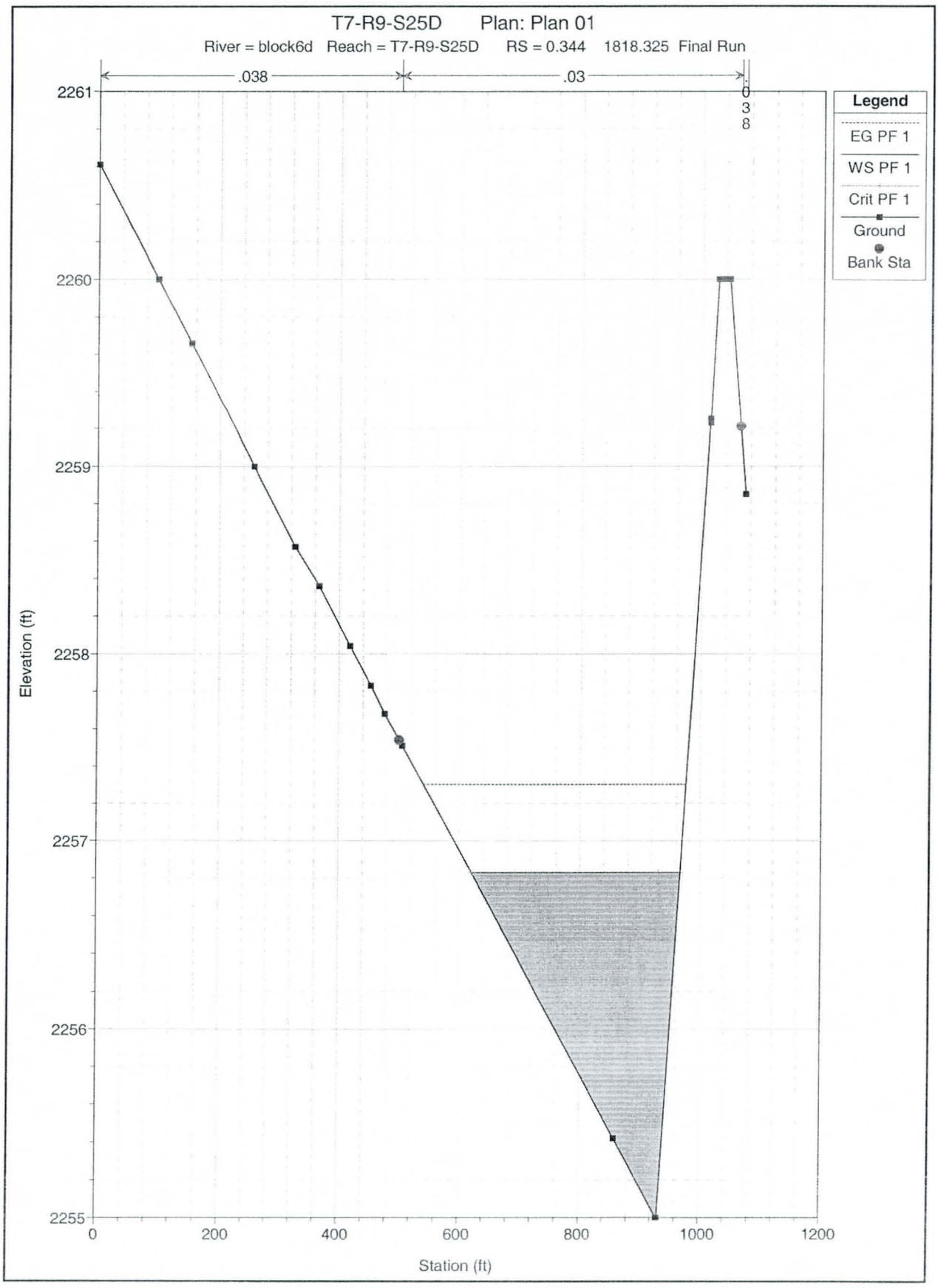

T7-R9-S25D Plan: Plan 01
River = block6d Reach = T7-R9-S25D RS = 1.347 7112.620 Ties into New Zone AE Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2265
2264
2263
2262
2261
2260
Elevation (ft)
0
500
1000
1500
2000
2500
3000
Station (ft)


T7-R9-S25D Plan: Plan 01
River = block6d Reach = T7-R9-S25D RS = 1.162 6136.859 Ties into New Zone AE Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2262
2261
2260
2259
2258
2257
2256
2255
0
500
1000
1500
2000
2500
3000
3500
4000
Station (ft)


T7-R9-S25D Plan: Plan 01
River = block6d Reach = T7-R9-S25D RS = 0.883 4664.735 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2261.0
2260.8
2260.6
2260.4
2260.2
2260.0
2259.8
2259.6
2259.4
0
200
400
600
800
1000
Station (ft)


T7-R9-S25D Plan: Plan 01
River = block6d Reach = T7-R9-S25D RS = 0.762 4026.818 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
2261
2260
2259
2258
2257
2256
2255
Elevation (ft)
0
200
400
600
800
1000
1200
Station (ft)


T7-R9-S25D Plan: Plan 01
River = block6d Reach = T7-R9-S25D RS = 0.525 2773.942 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
2261
2260
2259
2258
2257
2256
2255
0
200
400
600
800
1000
1200
1400
Station (ft)


T7-R9-S25D Plan: Plan 01
River = block6d Reach = T7-R9-S25D RS = 0.344 1818.325 Final Run
.038
.03
0
3
8
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2261
2260
2259
2258
2257
2256
2255
0
200
400
600
800
1000
1200
Station (ft)

Plan: Plan 01 block6d T7-R9-S25D RS: 3.116 Profile: PF 1

E.G. Elev (ft)	2292.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.030	0.038
W.S. Elev (ft)	2292.10	Reach Len. (ft)	1568.08	1553.95	1453.63
Crit W.S. (ft)	2291.12	Flow Area (sq ft)		238.16	433.41
E.G. Slope (ft/ft)	0.001853	Area (sq ft)		238.16	433.41
Q Total (cfs)	1756.00	Flow (cfs)		580.85	1175.15
Top Width (ft)	406.49	Top Width (ft)		194.66	211.83
Vel Total (ft/s)	2.61	Avg. Vel. (ft/s)		2.44	2.71
Max Chl Dpth (ft)	2.10	Hydr. Depth (ft)		1.22	2.05
Conv. Total (cfs)	40790.7	Conv. (cfs)		13492.6	27298.0
Length Wtd. (ft)	1505.54	Wetted Per. (ft)		194.68	212.02
Min Ch El (ft)	2290.00	Shear (lb/sq ft)		0.14	0.24
Alpha	1.01	Stream Power (lb/ft s)		0.35	0.64
Frctn Loss (ft)	6.55	Cum Volume (acre-ft)	10.10	255.90	141.10
C & E Loss (ft)	0.01	Cum SA (acres)	24.06	217.32	117.68

Errors Warnings and Notes

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.

Plan: Plan 01 block6d T7-R9-S25D RS: 2.821 Profile: PF 1

E.G. Elev (ft)	2285.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.030	0.038
W.S. Elev (ft)	2285.44	Reach Len. (ft)	1538.61	1552.92	1453.63
Crit W.S. (ft)	2285.44	Flow Area (sq ft)		314.99	163.86
E.G. Slope (ft/ft)	0.019855	Area (sq ft)		314.99	163.86
Q Total (cfs)	1756.00	Flow (cfs)		1236.46	519.54
Top Width (ft)	1122.13	Top Width (ft)		746.79	375.34
Vel Total (ft/s)	3.67	Avg. Vel. (ft/s)		3.93	3.17
Max Chl Dpth (ft)	0.44	Hydr. Depth (ft)		0.42	0.44
Conv. Total (cfs)	12461.9	Conv. (cfs)		8774.9	3687.0
Length Wtd. (ft)	1538.23	Wetted Per. (ft)		746.79	375.38
Min Ch El (ft)	2285.00	Shear (lb/sq ft)		0.52	0.54
Alpha	1.03	Stream Power (lb/ft s)		2.05	1.72
Frctn Loss (ft)	3.26	Cum Volume (acre-ft)	10.10	246.03	131.14
C & E Loss (ft)	0.04	Cum SA (acres)	24.06	200.53	107.89

Errors Warnings and Notes

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.

Plan: Plan 01 block6d T7-R9-S25D RS: 2.527 Profile: PF 1

E.G. Elev (ft)	2279.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.030	
W.S. Elev (ft)	2279.14	Reach Len. (ft)	1811.70	1703.96	1463.70
Crit W.S. (ft)	2277.59	Flow Area (sq ft)		843.35	
E.G. Slope (ft/ft)	0.000756	Area (sq ft)		843.35	
Q Total (cfs)	1756.00	Flow (cfs)		1756.00	
Top Width (ft)	445.97	Top Width (ft)		445.97	
Vel Total (ft/s)	2.08	Avg. Vel. (ft/s)		2.08	
Max Chl Dpth (ft)	3.53	Hydr. Depth (ft)		1.89	
Conv. Total (cfs)	63871.1	Conv. (cfs)		63871.1	
Length Wtd. (ft)	1703.79	Wetted Per. (ft)		446.04	
Min Ch El (ft)	2275.61	Shear (lb/sq ft)		0.09	
Alpha	1.00	Stream Power (lb/ft s)		0.19	
Frctn Loss (ft)	2.34	Cum Volume (acre-ft)	10.10	225.39	128.40
C & E Loss (ft)	0.01	Cum SA (acres)	24.06	179.26	101.62

Errors Warnings and Notes

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.

Plan: Plan 01 block6d T7-R9-S25D RS: 2.205 Profile: PF 1

E.G. Elev (ft)	2276.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.030	0.038
W.S. Elev (ft)	2276.74	Reach Len. (ft)	1226.99	1484.57	1705.21
Crit W.S. (ft)		Flow Area (sq ft)		628.26	5.10
E.G. Slope (ft/ft)	0.003238	Area (sq ft)		628.26	5.10
Q Total (cfs)	1756.00	Flow (cfs)		1753.46	2.54
Top Width (ft)	685.64	Top Width (ft)		637.51	48.13
Vel Total (ft/s)	2.77	Avg. Vel. (ft/s)		2.79	0.50
Max Chl Dpth (ft)	1.74	Hydr. Depth (ft)		0.99	0.11
Conv. Total (cfs)	30861.2	Conv. (cfs)		30816.6	44.7
Length Wtd. (ft)	1484.73	Wetted Per. (ft)		637.52	48.13
Min Ch El (ft)	2275.00	Shear (lb/sq ft)		0.20	0.02
Alpha	1.01	Stream Power (lb/ft s)		0.56	0.01
Frctn Loss (ft)	5.28	Cum Volume (acre-ft)	10.10	196.60	128.32
C & E Loss (ft)	0.00	Cum SA (acres)	24.06	158.07	100.81

Errors Warnings and Notes

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.

Plan: Plan 01 block6d T7-R9-S25D RS: 1.923 Profile: PF 1

E.G. Elev (ft)	2271.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.030	
W.S. Elev (ft)	2271.47	Reach Len. (ft)	1472.37	1593.79	1517.49
Crit W.S. (ft)	2271.09	Flow Area (sq ft)		634.18	
E.G. Slope (ft/ft)	0.003921	Area (sq ft)		634.18	
Q Total (cfs)	1756.00	Flow (cfs)		1756.00	
Top Width (ft)	751.75	Top Width (ft)		751.75	
Vel Total (ft/s)	2.77	Avg. Vel. (ft/s)		2.77	
Max Chl Dpth (ft)	1.46	Hydr. Depth (ft)		0.84	

Plan: Plan 01 block6d T7-R9-S25D RS: 1.923 Profile: PF 1 (Continued)

Conv. Total (cfs)	28043.8	Conv. (cfs)		28043.8	
Length Wtd. (ft)	1593.19	Wetted Per. (ft)		751.76	
Min Ch El (ft)	2270.00	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		0.57	
Frctn Loss (ft)	4.15	Cum Volume (acre-ft)	10.10	175.09	128.22
C & E Loss (ft)	0.02	Cum SA (acres)	24.06	134.40	99.87

Errors Warnings and Notes

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.

Plan: Plan 01 block6d T7-R9-S25D RS: 1.622 Profile: PF 1

E.G. Elev (ft)	2267.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.038	0.030	
W.S. Elev (ft)	2267.35	Reach Len. (ft)	1122.09	1451.56	1507.00
Crit W.S. (ft)	2266.81	Flow Area (sq ft)	28.37	830.85	
E.G. Slope (ft/ft)	0.001857	Area (sq ft)	28.37	830.85	
Q Total (cfs)	1756.00	Flow (cfs)	17.35	1738.65	
Top Width (ft)	985.71	Top Width (ft)	129.74	855.97	
Vel Total (ft/s)	2.04	Avg. Vel. (ft/s)	0.61	2.09	
Max Chl Dpth (ft)	1.60	Hydr. Depth (ft)	0.22	0.97	
Conv. Total (cfs)	40745.9	Conv. (cfs)	402.7	40343.2	
Length Wtd. (ft)	1449.93	Wetted Per. (ft)	129.74	855.97	
Min Ch El (ft)	2265.75	Shear (lb/sq ft)	0.03	0.11	
Alpha	1.04	Stream Power (lb/ft s)	0.02	0.24	
Frctn Loss (ft)	5.92	Cum Volume (acre-ft)	9.62	148.29	128.22
C & E Loss (ft)	0.03	Cum SA (acres)	21.87	104.99	99.87

Errors Warnings and Notes

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.

Plan: Plan 01 block6d T7-R9-S25D RS: 1.347 Profile: PF 1

E.G. Elev (ft)	2261.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.		0.030	
W.S. Elev (ft)	2261.14	Reach Len. (ft)	710.53	975.76	659.58
Crit W.S. (ft)	2261.14	Flow Area (sq ft)		379.85	
E.G. Slope (ft/ft)	0.015248	Area (sq ft)		379.85	
Q Total (cfs)	1756.00	Flow (cfs)		1756.00	
Top Width (ft)	578.04	Top Width (ft)		578.04	
Vel Total (ft/s)	4.62	Avg. Vel. (ft/s)		4.62	
Max Chl Dpth (ft)	1.14	Hydr. Depth (ft)		0.66	
Conv. Total (cfs)	14220.8	Conv. (cfs)		14220.8	
Length Wtd. (ft)	908.79	Wetted Per. (ft)		578.04	
Min Ch El (ft)	2260.00	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		2.89	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	9.25	128.12	128.22
C & E Loss (ft)	0.10	Cum SA (acres)	20.20	81.09	99.87

Errors Warnings and Notes

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

Errors Warnings and Notes (Continued)

	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 depth.

Plan: Plan 01 block6d T7-R9-S25D RS: 1.162 Profile: PF 1

E.G. Elev (ft)	2261.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.038	0.030	0.038
W.S. Elev (ft)	2261.12	Reach Len. (ft)	1114.53	1472.12	3880.02
Crit W.S. (ft)	2257.78	Flow Area (sq ft)	62.35	2177.81	2451.27
E.G. Slope (ft/ft)	0.000042	Area (sq ft)	62.35	2177.81	2451.27
Q Total (cfs)	1756.00	Flow (cfs)	7.24	1010.91	737.85
Top Width (ft)	3316.72	Top Width (ft)	199.05	1240.62	1877.05
Vel Total (ft/s)	0.37	Avg. Vel. (ft/s)	0.12	0.46	0.30
Max Chl Dpth (ft)	6.12	Hydr. Depth (ft)	0.31	1.76	1.31
Conv. Total (cfs)	272544.1	Conv. (cfs)	1124.4	156900.3	114519.4
Length Wtd. (ft)	1935.56	Wetted Per. (ft)	199.05	1241.44	1877.05
Min Ch El (ft)	2255.00	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.16	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	8.75	99.47	109.66
C & E Loss (ft)	0.03	Cum SA (acres)	18.57	60.73	85.66

Errors Warnings and Notes

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.

Plan: Plan 01 block6d T7-R9-S25D RS: 0.883 Profile: PF 1

E.G. Elev (ft)	2260.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	0.038	0.030	0.038
W.S. Elev (ft)	2260.54	Reach Len. (ft)	621.39	637.92	640.01
Crit W.S. (ft)	2260.54	Flow Area (sq ft)	157.65	287.81	5.34
E.G. Slope (ft/ft)	0.016862	Area (sq ft)	157.65	287.81	5.34
Q Total (cfs)	1756.00	Flow (cfs)	463.47	1284.52	8.00
Top Width (ft)	888.98	Top Width (ft)	357.86	497.89	33.24
Vel Total (ft/s)	3.90	Avg. Vel. (ft/s)	2.94	4.46	1.50
Max Chl Dpth (ft)	1.06	Hydr. Depth (ft)	0.44	0.58	0.16
Conv. Total (cfs)	13522.7	Conv. (cfs)	3569.1	9891.9	61.6
Length Wtd. (ft)	635.59	Wetted Per. (ft)	357.86	497.90	33.24
Min Ch El (ft)	2259.48	Shear (lb/sq ft)	0.46	0.61	0.17
Alpha	1.11	Stream Power (lb/ft s)	1.36	2.72	0.25
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)	5.93	57.81	0.25
C & E Loss (ft)	0.07	Cum SA (acres)	11.45	31.35	0.58

Errors Warnings and Notes

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.

Errors Warnings and Notes (Continued)

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.

