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EAST MARICOPA FLOODWAY CAPACITY ASSESSMENT

FCD 97-06

FINAL STUDY REPORT

VOLUME 2 OF 2

Prepared For

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
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January, 1999
(Revised February, 1999)

EAST MARICOPA FLOODWAY CAPACITY ASSESSMENT
(FCD 97-06)

TABLE OF CONTENTS

SECTION	TITLE	PAGE NO.
LIST OF TABLES		ii
LIST OF FIGURES		ii
1	INTRODUCTION	1
1.1	Purpose of Study	1
1.2	Study Location and Study Reaches	1
1.3	Study Objectives	4
1.4	Authority of Study	4
2	STUDY SCOPE AND LIMITS	5
2.1	Scope of Study	5
2.2	Study Reach Characteristics	5
2.3	Existing EMF Conditions and Problem Areas	7
3	TECHNICAL DATA	8
3.1	Survey and Mapping	8
3.2	Data Collection	8
3.3	Discharge Rates	8
4	HYDRAULIC ASSESSMENT	10
4.1	Field Reconnaissance	10
4.2	Hydraulic Modeling and Assumptions	10
4.3	Parameter Estimates	11
4.3.1	Manning's Roughness Coefficients	
4.3.2	Contraction and Expansion Coefficients	
4.4	Cross Section Description	11
4.5	Modeling Considerations	12
4.5.1	Study Reaches	
4.5.2	Bridges, Culverts and Other Obstructions	
4.5.3	Ineffective Flow Areas	
4.5.4	Levee and Blocked Obstruction Options	
4.5.5	Model Refinement	
4.6	Special Problems and Solutions	16
4.6.1	Leisure World and Superstition Springs Golf Courses	
4.6.2	The RWCD Canal	
4.6.3	Small Stream and Pond on Floodplain	
5	FINAL RESULTS	18
5.1	Hydraulic Assessment Results	18
5.2	Work Study Plan and Profile Sheets	21
5.3	Bankfull Discharges	21

EAST MARICOPA FLOODWAY CAPACITY ASSESSMENT
(FCD 97-06)

TABLE OF CONTENTS
(Continued)

6 REFERENCES 36

7 LIST OF HEC-RAS MODEL FILES AND DISKETTE 37

APPENDICES

APPENDIX A: GENERAL DOCUMENTS — Volume 1 of 2
1. Contract and Scope of Work
2. Meeting Minutes and Progress Reports
3. General Correspondence

APPENDIX B: HYDRAULIC ASSESSMENT SUPPORTING DOCUMENTS — Volume 1 of 2
1. Data Collection Report
2. Field Reconnaissance Report and Manning's n Values Determination Report

APPENDIX C: HYDRAULIC ASSESSMENT RESULTS
1. HEC-RAS Model Output — Volumes 1 & 2 of 2
2. HEC-RAS Cross Section Plots — Volume 2 of 2
3. Work Study Plan and Profile Sheets (Under Separate Cover)
4. Rating Curve Plots — Volume 2 of 2

LIST OF TABLES

TABLE NO.	TITLE	PAGE NO.
1	Summary of 100-Year Peak Discharges	14
2	Summary of Bankfull Discharges	22

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE NO.
1	STUDY LOCATION MAP	2
2	VICINITY MAP	3
3	SUMMARY OF DISCHARGE RATES	9

Registered Professional Engineer (Civil) CERTIFICATE NO. 20537 BAILANG SUN Date Signed 2-3-99 ARIZONA, U. S. A.

APPENDIX C

HYDRAULIC ASSESSMENT REULTS

1. HEC-RAS Model Output

HEC-RAS Plan: Reach2 River: EMF Reach: Reach 2

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 2	9.001	8700.00	1286.69	1296.69	1290.94	1296.95	0.000279	4.05	2147.35	257.61	0.25
Reach 2	9.001	11920.00	1286.69	1298.43	1291.84	1298.76	0.000293	4.57	2607.14	270.50	0.26
Reach 2	9.001	15770.00	1286.69	1300.09	1292.80	1300.50	0.000311	5.15	3062.13	746.40	0.27
Reach 2	8.948	8700.00	1286.38	1296.62	1290.78	1296.87	0.000266	4.00	2174.22	256.28	0.24
Reach 2	8.948	11920.00	1286.38	1298.36	1291.67	1298.67	0.000282	4.53	2629.88	268.66	0.26
Reach 2	8.948	15770.00	1286.38	1300.00	1292.63	1300.41	0.000300	5.12	3083.33	959.28	0.27
Reach 2	8.87	8700.00	1286.45	1296.51	1290.74	1296.76	0.000261	3.96	2196.97	259.85	0.24
Reach 2	8.87	11920.00	1286.45	1298.24	1291.60	1298.56	0.000276	4.49	2656.33	271.06	0.25
Reach 2	8.87	15770.00	1286.45	1299.89	1292.53	1300.29	0.000294	5.08	3108.32	917.94	0.27
Reach 2	8.775	8700.00	1286.50	1296.37	1290.77	1296.62	0.000278	4.04	2152.20	258.51	0.25
Reach 2	8.775	11920.00	1286.50	1298.09	1291.64	1298.41	0.000292	4.57	2606.47	269.31	0.26
Reach 2	8.775	15770.00	1286.50	1299.72	1292.57	1300.13	0.000315	5.17	3049.41	936.66	0.27
Reach 2	8.668	8700.00	1285.99	1296.20	1290.33	1296.44	0.000368	3.95	2204.18	257.62	0.24
Reach 2	8.668	11920.00	1285.99	1297.91	1291.20	1298.22	0.000394	4.49	2654.03	471.41	0.25
Reach 2	8.668	15770.00	1285.99	1299.52	1292.14	1299.92	0.000423	5.10	3090.51	846.84	0.27
Reach 2	8.594	8700.00	1285.96	1296.06	1290.49	1296.31	0.000279	4.05	2148.40	257.96	0.25
Reach 2	8.594	11920.00	1285.96	1297.76	1291.35	1298.09	0.000293	4.59	2595.80	474.96	0.26
Reach 2	8.594	15770.00	1285.96	1299.36	1292.28	1299.78	0.000313	5.21	3030.64	912.10	0.27
Reach 2	8.514	8700.00	1286.10	1295.90	1290.77	1296.18	0.000332	4.28	2031.45	255.85	0.27
Reach 2	8.514	11920.00	1286.10	1297.59	1291.64	1297.95	0.000342	4.82	2474.05	394.95	0.28
Reach 2	8.514	15770.00	1286.10	1299.17	1292.57	1299.63	0.000370	5.43	2902.54	639.13	0.30
Reach 2	8.403	8700.00	1285.89	1295.68	1290.40	1295.95	0.000458	4.22	2061.39	256.79	0.26
Reach 2	8.403	11920.00	1285.89	1297.36	1291.29	1297.71	0.000474	4.76	2503.85	466.81	0.27
Reach 2	8.403	15770.00	1285.89	1298.93	1292.23	1299.38	0.000506	5.39	2926.20	531.87	0.29
Reach 2	8.382	8700.00	1286.16	1295.63	1290.33	1295.90	0.000447	4.19	2077.43	257.04	0.26
Reach 2	8.382	11920.00	1286.16	1297.31	1291.21	1297.66	0.000467	4.73	2519.29	267.63	0.27
Reach 2	8.382	15770.00	1286.16	1298.88	1292.12	1299.32	0.000500	5.36	2941.95	514.71	0.29

HEC-RAS Plan: Reach2 River: EMF Reach: Reach 2 (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 2	8.34	8700.00	1285.77	1295.55	1290.20	1295.82	0.000305	4.17	2085.78	256.13	0.26
Reach 2	8.34	11920.00	1285.77	1297.23	1291.07	1297.57	0.000320	4.72	2524.63	266.33	0.27
Reach 2	8.34	15770.00	1285.77	1298.78	1291.99	1299.23	0.000344	5.36	2943.61	473.47	0.29
Reach 2	8.245	8700.00	1285.80	1295.38	1290.17	1295.66	0.000325	4.25	2046.22	256.17	0.27
Reach 2	8.245	11920.00	1285.80	1297.05	1291.06	1297.41	0.000336	4.80	2483.44	490.88	0.28
Reach 2	8.245	15770.00	1285.80	1298.59	1291.97	1299.05	0.000361	5.44	2896.29	495.87	0.29
Reach 2	8.15	8700.00	1285.62	1295.22	1290.03	1295.50	0.000319	4.22	2059.30	256.81	0.26
Reach 2	8.15	11920.00	1285.62	1296.89	1290.89	1297.24	0.000331	4.78	2495.41	467.94	0.27
Reach 2	8.15	15770.00	1285.62	1298.41	1291.81	1298.87	0.000357	5.43	2904.44	471.73	0.29
Reach 2	8.10	8700.00	1285.37	1295.13	1289.76	1295.41	0.000438	4.18	2081.52	254.64	0.26
Reach 2	8.10	11920.00	1285.37	1296.80	1290.63	1297.15	0.000463	4.74	2513.34	470.69	0.27
Reach 2	8.10	15770.00	1285.37	1298.32	1291.56	1298.77	0.000504	5.40	2918.81	481.09	0.29
Reach 2	[illegible]	8700.00	1285.09	1295.05	1289.55	1295.32	0.000290	4.11	2114.40	254.93	0.25
Reach 2	[illegible]	11920.00	1285.09	1296.71	1290.42	1297.05	0.000309	4.68	2544.87	264.81	0.27
Reach 2	[illegible]	15770.00	1285.09	1298.22	1291.35	1298.66	0.000355	5.31	2967.85	460.34	0.29
Reach 2	[illegible]	8700.00	1284.88	1294.97	1289.42	1295.23	0.000285	4.08	2131.57	257.21	0.25
Reach 2	[illegible]	11920.00	1284.88	1296.62	1290.29	1296.96	0.000304	4.65	2564.85	446.17	0.26
Reach 2	[illegible]	15770.00	1284.88	1298.12	1291.23	1298.56	0.000335	5.31	2967.74	450.75	0.28
Reach 2	[illegible]	8700.00	1284.98	1294.81	1289.50	1295.08	0.000311	4.21	2068.57	255.01	0.26
Reach 2	[illegible]	11920.00	1284.98	1296.45	1290.37	1296.80	0.000331	4.78	2495.14	265.57	0.27
Reach 2	[illegible]	15770.00	1284.98	1297.93	1291.31	1298.39	0.000362	5.45	2891.44	522.86	0.29
Reach 2	[illegible]	8700.00	1284.72	1294.68	1289.10	1294.94	0.000284	4.09	2129.28	255.85	0.25
Reach 2	[illegible]	11920.00	1284.72	1296.31	1289.97	1296.65	0.000307	4.67	2554.81	463.47	0.27
Reach 2	[illegible]	15770.00	1284.72	1297.78	1290.91	1298.22	0.000341	5.35	2947.43	467.96	0.29
Reach 2	[illegible]	8700.00	1284.60	1294.63	1289.20	1294.89	0.000300	4.15	2094.32	255.71	0.26
Reach 2	[illegible]	11920.00	1284.60	1296.25	1290.07	1296.60	0.000321	4.73	2518.31	450.23	0.27
Reach 2	[illegible]	15770.00	1284.60	1297.71	1291.01	1298.16	0.000356	5.42	2908.53	460.66	0.29

HEC-RAS Plan: Reach2 River: EMF Reach: Reach 2 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 2	7.719	8700.00	1284.58	1294.50	1289.10	1294.78	0.000306	4.20	2073.25	252.75	0.26
Reach 2	7.719	11920.00	1284.58	1296.12	1289.98	1296.47	0.000329	4.79	2489.03	262.66	0.27
Reach 2	7.719	15770.00	1284.58	1297.55	1290.93	1298.02	0.000367	5.49	2870.35	445.22	0.30
Reach 2	7.618	8700.00	1284.38	1294.32	1289.12	1294.61	0.000329	4.28	2031.11	253.86	0.27
Reach 2	7.618	11920.00	1284.38	1295.92	1290.00	1296.29	0.000352	4.87	2445.78	264.57	0.28
Reach 2	7.618	15770.00	1284.38	1297.34	1290.95	1297.82	0.000392	5.58	2824.25	456.80	0.30
Reach 2	7.523	8700.00	1284.40	1294.17	1288.81	1294.44	0.000311	4.21	2066.06	253.78	0.26
Reach 2	7.523	11920.00	1284.40	1295.76	1289.69	1296.12	0.000336	4.81	2477.08	264.08	0.28
Reach 2	7.523	15770.00	1284.40	1297.15	1290.63	1297.62	0.000381	5.53	2849.79	463.18	0.30
Reach 2	7.429	8700.00	1284.00	1294.03	1288.52	1294.29	0.000289	4.11	2118.12	256.02	0.25
Reach 2	7.429	11920.00	1284.00	1295.60	1289.39	1295.95	0.000317	4.71	2529.21	266.05	0.27
Reach 2	7.429	15770.00	1284.00	1296.97	1290.33	1297.43	0.000361	5.44	2897.16	454.77	0.29
Reach 2	7.334	8700.00	1284.00	1293.89	1288.31	1294.15	0.000283	4.07	2136.17	257.41	0.25
Reach 2	7.334	11920.00	1284.00	1295.45	1289.18	1295.79	0.000313	4.68	2545.81	267.53	0.27
Reach 2	7.334	15770.00	1284.00	1296.80	1290.12	1297.25	0.000354	5.42	2908.52	707.33	0.29
Reach 2	7.239	8700.00	1283.70	1293.75	1288.12	1294.00	0.000276	4.04	2154.16	258.04	0.25
Reach 2	7.239	11920.00	1283.70	1295.30	1288.99	1295.63	0.000307	4.65	2560.70	268.12	0.27
Reach 2	7.239	15770.00	1283.70	1296.62	1289.91	1297.08	0.000351	5.40	2918.36	813.71	0.29
Reach 2	7.144	8700.00	1283.80	1293.61	1288.23	1293.86	0.000297	4.06	2144.56	458.35	0.25
Reach 2	7.144	11920.00	1283.80	1295.14	1289.10	1295.48	0.000316	4.65	2562.12	615.37	0.27
Reach 2	7.144	15770.00	1283.80	1296.45	1290.01	1296.90	0.000358	5.40	2921.07	933.83	0.29
Reach 2	7.05	8700.00	1283.73	1293.43	1288.17	1293.71	0.000317	4.22	2063.64	256.85	0.26
Reach 2	7.05	11920.00	1283.73	1294.94	1289.04	1295.31	0.000346	4.85	2459.29	532.13	0.28
Reach 2	7.05	15770.00	1283.73	1296.21	1289.97	1296.71	0.000396	5.64	2796.02	857.03	0.31
Reach 2	7.026	8700.00	1283.73	1293.38	1288.23	1293.66	0.000333	4.29	2028.33	255.02	0.27
Reach 2	7.026	11920.00	1283.73	1294.89	1289.10	1295.26	0.000365	4.93	2420.18	264.79	0.29
Reach 2	7.026	15770.00	1283.73	1296.15	1290.05	1296.65	0.000421	5.72	2756.44	833.19	0.31

HEC-RAS Plan: Reach2 River: EMF Reach: Reach 2 (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 2	6,999	8700.00	1283.70	1293.39	1287.57	1293.58	0.000206	3.47	2506.64	308.91	0.21
Reach 2	6,999	11920.00	1283.70	1294.91	1288.34	1295.16	0.000227	4.01	2973.95	342.61	0.23
Reach 2	6,999	15770.00	1283.70	1296.18	1289.17	1296.52	0.000262	4.68	3370.70	701.66	0.25
Reach 2	6,907	8700.00	1283.60	1293.31	1287.25	1293.48	0.000186	3.34	2603.08	308.53	0.20
Reach 2	6,907	11920.00	1283.60	1294.82	1288.00	1295.05	0.000208	3.87	3077.74	552.83	0.22
Reach 2	6,907	15770.00	1283.60	1296.08	1288.82	1296.39	0.000242	4.53	3477.41	575.69	0.24
Reach 2	[illegible]	8700.00	1283.66	1293.34	1286.91	1293.44	0.000043	2.50	3474.42	457.09	0.16
Reach 2	[illegible]	11920.00	1283.66	1294.87	1287.59	1294.99	0.000047	2.83	4234.94	547.71	0.17
Reach 2	[illegible]	15770.00	1283.66	1296.15	1288.31	1296.31	0.000052	3.25	4953.13	577.74	0.18
Reach 2	[illegible]	8700.00	1283.50	1293.34	1286.68	1293.44	0.000163	2.47	3520.30	454.63	0.16
Reach 2	[illegible]	11920.00	1283.50	1294.87	1287.36	1294.99	0.000175	2.81	4266.99	529.36	0.17
Reach 2	[illegible]	15770.00	1283.50	1296.15	1288.08	1296.31	0.000194	3.24	4975.32	569.70	0.18
Reach 2	[illegible]	8700.00	1283.50	1293.24	1287.08	1293.41	0.000177	3.28	2655.51	312.79	0.20
Reach 2	[illegible]	11920.00	1283.50	1294.73	1287.83	1294.96	0.000219	3.78	3196.81	472.26	0.22
Reach 2	[illegible]	15770.00	1283.50	1295.98	1288.65	1296.27	0.000244	4.35	3827.13	560.77	0.24
Reach 2	[illegible]	8700.00	1283.49	1293.20	1287.13	1293.38	0.000187	3.37	2584.41	303.72	0.20
Reach 2	[illegible]	11920.00	1283.49	1294.68	1287.90	1294.92	0.000213	3.92	3039.53	316.35	0.22
Reach 2	[illegible]	15770.00	1283.49	1295.89	1288.72	1296.22	0.000262	4.59	3457.64	356.09	0.25
Reach 2	[illegible]	8700.00	1283.50	1293.10	1287.11	1293.28	0.000194	3.43	2534.40	296.93	0.21
Reach 2	[illegible]	11920.00	1283.50	1294.56	1287.89	1294.81	0.000222	4.01	2972.62	304.58	0.23
Reach 2	[illegible]	15770.00	1283.50	1295.74	1288.71	1296.08	0.000272	4.73	3336.04	310.79	0.25
Reach 2	[illegible]	8700.00	1283.41	1293.01	1286.90	1293.19	0.000186	3.39	2564.74	296.08	0.20
Reach 2	[illegible]	11920.00	1283.41	1294.45	1287.65	1294.70	0.000215	3.98	2997.38	303.66	0.22
Reach 2	[illegible]	15770.00	1283.41	1295.60	1288.47	1295.95	0.000267	4.71	3351.57	309.72	0.25
Reach 2	[illegible]	8700.00	1283.27	1292.91	1286.91	1293.09	0.000194	3.43	2533.04	296.72	0.21
Reach 2	[illegible]	11920.00	1283.27	1294.33	1287.69	1294.58	0.000224	4.02	2961.67	304.44	0.23
Reach 2	[illegible]	15770.00	1283.27	1295.46	1288.51	1295.81	0.000280	4.77	3307.66	310.53	0.26

HEC-RAS Plan: Reach2 River: EMF Reach: Reach 2 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 2	6.510	8700.00	1283.13	1292.84	1286.57	1293.01	0.000243	3.26	2671.59	305.38	0.19
Reach 2	6.510	11920.00	1283.13	1294.26	1287.33	1294.49	0.000284	3.83	3109.05	312.06	0.21
Reach 2	6.510	15770.00	1283.13	1295.37	1288.15	1295.69	0.000357	4.56	3457.60	317.29	0.24
Reach 2	6.486	8700.00	1282.91	1292.55	1287.29	1292.91	0.000551	4.81	1810.28	211.31	0.29
Reach 2	6.486	11920.00	1282.91	1293.85	1288.26	1294.35	0.000667	5.71	2088.85	217.16	0.32
Reach 2	6.486	15770.00	1282.91	1294.77	1289.30	1295.50	0.000884	6.89	2289.72	221.35	0.38
Reach 2	6.388	8700.00	1282.50	1292.26	1287.02	1292.62	0.000558	4.83	1800.31	210.42	0.29
Reach 2	6.388	11920.00	1282.50	1293.48	1288.01	1294.00	0.000693	5.78	2061.51	216.06	0.33
Reach 2	6.388	15770.00	1282.50	1294.24	1289.05	1295.02	0.000968	7.08	2226.87	221.16	0.39
Reach 2	6.3	8700.00	1282.63	1291.97	1286.97	1292.35	0.000598	4.93	1763.05	210.10	0.30
Reach 2	6.3	11920.00	1282.63	1293.11	1287.93	1293.66	0.000764	5.94	2005.59	216.82	0.34
Reach 2	6.3	15770.00	1282.63	1293.68	1288.97	1294.53	0.001116	7.41	2129.64	693.42	0.42
Reach 2	6.252	8700.00	1282.70	1291.77	1287.08	1292.18	0.000682	5.16	1686.59	207.77	0.32
Reach 2	6.252	11920.00	1282.70	1292.84	1288.07	1293.45	0.000869	6.23	1912.09	212.24	0.37
Reach 2	6.252	15770.00	1282.70	1293.23	1289.09	1294.20	0.001347	7.90	1995.34	215.36	0.46
Reach 2	6.23	8700.00	1284.98	1290.13	1290.13	1291.93	0.001606	10.77	807.54	223.39	1.00
Reach 2	6.23	11920.00	1284.98	1291.03	1291.03	1293.17	0.001520	11.72	1016.64	680.61	1.00
Reach 2	6.23	15770.00	1284.98	1293.70	1291.95	1293.95	0.000155	5.07	5491.49	707.06	0.34
Reach 2	6.196	8700.00	1275.54	1284.32	1284.32	1287.81	0.001256	15.13	666.33	221.03	0.91
Reach 2	6.196	11920.00	1275.54	1286.20	1286.20	1290.16	0.001135	16.41	933.55	721.92	0.89
Reach 2	6.196	15770.00	1275.54	1287.90	1287.90	1292.56	0.001128	18.08	1179.96	1000.00	0.91
Reach 2	6.101	8700.00	1270.39	1279.06	1279.06	1282.34	0.001256	14.76	705.44	456.14	0.91
Reach 2	6.101	11920.00	1270.39	1280.78	1280.78	1284.58	0.001164	16.15	956.17	1000.00	0.91
Reach 2	6.101	15770.00	1270.39	1283.01	1283.01	1283.61	0.000265	8.83	5531.26	1000.00	0.45
Reach 2	6.007	8700.00	1265.41	1273.99	1273.99	1277.31	0.001311	14.87	707.95	138.96	0.93
Reach 2	6.007	11920.00	1265.41	1275.74	1275.74	1279.52	0.001188	16.15	958.85	1000.00	0.91
Reach 2	6.007	15770.00	1265.41	1277.37	1277.37	1281.84	0.001174	17.80	1193.50	1000.00	0.93

HEC-RAS Plan: Reach2 River: EMF Reach: Reach 2 (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/sec)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 2	5912	8700.00	1260.84	1269.21	1269.21	1272.28	0.001194	14.53	782.25	997.92	0.90
Reach 2	5912	11920.00	1260.84	1270.73	1270.73	1274.42	0.001176	16.18	1007.12	1000.00	0.92
Reach 2	5912	15770.00	1260.84	1272.30	1272.30	1276.68	0.001171	17.87	1240.16	1000.00	0.95
Reach 2	5817	8700.00	1255.90	1264.51	1264.51	1267.74	0.001257	14.66	707.39	503.82	0.92
Reach 2	5817	11920.00	1255.90	1266.13	1266.13	1269.95	0.001194	16.18	936.70	1000.00	0.93
Reach 2	5817	15770.00	1255.90	1267.77	1267.77	1272.27	0.001166	17.79	1169.82	1000.00	0.94
Reach 2	[illegible]	8700.00	1250.89	1259.13	1259.13	1262.37	0.001301	14.79	724.39	133.65	0.95
Reach 2	[illegible]	11920.00	1250.89	1260.78	1260.78	1264.59	0.001207	16.24	970.21	513.31	0.94
Reach 2	[illegible]	15770.00	1250.89	1262.54	1262.54	1266.83	0.001109	17.48	1248.10	1000.00	0.93
Reach 2	[illegible]	8700.00	1247.61	1255.94	1255.94	1259.33	0.001284	15.23	724.80	126.56	0.94
Reach 2	[illegible]	11920.00	1247.61	1257.67	1257.67	1261.71	0.001212	16.80	958.41	504.00	0.94
Reach 2	[illegible]	15770.00	1247.61	1259.62	1259.62	1264.08	0.001093	17.97	1255.84	1000.00	0.92
Reach 2	[illegible]	8700.00	1243.67	1248.42	1248.42	1250.75	0.001570	12.27	709.32	150.67	1.00
Reach 2	[illegible]	11920.00	1243.67	1249.62	1249.62	1252.37	0.001393	13.34	927.77	208.37	0.97
Reach 2	[illegible]	15770.00	1243.67	1250.90	1250.90	1253.92	0.001207	14.13	1310.18	270.09	0.93
Reach 2	[illegible]	8700.00	1238.32	1245.38	1243.29	1246.51	0.000485	8.52	1021.13	150.53	0.58
Reach 2	[illegible]	11920.00	1238.32	1246.54	1244.39	1248.08	0.000547	9.96	1196.31	150.65	0.62
Reach 2	[illegible]	15770.00	1238.32	1248.01	1245.58	1249.93	0.000557	11.12	1417.59	150.79	0.64
Reach 2	[illegible]	8700.00	1237.21	1245.66	1241.90	1246.38	0.000240	6.85	1269.35	150.76	0.42
Reach 2	[illegible]	11920.00	1237.21	1246.90	1243.00	1247.93	0.000315	8.14	1463.93	163.70	0.48
Reach 2	[illegible]	15770.00	1237.21	1248.47	1244.20	1249.73	0.000372	9.01	1749.39	191.61	0.53
Reach 2	[illegible]	8700.00	1237.20	1245.66	1241.91	1246.38	0.001452	6.79	1281.21	171.87	0.44
Reach 2	[illegible]	11920.00	1237.20	1246.94	1243.00	1247.90	0.001768	7.85	1517.89	190.88	0.49
Reach 2	[illegible]	15770.00	1237.20	1248.54	1244.20	1249.70	0.001759	8.62	1829.33	199.35	0.50
Reach 2	[illegible]	8700.00	1237.47	1245.68	1242.34	1246.35	0.001478	6.59	1319.61	195.71	0.45
Reach 2	[illegible]	11920.00	1237.47	1246.98	1243.58	1247.87	0.001593	7.55	1578.71	201.86	0.48
Reach 2	[illegible]	15770.00	1237.47	1248.59	1244.71	1249.65	0.001551	8.26	1910.06	209.04	0.48

HEC-RAS Plan: Reach2 River: EMF Reach: Reach 2 (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 2	5.483	8700.00	1236.40	1244.92	1242.67	1245.65	0.001328	6.85	1270.88	224.61	0.51
Reach 2	5.483	11920.00	1236.40	1246.27	1243.60	1247.15	0.001282	7.54	1581.79	235.48	0.51
Reach 2	5.483	15770.00	1236.40	1248.01	1244.59	1248.97	0.001100	7.87	2003.63	248.69	0.49
Reach 2	5.388	8700.00	1236.07	1244.25	1242.01	1244.98	0.001326	6.83	1274.50	225.87	0.51
Reach 2	5.388	11920.00	1236.07	1245.64	1242.93	1246.51	0.001251	7.47	1595.50	236.13	0.51
Reach 2	5.388	15770.00	1236.07	1247.51	1243.90	1248.43	0.001029	7.70	2054.56	268.40	0.47
Reach 2	5.293	8700.00	1235.10	1243.64	1241.23	1244.33	0.001227	6.66	1305.50	226.28	0.49
Reach 2	5.293	11920.00	1235.10	1245.07	1242.16	1245.90	0.001155	7.28	1637.91	237.42	0.49
Reach 2	5.293	15770.00	1235.10	1247.06	1243.15	1247.91	0.000960	7.42	2125.03	260.13	0.46
Reach 2	5.198	8700.00	1234.80	1243.15	1240.39	1243.75	0.001006	6.22	1398.79	231.87	0.45
Reach 2	5.198	11920.00	1234.80	1244.62	1241.30	1245.34	0.000959	6.82	1748.36	243.43	0.45
Reach 2	5.198	15770.00	1234.80	1246.71	1242.28	1247.46	0.000738	6.94	2271.58	1000.02	0.41
Reach 2	5.104	8700.00	1234.18	1242.58	1240.02	1243.22	0.001113	6.41	1357.61	232.06	0.47
Reach 2	5.104	11920.00	1234.18	1244.10	1240.94	1244.84	0.001020	6.93	1719.44	244.32	0.46
Reach 2	5.104	15770.00	1234.18	1246.35	1241.91	1247.09	0.000740	6.88	2291.15	1000.02	0.41
Reach 2	5.009	8700.00	1233.90	1242.06	1239.39	1242.67	0.001048	6.28	1384.82	233.25	0.45
Reach 2	5.009	11920.00	1233.90	1243.63	1240.30	1244.34	0.000948	6.76	1762.29	246.02	0.45
Reach 2	5.009	15770.00	1233.90	1246.04	1241.27	1246.73	0.000641	6.65	2383.00	1000.02	0.38
Reach 2	4.914	8700.00	1233.70	1241.58	1238.77	1242.16	0.000955	6.09	1429.08	260.38	0.44
Reach 2	4.914	11920.00	1233.70	1243.21	1239.67	1243.87	0.000868	6.53	1825.24	318.60	0.43
Reach 2	4.914	15770.00	1233.70	1245.78	1240.63	1246.41	0.000555	6.37	2476.35	1000.02	0.36
Reach 2	4.82	8700.00	1233.57	1241.07	1238.36	1241.66	0.001011	6.19	1406.16	258.01	0.45
Reach 2	4.82	11920.00	1233.57	1242.77	1239.25	1243.44	0.000873	6.55	1820.94	294.03	0.43
Reach 2	4.82	15770.00	1233.57	1245.53	1240.20	1246.14	0.000525	6.26	2518.57	1000.02	0.35
Reach 2	4.746	8700.00	1233.09	1240.64	1237.99	1241.26	0.001063	6.31	1378.69	245.00	0.46
Reach 2	4.746	11920.00	1233.09	1242.42	1238.89	1243.09	0.000884	6.58	1810.80	287.90	0.43
Reach 2	4.746	15770.00	1233.09	1245.34	1239.87	1245.93	0.000504	6.19	2548.81	1000.02	0.34

HEC-RAS Plan: Reach2 River: EMF Reach: Reach 2 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 2	[illegible]	8700.00	1232.99	1240.56	1237.86	1241.14	0.000988	6.12	1421.63	238.07	0.44
Reach 2	[illegible]	11920.00	1232.99	1242.36	1238.73	1243.00	0.000816	6.39	1866.57	284.66	0.41
Reach 2	[illegible]	15770.00	1232.99	1245.31	1239.67	1245.87	0.000467	6.02	2621.32	1000.02	0.33
Reach 2	[illegible]	8700.00	1233.16	1240.39	1238.09	1241.07	0.001238	6.59	1319.35	234.21	0.49
Reach 2	[illegible]	11920.00	1233.16	1242.23	1238.98	1242.93	0.000974	6.73	1769.94	292.37	0.45
Reach 2	[illegible]	15770.00	1233.16	1245.24	1239.93	1245.84	0.000516	6.22	2536.39	1000.02	0.35
Reach 2	[illegible]	8700.00	1232.79	1240.09	1237.48	1240.72	0.001526	6.34	1373.17	229.88	0.46
Reach 2	[illegible]	11920.00	1232.79	1242.04	1238.38	1242.66	0.001120	6.37	2043.51	556.98	0.41
Reach 2	[illegible]	15770.00	1232.79	1245.33	1239.34	1245.64	0.000415	4.93	4376.75	1000.00	0.26
Reach 2	[illegible]	8700.00	1232.22	1239.78	1236.59	1240.30	0.001221	5.82	1493.62	239.42	0.41
Reach 2	[illegible]	11920.00	1232.22	1241.79	1237.48	1242.35	0.000943	6.00	1987.67	249.87	0.37
Reach 2	[illegible]	15770.00	1232.22	1245.00	1238.47	1245.49	0.000542	5.65	2793.52	599.26	0.30
Reach 2	[illegible]	Bridge									
Reach 2	[illegible]	8700.00	1232.14	1239.33	1236.83	1239.99	0.001675	6.53	1331.90	227.50	0.48
Reach 2	[illegible]	11920.00	1232.14	1240.84	1237.74	1241.61	0.001533	7.06	1689.36	239.96	0.47
Reach 2	[illegible]	15770.00	1232.14	1243.00	1238.71	1243.78	0.001149	7.09	2224.22	258.60	0.42
Reach 2	[illegible]	8700.00	1231.84	1239.19	1236.33	1239.79	0.001368	6.19	1406.32	224.37	0.44
Reach 2	[illegible]	11920.00	1231.84	1240.72	1237.25	1241.43	0.001292	6.80	1753.80	232.17	0.44
Reach 2	[illegible]	15770.00	1231.84	1242.89	1238.22	1243.64	0.001049	6.93	2274.42	412.79	0.40
Reach 2	[illegible]	Bridge									
Reach 2	[illegible]	8700.00	1232.72	1238.32	1236.99	1239.34	0.003224	8.12	1071.39	216.69	0.64
Reach 2	[illegible]	11920.00	1232.72	1239.52	1237.90	1240.76	0.003032	8.91	1337.19	224.23	0.64
Reach 2	[illegible]	15770.00	1232.72	1240.65	1238.88	1242.17	0.003095	9.90	1592.44	231.33	0.67
Reach 2	[illegible]	8700.00	1230.31	1237.60	1235.68	1238.35	0.001696	6.99	1245.39	257.68	0.56
Reach 2	[illegible]	11920.00	1230.31	1238.93	1236.64	1239.77	0.001546	7.39	1658.78	812.06	0.55
Reach 2	[illegible]	15770.00	1230.31	1240.25	1237.63	1241.15	0.001268	7.70	2243.68	1000.00	0.51

HEC-RAS Plan: Reach2 River: EMF Reach: Reach 2 (Continued)

Reach	River Sta.	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 2	4.487	8700.00	1230.05	1237.47	1235.39	1238.17	0.001571	6.73	1291.97	266.64	0.54
Reach 2	4.487	11920.00	1230.05	1238.84	1236.33	1239.59	0.001577	6.95	1760.68	795.65	0.54
Reach 2	4.487	15770.00	1230.05	1240.23	1237.34	1240.98	0.001230	7.02	2399.16	1000.00	0.50

HEC-RAS Version 2.1 October 1997
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

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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: EMF Reach 2 (1-12-99), FCD 97-06
Project File : emfr2.prj
Run Date and Time: 1/12/99 8:15:08 PM

Project in English units

Project Description:
EAST MARICOPA FLOODWAY CAPACITY ASSESSMENT
FCDMC Contract No. 97-06
Prepared by HNTB Corporation, January 1999
Contact: B. Gary Sun
HNTB Corporation
40 North Central Avenue, Suite 300
Phoenix, Arizona 85004
(602) 528-4300

REACH 2
SR 87 TO Hunt Highway
(River Mile 4.487 to Mile 9.001)

The Purpose of the Study is to Determine Channel Capacity for Three
Given 100-Year Discharges.
The Water Surface Profiles Were Calculated Using
the U.S. Army Corps of Engineers' HEC-RAS Computer Program, Version 2.1, Dated
October 1997, as Implemented by Haestad Methods, Inc.

Subcritical Flow Run
3 Water Surface Profiles with 100-Year Discharges Provided by FCDMC (Dated 6-10-98)
Profile 1 - Design Discharges
Profile 2 - Future Discharges, Future
Land Use with Retention and without Proposed FCD CIPs
Profile 3 - Existing Conditions

The Control Line on the Thalweg of East Maricopa Floodway is
Station 5,000, and All Cross
Section Data were Stationed Looking Downstream.
Cross Section Numbers Indicate in River
Miles above the Top of Drop Structure
at the Downstream End of East Maricopa Floodway.
Starting Water Surface Elevations are the Water Surface Elevations Calculated from Cross
Section Mile 4.487 at the Upstream End of Reach 1 Runs.

Ineffective Area, Levee and Blocked Obstructions Options were Used on Overbank Areas. Since the
Model was Developed to Run all Three Water Surface Profiles, the Options Were
Applied to Each Cross Section to Better Simulate All Three Profiles.

PLAN DATA

Plan Title: EMF Reach 2
Plan File : j:\27559\CADD\CIVIL\DATA\emfr2.p01

Geometry Title: EMF Reach 2
Geometry File : j:\27559\CADD\CIVIL\DATA\emfr2.g01

Flow Title : Profiles 1-Design, 2-Future & 3-Exist.
Flow File : j:\27559\CADD\CIVIL\DATA\emfr2.f01

Plan Summary Information:
Number of: Cross Sections = 72 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 0
Bridges = 2

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

Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: Profiles 1-Design, 2-Future & 3-Exist.
Flow File : j:\27559\CADD\CIVIL\DATA\emfr2.f01

Flow Data (cfs)

River	Reach	RS	Design	Future	Existing
EMF	Reach 2	9.001	8700	11920	15770

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
EMF	Reach 2	Design		Known WS = 1237.47
EMF	Reach 2	Future		Known WS = 1238.84
EMF	Reach 2	Existing		Known WS = 1240.23

GEOMETRY DATA

Geometry Title: EMF Reach 2
Geometry File : j:\27559\CADD\CIVIL\DATA\emfr2.g01

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 9.001

INPUT
Description: Upstream End of Reach 2 at Hunt Highway Crossing
Q(D)=8,700 cfs,
Q(F)=11,920 cfs & Q(E)=15,770 cfs
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4250.88	1302.5	4269.99	1302.35	4301.98	1301.83	4331.19	1301.7	4392.35	1300.58
4409.62	1300.6	4466.06	1300.03	4481.61	1299.78	4503.49	1299.79	4526.68	1299.54
4532.6	1298.8	4543.55	1297.77	4560.68	1299.35	4571.1	1299.36	4586	1299.49
4591.47	1299.8	4613.26	1299.76	4623.66	1299.91	4629.7	1298.97	4645.26	1298.71
4655.08	1298.8	4664.04	1298.63	4668.71	1297.33	4676.2	1294.88	4685.71	1294.51
4691.43	1294.4	4712.14	1293.85	4723.4	1294.01	4727.63	1294.74	4731.09	1295.71
4737.5	1297	4739.28	1296.99	4751.93	1298.37	4761.33	1298.3	4779.2	1297.74

4805.82	1297.7	4808.75	1297.82	4820.03	1297.81	4835.66	1299.1	4842.05	1299.15
4864.67	1300	4908.36	1288.04	4911.53	1287.21	4991.02	1286.69	5000.44	1286.84
5095.8	1287.2	5098.53	1287.15	5121.51	1293.55	5136	1297.09	5142.86	1298.97
5154.88	1298.7	5169.25	1298.64	5187.9	1297.97	5206.98	1299.12		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4250.88	.04	4864.67	.025	5142.86	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4864.67	5142.86	278.91	278.91	278.91	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4250.88	4864.67	1302	5142.86	5206.98	1302

Left Levee Station= 4864.67 Elevation= 1300
Right Levee Station= 5142.86 Elevation= 1298.97

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1296.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.95	Reach Len. (ft)	278.91	278.91	278.91
Crit W.S. (ft)	1290.94	Flow Area (sq ft)		2147.35	
E.G. Slope (ft/ft)	0.000279	Area (sq ft)		2147.35	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	257.61	Top Width (ft)		257.61	
Vel Total (ft/s)	4.05	Avg. Vel. (ft/s)		4.05	
Max Chl Dpth (ft)	10.00	Hydr. Depth (ft)		8.34	
Conv. Total (cfs)	521306.7	Conv. (cfs)		521306.7	
Length Wtd. (ft)	278.91	Wetted Per. (ft)		260.14	
Min Ch El (ft)	1286.69	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.58	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	14.18	948.36	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	124.38	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1298.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.025	
E.G. Elev (ft)	1298.76	Reach Len. (ft)	278.91	278.91	278.91
Crit W.S. (ft)	1291.84	Flow Area (sq ft)		2607.14	
E.G. Slope (ft/ft)	0.000293	Area (sq ft)		2607.14	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	270.50	Top Width (ft)		270.50	
Vel Total (ft/s)	4.57	Avg. Vel. (ft/s)		4.57	
Max Chl Dpth (ft)	11.74	Hydr. Depth (ft)		9.64	
Conv. Total (cfs)	696689.3	Conv. (cfs)		696689.3	
Length Wtd. (ft)	278.91	Wetted Per. (ft)		273.49	
Min Ch El (ft)	1286.69	Shear (lb/sq ft)		0.17	
Alpha	1.00	Stream Power (lb/ft s)		0.80	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	107.78	1146.06	129.71
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	129.09	47.26

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1300.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.		0.025	
E.G. Elev (ft)	1300.50	Reach Len. (ft)	278.91	278.91	278.91
Crit W.S. (ft)	1292.80	Flow Area (sq ft)		3062.13	
E.G. Slope (ft/ft)	0.000311	Area (sq ft)	756.84	3062.13	97.96
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	746.40	Top Width (ft)	404.09	278.19	64.12
Vel Total (ft/s)	5.15	Avg. Vel. (ft/s)		5.15	
Max Chl Dpth (ft)	13.40	Hydr. Depth (ft)		11.01	
Conv. Total (cfs)	893607.9	Conv. (cfs)		893607.9	
Length Wtd. (ft)	278.91	Wetted Per. (ft)		281.46	
Min Ch El (ft)	1286.69	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		1.09	

Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	399.12	1355.46	489.38
C & E Loss (ft)	0.00	Cum SA (acres)	121.41	131.74	106.93

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 8.948

INPUT
Description: Just Downstream of Detention Basin Outlet
Q(D)=8,700 cfs,
Q(F)=11,920 cfs, Q(E)=15,770 cfs
Station Elevation Data num= 57

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4199.14	1302.2	4218.34	1302.04	4274.58	1301.58	4305.14	1301.24	4315.29	1301.12
4349.22	1300.8	4355.87	1300.84	4375.41	1300.26	4391.89	1300.06	4412.97	1299.62
4425.49	1299.6	4441.7	1299.37	4466.66	1299.37	4487.3	1299.15	4503.07	1299.15
4511.14	1299.2	4556.9	1298.83	4563.88	1298.91	4584.33	1298.81	4591.16	1299.93
4609.1	1300	4612.65	1299.89	4620.71	1298.4	4636.96	1297.85	4669.75	1298.04
4709.16	1298.1	4720.26	1298.3	4791.58	1298.68	4798.23	1298.83	4830.69	1299.25
4837.32	1299.8	4850.85	1299.84	4865.51	1299.58	4883.25	1294.93	4893.92	1291.88
4910.07	1287.5	4932.08	1287.25	4965.71	1286.48	4994.39	1286.4	5007.99	1286.38
5065.25	1287.1	5101.69	1287.16	5139.92	1298.68	5168.55	1298.24	5177.77	1295.48
5194.18	1295.4	5213.86	1293.77	5239.27	1293.44	5272.85	1292.88	5282.18	1292.83
5287.09	1292.7	5296.54	1292.74	5310.23	1293.02	5334.14	1293.28	5340.55	1293.44
5348.66	1293.5	5353.88	1293.87						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4199.14	.04	4865.51	.025	5139.92	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4865.51	5139.92	413.96	413.96	413.96	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4199.14	4850.85	1302	5139.92	5353.88	1302

Left Levee Station= 4850.85 Elevation= 1299.84
Right Levee Station= 5139.92 Elevation= 1298.68

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1296.62	Element			
Vel Head (ft)	0.25	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.87	Reach Len. (ft)	413.96	413.96	413.96
Crit W.S. (ft)	1290.78	Flow Area (sq ft)		2174.22	
E.G. Slope (ft/ft)	0.000266	Area (sq ft)		2174.22	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	256.28	Top Width (ft)		256.28	
Vel Total (ft/s)	4.00	Avg. Vel. (ft/s)		4.00	
Max Chl Dpth (ft)	10.24	Hydr. Depth (ft)		8.48	
Conv. Total (cfs)	533892.7	Conv. (cfs)		533892.7	
Length Wtd. (ft)	413.96	Wetted Per. (ft)		258.92	
Min Ch El (ft)	1286.38	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.56	
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	14.18	934.53	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	122.74	15.81

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1298.36	Element			
Vel Head (ft)	0.32	Wt. n-Val.		0.025	
E.G. Elev (ft)	1298.67	Reach Len. (ft)	413.96	413.96	413.96
Crit W.S. (ft)	1291.67	Flow Area (sq ft)		2629.88	
E.G. Slope (ft/ft)	0.000282	Area (sq ft)		2629.88	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	268.66	Top Width (ft)		268.66	
Vel Total (ft/s)	4.53	Avg. Vel. (ft/s)		4.53	
Max Chl Dpth (ft)	11.98	Hydr. Depth (ft)		9.79	

Conv. Total (cfs)	709803.9	Conv. (cfs)		709803.9	
Length Wtd. (ft)	413.96	Wetted Per. (ft)		271.78	
Min Ch El (ft)	1286.38	Shear (lb/sq ft)		0.17	
Alpha	1.00	Stream Power (lb/ft s)		0.77	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	107.78	1129.30	129.71
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	127.36	47.26

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1300.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.	0.040	0.025	
E.G. Elev (ft)	1300.41	Reach Len. (ft)	413.96	413.96	413.96
Crit W.S. (ft)	1292.63	Flow Area (sq ft)	4.30	3079.03	
E.G. Slope (ft/ft)	0.000300	Area (sq ft)	508.51	3079.03	1208.08
Q Total (cfs)	15770.00	Flow (cfs)	1.22	15768.78	
Top Width (ft)	959.28	Top Width (ft)	470.91	274.41	213.96
Vel Total (ft/s)	5.11	Avg. Vel. (ft/s)	0.28	5.12	
Max Chl Dpth (ft)	13.62	Hydr. Depth (ft)	0.29	11.22	
Conv. Total (cfs)	909969.7	Conv. (cfs)	70.6	909899.1	
Length Wtd. (ft)	413.96	Wetted Per. (ft)	14.66	277.73	
Min Ch El (ft)	1286.38	Shear (lb/sq ft)	0.01	0.21	
Alpha	1.00	Stream Power (lb/ft s)	0.00	1.06	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	395.07	1335.80	485.20
C & E Loss (ft)	0.00	Cum SA (acres)	118.61	129.97	106.03

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 8.87

INPUT
Description:
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4190.21	1302	4225.89	1301.65	4270.24	1301.19	4334.82	1300.68	4368.03	1300.3
4408.7	1299.78	4439.09	1299.49	4463.94	1299.12	4528.49	1298.55	4545.7	1298.4
4566.77	1298.21	4593.05	1298.03	4621.58	1297.58	4645.79	1297.73	4657.62	1297.6
4687.84	1297.1	4724.85	1297	4757.29	1296.82	4786.75	1296.28	4808.63	1296.2
4824.65	1296.25	4830.51	1296.2	4840.02	1299.56	4847.1	1299.73	4854.89	1299.5
4892.2	1287.92	4898.83	1287.43	4910.64	1287.33	4915.88	1287.47	4961.94	1286.6
4968.57	1286.56	4980.43	1286.74	4998.1	1286.45	5012.88	1286.48	5045	1287
5083.91	1286.97	5094.61	1287.38	5130.63	1298.44	5157.15	1297.04	5160.34	1295.9
5165.58	1294.46	5177.59	1293.77	5185.03	1293.84	5198.91	1293.44	5246.3	1292.95
5263.25	1292.8	5286.68	1292.45	5298.76	1292.16	5309.24	1292.2	5318.39	1292.43

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4190.21	.04	4854.89	.025	5130.63	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4854.89	5130.63	499.84	499.84	499.84	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4190.21	4847.1	1301	5130.63	5318.39	1301

Left Levee Station= 4847.1 Elevation= 1299.73
Right Levee Station= 5130.63 Elevation= 1298.44

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1296.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.76	Reach Len. (ft)	499.84	499.84	499.84
Crit W.S. (ft)	1290.74	Flow Area (sq ft)		2196.97	
E.G. Slope (ft/ft)	0.000261	Area (sq ft)		2196.97	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	259.85	Top Width (ft)		259.85	
Vel Total (ft/s)	3.96	Avg. Vel. (ft/s)		3.96	
Max Chl Dpth (ft)	10.06	Hydr. Depth (ft)		8.45	

Conv. Total (cfs)	538190.6	Conv. (cfs)		538190.6	
Length Wtd. (ft)	499.84	Wetted Per. (ft)		262.57	
Min Ch El (ft)	1286.45	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.54	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	14.18	913.76	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	120.29	15.81

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1298.24	Element			
Vel Head (ft)	0.31	Wt. n-Val.		0.025	
E.G. Elev (ft)	1298.56	Reach Len. (ft)	499.84	499.84	499.84
Crit W.S. (ft)	1291.60	Flow Area (sq ft)		2656.33	
E.G. Slope (ft/ft)	0.000276	Area (sq ft)		2656.33	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	271.06	Top Width (ft)		271.06	
Vel Total (ft/s)	4.49	Avg. Vel. (ft/s)		4.49	
Max Chl Dpth (ft)	11.79	Hydr. Depth (ft)		9.80	
Conv. Total (cfs)	717312.6	Conv. (cfs)		717312.6	
Length Wtd. (ft)	499.84	Wetted Per. (ft)		274.30	
Min Ch El (ft)	1286.45	Shear (lb/sq ft)		0.17	
Alpha	1.00	Stream Power (lb/ft s)		0.75	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	107.78	1104.18	129.71
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	124.80	47.26

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1299.89	Element			
Vel Head (ft)	0.40	Wt. n-Val.	0.040	0.025	
E.G. Elev (ft)	1300.29	Reach Len. (ft)	499.84	499.84	499.84
Crit W.S. (ft)	1292.53	Flow Area (sq ft)	2.11	3106.21	
E.G. Slope (ft/ft)	0.000294	Area (sq ft)	892.97	3106.21	1141.29
Q Total (cfs)	15770.00	Flow (cfs)	0.56	15769.44	
Top Width (ft)	917.94	Top Width (ft)	454.44	275.74	187.76
Vel Total (ft/s)	5.07	Avg. Vel. (ft/s)	0.27	5.08	
Max Chl Dpth (ft)	13.44	Hydr. Depth (ft)	0.27	11.27	
Conv. Total (cfs)	920120.9	Conv. (cfs)	32.7	920088.2	
Length Wtd. (ft)	499.84	Wetted Per. (ft)	7.79	279.20	
Min Ch El (ft)	1286.45	Shear (lb/sq ft)	0.00	0.20	
Alpha	1.00	Stream Power (lb/ft s)	0.00	1.04	
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	388.41	1306.41	474.04
C & E Loss (ft)	0.00	Cum SA (acres)	114.22	127.36	104.13

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 8.775

INPUT
Description:
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4205.65	1301.6	4230.23	1301.34	4249.32	1301.23	4276.27	1301.17	4313.87	1300.65
4341.28	1300.4	4378.44	1300.23	4442.99	1299.46	4467.36	1299.24	4489.47	1298.99
4507.54	1298.9	4546.38	1298.55	4572.12	1298.1	4625.43	1297.39	4636.67	1297.32
4704.45	1296.5	4765.79	1296.11	4783.47	1295.89	4819.38	1294.94	4823.72	1295.54
4832.78	1299.1	4840.27	1299.32	4842.65	1299.6	4846.71	1299.45	4860.68	1294.74
4881.98	1287.7	4890.67	1287.07	4897.01	1287.09	4959.5	1287.02	4989.6	1286.81
4997.42	1286.5	5027.34	1286.78	5068	1287.09	5071.46	1287.03	5085.78	1287.72
5120.09	1298.1	5136.91	1297.59	5148.33	1296.95	5156.43	1293.73	5179.2	1292.63
5189.37	1291.9	5202.46	1291.58	5212.87	1291.53	5227.91	1291.57	5282.3	1291.46
5336.71	1290.9	5352.31	1290.57	5358.12	1290.63				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4205.65	.04	4842.65	.025	5120.09	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4842.65	5120.09	565.77	565.77	565.77	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4205.65	4842.65	1301	5120.09	5358.12	1301

Left Levee Station= 4842.65 Elevation= 1299.6
Right Levee Station= 5120.09 Elevation= 1298.1

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1296.37	Element			
Vel Head (ft)	0.25	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.62	Reach Len. (ft)	565.77	565.77	565.77
Crit W.S. (ft)	1290.77	Flow Area (sq ft)		2152.20	
E.G. Slope (ft/ft)	0.000278	Area (sq ft)		2152.20	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	258.51	Top Width (ft)		258.51	
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)		4.04	
Max Chl Dpth (ft)	9.87	Hydr. Depth (ft)		8.33	
Conv. Total (cfs)	521788.6	Conv. (cfs)		521788.6	
Length Wtd. (ft)	565.77	Wetted Per. (ft)		261.24	
Min Ch El (ft)	1286.50	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.58	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	14.18	888.80	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	117.31	15.81

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1298.09	Element			
Vel Head (ft)	0.32	Wt. n-Val.		0.025	
E.G. Elev (ft)	1298.41	Reach Len. (ft)	565.77	565.77	565.77
Crit W.S. (ft)	1291.64	Flow Area (sq ft)		2606.47	
E.G. Slope (ft/ft)	0.000292	Area (sq ft)		2606.47	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	269.31	Top Width (ft)		269.31	
Vel Total (ft/s)	4.57	Avg. Vel. (ft/s)		4.57	
Max Chl Dpth (ft)	11.59	Hydr. Depth (ft)		9.68	
Conv. Total (cfs)	697940.7	Conv. (cfs)		697940.7	
Length Wtd. (ft)	565.77	Wetted Per. (ft)		272.58	
Min Ch El (ft)	1286.50	Shear (lb/sq ft)		0.17	
Alpha	1.00	Stream Power (lb/ft s)		0.80	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	107.78	1073.98	129.71
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	121.70	47.26

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1299.72	Element			
Vel Head (ft)	0.42	Wt. n-Val.		0.025	
E.G. Elev (ft)	1300.13	Reach Len. (ft)	565.77	565.77	565.77
Crit W.S. (ft)	1292.57	Flow Area (sq ft)		3049.41	
E.G. Slope (ft/ft)	0.000315	Area (sq ft)	910.23	3049.41	1735.39
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	936.66	Top Width (ft)	421.19	277.44	238.03
Vel Total (ft/s)	5.17	Avg. Vel. (ft/s)		5.17	
Max Chl Dpth (ft)	13.22	Hydr. Depth (ft)		10.99	
Conv. Total (cfs)	888545.3	Conv. (cfs)		888545.3	
Length Wtd. (ft)	565.77	Wetted Per. (ft)		280.93	
Min Ch El (ft)	1286.50	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		1.10	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	378.06	1271.10	457.53
C & E Loss (ft)	0.00	Cum SA (acres)	109.19	124.19	101.68

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 8.668

INPUT
Description: Begin Bank Rock Riprap
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4201.1	1302.1	4226.68	1301.82	4262.23	1301.69	4290.59	1301.08	4332.14	1300.71
4369.61	1300.8	4404.37	1300.39	4432.76	1300.14	4448.65	1300.09	4510.97	1299.31
4527.67	1299.2	4561.89	1298.71	4582.03	1298.34	4620.59	1297.94	4650.6	1297.37
4668.27	1297.4	4684.42	1297.3	4691.02	1297.14	4755.57	1296.5	4764.76	1296.38
4820.15	1295.3	4841.71	1295.12	4851.01	1298.86	4865.83	1299.1	4872.04	1297.18
4899.29	1288.3	4912.59	1287.08	4927.64	1286.68	4949.27	1286.37	4956.69	1286.68
4981.46	1287.1	5001.36	1286.26	5020.01	1286.07	5043.99	1285.99	5081.23	1286.3
5096.67	1286.6	5103.23	1286.91	5137.96	1297.86	5152.23	1297.74	5167.88	1295.86
5177.04	1292.5	5189.4	1291.47	5200.58	1291.25	5213.54	1291.27	5238.99	1290.77
5272.08	1290.2	5292.73	1290.12	5341.1	1289.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4201.1	.04	4865.83	.03	5137.96	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4865.83	5137.96	217	389.24	400	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4201.1	4865.83	1301	5137.96	5341.1	1301

Left Levee Station= 4865.83 Elevation= 1299.1
Right Levee Station= 5137.96 Elevation= 1297.86

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1296.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.030	
E.G. Elev (ft)	1296.44	Reach Len. (ft)	217.00	389.24	400.00
Crit W.S. (ft)	1290.33	Flow Area (sq ft)		2204.18	
E.G. Slope (ft/ft)	0.000368	Area (sq ft)		2204.18	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	257.62	Top Width (ft)		257.62	
Vel Total (ft/s)	3.95	Avg. Vel. (ft/s)		3.95	
Max Chl Dpth (ft)	10.21	Hydr. Depth (ft)		8.56	
Conv. Total (cfs)	453431.7	Conv. (cfs)		453431.7	
Length Wtd. (ft)	389.24	Wetted Per. (ft)		260.41	
Min Ch El (ft)	1285.99	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.77	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	14.18	860.51	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	113.96	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1297.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.030	
E.G. Elev (ft)	1298.22	Reach Len. (ft)	217.00	389.24	400.00
Crit W.S. (ft)	1291.20	Flow Area (sq ft)		2654.03	
E.G. Slope (ft/ft)	0.000394	Area (sq ft)		2654.03	1253.14
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	471.41	Top Width (ft)		268.27	203.14
Vel Total (ft/s)	4.49	Avg. Vel. (ft/s)		4.49	
Max Chl Dpth (ft)	11.92	Hydr. Depth (ft)		9.89	
Conv. Total (cfs)	600875.9	Conv. (cfs)		600875.9	
Length Wtd. (ft)	389.24	Wetted Per. (ft)		271.58	
Min Ch El (ft)	1285.99	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.08	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	107.78	1039.82	121.57
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	118.21	45.94

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1299.52	Element	Left OB	Channel	Right OB

Vel Head (ft)	0.40	Wt. n-Val.		0.030	
E.G. Elev (ft)	1299.92	Reach Len. (ft)	217.00	389.24	400.00
Crit W.S. (ft)	1292.14	Flow Area (sq ft)		3090.51	
E.G. Slope (ft/ft)	0.000423	Area (sq ft)	773.26	3090.51	1580.68
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	846.84	Top Width (ft)	371.57	272.13	203.14
Vel Total (ft/s)	5.10	Avg. Vel. (ft/s)		5.10	
Max Chl Dpth (ft)	13.53	Hydr. Depth (ft)		11.36	
Conv. Total (cfs)	766864.8	Conv. (cfs)		766864.8	
Length Wtd. (ft)	389.23	Wetted Per. (ft)		275.62	
Min Ch El (ft)	1285.99	Shear (lb/sq ft)		0.30	
Alpha	1.00	Stream Power (lb/ft s)		1.51	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	367.13	1231.22	436.00
C & E Loss (ft)	0.00	Cum SA (acres)	104.04	120.62	98.82

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 8.594

INPUT
Description: End Bank Rock Riprap
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4222.59	1301.8	4239.67	1301.57	4274.67	1301.29	4288.49	1301.06	4320.3	1300.78
4325.47	1300.5	4332.75	1300.7	4356.73	1300.17	4374.54	1300.19	4385.62	1298.69
4388.7	1299.5	4391.06	1299.71	4404.58	1299.41	4418.67	1299.56	4434.76	1299.53
4443.69	1299.3	4486.53	1299.04	4529.33	1298.38	4536.77	1298.42	4566.17	1297.91
4586.62	1297.3	4598.31	1297.14	4623.54	1297.49	4631.71	1297.05	4641.71	1296.98
4649.58	1296.6	4665.27	1296.72	4689.8	1296.76	4745.19	1296.47	4783.99	1296.07
4807.59	1295.9	4825.51	1295.71	4831.27	1295.9	4842.21	1295.97	4845.24	1295.67
4849.28	1297.7	4852.15	1298.8	4858.03	1298.94	4867.41	1298.93	4885.55	1293.05
4901.33	1288.2	4913.06	1287.12	4944.84	1287.17	4988.89	1286.72	5001.7	1286.22
5026.17	1286.3	5083.59	1286.78	5105.31	1285.96	5138.04	1297.39	5151.85	1297.12
5160.06	1293.9	5170.97	1294.39	5183.06	1292.56	5187.34	1292.85	5196.64	1292.68
5202.2	1292.8	5250.91	1292.03	5301.9	1291.74	5335.75	1291.68	5345.98	1291.55

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4222.59	.04	4867.41	.025	5138.04	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4867.41	5138.04	425.37	425.37	425.37	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4222.59	4858.03	1301	5138.04	5345.98	1301

Left Levee Station= 4858.03 Elevation= 1298.94
Right Levee Station= 5138.04 Elevation= 1297.39

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1296.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.31	Reach Len. (ft)	425.37	425.37	425.37
Crit W.S. (ft)	1290.49	Flow Area (sq ft)		2148.40	
E.G. Slope (ft/ft)	0.000279	Area (sq ft)		2148.40	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	257.96	Top Width (ft)		257.96	
Vel Total (ft/s)	4.05	Avg. Vel. (ft/s)		4.05	
Max Chl Dpth (ft)	10.10	Hydr. Depth (ft)		8.33	
Conv. Total (cfs)	520643.7	Conv. (cfs)		520643.7	
Length Wtd. (ft)	425.37	Wetted Per. (ft)		260.95	
Min Ch El (ft)	1285.96	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.58	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	14.18	841.07	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	111.66	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1297.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.		0.025	
E.G. Elev (ft)	1298.09	Reach Len. (ft)	425.37	425.37	425.37
Crit W.S. (ft)	1291.35	Flow Area (sq ft)		2595.80	
E.G. Slope (ft/ft)	0.000293	Area (sq ft)		2595.80	1040.21
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	474.96	Top Width (ft)		267.02	207.94
Vel Total (ft/s)	4.59	Avg. Vel. (ft/s)		4.59	
Max Chl Dpth (ft)	11.80	Hydr. Depth (ft)		9.72	
Conv. Total (cfs)	696708.5	Conv. (cfs)		696708.5	
Length Wtd. (ft)	425.37	Wetted Per. (ft)		270.51	
Min Ch El (ft)	1285.96	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.81	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	107.78	1016.37	111.04
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	115.82	44.05

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1299.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.040	0.025	
E.G. Elev (ft)	1299.78	Reach Len. (ft)	425.37	425.37	425.37
Crit W.S. (ft)	1292.28	Flow Area (sq ft)	3.98	3026.65	
E.G. Slope (ft/ft)	0.000313	Area (sq ft)	865.36	3026.65	1372.89
Q Total (cfs)	15770.00	Flow (cfs)	1.48	15768.52	
Top Width (ft)	912.10	Top Width (ft)	433.53	270.63	207.94
Vel Total (ft/s)	5.20	Avg. Vel. (ft/s)	0.37	5.21	
Max Chl Dpth (ft)	13.40	Hydr. Depth (ft)	0.42	11.18	
Conv. Total (cfs)	891684.1	Conv. (cfs)	83.6	891600.6	
Length Wtd. (ft)	425.37	Wetted Per. (ft)	9.38	274.31	
Min Ch El (ft)	1285.96	Shear (lb/sq ft)	0.01	0.22	
Alpha	1.00	Stream Power (lb/ft s)	0.00	1.12	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	363.05	1203.89	422.44
C & E Loss (ft)	0.00	Cum SA (acres)	102.04	118.19	96.93

Warning - Divided flow computed for this cross-section.
Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 8.514

INPUT
Description:
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4165.78	1304.4	4195.89	1304.03	4217.65	1303.69	4246.91	1303.39	4258.2	1303.21
4300.12	1303.1	4325.45	1302.75	4354.85	1302.29	4399.94	1301.29	4429.86	1301.29
4450.93	1301.1	4501.95	1300.38	4555.16	1299.82	4563.35	1299.77	4603.96	1299.32
4610.47	1299.3	4654.97	1298.98	4684.52	1298.68	4705.97	1298.26	4726.96	1297.97
4756.99	1297.7	4769.41	1297.51	4807.98	1297.22	4836.48	1297.07	4841.05	1296.38
4844.16	1295.6	4852.32	1298.11	4861.8	1298.87	4868.23	1298.81	4889.73	1292.04
4901.08	1288.3	4917.14	1287.67	4924.36	1287.4	4961.01	1286.86	5001.59	1286.94
5007.77	1286.1	5013.09	1287.06	5022.33	1286.79	5063.02	1286.58	5099.14	1286.84
5103.96	1287.1	5138.63	1297.48	5150.85	1296.87	5157.53	1294.51	5169.99	1293.6
5176.63	1293.8	5202.45	1293.17	5208.02	1293.4	5236.28	1293.13	5267.06	1293.12

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4165.78	.04	4861.8	.025	5138.63	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4861.8	5138.63	581.49	581.49	581.49	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4165.78	4861.8	1301	5138.63	5267.06	1301

Left Levee Station= 4861.8 Elevation= 1298.87

Right Levee Station= 5138.63 Elevation= 1297.48

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1295.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.18	Reach Len. (ft)	581.49	581.49	581.49
Crit W.S. (ft)	1290.77	Flow Area (sq ft)		2031.45	
E.G. Slope (ft/ft)	0.000332	Area (sq ft)		2031.45	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	255.85	Top Width (ft)		255.85	
Vel Total (ft/s)	4.28	Avg. Vel. (ft/s)		4.28	
Max Chl Dpth (ft)	9.80	Hydr. Depth (ft)		7.94	
Conv. Total (cfs)	477251.3	Conv. (cfs)		477251.3	
Length Wtd. (ft)	581.49	Wetted Per. (ft)		258.51	
Min Ch El (ft)	1286.10	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)		0.70	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	14.18	820.66	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	109.15	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1297.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.		0.025	
E.G. Elev (ft)	1297.95	Reach Len. (ft)	581.49	581.49	581.49
Crit W.S. (ft)	1291.64	Flow Area (sq ft)		2474.05	
E.G. Slope (ft/ft)	0.000342	Area (sq ft)		2474.05	477.14
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	394.95	Top Width (ft)		266.52	128.43
Vel Total (ft/s)	4.82	Avg. Vel. (ft/s)		4.82	
Max Chl Dpth (ft)	11.49	Hydr. Depth (ft)		9.28	
Conv. Total (cfs)	644434.1	Conv. (cfs)		644434.1	
Length Wtd. (ft)	581.49	Wetted Per. (ft)		269.67	
Min Ch El (ft)	1286.10	Shear (lb/sq ft)		0.20	
Alpha	1.00	Stream Power (lb/ft s)		0.94	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	107.78	991.61	103.64
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	113.21	42.41

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT *Profile #Existing*

W.S. Elev (ft)	1299.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.		0.025	
E.G. Elev (ft)	1299.63	Reach Len. (ft)	581.49	581.49	581.49
Crit W.S. (ft)	1292.57	Flow Area (sq ft)		2902.54	
E.G. Slope (ft/ft)	0.000370	Area (sq ft)	284.01	2902.54	680.75
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	639.13	Top Width (ft)	233.87	276.83	128.43
Vel Total (ft/s)	5.43	Avg. Vel. (ft/s)		5.43	
Max Chl Dpth (ft)	13.07	Hydr. Depth (ft)		10.48	
Conv. Total (cfs)	819858.9	Conv. (cfs)		819858.9	
Length Wtd. (ft)	581.49	Wetted Per. (ft)		280.17	
Min Ch El (ft)	1286.10	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.30	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	357.43	1174.94	412.41
C & E Loss (ft)	0.00	Cum SA (acres)	98.78	115.52	95.29

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 8.403

INPUT
Description: Begin Bank Rock Riprap
Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

4173.05	1305.5	4231.59	1305.17	4282.58	1304.73	4306.76	1304.44	4349.2	1304.15
4384.61	1303.5	4437.9	1303.03	4518.98	1302.06	4565.71	1301.37	4603.86	1300.93
4646.31	1300.6	4693.51	1300.28	4773.64	1299.19	4792.66	1299.11	4839.4	1298.51
4844.23	1296.8	4852.22	1298.8	4866.97	1298.87	4870.36	1297.8	4901.9	1288.06
4921.99	1286.7	4945.69	1286.2	4996.5	1286.58	5012	1285.89	5017.19	1286.62
5027.58	1286.6	5047.7	1286.46	5096.37	1286.74	5104.24	1287.18	5138.78	1297.03
5154.48	1296.7	5161.26	1295.61	5195.48	1294.74	5219.23	1294	5241.66	1294.09
5249.29	1294.1	5259.59	1293.56	5273.94	1293.61	5287.19	1293.73	5295.54	1293.69
5303.41	1293.5	5338.59	1293.28						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4173.05	.04	4866.97	.03	5138.78	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4866.97	5138.78	134	110.84	74	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4173.05	4866.97	1301	5138.78	5338.59	1301

Left Levee Station= 4866.97 Elevation= 1298.87
Right Levee Station= 5138.78 Elevation= 1297.03

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1295.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.030	
E.G. Elev (ft)	1295.95	Reach Len. (ft)	134.00	110.84	74.00
Crit W.S. (ft)	1290.40	Flow Area (sq ft)		2061.39	
E.G. Slope (ft/ft)	0.000458	Area (sq ft)		2061.39	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	256.79	Top Width (ft)		256.79	
Vel Total (ft/s)	4.22	Avg. Vel. (ft/s)		4.22	
Max Chl Dpth (ft)	9.79	Hydr. Depth (ft)		8.03	
Conv. Total (cfs)	406737.2	Conv. (cfs)		406737.2	
Length Wtd. (ft)	110.84	Wetted Per. (ft)		259.26	
Min Ch El (ft)	1285.89	Shear (lb/sq ft)		0.23	
Alpha	1.00	Stream Power (lb/ft s)		0.96	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	14.18	793.34	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	105.73	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1297.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.		0.030	
E.G. Elev (ft)	1297.71	Reach Len. (ft)	134.00	110.84	74.00
Crit W.S. (ft)	1291.29	Flow Area (sq ft)		2503.85	
E.G. Slope (ft/ft)	0.000474	Area (sq ft)		2503.85	600.67
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	466.81	Top Width (ft)		267.00	199.81
Vel Total (ft/s)	4.76	Avg. Vel. (ft/s)		4.76	
Max Chl Dpth (ft)	11.47	Hydr. Depth (ft)		9.38	
Conv. Total (cfs)	547521.3	Conv. (cfs)		547521.3	
Length Wtd. (ft)	110.84	Wetted Per. (ft)		269.92	
Min Ch El (ft)	1285.89	Shear (lb/sq ft)		0.27	
Alpha	1.00	Stream Power (lb/ft s)		1.31	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	107.78	958.39	96.44
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	109.65	40.22

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1298.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.		0.030	
E.G. Elev (ft)	1299.38	Reach Len. (ft)	134.00	110.84	74.00
Crit W.S. (ft)	1292.23	Flow Area (sq ft)		2926.20	
E.G. Slope (ft/ft)	0.000506	Area (sq ft)	23.43	2926.20	913.80
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	

Top Width (ft)	531.87	Top Width (ft)	60.25	271.81	199.81
Vel Total (ft/s)	5.39	Avg. Vel. (ft/s)		5.39	
Max Chl Dpth (ft)	13.04	Hydr. Depth (ft)		10.77	
Conv. Total (cfs)	701253.4	Conv. (cfs)		701253.4	
Length Wtd. (ft)	110.84	Wetted Per. (ft)		274.95	
Min Ch El (ft)	1285.89	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		1.81	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	355.38	1136.04	401.77
C & E Loss (ft)	0.00	Cum SA (acres)	96.82	111.86	93.10

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 8.382

INPUT
Description: Bank Rock Riprap
Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4169.77	1306.8	4184.49	1306.61	4195.4	1306.37	4235.47	1306.02	4275.39	1305.55
4303.02	1305	4323.04	1304.73	4337.66	1304.42	4350.24	1304.44	4379.02	1304.26
4383.97	1304.3	4397.52	1303.99	4417.67	1303.74	4432.24	1303.42	4452.26	1303.2
4485.49	1302.9	4543.14	1302.04	4620.09	1301.2	4656.86	1300.74	4698.42	1300.05
4703.98	1300	4751.66	1299.79	4787.89	1299.38	4804.91	1299.06	4816.41	1298.97
4832.64	1298.7	4838.33	1296.82	4845.79	1298.86	4861.91	1298.84	4895.87	1287.35
4902.03	1287.1	4911.37	1286.51	4964.59	1286.21	4970.97	1286.28	4999.65	1286.86
5007.39	1286.2	5017.72	1286.95	5025.39	1286.8	5032.44	1286.5	5054.24	1286.36
5079.41	1286.6	5087.73	1287.05	5096.09	1286.16	5113.51	1291.14	5134.37	1297.41
5148.58	1296.6	5152.4	1295.37	5167.29	1294.47	5175.54	1294.22	5193.16	1294.15
5211.22	1293.6	5220.76	1294.23	5225.62	1294.25	5232.77	1294	5239.86	1293.98
5246.42	1294.3	5250.77	1293.81	5262.92	1293.76	5272.83	1293.55	5284.01	1293.71
5293.6	1293	5308.75	1292.88	5316.74	1293.11	5336.7	1293.05		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4169.77	.04	4861.91	.03	5134.37	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4861.91	5134.37	226.55	226.55	226.55	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4169.77	4861.91	1301	5134.37	5336.7	1301

Left Levee Station= 4861.91 Elevation= 1298.84
Right Levee Station= 5134.37 Elevation= 1297.41

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1295.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.030	
E.G. Elev (ft)	1295.90	Reach Len. (ft)	226.55	226.55	226.55
Crit W.S. (ft)	1290.33	Flow Area (sq ft)		2077.43	
E.G. Slope (ft/ft)	0.000447	Area (sq ft)		2077.43	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	257.04	Top Width (ft)		257.04	
Vel Total (ft/s)	4.19	Avg. Vel. (ft/s)		4.19	
Max Chl Dpth (ft)	9.47	Hydr. Depth (ft)		8.08	
Conv. Total (cfs)	411332.9	Conv. (cfs)		411332.9	
Length Wtd. (ft)	226.55	Wetted Per. (ft)		259.92	
Min Ch El (ft)	1286.16	Shear (lb/sq ft)		0.22	
Alpha	1.00	Stream Power (lb/ft s)		0.93	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	14.18	788.07	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	105.07	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1297.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.		0.030	
E.G. Elev (ft)	1297.66	Reach Len. (ft)	226.55	226.55	226.55