Plan: Plan 01 block6d T7-R9-S25D RS: 0.762 Profile: PF 1

E.G. Elev (ft)	2258.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.038	0.030	0.038
W.S. Elev (ft)	2258.73	Reach Len. (ft)	1260.01	1252.88	1252.73
Crit W.S. (ft)		Flow Area (sq ft)	75.29	1121.76	9.63
E.G. Slope (ft/ft)	0.000330	Area (sq ft)	75.29	1121.76	9.63
Q Total (cfs)	1756.00	Flow (cfs)	32.65	1718.41	4.95
Top Width (ft)	678.21	Top Width (ft)	157.84	504.75	15.62
Vel Total (ft/s)	1.46	Avg. Vel. (ft/s)	0.43	1.53	0.51
Max Chl Dpth (ft)	3.27	Hydr. Depth (ft)	0.48	2.22	0.62
Conv. Total (cfs)	96679.4	Conv. (cfs)	1797.4	94609.6	272.4
Length Wtd. (ft)	1253.08	Wetted Per. (ft)	157.85	504.84	15.66
Min Ch El (ft)	2255.46	Shear (lb/sq ft)	0.01	0.05	0.01
Alpha	1.09	Stream Power (lb/ft s)	0.00	0.07	0.01
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	4.27	47.49	0.14
C & E Loss (ft)	0.00	Cum SA (acres)	7.77	24.01	0.22

Plan: Plan 01 block6d T7-R9-S25D RS: 0.525 Profile: PF 1

E.G. Elev (ft)	2258.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.038	0.030	
W.S. Elev (ft)	2258.30	Reach Len. (ft)	957.88	955.62	955.64
Crit W.S. (ft)		Flow Area (sq ft)	124.96	1098.81	
E.G. Slope (ft/ft)	0.000348	Area (sq ft)	124.96	1098.81	
Q Total (cfs)	1756.00	Flow (cfs)	63.41	1692.60	
Top Width (ft)	726.21	Top Width (ft)	215.52	510.69	
Vel Total (ft/s)	1.43	Avg. Vel. (ft/s)	0.51	1.54	
Max Chl Dpth (ft)	3.30	Hydr. Depth (ft)	0.58	2.15	
Conv. Total (cfs)	94093.2	Conv. (cfs)	3397.5	90695.7	
Length Wtd. (ft)	955.66	Wetted Per. (ft)	215.52	510.78	
Min Ch El (ft)	2255.00	Shear (lb/sq ft)	0.01	0.05	
Alpha	1.12	Stream Power (lb/ft s)	0.01	0.07	
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	1.37	15.55	
C & E Loss (ft)	0.04	Cum SA (acres)	2.37	9.40	

Errors Warnings and Notes

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.

Plan: Plan 01 block6d T7-R9-S25D RS: 0.344 Profile: PF 1

E.G. Elev (ft)	2257.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.47	Wt. n-Val.		0.030	
W.S. Elev (ft)	2256.83	Reach Len. (ft)			
Crit W.S. (ft)	2256.83	Flow Area (sq ft)		319.02	
E.G. Slope (ft/ft)	0.013798	Area (sq ft)		319.02	
Q Total (cfs)	1756.00	Flow (cfs)		1756.00	
Top Width (ft)	346.62	Top Width (ft)		346.62	
Vel Total (ft/s)	5.50	Avg. Vel. (ft/s)		5.50	

Plan: Plan 01 block6d T7-R9-S25D RS: 0.344 Profile: PF 1 (Continued)

Max Chl Dpth (ft)	1.83	Hydr. Depth (ft)		0.92	
Conv. Total (cfs)	14949.3	Conv. (cfs)		14949.3	
Length Wtd. (ft)		Wetted Per. (ft)		346.67	
Min Ch El (ft)	2255.00	Shear (lb/sq ft)		0.79	
Alpha	1.00	Stream Power (lb/ft s)		4.36	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6d\ArcView\T7R9S25D.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6d\ArcView\T7R9S25D.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6d\ArcView\T7R9S25D.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6d\ArcView\T7R9S25D.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6d\ArcView\T7R9S25D.nt
Selected profiles: PF 1
Date: 12/5/2003
Time: 3:44:19 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
block6d,T7-R9-S25D						
3.116		0.038	0.03	0.038	0.1	0.3
2.821		0.038	0.03	0.038	0.1	0.3
2.527		0.038	0.03	0.038	0.1	0.3
2.205		0.038	0.03	0.038	0.1	0.3
1.923		0.038	0.03	0.038	0.1	0.3
1.622		0.038	0.03	0.038	0.1	0.3
1.347		0.038	0.03	0.038	0.1	0.3
1.162		0.038	0.03	0.038	0.1	0.3
.883		0.038	0.03	0.038	0.1	0.3
.762		0.038	0.03	0.038	0.1	0.3
.525		0.038	0.03	0.038	0.1	0.3
.344		0.038	0.03	0.038	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.038	0.038
Right Overbank n Value:	0.038	0.038
Channel n Value:	0.03	0.03
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6d\ArcView\T7R9S25D.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6d\ArcView\T7R9S25D.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6d\ArcView\T7R9S25D.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6d\ArcView\T7R9S25D.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 6\Block 6d\ArcView\T7R9S25D.xs
Selected profiles: PF 1
Date: 12/5/2003
Time: 3:44:21 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
block6d,T7-R9-S25D						
3.116	1568.08	1553.95	1453.63	406.49	1756	
2.821	1538.61	1552.92	1453.63	1122.13	1756	C
2.527	1811.7	1703.96	1463.7	445.97	1756	
2.205	1226.99	1484.57	1705.21	685.64	1756	
1.923	1472.37	1593.79	1517.49	751.75	1756	
1.622	1122.09	1451.56	1507	985.71	1756	
1.347	710.53	975.76	659.58	578.04	1756	C
1.162	1114.53	1472.12	3880.02	3316.72	1756	
0.883	621.39	637.92	640.01	888.98	1756	C
0.762	1260.01	1252.88	1252.73	678.21	1756	
0.525	957.88	955.62	955.64	726.21	1756	
0.344	2207.56	1818.32	2195.92	346.62	1756	C

B=blocked obstruction
C=critial depth
D=divided flow
E=cross section extended
K=known water-surface

XS SC 05
XS SC 03
XS SC 01
XS SC 02
XS SC 04

DISTANCE CHECK

RS: 0.525
XS DT 01 Both right and left overbank distances are longer than the channel distance.

RS: 0.344
XS DT 01 Both right and left overbank distances are longer than the channel distance.

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

XS DC 02 Constant dicharge used for the block6d,T7-R9-S25D

LOCATION CHECK

RS: 1.622
XS LC 01 Lenchl Up/TopwdthAct Dn = 2.51
MaxChlDpth Up/MaxChlDpth Dn = 1.40
TopwdthAct Up/TopwdthAct Dn = 1.71
This cross section is located too far upstream from the critical depth cross section.

RS: 1.162
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.66
MaxChlDpth Up/MaxChlDpth Dn = 5.77
TopwdthAct Up/TopwdthAct Dn = 3.73
This cross section is located too far upstream from the critical depth cross section.

RS: 0.525
XS LC 01 Lenchl Up/TopwdthAct Dn = 2.76
MaxChlDpth Up/MaxChlDpth Dn = 1.80
TopwdthAct Up/TopwdthAct Dn = 2.10
This cross section is located too far upstream from the
critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is block6d,T7-R9-S25D
Known WS = 2250 is specified as the downstream boundary
for profile PF 1

---END---

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

Explanation:
Cross sections were cut in order to take in channel geometry.

DISCHARGE CHECK

Warning:
Constant discharge used for the reach.

Explanation:
The discharge was determined from the regression equations for the sub basin. The Flood Control District of Maricopa County also approved the peak discharge values.

LOCATION CHECK

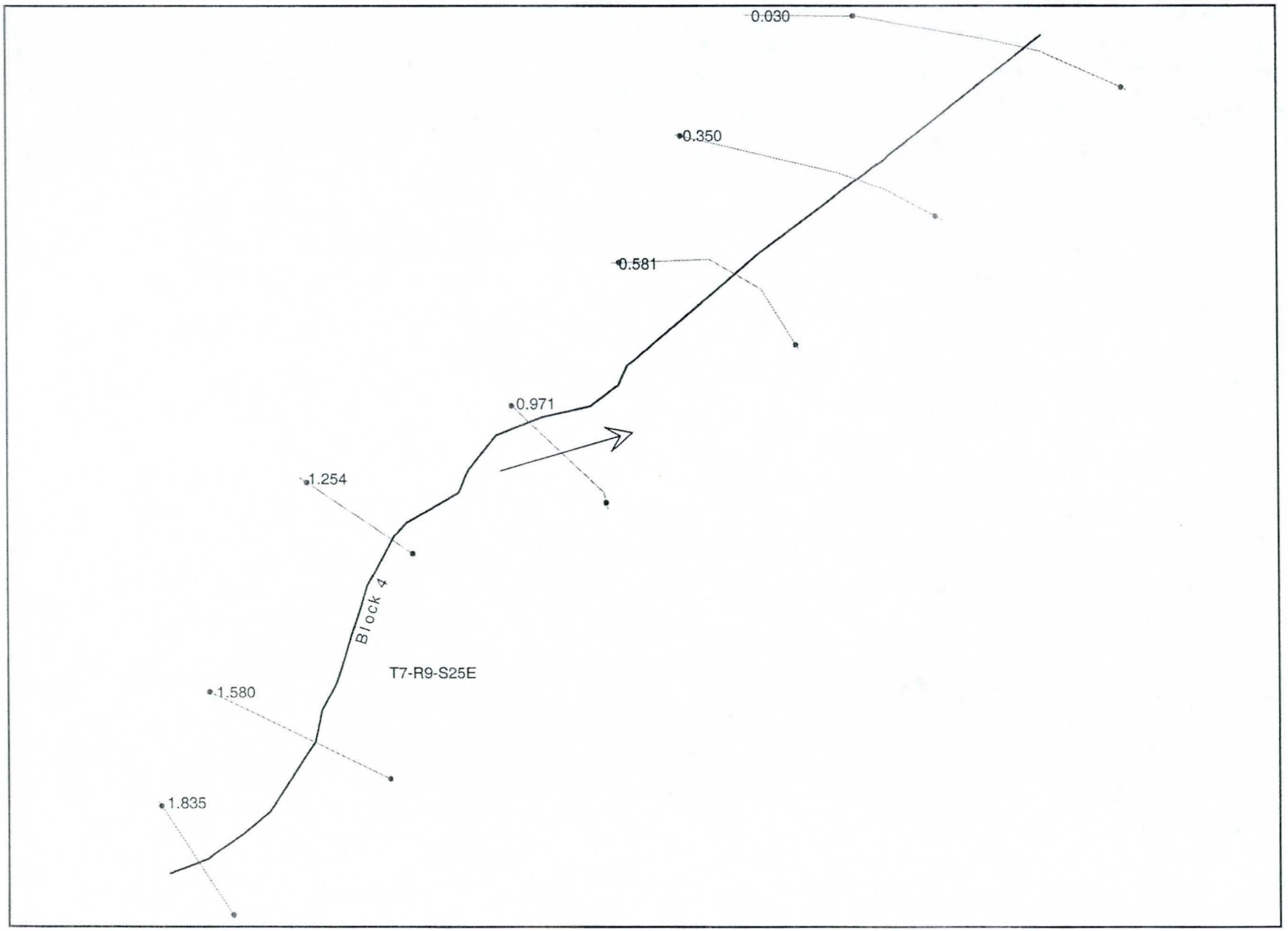
Non-detailed study; cross-sections located 2000-3000 feet apart.

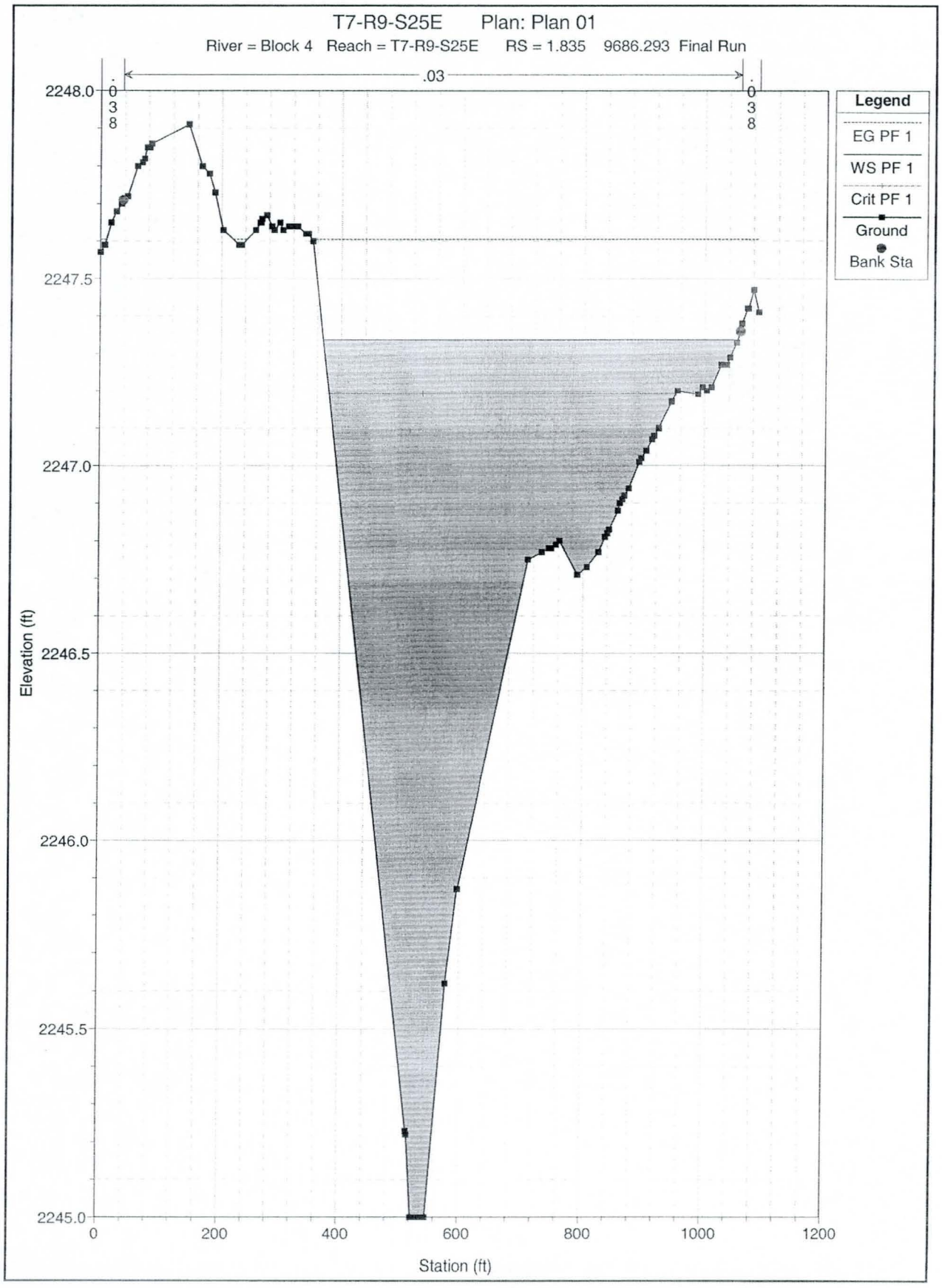
BOUNDARY CONDITION CHECK

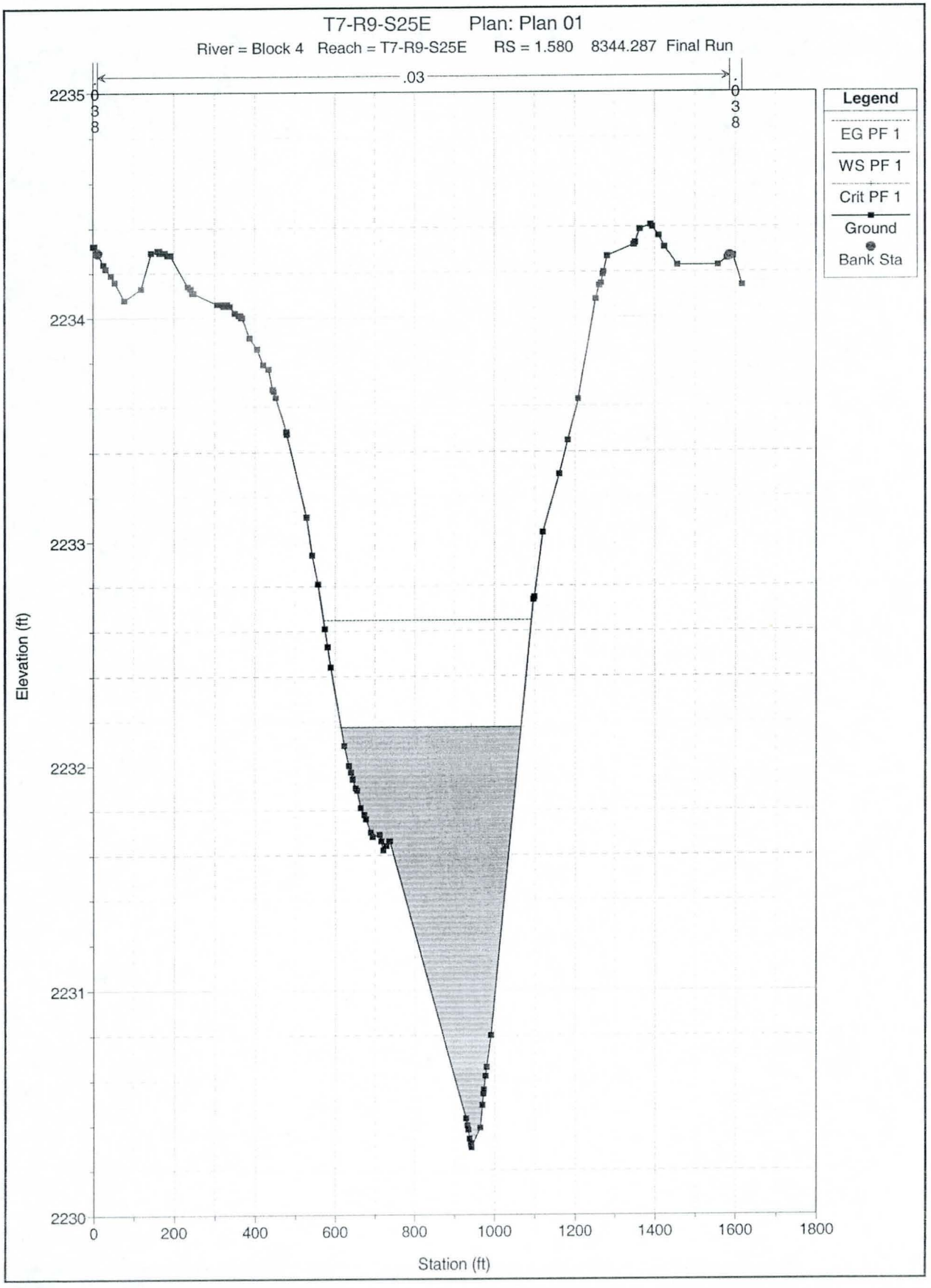
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

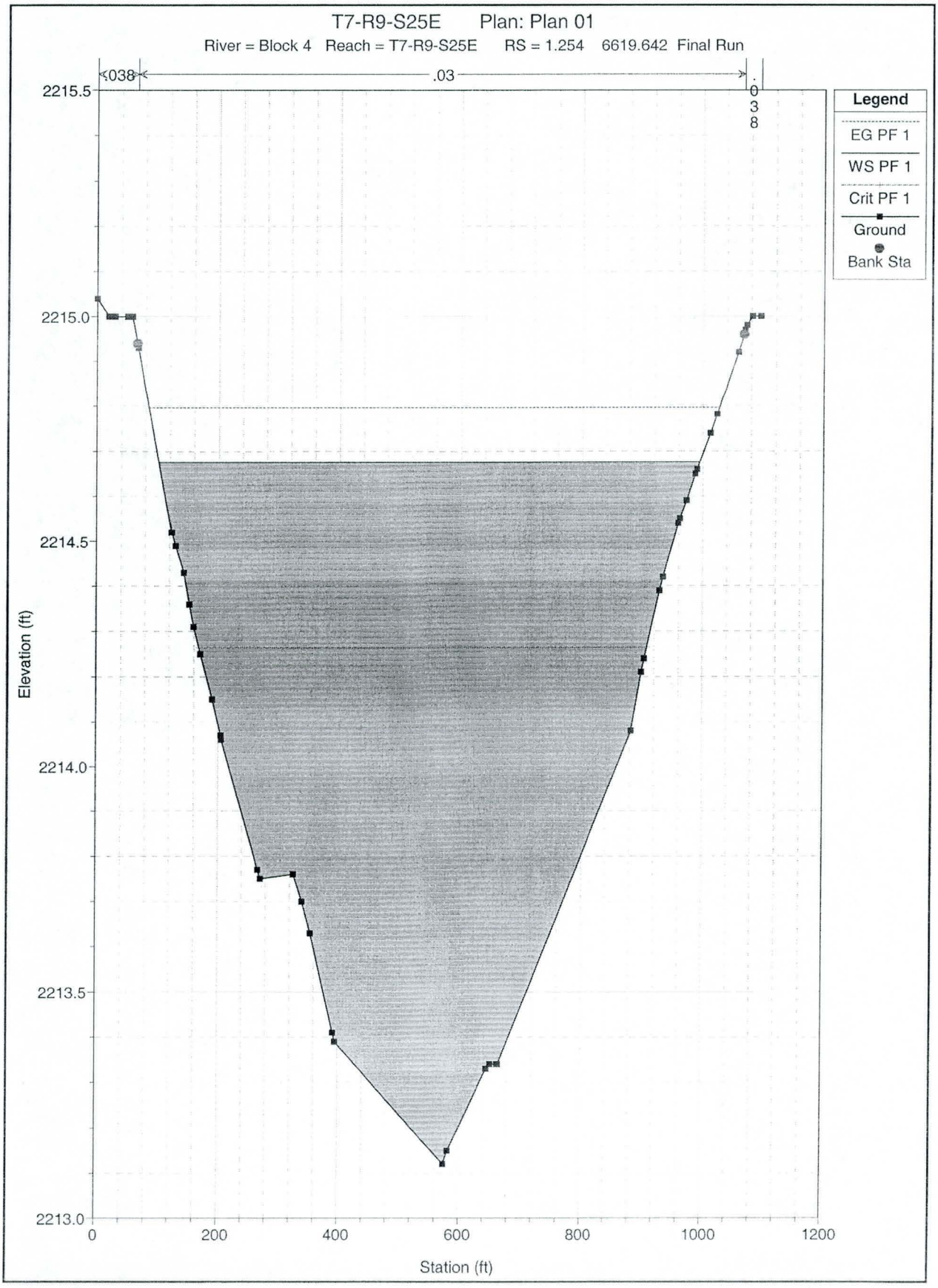
HEC-RAS Plan: Plan 01 River: Block 4 Reach: T7-R9-S25E Profile: PF 1

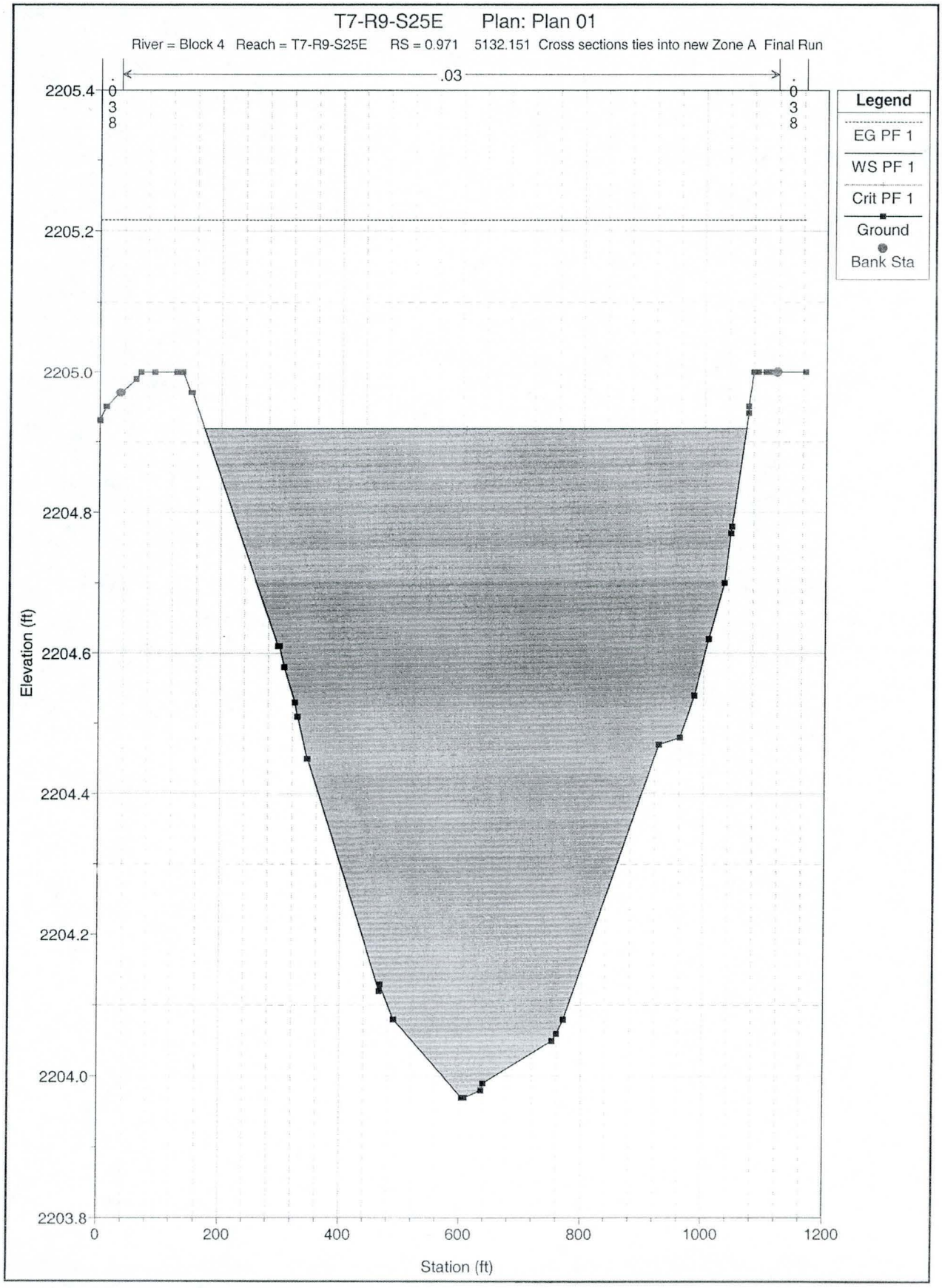
Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R9-S25E	1.835	2318.00	2247.34	2247.19	4.15	683.90	2.34	0.81	370.03	1053.93
T7-R9-S25E	1.580	2318.00	2232.17	2232.17	5.53	451.85	1.87	1.01	614.35	1066.20
T7-R9-S25E	1.254	2318.00	2214.68	2214.27	2.79	893.32	1.56	0.51	101.68	994.99
T7-R9-S25E	0.971	2318.00	2204.92	2204.92	4.37	895.65	0.95	1.00	172.09	1067.74
T7-R9-S25E	0.581	2318.00	2194.16		1.77	1413.67	1.45	0.32	127.52	1541.19
T7-R9-S25E	0.350	2318.00	2188.28	2188.28	4.07	1131.10	0.93	1.01	296.45	1427.55
T7-R9-S25E	0.030	3683.00	2184.25	2182.34	0.87	2327.64	2.87	0.10	250.47	2578.10

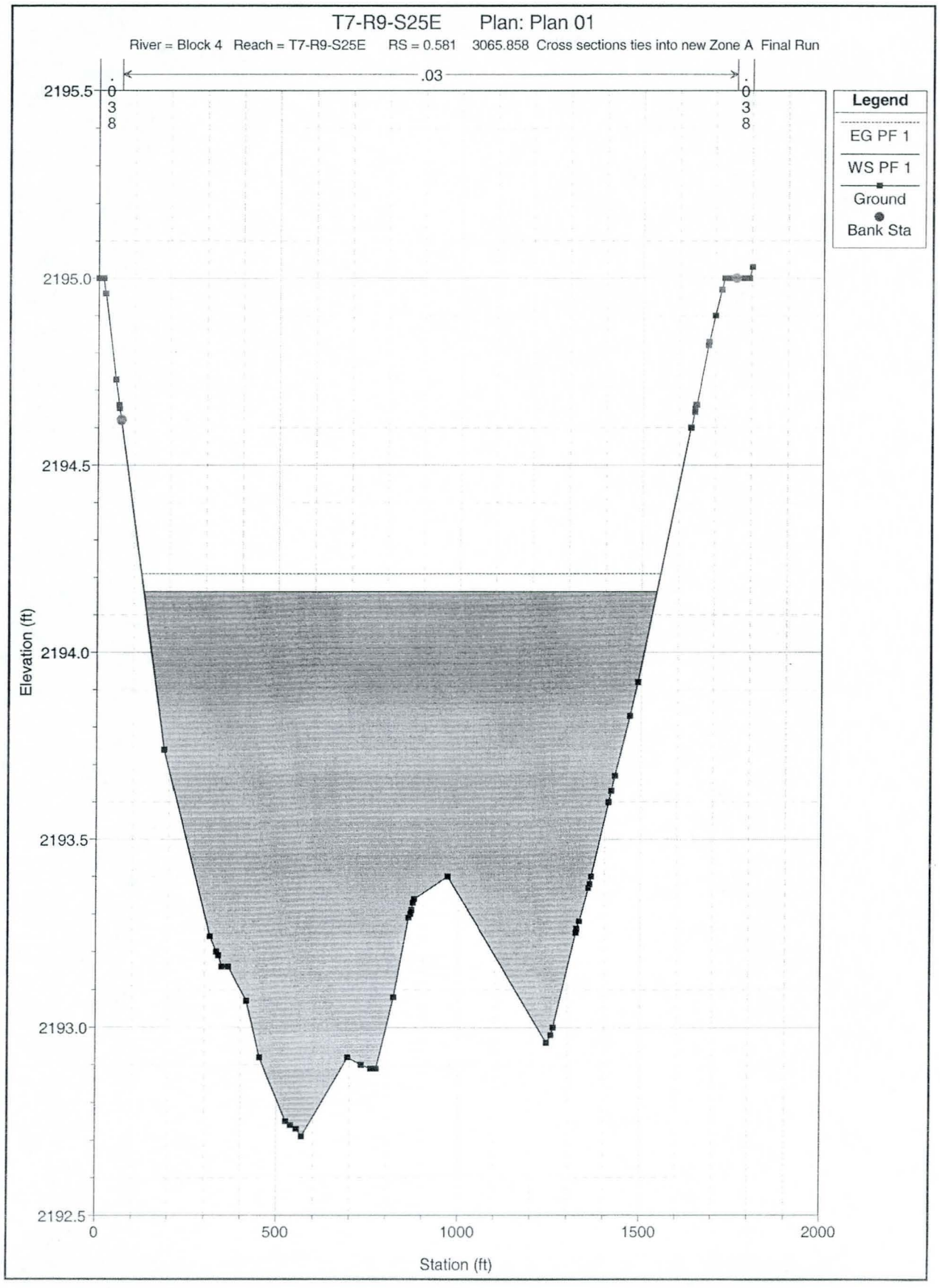

0.030
0.350
0.581
0.971
1.254
Block 4
T7-R9-S25E
1.580
1.835

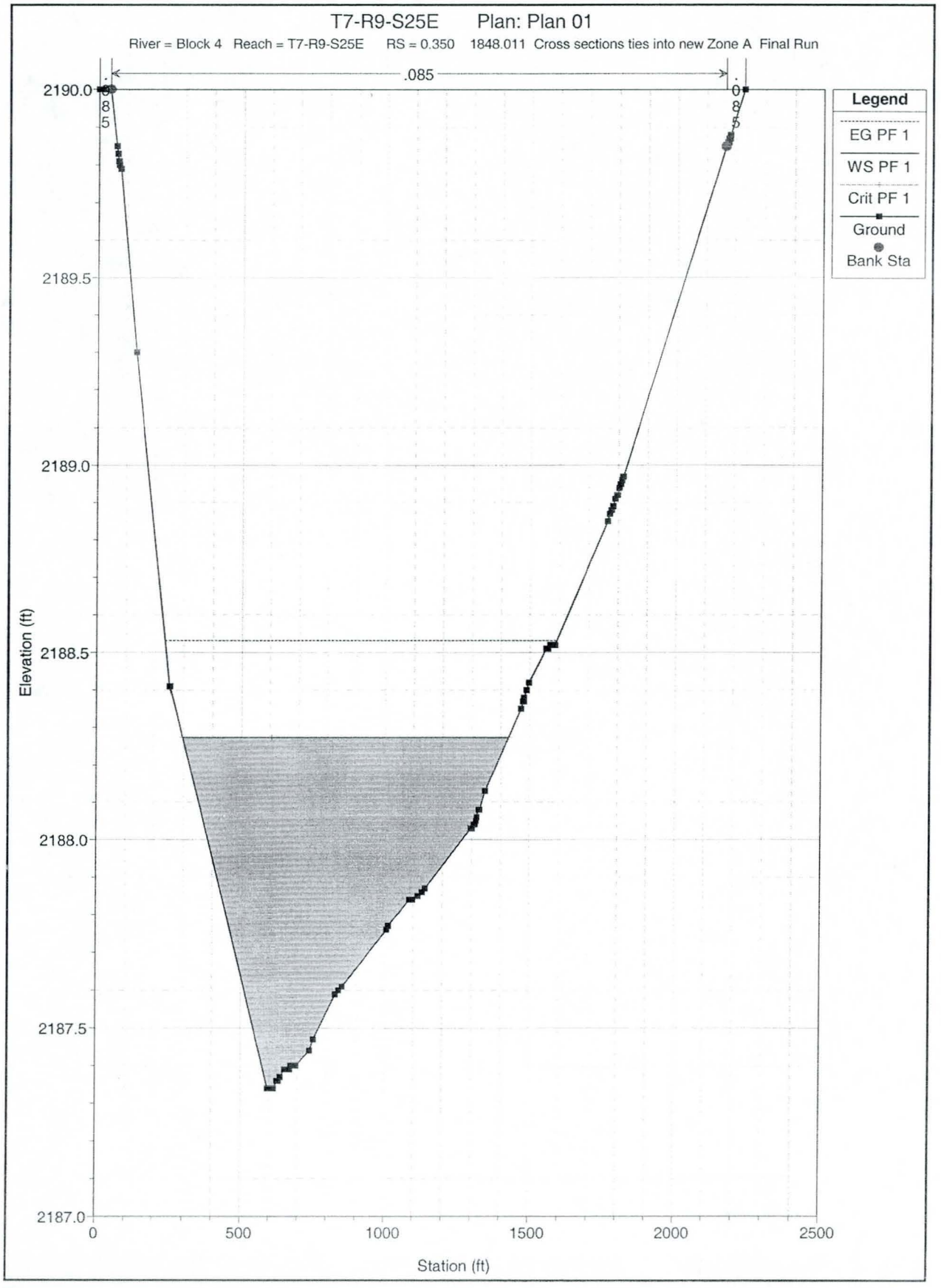

T7-R9-S25E Plan: Plan 01
River = Block 4 Reach = T7-R9-S25E RS = 1.835 9686.293 Final Run
.03
.038
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2248.0
2247.5
2247.0
2246.5
2246.0
2245.5
2245.0
Elevation (ft)
0
200
400
600
800
1000
1200
Station (ft)