Crit W.S. (ft)	1291.21	Flow Area (sq ft)		2519.29	
E.G. Slope (ft/ft)	0.000467	Area (sq ft)		2519.29	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	267.63	Top Width (ft)		267.63	
Vel Total (ft/s)	4.73	Avg. Vel. (ft/s)		4.73	
Max Chl Dpth (ft)	11.15	Hydr. Depth (ft)		9.41	
Conv. Total (cfs)	551650.8	Conv. (cfs)		551650.8	
Length Wtd. (ft)	226.55	Wetted Per. (ft)		271.03	
Min Ch El (ft)	1286.16	Shear (lb/sq ft)		0.27	
Alpha	1.00	Stream Power (lb/ft s)		1.28	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	107.78	952.00	95.93
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	108.97	40.05

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1298.88	Element			
Vel Head (ft)	0.45	Wt. n-Val.		0.030	
E.G. Elev (ft)	1299.32	Reach Len. (ft)	226.55	226.55	226.55
Crit W.S. (ft)	1292.12	Flow Area (sq ft)		2941.95	
E.G. Slope (ft/ft)	0.000500	Area (sq ft)	15.48	2941.95	975.44
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	514.71	Top Width (ft)	39.92	272.46	202.33
Vel Total (ft/s)	5.36	Avg. Vel. (ft/s)		5.36	
Max Chl Dpth (ft)	12.72	Hydr. Depth (ft)		10.80	
Conv. Total (cfs)	705549.2	Conv. (cfs)		705549.2	
Length Wtd. (ft)	226.55	Wetted Per. (ft)		276.13	
Min Ch El (ft)	1286.16	Shear (lb/sq ft)		0.33	
Alpha	1.00	Stream Power (lb/ft s)		1.78	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	355.32	1128.57	400.16
C & E Loss (ft)	0.00	Cum SA (acres)	96.66	111.17	92.76

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 8.34

INPUT
Description: End Bank Rock Riprap
Station Elevation Data num= 67

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4168.05	1307.2	4189.61	1306.52	4196.36	1306.51	4213.38	1306.24	4242.97	1305.86
4254.67	1305.6	4271.77	1305.26	4294.05	1305.41	4313.85	1304.57	4332.59	1304.23
4339.97	1304.1	4347.42	1303.44	4364.09	1303.9	4374.72	1303.94	4396	1303.59
4410.71	1303.4	4414.87	1303.47	4450.24	1302.92	4469.82	1302.7	4480.35	1302.37
4494.22	1302.9	4505.1	1302.72	4517.71	1302.16	4533	1302.29	4560.52	1301.69
4568.18	1301.5	4615.62	1301.15	4645.75	1301.33	4657.26	1301.21	4667.77	1300.89
4677.52	1301	4726.02	1300.32	4762.13	1299.72	4775.33	1299.59	4792.01	1299.13
4820.53	1298.7	4831.05	1298.35	4837.04	1296.5	4844.58	1298.93	4858.35	1298.99
4880.86	1291.4	4891.07	1287.98	4903.18	1287.17	4914.73	1286.8	4935.04	1286.26
4957.06	1286.2	4990.44	1286.43	4996.12	1285.77	5002.65	1285.81	5010.61	1286.16
5041.51	1286.3	5057.95	1286.28	5078.91	1286.46	5082.08	1286.23	5097.03	1287.32
5100.02	1287.6	5130.41	1297.39	5143.21	1296.96	5146.87	1295.53	5149.02	1294.98
5162.96	1294.7	5177.88	1294.92	5200.14	1294.36	5238.9	1293.82	5261.83	1293.4
5308.39	1293.2	5332.43	1292.98						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4168.05	.04	4858.35	.025	5130.41	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4858.35	5130.41	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4168.05	4858.35	1301	5130.41	5332.43	1301

Left Levee Station= 4858.35 Elevation= 1298.99
Right Levee Station= 5130.41 Elevation= 1297.39

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1295.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.025	
E.G. Elev (ft)	1295.82	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1290.20	Flow Area (sq ft)		2085.78	
E.G. Slope (ft/ft)	0.000305	Area (sq ft)		2085.78	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	256.13	Top Width (ft)		256.13	
Vel Total (ft/s)	4.17	Avg. Vel. (ft/s)		4.17	
Max Chl Dpth (ft)	9.78	Hydr. Depth (ft)		8.14	
Conv. Total (cfs)	498381.5	Conv. (cfs)		498381.5	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		258.77	
Min Ch El (ft)	1285.77	Shear (lb/sq ft)		0.15	
Alpha	1.00	Stream Power (lb/ft s)		0.64	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	14.18	777.25	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	103.74	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1297.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.		0.025	
E.G. Elev (ft)	1297.57	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1291.07	Flow Area (sq ft)		2524.63	
E.G. Slope (ft/ft)	0.000320	Area (sq ft)		2524.63	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	266.33	Top Width (ft)		266.33	
Vel Total (ft/s)	4.72	Avg. Vel. (ft/s)		4.72	
Max Chl Dpth (ft)	11.46	Hydr. Depth (ft)		9.48	
Conv. Total (cfs)	666817.1	Conv. (cfs)		666817.1	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		269.50	
Min Ch El (ft)	1285.77	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.88	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	107.78	938.88	95.93
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	107.58	40.05

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1298.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.		0.025	
E.G. Elev (ft)	1299.23	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1291.99	Flow Area (sq ft)		2943.61	
E.G. Slope (ft/ft)	0.000344	Area (sq ft)		2943.61	936.88
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	473.47	Top Width (ft)		271.45	202.02
Vel Total (ft/s)	5.36	Avg. Vel. (ft/s)		5.36	
Max Chl Dpth (ft)	13.01	Hydr. Depth (ft)		10.84	
Conv. Total (cfs)	849960.4	Conv. (cfs)		849960.4	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		274.91	
Min Ch El (ft)	1285.77	Shear (lb/sq ft)		0.23	
Alpha	1.00	Stream Power (lb/ft s)		1.23	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	355.28	1113.27	395.19
C & E Loss (ft)	0.00	Cum SA (acres)	96.56	109.75	91.70

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 8.245

INPUT
Description:
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4168.05	1307.8	4174.63	1307.48	4180.2	1307.59	4200.57	1307.46	4219.91	1307.16
4231.06	1307.1	4273.15	1306.48	4292.7	1306.26	4326.37	1305.68	4346.19	1305.27
4370.68	1304.7	4379.62	1304.62	4398.87	1304.29	4432.86	1303.91	4491.87	1302.93
4539.33	1302.2	4554	1302.01	4576	1301.89	4586.03	1301.95	4592.57	1301.45
4604.6	1301.2	4637.51	1300.93	4648.14	1300.82	4684.14	1300.3	4735.87	1299.38

```
 4752.26  1299.7 4760.99 1299.62 4796.17 1298.71 4809.91 1298.48 4823.47 1298.06
 4832.07  1298.2 4836.69  1296.1  4844.6 1298.84 4859.63 1298.83 4864.38 1297.37
 4896.19  1287.3 4911.24  1286.7 4928.75 1286.46    4970  1286.2 4994.25 1286.34
 5002.86  1285.8 5014.55  1286.2 5025.87 1286.26 5071.68 1285.97 5084.39 1286.41
 5099.82  1287.6 5130.84 1296.53 5143.15 1295.95 5145.49 1295.73 5149.85 1294.32
 5176.86  1293.7 5186.72 1292.49 5196.43 1293.25 5224.96 1293.41 5258.94 1293.14
 5273.22  1292.8 5295.86 1292.69 5315.72 1292.34 5320.22 1292.21 5348.44 1292.05
 5356.27  1291.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4168.05     .04 4859.63    .025 5130.84     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       4859.63 5130.84               500     500     500              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4168.05 4859.63    1300 5130.84 5356.27    1300
Left Levee      Station= 4859.63      Elevation= 1298.83
Right Levee     Station= 5130.84      Elevation= 1296.53

CROSS SECTION OUTPUT    Profile #Design

  W.S. Elev (ft)            1295.38   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.28   Wt. n-Val.                           0.025
  E.G. Elev (ft)            1295.66   Reach Len. (ft)           500.00     500.00     500.00
  Crit W.S. (ft)            1290.17   Flow Area (sq ft)                   2046.22
  E.G. Slope (ft/ft)       0.000325   Area (sq ft)                        2046.22
  Q Total (cfs)             8700.00   Flow (cfs)                          8700.00
  Top Width (ft)             256.17   Top Width (ft)                       256.17
  Vel Total (ft/s)             4.25   Avg. Vel. (ft/s)                       4.25
  Max Chl Dpth (ft)            9.58   Hydr. Depth (ft)                       7.99
  Conv. Total (cfs)        482925.7   Conv. (cfs)                        482925.7
  Length Wtd. (ft)           500.00   Wetted Per. (ft)                     258.61
  Min Ch El (ft)            1285.80   Shear (lb/sq ft)                       0.16
  Alpha                        1.00   Stream Power (lb/ft s)                 0.68
  Frctn Loss (ft)              0.16   Cum Volume (acre-ft)       14.18     753.53      15.99
  C & E Loss (ft)              0.00   Cum SA (acres)             10.11     100.80      15.81


CROSS SECTION OUTPUT    Profile #Future

  W.S. Elev (ft)            1297.05   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.36   Wt. n-Val.                           0.025
  E.G. Elev (ft)            1297.41   Reach Len. (ft)           500.00     500.00     500.00
  Crit W.S. (ft)            1291.06   Flow Area (sq ft)                   2483.44
  E.G. Slope (ft/ft)       0.000336   Area (sq ft)                        2483.44     863.85
  Q Total (cfs)            11920.00   Flow (cfs)                         11920.00
  Top Width (ft)             490.88   Top Width (ft)                       265.45     225.43
  Vel Total (ft/s)             4.80   Avg. Vel. (ft/s)                       4.80
  Max Chl Dpth (ft)           11.25   Hydr. Depth (ft)                       9.36
  Conv. Total (cfs)        650703.8   Conv. (cfs)                        650703.8
  Length Wtd. (ft)           500.00   Wetted Per. (ft)                     268.31
  Min Ch El (ft)            1285.80   Shear (lb/sq ft)                       0.19
  Alpha                        1.00   Stream Power (lb/ft s)                 0.93
  Frctn Loss (ft)              0.17   Cum Volume (acre-ft)      107.78     910.14      90.97
  C & E Loss (ft)              0.00   Cum SA (acres)             41.80     104.53      38.76


Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT    Profile #Existing

  W.S. Elev (ft)            1298.59   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.46   Wt. n-Val.                           0.025
  E.G. Elev (ft)            1299.05   Reach Len. (ft)           500.00     500.00     500.00
  Crit W.S. (ft)            1291.97   Flow Area (sq ft)                   2896.29
  E.G. Slope (ft/ft)       0.000361   Area (sq ft)                        2896.29    1211.22
  Q Total (cfs)            15770.00   Flow (cfs)                         15770.00
  Top Width (ft)             495.87   Top Width (ft)                       270.44     225.43
```

Vel Total (ft/s)	5.44	Avg. Vel. (ft/s)		5.44	
Max Chl Dpth (ft)	12.79	Hydr. Depth (ft)		10.71	
Conv. Total (cfs)	830088.1	Conv. (cfs)		830088.1	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		273.53	
Min Ch El (ft)	1285.80	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.30	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	355.28	1079.75	382.86
C & E Loss (ft)	0.00	Cum SA (acres)	96.56	106.64	89.25

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 8.15

INPUT
Description:
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4168.05	1307.2	4196.87	1307.17	4213.16	1306.98	4250.11	1306.32	4303.35	1305.9
4329.65	1305.3	4356.57	1304.88	4373.04	1304.4	4409.81	1304.21	4419.17	1303.92
4442.78	1302.9	4458.16	1303.02	4477.9	1302.69	4484.25	1302.49	4491.56	1301.93
4497.6	1301.8	4502.84	1299.9	4504.47	1300.05	4511.26	1299.95	4522.78	1302.09
4531.33	1302.4	4570.33	1302	4605.63	1301.25	4622.75	1301.22	4694.62	1300.37
4729.23	1299.9	4782.47	1299.53	4828.46	1297.68	4831.29	1297.51	4835.78	1296.03
4844.28	1299.1	4858.86	1299.16	4885.37	1288.48	4898.09	1288.01	4903.78	1286.76
4942.17	1286	4971.33	1286.11	4985.28	1286.25	4993.13	1286.19	5001.66	1285.79
5011.59	1286.3	5048.63	1285.62	5066.43	1286.02	5079.09	1286.17	5089.41	1286.7
5098.55	1287.4	5130.37	1296.65	5143.93	1296.41	5149.8	1294.6	5155.1	1294.24
5208.34	1293.5	5265.74	1292.95	5304.74	1292.64	5332.44	1292.32		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4168.05	.04	4858.86	.025	5130.37	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4858.86	5130.37	242.5	242.5	242.5	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4168.05	4858.86	1300	5130.37	5332.44	1300

Left Levee Station= 4858.86 Elevation= 1299.16
Right Levee Station= 5130.37 Elevation= 1296.65

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1295.22	Element			
Vel Head (ft)	0.28	Wt. n-Val.		0.025	
E.G. Elev (ft)	1295.50	Reach Len. (ft)	242.50	242.50	242.50
Crit W.S. (ft)	1290.03	Flow Area (sq ft)		2059.30	
E.G. Slope (ft/ft)	0.000319	Area (sq ft)		2059.30	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	256.81	Top Width (ft)		256.81	
Vel Total (ft/s)	4.22	Avg. Vel. (ft/s)		4.22	
Max Chl Dpth (ft)	9.60	Hydr. Depth (ft)		8.02	
Conv. Total (cfs)	487014.8	Conv. (cfs)		487014.8	
Length Wtd. (ft)	242.50	Wetted Per. (ft)		259.46	
Min Ch El (ft)	1285.62	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)		0.67	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	14.18	729.97	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	97.85	15.81

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1296.89	Element			
Vel Head (ft)	0.35	Wt. n-Val.		0.025	
E.G. Elev (ft)	1297.24	Reach Len. (ft)	242.50	242.50	242.50
Crit W.S. (ft)	1290.89	Flow Area (sq ft)		2495.41	
E.G. Slope (ft/ft)	0.000331	Area (sq ft)		2495.41	678.46
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	

Top Width (ft)	467.94	Top Width (ft)		265.87	202.07
Vel Total (ft/s)	4.78	Avg. Vel. (ft/s)		4.78	
Max Chl Dpth (ft)	11.27	Hydr. Depth (ft)		9.39	
Conv. Total (cfs)	654754.6	Conv. (cfs)		654754.6	
Length Wtd. (ft)	242.50	Wetted Per. (ft)		269.04	
Min Ch El (ft)	1285.62	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.92	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	107.78	881.56	82.12
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	101.48	36.30

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1298.41	Element			
Vel Head (ft)	0.46	Wt. n-Val.		0.025	
E.G. Elev (ft)	1298.87	Reach Len. (ft)	242.50	242.50	242.50
Crit W.S. (ft)	1291.81	Flow Area (sq ft)		2904.44	
E.G. Slope (ft/ft)	0.000357	Area (sq ft)		2904.44	987.14
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	471.73	Top Width (ft)		269.66	202.07
Vel Total (ft/s)	5.43	Avg. Vel. (ft/s)		5.43	
Max Chl Dpth (ft)	12.79	Hydr. Depth (ft)		10.77	
Conv. Total (cfs)	834795.3	Conv. (cfs)		834795.3	
Length Wtd. (ft)	242.50	Wetted Per. (ft)		273.13	
Min Ch El (ft)	1285.62	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.29	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	355.28	1046.46	370.24
C & E Loss (ft)	0.00	Cum SA (acres)	96.56	103.54	86.80

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 8.104

INPUT
Description: Begin Bank Rock Riprap
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4165.57	1306.6	4208.87	1306.16	4267.94	1305.18	4321.18	1304.68	4374.54	1303.86
4383.03	1303.8	4390.09	1303.26	4400.71	1302.93	4407.41	1303.11	4420.69	1302.98
4427.33	1302.7	4438.43	1302.49	4464.59	1302.68	4484.19	1302.89	4534.12	1302.23
4562.89	1301.8	4587.36	1301.28	4629.83	1301.09	4640.6	1300.99	4676.7	1300.18
4693.83	1300.1	4706.12	1299.73	4742.37	1299.84	4756.62	1299.66	4775.47	1299.69
4815.75	1299	4831.37	1298.67	4836.78	1295.45	4844.46	1298.32	4859.72	1298.95
4875.15	1294	4895.45	1287.43	4906.6	1286.52	4929.5	1285.64	4951.19	1285.99
4969.1	1286	4984.85	1285.97	4995.47	1285.37	5006.28	1285.8	5066.61	1285.82
5090.91	1285.9	5104.1	1287.78	5122.13	1293.85	5130.93	1296.59	5142.94	1296.95
5148.98	1295.2	5162.19	1294.82	5172.95	1294.44	5212.39	1293.9	5226.17	1293.65
5234.11	1293.6	5279.42	1293.22	5318.04	1292.71	5332.66	1292.4	5342.79	1292.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4165.57	.04	4859.72	.03	5130.93	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4859.72	5130.93	210	248.86	318	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4165.57	4859.72	1300	5130.93	5342.79	1300

Left Levee Station= 4859.72 Elevation= 1298.95
Right Levee Station= 5130.93 Elevation= 1296.59

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1295.13	Element			
Vel Head (ft)	0.27	Wt. n-Val.		0.030	
E.G. Elev (ft)	1295.41	Reach Len. (ft)	210.00	248.86	318.00

Crit W.S. (ft)	1289.76	Flow Area (sq ft)		2081.52	
E.G. Slope (ft/ft)	0.000438	Area (sq ft)		2081.52	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	254.64	Top Width (ft)		254.64	
Vel Total (ft/s)	4.18	Avg. Vel. (ft/s)		4.18	
Max Chl Dpth (ft)	9.76	Hydr. Depth (ft)		8.17	
Conv. Total (cfs)	415520.7	Conv. (cfs)		415520.7	
Length Wtd. (ft)	248.86	Wetted Per. (ft)		257.26	
Min Ch El (ft)	1285.37	Shear (lb/sq ft)		0.22	
Alpha	1.00	Stream Power (lb/ft s)		0.93	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	14.18	718.45	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	96.43	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1296.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.		0.030	
E.G. Elev (ft)	1297.15	Reach Len. (ft)	210.00	248.86	318.00
Crit W.S. (ft)	1290.63	Flow Area (sq ft)		2513.34	
E.G. Slope (ft/ft)	0.000463	Area (sq ft)		2513.34	629.79
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	470.69	Top Width (ft)		264.50	206.19
Vel Total (ft/s)	4.74	Avg. Vel. (ft/s)		4.74	
Max Chl Dpth (ft)	11.43	Hydr. Depth (ft)		9.50	
Conv. Total (cfs)	554162.8	Conv. (cfs)		554162.8	
Length Wtd. (ft)	248.86	Wetted Per. (ft)		267.60	
Min Ch El (ft)	1285.37	Shear (lb/sq ft)		0.27	
Alpha	1.00	Stream Power (lb/ft s)		1.29	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	107.78	867.62	78.48
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	100.00	35.17

Warning - Divided flow computed for this cross-section.
Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1298.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.		0.030	
E.G. Elev (ft)	1298.77	Reach Len. (ft)	210.00	248.86	318.00
Crit W.S. (ft)	1291.56	Flow Area (sq ft)		2918.81	
E.G. Slope (ft/ft)	0.000504	Area (sq ft)		2918.81	951.26
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	481.09	Top Width (ft)		269.23	211.86
Vel Total (ft/s)	5.40	Avg. Vel. (ft/s)		5.40	
Max Chl Dpth (ft)	12.95	Hydr. Depth (ft)		10.84	
Conv. Total (cfs)	702367.8	Conv. (cfs)		702367.8	
Length Wtd. (ft)	248.86	Wetted Per. (ft)		272.57	
Min Ch El (ft)	1285.37	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		1.82	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	355.28	1030.25	364.85
C & E Loss (ft)	0.00	Cum SA (acres)	96.56	102.04	85.65

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 8.057

INPUT
Description: End Bank Rock Riprap
Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4167.21	1306.5	4195.02	1306.16	4245.17	1305.48	4295.32	1305.04	4332.68	1304.37
4345.45	1304.2	4386.96	1303.58	4445.75	1302.98	4449.62	1302.92	4496.2	1302.56
4543.75	1301.8	4545.22	1301.85	4584.79	1301.01	4604.09	1300.74	4646.33	1300.27
4658.38	1300.2	4696.47	1299.59	4729.17	1299.14	4746.61	1298.86	4755.62	1298.25
4768.33	1298.1	4795.34	1298	4803.94	1298.35	4819.33	1298.44	4833.49	1297.96
4838.02	1295.4	4841.75	1296.74	4846.37	1298.75	4852.68	1298.97	4860.02	1298.95

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 4894.62  1287.2  4907.5 1286.34  4933.2 1286.07  4947.2 1285.82 4985.43 1285.09
 4993.02  1285.3 4997.03 1285.11 5011.98 1285.88 5047.48 1285.62 5098.31 1285.73
  5131.7  1296.8 5145.91 1297.01 5150.96 1295.34 5163.48 1294.69 5166.67 1294.24
  5192.9  1294.1 5197.91 1293.99 5248.06 1293.49 5255.36 1293.35 5292.04 1293.21
 5308.49  1293.2 5322.51  1293.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4167.21     .04 4852.68    .025 5145.91     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       4852.68 5145.91           301.37  301.37  301.37             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4167.21 4852.68    1300 5145.91 5322.51    1300
Left Levee       Station= 4852.68      Elevation= 1298.97
Right Levee      Station= 5145.91      Elevation= 1297.01

CROSS SECTION OUTPUT    Profile #Design

  W.S. Elev (ft)            1295.05   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.26   Wt. n-Val.                           0.025
  E.G. Elev (ft)            1295.32   Reach Len. (ft)           301.37     301.37     301.37
  Crit W.S. (ft)            1289.55   Flow Area (sq ft)                   2114.40
  E.G. Slope (ft/ft)       0.000290   Area (sq ft)                        2114.40
  Q Total (cfs)             8700.00   Flow (cfs)                          8700.00
  Top Width (ft)             254.93   Top Width (ft)                       254.93
  Vel Total (ft/s)             4.11   Avg. Vel. (ft/s)                       4.11
  Max Chl Dpth (ft)            9.96   Hydr. Depth (ft)                       8.29
  Conv. Total (cfs)        511103.3   Conv. (cfs)                       511103.3
  Length Wtd. (ft)           301.37   Wetted Per. (ft)                     257.80
  Min Ch El (ft)            1285.09   Shear (lb/sq ft)                       0.15
  Alpha                        1.00   Stream Power (lb/ft s)                 0.61
  Frctn Loss (ft)              0.09   Cum Volume (acre-ft)       14.18     706.46      15.99
  C & E Loss (ft)              0.00   Cum SA (acres)             10.11      94.97      15.81

CROSS SECTION OUTPUT    Profile #Future

  W.S. Elev (ft)            1296.71   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.34   Wt. n-Val.                           0.025
  E.G. Elev (ft)            1297.05   Reach Len. (ft)           301.37     301.37     301.37
  Crit W.S. (ft)            1290.42   Flow Area (sq ft)                   2544.87
  E.G. Slope (ft/ft)       0.000309   Area (sq ft)                        2544.87
  Q Total (cfs)            11920.00   Flow (cfs)                         11920.00
  Top Width (ft)             264.81   Top Width (ft)                       264.81
  Vel Total (ft/s)             4.68   Avg. Vel. (ft/s)                       4.68
  Max Chl Dpth (ft)           11.62   Hydr. Depth (ft)                       9.61
  Conv. Total (cfs)        677911.6   Conv. (cfs)                       677911.6
  Length Wtd. (ft)           301.37   Wetted Per. (ft)                     268.22
  Min Ch El (ft)            1285.09   Shear (lb/sq ft)                       0.18
  Alpha                        1.00   Stream Power (lb/ft s)                 0.86
  Frctn Loss (ft)              0.09   Cum Volume (acre-ft)      107.78     853.17      76.18
  C & E Loss (ft)              0.00   Cum SA (acres)             41.80      98.49      34.42

CROSS SECTION OUTPUT    Profile #Existing

  W.S. Elev (ft)            1298.22   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.44   Wt. n-Val.                           0.025
  E.G. Elev (ft)            1298.66   Reach Len. (ft)           301.37     301.37     301.37
  Crit W.S. (ft)            1291.35   Flow Area (sq ft)                   2967.85
  E.G. Slope (ft/ft)       0.000355   Area (sq ft)                        2967.85     783.60
  Q Total (cfs)            15770.00   Flow (cfs)                         15770.00
  Top Width (ft)             460.34   Top Width (ft)                       283.74     176.60
  Vel Total (ft/s)             5.31   Avg. Vel. (ft/s)                       5.31
  Max Chl Dpth (ft)           13.13   Hydr. Depth (ft)                      10.46
  Conv. Total (cfs)        836460.0   Conv. (cfs)                       836460.0
  Length Wtd. (ft)           301.37   Wetted Per. (ft)                     287.42
  Min Ch El (ft)            1285.09   Shear (lb/sq ft)                       0.23
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Alpha	1.00	Stream Power (lb/ft s)		1.22	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	355.28	1013.43	358.52
C & E Loss (ft)	0.00	Cum SA (acres)	96.56	100.46	84.23

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 8

INPUT
Description:
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4159.87	1306	4188.09	1305.59	4208.34	1305.46	4216.96	1305.31	4231.45	1305.18
4237.21	1305.3	4268.1	1304.92	4277.51	1304.96	4307.87	1304.46	4322.5	1304.35
4361.59	1303.9	4372.65	1303.85	4415.87	1303.3	4422.78	1303.19	4472.93	1302.56
4523.08	1301.8	4573.68	1300.2	4599.2	1300.02	4634.02	1299.85	4650.79	1299.72
4664.95	1299.4	4687.96	1299.33	4706.39	1299.13	4723.67	1298.97	4754.9	1298.54
4773.8	1298.1	4795.82	1297.81	4823.95	1297.65	4833.05	1297.43	4837.71	1295.54
4845.03	1298.4	4858.56	1298.67	4893.69	1287.18	4905.39	1286.06	4924.24	1285.73
4974.38	1285.6	4990.85	1284.88	5009.75	1285.18	5024.53	1285.69	5067.23	1285.44
5079.49	1285.5	5091.21	1285.8	5102.67	1287.45	5131.64	1296.37	5144.56	1296.28
5151.41	1294.9	5162.99	1294.03	5171.17	1293.3	5204.21	1293.1	5232.17	1292.91
5263.21	1292.9	5270.01	1293.07	5297.12	1293.42	5311	1293.68		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4159.87	.04	4858.56	.025	5131.64	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4858.56	5131.64	475.23	475.23	475.23	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4159.87	4858.56	1300	5131.64	5311	1300

Left Levee Station= 4858.56 Elevation= 1298.67
Right Levee Station= 5131.64 Elevation= 1296.37

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1294.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.025	
E.G. Elev (ft)	1295.23	Reach Len. (ft)	475.23	475.23	475.23
Crit W.S. (ft)	1289.42	Flow Area (sq ft)		2131.57	
E.G. Slope (ft/ft)	0.000285	Area (sq ft)		2131.57	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	257.21	Top Width (ft)		257.21	
Vel Total (ft/s)	4.08	Avg. Vel. (ft/s)		4.08	
Max Chl Dpth (ft)	10.09	Hydr. Depth (ft)		8.29	
Conv. Total (cfs)	515390.2	Conv. (cfs)		515390.2	
Length Wtd. (ft)	475.23	Wetted Per. (ft)		259.79	
Min Ch El (ft)	1284.88	Shear (lb/sq ft)		0.15	
Alpha	1.00	Stream Power (lb/ft s)		0.60	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	14.18	691.77	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	93.20	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1296.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.96	Reach Len. (ft)	475.23	475.23	475.23
Crit W.S. (ft)	1290.29	Flow Area (sq ft)		2564.85	
E.G. Slope (ft/ft)	0.000304	Area (sq ft)		2564.85	548.24
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	446.17	Top Width (ft)		266.81	179.36
Vel Total (ft/s)	4.65	Avg. Vel. (ft/s)		4.65	
Max Chl Dpth (ft)	11.74	Hydr. Depth (ft)		9.61	
Conv. Total (cfs)	684004.1	Conv. (cfs)		684004.1	
Length Wtd. (ft)	475.23	Wetted Per. (ft)		269.87	

Min Ch El (ft)	1284.88	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.84	
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	107.78	835.50	74.28
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	96.65	33.80

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1298.12	Element			
Vel Head (ft)	0.44	Wt. n-Val.		0.025	
E.G. Elev (ft)	1298.56	Reach Len. (ft)	475.23	475.23	475.23
Crit W.S. (ft)	1291.23	Flow Area (sq ft)		2967.74	
E.G. Slope (ft/ft)	0.000335	Area (sq ft)		2967.74	816.78
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	450.75	Top Width (ft)		271.39	179.36
Vel Total (ft/s)	5.31	Avg. Vel. (ft/s)		5.31	
Max Chl Dpth (ft)	13.24	Hydr. Depth (ft)		10.94	
Conv. Total (cfs)	862075.7	Conv. (cfs)		862075.7	
Length Wtd. (ft)	475.23	Wetted Per. (ft)		274.68	
Min Ch El (ft)	1284.88	Shear (lb/sq ft)		0.23	
Alpha	1.00	Stream Power (lb/ft s)		1.20	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	355.28	992.90	352.98
C & E Loss (ft)	0.00	Cum SA (acres)	96.56	98.54	83.00

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 7.91

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4147.21	1306.2	4187.51	1305.78	4189.51	1305.69	4229.44	1304.92	4233.13	1304.92
4245.65	1304.4	4260.39	1304.44	4274.51	1304.16	4291.99	1302.8	4311.93	1303.21
4319.39	1303.7	4327.84	1303.66	4363.15	1303.21	4386.58	1303.14	4405.05	1302.94
4436.73	1302.4	4463.91	1301.95	4510.52	1301.47	4537.01	1301	4567.89	1300.8
4587.16	1300.6	4629.58	1299.57	4634.33	1299.52	4637.31	1299.72	4643.16	1299.46
4687.44	1299.4	4730.72	1298.93	4742.91	1298.79	4794.09	1298.05	4825.49	1297.3
4834.05	1297.5	4835.61	1295.87	4837.63	1294.88	4842.91	1295.91	4855.83	1297.43
4862.13	1297.6	4894.45	1286.94	4907.35	1285.96	4924.24	1285.9	4949	1285.97
4968.51	1285.8	4983.81	1285.72	5000.72	1284.98	5009.5	1285.85	5020.14	1285.59
5038.46	1285.3	5075.36	1285.31	5088.78	1285.36	5100.72	1287.23	5127.01	1295.24
5131.71	1296.6	5135.14	1296.47	5139.63	1296.63	5144.98	1296.04	5150.24	1295.01
5168.5	1294.1	5188.9	1293.16	5212.21	1293.31	5219.01	1294.56	5227.09	1294.63
5240.04	1294.5	5243.92	1294.59	5258.51	1294.45	5302.64	1294.17	5322.13	1294.21

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4147.21	.04	4862.13	.025	5131.71	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4862.13	5131.71	461.94	461.94	461.94	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4147.21	4862.13	1300	5131.71	5322.13	1300

Left Levee Station= 4862.13 Elevation= 1297.6
Right Levee Station= 5131.71 Elevation= 1296.6

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1294.81	Element			
Vel Head (ft)	0.27	Wt. n-Val.		0.025	
E.G. Elev (ft)	1295.08	Reach Len. (ft)	461.94	461.94	461.94
Crit W.S. (ft)	1289.50	Flow Area (sq ft)		2068.57	
E.G. Slope (ft/ft)	0.000311	Area (sq ft)		2068.57	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	

Top Width (ft)	255.01	Top Width (ft)		255.01	
Vel Total (ft/s)	4.21	Avg. Vel. (ft/s)		4.21	
Max Chl Dpth (ft)	9.83	Hydr. Depth (ft)		8.11	
Conv. Total (cfs)	492967.5	Conv. (cfs)		492967.5	
Length Wtd. (ft)	461.94	Wetted Per. (ft)		257.65	
Min Ch El (ft)	1284.98	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)		0.66	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	14.18	668.86	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	90.41	15.81

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1296.45	Element			
Vel Head (ft)	0.35	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.80	Reach Len. (ft)	461.94	461.94	461.94
Crit W.S. (ft)	1290.37	Flow Area (sq ft)		2495.14	
E.G. Slope (ft/ft)	0.000331	Area (sq ft)		2495.14	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	265.57	Top Width (ft)		265.57	
Vel Total (ft/s)	4.78	Avg. Vel. (ft/s)		4.78	
Max Chl Dpth (ft)	11.47	Hydr. Depth (ft)		9.40	
Conv. Total (cfs)	655181.1	Conv. (cfs)		655181.1	
Length Wtd. (ft)	461.94	Wetted Per. (ft)		268.71	
Min Ch El (ft)	1284.98	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.92	
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	107.78	807.89	71.29
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	93.75	32.82

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1297.93	Element			
Vel Head (ft)	0.46	Wt. n-Val.		0.025	
E.G. Elev (ft)	1298.39	Reach Len. (ft)	461.94	461.94	461.94
Crit W.S. (ft)	1291.31	Flow Area (sq ft)		2891.44	
E.G. Slope (ft/ft)	0.000362	Area (sq ft)	52.00	2891.44	683.48
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	522.86	Top Width (ft)	62.86	269.58	190.42
Vel Total (ft/s)	5.45	Avg. Vel. (ft/s)		5.45	
Max Chl Dpth (ft)	12.95	Hydr. Depth (ft)		10.73	
Conv. Total (cfs)	828987.8	Conv. (cfs)		828987.8	
Length Wtd. (ft)	461.94	Wetted Per. (ft)		272.93	
Min Ch El (ft)	1284.98	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.31	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	355.00	960.94	344.80
C & E Loss (ft)	0.01	Cum SA (acres)	96.22	95.59	80.98

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 7.823

INPUT
Description:
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4159.67	1306.3	4192.61	1305.53	4208.13	1305.31	4251.12	1305.26	4302.34	1304.37
4353.35	1303.4	4405.73	1302.57	4416.12	1302.5	4446.94	1302.46	4457.96	1302.4
4488.62	1301.8	4515.41	1301.69	4525.87	1301.57	4544.66	1301.25	4551.98	1301.02
4580.88	1300.4	4627.49	1299.95	4652.26	1299.5	4681.14	1299.1	4735.42	1298.21
4767.27	1297.7	4802.69	1297.24	4832.53	1297.28	4837.48	1294.85	4844.29	1298.15
4859.64	1298.2	4870.87	1294.54	4895.08	1286.49	4904.59	1285.69	4920.65	1285.57
4954.42	1285.1	4993.3	1284.99	5002.94	1284.72	5009.67	1285.51	5014.96	1285.41
5053.43	1285	5089.61	1285.38	5100.07	1286.66	5116.59	1291.79	5131.5	1296.24
5146	1295.8	5150.93	1293.98	5173.61	1293.58	5203.86	1292.97	5228.9	1291.22
5233.66	1292.3	5250.53	1292.38	5264.81	1292.22	5304.15	1291.53	5328.9	1291.22

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4159.67	.04	4859.64	.025	5131.5	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4859.64	5131.5	160.58	160.58	160.58	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4159.67	4859.64	1300	5131.5	5328.9	1300

Left Levee Station= 4859.64 Elevation= 1298.2
Right Levee Station= 5131.5 Elevation= 1296.24

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1294.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.025	
E.G. Elev (ft)	1294.94	Reach Len. (ft)	160.58	160.58	160.58
Crit W.S. (ft)	1289.10	Flow Area (sq ft)		2129.28	
E.G. Slope (ft/ft)	0.000284	Area (sq ft)		2129.28	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	255.85	Top Width (ft)		255.85	
Vel Total (ft/s)	4.09	Avg. Vel. (ft/s)		4.09	
Max Chl Dpth (ft)	9.96	Hydr. Depth (ft)		8.32	
Conv. Total (cfs)	516117.3	Conv. (cfs)		516117.3	
Length Wtd. (ft)	160.58	Wetted Per. (ft)		258.55	
Min Ch El (ft)	1284.72	Shear (lb/sq ft)		0.15	
Alpha	1.00	Stream Power (lb/ft s)		0.60	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	14.18	646.60	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	87.70	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1296.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.65	Reach Len. (ft)	160.58	160.58	160.58
Crit W.S. (ft)	1289.97	Flow Area (sq ft)		2554.81	
E.G. Slope (ft/ft)	0.000307	Area (sq ft)		2554.81	709.04
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	463.47	Top Width (ft)		266.07	197.40
Vel Total (ft/s)	4.67	Avg. Vel. (ft/s)		4.67	
Max Chl Dpth (ft)	11.59	Hydr. Depth (ft)		9.60	
Conv. Total (cfs)	680579.6	Conv. (cfs)		680579.6	
Length Wtd. (ft)	160.58	Wetted Per. (ft)		269.25	
Min Ch El (ft)	1284.72	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.85	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	107.78	781.12	67.53
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	90.93	31.77

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1297.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.		0.025	
E.G. Elev (ft)	1298.22	Reach Len. (ft)	160.58	160.58	160.58
Crit W.S. (ft)	1290.91	Flow Area (sq ft)		2947.43	
E.G. Slope (ft/ft)	0.000341	Area (sq ft)		2947.43	997.89
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	467.96	Top Width (ft)		270.56	197.40
Vel Total (ft/s)	5.35	Avg. Vel. (ft/s)		5.35	
Max Chl Dpth (ft)	13.06	Hydr. Depth (ft)		10.89	
Conv. Total (cfs)	853726.1	Conv. (cfs)		853726.1	
Length Wtd. (ft)	160.58	Wetted Per. (ft)		273.98	
Min Ch El (ft)	1284.72	Shear (lb/sq ft)		0.23	
Alpha	1.00	Stream Power (lb/ft s)		1.23	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	354.72	929.98	335.88
C & E Loss (ft)	0.00	Cum SA (acres)	95.88	92.73	78.92

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 7.792

INPUT
Description:
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4160.81	1306.5	4188.73	1306.29	4206.19	1306.08	4252.79	1305.58	4289.03	1304.95
4299.39	1304.8	4339.17	1304.61	4389.32	1304.24	4489.6	1302.65	4539.75	1301.58
4548.36	1301.4	4589.9	1301	4602.65	1300.92	4640.04	1300.43	4661.51	1299.7
4672.19	1299.6	4681.22	1299.93	4700.27	1299.53	4721.22	1299.33	4740.33	1298.94
4749.15	1298.9	4777.22	1298.46	4790.47	1298.43	4814.74	1297.93	4827.77	1297.61
4833.04	1297.4	4838.41	1295.19	4846.42	1298.06	4850.92	1298.42	4860.47	1298.15
4896.09	1286.4	4904.43	1285.6	4930.83	1285.43	4940.91	1285.29	4955.68	1285.3
4977.58	1285.2	4991.06	1284.96	5001.3	1284.6	5008.44	1285.39	5044.45	1285.22
5085.48	1285.6	5100.68	1286.8	5132.13	1296.2	5140.29	1296.34	5146.29	1295.73
5150.8	1294.2	5171.91	1293.23	5186.97	1293.32	5214.23	1292.93	5241.78	1292.41
5253.99	1292.2	5291.93	1292.08	5322.47	1291.45				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4160.81	.04	4860.47	.025	5132.13	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4860.47	5132.13	370	388.34	405	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4160.81	4860.47	1300	5132.13	5322.47	1300

Left Levee Station= 4860.47 Elevation= 1298.15
Right Levee Station= 5132.13 Elevation= 1296.2

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1294.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.025	
E.G. Elev (ft)	1294.89	Reach Len. (ft)	370.00	388.34	405.00
Crit W.S. (ft)	1289.20	Flow Area (sq ft)		2094.32	
E.G. Slope (ft/ft)	0.000300	Area (sq ft)		2094.32	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	255.71	Top Width (ft)		255.71	
Vel Total (ft/s)	4.15	Avg. Vel. (ft/s)		4.15	
Max Chl Dpth (ft)	10.03	Hydr. Depth (ft)		8.19	
Conv. Total (cfs)	502366.3	Conv. (cfs)		502366.3	
Length Wtd. (ft)	388.34	Wetted Per. (ft)		258.32	
Min Ch El (ft)	1284.60	Shear (lb/sq ft)		0.15	
Alpha	1.00	Stream Power (lb/ft s)		0.63	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	14.18	638.82	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	86.76	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1296.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.60	Reach Len. (ft)	370.00	388.34	405.00
Crit W.S. (ft)	1290.07	Flow Area (sq ft)		2518.31	
E.G. Slope (ft/ft)	0.000321	Area (sq ft)		2518.31	630.73
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	450.23	Top Width (ft)		265.90	184.33
Vel Total (ft/s)	4.73	Avg. Vel. (ft/s)		4.73	
Max Chl Dpth (ft)	11.65	Hydr. Depth (ft)		9.47	
Conv. Total (cfs)	664861.6	Conv. (cfs)		664861.6	
Length Wtd. (ft)	388.34	Wetted Per. (ft)		269.00	
Min Ch El (ft)	1284.60	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.89	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	107.78	771.77	65.06
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	89.95	31.07

Warning - Divided flow computed for this cross-section.
Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1297.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.		0.025	
E.G. Elev (ft)	1298.16	Reach Len. (ft)	370.00	388.34	405.00
Crit W.S. (ft)	1291.01	Flow Area (sq ft)		2908.53	
E.G. Slope (ft/ft)	0.000356	Area (sq ft)		2908.53	907.49
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	460.66	Top Width (ft)		270.32	190.34
Vel Total (ft/s)	5.42	Avg. Vel. (ft/s)		5.42	
Max Chl Dpth (ft)	13.11	Hydr. Depth (ft)		10.76	
Conv. Total (cfs)	835694.7	Conv. (cfs)		835694.7	
Length Wtd. (ft)	388.34	Wetted Per. (ft)		273.65	
Min Ch El (ft)	1284.60	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.28	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	354.72	919.19	332.37
C & E Loss (ft)	0.00	Cum SA (acres)	95.88	91.73	78.21

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 7.719

INPUT
Description:
Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4183.31	1306	4187.15	1306.07	4194.91	1305.75	4201.19	1306.35	4207.5	1306.34
4214.91	1306.1	4226.68	1306.2	4232.92	1306.14	4276.67	1305.4	4326.67	1304.88
4370.68	1304.4	4420.78	1303.54	4426.68	1303.52	4470.85	1302.77	4476.67	1302.64
4520.93	1302.2	4626.68	1300.5	4632.22	1300.44	4676.67	1299.56	4721.28	1299.05
4726.67	1299	4786.67	1298.22	4824.11	1297.93	4827.44	1297.75	4833.71	1294.68
4839.64	1297.1	4854.68	1297.36	4858.57	1297.86	4892.51	1286.33	4926.67	1285.44
4988.75	1285.2	4997.83	1284.58	5003.48	1285	5026.68	1284.95	5035.01	1284.98
5077.69	1284.9	5082.93	1285.3	5095.78	1286.63	5104.88	1289.4	5127.01	1296.32
5140.93	1295.6	5146.69	1294.28	5157.13	1294.06	5164.95	1293.8	5171.33	1293.11
5177.45	1293	5183.77	1293.14	5189.67	1293.6	5218.76	1292.95	5231.2	1292.76
5276.69	1292	5304.69	1291.64						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4183.31	.04	4858.57	.025	5127.01	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4858.57	5127.01	531.12	531.12	531.12	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4183.31	4858.57	1300	5127.01	5304.69	1300

Left Levee Station= 4858.57 Elevation= 1297.86
Right Levee Station= 5127.01 Elevation= 1296.32

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1294.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.025	
E.G. Elev (ft)	1294.78	Reach Len. (ft)	531.12	531.12	531.12
Crit W.S. (ft)	1289.10	Flow Area (sq ft)		2073.25	
E.G. Slope (ft/ft)	0.000306	Area (sq ft)		2073.25	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	252.75	Top Width (ft)		252.75	
Vel Total (ft/s)	4.20	Avg. Vel. (ft/s)		4.20	
Max Chl Dpth (ft)	9.92	Hydr. Depth (ft)		8.20	
Conv. Total (cfs)	497703.8	Conv. (cfs)		497703.8	
Length Wtd. (ft)	531.12	Wetted Per. (ft)		255.42	
Min Ch El (ft)	1284.58	Shear (lb/sq ft)		0.15	

Alpha	1.00	Stream Power (lb/ft s)		0.65	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	14.18	620.24	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	84.49	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1296.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.47	Reach Len. (ft)	531.12	531.12	531.12
Crit W.S. (ft)	1289.98	Flow Area (sq ft)		2489.03	
E.G. Slope (ft/ft)	0.000329	Area (sq ft)		2489.03	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	262.66	Top Width (ft)		262.66	
Vel Total (ft/s)	4.79	Avg. Vel. (ft/s)		4.79	
Max Chl Dpth (ft)	11.54	Hydr. Depth (ft)		9.48	
Conv. Total (cfs)	657186.0	Conv. (cfs)		657186.0	
Length Wtd. (ft)	531.12	Wetted Per. (ft)		265.84	
Min Ch El (ft)	1284.58	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.92	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	107.78	749.45	62.13
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	87.59	30.21

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1297.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.47	Wt. n-Val.		0.025	
E.G. Elev (ft)	1298.02	Reach Len. (ft)	531.12	531.12	531.12
Crit W.S. (ft)	1290.93	Flow Area (sq ft)		2870.35	
E.G. Slope (ft/ft)	0.000367	Area (sq ft)		2870.35	786.33
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	445.22	Top Width (ft)		267.54	177.68
Vel Total (ft/s)	5.49	Avg. Vel. (ft/s)		5.49	
Max Chl Dpth (ft)	12.97	Hydr. Depth (ft)		10.73	
Conv. Total (cfs)	822823.9	Conv. (cfs)		822823.9	
Length Wtd. (ft)	531.12	Wetted Per. (ft)		270.99	
Min Ch El (ft)	1284.58	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.33	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	354.72	893.43	324.49
C & E Loss (ft)	0.00	Cum SA (acres)	95.88	89.33	76.50

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 7.618

INPUT
Description:
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4169.14	1306.1	4202.43	1305.64	4227.58	1305.35	4252.65	1305	4277.58	1304.74
4302.56	1304.4	4327.59	1303.99	4352.68	1303.66	4393.97	1303	4427.58	1302.74
4452.3	1302.4	4502.23	1301.61	4527.59	1301.23	4543.41	1301.07	4555.68	1301.05
4565.05	1300.6	4575.02	1300.26	4627.59	1299.87	4653.21	1299.46	4701.89	1298.79
4753.36	1297.9	4777.58	1297.46	4801.72	1297.04	4823	1296.92	4826.99	1297.01
4832.88	1294.6	4839.79	1297.58	4854.56	1297.96	4892.85	1286.51	4900.67	1285.55
4927.59	1285.3	4977.58	1285.22	4998	1284.85	5004.19	1284.38	5013.71	1285.1
5027.59	1285.1	5069.41	1285.18	5080.61	1285.2	5096.22	1287.05	5126.81	1296.18
5135.93	1295.7	5142.79	1295.22	5149.44	1293.81	5159.78	1292.99	5177.59	1292.4
5254.23	1291.6	5277.58	1291.47	5313.45	1291				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4169.14	.04	4854.56	.025	5126.81	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4854.56	5126.81	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4169.14	4854.56	1299	5126.81	5313.45	1299

Left Levee Station= 4854.56 Elevation= 1297.96
Right Levee Station= 5126.81 Elevation= 1296.18

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1294.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.025	
E.G. Elev (ft)	1294.61	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1289.12	Flow Area (sq ft)		2031.11	
E.G. Slope (ft/ft)	0.000329	Area (sq ft)		2031.11	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	253.86	Top Width (ft)		253.86	
Vel Total (ft/s)	4.28	Avg. Vel. (ft/s)		4.28	
Max Chl Dpth (ft)	9.94	Hydr. Depth (ft)		8.00	
Conv. Total (cfs)	479880.5	Conv. (cfs)		479880.5	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		256.28	
Min Ch El (ft)	1284.38	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)		0.70	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	14.18	595.22	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	81.40	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1295.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.29	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1290.00	Flow Area (sq ft)		2445.78	
E.G. Slope (ft/ft)	0.000352	Area (sq ft)		2445.78	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	264.57	Top Width (ft)		264.57	
Vel Total (ft/s)	4.87	Avg. Vel. (ft/s)		4.87	
Max Chl Dpth (ft)	11.54	Hydr. Depth (ft)		9.24	
Conv. Total (cfs)	635691.9	Conv. (cfs)		635691.9	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		267.46	
Min Ch El (ft)	1284.38	Shear (lb/sq ft)		0.20	
Alpha	1.00	Stream Power (lb/ft s)		0.98	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	107.78	719.36	62.13
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	84.38	30.21

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1297.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.48	Wt. n-Val.		0.025	
E.G. Elev (ft)	1297.82	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1290.95	Flow Area (sq ft)		2824.25	
E.G. Slope (ft/ft)	0.000392	Area (sq ft)		2824.25	930.82
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	456.80	Top Width (ft)		270.16	186.64
Vel Total (ft/s)	5.58	Avg. Vel. (ft/s)		5.58	
Max Chl Dpth (ft)	12.96	Hydr. Depth (ft)		10.45	
Conv. Total (cfs)	796412.3	Conv. (cfs)		796412.3	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		273.30	
Min Ch El (ft)	1284.38	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		1.41	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	354.72	858.71	314.03
C & E Loss (ft)	0.00	Cum SA (acres)	95.88	86.05	74.28

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 7.523

INPUT
Description:
Station Elevation Data num= 59

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4169.14	1304.6	4203.58	1304.13	4228.44	1303.89	4253.51	1303.51	4278.44	1302.93
4303.43	1302.7	4328.44	1302.62	4353.53	1302.17	4403.63	1301.53	4428.44	1301.09
4453.17	1300.9	4478.44	1300.76	4506.22	1300.57	4517.19	1300.45	4523.38	1299.96
4530	1300.2	4578.44	1299.37	4609.05	1299.34	4661.44	1298.55	4679.76	1297.9
4699.98	1297.6	4720.89	1297.54	4728.98	1297.31	4739.94	1296.81	4750.08	1296.63
4764.55	1297	4779.1	1296.49	4816.29	1296.52	4827.02	1296.17	4834.47	1293.65
4842.26	1297.3	4844.03	1297.16	4857.59	1297.2	4866.88	1294.33	4893.15	1286.07
4904.58	1285.4	4928.45	1284.92	4952.32	1284.87	4978.44	1284.7	4996.59	1284.83
5004.45	1284.4	5012.05	1284.97	5028.44	1284.7	5052.14	1284.81	5078.44	1284.89
5096.82	1286.7	5128.12	1296.3	5141.86	1296.19	5149.53	1292.72	5178.44	1291.7
5205.01	1291.5	5228.43	1291.3	5252.48	1290.95	5257.35	1291.05	5274.73	1290.69
5297.66	1290.5	5313.97	1290.45	5316.76	1290.38	5320.94	1289.91		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4169.14	.04	4857.59	.025	5128.12	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4857.59	5128.12	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4169.14	4842.26	1299	5128.12	5320.94	1299

Left Levee Station= 4842.26 Elevation= 1297.3
Right Levee Station= 5128.12 Elevation= 1296.3

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1294.17	Element			
Vel Head (ft)	0.28	Wt. n-Val.		0.025	
E.G. Elev (ft)	1294.44	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1288.81	Flow Area (sq ft)		2066.06	
E.G. Slope (ft/ft)	0.000311	Area (sq ft)		2066.06	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	253.78	Top Width (ft)		253.78	
Vel Total (ft/s)	4.21	Avg. Vel. (ft/s)		4.21	
Max Chl Dpth (ft)	9.77	Hydr. Depth (ft)		8.14	
Conv. Total (cfs)	493707.7	Conv. (cfs)		493707.7	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		256.29	
Min Ch El (ft)	1284.40	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)		0.66	
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	14.18	571.70	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	78.49	15.81

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1295.76	Element			
Vel Head (ft)	0.36	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.12	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1289.69	Flow Area (sq ft)		2477.08	
E.G. Slope (ft/ft)	0.000336	Area (sq ft)		2477.08	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	264.08	Top Width (ft)		264.08	
Vel Total (ft/s)	4.81	Avg. Vel. (ft/s)		4.81	
Max Chl Dpth (ft)	11.36	Hydr. Depth (ft)		9.38	
Conv. Total (cfs)	649930.4	Conv. (cfs)		649930.4	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		267.07	
Min Ch El (ft)	1284.40	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.94	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	107.78	691.11	62.13
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	81.35	30.21

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1297.15	Element			
Vel Head (ft)	0.48	Wt. n-Val.		0.025	
E.G. Elev (ft)	1297.62	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1290.63	Flow Area (sq ft)		2849.79	

E.G. Slope (ft/ft)	0.000381	Area (sq ft)		2849.79	1048.93
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	463.18	Top Width (ft)		270.36	192.82
Vel Total (ft/s)	5.53	Avg. Vel. (ft/s)		5.53	
Max Chl Dpth (ft)	12.75	Hydr. Depth (ft)		10.54	
Conv. Total (cfs)	807767.2	Conv. (cfs)		807767.2	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		273.64	
Min Ch El (ft)	1284.40	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		1.37	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	354.72	826.15	302.66
C & E Loss (ft)	0.00	Cum SA (acres)	95.88	82.95	72.10

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 7.429

INPUT
Description:
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4169.14	1304.4	4178.62	1304.32	4216.33	1303.38	4242.59	1303.38	4255.64	1303.18
4279.29	1302.6	4304.31	1302.17	4329.3	1301.75	4354.41	1301.51	4379.29	1301.21
4404.11	1300.8	4429.3	1300.53	4472.81	1299.42	4502.15	1298.94	4529.84	1298.65
4567.67	1298	4608.14	1297.58	4629.3	1297.87	4654.92	1297.41	4703.61	1296.74
4729.3	1296.5	4753.5	1296.11	4779.29	1295.53	4819.69	1295.46	4826.84	1295.6
4833.35	1293.8	4842.22	1297.43	4850.51	1297.11	4856.09	1297.38	4890.92	1286.08
4902.5	1285	4929.3	1284.53	4955.43	1284.43	4979.29	1284.3	4993.91	1284.62
5001.22	1284	5029.3	1284.87	5053	1284.87	5079.3	1284.79	5087.47	1284.87
5096.06	1286	5128	1295.72	5141.24	1295.5	5149.31	1292.1	5179.29	1290.91
5202.73	1290.6	5229.3	1290.23	5252.66	1290.01	5279.3	1289.66	5302.58	1289.42
5312.11	1289.4								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4169.14	.04	4856.09	.025	5128	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4856.09	5128	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4169.14	4842.22	1299	5128	5312.11	1299

Left Levee Station= 4842.22 Elevation= 1297.43
Right Levee Station= 5128 Elevation= 1295.72

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1294.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.025	
E.G. Elev (ft)	1294.29	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1288.52	Flow Area (sq ft)		2118.12	
E.G. Slope (ft/ft)	0.000289	Area (sq ft)		2118.12	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	256.02	Top Width (ft)		256.02	
Vel Total (ft/s)	4.11	Avg. Vel. (ft/s)		4.11	
Max Chl Dpth (ft)	10.03	Hydr. Depth (ft)		8.27	
Conv. Total (cfs)	511490.5	Conv. (cfs)		511490.5	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		258.64	
Min Ch El (ft)	1284.00	Shear (lb/sq ft)		0.15	
Alpha	1.00	Stream Power (lb/ft s)		0.61	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	14.18	547.69	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	75.56	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1295.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.025	
E.G. Elev (ft)	1295.95	Reach Len. (ft)	500.00	500.00	500.00

Crit W.S. (ft)	1289.39	Flow Area (sq ft)		2529.21	
E.G. Slope (ft/ft)	0.000317	Area (sq ft)		2529.21	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	266.05	Top Width (ft)		266.05	
Vel Total (ft/s)	4.71	Avg. Vel. (ft/s)		4.71	
Max Chl Dpth (ft)	11.60	Hydr. Depth (ft)		9.51	
Conv. Total (cfs)	669409.8	Conv. (cfs)		669409.8	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		269.16	
Min Ch El (ft)	1284.00	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.88	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	107.78	662.38	62.13
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	78.30	30.21

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1296.97	Element			
Vel Head (ft)	0.46	Wt. n-Val.		0.025	
E.G. Elev (ft)	1297.43	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1290.33	Flow Area (sq ft)		2897.16	
E.G. Slope (ft/ft)	0.000361	Area (sq ft)		2897.16	1123.01
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	454.77	Top Width (ft)		270.66	184.11
Vel Total (ft/s)	5.44	Avg. Vel. (ft/s)		5.44	
Max Chl Dpth (ft)	12.97	Hydr. Depth (ft)		10.70	
Conv. Total (cfs)	829550.3	Conv. (cfs)		829550.3	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		274.00	
Min Ch El (ft)	1284.00	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.30	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	354.72	793.16	290.20
C & E Loss (ft)	0.00	Cum SA (acres)	95.88	79.85	69.94

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 7.334

INPUT
Description:
Station Elevation Data num= 59

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4169.14	1303.8	4185.25	1303.68	4203.77	1303.33	4230.16	1303.12	4280.15	1302.22
4305.18	1301.7	4330.15	1301.25	4355.04	1300.9	4380.15	1300.62	4429.32	1299.18
4465.13	1298.7	4479.52	1298.71	4542.1	1297.79	4573.31	1297.22	4585.06	1297.06
4591.72	1297.1	4613.71	1296.71	4626.8	1296.73	4655.91	1296.04	4670.29	1296
4682.92	1295.6	4700.68	1295.29	4712.94	1295.34	4721.21	1295.09	4736.06	1295.07
4761.04	1294.7	4780.15	1294.57	4806.78	1294.26	4820.05	1294.18	4828.8	1294.28
4836.78	1294.2	4844.16	1295.71	4847.06	1295.82	4858.73	1295.8	4895.31	1285.11
4903.45	1284.3	4915.51	1284.41	4954.02	1284.53	4989.52	1284.67	4996.07	1284.6
5004.84	1284	5014.88	1284.47	5030.16	1284.54	5056.46	1284.39	5080.15	1284.19
5086.67	1284.4	5096.73	1285.52	5102.59	1287.33	5127.96	1295.61	5137.3	1295.27
5142.27	1295	5147.5	1292.68	5154.52	1290.23	5180.15	1289.45	5203.6	1289.23
5230.16	1289.1	5275.6	1288.2	5313.27	1287.19	5316.13	1287.16		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4169.14	.04	4858.73	.025	5127.96	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4858.73	5127.96	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4169.14	4858.73	1298	5127.96	5316.13	1298

Left Levee Station= 4858.73 Elevation= 1295.8
Right Levee Station= 5127.96 Elevation= 1295.61

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1293.89	Element			

Vel Head (ft)	0.26	Wt. n-Val.		0.025	
E.G. Elev (ft)	1294.15	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1288.31	Flow Area (sq ft)		2136.17	
E.G. Slope (ft/ft)	0.000283	Area (sq ft)		2136.17	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	257.41	Top Width (ft)		257.41	
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)		4.07	
Max Chl Dpth (ft)	9.89	Hydr. Depth (ft)		8.30	
Conv. Total (cfs)	516805.7	Conv. (cfs)		516805.7	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		260.13	
Min Ch El (ft)	1284.00	Shear (lb/sq ft)		0.15	
Alpha	1.00	Stream Power (lb/ft s)		0.59	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	14.18	523.27	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	72.62	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1295.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.025	
E.G. Elev (ft)	1295.79	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1289.18	Flow Area (sq ft)		2545.81	
E.G. Slope (ft/ft)	0.000313	Area (sq ft)		2545.81	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	267.53	Top Width (ft)		267.53	
Vel Total (ft/s)	4.68	Avg. Vel. (ft/s)		4.68	
Max Chl Dpth (ft)	11.45	Hydr. Depth (ft)		9.52	
Conv. Total (cfs)	674142.6	Conv. (cfs)		674142.6	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		270.72	
Min Ch El (ft)	1284.00	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.86	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	107.78	633.25	62.13
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	75.24	30.21

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1296.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.		0.025	
E.G. Elev (ft)	1297.25	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1290.12	Flow Area (sq ft)		2908.52	
E.G. Slope (ft/ft)	0.000354	Area (sq ft)	375.42	2908.52	1370.38
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	707.33	Top Width (ft)	249.93	269.23	188.17
Vel Total (ft/s)	5.42	Avg. Vel. (ft/s)		5.42	
Max Chl Dpth (ft)	12.80	Hydr. Depth (ft)		10.80	
Conv. Total (cfs)	838057.4	Conv. (cfs)		838057.4	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		272.49	
Min Ch El (ft)	1284.00	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.28	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	352.57	759.84	275.89
C & E Loss (ft)	0.00	Cum SA (acres)	94.45	76.75	67.80

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 7.239

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4169.14	1301.9	4180.99	1301.7	4186.34	1301.38	4195.11	1301.1	4220	1300.66
4231	1300.8	4284.87	1299.95	4302.93	1299.71	4310.28	1298.26	4319.01	1298.82
4336.56	1299.2	4346.91	1299.11	4354.62	1298.76	4366.01	1299	4405.01	1298.42
4411.8	1298.2	4431.41	1298.11	4438.98	1297.88	4469.14	1297.48	4501.37	1296.92
4530.99	1296.5	4543.22	1296.08	4555.73	1295.83	4575.91	1295.36	4585.3	1295.49
4603.91	1295.1	4631	1294.91	4655.37	1294.54	4681	1293.94	4705.27	1293.62
4730.99	1293.4	4749.83	1292.9	4761.89	1292.68	4780.99	1292.56	4828.15	1292.47

4836.78	1292	4838.87	1292.46	4847.01	1295.62	4858.38	1295.55	4887.18	1286.66
4892.29	1285.1	4899.96	1284.7	4931	1284.34	4957.14	1284.34	4981	1284.27
4995	1283.7	5006.82	1283.78	5014.41	1284.39	5031	1284.22	5068.56	1284.17
5085.26	1284.1	5093.75	1285.01	5102.11	1287.62	5128.22	1295.57	5142.82	1295.05
5154.23	1288.6	5163.12	1288.16	5180.99	1287.79	5204.44	1287.52	5230.99	1287.38
5257.65	1287	5281	1286.76	5307.74	1286.58	5331	1286.34	5336.03	1286.22

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4169.14	.04	4858.38	.025	5128.22	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4858.38	5128.22	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4169.14	4858.38	1298	5128.22	5336.03	1298

Left Levee Station= 4858.38 Elevation= 1295.55
Right Levee Station= 5128.22 Elevation= 1295.57

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1293.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.025	
E.G. Elev (ft)	1294.00	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1288.12	Flow Area (sq ft)		2154.16	
E.G. Slope (ft/ft)	0.000276	Area (sq ft)		2154.16	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	258.04	Top Width (ft)		258.04	
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)		4.04	
Max Chl Dpth (ft)	10.05	Hydr. Depth (ft)		8.35	
Conv. Total (cfs)	523241.1	Conv. (cfs)		523241.1	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		260.75	
Min Ch El (ft)	1283.70	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.58	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	14.18	498.65	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	10.11	69.66	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1295.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.025	
E.G. Elev (ft)	1295.63	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1288.99	Flow Area (sq ft)		2560.70	
E.G. Slope (ft/ft)	0.000307	Area (sq ft)		2560.70	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	268.12	Top Width (ft)		268.12	
Vel Total (ft/s)	4.65	Avg. Vel. (ft/s)		4.65	
Max Chl Dpth (ft)	11.60	Hydr. Depth (ft)		9.55	
Conv. Total (cfs)	679762.0	Conv. (cfs)		679762.0	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		271.30	
Min Ch El (ft)	1283.70	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.84	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	107.78	603.94	62.13
C & E Loss (ft)	0.00	Cum SA (acres)	41.80	72.17	30.21

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1296.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.		0.025	
E.G. Elev (ft)	1297.08	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1289.91	Flow Area (sq ft)		2918.36	
E.G. Slope (ft/ft)	0.000351	Area (sq ft)	831.60	2918.36	1789.10
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	813.71	Top Width (ft)	336.06	269.84	207.81
Vel Total (ft/s)	5.40	Avg. Vel. (ft/s)		5.40	
Max Chl Dpth (ft)	12.92	Hydr. Depth (ft)		10.82	
Conv. Total (cfs)	841547.5	Conv. (cfs)		841547.5	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		273.09	

Min Ch El (ft)	1283.70	Shear (lb/sq ft)		0.23	
Alpha	1.00	Stream Power (lb/ft s)		1.27	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	345.64	726.40	257.76
C & E Loss (ft)	0.00	Cum SA (acres)	91.08	73.65	65.53

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 7.144

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4169.14	1298.9	4187.51	1298.77	4196.66	1298.78	4203.59	1298.64	4222.83	1298.39
4236.91	1298.3	4264.01	1297.88	4281.85	1297.92	4306.82	1297.71	4339.43	1297.23
4358.78	1296.7	4384.21	1296.75	4397.87	1296.17	4402.12	1296.11	4417.95	1296.13
4424.96	1296.3	4444.66	1296.2	4454.81	1295.88	4476.49	1295.66	4491.6	1295.22
4523.02	1295.1	4542.85	1294.66	4565.74	1294.54	4594.64	1294.94	4616.12	1294.7
4630.78	1294.2	4644.38	1294.1	4675.78	1293.31	4698.19	1293.28	4720.28	1293.31
4727.73	1292.9	4746.61	1292.89	4758.36	1292.56	4792.76	1292.7	4827.42	1292.16
4833.83	1291.6	4853.01	1291.55	4863.97	1291.33	4868.26	1291.1	4875.28	1288.78
4890.25	1284.3	4901.89	1284.55	4918.24	1284.47	4933.13	1284.56	4970.89	1284.52
4981.85	1284.5	4996.65	1284.6	5008.84	1283.8	5018.24	1284.65	5031.85	1284.24
5078.95	1284.6	5089.58	1284.56	5091.74	1284.69	5128.02	1295.25	5143.52	1295.1
5156.55	1289.2	5163.92	1288.82	5181.85	1288.45	5208.42	1288.22	5231.85	1287.91
5241.13	1287.5	5265.84	1287.19	5286.81	1287.24	5296.85	1287.1	5325.19	1286.92

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4169.14	.04	4853.01	.025	5128.02	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4853.01	5128.02	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4169.14	4853.01	1298	5128.02	5325.19	1298

Left Levee Station= 4594.64 Elevation= 1294.94
Right Levee Station= 5128.02 Elevation= 1295.25

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1293.61	Element			
Vel Head (ft)	0.26	Wt. n-Val.		0.025	
E.G. Elev (ft)	1293.86	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1288.23	Flow Area (sq ft)		2144.56	
E.G. Slope (ft/ft)	0.000297	Area (sq ft)	167.41	2144.56	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	458.35	Top Width (ft)	188.99	269.36	
Vel Total (ft/s)	4.06	Avg. Vel. (ft/s)		4.06	
Max Chl Dpth (ft)	9.81	Hydr. Depth (ft)		7.96	
Conv. Total (cfs)	505247.5	Conv. (cfs)		505247.5	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		271.75	
Min Ch El (ft)	1283.80	Shear (lb/sq ft)		0.15	
Alpha	1.00	Stream Power (lb/ft s)		0.59	
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	13.22	473.98	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	9.02	66.63	15.81

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1295.14	Element			
Vel Head (ft)	0.34	Wt. n-Val.		0.025	
E.G. Elev (ft)	1295.48	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1289.10	Flow Area (sq ft)		2562.12	
E.G. Slope (ft/ft)	0.000316	Area (sq ft)	542.70	2562.12	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	615.37	Top Width (ft)	340.73	274.64	
Vel Total (ft/s)	4.65	Avg. Vel. (ft/s)		4.65	

Max Chl Dpth (ft)	11.34	Hydr. Depth (ft)		9.33	
Conv. Total (cfs)	670624.2	Conv. (cfs)		670624.2	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		277.24	
Min Ch El (ft)	1283.80	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.85	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	104.66	574.54	62.13
C & E Loss (ft)	0.00	Cum SA (acres)	39.85	69.05	30.21

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1296.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.90	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1290.01	Flow Area (sq ft)		2921.07	
E.G. Slope (ft/ft)	0.000358	Area (sq ft)	1060.48	2921.07	1542.59
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	933.83	Top Width (ft)	461.65	275.01	197.17
Vel Total (ft/s)	5.40	Avg. Vel. (ft/s)		5.40	
Max Chl Dpth (ft)	12.65	Hydr. Depth (ft)		10.62	
Conv. Total (cfs)	833636.0	Conv. (cfs)		833636.0	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		277.63	
Min Ch El (ft)	1283.80	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.27	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	334.78	692.89	238.63
C & E Loss (ft)	0.00	Cum SA (acres)	86.51	70.53	63.20

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 7.05

INPUT
Description:
Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4169.15	1298.8	4182.71	1298.62	4207.86	1298.43	4257.65	1297.94	4282.72	1297.73
4301.8	1297.6	4318.48	1297.42	4327.59	1297.4	4350.75	1297.12	4375.34	1296.71
4412.41	1296.6	4436.68	1296.27	4445.75	1296.26	4470.3	1295.84	4482.71	1295.83
4522.48	1295.4	4532.71	1295.35	4557.26	1295.22	4582.71	1295.12	4607.63	1294.73
4643.77	1294.5	4675.15	1294.16	4685.78	1294.18	4726	1293.88	4746.86	1293.48
4782.72	1293.1	4791.69	1292.85	4799.04	1292.79	4817.87	1292.89	4831	1292.74
4834.83	1292.9	4844.55	1292.85	4851.68	1294.51	4861.14	1294.52	4864.67	1293.31
4892.88	1284.7	4903.47	1284.33	4914.62	1284.29	4940.46	1284.4	4959.35	1284.39
4970.26	1284.6	4995.72	1284.63	5011.82	1283.73	5020.46	1284.57	5032.72	1284.36
5056.41	1284.2	5082.72	1284.16	5091.26	1284.27	5104.98	1288.44	5126.62	1295.11
5136.65	1294.7	5143.59	1294.58	5152.47	1289.91	5183.57	1289.38	5186.69	1289.17
5192.31	1289.3	5215.98	1289.21	5233.51	1289.22	5243.9	1288.45	5253.53	1288.1
5272.64	1288.1	5282.71	1288.3	5298.35	1288.36	5305.55	1288.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4169.15	.04	4861.14	.025	5126.62	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4861.14	5126.62	124.65	124.65	124.65	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4169.15	4861.14	1297	5126.62	5305.55	1297

Left Levee Station= 4861.14 Elevation= 1294.52
Right Levee Station= 5126.62 Elevation= 1295.11

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1293.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.025	
E.G. Elev (ft)	1293.71	Reach Len. (ft)	124.65	124.65	124.65
Crit W.S. (ft)	1288.17	Flow Area (sq ft)		2063.64	
E.G. Slope (ft/ft)	0.000317	Area (sq ft)		2063.64	

Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	256.85	Top Width (ft)		256.85	
Vel Total (ft/s)	4.22	Avg. Vel. (ft/s)		4.22	
Max Chl Dpth (ft)	9.70	Hydr. Depth (ft)		8.03	
Conv. Total (cfs)	488542.3	Conv. (cfs)		488542.3	
Length Wtd. (ft)	124.65	Wetted Per. (ft)		259.60	
Min Ch El (ft)	1283.73	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)		0.66	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	12.26	449.83	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	7.94	63.61	15.81

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1294.94	Element			
Vel Head (ft)	0.36	Wt. n-Val.		0.025	
E.G. Elev (ft)	1295.31	Reach Len. (ft)	124.65	124.65	124.65
Crit W.S. (ft)	1289.04	Flow Area (sq ft)		2459.29	
E.G. Slope (ft/ft)	0.000346	Area (sq ft)	305.47	2459.29	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	532.13	Top Width (ft)	267.19	264.94	
Vel Total (ft/s)	4.85	Avg. Vel. (ft/s)		4.85	
Max Chl Dpth (ft)	11.21	Hydr. Depth (ft)		9.28	
Conv. Total (cfs)	640521.3	Conv. (cfs)		640521.3	
Length Wtd. (ft)	124.65	Wetted Per. (ft)		268.11	
Min Ch El (ft)	1283.73	Shear (lb/sq ft)		0.20	
Alpha	1.00	Stream Power (lb/ft s)		0.96	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	99.79	545.72	62.13
C & E Loss (ft)	0.00	Cum SA (acres)	36.36	65.95	30.21

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1296.21	Element			
Vel Head (ft)	0.49	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.71	Reach Len. (ft)	124.65	124.65	124.65
Crit W.S. (ft)	1289.97	Flow Area (sq ft)		2796.02	
E.G. Slope (ft/ft)	0.000396	Area (sq ft)	748.08	2796.02	1180.58
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	857.03	Top Width (ft)	412.62	265.48	178.93
Vel Total (ft/s)	5.64	Avg. Vel. (ft/s)		5.64	
Max Chl Dpth (ft)	12.48	Hydr. Depth (ft)		10.53	
Conv. Total (cfs)	792155.9	Conv. (cfs)		792155.9	
Length Wtd. (ft)	124.65	Wetted Per. (ft)		268.67	
Min Ch El (ft)	1283.73	Shear (lb/sq ft)		0.26	
Alpha	1.00	Stream Power (lb/ft s)		1.45	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	324.40	660.08	223.01
C & E Loss (ft)	0.00	Cum SA (acres)	81.49	67.43	61.04

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 7.026

INPUT
Description: Begin Transition (Expansion)
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4157.4	1298.9	4167.52	1298.79	4192.07	1298.7	4212.68	1298.56	4233.05	1297.97
4251.96	1297.8	4255.68	1297.58	4266.14	1297.5	4282.91	1297.64	4306.98	1297.27
4333.17	1297.3	4382.99	1296.7	4432.93	1296.41	4482.99	1296.22	4519.45	1295.58
4533.02	1295.6	4552.99	1295.38	4571.35	1295.35	4583.04	1295.38	4633.21	1294.91
4683.69	1294.4	4735.63	1294.08	4767.8	1293.68	4779.87	1293.66	4787.39	1293.47
4798.8	1293.6	4811.15	1293.62	4823.18	1293.36	4830.37	1293.03	4837.66	1292.96
4846.43	1295.5	4858.94	1295.83	4886.29	1287.25	4893.3	1285.01	4932.92	1284.48
4982.91	1284.5	4995.48	1284.8	5011.65	1283.73	5020.5	1284.57	5032.92	1284.05
5083.37	1284.2	5092.32	1284.43	5127.11	1295	5143.04	1294.76	5147.14	1293.57
5151.89	1291.5	5162.39	1292.77	5176.54	1292.34	5189.77	1292.08	5219.36	1291.88
5244.96	1292.1	5271.44	1292.09	5320.39	1292.52				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4157.4	.04	4858.94	.025	5127.11	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4858.94	5127.11	143.61	143.61	143.61	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4157.4	4858.94	1297	5127.11	5320.39	1297