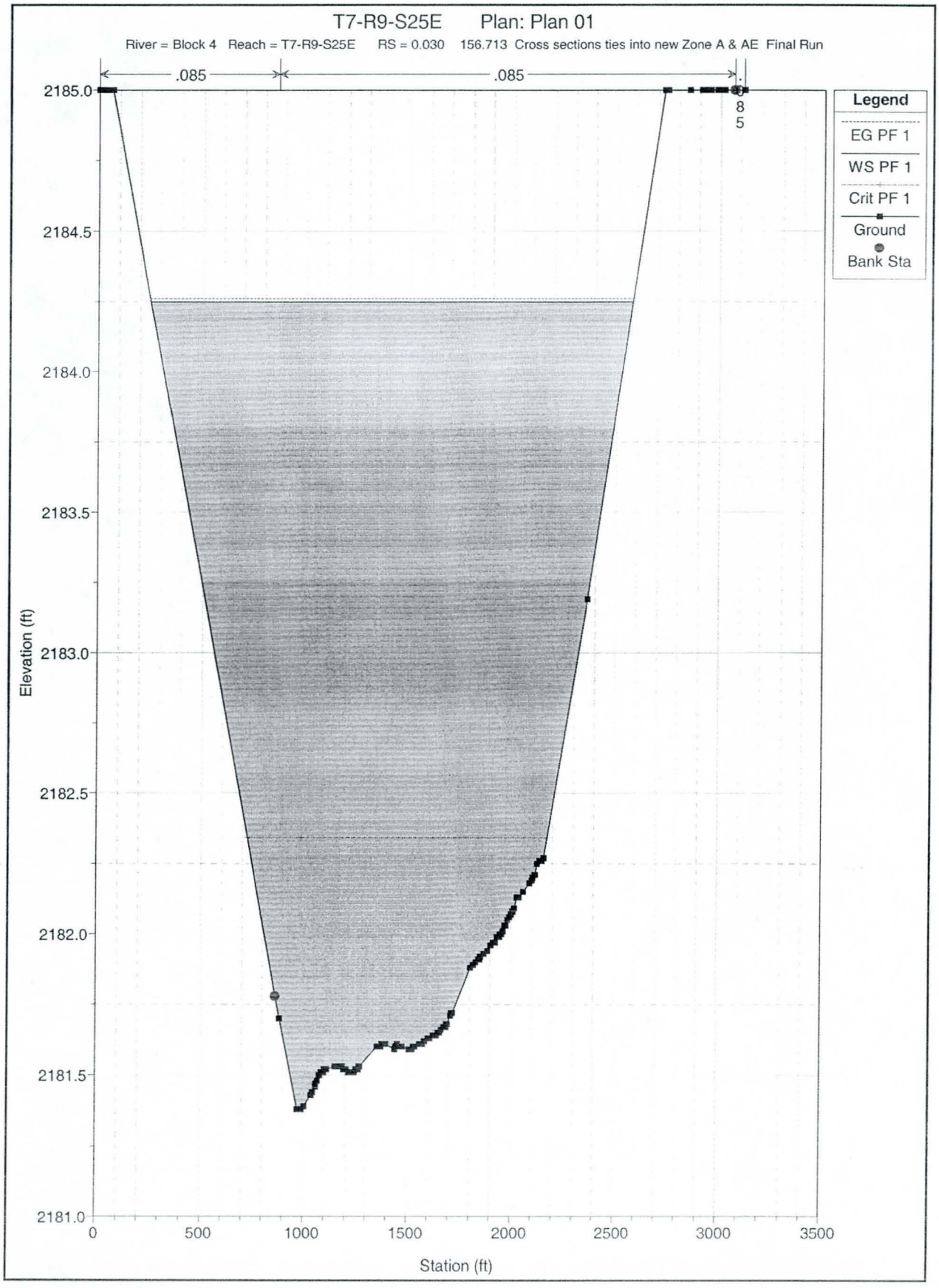

T7-R9-S25E Plan: Plan 01
River = Block 4 Reach = T7-R9-S25E RS = 1.580 8344.287 Final Run
.03
.038
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2235
2234
2233
2232
2231
2230
Elevation (ft)
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)


T7-R9-S25E Plan: Plan 01
River = Block 4 Reach = T7-R9-S25E RS = 1.254 6619.642 Final Run
.038
.03
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2215.5
2215.0
2214.5
2214.0
2213.5
2213.0
Elevation (ft)
0
200
400
600
800
1000
1200
Station (ft)


T7-R9-S25E Plan: Plan 01
River = Block 4 Reach = T7-R9-S25E RS = 0.971 5132.151 Cross sections ties into new Zone A Final Run
.03
.038
.038
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2205.4
2205.2
2205.0
2204.8
2204.6
2204.4
2204.2
2204.0
2203.8
Elevation (ft)
0
200
400
600
800
1000
1200
Station (ft)


T7-R9-S25E Plan: Plan 01
River = Block 4 Reach = T7-R9-S25E RS = 0.581 3065.858 Cross sections ties into new Zone A Final Run
.03
.038
.038
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
2195.5
2195.0
2194.5
2194.0
2193.5
2193.0
2192.5
Elevation (ft)
0
500
1000
1500
2000
Station (ft)


T7-R9-S25E Plan: Plan 01
River = Block 4 Reach = T7-R9-S25E RS = 0.350 1848.011 Cross sections ties into new Zone A Final Run
.085
.085
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2190.0
2189.5
2189.0
2188.5
2188.0
2187.5
2187.0
Elevation (ft)
0
500
1000
1500
2000
2500
Station (ft)


T7-R9-S25E Plan: Plan 01
River = Block 4 Reach = T7-R9-S25E RS = 0.030 156.713 Cross sections ties into new Zone A & AE Final Run
.085
.085
.
8
5
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2185.0
2184.5
2184.0
2183.5
2183.0
2182.5
2182.0
2181.5
2181.0
Elevation (ft)
0
500
1000
1500
2000
2500
3000
3500
Station (ft)

Plan: Plan 01 Block 4 T7-R9-S25E RS: 1.835 Profile: PF 1

E.G. Elev (ft)	2247.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.030	
W.S. Elev (ft)	2247.34	Reach Len. (ft)	970.07	1342.01	1631.93
Crit W.S. (ft)	2247.19	Flow Area (sq ft)		559.00	
E.G. Slope (ft/ft)	0.009172	Area (sq ft)		559.00	
Q Total (cfs)	2318.00	Flow (cfs)		2318.00	
Top Width (ft)	683.90	Top Width (ft)		683.90	
Vel Total (ft/s)	4.15	Avg. Vel. (ft/s)		4.15	
Max Chl Dpth (ft)	2.34	Hydr. Depth (ft)		0.82	
Conv. Total (cfs)	24203.9	Conv. (cfs)		24203.9	
Length Wtd. (ft)	1342.01	Wetted Per. (ft)		683.93	
Min Ch El (ft)	2245.00	Shear (lb/sq ft)		0.47	
Alpha	1.00	Stream Power (lb/ft s)		1.94	
Frctn Loss (ft)	14.94	Cum Volume (acre-ft)	14.63	216.13	
C & E Loss (ft)	0.02	Cum SA (acres)	11.85	220.28	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 4 T7-R9-S25E RS: 1.580 Profile: PF 1

E.G. Elev (ft)	2232.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.48	Wt. n-Val.		0.030	
W.S. Elev (ft)	2232.17	Reach Len. (ft)	1829.01	1724.65	1777.43
Crit W.S. (ft)	2232.17	Flow Area (sq ft)		419.09	
E.G. Slope (ft/ft)	0.013787	Area (sq ft)		419.09	
Q Total (cfs)	2318.00	Flow (cfs)		2318.00	
Top Width (ft)	451.85	Top Width (ft)		451.85	
Vel Total (ft/s)	5.53	Avg. Vel. (ft/s)		5.53	
Max Chl Dpth (ft)	1.87	Hydr. Depth (ft)		0.93	
Conv. Total (cfs)	19741.5	Conv. (cfs)		19741.5	
Length Wtd. (ft)	1724.65	Wetted Per. (ft)		451.87	
Min Ch El (ft)	2230.30	Shear (lb/sq ft)		0.80	
Alpha	1.00	Stream Power (lb/ft s)		4.42	
Frctn Loss (ft)	10.64	Cum Volume (acre-ft)	14.63	201.06	
C & E Loss (ft)	0.11	Cum SA (acres)	11.85	202.78	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 4 T7-R9-S25E RS: 1.254 Profile: PF 1

E.G. Elev (ft)	2214.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.030	
W.S. Elev (ft)	2214.68	Reach Len. (ft)	1751.29	1487.49	1577.17
Crit W.S. (ft)	2214.27	Flow Area (sq ft)		831.93	

Plan: Plan 01 Block 4 T7-R9-S25E RS: 1.254 Profile: PF 1 (Continued)

E.G. Slope (ft/ft)	0.003480	Area (sq ft)		831.93	
Q Total (cfs)	2318.00	Flow (cfs)		2318.00	
Top Width (ft)	893.32	Top Width (ft)		893.32	
Vel Total (ft/s)	2.79	Avg. Vel. (ft/s)		2.79	
Max Chl Dpth (ft)	1.56	Hydr. Depth (ft)		0.93	
Conv. Total (cfs)	39295.6	Conv. (cfs)		39295.6	
Length Wtd. (ft)	1487.49	Wetted Per. (ft)		893.33	
Min Ch El (ft)	2213.12	Shear (lb/sq ft)		0.20	
Alpha	1.00	Stream Power (lb/ft s)		0.56	
Frctn Loss (ft)	9.56	Cum Volume (acre-ft)	14.63	176.30	
C & E Loss (ft)	0.02	Cum SA (acres)	11.85	176.15	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 4 T7-R9-S25E RS: 0.971 Profile: PF 1

E.G. Elev (ft)	2205.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.030	
W.S. Elev (ft)	2204.92	Reach Len. (ft)	1409.01	2066.29	1962.16
Crit W.S. (ft)	2204.92	Flow Area (sq ft)		530.27	
E.G. Slope (ft/ft)	0.015668	Area (sq ft)		530.27	
Q Total (cfs)	2318.00	Flow (cfs)		2318.00	
Top Width (ft)	895.65	Top Width (ft)		895.65	
Vel Total (ft/s)	4.37	Avg. Vel. (ft/s)		4.37	
Max Chl Dpth (ft)	0.95	Hydr. Depth (ft)		0.59	
Conv. Total (cfs)	18518.6	Conv. (cfs)		18518.6	
Length Wtd. (ft)	2066.29	Wetted Per. (ft)		895.65	
Min Ch El (ft)	2203.97	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		2.53	
Frctn Loss (ft)	6.90	Cum Volume (acre-ft)	14.63	153.04	
C & E Loss (ft)	0.07	Cum SA (acres)	11.85	145.61	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 4 T7-R9-S25E RS: 0.581 Profile: PF 1

E.G. Elev (ft)	2194.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.030	
W.S. Elev (ft)	2194.16	Reach Len. (ft)	1104.85	1217.85	1511.52
Crit W.S. (ft)		Flow Area (sq ft)		1310.60	
E.G. Slope (ft/ft)	0.001411	Area (sq ft)		1310.60	
Q Total (cfs)	2318.00	Flow (cfs)		2318.00	

Plan: Plan 01 Block 4 T7-R9-S25E RS: 0.581 Profile: PF 1 (Continued)

Top Width (ft)	1413.67	Top Width (ft)		1413.67	
Vel Total (ft/s)	1.77	Avg. Vel. (ft/s)		1.77	
Max Chl Dpth (ft)	1.45	Hydr. Depth (ft)		0.93	
Conv. Total (cfs)	61720.1	Conv. (cfs)		61720.1	
Length Wtd. (ft)	1217.85	Wetted Per. (ft)		1413.67	
Min Ch El (ft)	2192.71	Shear (lb/sq ft)		0.08	
Alpha	1.00	Stream Power (lb/ft s)		0.14	
Frctn Loss (ft)	5.66	Cum Volume (acre-ft)	14.63	109.38	
C & E Loss (ft)	0.02	Cum SA (acres)	11.85	90.84	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 4 T7-R9-S25E RS: 0.350 Profile: PF 1

E.G. Elev (ft)	2188.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.085	
W.S. Elev (ft)	2188.28	Reach Len. (ft)	1686.63	1691.30	1787.45
Crit W.S. (ft)	2188.28	Flow Area (sq ft)		569.47	
E.G. Slope (ft/ft)	0.135363	Area (sq ft)		569.47	
Q Total (cfs)	2318.00	Flow (cfs)		2318.00	
Top Width (ft)	1131.10	Top Width (ft)		1131.10	
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)		4.07	
Max Chl Dpth (ft)	0.93	Hydr. Depth (ft)		0.50	
Conv. Total (cfs)	6300.3	Conv. (cfs)		6300.3	
Length Wtd. (ft)	1690.95	Wetted Per. (ft)		1131.10	
Min Ch El (ft)	2187.34	Shear (lb/sq ft)		4.25	
Alpha	1.00	Stream Power (lb/ft s)		17.32	
Frctn Loss (ft)	3.60	Cum Volume (acre-ft)	14.63	83.10	
C & E Loss (ft)	0.07	Cum SA (acres)	11.85	55.26	

Errors Warnings and Notes

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.

Plan: Plan 01 Block 4 T7-R9-S25E RS: 0.030 Profile: PF 1

E.G. Elev (ft)	2184.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.085	0.085	
W.S. Elev (ft)	2184.25	Reach Len. (ft)			
Crit W.S. (ft)	2182.34	Flow Area (sq ft)	755.83	3710.86	
E.G. Slope (ft/ft)	0.000886	Area (sq ft)	755.83	3710.86	
Q Total (cfs)	3683.00	Flow (cfs)	452.81	3230.19	
Top Width (ft)	2327.64	Top Width (ft)	612.01	1715.62	
Vel Total (ft/s)	0.82	Avg. Vel. (ft/s)	0.60	0.87	

Plan: Plan 01 Block 4 T7-R9-S25E RS: 0.030 Profile: PF 1 (Continued)

Max Chl Dpth (ft)	2.87	Hydr. Depth (ft)	1.23	2.16	
Conv. Total (cfs)	123706.2	Conv. (cfs)	15209.1	108497.1	
Length Wtd. (ft)		Wetted Per. (ft)	612.02	1715.63	
Min Ch El (ft)	2181.38	Shear (lb/sq ft)	0.07	0.12	
Alpha	1.04	Stream Power (lb/ft s)	0.04	0.10	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 4\ArcView\T7R9S25E.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 4\ArcView\T7R9S25E.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 4\ArcView\T7R9S25E.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 4\ArcView\T7R9S25E.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 4\ArcView\T7R9S25E.nt
Selected profiles: PF 1
Date: 12/4/2003
Time: 9:39:14 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block 4,T7-R9-S25E						
1.835		0.038	0.03	0.038	0.1	0.3
1.580		0.038	0.03	0.038	0.1	0.3
1.254		0.038	0.03	0.038	0.1	0.3
.971		0.038	0.03	0.038	0.1	0.3
.581		0.038	0.03	0.038	0.1	0.3
.350		0.085	0.085	0.085	0.1	0.3
.030		0.085	0.085	0.085	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.038	0.085
Right Overbank n Value:	0.038	0.085
Channel n Value:	0.03	0.085
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 4\ArcView\T7R9S25E.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 4\ArcView\T7R9S25E.p01
Geometry File: C:\Aguila\Hec-GeoRAS\Block 4\ArcView\T7R9S25E.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 4\ArcView\T7R9S25E.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 4\ArcView\T7R9S25E.xs
Selected profiles: PF 1
Date: 12/4/2003
Time: 9:39:15 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Block 4,T7-R9-S25E						
1.834	970.07	1342.01	1631.93	683.9	2318	
1.58	1829.01	1724.65	1777.43	451.85	2318	C
1.253	1751.29	1487.49	1577.17	893.32	2318	
0.971	1409.01	2066.29	1962.16	895.65	2318	C
0.58	1104.85	1217.85	1511.52	1413.67	2318	

```
 0.349    1686.63   1691.3    1787.45   1131.1         2318     C
 0.029    744.63    156.71    345.96    2327.64        3683
---------------------------------------------------------------------------
B=blocked obstruction      XS SC 05
C=critial depth            XS SC 03
D=divided flow             XS SC 01
E=cross section extended   XS SC 02
K=known water-surface      XS SC 04


DISTANCE CHECK
----------------

RS:       1.58
XS DT 01 Both right and left overbank distances are
         longer than the channel distance.

RS:       1.253
XS DT 01 Both right and left overbank distances are
         longer than the channel distance.

RS:       0.029
XS DT 01 Both right and left overbank distances are
         longer than the channel distance.


SPACING CHECK
--------------


INEFFECTIVE FLOW CHECK
-----------------------


DISCHARGE CHECK
----------------


LOCATION CHECK
---------------

RS:       1.834
XS LC 01 Lenchl Up/TopwdthAct Dn = 2.97
         MaxChlDpth Up/MaxChlDpth Dn = 1.25
         TopwdthAct Up/TopwdthAct Dn = 1.51
         This cross section is located too far upstream from the
         critical depth cross section.


BOUNDARY CONDITION CHECK
------------------------

XS BC 02 The name of the stream is Block 4,T7-R9-S25E
         Known WS = 2184.25 is specified as the downstream boundary
         for profile PF 1

---END---
```

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

Explanation:
Cross sections were cut in order to take in channel geometry.

LOCATION CHECK

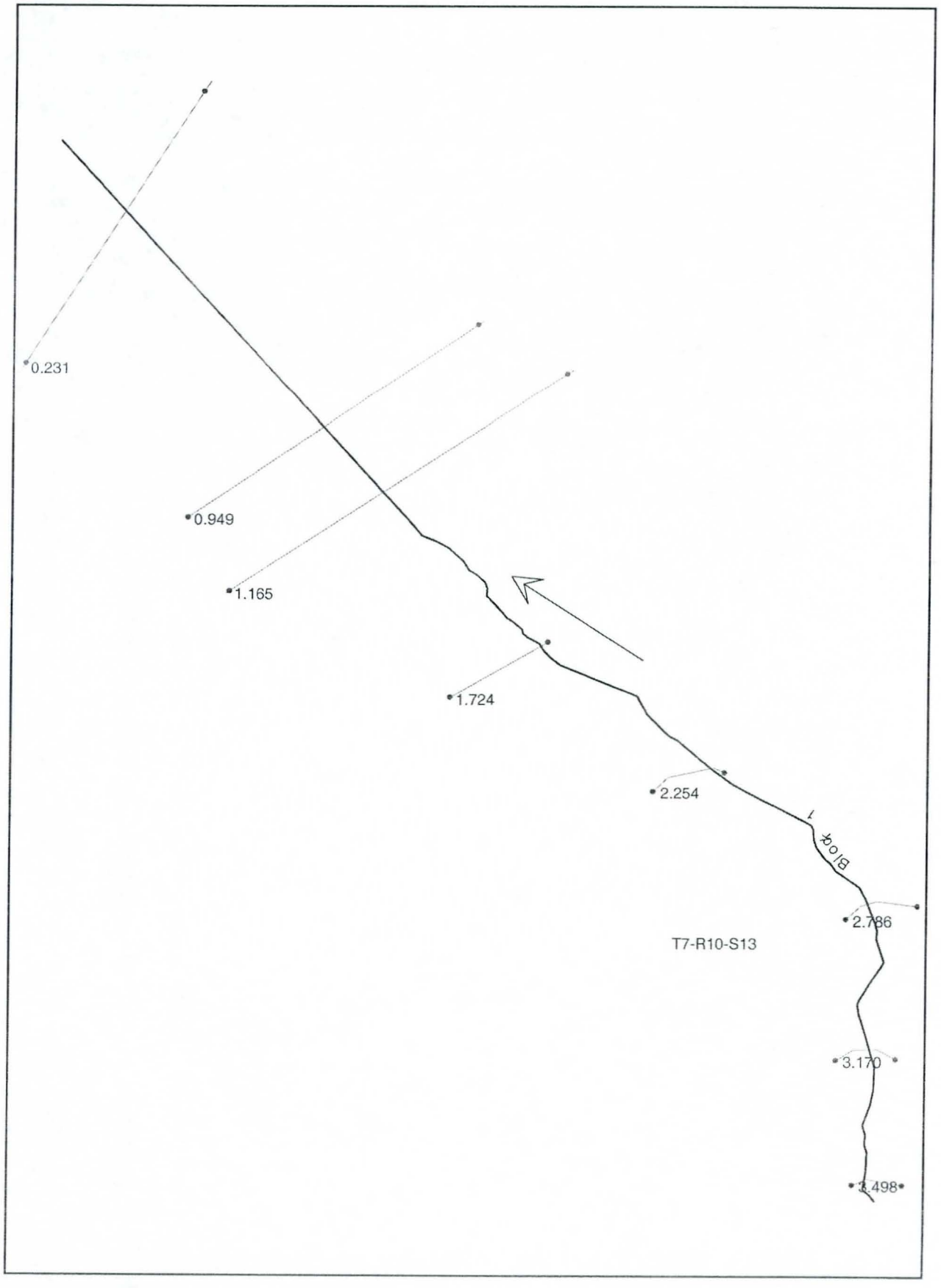
Non-detailed study; cross-sections located 2000-3000 feet apart.

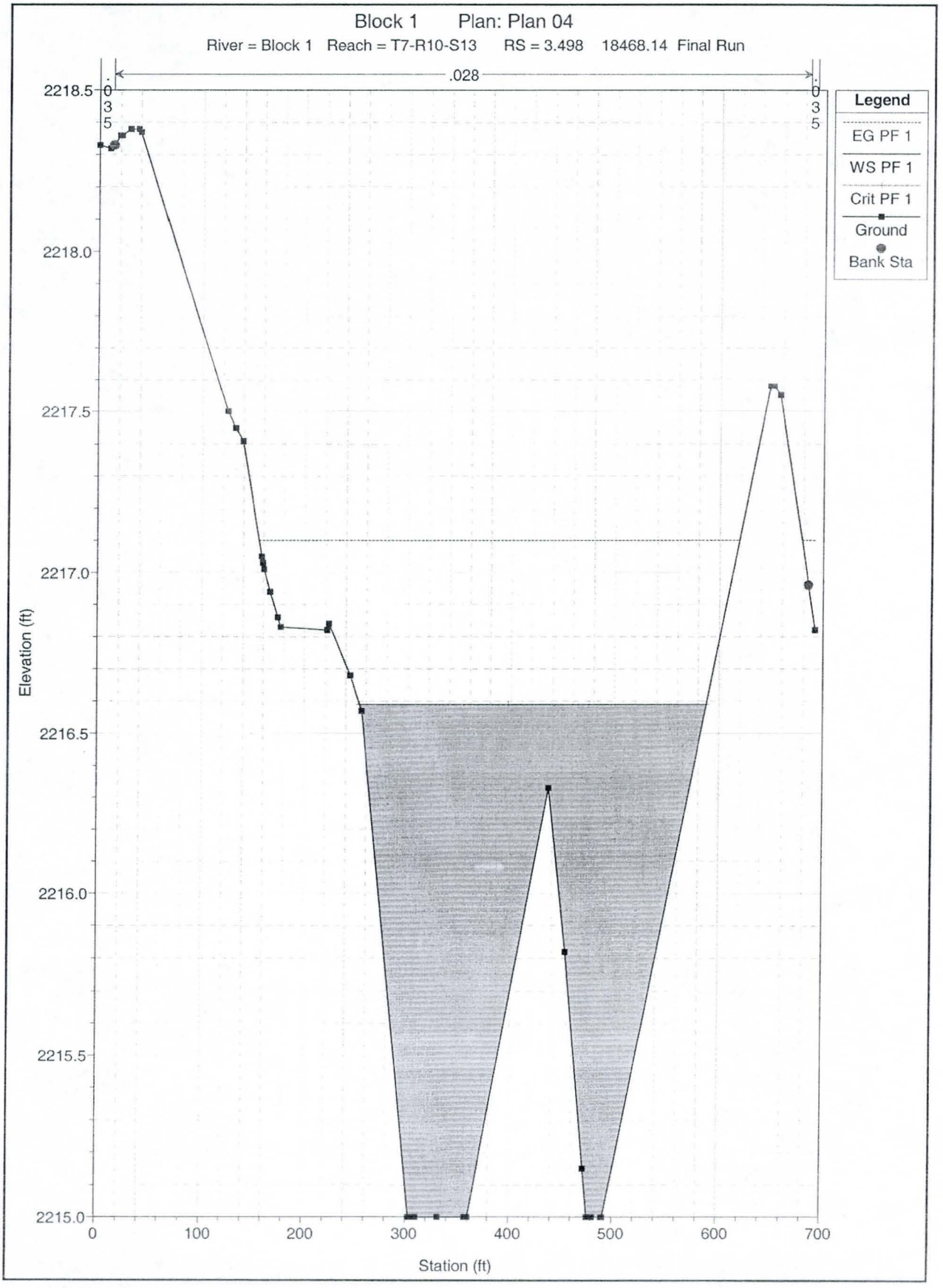
BOUNDARY CONDITION CHECK

Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

HEC-RAS Plan: Plan 04 River: Block 1 Reach: T7-R10-S13 Profile: PF 1

Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
T7-R10-S13	3.498	1927.00	2216.59	2216.59	5.73	334.39	1.59	1.01	253.40	587.79
T7-R10-S13	3.170	1927.00	2191.47	2191.27	3.91	565.69	1.47	0.74	115.86	731.47
T7-R10-S13	2.786	1927.00	2173.69	2173.67	4.62	594.08	1.28	0.97	146.97	741.05
T7-R10-S13	2.254	1927.00	2153.53	2153.20	3.18	748.25	2.31	0.62	209.93	958.19
T7-R10-S13	1.724	1927.00	2132.94	2132.94	5.48	390.24	1.75	1.02	1013.76	1404.00
T7-R10-S13	1.165	3140.00	2112.08	2110.70	1.01	2537.96	2.08	0.16	947.33	5102.45
T7-R10-S13	0.949	3140.00	2102.56	2102.56	7.99	200.27	2.56	1.00	151.64	351.92
T7-R10-S13	0.231	3140.00	2096.25	2091.63	0.19	4400.19	5.97	0.02	0.00	4400.19


0.231
0.949
1.165
1.724
2.254
Block 1
2.786
T7-R10-S13
3.170
3.498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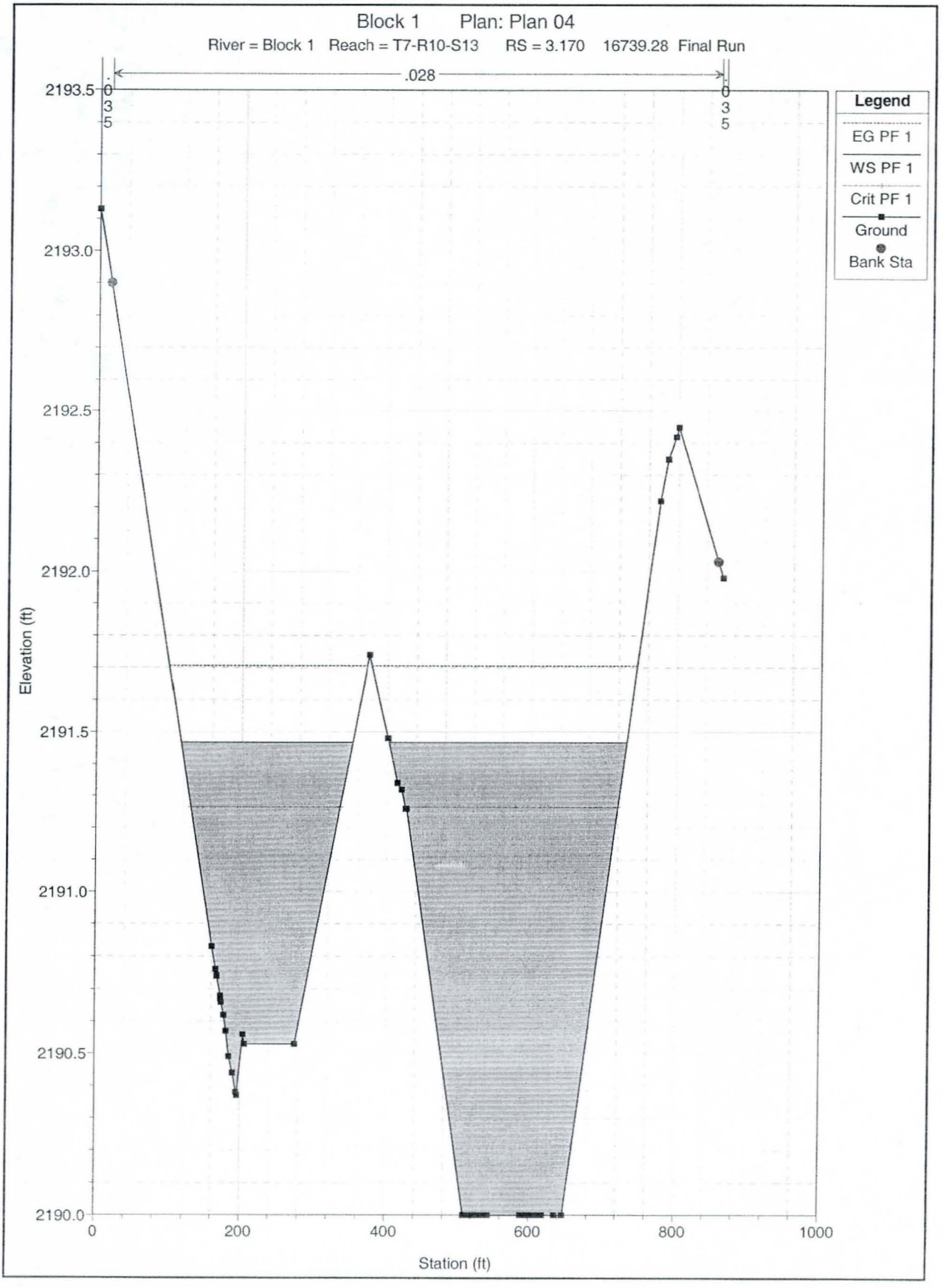
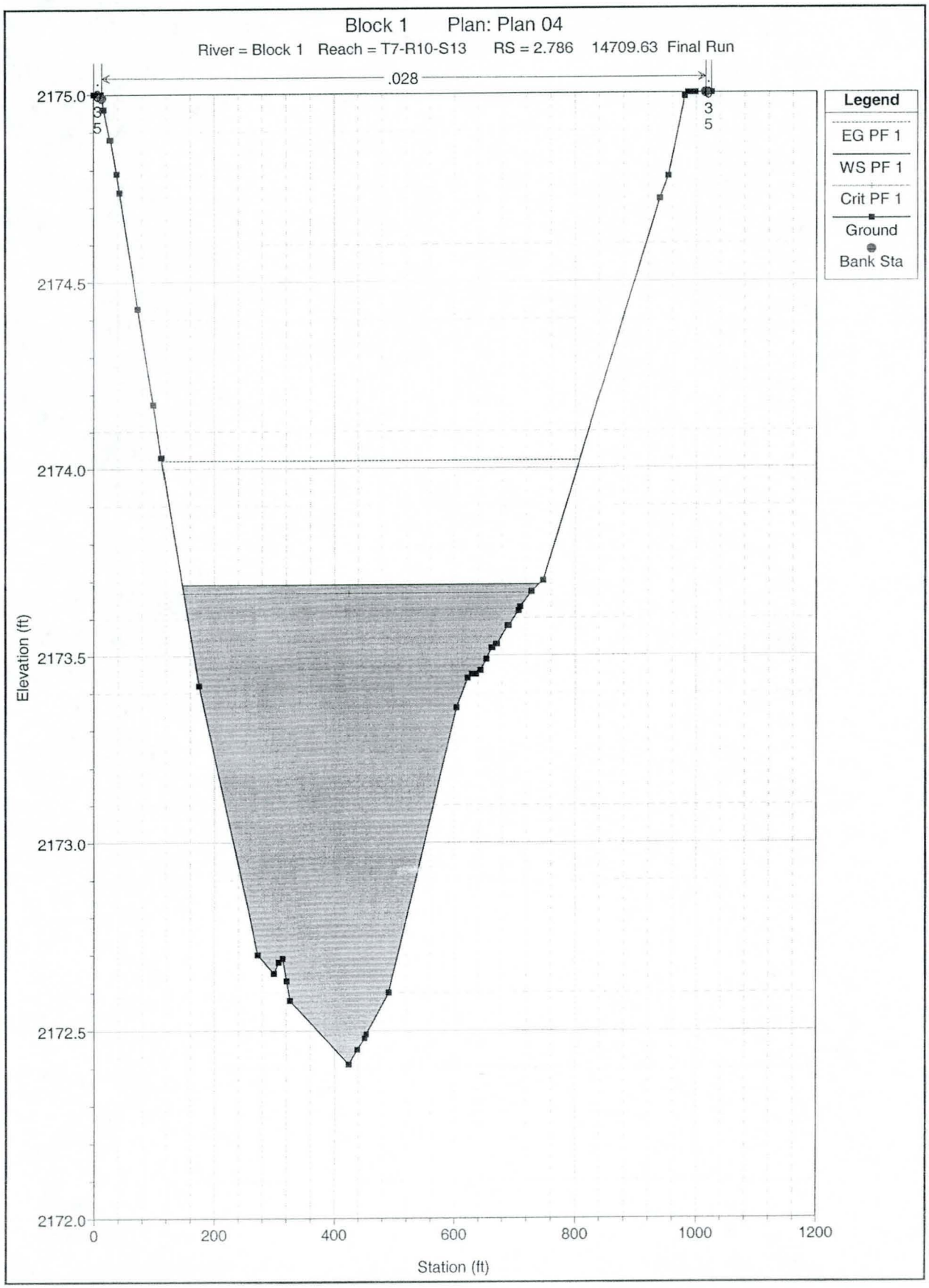
River = Block 1 Reach = T7-R10-S13 RS = 3.498 18468.14 Final Run
.028
.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2218.5
2218.0
2217.5
2217.0
2216.5
2216.0
2215.5
2215.0
Elevation (ft)
0
100
200
300
400
500
600
700
Station (ft)