Left Levee Station= 4858.94 Elevation= 1295.83
Right Levee Station= 5127.11 Elevation= 1295

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1293.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.025	
E.G. Elev (ft)	1293.66	Reach Len. (ft)	143.61	143.61	143.61
Crit W.S. (ft)	1288.23	Flow Area (sq ft)		2028.33	
E.G. Slope (ft/ft)	0.000333	Area (sq ft)		2028.33	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	255.02	Top Width (ft)		255.02	
Vel Total (ft/s)	4.29	Avg. Vel. (ft/s)		4.29	
Max Chl Dpth (ft)	9.65	Hydr. Depth (ft)		7.95	
Conv. Total (cfs)	476981.9	Conv. (cfs)		476981.9	
Length Wtd. (ft)	143.61	Wetted Per. (ft)		257.74	
Min Ch El (ft)	1283.73	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)		0.70	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	12.26	443.97	15.99
C & E Loss (ft)	0.05	Cum SA (acres)	7.94	62.88	15.81

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1294.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.025	
E.G. Elev (ft)	1295.26	Reach Len. (ft)	143.61	143.61	143.61
Crit W.S. (ft)	1289.10	Flow Area (sq ft)		2420.18	
E.G. Slope (ft/ft)	0.000365	Area (sq ft)		2420.18	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	264.79	Top Width (ft)		264.79	
Vel Total (ft/s)	4.93	Avg. Vel. (ft/s)		4.93	
Max Chl Dpth (ft)	11.16	Hydr. Depth (ft)		9.14	
Conv. Total (cfs)	623863.8	Conv. (cfs)		623863.8	
Length Wtd. (ft)	143.61	Wetted Per. (ft)		267.96	
Min Ch El (ft)	1283.73	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		1.01	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	99.36	538.74	62.13
C & E Loss (ft)	0.06	Cum SA (acres)	35.97	65.20	30.21

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1296.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.65	Reach Len. (ft)	143.61	143.61	143.61
Crit W.S. (ft)	1290.05	Flow Area (sq ft)		2756.44	
E.G. Slope (ft/ft)	0.000421	Area (sq ft)	559.99	2756.44	715.40
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	833.19	Top Width (ft)	371.74	268.17	193.28
Vel Total (ft/s)	5.72	Avg. Vel. (ft/s)		5.72	
Max Chl Dpth (ft)	12.42	Hydr. Depth (ft)		10.28	
Conv. Total (cfs)	768170.1	Conv. (cfs)		768170.1	
Length Wtd. (ft)	143.61	Wetted Per. (ft)		271.50	
Min Ch El (ft)	1283.73	Shear (lb/sq ft)		0.27	
Alpha	1.00	Stream Power (lb/ft s)		1.53	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	322.53	652.13	220.29
C & E Loss (ft)	0.08	Cum SA (acres)	80.37	66.66	60.51

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.999

INPUT
Description: End Transition
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4204.35	1299.7	4233.18	1299.17	4240	1299.08	4283.17	1298.84	4326.48	1298.35
4333.16	1298.3	4378.65	1298.23	4388.22	1297.68	4391.67	1297.99	4432.98	1297.54
4477.84	1297.5	4533.17	1296.86	4576.94	1296.61	4583.18	1296.54	4627	1295.68
4645.4	1295.5	4658.19	1295.26	4684.52	1295.35	4727.84	1294.7	4742.32	1294.52
4779.89	1294.2	4799.46	1294.16	4809.73	1293.99	4816.22	1292.62	4822.97	1294.92
4825.57	1294.8	4837.74	1294.97	4862.67	1286.67	4868.7	1284.75	4883.17	1284.29
4927.54	1284.2	4933.18	1284.11	4957.02	1284.27	4968.16	1284.3	4983.17	1284.23
5006.54	1283.7	5017.69	1284.16	5033.18	1284.01	5038.63	1284.05	5083.17	1284.14
5114.65	1284.8	5149.28	1294.44	5162.58	1294.6	5169.25	1292.87	5172.28	1293.22
5183.41	1295.5	5206.82	1295.88	5224.97	1295.8	5244.46	1295.37	5283.18	1295.94
5303.03	1296								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4204.35	.04	4837.74	.025	5149.28	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4837.74	5149.28	486.65	486.65	486.65	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4204.35	4837.74	1297	5149.28	5303.03	1297

Left Levee Station= 4837.74 Elevation= 1294.97
Right Levee Station= 5206.82 Elevation= 1295.88

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1293.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.025	
E.G. Elev (ft)	1293.58	Reach Len. (ft)	486.65	486.65	486.65
Crit W.S. (ft)	1287.57	Flow Area (sq ft)		2506.64	
E.G. Slope (ft/ft)	0.000206	Area (sq ft)		2506.64	1.64
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	308.91	Top Width (ft)		303.03	5.88
Vel Total (ft/s)	3.47	Avg. Vel. (ft/s)		3.47	
Max Chl Dpth (ft)	9.69	Hydr. Depth (ft)		8.27	
Conv. Total (cfs)	605923.7	Conv. (cfs)		605923.7	
Length Wtd. (ft)	486.65	Wetted Per. (ft)		305.62	
Min Ch El (ft)	1283.70	Shear (lb/sq ft)		0.11	
Alpha	1.00	Stream Power (lb/ft s)		0.37	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	12.26	436.50	15.99
C & E Loss (ft)	0.00	Cum SA (acres)	7.94	61.96	15.80

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1294.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.025	
E.G. Elev (ft)	1295.16	Reach Len. (ft)	486.65	486.65	486.65
Crit W.S. (ft)	1288.34	Flow Area (sq ft)		2973.95	
E.G. Slope (ft/ft)	0.000227	Area (sq ft)		2973.95	25.63
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	342.61	Top Width (ft)		311.36	31.25
Vel Total (ft/s)	4.01	Avg. Vel. (ft/s)		4.01	
Max Chl Dpth (ft)	11.21	Hydr. Depth (ft)		9.55	
Conv. Total (cfs)	790696.1	Conv. (cfs)		790696.1	
Length Wtd. (ft)	486.65	Wetted Per. (ft)		314.34	
Min Ch El (ft)	1283.70	Shear (lb/sq ft)		0.13	
Alpha	1.00	Stream Power (lb/ft s)		0.54	
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	99.36	529.85	62.09

C & E Loss (ft)	0.00	Cum SA (acres)	35.97	64.25	30.16

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1296.18	Element			
Vel Head (ft)	0.34	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.52	Reach Len. (ft)	486.65	486.65	486.65
Crit W.S. (ft)	1289.17	Flow Area (sq ft)		3370.70	
E.G. Slope (ft/ft)	0.000262	Area (sq ft)	307.25	3370.70	122.36
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	701.66	Top Width (ft)	236.37	311.54	153.75
Vel Total (ft/s)	4.68	Avg. Vel. (ft/s)		4.68	
Max Chl Dpth (ft)	12.48	Hydr. Depth (ft)		10.82	
Conv. Total (cfs)	973821.9	Conv. (cfs)		973821.9	
Length Wtd. (ft)	486.65	Wetted Per. (ft)		314.53	
Min Ch El (ft)	1283.70	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.82	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	321.10	642.03	218.91
C & E Loss (ft)	0.01	Cum SA (acres)	79.36	65.71	59.94

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.907

INPUT
Description: Dip Crossing - Begin Transition (Contraction)
Station Elevation Data num= 69

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4258.06	1304.7	4284	1304.54	4307.43	1304.3	4325.11	1304.17	4337.98	1303.95
4353.9	1303.9	4363.64	1303.16	4370.63	1303.73	4389.16	1303.41	4453.98	1302.52
4477.08	1302.4	4491.91	1301.62	4506.05	1301.11	4529.93	1301.47	4540.11	1301.73
4584	1301.2	4615.34	1300.28	4628.15	1300.12	4653.46	1299.5	4685.69	1299.68
4693.25	1298.9	4698.49	1299.98	4703.28	1299.72	4707.36	1299.06	4715.92	1295.88
4718.53	1295	4735.35	1294.12	4756.59	1294.65	4766.62	1294.7	4777.92	1294.42
4780.52	1294.2	4795.89	1293.87	4816.65	1293.93	4837.78	1293.38	4842.64	1292.9
4852.9	1289	4859.18	1287.06	4867.44	1285.16	4884	1284.17	4896.45	1283.89
4917.75	1283.8	4934	1283.99	4940.79	1283.91	4961.77	1283.85	4984	1283.9
5000.65	1283.6	5007.27	1283.6	5034	1283.81	5038.91	1283.74	5059.81	1283.8
5084.01	1283.8	5115.2	1284.3	5128.6	1287.18	5135.39	1289.39	5142.2	1291.92
5147.02	1293.3	5150.97	1293.76	5155.03	1294.56	5190.32	1294.55	5201.65	1294.63
5215.48	1294.5	5222.79	1294.6	5232.73	1294.46	5252.74	1294.76	5265.52	1294.46
5269.85	1293.7	5278.47	1295.61	5299.89	1296.4	5302.67	1296.31		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4258.06	.04	4837.78	.025	5155.03	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4837.78	5155.03	23.56	23.56	23.56	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4258.06	4837.78	1297	5155.03	5302.67	1297

Left Levee Station= 4766.62 Elevation= 1294.7
Right Levee Station= 5155.03 Elevation= 1294.56

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1293.31	Element			
Vel Head (ft)	0.17	Wt. n-Val.		0.025	
E.G. Elev (ft)	1293.48	Reach Len. (ft)	23.56	23.56	23.56
Crit W.S. (ft)	1287.25	Flow Area (sq ft)		2603.08	
E.G. Slope (ft/ft)	0.000186	Area (sq ft)		2603.08	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	308.53	Top Width (ft)		308.53	
Vel Total (ft/s)	3.34	Avg. Vel. (ft/s)		3.34	
Max Chl Dpth (ft)	9.71	Hydr. Depth (ft)		8.44	
Conv. Total (cfs)	637644.8	Conv. (cfs)		637644.8	

Length Wtd. (ft)	23.56	Wetted Per. (ft)		311.12	
Min Ch El (ft)	1283.60	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.32	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	12.26	407.95	15.98
C & E Loss (ft)	0.04	Cum SA (acres)	7.94	58.54	15.76

Warning - The conveyance ratio (upstream 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 OUTPUT Profile #Future

W.S. Elev (ft)	1294.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.025	
E.G. Elev (ft)	1295.05	Reach Len. (ft)	23.56	23.56	23.56
Crit W.S. (ft)	1288.00	Flow Area (sq ft)		3077.74	
E.G. Slope (ft/ft)	0.000208	Area (sq ft)	74.89	3077.74	32.71
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	552.83	Top Width (ft)	115.72	317.25	119.85
Vel Total (ft/s)	3.87	Avg. Vel. (ft/s)		3.87	
Max Chl Dpth (ft)	11.22	Hydr. Depth (ft)		9.70	
Conv. Total (cfs)	827409.5	Conv. (cfs)		827409.5	
Length Wtd. (ft)	23.56	Wetted Per. (ft)		319.95	
Min Ch El (ft)	1283.60	Shear (lb/sq ft)		0.12	
Alpha	1.00	Stream Power (lb/ft s)		0.48	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	98.94	496.04	61.76
C & E Loss (ft)	0.05	Cum SA (acres)	35.33	60.74	29.31

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

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1296.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.39	Reach Len. (ft)	23.56	23.56	23.56
Crit W.S. (ft)	1288.82	Flow Area (sq ft)		3477.41	
E.G. Slope (ft/ft)	0.000242	Area (sq ft)	226.50	3477.41	189.73
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	575.69	Top Width (ft)	122.39	317.25	136.05
Vel Total (ft/s)	4.53	Avg. Vel. (ft/s)		4.53	
Max Chl Dpth (ft)	12.48	Hydr. Depth (ft)		10.96	
Conv. Total (cfs)	1014125.6	Conv. (cfs)		1014125.6	
Length Wtd. (ft)	23.56	Wetted Per. (ft)		319.95	
Min Ch El (ft)	1283.60	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)		0.74	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	318.12	603.78	217.17
C & E Loss (ft)	0.08	Cum SA (acres)	77.36	62.19	58.32

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

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.902

INPUT
Description: Dip Crossing - End Transition and Begin A.C. Pavement
Station Elevation Data num= 57

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4257.78	1305	4284.05	1304.87	4316.03	1304.49	4327.17	1304.11	4334.07	1303.76
4350.51	1304	4384.03	1303.87	4387.66	1303.79	4434.05	1303.14	4443.14	1302.9
4474.47	1302.4	4484.15	1301.72	4521.9	1302.19	4534.05	1302.21	4584.04	1301.59
4623.15	1300.3	4632.11	1299.87	4656.47	1300.08	4676.97	1299.99	4682.61	1300.01
4689.88	1299.2	4695.41	1300.46	4705.51	1299.59	4716.81	1295.26	4735.01	1294.32
4739.3	1294.6	4751.83	1294.18	4773.14	1292.81	4779.63	1291.68	4795.76	1290
4836.08	1286	4843.76	1285.36	4867.42	1284.13	4906.67	1283.66	4945.67	1283.77
4948.44	1283.7	4997.8	1283.74	5024.83	1283.72	5043.45	1283.81	5084.31	1283.76
5085	1283.7	5122.66	1284.26	5123.61	1284.22	5142.1	1285.24	5147.47	1285.8

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 5205.54  1291.2 5213.62  1291.9 5222.76 1293.48 5232.97 1293.73 5236.58    1294
 5256.81  1294.5 5263.57 1294.59 5267.73  1293.7 5275.68 1295.82 5279.83 1295.83
 5301.85  1296.4 5304.17 1296.36

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4257.78     .04  4739.3    .015 5236.58     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        4739.3 5236.58            20.88   20.88   20.88            .3        .5
Left Levee      Station=  4739.3      Elevation=  1294.6
Right Levee     Station= 5263.57      Elevation= 1294.59

CROSS SECTION OUTPUT    Profile #Design

  W.S. Elev (ft)          1293.34  Element                  Left OB    Channel   Right OB
  Vel Head (ft)              0.10  Wt. n-Val.                          0.015
  E.G. Elev (ft)          1293.44  Reach Len. (ft)            20.88    20.88      20.88
  Crit W.S. (ft)          1286.91  Flow Area (sq ft)                 3474.42
  E.G. Slope (ft/ft)     0.000043  Area (sq ft)                      3474.42
  Q Total (cfs)           8700.00  Flow (cfs)                        8700.00
  Top Width (ft)           457.09  Top Width (ft)                     457.09
  Vel Total (ft/s)           2.50  Avg. Vel. (ft/s)                     2.50
  Max Chl Dpth (ft)          9.68  Hydr. Depth (ft)                     7.60
  Conv. Total (cfs)     1328769.6  Conv. (cfs)                     1328769.6
  Length Wtd. (ft)          20.88  Wetted Per. (ft)                   458.02
  Min Ch El (ft)          1283.66  Shear (lb/sq ft)                     0.02
  Alpha                      1.00  Stream Power (lb/ft s)               0.05
  Frctn Loss (ft)            0.00  Cum Volume (acre-ft)       12.26   406.31      15.98
  C & E Loss (ft)            0.00  Cum SA (acres)              7.94    58.33      15.76

Warning - The conveyance ratio (upstream 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 OUTPUT    Profile #Future

  W.S. Elev (ft)          1294.87  Element                  Left OB    Channel   Right OB
  Vel Head (ft)              0.12  Wt. n-Val.                0.040     0.015      0.040
  E.G. Elev (ft)          1294.99  Reach Len. (ft)           20.88     20.88      20.88
  Crit W.S. (ft)          1287.59  Flow Area (sq ft)          4.66   4210.04      20.24
  E.G. Slope (ft/ft)     0.000047  Area (sq ft)               4.66   4210.04      20.24
  Q Total (cfs)          11920.00  Flow (cfs)                 0.55  11915.91       3.54
  Top Width (ft)           547.71  Top Width (ft)            14.90    497.28      35.53
  Vel Total (ft/s)           2.81  Avg. Vel. (ft/s)           0.12      2.83       0.18
  Max Chl Dpth (ft)         11.21  Hydr. Depth (ft)           0.31      8.47       0.57
  Conv. Total (cfs)     1730691.5  Conv. (cfs)                79.5 1730097.5      514.4
  Length Wtd. (ft)          20.88  Wetted Per. (ft)          14.92    498.27      35.78
  Min Ch El (ft)          1283.66  Shear (lb/sq ft)           0.00      0.03       0.00
  Alpha                      1.01  Stream Power (lb/ft s)     0.00      0.07       0.00
  Frctn Loss (ft)            0.00  Cum Volume (acre-ft)      98.92    494.07      61.75
  C & E Loss (ft)            0.00  Cum SA (acres)            35.29     60.51      29.27

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.

CROSS SECTION OUTPUT    Profile #Existing

  W.S. Elev (ft)          1296.15  Element                  Left OB    Channel   Right OB
  Vel Head (ft)              0.16  Wt. n-Val.                0.040     0.015      0.040
  E.G. Elev (ft)          1296.31  Reach Len. (ft)           20.88     20.88      20.88
  Crit W.S. (ft)          1288.31  Flow Area (sq ft)         33.05   4848.03      72.05
  E.G. Slope (ft/ft)     0.000052  Area (sq ft)              33.05   4848.03      72.05
  Q Total (cfs)          15770.00  Flow (cfs)                10.63  15736.61      22.76
  Top Width (ft)           577.74  Top Width (ft)            24.81    497.28      55.64
  Vel Total (ft/s)           3.18  Avg. Vel. (ft/s)           0.32      3.25       0.32
  Max Chl Dpth (ft)         12.49  Hydr. Depth (ft)           1.33      9.75       1.29
  Conv. Total (cfs)     2193425.5  Conv. (cfs)              1478.7 2188781.8     3165.1
  Length Wtd. (ft)          20.88  Wetted Per. (ft)          25.01    498.27      56.02
```

Min Ch El (ft)	1283.66	Shear (lb/sq ft)	0.00	0.03	0.00
Alpha	1.04	Stream Power (lb/ft s)	0.00	0.10	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	318.05	601.53	217.10
C & E Loss (ft)	0.00	Cum SA (acres)	77.32	61.97	58.27

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.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.898

INPUT
Description: Dip Crossing - Begin Transition (Expansion), Begin Loose Riprap and End A.C.
Station Elevation Data num= 56

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4255.58	1305.1	4259.79	1305.05	4284.08	1305.17	4303.17	1304.86	4311.93	1304.16
4327.18	1304.4	4343.13	1304.58	4384.07	1304.34	4408.61	1303.79	4434.07	1303.43
4449.91	1302.8	4474.56	1302.27	4479.08	1302.44	4489.6	1302.25	4534.08	1302.31
4559.27	1302	4584.08	1301.61	4615.51	1300.64	4621.72	1300.59	4631.76	1300.33
4647.31	1300.5	4677.02	1300.53	4680.82	1300.38	4687.18	1299.54	4693.4	1300.72
4704.1	1299.9	4716.23	1295.36	4739.47	1294.88	4751.88	1294.65	4763.07	1294.04
4770.7	1293.3	4776.92	1292.39	4790.61	1291.13	4813.98	1288.24	4845.98	1284.71
4876.57	1283.8	4904.57	1283.53	4945.37	1283.62	4993.16	1283.5	5023.23	1283.61
5085.26	1283.5	5117.3	1283.68	5128.9	1284	5151.91	1285.92	5157.36	1286.66
5179.04	1288.9	5206.01	1291.67	5215.53	1292.4	5223.91	1293.16	5227.09	1293.74
5248.1	1293.9	5261.42	1294.66	5265.59	1293.75	5273.56	1296	5302.37	1296.42
5304.94	1296.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4255.58	.04	4751.88	.03	5227.09	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4751.88	5227.09	23.07	23.07	23.07	.3	.5

Left Levee Station= 4751.88 Elevation= 1294.65
Right Levee Station= 5227.09 Elevation= 1293.74

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1293.34	Element			
Vel Head (ft)	0.09	Wt. n-Val.		0.030	
E.G. Elev (ft)	1293.44	Reach Len. (ft)	23.07	23.07	23.07
Crit W.S. (ft)	1286.68	Flow Area (sq ft)		3520.30	
E.G. Slope (ft/ft)	0.000163	Area (sq ft)		3520.30	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	454.63	Top Width (ft)		454.63	
Vel Total (ft/s)	2.47	Avg. Vel. (ft/s)		2.47	
Max Chl Dpth (ft)	9.84	Hydr. Depth (ft)		7.74	
Conv. Total (cfs)	681458.6	Conv. (cfs)		681458.6	
Length Wtd. (ft)	23.07	Wetted Per. (ft)		455.62	
Min Ch El (ft)	1283.50	Shear (lb/sq ft)		0.08	
Alpha	1.00	Stream Power (lb/ft s)		0.19	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	12.26	404.63	15.98
C & E Loss (ft)	0.02	Cum SA (acres)	7.94	58.12	15.76

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1294.87	Element			
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.030	0.040
E.G. Elev (ft)	1294.99	Reach Len. (ft)	23.07	23.07	23.07
Crit W.S. (ft)	1287.36	Flow Area (sq ft)	1.27	4230.94	34.78
E.G. Slope (ft/ft)	0.000175	Area (sq ft)	1.27	4230.94	34.78
Q Total (cfs)	11920.00	Flow (cfs)	0.14	11904.94	14.92
Top Width (ft)	529.36	Top Width (ft)	11.70	475.21	42.46
Vel Total (ft/s)	2.79	Avg. Vel. (ft/s)	0.11	2.81	0.43
Max Chl Dpth (ft)	11.37	Hydr. Depth (ft)	0.11	8.90	0.82
Conv. Total (cfs)	899999.9	Conv. (cfs)	10.7	898863.0	1126.2

Length Wtd. (ft)	23.07	Wetted Per. (ft)	11.70	476.28	42.73
Min Ch El (ft)	1283.50	Shear (lb/sq ft)	0.00	0.10	0.01
Alpha	1.01	Stream Power (lb/ft s)	0.00	0.27	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	98.91	492.05	61.74
C & E Loss (ft)	0.03	Cum SA (acres)	35.29	60.28	29.25

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1296.15	Element			
Vel Head (ft)	0.16	Wt. n-Val.	0.040	0.030	0.040
E.G. Elev (ft)	1296.31	Reach Len. (ft)	23.07	23.07	23.07
Crit W.S. (ft)	1288.08	Flow Area (sq ft)	41.94	4840.50	92.88
E.G. Slope (ft/ft)	0.000194	Area (sq ft)	41.94	4840.50	92.88
Q Total (cfs)	15770.00	Flow (cfs)	23.23	15680.30	66.47
Top Width (ft)	569.70	Top Width (ft)	37.76	475.21	56.73
Vel Total (ft/s)	3.17	Avg. Vel. (ft/s)	0.55	3.24	0.72
Max Chl Dpth (ft)	12.65	Hydr. Depth (ft)	1.11	10.19	1.64
Conv. Total (cfs)	1131339.6	Conv. (cfs)	1666.6	1124904.3	4768.8
Length Wtd. (ft)	23.07	Wetted Per. (ft)	37.91	476.28	57.16
Min Ch El (ft)	1283.50	Shear (lb/sq ft)	0.01	0.12	0.02
Alpha	1.04	Stream Power (lb/ft s)	0.01	0.40	0.01
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	318.03	599.21	217.06
C & E Loss (ft)	0.04	Cum SA (acres)	77.31	61.74	58.24

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.894

INPUT
Description: Dip Crossing - End Transition and End Loose Riprap
Station Elevation Data num= 59

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4256.47	1305.4	4284.11	1305.49	4300.08	1305.44	4306.71	1304.88	4310.94	1304.79
4335.01	1305.1	4384.11	1304.86	4434.1	1303.76	4460.31	1302.7	4474.81	1303.01
4483.67	1303.3	4530.27	1302.41	4536.28	1302.39	4584.12	1301.63	4595.95	1301.2
4637.62	1300.9	4678.48	1300.73	4684.26	1299.93	4690.81	1301.68	4696.89	1300.55
4705.57	1300.3	4719.67	1296.01	4721.65	1295.62	4734.62	1295.13	4739.81	1295.6
4747.5	1295.7	4759.23	1295.98	4770.68	1295.3	4783.36	1295.2	4806.82	1294.27
4815.4	1294.2	4828.63	1293.42	4834.44	1293.23	4841.73	1291.6	4865.52	1284.43
4867.21	1284.1	4885.37	1284.02	4934.71	1284.07	4984.59	1283.8	5000.86	1283.61
5084.17	1283.5	5114.75	1283.54	5131.6	1288.17	5140.81	1290.92	5144.4	1292.47
5147.9	1293.6	5156.34	1294.48	5165.87	1294.63	5188.94	1294.64	5196.69	1294.45
5203.98	1294.5	5213.46	1294.05	5247.82	1294.23	5259.31	1294.48	5263.79	1293.67
5271.32	1295.9	5284.89	1296.01	5302.23	1296.44	5307.9	1296.12		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4256.47	.04	4815.4	.025	5165.87	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4815.4	5165.87	177.43	177.43	177.43	.1	.3

Left Levee Station= 4815.4 Elevation= 1294.2
Right Levee Station= 5165.87 Elevation= 1294.63

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1293.24	Element			
Vel Head (ft)	0.17	Wt. n-Val.		0.025	
E.G. Elev (ft)	1293.41	Reach Len. (ft)	177.43	177.43	177.43
Crit W.S. (ft)	1287.08	Flow Area (sq ft)		2655.51	
E.G. Slope (ft/ft)	0.000177	Area (sq ft)		2655.51	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	312.79	Top Width (ft)		312.79	
Vel Total (ft/s)	3.28	Avg. Vel. (ft/s)		3.28	
Max Chl Dpth (ft)	9.74	Hydr. Depth (ft)		8.49	
Conv. Total (cfs)	653033.7	Conv. (cfs)		653033.7	
Length Wtd. (ft)	177.43	Wetted Per. (ft)		315.53	
Min Ch El (ft)	1283.50	Shear (lb/sq ft)		0.09	
Alpha	1.00	Stream Power (lb/ft s)		0.31	

Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	12.26	403.00	15.98
C & E Loss (ft)	0.00	Cum SA (acres)	7.94	57.91	15.76

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1294.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1294.96	Reach Len. (ft)	177.43	177.43	177.43
Crit W.S. (ft)	1287.83	Flow Area (sq ft)	6.99	3150.21	39.60
E.G. Slope (ft/ft)	0.000219	Area (sq ft)	6.99	3150.21	39.60
Q Total (cfs)	11920.00	Flow (cfs)	1.89	11906.51	11.60
Top Width (ft)	472.26	Top Width (ft)	20.28	350.47	101.51
Vel Total (ft/s)	3.73	Avg. Vel. (ft/s)	0.27	3.78	0.29
Max Chl Dpth (ft)	11.23	Hydr. Depth (ft)	0.34	8.99	0.39
Conv. Total (cfs)	805970.8	Conv. (cfs)	127.7	805058.8	784.3
Length Wtd. (ft)	177.43	Wetted Per. (ft)	20.29	353.34	101.76
Min Ch El (ft)	1283.50	Shear (lb/sq ft)	0.00	0.12	0.01
Alpha	1.03	Stream Power (lb/ft s)	0.00	0.46	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	98.91	490.10	61.72
C & E Loss (ft)	0.00	Cum SA (acres)	35.28	60.06	29.22

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1295.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1296.27	Reach Len. (ft)	177.43	177.43	177.43
Crit W.S. (ft)	1288.65	Flow Area (sq ft)	72.57	3585.82	168.74
E.G. Slope (ft/ft)	0.000244	Area (sq ft)	72.57	3585.82	168.74
Q Total (cfs)	15770.00	Flow (cfs)	38.35	15605.46	126.19
Top Width (ft)	560.77	Top Width (ft)	95.38	350.47	114.92
Vel Total (ft/s)	4.12	Avg. Vel. (ft/s)	0.53	4.35	0.75
Max Chl Dpth (ft)	12.48	Hydr. Depth (ft)	0.76	10.23	1.47
Conv. Total (cfs)	1009555.2	Conv. (cfs)	2455.0	999022.1	8078.1
Length Wtd. (ft)	177.43	Wetted Per. (ft)	95.48	353.34	115.34
Min Ch El (ft)	1283.50	Shear (lb/sq ft)	0.01	0.15	0.02
Alpha	1.10	Stream Power (lb/ft s)	0.01	0.67	0.02
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	318.00	596.97	216.99
C & E Loss (ft)	0.00	Cum SA (acres)	77.27	61.52	58.20

Warning - Divided flow computed for this cross-section.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.86

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4258.21	1308.1	4274.64	1307.91	4284.41	1307.9	4319.71	1306.87	4331.45	1307.07
4344.72	1307.4	4356.12	1307.19	4384.42	1306.99	4409.47	1306.4	4434.42	1306.02
4462.31	1305.4	4473.11	1305.11	4485.48	1305.09	4494	1304.76	4524.46	1304.22
4533.21	1304.3	4548.23	1303.91	4555.18	1303.55	4558.55	1303.57	4578.53	1302.86
4611.36	1302.2	4636.31	1302.23	4655.5	1301.94	4667.47	1301.93	4684.42	1302.16
4712.96	1301.8	4729.8	1301.71	4738.34	1301.2	4747.33	1301.92	4755.99	1301.12
4764.93	1301.6	4795.52	1301.09	4804.21	1299.43	4811	1299.26	4817.15	1299.35
4818.66	1300.2	4820.87	1300.37	4825.85	1299.92	4858.72	1287.77	4866.5	1284.68
4870.17	1284.2	4884.42	1283.61	4923.35	1283.86	4936.81	1283.81	4964.78	1284.08
4976.74	1284.4	4984.58	1284.21	4993.8	1283.58	5004.82	1283.94	5021.45	1284.03
5034.42	1284	5058.27	1283.71	5084.42	1283.49	5116.42	1283.5	5131.02	1288.26
5148.75	1293.5	5152.48	1294.65	5161.74	1295.11	5183.36	1294.96	5186.3	1294.27
5196.9	1296.9	5201.32	1296.31	5231.09	1296.34	5243.54	1296.05	5278.56	1296.11

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4258.21	.04	4825.85	.025	5161.74	.04

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

4825.85 5161.74 500 500 500 .1 .3

Left Levee Station= 4825.85 Elevation= 1299.92

Right Levee Station= 5196.9 Elevation= 1296.9

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1293.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.		0.025	
E.G. Elev (ft)	1293.38	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1287.13	Flow Area (sq ft)		2584.41	
E.G. Slope (ft/ft)	0.000187	Area (sq ft)		2584.41	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	303.72	Top Width (ft)		303.72	
Vel Total (ft/s)	3.37	Avg. Vel. (ft/s)		3.37	
Max Chl Dpth (ft)	9.71	Hydr. Depth (ft)		8.51	
Conv. Total (cfs)	635903.0	Conv. (cfs)		635903.0	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		306.83	
Min Ch El (ft)	1283.49	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.33	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	12.26	392.33	15.98
C & E Loss (ft)	0.00	Cum SA (acres)	7.94	56.66	15.76

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1294.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.025	0.040
E.G. Elev (ft)	1294.92	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1287.90	Flow Area (sq ft)		3038.84	0.68
E.G. Slope (ft/ft)	0.000213	Area (sq ft)		3038.84	0.68
Q Total (cfs)	11920.00	Flow (cfs)		11919.87	0.13
Top Width (ft)	316.35	Top Width (ft)		312.98	3.37
Vel Total (ft/s)	3.92	Avg. Vel. (ft/s)		3.92	0.18
Max Chl Dpth (ft)	11.19	Hydr. Depth (ft)		9.71	0.20
Conv. Total (cfs)	815808.8	Conv. (cfs)		815800.2	8.6
Length Wtd. (ft)	500.00	Wetted Per. (ft)		316.58	3.47
Min Ch El (ft)	1283.49	Shear (lb/sq ft)		0.13	0.00
Alpha	1.00	Stream Power (lb/ft s)		0.50	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	98.90	477.49	61.64
C & E Loss (ft)	0.00	Cum SA (acres)	35.24	58.71	29.00

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1295.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.		0.025	0.040
E.G. Elev (ft)	1296.22	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1288.72	Flow Area (sq ft)		3430.05	27.59
E.G. Slope (ft/ft)	0.000262	Area (sq ft)		3430.05	27.59
Q Total (cfs)	15770.00	Flow (cfs)		15754.77	15.23
Top Width (ft)	356.09	Top Width (ft)		324.99	31.10
Vel Total (ft/s)	4.56	Avg. Vel. (ft/s)		4.59	0.55
Max Chl Dpth (ft)	12.40	Hydr. Depth (ft)		10.55	0.89
Conv. Total (cfs)	974247.4	Conv. (cfs)		973306.7	940.8
Length Wtd. (ft)	500.00	Wetted Per. (ft)		328.82	31.38
Min Ch El (ft)	1283.49	Shear (lb/sq ft)		0.17	0.01
Alpha	1.01	Stream Power (lb/ft s)		0.78	0.01
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	317.85	582.69	216.59
C & E Loss (ft)	0.00	Cum SA (acres)	77.08	60.15	57.90

CROSS SECTION RIVER: EMF

REACH: Reach 2 RS: 6.766

INPUT

Description:

Station Elevation Data num= 62

Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

4226.12	1313.6	4237.6	1313.32	4264.84	1313.47	4272.04	1313.38	4288.34	1312.83
4319.57	1312.3	4336.87	1311.96	4339.78	1310.63	4342.06	1311.1	4354.64	1311.56
4367.7	1310.9	4374.26	1312.33	4381.82	1311.38	4383.7	1310.95	4409.22	1310.88
4428.67	1310.7	4441.71	1310.21	4468.74	1309.6	4485.29	1309.43	4511.83	1309.45
4523.81	1309.3	4538.17	1308.4	4566.74	1307.95	4576.59	1307.21	4590.43	1307.87
4600.9	1307.9	4608.1	1307.55	4636.92	1307.83	4643.89	1307.75	4667.24	1307.01
4683.39	1306.7	4690.01	1306.7	4735.29	1305.71	4778.2	1304.41	4787.47	1304.17
4796.66	1303.1	4801.38	1304.61	4817.19	1304.96	4828.95	1300.3	4869.17	1284.26
4885.29	1283.7	4909.33	1283.76	4935.29	1283.66	4970.12	1283.78	4982.5	1283.74
4994.25	1283.5	5003	1283.84	5035.28	1283.95	5085.29	1283.79	5118.73	1283.88
5126.38	1286.7	5158.95	1298.57	5169.13	1298.39	5173.86	1297.94	5177.05	1297.25
5190.17	1300.7	5199.5	1300.47	5208.16	1300.43	5218.94	1300.19	5235.29	1300.39
5258.74	1300.5	5276.51	1300.38						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4226.12	.04	4817.19	.025	5158.95	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4817.19	5158.95	500	500	500	.1	.3

Left Levee Station= 4817.19 Elevation= 1304.96
Right Levee Station= 5158.95 Elevation= 1298.57

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1293.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.		0.025	
E.G. Elev (ft)	1293.28	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1287.11	Flow Area (sq ft)		2534.40	
E.G. Slope (ft/ft)	0.000194	Area (sq ft)		2534.40	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	296.93	Top Width (ft)		296.93	
Vel Total (ft/s)	3.43	Avg. Vel. (ft/s)		3.43	
Max Chl Dpth (ft)	9.60	Hydr. Depth (ft)		8.54	
Conv. Total (cfs)	624447.6	Conv. (cfs)		624447.6	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		300.28	
Min Ch El (ft)	1283.50	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.35	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	12.26	362.95	15.98
C & E Loss (ft)	0.00	Cum SA (acres)	7.94	53.21	15.76

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1294.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.025	
E.G. Elev (ft)	1294.81	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1287.89	Flow Area (sq ft)		2972.62	
E.G. Slope (ft/ft)	0.000222	Area (sq ft)		2972.62	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	304.58	Top Width (ft)		304.58	
Vel Total (ft/s)	4.01	Avg. Vel. (ft/s)		4.01	
Max Chl Dpth (ft)	11.06	Hydr. Depth (ft)		9.76	
Conv. Total (cfs)	800100.9	Conv. (cfs)		800100.9	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		308.47	
Min Ch El (ft)	1283.50	Shear (lb/sq ft)		0.13	
Alpha	1.00	Stream Power (lb/ft s)		0.54	
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	98.90	442.99	61.63
C & E Loss (ft)	0.00	Cum SA (acres)	35.24	55.17	28.98

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1295.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.		0.025	
E.G. Elev (ft)	1296.08	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1288.71	Flow Area (sq ft)		3336.04	
E.G. Slope (ft/ft)	0.000272	Area (sq ft)		3336.04	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	310.79	Top Width (ft)		310.79	

Vel Total (ft/s)	4.73	Avg. Vel. (ft/s)		4.73	
Max Chl Dpth (ft)	12.24	Hydr. Depth (ft)		10.73	
Conv. Total (cfs)	956021.4	Conv. (cfs)		956021.4	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		315.11	
Min Ch El (ft)	1283.50	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.85	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	317.85	543.85	216.43
C & E Loss (ft)	0.00	Cum SA (acres)	77.08	56.50	57.72

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.671

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4226.12	1315.1	4244.65	1314.94	4251.34	1314.74	4266.87	1314.5	4272.86	1314.49
4286.17	1314.3	4317.23	1313.43	4342.25	1312.92	4360.28	1312.19	4369.63	1311.97
4384.12	1311.4	4403	1311.25	4413.28	1311.12	4429.22	1311.13	4441.94	1310.36
4452.03	1310.4	4477.16	1310.24	4483.84	1310.26	4513.58	1309.79	4532.46	1309.31
4536.13	1308.2	4541.39	1308.64	4552.63	1308.76	4565.54	1308.11	4569.39	1308.85
4571.66	1308.9	4574.01	1308.48	4582.63	1308.82	4586.78	1308.27	4591.44	1308.03
4608.12	1307.7	4632.33	1307.43	4640.83	1307.43	4660.32	1307.18	4668.61	1306.67
4674.09	1306.9	4678.86	1307.32	4687.39	1306.04	4703.39	1305.63	4722.83	1305.25
4755.24	1305	4785.02	1304.53	4794.85	1303.46	4801.21	1305.34	4814.83	1305.66
4870.73	1283.7	4886.14	1283.52	4912.1	1283.5	4936.15	1283.41	4975.31	1283.76
4987.12	1283.7	5000.84	1283.45	5036.14	1283.6	5059.92	1283.53	5105.66	1283.56
5117.39	1283.5	5159.2	1298.95	5173.08	1298.49	5176.67	1297.71	5189.42	1300.97
5193.36	1300.7	5217.37	1301.06	5236.15	1301.11	5262.69	1300.89	5277.05	1300.97

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4226.12	.04	4814.83	.025	5159.2	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4814.83	5159.2	500	500	500	.1	.3

Left Levee Station= 4814.83 Elevation= 1305.66
Right Levee Station= 5159.2 Elevation= 1298.95

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1293.01	Element			
Vel Head (ft)	0.18	Wt. n-Val.		0.025	
E.G. Elev (ft)	1293.19	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1286.90	Flow Area (sq ft)		2564.74	
E.G. Slope (ft/ft)	0.000186	Area (sq ft)		2564.74	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	296.08	Top Width (ft)		296.08	
Vel Total (ft/s)	3.39	Avg. Vel. (ft/s)		3.39	
Max Chl Dpth (ft)	9.60	Hydr. Depth (ft)		8.66	
Conv. Total (cfs)	637995.4	Conv. (cfs)		637995.4	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		299.55	
Min Ch El (ft)	1283.41	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.34	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	12.26	333.68	15.98
C & E Loss (ft)	0.00	Cum SA (acres)	7.94	49.81	15.76

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1294.45	Element			
Vel Head (ft)	0.25	Wt. n-Val.		0.025	
E.G. Elev (ft)	1294.70	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1287.65	Flow Area (sq ft)		2997.38	
E.G. Slope (ft/ft)	0.000215	Area (sq ft)		2997.38	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	303.66	Top Width (ft)		303.66	
Vel Total (ft/s)	3.98	Avg. Vel. (ft/s)		3.98	
Max Chl Dpth (ft)	11.04	Hydr. Depth (ft)		9.87	

Conv. Total (cfs)	812669.8	Conv. (cfs)			812669.8	
Length Wtd. (ft)	500.00	Wetted Per. (ft)			307.66	
Min Ch El (ft)	1283.41	Shear (lb/sq ft)			0.13	
Alpha	1.00	Stream Power (lb/ft s)			0.52	
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		98.90	408.73	61.63
C & E Loss (ft)	0.00	Cum SA (acres)		35.24	51.68	28.98

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1295.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.025	
E.G. Elev (ft)	1295.95	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1288.47	Flow Area (sq ft)		3351.57	
E.G. Slope (ft/ft)	0.000267	Area (sq ft)		3351.57	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	309.72	Top Width (ft)		309.72	
Vel Total (ft/s)	4.71	Avg. Vel. (ft/s)		4.71	
Max Chl Dpth (ft)	12.19	Hydr. Depth (ft)		10.82	
Conv. Total (cfs)	965418.4	Conv. (cfs)		965418.4	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		314.15	
Min Ch El (ft)	1283.41	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.84	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	317.85	505.47	216.43
C & E Loss (ft)	0.00	Cum SA (acres)	77.08	52.94	57.72

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.576

INPUT
Description:
Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4226.13	1313.1	4239.44	1312.29	4253.45	1312.73	4261.4	1312.42	4284.39	1312.02
4303.94	1311.1	4314.65	1311.18	4322.41	1311.65	4337.01	1311.62	4362	1311.95
4387.01	1312.1	4411.9	1311.1	4454.12	1310.56	4469.48	1310.4	4498.65	1309.95
4531.46	1309.8	4550.1	1309.59	4562.46	1309.38	4574.59	1308.9	4584.74	1308.28
4596.61	1308.5	4604.38	1308.59	4616.12	1308.4	4625.26	1308.12	4647.93	1307.96
4661.37	1307.7	4677.74	1307.36	4697.74	1307.18	4704	1306.49	4707.15	1305.6
4710.5	1306.5	4723.48	1306.75	4736.01	1306.61	4738.96	1307.36	4745.16	1306.61
4750.97	1306.6	4761.62	1306.07	4772.09	1305.7	4782.76	1305.62	4787.62	1305.69
4796.99	1303.6	4802.47	1305.19	4814.66	1305.22	4868.87	1284	4887.01	1283.45
4912.97	1283.6	4937.01	1283.6	4988.74	1283.77	4998.92	1283.27	5007.88	1283.37
5037	1283.5	5100.66	1283.62	5116.26	1283.61	5159.22	1298.64	5173.04	1298.57
5176.64	1297.4	5188.6	1300.26	5221.62	1300.6	5237.01	1300.66	5263.56	1300.38
5287	1300.2	5313.41	1300.23	5337.62	1300.34	5362.87	1300.4		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4226.13	.04	4814.66	.025	5159.22	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4814.66	5159.22	351.46	351.46	351.46	.1	.3

Left Levee Station= 4814.66 Elevation= 1305.22
Right Levee Station= 5159.22 Elevation= 1298.64

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1292.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.		0.025	
E.G. Elev (ft)	1293.09	Reach Len. (ft)	351.46	351.46	351.46
Crit W.S. (ft)	1286.91	Flow Area (sq ft)		2533.04	
E.G. Slope (ft/ft)	0.000194	Area (sq ft)		2533.04	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	296.72	Top Width (ft)		296.72	
Vel Total (ft/s)	3.43	Avg. Vel. (ft/s)		3.43	
Max Chl Dpth (ft)	9.64	Hydr. Depth (ft)		8.54	
Conv. Total (cfs)	624276.9	Conv. (cfs)		624276.9	
Length Wtd. (ft)	351.46	Wetted Per. (ft)		300.00	

Min Ch El (ft)	1283.27	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.35	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	12.26	304.43	15.98
C & E Loss (ft)	0.01	Cum SA (acres)	7.94	46.40	15.76

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1294.33	Element			
Vel Head (ft)	0.25	Wt. n-Val.		0.025	
E.G. Elev (ft)	1294.58	Reach Len. (ft)	351.46	351.46	351.46
Crit W.S. (ft)	1287.69	Flow Area (sq ft)		2961.67	
E.G. Slope (ft/ft)	0.000224	Area (sq ft)		2961.67	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	304.44	Top Width (ft)		304.44	
Vel Total (ft/s)	4.02	Avg. Vel. (ft/s)		4.02	
Max Chl Dpth (ft)	11.06	Hydr. Depth (ft)		9.73	
Conv. Total (cfs)	795606.9	Conv. (cfs)		795606.9	
Length Wtd. (ft)	351.46	Wetted Per. (ft)		308.23	
Min Ch El (ft)	1283.27	Shear (lb/sq ft)		0.13	
Alpha	1.00	Stream Power (lb/ft s)		0.54	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	98.90	374.53	61.63
C & E Loss (ft)	0.01	Cum SA (acres)	35.24	48.19	28.98

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1295.46	Element			
Vel Head (ft)	0.35	Wt. n-Val.		0.025	
E.G. Elev (ft)	1295.81	Reach Len. (ft)	351.46	351.46	351.46
Crit W.S. (ft)	1288.51	Flow Area (sq ft)		3307.66	
E.G. Slope (ft/ft)	0.000280	Area (sq ft)		3307.66	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	310.53	Top Width (ft)		310.53	
Vel Total (ft/s)	4.77	Avg. Vel. (ft/s)		4.77	
Max Chl Dpth (ft)	12.19	Hydr. Depth (ft)		10.65	
Conv. Total (cfs)	943269.4	Conv. (cfs)		943269.4	
Length Wtd. (ft)	351.46	Wetted Per. (ft)		314.73	
Min Ch El (ft)	1283.27	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.87	
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	317.85	467.25	216.43
C & E Loss (ft)	0.01	Cum SA (acres)	77.08	49.38	57.72

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.510

INPUT
Description: Begin Transition (Contraction)
Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4231.72	1312.4	4236.81	1312.25	4262.65	1311.84	4290.08	1311.06	4296.49	1310.83
4332.02	1309.9	4353.45	1309.68	4357.14	1309.55	4375.38	1308.07	4381.2	1307.96
4394.61	1307.9	4416.19	1306.83	4438.36	1305.96	4448.12	1306.05	4469.9	1305.72
4480.38	1305.5	4499.96	1305.03	4512.62	1305.02	4523.59	1305.07	4549.33	1304.55
4565.33	1304.2	4575.59	1304.12	4601.46	1303.24	4618.69	1303.09	4636.76	1302.84
4656.06	1302.2	4663.44	1302.15	4670.93	1302.39	4684.62	1302.53	4688.29	1302.32
4696.62	1302.3	4707.06	1301.43	4709.19	1302.19	4711.74	1302.48	4730.64	1303.1
4745.57	1303.3	4759.1	1303.29	4764.81	1303.08	4767.07	1301.5	4769.35	1301.96
4778.86	1302.4	4788.66	1302.45	4792.16	1304.02	4795.46	1302.66	4797.54	1302.32
4802.24	1300.8	4806.81	1302.04	4811.98	1302.22	4820.18	1301.78	4834.53	1295.51
4846.65	1290.5	4854	1288.03	4866.04	1283.74	4868.31	1283.54	4884.96	1283.45
4892.65	1283.3	4942.7	1283.26	4979.03	1283.29	5003.47	1283.14	5011.44	1283.13
5037.6	1283.3	5065.28	1283.29	5087.61	1283.23	5115.93	1283.27	5122.33	1284.57
5130.83	1287	5141.85	1290.88	5156.48	1297.25	5169.97	1297.11	5174.39	1296.62
5189.49	1299.8	5198.71	1300.18	5214.9	1300.46	5237.61	1300.37	5337.61	1300.3
5365.8	1300.3	5387.6	1300.11	5412.63	1300.16				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

4231.72 .04 4820.18 .03 5156.48 .04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4820.18	5156.48	123.49	123.49	123.49	.3	.5

Left Levee Station= 4820.18 Elevation= 1301.78
Right Levee Station= 5156.48 Elevation= 1297.25

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1292.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.		0.030	
E.G. Elev (ft)	1293.01	Reach Len. (ft)	123.49	123.49	123.49
Crit W.S. (ft)	1286.57	Flow Area (sq ft)		2671.59	
E.G. Slope (ft/ft)	0.000243	Area (sq ft)		2671.59	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	305.38	Top Width (ft)		305.38	
Vel Total (ft/s)	3.26	Avg. Vel. (ft/s)		3.26	
Max Chl Dpth (ft)	9.71	Hydr. Depth (ft)		8.75	
Conv. Total (cfs)	557968.5	Conv. (cfs)		557968.5	
Length Wtd. (ft)	123.49	Wetted Per. (ft)		308.55	
Min Ch El (ft)	1283.13	Shear (lb/sq ft)		0.13	
Alpha	1.00	Stream Power (lb/ft s)		0.43	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	12.26	283.43	15.98
C & E Loss (ft)	0.06	Cum SA (acres)	7.94	43.98	15.76

Warning - The conveyance ratio (upstream 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 OUTPUT Profile #Future

W.S. Elev (ft)	1294.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.		0.030	
E.G. Elev (ft)	1294.49	Reach Len. (ft)	123.49	123.49	123.49
Crit W.S. (ft)	1287.33	Flow Area (sq ft)		3109.05	
E.G. Slope (ft/ft)	0.000284	Area (sq ft)		3109.05	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	312.06	Top Width (ft)		312.06	
Vel Total (ft/s)	3.83	Avg. Vel. (ft/s)		3.83	
Max Chl Dpth (ft)	11.13	Hydr. Depth (ft)		9.96	
Conv. Total (cfs)	707358.5	Conv. (cfs)		707358.5	
Length Wtd. (ft)	123.49	Wetted Per. (ft)		315.81	
Min Ch El (ft)	1283.13	Shear (lb/sq ft)		0.17	
Alpha	1.00	Stream Power (lb/ft s)		0.67	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	98.90	350.04	61.63
C & E Loss (ft)	0.08	Cum SA (acres)	35.24	45.70	28.98

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

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1295.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.030	
E.G. Elev (ft)	1295.69	Reach Len. (ft)	123.49	123.49	123.49
Crit W.S. (ft)	1288.15	Flow Area (sq ft)		3457.60	
E.G. Slope (ft/ft)	0.000357	Area (sq ft)		3457.60	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	317.29	Top Width (ft)		317.29	
Vel Total (ft/s)	4.56	Avg. Vel. (ft/s)		4.56	
Max Chl Dpth (ft)	12.24	Hydr. Depth (ft)		10.90	
Conv. Total (cfs)	834443.1	Conv. (cfs)		834443.1	
Length Wtd. (ft)	123.49	Wetted Per. (ft)		321.48	
Min Ch El (ft)	1283.13	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.09	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	317.85	439.96	216.43
C & E Loss (ft)	0.12	Cum SA (acres)	77.08	46.84	57.72

Warning - The conveyance ratio (upstream 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: EMF
REACH: Reach 2 RS: 6.486

INPUT
Description: End Transition and Begin Loose Riprap
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4182.65	1312.7	4187.17	1312.7	4213.28	1312.07	4237.2	1311.69	4258.38	1312.06
4282.13	1311.5	4294.3	1310.96	4323.33	1310.73	4351.32	1309.54	4381.85	1308.95
4387.27	1308.8	4404.68	1308.67	4424.1	1309.03	4434.81	1308.79	4442.42	1307.96
4449.6	1307.4	4461.05	1308.06	4476.16	1307.58	4487.3	1307.4	4522.4	1306.69
4537.33	1306.5	4573.91	1306.06	4600.03	1305.57	4637.38	1305.11	4648.64	1305.17
4687.39	1304	4728.45	1303.39	4737.4	1303.13	4748.66	1303.33	4760.68	1303.41
4769.67	1302.9	4771.73	1301.7	4774.71	1302.32	4786.5	1302.58	4797.11	1302.3
4799.52	1302.6	4801.42	1302.12	4823.11	1302.03	4833.39	1302.2	4839.93	1301.97
4847.25	1300.6	4856.72	1300.91	4870.32	1300.8	4887.53	1293.08	4906.7	1283.55
4929.39	1283.1	4937.49	1282.99	4987.73	1282.97	4997.64	1282.91	5037.62	1283.01
5077.91	1283.2	5109.8	1296.75	5124.74	1296.38	5127.92	1295.55	5141.67	1300.4
5143.27	1300.3	5168.29	1300.21	5178.4	1300.39	5187.18	1300.25	5227.09	1300.26
5243.63	1300.2	5295.16	1300.22	5337.66	1300.3	5377.77	1300.34	5387.68	1300.4
5415.32	1300.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4182.65	.04	4870.32	.03	5109.8	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4870.32	5109.8	650	516.83	270	.1	.3

Left Levee Station= 4870.32 Elevation= 1300.8
Right Levee Station= 5109.8 Elevation= 1296.75

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1292.55	Element			
Vel Head (ft)	0.36	Wt. n-Val.		0.030	
E.G. Elev (ft)	1292.91	Reach Len. (ft)	650.00	516.83	270.00
Crit W.S. (ft)	1287.29	Flow Area (sq ft)		1810.28	
E.G. Slope (ft/ft)	0.000551	Area (sq ft)		1810.28	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	211.31	Top Width (ft)		211.31	
Vel Total (ft/s)	4.81	Avg. Vel. (ft/s)		4.81	
Max Chl Dpth (ft)	9.64	Hydr. Depth (ft)		8.57	
Conv. Total (cfs)	370714.9	Conv. (cfs)		370714.9	
Length Wtd. (ft)	516.83	Wetted Per. (ft)		215.33	
Min Ch El (ft)	1282.91	Shear (lb/sq ft)		0.29	
Alpha	1.00	Stream Power (lb/ft s)		1.39	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	12.26	277.08	15.98
C & E Loss (ft)	0.00	Cum SA (acres)	7.94	43.24	15.76

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1293.85	Element			
Vel Head (ft)	0.51	Wt. n-Val.		0.030	
E.G. Elev (ft)	1294.35	Reach Len. (ft)	650.00	516.83	270.00
Crit W.S. (ft)	1288.26	Flow Area (sq ft)		2088.85	
E.G. Slope (ft/ft)	0.000667	Area (sq ft)		2088.85	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	217.16	Top Width (ft)		217.16	
Vel Total (ft/s)	5.71	Avg. Vel. (ft/s)		5.71	
Max Chl Dpth (ft)	10.94	Hydr. Depth (ft)		9.62	
Conv. Total (cfs)	461493.6	Conv. (cfs)		461493.6	
Length Wtd. (ft)	516.83	Wetted Per. (ft)		221.73	
Min Ch El (ft)	1282.91	Shear (lb/sq ft)		0.39	
Alpha	1.00	Stream Power (lb/ft s)		2.24	
Frctn Loss (ft)	0.35	Cum Volume (acre-ft)	98.90	342.67	61.63
C & E Loss (ft)	0.00	Cum SA (acres)	35.24	44.95	28.98

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1294.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.74	Wt. n-Val.		0.030	
E.G. Elev (ft)	1295.50	Reach Len. (ft)	650.00	516.83	270.00
Crit W.S. (ft)	1289.30	Flow Area (sq ft)		2289.72	
E.G. Slope (ft/ft)	0.000884	Area (sq ft)		2289.72	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	221.35	Top Width (ft)		221.35	
Vel Total (ft/s)	6.89	Avg. Vel. (ft/s)		6.89	
Max Chl Dpth (ft)	11.85	Hydr. Depth (ft)		10.34	
Conv. Total (cfs)	530521.3	Conv. (cfs)		530521.3	
Length Wtd. (ft)	516.83	Wetted Per. (ft)		226.31	
Min Ch El (ft)	1282.91	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		3.84	
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	317.85	431.81	216.43
C & E Loss (ft)	0.00	Cum SA (acres)	77.08	46.08	57.72

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.388

INPUT
Description: Loose Riprap Channel
Station Elevation Data num= 76

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4170.55	1300	4184.28	1299.87	4194.33	1299.38	4202.47	1299.09	4212.34	1299.02
4250.55	1299	4259.44	1298.49	4265.3	1299.11	4268.26	1298.99	4283.16	1298.75
4316.27	1300	4330.06	1299.79	4339.5	1298.86	4345.61	1299.14	4379.93	1299.1
4403.27	1299	4412.37	1298.05	4416.25	1297.51	4429.89	1299.08	4440.01	1299.18
4450.16	1299.4	4492	1299.47	4513.63	1299.26	4528.82	1299.17	4549.35	1298.42
4559.86	1298.6	4574.48	1298.22	4585.59	1298.07	4599.04	1297.79	4615.68	1297.1
4625.75	1297.2	4644.01	1297.13	4651.14	1297.03	4657.24	1297.14	4670.36	1296.69
4673.5	1296.4	4686.62	1296.55	4705.07	1296.98	4752.67	1296.96	4771.94	1296.98
4774.85	1295.7	4777.51	1296.09	4791.35	1295.89	4800.13	1295.64	4803.62	1296.47
4808.06	1296.9	4818.86	1296.06	4839.85	1295.67	4856.13	1295.69	4866.27	1294.17
4871.64	1295.4	4882.5	1295.53	4889.01	1293.07	4910.45	1282.76	4942.29	1283.02
4958.94	1283	4988.83	1282.78	4996.8	1282.8	5023.15	1282.5	5038.51	1282.51
5078.87	1282.7	5105.32	1294.06	5109.3	1294.47	5116.28	1294.51	5119.98	1294.01
5123.43	1293.1	5139.08	1300.48	5145.16	1299.94	5158.11	1300.22	5170.34	1299.98
5193.42	1299.73	5210.68	1300.02	5277.79	1300.19	5306.43	1300.19	5344.87	1300.31
5410.49	1300.53								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4170.55	.04	4882.5	.03	5109.3	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4882.5	5109.3	580	465.58	260	.1	.3

Left Levee Station= 4882.5 Elevation= 1295.53
Right Levee Station= 5109.3 Elevation= 1294.47

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1292.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.		0.030	
E.G. Elev (ft)	1292.62	Reach Len. (ft)	580.00	465.58	260.00
Crit W.S. (ft)	1287.02	Flow Area (sq ft)		1800.31	
E.G. Slope (ft/ft)	0.000558	Area (sq ft)		1800.31	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	210.42	Top Width (ft)		210.42	
Vel Total (ft/s)	4.83	Avg. Vel. (ft/s)		4.83	
Max Chl Dpth (ft)	9.76	Hydr. Depth (ft)		8.56	
Conv. Total (cfs)	368204.9	Conv. (cfs)		368204.9	
Length Wtd. (ft)	465.58	Wetted Per. (ft)		214.56	
Min Ch El (ft)	1282.50	Shear (lb/sq ft)		0.29	
Alpha	1.00	Stream Power (lb/ft s)		1.41	
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	12.26	255.66	15.98

C & E Loss (ft)	0.00	Cum SA (acres)	7.94	40.74	15.76

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1293.48	Element			
Vel Head (ft)	0.52	Wt. n-Val.		0.030	
E.G. Elev (ft)	1294.00	Reach Len. (ft)	580.00	465.58	260.00
Crit W.S. (ft)	1288.01	Flow Area (sq ft)		2061.51	
E.G. Slope (ft/ft)	0.000693	Area (sq ft)		2061.51	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	216.06	Top Width (ft)		216.06	
Vel Total (ft/s)	5.78	Avg. Vel. (ft/s)		5.78	
Max Chl Dpth (ft)	10.98	Hydr. Depth (ft)		9.54	
Conv. Total (cfs)	452869.5	Conv. (cfs)		452869.5	
Length Wtd. (ft)	465.58	Wetted Per. (ft)		220.71	
Min Ch El (ft)	1282.50	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		2.34	
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	98.90	318.05	61.63
C & E Loss (ft)	0.00	Cum SA (acres)	35.24	42.38	28.98

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1294.24	Element			
Vel Head (ft)	0.78	Wt. n-Val.		0.030	
E.G. Elev (ft)	1295.02	Reach Len. (ft)	580.00	465.58	260.00
Crit W.S. (ft)	1289.05	Flow Area (sq ft)		2226.87	
E.G. Slope (ft/ft)	0.000968	Area (sq ft)		2226.87	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	221.16	Top Width (ft)		221.16	
Vel Total (ft/s)	7.08	Avg. Vel. (ft/s)		7.08	
Max Chl Dpth (ft)	11.74	Hydr. Depth (ft)		10.07	
Conv. Total (cfs)	506826.7	Conv. (cfs)		506826.7	
Length Wtd. (ft)	465.58	Wetted Per. (ft)		226.08	
Min Ch El (ft)	1282.50	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		4.22	
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	317.85	405.02	216.43
C & E Loss (ft)	0.01	Cum SA (acres)	77.08	43.45	57.72

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.3

INPUT
Description: Loose Riprap Channel
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4416	1287.2	4420.08	1287.28	4469.03	1287.41	4495.79	1287.07	4508.11	1287.09
4519.38	1286.9	4546.57	1287.36	4553.39	1287.24	4569.33	1287.66	4619.42	1287.8
4669.4	1288	4719.79	1288.36	4747.77	1288.05	4759.31	1288.23	4773.06	1288.21
4776.85	1288.8	4779.61	1287.93	4782.06	1288.31	4793.77	1288.5	4806.2	1288.34
4816.34	1288.7	4826.86	1288.83	4868.48	1290.03	4875.6	1293.05	4889.42	1293.28
4893.86	1292.9	4897.37	1291.08	4914.07	1282.72	4919.18	1282.73	4969.43	1283.06
5000.73	1282.8	5019.19	1282.63	5086.87	1282.63	5105.66	1291.93	5110.48	1294.17
5126.95	1293.4	5130.95	1292.13	5142.46	1294.32	5148.7	1295.63	5151.29	1296.42
5160.98	1296.2	5166.76	1296.66	5172.67	1296.82	5174.77	1296.32	5186.73	1296.26
5196.66	1296.4	5209.94	1296.69	5229.58	1296.5	5257.3	1296.46	5292	1296.54
5342.99	1296.5	5395.99	1296.27	5416	1296.36				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4416	.04	4889.42	.03	5110.48	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4889.42	5110.48	256.87	256.87	256.87	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4416	4889.42	1295	5110.48	5416	1295

Left Levee Station= 4889.42 Elevation= 1293.28

Right Levee Station= 5110.48 Elevation= 1294.17

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1291.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.030	
E.G. Elev (ft)	1292.35	Reach Len. (ft)	256.87	256.87	256.87
Crit W.S. (ft)	1286.97	Flow Area (sq ft)		1763.05	
E.G. Slope (ft/ft)	0.000598	Area (sq ft)		1763.05	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	210.10	Top Width (ft)		210.10	
Vel Total (ft/s)	4.93	Avg. Vel. (ft/s)		4.93	
Max Chl Dpth (ft)	9.34	Hydr. Depth (ft)		8.39	
Conv. Total (cfs)	355679.6	Conv. (cfs)		355679.6	
Length Wtd. (ft)	256.87	Wetted Per. (ft)		214.48	
Min Ch El (ft)	1282.63	Shear (lb/sq ft)		0.31	
Alpha	1.00	Stream Power (lb/ft s)		1.52	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	12.26	236.62	15.98
C & E Loss (ft)	0.00	Cum SA (acres)	7.94	38.49	15.76

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1293.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.		0.030	
E.G. Elev (ft)	1293.66	Reach Len. (ft)	256.87	256.87	256.87
Crit W.S. (ft)	1287.93	Flow Area (sq ft)		2005.59	
E.G. Slope (ft/ft)	0.000764	Area (sq ft)		2005.59	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	216.82	Top Width (ft)		216.82	
Vel Total (ft/s)	5.94	Avg. Vel. (ft/s)		5.94	
Max Chl Dpth (ft)	10.48	Hydr. Depth (ft)		9.25	
Conv. Total (cfs)	431300.9	Conv. (cfs)		431300.9	
Length Wtd. (ft)	256.87	Wetted Per. (ft)		221.69	
Min Ch El (ft)	1282.63	Shear (lb/sq ft)		0.43	
Alpha	1.00	Stream Power (lb/ft s)		2.56	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	98.90	296.31	61.63
C & E Loss (ft)	0.01	Cum SA (acres)	35.24	40.07	28.98

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1293.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.85	Wt. n-Val.		0.030	
E.G. Elev (ft)	1294.53	Reach Len. (ft)	256.87	256.87	256.87
Crit W.S. (ft)	1288.97	Flow Area (sq ft)		2129.64	
E.G. Slope (ft/ft)	0.001116	Area (sq ft)	2620.07	2129.64	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	693.42	Top Width (ft)	473.42	220.00	
Vel Total (ft/s)	7.41	Avg. Vel. (ft/s)		7.41	
Max Chl Dpth (ft)	11.05	Hydr. Depth (ft)		9.68	
Conv. Total (cfs)	471983.1	Conv. (cfs)		471983.1	
Length Wtd. (ft)	256.87	Wetted Per. (ft)		225.00	
Min Ch El (ft)	1282.63	Shear (lb/sq ft)		0.66	
Alpha	1.00	Stream Power (lb/ft s)		4.88	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	300.41	381.74	216.43
C & E Loss (ft)	0.01	Cum SA (acres)	73.92	41.10	57.72

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.252

INPUT
Description: Loose Riprap Channel
Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4276.81	1284.1	4284.6	1284.15	4300.91	1284.1	4321.69	1283.18	4328.62	1284.06
4354.8	1284.2	4368.84	1284.44	4376.3	1284.42	4418.83	1284.58	4426.22	1284.57

4468.85	1284.7	4518.84	1284.67	4526.73	1284.75	4541.62	1284.73	4551.69	1284.82
4568.46	1285.1	4581.14	1285.43	4614.61	1285.83	4631.56	1285.25	4655.86	1285.01
4666.24	1284.9	4674.79	1284.66	4680.96	1285.2	4718.85	1286.05	4768.74	1286.61
4803.97	1287.1	4807.1	1286.98	4809.6	1285.52	4812.26	1286.58	4822.91	1286.69
4833.16	1286.4	4834.9	1286.78	4841.28	1286.61	4852.63	1286.88	4864.91	1287.35
4874.95	1293.1	4881.83	1293.49	4890.29	1293.36	4894.76	1293.16	4901.24	1289.65
4914.82	1282.7	4918.17	1282.93	4958.87	1282.82	5001.53	1282.79	5018.84	1282.85
5062.32	1282.8	5085.31	1283.01	5090.71	1285.66	5097.59	1288.52	5108.99	1293.45
5114.99	1293.1	5121.88	1293.37	5140.85	1293.26	5145.08	1292.32	5160.67	1295.94
5163.52	1295.7	5176.02	1295.71	5185.11	1296.02	5218.85	1296	5268.84	1296.33
5277.9	1296.3	5324.97	1296.32	5374.91	1296.4	5442.78	1296.12		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4276.81	.04	4881.83	.03	5108.99	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4881.83	5108.99	112.52	112.52	112.52	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4276.81	4881.83	1295	5108.99	5442.78	1295

Left Levee Station= 4881.83 Elevation= 1293.49
Right Levee Station= 5108.99 Elevation= 1293.45

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1291.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.		0.030	
E.G. Elev (ft)	1292.18	Reach Len. (ft)	112.52	112.52	112.52
Crit W.S. (ft)	1287.08	Flow Area (sq ft)		1686.59	
E.G. Slope (ft/ft)	0.000682	Area (sq ft)		1686.59	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	207.77	Top Width (ft)		207.77	
Vel Total (ft/s)	5.16	Avg. Vel. (ft/s)		5.16	
Max Chl Dpth (ft)	9.07	Hydr. Depth (ft)		8.12	
Conv. Total (cfs)	333068.0	Conv. (cfs)		333068.0	
Length Wtd. (ft)	112.52	Wetted Per. (ft)		211.85	
Min Ch El (ft)	1282.70	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		1.75	
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	12.26	226.44	15.98
C & E Loss (ft)	0.14	Cum SA (acres)	7.94	37.26	15.76

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.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1292.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.		0.030	
E.G. Elev (ft)	1293.45	Reach Len. (ft)	112.52	112.52	112.52
Crit W.S. (ft)	1288.07	Flow Area (sq ft)		1912.09	
E.G. Slope (ft/ft)	0.000869	Area (sq ft)		1912.09	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	212.24	Top Width (ft)		212.24	
Vel Total (ft/s)	6.23	Avg. Vel. (ft/s)		6.23	
Max Chl Dpth (ft)	10.14	Hydr. Depth (ft)		9.01	
Conv. Total (cfs)	404260.2	Conv. (cfs)		404260.2	
Length Wtd. (ft)	112.52	Wetted Per. (ft)		216.81	
Min Ch El (ft)	1282.70	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		2.98	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	98.90	284.76	61.63
C & E Loss (ft)	0.15	Cum SA (acres)	35.24	38.80	28.98

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

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1293.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.97	Wt. n-Val.		0.030	
E.G. Elev (ft)	1294.20	Reach Len. (ft)	112.52	112.52	112.52
Crit W.S. (ft)	1289.09	Flow Area (sq ft)		1995.34	
E.G. Slope (ft/ft)	0.001347	Area (sq ft)		1995.34	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	215.36	Top Width (ft)		215.36	
Vel Total (ft/s)	7.90	Avg. Vel. (ft/s)		7.90	
Max Chl Dpth (ft)	10.53	Hydr. Depth (ft)		9.26	
Conv. Total (cfs)	429688.5	Conv. (cfs)		429688.5	
Length Wtd. (ft)	112.52	Wetted Per. (ft)		220.10	
Min Ch El (ft)	1282.70	Shear (lb/sq ft)		0.76	
Alpha	1.00	Stream Power (lb/ft s)		6.03	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	292.68	369.58	216.43
C & E Loss (ft)	0.22	Cum SA (acres)	72.53	39.81	57.72

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.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.23

INPUT
Description: End Loose Riprap, Begin Concrete Lined Channel Transition (Contraction)
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4443.23	1283.5	4468.69	1283.41	4483.99	1283.44	4514.79	1283.38	4529.63	1283.58
4568.7	1283.9	4587.81	1284.12	4652.53	1284.43	4684.15	1284.49	4700.16	1284.62
4727.75	1285.1	4748.15	1285.46	4768.69	1285.87	4797.73	1286.66	4811.48	1286.72
4827.63	1287.6	4829.32	1287.5	4839.21	1287.95	4847.78	1288.5	4850.18	1288.19
4856.13	1288.3	4874.21	1289.35	4879.41	1289.41	4886.17	1290.8	4915.47	1288.04
4998.88	1285.1	5071.9	1284.98	5085.97	1286.59	5113.46	1289.72	5129.29	1291.72
5134.8	1292.3	5158.73	1294.47	5181.95	1295.29	5194.17	1295.26	5218.7	1295.96
5230.32	1295.5	5245.42	1295.87	5267	1295.97	5281.76	1295.4	5311.44	1295.54
5324.44	1296.2	5350.35	1296.14	5365.07	1295.42	5407.1	1295.36	5417.34	1295.27
5426.26	1296.1	5443.23	1296.05						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4443.23	.04	4886.17	.013	5134.8	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4886.17	5134.8	182.54	182.54	182.54	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
4443.23	4886.17	1293

Left Levee Station= 4886.17 Elevation= 1290.8
Right Levee Station= 5134.8 Elevation= 1292.3

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1290.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.80	Wt. n-Val.		0.013	
E.G. Elev (ft)	1291.93	Reach Len. (ft)	182.54	182.54	182.54
Crit W.S. (ft)	1290.13	Flow Area (sq ft)		807.54	
E.G. Slope (ft/ft)	0.001606	Area (sq ft)		807.54	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	223.39	Top Width (ft)		223.39	
Vel Total (ft/s)	10.77	Avg. Vel. (ft/s)		10.77	
Max Chl Dpth (ft)	6.75	Hydr. Depth (ft)		3.61	
Conv. Total (cfs)	217120.1	Conv. (cfs)		217120.1	
Length Wtd. (ft)	182.54	Wetted Per. (ft)		223.84	
Min Ch El (ft)	1284.98	Shear (lb/sq ft)		0.36	
Alpha	1.00	Stream Power (lb/ft s)		3.90	

Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	12.26	223.22	15.98
C & E Loss (ft)	0.51	Cum SA (acres)	7.94	36.71	15.76

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 energy loss was 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 OUTPUT Profile #Future

W.S. Elev (ft)	1291.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.13	Wt. n-Val.		0.013	
E.G. Elev (ft)	1293.17	Reach Len. (ft)	182.54	182.54	182.54
Crit W.S. (ft)	1291.03	Flow Area (sq ft)		1016.64	
E.G. Slope (ft/ft)	0.001520	Area (sq ft)	2622.94	1016.64	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	680.61	Top Width (ft)	442.94	237.67	
Vel Total (ft/s)	11.72	Avg. Vel. (ft/s)		11.72	
Max Chl Dpth (ft)	7.65	Hydr. Depth (ft)		4.28	
Conv. Total (cfs)	305744.3	Conv. (cfs)		305744.3	
Length Wtd. (ft)	182.54	Wetted Per. (ft)		238.21	
Min Ch El (ft)	1284.98	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		4.75	
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	95.51	280.98	61.63
C & E Loss (ft)	0.55	Cum SA (acres)	34.66	38.22	28.98

Warning - The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning - The cross-section end points had to be extended vertically for the computed water surface.
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.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1293.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1293.95	Reach Len. (ft)	182.54	182.54	182.54
Crit W.S. (ft)	1291.95	Flow Area (sq ft)	3806.75	1673.86	10.88
E.G. Slope (ft/ft)	0.000155	Area (sq ft)	3806.75	1673.86	10.88
Q Total (cfs)	15770.00	Flow (cfs)	7279.29	8486.75	3.97
Top Width (ft)	707.06	Top Width (ft)	442.94	248.63	15.49
Vel Total (ft/s)	2.87	Avg. Vel. (ft/s)	1.91	5.07	0.36
Max Chl Dpth (ft)	10.32	Hydr. Depth (ft)	8.59	6.73	0.70
Conv. Total (cfs)	1265515.0	Conv. (cfs)	584150.0	681046.7	318.3
Length Wtd. (ft)	182.54	Wetted Per. (ft)	453.42	249.24	15.55
Min Ch El (ft)	1284.98	Shear (lb/sq ft)	0.08	0.07	0.01
Alpha	1.88	Stream Power (lb/ft s)	0.16	0.33	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	287.77	364.84	216.42
C & E Loss (ft)	1.33	Cum SA (acres)	71.96	39.21	57.70

Warning - The cross-section end points had to be extended vertically for the computed water surface.

Warning - The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning - The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning - The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.196

INPUT
Description: End Transition and Begin Concrete Lined Channel
Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4440.37	1281.6	4469.92	1281.71	4518.03	1282.35	4523.11	1282.3	4558.62	1282.18
4566.08	1281.7	4570.74	1282.11	4580.23	1282.16	4618.45	1282.49	4669.78	1282.58
4718.43	1282.6	4768.44	1283.1	4819.1	1283.39	4830.45	1283.85	4833.9	1283.42
4835.63	1282.3	4837.84	1282.91	4848.96	1283.32	4860.68	1283.85	4866.28	1283.19
4883.7	1283.2	4897.82	1283.74	4910.95	1285.14	4919.46	1285.48	4928.72	1285.63
4933.29	1285	4945.85	1281.66	4949.55	1282.33	4957.56	1282.54	4968.15	1283.19
4969.26	1275.6	5003.05	1275.54	5032.43	1275.61	5033.48	1282.71	5044.28	1282.91
5050.76	1282.3	5061.55	1283.26	5066.12	1283.89	5070.63	1283.86	5073.69	1284.18
5075.43	1283.8	5091.82	1283.65	5119.36	1283.14	5154.95	1283.65	5163.61	1286.66
5167.64	1286.5	5220.09	1286.7	5268.45	1286.43	5320.09	1286.33	5370.08	1286.38
5420.09	1286.3	5440.37	1286.3						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4440.37	.04	4968.15	.013	5033.48	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4968.15	5033.48	499.22	499.22	499.22	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4440.37	4928.72	1289	5073.69	5440.37	1289

Left Levee Station= 4928.72 Elevation= 1285.63
Right Levee Station= 5163.61 Elevation= 1286.66

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1284.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.49	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1287.81	Reach Len. (ft)	499.22	499.22	499.22
Crit W.S. (ft)	1284.32	Flow Area (sq ft)	52.43	563.51	50.39
E.G. Slope (ft/ft)	0.001256	Area (sq ft)	52.43	563.51	119.80
Q Total (cfs)	8700.00	Flow (cfs)	94.48	8528.59	76.93
Top Width (ft)	221.03	Top Width (ft)	32.30	65.33	123.40
Vel Total (ft/s)	13.06	Avg. Vel. (ft/s)	1.80	15.13	1.53
Max Chl Dpth (ft)	8.78	Hydr. Depth (ft)	1.62	8.63	1.25
Conv. Total (cfs)	245510.1	Conv. (cfs)	2666.3	240672.8	2170.9
Length Wtd. (ft)	499.22	Wetted Per. (ft)	32.74	78.02	40.34
Min Ch El (ft)	1275.54	Shear (lb/sq ft)	0.13	0.57	0.10
Alpha	1.32	Stream Power (lb/ft s)	0.23	8.57	0.15
Frctn Loss (ft)	0.63	Cum Volume (acre-ft)	12.15	220.35	15.73
C & E Loss (ft)	0.06	Cum SA (acres)	7.87	36.10	15.50

Warning - The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning - The energy loss was 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 OUTPUT Profile #Future

W.S. Elev (ft)	1286.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.96	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1290.16	Reach Len. (ft)	499.22	499.22	499.22
Crit W.S. (ft)	1286.20	Flow Area (sq ft)	121.17	686.37	126.01
E.G. Slope (ft/ft)	0.001135	Area (sq ft)	1795.80	686.37	356.96
Q Total (cfs)	11920.00	Flow (cfs)	317.57	11265.42	337.01
Top Width (ft)	721.92	Top Width (ft)	527.78	65.33	128.81
Vel Total (ft/s)	12.77	Avg. Vel. (ft/s)	2.62	16.41	2.67
Max Chl Dpth (ft)	10.66	Hydr. Depth (ft)	3.07	10.51	3.13
Conv. Total (cfs)	353767.0	Conv. (cfs)	9425.0	334340.0	10002.0
Length Wtd. (ft)	499.22	Wetted Per. (ft)	39.99	78.02	40.34
Min Ch El (ft)	1275.54	Shear (lb/sq ft)	0.21	0.62	0.22
Alpha	1.56	Stream Power (lb/ft s)	0.56	10.23	0.59
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	86.25	277.41	60.88
C & E Loss (ft)	0.05	Cum SA (acres)	32.63	37.59	28.71

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 cross-section end points had to be extended vertically for the computed water surface.
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.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1287.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.66	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1292.56	Reach Len. (ft)	499.22	499.22	499.22
Crit W.S. (ft)	1287.90	Flow Area (sq ft)	188.19	797.42	194.35
E.G. Slope (ft/ft)	0.001128	Area (sq ft)	2692.87	797.42	982.33
Q Total (cfs)	15770.00	Flow (cfs)	659.40	14418.86	691.74
Top Width (ft)	1000.00	Top Width (ft)	527.78	65.33	406.89
Vel Total (ft/s)	13.36	Avg. Vel. (ft/s)	3.50	18.08	3.56
Max Chl Dpth (ft)	12.36	Hydr. Depth (ft)	4.77	12.21	4.83
Conv. Total (cfs)	469493.3	Conv. (cfs)	19631.1	429268.1	20594.1
Length Wtd. (ft)	499.22	Wetted Per. (ft)	39.99	78.02	40.34
Min Ch El (ft)	1275.54	Shear (lb/sq ft)	0.33	0.72	0.34
Alpha	1.68	Stream Power (lb/ft s)	1.16	13.02	1.21
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	274.15	359.66	214.34
C & E Loss (ft)	0.05	Cum SA (acres)	69.92	38.56	56.81

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 cross-section end points had to be extended vertically for the computed water surface.
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 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.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.101

INPUT
Description: Concrete Lined Channel
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4439.68	1276.8	4442.54	1276.86	4465.16	1277.02	4480.32	1276.85	4495.12	1277.04
4504.09	1276.7	4514.75	1277.3	4567.74	1277.32	4619.17	1277.37	4670.81	1277.38
4722.84	1277.4	4745.48	1277.63	4751.96	1277.47	4759.96	1277.12	4771.98	1276.73
4787.56	1277.9	4816.27	1278.32	4831.02	1278.03	4851.59	1278.32	4869.21	1278.01
4887.93	1277.8	4918.2	1279.35	4928.03	1279.53	4933.42	1279.5	4937.76	1279.11
4950.32	1275.8	4954.7	1276.21	4968.29	1276.63	4968.66	1270.44	5013.85	1270.39
5032.78	1270.4	5033.37	1276.95	5038.44	1277.1	5052.4	1275.86	5062.38	1277.99
5072.45	1278.6	5075.62	1279.05	5079.22	1278.63	5116.36	1279.09	5129.49	1278.53
5150.82	1278	5158.25	1278.9	5163.22	1279.33	5167.73	1279.09	5196.84	1279.33
5200.67	1279.5	5205.56	1278.37	5217.47	1278.95	5221.52	1278.44	5267.73	1278.53
5317.73	1278.6	5418.05	1278.48	5439.68	1278.51				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4439.68	.04	4968.29	.013	5038.44	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4968.29	5038.44	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4439.68	4928.03	1283	5075.62	5439.68	1283

Left Levee Station= 4928.03 Elevation= 1279.53
Right Levee Station= 5075.62 Elevation= 1279.05

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1279.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.28	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1282.34	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1279.06	Flow Area (sq ft)	69.42	570.24	65.78
E.G. Slope (ft/ft)	0.001256	Area (sq ft)	69.42	570.24	221.96
Q Total (cfs)	8700.00	Flow (cfs)	157.15	8416.95	125.91
Top Width (ft)	456.14	Top Width (ft)	30.34	70.15	355.65
Vel Total (ft/s)	12.33	Avg. Vel. (ft/s)	2.26	14.76	1.91
Max Chl Dpth (ft)	8.67	Hydr. Depth (ft)	2.29	8.13	1.77
Conv. Total (cfs)	245514.3	Conv. (cfs)	4434.7	237526.5	3553.1
Length Wtd. (ft)	500.00	Wetted Per. (ft)	30.79	81.97	37.51
Min Ch El (ft)	1270.39	Shear (lb/sq ft)	0.18	0.55	0.14
Alpha	1.39	Stream Power (lb/ft s)	0.40	8.05	0.26
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	11.45	213.85	13.77
C & E Loss (ft)	0.00	Cum SA (acres)	7.51	35.32	12.76

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 energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1280.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.80	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1284.58	Reach Len. (ft)	500.00	500.00	500.00

Crit W.S. (ft)	1280.78	Flow Area (sq ft)	135.26	691.08	129.82
E.G. Slope (ft/ft)	0.001164	Area (sq ft)	1709.44	691.08	905.88
Q Total (cfs)	11920.00	Flow (cfs)	381.50	11162.08	376.42
Top Width (ft)	1000.00	Top Width (ft)	528.61	70.15	401.24
Vel Total (ft/s)	12.47	Avg. Vel. (ft/s)	2.82	16.15	2.90
Max Chl Dpth (ft)	10.39	Hydr. Depth (ft)	3.36	9.85	3.49
Conv. Total (cfs)	349434.4	Conv. (cfs)	11183.8	327216.0	11034.7
Length Wtd. (ft)	500.00	Wetted Per. (ft)	40.73	81.97	37.51
Min Ch El (ft)	1270.39	Shear (lb/sq ft)	0.24	0.61	0.25
Alpha	1.58	Stream Power (lb/ft s)	0.68	9.89	0.73
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	66.17	269.52	53.65
C & E Loss (ft)	0.01	Cum SA (acres)	26.58	36.81	25.67

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 cross-section end points had to be extended vertically for the computed water surface.
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.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1283.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1283.61	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1283.01	Flow Area (sq ft)	2885.52	847.16	1798.58
E.G. Slope (ft/ft)	0.000265	Area (sq ft)	2885.52	847.16	1798.58
Q Total (cfs)	15770.00	Flow (cfs)	5362.09	7476.82	2931.09
Top Width (ft)	1000.00	Top Width (ft)	528.61	70.15	401.24
Vel Total (ft/s)	2.85	Avg. Vel. (ft/s)	1.86	8.83	1.63
Max Chl Dpth (ft)	12.62	Hydr. Depth (ft)	5.46	12.08	4.48
Conv. Total (cfs)	969031.5	Conv. (cfs)	329488.6	459434.2	180108.7
Length Wtd. (ft)	500.00	Wetted Per. (ft)	535.43	81.97	406.37
Min Ch El (ft)	1270.39	Shear (lb/sq ft)	0.09	0.17	0.07
Alpha	4.75	Stream Power (lb/ft s)	0.17	1.51	0.12
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	242.18	350.23	198.40
C & E Loss (ft)	0.39	Cum SA (acres)	63.87	37.78	52.18

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 cross-section end points had to be extended vertically for the computed water surface.
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 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.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 6.007

INPUT
Description: Concrete Lined Channel
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

4439.68	1272.3	4467.05	1272.48	4517.03	1272.67	4538.24	1271.78	4568.53	1272.59
4617.04	1272.7	4668.38	1272.73	4718.32	1272.54	4767.05	1272.96	4818.16	1273.45
4868.32	1273.5	4905.08	1273.38	4916.81	1274.33	4930.58	1274.51	4936.57	1273.65
4948.29	1270.6	4953.52	1271.12	4968.73	1271.87	4969.08	1265.43	5032.97	1265.41
5033.38	1271.9	5039.31	1272.06	5048.82	1271.13	5053.63	1270.19	5063.37	1273.05
5071.66	1273.7	5075	1274.37	5079.17	1273.72	5081.7	1273.74	5117.03	1273.6
5155.78	1271.7	5164.41	1274.47	5169.99	1273.67	5184.96	1273.87	5196.72	1273.86
5200.8	1274.2	5204.95	1273.2	5217.04	1273.21	5267.57	1273.17	5317.05	1273.5
5367.41	1273.5	5417.03	1273.5	5439.68	1273.48				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4439.68	.04	4968.73	.013	5039.31	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4968.73	5039.31	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4439.68	4930.58	1278	5075	5439.68	1278

Left Levee Station= 4930.58 Elevation= 1274.51
Right Levee Station= 5075 Elevation= 1274.37

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1273.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.31	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1277.31	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1273.99	Flow Area (sq ft)	76.75	563.85	67.35
E.G. Slope (ft/ft)	0.001311	Area (sq ft)	76.75	563.85	67.35
Q Total (cfs)	8700.00	Flow (cfs)	174.14	8384.18	141.69
Top Width (ft)	138.96	Top Width (ft)	34.56	70.58	33.82
Vel Total (ft/s)	12.29	Avg. Vel. (ft/s)	2.27	14.87	2.10
Max Chl Dpth (ft)	8.58	Hydr. Depth (ft)	2.22	7.99	1.99
Conv. Total (cfs)	240319.9	Conv. (cfs)	4810.1	231595.8	3913.9
Length Wtd. (ft)	500.00	Wetted Per. (ft)	35.02	82.77	34.42
Min Ch El (ft)	1265.41	Shear (lb/sq ft)	0.18	0.56	0.16
Alpha	1.41	Stream Power (lb/ft s)	0.41	8.29	0.34
Frctn Loss (ft)	0.63	Cum Volume (acre-ft)	10.61	207.34	12.11
C & E Loss (ft)	0.07	Cum SA (acres)	7.14	34.52	10.52

Warning - The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning - The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1275.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.78	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1279.52	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1275.74	Flow Area (sq ft)	142.44	687.09	129.32
E.G. Slope (ft/ft)	0.001188	Area (sq ft)	1549.25	687.09	987.33
Q Total (cfs)	11920.00	Flow (cfs)	435.21	11098.73	386.06
Top Width (ft)	1000.00	Top Width (ft)	529.05	70.58	400.37
Vel Total (ft/s)	12.43	Avg. Vel. (ft/s)	3.06	16.15	2.99
Max Chl Dpth (ft)	10.33	Hydr. Depth (ft)	3.73	9.73	3.62
Conv. Total (cfs)	345792.5	Conv. (cfs)	12625.2	321968.0	11199.3
Length Wtd. (ft)	500.00	Wetted Per. (ft)	38.65	82.77	36.33
Min Ch El (ft)	1265.41	Shear (lb/sq ft)	0.27	0.62	0.26
Alpha	1.58	Stream Power (lb/ft s)	0.84	9.95	0.79
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	47.46	261.61	42.78
C & E Loss (ft)	0.03	Cum SA (acres)	20.51	36.00	21.07

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 cross-section end points had to be extended vertically for the computed water surface.
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.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1277.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.47	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1281.84	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1277.37	Flow Area (sq ft)	204.42	801.77	187.31
E.G. Slope (ft/ft)	0.001174	Area (sq ft)	2408.82	801.77	1637.83
Q Total (cfs)	15770.00	Flow (cfs)	789.93	14268.55	711.52
Top Width (ft)	1000.00	Top Width (ft)	529.05	70.58	400.37
Vel Total (ft/s)	13.21	Avg. Vel. (ft/s)	3.86	17.80	3.80
Max Chl Dpth (ft)	11.96	Hydr. Depth (ft)	5.36	11.36	5.25
Conv. Total (cfs)	460242.7	Conv. (cfs)	23053.8	416423.3	20765.6
Length Wtd. (ft)	500.00	Wetted Per. (ft)	38.65	82.77	36.33
Min Ch El (ft)	1265.41	Shear (lb/sq ft)	0.39	0.71	0.38
Alpha	1.65	Stream Power (lb/ft s)	1.50	12.63	1.44
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	211.80	340.77	178.68
C & E Loss (ft)	0.42	Cum SA (acres)	57.80	36.97	47.58

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 cross-section end points had to be extended vertically for the computed water surface.
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.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 5.912

INPUT
Description: Concrete Lined Channel
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4439.68	1268.1	4516.35	1268.12	4568.12	1267.9	4576.14	1266.83	4580.04	1267.16
4610.13	1267.5	4616.36	1267.66	4666.34	1268.13	4716.34	1268.04	4767.55	1267.99
4817.49	1268	4869.26	1267.91	4909.09	1268.2	4916.94	1268.48	4919.88	1268.35
4931.32	1268.7	4935.77	1267.71	4943.34	1266.22	4950.69	1264.93	4955.18	1265.89
4968.37	1266.1	4968.88	1260.85	5033.43	1260.84	5033.93	1266.02	5038.28	1266.04
5045.93	1265.4	5048.74	1265.26	5052.67	1264.51	5063.82	1267.43	5073.75	1267.84
5079.93	1268	5116.82	1267.62	5138.37	1267.31	5152.22	1267.04	5154.71	1267.21
5164.98	1268.5	5170.99	1268.2	5180.8	1268.69	5186.19	1268.75	5197.14	1268.35
5201.57	1269.4	5205.63	1268.82	5216.51	1268.86	5266.34	1268.91	5316.78	1268.86
5366.71	1269.1	5416.35	1268.77	5439.68	1268.75				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4439.68	.04	4968.37	.013	5038.28	.04

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       4968.37 5038.28               500     500     500            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4439.68 4931.32    1273 5079.93 5439.68    1273
Left Levee      Station= 4931.32      Elevation=  1268.7
Right Levee     Station= 5079.93      Elevation=    1268
```

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1269.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.07	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1272.28	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1269.21	Flow Area (sq ft)	107.81	559.91	114.52
E.G. Slope (ft/ft)	0.001194	Area (sq ft)	718.40	559.91	349.50
Q Total (cfs)	8700.00	Flow (cfs)	279.73	8133.99	286.28
Top Width (ft)	997.92	Top Width (ft)	528.69	69.91	399.32
Vel Total (ft/s)	11.12	Avg. Vel. (ft/s)	2.59	14.53	2.50
Max Chl Dpth (ft)	8.37	Hydr. Depth (ft)	2.91	8.01	2.75
Conv. Total (cfs)	251768.4	Conv. (cfs)	8095.1	235388.6	8284.6
Length Wtd. (ft)	500.00	Wetted Per. (ft)	37.52	79.38	42.14
Min Ch El (ft)	1260.84	Shear (lb/sq ft)	0.21	0.53	0.20
Alpha	1.60	Stream Power (lb/ft s)	0.56	7.64	0.51
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	6.05	200.89	9.72
C & E Loss (ft)	0.02	Cum SA (acres)	3.91	33.71	8.04

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 energy loss was 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 indicat that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1270.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.69	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1274.42	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1270.73	Flow Area (sq ft)	163.88	665.70	177.54
E.G. Slope (ft/ft)	0.001176	Area (sq ft)	1518.40	665.70	956.70
Q Total (cfs)	11920.00	Flow (cfs)	557.89	10772.04	590.07
Top Width (ft)	1000.00	Top Width (ft)	528.69	69.91	401.40
Vel Total (ft/s)	11.84	Avg. Vel. (ft/s)	3.40	16.18	3.32
Max Chl Dpth (ft)	9.89	Hydr. Depth (ft)	4.42	9.52	4.26
Conv. Total (cfs)	347556.8	Conv. (cfs)	16266.6	314085.2	17205.0
Length Wtd. (ft)	500.00	Wetted Per. (ft)	37.52	79.38	42.14
Min Ch El (ft)	1260.84	Shear (lb/sq ft)	0.32	0.62	0.31
Alpha	1.70	Stream Power (lb/ft s)	1.09	9.97	1.03
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	29.86	253.84	31.62
C & E Loss (ft)	0.01	Cum SA (acres)	14.44	35.19	16.47

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 cross-section end points had to be extended vertically for the computed water surface.
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.
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 indicat that there is not a valid subcritical answer. The program defaulted to critical depth.

Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1272.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.39	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1276.68	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1272.30	Flow Area (sq ft)	221.98	775.33	242.85
E.G. Slope (ft/ft)	0.001171	Area (sq ft)	2347.45	775.33	1586.14
Q Total (cfs)	15770.00	Flow (cfs)	922.90	13854.88	992.22
Top Width (ft)	1000.00	Top Width (ft)	528.69	69.91	401.40
Vel Total (ft/s)	12.72	Avg. Vel. (ft/s)	4.16	17.87	4.09
Max Chl Dpth (ft)	11.46	Hydr. Depth (ft)	5.99	11.09	5.83
Conv. Total (cfs)	460913.9	Conv. (cfs)	26973.9	404940.1	28999.9
Length Wtd. (ft)	500.00	Wetted Per. (ft)	37.52	79.38	42.14
Min Ch El (ft)	1260.84	Shear (lb/sq ft)	0.43	0.71	0.42
Alpha	1.75	Stream Power (lb/ft s)	1.80	12.76	1.72
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	184.50	331.72	160.17
C & E Loss (ft)	0.03	Cum SA (acres)	51.73	36.17	42.98

Warning - The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning - The cross-section end points had to be extended vertically for the computed water surface.
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.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 5.817

INPUT
Description: Concrete Lined Channel
Station Elevation Data num= 46

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4439.68	1263.5	4467.28	1263.44	4515.64	1263.58	4615.65	1263.68	4665.65	1263.5
4680.99	1262.6	4716.09	1263.21	4765.64	1263.26	4815.64	1263.4	4866.35	1263.31
4907.48	1263.5	4928.62	1265.03	4932.87	1265.17	4944.02	1262.65	4948.99	1263.44
4961.04	1264	4966.37	1262.07	4968.38	1261.75	4968.82	1255.96	5001.82	1255.91
5033.24	1255.9	5033.74	1261.11	5040.63	1261.1	5048.29	1260.65	5052.05	1259.91
5063.32	1263.5	5074.04	1263.54	5075.2	1263.87	5078.18	1263.58	5116.7	1263.42
5140.4	1262.7	5145.48	1263.12	5157.83	1262.96	5164.08	1263.18	5187.49	1263.07
5195.42	1263	5200.96	1264.52	5210.64	1263.82	5221.19	1262.73	5224.38	1264.01
5227.58	1263.2	5265.66	1263.5	5316.08	1263.5	5365.64	1263.55	5415.95	1263.45
5439.68	1263.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4439.68	.04	4961.04	.013	5033.74	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4961.04	5033.74	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4439.68	4932.87	1269	5075.2	5439.68	1269

Left Levee Station= 4932.87 Elevation= 1265.17
Right Levee Station= 5075.2 Elevation= 1263.87

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1264.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.22	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1267.74	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1264.51	Flow Area (sq ft)	24.57	572.26	110.56
E.G. Slope (ft/ft)	0.001257	Area (sq ft)	24.57	572.26	513.56
Q Total (cfs)	8700.00	Flow (cfs)	31.53	8391.46	277.01
Top Width (ft)	503.82	Top Width (ft)	25.27	72.70	405.85
Vel Total (ft/s)	12.30	Avg. Vel. (ft/s)	1.28	14.66	2.51
Max Chl Dpth (ft)	8.61	Hydr. Depth (ft)	0.97	7.87	2.67
Conv. Total (cfs)	245338.4	Conv. (cfs)	889.3	236637.7	7811.5
Length Wtd. (ft)	500.00	Wetted Per. (ft)	25.55	83.16	42.15
Min Ch El (ft)	1255.90	Shear (lb/sq ft)	0.08	0.54	0.21
Alpha	1.37	Stream Power (lb/ft s)	0.10	7.92	0.52
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	1.78	194.40	4.76
C & E Loss (ft)	0.00	Cum SA (acres)	0.73	32.89	3.42

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 energy loss was 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 OUTPUT Profile #Future

W.S. Elev (ft)	1266.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.82	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1269.95	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1266.13	Flow Area (sq ft)	69.19	689.88	177.63
E.G. Slope (ft/ft)	0.001194	Area (sq ft)	1388.04	689.88	1170.29
Q Total (cfs)	11920.00	Flow (cfs)	160.34	11164.79	594.87
Top Width (ft)	1000.00	Top Width (ft)	521.36	72.70	405.94
Vel Total (ft/s)	12.73	Avg. Vel. (ft/s)	2.32	16.18	3.35
Max Chl Dpth (ft)	10.23	Hydr. Depth (ft)	2.46	9.49	4.28
Conv. Total (cfs)	344987.3	Conv. (cfs)	4640.4	323130.2	17216.6
Length Wtd. (ft)	500.00	Wetted Per. (ft)	28.53	83.16	42.15
Min Ch El (ft)	1255.90	Shear (lb/sq ft)	0.18	0.62	0.31
Alpha	1.52	Stream Power (lb/ft s)	0.42	10.01	1.05
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)	13.18	246.06	19.42
C & E Loss (ft)	0.00	Cum SA (acres)	8.41	34.38	11.84

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 cross-section end points had to be extended vertically for the computed water surface.
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.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1267.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.50	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1272.27	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1267.77	Flow Area (sq ft)	115.33	808.95	245.54
E.G. Slope (ft/ft)	0.001166	Area (sq ft)	2241.93	808.95	1835.15
Q Total (cfs)	15770.00	Flow (cfs)	371.36	14390.07	1008.57

Top Width (ft)	1000.00	Top Width (ft)	521.36	72.70	405.94
Vel Total (ft/s)	13.48	Avg. Vel. (ft/s)	3.22	17.79	4.11
Max Chl Dpth (ft)	11.87	Hydr. Depth (ft)	4.09	11.13	5.92
Conv. Total (cfs)	461735.7	Conv. (cfs)	10873.1	421332.2	29530.4
Length Wtd. (ft)	500.00	Wetted Per. (ft)	28.53	83.16	42.15
Min Ch El (ft)	1255.90	Shear (lb/sq ft)	0.29	0.71	0.42
Alpha	1.60	Stream Power (lb/ft s)	0.95	12.60	1.74
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	158.16	322.63	140.54
C & E Loss (ft)	0.07	Cum SA (acres)	45.70	35.35	38.35

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 cross-section end points had to be extended vertically for the computed water surface.
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.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 5.722

INPUT
Description: Concrete Lined Channel
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4439.68	1260.4	4516.52	1260.33	4564.96	1260.01	4614.94	1260.1	4664.95	1260
4714.95	1259.9	4764.96	1259.81	4816.11	1259.57	4866.26	1259.14	4898.65	1259.37
4907.91	1259.3	4916.16	1260.06	4922.75	1260.81	4926.37	1260.78	4932.08	1258.85
4938.4	1258.7	4948.59	1254.47	4954.37	1255.48	4964.73	1255.98	4968.39	1255.89
4968.9	1251.2	4984.41	1250.93	5017.99	1250.89	5033.18	1250.9	5033.71	1255.82
5038.45	1255.9	5044.55	1255.41	5052.02	1254.99	5064.98	1259.16	5073.89	1259.29
5080.68	1260	5114.96	1259.14	5150.51	1258.95	5155.3	1258.99	5163.41	1259.4
5175.1	1258.7	5197.38	1259.35	5203.6	1259.64	5215.7	1259.2	5225.28	1259.11
5228.21	1259.6	5231.5	1259.33	5265.47	1259.24	5315.4	1259.29	5364.96	1259.29
5414.96	1259.2	5439.68	1259.31						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4439.68	.04	4964.73	.013	5038.45	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4964.73	5038.45	339.85	339.85	339.85	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4439.68	4922.75	1264	5080.68	5439.68	1264

Left Levee Station= 4922.75 Elevation= 1260.81
Right Levee Station= 5080.68 Elevation= 1260

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1259.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.23	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1262.37	Reach Len. (ft)	339.85	339.85	339.85
Crit W.S. (ft)	1259.13	Flow Area (sq ft)	87.62	559.50	77.26
E.G. Slope (ft/ft)	0.001301	Area (sq ft)	87.62	559.50	77.26
Q Total (cfs)	8700.00	Flow (cfs)	218.62	8273.41	207.97
Top Width (ft)	133.65	Top Width (ft)	33.49	73.72	26.44
Vel Total (ft/s)	12.01	Avg. Vel. (ft/s)	2.50	14.79	2.69
Max Chl Dpth (ft)	8.24	Hydr. Depth (ft)	2.62	7.59	2.92
Conv. Total (cfs)	241237.8	Conv. (cfs)	6062.1	229409.1	5766.6
Length Wtd. (ft)	339.85	Wetted Per. (ft)	34.48	82.35	27.13
Min Ch El (ft)	1250.89	Shear (lb/sq ft)	0.21	0.55	0.23
Alpha	1.44	Stream Power (lb/ft s)	0.51	8.16	0.62

Frctn Loss (ft)	0.44	Cum Volume (acre-ft)	1.14	187.90	1.37
C & E Loss (ft)	0.02	Cum SA (acres)	0.39	32.05	0.94

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

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1260.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.81	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1264.59	Reach Len. (ft)	339.85	339.85	339.85
Crit W.S. (ft)	1260.78	Flow Area (sq ft)	146.79	680.92	142.51
E.G. Slope (ft/ft)	0.001207	Area (sq ft)	146.79	680.92	689.63
Q Total (cfs)	11920.00	Flow (cfs)	453.61	11057.24	409.15
Top Width (ft)	513.31	Top Width (ft)	38.36	73.72	401.23
Vel Total (ft/s)	12.29	Avg. Vel. (ft/s)	3.09	16.24	2.87
Max Chl Dpth (ft)	9.89	Hydr. Depth (ft)	3.83	9.24	3.37
Conv. Total (cfs)	343079.3	Conv. (cfs)	13055.9	318247.4	11776.0
Length Wtd. (ft)	339.85	Wetted Per. (ft)	39.62	82.35	42.95
Min Ch El (ft)	1250.89	Shear (lb/sq ft)	0.28	0.62	0.25
Alpha	1.62	Stream Power (lb/ft s)	0.86	10.12	0.72
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	4.37	238.20	8.74
C & E Loss (ft)	0.02	Cum SA (acres)	5.20	33.54	7.21

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 cross-section end points had to be extended vertically for the computed water surface.
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.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1262.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.29	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1266.83	Reach Len. (ft)	339.85	339.85	339.85
Crit W.S. (ft)	1262.54	Flow Area (sq ft)	220.61	810.66	216.83
E.G. Slope (ft/ft)	0.001109	Area (sq ft)	1493.88	810.66	1395.75
Q Total (cfs)	15770.00	Flow (cfs)	808.74	14172.00	789.26
Top Width (ft)	1000.00	Top Width (ft)	525.05	73.72	401.23
Vel Total (ft/s)	12.64	Avg. Vel. (ft/s)	3.67	17.48	3.64
Max Chl Dpth (ft)	11.65	Hydr. Depth (ft)	5.26	11.00	5.13
Conv. Total (cfs)	473590.4	Conv. (cfs)	24287.4	425600.6	23702.4
Length Wtd. (ft)	339.85	Wetted Per. (ft)	43.24	82.35	42.95
Min Ch El (ft)	1250.89	Shear (lb/sq ft)	0.35	0.68	0.35
Alpha	1.73	Stream Power (lb/ft s)	1.29	11.91	1.27
Frctn Loss (ft)	0.37	Cum Volume (acre-ft)	136.72	313.33	122.00
C & E Loss (ft)	0.02	Cum SA (acres)	39.70	34.51	33.72

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 cross-section end points had to be extended vertically for the computed water surface.
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.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 5.658

INPUT
Description: Begin Concrete Lined Channel Transition
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4439.2	1257.7	4514.48	1257.54	4523.08	1257.55	4614.48	1257.37	4714.48	1257.24
4805.47	1257.3	4823.35	1257.22	4885.46	1257.34	4906.53	1257.46	4913.69	1257.86
4924.67	1257.7	4937.07	1255.96	4949.32	1251.45	4956.38	1252.28	4968.4	1252.92
4968.89	1247.7	5002.51	1247.68	5033.29	1247.61	5033.68	1252.94	5038.36	1252.89
5052.71	1251.6	5067.31	1257.37	5075.64	1257.05	5079.36	1257.27	5083.18	1256.72
5086.91	1256.8	5099.64	1257.29	5127.65	1256.96	5135.59	1256.81	5146.83	1256.28
5157.14	1256.5	5162.83	1256.86	5170.48	1255.98	5178.13	1256.28	5187.62	1256.33
5218.01	1256.3	5224.73	1256.1	5234.45	1256.88	5249.91	1256.57	5260.11	1256.82
5266.18	1257.6	5268.97	1258.23	5272.31	1256.86	5276.55	1258.5	5283.76	1257.13
5314.47	1257	5326.34	1257.2	5335.97	1257.22	5344.34	1257.64	5359.97	1257.48
5399.01	1257.2	5414.45	1257.09	5439.2	1257.05				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4439.2	.04	4968.4	.013	5033.68	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4968.4	5033.68	381	381	381	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4439.2	4913.69	1260	5067.31	5439.2	1260

Left Levee Station= 4913.69 Elevation= 1257.86
Right Levee Station= 5067.31 Elevation= 1257.37

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1255.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.39	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1259.33	Reach Len. (ft)	381.00	381.00	381.00
Crit W.S. (ft)	1255.94	Flow Area (sq ft)	96.26	537.57	90.97
E.G. Slope (ft/ft)	0.001284	Area (sq ft)	96.26	537.57	90.97
Q Total (cfs)	8700.00	Flow (cfs)	266.20	8185.04	248.76
Top Width (ft)	126.56	Top Width (ft)	31.27	65.28	30.01
Vel Total (ft/s)	12.00	Avg. Vel. (ft/s)	2.77	15.23	2.73
Max Chl Dpth (ft)	8.33	Hydr. Depth (ft)	3.08	8.23	3.03
Conv. Total (cfs)	242819.7	Conv. (cfs)	7429.7	228447.1	6943.0
Length Wtd. (ft)	381.00	Wetted Per. (ft)	32.14	74.99	30.89
Min Ch El (ft)	1247.61	Shear (lb/sq ft)	0.24	0.57	0.24
Alpha	1.52	Stream Power (lb/ft s)	0.66	8.75	0.65
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	0.42	183.62	0.72
C & E Loss (ft)	0.53	Cum SA (acres)	0.14	31.51	0.72

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 energy loss was 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 OUTPUT Profile #Future

W.S. Elev (ft)	1257.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.04	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1261.71	Reach Len. (ft)	381.00	381.00	381.00
Crit W.S. (ft)	1257.67	Flow Area (sq ft)	161.01	650.73	146.67
E.G. Slope (ft/ft)	0.001212	Area (sq ft)	161.01	650.73	416.01
Q Total (cfs)	11920.00	Flow (cfs)	490.58	10934.37	495.05
Top Width (ft)	504.00	Top Width (ft)	43.53	65.28	395.19
Vel Total (ft/s)	12.44	Avg. Vel. (ft/s)	3.05	16.80	3.38
Max Chl Dpth (ft)	10.06	Hydr. Depth (ft)	3.70	9.97	4.36
Conv. Total (cfs)	342405.5	Conv. (cfs)	14092.1	314092.9	14220.5
Length Wtd. (ft)	381.00	Wetted Per. (ft)	44.52	74.99	34.79
Min Ch El (ft)	1247.61	Shear (lb/sq ft)	0.27	0.66	0.32
Alpha	1.68	Stream Power (lb/ft s)	0.83	11.03	1.08
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	3.17	233.00	4.43
C & E Loss (ft)	0.64	Cum SA (acres)	4.88	32.99	4.10

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 velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
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.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1259.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.47	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1264.08	Reach Len. (ft)	381.00	381.00	381.00
Crit W.S. (ft)	1259.62	Flow Area (sq ft)	266.17	777.62	212.05
E.G. Slope (ft/ft)	0.001093	Area (sq ft)	1323.75	777.62	1200.52
Q Total (cfs)	15770.00	Flow (cfs)	927.37	13973.65	868.98
Top Width (ft)	1000.00	Top Width (ft)	529.20	65.28	405.52
Vel Total (ft/s)	12.56	Avg. Vel. (ft/s)	3.48	17.97	4.10
Max Chl Dpth (ft)	12.01	Hydr. Depth (ft)	4.87	11.91	6.31
Conv. Total (cfs)	477012.1	Conv. (cfs)	28051.2	422676.0	26284.9
Length Wtd. (ft)	381.00	Wetted Per. (ft)	55.70	74.99	34.79
Min Ch El (ft)	1247.61	Shear (lb/sq ft)	0.33	0.71	0.42
Alpha	1.82	Stream Power (lb/ft s)	1.14	12.72	1.70
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	125.73	307.14	111.87
C & E Loss (ft)	0.85	Cum SA (acres)	35.58	33.97	30.57

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 cross-section end points had to be extended vertically for the computed water surface.
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 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.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

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

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 5.586

INPUT
Description: End Concrete Lined Channel Transition, Begin Dissipator Basin
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4438.67	1255.2	4513.96	1255.13	4541.59	1255.16	4613.95	1254.88	4641.72	1254.81
4759.85	1254.9	4796.45	1254.91	4817.4	1254.66	4828.71	1254.47	4838.78	1255.07
4840.39	1255.9	4851.37	1255.86	4857.23	1255.18	4870.5	1248.38	4874.83	1249.04
4885.79	1249.1	4905.07	1248.75	4923.97	1249.28	4925.56	1249.22	4926.23	1243.7
5001.29	1243.7	5075.85	1243.67	5076.48	1249.98	5082.15	1249.81	5098.8	1248.95
5108.67	1248.4	5126.64	1248.42	5132.09	1248.93	5137.65	1252	5143.15	1253.75
5149.98	1255.3	5154.88	1255.15	5157.38	1255.37	5168.18	1253.99	5179.81	1254.32
5193.52	1254.5	5213.94	1254.8	5240.36	1255.36	5252.87	1255.57	5262.59	1255.4
5266.91	1255.5	5270.06	1253.98	5273.31	1255.31	5277.55	1254.63	5313.93	1253.94
5385.12	1253.9	5413.93	1253.81	5438.67	1253.8				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4438.67	.04	4925.56	.013	5076.48	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4925.56	5076.48	21.36	21.36	21.36	.1	.3

Left Levee Station= 4925.56 Elevation= 1249.22
Right Levee Station= 5076.48 Elevation= 1249.98

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1248.42	Element			
Vel Head (ft)	2.34	Wt. n-Val.		0.013	
E.G. Elev (ft)	1250.75	Reach Len. (ft)	21.36	21.36	21.36
Crit W.S. (ft)	1248.42	Flow Area (sq ft)		709.32	
E.G. Slope (ft/ft)	0.001570	Area (sq ft)		709.32	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	150.67	Top Width (ft)		150.67	
Vel Total (ft/s)	12.27	Avg. Vel. (ft/s)		12.27	
Max Chl Dpth (ft)	4.75	Hydr. Depth (ft)		4.71	
Conv. Total (cfs)	219585.1	Conv. (cfs)		219585.1	
Length Wtd. (ft)	21.36	Wetted Per. (ft)		159.14	
Min Ch El (ft)	1243.67	Shear (lb/sq ft)		0.44	
Alpha	1.00	Stream Power (lb/ft s)		5.36	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		178.17	0.32
C & E Loss (ft)	0.36	Cum SA (acres)		30.56	0.58

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 OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1249.62	Element			
Vel Head (ft)	2.75	Wt. n-Val.	0.040	0.013	
E.G. Elev (ft)	1252.37	Reach Len. (ft)	21.36	21.36	21.36
Crit W.S. (ft)	1249.62	Flow Area (sq ft)	36.93	890.85	

E.G. Slope (ft/ft)	0.001393	Area (sq ft)	36.93	890.85	
Q Total (cfs)	11920.00	Flow (cfs)	37.96	11882.04	
Top Width (ft)	208.37	Top Width (ft)	57.48	150.88	
Vel Total (ft/s)	12.85	Avg. Vel. (ft/s)	1.03	13.34	
Max Chl Dpth (ft)	5.95	Hydr. Depth (ft)	0.64	5.90	
Conv. Total (cfs)	319349.7	Conv. (cfs)	1017.0	318332.7	
Length Wtd. (ft)	21.36	Wetted Per. (ft)	57.84	161.16	
Min Ch El (ft)	1243.67	Shear (lb/sq ft)	0.06	0.48	
Alpha	1.07	Stream Power (lb/ft s)	0.06	6.41	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	2.30	226.26	2.61
C & E Loss (ft)	0.36	Cum SA (acres)	4.44	32.05	2.37

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.
Warning - The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #Existing

		Element	Left OB	Channel	Right OB
W.S. Elev (ft)	1250.90				
Vel Head (ft)	3.02	Wt. n-Val.	0.040	0.013	0.040
E.G. Elev (ft)	1253.92	Reach Len. (ft)	21.36	21.36	21.36
Crit W.S. (ft)	1250.90	Flow Area (sq ft)	112.25	1084.39	113.53
E.G. Slope (ft/ft)	0.001207	Area (sq ft)	112.25	1084.39	113.53
Q Total (cfs)	15770.00	Flow (cfs)	218.39	15326.81	224.80
Top Width (ft)	270.09	Top Width (ft)	59.98	150.92	59.18
Vel Total (ft/s)	12.04	Avg. Vel. (ft/s)	1.95	14.13	1.98
Max Chl Dpth (ft)	7.23	Hydr. Depth (ft)	1.87	7.19	1.92
Conv. Total (cfs)	453859.9	Conv. (cfs)	6285.3	441104.8	6469.8
Length Wtd. (ft)	21.36	Wetted Per. (ft)	60.65	161.52	59.76
Min Ch El (ft)	1243.67	Shear (lb/sq ft)	0.14	0.51	0.14
Alpha	1.34	Stream Power (lb/ft s)	0.27	7.15	0.28
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	119.45	298.99	106.12
C & E Loss (ft)	0.33	Cum SA (acres)	33.01	33.02	28.54

Warning - The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning - The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning - The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning - The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning - During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 5.582

INPUT
Description: Concrete Lined Dissipator Basin
Station Elevation Data num= 46

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4438.64	1255.2	4520.17	1255.08	4620.3	1254.71	4724.65	1254.76	4797.74	1254.84
4822.75	1254.4	4829.13	1254.41	4833.9	1254.68	4836.57	1255.67	4844.95	1255.5
4849.93	1255.5	4856.84	1254.79	4869.68	1248.38	4873.44	1249.05	4896.81	1249.74

4905.6	1249.8	4921.04	1248.63	4925.65	1248.29	4926.13	1238.33	4997.37	1238.82
5005.12	1238.8	5075.95	1238.32	5076.52	1249.21	5082.39	1249.53	5088.28	1248.65
5094.46	1246.7	5097.9	1247.23	5104.13	1249.09	5113.66	1249.51	5119.63	1250.09
5128.53	1250	5133.52	1250.42	5145.88	1254.57	5156.57	1254.52	5164.24	1254.88
5172.34	1254.1	5186.95	1254.29	5220.58	1254.92	5259.27	1255.57	5266.72	1255.45
5269.94	1253.9	5273.64	1255.18	5277.48	1254.56	5313.9	1253.77	5406.41	1253.73
5438.64	1253.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4438.64	.04	4905.6	.013	5082.39	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4905.6	5082.39	6.4	6.4	6.4	.1	.3

Left Levee Station= 4905.6 Elevation= 1249.8
Right Levee Station= 5082.39 Elevation= 1249.53

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1245.38	Element			
Vel Head (ft)	1.13	Wt. n-Val.		0.013	
E.G. Elev (ft)	1246.51	Reach Len. (ft)	6.40	6.40	6.40
Crit W.S. (ft)	1243.29	Flow Area (sq ft)		1021.13	
E.G. Slope (ft/ft)	0.000485	Area (sq ft)		1021.13	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	150.53	Top Width (ft)		150.53	
Vel Total (ft/s)	8.52	Avg. Vel. (ft/s)		8.52	
Max Chl Dpth (ft)	7.06	Hydr. Depth (ft)		6.78	
Conv. Total (cfs)	395111.4	Conv. (cfs)		395111.4	
Length Wtd. (ft)	6.40	Wetted Per. (ft)		163.95	
Min Ch El (ft)	1238.32	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		1.61	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		177.74	0.32
C & E Loss (ft)	0.12	Cum SA (acres)		30.49	0.58

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1246.54	Element			
Vel Head (ft)	1.54	Wt. n-Val.		0.013	
E.G. Elev (ft)	1248.08	Reach Len. (ft)	6.40	6.40	6.40
Crit W.S. (ft)	1244.39	Flow Area (sq ft)		1196.31	
E.G. Slope (ft/ft)	0.000547	Area (sq ft)		1196.31	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	150.65	Top Width (ft)		150.65	
Vel Total (ft/s)	9.96	Avg. Vel. (ft/s)		9.96	
Max Chl Dpth (ft)	8.22	Hydr. Depth (ft)		7.94	
Conv. Total (cfs)	509607.6	Conv. (cfs)		509607.6	
Length Wtd. (ft)	6.40	Wetted Per. (ft)		166.28	
Min Ch El (ft)	1238.32	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		2.45	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	2.29	225.75	2.61
C & E Loss (ft)	0.15	Cum SA (acres)	4.42	31.97	2.37

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

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1248.01	Element			
Vel Head (ft)	1.92	Wt. n-Val.		0.013	
E.G. Elev (ft)	1249.93	Reach Len. (ft)	6.40	6.40	6.40
Crit W.S. (ft)	1245.58	Flow Area (sq ft)		1417.59	
E.G. Slope (ft/ft)	0.000557	Area (sq ft)		1417.59	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	150.79	Top Width (ft)		150.79	
Vel Total (ft/s)	11.12	Avg. Vel. (ft/s)		11.12	
Max Chl Dpth (ft)	9.69	Hydr. Depth (ft)		9.40	
Conv. Total (cfs)	668370.1	Conv. (cfs)		668370.1	

Length Wtd. (ft)	6.40	Wetted Per. (ft)			169.21	
Min Ch El (ft)	1238.32	Shear (lb/sq ft)			0.29	
Alpha	1.00	Stream Power (lb/ft s)			3.24	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		119.42	298.38	106.09
C & E Loss (ft)	0.20	Cum SA (acres)		32.99	32.95	28.52

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

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 5.581

INPUT
Description: End Concrete Lined Dissipator Basin
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4438.64	1255.1	4514.09	1255.06	4613.97	1254.68	4714.1	1254.73	4798.14	1254.83
4820.54	1254.4	4824.54	1254.2	4832.45	1254.56	4835.54	1255.54	4850.41	1255.58
4856.73	1254.7	4869.63	1248.37	4873.32	1249.11	4883.23	1249.24	4899.5	1249.67
4906.72	1249.2	4910.94	1247.87	4925.61	1246.75	4926.14	1237.21	5075.99	1237.21
5076.53	1247.6	5085.94	1247.18	5090.89	1245.75	5097.22	1246.58	5101.01	1248.67
5105.11	1249.2	5116.02	1249.7	5119.17	1249.99	5131	1250.01	5133.95	1249.85
5145.52	1250.6	5162.52	1254.5	5166.33	1254.59	5172.43	1254.65	5187.52	1254.08
5214.66	1254.26	5261.2	1254.8	5266.74	1255.57	5269.91	1255.41	5273.21	1253.84
5277.47	1255.22	5313.9	1254.6	5438.64	1253.72				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4438.64	.04	4899.5	.013	5119.17	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4899.5	5119.17	5.16	5.16	5.16	.1	.3

Left Levee Station= 4899.5 Elevation= 1249.67
Right Levee Station= 5119.17 Elevation= 1249.99

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1245.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.73	Wt. n-Val.		0.013	
E.G. Elev (ft)	1246.38	Reach Len. (ft)	5.16	5.16	5.16
Crit W.S. (ft)	1241.90	Flow Area (sq ft)		1269.35	
E.G. Slope (ft/ft)	0.000240	Area (sq ft)		1269.35	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	150.76	Top Width (ft)		150.76	
Vel Total (ft/s)	6.85	Avg. Vel. (ft/s)		6.85	
Max Chl Dpth (ft)	8.45	Hydr. Depth (ft)		8.42	
Conv. Total (cfs)	561423.6	Conv. (cfs)		561423.6	
Length Wtd. (ft)	5.16	Wetted Per. (ft)		166.76	
Min Ch El (ft)	1237.21	Shear (lb/sq ft)		0.11	
Alpha	1.00	Stream Power (lb/ft s)		0.78	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		177.58	0.32
C & E Loss (ft)	0.00	Cum SA (acres)		30.47	0.58

Warning - The conveyance ratio (upstream 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 OUTPUT Profile #Future

W.S. Elev (ft)	1246.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.03	Wt. n-Val.		0.013	
E.G. Elev (ft)	1247.93	Reach Len. (ft)	5.16	5.16	5.16
Crit W.S. (ft)	1243.00	Flow Area (sq ft)		1463.93	
E.G. Slope (ft/ft)	0.000315	Area (sq ft)		1463.93	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	163.70	Top Width (ft)		163.70	
Vel Total (ft/s)	8.14	Avg. Vel. (ft/s)		8.14	
Max Chl Dpth (ft)	9.69	Hydr. Depth (ft)		8.94	
Conv. Total (cfs)	671196.4	Conv. (cfs)		671196.4	

Length Wtd. (ft)	5.16	Wetted Per. (ft)		182.22	
Min Ch El (ft)	1237.21	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)		1.29	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	2.29	225.55	2.61
C & E Loss (ft)	0.02	Cum SA (acres)	4.42	31.95	2.37

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.

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1248.47	Element			
Vel Head (ft)	1.26	Wt. n-Val.		0.013	
E.G. Elev (ft)	1249.73	Reach Len. (ft)	5.16	5.16	5.16
Crit W.S. (ft)	1244.20	Flow Area (sq ft)		1749.39	
E.G. Slope (ft/ft)	0.000372	Area (sq ft)		1749.39	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	191.61	Top Width (ft)		191.61	
Vel Total (ft/s)	9.01	Avg. Vel. (ft/s)		9.01	
Max Chl Dpth (ft)	11.26	Hydr. Depth (ft)		9.13	
Conv. Total (cfs)	818119.1	Conv. (cfs)		818119.1	
Length Wtd. (ft)	5.16	Wetted Per. (ft)		211.38	
Min Ch El (ft)	1237.21	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		1.73	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	119.42	298.15	106.09
C & E Loss (ft)	0.03	Cum SA (acres)	32.99	32.92	28.52

Warning - The conveyance ratio (upstream 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: EMF
REACH: Reach 2 RS: 5.58

INPUT
Description: Riprap Channel
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4438.63	1255.1	4519.23	1255.02	4619.1	1254.65	4713.91	1254.69	4726.5	1254.73
4798.45	1254.8	4819.53	1254.42	4823.58	1254.04	4831.37	1254.53	4835.06	1255.47
4849.94	1255.6	4856.59	1254.71	4869.56	1248.37	4873.3	1249.15	4896.07	1249.46
4901.97	1249.2	4910.46	1246.46	4925.56	1245.36	4926.11	1237.21	5037.58	1237.22
5076.01	1237.2	5076.51	1245.86	5077.49	1245.92	5089.16	1244.81	5095.04	1244.77
5103.93	1248.8	5105.89	1249.37	5118.79	1249.94	5131.51	1249.69	5134.28	1250.78
5145.21	1254.5	5159.37	1254.35	5165.96	1254.58	5172.49	1254.05	5187.97	1254.24
5217.41	1254.8	5222.89	1254.88	5262.7	1255.56	5266.74	1255.38	5269.88	1253.81
5273.16	1255.2	5277.44	1254.57	5313.89	1253.71	5409.82	1253.66	5438.63	1253.63

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4438.63	.04	4896.07	.03	5118.79	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4896.07	5118.79	8.89	8.89	8.89	.1	.3

Left Levee Station= 4896.07 Elevation= 1249.46
Right Levee Station= 5118.79 Elevation= 1249.94

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1245.66	Element			
Vel Head (ft)	0.72	Wt. n-Val.		0.030	
E.G. Elev (ft)	1246.38	Reach Len. (ft)	8.89	8.89	8.89
Crit W.S. (ft)	1241.91	Flow Area (sq ft)		1281.21	
E.G. Slope (ft/ft)	0.001452	Area (sq ft)		1281.21	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	171.87	Top Width (ft)		171.87	
Vel Total (ft/s)	6.79	Avg. Vel. (ft/s)		6.79	
Max Chl Dpth (ft)	8.46	Hydr. Depth (ft)		7.45	

Conv. Total (cfs)	228328.9	Conv. (cfs)	228328.9	
Length Wtd. (ft)	8.89	Wetted Per. (ft)	187.73	
Min Ch El (ft)	1237.20	Shear (lb/sq ft)	0.62	
Alpha	1.00	Stream Power (lb/ft s)	4.20	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	177.43	0.32
C & E Loss (ft)	0.01	Cum SA (acres)	30.45	0.58

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1246.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.96	Wt. n-Val.		0.030	
E.G. Elev (ft)	1247.90	Reach Len. (ft)	8.89	8.89	8.89
Crit W.S. (ft)	1243.00	Flow Area (sq ft)		1517.89	
E.G. Slope (ft/ft)	0.001768	Area (sq ft)		1517.89	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	190.88	Top Width (ft)		190.88	
Vel Total (ft/s)	7.85	Avg. Vel. (ft/s)		7.85	
Max Chl Dpth (ft)	9.74	Hydr. Depth (ft)		7.95	
Conv. Total (cfs)	283478.0	Conv. (cfs)		283478.0	
Length Wtd. (ft)	8.89	Wetted Per. (ft)		207.31	
Min Ch El (ft)	1237.20	Shear (lb/sq ft)		0.81	
Alpha	1.00	Stream Power (lb/ft s)		6.35	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	2.29	225.38	2.61
C & E Loss (ft)	0.02	Cum SA (acres)	4.42	31.93	2.37

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1248.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.15	Wt. n-Val.		0.030	
E.G. Elev (ft)	1249.70	Reach Len. (ft)	8.89	8.89	8.89
Crit W.S. (ft)	1244.20	Flow Area (sq ft)		1829.33	
E.G. Slope (ft/ft)	0.001759	Area (sq ft)		1829.33	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	199.35	Top Width (ft)		199.35	
Vel Total (ft/s)	8.62	Avg. Vel. (ft/s)		8.62	
Max Chl Dpth (ft)	11.34	Hydr. Depth (ft)		9.18	
Conv. Total (cfs)	376026.4	Conv. (cfs)		376026.4	
Length Wtd. (ft)	8.89	Wetted Per. (ft)		216.38	
Min Ch El (ft)	1237.20	Shear (lb/sq ft)		0.93	
Alpha	1.00	Stream Power (lb/ft s)		8.00	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	119.42	297.94	106.09
C & E Loss (ft)	0.03	Cum SA (acres)	32.99	32.90	28.52

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 5.578

INPUT
Description: Riprap Channel
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4438.62	1255.1	4528.1	1254.96	4613.9	1254.63	4627.97	1254.59	4713.9	1254.63
4748.68	1254.7	4798.99	1254.79	4820.92	1254.42	4823.81	1253.94	4830.73	1254.4
4834.68	1255.4	4848.82	1255.63	4856.36	1254.68	4869.45	1248.36	4873.28	1249.22
4892.6	1249.5	4896.9	1249.14	4904.58	1245.69	4909.64	1244.02	4925.49	1242.96
4925.96	1238.9	4926.75	1237.79	4927.83	1237.73	4992.68	1237.61	5001.28	1237.55
5007.55	1237.6	5075.32	1237.47	5076.31	1238.22	5076.67	1241.92	5077.63	1242.87
5089.1	1242.1	5093.72	1243.02	5103.45	1246.93	5109	1249.42	5121.46	1249.74
5129.91	1249.6	5131.34	1249.39	5140.89	1253.13	5144.69	1254.42	5160.83	1254.08
5166.41	1254.4	5173.28	1254	5188.76	1254.2	5224.6	1254.9	5241.31	1255.1
5262.62	1255.5	5266.75	1255.32	5269.83	1253.77	5273.07	1255.19	5277.4	1254.57
5303.69	1253.9	5313.88	1253.7	5400.9	1253.66	5413.88	1253.6	5438.62	1253.59

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4438.62	.04	4892.6	.03	5109	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4892.6	5109	500	500	500	.1	.3

Left Levee Station= 4892.6 Elevation= 1249.5
Right Levee Station= 5109 Elevation= 1249.42

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1245.68	Element			
Vel Head (ft)	0.67	Wt. n-Val.		0.030	
E.G. Elev (ft)	1246.35	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1242.34	Flow Area (sq ft)		1319.61	
E.G. Slope (ft/ft)	0.001478	Area (sq ft)		1319.61	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	195.71	Top Width (ft)		195.71	
Vel Total (ft/s)	6.59	Avg. Vel. (ft/s)		6.59	
Max Chl Dpth (ft)	8.21	Hydr. Depth (ft)		6.74	
Conv. Total (cfs)	226297.2	Conv. (cfs)		226297.2	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		204.84	
Min Ch El (ft)	1237.47	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		3.92	
Frctn Loss (ft)	0.70	Cum Volume (acre-ft)		177.16	0.32
C & E Loss (ft)	0.01	Cum SA (acres)		30.41	0.58

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1246.98	Element			
Vel Head (ft)	0.89	Wt. n-Val.		0.030	
E.G. Elev (ft)	1247.87	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1243.58	Flow Area (sq ft)		1578.71	
E.G. Slope (ft/ft)	0.001593	Area (sq ft)		1578.71	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	201.86	Top Width (ft)		201.86	
Vel Total (ft/s)	7.55	Avg. Vel. (ft/s)		7.55	
Max Chl Dpth (ft)	9.51	Hydr. Depth (ft)		7.82	
Conv. Total (cfs)	298646.3	Conv. (cfs)		298646.3	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		211.51	
Min Ch El (ft)	1237.47	Shear (lb/sq ft)		0.74	
Alpha	1.00	Stream Power (lb/ft s)		5.60	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	2.29	225.06	2.61
C & E Loss (ft)	0.00	Cum SA (acres)	4.42	31.89	2.37

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1248.59	Element			
Vel Head (ft)	1.06	Wt. n-Val.		0.030	
E.G. Elev (ft)	1249.65	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1244.71	Flow Area (sq ft)		1910.06	
E.G. Slope (ft/ft)	0.001551	Area (sq ft)		1910.06	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	209.04	Top Width (ft)		209.04	
Vel Total (ft/s)	8.26	Avg. Vel. (ft/s)		8.26	
Max Chl Dpth (ft)	11.12	Hydr. Depth (ft)		9.14	
Conv. Total (cfs)	400385.2	Conv. (cfs)		400385.2	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		219.39	
Min Ch El (ft)	1237.47	Shear (lb/sq ft)		0.84	
Alpha	1.00	Stream Power (lb/ft s)		6.96	
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)	119.42	297.55	106.09
C & E Loss (ft)	0.03	Cum SA (acres)	32.99	32.86	28.52

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 5.483

INPUT
Description:
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

4439.08	1251.9	4499.43	1251.78	4513.67	1251.77	4599.55	1251.77	4627.73	1251.78
4713.66	1252	4739.45	1251.91	4815.8	1251.52	4827.83	1252.11	4830.34	1252.7
4836.21	1252.7	4839.58	1252.39	4846.5	1251.96	4857.92	1247.65	4860.82	1248.51
4865.01	1248.9	4868.62	1248.65	4874.27	1248.8	4880.31	1247.19	4904.51	1240.98
4918.61	1240.4	4925.8	1238.51	4967.08	1238.53	4979.29	1236.98	4991.64	1237.45
4996.12	1236.4	5006.28	1236.66	5025.94	1238.59	5039.33	1238.41	5046.48	1238.44
5054.71	1238.8	5076.99	1239.37	5086.6	1240.86	5096.56	1241.64	5101.06	1241.87
5119.11	1246.2	5127.55	1248.45	5137.07	1248.73	5140.2	1248.63	5144.03	1247.62
5154.87	1250.9	5171.34	1251.57	5178.56	1251.6	5203.31	1252.3	5213.65	1252.53
5249.26	1252.8	5257.68	1252.51	5263.44	1252.46	5267.09	1250.5	5270.3	1252.1
5274.21	1251.3	5302.95	1251.02	5313.64	1250.95	5413.64	1250.66	5439.08	1250.68

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4439.08	.04	4874.27	.025	5137.07	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4874.27	5137.07	504.15	504.15	504.15	.1	.3

Left Levee Station= 4874.27 Elevation= 1248.8
Right Levee Station= 5136.16 Elevation= 1248.79

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1244.92	Element			
Vel Head (ft)	0.73	Wt. n-Val.		0.025	
E.G. Elev (ft)	1245.65	Reach Len. (ft)	504.15	504.15	504.15
Crit W.S. (ft)	1242.67	Flow Area (sq ft)		1270.88	
E.G. Slope (ft/ft)	0.001328	Area (sq ft)		1270.88	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	224.61	Top Width (ft)		224.61	
Vel Total (ft/s)	6.85	Avg. Vel. (ft/s)		6.85	
Max Chl Dpth (ft)	8.52	Hydr. Depth (ft)		5.66	
Conv. Total (cfs)	238713.3	Conv. (cfs)		238713.3	
Length Wtd. (ft)	504.15	Wetted Per. (ft)		226.22	
Min Ch El (ft)	1236.40	Shear (lb/sq ft)		0.47	
Alpha	1.00	Stream Power (lb/ft s)		3.19	
Frctn Loss (ft)	0.67	Cum Volume (acre-ft)		162.29	0.32
C & E Loss (ft)	0.00	Cum SA (acres)		28.00	0.58

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1246.27	Element			
Vel Head (ft)	0.88	Wt. n-Val.		0.025	
E.G. Elev (ft)	1247.15	Reach Len. (ft)	504.15	504.15	504.15
Crit W.S. (ft)	1243.60	Flow Area (sq ft)		1581.79	
E.G. Slope (ft/ft)	0.001282	Area (sq ft)		1581.79	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	235.48	Top Width (ft)		235.48	
Vel Total (ft/s)	7.54	Avg. Vel. (ft/s)		7.54	
Max Chl Dpth (ft)	9.87	Hydr. Depth (ft)		6.72	
Conv. Total (cfs)	332882.6	Conv. (cfs)		332882.6	
Length Wtd. (ft)	504.15	Wetted Per. (ft)		237.42	
Min Ch El (ft)	1236.40	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		4.02	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	2.29	206.92	2.61
C & E Loss (ft)	0.00	Cum SA (acres)	4.42	29.38	2.37

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1248.01	Element			
Vel Head (ft)	0.96	Wt. n-Val.		0.025	
E.G. Elev (ft)	1248.97	Reach Len. (ft)	504.15	504.15	504.15
Crit W.S. (ft)	1244.59	Flow Area (sq ft)		2003.63	
E.G. Slope (ft/ft)	0.001100	Area (sq ft)		2003.63	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	248.69	Top Width (ft)		248.69	
Vel Total (ft/s)	7.87	Avg. Vel. (ft/s)		7.87	
Max Chl Dpth (ft)	11.61	Hydr. Depth (ft)		8.06	

Conv. Total (cfs)	475567.0	Conv. (cfs)		475567.0	
Length Wtd. (ft)	504.15	Wetted Per. (ft)		251.08	
Min Ch El (ft)	1236.40	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		4.31	
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	119.42	275.09	106.09
C & E Loss (ft)	0.01	Cum SA (acres)	32.99	30.23	28.52

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 5.388

INPUT
Description:
Station Elevation Data num= 57

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4442.56	1248.8	4501.77	1248.78	4516.45	1248.76	4537.72	1249.02	4598.32	1249
4616.45	1248.7	4654.06	1249.06	4677.9	1249.04	4701.12	1249.15	4716.44	1248.77
4742.72	1248.8	4764.66	1248.91	4802.06	1248.74	4826.52	1248.11	4834.71	1249.72
4847.98	1249.4	4857.85	1246.74	4863.45	1247.36	4875.84	1247.83	4904.57	1238.9
4917.38	1239.3	4925.07	1238.24	4928.34	1238.2	4950.78	1238.26	4966.45	1238.23
4976.89	1237.9	4980.31	1237.37	4997.01	1236.87	5001.98	1236.07	5009.81	1236.45
5019.83	1237.4	5051.39	1237.76	5069.88	1238.09	5078.5	1238.91	5084.38	1239.59
5098.87	1240.8	5118.57	1245.54	5127.75	1247.69	5140.6	1247.96	5145.89	1246.83
5151.67	1248.2	5158.39	1248.6	5162.51	1248.66	5167.49	1249.08	5176.52	1248.57
5185.81	1249.6	5202.1	1249.79	5216.44	1249.9	5253.51	1249.54	5264.02	1249.39
5267.9	1247.2	5270.53	1249.53	5275.61	1248.89	5310.29	1248.45	5333.6	1248.26
5349.32	1248.1	5442.58	1247.81						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4442.56	.04	4875.84	.025	5127.75	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4875.84	5127.75	500	500	500	.1	.3

Left Levee Station= 4834.71 Elevation= 1249.72
Right Levee Station= 5216.44 Elevation= 1249.9

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1244.25	Element			
Vel Head (ft)	0.72	Wt. n-Val.		0.025	
E.G. Elev (ft)	1244.98	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1242.01	Flow Area (sq ft)		1274.50	
E.G. Slope (ft/ft)	0.001326	Area (sq ft)		1274.50	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	225.87	Top Width (ft)		225.87	
Vel Total (ft/s)	6.83	Avg. Vel. (ft/s)		6.83	
Max Chl Dpth (ft)	8.18	Hydr. Depth (ft)		5.64	
Conv. Total (cfs)	238960.5	Conv. (cfs)		238960.5	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		227.48	
Min Ch El (ft)	1236.07	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		3.16	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)		147.56	0.32
C & E Loss (ft)	0.01	Cum SA (acres)		25.39	0.58

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1245.64	Element			
Vel Head (ft)	0.87	Wt. n-Val.		0.025	
E.G. Elev (ft)	1246.51	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1242.93	Flow Area (sq ft)		1595.50	
E.G. Slope (ft/ft)	0.001251	Area (sq ft)		1595.50	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	236.13	Top Width (ft)		236.13	
Vel Total (ft/s)	7.47	Avg. Vel. (ft/s)		7.47	
Max Chl Dpth (ft)	9.57	Hydr. Depth (ft)		6.76	
Conv. Total (cfs)	337050.6	Conv. (cfs)		337050.6	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		238.11	
Min Ch El (ft)	1236.07	Shear (lb/sq ft)		0.52	

Alpha	1.00	Stream Power (lb/ft s)		3.91	
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)	2.29	188.53	2.61
C & E Loss (ft)	0.01	Cum SA (acres)	4.42	26.65	2.37

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1247.51	Element			
Vel Head (ft)	0.92	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1248.43	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1243.90	Flow Area (sq ft)	3.93	2048.59	2.04
E.G. Slope (ft/ft)	0.001029	Area (sq ft)	3.93	2048.59	2.04
Q Total (cfs)	15770.00	Flow (cfs)	2.17	15766.67	1.16
Top Width (ft)	268.40	Top Width (ft)	12.30	250.08	6.02
Vel Total (ft/s)	7.68	Avg. Vel. (ft/s)	0.55	7.70	0.57
Max Chl Dpth (ft)	11.44	Hydr. Depth (ft)	0.32	8.19	0.34
Conv. Total (cfs)	491652.5	Conv. (cfs)	67.6	491548.8	36.1
Length Wtd. (ft)	500.00	Wetted Per. (ft)	12.44	252.56	6.17
Min Ch El (ft)	1236.07	Shear (lb/sq ft)	0.02	0.52	0.02
Alpha	1.01	Stream Power (lb/ft s)	0.01	4.01	0.01
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)	119.40	251.64	106.08
C & E Loss (ft)	0.02	Cum SA (acres)	32.92	27.34	28.49

Warning - Divided flow computed for this cross-section.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 5.293

INPUT
Description:
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4442.56	1246.3	4534.31	1246.28	4634.95	1246.17	4719.47	1245.92	4823.27	1245.84
4827.12	1245.8	4831.43	1246.57	4836.02	1245.83	4850.29	1246	4856.14	1244.85
4861.35	1246.5	4875.13	1247.15	4906.66	1238.83	4916.89	1238.02	4923.21	1236.76
4938.34	1237.2	4969.74	1236.65	4980.59	1235.67	4987.23	1236.21	4993.98	1236.43
5002.83	1235.1	5016.72	1237.19	5055.31	1237.71	5072.23	1237.73	5087.86	1238.83
5099.85	1239.9	5126.97	1246.72	5140.91	1247.26	5148.05	1245.19	5160.03	1245.86
5169.75	1246.1	5178.82	1246.12	5199.88	1246.57	5219.46	1246.86	5264.29	1246.96
5268.18	1245.1	5271.29	1246.69	5276.15	1245.55	5319.46	1245.68	5399.39	1245.37
5442.58	1245.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4442.56	.04	4875.13	.025	5140.91	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4875.13	5140.91	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4442.56	4875.13	1249	5140.91	5442.58	1249

Left Levee Station= 4875.13 Elevation= 1247.15
Right Levee Station= 5140.91 Elevation= 1247.26

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1243.64	Element			
Vel Head (ft)	0.69	Wt. n-Val.		0.025	
E.G. Elev (ft)	1244.33	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1241.23	Flow Area (sq ft)		1305.50	
E.G. Slope (ft/ft)	0.001227	Area (sq ft)		1305.50	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	226.28	Top Width (ft)		226.28	
Vel Total (ft/s)	6.66	Avg. Vel. (ft/s)		6.66	
Max Chl Dpth (ft)	8.54	Hydr. Depth (ft)		5.77	
Conv. Total (cfs)	248380.6	Conv. (cfs)		248380.6	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		227.95	
Min Ch El (ft)	1235.10	Shear (lb/sq ft)		0.44	
Alpha	1.00	Stream Power (lb/ft s)		2.92	

Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	132.76	0.32
C & E Loss (ft)	0.03	Cum SA (acres)	22.80	0.58

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1245.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.		0.025	
E.G. Elev (ft)	1245.90	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1242.16	Flow Area (sq ft)		1637.91	
E.G. Slope (ft/ft)	0.001155	Area (sq ft)		1637.91	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	237.42	Top Width (ft)		237.42	
Vel Total (ft/s)	7.28	Avg. Vel. (ft/s)		7.28	
Max Chl Dpth (ft)	9.97	Hydr. Depth (ft)		6.90	
Conv. Total (cfs)	350799.1	Conv. (cfs)		350799.1	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		239.45	
Min Ch El (ft)	1235.10	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		3.59	
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)	2.29	169.98	2.61
C & E Loss (ft)	0.03	Cum SA (acres)	4.42	23.93	2.37

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1247.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.86	Wt. n-Val.		0.025	
E.G. Elev (ft)	1247.91	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1243.15	Flow Area (sq ft)		2125.03	
E.G. Slope (ft/ft)	0.000960	Area (sq ft)		2125.03	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	260.13	Top Width (ft)		260.13	
Vel Total (ft/s)	7.42	Avg. Vel. (ft/s)		7.42	
Max Chl Dpth (ft)	11.96	Hydr. Depth (ft)		8.17	
Conv. Total (cfs)	509051.8	Conv. (cfs)		509051.8	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		262.63	
Min Ch El (ft)	1235.10	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		3.60	
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	119.38	227.69	106.07
C & E Loss (ft)	0.03	Cum SA (acres)	32.85	24.41	28.45

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 5.198

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4442.56	1243.5	4507.78	1243.6	4622.46	1243.55	4706.58	1243.55	4722.46	1243.56
4805.98	1243.7	4822.47	1243.78	4828.31	1243.57	4832.08	1243.83	4836.8	1243.31
4852.37	1243.2	4855.84	1242.87	4861.68	1245.82	4875.17	1245.85	4902.75	1238.64
4913.16	1237.2	4919.3	1236.75	4928.37	1236.8	4948.29	1236.6	4963.86	1235.91
4972.68	1235.2	4993.47	1235.31	5001.62	1234.8	5011.16	1235.43	5019.84	1236.32
5045.05	1236.5	5070.19	1236.79	5089.71	1237.78	5096.81	1238.05	5127.72	1245.71
5135.28	1245.8	5141.46	1245.57	5150.26	1243.25	5162.66	1243.89	5174.92	1244.21
5203.09	1244.7	5233.03	1244.97	5264.95	1244.66	5268.95	1243.05	5271.92	1244.38
5275.95	1243.5	5322.49	1243.54	5422.5	1243.43	5442.58	1243.36		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4442.56	.04	4875.17	.025	5127.72	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4875.17	5127.72	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4442.56	4875.17	1248	5127.72	5442.58	1248

Left Levee Station= 4875.17 Elevation= 1245.85
Right Levee Station= 5127.72 Elevation= 1245.71

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1243.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.		0.025	
E.G. Elev (ft)	1243.75	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1240.39	Flow Area (sq ft)		1398.79	
E.G. Slope (ft/ft)	0.001006	Area (sq ft)		1398.79	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	231.87	Top Width (ft)		231.87	
Vel Total (ft/s)	6.22	Avg. Vel. (ft/s)		6.22	
Max Chl Dpth (ft)	8.35	Hydr. Depth (ft)		6.03	
Conv. Total (cfs)	274349.6	Conv. (cfs)		274349.6	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		233.35	
Min Ch El (ft)	1234.80	Shear (lb/sq ft)		0.38	
Alpha	1.00	Stream Power (lb/ft s)		2.34	
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)		117.24	0.32
C & E Loss (ft)	0.00	Cum SA (acres)		20.17	0.58

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1244.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.72	Wt. n-Val.		0.025	
E.G. Elev (ft)	1245.34	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1241.30	Flow Area (sq ft)		1748.36	
E.G. Slope (ft/ft)	0.000959	Area (sq ft)		1748.36	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	243.43	Top Width (ft)		243.43	
Vel Total (ft/s)	6.82	Avg. Vel. (ft/s)		6.82	
Max Chl Dpth (ft)	9.82	Hydr. Depth (ft)		7.18	
Conv. Total (cfs)	384886.5	Conv. (cfs)		384886.5	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		245.28	
Min Ch El (ft)	1234.80	Shear (lb/sq ft)		0.43	
Alpha	1.00	Stream Power (lb/ft s)		2.91	
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	2.29	150.54	2.61
C & E Loss (ft)	0.00	Cum SA (acres)	4.42	21.17	2.37