Block 1 Plan: Plan 04
River = Block 1 Reach = T7-R10-S13 RS = 3.170 16739.28 Final Run
.028
0.035
0.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2193.5
2193.0
2192.5
2192.0
2191.5
2191.0
2190.5
2190.0
Elevation (ft)
0
200
400
600
800
1000
Station (ft)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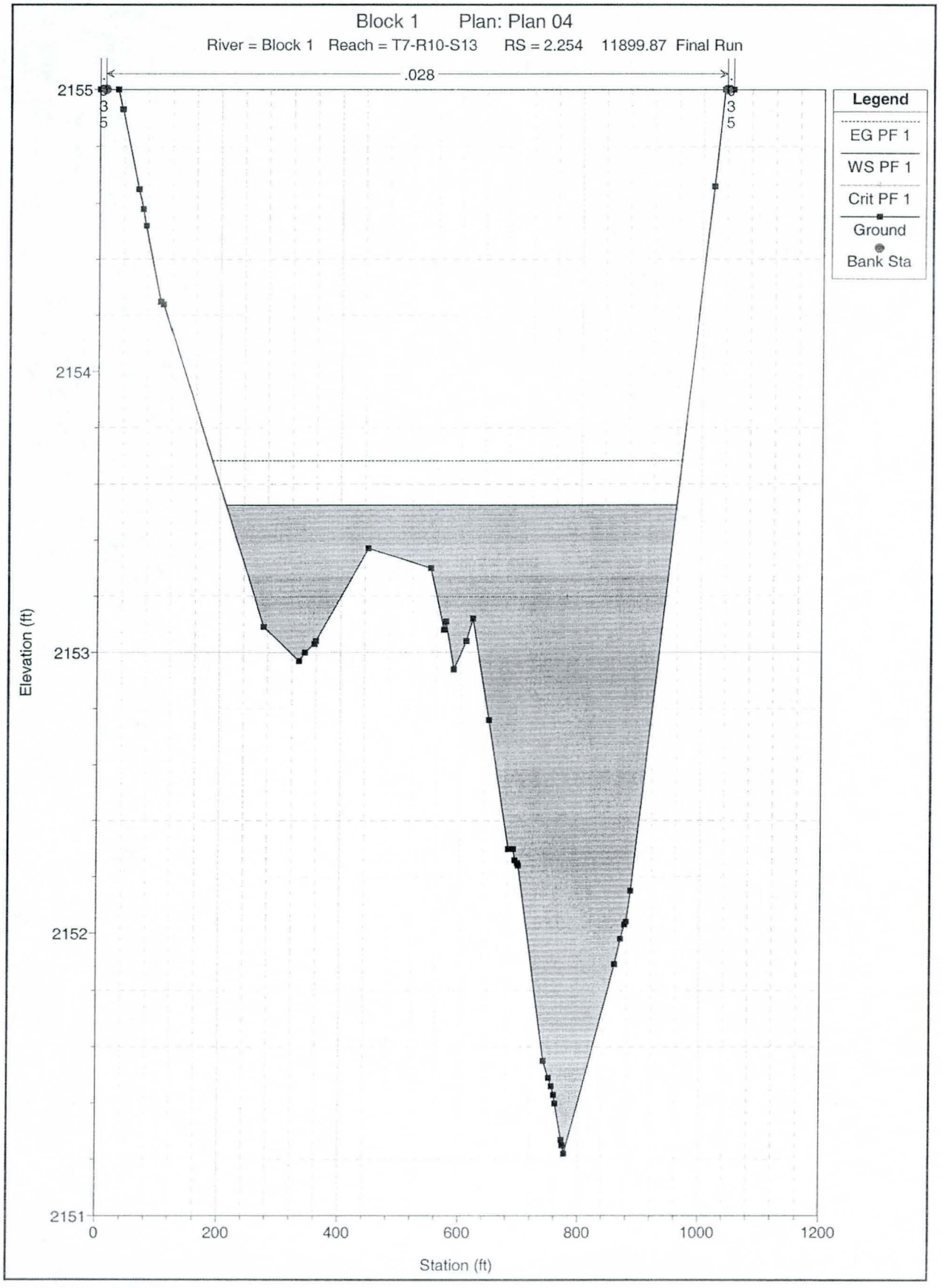
River = Block 1 Reach = T7-R10-S13 RS = 2.786 14709.63 Final Run
.028
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2175.0
2174.5
2174.0
2173.5
2173.0
2172.5
2172.0
0
200
400
600
800
1000
1200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River = Block 1 Reach = T7-R10-S13 RS = 2.254 11899.87 Final Run
.028
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
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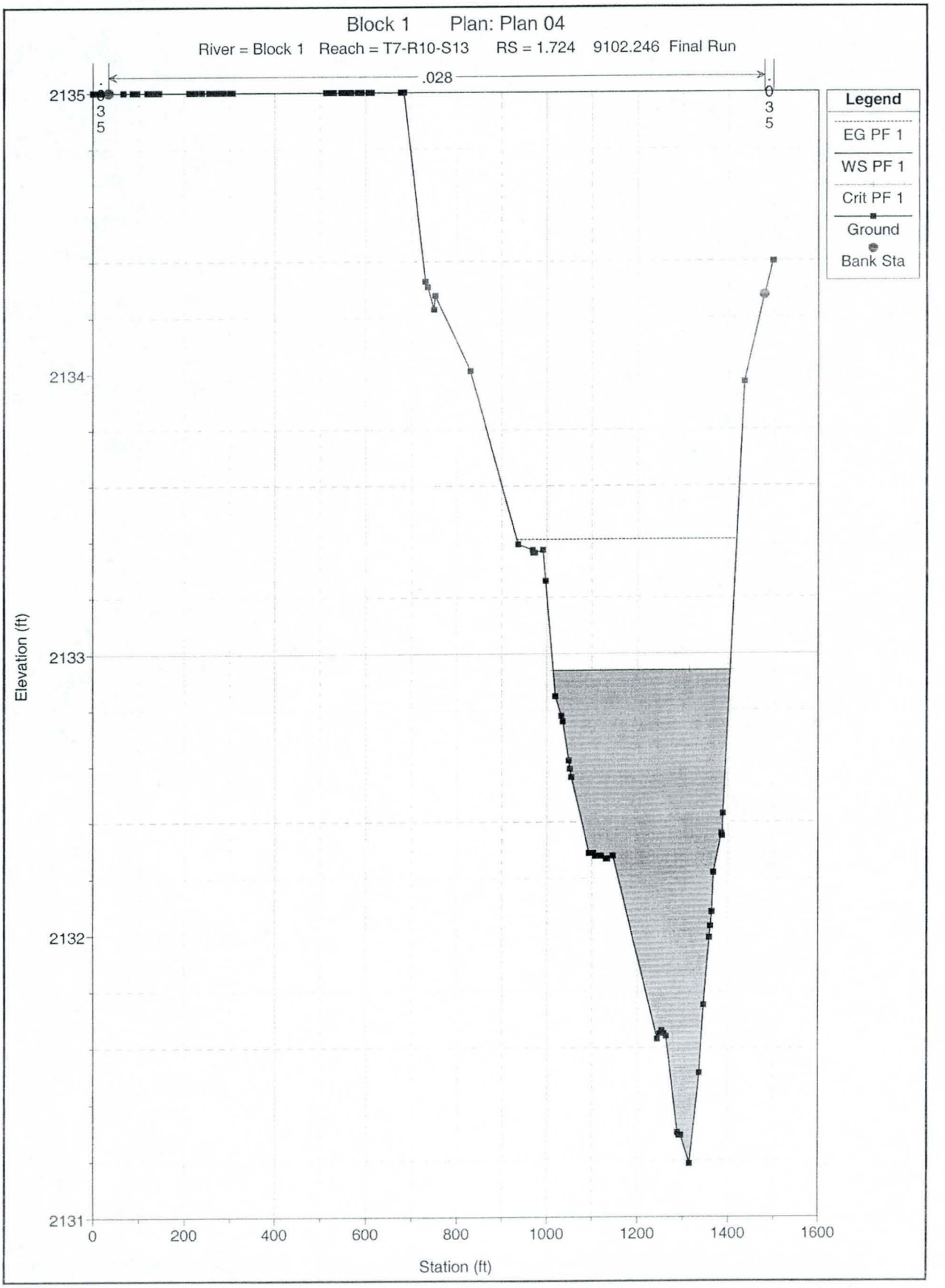
2154
2153
2152
2151
0
200
400
600
800
1000
1200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River = Block 1 Reach = T7-R10-S13 RS = 1.724 9102.246 Final Run
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.035
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
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2134
2133
2132
2131
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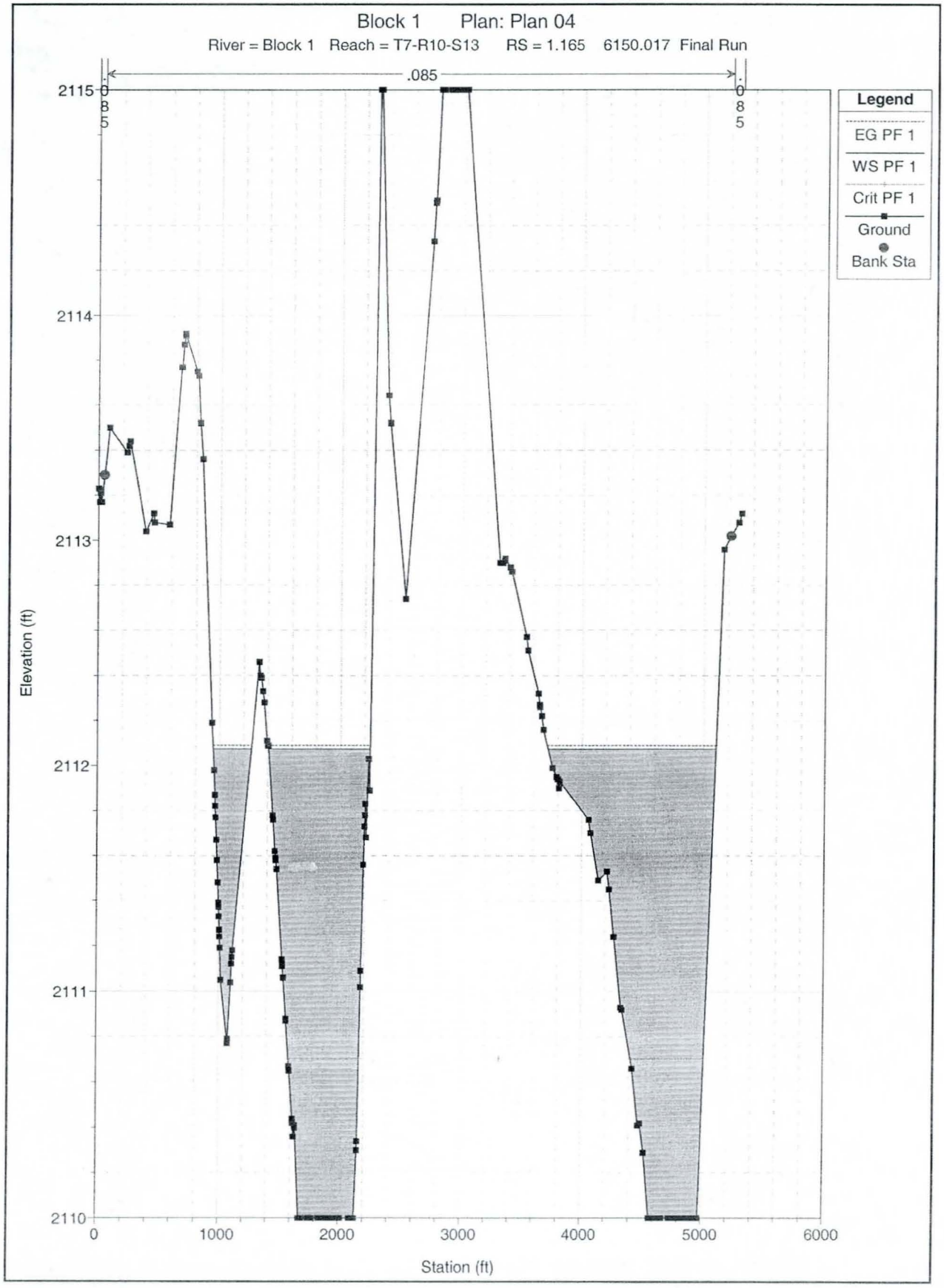
200
400
600
800
1000
1200
1400
1600
Station (ft)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River = Block 1 Reach = T7-R10-S13 RS = 1.165 6150.017 Final Run
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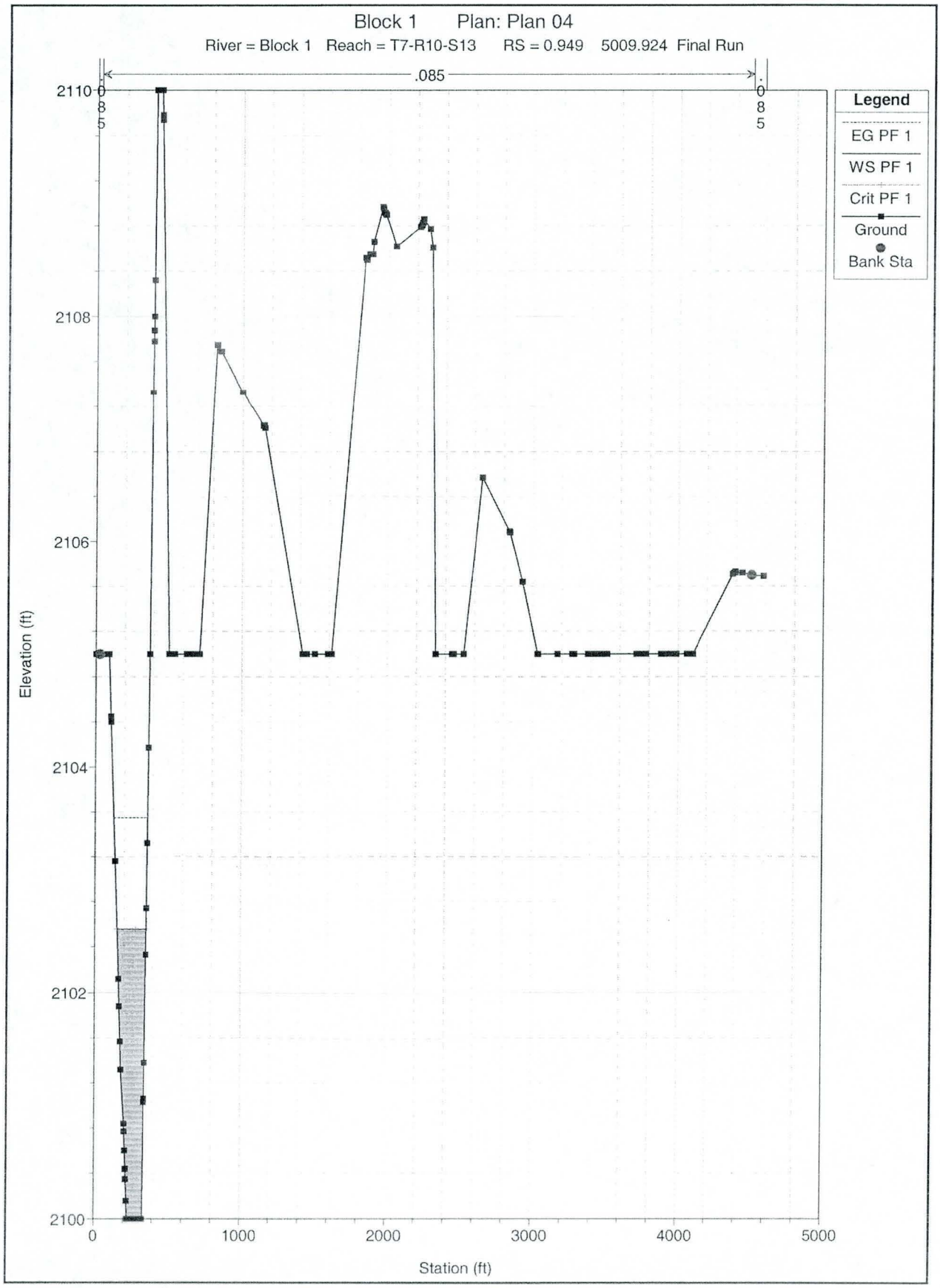
.085
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
2115
2114
2113
2112
2111
2110
Elevation (ft)
0
1000
2000
3000
4000
5000
6000
Station (ft)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River = Block 1 Reach = T7-R10-S13 RS = 0.949 5009.924 Final Run
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.085
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
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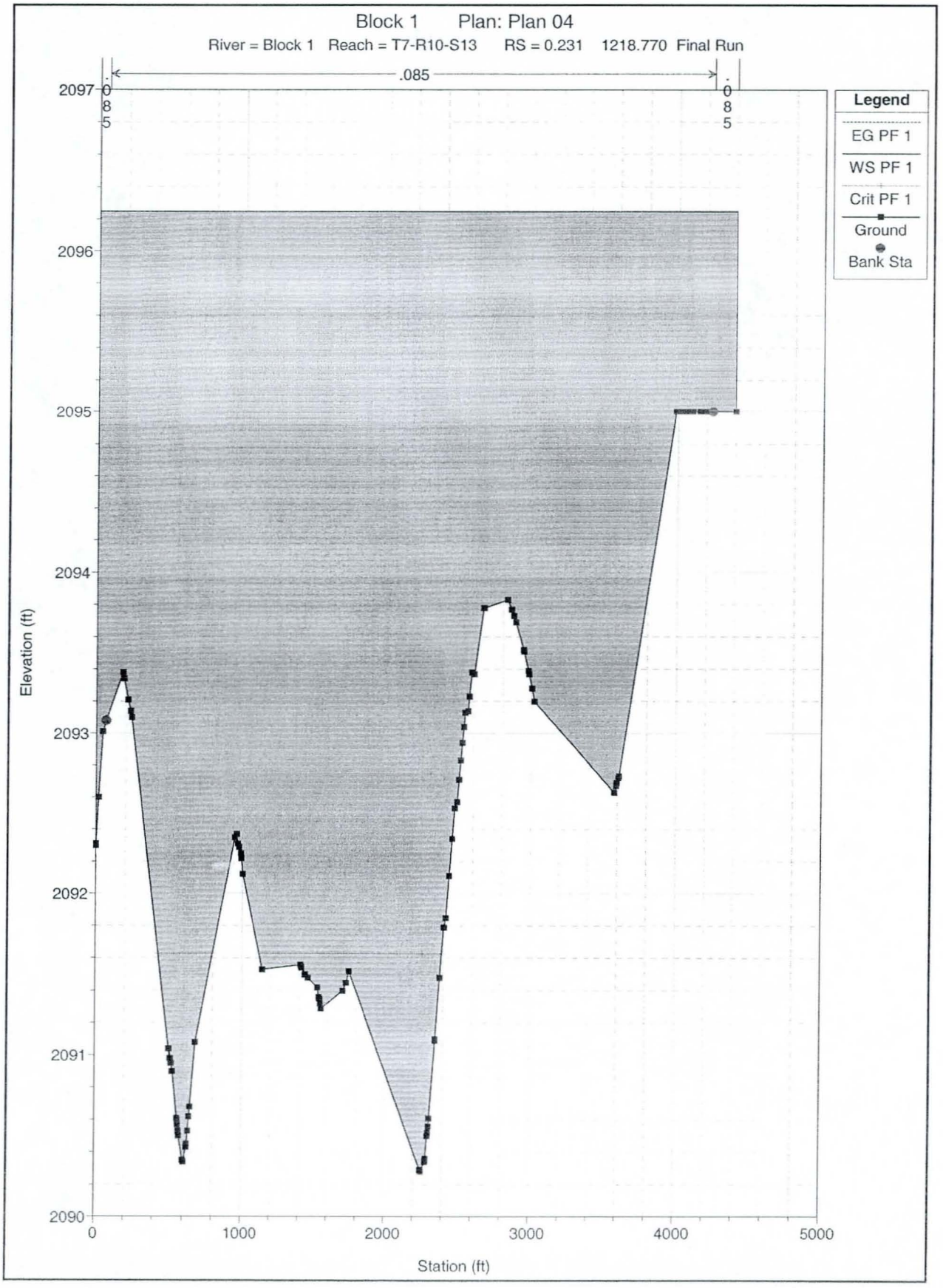
2108
2106
2104
2102
2100
0
1000
2000
3000
4000
5000
Station (ft)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River = Block 1 Reach = T7-R10-S13 RS = 0.231 1218.770 Final Run
.085
.085
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
2097
2096
2095
2094
2093
2092
2091
2090
0
1000
2000
3000
4000
5000
Station (ft)

Plan: Plan 04 Block 1 T7-R10-S13 RS: 3.498 Profile: PF 1

E.G. Elev (ft)	2217.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.		0.028	
W.S. Elev (ft)	2216.59	Reach Len. (ft)	1626.89	1728.86	1641.99
Crit W.S. (ft)	2216.59	Flow Area (sq ft)		336.08	
E.G. Slope (ft/ft)	0.011599	Area (sq ft)		336.08	
Q Total (cfs)	1927.00	Flow (cfs)		1927.00	
Top Width (ft)	334.39	Top Width (ft)		334.39	
Vel Total (ft/s)	5.73	Avg. Vel. (ft/s)		5.73	
Max Chl Dpth (ft)	1.59	Hydr. Depth (ft)		1.01	
Conv. Total (cfs)	17892.3	Conv. (cfs)		17892.3	
Length Wtd. (ft)	1728.86	Wetted Per. (ft)		334.47	
Min Ch El (ft)	2215.00	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		4.17	
Frctn Loss (ft)	14.76	Cum Volume (acre-ft)	7.54	980.33	10.59
C & E Loss (ft)	0.08	Cum SA (acres)	2.19	450.22	8.48

Errors Warnings and Notes

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.