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1246.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.		0.025	
E.G. Elev (ft)	1247.46	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1242.28	Flow Area (sq ft)		2271.58	
E.G. Slope (ft/ft)	0.000738	Area (sq ft)	1324.26	2271.58	854.86
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.02	Top Width (ft)	432.61	252.55	314.86
Vel Total (ft/s)	6.94	Avg. Vel. (ft/s)		6.94	
Max Chl Dpth (ft)	11.91	Hydr. Depth (ft)		8.99	
Conv. Total (cfs)	580672.6	Conv. (cfs)		580672.6	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		254.69	
Min Ch El (ft)	1234.80	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		2.85	
Frctn Loss (ft)	0.37	Cum Volume (acre-ft)	111.78	202.46	101.16
C & E Loss (ft)	0.00	Cum SA (acres)	30.37	21.47	26.65

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 5.104

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4442.56	1242	4525.47	1241.94	4540.35	1241.95	4640.96	1241.81	4725.48	1241.81
4746.29	1241.7	4825.8	1241.79	4827.46	1241.18	4832.87	1242.32	4838.4	1241.66
4853.08	1241.2	4860.73	1244.86	4874.23	1245.2	4905.32	1237.57	4916.18	1236.32

4933.67	1236.2	4963.74	1235.89	4970.59	1234.75	4975.78	1234.65	4981.92	1234.18
4999.34	1235.4	5013.99	1236	5017.08	1235.87	5021.91	1236.16	5032.88	1236.4
5066.35	1236.2	5076.41	1236.14	5087.03	1237.29	5095.22	1237.14	5127.06	1245.1
5132.85	1245.4	5135.64	1245.39	5141.39	1244.95	5150.79	1241.78	5163.02	1242.73
5211.05	1244.2	5233.98	1244.59	5253.32	1244.26	5258.25	1241.8	5262.68	1243.98
5269.11	1242.1	5293.88	1242.13	5325.5	1242.21	5405.4	1241.71	5442.58	1241.59

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4442.56	.04	4874.23	.025	5132.85	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4874.23	5132.85	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4442.56	4874.23	1248	5132.85	5442.58	1248

Left Levee Station= 4874.23 Elevation= 1245.2
Right Levee Station= 5132.85 Elevation= 1245.4

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1242.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.		0.025	
E.G. Elev (ft)	1243.22	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1240.02	Flow Area (sq ft)		1357.61	
E.G. Slope (ft/ft)	0.001113	Area (sq ft)		1357.61	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	232.06	Top Width (ft)		232.06	
Vel Total (ft/s)	6.41	Avg. Vel. (ft/s)		6.41	
Max Chl Dpth (ft)	8.40	Hydr. Depth (ft)		5.85	
Conv. Total (cfs)	260796.0	Conv. (cfs)		260796.0	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		233.65	
Min Ch El (ft)	1234.18	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		2.59	
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)		101.42	0.32
C & E Loss (ft)	0.01	Cum SA (acres)		17.51	0.58

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1244.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.		0.025	
E.G. Elev (ft)	1244.84	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1240.94	Flow Area (sq ft)		1719.44	
E.G. Slope (ft/ft)	0.001020	Area (sq ft)		1719.44	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	244.32	Top Width (ft)		244.32	
Vel Total (ft/s)	6.93	Avg. Vel. (ft/s)		6.93	
Max Chl Dpth (ft)	9.92	Hydr. Depth (ft)		7.04	
Conv. Total (cfs)	373308.5	Conv. (cfs)		373308.5	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		246.29	
Min Ch El (ft)	1234.18	Shear (lb/sq ft)		0.44	
Alpha	1.00	Stream Power (lb/ft s)		3.08	
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	2.29	130.64	2.61
C & E Loss (ft)	0.01	Cum SA (acres)	4.42	18.37	2.37

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1246.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.74	Wt. n-Val.		0.025	
E.G. Elev (ft)	1247.09	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1241.91	Flow Area (sq ft)		2291.15	
E.G. Slope (ft/ft)	0.000740	Area (sq ft)	1896.78	2291.15	1124.04
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.02	Top Width (ft)	431.67	258.62	309.73
Vel Total (ft/s)	6.88	Avg. Vel. (ft/s)		6.88	
Max Chl Dpth (ft)	12.17	Hydr. Depth (ft)		8.86	
Conv. Total (cfs)	579716.1	Conv. (cfs)		579716.1	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		260.85	

Min Ch El (ft)	1234.18	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		2.79	
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	93.29	176.27	89.81
C & E Loss (ft)	0.02	Cum SA (acres)	25.41	18.54	23.06

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 5.009

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4442.56	1241.8	4528.49	1241.7	4613.17	1241.7	4643.98	1241.66	4728.5	1241.66
4760.72	1241.4	4822.27	1241.17	4828.48	1240.7	4835.91	1241.99	4840.07	1241.13
4847.85	1241.3	4852.9	1240.98	4860.98	1244.35	4864.7	1244.9	4872.1	1244.59
4875.05	1244.6	4882.66	1242.55	4904.19	1236.49	4919.75	1235.38	4927.72	1235.52
4936.93	1235.4	4952.75	1235.52	4962.27	1235.3	4974.01	1234.58	4977.08	1234.25
4990.51	1233.9	5001.43	1234.27	5013.88	1235.23	5018.24	1235.05	5037.48	1235.6
5062.33	1236.2	5077.59	1235.85	5094.63	1236.87	5127.91	1244.36	5141.76	1244.26
5151.86	1241.2	5167.33	1241.91	5179.93	1242.61	5196.71	1243.17	5216.36	1243.94
5249.96	1244.2	5254.42	1244.05	5258.81	1241.95	5263.07	1244.33	5270.87	1241.62
5328.52	1241.2	5348.26	1241.07	5428.52	1240.88	5442.58	1240.88		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4442.56	.04	4875.05	.025	5127.91	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4875.05	5127.91	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4442.56	4864.7	1248	5127.91	5442.58	1248

Left Levee Station= 4864.7 Elevation= 1244.9
Right Levee Station= 5127.91 Elevation= 1244.36

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1242.06	Element			
Vel Head (ft)	0.61	Wt. n-Val.		0.025	
E.G. Elev (ft)	1242.67	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1239.39	Flow Area (sq ft)		1384.82	
E.G. Slope (ft/ft)	0.001048	Area (sq ft)		1384.82	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	233.25	Top Width (ft)		233.25	
Vel Total (ft/s)	6.28	Avg. Vel. (ft/s)		6.28	
Max Chl Dpth (ft)	8.16	Hydr. Depth (ft)		5.94	
Conv. Total (cfs)	268700.3	Conv. (cfs)		268700.3	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		234.78	
Min Ch El (ft)	1233.90	Shear (lb/sq ft)		0.39	
Alpha	1.00	Stream Power (lb/ft s)		2.43	
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)		85.68	0.32
C & E Loss (ft)	0.01	Cum SA (acres)		14.84	0.58

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1243.63	Element			
Vel Head (ft)	0.71	Wt. n-Val.		0.025	
E.G. Elev (ft)	1244.34	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1240.30	Flow Area (sq ft)		1762.29	
E.G. Slope (ft/ft)	0.000948	Area (sq ft)		1762.29	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	246.02	Top Width (ft)		246.02	
Vel Total (ft/s)	6.76	Avg. Vel. (ft/s)		6.76	
Max Chl Dpth (ft)	9.73	Hydr. Depth (ft)		7.16	
Conv. Total (cfs)	387216.0	Conv. (cfs)		387216.0	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		247.94	

Min Ch El (ft)	1233.90	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		2.84	
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	2.29	110.66	2.61
C & E Loss (ft)	0.01	Cum SA (acres)	4.42	15.56	2.37

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1246.04	Element			
Vel Head (ft)	0.69	Wt. n-Val.	0.040	0.025	
E.G. Elev (ft)	1246.73	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1241.27	Flow Area (sq ft)	13.87	2369.13	
E.G. Slope (ft/ft)	0.000641	Area (sq ft)	1873.51	2369.13	1243.95
Q Total (cfs)	15770.00	Flow (cfs)	15.84	15754.15	
Top Width (ft)	1000.02	Top Width (ft)	432.49	252.86	314.67
Vel Total (ft/s)	6.62	Avg. Vel. (ft/s)	1.14	6.65	
Max Chl Dpth (ft)	12.14	Hydr. Depth (ft)	1.34	9.37	
Conv. Total (cfs)	622964.1	Conv. (cfs)	625.9	622338.2	
Length Wtd. (ft)	500.00	Wetted Per. (ft)	10.36	254.99	
Min Ch El (ft)	1233.90	Shear (lb/sq ft)	0.05	0.37	
Alpha	1.01	Stream Power (lb/ft s)	0.06	2.47	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	71.65	149.52	76.22
C & E Loss (ft)	0.02	Cum SA (acres)	20.45	15.60	19.48

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 4.914

INPUT
Description:
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4442.56	1241.8	4531.5	1241.78	4616.19	1241.61	4631.5	1241.6	4731.5	1241.59
4764.39	1241.4	4828.2	1240.5	4829.96	1240.57	4836.33	1241.42	4841	1240.76
4850.48	1240.9	4853.88	1240.87	4860.09	1243.35	4870.06	1243.67	4873.57	1243.56
4878.54	1242.3	4882.01	1242.46	4901.3	1236.64	4910.84	1235.92	4917.87	1234.33
4925.55	1234.6	4957.59	1234.76	4973	1234.13	4981.22	1234.08	4994.87	1233.76
5001.27	1233.7	5014.8	1234.66	5025.29	1234.64	5047.5	1235.21	5084.93	1235.46
5101.4	1236.7	5126.77	1243.35	5140.24	1243.43	5151.54	1240.57	5161.36	1240.76
5167.69	1241	5181.45	1242.56	5186.57	1242.86	5218.65	1243.6	5247.09	1243.27
5251.03	1243.2	5255.46	1243.5	5259.46	1242.09	5263.72	1243.9	5273.09	1240.35
5303.94	1239.9	5331.52	1239.51	5351.28	1239.51	5431.54	1239.32	5442.58	1239.31

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4442.56	.04	4873.57	.025	5126.77	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4873.57	5126.77	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4442.56	4873.57	1248	5126.77	5442.58	1248

Left Levee Station= 4873.57 Elevation= 1243.56
Right Levee Station= 5263.72 Elevation= 1243.9

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1241.58	Element			
Vel Head (ft)	0.58	Wt. n-Val.		0.025	
E.G. Elev (ft)	1242.16	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1238.77	Flow Area (sq ft)		1429.08	
E.G. Slope (ft/ft)	0.000955	Area (sq ft)		1429.08	16.96
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	260.38	Top Width (ft)		235.10	25.28
Vel Total (ft/s)	6.09	Avg. Vel. (ft/s)		6.09	
Max Chl Dpth (ft)	7.88	Hydr. Depth (ft)		6.08	
Conv. Total (cfs)	281571.7	Conv. (cfs)		281571.7	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		236.78	

Min Ch El (ft)	1233.70	Shear (lb/sq ft)	0.36	
Alpha	1.00	Stream Power (lb/ft s)	2.19	
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	69.53	0.22
C & E Loss (ft)	0.00	Cum SA (acres)	12.15	0.44

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1243.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.		0.025	
E.G. Elev (ft)	1243.87	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1239.67	Flow Area (sq ft)		1825.24	
E.G. Slope (ft/ft)	0.000868	Area (sq ft)		1825.24	81.74
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	318.60	Top Width (ft)		251.29	67.31
Vel Total (ft/s)	6.53	Avg. Vel. (ft/s)		6.53	
Max Chl Dpth (ft)	9.51	Hydr. Depth (ft)		7.26	
Conv. Total (cfs)	404593.8	Conv. (cfs)		404593.8	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		253.43	
Min Ch El (ft)	1233.70	Shear (lb/sq ft)		0.39	
Alpha	1.00	Stream Power (lb/ft s)		2.55	
Frctn Loss (ft)	0.44	Cum Volume (acre-ft)	2.29	90.07	2.14
C & E Loss (ft)	0.00	Cum SA (acres)	4.42	12.71	1.99

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1245.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.		0.025	
E.G. Elev (ft)	1246.41	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1240.63	Flow Area (sq ft)		2476.35	
E.G. Slope (ft/ft)	0.000555	Area (sq ft)	1812.23	2476.35	1503.59
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.02	Top Width (ft)	431.01	253.20	315.81
Vel Total (ft/s)	6.37	Avg. Vel. (ft/s)		6.37	
Max Chl Dpth (ft)	12.08	Hydr. Depth (ft)		9.78	
Conv. Total (cfs)	669271.8	Conv. (cfs)		669271.8	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		255.39	
Min Ch El (ft)	1233.70	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		2.14	
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	50.50	121.71	60.45
C & E Loss (ft)	0.01	Cum SA (acres)	15.49	12.70	15.86

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 4.82

INPUT
Description:
Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4442.56	1242.2	4519.78	1242.12	4534.5	1242.06	4619.19	1241.82	4718.6	1241.82
4758.38	1241.7	4821.53	1241.33	4825.69	1241.26	4830.4	1240.17	4833.28	1241.78
4848.51	1241.7	4854.37	1240.82	4860.56	1243.14	4874.22	1243.16	4878.26	1241.94
4882.13	1241.6	4900.98	1235.89	4910.93	1235.69	4916.55	1234.22	4933.68	1234.27
4963.82	1234	4990.21	1233.57	4999.55	1234.09	5016.1	1233.95	5022.66	1234.16
5027.49	1234.6	5033.49	1234.35	5060.77	1234.68	5078.45	1234.93	5084.61	1235.08
5101.64	1236.7	5121.6	1241.54	5127.46	1243.01	5136.98	1243.19	5141.01	1242.89
5151.09	1240.3	5167.07	1240.68	5190.79	1243.53	5210.57	1243.94	5221.84	1244.38
5239.29	1244.2	5249.54	1243.86	5255.79	1244.22	5259.75	1241.79	5264.5	1244.09
5270.49	1242.1	5285.5	1239.73	5296.41	1239.33	5334.54	1239.48	5354.3	1239.42
5434.54	1239.1	5442.58	1239.08						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4442.56	.04	4874.22	.025	5127.46	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4874.22	5127.46	391	391	391	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4442.56	4874.22	1248	5127.46	5442.58	1248

Left Levee Station= 4874.22 Elevation= 1243.16
Right Levee Station= 5221.84 Elevation= 1244.38

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1241.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.		0.025	
E.G. Elev (ft)	1241.66	Reach Len. (ft)	391.00	391.00	391.00
Crit W.S. (ft)	1238.36	Flow Area (sq ft)		1406.16	
E.G. Slope (ft/ft)	0.001011	Area (sq ft)		1406.16	11.06
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	258.01	Top Width (ft)		235.78	22.22
Vel Total (ft/s)	6.19	Avg. Vel. (ft/s)		6.19	
Max Chl Dpth (ft)	7.50	Hydr. Depth (ft)		5.96	
Conv. Total (cfs)	273610.9	Conv. (cfs)		273610.9	
Length Wtd. (ft)	391.00	Wetted Per. (ft)		237.40	
Min Ch El (ft)	1233.57	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		2.31	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)		53.25	0.06
C & E Loss (ft)	0.00	Cum SA (acres)		9.44	0.17

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1242.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.		0.025	
E.G. Elev (ft)	1243.44	Reach Len. (ft)	391.00	391.00	391.00
Crit W.S. (ft)	1239.25	Flow Area (sq ft)		1820.94	
E.G. Slope (ft/ft)	0.000873	Area (sq ft)		1820.94	66.59
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	294.03	Top Width (ft)		251.01	43.02
Vel Total (ft/s)	6.55	Avg. Vel. (ft/s)		6.55	
Max Chl Dpth (ft)	9.20	Hydr. Depth (ft)		7.25	
Conv. Total (cfs)	403412.2	Conv. (cfs)		403412.2	
Length Wtd. (ft)	391.00	Wetted Per. (ft)		253.05	
Min Ch El (ft)	1233.57	Shear (lb/sq ft)		0.39	
Alpha	1.00	Stream Power (lb/ft s)		2.57	
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	2.29	69.14	1.29
C & E Loss (ft)	0.00	Cum SA (acres)	4.42	9.82	1.35

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1245.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.61	Wt. n-Val.		0.025	
E.G. Elev (ft)	1246.14	Reach Len. (ft)	391.00	391.00	391.00
Crit W.S. (ft)	1240.20	Flow Area (sq ft)		2518.57	
E.G. Slope (ft/ft)	0.000525	Area (sq ft)	1577.32	2518.57	1411.66
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.02	Top Width (ft)	431.66	253.24	315.12
Vel Total (ft/s)	6.26	Avg. Vel. (ft/s)		6.26	
Max Chl Dpth (ft)	11.96	Hydr. Depth (ft)		9.95	
Conv. Total (cfs)	688450.4	Conv. (cfs)		688450.4	
Length Wtd. (ft)	391.00	Wetted Per. (ft)		255.36	
Min Ch El (ft)	1233.57	Shear (lb/sq ft)		0.32	
Alpha	1.00	Stream Power (lb/ft s)		2.02	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	31.05	93.05	43.72
C & E Loss (ft)	0.00	Cum SA (acres)	10.54	9.79	12.24

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 4.746

INPUT
Description:
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4485.82	1242.4	4536.14	1242.16	4624.88	1242.16	4636.87	1242.11	4729.9	1241.84
4818	1241.8	4826.15	1241.36	4831.51	1240.16	4835.9	1242	4845.07	1241.67
4849.07	1241.1	4853.98	1242.44	4874.53	1242.86	4879.11	1241.55	4884.79	1240.86
4901.79	1235.9	4914.28	1234.8	4917.26	1234.06	4936.88	1234.52	4947.51	1234.25
4955.07	1233.8	4974.59	1233.21	4987.53	1233.66	4999.34	1233.09	5012.55	1233.62
5036.88	1234	5058.77	1234.22	5084.32	1234.24	5094.46	1235.3	5096.86	1235.39
5116.47	1240.3	5121.13	1241.05	5127.78	1242.92	5142.21	1242.83	5151.09	1240.35
5164.35	1240.7	5187.25	1242.98	5196.55	1243.16	5236.89	1244.13	5256.34	1244.03
5260.82	1241.8	5264.79	1244.09	5270.38	1242.14	5291.01	1239.14	5301.49	1238.35
5336.88	1238.7	5436.87	1238.49	5485.84	1238.42				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4485.82	.04	4874.53	.025	5127.78	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4874.53	5127.78	99.94	99.94	99.94	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4485.82	4874.53	1248	5127.78	5485.84	1248

Left Levee Station= 4874.53 Elevation= 1242.86
Right Levee Station= 5236.89 Elevation= 1244.13

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1240.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.62	Wt. n-Val.		0.025	
E.G. Elev (ft)	1241.26	Reach Len. (ft)	99.94	99.94	99.94
Crit W.S. (ft)	1237.99	Flow Area (sq ft)		1378.69	
E.G. Slope (ft/ft)	0.001063	Area (sq ft)		1378.69	1.73
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	245.00	Top Width (ft)		233.03	11.97
Vel Total (ft/s)	6.31	Avg. Vel. (ft/s)		6.31	
Max Chl Dpth (ft)	7.55	Hydr. Depth (ft)		5.92	
Conv. Total (cfs)	266859.4	Conv. (cfs)		266859.4	
Length Wtd. (ft)	99.94	Wetted Per. (ft)		234.60	
Min Ch El (ft)	1233.09	Shear (lb/sq ft)		0.39	
Alpha	1.00	Stream Power (lb/ft s)		2.46	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		40.76	0.00
C & E Loss (ft)	0.01	Cum SA (acres)		7.34	0.01

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1242.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.		0.025	
E.G. Elev (ft)	1243.09	Reach Len. (ft)	99.94	99.94	99.94
Crit W.S. (ft)	1238.89	Flow Area (sq ft)		1810.80	
E.G. Slope (ft/ft)	0.000884	Area (sq ft)		1810.80	47.68
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	287.90	Top Width (ft)		249.94	37.96
Vel Total (ft/s)	6.58	Avg. Vel. (ft/s)		6.58	
Max Chl Dpth (ft)	9.33	Hydr. Depth (ft)		7.25	
Conv. Total (cfs)	400857.1	Conv. (cfs)		400857.1	
Length Wtd. (ft)	99.94	Wetted Per. (ft)		251.93	
Min Ch El (ft)	1233.09	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		2.61	

Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	2.29	52.84	0.78
C & E Loss (ft)	0.01	Cum SA (acres)	4.42	7.57	0.99

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1245.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.		0.025	
E.G. Elev (ft)	1245.93	Reach Len. (ft)	99.94	99.94	99.94
Crit W.S. (ft)	1239.87	Flow Area (sq ft)		2548.81	
E.G. Slope (ft/ft)	0.000504	Area (sq ft)	1291.60	2548.81	1777.77
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.02	Top Width (ft)	388.71	253.25	358.06
Vel Total (ft/s)	6.19	Avg. Vel. (ft/s)		6.19	
Max Chl Dpth (ft)	12.25	Hydr. Depth (ft)		10.06	
Conv. Total (cfs)	702270.5	Conv. (cfs)		702270.5	
Length Wtd. (ft)	99.94	Wetted Per. (ft)		255.37	
Min Ch El (ft)	1233.09	Shear (lb/sq ft)		0.31	
Alpha	1.00	Stream Power (lb/ft s)		1.94	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	18.17	70.30	29.40
C & E Loss (ft)	0.01	Cum SA (acres)	6.86	7.52	9.22

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 4.727

INPUT
Description:
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4531.22	1241.4	4543.35	1241.68	4580.45	1242.17	4638.67	1241.84	4755.39	1241.77
4815.88	1241.7	4820.76	1241.69	4826.98	1241.33	4831.39	1240.06	4836.63	1242.13
4851.37	1240.8	4855.86	1242.08	4874.4	1242.75	4877.92	1241.23	4883.71	1241.1
4897.7	1236.5	4908.7	1235.33	4923.13	1234.73	4941.32	1234.19	4959.19	1234.12
4969.32	1233.7	4978.33	1232.99	4982.58	1233.3	4987.04	1232.99	5000.76	1233
5037.41	1234	5065.44	1234.17	5071.94	1234.15	5085.53	1234.43	5100.88	1234.49
5105.84	1235.1	5112.58	1236.97	5130.6	1242.94	5145.92	1242.53	5153.29	1240.65
5166.17	1241.1	5178.55	1242.46	5187.48	1243.19	5199.67	1243.55	5231.73	1244.24
5238.64	1244.7	5251.36	1243.94	5256.19	1244.46	5261.12	1241.99	5265.29	1244.07
5269.51	1242.4	5272.99	1241.87	5291.32	1238.78	5300.24	1238.3	5337.49	1238.53
5437.48	1238.3	5448.74	1238.26	5531.24	1237.91				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4531.22	.04	4874.4	.025	5130.6	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4874.4	5130.6	61.36	61.36	61.36	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4531.22	4874.4	1248	5130.6	5531.24	1248

Left Levee Station= 4874.4 Elevation= 1242.75
Right Levee Station= 5238.64 Elevation= 1244.7

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1240.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.		0.025	
E.G. Elev (ft)	1241.14	Reach Len. (ft)	61.36	61.36	61.36
Crit W.S. (ft)	1237.86	Flow Area (sq ft)		1421.63	
E.G. Slope (ft/ft)	0.000988	Area (sq ft)		1421.63	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	238.07	Top Width (ft)		238.07	
Vel Total (ft/s)	6.12	Avg. Vel. (ft/s)		6.12	
Max Chl Dpth (ft)	7.57	Hydr. Depth (ft)		5.97	
Conv. Total (cfs)	276816.8	Conv. (cfs)		276816.8	

Length Wtd. (ft)	61.36	Wetted Per. (ft)	239.75
Min Ch El (ft)	1232.99	Shear (lb/sq ft)	0.37
Alpha	1.00	Stream Power (lb/ft s)	2.24
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	37.54
C & E Loss (ft)	0.01	Cum SA (acres)	6.80

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1242.36	Element			
Vel Head (ft)	0.63	Wt. n-Val.		0.025	
E.G. Elev (ft)	1243.00	Reach Len. (ft)	61.36	61.36	61.36
Crit W.S. (ft)	1238.73	Flow Area (sq ft)		1866.57	
E.G. Slope (ft/ft)	0.000816	Area (sq ft)		1866.57	32.19
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	284.66	Top Width (ft)		253.57	31.10
Vel Total (ft/s)	6.39	Avg. Vel. (ft/s)		6.39	
Max Chl Dpth (ft)	9.37	Hydr. Depth (ft)		7.36	
Conv. Total (cfs)	417311.7	Conv. (cfs)		417311.7	
Length Wtd. (ft)	61.36	Wetted Per. (ft)		255.86	
Min Ch El (ft)	1232.99	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		2.37	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	2.29	48.62	0.69
C & E Loss (ft)	0.01	Cum SA (acres)	4.42	7.00	0.91

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1245.31	Element			
Vel Head (ft)	0.56	Wt. n-Val.		0.025	
E.G. Elev (ft)	1245.87	Reach Len. (ft)	61.36	61.36	61.36
Crit W.S. (ft)	1239.67	Flow Area (sq ft)		2621.32	
E.G. Slope (ft/ft)	0.000467	Area (sq ft)	1201.26	2621.32	2096.35
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.02	Top Width (ft)	343.18	256.20	400.64
Vel Total (ft/s)	6.02	Avg. Vel. (ft/s)		6.02	
Max Chl Dpth (ft)	12.32	Hydr. Depth (ft)		10.23	
Conv. Total (cfs)	729619.8	Conv. (cfs)		729619.8	
Length Wtd. (ft)	61.36	Wetted Per. (ft)		258.67	
Min Ch El (ft)	1232.99	Shear (lb/sq ft)		0.30	
Alpha	1.00	Stream Power (lb/ft s)		1.78	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	15.31	64.37	24.96
C & E Loss (ft)	0.00	Cum SA (acres)	6.02	6.93	8.35

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 4.715

INPUT
Description:
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4608.39	1241.7	4644.63	1241.89	4737.85	1241.72	4805.04	1241.69	4821.11	1241.59
4827	1241.1	4831.43	1240.01	4835.83	1242.13	4855.09	1240.72	4860.86	1241.84
4874	1242.4	4877.35	1240.95	4883.11	1241.11	4897.6	1236.26	4909.19	1236.15
4916.9	1234.9	4948.36	1234.02	4958.72	1233.92	4980.96	1233.34	5004.43	1233.16
5037.74	1234	5069.41	1234.58	5087.57	1234.77	5099.26	1235.36	5122.97	1241.26
5128.7	1242.3	5140.98	1242.35	5150.17	1240.45	5155.42	1240.76	5167.36	1241.14
5176.64	1241.9	5184.28	1242.65	5195.06	1242.96	5234.69	1244.42	5248.6	1244.29
5254.43	1244.2	5256.53	1244.43	5261.18	1241.92	5265.7	1244.09	5269.62	1242.52
5292.22	1238.5	5300.69	1237.87	5319.85	1238.29	5337.86	1238.35	5410.25	1238.11
5437.85	1238	5510.84	1237.97	5537.85	1237.85	5590.89	1237.53	5608.41	1237.45

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4608.39	.04	4874	.025	5128.7	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4874	5128.7	241.97	241.97	241.97	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4608.39	4874	1248	5128.7	5608.41	1248

Left Levee Station= 4874 Elevation= 1242.4
Right Levee Station= 5234.69 Elevation= 1244.42

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1240.39	Element			
Vel Head (ft)	0.68	Wt. n-Val.		0.025	
E.G. Elev (ft)	1241.07	Reach Len. (ft)	241.97	241.97	241.97
Crit W.S. (ft)	1238.09	Flow Area (sq ft)		1319.35	
E.G. Slope (ft/ft)	0.001238	Area (sq ft)		1319.35	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	234.21	Top Width (ft)		234.21	
Vel Total (ft/s)	6.59	Avg. Vel. (ft/s)		6.59	
Max Chl Dpth (ft)	7.23	Hydr. Depth (ft)		5.63	
Conv. Total (cfs)	247251.5	Conv. (cfs)		247251.5	
Length Wtd. (ft)	241.97	Wetted Per. (ft)		235.66	
Min Ch El (ft)	1233.16	Shear (lb/sq ft)		0.43	
Alpha	1.00	Stream Power (lb/ft s)		2.85	
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)		35.61	
C & E Loss (ft)	0.02	Cum SA (acres)		6.47	

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1242.23	Element			
Vel Head (ft)	0.70	Wt. n-Val.		0.025	
E.G. Elev (ft)	1242.93	Reach Len. (ft)	241.97	241.97	241.97
Crit W.S. (ft)	1238.98	Flow Area (sq ft)		1769.94	
E.G. Slope (ft/ft)	0.000974	Area (sq ft)		1769.94	38.64
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	292.37	Top Width (ft)		253.93	38.45
Vel Total (ft/s)	6.73	Avg. Vel. (ft/s)		6.73	
Max Chl Dpth (ft)	9.07	Hydr. Depth (ft)		6.97	
Conv. Total (cfs)	381844.6	Conv. (cfs)		381844.6	
Length Wtd. (ft)	241.97	Wetted Per. (ft)		255.95	
Min Ch El (ft)	1233.16	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		2.83	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	2.29	46.06	0.64
C & E Loss (ft)	0.03	Cum SA (acres)	4.42	6.64	0.86

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1245.24	Element			
Vel Head (ft)	0.60	Wt. n-Val.		0.025	
E.G. Elev (ft)	1245.84	Reach Len. (ft)	241.97	241.97	241.97
Crit W.S. (ft)	1239.93	Flow Area (sq ft)		2536.39	
E.G. Slope (ft/ft)	0.000516	Area (sq ft)	939.76	2536.39	2736.76
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.02	Top Width (ft)	265.61	254.70	479.71
Vel Total (ft/s)	6.22	Avg. Vel. (ft/s)		6.22	
Max Chl Dpth (ft)	12.08	Hydr. Depth (ft)		9.96	
Conv. Total (cfs)	694053.4	Conv. (cfs)		694053.4	
Length Wtd. (ft)	241.97	Wetted Per. (ft)		256.76	
Min Ch El (ft)	1233.16	Shear (lb/sq ft)		0.32	
Alpha	1.00	Stream Power (lb/ft s)		1.98	
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	13.80	60.74	21.55
C & E Loss (ft)	0.08	Cum SA (acres)	5.59	6.57	7.73

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 4.669

INPUT
Description: Riprap Channel
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4597.74	1240.4	4610.28	1238.78	4641.79	1237.91	4656.1	1238.9	4675.75	1239.33
4691.07	1244.1	4707.61	1244.57	4721.58	1241.77	4727.32	1240.53	4747.2	1238.94
4758.31	1238.5	4769.81	1238.26	4778.63	1238.49	4790.91	1239.29	4804.46	1239.77
4822.21	1240.1	4837.13	1239.53	4850.96	1240.47	4853.69	1240.04	4858.29	1241.28
4864.45	1241.7	4878.67	1242	4897.36	1236.27	4904.76	1234.5	4918.21	1233.69
4943.75	1233.7	4964.59	1233.42	4975.21	1233.44	5003.44	1232.79	5032.84	1233.29
5051.73	1233.8	5084.26	1233.87	5095.53	1233.67	5098.82	1234.92	5119.43	1241.61
5135.4	1241.2	5143.98	1239.48	5147.15	1239.98	5152.4	1240.42	5160.05	1241.27
5167.54	1241.5	5178.9	1241.51	5189.3	1242.16	5202.41	1242.12	5239.31	1242.65
5266.94	1242.8	5283.7	1242.98	5304.19	1243.36	5314.72	1244.05	5322.57	1241.41
5324.99	1242.6	5331.49	1242.94	5365.24	1243.23	5388.89	1243.38	5442.15	1243.52
5507.22	1243.5	5528.25	1243.37	5597.74	1243.11				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4597.74	.04	4878.67	.03	5119.43	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4878.67	5119.43	200	283.71	410	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4597.74	4715	1248	5542	5597.74	1248

Left Levee Station= 4878.67 Elevation= 1242
Right Levee Station= 5119.43 Elevation= 1241.61
Blocked Obstructions num= 1

Sta L	Sta R	Elev
4597.74	4858.2	1241

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1240.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.62	Wt. n-Val.		0.030	
E.G. Elev (ft)	1240.72	Reach Len. (ft)	200.00	283.71	410.00
Crit W.S. (ft)	1237.48	Flow Area (sq ft)		1373.17	
E.G. Slope (ft/ft)	0.001526	Area (sq ft)		1373.17	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	229.88	Top Width (ft)		229.88	
Vel Total (ft/s)	6.34	Avg. Vel. (ft/s)		6.34	
Max Chl Dpth (ft)	7.30	Hydr. Depth (ft)		5.97	
Conv. Total (cfs)	222705.3	Conv. (cfs)		222705.3	
Length Wtd. (ft)	283.71	Wetted Per. (ft)		231.75	
Min Ch El (ft)	1232.79	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		3.58	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)		28.14	
C & E Loss (ft)	0.03	Cum SA (acres)		5.18	

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1242.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.62	Wt. n-Val.	0.040	0.030	0.040
E.G. Elev (ft)	1242.66	Reach Len. (ft)	200.00	283.71	410.00
Crit W.S. (ft)	1238.38	Flow Area (sq ft)	146.73	1831.80	64.98
E.G. Slope (ft/ft)	0.001120	Area (sq ft)	235.06	1831.80	64.98
Q Total (cfs)	11920.00	Flow (cfs)	173.22	11670.00	76.78
Top Width (ft)	556.98	Top Width (ft)	245.14	240.76	71.08
Vel Total (ft/s)	5.83	Avg. Vel. (ft/s)	1.18	6.37	1.18
Max Chl Dpth (ft)	9.25	Hydr. Depth (ft)	0.93	7.61	0.91
Conv. Total (cfs)	356132.1	Conv. (cfs)	5175.2	348663.0	2294.0
Length Wtd. (ft)	283.51	Wetted Per. (ft)	158.59	243.16	71.63
Min Ch El (ft)	1232.79	Shear (lb/sq ft)	0.06	0.53	0.06
Alpha	1.17	Stream Power (lb/ft s)	0.08	3.36	0.07
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	1.64	36.06	0.35

C & E Loss (ft)	0.02	Cum SA (acres)	3.74	5.27	0.56

Warning - Divided flow computed for this cross-section.
Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1245.33	Element			
Vel Head (ft)	0.32	Wt. n-Val.	0.040	0.030	0.040
E.G. Elev (ft)	1245.64	Reach Len. (ft)	200.00	283.71	410.00
Crit W.S. (ft)	1239.34	Flow Area (sq ft)	682.04	2623.29	1071.42
E.G. Slope (ft/ft)	0.000415	Area (sq ft)	1097.82	2623.29	1189.14
Q Total (cfs)	15770.00	Flow (cfs)	1335.65	12928.63	1505.72
Top Width (ft)	1000.00	Top Width (ft)	280.93	240.76	478.31
Vel Total (ft/s)	3.60	Avg. Vel. (ft/s)	1.96	4.93	1.41
Max Chl Dpth (ft)	12.54	Hydr. Depth (ft)	4.17	10.90	2.54
Conv. Total (cfs)	773808.2	Conv. (cfs)	65538.2	634386.7	73883.3
Length Wtd. (ft)	286.20	Wetted Per. (ft)	163.94	243.16	423.63
Min Ch El (ft)	1232.79	Shear (lb/sq ft)	0.11	0.28	0.07
Alpha	1.57	Stream Power (lb/ft s)	0.21	1.38	0.09
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	8.14	46.41	10.65
C & E Loss (ft)	0.02	Cum SA (acres)	4.07	5.20	5.07

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 4.615

INPUT
Description: S.P.R.R. Bridge (East of SR 87), Upstream Face
10 Span Bridge
with Riprap Protection
Manning n Value of .030 used for
Channel
Use Field Survey Data for This Cross Section
Skew Angle
44.70 Degrees, Cross Section Data Adjusted
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4774.04	1243.6	4777.09	1243.6	4779.13	1244	4834.33	1244	4843.62	1243.62
4878.18	1243.55	4879.65	1241.24	4887.76	1240.07	4904.67	1234.48	4912.3	1232.39
4929.32	1232.63	4954.31	1232.7	4979.29	1232.37	4986.74	1232.24	5004.23	1232.95
5022.4	1233.04	5029.11	1232.58	5036.7	1232.22	5037.99	1232.79	5053.86	1232.57
5078.93	1232.3	5095.34	1232.37	5103.88	1235.5	5118.91	1239.55	5128.01	1239.67
5130.04	1243.39	5163.79	1243.1	5243.96	1242	5268.77	1241.79	5301.47	1241.72
5327.73	1241.59	5333.21	1241.5	5362.21	1241.5	5373.3	1241.53		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4774.04	.04	4878.18	.03	5130.04	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4878.18	5130.04	26.23	26.23	26.23	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4774.04	4878.18	1247	5130.04	5373.3	1247

Left Levee Station= 4878.18 Elevation= 1243.55
Right Levee Station= 5130.04 Elevation= 1243.39

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1239.78	Element			
Vel Head (ft)	0.53	Wt. n-Val.		0.030	
E.G. Elev (ft)	1240.30	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)	1236.59	Flow Area (sq ft)		1493.62	
E.G. Slope (ft/ft)	0.001221	Area (sq ft)		1493.62	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	239.42	Top Width (ft)		239.42	

Vel Total (ft/s)	5.82	Avg. Vel. (ft/s)	5.82
Max Chl Dpth (ft)	7.56	Hydr. Depth (ft)	6.24
Conv. Total (cfs)	249007.4	Conv. (cfs)	249007.4
Length Wtd. (ft)	0.00	Wetted Per. (ft)	241.87
Min Ch El (ft)	1232.22	Shear (lb/sq ft)	0.47
Alpha	1.00	Stream Power (lb/ft s)	2.74
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	18.80
C & E Loss (ft)	0.07	Cum SA (acres)	3.65

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

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1241.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.56	Wt. n-Val.		0.030	
E.G. Elev (ft)	1242.35	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)	1237.48	Flow Area (sq ft)		1987.67	
E.G. Slope (ft/ft)	0.000943	Area (sq ft)		1987.67	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	249.87	Top Width (ft)		249.87	
Vel Total (ft/s)	6.00	Avg. Vel. (ft/s)		6.00	
Max Chl Dpth (ft)	9.57	Hydr. Depth (ft)		7.95	
Conv. Total (cfs)	388104.5	Conv. (cfs)		388104.5	
Length Wtd. (ft)	0.00	Wetted Per. (ft)		253.95	
Min Ch El (ft)	1232.22	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		2.76	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.10	23.62	0.04
C & E Loss (ft)	0.19	Cum SA (acres)	3.18	3.67	0.22

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.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1245.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.49	Wt. n-Val.		0.030	
E.G. Elev (ft)	1245.49	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)	1238.47	Flow Area (sq ft)		2793.52	
E.G. Slope (ft/ft)	0.000542	Area (sq ft)	121.40	2793.52	684.62
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	599.26	Top Width (ft)	104.14	251.86	243.26
Vel Total (ft/s)	5.65	Avg. Vel. (ft/s)		5.65	
Max Chl Dpth (ft)	12.78	Hydr. Depth (ft)		11.09	
Conv. Total (cfs)	677439.8	Conv. (cfs)		677439.8	
Length Wtd. (ft)	0.00	Wetted Per. (ft)		257.86	
Min Ch El (ft)	1232.22	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		2.07	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	5.34	28.77	1.83
C & E Loss (ft)	0.47	Cum SA (acres)	3.19	3.59	1.67

Warning - The cross-section end points had to be extended vertically for the computed water surface.
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.

BRIDGE RIVER: EMF
REACH: Reach 2 RS: 4.613

INPUT
Description: S.P.R.R. 10 Span Bridge East of SR 87
Distance from Upstream XS = 0
Deck/Roadway Width = 26.23
Weir Coefficient = 2.6

Bridge Deck/Roadway Skew =

Upstream Deck/Roadway Coordinates

num= 37

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
4770.82	1245.38	1243	4807.09	1245.6	1243	4843.04	1245.42	1243
4867.66	1245.29	1240.26	4878.89	1245.23	1240.26	4903.1	1245.21	1240.26
4906.62	1245.21	1240.26	4914.32	1245.2	1240.25	4931.47	1245.19	1240.24
4939.45	1245.19	1240.22	4950.66	1245.19	1240.2	4956.35	1245.15	1240.19
4976.21	1245.13	1240.12	4981.23	1245.12	1240.1	4987.36	1245.11	1240.08
5006.03	1245.06	1240.02	5014.04	1245.04	1239.99	5025.33	1245.01	1239.95
5030.95	1244.98	1239.93	5052.01	1244.96	1239.88	5055.77	1244.95	1239.87
5063.27	1244.94	1239.86	5080.67	1244.86	1239.82	5087.86	1244.82	1239.81
5099.11	1244.77	1239.8	5105.51	1244.76	1239.78	5124.45	1244.74	1239.78
5127.76	1244.73	1239.78	5135.69	1244.73	1242	5172.24	1244.63	1242
5209.32	1244.43	1242	5245.24	1244.13	1241	5281.76	1243.77	1241
5319	1243.56	1241	5355.48	1243.36	1241	5391.71	1243.34	1241
5427.29	1243.16	1241						

Upstream Bridge Cross Section Data

Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4774.04	1243.6	4777.09	1243.6	4779.13	1244	4834.33	1244	4843.62	1243.62
4878.18	1243.55	4879.65	1241.24	4887.76	1240.07	4904.67	1234.48	4912.3	1232.39
4929.32	1232.63	4954.31	1232.7	4979.29	1232.37	4986.74	1232.24	5004.23	1232.95
5022.4	1233.04	5029.11	1232.58	5036.7	1232.22	5037.99	1232.79	5053.86	1232.57
5078.93	1232.3	5095.34	1232.37	5103.88	1235.5	5118.91	1239.55	5128.01	1239.67
5130.04	1243.39	5163.79	1243.1	5243.96	1242	5268.77	1241.79	5301.47	1241.72
5327.73	1241.59	5333.21	1241.5	5362.21	1241.5	5373.3	1241.53		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4774.04	.04	4878.18	.03	5130.04	.04

Bank Sta: Left Right Coeff Contr. Expan.

4878.18 5130.04 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4774.04	4878.18	1247	5130.04	5373.3	1247

Left Levee Station= 4878.18 Elevation= 1243.55

Right Levee Station= 5130.04 Elevation= 1243.39

Downstream Deck/Roadway Coordinates

num= 36

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
4759.9	1245.3	1243	4770.82	1245.38	1243	4807.09	1245.6	1243
4843.04	1245.42	1243	4867.66	1245.29	1240.26	4878.89	1245.23	1240.26
4903.1	1245.21	1240.26	4914.32	1245.2	1240.25	4939.31	1245.19	1240.25
4939.45	1245.19	1240.25	4950.66	1245.19	1240.23	4964.2	1245.14	1240.21
4976.21	1245.13	1240.19	4987.36	1245.11	1240.17	4989.09	1245.11	1240.16
5013.99	1245.06	1240.07	5014.04	1245.04	1240.06	5025.33	1245.01	1240.04
5038.84	1244.98	1240.02	5052.01	1244.96	1239.97	5063.27	1244.94	1239.93
5063.74	1244.88	1239.93	5087.86	1244.82	1239.83	5088.62	1244.81	1239.83
5099.11	1244.77	1239.8	5113.52	1244.75	1239.76	5124.45	1244.74	1239.76
5135.69	1244.73	1239.76	5172.24	1244.63	1239.76	5209.32	1244.43	1239.76
5245.24	1244.13	1241	5281.76	1243.77	1241	5319	1243.56	1241
5355.48	1243.36	1241	5391.71	1243.34	1241	5427.29	1243.16	1241

Downstream Bridge Cross Section Data

Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4759.9	1244	4771.45	1244	4783.15	1243.76	4793.31	1243.95	4831.09	1244.06
4850.93	1244	4862.81	1243.76	4877.69	1243.85	4912.74	1242.75	4914.19	1241.06
4921.22	1241.26	4938.26	1234.71	4946.53	1232.67	4962.99	1233.23	4970.08	1232.55
4986.72	1232.95	4987.93	1233.9	5000.02	1233.62	5009.01	1232.41	5012.78	1232.64
5032.96	1232.16	5037.7	1233.11	5062.56	1233.29	5087.4	1232.54	5112.41	1232.65
5126.96	1232.14	5137.01	1234.9	5149.19	1238.92	5161.81	1240.04	5163.63	1243.2
5201.19	1243.12	5220.61	1242.25	5247.09	1242	5250.83	1241.91	5269.37	1241.8
5313.05	1241.49	5351.4	1241.41	5364.35	1241.4				

Manning's n Values num= 3

```
     Sta    n Val      Sta    n Val      Sta    n Val
  4759.9      .04 4912.74      .03 5163.63      .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
       4912.74 5163.63              .3       .5
Ineffective Flow     num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  4759.9 4912.74    1246 5163.63 5364.35    1246
Left Levee      Station= 4912.74      Elevation= 1242.75
Right Levee     Station= 5163.63      Elevation=  1243.2

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         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  9

Pier Data
Pier Station     Upstream= 4906.62    Downstream= 4939.31
Upstream     num=        2
    Width   Elev    Width   Elev
       3 1233.48       3 1240.26
Downstream     num=        2
    Width   Elev    Width   Elev
       3 1231.67       3 1240.25

Pier Data
Pier Station     Upstream= 4931.47    Downstream=  4964.2
Upstream     num=        2
    Width   Elev    Width   Elev
       3 1231.63       3 1240.24
Downstream     num=        2
    Width   Elev    Width   Elev
       3 1232.23       3 1240.21

Pier Data
Pier Station     Upstream= 4956.35    Downstream= 4989.09
Upstream     num=        2
    Width   Elev    Width   Elev
       3  1231.7       3 1240.19
Downstream     num=        2
    Width   Elev    Width   Elev
       3  1232.9       331240.16

Pier Data
Pier Station     Upstream= 4981.23    Downstream= 5013.99
Upstream     num=        2
    Width   Elev    Width   Elev
       3 1231.37       3  1240.1
Downstream     num=        2
    Width   Elev    Width   Elev
       3 1231.64       3 1240.07

Pier Data
Pier Station     Upstream= 5006.03    Downstream= 5038.84
Upstream     num=        2
    Width   Elev    Width   Elev
       3 1231.95       3 1240.02
Downstream     num=        2
    Width   Elev    Width   Elev
       3 1232.11       3 1240.02

Pier Data
Pier Station     Upstream= 5030.95    Downstream= 5063.74
Upstream     num=        2
    Width   Elev    Width   Elev
```

```
       3 1231.58        3 1239.93
Downstream      num=        2
    Width   Elev    Width   Elev
       3 1232.29        3 1239.93

Pier Data
Pier Station     Upstream= 5055.77    Downstream= 5088.62
Upstream      num=        2
    Width   Elev    Width   Elev
       3 1231.57        3 1239.87
Downstream      num=        2
    Width   Elev    Width   Elev
       3 1231.54        3 1239.83

Pier Data
Pier Station     Upstream= 5080.67    Downstream= 5113.52
Upstream      num=        2
    Width   Elev    Width   Elev
       3  1231.3        3 1239.82
Downstream      num=        2
    Width   Elev    Width   Elev
       3 1231.65        3 1239.76

Pier Data
Pier Station     Upstream= 5105.51    Downstream= 5138.37
Upstream      num=        2
    Width   Elev    Width   Elev
       3  1235.5        3 1239.78
Downstream      num=        2
    Width   Elev    Width   Elev
       3  1233.9        3 1240.73

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum                Cd   =     1.2
       Yarnell                 KVal =      .9
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the downstream end
       Criteria to check for pressure flow = Upstream water surface

BRIDGE OUTPUT    Profile #Design
Opening : Bridge #1
```

			Inside BR US	Inside BR DS
E.G. US. (ft)	1240.30	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1239.78	E.G. Elev (ft)	1240.24	1240.10
Q Total (cfs)	8700.00	W.S. Elev (ft)	1239.49	1239.21
Q Bridge (cfs)	8700.00	Crit W.S. (ft)	1236.91	1237.15
Q Weir (cfs)		Max Chl Dpth (ft)	7.27	7.07
Weir Sta Lft (ft)		Vel Total (ft/s)	6.94	7.56
Weir Sta Rgt (ft)		Flow Area (sq ft)	1253.23	1150.31
Weir Submerg		Froude # Chl	0.49	0.55
Weir Max Depth (ft)		Specif Force (cu ft)	6059.72	5624.90
Min Top Rd (ft)	1244.73	Hydr Depth (ft)	6.20	5.78
Min El Prs (ft)	1240.26	W.P. Total (ft)	319.38	305.58
Delta EG (ft)	0.31	Conv. Total (cfs)	154426.3	137873.3
Delta WS (ft)	0.45	Top Width (ft)	202.16	198.94
BR Open Area (sq ft)	1309.39	Frctn Loss (ft)	0.09	0.00
BR Open Vel (ft/s)	7.56	C & E Loss (ft)	0.04	0.11
Coef of Q		Shear Total (lb/sq ft)	0.78	0.94
Br Sel Mthd	Energy only	Power Total (lb/ft s)	5.40	7.08

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

BRIDGE OUTPUT Profile #Future
Opening : Bridge #1

E.G. US. (ft)	1242.35	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1241.79	E.G. Elev (ft)	1242.16	1241.87
Q Total (cfs)	11920.00	W.S. Elev (ft)	1240.98	1240.58
Q Bridge (cfs)	11920.00	Crit W.S. (ft)	1237.91	1238.15
Q Weir (cfs)		Max Chl Dpth (ft)	8.76	8.44
Weir Sta Lft (ft)		Vel Total (ft/s)	8.73	9.10
Weir Sta Rgt (ft)		Flow Area (sq ft)	1365.10	1309.39
Weir Submerg		Froude # Chl	0.57	0.61
Weir Max Depth (ft)		Specif Force (cu ft)	9414.82	8682.14
Min Top Rd (ft)	1244.73	Hydr Depth (ft)		
Min El Prs (ft)	1240.26	W.P. Total (ft)	556.45	536.60
Delta EG (ft)	0.73	Conv. Total (cfs)	122987.7	117548.9
Delta WS (ft)	0.95	Top Width (ft)		
BR Open Area (sq ft)	1309.39	Frctn Loss (ft)	0.26	0.00
BR Open Vel (ft/s)	9.10	C & E Loss (ft)	0.03	0.26
Coef of Q		Shear Total (lb/sq ft)	1.44	1.57
Br Sel Mthd	Energy only	Power Total (lb/ft s)	12.56	14.26

Note - Yarnell answer is not valid if the water surface is above the low chord or if there is weir flow. The Yarnell answer has been disregarded.
Note - Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
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.

BRIDGE OUTPUT Profile #Existing
Opening : Bridge #1

E.G. US. (ft)	1245.49	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1245.00	E.G. Elev (ft)	1245.02	1244.51
Q Total (cfs)	15770.00	W.S. Elev (ft)	1242.94	1242.26
Q Bridge (cfs)	15770.00	Crit W.S. (ft)	1238.98	1239.25
Q Weir (cfs)		Max Chl Dpth (ft)	10.72	10.12
Weir Sta Lft (ft)		Vel Total (ft/s)	11.55	12.04
Weir Sta Rgt (ft)		Flow Area (sq ft)	1365.10	1309.39
Weir Submerg		Froude # Chl	0.67	0.73
Weir Max Depth (ft)		Specif Force (cu ft)	14527.65	13404.07
Min Top Rd (ft)	1244.73	Hydr Depth (ft)		
Min El Prs (ft)	1240.26	W.P. Total (ft)	556.45	536.60
Delta EG (ft)	1.71	Conv. Total (cfs)	122987.7	117548.9
Delta WS (ft)	2.00	Top Width (ft)		
BR Open Area (sq ft)	1309.39	Frctn Loss (ft)	0.45	0.00
BR Open Vel (ft/s)	12.04	C & E Loss (ft)	0.05	0.74
Coef of Q		Shear Total (lb/sq ft)	2.52	2.74
Br Sel Mthd	Energy only	Power Total (lb/ft s)	29.09	33.02

Note - Yarnell answer is not valid if the water surface is above the low chord or if there is weir flow. The Yarnell answer has been disregarded.
Note - Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
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.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 4.610

INPUT
Description: S.P.R.R. Bridge (East of SR 87), Downstream Face
10 Span Bridge
with Riprap Protection
Manning n Value of .030 used for
Channel
Use Field Survey Data for This Cross Section
Skew Angle
44.65 Degrees, Cross Section Data Adjusted

Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4759.9	1244	4771.45	1244	4783.15	1243.76	4793.31	1243.95	4831.09	1244.06
4850.93	1244	4862.81	1243.76	4877.69	1243.85	4912.74	1242.75	4914.19	1241.06
4921.22	1241.26	4938.26	1234.71	4946.53	1232.67	4962.99	1233.23	4970.08	1232.55
4986.72	1232.95	4987.93	1233.9	5000.02	1233.62	5009.01	1232.41	5012.78	1232.64
5032.96	1232.16	5037.7	1233.11	5062.56	1233.29	5087.4	1232.54	5112.41	1232.65
5126.96	1232.14	5137.01	1234.9	5149.19	1238.92	5161.81	1240.04	5163.63	1243.2
5201.19	1243.12	5220.61	1242.25	5247.09	1242	5250.83	1241.91	5269.37	1241.8
5313.05	1241.49	5351.4	1241.41	5364.35	1241.4				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4759.9	.04	4912.74	.03	5163.63	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4912.74	5163.63	109.5	109.5	109.5	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4759.9	4912.74	1246	5163.63	5364.35	1246

Left Levee Station= 4912.74 Elevation= 1242.75
Right Levee Station= 5163.63 Elevation= 1243.2

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1239.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.		0.030	
E.G. Elev (ft)	1239.99	Reach Len. (ft)	109.50	109.50	109.50
Crit W.S. (ft)	1236.83	Flow Area (sq ft)		1331.90	
E.G. Slope (ft/ft)	0.001675	Area (sq ft)		1331.90	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	227.50	Top Width (ft)		227.50	
Vel Total (ft/s)	6.53	Avg. Vel. (ft/s)		6.53	
Max Chl Dpth (ft)	7.19	Hydr. Depth (ft)		5.85	
Conv. Total (cfs)	212593.2	Conv. (cfs)		212593.2	
Length Wtd. (ft)	109.50	Wetted Per. (ft)		230.23	
Min Ch El (ft)	1232.14	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		3.95	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		18.08	
C & E Loss (ft)	0.03	Cum SA (acres)		3.53	

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1240.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.77	Wt. n-Val.		0.030	
E.G. Elev (ft)	1241.61	Reach Len. (ft)	109.50	109.50	109.50
Crit W.S. (ft)	1237.74	Flow Area (sq ft)		1689.36	
E.G. Slope (ft/ft)	0.001533	Area (sq ft)		1689.36	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	239.96	Top Width (ft)		239.96	
Vel Total (ft/s)	7.06	Avg. Vel. (ft/s)		7.06	
Max Chl Dpth (ft)	8.70	Hydr. Depth (ft)		7.04	
Conv. Total (cfs)	304402.5	Conv. (cfs)		304402.5	
Length Wtd. (ft)	109.50	Wetted Per. (ft)		243.47	
Min Ch El (ft)	1232.14	Shear (lb/sq ft)		0.66	
Alpha	1.00	Stream Power (lb/ft s)		4.69	
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	1.10	22.82	0.04
C & E Loss (ft)	0.03	Cum SA (acres)	3.18	3.67	0.22

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1243.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.78	Wt. n-Val.		0.030	
E.G. Elev (ft)	1243.78	Reach Len. (ft)	109.50	109.50	109.50
Crit W.S. (ft)	1238.71	Flow Area (sq ft)		2224.22	
E.G. Slope (ft/ft)	0.001149	Area (sq ft)	0.96	2224.22	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	258.60	Top Width (ft)	7.83	250.77	
Vel Total (ft/s)	7.09	Avg. Vel. (ft/s)		7.09	
Max Chl Dpth (ft)	10.86	Hydr. Depth (ft)		8.87	
Conv. Total (cfs)	465136.6	Conv. (cfs)		465136.6	
Length Wtd. (ft)	109.50	Wetted Per. (ft)		256.38	
Min Ch El (ft)	1232.14	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		4.41	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	5.34	27.97	1.83
C & E Loss (ft)	0.02	Cum SA (acres)	3.19	3.59	1.67

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 4.590

INPUT
Description: SR 87 Bridge Upstream Face
5 Span Bridge with Riprap
Protection
Manning n Value of .030 used for Channel
Use Field
Survey Data for This Cross Section
Skew Angle 44.54 Degrees,
Cross Section Data Adjusted
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4653.46	1243.5	4678.53	1243.42	4741.53	1243.63	4775.28	1243.55	4845.04	1243.48
4877.76	1243.11	4884.71	1242.31	4890.54	1239.6	4911.15	1232.54	4927.29	1232.23
4977.25	1232.68	5027.42	1232.39	5076.91	1231.84	5094.83	1232.03	5099.21	1233.09
5122.67	1241.57	5129.15	1242.72	5160.24	1242.98	5191.28	1242.84	5230.57	1242.69
5238.87	1242.6	5280.65	1242.4	5309.47	1241.98	5322.27	1241.96		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4653.46	.04	4877.76	.03	5129.15	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.76	5129.15	64.93	64.93	64.93	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4653.46	4877.76	1245	5129.15	5322.27	1245

Left Levee Station= 4877.76 Elevation= 1243.11
Right Levee Station= 5129.15 Elevation= 1242.72

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1239.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.		0.030	
E.G. Elev (ft)	1239.79	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)	1236.33	Flow Area (sq ft)		1406.32	
E.G. Slope (ft/ft)	0.001368	Area (sq ft)		1406.32	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	224.37	Top Width (ft)		224.37	
Vel Total (ft/s)	6.19	Avg. Vel. (ft/s)		6.19	
Max Chl Dpth (ft)	7.35	Hydr. Depth (ft)		6.27	
Conv. Total (cfs)	235178.9	Conv. (cfs)		235178.9	
Length Wtd. (ft)	0.00	Wetted Per. (ft)		226.69	
Min Ch El (ft)	1231.84	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		3.28	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		14.63	
C & E Loss (ft)	0.03	Cum SA (acres)		2.96	

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1240.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.72	Wt. n-Val.		0.030	
E.G. Elev (ft)	1241.43	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)	1237.25	Flow Area (sq ft)		1753.80	
E.G. Slope (ft/ft)	0.001292	Area (sq ft)		1753.80	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	232.17	Top Width (ft)		232.17	
Vel Total (ft/s)	6.80	Avg. Vel. (ft/s)		6.80	
Max Chl Dpth (ft)	8.88	Hydr. Depth (ft)		7.55	
Conv. Total (cfs)	331682.0	Conv. (cfs)		331682.0	
Length Wtd. (ft)	0.00	Wetted Per. (ft)		235.06	
Min Ch El (ft)	1231.84	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		4.09	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.10	18.49	0.04
C & E Loss (ft)	0.13	Cum SA (acres)	3.18	3.07	0.22

Warning - The conveyance ratio (upstream 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 OUTPUT Profile #Existing

W.S. Elev (ft)	1242.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.		0.030	
E.G. Elev (ft)	1243.64	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)	1238.22	Flow Area (sq ft)		2274.42	
E.G. Slope (ft/ft)	0.001049	Area (sq ft)		2274.42	57.62
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	412.79	Top Width (ft)		249.50	163.29
Vel Total (ft/s)	6.93	Avg. Vel. (ft/s)		6.93	
Max Chl Dpth (ft)	11.05	Hydr. Depth (ft)		9.12	
Conv. Total (cfs)	487012.2	Conv. (cfs)		487012.2	
Length Wtd. (ft)	0.00	Wetted Per. (ft)		253.03	
Min Ch El (ft)	1231.84	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		4.08	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	5.34	22.31	1.76
C & E Loss (ft)	0.38	Cum SA (acres)	3.18	2.96	1.46

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 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.

BRIDGE RIVER: EMF
REACH: Reach 2 RS: 4.584

INPUT
Description: SR 87 Bridge, 5 Span Bridge
Distance from Upstream XS = 0
Deck/Roadway Width = 64.93
Weir Coefficient = 2.6
Bridge Deck/Roadway Skew =
Upstream Deck/Roadway Coordinates
num= 39

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
4632.92	1243.9	1243	4699.7	1243.73	1243	4735.5	1243.72	1243
4770.69	1243.67	1243	4806.33	1243.64	1243	4842.12	1243.57	1243
4877.39	1243.53	1239.54	4878.02	1243.53	1239.54	4889.64	1243.5	1239.54
4891.82	1243.49	1239.54	4911.32	1243.43	1239.54	4914.45	1243.42	1239.54
4918.64	1243.41	1239.54	4930.09	1243.41	1239.54	4954.31	1243.41	1239.52
4980.06	1243.39	1239.48	4989.43	1243.4	1239.47	4989.79	1243.4	1239.47
4994.15	1243.4	1239.46	5003.31	1243.4	1239.45	5025.13	1243.27	1239.42
5029.85	1243.27	1239.41	5041.62	1243.25	1239.38	5047.6	1243.23	1239.37
5059.91	1243.21	1239.34	5079.84	1243.2	1239.3	5088.32	1243.2	1239.3
5093.31	1243.19	1239.3	5095.67	1243.18	1239.3	5115.73	1243.17	1239.3

```
 5119.63 1243.17  1239.3 5131.65 1243.16  1239.3 5135.52 1243.16  1239.3
 5165.42 1243.15    1242 5200.49 1243.11    1242 5236.23 1243.07    1242
 5271.87 1242.98    1242 5307.32 1242.91  1241.5 5322.27  1242.8  1241.5

Upstream Bridge Cross Section Data
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 4653.46  1243.5 4678.53 1243.42 4741.53 1243.63 4775.28 1243.55 4845.04 1243.48
 4877.76 1243.11 4884.71 1242.31 4890.54  1239.6 4911.15 1232.54 4927.29 1232.23
 4977.25 1232.68 5027.42 1232.39 5076.91 1231.84 5094.83 1232.03 5099.21 1233.09
 5122.67 1241.57 5129.15 1242.72 5160.24 1242.98 5191.28 1242.84 5230.57 1242.69
 5238.87  1242.6 5280.65  1242.4 5309.47 1241.98 5322.27 1241.96

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4653.46     .04 4877.76     .03 5129.15     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
       4877.76 5129.15             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4653.46 4877.76    1245 5129.15 5322.27    1245
Left Levee      Station= 4877.76      Elevation= 1243.11
Right Levee     Station= 5129.15      Elevation= 1242.72

Downstream  Deck/Roadway Coordinates
    num=      39
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    4619 1243.47 1243.47 4632.92  1243.9    1243  4699.7 1243.73    1243
  4735.5 1243.72    1243 4770.69 1243.67    1243 4806.33 1243.64    1243
 4842.12 1243.57    1243 4877.39 1243.53 1240.19 4878.02 1243.53 1240.19
 4889.64  1243.5 1240.19 4891.82 1243.49 1240.19 4911.32 1243.43 1240.19
 4914.45 1243.42 1240.19 4918.64 1243.41 1240.19 4927.21 1243.41 1240.19
 4954.31 1243.41 1240.15 4977.29  1243.4 1240.12 4989.43  1243.4 1240.11
 4989.79  1243.4 1240.11 4994.15  1243.4  1240.1 5003.31  1243.4 1240.09
 5025.13 1243.27 1240.07 5027.16 1243.28 1240.07 5041.62 1243.25 1240.04
  5047.6 1243.23 1240.02 5059.91 1243.21    1240 5077.12  1243.2 1239.95
 5088.32  1243.2 1239.95 5093.31 1243.19 1239.95 5095.67 1243.18 1239.95
 5115.73 1243.17 1239.95 5119.63 1243.17 1239.95 5131.65 1243.16 1239.95
 5135.52 1243.16 1239.95 5165.42 1243.15    1242 5200.49 1243.11    1242
 5236.23 1243.07    1242 5271.87 1242.98    1242 5307.32 1242.91    1242

Downstream Bridge Cross Section Data
Station Elevation Data    num=      25
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    4619 1243.47 4695.33 1243.34 4708.97 1243.33 4730.38 1243.41 4774.07  1243.5
 4812.14  1243.5 4838.94  1243.5 4842.08  1243.5 4877.64  1243.5 4890.54 1240.39
 4911.55 1233.16 4928.78 1232.84 4978.77 1232.98 5028.72 1232.98 5078.52 1233.02
 5094.32 1232.72  5116.7 1239.34 5126.51 1242.46 5129.87  1242.6 5167.61  1242.9
  5182.3    1243 5207.06    1243 5260.62  1242.8 5288.24 1242.45 5302.55  1242.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    4619     .04 4877.64     .03 5129.87     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
       4877.64 5129.87             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    4619 4877.64    1245 5129.87 5302.55    1245
Left Levee      Station= 4877.64      Elevation=  1243.5
Right Levee     Station= 5129.87      Elevation=  1242.6

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         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested
```

```
Number of Piers =  4

Pier Data
Pier Station     Upstream= 4930.09    Downstream= 4927.21
Upstream     num=        2
    Width   Elev    Width   Elev
     2.5 1231.23     2.5 1239.54
Downstream     num=        2
    Width   Elev    Width   Elev
     2.5 1231.84     2.5 1240.19

Pier Data
Pier Station     Upstream= 4980.06    Downstream= 4977.29
Upstream     num=        2
    Width   Elev    Width   Elev
     2.5 1231.68     2.5 1239.48
Downstream     num=        2
    Width   Elev    Width   Elev
     2.5 1231.98     2.5 1240.12

Pier Data
Pier Station     Upstream= 5029.85    Downstream= 5027.16
Upstream     num=        2
    Width   Elev    Width   Elev
     2.5 1231.39     2.5 1239.41
Downstream     num=        2
    Width   Elev    Width   Elev
     2.5 1231.98     2.5 1240.07

Pier Data
Pier Station     Upstream= 5079.84    Downstream= 5077.12
Upstream     num=        2
    Width   Elev    Width   Elev
     2.5 1230.84     2.5  1239.3
Downstream     num=        2
    Width   Elev    Width   Elev
     2.5 1232.02     2.5 1239.95

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum                Cd   =     1.2
       Yarnell                 KVal =      .9
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the downstream end
       Criteria to check for pressure flow = Upstream water surface

BRIDGE OUTPUT    Profile #Design
Opening : Bridge #1

  E.G. US. (ft)                1239.79   Element                 Inside BR US  Inside BR DS
  W.S. US. (ft)                1239.19   E.G. Elev (ft)               1239.76       1239.42
  Q Total (cfs)                8700.00   W.S. Elev (ft)               1239.08       1238.25
  Q Bridge (cfs)               8700.00   Crit W.S. (ft)               1236.48       1237.11
  Q Weir (cfs)                           Max Chl Dpth (ft)               7.24          5.53
  Weir Sta Lft (ft)                      Vel Total (ft/s)                6.63          8.67
  Weir Sta Rgt (ft)                      Flow Area (sq ft)            1312.89       1002.89
  Weir Submerg                           Froude # Chl                    0.47          0.69
  Weir Max Depth (ft)                    Specif Force (cu ft)         6079.98       4918.95
  Min Top Rd (ft)              1243.16   Hydr Depth (ft)                 6.14          4.86
```

Min El Prs (ft)	1239.54	W.P. Total (ft)	270.33	250.18
Delta EG (ft)	0.45	Conv. Total (cfs)	186489.4	125351.9
Delta WS (ft)	0.88	Top Width (ft)	213.72	206.24
BR Open Area (sq ft)	1388.74	Frctn Loss (ft)	0.20	0.00
BR Open Vel (ft/s)	8.67	C & E Loss (ft)	0.15	0.07
Coef of Q		Shear Total (lb/sq ft)	0.66	1.21
Br Sel Mthd	Energy only	Power Total (lb/ft s)	4.37	10.46

Warning - The Yarnell method gave an invalid answer. The upstream energy was less than the downstream energy. The program defaulted to the next valid (user selected) method. If the Yarnell method was the only one selected, the program will default to an energy based solution.

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

BRIDGE OUTPUT Profile #Future
Opening : Bridge #1

		Element	Inside BR US	Inside BR DS
E.G. US. (ft)	1241.43	E.G. Elev (ft)	1241.30	1240.84
W.S. US. (ft)	1240.72	W.S. Elev (ft)	1240.16	1239.44
Q Total (cfs)	11920.00	Crit W.S. (ft)	1237.42	1238.06
Q Bridge (cfs)	11920.00	Max Chl Dpth (ft)	8.32	6.72
Q Weir (cfs)		Vel Total (ft/s)	8.58	9.51
Weir Sta Lft (ft)		Flow Area (sq ft)	1388.74	1253.33
Weir Sta Rgt (ft)		Froude # Chl	0.57	0.69
Weir Submerg		Specif Force (cu ft)	8950.44	7440.36
Weir Max Depth (ft)		Hydr Depth (ft)		5.86
Min Top Rd (ft)	1243.16	W.P. Total (ft)	490.89	267.57
Min El Prs (ft)	1239.54	Conv. Total (cfs)	137590.0	173790.0
Delta EG (ft)	0.67	Top Width (ft)		213.71
Delta WS (ft)	1.19	Frctn Loss (ft)	0.38	0.00
BR Open Area (sq ft)	1388.74	C & E Loss (ft)	0.08	0.09
BR Open Vel (ft/s)	9.51	Shear Total (lb/sq ft)	1.33	1.38
Coef of Q		Power Total (lb/ft s)	11.38	13.08
Br Sel Mthd	Energy only			

Warning - The Yarnell method gave an invalid answer. The upstream energy was less than the downstream energy. The program defaulted to the next valid (user selected) method. If the Yarnell method was the only one selected, the program will default to an energy based solution.

BRIDGE OUTPUT Profile #Existing
Opening : Bridge #1

		Element	Inside BR US	Inside BR DS
E.G. US. (ft)	1243.64	E.G. Elev (ft)	1243.26	1242.41
W.S. US. (ft)	1242.89	W.S. Elev (ft)	1241.26	1240.41
Q Total (cfs)	15770.00	Crit W.S. (ft)	1238.41	1239.06
Q Bridge (cfs)	15770.00	Max Chl Dpth (ft)	9.42	7.69
Q Weir (cfs)		Vel Total (ft/s)	11.36	11.34
Weir Sta Lft (ft)		Flow Area (sq ft)	1388.74	1391.00
Weir Sta Rgt (ft)		Froude # Chl	0.70	0.77
Weir Submerg		Specif Force (cu ft)	12864.56	10776.20
Weir Max Depth (ft)		Hydr Depth (ft)		
Min Top Rd (ft)	1243.16	W.P. Total (ft)	490.89	494.19
Min El Prs (ft)	1239.54	Conv. Total (cfs)	137590.0	137346.9
Delta EG (ft)	1.47	Top Width (ft)		
Delta WS (ft)	2.25	Frctn Loss (ft)	0.85	0.00
BR Open Area (sq ft)	1388.74	C & E Loss (ft)	0.00	0.24
BR Open Vel (ft/s)	11.36	Shear Total (lb/sq ft)	2.32	2.32
Coef of Q		Power Total (lb/ft s)	26.35	26.26
Br Sel Mthd	Energy only			

Warning - The Yarnell method gave an invalid answer. The upstream energy was less than the downstream energy. The program defaulted to the next valid (user selected) method. If the Yarnell method was the only one selected, the program will default to an energy based solution.

Note - Momentum answer is not valid if the water surface is above the low chord or if there is weir

flow. The momentum answer has been disregarded.
Warning - The conveyance ratio (upstream 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: EMF
REACH: Reach 2 RS: 4.578

INPUT
Description: SR 87 Bridge Downstream Face
5 Span Bridge with Riprap
Protection
Manning n Value of .030 used for Channel
Use Field
Survey Data for This Cross Section
Skew Angle 44.47 Degrees,
Cross Section Data Adjusted
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4619	1243.47	4695.33	1243.34	4708.97	1243.33	4730.38	1243.41	4774.07	1243.5
4812.14	1243.5	4838.94	1243.5	4842.08	1243.5	4877.64	1243.5	4890.54	1240.39
4911.55	1233.16	4928.78	1232.84	4978.77	1232.98	5028.72	1232.98	5078.52	1233.02
5094.32	1232.72	5116.7	1239.34	5126.51	1242.46	5129.87	1242.6	5167.61	1242.9
5182.3	1243	5207.06	1243	5260.62	1242.8	5288.24	1242.45	5302.55	1242.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4619	.04	4877.64	.03	5129.87	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.64	5129.87	375.87	375.87	375.87	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4619	4877.64	1245	5129.87	5302.55	1245

Left Levee Station= 4877.64 Elevation= 1243.5
Right Levee Station= 5129.87 Elevation= 1242.6

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1238.32	Element			
Vel Head (ft)	1.02	Wt. n-Val.		0.030	
E.G. Elev (ft)	1239.34	Reach Len. (ft)	375.87	375.87	375.87
Crit W.S. (ft)	1236.99	Flow Area (sq ft)		1071.39	
E.G. Slope (ft/ft)	0.003224	Area (sq ft)		1071.39	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	216.69	Top Width (ft)		216.69	
Vel Total (ft/s)	8.12	Avg. Vel. (ft/s)		8.12	
Max Chl Dpth (ft)	5.60	Hydr. Depth (ft)		4.94	
Conv. Total (cfs)	153222.9	Conv. (cfs)		153222.9	
Length Wtd. (ft)	375.87	Wetted Per. (ft)		218.37	
Min Ch El (ft)	1232.72	Shear (lb/sq ft)		0.99	
Alpha	1.00	Stream Power (lb/ft s)		8.02	
Frctn Loss (ft)	0.86	Cum Volume (acre-ft)		12.91	
C & E Loss (ft)	0.13	Cum SA (acres)		2.65	

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1239.52	Element			
Vel Head (ft)	1.23	Wt. n-Val.		0.030	
E.G. Elev (ft)	1240.76	Reach Len. (ft)	375.87	375.87	375.87
Crit W.S. (ft)	1237.90	Flow Area (sq ft)		1337.19	
E.G. Slope (ft/ft)	0.003032	Area (sq ft)		1337.19	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	224.23	Top Width (ft)		224.23	
Vel Total (ft/s)	8.91	Avg. Vel. (ft/s)		8.91	
Max Chl Dpth (ft)	6.80	Hydr. Depth (ft)		5.96	
Conv. Total (cfs)	216484.4	Conv. (cfs)		216484.4	
Length Wtd. (ft)	375.87	Wetted Per. (ft)		226.28	
Min Ch El (ft)	1232.72	Shear (lb/sq ft)		1.12	
Alpha	1.00	Stream Power (lb/ft s)		9.97	

Frctn Loss (ft)	0.79	Cum Volume (acre-ft)	1.10	16.52	0.04
C & E Loss (ft)	0.19	Cum SA (acres)	3.18	2.92	0.22

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1240.65	Element			
Vel Head (ft)	1.52	Wt. n-Val.		0.030	
E.G. Elev (ft)	1242.17	Reach Len. (ft)	375.87	375.87	375.87
Crit W.S. (ft)	1238.88	Flow Area (sq ft)		1592.44	
E.G. Slope (ft/ft)	0.003095	Area (sq ft)		1592.44	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	231.33	Top Width (ft)		231.33	
Vel Total (ft/s)	9.90	Avg. Vel. (ft/s)		9.90	
Max Chl Dpth (ft)	7.93	Hydr. Depth (ft)		6.88	
Conv. Total (cfs)	283463.7	Conv. (cfs)		283463.7	
Length Wtd. (ft)	375.87	Wetted Per. (ft)		233.73	
Min Ch El (ft)	1232.72	Shear (lb/sq ft)		1.32	
Alpha	1.00	Stream Power (lb/ft s)		13.04	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	5.34	20.24	1.76
C & E Loss (ft)	0.31	Cum SA (acres)	3.18	2.96	1.46

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

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 4.506

INPUT
Description: Downstream End of Reach 2
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4381.42	1238.6	4471.89	1238.71	4543.41	1238.75	4571.77	1238.72	4643.41	1238.48
4743.41	1238.4	4765.59	1238.46	4828.97	1238.52	4867.07	1238.89	4883.48	1237.48
4925.09	1234	4949.62	1232.28	4980.73	1230.31	5036.92	1230.65	5063.66	1230.72
5079.51	1231.9	5086.58	1232.24	5126.19	1236.34	5148.33	1238.38	5152.85	1238.55
5201.19	1239	5240.21	1239.01	5260.3	1238.99	5266.77	1238.85	5295.64	1238.66
5301.76	1238.7	5317.16	1238.99	5338.78	1239.16	5381.42	1239.19		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4381.42	.04	4867.07	.025	5152.85	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4867.07	5152.85	100	100	100	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4381.42	4754	1242.5	5196	5381.42	1242.5

Left Levee Station= 4867.07 Elevation= 1238.89
Right Levee Station= 5201.19 Elevation= 1239

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1237.60	Element			
Vel Head (ft)	0.76	Wt. n-Val.		0.025	
E.G. Elev (ft)	1238.35	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	1235.68	Flow Area (sq ft)		1245.39	
E.G. Slope (ft/ft)	0.001696	Area (sq ft)		1245.39	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	257.68	Top Width (ft)		257.68	
Vel Total (ft/s)	6.99	Avg. Vel. (ft/s)		6.99	
Max Chl Dpth (ft)	7.29	Hydr. Depth (ft)		4.83	
Conv. Total (cfs)	211270.2	Conv. (cfs)		211270.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		258.28	
Min Ch El (ft)	1230.31	Shear (lb/sq ft)		0.51	

Alpha	1.00	Stream Power (lb/ft s)	3.57
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	2.91
C & E Loss (ft)	0.02	Cum SA (acres)	0.60

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1238.93	Element			
Vel Head (ft)	0.84	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1239.77	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	1236.64	Flow Area (sq ft)	41.89	1609.21	7.68
E.G. Slope (ft/ft)	0.001546	Area (sq ft)	164.05	1609.21	7.68
Q Total (cfs)	11920.00	Flow (cfs)	31.56	11884.74	3.70
Top Width (ft)	812.06	Top Width (ft)	485.65	285.78	40.63
Vel Total (ft/s)	7.19	Avg. Vel. (ft/s)	0.75	7.39	0.48
Max Chl Dpth (ft)	8.62	Hydr. Depth (ft)	0.37	5.63	0.19
Conv. Total (cfs)	303140.2	Conv. (cfs)	802.6	302243.5	94.0
Length Wtd. (ft)	100.00	Wetted Per. (ft)	113.07	286.47	40.63
Min Ch El (ft)	1230.31	Shear (lb/sq ft)	0.04	0.54	0.02
Alpha	1.05	Stream Power (lb/ft s)	0.03	4.00	0.01
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	0.39	3.81	0.01
C & E Loss (ft)	0.03	Cum SA (acres)	1.08	0.72	0.05

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1240.25	Element			
Vel Head (ft)	0.89	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1241.15	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	1237.63	Flow Area (sq ft)	191.52	1987.40	64.76
E.G. Slope (ft/ft)	0.001268	Area (sq ft)	806.74	1987.40	299.61
Q Total (cfs)	15770.00	Flow (cfs)	359.92	15297.82	112.26
Top Width (ft)	1000.00	Top Width (ft)	485.65	285.78	228.57
Vel Total (ft/s)	7.03	Avg. Vel. (ft/s)	1.88	7.70	1.73
Max Chl Dpth (ft)	9.94	Hydr. Depth (ft)	1.69	6.95	1.50
Conv. Total (cfs)	442942.5	Conv. (cfs)	10109.4	429679.9	3153.1
Length Wtd. (ft)	100.00	Wetted Per. (ft)	113.07	286.47	43.15
Min Ch El (ft)	1230.31	Shear (lb/sq ft)	0.13	0.55	0.12
Alpha	1.17	Stream Power (lb/ft s)	0.25	4.23	0.21
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	1.86	4.79	0.47
C & E Loss (ft)	0.04	Cum SA (acres)	1.08	0.73	0.48

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 2 RS: 4.487

INPUT
Description: Upstream End of Reach 1
Just Downstream of SR 87
Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4381.42	1238.4	4414.98	1238.52	4443.52	1238.55	4515.09	1238.48	4543.53	1238.49
4571.9	1238.4	4643.52	1238.5	4743.53	1238.45	4816.66	1238.32	4824.47	1238.11
4832.8	1238.2	4839.88	1238.44	4861.03	1238.02	4863.48	1237.71	4866.66	1237.88
4872.56	1237.5	4876.77	1237.4	4885.58	1236.47	4907.52	1234.59	4925.56	1233.32
4950.82	1231.5	4966.15	1230.33	4976.26	1230.05	5026.9	1230.57	5066.69	1230.63
5075.33	1231	5098.63	1233.67	5118.82	1235.92	5126.49	1236.91	5128.34	1236.78
5132.07	1237.2	5139.98	1237.45	5164.1	1238.45	5176.4	1238.79	5193.5	1240.07
5243.5	1240.1	5270.16	1239.76	5288.24	1239.66	5328.82	1239.24	5340.35	1239.16
5356.71	1239.3	5381.42	1239.34						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4381.42	.04	4839.88	.025	5193.5	.04

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

```
      4839.88  5193.5                0       0       0             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4381.42    4730    1242    5222 5381.42    1242
Left Levee       Station= 4839.88      Elevation= 1238.44
Right Levee      Station=  5193.5      Elevation= 1240.07
```

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1237.47	Element			
Vel Head (ft)	0.70	Wt. n-Val.		0.025	
E.G. Elev (ft)	1238.17	Reach Len. (ft)			
Crit W.S. (ft)	1235.39	Flow Area (sq ft)		1291.97	
E.G. Slope (ft/ft)	0.001571	Area (sq ft)		1291.97	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	266.64	Top Width (ft)		266.64	
Vel Total (ft/s)	6.73	Avg. Vel. (ft/s)		6.73	
Max Chl Dpth (ft)	7.42	Hydr. Depth (ft)		4.85	
Conv. Total (cfs)	219515.7	Conv. (cfs)		219515.7	
Length Wtd. (ft)		Wetted Per. (ft)		267.31	
Min Ch El (ft)	1230.05	Shear (lb/sq ft)		0.47	
Alpha	1.00	Stream Power (lb/ft s)		3.19	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1238.84	Element			
Vel Head (ft)	0.75	Wt. n-Val.	0.040	0.025	
E.G. Elev (ft)	1239.59	Reach Len. (ft)			
Crit W.S. (ft)	1236.33	Flow Area (sq ft)	52.78	1707.90	
E.G. Slope (ft/ft)	0.001577	Area (sq ft)	177.99	1707.90	
Q Total (cfs)	11920.00	Flow (cfs)	47.75	11872.25	
Top Width (ft)	795.65	Top Width (ft)	458.46	337.19	
Vel Total (ft/s)	6.77	Avg. Vel. (ft/s)	0.90	6.95	
Max Chl Dpth (ft)	8.79	Hydr. Depth (ft)	0.48	5.07	
Conv. Total (cfs)	300160.2	Conv. (cfs)	1202.3	298957.8	
Length Wtd. (ft)		Wetted Per. (ft)	109.89	337.93	
Min Ch El (ft)	1230.05	Shear (lb/sq ft)	0.05	0.50	
Alpha	1.05	Stream Power (lb/ft s)	0.04	3.46	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1240.23	Element			
Vel Head (ft)	0.75	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1240.98	Reach Len. (ft)			
Crit W.S. (ft)	1237.34	Flow Area (sq ft)	205.51	2189.33	4.32
E.G. Slope (ft/ft)	0.001230	Area (sq ft)	815.26	2189.33	107.02
Q Total (cfs)	15770.00	Flow (cfs)	406.35	15362.05	1.60
Top Width (ft)	1000.00	Top Width (ft)	458.46	353.62	187.92
Vel Total (ft/s)	6.57	Avg. Vel. (ft/s)	1.98	7.02	0.37
Max Chl Dpth (ft)	10.18	Hydr. Depth (ft)	1.87	6.19	0.15
Conv. Total (cfs)	449733.6	Conv. (cfs)	11588.5	438099.5	45.6
Length Wtd. (ft)		Wetted Per. (ft)	109.89	354.41	28.50
Min Ch El (ft)	1230.05	Shear (lb/sq ft)	0.14	0.47	0.01
Alpha	1.11	Stream Power (lb/ft s)	0.28	3.33	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

SUMMARY OF MANNING'S N VALUES

River:EMF

Reach	River Sta.	n1	n2	n3
Reach 2	9.001	.04	.025	.04
Reach 2	8.948	.04	.025	.04
Reach 2	8.87	.04	.025	.04
Reach 2	8.775	.04	.025	.04
Reach 2	8.668	.04	.03	.04
Reach 2	8.594	.04	.025	.04
Reach 2	8.514	.04	.025	.04
Reach 2	8.403	.04	.03	.04
Reach 2	8.382	.04	.03	.04
Reach 2	8.34	.04	.025	.04
Reach 2	8.245	.04	.025	.04
Reach 2	8.15	.04	.025	.04
Reach 2	8.104	.04	.03	.04
Reach 2	8.057	.04	.025	.04
Reach 2	8	.04	.025	.04
Reach 2	7.91	.04	.025	.04
Reach 2	7.823	.04	.025	.04
Reach 2	7.792	.04	.025	.04
Reach 2	7.719	.04	.025	.04
Reach 2	7.618	.04	.025	.04
Reach 2	7.523	.04	.025	.04
Reach 2	7.429	.04	.025	.04
Reach 2	7.334	.04	.025	.04
Reach 2	7.239	.04	.025	.04
Reach 2	7.144	.04	.025	.04
Reach 2	7.05	.04	.025	.04
Reach 2	7.026	.04	.025	.04
Reach 2	6.999	.04	.025	.04
Reach 2	6.907	.04	.025	.04
Reach 2	6.902	.04	.015	.04
Reach 2	6.898	.04	.03	.04
Reach 2	6.894	.04	.025	.04
Reach 2	6.86	.04	.025	.04
Reach 2	6.766	.04	.025	.04
Reach 2	6.671	.04	.025	.04
Reach 2	6.576	.04	.025	.04
Reach 2	6.510	.04	.03	.04
Reach 2	6.486	.04	.03	.04
Reach 2	6.388	.04	.03	.04
Reach 2	6.3	.04	.03	.04
Reach 2	6.252	.04	.03	.04
Reach 2	6.23	.04	.013	.04
Reach 2	6.196	.04	.013	.04
Reach 2	6.101	.04	.013	.04
Reach 2	6.007	.04	.013	.04
Reach 2	5.912	.04	.013	.04
Reach 2	5.817	.04	.013	.04
Reach 2	5.722	.04	.013	.04
Reach 2	5.658	.04	.013	.04
Reach 2	5.586	.04	.013	.04
Reach 2	5.582	.04	.013	.04
Reach 2	5.581	.04	.013	.04
Reach 2	5.58	.04	.03	.04
Reach 2	5.578	.04	.03	.04
Reach 2	5.483	.04	.025	.04
Reach 2	5.388	.04	.025	.04
Reach 2	5.293	.04	.025	.04
Reach 2	5.198	.04	.025	.04
Reach 2	5.104	.04	.025	.04
Reach 2	5.009	.04	.025	.04
Reach 2	4.914	.04	.025	.04
Reach 2	4.82	.04	.025	.04
Reach 2	4.746	.04	.025	.04
Reach 2	4.727	.04	.025	.04
Reach 2	4.715	.04	.025	.04
Reach 2	4.669	.04	.03	.04
Reach 2	4.615	.04	.03	.04
Reach 2	4.613	Bridge		

Reach 2	4.610	.04	.03	.04
Reach 2	4.590	.04	.03	.04
Reach 2	4.584	Bridge		
Reach 2	4.578	.04	.03	.04
Reach 2	4.506	.04	.025	.04
Reach 2	4.487	.04	.025	.04

SUMMARY OF REACH LENGTHS

River: EMF

Reach	River Sta.	Left	Channel	Right
Reach 2	9.001	278.91	278.91	278.91
Reach 2	8.948	413.96	413.96	413.96
Reach 2	8.87	499.84	499.84	499.84
Reach 2	8.775	565.77	565.77	565.77
Reach 2	8.668	217	389.24	400
Reach 2	8.594	425.37	425.37	425.37
Reach 2	8.514	581.49	581.49	581.49
Reach 2	8.403	134	110.84	74
Reach 2	8.382	226.55	226.55	226.55
Reach 2	8.34	500	500	500
Reach 2	8.245	500	500	500
Reach 2	8.15	242.5	242.5	242.5
Reach 2	8.104	210	248.86	318
Reach 2	8.057	301.37	301.37	301.37
Reach 2	8	475.23	475.23	475.23
Reach 2	7.91	461.94	461.94	461.94
Reach 2	7.823	160.58	160.58	160.58
Reach 2	7.792	370	388.34	405
Reach 2	7.719	531.12	531.12	531.12
Reach 2	7.618	500	500	500
Reach 2	7.523	500	500	500
Reach 2	7.429	500	500	500
Reach 2	7.334	500	500	500
Reach 2	7.239	500	500	500
Reach 2	7.144	500	500	500
Reach 2	7.05	124.65	124.65	124.65
Reach 2	7.026	143.61	143.61	143.61
Reach 2	6.999	486.65	486.65	486.65
Reach 2	6.907	23.56	23.56	23.56
Reach 2	6.902	20.88	20.88	20.88
Reach 2	6.898	23.07	23.07	23.07
Reach 2	6.894	177.43	177.43	177.43
Reach 2	6.86	500	500	500
Reach 2	6.766	500	500	500
Reach 2	6.671	500	500	500
Reach 2	6.576	351.46	351.46	351.46
Reach 2	6.510	123.49	123.49	123.49
Reach 2	6.486	650	516.83	270
Reach 2	6.388	580	465.58	260
Reach 2	6.3	256.87	256.87	256.87
Reach 2	6.252	112.52	112.52	112.52
Reach 2	6.23	182.54	182.54	182.54
Reach 2	6.196	499.22	499.22	499.22
Reach 2	6.101	500	500	500
Reach 2	6.007	500	500	500
Reach 2	5.912	500	500	500
Reach 2	5.817	500	500	500
Reach 2	5.722	339.85	339.85	339.85
Reach 2	5.658	381	381	381
Reach 2	5.586	21.36	21.36	21.36
Reach 2	5.582	6.4	6.4	6.4
Reach 2	5.581	5.16	5.16	5.16
Reach 2	5.58	8.89	8.89	8.89
Reach 2	5.578	500	500	500

Reach 2	5.483	504.15	504.15	504.15
Reach 2	5.388	500	500	500
Reach 2	5.293	500	500	500
Reach 2	5.198	500	500	500
Reach 2	5.104	500	500	500
Reach 2	5.009	500	500	500
Reach 2	4.914	500	500	500
Reach 2	4.82	391	391	391
Reach 2	4.746	99.94	99.94	99.94
Reach 2	4.727	61.36	61.36	61.36
Reach 2	4.715	241.97	241.97	241.97
Reach 2	4.669	200	283.71	410
Reach 2	4.615	26.23	26.23	26.23
Reach 2	4.613	Bridge		
Reach 2	4.610	109.5	109.5	109.5
Reach 2	4.590	64.93	64.93	64.93
Reach 2	4.584	Bridge		
Reach 2	4.578	375.87	375.87	375.87
Reach 2	4.506	100	100	100
Reach 2	4.487	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: EMF

Reach	River Sta.	Contr.	Expan.
Reach 2	9.001	.1	.3
Reach 2	8.948	.1	.3
Reach 2	8.87	.1	.3
Reach 2	8.775	.1	.3
Reach 2	8.668	.1	.3
Reach 2	8.594	.1	.3
Reach 2	8.514	.1	.3
Reach 2	8.403	.1	.3
Reach 2	8.382	.1	.3
Reach 2	8.34	.1	.3
Reach 2	8.245	.1	.3
Reach 2	8.15	.1	.3
Reach 2	8.104	.1	.3
Reach 2	8.057	.1	.3
Reach 2	8	.1	.3
Reach 2	7.91	.1	.3
Reach 2	7.823	.1	.3
Reach 2	7.792	.1	.3
Reach 2	7.719	.1	.3
Reach 2	7.618	.1	.3
Reach 2	7.523	.1	.3
Reach 2	7.429	.1	.3
Reach 2	7.334	.1	.3
Reach 2	7.239	.1	.3
Reach 2	7.144	.1	.3
Reach 2	7.05	.1	.3
Reach 2	7.026	.3	.5
Reach 2	6.999	.1	.3
Reach 2	6.907	.3	.5
Reach 2	6.902	.3	.5
Reach 2	6.898	.3	.5
Reach 2	6.894	.1	.3
Reach 2	6.86	.1	.3
Reach 2	6.766	.1	.3
Reach 2	6.671	.1	.3
Reach 2	6.576	.1	.3
Reach 2	6.510	.3	.5
Reach 2	6.486	.1	.3
Reach 2	6.388	.1	.3
Reach 2	6.3	.1	.3

Reach 2	6.252	.1	.3
Reach 2	6.23	.3	.5
Reach 2	6.196	.1	.3
Reach 2	6.101	.1	.3
Reach 2	6.007	.1	.3
Reach 2	5.912	.1	.3
Reach 2	5.817	.1	.3
Reach 2	5.722	.1	.3
Reach 2	5.658	.3	.5
Reach 2	5.586	.1	.3
Reach 2	5.582	.1	.3
Reach 2	5.581	.1	.3
Reach 2	5.58	.1	.3
Reach 2	5.578	.1	.3
Reach 2	5.483	.1	.3
Reach 2	5.388	.1	.3
Reach 2	5.293	.1	.3
Reach 2	5.198	.1	.3
Reach 2	5.104	.1	.3
Reach 2	5.009	.1	.3
Reach 2	4.914	.1	.3
Reach 2	4.82	.1	.3
Reach 2	4.746	.1	.3
Reach 2	4.727	.1	.3
Reach 2	4.715	.1	.3
Reach 2	4.669	.1	.3
Reach 2	4.615	.3	.5
Reach 2	4.613	Bridge	
Reach 2	4.610	.3	.5
Reach 2	4.590	.3	.5
Reach 2	4.584	Bridge	
Reach 2	4.578	.3	.5
Reach 2	4.506	.1	.3
Reach 2	4.487	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 2	9.001	8700.00	1286.69	1296.69	1290.94	1296.95	0.000279	4.05	2147.35	257.61	0.25
Reach 2	9.001	11920.00	1286.69	1298.43	1291.84	1298.76	0.000293	4.57	2607.14	270.50	0.26
Reach 2	9.001	15770.00	1286.69	1300.09	1292.80	1300.50	0.000311	5.15	3062.13	746.40	0.27
Reach 2	8.948	8700.00	1286.38	1296.62	1290.78	1296.87	0.000266	4.00	2174.22	256.28	0.24
Reach 2	8.948	11920.00	1286.38	1298.36	1291.67	1298.67	0.000282	4.53	2629.88	268.66	0.26
Reach 2	8.948	15770.00	1286.38	1300.00	1292.63	1300.41	0.000300	5.12	3083.33	959.28	0.27
Reach 2	8.87	8700.00	1286.45	1296.51	1290.74	1296.76	0.000261	3.96	2196.97	259.85	0.24
Reach 2	8.87	11920.00	1286.45	1298.24	1291.60	1298.56	0.000276	4.49	2656.33	271.06	0.25
Reach 2	8.87	15770.00	1286.45	1299.89	1292.53	1300.29	0.000294	5.08	3108.32	917.94	0.27
Reach 2	8.775	8700.00	1286.50	1296.37	1290.77	1296.62	0.000278	4.04	2152.20	258.51	0.25
Reach 2	8.775	11920.00	1286.50	1298.09	1291.64	1298.41	0.000292	4.57	2606.47	269.31	0.26
Reach 2	8.775	15770.00	1286.50	1299.72	1292.57	1300.13	0.000315	5.17	3049.41	936.66	0.27
Reach 2	8.668	8700.00	1285.99	1296.20	1290.33	1296.44	0.000368	3.95	2204.18	257.62	0.24
Reach 2	8.668	11920.00	1285.99	1297.91	1291.20	1298.22	0.000394	4.49	2654.03	471.41	0.25
Reach 2	8.668	15770.00	1285.99	1299.52	1292.14	1299.92	0.000423	5.10	3090.51	846.84	0.27
Reach 2	8.594	8700.00	1285.96	1296.06	1290.49	1296.31	0.000279	4.05	2148.40	257.96	0.25
Reach 2	8.594	11920.00	1285.96	1297.76	1291.35	1298.09	0.000293	4.59	2595.80	474.96	0.26
Reach 2	8.594	15770.00	1285.96	1299.36	1292.28	1299.78	0.000313	5.21	3030.64	912.10	0.27
Reach 2	8.514	8700.00	1286.10	1295.90	1290.77	1296.18	0.000332	4.28	2031.45	255.85	0.27
Reach 2	8.514	11920.00	1286.10	1297.59	1291.64	1297.95	0.000342	4.82	2474.05	394.95	0.28
Reach 2	8.514	15770.00	1286.10	1299.17	1292.57	1299.63	0.000370	5.43	2902.54	639.13	0.30
Reach 2	8.403	8700.00	1285.89	1295.68	1290.40	1295.95	0.000458	4.22	2061.39	256.79	0.26
Reach 2	8.403	11920.00	1285.89	1297.36	1291.29	1297.71	0.000474	4.76	2503.85	466.81	0.27
Reach 2	8.403	15770.00	1285.89	1298.93	1292.23	1299.38	0.000506	5.39	2926.20	531.87	0.29
Reach 2	8.382	8700.00	1286.16	1295.63	1290.33	1295.90	0.000447	4.19	2077.43	257.04	0.26
Reach 2	8.382	11920.00	1286.16	1297.31	1291.21	1297.66	0.000467	4.73	2519.29	267.63	0.27
Reach 2	8.382	15770.00	1286.16	1298.88	1292.12	1299.32	0.000500	5.36	2941.95	514.71	0.29
Reach 2	8.34	8700.00	1285.77	1295.55	1290.20	1295.82	0.000305	4.17	2085.78	256.13	0.26
Reach 2	8.34	11920.00	1285.77	1297.23	1291.07	1297.57	0.000320	4.72	2524.63	266.33	0.27
Reach 2	8.34	15770.00	1285.77	1298.78	1291.99	1299.23	0.000344	5.36	2943.61	473.47	0.[illegible]
Reach 2	8.245	8700.00	1285.80	1295.38	1290.17	1295.66	0.000325	4.25	2046.22	256.17	0[illegible]
Reach 2	8.245	11920.00	1285.80	1297.05	1291.06	1297.41	0.000336	4.80	2483.44	490.88	0.[illegible]

Reach 2	8.245	15770.00	1285.80	1298.59	1291.97	1299.05	0.000361	5.44	2896.29	495.87	0.29
Reach 2	8.15	8700.00	1285.62	1295.22	1290.03	1295.50	0.000319	4.22	2059.30	256.81	0.26
Reach 2	8.15	11920.00	1285.62	1296.89	1290.89	1297.24	0.000331	4.78	2495.41	467.94	0.27
Reach 2	8.15	15770.00	1285.62	1298.41	1291.81	1298.87	0.000357	5.43	2904.44	471.73	0.29
Reach 2	8.104	8700.00	1285.37	1295.13	1289.76	1295.41	0.000438	4.18	2081.52	254.64	0.26
Reach 2	8.104	11920.00	1285.37	1296.80	1290.63	1297.15	0.000463	4.74	2513.34	470.69	0.27
Reach 2	8.104	15770.00	1285.37	1298.32	1291.56	1298.77	0.000504	5.40	2918.81	481.09	0.29
Reach 2	8.057	8700.00	1285.09	1295.05	1289.55	1295.32	0.000290	4.11	2114.40	254.93	0.25
Reach 2	8.057	11920.00	1285.09	1296.71	1290.42	1297.05	0.000309	4.68	2544.87	264.81	0.27
Reach 2	8.057	15770.00	1285.09	1298.22	1291.35	1298.66	0.000355	5.31	2967.85	460.34	0.29
Reach 2	8	8700.00	1284.88	1294.97	1289.42	1295.23	0.000285	4.08	2131.57	257.21	0.25
Reach 2	8	11920.00	1284.88	1296.62	1290.29	1296.96	0.000304	4.65	2564.85	446.17	0.26
Reach 2	8	15770.00	1284.88	1298.12	1291.23	1298.56	0.000335	5.31	2967.74	450.75	0.28
Reach 2	7.91	8700.00	1284.98	1294.81	1289.50	1295.08	0.000311	4.21	2068.57	255.01	0.26
Reach 2	7.91	11920.00	1284.98	1296.45	1290.37	1296.80	0.000331	4.78	2495.14	265.57	0.27
Reach 2	7.91	15770.00	1284.98	1297.93	1291.31	1298.39	0.000362	5.45	2891.44	522.86	0.29
Reach 2	7.823	8700.00	1284.72	1294.68	1289.10	1294.94	0.000284	4.09	2129.28	255.85	0.25
Reach 2	7.823	11920.00	1284.72	1296.31	1289.97	1296.65	0.000307	4.67	2554.81	463.47	0.27
Reach 2	7.823	15770.00	1284.72	1297.78	1290.91	1298.22	0.000341	5.35	2947.43	467.96	0.29
Reach 2	7.792	8700.00	1284.60	1294.63	1289.20	1294.89	0.000300	4.15	2094.32	255.71	0.26
Reach 2	7.792	11920.00	1284.60	1296.25	1290.07	1296.60	0.000321	4.73	2518.31	450.23	0.27
Reach 2	7.792	15770.00	1284.60	1297.71	1291.01	1298.16	0.000356	5.42	2908.53	460.66	0.29
Reach 2	7.719	8700.00	1284.58	1294.50	1289.10	1294.78	0.000306	4.20	2073.25	252.75	0.26
Reach 2	7.719	11920.00	1284.58	1296.12	1289.98	1296.47	0.000329	4.79	2489.03	262.66	0.27
Reach 2	7.719	15770.00	1284.58	1297.55	1290.93	1298.02	0.000367	5.49	2870.35	445.22	0.30
Reach 2	7.618	8700.00	1284.38	1294.32	1289.12	1294.61	0.000329	4.28	2031.11	253.86	0.27
Reach 2	7.618	11920.00	1284.38	1295.92	1290.00	1296.29	0.000352	4.87	2445.78	264.57	0.28
Reach 2	7.618	15770.00	1284.38	1297.34	1290.95	1297.82	0.000392	5.58	2824.25	456.80	0.30
Reach 2	7.523	8700.00	1284.40	1294.17	1288.81	1294.44	0.000311	4.21	2066.06	253.78	0.26
Reach 2	7.523	11920.00	1284.40	1295.76	1289.69	1296.12	0.000336	4.81	2477.08	264.08	0.28
Reach 2	7.523	15770.00	1284.40	1297.15	1290.63	1297.62	0.000381	5.53	2849.79	463.18	0.30
Reach 2	7.429	8700.00	1284.00	1294.03	1288.52	1294.29	0.000289	4.11	2118.12	256.02	0.25
Reach 2	7.429	11920.00	1284.00	1295.60	1289.39	1295.95	0.000317	4.71	2529.21	266.05	0.27
Reach 2	7.429	15770.00	1284.00	1296.97	1290.33	1297.43	0.000361	5.44	2897.16	454.77	0.29
Reach 2	7.334	8700.00	1284.00	1293.89	1288.31	1294.15	0.000283	4.07	2136.17	257.41	0.25
Reach 2	7.334	11920.00	1284.00	1295.45	1289.18	1295.79	0.000313	4.68	2545.81	267.53	0.27
Reach 2	7.334	15770.00	1284.00	1296.80	1290.12	1297.25	0.000354	5.42	2908.52	707.33	0.29
Reach 2	7.239	8700.00	1283.70	1293.75	1288.12	1294.00	0.000276	4.04	2154.16	258.04	0.25
Reach 2	7.239	11920.00	1283.70	1295.30	1288.99	1295.63	0.000307	4.65	2560.70	268.12	0.27
Reach 2	7.239	15770.00	1283.70	1296.62	1289.91	1297.08	0.000351	5.40	2918.36	813.71	0.29
Reach 2	7.144	8700.00	1283.80	1293.61	1288.23	1293.86	0.000297	4.06	2144.56	458.35	0.25
Reach 2	7.144	11920.00	1283.80	1295.14	1289.10	1295.48	0.000316	4.65	2562.12	615.37	0.27
Reach 2	7.144	15770.00	1283.80	1296.45	1290.01	1296.90	0.000358	5.40	2921.07	933.83	0.29
Reach 2	7.05	8700.00	1283.73	1293.43	1288.17	1293.71	0.000317	4.22	2063.64	256.85	0.26
Reach 2	7.05	11920.00	1283.73	1294.94	1289.04	1295.31	0.000346	4.85	2459.29	532.13	0.28
Reach 2	7.05	15770.00	1283.73	1296.21	1289.97	1296.71	0.000396	5.64	2796.02	857.03	0.31
Reach 2	7.026	8700.00	1283.73	1293.38	1288.23	1293.66	0.000333	4.29	2028.33	255.02	0.27
Reach 2	7.026	11920.00	1283.73	1294.89	1289.10	1295.26	0.000365	4.93	2420.18	264.79	0.29
Reach 2	7.026	15770.00	1283.73	1296.15	1290.05	1296.65	0.000421	5.72	2756.44	833.19	0.31
Reach 2	6.999	8700.00	1283.70	1293.39	1287.57	1293.58	0.000206	3.47	2506.64	308.91	0.21
Reach 2	6.999	11920.00	1283.70	1294.91	1288.34	1295.16	0.000227	4.01	2973.95	342.61	0.23
Reach 2	6.999	15770.00	1283.70	1296.18	1289.17	1296.52	0.000262	4.68	3370.70	701.66	0.25
Reach 2	6.907	8700.00	1283.60	1293.31	1287.25	1293.48	0.000186	3.34	2603.08	308.53	0.20
Reach 2	6.907	11920.00	1283.60	1294.82	1288.00	1295.05	0.000208	3.87	3077.74	552.83	0.22
Reach 2	6.907	15770.00	1283.60	1296.08	1288.82	1296.39	0.000242	4.53	3477.41	575.69	0.24
Reach 2	6.902	8700.00	1283.66	1293.34	1286.91	1293.44	0.000043	2.50	3474.42	457.09	0.16
Reach 2	6.902	11920.00	1283.66	1294.87	1287.59	1294.99	0.000047	2.83	4234.94	547.71	0.17
Reach 2	6.902	15770.00	1283.66	1296.15	1288.31	1296.31	0.000052	3.25	4953.13	577.74	0.18
Reach 2	6.898	8700.00	1283.50	1293.34	1286.68	1293.44	0.000163	2.47	3520.30	454.63	0.16
Reach 2	6.898	11920.00	1283.50	1294.87	1287.36	1294.99	0.000175	2.81	4266.99	529.36	0.17
Reach 2	6.898	15770.00	1283.50	1296.15	1288.08	1296.31	0.000194	3.24	4975.32	569.70	0.18
Reach 2	6.894	8700.00	1283.50	1293.24	1287.08	1293.41	0.000177	3.28	2655.51	312.79	0.20
Reach 2	6.894	11920.00	1283.50	1294.73	1287.83	1294.96	0.000219	3.78	3196.81	472.26	0.22
Reach 2	6.894	15770.00	1283.50	1295.98	1288.65	1296.27	0.000244	4.35	3827.13	560.77	0.24
Reach 2	6.86	8700.00	1283.49	1293.20	1287.13	1293.38	0.000187	3.37	2584.41	303.72	0.20
Reach 2	6.86	11920.00	1283.49	1294.68	1287.90	1294.92	0.000213	3.92	3039.53	316.35	0.22
Reach 2	6.86	15770.00	1283.49	1295.89	1288.72	1296.22	0.000262	4.59	3457.64	356.09	0.25
Reach 2	6.766	8700.00	1283.50	1293.10	1287.11	1293.28	0.000194	3.43	2534.40	296.93	0.21
Reach 2	6.766	11920.00	1283.50	1294.56	1287.89	1294.81	0.000222	4.01	2972.62	304.58	0.23
Reach 2	6.766	15770.00	1283.50	1295.74	1288.71	1296.08	0.000272	4.73	3336.04	310.79	0.25
Reach 2	6.671	8700.00	1283.41	1293.01	1286.90	1293.19	0.000186	3.39	2564.74	296.08	0.20
Reach 2	6.671	11920.00	1283.41	1294.45	1287.65	1294.70	0.000215	3.98	2997.38	303.66	0.22

Reach 2	6.671	15770.00	1283.41	1295.60	1288.47	1295.95	0.000267	4.71	3351.57	309.72	0.25
Reach 2	6.576	8700.00	1283.27	1292.91	1286.91	1293.09	0.000194	3.43	2533.04	296.72	0[illegible]
Reach 2	6.576	11920.00	1283.27	1294.33	1287.69	1294.58	0.000224	4.02	2961.67	304.44	0[illegible]
Reach 2	6.576	15770.00	1283.27	1295.46	1288.51	1295.81	0.000280	4.77	3307.66	310.53	0.2[illegible]
Reach 2	6.510	8700.00	1283.13	1292.84	1286.57	1293.01	0.000243	3.26	2671.59	305.38	0.19
Reach 2	6.510	11920.00	1283.13	1294.26	1287.33	1294.49	0.000284	3.83	3109.05	312.06	0.21
Reach 2	6.510	15770.00	1283.13	1295.37	1288.15	1295.69	0.000357	4.56	3457.60	317.29	0.24
Reach 2	6.486	8700.00	1282.91	1292.55	1287.29	1292.91	0.000551	4.81	1810.28	211.31	0.29
Reach 2	6.486	11920.00	1282.91	1293.85	1288.26	1294.35	0.000667	5.71	2088.85	217.16	0.32
Reach 2	6.486	15770.00	1282.91	1294.77	1289.30	1295.50	0.000884	6.89	2289.72	221.35	0.38
Reach 2	6.388	8700.00	1282.50	1292.26	1287.02	1292.62	0.000558	4.83	1800.31	210.42	0.29
Reach 2	6.388	11920.00	1282.50	1293.48	1288.01	1294.00	0.000693	5.78	2061.51	216.06	0.33
Reach 2	6.388	15770.00	1282.50	1294.24	1289.05	1295.02	0.000968	7.08	2226.87	221.16	0.39
Reach 2	6.3	8700.00	1282.63	1291.97	1286.97	1292.35	0.000598	4.93	1763.05	210.10	0.30
Reach 2	6.3	11920.00	1282.63	1293.11	1287.93	1293.66	0.000764	5.94	2005.59	216.82	0.34
Reach 2	6.3	15770.00	1282.63	1293.68	1288.97	1294.53	0.001116	7.41	2129.64	693.42	0.42
Reach 2	6.252	8700.00	1282.70	1291.77	1287.08	1292.18	0.000682	5.16	1686.59	207.77	0.32
Reach 2	6.252	11920.00	1282.70	1292.84	1288.07	1293.45	0.000869	6.23	1912.09	212.24	0.37
Reach 2	6.252	15770.00	1282.70	1293.23	1289.09	1294.20	0.001347	7.90	1995.34	215.36	0.46
Reach 2	6.23	8700.00	1284.98	1290.13	1290.13	1291.93	0.001606	10.77	807.54	223.39	1.00
Reach 2	6.23	11920.00	1284.98	1291.03	1291.03	1293.17	0.001520	11.72	1016.64	680.61	1.00
Reach 2	6.23	15770.00	1284.98	1293.70	1291.95	1293.95	0.000155	5.07	5491.49	707.06	0.34
Reach 2	6.196	8700.00	1275.54	1284.32	1284.32	1287.81	0.001256	15.13	666.33	221.03	0.91
Reach 2	6.196	11920.00	1275.54	1286.20	1286.20	1290.16	0.001135	16.41	933.55	721.92	0.89
Reach 2	6.196	15770.00	1275.54	1287.90	1287.90	1292.56	0.001128	18.08	1179.96	1000.00	0.91
Reach 2	6.101	8700.00	1270.39	1279.06	1279.06	1282.34	0.001256	14.76	705.44	456.14	0.91
Reach 2	6.101	11920.00	1270.39	1280.78	1280.78	1284.58	0.001164	16.15	956.17	1000.00	0.91
Reach 2	6.101	15770.00	1270.39	1283.01	1283.01	1283.61	0.000265	8.83	5531.26	1000.00	0.45
Reach 2	6.007	8700.00	1265.41	1273.99	1273.99	1277.31	0.001311	14.87	707.95	138.96	0.93
Reach 2	6.007	11920.00	1265.41	1275.74	1275.74	1279.52	0.001188	16.15	958.85	1000.00	0.91
Reach 2	6.007	15770.00	1265.41	1277.37	1277.37	1281.84	0.001174	17.80	1193.50	1000.00	0.93
Reach 2	5.912	8700.00	1260.84	1269.21	1269.21	1272.28	0.001194	14.53	782.25	997.92	0.90
Reach 2	5.912	11920.00	1260.84	1270.73	1270.73	1274.42	0.001176	16.18	1007.12	1000.00	0.92
Reach 2	5.912	15770.00	1260.84	1272.30	1272.30	1276.68	0.001171	17.87	1240.16	1000.00	0.95
Reach 2	5.817	8700.00	1255.90	1264.51	1264.51	1267.74	0.001257	14.66	707.39	503.82	0.92
Reach 2	5.817	11920.00	1255.90	1266.13	1266.13	1269.95	0.001194	16.18	936.70	1000.00	0[illegible]
Reach 2	5.817	15770.00	1255.90	1267.77	1267.77	1272.27	0.001166	17.79	1169.82	1000.00	0[illegible]
Reach 2	5.722	8700.00	1250.89	1259.13	1259.13	1262.37	0.001301	14.79	724.39	133.65	0.95
Reach 2	5.722	11920.00	1250.89	1260.78	1260.78	1264.59	0.001207	16.24	970.21	513.31	0.94
Reach 2	5.722	15770.00	1250.89	1262.54	1262.54	1266.83	0.001109	17.48	1248.10	1000.00	0.93
Reach 2	5.658	8700.00	1247.61	1255.94	1255.94	1259.33	0.001284	15.23	724.80	126.56	0.94
Reach 2	5.658	11920.00	1247.61	1257.67	1257.67	1261.71	0.001212	16.80	958.41	504.00	0.94
Reach 2	5.658	15770.00	1247.61	1259.62	1259.62	1264.08	0.001093	17.97	1255.84	1000.00	0.92
Reach 2	5.586	8700.00	1243.67	1248.42	1248.42	1250.75	0.001570	12.27	709.32	150.67	1.00
Reach 2	5.586	11920.00	1243.67	1249.62	1249.62	1252.37	0.001393	13.34	927.77	208.37	0.97
Reach 2	5.586	15770.00	1243.67	1250.90	1250.90	1253.92	0.001207	14.13	1310.18	270.09	0.93
Reach 2	5.582	8700.00	1238.32	1245.38	1243.29	1246.51	0.000485	8.52	1021.13	150.53	0.58
Reach 2	5.582	11920.00	1238.32	1246.54	1244.39	1248.08	0.000547	9.96	1196.31	150.65	0.62
Reach 2	5.582	15770.00	1238.32	1248.01	1245.58	1249.93	0.000557	11.12	1417.59	150.79	0.64
Reach 2	5.581	8700.00	1237.21	1245.66	1241.90	1246.38	0.000240	6.85	1269.35	150.76	0.42
Reach 2	5.581	11920.00	1237.21	1246.90	1243.00	1247.93	0.000315	8.14	1463.93	163.70	0.48
Reach 2	5.581	15770.00	1237.21	1248.47	1244.20	1249.73	0.000372	9.01	1749.39	191.61	0.53
Reach 2	5.58	8700.00	1237.20	1245.66	1241.91	1246.38	0.001452	6.79	1281.21	171.87	0.44
Reach 2	5.58	11920.00	1237.20	1246.94	1243.00	1247.90	0.001768	7.85	1517.89	190.88	0.49
Reach 2	5.58	15770.00	1237.20	1248.54	1244.20	1249.70	0.001759	8.62	1829.33	199.35	0.50
Reach 2	5.578	8700.00	1237.47	1245.68	1242.34	1246.35	0.001478	6.59	1319.61	195.71	0.45
Reach 2	5.578	11920.00	1237.47	1246.98	1243.58	1247.87	0.001593	7.55	1578.71	201.86	0.48
Reach 2	5.578	15770.00	1237.47	1248.59	1244.71	1249.65	0.001551	8.26	1910.06	209.04	0.48
Reach 2	5.483	8700.00	1236.40	1244.92	1242.67	1245.65	0.001328	6.85	1270.88	224.61	0.51
Reach 2	5.483	11920.00	1236.40	1246.27	1243.60	1247.15	0.001282	7.54	1581.79	235.48	0.51
Reach 2	5.483	15770.00	1236.40	1248.01	1244.59	1248.97	0.001100	7.87	2003.63	248.69	0.49
Reach 2	5.388	8700.00	1236.07	1244.25	1242.01	1244.98	0.001326	6.83	1274.50	225.87	0.51
Reach 2	5.388	11920.00	1236.07	1245.64	1242.93	1246.51	0.001251	7.47	1595.50	236.13	0.51
Reach 2	5.388	15770.00	1236.07	1247.51	1243.90	1248.43	0.001029	7.70	2054.56	268.40	0.47
Reach 2	5.293	8700.00	1235.10	1243.64	1241.23	1244.33	0.001227	6.66	1305.50	226.28	0.49
Reach 2	5.293	11920.00	1235.10	1245.07	1242.16	1245.90	0.001155	7.28	1637.91	237.42	0.49
Reach 2	5.293	15770.00	1235.10	1247.06	1243.15	1247.91	0.000960	7.42	2125.03	260.13	0.46
Reach 2	5.198	8700.00	1234.80	1243.15	1240.39	1243.75	0.001006	6.22	1398.79	231.87	0.45
Reach 2	5.198	11920.00	1234.80	1244.62	1241.30	1245.34	0.000959	6.82	1748.36	243.43	0.45
Reach 2	5.198	15770.00	1234.80	1246.71	1242.28	1247.46	0.000738	6.94	2271.58	1000.02	0.4[illegible]
Reach 2	5.104	8700.00	1234.18	1242.58	1240.02	1243.22	0.001113	6.41	1357.61	232.06	0[illegible]
Reach 2	5.104	11920.00	1234.18	1244.10	1240.94	1244.84	0.001020	6.93	1719.44	244.32	0[illegible]

Reach 2	5.104	15770.00	1234.18	1246.35	1241.91	1247.09	0.000740	6.88	2291.15	1000.02	0.41
Reach 2	5.009	8700.00	1233.90	1242.06	1239.39	1242.67	0.001048	6.28	1384.82	233.25	0.45
Reach 2	5.009	11920.00	1233.90	1243.63	1240.30	1244.34	0.000948	6.76	1762.29	246.02	0.45
Reach 2	5.009	15770.00	1233.90	1246.04	1241.27	1246.73	0.000641	6.65	2383.00	1000.02	0.38
Reach 2	4.914	8700.00	1233.70	1241.58	1238.77	1242.16	0.000955	6.09	1429.08	260.38	0.44
Reach 2	4.914	11920.00	1233.70	1243.21	1239.67	1243.87	0.000868	6.53	1825.24	318.60	0.43
Reach 2	4.914	15770.00	1233.70	1245.78	1240.63	1246.41	0.000555	6.37	2476.35	1000.02	0.36
Reach 2	4.82	8700.00	1233.57	1241.07	1238.36	1241.66	0.001011	6.19	1406.16	258.01	0.45
Reach 2	4.82	11920.00	1233.57	1242.77	1239.25	1243.44	0.000873	6.55	1820.94	294.03	0.43
Reach 2	4.82	15770.00	1233.57	1245.53	1240.20	1246.14	0.000525	6.26	2518.57	1000.02	0.35
Reach 2	4.746	8700.00	1233.09	1240.64	1237.99	1241.26	0.001063	6.31	1378.69	245.00	0.46
Reach 2	4.746	11920.00	1233.09	1242.42	1238.89	1243.09	0.000884	6.58	1810.80	287.90	0.43
Reach 2	4.746	15770.00	1233.09	1245.34	1239.87	1245.93	0.000504	6.19	2548.81	1000.02	0.34
Reach 2	4.727	8700.00	1232.99	1240.56	1237.86	1241.14	0.000988	6.12	1421.63	238.07	0.44
Reach 2	4.727	11920.00	1232.99	1242.36	1238.73	1243.00	0.000816	6.39	1866.57	284.66	0.41
Reach 2	4.727	15770.00	1232.99	1245.31	1239.67	1245.87	0.000467	6.02	2621.32	1000.02	0.33
Reach 2	4.715	8700.00	1233.16	1240.39	1238.09	1241.07	0.001238	6.59	1319.35	234.21	0.49
Reach 2	4.715	11920.00	1233.16	1242.23	1238.98	1242.93	0.000974	6.73	1769.94	292.37	0.45
Reach 2	4.715	15770.00	1233.16	1245.24	1239.93	1245.84	0.000516	6.22	2536.39	1000.02	0.35
Reach 2	4.669	8700.00	1232.79	1240.09	1237.48	1240.72	0.001526	6.34	1373.17	229.88	0.46
Reach 2	4.669	11920.00	1232.79	1242.04	1238.38	1242.66	0.001120	6.37	2043.51	556.98	0.41
Reach 2	4.669	15770.00	1232.79	1245.33	1239.34	1245.64	0.000415	4.93	4376.75	1000.00	0.26
Reach 2	4.615	8700.00	1232.22	1239.78	1236.59	1240.30	0.001221	5.82	1493.62	239.42	0.41
Reach 2	4.615	11920.00	1232.22	1241.79	1237.48	1242.35	0.000943	6.00	1987.67	249.87	0.37
Reach 2	4.615	15770.00	1232.22	1245.00	1238.47	1245.49	0.000542	5.65	2793.52	599.26	0.30
Reach 2	4.613	Bridge									
Reach 2	4.610	8700.00	1232.14	1239.33	1236.83	1239.99	0.001675	6.53	1331.90	227.50	0.48
Reach 2	4.610	11920.00	1232.14	1240.84	1237.74	1241.61	0.001533	7.06	1689.36	239.96	0.47
Reach 2	4.610	15770.00	1232.14	1243.00	1238.71	1243.78	0.001149	7.09	2224.22	258.60	0.42
Reach 2	4.590	8700.00	1231.84	1239.19	1236.33	1239.79	0.001368	6.19	1406.32	224.37	0.44
Reach 2	4.590	11920.00	1231.84	1240.72	1237.25	1241.43	0.001292	6.80	1753.80	232.17	0.44
Reach 2	4.590	15770.00	1231.84	1242.89	1238.22	1243.64	0.001049	6.93	2274.42	412.79	0.40
Reach 2	4.584	Bridge									
Reach 2	4.578	8700.00	1232.72	1238.32	1236.99	1239.34	0.003224	8.12	1071.39	216.69	0.64
Reach 2	4.578	11920.00	1232.72	1239.52	1237.90	1240.76	0.003032	8.91	1337.19	224.23	0.64
Reach 2	4.578	15770.00	1232.72	1240.65	1238.88	1242.17	0.003095	9.90	1592.44	231.33	0.67
Reach 2	4.506	8700.00	1230.31	1237.60	1235.68	1238.35	0.001696	6.99	1245.39	257.68	0.56
Reach 2	4.506	11920.00	1230.31	1238.93	1236.64	1239.77	0.001546	7.39	1658.78	812.06	0.55
Reach 2	4.506	15770.00	1230.31	1240.25	1237.63	1241.15	0.001268	7.70	2243.68	1000.00	0.51
Reach 2	4.487	8700.00	1230.05	1237.47	1235.39	1238.17	0.001571	6.73	1291.97	266.64	0.54
Reach 2	4.487	11920.00	1230.05	1238.84	1236.33	1239.59	0.001577	6.95	1760.68	795.65	0.54
Reach 2	4.487	15770.00	1230.05	1240.23	1237.34	1240.98	0.001230	7.02	2399.16	1000.00	0.50

Profile Output Table - Standard Table 2

Reach	River Sta	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Reach 2	9.001	1296.95	1296.69	0.25	0.08	0.00		8700.00		257.61
Reach 2	9.001	1298.76	1298.43	0.32	0.08	0.00		11920.00		270.50
Reach 2	9.001	1300.50	1300.09	0.41	0.09	0.00		15770.00		746.40
Reach 2	8.948	1296.87	1296.62	0.25	0.11	0.00		8700.00		256.28
Reach 2	8.948	1298.67	1298.36	0.32	0.12	0.00		11920.00		268.66
Reach 2	8.948	1300.41	1300.00	0.41	0.12	0.00	1.22	15768.78		959.28
Reach 2	8.87	1296.76	1296.51	0.24	0.13	0.00		8700.00		259.85
Reach 2	8.87	1298.56	1298.24	0.31	0.14	0.00		11920.00		271.06
Reach 2	8.87	1300.29	1299.89	0.40	0.15	0.00	0.56	15769.44		917.94
Reach 2	8.775	1296.62	1296.37	0.25	0.18	0.00		8700.00		258.51
Reach 2	8.775	1298.41	1298.09	0.32	0.19	0.00		11920.00		269.31
Reach 2	8.775	1300.13	1299.72	0.42	0.21	0.00		15770.00		936.66
Reach 2	8.668	1296.44	1296.20	0.24	0.12	0.00		8700.00		257.62
Reach 2	8.668	1298.22	1297.91	0.31	0.13	0.00		11920.00		471.41
Reach 2	8.668	1299.92	1299.52	0.40	0.14	0.00		15770.00		846.84
Reach 2	8.594	1296.31	1296.06	0.25	0.13	0.00		8700.00		257.96
Reach 2	8.594	1298.09	1297.76	0.33	0.13	0.00		11920.00		474.96
Reach 2	8.594	1299.78	1299.36	0.42	0.14	0.00	1.48	15768.52		912.10
Reach 2	8.514	1296.18	1295.90	0.28	0.23	0.00		8700.00		255.85
Reach 2	8.514	1297.95	1297.59	0.36	0.23	0.00		11920.00		394.95
Reach 2	8.514	1299.63	1299.17	0.46	0.25	0.00		15770.00		639.13
Reach 2	8.403	1295.95	1295.68	0.28	0.05	0.00		8700.00		256.79
Reach 2	8.403	1297.71	1297.36	0.35	0.05	0.00		11920.00		466.81
Reach 2	8.403	1299.38	1298.93	0.45	0.06	0.00		15770.00		531.87

Reach 2	8.382	1295.90	1295.63	0.27	0.08	0.00		8700.00		257.04
Reach 2	8.382	1297.66	1297.31	0.35	0.09	0.00		11920.00		267.63
Reach 2	8.382	1299.32	1298.88	0.45	0.09	0.00		15770.00		514.71
Reach 2	8.34	1295.82	1295.55	0.27	0.16	0.00		8700.00		256.13
Reach 2	8.34	1297.57	1297.23	0.35	0.16	0.00		11920.00		266.33
Reach 2	8.34	1299.23	1298.78	0.45	0.18	0.00		15770.00		473.47
Reach 2	8.245	1295.66	1295.38	0.28	0.16	0.00		8700.00		256.17
Reach 2	8.245	1297.41	1297.05	0.36	0.17	0.00		11920.00		490.88
Reach 2	8.245	1299.05	1298.59	0.46	0.18	0.00		15770.00		495.87
Reach 2	8.15	1295.50	1295.22	0.28	0.09	0.00		8700.00		256.81
Reach 2	8.15	1297.24	1296.89	0.35	0.09	0.00		11920.00		467.94
Reach 2	8.15	1298.87	1298.41	0.46	0.10	0.00		15770.00		471.73
Reach 2	8.104	1295.41	1295.13	0.27	0.09	0.00		8700.00		254.64
Reach 2	8.104	1297.15	1296.80	0.35	0.09	0.00		11920.00		470.69
Reach 2	8.104	1298.77	1298.32	0.45	0.10	0.00		15770.00		481.09
Reach 2	8.057	1295.32	1295.05	0.26	0.09	0.00		8700.00		254.93
Reach 2	8.057	1297.05	1296.71	0.34	0.09	0.00		11920.00		264.81
Reach 2	8.057	1298.66	1298.22	0.44	0.10	0.00		15770.00		460.34
Reach 2	8	1295.23	1294.97	0.26	0.14	0.00		8700.00		257.21
Reach 2	8	1296.96	1296.62	0.34	0.15	0.00		11920.00		446.17
Reach 2	8	1298.56	1298.12	0.44	0.17	0.00		15770.00		450.75
Reach 2	7.91	1295.08	1294.81	0.27	0.14	0.00		8700.00		255.01
Reach 2	7.91	1296.80	1296.45	0.35	0.15	0.00		11920.00		265.57
Reach 2	7.91	1298.39	1297.93	0.46	0.16	0.01		15770.00		522.86
Reach 2	7.823	1294.94	1294.68	0.26	0.05	0.00		8700.00		255.85
Reach 2	7.823	1296.65	1296.31	0.34	0.05	0.00		11920.00		463.47
Reach 2	7.823	1298.22	1297.78	0.44	0.06	0.00		15770.00		467.96
Reach 2	7.792	1294.89	1294.63	0.27	0.12	0.00		8700.00		255.71
Reach 2	7.792	1296.60	1296.25	0.35	0.13	0.00		11920.00		450.23
Reach 2	7.792	1298.16	1297.71	0.46	0.14	0.00		15770.00		460.66
Reach 2	7.719	1294.78	1294.50	0.27	0.17	0.00		8700.00		252.75
Reach 2	7.719	1296.47	1296.12	0.36	0.18	0.00		11920.00		262.66
Reach 2	7.719	1298.02	1297.55	0.47	0.20	0.00		15770.00		445.22
Reach 2	7.618	1294.61	1294.32	0.28	0.16	0.00		8700.00		253.86
Reach 2	7.618	1296.29	1295.92	0.37	0.17	0.00		11920.00		264.57
Reach 2	7.618	1297.82	1297.34	0.48	0.19	0.00		15770.00		456.80
Reach 2	7.523	1294.44	1294.17	0.28	0.15	0.00		8700.00		253.78
Reach 2	7.523	1296.12	1295.76	0.36	0.16	0.00		11920.00		264.08
Reach 2	7.523	1297.62	1297.15	0.48	0.19	0.00		15770.00		463.18
Reach 2	7.429	1294.29	1294.03	0.26	0.14	0.00		8700.00		256.02
Reach 2	7.429	1295.95	1295.60	0.34	0.16	0.00		11920.00		266.05
Reach 2	7.429	1297.43	1296.97	0.46	0.18	0.00		15770.00		454.77
Reach 2	7.334	1294.15	1293.89	0.26	0.14	0.00		8700.00		257.41
Reach 2	7.334	1295.79	1295.45	0.34	0.16	0.00		11920.00		267.53
Reach 2	7.334	1297.25	1296.80	0.46	0.18	0.00		15770.00		707.33
Reach 2	7.239	1294.00	1293.75	0.25	0.14	0.00		8700.00		258.04
Reach 2	7.239	1295.63	1295.30	0.34	0.16	0.00		11920.00		268.12
Reach 2	7.239	1297.08	1296.62	0.45	0.18	0.00		15770.00		813.71
Reach 2	7.144	1293.86	1293.61	0.26	0.15	0.00		8700.00		458.35
Reach 2	7.144	1295.48	1295.14	0.34	0.17	0.00		11920.00		615.37
Reach 2	7.144	1296.90	1296.45	0.45	0.19	0.00		15770.00		933.83
Reach 2	7.05	1293.71	1293.43	0.28	0.04	0.00		8700.00		256.85
Reach 2	7.05	1295.31	1294.94	0.36	0.04	0.00		11920.00		532.13
Reach 2	7.05	1296.71	1296.21	0.49	0.05	0.00		15770.00		857.03
Reach 2	7.026	1293.66	1293.38	0.29	0.04	0.05		8700.00		255.02
Reach 2	7.026	1295.26	1294.89	0.38	0.04	0.06		11920.00		264.79
Reach 2	7.026	1296.65	1296.15	0.51	0.05	0.08		15770.00		833.19
Reach 2	6.999	1293.58	1293.39	0.19	0.10	0.00		8700.00		308.91
Reach 2	6.999	1295.16	1294.91	0.25	0.11	0.00		11920.00		342.61
Reach 2	6.999	1296.52	1296.18	0.34	0.12	0.01		15770.00		701.66
Reach 2	6.907	1293.48	1293.31	0.17	0.00	0.04		8700.00		308.53
Reach 2	6.907	1295.05	1294.82	0.23	0.00	0.05		11920.00		552.83
Reach 2	6.907	1296.39	1296.08	0.32	0.00	0.08		15770.00		575.69
Reach 2	6.902	1293.44	1293.34	0.10	0.00	0.00		8700.00		457.09
Reach 2	6.902	1294.99	1294.87	0.12	0.00	0.00	0.55	11915.91	3.54	547.71
Reach 2	6.902	1296.31	1296.15	0.16	0.00	0.00	10.63	15736.61	22.76	577.74
Reach 2	6.898	1293.44	1293.34	0.09	0.00	0.02		8700.00		454.63
Reach 2	6.898	1294.99	1294.87	0.12	0.00	0.03	0.14	11904.94	14.92	529.36
Reach 2	6.898	1296.31	1296.15	0.16	0.01	0.04	23.23	15680.30	66.47	569.70
Reach 2	6.894	1293.41	1293.24	0.17	0.03	0.00		8700.00		312.79
Reach 2	6.894	1294.96	1294.73	0.22	0.04	0.00	1.89	11906.51	11.60	472.26
Reach 2	6.894	1296.27	1295.98	0.29	0.04	0.00	38.35	15605.46	126.19	560.77

Reach 2	6.86	1293.38	1293.20	0.18	0.10	0.00		8700.00		303.72
Reach 2	6.86	1294.92	1294.68	0.24	0.11	0.00		11919.87	0.13	316.35
Reach 2	6.86	1296.22	1295.89	0.33	0.13	0.00		15754.77	15.23	356.09
Reach 2	6.766	1293.28	1293.10	0.18	0.10	0.00		8700.00		296.93
Reach 2	6.766	1294.81	1294.56	0.25	0.11	0.00		11920.00		304.58
Reach 2	6.766	1296.08	1295.74	0.35	0.13	0.00		15770.00		310.79
Reach 2	6.671	1293.19	1293.01	0.18	0.10	0.00		8700.00		296.08
Reach 2	6.671	1294.70	1294.45	0.25	0.11	0.00		11920.00		303.66
Reach 2	6.671	1295.95	1295.60	0.34	0.14	0.00		15770.00		309.72
Reach 2	6.576	1293.09	1292.91	0.18	0.08	0.01		8700.00		296.72
Reach 2	6.576	1294.58	1294.33	0.25	0.09	0.01		11920.00		304.44
Reach 2	6.576	1295.81	1295.46	0.35	0.11	0.01		15770.00		310.53
Reach 2	6.510	1293.01	1292.84	0.16	0.04	0.06		8700.00		305.38
Reach 2	6.510	1294.49	1294.26	0.23	0.05	0.08		11920.00		312.06
Reach 2	6.510	1295.69	1295.37	0.32	0.07	0.12		15770.00		317.29
Reach 2	6.486	1292.91	1292.55	0.36	0.29	0.00		8700.00		211.31
Reach 2	6.486	1294.35	1293.85	0.51	0.35	0.00		11920.00		217.16
Reach 2	6.486	1295.50	1294.77	0.74	0.48	0.00		15770.00		221.35
Reach 2	6.388	1292.62	1292.26	0.36	0.27	0.00		8700.00		210.42
Reach 2	6.388	1294.00	1293.48	0.52	0.34	0.00		11920.00		216.06
Reach 2	6.388	1295.02	1294.24	0.78	0.48	0.01		15770.00		221.16
Reach 2	6.3	1292.35	1291.97	0.38	0.16	0.00		8700.00		210.10
Reach 2	6.3	1293.66	1293.11	0.55	0.21	0.01		11920.00		216.82
Reach 2	6.3	1294.53	1293.68	0.85	0.31	0.01		15770.00		693.42
Reach 2	6.252	1292.18	1291.77	0.41	0.11	0.14		8700.00		207.77
Reach 2	6.252	1293.45	1292.84	0.60	0.13	0.15		11920.00		212.24
Reach 2	6.252	1294.20	1293.23	0.97	0.04	0.22		15770.00		215.36
Reach 2	6.23	1291.93	1290.13	1.80	0.26	0.51		8700.00		223.39
Reach 2	6.23	1293.17	1291.03	2.13	0.24	0.55		11920.00		680.61
Reach 2	6.23	1293.95	1293.70	0.24	0.06	1.33	7279.29	8486.75	3.97	707.06
Reach 2	6.196	1287.81	1284.32	3.49	0.63	0.06	94.48	8528.59	76.93	221.03
Reach 2	6.196	1290.16	1286.20	3.96	0.57	0.05	317.57	11265.42	337.01	721.92
Reach 2	6.196	1292.56	1287.90	4.66	0.04	0.05	659.40	14418.86	691.74	1000.00
Reach 2	6.101	1282.34	1279.06	3.28	0.64	0.00	157.15	8416.95	125.91	456.14
Reach 2	6.101	1284.58	1280.78	3.80	0.59	0.01	381.50	11162.08	376.42	1000.00
Reach 2	6.101	1283.61	1283.01	0.60	0.24	0.39	5362.09	7476.82	2931.09	1000.00
Reach 2	6.007	1277.31	1273.99	3.31	0.63	0.07	174.14	8384.18	141.69	138.96
Reach 2	6.007	1279.52	1275.74	3.78	0.59	0.03	435.21	11098.73	386.06	1000.00
Reach 2	6.007	1281.84	1277.37	4.47	0.09	0.42	789.93	14268.55	711.52	1000.00
Reach 2	5.912	1272.28	1269.21	3.07	0.61	0.02	279.73	8133.99	286.28	997.92
Reach 2	5.912	1274.42	1270.73	3.69	0.59	0.01	557.89	10772.04	590.07	1000.00
Reach 2	5.912	1276.68	1272.30	4.39	0.56	0.03	922.90	13854.88	992.22	1000.00
Reach 2	5.817	1267.74	1264.51	3.22	0.64	0.00	31.53	8391.46	277.01	503.82
Reach 2	5.817	1269.95	1266.13	3.82	0.60	0.00	160.34	11164.79	594.87	1000.00
Reach 2	5.817	1272.27	1267.77	4.50	0.57	0.07	371.36	14390.07	1008.57	1000.00
Reach 2	5.722	1262.37	1259.13	3.23	0.44	0.02	218.62	8273.41	207.97	133.65
Reach 2	5.722	1264.59	1260.78	3.81	0.41	0.02	453.61	11057.24	409.15	513.31
Reach 2	5.722	1266.83	1262.54	4.29	0.37	0.02	808.74	14172.00	789.26	1000.00
Reach 2	5.658	1259.33	1255.94	3.39	0.54	0.53	266.20	8185.04	248.76	126.56
Reach 2	5.658	1261.71	1257.67	4.04	0.49	0.64	490.58	10934.37	495.05	504.00
Reach 2	5.658	1264.08	1259.62	4.47	0.06	0.85	927.37	13973.65	868.98	1000.00
Reach 2	5.586	1250.75	1248.42	2.34	0.02	0.36		8700.00		150.67
Reach 2	5.586	1252.37	1249.62	2.75	0.02	0.36	37.96	11882.04		208.37
Reach 2	5.586	1253.92	1250.90	3.02	0.02	0.33	218.39	15326.81	224.80	270.09
Reach 2	5.582	1246.51	1245.38	1.13	0.00	0.12		8700.00		150.53
Reach 2	5.582	1248.08	1246.54	1.54	0.00	0.15		11920.00		150.65
Reach 2	5.582	1249.93	1248.01	1.92	0.00	0.20		15770.00		150.79
Reach 2	5.581	1246.38	1245.66	0.73	0.00	0.00		8700.00		150.76
Reach 2	5.581	1247.93	1246.90	1.03	0.00	0.02		11920.00		163.70
Reach 2	5.581	1249.73	1248.47	1.26	0.00	0.03		15770.00		191.61
Reach 2	5.58	1246.38	1245.66	0.72	0.01	0.01		8700.00		171.87
Reach 2	5.58	1247.90	1246.94	0.96	0.01	0.02		11920.00		190.88
Reach 2	5.58	1249.70	1248.54	1.15	0.01	0.03		15770.00		199.35
Reach 2	5.578	1246.35	1245.68	0.67	0.70	0.01		8700.00		195.71
Reach 2	5.578	1247.87	1246.98	0.89	0.71	0.00		11920.00		201.86
Reach 2	5.578	1249.65	1248.59	1.06	0.65	0.03		15770.00		209.04
Reach 2	5.483	1245.65	1244.92	0.73	0.67	0.00		8700.00		224.61
Reach 2	5.483	1247.15	1246.27	0.88	0.64	0.00		11920.00		235.48
Reach 2	5.483	1248.97	1248.01	0.96	0.54	0.01		15770.00		248.69
Reach 2	5.388	1244.98	1244.25	0.72	0.64	0.01		8700.00		225.87
Reach 2	5.388	1246.51	1245.64	0.87	0.60	0.01		11920.00		236.13
Reach 2	5.388	1248.43	1247.51	0.92	0.50	0.02	2.17	15766.67	1.16	268.40

Reach 2	5.293	1244.33	1243.64	0.69	0.55	0.03		8700.00		226.28
Reach 2	5.293	1245.90	1245.07	0.82	0.53	0.03		11920.00		237.42
Reach 2	5.293	1247.91	1247.06	0.86	0.42	0.03		15770.00		260.13
Reach 2	5.198	1243.75	1243.15	0.60	0.53	0.00		8700.00		231.87
Reach 2	5.198	1245.34	1244.62	0.72	0.49	0.00		11920.00		243.43
Reach 2	5.198	1247.46	1246.71	0.75	0.37	0.00		15770.00		1000.02
Reach 2	5.104	1243.22	1242.58	0.64	0.54	0.01		8700.00		232.06
Reach 2	5.104	1244.84	1244.10	0.75	0.49	0.01		11920.00		244.32
Reach 2	5.104	1247.09	1246.35	0.74	0.34	0.02		15770.00		1000.02
Reach 2	5.009	1242.67	1242.06	0.61	0.50	0.01		8700.00		233.25
Reach 2	5.009	1244.34	1243.63	0.71	0.45	0.01		11920.00		246.02
Reach 2	5.009	1246.73	1246.04	0.69	0.30	0.02	15.84	15754.15		1000.02
Reach 2	4.914	1242.16	1241.58	0.58	0.49	0.00		8700.00		260.38
Reach 2	4.914	1243.87	1243.21	0.66	0.44	0.00		11920.00		318.60
Reach 2	4.914	1246.41	1245.78	0.63	0.27	0.01		15770.00		1000.02
Reach 2	4.82	1241.66	1241.07	0.59	0.41	0.00		8700.00		258.01
Reach 2	4.82	1243.44	1242.77	0.67	0.34	0.00		11920.00		294.03
Reach 2	4.82	1246.14	1245.53	0.61	0.20	0.00		15770.00		1000.02
Reach 2	4.746	1241.26	1240.64	0.62	0.10	0.01		8700.00		245.00
Reach 2	4.746	1243.09	1242.42	0.67	0.08	0.01		11920.00		287.90
Reach 2	4.746	1245.93	1245.34	0.59	0.05	0.01		15770.00		1000.02
Reach 2	4.727	1241.14	1240.56	0.58	0.07	0.01		8700.00		238.07
Reach 2	4.727	1243.00	1242.36	0.63	0.05	0.01		11920.00		284.66
Reach 2	4.727	1245.87	1245.31	0.56	0.03	0.00		15770.00		1000.02
Reach 2	4.715	1241.07	1240.39	0.68	0.33	0.02		8700.00		234.21
Reach 2	4.715	1242.93	1242.23	0.70	0.25	0.03		11920.00		292.37
Reach 2	4.715	1245.84	1245.24	0.60	0.11	0.08		15770.00		1000.02
Reach 2	4.669	1240.72	1240.09	0.62	0.39	0.03		8700.00		229.88
Reach 2	4.669	1242.66	1242.04	0.62	0.29	0.02	173.22	11670.00	76.78	556.98
Reach 2	4.669	1245.64	1245.33	0.32	0.14	0.02	1335.65	12928.63	1505.72	1000.00
Reach 2	4.615	1240.30	1239.78	0.53	0.00	0.07		8700.00		239.42
Reach 2	4.615	1242.35	1241.79	0.56	0.00	0.19		11920.00		249.87
Reach 2	4.615	1245.49	1245.00	0.49	0.00	0.47		15770.00		599.26
Reach 2	4.613	Bridge								
Reach 2	4.610	1239.99	1239.33	0.66	0.17	0.03		8700.00		227.50
Reach 2	4.610	1241.61	1240.84	0.77	0.15	0.03		11920.00		239.96
Reach 2	4.610	1243.78	1243.00	0.78	0.12	0.02		15770.00		258.60
Reach 2	4.590	1239.79	1239.19	0.59	0.00	0.03		8700.00		224.37
Reach 2	4.590	1241.43	1240.72	0.72	0.00	0.13		11920.00		232.17
Reach 2	4.590	1243.64	1242.89	0.75	0.00	0.38		15770.00		412.79
Reach 2	4.584	Bridge								
Reach 2	4.578	1239.34	1238.32	1.02	0.86	0.13		8700.00		216.69
Reach 2	4.578	1240.76	1239.52	1.23	0.79	0.19		11920.00		224.23
Reach 2	4.578	1242.17	1240.65	1.52	0.71	0.31		15770.00		231.33
Reach 2	4.506	1238.35	1237.60	0.76	0.16	0.02		8700.00		257.68
Reach 2	4.506	1239.77	1238.93	0.84	0.16	0.03	31.56	11884.74	3.70	812.06
Reach 2	4.506	1241.15	1240.25	0.89	0.12	0.04	359.92	15297.82	112.26	1000.00
Reach 2	4.487	1238.17	1237.47	0.70				8700.00		266.64
Reach 2	4.487	1239.59	1238.84	0.75			47.75	11872.25		795.65
Reach 2	4.487	1240.98	1240.23	0.75			406.35	15362.05	1.60	1000.00

HEC-RAS Plan: EMF Reach 1 River: EMF Reach: Reach 1

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	4.487	8700.00	1230.05	1237.47	1235.37	1238.17	0.001571	6.73	1291.94	266.63	0.54
Reach 1	4.487	11920.00	1230.05	1238.84	1236.33	1239.59	0.001577	6.95	1760.62	795.65	0.54
Reach 1	4.487	15770.00	1230.05	1240.23	1237.34	1240.98	0.001226	7.01	2401.62	1000.00	0.50
Reach 1	4.393	8700.00	1229.55	1236.74	1234.45	1237.43	0.001380	6.66	1305.39	248.13	0.51
Reach 1	4.393	11920.00	1229.55	1238.03	1235.43	1238.85	0.001352	7.28	1636.33	267.95	0.52
Reach 1	4.393	15770.00	1229.55	1239.58	1236.45	1240.40	0.001055	7.40	2427.12	783.63	0.48
Reach 1	4.298	8700.00	1228.91	1236.04	1233.89	1236.73	0.001444	6.63	1311.88	260.08	0.52
Reach 1	4.298	11920.00	1228.91	1237.35	1234.83	1238.14	0.001471	7.13	1670.91	301.15	0.53
Reach 1	4.298	15770.00	1228.91	1239.13	1235.82	1239.83	0.001107	6.77	2582.73	861.88	0.47
Reach 1	4.203	8700.00	1228.65	1235.23	1233.32	1235.96	0.001625	6.82	1275.13	264.70	0.55
Reach 1	4.203	11920.00	1228.65	1236.55	1234.24	1237.35	0.001672	7.21	1654.24	323.33	0.56
Reach 1	4.203	15770.00	1228.65	1238.75	1235.20	1239.26	0.000934	5.89	3048.94	1000.00	0.43
Reach 1	4.161	8700.00	1227.99	1234.67	1232.94	1235.50	0.002443	7.32	1188.34	228.01	0.57
Reach 1	4.161	11920.00	1227.99	1235.85	1233.82	1236.88	0.002424	8.16	1460.39	236.28	0.58
Reach 1	4.161	15770.00	1227.99	1238.02	1234.76	1238.96	0.001517	7.83	2102.80	1000.00	0.48
Reach 1	4.156	8700.00	1228.04	1234.61	1232.78	1235.44	0.002326	7.29	1192.95	221.00	0.55
Reach 1	4.156	11920.00	1228.04	1235.78	1233.67	1236.82	0.002426	8.17	1459.88	235.49	0.58
Reach 1	4.156	15770.00	1228.04	1237.93	1234.62	1238.90	0.001664	7.93	1988.61	909.22	0.50
Reach 1	4.152	Bridge									
Reach 1	4.148	8700.00	1228.12	1234.05	1232.59	1234.99	0.002899	7.78	1117.70	222.00	0.61
Reach 1	4.148	11920.00	1228.12	1235.13	1233.47	1236.32	0.002949	8.77	1359.74	228.48	0.63
Reach 1	4.148	15770.00	1228.12	1236.30	1234.39	1237.74	0.003016	9.64	1635.44	242.20	0.65
Reach 1	4.142	8700.00	1226.74	1234.04	1232.23	1234.84	0.001613	7.18	1211.95	230.90	0.55
Reach 1	4.142	11920.00	1226.74	1235.13	1233.10	1236.16	0.001664	8.12	1467.21	237.28	0.58
Reach 1	4.142	15770.00	1226.74	1236.31	1234.05	1237.57	0.001719	9.00	1752.43	248.94	0.60
Reach 1	4.08	8700.00	1226.40	1233.59	1231.52	1234.32	0.001411	6.86	1269.12	234.40	0.52
Reach 1	4.08	11920.00	1226.40	1234.66	1232.40	1235.61	0.001501	7.82	1523.43	241.46	0.55