Plan: Plan 04 Block 1 T7-R10-S13 RS: 3.170 Profile: PF 1

E.G. Elev (ft)	2191.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.028	
W.S. Elev (ft)	2191.47	Reach Len. (ft)	1801.01	2029.65	1976.01
Crit W.S. (ft)	2191.27	Flow Area (sq ft)		492.29	
E.G. Slope (ft/ft)	0.006549	Area (sq ft)		492.29	
Q Total (cfs)	1927.00	Flow (cfs)		1927.00	
Top Width (ft)	565.69	Top Width (ft)		565.69	
Vel Total (ft/s)	3.91	Avg. Vel. (ft/s)		3.91	
Max Chl Dpth (ft)	1.47	Hydr. Depth (ft)		0.87	
Conv. Total (cfs)	23812.6	Conv. (cfs)		23812.6	
Length Wtd. (ft)	2029.65	Wetted Per. (ft)		565.72	
Min Ch El (ft)	2190.00	Shear (lb/sq ft)		0.36	
Alpha	1.00	Stream Power (lb/ft s)		1.39	
Frctn Loss (ft)	17.68	Cum Volume (acre-ft)	7.54	963.89	10.59
C & E Loss (ft)	0.01	Cum SA (acres)	2.19	432.36	8.48

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
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.

Plan: Plan 04 Block 1 T7-R10-S13 RS: 2.786 Profile: PF 1

E.G. Elev (ft)	2174.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.		0.028	
W.S. Elev (ft)	2173.69	Reach Len. (ft)	3001.80	2809.76	3147.29
Crit W.S. (ft)	2173.67	Flow Area (sq ft)		417.12	
E.G. Slope (ft/ft)	0.012144	Area (sq ft)		417.12	

Plan: Plan 04 Block 1 T7-R10-S13 RS: 2.786 Profile: PF 1 (Continued)

Q Total (cfs)	1927.00	Flow (cfs)		1927.00	
Top Width (ft)	594.08	Top Width (ft)		594.08	
Vel Total (ft/s)	4.62	Avg. Vel. (ft/s)		4.62	
Max Chl Dpth (ft)	1.28	Hydr. Depth (ft)		0.70	
Conv. Total (cfs)	17486.3	Conv. (cfs)		17486.3	
Length Wtd. (ft)	2809.76	Wetted Per. (ft)		594.09	
Min Ch El (ft)	2172.41	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		2.46	
Frctn Loss (ft)	20.28	Cum Volume (acre-ft)	7.54	942.70	10.59
C & E Loss (ft)	0.05	Cum SA (acres)	2.19	405.34	8.48

Errors Warnings and Notes

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.

Plan: Plan 04 Block 1 T7-R10-S13 RS: 2.254 Profile: PF 1

E.G. Elev (ft)	2153.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.		0.028	
W.S. Elev (ft)	2153.53	Reach Len. (ft)	2918.05	2797.63	2937.98
Crit W.S. (ft)	2153.20	Flow Area (sq ft)		605.16	
E.G. Slope (ft/ft)	0.004778	Area (sq ft)		605.16	
Q Total (cfs)	1927.00	Flow (cfs)		1927.00	
Top Width (ft)	748.25	Top Width (ft)		748.25	
Vel Total (ft/s)	3.18	Avg. Vel. (ft/s)		3.18	
Max Chl Dpth (ft)	2.31	Hydr. Depth (ft)		0.81	
Conv. Total (cfs)	27876.9	Conv. (cfs)		27876.9	
Length Wtd. (ft)	2797.63	Wetted Per. (ft)		748.29	
Min Ch El (ft)	2151.22	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		0.77	
Frctn Loss (ft)	20.24	Cum Volume (acre-ft)	7.54	909.73	10.59
C & E Loss (ft)	0.03	Cum SA (acres)	2.19	362.05	8.48

Errors Warnings and Notes

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.

Plan: Plan 04 Block 1 T7-R10-S13 RS: 1.724 Profile: PF 1

E.G. Elev (ft)	2133.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.47	Wt. n-Val.		0.028	
W.S. Elev (ft)	2132.94	Reach Len. (ft)	3170.49	2952.23	3509.13
Crit W.S. (ft)	2132.94	Flow Area (sq ft)		351.93	
E.G. Slope (ft/ft)	0.012219	Area (sq ft)		351.93	
Q Total (cfs)	1927.00	Flow (cfs)		1927.00	
Top Width (ft)	390.24	Top Width (ft)		390.24	
Vel Total (ft/s)	5.48	Avg. Vel. (ft/s)		5.48	
Max Chl Dpth (ft)	1.75	Hydr. Depth (ft)		0.90	
Conv. Total (cfs)	17432.4	Conv. (cfs)		17432.4	
Length Wtd. (ft)	2952.23	Wetted Per. (ft)		390.27	
Min Ch El (ft)	2131.19	Shear (lb/sq ft)		0.69	

Plan: Plan 04 Block 1 T7-R10-S13 RS: 1.724 Profile: PF 1 (Continued)

Alpha	1.00	Stream Power (lb/ft s)		3.77	
Frctn Loss (ft)	11.95	Cum Volume (acre-ft)	7.54	879.00	10.59
C & E Loss (ft)	0.13	Cum SA (acres)	2.19	325.49	8.48

Errors Warnings and Notes

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.

Plan: Plan 04 Block 1 T7-R10-S13 RS: 1.165 Profile: PF 1

E.G. Elev (ft)	2112.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.085	
W.S. Elev (ft)	2112.08	Reach Len. (ft)	1090.89	1140.09	1327.57
Crit W.S. (ft)	2110.70	Flow Area (sq ft)		3108.15	
E.G. Slope (ft/ft)	0.002549	Area (sq ft)		3108.15	
Q Total (cfs)	3140.00	Flow (cfs)		3140.00	
Top Width (ft)	2537.96	Top Width (ft)		2537.96	
Vel Total (ft/s)	1.01	Avg. Vel. (ft/s)		1.01	
Max Chl Dpth (ft)	2.08	Hydr. Depth (ft)		1.22	
Conv. Total (cfs)	62193.8	Conv. (cfs)		62193.8	
Length Wtd. (ft)	1140.09	Wetted Per. (ft)		2538.04	
Min Ch El (ft)	2110.00	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.20	
Frctn Loss (ft)	8.45	Cum Volume (acre-ft)	7.54	761.74	10.59
C & E Loss (ft)	0.10	Cum SA (acres)	2.19	226.26	8.48

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
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.

Plan: Plan 04 Block 1 T7-R10-S13 RS: 0.949 Profile: PF 1

E.G. Elev (ft)	2103.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.		0.085	
W.S. Elev (ft)	2102.56	Reach Len. (ft)	2886.67	3791.15	4661.27
Crit W.S. (ft)	2102.56	Flow Area (sq ft)		393.16	
E.G. Slope (ft/ft)	0.085029	Area (sq ft)		393.16	
Q Total (cfs)	3140.00	Flow (cfs)		3140.00	
Top Width (ft)	200.27	Top Width (ft)		200.27	
Vel Total (ft/s)	7.99	Avg. Vel. (ft/s)		7.99	
Max Chl Dpth (ft)	2.56	Hydr. Depth (ft)		1.96	
Conv. Total (cfs)	10768.3	Conv. (cfs)		10768.3	
Length Wtd. (ft)	3788.00	Wetted Per. (ft)		200.48	

Plan: Plan 04 Block 1 T7-R10-S13 RS: 0.949 Profile: PF 1 (Continued)

Min Ch El (ft)	2100.00	Shear (lb/sq ft)		10.41	
Alpha	1.00	Stream Power (lb/ft s)		83.14	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	7.54	715.93	10.59
C & E Loss (ft)	0.30	Cum SA (acres)	2.19	190.43	8.48

Errors Warnings and Notes

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.

Plan: Plan 04 Block 1 T7-R10-S13 RS: 0.231 Profile: PF 1

E.G. Elev (ft)	2096.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.085	0.085	0.085
W.S. Elev (ft)	2096.25	Reach Len. (ft)			
Crit W.S. (ft)	2091.63	Flow Area (sq ft)	227.60	16058.68	198.01
E.G. Slope (ft/ft)	0.000020	Area (sq ft)	227.60	16058.68	198.01
Q Total (cfs)	3140.00	Flow (cfs)	39.09	3083.04	17.88
Top Width (ft)	4400.19	Top Width (ft)	66.00	4175.78	158.41
Vel Total (ft/s)	0.19	Avg. Vel. (ft/s)	0.17	0.19	0.09
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)	3.45	3.85	1.25
Conv. Total (cfs)	701803.0	Conv. (cfs)	8735.9	689071.4	3995.8
Length Wtd. (ft)		Wetted Per. (ft)	69.96	4175.83	159.66
Min Ch El (ft)	2090.28	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.01	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Aguila\Hec-GeoRAS\Block 1\Hec-Ras\Block1.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 1\Hec-Ras\Block1.p04
Geometry File: C:\Aguila\Hec-GeoRAS\Block 1\Hec-Ras\Block1.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 1\Hec-Ras\Block1.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 1\Hec-Ras\Block1.nt
Selected profiles: PF 1
Date: 1/15/2003
Time: 9:07:11 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Block 1,T7-R10-S13						
3.498		0.035	0.028	0.035	0.1	0.3
3.17		0.035	0.028	0.035	0.1	0.3
2.786		0.035	0.028	0.035	0.1	0.3
2.254		0.035	0.028	0.035	0.1	0.3
1.724		0.035	0.028	0.035	0.1	0.3
1.165		0.085	0.085	0.085	0.1	0.3
.949		0.085	0.085	0.085	0.1	0.3
.231		0.085	0.085	0.085	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.035	0.085
Right Overbank n Value:	0.035	0.085
Channel n Value:	0.028	0.085
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Aguila\Hec-GeoRAS\Block 1\Hec-Ras\Block1.prj
Plan File: C:\Aguila\Hec-GeoRAS\Block 1\Hec-Ras\Block1.p04
Geometry File: C:\Aguila\Hec-GeoRAS\Block 1\Hec-Ras\Block1.g01
Flow File: C:\Aguila\Hec-GeoRAS\Block 1\Hec-Ras\Block1.f01
Report File: C:\Aguila\Hec-GeoRAS\Block 1\Hec-Ras\Block1.xs
Selected profiles: PF 1
Date: 1/15/2003
Time: 9:07:12 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Block 1,T7-R10-S13						

3.498	1626.89	1728.86	1641.99	334.39	1927	C
3.17	1801.01	2029.65	1976.01	565.69	1927	D
2.786	3001.8	2809.76	3147.29	594.08	1927	
2.254	2918.05	2797.63	2937.98	748.25	1927	
1.724	3170.49	2952.23	3509.13	390.24	1927	C
1.165	1090.89	1140.09	1327.57	2537.96	3140	D
0.949	2886.67	3791.15	4661.27	200.27	3140	C
0.231	169.58	1218.77	64.92	4400.19	3140	E

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 2.786
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

RS: 2.254
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

RS: 1.724
XS DT 01 Both right and left overbank distances are
longer than the channel distance.

SPACING CHECK

RS: 1.165
XS SP 01 Diff. HV = 0.97 ; Kratio = 0.17 ; Depth Ratio = 1.23
TopWdthAct ratio = 0.08 ; Length Chl Up / 500 = 2.28
Change in HV > 0.5
K ratio < 0.7 or K ratio > 1.4
Depth ratio < 0.9 or Depth ratio > 1.1
TopWdthAct ratio < 0.5 or TopWdthAct ratio > 2.0
and Length Chnl up / 500 > 1.1
addtional cross sections may need to be added between
river station up and river station dn.

RS: 0.949
XS SP 01 Diff. HV = 0.99 ; Kratio = 65.17 ; Depth Ratio = 2.33
TopWdthAct ratio = 21.97 ; Length Chl Up / 500 = 7.58
Change in HV > 0.5
K ratio < 0.7 or K ratio > 1.4
Depth ratio < 0.9 or Depth ratio > 1.1
TopWdthAct ratio < 0.5 or TopWdthAct ratio > 2.0
and Length Chnl up / 500 > 1.1
addtional cross sections may need to be added between
river station up and river station dn.

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

LOCATION CHECK

RS: 2.254
XS LC 01 Lenchl Up/TopwdthAct Dn = 7.17
MaxChlDpth Up/MaxChlDpth Dn = 1.32
TopwdthAct Up/TopwdthAct Dn = 1.92
This cross section is located too far upstream from the
critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Block 1,T7-R10-S13
Known WS = 2096.25 is specified as the downstream boundary
for profile PF 1

---END---

EXPLANATION OF WARNINGS BY HDR - JANUARY 2003

DISTANCE CHECK

Warning:
Both right and left overbank distances are longer than the channel distance.

Explanation:
Cross sections were cut in order to take in channel geometry.

SPACING CHECK

Explanation:
Non-detailed study, warning occurs at downstream end new farm fields.

LOCATION CHECK

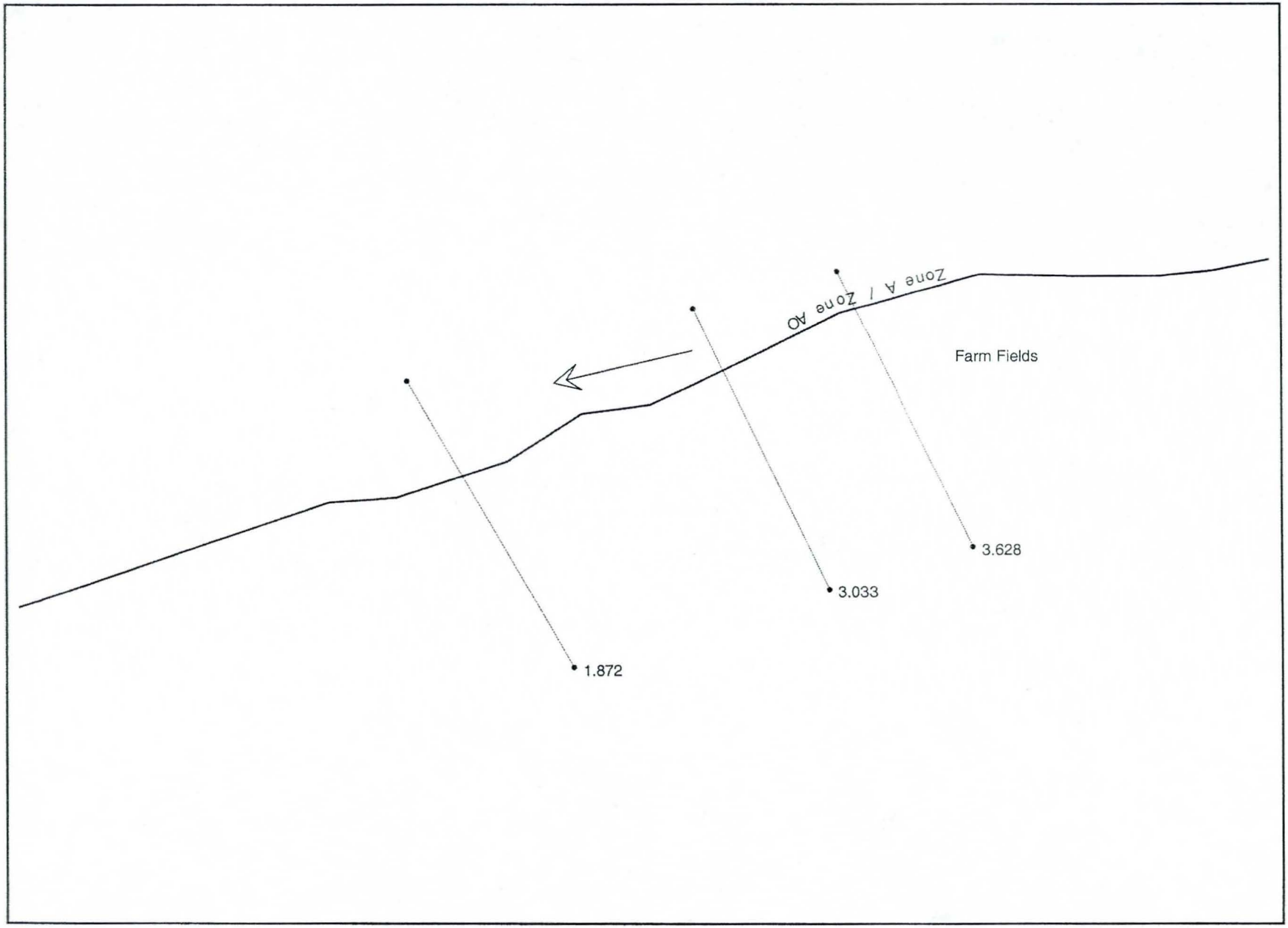
Non-detailed study; cross-sections located 2000-3000 feet apart.