HEC-RAS Plan: EMF Reach 1 River: EMF Reach: Reach 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	4.08	15770.00	1226.40	1235.85	1233.34	1236.99	0.001498	8.60	1920.01	578.84	0.56
Reach 1	4.047	8700.00	1226.59	1233.08	1231.65	1234.00	0.002070	7.71	1128.24	233.07	0.62
Reach 1	4.047	11920.00	1226.59	1234.10	1232.53	1235.27	0.002119	8.70	1369.42	239.82	0.64
Reach 1	4.047	15770.00	1226.59	1235.21	1233.47	1236.64	0.002121	9.62	1639.66	247.16	0.66
Reach 1	3.964	8700.00	1226.11	1232.18	1230.75	1233.10	0.002043	7.70	1129.77	231.53	0.61
Reach 1	3.964	11920.00	1226.11	1233.11	1231.62	1234.32	0.002199	8.83	1349.44	237.60	0.65
Reach 1	3.964	15770.00	1226.11	1234.20	1232.56	1235.69	0.002218	9.79	1611.41	244.65	0.67
Reach 1	3.899	8700.00	1224.23	1229.99	1229.93	1231.77	0.008149	10.71	812.15	217.65	0.98
Reach 1	3.899	11920.00	1224.23	1231.31	1230.81	1233.11	0.005818	10.79	1105.19	227.40	0.86
Reach 1	3.899	15770.00	1224.23	1232.70	1231.76	1234.59	0.004588	11.03	1429.67	237.73	0.79
Reach 1	3.88	8700.00	1224.04	1230.15	1228.84	1231.15	0.002235	8.01	1086.82	224.95	0.64
Reach 1	3.88	11920.00	1224.04	1231.44	1229.72	1232.60	0.001982	8.63	1381.77	233.27	0.62
Reach 1	3.88	15770.00	1224.04	1232.83	1230.66	1234.15	0.001794	9.21	1711.39	242.45	0.61
Reach 1	3.877	8700.00	1224.04	1229.89	1228.99	1231.09	0.002935	8.78	991.27	219.01	0.73
Reach 1	3.877	11920.00	1224.04	1231.20	1229.88	1232.54	0.002435	9.29	1282.97	225.76	0.69
Reach 1	3.877	15770.00	1224.04	1232.59	1230.81	1234.10	0.002139	9.84	1602.60	234.42	0.66
Reach 1	3.782	8700.00	1220.72	1229.52	1226.56	1230.13	0.000972	6.28	1385.99	220.59	0.44
Reach 1	3.782	11920.00	1220.72	1230.85	1227.52	1231.63	0.001008	7.06	1687.98	231.10	0.46
Reach 1	3.782	15770.00	1220.72	1232.27	1228.54	1233.21	0.001029	7.80	2022.48	242.21	0.48
Reach 1	3.688	8700.00	1220.40	1228.90	1226.37	1229.59	0.001174	6.63	1311.64	221.61	0.48
Reach 1	3.688	11920.00	1220.40	1230.22	1227.32	1231.07	0.001184	7.40	1611.27	232.27	0.49
Reach 1	3.688	15770.00	1220.40	1231.63	1228.34	1232.65	0.001183	8.10	1946.21	244.30	0.51
Reach 1	3.593	8700.00	1220.19	1228.35	1225.71	1229.01	0.001106	6.49	1340.50	223.73	0.47
Reach 1	3.593	11920.00	1220.19	1229.67	1226.64	1230.49	0.001127	7.26	1641.59	234.56	0.48
Reach 1	3.593	15770.00	1220.19	1231.08	1227.66	1232.06	0.001136	7.96	1980.89	247.76	0.50
Reach 1	3.527	8700.00	1220.53	1227.90	1225.53	1228.60	0.001242	6.70	1297.91	225.36	0.49
Reach 1	3.527	11920.00	1220.53	1229.21	1226.46	1230.07	0.001230	7.45	1601.01	235.53	0.50

HEC-RAS Plan: EMF Reach 1 River: EMF Reach: Reach 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	3.527	15770.00	1220.53	1230.62	1227.44	1231.65	0.001216	8.12	1941.87	248.34	0.51
Reach 1	3.524	8700.00	1221.16	1227.73	1225.88	1228.56	0.001636	7.30	1191.89	224.07	0.56
Reach 1	3.524	11920.00	1221.16	1229.05	1226.80	1230.04	0.001537	7.98	1493.98	234.30	0.56
Reach 1	3.524	15770.00	1221.16	1230.47	1227.77	1231.62	0.001453	8.60	1833.65	246.05	0.56
Reach 1	3.429	8700.00	1218.34	1227.31	1224.21	1227.89	0.000904	6.14	1418.07	221.41	0.43
Reach 1	3.429	11920.00	1218.34	1228.62	1225.18	1229.37	0.000960	6.95	1715.15	232.14	0.45
Reach 1	3.429	15770.00	1218.34	1230.03	1226.20	1230.95	0.001014	7.69	2051.55	248.31	0.47
Reach 1	3.334	8700.00	1218.24	1226.78	1224.00	1227.41	0.001034	6.36	1367.98	223.99	0.45
Reach 1	3.334	11920.00	1218.24	1228.06	1224.94	1228.86	0.001084	7.18	1660.91	234.80	0.48
Reach 1	3.334	15770.00	1218.24	1229.44	1225.95	1230.41	0.001117	7.91	1994.78	249.24	0.49
Reach 1	3.176	8700.00	1218.73	1225.53	1223.60	1226.34	0.001567	7.19	1209.20	224.91	0.55
Reach 1	3.176	11920.00	1218.73	1226.78	1224.51	1227.77	0.001525	7.97	1496.27	233.72	0.55
Reach 1	3.176	15770.00	1218.73	1228.16	1225.47	1229.32	0.001473	8.63	1826.33	312.82	0.56
Reach 1	3.174	8700.00	1218.74	1225.53	1223.56	1226.32	0.001521	7.13	1220.23	224.92	0.54
Reach 1	3.174	11920.00	1218.74	1226.78	1224.47	1227.75	0.001487	7.91	1507.25	233.51	0.55
Reach 1	3.174	15770.00	1218.74	1228.16	1225.42	1229.30	0.001441	8.59	1836.63	310.65	0.55
Reach 1	3.079	8700.00	1216.12	1224.99	1222.30	1225.64	0.001079	6.42	1354.38	225.46	0.46
Reach 1	3.079	11920.00	1216.12	1226.24	1223.25	1227.06	0.001136	7.26	1641.17	235.96	0.49
Reach 1	3.079	15770.00	1216.12	1227.63	1224.26	1228.62	0.001140	7.98	1977.31	268.29	0.50
Reach 1	2.985	8700.00	1216.10	1224.47	1221.78	1225.10	0.001066	6.37	1365.99	228.44	0.46
Reach 1	2.985	11920.00	1216.10	1225.68	1222.71	1226.49	0.001133	7.23	1648.25	238.26	0.48
Reach 1	2.985	15770.00	1216.10	1227.06	1223.69	1228.04	0.001163	7.94	1986.80	266.18	0.50
Reach 1	2.912	8700.00	1216.46	1224.00	1221.56	1224.66	0.001181	6.54	1330.12	230.96	0.48
Reach 1	2.912	11920.00	1216.46	1225.18	1222.48	1226.03	0.001244	7.42	1607.37	240.16	0.51
Reach 1	2.912	15770.00	1216.46	1226.56	1223.45	1227.57	0.001257	8.09	1948.63	278.54	0.52
Reach 1	2.909	8700.00	1216.67	1223.98	1221.56	1224.65	0.001186	6.54	1331.17	232.15	0.48
Reach 1	2.909	11920.00	1216.67	1225.16	1222.46	1226.01	0.001242	7.41	1609.20	240.40	0.50

HEC-RAS Plan: EMF Reach 1 River: EMF Reach: Reach 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	2.909	15770.00	1216.67	1226.54	1223.43	1227.55	0.001251	8.08	1950.90	280.03	0.52
Reach 1	2.814	8700.00	1216.19	1223.25	1221.17	1223.99	0.001410	6.90	1260.90	230.43	0.52
Reach 1	2.814	11920.00	1216.19	1224.37	1222.04	1225.32	0.001475	7.82	1524.07	240.11	0.55
Reach 1	2.814	15770.00	1216.19	1225.76	1223.00	1226.87	0.001445	8.46	1863.59	401.62	0.55
Reach 1	2.757	8700.00	1215.65	1222.75	1220.84	1223.54	0.001559	7.13	1219.67	228.71	0.54
Reach 1	2.757	11920.00	1215.65	1223.83	1221.73	1224.85	0.001641	8.10	1471.14	236.56	0.57
Reach 1	2.757	15770.00	1215.65	1225.22	1222.67	1226.40	0.001642	8.71	1811.07	261.40	0.58
Reach 1	2.65	8700.00	1215.80	1220.65	1220.20	1222.12	0.004161	9.72	894.76	220.59	0.85
Reach 1	2.65	11920.00	1215.80	1222.22	1221.09	1223.64	0.002742	9.54	1249.50	231.43	0.72
Reach 1	2.65	15770.00	1215.80	1223.96	1222.05	1225.35	0.002048	9.47	1664.70	250.08	0.65
Reach 1	2.646	8700.00	1215.90	1220.98	1219.68	1221.72	0.000755	6.90	1261.77	312.39	0.60
Reach 1	2.646	11920.00	1215.90	1222.55	1220.45	1223.25	0.000516	6.70	1780.23	346.02	0.52
Reach 1	2.646	15770.00	1215.90	1224.31	1221.26	1224.95	0.000393	6.41	2460.48	792.71	0.46
Reach 1	2.641	8700.00	1216.27	1220.63	1219.89	1221.61	0.004695	7.94	1095.96	306.02	0.74
Reach 1	2.641	11920.00	1216.27	1222.42	1220.65	1223.20	0.002509	7.09	1682.10	347.90	0.57
Reach 1	2.641	15770.00	1216.27	1224.24	1221.46	1224.92	0.001756	6.63	2377.52	788.61	0.49
Reach 1	2.636	8700.00	1215.15	1220.51	1219.26	1221.52	0.002324	8.04	1081.50	228.60	0.65
Reach 1	2.636	11920.00	1215.15	1221.96	1220.15	1223.05	0.001873	8.41	1418.11	238.38	0.61
Reach 1	2.636	15770.00	1215.15	1223.54	1221.08	1224.73	0.001592	8.74	1804.80	253.03	0.58
Reach 1	2.571	8700.00	1210.91	1220.37	1217.11	1220.93	0.000849	6.00	1450.77	223.16	0.41
Reach 1	2.571	11920.00	1210.91	1221.81	1218.11	1222.51	0.000856	6.69	1780.50	233.38	0.43
Reach 1	2.571	15770.00	1210.91	1223.40	1219.11	1224.22	0.000850	7.30	2159.71	247.03	0.44
Reach 1	2.476	8700.00	1210.67	1219.88	1216.88	1220.48	0.000939	6.20	1403.97	221.94	0.43
Reach 1	2.476	11920.00	1210.67	1221.32	1217.83	1222.06	0.000934	6.88	1731.52	232.51	0.44
Reach 1	2.476	15770.00	1210.67	1222.91	1218.84	1223.77	0.000947	7.46	2114.24	300.30	0.46
Reach 1	2.381	8700.00	1211.04	1219.37	1216.60	1219.99	0.001019	6.31	1378.38	225.74	0.45
Reach 1	2.381	11920.00	1211.04	1220.83	1217.51	1221.58	0.000983	6.95	1716.32	236.83	0.45

HEC-RAS Plan: EMF Reach 1 River: EMF Reach: Reach 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	2.381	15770.00	1211.04	1222.41	1218.50	1223.27	0.001053	7.47	2110.88	487.91	0.48
Reach 1	2.305	8700.00	1211.60	1218.88	1216.41	1219.54	0.001174	6.54	1330.84	245.83	0.48
Reach 1	2.305	11920.00	1211.60	1220.39	1217.34	1221.16	0.001074	7.07	1686.15	379.33	0.47
Reach 1	2.305	15770.00	1211.60	1221.97	1218.32	1222.86	0.000988	7.59	2078.96	792.28	0.47
Reach 1	2.303	8700.00	1212.24	1218.77	1216.64	1219.52	0.001416	6.95	1252.48	241.90	0.52
Reach 1	2.303	11920.00	1212.24	1220.29	1217.56	1221.14	0.001250	7.41	1607.59	374.00	0.51
Reach 1	2.303	15770.00	1212.24	1221.88	1218.55	1222.84	0.001120	7.88	2001.25	784.73	0.49
Reach 1	2.208	8700.00	1208.46	1218.42	1214.98	1218.94	0.000764	5.78	1504.41	251.72	0.40
Reach 1	2.208	11920.00	1208.46	1219.96	1215.93	1220.59	0.000757	6.41	1860.74	418.90	0.40
Reach 1	2.208	15770.00	1208.46	1221.57	1216.95	1222.32	0.000750	6.98	2259.96	823.58	0.41
Reach 1	2.113	8700.00	1208.81	1218.01	1214.69	1218.55	0.000809	5.87	1482.97	227.73	0.41
Reach 1	2.113	11920.00	1208.81	1219.55	1215.66	1220.20	0.000819	6.46	1844.07	246.97	0.42
Reach 1	2.113	15770.00	1208.81	1221.19	1216.68	1221.94	0.000784	6.93	2274.63	803.83	0.42
Reach 1	2.018	8700.00	1208.98	1217.58	1214.47	1218.13	0.000851	5.93	1467.46	230.72	0.41
Reach 1	2.018	11920.00	1208.98	1219.13	1215.39	1219.79	0.000830	6.49	1836.17	246.73	0.42
Reach 1	2.018	15770.00	1208.98	1220.80	1216.38	1221.55	0.000775	6.95	2268.75	807.82	0.42
Reach 1	1.924	8700.00	1208.00	1217.16	1214.00	1217.70	0.000846	5.91	1473.32	255.43	0.41
Reach 1	1.924	11920.00	1208.00	1218.73	1214.92	1219.37	0.000825	6.43	1853.08	793.91	0.42
Reach 1	1.924	15770.00	1208.00	1220.43	1215.91	1221.17	0.000732	6.90	2286.49	1000.00	0.41
Reach 1	1.829	8700.00	1207.54	1216.73	1213.69	1217.27	0.000880	5.92	1468.37	236.87	0.42
Reach 1	1.829	11920.00	1207.54	1218.32	1214.60	1218.96	0.000812	6.40	1861.91	1000.00	0.41
Reach 1	1.829	15770.00	1207.54	1220.08	1215.57	1220.81	0.000700	6.85	2303.15	1000.00	0.40
Reach 1	1.734	8700.00	1208.14	1216.25	1213.35	1216.81	0.000954	6.03	1441.74	240.64	0.43
Reach 1	1.734	11920.00	1208.14	1218.02	1214.27	1218.55	0.000709	5.98	2424.62	1000.00	0.39
Reach 1	1.734	15770.00	1208.14	1220.02	1215.25	1220.43	0.000447	5.57	3791.45	1000.00	0.32
Reach 1	1.693	8700.00	1208.40	1216.05	1213.17	1216.60	0.000945	5.97	1456.14	244.89	0.43
Reach 1	1.693	11920.00	1208.40	1217.93	1214.07	1218.38	0.000597	5.62	2725.10	1000.00	0.36

HEC-RAS Plan: EMF Reach 1 River: EMF Reach: Reach 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	1.693	15770.00	1208.40	1219.98	1215.03	1220.33	0.000374	5.21	4173.31	1000.00	0.29
Reach 1	1.649	8700.00	1208.44	1215.80	1212.83	1216.34	0.001252	5.94	1465.80	232.83	0.42
Reach 1	1.649	11920.00	1208.44	1217.51	1213.71	1218.14	0.001083	6.37	1872.66	1003.40	0.40
Reach 1	1.649	15770.00	1208.44	1219.36	1214.66	1220.08	0.000933	6.81	2316.25	1003.40	0.39
Reach 1	1.644	Bridge									
Reach 1	1.64	8700.00	1208.16	1215.28	1212.56	1215.87	0.001417	6.17	1408.93	231.73	0.44
Reach 1	1.64	11920.00	1208.16	1216.60	1213.43	1217.34	0.001438	6.93	1719.09	239.88	0.46
Reach 1	1.64	15770.00	1208.16	1217.49	1214.39	1218.52	0.001721	8.15	1935.37	1002.40	0.51
Reach 1	1.545	8700.00	1206.63	1214.76	1211.79	1215.30	0.000875	5.89	1477.34	239.20	0.42
Reach 1	1.545	11920.00	1206.63	1216.08	1212.67	1216.73	0.000898	6.50	1947.74	586.66	0.43
Reach 1	1.545	15770.00	1206.63	1216.94	1213.63	1217.77	0.001023	7.47	2405.93	1000.00	0.47
Reach 1	1.476	8700.00	1206.65	1214.08	1211.99	1214.83	0.001440	6.93	1254.86	231.46	0.52
Reach 1	1.476	11920.00	1206.65	1215.32	1212.90	1216.24	0.001475	7.68	1551.48	249.56	0.54
Reach 1	1.476	15770.00	1206.65	1216.55	1213.88	1217.35	0.001196	7.56	2670.85	1000.00	0.50
Reach 1	1.389	8700.00	1206.31	1213.38	1211.19	1214.06	0.001877	6.63	1311.44	239.82	0.50
Reach 1	1.389	11920.00	1206.31	1214.61	1212.06	1215.46	0.001851	7.39	1613.25	248.13	0.51
Reach 1	1.389	15770.00	1206.31	1216.21	1212.98	1216.76	0.001064	6.47	3323.24	1000.00	0.40
Reach 1	1.306	8700.00	1205.97	1212.57	1210.32	1213.25	0.001822	6.61	1315.69	236.21	0.49
Reach 1	1.306	11920.00	1205.97	1213.81	1211.19	1214.66	0.001816	7.38	1614.12	244.62	0.51
Reach 1	1.306	15770.00	1205.97	1215.07	1212.13	1216.11	0.001808	8.18	1926.72	1000.00	0.52
Reach 1	1.246	8700.00	1205.35	1212.06	1209.61	1212.69	0.001626	6.37	1366.82	238.27	0.47
Reach 1	1.246	11920.00	1205.35	1213.30	1210.49	1214.10	0.001648	7.15	1667.53	246.42	0.48
Reach 1	1.246	15770.00	1205.35	1214.57	1211.44	1215.55	0.001663	7.95	1982.99	1000.00	0.50
Reach 1	1.186	8700.00	1204.90	1211.49	1209.22	1212.15	0.001767	6.51	1336.84	240.17	0.49
Reach 1	1.186	11920.00	1204.90	1212.73	1210.08	1213.55	0.001754	7.27	1639.42	247.73	0.50
Reach 1	1.186	15770.00	1204.90	1213.99	1211.00	1215.00	0.001740	8.06	1955.54	1000.00	0.51

HEC-RAS Plan: EMF Reach 1 River: EMF Reach: Reach 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	1.142	8700.00	1204.55	1211.07	1208.85	1211.74	0.001812	6.57	1323.75	238.64	0.49
Reach 1	1.142	11920.00	1204.55	1212.31	1209.71	1213.14	0.001792	7.34	1624.65	245.91	0.50
Reach 1	1.142	15770.00	1204.55	1213.57	1210.64	1214.60	0.001790	8.13	1939.16	1000.00	0.52
Reach 1	1.074	8700.00	1202.89	1210.53	1208.37	1211.19	0.001288	6.54	1330.55	246.44	0.50
Reach 1	1.074	11920.00	1202.89	1211.79	1209.20	1212.60	0.001276	7.23	1648.90	260.58	0.51
Reach 1	1.074	15770.00	1202.89	1213.08	1210.11	1214.04	0.001268	7.90	1996.86	1000.00	0.52
Reach 1	1.01	8700.00	1202.94	1210.02	1207.69	1210.68	0.001755	6.49	1339.68	240.61	0.49
Reach 1	1.01	11920.00	1202.94	1211.27	1208.58	1212.08	0.001800	7.23	1647.63	256.34	0.50
Reach 1	1.01	15770.00	1202.94	1212.56	1209.53	1213.54	0.001759	7.94	1985.08	1000.00	0.51
Reach 1	0.917	8700.00	1202.50	1209.15	1206.90	1209.82	0.001771	6.52	1333.38	238.90	0.49
Reach 1	0.917	11920.00	1202.50	1210.38	1207.76	1211.21	0.001772	7.31	1630.36	246.08	0.50
Reach 1	0.917	15770.00	1202.50	1211.66	1208.68	1212.68	0.001745	8.09	1948.51	1000.00	0.51
Reach 1	0.839	8700.00	1202.26	1208.07	1206.43	1208.92	0.002599	7.40	1176.03	233.05	0.58
Reach 1	0.839	11920.00	1202.26	1209.33	1207.30	1210.35	0.002403	8.08	1474.51	240.82	0.58
Reach 1	0.839	15770.00	1202.26	1210.64	1208.23	1211.84	0.002285	8.78	1795.23	248.90	0.58
Reach 1	0.766	8700.00	1200.98	1207.10	1205.39	1207.93	0.002490	7.31	1190.44	232.39	0.57
Reach 1	0.766	11920.00	1200.98	1208.48	1206.26	1209.44	0.002184	7.85	1518.15	240.90	0.55
Reach 1	0.766	15770.00	1200.98	1209.85	1207.19	1210.98	0.002062	8.51	1853.55	249.31	0.55
Reach 1	0.752	8700.00	1199.88	1207.11	1204.44	1207.73	0.001489	6.30	1381.49	228.99	0.45
Reach 1	0.752	11920.00	1199.88	1208.49	1205.34	1209.25	0.001472	6.99	1705.72	239.52	0.46
Reach 1	0.752	15770.00	1199.88	1209.86	1206.30	1210.79	0.001505	7.72	2042.42	250.81	0.48
Reach 1	0.75	8700.00	1199.88	1207.12	1204.32	1207.71	0.000962	6.16	1412.16	229.17	0.44
Reach 1	0.75	11920.00	1199.88	1208.50	1205.20	1209.23	0.000955	6.87	1734.93	237.44	0.45
Reach 1	0.75	15770.00	1199.88	1209.87	1206.18	1210.77	0.000996	7.61	2073.51	251.07	0.47
Reach 1	0.655	8700.00	1197.70	1206.51	1204.01	1207.17	0.001146	6.51	1335.41	227.70	0.47
Reach 1	0.655	11920.00	1197.70	1207.90	1204.92	1208.70	0.001121	7.18	1659.76	240.27	0.48
Reach 1	0.655	15770.00	1197.70	1209.25	1205.90	1210.21	0.001192	7.87	2004.12	582.62	0.50

HEC-RAS Plan: EMF Reach 1 River: EMF Reach: Reach 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	0.56	8700.00	1197.53	1205.98	1203.38	1206.61	0.001078	6.37	1366.19	229.84	0.46
Reach 1	0.56	11920.00	1197.53	1207.38	1204.26	1208.15	0.001072	7.03	1696.59	245.09	0.47
Reach 1	0.56	15770.00	1197.53	1208.70	1205.23	1209.64	0.001073	7.79	2025.67	1000.00	0.48
Reach 1	0.504	8700.00	1197.98	1205.65	1203.03	1206.29	0.001078	6.39	1361.10	227.96	0.46
Reach 1	0.504	11920.00	1197.98	1207.06	1203.96	1207.83	0.001086	7.05	1690.40	245.42	0.47
Reach 1	0.504	15770.00	1197.98	1208.38	1204.93	1209.32	0.001081	7.81	2020.16	1000.00	0.48
Reach 1	0.459	8700.00	1198.30	1205.33	1202.97	1206.01	0.001213	6.60	1318.41	229.91	0.49
Reach 1	0.459	11920.00	1198.30	1206.74	1203.87	1207.54	0.001257	7.20	1654.86	259.66	0.50
Reach 1	0.459	15770.00	1198.30	1208.12	1204.83	1209.03	0.001309	7.63	2066.04	1000.09	0.52
Reach 1	0.454	8700.00	1198.77	1205.49	1202.53	1205.83	0.000257	4.69	1856.70	366.17	0.37
Reach 1	0.454	11920.00	1198.77	1206.94	1203.27	1207.31	0.000240	4.88	2443.18	1000.06	0.36
Reach 1	0.454	15770.00	1198.77	1208.36	1204.06	1208.77	0.000200	5.17	3050.99	1000.06	0.34
Reach 1	0.449	8700.00	1198.66	1205.45	1202.59	1205.81	0.001092	4.83	1802.43	355.29	0.38
Reach 1	0.449	11920.00	1198.66	1206.90	1203.37	1207.30	0.000987	5.06	2354.39	1000.03	0.37
Reach 1	0.449	15770.00	1198.66	1208.30	1204.16	1208.75	0.000848	5.41	2914.45	1000.03	0.35
Reach 1	0.445	8700.00	1197.94	1205.10	1202.54	1205.71	0.001065	6.26	1389.71	238.06	0.46
Reach 1	0.445	11920.00	1197.94	1206.40	1203.42	1207.16	0.001060	6.99	1704.72	246.17	0.47
Reach 1	0.445	15770.00	1197.94	1207.65	1204.36	1208.58	0.001156	7.77	2049.15	1000.00	0.50
Reach 1	0.41	8700.00	1197.40	1204.87	1202.33	1205.51	0.001108	6.39	1361.09	232.43	0.47
Reach 1	0.41	11920.00	1197.40	1206.16	1203.23	1206.95	0.001142	7.13	1670.65	247.13	0.48
Reach 1	0.41	15770.00	1197.40	1207.36	1204.18	1208.36	0.001177	8.00	1970.22	1000.00	0.50
Reach 1	0.315	8700.00	1196.75	1204.27	1201.87	1204.93	0.001179	6.51	1336.83	232.78	0.48
Reach 1	0.315	11920.00	1196.75	1205.53	1202.74	1206.34	0.001290	7.26	1640.82	623.89	0.51
Reach 1	0.315	15770.00	1196.75	1206.74	1203.72	1207.75	0.001267	8.06	1956.06	1000.00	0.52
Reach 1	0.22	8700.00	1195.36	1203.67	1201.34	1204.33	0.001236	6.53	1333.09	241.03	0.49
Reach 1	0.22	11920.00	1195.36	1204.87	1202.22	1205.70	0.001275	7.33	1626.04	270.77	0.51
Reach 1	0.22	15770.00	1195.36	1206.07	1203.19	1207.10	0.001295	8.16	1932.94	1000.00	0.52

HEC-RAS Plan: EMF Reach 1 River: EMF Reach: Reach 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	0.125	8700.00	1195.04	1202.75	1200.98	1203.59	0.001701	7.33	1186.26	236.08	0.57
Reach 1	0.125	11920.00	1195.04	1203.89	1201.88	1204.93	0.001758	8.22	1450.38	266.69	0.59
Reach 1	0.125	15770.00	1195.04	1205.07	1202.83	1206.34	0.001705	9.06	1761.87	695.00	0.60
Reach 1	0.084	8700.00	1195.57	1202.19	1200.61	1203.06	0.003679	7.47	1164.36	234.25	0.59
Reach 1	0.084	11920.00	1195.57	1203.32	1201.49	1204.39	0.003625	8.30	1435.47	265.03	0.60
Reach 1	0.084	15770.00	1195.57	1204.54	1202.43	1205.81	0.003543	9.07	1739.31	674.11	0.61
Reach 1	0.077	8700.00	1195.67	1202.11	1200.47	1202.94	0.002548	7.30	1192.14	237.88	0.57
Reach 1	0.077	11920.00	1195.67	1203.25	1201.33	1204.28	0.002490	8.12	1467.89	265.23	0.58
Reach 1	0.077	15770.00	1195.67	1204.47	1202.23	1205.70	0.002402	8.90	1777.63	671.83	0.59
Reach 1	0.019	8700.00	1194.97	1201.30	1199.63	1202.15	0.002575	7.41	1174.85	230.47	0.58
Reach 1	0.019	11920.00	1194.97	1202.44	1200.52	1203.50	0.002543	8.27	1442.11	237.35	0.59
Reach 1	0.019	15770.00	1194.97	1203.66	1201.46	1204.94	0.002496	9.08	1736.96	703.66	0.60
Reach 1	0.004	8700.00	1195.36	1199.61	1199.61	1201.50	0.008534	11.04	788.19	209.15	1.00
Reach 1	0.004	11920.00	1195.36	1200.53	1200.53	1202.81	0.007959	12.12	983.29	214.90	1.00
Reach 1	0.004	15770.00	1195.36	1201.51	1201.51	1204.21	0.007503	13.16	1197.89	221.05	1.00
Reach 1	0.000	8700.00	1194.70	1199.06	1199.06	1200.94	0.008625	11.01	790.43	212.46	1.01
Reach 1	0.000	11920.00	1194.70	1199.98	1199.98	1202.23	0.008034	12.05	989.57	220.11	1.00
Reach 1	0.000	15770.00	1194.70	1201.03	1201.03	1203.60	0.007588	12.86	1225.93	236.57	1.00

HEC-RAS Version 2.1 October 1997
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

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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: EMF Reach 1 (1-12-99), FCD 97-06
Project File : emfr1.prj
Run Date and Time: 1/12/99 8:07:36 PM

Project in English units

Project Description:
EAST MARICOPA FLOODWAY CAPACITY ASSESSMENT
FCDMC Contract No. 97-06
Prepared
by HNTB Corporation, January 1999
Contact: B. Gary Sun
HNTB Corporation
40
North Central Avenue, Suite 300
Phoenix, Arizona 85004
(602)
528-4300

REACH 1
GILA RIVER TO SR 87
(River Mile 0.000 to Mile
4.487)

The Purpose of the Study is to Determine Channel Capacity for Three
Given 100-Year Discharges.
The Water Surface Profiles Were Calculated Using
the U.S. Army Corps of Engineers' HEC-RAS Computer Program, Version 2.1, Dated
October 1997, as Implemented by Haestad Methods, Inc.

Subcritical Flow Run
3 Water Surface Profiles with 100-Year Discharges Provided by FCDMC (Dated 6-10-98)
Profile 1 - Design Discharges
Profile 2 - Future Discharges, Future
Land Use with Retention and without Proposed FCD CIPs
Profile 3 - Existing
Conditions

The Control Line on the Thalweg of East Maricopa Floodway is
Station 5,000, and All Cross Section Data were Stationed Looking Downstream.
Cross Section Numbers Indicate in River
Miles above the Top of Drop Structure at the Downstream End of East Maricopa Floodway.
Starting Water Surface Elevation is the Critical Depth at the Top of Drop Structure
(Mile 0.000)at the Downstream End of East Maricopa Floodway.

Ineffective Area, Levee and Blocked Obstructions Options were Used on Overbank Areas.
Since the Model was Developed to Run all Three Water Surface Profiles, the
Options Were Applied to Each Cross Section to Better Simulate All Three
Profiles.

PLAN DATA

Plan Title: EMF Reach 1
Plan File : j:\27559\CADD\CIVIL\DATA\emfr1.p01

Geometry Title: EMF Reach 1
Geometry File : j:\27559\CADD\CIVIL\DATA\emfr1.g01

Flow Title : Profiles 1-Design, 2-Future & 3-Exist.
Flow File : j:\27559\CADD\CIVIL\DATA\emfr1.f01

Plan Summary Information:
Number of: Cross Sections = 77 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 0
Bridges = 2

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

Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: Profiles 1-Design, 2-Future & 3-Exist.
Flow File : j:\27559\CADD\CIVIL\DATA\emfr1.f01

Flow Data (cfs)

River	Reach	RS	Design	Future	Existing
EMF	Reach 1	4.487	8700	11920	15770

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
EMF	Reach 1	Design		Critical
EMF	Reach 1	Future		Critical
EMF	Reach 1	Existing		Critical

GEOMETRY DATA

Geometry Title: EMF Reach 1
Geometry File : j:\27559\CADD\CIVIL\DATA\emfr1.g01

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 4.487

INPUT
Description: Upstream End of Reach 1, SR 87 Bridge Downstream Ineffective Areas
Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4381.42	1238.4	4414.98	1238.52	4443.52	1238.55	4515.09	1238.48	4543.53	1238.49
4571.9	1238.4	4643.52	1238.5	4743.53	1238.45	4816.66	1238.32	4824.47	1238.11
4832.8	1238.2	4839.88	1238.44	4861.03	1238.02	4863.48	1237.71	4866.66	1237.88
4872.56	1237.5	4876.77	1237.4	4885.58	1236.47	4907.52	1234.59	4925.56	1233.32
4950.82	1231.5	4966.15	1230.33	4976.26	1230.05	5026.9	1230.57	5066.69	1230.63

5075.33	1231	5098.63	1233.67	5118.82	1235.92	5126.49	1236.91	5128.34	1236.78
5132.07	1237.2	5139.98	1237.45	5164.1	1238.45	5176.4	1238.79	5193.5	1240.07
5243.5	1240.1	5270.16	1239.76	5288.24	1239.66	5328.82	1239.24	5340.35	1239.16
5356.71	1239.3	5381.42	1239.34						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4381.42	.04	4839.88	.025	5193.5	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4839.88	5193.5	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4381.42	4730	1242	5222	5381.42	1242

Left Levee Station= 4839.88 Elevation= 1238.44
Right Levee Station= 5193.5 Elevation= 1240.07

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1237.47	Element			
Vel Head (ft)	0.70	Wt. n-Val.		0.025	
E.G. Elev (ft)	1238.17	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1235.37	Flow Area (sq ft)		1291.94	
E.G. Slope (ft/ft)	0.001571	Area (sq ft)		1291.94	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	266.63	Top Width (ft)		266.63	
Vel Total (ft/s)	6.73	Avg. Vel. (ft/s)		6.73	
Max Chl Dpth (ft)	7.42	Hydr. Depth (ft)		4.85	
Conv. Total (cfs)	219510.8	Conv. (cfs)		219510.8	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		267.30	
Min Ch El (ft)	1230.05	Shear (lb/sq ft)		0.47	
Alpha	1.00	Stream Power (lb/ft s)		3.19	
Frctn Loss (ft)	0.74	Cum Volume (acre-ft)	0.02	716.76	0.44
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	126.44	0.73

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1238.84	Element			
Vel Head (ft)	0.75	Wt. n-Val.	0.040	0.025	
E.G. Elev (ft)	1239.59	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1236.33	Flow Area (sq ft)	52.76	1707.86	
E.G. Slope (ft/ft)	0.001577	Area (sq ft)	177.93	1707.86	
Q Total (cfs)	11920.00	Flow (cfs)	47.73	11872.27	
Top Width (ft)	795.65	Top Width (ft)	458.46	337.19	
Vel Total (ft/s)	6.77	Avg. Vel. (ft/s)	0.90	6.95	
Max Chl Dpth (ft)	8.79	Hydr. Depth (ft)	0.48	5.07	
Conv. Total (cfs)	300148.5	Conv. (cfs)	1201.8	298946.6	
Length Wtd. (ft)	500.00	Wetted Per. (ft)	109.89	337.93	
Min Ch El (ft)	1230.05	Shear (lb/sq ft)	0.05	0.50	
Alpha	1.05	Stream Power (lb/ft s)	0.04	3.46	
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)	39.91	888.70	30.33
C & E Loss (ft)	0.01	Cum SA (acres)	22.92	133.76	18.89

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1240.23	Element			
Vel Head (ft)	0.74	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1240.98	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1237.34	Flow Area (sq ft)	206.06	2191.10	4.46
E.G. Slope (ft/ft)	0.001226	Area (sq ft)	817.55	2191.10	107.96
Q Total (cfs)	15770.00	Flow (cfs)	407.58	15360.73	1.68
Top Width (ft)	1000.00	Top Width (ft)	458.46	353.62	187.92
Vel Total (ft/s)	6.57	Avg. Vel. (ft/s)	1.98	7.01	0.38
Max Chl Dpth (ft)	10.18	Hydr. Depth (ft)	1.88	6.20	0.16
Conv. Total (cfs)	450378.2	Conv. (cfs)	11640.2	438689.8	48.1
Length Wtd. (ft)	500.00	Wetted Per. (ft)	109.89	354.41	28.50

Min Ch El (ft)	1230.05	Shear (lb/sq ft)	0.14	0.47	0.01
Alpha	1.11	Stream Power (lb/ft s)	0.28	3.32	0.00
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	363.31	1087.20	227.96
C & E Loss (ft)	0.01	Cum SA (acres)	120.59	141.06	81.88

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 4.393

INPUT
Description: SR 87 Bridge Downstream Ineffective Areas
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4381.42	1238.5	4411.18	1238.38	4456.19	1238.38	4479.42	1238.36	4522.62	1238.41
4545.11	1238.3	4567.63	1238.35	4602.08	1238.28	4677.68	1238.3	4721.9	1238.17
4767.45	1238.2	4797.62	1238.19	4861.99	1238.38	4866.97	1238.37	4884.9	1236.48
4926.16	1231.9	4944.06	1229.88	4981.08	1229.62	5031.71	1229.55	5067.53	1229.96
5076.92	1230.6	5086.85	1231.91	5099.33	1233.2	5121.8	1235.74	5132.47	1236.97
5135.22	1237.6	5140.82	1238.41	5144.74	1238.18	5150.65	1238.99	5154.06	1238.79
5168.07	1239.8	5194.07	1240.91	5221.72	1240.61	5244.06	1240.66	5266.47	1240.46
5294.06	1240.5	5344.07	1240.68	5371.53	1240.58	5381.42	1240.61		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4381.42	.04	4866.97	.025	5140.82	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4866.97	5140.82	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4381.42	4605	1242	5354	5381.42	1242

Left Levee Station= 4866.97 Elevation= 1238.37
Right Levee Station= 5140.82 Elevation= 1238.41

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1236.74	Element			
Vel Head (ft)	0.69	Wt. n-Val.		0.025	
E.G. Elev (ft)	1237.43	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1234.45	Flow Area (sq ft)		1305.39	
E.G. Slope (ft/ft)	0.001380	Area (sq ft)		1305.39	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	248.13	Top Width (ft)		248.13	
Vel Total (ft/s)	6.66	Avg. Vel. (ft/s)		6.66	
Max Chl Dpth (ft)	7.19	Hydr. Depth (ft)		5.26	
Conv. Total (cfs)	234215.1	Conv. (cfs)		234215.1	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		248.89	
Min Ch El (ft)	1229.55	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		3.01	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	0.02	701.86	0.44
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	123.48	0.73

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1238.03	Element			
Vel Head (ft)	0.82	Wt. n-Val.		0.025	
E.G. Elev (ft)	1238.85	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1235.43	Flow Area (sq ft)		1636.33	
E.G. Slope (ft/ft)	0.001352	Area (sq ft)		1636.33	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	267.95	Top Width (ft)		267.95	
Vel Total (ft/s)	7.28	Avg. Vel. (ft/s)		7.28	
Max Chl Dpth (ft)	8.48	Hydr. Depth (ft)		6.11	
Conv. Total (cfs)	324180.6	Conv. (cfs)		324180.6	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		268.89	
Min Ch El (ft)	1229.55	Shear (lb/sq ft)		0.51	
Alpha	1.00	Stream Power (lb/ft s)		3.74	

Frctn Loss (ft)	0.70	Cum Volume (acre-ft)	38.88	869.50	30.33
C & E Loss (ft)	0.01	Cum SA (acres)	20.28	130.29	18.89

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1239.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1240.40	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1236.45	Flow Area (sq ft)	348.43	2061.05	17.65
E.G. Slope (ft/ft)	0.001055	Area (sq ft)	619.74	2061.05	17.65
Q Total (cfs)	15770.00	Flow (cfs)	508.44	15244.37	17.19
Top Width (ft)	783.63	Top Width (ft)	485.55	273.85	24.23
Vel Total (ft/s)	6.50	Avg. Vel. (ft/s)	1.46	7.40	0.97
Max Chl Dpth (ft)	10.03	Hydr. Depth (ft)	1.33	7.53	0.73
Conv. Total (cfs)	485521.9	Conv. (cfs)	15653.7	469338.9	529.4
Length Wtd. (ft)	500.00	Wetted Per. (ft)	261.97	274.84	24.32
Min Ch El (ft)	1229.55	Shear (lb/sq ft)	0.09	0.49	0.05
Alpha	1.25	Stream Power (lb/ft s)	0.13	3.65	0.05
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	355.06	1062.80	227.24
C & E Loss (ft)	0.04	Cum SA (acres)	115.17	137.46	80.66

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 4.298

INPUT
Description: SR 87 Bridge Downstream Ineffective Left Overbank Area
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4381.42	1239.1	4393.49	1239.11	4415.3	1239.3	4461.89	1238.61	4500.52	1238.47
4522.53	1238.6	4544.63	1238.64	4566.26	1238.57	4594.63	1238.44	4622.93	1238.38
4672.89	1238.4	4694.63	1238.3	4744.63	1238.37	4772.76	1238.34	4794.63	1238.28
4819.32	1238.4	4834.52	1238.21	4863.15	1237.37	4867.65	1237.29	4873.47	1236.73
4877.88	1236.5	4886	1235.44	4911.78	1232.73	4944.63	1229.52	5000.91	1228.91
5036.57	1229	5054.22	1229.2	5068.68	1229.54	5079.47	1230.21	5090.15	1231.37
5101.81	1232.4	5117.78	1233.85	5129.24	1235.12	5133.46	1235.29	5149.57	1236.81
5156.86	1237.1	5177.59	1237.68	5194.62	1238.33	5244.63	1238.5	5272.2	1239.08
5294.62	1239.5	5322.16	1239.65	5344.62	1239.87	5367.14	1240.32	5381.42	1240.47

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4381.42	.04	4834.52	.025	5194.62	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4834.52	5194.62	500	500	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4381.42	4480	1241

Left Levee Station= 4834.52 Elevation= 1238.21
Right Levee Station= 5194.62 Elevation= 1238.33

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1236.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.68	Wt. n-Val.		0.025	
E.G. Elev (ft)	1236.73	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1233.89	Flow Area (sq ft)		1311.88	
E.G. Slope (ft/ft)	0.001444	Area (sq ft)		1311.88	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	260.08	Top Width (ft)		260.08	
Vel Total (ft/s)	6.63	Avg. Vel. (ft/s)		6.63	
Max Chl Dpth (ft)	7.13	Hydr. Depth (ft)		5.04	
Conv. Total (cfs)	228957.2	Conv. (cfs)		228957.2	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		260.73	
Min Ch El (ft)	1228.91	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		3.01	
Frctn Loss (ft)	0.77	Cum Volume (acre-ft)	0.02	686.84	0.44

C & E Loss (ft)	0.00	Cum SA (acres)	0.09	120.57	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1237.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.		0.025	
E.G. Elev (ft)	1238.14	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1234.83	Flow Area (sq ft)		1670.91	
E.G. Slope (ft/ft)	0.001471	Area (sq ft)		1670.91	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	301.15	Top Width (ft)		301.15	
Vel Total (ft/s)	7.13	Avg. Vel. (ft/s)		7.13	
Max Chl Dpth (ft)	8.44	Hydr. Depth (ft)		5.55	
Conv. Total (cfs)	310740.0	Conv. (cfs)		310740.0	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		301.90	
Min Ch El (ft)	1228.91	Shear (lb/sq ft)		0.51	
Alpha	1.00	Stream Power (lb/ft s)		3.63	
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)	38.88	850.52	30.33
C & E Loss (ft)	0.00	Cum SA (acres)	20.28	127.02	18.89

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1239.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1239.83	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1235.82	Flow Area (sq ft)	251.21	2286.52	45.00
E.G. Slope (ft/ft)	0.001107	Area (sq ft)	270.51	2286.52	45.00
Q Total (cfs)	15770.00	Flow (cfs)	246.82	15485.31	37.87
Top Width (ft)	861.88	Top Width (ft)	421.66	360.10	80.12
Vel Total (ft/s)	6.11	Avg. Vel. (ft/s)	0.98	6.77	0.84
Max Chl Dpth (ft)	10.22	Hydr. Depth (ft)	0.71	6.35	0.56
Conv. Total (cfs)	473890.5	Conv. (cfs)	7416.8	465335.6	1138.1
Length Wtd. (ft)	500.00	Wetted Per. (ft)	354.52	360.89	80.13
Min Ch El (ft)	1228.91	Shear (lb/sq ft)	0.05	0.44	0.04
Alpha	1.21	Stream Power (lb/ft s)	0.05	2.97	0.03
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	349.95	1037.85	226.88
C & E Loss (ft)	0.06	Cum SA (acres)	109.97	133.82	80.07

Warning - Divided flow computed for this cross-section.
Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 4.203

INPUT
Description: Santan Baptist Church Rd. Bridge Upstream Ineffective Areas
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4381.42	1236.3	4416.65	1236.37	4445.2	1236.21	4495.19	1236.23	4545.2	1236.57
4566.82	1236.6	4595.19	1236.67	4616.87	1236.52	4645.2	1236.61	4673.45	1236.61
4695.2	1236.7	4716.99	1236.67	4745.2	1236.75	4788.41	1237.14	4795.19	1237.08
4803.3	1237.6	4809.9	1237.75	4812.31	1237.58	4839.96	1236.41	4860.4	1235.63
4866.64	1235.2	4880.48	1233.89	4884.34	1233.63	4886.07	1233.89	4901.29	1232.25
4923.8	1230.6	4933.54	1229.56	4945.2	1228.65	5016.22	1228.76	5037.94	1228.86
5055.77	1228.9	5073.88	1229.01	5080.46	1229.93	5089.06	1230.22	5110.11	1232.73
5117.52	1233.7	5131.23	1235.28	5141.06	1235.86	5149.21	1236.39	5176.87	1236.79
5188.97	1237.1	5222.3	1237.57	5243.45	1237.75	5281.27	1237.58	5295.84	1237.46
5316.51	1237.5	5367.71	1237.72	5381.42	1237.74				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4381.42	.04	4809.9	.025	5243.45	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4809.9	5243.45	224.35	224.35	224.35	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev

4381.42 4628 1240.5 5383 5381.42 1240.5
Left Levee Station= 4809.9 Elevation= 1237.75
Right Levee Station= 5243.45 Elevation= 1237.75

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1235.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.72	Wt. n-Val.		0.025	
E.G. Elev (ft)	1235.96	Reach Len. (ft)	224.35	224.35	224.35
Crit W.S. (ft)	1233.32	Flow Area (sq ft)		1275.13	
E.G. Slope (ft/ft)	0.001625	Area (sq ft)		1275.13	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	264.70	Top Width (ft)		264.70	
Vel Total (ft/s)	6.82	Avg. Vel. (ft/s)		6.82	
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)		4.82	
Conv. Total (cfs)	215797.0	Conv. (cfs)		215797.0	
Length Wtd. (ft)	224.35	Wetted Per. (ft)		265.40	
Min Ch El (ft)	1228.65	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		3.33	
Frctn Loss (ft)	0.44	Cum Volume (acre-ft)	0.02	671.99	0.44
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	117.56	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1236.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.81	Wt. n-Val.		0.025	
E.G. Elev (ft)	1237.35	Reach Len. (ft)	224.35	224.35	224.35
Crit W.S. (ft)	1234.24	Flow Area (sq ft)		1654.24	
E.G. Slope (ft/ft)	0.001672	Area (sq ft)		1654.24	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	323.33	Top Width (ft)		323.33	
Vel Total (ft/s)	7.21	Avg. Vel. (ft/s)		7.21	
Max Chl Dpth (ft)	7.90	Hydr. Depth (ft)		5.12	
Conv. Total (cfs)	291473.8	Conv. (cfs)		291473.8	
Length Wtd. (ft)	224.35	Wetted Per. (ft)		324.10	
Min Ch El (ft)	1228.65	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		3.84	
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	38.88	831.44	30.33
C & E Loss (ft)	0.02	Cum SA (acres)	20.28	123.44	18.89

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1238.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1239.26	Reach Len. (ft)	224.35	224.35	224.35
Crit W.S. (ft)	1235.20	Flow Area (sq ft)	353.60	2537.69	157.65
E.G. Slope (ft/ft)	0.000934	Area (sq ft)	931.22	2537.69	157.65
Q Total (cfs)	15770.00	Flow (cfs)	625.11	14950.26	194.62
Top Width (ft)	1000.00	Top Width (ft)	428.48	433.55	137.97
Vel Total (ft/s)	5.17	Avg. Vel. (ft/s)	1.77	5.89	1.23
Max Chl Dpth (ft)	10.10	Hydr. Depth (ft)	1.94	5.85	1.14
Conv. Total (cfs)	516104.3	Conv. (cfs)	20458.1	489276.9	6369.4
Length Wtd. (ft)	224.35	Wetted Per. (ft)	181.92	434.36	138.98
Min Ch El (ft)	1228.65	Shear (lb/sq ft)	0.11	0.34	0.07
Alpha	1.24	Stream Power (lb/ft s)	0.20	2.01	0.08
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	343.05	1010.16	225.72
C & E Loss (ft)	0.04	Cum SA (acres)	105.09	129.27	78.81

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 4.161

INPUT
Description: Santan Baptist Church Rd. Bridge Upstream Ineffective Areas, Begin
Loose Riprap Channel
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4388.59	1234.9	4404.41	1235	4420.68	1235.25	4426.13	1235.64	4436.92	1235.23
4451.09	1235.2	4502.98	1235.37	4523.56	1235.35	4552.97	1235.32	4566.14	1235.46
4606.42	1235.4	4644.8	1235.42	4657.32	1235.58	4671.33	1235.37	4691.76	1235.7
4705.03	1235.8	4723.22	1236.09	4742.76	1236.47	4770.75	1236.59	4778.96	1236.27
4785.85	1236.4	4792.76	1235.81	4813.6	1235.84	4823.49	1235.78	4849.5	1236.73
4856.84	1236.5	4870.52	1236.55	4883.23	1236.39	4886.82	1235.67	4889.3	1235.5
4900.51	1230.7	4911.67	1230.44	4918.87	1229.72	4922.23	1229.2	4939.8	1229.2
4951.76	1229	4972.05	1228.68	4993.03	1228.91	5006.52	1228.41	5015.62	1227.99
5039.34	1228.8	5051.18	1229.14	5081.88	1229.62	5096.09	1229.78	5108.9	1230.5
5121.05	1235.4	5123.39	1236.3	5139.42	1236.14	5146.8	1235.16	5156.99	1236.33
5168.37	1237	5173.63	1237.24	5175.52	1237.02	5194.48	1236.53	5226.68	1236.93
5243.94	1237	5272.64	1236.63	5291.89	1236.29	5312.96	1236.03	5329.82	1236.04
5353.57	1235.8	5363.91	1236.08	5388.59	1236.94				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4388.59	.04	4883.23	.03	5123.39	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4883.23	5123.39	27.45	27.45	27.45	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4388.59	4851	1240.5	5159	5388.59	1240.5

Left Levee Station= 4883.23 Elevation= 1236.39
Right Levee Station= 5123.39 Elevation= 1236.3

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1234.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.83	Wt. n-Val.		0.030	
E.G. Elev (ft)	1235.50	Reach Len. (ft)	27.45	27.45	27.45
Crit W.S. (ft)	1232.94	Flow Area (sq ft)		1188.34	
E.G. Slope (ft/ft)	0.002443	Area (sq ft)		1188.34	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	228.01	Top Width (ft)		228.01	
Vel Total (ft/s)	7.32	Avg. Vel. (ft/s)		7.32	
Max Chl Dpth (ft)	6.68	Hydr. Depth (ft)		5.21	
Conv. Total (cfs)	176020.7	Conv. (cfs)		176020.7	
Length Wtd. (ft)	27.45	Wetted Per. (ft)		229.78	
Min Ch El (ft)	1227.99	Shear (lb/sq ft)		0.79	
Alpha	1.00	Stream Power (lb/ft s)		5.77	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.02	665.64	0.44
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	116.29	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1235.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.03	Wt. n-Val.		0.030	
E.G. Elev (ft)	1236.88	Reach Len. (ft)	27.45	27.45	27.45
Crit W.S. (ft)	1233.82	Flow Area (sq ft)		1460.39	
E.G. Slope (ft/ft)	0.002424	Area (sq ft)		1460.39	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	236.28	Top Width (ft)		236.28	
Vel Total (ft/s)	8.16	Avg. Vel. (ft/s)		8.16	
Max Chl Dpth (ft)	7.86	Hydr. Depth (ft)		6.18	
Conv. Total (cfs)	242120.8	Conv. (cfs)		242120.8	
Length Wtd. (ft)	27.45	Wetted Per. (ft)		238.47	
Min Ch El (ft)	1227.99	Shear (lb/sq ft)		0.93	
Alpha	1.00	Stream Power (lb/ft s)		7.56	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	38.88	823.42	30.33
C & E Loss (ft)	0.00	Cum SA (acres)	20.28	122.00	18.89

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1238.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.94	Wt. n-Val.	0.040	0.030	0.040
E.G. Elev (ft)	1238.96	Reach Len. (ft)	27.45	27.45	27.45

Crit W.S. (ft)	1234.76	Flow Area (sq ft)	48.54	1981.40	72.86
E.G. Slope (ft/ft)	0.001517	Area (sq ft)	1156.26	1981.40	421.02
Q Total (cfs)	15770.00	Flow (cfs)	92.28	15508.25	169.47
Top Width (ft)	1000.00	Top Width (ft)	494.64	240.16	265.20
Vel Total (ft/s)	7.50	Avg. Vel. (ft/s)	1.90	7.83	2.33
Max Chl Dpth (ft)	10.03	Hydr. Depth (ft)	1.51	8.25	2.05
Conv. Total (cfs)	404859.1	Conv. (cfs)	2369.1	398139.2	4350.8
Length Wtd. (ft)	27.45	Wetted Per. (ft)	32.23	242.49	35.75
Min Ch El (ft)	1227.99	Shear (lb/sq ft)	0.14	0.77	0.19
Alpha	1.07	Stream Power (lb/ft s)	0.27	6.06	0.45
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	337.68	998.52	224.23
C & E Loss (ft)	0.01	Cum SA (acres)	102.71	127.53	77.78

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 4.156

INPUT
Description: Santan Baptist Church Road Bridge, Upstream Face
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4389.52	1235.5	4481.71	1235.49	4677.27	1235.65	4749.73	1235.93	4779.63	1236.13
4828.52	1237.32	4878.86	1237.35	4890.92	1235.12	4894.91	1234.7	4902.62	1229.77
4917.98	1229.73	4952.77	1228.04	4987.71	1228.53	5022.66	1228.5	5057.65	1229.46
5092.36	1229.6	5106	1229.6	5117.18	1235.17	5119.4	1235.18	5131.41	1237.28
5184.87	1237.33	5230.17	1237.23	5298.74	1237.15				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4389.52	.04	4878.86	.03	5131.41	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4878.86	5131.41	39.32	39.32	39.32	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4389.52	4878.86	1240.5	5131.41	5298.74	1240.5

Left Levee Station= 4878.86 Elevation= 1237.35
Right Levee Station= 5131.41 Elevation= 1237.28

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1234.61	Element			
Vel Head (ft)	0.83	Wt. n-Val.		0.030	
E.G. Elev (ft)	1235.44	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)	1232.78	Flow Area (sq ft)		1192.95	
E.G. Slope (ft/ft)	0.002326	Area (sq ft)		1192.95	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	221.00	Top Width (ft)		221.00	
Vel Total (ft/s)	7.29	Avg. Vel. (ft/s)		7.29	
Max Chl Dpth (ft)	6.57	Hydr. Depth (ft)		5.40	
Conv. Total (cfs)	180379.7	Conv. (cfs)		180379.7	
Length Wtd. (ft)	0.00	Wetted Per. (ft)		223.66	
Min Ch El (ft)	1228.04	Shear (lb/sq ft)		0.77	
Alpha	1.00	Stream Power (lb/ft s)		5.65	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.02	664.89	0.44
C & E Loss (ft)		Cum SA (acres)	0.09	116.15	0.73

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1235.78	Element			
Vel Head (ft)	1.04	Wt. n-Val.		0.030	
E.G. Elev (ft)	1236.82	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)	1233.67	Flow Area (sq ft)		1459.88	
E.G. Slope (ft/ft)	0.002426	Area (sq ft)		1459.88	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	235.49	Top Width (ft)		235.49	
Vel Total (ft/s)	8.17	Avg. Vel. (ft/s)		8.17	

Max Chl Dpth (ft)	7.74	Hydr. Depth (ft)		6.20	
Conv. Total (cfs)	242006.9	Conv. (cfs)		242006.9	
Length Wtd. (ft)	0.00	Wetted Per. (ft)		238.43	
Min Ch El (ft)	1228.04	Shear (lb/sq ft)		0.93	
Alpha	1.00	Stream Power (lb/ft s)		7.57	
Frctn Loss (ft)		Cum Volume (acre-ft)	38.88	822.50	30.33
C & E Loss (ft)		Cum SA (acres)	20.28	121.85	18.89

Warning - The conveyance ratio (upstream 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 OUTPUT Profile #Existing

W.S. Elev (ft)	1237.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.98	Wt. n-Val.		0.030	
E.G. Elev (ft)	1238.90	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)	1234.62	Flow Area (sq ft)		1988.61	
E.G. Slope (ft/ft)	0.001664	Area (sq ft)	984.74	1988.61	112.92
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	909.22	Top Width (ft)	489.34	252.55	167.33
Vel Total (ft/s)	7.93	Avg. Vel. (ft/s)		7.93	
Max Chl Dpth (ft)	9.89	Hydr. Depth (ft)		7.87	
Conv. Total (cfs)	386566.2	Conv. (cfs)		386566.2	
Length Wtd. (ft)	0.00	Wetted Per. (ft)		255.77	
Min Ch El (ft)	1228.04	Shear (lb/sq ft)		0.81	
Alpha	1.00	Stream Power (lb/ft s)		6.41	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	337.00	997.27	224.06
C & E Loss (ft)	0.32	Cum SA (acres)	102.40	127.38	77.64

Warning - The cross-section end points had to be extended vertically for the computed water surface.
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.

BRIDGE RIVER: EMF
REACH: Reach 1 RS: 4.152

INPUT
Description: Santan Baptist Church Road 7-Span Bridge
Enlongated Piers with
Semi-Circular Ends
Distance from Upstream XS = 0
Deck/Roadway Width = 39.32
Weir Coefficient = 2.6
Bridge Deck/Roadway Skew =
Upstream Deck/Roadway Coordinates
num= 57

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
4389.52	1236.8	1235.5	4481.71	1236.9	1235.5	4677.27	1236.98	1235.5
4682.99	1236.99	1235.5	4730.72	1237.02	1235.5	4779.06	1237.2	1235.5
4829.31	1237.42	1236	4861.77	1237.53	1237	4877.64	1237.58	1237
4878.73	1237.58	1237.25	4888.63	1237.56	1235.01	4890.92	1237.56	1235.12
4890.95	1237.56	1235.12	4890.96	1237.56	1235.86	4895.72	1237.55	1235.85
4902.15	1237.54	1235.84	4905	1237.53	1235.83	4912.92	1237.52	1235.82
4914.73	1237.52	1235.82	4917.17	1237.51	1235.82	4917.72	1237.51	1235.82
4923.03	1237.5	1235.82	4934.72	1237.48	1235.82	4947.93	1237.48	1235.83
4957.85	1237.49	1235.8	4982.92	1237.5	1235.79	4983.83	1237.5	1235.79
4992.87	1237.5	1235.82	5003	1237.5	1235.81	5004.28	1237.49	1235.81
5010.54	1237.49	1235.8	5011.66	1237.49	1235.8	5015.34	1237.48	1235.8
5016.62	1237.48	1235.8	5017.87	1237.48	1235.8	5027.85	1237.48	1235.82
5033.44	1237.48	1235.82	5052.83	1237.48	1235.81	5062.8	1237.49	1235.81
5082.86	1237.49	1235.8	5087.72	1237.51	1235.8	5097.66	1237.54	1235.83
5105.62	1237.57	1235.83	5106.68	1237.57	1235.84	5117.18	1237.61	1235.84
5118.41	1237.61	1235.84	5119.64	1237.62	1235.84	5119.65	1237.62	1234.18
5120.66	1237.62	1234.27	5122.1	1237.63	1234.4	5131.63	1237.66	1235
5132.55	1237.66	1235.34	5157.53	1237.66	1236.58	5173.12	1237.66	1237
5221.08	1237.86	1237	5267.98	1238.05	1237	5314.4	1238.32	1237

Upstream Bridge Cross Section Data
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4389.52	1235.5	4481.71	1235.49	4677.27	1235.65	4749.73	1235.93	4779.63	1236.13
4828.52	1237.32	4878.86	1237.35	4890.92	1235.12	4894.91	1234.7	4902.62	1229.77
4917.98	1229.73	4952.77	1228.04	4987.71	1228.53	5022.66	1228.5	5057.65	1229.46
5092.36	1229.6	5106	1229.6	5117.18	1235.17	5119.4	1235.18	5131.41	1237.28
5184.87	1237.33	5230.17	1237.23	5298.74	1237.15				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4389.52	.04	4878.86	.03	5131.41	.04

Bank Sta: Left	Right	Coeff Contr.	Expan.
4878.86	5131.41	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4389.52	4878.86	1240.5	5131.41	5298.74	1240.5

Left Levee Station= 4878.86 Elevation= 1237.35
Right Levee Station= 5131.41 Elevation= 1237.28

Downstream Deck/Roadway Coordinates
num= 62

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
4389.52	1236.8	1235	4481.71	1236.9	1235	4677.27	1236.98	1235
4682.99	1236.99	1235	4730.72	1237.02	1235	4779.06	1237.2	1235
4829.31	1237.42	1236	4861.77	1237.53	1236.2	4877.64	1237.58	1237
4877.67	1237.58	1236.25	4878.73	1237.58	1236.25	4888.63	1237.56	1235.16
4889.58	1237.56	1234.09	4889.59	1237.56	1235.66	4895.72	1237.55	1235.68
4902.15	1237.54	1235.7	4905	1237.53	1235.71	4911.62	1237.52	1235.74
4914.73	1237.52	1235.74	4917.17	1237.51	1235.74	4917.72	1237.51	1235.74
4921.74	1237.5	1235.74	4934.72	1237.48	1235.74	4946.71	1237.48	1235.73
4956.63	1237.49	1235.74	4981.62	1237.5	1235.7	4983.83	1237.5	1235.7
4991.57	1237.5	1235.71	5003	1237.5	1235.71	5004.28	1237.49	1235.71
5010.54	1237.49	1235.71	5011.66	1237.49	1235.72	5015.34	1237.48	1235.72
5016.62	1237.48	1235.72	5016.66	1237.48	1235.72	5026.63	1237.48	1235.69
5033.44	1237.48	1235.7	5051.68	1237.48	1235.73	5061.71	1237.49	1235.72
5082.86	1237.49	1235.71	5086.61	1237.5	1235.7	5096.43	1237.54	1235.74
5105.62	1237.57	1235.74	5106.68	1237.57	1235.75	5117.18	1237.61	1235.77
5118.41	1237.61	1235.77	5118.52	1237.61	1235.77	5118.53	1237.61	1234.17
5120.66	1237.62	1234.24	5122.1	1237.63	1234.29	5130.78	1237.65	1235.94
5131.63	1237.66	1235.95	5132.55	1237.66	1235.96	5157.53	1237.66	1235.96
5173.12	1237.66	1235.96	5198.96	1237.77	1235.96	5221.08	1237.86	1237
5267.98	1238.05	1237	5314.4	1238.32	1237	5335.2	1238.32	1237
5376.8	1238.32	1236.79	5393.57	1238.32	1236.68			

Downstream Bridge Cross Section Data
Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4396.35	1235.3	4472.26	1235.32	4536.92	1235.37	4578.27	1235.44	4604.56	1235.45
4672.38	1235.4	4723.27	1235.54	4774.55	1235.86	4789.16	1235.93	4811.19	1236.11
4828.14	1236.58	4877.67	1237.26	4889.58	1235.09	4891.73	1234.99	4901.87	1229.6
4916.81	1228.71	4951.71	1228.9	4986.72	1228.12	5021.68	1228.31	5056.82	1229.05
5091.7	1229.29	5105.74	1229.58	5117.93	1235.16	5118.73	1235.17	5130.78	1237.28
5198.96	1236.87	5226.06	1237.08	5247.39	1237.27	5285.38	1237.02	5335.2	1237
5376.8	1236.79	5393.57	1236.68						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4396.35	.04	4877.67	.03	5130.78	.04

Bank Sta: Left	Right	Coeff Contr.	Expan.
4877.67	5130.78	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4396.35	4877.67	1239	5130.78	5393.57	1239

Left Levee Station= 4877.67 Elevation= 1237.26
Right Levee Station= 5130.78 Elevation= 1237.28

```
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           =
Energy head used in spillway design           =
Spillway height used in design                =
Weir crest shape                              = Broad Crested

Number of Piers =  6

Pier Data
Pier Station     Upstream= 4917.89    Downstream= 4916.67
Upstream     num=       3
    Width   Elev    Width   Elev    Width   Elev
    1.98 1228.73    1.98 1235.45   10.14 1235.83
Downstream     num=       3
    Width   Elev    Width   Elev    Width   Elev
    2.01 1227.71    2.01 1235.44   10.13 1235.74

Pier Data
Pier Station     Upstream= 4952.84    Downstream= 4951.66
Upstream     num=       3
    Width   Elev    Width   Elev    Width   Elev
    1.97 1227.04    1.97 1235.52    9.93 1235.81
Downstream     num=       3
    Width   Elev    Width   Elev    Width   Elev
    1.97  1227.9    1.97 1235.48    9.92 1235.73

Pier Data
Pier Station     Upstream= 4987.88    Downstream=  4986.6
Upstream     num=       3
    Width   Elev    Width   Elev    Width   Elev
    1.94 1227.53    1.94 1235.52    9.96  1235.8
Downstream     num=       3
    Width   Elev    Width   Elev    Width   Elev
    2.03 1227.12    2.03 1235.43    9.95  1235.7

Pier Data
Pier Station     Upstream= 5022.89    Downstream= 5021.65
Upstream     num=       3
    Width   Elev    Width   Elev    Width   Elev
    1.93  1227.5    1.93 1235.48    9.99 1235.81
Downstream     num=       3
    Width   Elev    Width   Elev    Width   Elev
    1.97 1227.31    1.97 1235.47    9.97 1235.69

Pier Data
Pier Station     Upstream= 5057.88    Downstream= 5056.71
Upstream     num=       3
    Width   Elev    Width   Elev    Width   Elev
    1.93 1228.46    1.93 1235.49    9.98 1235.82
Downstream     num=       3
    Width   Elev    Width   Elev    Width   Elev
    1.98 1228.05    1.98 1235.46   10.03 1235.72

Pier Data
Pier Station     Upstream=  5092.8    Downstream= 5091.53
Upstream     num=       3
    Width   Elev    Width   Elev    Width   Elev
    1.99  1228.6    1.99 1235.51    9.95 1235.81
Downstream     num=       3
    Width   Elev    Width   Elev    Width   Elev
    2.02 1228.29    2.02 1235.48    9.84  1235.7

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
      Energy
      Momentum                Cd   =    1.33
      Yarnell                 KVal =      .9
```

Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

Additional Bridge Parameters
Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth inside the bridge at the downstream end
Criteria to check for pressure flow = Upstream water surface

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 4.148

INPUT
Description: Santan Baptist Church Road Bridge, Downstream Face
Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4396.35	1235.3	4472.26	1235.32	4536.92	1235.37	4578.27	1235.44	4604.56	1235.45
4672.38	1235.4	4723.27	1235.54	4774.55	1235.86	4789.16	1235.93	4811.19	1236.11
4828.14	1236.58	4877.67	1237.26	4889.58	1235.09	4891.73	1234.99	4901.87	1229.6
4916.81	1228.71	4951.71	1228.9	4986.72	1228.12	5021.68	1228.31	5056.82	1229.05
5091.7	1229.29	5105.74	1229.58	5117.93	1235.16	5118.73	1235.17	5130.78	1237.28
5198.96	1236.87	5226.06	1237.08	5247.39	1237.27	5285.38	1237.02	5335.2	1237
5376.8	1236.79	5393.57	1236.68						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4396.35	.04	4877.67	.03	5130.78	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.67	5130.78	56	34.44	20	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4396.35	4877.67	1239	5130.78	5393.57	1239

Left Levee Station= 4877.67 Elevation= 1237.26
Right Levee Station= 5130.78 Elevation= 1237.28

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1234.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.94	Wt. n-Val.		0.030	
E.G. Elev (ft)	1234.99	Reach Len. (ft)	56.00	34.44	20.00
Crit W.S. (ft)	1232.59	Flow Area (sq ft)		1117.70	
E.G. Slope (ft/ft)	0.002899	Area (sq ft)		1117.70	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	222.00	Top Width (ft)		222.00	
Vel Total (ft/s)	7.78	Avg. Vel. (ft/s)		7.78	
Max Chl Dpth (ft)	5.93	Hydr. Depth (ft)		5.03	
Conv. Total (cfs)	161593.0	Conv. (cfs)		161593.0	
Length Wtd. (ft)	34.44	Wetted Per. (ft)		224.13	
Min Ch El (ft)	1228.12	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		7.02	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.02	663.95	0.44
C & E Loss (ft)	0.07	Cum SA (acres)	0.09	115.96	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1235.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.19	Wt. n-Val.		0.030	
E.G. Elev (ft)	1236.32	Reach Len. (ft)	56.00	34.44	20.00
Crit W.S. (ft)	1233.47	Flow Area (sq ft)		1359.74	
E.G. Slope (ft/ft)	0.002949	Area (sq ft)		1359.74	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	228.48	Top Width (ft)		228.48	
Vel Total (ft/s)	8.77	Avg. Vel. (ft/s)		8.77	
Max Chl Dpth (ft)	7.01	Hydr. Depth (ft)		5.95	
Conv. Total (cfs)	219511.9	Conv. (cfs)		219511.9	

Length Wtd. (ft)	34.44	Wetted Per. (ft)		231.08	
Min Ch El (ft)	1228.12	Shear (lb/sq ft)		1.08	
Alpha	1.00	Stream Power (lb/ft s)		9.50	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	38.88	821.36	30.33
C & E Loss (ft)	0.08	Cum SA (acres)	20.28	121.66	18.89

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1236.30	Element			
Vel Head (ft)	1.44	Wt. n-Val.		0.030	
E.G. Elev (ft)	1237.74	Reach Len. (ft)	56.00	34.44	20.00
Crit W.S. (ft)	1234.39	Flow Area (sq ft)		1635.44	
E.G. Slope (ft/ft)	0.003016	Area (sq ft)		1635.44	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	242.20	Top Width (ft)		242.20	
Vel Total (ft/s)	9.64	Avg. Vel. (ft/s)		9.64	
Max Chl Dpth (ft)	8.18	Hydr. Depth (ft)		6.75	
Conv. Total (cfs)	287164.2	Conv. (cfs)		287164.2	
Length Wtd. (ft)	34.44	Wetted Per. (ft)		245.02	
Min Ch El (ft)	1228.12	Shear (lb/sq ft)		1.26	
Alpha	1.00	Stream Power (lb/ft s)		12.12	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	337.00	996.01	224.06
C & E Loss (ft)	0.09	Cum SA (acres)	102.40	127.38	77.64

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 4.142

INPUT
Description: Santan Baptist Church Rd. Bridge Downstream Ineffective Areas, End Loose Riprap Channel
Station Elevation Data num= 56

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4416.65	1235.4	4421.93	1235.45	4454.4	1235.43	4490.65	1235.28	4540.77	1235.29
4568.91	1235.2	4590.91	1235.32	4616.26	1235.22	4656.01	1235.18	4680.21	1235.05
4691.16	1235.1	4707.86	1234.93	4728.32	1235.14	4738.96	1235.08	4751.52	1235.35
4761	1235.1	4763.52	1234.93	4788.57	1235.17	4793.11	1235.42	4818.92	1235.35
4836.68	1236.2	4852.27	1235.93	4868.53	1236.43	4879.85	1236.4	4893.23	1232.2
4909.46	1230.3	4919.27	1228.89	4944.22	1228.01	4985.24	1227.92	4995.9	1226.74
5009.68	1227.1	5031.89	1228.31	5039.96	1228.54	5051.3	1228.67	5080.91	1228.67
5086.04	1228.7	5093.68	1229.38	5105.61	1229.3	5122.03	1235.46	5130.38	1236.47
5138.57	1236.9	5162.1	1236.96	5174.85	1237.06	5190.18	1235.71	5199.75	1236.35
5228.48	1236.6	5264.4	1236.69	5297.35	1236.27	5310.23	1236.37	5333.41	1236.32
5340.13	1236.2	5356.02	1236.46	5367.44	1236.41	5375.26	1236.64	5390.61	1236.81
5416.65	1236.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4416.65	.04	4879.85	.025	5138.57	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4879.85	5138.57	396	325.42	268	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4416.65	4871	1238.5	5142	5416.65	1238.5

Left Levee Station= 4879.85 Elevation= 1236.4
Right Levee Station= 5138.57 Elevation= 1236.9
Blocked Obstructions num= 1

Sta L	Sta R	Elev
4416.65	4836	1235.4

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1234.04	Element			
Vel Head (ft)	0.80	Wt. n-Val.		0.025	
E.G. Elev (ft)	1234.84	Reach Len. (ft)	396.00	325.42	268.00
Crit W.S. (ft)	1232.23	Flow Area (sq ft)		1211.95	
E.G. Slope (ft/ft)	0.001613	Area (sq ft)		1211.95	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	