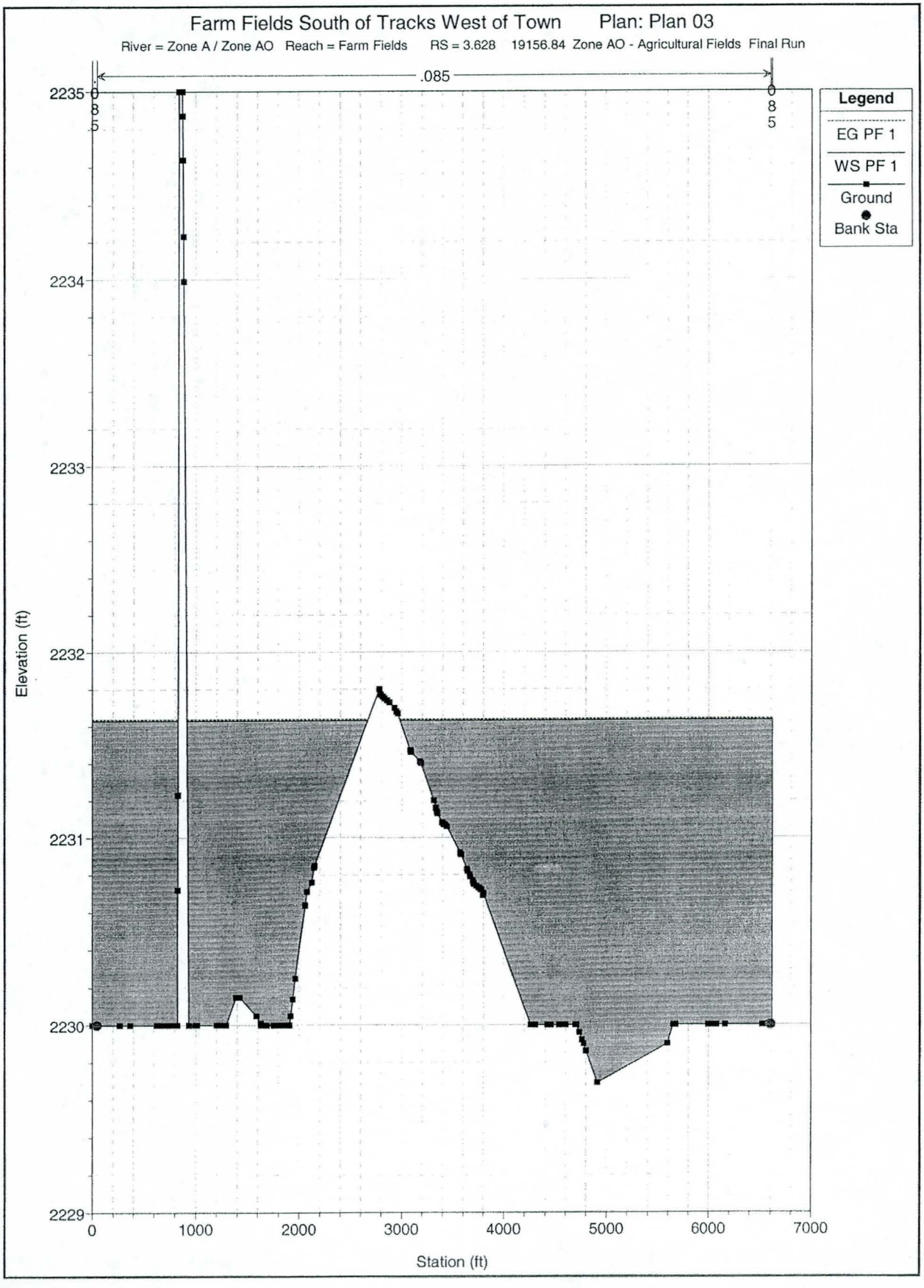
BOUNDARY CONDITION CHECK

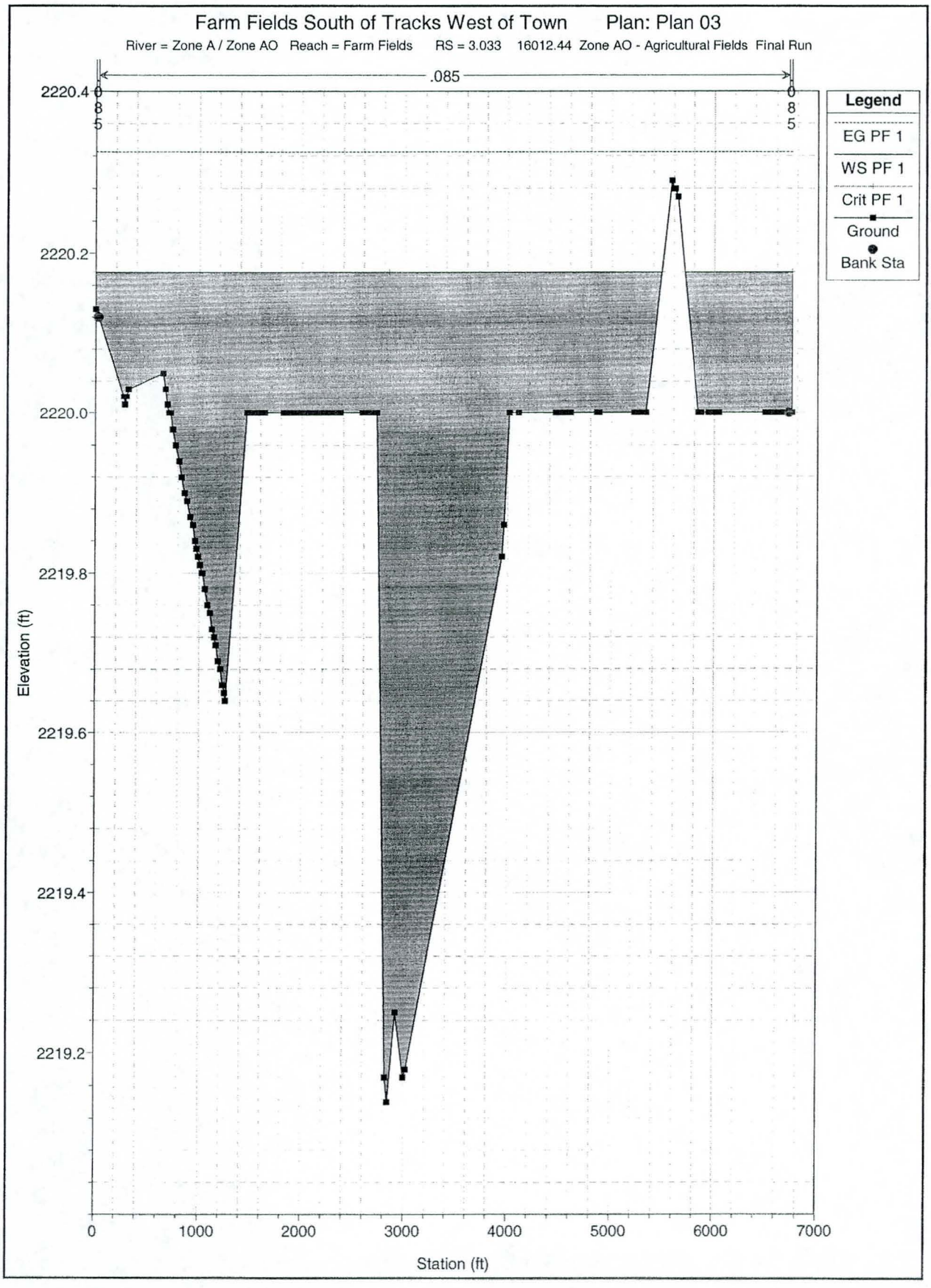
Explanation:
The known downstream water surface was specified from the current FIRM panel at the tie-in.

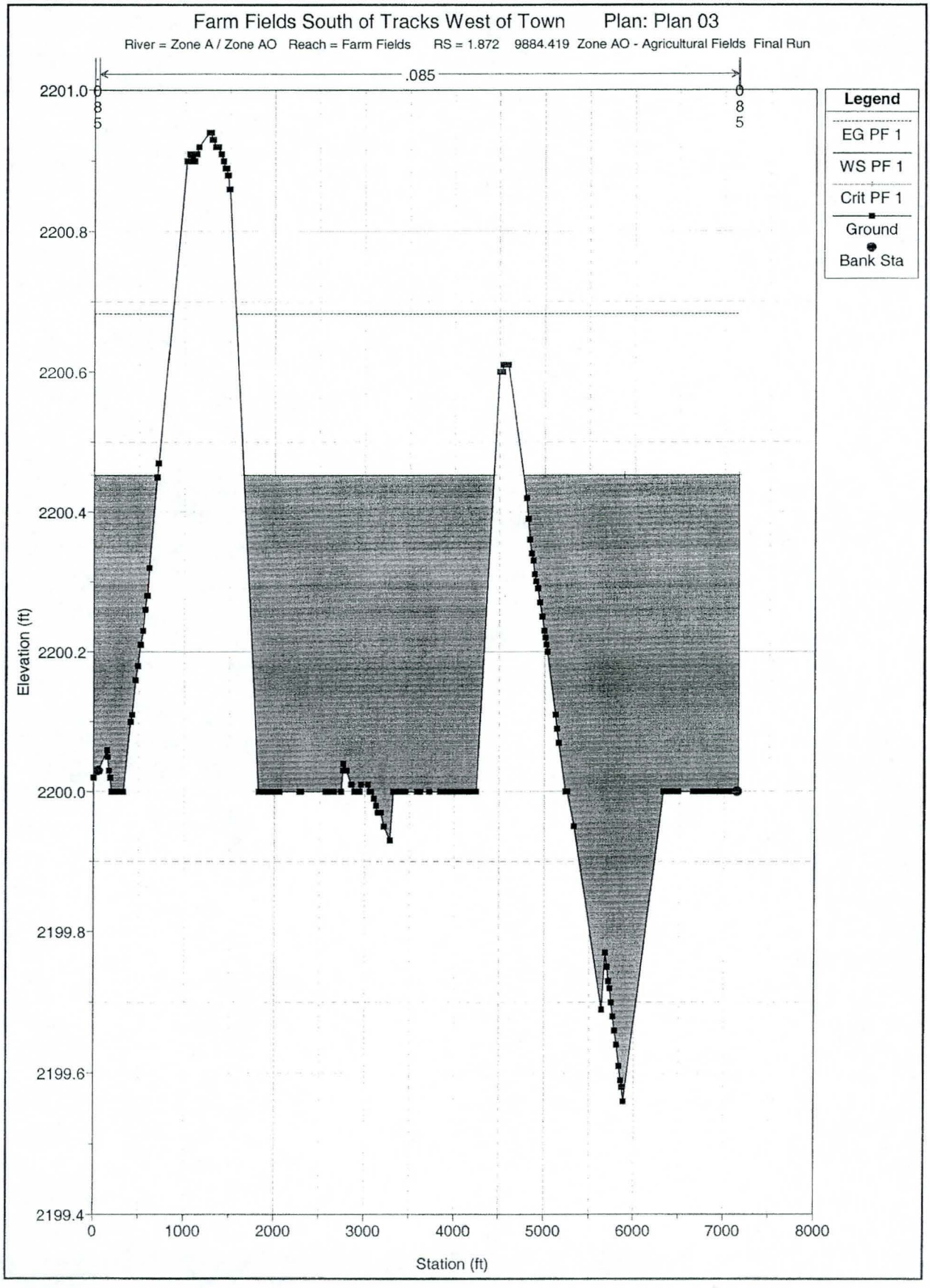
HEC-RAS Plan: Plan 03 River: Zone A / Zone AO Reach: Farm Fields Profile: PF 1

Reach	River Sta	Q Total	W.S. Elev	Crit W.S.	Vel Chnl	Top Width	Max Chl Dpth	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt
		(cfs)	(ft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)
Farm Fields	3.628	5845.00	2231.63		0.69	6219.93	1.94	0.10	0.00	6616.30
Farm Fields	3.033	5845.00	2220.18	2220.18	3.10	6518.32	1.04	1.01	0.00	6745.49
Farm Fields	1.872	10109.00	2200.45	2200.45	3.85	5880.11	0.89	1.01	0.00	7160.08


Zone A / Zone AO
Farm Fields
3.628
3.033
1.872


Farm Fields South of Tracks West of Town Plan: Plan 03
River = Zone A / Zone AO Reach = Farm Fields RS = 3.628 19156.84 Zone AO - Agricultural Fields Final Run
.085
.085
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
2235
2234
2233
2232
2231
2230
2229
0
1000
2000
3000
4000
5000
6000
7000
Station (ft)


Farm Fields South of Tracks West of Town Plan: Plan 03
River = Zone A / Zone AO Reach = Farm Fields RS = 3.033 16012.44 Zone AO - Agricultural Fields Final Run
.085
.085
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2220.4
2220.2
2220.0
2219.8
2219.6
2219.4
2219.2
0
1000
2000
3000
4000
5000
6000
7000


Farm Fields South of Tracks West of Town Plan: Plan 03
River = Zone A / Zone AO Reach = Farm Fields RS = 1.872 9884.419 Zone AO - Agricultural Fields Final Run
.085
.085
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
2201.0
2200.8
2200.6
2200.4
2200.2
2200.0
2199.8
2199.6
2199.4
0
1000
2000
3000
4000
5000
6000
7000
8000

Plan: Plan 03 Zone A / Zone AO Farm Fields RS: 3.628 Profile: PF 1

E.G. Elev (ft)	2231.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.085	0.085	0.085
W.S. Elev (ft)	2231.63	Reach Len. (ft)	3210.76	3144.41	3200.16
Crit W.S. (ft)		Flow Area (sq ft)	75.64	8335.17	21.61
E.G. Slope (ft/ft)	0.001048	Area (sq ft)	75.64	8335.17	21.61
Q Total (cfs)	5845.00	Flow (cfs)	58.02	5771.28	15.70
Top Width (ft)	6219.93	Top Width (ft)	46.31	6160.39	13.23
Vel Total (ft/s)	0.69	Avg. Vel. (ft/s)	0.77	0.69	0.73
Max Chl Dpth (ft)	1.94	Hydr. Depth (ft)	1.63	1.35	1.63
Conv. Total (cfs)	180521.1	Conv. (cfs)	1792.0	178244.4	484.8
Length Wtd. (ft)	3144.87	Wetted Per. (ft)	47.94	6160.66	14.86
Min Ch El (ft)	2229.69	Shear (lb/sq ft)	0.10	0.09	0.10
Alpha	1.00	Stream Power (lb/ft s)	0.08	0.06	0.07
Frctn Loss (ft)	11.30	Cum Volume (acre-ft)	4.34	684.00	1.79
C & E Loss (ft)	0.01	Cum SA (acres)	7.79	1319.44	4.48

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.
Warning:	The cross-section end points had to be extended vertically for the computed water surface.
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.

Plan: Plan 03 Zone A / Zone AO Farm Fields RS: 3.033 Profile: PF 1

E.G. Elev (ft)	2220.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.085	0.085	0.085
W.S. Elev (ft)	2220.18	Reach Len. (ft)	5748.12	6128.02	6338.70
Crit W.S. (ft)	2220.18	Flow Area (sq ft)	1.38	1882.48	4.76
E.G. Slope (ft/ft)	0.162774	Area (sq ft)	1.38	1882.48	4.76
Q Total (cfs)	5845.00	Flow (cfs)	1.34	5833.16	10.50
Top Width (ft)	6518.32	Top Width (ft)	26.98	6464.36	26.98
Vel Total (ft/s)	3.09	Avg. Vel. (ft/s)	0.97	3.10	2.21
Max Chl Dpth (ft)	1.04	Hydr. Depth (ft)	0.05	0.29	0.18
Conv. Total (cfs)	14487.5	Conv. (cfs)	3.3	14458.1	26.0
Length Wtd. (ft)		Wetted Per. (ft)	27.03	6464.37	27.16
Min Ch El (ft)	2219.14	Shear (lb/sq ft)	0.52	2.96	1.78
Alpha	1.00	Stream Power (lb/ft s)	0.51	9.17	3.93
Frctn Loss (ft)		Cum Volume (acre-ft)	1.51	315.21	0.82
C & E Loss (ft)		Cum SA (acres)	5.09	863.78	3.00

Errors Warnings and Notes

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:	Divided flow computed for this cross-section.
Warning:	The cross-section end points had to be extended vertically for the computed water surface.
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.

Plan: Plan 03 Zone A / Zone AO Farm Fields RS: 1.872 Profile: PF 1

E.G. Elev (ft)	2200.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.	0.085	0.085	0.085
W.S. Elev (ft)	2200.45	Reach Len. (ft)			
Crit W.S. (ft)	2200.45	Flow Area (sq ft)	21.44	2598.77	6.49
E.G. Slope (ft/ft)	0.141956	Area (sq ft)	21.44	2598.77	6.49
Q Total (cfs)	10109.00	Flow (cfs)	79.74	10004.59	24.67
Top Width (ft)	5880.11	Top Width (ft)	50.12	5815.67	14.32
Vel Total (ft/s)	3.85	Avg. Vel. (ft/s)	3.72	3.85	3.80
Max Chl Dpth (ft)	0.89	Hydr. Depth (ft)	0.43	0.45	0.45
Conv. Total (cfs)	26830.7	Conv. (cfs)	211.6	26553.5	65.5
Length Wtd. (ft)		Wetted Per. (ft)	50.55	5815.67	14.77
Min Ch El (ft)	2199.56	Shear (lb/sq ft)	3.76	3.96	3.89
Alpha	1.00	Stream Power (lb/ft s)	13.98	15.25	14.80
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Errors Warnings and Notes

Warning:	Divided flow computed for this cross-section.

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: G:\07162084 Aguila ADMP\TDN\HEC-RAS\Zone AO\Farm_fields.prj
Plan File: G:\07162084 Aguila ADMP\TDN\HEC-RAS\Zone AO\Farm_fields.p03
Geometry File: G:\07162084 Aguila ADMP\TDN\HEC-RAS\Zone AO\Farm_fields.g01
Flow File: G:\07162084 Aguila ADMP\TDN\HEC-RAS\Zone AO\Farm_fields.f01
Report File: G:\07162084 Aguila ADMP\TDN\HEC-RAS\Zone AO\Farm_fields.nt
Selected profiles: PF 1
Date: 1/29/2004
Time: 10:01:57 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Zone A / Zone AO,Farm Fields						
3.628		0.085	0.085	0.085	0.1	0.3
3.033		0.085	0.085	0.085	0.1	0.3
1.872		0.085	0.085	0.085	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.085	0.085
Right Overbank n Value:	0.085	0.085
Channel n Value:	0.085	0.085
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: G:\07162084 Aguila ADMP\TDN\HEC-RAS\Zone AO\Farm_fields.prj
Plan File: G:\07162084 Aguila ADMP\TDN\HEC-RAS\Zone AO\Farm_fields.p03
Geometry File: G:\07162084 Aguila ADMP\TDN\HEC-RAS\Zone AO\Farm_fields.g01
Flow File: G:\07162084 Aguila ADMP\TDN\HEC-RAS\Zone AO\Farm_fields.f01
Report File: G:\07162084 Aguila ADMP\TDN\HEC-RAS\Zone AO\Farm_fields.xs
Selected profiles: PF 1
Date: 1/29/2004
Time: 10:01:58 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Zone A / Zone AO,Farm Fields						
3.628	3210.76	3144.41	3200.16	6219.93	5845	D,E
3.033	5748.12	6128.02	6338.7	6518.32	5845	D,E,C
1.872	6383.31	9884.42	11363.38	5880.11	10109	D,E,C