Top Width (ft)	230.90	Top Width (ft)		230.90	
Vel Total (ft/s)	7.18	Avg. Vel. (ft/s)		7.18	
Max Chl Dpth (ft)	7.30	Hydr. Depth (ft)		5.25	
Conv. Total (cfs)	216616.2	Conv. (cfs)		216616.2	
Length Wtd. (ft)	325.42	Wetted Per. (ft)		232.41	
Min Ch El (ft)	1226.74	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		3.77	
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	0.02	663.03	0.44
C & E Loss (ft)	0.04	Cum SA (acres)	0.09	115.78	0.73

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1235.13	Element			
Vel Head (ft)	1.02	Wt. n-Val.		0.025	
E.G. Elev (ft)	1236.16	Reach Len. (ft)	396.00	325.42	268.00
Crit W.S. (ft)	1233.10	Flow Area (sq ft)		1467.21	
E.G. Slope (ft/ft)	0.001664	Area (sq ft)		1467.21	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	237.28	Top Width (ft)		237.28	
Vel Total (ft/s)	8.12	Avg. Vel. (ft/s)		8.12	
Max Chl Dpth (ft)	8.39	Hydr. Depth (ft)		6.18	
Conv. Total (cfs)	292251.9	Conv. (cfs)		292251.9	
Length Wtd. (ft)	325.42	Wetted Per. (ft)		239.16	
Min Ch El (ft)	1226.74	Shear (lb/sq ft)		0.64	
Alpha	1.00	Stream Power (lb/ft s)		5.18	
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	38.88	820.24	30.33
C & E Loss (ft)	0.04	Cum SA (acres)	20.28	121.47	18.89

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1236.31	Element			
Vel Head (ft)	1.26	Wt. n-Val.		0.025	
E.G. Elev (ft)	1237.57	Reach Len. (ft)	396.00	325.42	268.00
Crit W.S. (ft)	1234.05	Flow Area (sq ft)		1752.43	
E.G. Slope (ft/ft)	0.001719	Area (sq ft)		1752.43	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	248.94	Top Width (ft)		248.94	
Vel Total (ft/s)	9.00	Avg. Vel. (ft/s)		9.00	
Max Chl Dpth (ft)	9.57	Hydr. Depth (ft)		7.04	
Conv. Total (cfs)	380388.1	Conv. (cfs)		380388.1	
Length Wtd. (ft)	325.76	Wetted Per. (ft)		251.10	
Min Ch El (ft)	1226.74	Shear (lb/sq ft)		0.75	
Alpha	1.00	Stream Power (lb/ft s)		6.74	
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	337.00	994.67	224.06
C & E Loss (ft)	0.06	Cum SA (acres)	102.40	127.18	77.64

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 4.08

INPUT
Description: Santan Baptist Church Rd. Bridge Downstream Ineffective Areas
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4538.81	1234.2	4614.34	1234	4642.73	1234.04	4666.71	1234.02	4719.71	1233.71
4759.15	1234	4799.09	1234.13	4817.09	1234.09	4828.56	1234.31	4849.11	1233.92
4855.16	1235.5	4868.74	1235.73	4891.12	1229.36	4902.74	1228.13	4916.83	1228.06
4928.55	1227.8	4958.81	1227.6	4980.91	1227.39	4998.51	1227.33	5007.99	1227.16
5014.16	1226.4	5029.4	1227.61	5032.18	1227.33	5056.02	1227.59	5085.05	1228.37
5089.41	1228.6	5098.58	1229.68	5118.27	1236.05	5131.81	1235.82	5135.9	1234.56
5151.56	1234.7	5160.73	1234.94	5186.23	1234.73	5207.98	1234.99	5222.82	1235
5243.08	1235.1	5271.42	1234.94	5300.68	1235.34	5315.22	1235.87	5322.58	1236.28
5336.27	1236.5	5350.21	1237.21	5368.88	1236.13	5376.03	1236.11	5398.82	1236.33
5419.59	1235.8	5422.55	1236.44	5435.7	1235.7	5467.37	1235.57	5478.83	1235.33
5489.4	1235.5	5504.59	1235.94	5538.81	1235.79				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

```
 4538.81     .04 4868.74    .025 5118.27     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       4868.74 5118.27              212  175.36     142            .1        .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4538.81    4766    1238    5225 5538.81    1238
Left Levee       Station= 4868.74      Elevation= 1235.73
Right Levee      Station= 5118.27      Elevation= 1236.05
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4538.81    4855  1234.7    5132 5538.81  1235.1
```

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1233.59	Element			
Vel Head (ft)	0.73	Wt. n-Val.		0.025	
E.G. Elev (ft)	1234.32	Reach Len. (ft)	212.00	175.36	142.00
Crit W.S. (ft)	1231.52	Flow Area (sq ft)		1269.12	
E.G. Slope (ft/ft)	0.001411	Area (sq ft)		1269.12	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	234.40	Top Width (ft)		234.40	
Vel Total (ft/s)	6.86	Avg. Vel. (ft/s)		6.86	
Max Chl Dpth (ft)	7.19	Hydr. Depth (ft)		5.41	
Conv. Total (cfs)	231619.7	Conv. (cfs)		231619.7	
Length Wtd. (ft)	175.36	Wetted Per. (ft)		235.87	
Min Ch El (ft)	1226.40	Shear (lb/sq ft)		0.47	
Alpha	1.00	Stream Power (lb/ft s)		3.25	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	0.02	653.76	0.44
C & E Loss (ft)	0.02	Cum SA (acres)	0.09	114.04	0.73

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1234.66	Element			
Vel Head (ft)	0.95	Wt. n-Val.		0.025	
E.G. Elev (ft)	1235.61	Reach Len. (ft)	212.00	175.36	142.00
Crit W.S. (ft)	1232.40	Flow Area (sq ft)		1523.43	
E.G. Slope (ft/ft)	0.001501	Area (sq ft)		1523.43	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	241.46	Top Width (ft)		241.46	
Vel Total (ft/s)	7.82	Avg. Vel. (ft/s)		7.82	
Max Chl Dpth (ft)	8.26	Hydr. Depth (ft)		6.31	
Conv. Total (cfs)	307652.5	Conv. (cfs)		307652.5	
Length Wtd. (ft)	175.36	Wetted Per. (ft)		243.25	
Min Ch El (ft)	1226.40	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		4.59	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	38.88	809.07	30.33
C & E Loss (ft)	0.02	Cum SA (acres)	20.28	119.68	18.89

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1235.85	Element			
Vel Head (ft)	1.14	Wt. n-Val.	0.040	0.025	
E.G. Elev (ft)	1236.99	Reach Len. (ft)	212.00	175.36	142.00
Crit W.S. (ft)	1233.34	Flow Area (sq ft)	104.39	1815.62	
E.G. Slope (ft/ft)	0.001498	Area (sq ft)	365.41	1815.62	
Q Total (cfs)	15770.00	Flow (cfs)	151.56	15618.44	
Top Width (ft)	578.84	Top Width (ft)	329.93	248.91	
Vel Total (ft/s)	8.21	Avg. Vel. (ft/s)	1.45	8.60	
Max Chl Dpth (ft)	9.45	Hydr. Depth (ft)	1.02	7.29	
Conv. Total (cfs)	407510.3	Conv. (cfs)	3916.5	403593.8	
Length Wtd. (ft)	175.54	Wetted Per. (ft)	102.84	251.03	
Min Ch El (ft)	1226.40	Shear (lb/sq ft)	0.09	0.68	
Alpha	1.09	Stream Power (lb/ft s)	0.14	5.82	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	335.34	981.35	224.06
C & E Loss (ft)	0.03	Cum SA (acres)	100.90	125.32	77.64

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 4.047

INPUT
Description:
Station Elevation Data num= 46

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4723.81	1234.24	4723.82	1234.24	4774.63	1234.09	4787.93	1234.09	4810.7	1233.98
4826.04	1234.1	4832.42	1234.02	4837.44	1233.54	4844.42	1233.64	4852.35	1235.22
4863.19	1235.6	4885.45	1229.2	4898.97	1228.37	4917.2	1228.05	4952.65	1227.57
4966.34	1227.5	4991.39	1227.47	5006.49	1226.59	5024.26	1227.4	5073.51	1228.66
5085.61	1228.6	5096.6	1230.39	5113.76	1235.86	5127.76	1235.91	5132.56	1234.25
5151.08	1234.1	5156.92	1234.21	5189.16	1234.11	5194.38	1234.14	5226.4	1234.58
5240.94	1234.7	5264.16	1235.07	5315.26	1235.51	5350.77	1235.48	5382.31	1235.39
5398.7	1235.8	5404.04	1236.05	5434.26	1235.82	5441.14	1235.33	5460.01	1235.92
5467.58	1236	5480.46	1234.91	5498.31	1235.13	5512.59	1235.59	5521.43	1235.37
5537.18	1235.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4723.81	.04	4863.19	.025	5113.76	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4863.19	5113.76	380	439.13	492	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4723.81	4863.19	1237	5113.76	5537.18	1237

Left Levee Station= 4863.19 Elevation= 1235.6
Right Levee Station= 5113.76 Elevation= 1235.86

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1233.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.92	Wt. n-Val.		0.025	
E.G. Elev (ft)	1234.00	Reach Len. (ft)	380.00	439.13	492.00
Crit W.S. (ft)	1231.65	Flow Area (sq ft)		1128.24	
E.G. Slope (ft/ft)	0.002070	Area (sq ft)		1128.24	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	233.07	Top Width (ft)		233.07	
Vel Total (ft/s)	7.71	Avg. Vel. (ft/s)		7.71	
Max Chl Dpth (ft)	6.49	Hydr. Depth (ft)		4.84	
Conv. Total (cfs)	191239.8	Conv. (cfs)		191239.8	
Length Wtd. (ft)	439.13	Wetted Per. (ft)		234.27	
Min Ch El (ft)	1226.59	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		4.80	
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	0.02	648.94	0.44
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	113.10	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1234.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.18	Wt. n-Val.		0.025	
E.G. Elev (ft)	1235.27	Reach Len. (ft)	380.00	439.13	492.00
Crit W.S. (ft)	1232.53	Flow Area (sq ft)		1369.42	
E.G. Slope (ft/ft)	0.002119	Area (sq ft)		1369.42	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	239.82	Top Width (ft)		239.82	
Vel Total (ft/s)	8.70	Avg. Vel. (ft/s)		8.70	
Max Chl Dpth (ft)	7.51	Hydr. Depth (ft)		5.71	
Conv. Total (cfs)	258951.5	Conv. (cfs)		258951.5	
Length Wtd. (ft)	439.13	Wetted Per. (ft)		241.32	
Min Ch El (ft)	1226.59	Shear (lb/sq ft)		0.75	
Alpha	1.00	Stream Power (lb/ft s)		6.53	
Frctn Loss (ft)	0.95	Cum Volume (acre-ft)	38.88	803.25	30.33
C & E Loss (ft)	0.00	Cum SA (acres)	20.28	118.71	18.89

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1235.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.44	Wt. n-Val.		0.025	
E.G. Elev (ft)	1236.64	Reach Len. (ft)	380.00	439.13	492.00
Crit W.S. (ft)	1233.47	Flow Area (sq ft)		1639.66	
E.G. Slope (ft/ft)	0.002121	Area (sq ft)		1639.66	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	247.16	Top Width (ft)		247.16	
Vel Total (ft/s)	9.62	Avg. Vel. (ft/s)		9.62	
Max Chl Dpth (ft)	8.62	Hydr. Depth (ft)		6.63	
Conv. Total (cfs)	342389.7	Conv. (cfs)		342389.7	
Length Wtd. (ft)	439.13	Wetted Per. (ft)		248.99	
Min Ch El (ft)	1226.59	Shear (lb/sq ft)		0.87	
Alpha	1.00	Stream Power (lb/ft s)		8.39	
Frctn Loss (ft)	0.95	Cum Volume (acre-ft)	334.45	974.39	224.06
C & E Loss (ft)	0.01	Cum SA (acres)	100.10	124.32	77.64

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 3.964

INPUT
Description:
Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4549.13	1233.6	4559.74	1233.54	4583.98	1233.62	4599.24	1233.4	4611.53	1233.45
4634.46	1233.4	4645.84	1232.92	4674.57	1232.94	4686.07	1233.8	4697.41	1234
4701.45	1233.8	4708.93	1233.58	4729.25	1233.4	4753.22	1234.45	4774.47	1233.88
4778.66	1233.7	4800.34	1233.53	4832.84	1233.12	4849.79	1233.39	4854.7	1234.58
4868.48	1235.1	4880.69	1231.53	4890.57	1228.73	4910.23	1227.52	4918.84	1227.1
4954.84	1226.5	4982.91	1226.67	4996.51	1226.11	5002.18	1226.79	5013.33	1226.99
5022.79	1226.8	5057.86	1226.64	5089.79	1227.3	5098.67	1228.48	5119.03	1235.12
5132.33	1235.2	5138.38	1233.13	5149.08	1233.5	5164.7	1233.66	5200.8	1233.7
5212.38	1233.6	5231.57	1233.79	5263.88	1233.78	5299.97	1233.57	5362.39	1233.69
5408.76	1234.1	5419.57	1233.35	5439.63	1234.15	5469.89	1234.31	5489.88	1234.52
5521.4	1234	5549.13	1233.94						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4549.13	.04	4868.48	.025	5119.03	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4868.48	5119.03	272	341.84	422	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4549.13	4868.48	1236	5119.03	5549.13	1236

Left Levee Station= 4868.48 Elevation= 1235.1
Right Levee Station= 5119.03 Elevation= 1235.12

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1232.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.92	Wt. n-Val.		0.025	
E.G. Elev (ft)	1233.10	Reach Len. (ft)	272.00	341.84	422.00
Crit W.S. (ft)	1230.75	Flow Area (sq ft)		1129.77	
E.G. Slope (ft/ft)	0.002043	Area (sq ft)		1129.77	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	231.53	Top Width (ft)		231.53	
Vel Total (ft/s)	7.70	Avg. Vel. (ft/s)		7.70	
Max Chl Dpth (ft)	6.07	Hydr. Depth (ft)		4.88	
Conv. Total (cfs)	192483.4	Conv. (cfs)		192483.4	
Length Wtd. (ft)	341.84	Wetted Per. (ft)		232.79	
Min Ch El (ft)	1226.11	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		4.77	
Frctn Loss (ft)	1.24	Cum Volume (acre-ft)	0.02	637.56	0.44
C & E Loss (ft)	0.09	Cum SA (acres)	0.09	110.76	0.73

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

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

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1233.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.21	Wt. n-Val.		0.025	
E.G. Elev (ft)	1234.32	Reach Len. (ft)	272.00	341.84	422.00
Crit W.S. (ft)	1231.62	Flow Area (sq ft)		1349.44	
E.G. Slope (ft/ft)	0.002199	Area (sq ft)		1349.44	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	237.60	Top Width (ft)		237.60	
Vel Total (ft/s)	8.83	Avg. Vel. (ft/s)		8.83	
Max Chl Dpth (ft)	7.00	Hydr. Depth (ft)		5.68	
Conv. Total (cfs)	254215.1	Conv. (cfs)		254215.1	
Length Wtd. (ft)	341.84	Wetted Per. (ft)		239.15	
Min Ch El (ft)	1226.11	Shear (lb/sq ft)		0.77	
Alpha	1.00	Stream Power (lb/ft s)		6.84	
Frctn Loss (ft)	1.15	Cum Volume (acre-ft)	38.88	789.54	30.33
C & E Loss (ft)	0.06	Cum SA (acres)	20.28	116.31	18.89

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

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1234.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.49	Wt. n-Val.		0.025	
E.G. Elev (ft)	1235.69	Reach Len. (ft)	272.00	341.84	422.00
Crit W.S. (ft)	1232.56	Flow Area (sq ft)		1611.41	
E.G. Slope (ft/ft)	0.002218	Area (sq ft)		1611.41	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	244.65	Top Width (ft)		244.65	
Vel Total (ft/s)	9.79	Avg. Vel. (ft/s)		9.79	
Max Chl Dpth (ft)	8.09	Hydr. Depth (ft)		6.59	
Conv. Total (cfs)	334831.0	Conv. (cfs)		334831.0	
Length Wtd. (ft)	341.84	Wetted Per. (ft)		246.52	
Min Ch El (ft)	1226.11	Shear (lb/sq ft)		0.91	
Alpha	1.00	Stream Power (lb/ft s)		8.86	
Frctn Loss (ft)	1.05	Cum Volume (acre-ft)	334.45	958.00	224.06
C & E Loss (ft)	0.04	Cum SA (acres)	100.10	121.85	77.64

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

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 3.899

INPUT
Description:
Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4538.68	1233.3	4565.07	1233.03	4577.01	1233.37	4588.66	1233.32	4606.56	1233.42
4617.63	1233.4	4645.96	1233.24	4658.24	1233.47	4671.55	1232.99	4687.4	1232.55
4715.07	1232.9	4739.8	1232.98	4765.06	1233.1	4796.56	1232.92	4802.14	1233.17
4815.06	1232.9	4841.59	1232.99	4857.27	1232.78	4863	1234	4875.98	1234.6
4903.33	1227.2	4913.16	1226.39	4965.06	1225.86	4994.52	1226.07	5000.56	1224.23
5009.39	1224.9	5014.9	1226.06	5021.6	1226.21	5040.52	1226.13	5065.06	1225.97
5097.42	1226.2	5102.14	1227.69	5127.28	1234.47	5131.24	1234.39	5140.63	1234.52

5145.48	1232.8	5154.72	1232.86	5161.28	1233.09	5179.48	1233.09	5239.48	1232.79
5265.06	1232.9	5289.43	1232.77	5315.06	1232.79	5365.06	1232.77	5389.37	1232.82
5415.06	1232.7	5465.06	1232.77	5491.16	1233.2	5503.35	1233.27	5512.39	1233.22
5528.45	1233.3	5538.68	1233.36						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4538.68	.04	4875.98	.03	5127.28	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4875.98	5127.28	100.08	100.08	100.08	.1	.3

Left Levee Station= 4875.98 Elevation= 1234.6
Right Levee Station= 5127.28 Elevation= 1234.47

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1229.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.78	Wt. n-Val.		0.030	
E.G. Elev (ft)	1231.77	Reach Len. (ft)	100.08	100.08	100.08
Crit W.S. (ft)	1229.93	Flow Area (sq ft)		812.15	
E.G. Slope (ft/ft)	0.008149	Area (sq ft)		812.15	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	217.65	Top Width (ft)		217.65	
Vel Total (ft/s)	10.71	Avg. Vel. (ft/s)		10.71	
Max Chl Dpth (ft)	5.76	Hydr. Depth (ft)		3.73	
Conv. Total (cfs)	96374.1	Conv. (cfs)		96374.1	
Length Wtd. (ft)	100.08	Wetted Per. (ft)		219.01	
Min Ch El (ft)	1224.23	Shear (lb/sq ft)		1.89	
Alpha	1.00	Stream Power (lb/ft s)		20.21	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	0.02	629.94	0.44
C & E Loss (ft)	0.24	Cum SA (acres)	0.09	108.99	0.73

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.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1231.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.81	Wt. n-Val.		0.030	
E.G. Elev (ft)	1233.11	Reach Len. (ft)	100.08	100.08	100.08
Crit W.S. (ft)	1230.81	Flow Area (sq ft)		1105.19	
E.G. Slope (ft/ft)	0.005818	Area (sq ft)		1105.19	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	227.40	Top Width (ft)		227.40	
Vel Total (ft/s)	10.79	Avg. Vel. (ft/s)		10.79	
Max Chl Dpth (ft)	7.08	Hydr. Depth (ft)		4.86	
Conv. Total (cfs)	156280.8	Conv. (cfs)		156280.8	
Length Wtd. (ft)	100.08	Wetted Per. (ft)		229.11	
Min Ch El (ft)	1224.23	Shear (lb/sq ft)		1.75	
Alpha	1.00	Stream Power (lb/ft s)		18.90	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	38.88	779.91	30.33
C & E Loss (ft)	0.19	Cum SA (acres)	20.28	114.48	18.89

Warning - The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning - The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1232.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.89	Wt. n-Val.		0.030	
E.G. Elev (ft)	1234.59	Reach Len. (ft)	100.08	100.08	100.08
Crit W.S. (ft)	1231.76	Flow Area (sq ft)		1429.67	
E.G. Slope (ft/ft)	0.004588	Area (sq ft)		1429.67	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	

Top Width (ft)	237.73	Top Width (ft)		237.73	
Vel Total (ft/s)	11.03	Avg. Vel. (ft/s)		11.03	
Max Chl Dpth (ft)	8.47	Hydr. Depth (ft)		6.01	
Conv. Total (cfs)	232821.4	Conv. (cfs)		232821.4	
Length Wtd. (ft)	100.08	Wetted Per. (ft)		239.81	
Min Ch El (ft)	1224.23	Shear (lb/sq ft)		1.71	
Alpha	1.00	Stream Power (lb/ft s)		18.84	
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	334.45	946.07	224.06
C & E Loss (ft)	0.17	Cum SA (acres)	100.10	119.95	77.64

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.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 3.88

INPUT
Description: Drop Structure, Upstream Side, End of Loose Riprap Channel
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4525.48	1233.4	4539.32	1233.36	4559.24	1233.9	4584.25	1233.28	4615.12	1232.89
4639.83	1232.8	4690.44	1232.82	4715.12	1232.72	4740.47	1232.8	4773.43	1232.93
4800.86	1232.9	4815.12	1232.94	4841.65	1232.6	4854.9	1232.81	4858.68	1232.77
4864.18	1234	4877.2	1234.46	4881.8	1232.71	4890.18	1230.51	4895.1	1228.78
4900.25	1227.6	4903.38	1227.27	4910.07	1226.19	4928.9	1225.34	4971.18	1224.77
4975.53	1224.8	4997.1	1224.31	5004.5	1224.24	5006.32	1224.04	5017.21	1224.55
5068.95	1224.6	5078.03	1224.78	5089.82	1225.15	5096.84	1225.68	5103.65	1226.86
5111.61	1228.6	5128.82	1234.5	5142.7	1234.03	5146.98	1232.46	5160.55	1232.77
5162.44	1232.7	5182.31	1232.69	5215.12	1232.5	5240.8	1232.65	5265.13	1232.58
5289.42	1232.6	5315.12	1232.55	5340.85	1232.53	5365.13	1232.46	5390.9	1232.58
5415.12	1232.6	5440.92	1232.4	5465.13	1232.47	5515.12	1232.83	5525.48	1232.82

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4525.48	.04	4877.2	.025	5128.82	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.2	5128.82	15.35	15.35	15.35	.1	.3

Left Levee Station= 4877.2 Elevation= 1234.46
Right Levee Station= 5128.82 Elevation= 1234.5

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1230.15	Element			
Vel Head (ft)	1.00	Wt. n-Val.		0.025	
E.G. Elev (ft)	1231.15	Reach Len. (ft)	15.35	15.35	15.35
Crit W.S. (ft)	1228.84	Flow Area (sq ft)		1086.82	
E.G. Slope (ft/ft)	0.002235	Area (sq ft)		1086.82	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	224.95	Top Width (ft)		224.95	
Vel Total (ft/s)	8.01	Avg. Vel. (ft/s)		8.01	
Max Chl Dpth (ft)	6.11	Hydr. Depth (ft)		4.83	
Conv. Total (cfs)	184012.6	Conv. (cfs)		184012.6	
Length Wtd. (ft)	15.35	Wetted Per. (ft)		226.05	
Min Ch El (ft)	1224.04	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		5.37	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.02	627.76	0.44
C & E Loss (ft)	0.02	Cum SA (acres)	0.09	108.49	0.73

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1231.44	Element			
Vel Head (ft)	1.16	Wt. n-Val.		0.025	
E.G. Elev (ft)	1232.60	Reach Len. (ft)	15.35	15.35	15.35
Crit W.S. (ft)	1229.72	Flow Area (sq ft)		1381.77	
E.G. Slope (ft/ft)	0.001982	Area (sq ft)		1381.77	

Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	233.27	Top Width (ft)		233.27	
Vel Total (ft/s)	8.63	Avg. Vel. (ft/s)		8.63	
Max Chl Dpth (ft)	7.40	Hydr. Depth (ft)		5.92	
Conv. Total (cfs)	267727.3	Conv. (cfs)		267727.3	
Length Wtd. (ft)	15.35	Wetted Per. (ft)		234.77	
Min Ch El (ft)	1224.04	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		6.28	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	38.88	777.05	30.33
C & E Loss (ft)	0.02	Cum SA (acres)	20.28	113.95	18.89

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1232.83	Element			
Vel Head (ft)	1.32	Wt. n-Val.		0.025	
E.G. Elev (ft)	1234.15	Reach Len. (ft)	15.35	15.35	15.35
Crit W.S. (ft)	1230.66	Flow Area (sq ft)		1711.39	
E.G. Slope (ft/ft)	0.001794	Area (sq ft)		1711.39	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	242.45	Top Width (ft)		242.45	
Vel Total (ft/s)	9.21	Avg. Vel. (ft/s)		9.21	
Max Chl Dpth (ft)	8.79	Hydr. Depth (ft)		7.06	
Conv. Total (cfs)	372346.1	Conv. (cfs)		372346.1	
Length Wtd. (ft)	15.35	Wetted Per. (ft)		244.36	
Min Ch El (ft)	1224.04	Shear (lb/sq ft)		0.78	
Alpha	1.00	Stream Power (lb/ft s)		7.23	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	334.45	942.46	224.06
C & E Loss (ft)	0.02	Cum SA (acres)	100.10	119.40	77.64

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 3.877

INPUT
Description: Drop Structure, Downstream Side
Station Elevation Data num= 57

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4521.39	1233.3	4555.05	1233.6	4565.66	1233.9	4587.07	1233.36	4603.41	1233.01
4615.13	1232.9	4624.5	1232.83	4705.8	1232.83	4715.13	1232.8	4768.27	1232.97
4809.76	1232.9	4820.48	1232.84	4841.43	1232.56	4851.25	1232.8	4858.86	1232.74
4864.26	1233.9	4877.56	1234.35	4880.08	1233.91	4884.7	1232.55	4889.69	1230.38
4895.29	1228.4	4905.6	1226.42	4912.03	1226.08	4926.41	1225.65	4930.56	1225.61
4958.4	1224.9	4968.79	1224.8	4991.38	1224.74	5005.01	1224.32	5007.71	1224.44
5009.78	1224.1	5014.19	1224.04	5019.68	1224.26	5028.99	1224.36	5035.68	1224.77
5059.57	1224.9	5084.49	1225.41	5102.25	1226.57	5106.56	1228.13	5111.63	1230.76
5120.95	1233.1	5126.65	1233.88	5129.25	1234.45	5142.74	1233.91	5146.87	1232.38
5151.85	1232.8	5215.12	1232.44	5256.17	1232.68	5274.08	1232.68	5315.12	1232.52
5365.13	1232.5	5406.26	1232.65	5415.12	1232.66	5456.29	1232.35	5465.13	1232.37
5515.12	1232.7	5521.39	1232.71						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4521.39	.04	4877.56	.025	5129.25	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.56	5129.25	500	500	500	.1	.3

Left Levee Station= 4877.56 Elevation= 1234.35
Right Levee Station= 5129.25 Elevation= 1234.45

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1229.89	Element			
Vel Head (ft)	1.20	Wt. n-Val.		0.025	
E.G. Elev (ft)	1231.09	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1228.99	Flow Area (sq ft)		991.27	
E.G. Slope (ft/ft)	0.002935	Area (sq ft)		991.27	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	219.01	Top Width (ft)		219.01	
Vel Total (ft/s)	8.78	Avg. Vel. (ft/s)		8.78	

Max Chl Dpth (ft)	5.85	Hydr. Depth (ft)		4.53	
Conv. Total (cfs)	160596.7	Conv. (cfs)		160596.7	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		220.27	
Min Ch El (ft)	1224.04	Shear (lb/sq ft)		0.82	
Alpha	1.00	Stream Power (lb/ft s)		7.24	
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)	0.02	627.39	0.44
C & E Loss (ft)	0.17	Cum SA (acres)	0.09	108.41	0.73

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.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1231.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.34	Wt. n-Val.		0.025	
E.G. Elev (ft)	1232.54	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1229.88	Flow Area (sq ft)		1282.97	
E.G. Slope (ft/ft)	0.002435	Area (sq ft)		1282.97	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	225.76	Top Width (ft)		225.76	
Vel Total (ft/s)	9.29	Avg. Vel. (ft/s)		9.29	
Max Chl Dpth (ft)	7.16	Hydr. Depth (ft)		5.68	
Conv. Total (cfs)	241576.0	Conv. (cfs)		241576.0	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		227.53	
Min Ch El (ft)	1224.04	Shear (lb/sq ft)		0.86	
Alpha	1.00	Stream Power (lb/ft s)		7.96	
Frctn Loss (ft)	0.75	Cum Volume (acre-ft)	38.88	776.58	30.33
C & E Loss (ft)	0.17	Cum SA (acres)	20.28	113.87	18.89

Warning - The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning - The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1232.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.50	Wt. n-Val.		0.025	
E.G. Elev (ft)	1234.10	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1230.81	Flow Area (sq ft)		1602.60	
E.G. Slope (ft/ft)	0.002139	Area (sq ft)		1602.60	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	234.42	Top Width (ft)		234.42	
Vel Total (ft/s)	9.84	Avg. Vel. (ft/s)		9.84	
Max Chl Dpth (ft)	8.55	Hydr. Depth (ft)		6.84	
Conv. Total (cfs)	340950.9	Conv. (cfs)		340950.9	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		236.65	
Min Ch El (ft)	1224.04	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		8.90	
Frctn Loss (ft)	0.72	Cum Volume (acre-ft)	334.45	941.88	224.06
C & E Loss (ft)	0.17	Cum SA (acres)	100.10	119.32	77.64

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.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 3.782

INPUT
Description:
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4521.39	1234.1	4574.84	1233.99	4615.44	1233.87	4656.12	1233.48	4706.15	1233.39

4715.46	1233.2	4756.18	1233.14	4765.45	1233.1	4806.21	1232.75	4815.46	1232.7
4829.98	1232.3	4840.15	1233.07	4859.38	1231.77	4865.1	1232.9	4876.26	1233.04
4879.86	1232.3	4882.28	1232.42	4906.12	1226.39	4915.86	1225.36	4925.94	1224
4932.94	1223.7	4956.22	1223.68	4961.16	1223.33	4972.43	1222.9	4980.3	1221.29
4987.05	1221.1	5007.1	1220.72	5018.04	1220.77	5030.86	1221.14	5039.59	1221.49
5073.79	1221.5	5079.05	1222.21	5088.47	1225.18	5099.71	1225.88	5112.88	1229.14
5127.18	1232.8	5129.17	1233.15	5139.85	1232.62	5142.94	1232.38	5147.18	1230.91
5155.91	1231.3	5166.75	1231.44	5207.86	1231.54	5224.43	1231.45	5265.43	1231.49
5274.39	1231.5	5315.44	1231.14	5356.52	1231.18	5424.29	1231.18	5474.26	1231.1
5521.39	1231.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4521.39	.04	4876.26	.025	5129.17	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4876.26	5129.17	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4521.39	4876.26	1234	5129.17	5521.39	1234

Left Levee Station= 4876.26 Elevation= 1233.04
Right Levee Station= 5129.17 Elevation= 1233.15

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1229.52	Element			
Vel Head (ft)	0.61	Wt. n-Val.		0.025	
E.G. Elev (ft)	1230.13	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1226.56	Flow Area (sq ft)		1385.99	
E.G. Slope (ft/ft)	0.000972	Area (sq ft)		1385.99	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	220.59	Top Width (ft)		220.59	
Vel Total (ft/s)	6.28	Avg. Vel. (ft/s)		6.28	
Max Chl Dpth (ft)	8.80	Hydr. Depth (ft)		6.28	
Conv. Total (cfs)	279057.5	Conv. (cfs)		279057.5	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		222.30	
Min Ch El (ft)	1220.72	Shear (lb/sq ft)		0.38	
Alpha	1.00	Stream Power (lb/ft s)		2.37	
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)	0.02	613.75	0.44
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	105.89	0.73

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1230.85	Element			
Vel Head (ft)	0.77	Wt. n-Val.		0.025	
E.G. Elev (ft)	1231.63	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1227.52	Flow Area (sq ft)		1687.98	
E.G. Slope (ft/ft)	0.001008	Area (sq ft)		1687.98	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	231.10	Top Width (ft)		231.10	
Vel Total (ft/s)	7.06	Avg. Vel. (ft/s)		7.06	
Max Chl Dpth (ft)	10.13	Hydr. Depth (ft)		7.30	
Conv. Total (cfs)	375473.3	Conv. (cfs)		375473.3	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		233.15	
Min Ch El (ft)	1220.72	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		3.22	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	38.88	759.53	30.33
C & E Loss (ft)	0.01	Cum SA (acres)	20.28	111.25	18.89

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1232.27	Element			
Vel Head (ft)	0.94	Wt. n-Val.		0.025	
E.G. Elev (ft)	1233.21	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1228.54	Flow Area (sq ft)		2022.48	
E.G. Slope (ft/ft)	0.001029	Area (sq ft)		2022.48	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	242.21	Top Width (ft)		242.21	

Vel Total (ft/s)	7.80	Avg. Vel. (ft/s)		7.80	
Max Chl Dpth (ft)	11.55	Hydr. Depth (ft)		8.35	
Conv. Total (cfs)	491520.7	Conv. (cfs)		491520.7	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		244.61	
Min Ch El (ft)	1220.72	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		4.14	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	334.45	921.07	224.06
C & E Loss (ft)	0.01	Cum SA (acres)	100.10	116.58	77.64

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 3.688

INPUT
Description:
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4521.39	1231.7	4540.99	1231.29	4571.17	1231.19	4606.49	1231.12	4619.96	1231.27
4654.49	1231.7	4665.77	1231.84	4678.32	1231.65	4710.92	1231.25	4765.77	1231.79
4815.76	1232	4840.61	1232.21	4847.4	1231.91	4859.14	1231.13	4866.39	1232.17
4876.78	1232.3	4879.5	1231.68	4882.3	1231.61	4907.17	1225.24	4915.95	1225.13
4922.17	1223.7	4934.15	1223.64	4942.54	1223.47	4956.85	1222.63	4986.48	1220.97
5001.27	1220.4	5012.7	1220.48	5017.44	1220.77	5034.21	1221.32	5062.3	1222.13
5073.9	1221.7	5085.81	1224.67	5096.68	1224.74	5113.25	1228.61	5124.8	1231.38
5129.93	1232.8	5136.34	1232.62	5142.06	1232.75	5147.21	1230.64	5153.12	1231.58
5166.66	1231.5	5172.58	1231.83	5203.92	1231.88	5241.95	1231.23	5257.71	1231.19
5284.45	1230.9	5365.75	1230.93	5424.61	1230.74	5465.75	1230.54	5515.76	1230.54
5521.39	1230.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4521.39	.04	4876.78	.025	5129.93	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4876.78	5129.93		500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4521.39	4876.78	1233	5129.93	5521.39	1233

Left Levee Station= 4876.78 Elevation= 1232.3
Right Levee Station= 5129.93 Elevation= 1232.8

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1228.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.68	Wt. n-Val.		0.025	
E.G. Elev (ft)	1229.59	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1226.37	Flow Area (sq ft)		1311.64	
E.G. Slope (ft/ft)	0.001174	Area (sq ft)		1311.64	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	221.61	Top Width (ft)		221.61	
Vel Total (ft/s)	6.63	Avg. Vel. (ft/s)		6.63	
Max Chl Dpth (ft)	8.50	Hydr. Depth (ft)		5.92	
Conv. Total (cfs)	253867.3	Conv. (cfs)		253867.3	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		223.21	
Min Ch El (ft)	1220.40	Shear (lb/sq ft)		0.43	
Alpha	1.00	Stream Power (lb/ft s)		2.86	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	0.02	598.26	0.44
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	103.35	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1230.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.85	Wt. n-Val.		0.025	
E.G. Elev (ft)	1231.07	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1227.32	Flow Area (sq ft)		1611.27	
E.G. Slope (ft/ft)	0.001184	Area (sq ft)		1611.27	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	232.27	Top Width (ft)		232.27	
Vel Total (ft/s)	7.40	Avg. Vel. (ft/s)		7.40	

Max Chl Dpth (ft)	9.82	Hydr. Depth (ft)		6.94	
Conv. Total (cfs)	346438.8	Conv. (cfs)		346438.8	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		234.19	
Min Ch El (ft)	1220.40	Shear (lb/sq ft)		0.51	
Alpha	1.00	Stream Power (lb/ft s)		3.76	
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	38.88	740.60	30.33
C & E Loss (ft)	0.01	Cum SA (acres)	20.28	108.59	18.89

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1231.63	Element			
Vel Head (ft)	1.02	Wt. n-Val.		0.025	
E.G. Elev (ft)	1232.65	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1228.34	Flow Area (sq ft)		1946.21	
E.G. Slope (ft/ft)	0.001183	Area (sq ft)		1946.21	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	244.30	Top Width (ft)		244.30	
Vel Total (ft/s)	8.10	Avg. Vel. (ft/s)		8.10	
Max Chl Dpth (ft)	11.23	Hydr. Depth (ft)		7.97	
Conv. Total (cfs)	458588.5	Conv. (cfs)		458588.5	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		246.56	
Min Ch El (ft)	1220.40	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		4.72	
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	334.45	898.30	224.06
C & E Loss (ft)	0.01	Cum SA (acres)	100.10	113.79	77.64

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 3.593

INPUT
Description:
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4521.39	1229.6	4560.19	1229.24	4566.1	1229.13	4575.5	1229.13	4616.09	1229.33
4666.1	1229.4	4706.78	1229.32	4716.09	1229.33	4756.82	1229.49	4766.1	1229.49
4816.09	1229.6	4859.2	1229.41	4864.72	1231.36	4876.81	1231.62	4880.64	1230.74
4883.03	1230.5	4899.71	1226.64	4906.45	1224.99	4914.53	1224.1	4922.55	1222.82
4930.3	1222.5	4953.52	1221.96	4984.18	1220.72	5000.06	1220.19	5013.1	1220.24
5021.19	1221.4	5031.08	1221.56	5043.68	1221.49	5063.63	1220.78	5077.6	1220.76
5092.39	1224.3	5101	1224.52	5123.73	1230.32	5129.89	1231.78	5143.64	1231.44
5147.19	1230.2	5165.53	1230.63	5178.83	1230.3	5216.07	1229.95	5257.11	1230.35
5266.07	1230.5	5316.07	1230.34	5357.18	1230.5	5366.08	1230.49	5407.21	1230.57
5466.08	1230.5	5516.08	1230.28	5521.39	1230.23				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4521.39	.04	4876.81	.025	5129.89	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4876.81	5129.89	349.43	349.43	349.43	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4521.39	4876.81	1232.5	5129.89	5521.39	1232.5

Left Levee Station= 4876.81 Elevation= 1231.62
Right Levee Station= 5129.89 Elevation= 1231.78

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1228.35	Element			
Vel Head (ft)	0.65	Wt. n-Val.		0.025	
E.G. Elev (ft)	1229.01	Reach Len. (ft)	349.43	349.43	349.43
Crit W.S. (ft)	1225.71	Flow Area (sq ft)		1340.50	
E.G. Slope (ft/ft)	0.001106	Area (sq ft)		1340.50	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	223.73	Top Width (ft)		223.73	
Vel Total (ft/s)	6.49	Avg. Vel. (ft/s)		6.49	
Max Chl Dpth (ft)	8.17	Hydr. Depth (ft)		5.99	
Conv. Total (cfs)	261595.9	Conv. (cfs)		261595.9	

Length Wtd. (ft)	349.43	Wetted Per. (ft)		225.32	
Min Ch El (ft)	1220.19	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		2.67	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	0.02	583.04	0.44
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	100.79	0.73

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1229.67	Element			
Vel Head (ft)	0.82	Wt. n-Val.		0.025	
E.G. Elev (ft)	1230.49	Reach Len. (ft)	349.43	349.43	349.43
Crit W.S. (ft)	1226.64	Flow Area (sq ft)		1641.59	
E.G. Slope (ft/ft)	0.001127	Area (sq ft)		1641.59	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	234.56	Top Width (ft)		234.56	
Vel Total (ft/s)	7.26	Avg. Vel. (ft/s)		7.26	
Max Chl Dpth (ft)	9.48	Hydr. Depth (ft)		7.00	
Conv. Total (cfs)	355073.4	Conv. (cfs)		355073.4	
Length Wtd. (ft)	349.43	Wetted Per. (ft)		236.46	
Min Ch El (ft)	1220.19	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		3.55	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	38.88	721.93	30.33
C & E Loss (ft)	0.00	Cum SA (acres)	20.28	105.91	18.89

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1231.08	Element			
Vel Head (ft)	0.98	Wt. n-Val.		0.025	
E.G. Elev (ft)	1232.06	Reach Len. (ft)	349.43	349.43	349.43
Crit W.S. (ft)	1227.66	Flow Area (sq ft)		1980.89	
E.G. Slope (ft/ft)	0.001136	Area (sq ft)		1980.89	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	247.76	Top Width (ft)		247.76	
Vel Total (ft/s)	7.96	Avg. Vel. (ft/s)		7.96	
Max Chl Dpth (ft)	10.89	Hydr. Depth (ft)		8.00	
Conv. Total (cfs)	467972.8	Conv. (cfs)		467972.8	
Length Wtd. (ft)	349.43	Wetted Per. (ft)		249.98	
Min Ch El (ft)	1220.19	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		4.47	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	334.45	875.76	224.06
C & E Loss (ft)	0.00	Cum SA (acres)	100.10	110.97	77.64

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 3.527

INPUT
Description: Drop Structure, Upstream Side
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4521.61	1228.8	4548.94	1228.99	4563.34	1230.34	4571.46	1230.37	4583.44	1229.86
4598.85	1229	4616.32	1228.69	4666.31	1228.94	4702.32	1228.99	4727.19	1229.12
4776.16	1229.2	4816.32	1229.19	4826.51	1229.15	4857.99	1228.84	4864.3	1230.59
4876.59	1231.1	4879.81	1230.4	4882.82	1230.09	4903.53	1224.7	4907.62	1223.54
4917.59	1222.4	4926.59	1221.81	4937.38	1221.69	4944.07	1221.26	4959.48	1221.02
4977.98	1220.7	4986.46	1220.94	4994.56	1220.53	5019.22	1221.41	5041.23	1221.34
5077.68	1221.7	5082.56	1221.83	5101.87	1224.11	5125.28	1230.13	5129.59	1231.29
5142.2	1230.6	5147.85	1228.87	5165.06	1228.3	5170.36	1228.97	5196.18	1228.76
5225.86	1228.6	5266.29	1228.83	5285.1	1228.75	5315.67	1228.78	5321.59	1228.72
5342.44	1230.7	5354.31	1229.88	5366.82	1229.28	5377.77	1229.22	5411.73	1229.19
5458.44	1230	5466.29	1230.07	5516.29	1230.64	5521.61	1230.65		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4521.61	.04	4876.59	.025	5129.59	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4876.59	5129.59	14.83	14.83	14.83	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4521.61	4876.59	1232	5129.59	5521.61	1232

Left Levee Station= 4876.59 Elevation= 1231.1
Right Levee Station= 5129.59 Elevation= 1231.29

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1227.90	Element			
Vel Head (ft)	0.70	Wt. n-Val.		0.025	
E.G. Elev (ft)	1228.60	Reach Len. (ft)	14.83	14.83	14.83
Crit W.S. (ft)	1225.53	Flow Area (sq ft)		1297.91	
E.G. Slope (ft/ft)	0.001242	Area (sq ft)		1297.91	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	225.36	Top Width (ft)		225.36	
Vel Total (ft/s)	6.70	Avg. Vel. (ft/s)		6.70	
Max Chl Dpth (ft)	7.37	Hydr. Depth (ft)		5.76	
Conv. Total (cfs)	246901.0	Conv. (cfs)		246901.0	
Length Wtd. (ft)	14.83	Wetted Per. (ft)		226.68	
Min Ch El (ft)	1220.53	Shear (lb/sq ft)		0.44	
Alpha	1.00	Stream Power (lb/ft s)		2.98	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.02	572.46	0.44
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	98.99	0.73

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1229.21	Element			
Vel Head (ft)	0.86	Wt. n-Val.		0.025	
E.G. Elev (ft)	1230.07	Reach Len. (ft)	14.83	14.83	14.83
Crit W.S. (ft)	1226.46	Flow Area (sq ft)		1601.01	
E.G. Slope (ft/ft)	0.001230	Area (sq ft)		1601.01	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	235.53	Top Width (ft)		235.53	
Vel Total (ft/s)	7.45	Avg. Vel. (ft/s)		7.45	
Max Chl Dpth (ft)	8.68	Hydr. Depth (ft)		6.80	
Conv. Total (cfs)	339879.7	Conv. (cfs)		339879.7	
Length Wtd. (ft)	14.83	Wetted Per. (ft)		237.18	
Min Ch El (ft)	1220.53	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		3.86	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	38.88	708.92	30.33
C & E Loss (ft)	0.01	Cum SA (acres)	20.28	104.03	18.89

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1230.62	Element			
Vel Head (ft)	1.02	Wt. n-Val.		0.025	
E.G. Elev (ft)	1231.65	Reach Len. (ft)	14.83	14.83	14.83
Crit W.S. (ft)	1227.44	Flow Area (sq ft)		1941.87	
E.G. Slope (ft/ft)	0.001216	Area (sq ft)		1941.87	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	248.34	Top Width (ft)		248.34	
Vel Total (ft/s)	8.12	Avg. Vel. (ft/s)		8.12	
Max Chl Dpth (ft)	10.09	Hydr. Depth (ft)		7.82	
Conv. Total (cfs)	452286.6	Conv. (cfs)		452286.6	
Length Wtd. (ft)	14.83	Wetted Per. (ft)		250.33	
Min Ch El (ft)	1220.53	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		4.78	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	334.45	860.03	224.06
C & E Loss (ft)	0.01	Cum SA (acres)	100.10	108.98	77.64

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 3.524

INPUT
Description: Drop Structure, Downstream Side
Station Elevation Data num= 62

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

4521.62	1228.8	4545.75	1228.9	4555.02	1230.04	4561.85	1229.52	4574.59	1229.08
4588.56	1229.2	4597.71	1228.89	4617.89	1228.71	4663.44	1228.93	4705.57	1229.02
4711.43	1229	4716.38	1229.79	4727.49	1229.36	4736.56	1229.19	4770.68	1229.29
4806.41	1229.3	4815.9	1229.34	4850.01	1229	4857.91	1228.8	4864.08	1230.59
4876.62	1231.1	4882.85	1230.1	4901.38	1225.28	4908.06	1223.64	4926.87	1221.68
4936.01	1221.8	4950.74	1221.51	4957.54	1221.31	4967.76	1221.29	4972.31	1221.16
4994.2	1221.2	4999.33	1221.56	5013.57	1221.29	5024.18	1221.91	5035.68	1222.03
5051.48	1221.8	5065.68	1221.83	5067.29	1222	5085.29	1222.43	5096.02	1223.66
5101.76	1224.1	5125.33	1230.11	5129.62	1231.31	5142.25	1230.57	5147.85	1228.87
5164.93	1228.4	5170.52	1229.05	5194.67	1228.86	5210.06	1228.67	5216.31	1228.67
5261.01	1228.9	5281.52	1228.84	5318.42	1228.87	5325.03	1228.61	5343.35	1230.57
5353.85	1230.1	5369.19	1229.34	5406.63	1229.06	5417.15	1229.21	5423.27	1229.5
5456.69	1230.1	5521.62	1230.8						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4521.62	.04	4876.62	.025	5129.62	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4876.62	5129.62	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4521.62	4876.62	1232	5129.62	5521.62	1232

Left Levee Station= 4876.62 Elevation= 1231.1
Right Levee Station= 5129.62 Elevation= 1231.31

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1227.73	Element			
Vel Head (ft)	0.83	Wt. n-Val.		0.025	
E.G. Elev (ft)	1228.56	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1225.88	Flow Area (sq ft)		1191.89	
E.G. Slope (ft/ft)	0.001636	Area (sq ft)		1191.89	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	224.07	Top Width (ft)		224.07	
Vel Total (ft/s)	7.30	Avg. Vel. (ft/s)		7.30	
Max Chl Dpth (ft)	6.57	Hydr. Depth (ft)		5.32	
Conv. Total (cfs)	215095.6	Conv. (cfs)		215095.6	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		225.28	
Min Ch El (ft)	1221.16	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		3.94	
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)	0.02	572.04	0.44
C & E Loss (ft)	0.07	Cum SA (acres)	0.09	98.91	0.73

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1229.05	Element			
Vel Head (ft)	0.99	Wt. n-Val.		0.025	
E.G. Elev (ft)	1230.04	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1226.80	Flow Area (sq ft)		1493.98	
E.G. Slope (ft/ft)	0.001537	Area (sq ft)		1493.98	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	234.30	Top Width (ft)		234.30	
Vel Total (ft/s)	7.98	Avg. Vel. (ft/s)		7.98	
Max Chl Dpth (ft)	7.89	Hydr. Depth (ft)		6.38	
Conv. Total (cfs)	303997.6	Conv. (cfs)		303997.6	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		235.85	
Min Ch El (ft)	1221.16	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		4.85	
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)	38.88	708.40	30.33
C & E Loss (ft)	0.07	Cum SA (acres)	20.28	103.95	18.89

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1230.47	Element			
Vel Head (ft)	1.15	Wt. n-Val.		0.025	
E.G. Elev (ft)	1231.62	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1227.77	Flow Area (sq ft)		1833.65	

E.G. Slope (ft/ft)	0.001453	Area (sq ft)		1833.65	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	246.05	Top Width (ft)		246.05	
Vel Total (ft/s)	8.60	Avg. Vel. (ft/s)		8.60	
Max Chl Dpth (ft)	9.31	Hydr. Depth (ft)		7.45	
Conv. Total (cfs)	413692.2	Conv. (cfs)		413692.2	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		247.95	
Min Ch El (ft)	1221.16	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		5.77	
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)	334.45	859.38	224.06
C & E Loss (ft)	0.07	Cum SA (acres)	100.10	108.89	77.64

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 3.429

INPUT
Description:
Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4521.62	1228.9	4571.5	1228.69	4616.63	1228.64	4649.01	1228.45	4668.71	1228.65
4680.77	1228.7	4704.89	1228.95	4716.27	1228.75	4771.63	1228.75	4820.1	1228.78
4841.34	1228.7	4856.77	1228.1	4864.53	1229.81	4877.65	1230.37	4880.42	1229.55
4883.99	1229.9	4896.84	1226.89	4908.3	1224.13	4917.05	1223.43	4923.7	1221.32
4946.16	1220	4968.78	1219.71	4994.1	1219.17	5006.16	1218.34	5013.98	1218.53
5045.59	1219.7	5075.43	1220.08	5099.31	1223.88	5102.85	1223.84	5129.79	1230.71
5141.23	1229.7	5147.3	1228.93	5174.74	1228.75	5216.63	1228.67	5261.32	1228.72
5266.62	1228.7	5321.98	1228.93	5366.62	1229.06	5422.05	1229.66	5466.62	1229.79
5516.63	1229.8	5521.62	1229.85						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4521.62	.04	4877.65	.025	5129.79	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.65	5129.79	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4521.62	4877.65	1232	5129.79	5521.62	1232

Left Levee Station= 4877.65 Elevation= 1230.37
Right Levee Station= 5129.79 Elevation= 1230.71

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1227.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.		0.025	
E.G. Elev (ft)	1227.89	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1224.21	Flow Area (sq ft)		1418.07	
E.G. Slope (ft/ft)	0.000904	Area (sq ft)		1418.07	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	221.41	Top Width (ft)		221.41	
Vel Total (ft/s)	6.14	Avg. Vel. (ft/s)		6.14	
Max Chl Dpth (ft)	8.97	Hydr. Depth (ft)		6.40	
Conv. Total (cfs)	289318.5	Conv. (cfs)		289318.5	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		222.98	
Min Ch El (ft)	1218.34	Shear (lb/sq ft)		0.36	
Alpha	1.00	Stream Power (lb/ft s)		2.20	
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	0.02	557.06	0.44
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	96.36	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1228.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.		0.025	
E.G. Elev (ft)	1229.37	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1225.18	Flow Area (sq ft)		1715.15	
E.G. Slope (ft/ft)	0.000960	Area (sq ft)		1715.15	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	232.14	Top Width (ft)		232.14	

Vel Total (ft/s)	6.95	Avg. Vel. (ft/s)		6.95	
Max Chl Dpth (ft)	10.28	Hydr. Depth (ft)		7.39	
Conv. Total (cfs)	384640.3	Conv. (cfs)		384640.3	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		234.02	
Min Ch El (ft)	1218.34	Shear (lb/sq ft)		0.44	
Alpha	1.00	Stream Power (lb/ft s)		3.05	
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	38.88	689.98	30.33
C & E Loss (ft)	0.00	Cum SA (acres)	20.28	101.27	18.89

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1230.03	Element			
Vel Head (ft)	0.92	Wt. n-Val.		0.025	
E.G. Elev (ft)	1230.95	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1226.20	Flow Area (sq ft)		2051.55	
E.G. Slope (ft/ft)	0.001014	Area (sq ft)		2051.55	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	248.31	Top Width (ft)		248.31	
Vel Total (ft/s)	7.69	Avg. Vel. (ft/s)		7.69	
Max Chl Dpth (ft)	11.69	Hydr. Depth (ft)		8.26	
Conv. Total (cfs)	495295.8	Conv. (cfs)		495295.8	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		250.60	
Min Ch El (ft)	1218.34	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		3.98	
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)	334.45	837.08	224.06
C & E Loss (ft)	0.01	Cum SA (acres)	100.10	106.05	77.64

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 3.334

INPUT
Description: East of Santan Canal Siphon
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4521.62	1231	4566.97	1230.98	4571.83	1230.95	4621.86	1230.89	4666.96	1230.81
4716.95	1230.9	4751.84	1230.71	4757.78	1230.63	4766.96	1230.88	4775.15	1230.81
4813.76	1230.1	4827.25	1228.91	4839.83	1228.29	4857.66	1227.7	4863.89	1229.07
4877.31	1229.8	4881.32	1228.87	4884.14	1228.59	4907.61	1222.61	4915.92	1221.7
4921.68	1220.3	4967.12	1219.84	4986.45	1219.11	5001.13	1218.24	5026.51	1219.85
5053.48	1218.9	5072.91	1220.07	5096.62	1223.18	5100.72	1223.58	5125.36	1229.01
5130.44	1229.8	5137.25	1229.58	5142.53	1228.87	5147.16	1228.04	5153.41	1228.3
5174.93	1228.9	5192.81	1231.04	5203.63	1231.38	5218.34	1232	5221.18	1232.23
5266.95	1232.1	5275.43	1231.84	5281.55	1231.87	5296.34	1232.24	5315.31	1233.39
5325.09	1233.6	5364.21	1233.75	5411.44	1233.48	5420.24	1233.41	5441.3	1233.08
5466.82	1232.5	5481.22	1232.19	5493.16	1232.13	5503.36	1231.79	5521.62	1231.47

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4521.62	.04	4877.31	.025	5130.44	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.31	5130.44	836.68	836.68	836.68	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4521.62	4877.31	1232	5130.44	5521.62	1232

Left Levee Station= 4877.31 Elevation= 1229.8
Right Levee Station= 5130.44 Elevation= 1229.8

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1226.78	Element			
Vel Head (ft)	0.63	Wt. n-Val.		0.025	
E.G. Elev (ft)	1227.41	Reach Len. (ft)	836.68	836.68	836.68
Crit W.S. (ft)	1224.00	Flow Area (sq ft)		1367.98	
E.G. Slope (ft/ft)	0.001034	Area (sq ft)		1367.98	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	223.99	Top Width (ft)		223.99	
Vel Total (ft/s)	6.36	Avg. Vel. (ft/s)		6.36	

Max Chl Dpth (ft)	8.54	Hydr. Depth (ft)		6.11	
Conv. Total (cfs)	270493.4	Conv. (cfs)		270493.4	
Length Wtd. (ft)	836.68	Wetted Per. (ft)		225.45	
Min Ch El (ft)	1218.24	Shear (lb/sq ft)		0.39	
Alpha	1.00	Stream Power (lb/ft s)		2.49	
Frctn Loss (ft)	1.05	Cum Volume (acre-ft)	0.02	541.07	0.44
C & E Loss (ft)	0.02	Cum SA (acres)	0.09	93.80	0.73

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

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1228.06	Element			
Vel Head (ft)	0.80	Wt. n-Val.		0.025	
E.G. Elev (ft)	1228.86	Reach Len. (ft)	836.68	836.68	836.68
Crit W.S. (ft)	1224.94	Flow Area (sq ft)		1660.91	
E.G. Slope (ft/ft)	0.001084	Area (sq ft)		1660.91	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	234.80	Top Width (ft)		234.80	
Vel Total (ft/s)	7.18	Avg. Vel. (ft/s)		7.18	
Max Chl Dpth (ft)	9.82	Hydr. Depth (ft)		7.07	
Conv. Total (cfs)	361976.2	Conv. (cfs)		361976.2	
Length Wtd. (ft)	836.68	Wetted Per. (ft)		236.55	
Min Ch El (ft)	1218.24	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		3.41	
Frctn Loss (ft)	1.07	Cum Volume (acre-ft)	38.88	670.60	30.33
C & E Loss (ft)	0.02	Cum SA (acres)	20.28	98.59	18.89

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

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1229.44	Element			
Vel Head (ft)	0.97	Wt. n-Val.		0.025	
E.G. Elev (ft)	1230.41	Reach Len. (ft)	836.68	836.68	836.68
Crit W.S. (ft)	1225.95	Flow Area (sq ft)		1994.78	
E.G. Slope (ft/ft)	0.001117	Area (sq ft)		1994.78	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	249.24	Top Width (ft)		249.24	
Vel Total (ft/s)	7.91	Avg. Vel. (ft/s)		7.91	
Max Chl Dpth (ft)	11.20	Hydr. Depth (ft)		8.00	
Conv. Total (cfs)	471822.6	Conv. (cfs)		471822.6	
Length Wtd. (ft)	836.68	Wetted Per. (ft)		251.28	
Min Ch El (ft)	1218.24	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		4.38	
Frctn Loss (ft)	1.07	Cum Volume (acre-ft)	334.45	813.86	224.06
C & E Loss (ft)	0.02	Cum SA (acres)	100.10	103.20	77.64

Warning - The energy loss was 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: EMF
REACH: Reach 1 RS: 3.176

INPUT
Description: Drop Structure, Upstream Side, W. of Santan Canal Siphon
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4362.44	1228.3	4376.07	1228.36	4426.05	1228.61	4467.49	1228.85	4476	1228.94
4525.98	1229.1	4567.49	1229.36	4575.96	1229.39	4625.93	1229.39	4667.49	1229.51
4675.89	1229.6	4717.49	1229.8	4725.86	1229.8	4767.49	1230.2	4778.52	1230.25
4797.7	1230.2	4805.45	1229.82	4821.39	1229.22	4831.67	1229.2	4842.13	1228.18
4858.36	1227.1	4866.15	1228.55	4877.88	1228.76	4903.27	1221.63	4912.73	1220.35
4925.76	1219.7	4953.14	1219.32	4971.2	1219.53	5001.55	1219.06	5004.07	1218.73
5031.61	1219.2	5059.41	1219.64	5077.09	1220.03	5101.89	1221.96	5120.98	1227.46

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 5129.18  1228.6 5137.67  1228.4  5140.6 1228.53 5143.44 1228.24 5147.53 1226.87
 5159.12  1227.6  5185.4 1227.93 5212.85 1229.84 5224.31 1230.11 5264.93 1230.86
 5302.85  1230.9 5320.62 1230.86 5342.28  1228.6 5362.44 1228.45

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4362.44     .04 4877.88    .025 5129.18     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       4877.88 5129.18            11.07   11.07   11.07              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4362.44 4877.88    1231 5129.18 5362.44    1231
Left Levee      Station= 4778.52      Elevation= 1230.25
Right Levee     Station= 5264.93      Elevation= 1230.86
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CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1225.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.80	Wt. n-Val.		0.025	
E.G. Elev (ft)	1226.34	Reach Len. (ft)	11.07	11.07	11.07
Crit W.S. (ft)	1223.60	Flow Area (sq ft)		1209.20	
E.G. Slope (ft/ft)	0.001567	Area (sq ft)		1209.20	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	224.91	Top Width (ft)		224.91	
Vel Total (ft/s)	7.19	Avg. Vel. (ft/s)		7.19	
Max Chl Dpth (ft)	6.80	Hydr. Depth (ft)		5.38	
Conv. Total (cfs)	219748.6	Conv. (cfs)		219748.6	
Length Wtd. (ft)	11.07	Wetted Per. (ft)		226.17	
Min Ch El (ft)	1218.73	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		3.76	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.02	516.32	0.44
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	89.49	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1226.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.		0.025	
E.G. Elev (ft)	1227.77	Reach Len. (ft)	11.07	11.07	11.07
Crit W.S. (ft)	1224.51	Flow Area (sq ft)		1496.27	
E.G. Slope (ft/ft)	0.001525	Area (sq ft)		1496.27	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	233.72	Top Width (ft)		233.72	
Vel Total (ft/s)	7.97	Avg. Vel. (ft/s)		7.97	
Max Chl Dpth (ft)	8.05	Hydr. Depth (ft)		6.40	
Conv. Total (cfs)	305227.7	Conv. (cfs)		305227.7	
Length Wtd. (ft)	11.07	Wetted Per. (ft)		235.33	
Min Ch El (ft)	1218.73	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		4.82	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	38.88	640.28	30.33
C & E Loss (ft)	0.00	Cum SA (acres)	20.28	94.09	18.89

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1228.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.16	Wt. n-Val.		0.025	
E.G. Elev (ft)	1229.32	Reach Len. (ft)	11.07	11.07	11.07
Crit W.S. (ft)	1225.47	Flow Area (sq ft)		1826.33	
E.G. Slope (ft/ft)	0.001473	Area (sq ft)	11.54	1826.33	24.13
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	312.82	Top Width (ft)	21.70	246.04	45.09
Vel Total (ft/s)	8.63	Avg. Vel. (ft/s)		8.63	
Max Chl Dpth (ft)	9.43	Hydr. Depth (ft)		7.42	
Conv. Total (cfs)	410904.5	Conv. (cfs)		410904.5	
Length Wtd. (ft)	11.07	Wetted Per. (ft)		247.98	
Min Ch El (ft)	1218.73	Shear (lb/sq ft)		0.68	
Alpha	1.00	Stream Power (lb/ft s)		5.85	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	334.34	777.16	223.83

C & E Loss (ft)	0.00	Cum SA (acres)	99.89	98.44	77.21

Warning - Divided flow computed for this cross-section.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 3.174

INPUT
Description: Drop Structure, Downstream Side
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4362.45	1228.3	4367.5	1228.37	4415	1228.6	4467.5	1228.92	4517.5	1229.06
4564.91	1229.4	4620.12	1229.38	4667.5	1229.52	4714.82	1229.75	4767.5	1230.26
4797.33	1230.2	4821.5	1229.25	4832	1229.14	4842	1228.18	4858.27	1227.1
4866.23	1228.5	4877.98	1228.79	4903.21	1221.63	4912.39	1220.25	4916.77	1220.23
4920.78	1219.9	4930.3	1219.68	4962.44	1219.59	5003.66	1218.92	5016.8	1218.74
5048.38	1219.4	5060.51	1219.23	5073.29	1219.66	5079.12	1220.21	5101.98	1221.81
5120.99	1227.5	5129.03	1228.66	5137.45	1228.87	5143.26	1228.28	5147.49	1226.94
5158.19	1227.6	5163	1227.72	5183.75	1227.94	5217.5	1230.2	5267.5	1231.11
5270.57	1231.1	5316.05	1231.04	5339.81	1230.84	5350.4	1229.96	5362.45	1228.55

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4362.45	.04	4877.98	.025	5137.45	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.98	5137.45	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4362.45	4877.98	1230	5137.45	5362.45	1230

Left Levee Station= 4797.33 Elevation= 1230.2
Right Levee Station= 5267.5 Elevation= 1231.11

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1225.53	Element			
Vel Head (ft)	0.79	Wt. n-Val.		0.025	
E.G. Elev (ft)	1226.32	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1223.56	Flow Area (sq ft)		1220.23	
E.G. Slope (ft/ft)	0.001521	Area (sq ft)		1220.23	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	224.92	Top Width (ft)		224.92	
Vel Total (ft/s)	7.13	Avg. Vel. (ft/s)		7.13	
Max Chl Dpth (ft)	6.79	Hydr. Depth (ft)		5.43	
Conv. Total (cfs)	223063.3	Conv. (cfs)		223063.3	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		226.23	
Min Ch El (ft)	1218.74	Shear (lb/sq ft)		0.51	
Alpha	1.00	Stream Power (lb/ft s)		3.65	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	0.02	516.01	0.44
C & E Loss (ft)	0.04	Cum SA (acres)	0.09	89.43	0.73

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1226.78	Element			
Vel Head (ft)	0.97	Wt. n-Val.		0.025	
E.G. Elev (ft)	1227.75	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1224.47	Flow Area (sq ft)		1507.25	
E.G. Slope (ft/ft)	0.001487	Area (sq ft)		1507.25	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	233.51	Top Width (ft)		233.51	
Vel Total (ft/s)	7.91	Avg. Vel. (ft/s)		7.91	
Max Chl Dpth (ft)	8.04	Hydr. Depth (ft)		6.45	
Conv. Total (cfs)	309098.8	Conv. (cfs)		309098.8	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		235.18	
Min Ch El (ft)	1218.74	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		4.71	
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)	38.88	639.90	30.33
C & E Loss (ft)	0.05	Cum SA (acres)	20.28	94.03	18.89

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1228.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.14	Wt. n-Val.		0.025	
E.G. Elev (ft)	1229.30	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1225.42	Flow Area (sq ft)		1836.63	
E.G. Slope (ft/ft)	0.001441	Area (sq ft)	11.61	1836.63	21.39
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	310.65	Top Width (ft)	21.95	245.34	43.36
Vel Total (ft/s)	8.59	Avg. Vel. (ft/s)		8.59	
Max Chl Dpth (ft)	9.42	Hydr. Depth (ft)		7.49	
Conv. Total (cfs)	415476.4	Conv. (cfs)		415476.4	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		247.35	
Min Ch El (ft)	1218.74	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		5.73	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	334.34	776.70	223.82
C & E Loss (ft)	0.05	Cum SA (acres)	99.88	98.38	77.20

Warning - Divided flow computed for this cross-section.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 3.079

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4362.45	1229.1	4370.28	1229.19	4417.81	1229.51	4467.81	1229.33	4520.38	1229.46
4570.42	1229.8	4620.45	1229.92	4670.48	1229.99	4720.5	1229.97	4769.88	1230.08
4797.52	1230.6	4823.02	1229.7	4837.17	1228.13	4860.65	1226.48	4866.4	1227.96
4877.61	1228.3	4883.49	1226.49	4902.92	1221.67	4915.06	1220.4	4924.88	1219.95
4941.18	1218	4946	1217.89	4964.43	1218.01	4977.31	1218.23	4984.94	1218.17
4991.65	1217.4	4997.74	1216.54	5006.39	1216.12	5013.17	1216.54	5017.89	1217.21
5023.47	1217.1	5062.57	1217.64	5082.21	1220.07	5089.77	1220.73	5098.25	1221.04
5118.81	1225.9	5129.83	1228.15	5142.95	1227.86	5146.8	1226.52	5166.15	1226.47
5215.49	1227	5267.82	1226.92	5306.7	1226.07	5318.38	1226.39	5362.45	1226.74

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4362.45	.04	4877.61	.025	5129.83	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.61	5129.83	499.97	499.97	499.97	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4362.45	4877.61	1230.6	5129.83	5362.45	1230.6

Left Levee Station= 4797.52 Elevation= 1230.6
Right Levee Station= 5129.83 Elevation= 1228.15

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1224.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.		0.025	
E.G. Elev (ft)	1225.64	Reach Len. (ft)	499.97	499.97	499.97
Crit W.S. (ft)	1222.30	Flow Area (sq ft)		1354.38	
E.G. Slope (ft/ft)	0.001079	Area (sq ft)		1354.38	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	225.46	Top Width (ft)		225.46	
Vel Total (ft/s)	6.42	Avg. Vel. (ft/s)		6.42	
Max Chl Dpth (ft)	8.87	Hydr. Depth (ft)		6.01	
Conv. Total (cfs)	264898.0	Conv. (cfs)		264898.0	
Length Wtd. (ft)	499.97	Wetted Per. (ft)		226.89	
Min Ch El (ft)	1216.12	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		2.58	
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	0.02	501.23	0.44
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	86.85	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1226.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.		0.025	
E.G. Elev (ft)	1227.06	Reach Len. (ft)	499.97	499.97	499.97
Crit W.S. (ft)	1223.25	Flow Area (sq ft)		1641.17	
E.G. Slope (ft/ft)	0.001136	Area (sq ft)		1641.17	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	235.96	Top Width (ft)		235.96	
Vel Total (ft/s)	7.26	Avg. Vel. (ft/s)		7.26	
Max Chl Dpth (ft)	10.12	Hydr. Depth (ft)		6.96	
Conv. Total (cfs)	353712.1	Conv. (cfs)		353712.1	
Length Wtd. (ft)	499.97	Wetted Per. (ft)		237.68	
Min Ch El (ft)	1216.12	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		3.56	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	38.88	621.83	30.33
C & E Loss (ft)	0.00	Cum SA (acres)	20.28	91.34	18.89

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1227.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.		0.025	
E.G. Elev (ft)	1228.62	Reach Len. (ft)	499.97	499.97	499.97
Crit W.S. (ft)	1224.26	Flow Area (sq ft)		1977.31	
E.G. Slope (ft/ft)	0.001140	Area (sq ft)	11.94	1977.31	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	268.29	Top Width (ft)	20.80	247.48	
Vel Total (ft/s)	7.98	Avg. Vel. (ft/s)		7.98	
Max Chl Dpth (ft)	11.51	Hydr. Depth (ft)		7.99	
Conv. Total (cfs)	467104.8	Conv. (cfs)		467104.8	
Length Wtd. (ft)	499.97	Wetted Per. (ft)		249.54	
Min Ch El (ft)	1216.12	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		4.50	
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	334.20	754.81	223.70
C & E Loss (ft)	0.00	Cum SA (acres)	99.64	95.55	76.95

Warning - Divided flow computed for this cross-section.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.985

INPUT
Description:
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4403.2	1229.3	4418.13	1229.59	4468.13	1229.67	4518.13	1229.81	4568.13	1230.07
4620.73	1230.2	4670.78	1230.47	4718.14	1231.06	4768.14	1230.79	4789.92	1230.45
4794.9	1230.5	4822.9	1230.2	4848.27	1227.62	4860.86	1226.13	4866.02	1227.36
4876.88	1227.5	4883.27	1225.7	4903.11	1220.78	4920.32	1219.86	4936.29	1218.39
4944.76	1217.5	4952.54	1217.5	4960.74	1217.16	4981.4	1217.29	4985.53	1216.52
4996.21	1216.1	5009.39	1216.53	5032.9	1216.99	5058.5	1217.78	5068.98	1217.75
5084.32	1218.6	5089.81	1219.59	5099.65	1220.3	5124.47	1226.37	5130.25	1226.92
5141.22	1227.5	5142.7	1227.37	5146.69	1225.94	5159.35	1227.26	5166.61	1227.08
5198.83	1227.1	5212.62	1227.16	5268.02	1226.5	5273.9	1226.57	5280.64	1226.41
5307.88	1226.3	5320.24	1226.23	5350.42	1225.76	5361.31	1226.08	5403.2	1226.32

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4403.2	.04	4876.88	.025	5141.22	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4876.88	5141.22	382.65	382.65	382.65	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4403.2	4876.88	1231.06	5141.22	5403.2	1231.06

Left Levee Station= 4718.14 Elevation= 1231.06
Right Levee Station= 5141.22 Elevation= 1227.5

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1224.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.		0.025	
E.G. Elev (ft)	1225.10	Reach Len. (ft)	382.65	382.65	382.65
Crit W.S. (ft)	1221.78	Flow Area (sq ft)		1365.99	
E.G. Slope (ft/ft)	0.001066	Area (sq ft)		1365.99	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	228.44	Top Width (ft)		228.44	
Vel Total (ft/s)	6.37	Avg. Vel. (ft/s)		6.37	
Max Chl Dpth (ft)	8.37	Hydr. Depth (ft)		5.98	
Conv. Total (cfs)	266437.2	Conv. (cfs)		266437.2	
Length Wtd. (ft)	382.65	Wetted Per. (ft)		229.78	
Min Ch El (ft)	1216.10	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		2.52	
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	0.02	485.62	0.44
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	84.24	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1225.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.81	Wt. n-Val.		0.025	
E.G. Elev (ft)	1226.49	Reach Len. (ft)	382.65	382.65	382.65
Crit W.S. (ft)	1222.71	Flow Area (sq ft)		1648.25	
E.G. Slope (ft/ft)	0.001133	Area (sq ft)		1648.25	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	238.26	Top Width (ft)		238.26	
Vel Total (ft/s)	7.23	Avg. Vel. (ft/s)		7.23	
Max Chl Dpth (ft)	9.58	Hydr. Depth (ft)		6.92	
Conv. Total (cfs)	354061.6	Conv. (cfs)		354061.6	
Length Wtd. (ft)	382.65	Wetted Per. (ft)		239.90	
Min Ch El (ft)	1216.10	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		3.52	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	38.88	602.95	30.33
C & E Loss (ft)	0.00	Cum SA (acres)	20.28	88.62	18.89

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1227.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.98	Wt. n-Val.		0.025	
E.G. Elev (ft)	1228.04	Reach Len. (ft)	382.65	382.65	382.65
Crit W.S. (ft)	1223.69	Flow Area (sq ft)		1986.80	
E.G. Slope (ft/ft)	0.001163	Area (sq ft)	5.46	1986.80	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	266.18	Top Width (ft)	11.75	254.43	
Vel Total (ft/s)	7.94	Avg. Vel. (ft/s)		7.94	
Max Chl Dpth (ft)	10.96	Hydr. Depth (ft)		7.81	
Conv. Total (cfs)	462450.9	Conv. (cfs)		462450.9	
Length Wtd. (ft)	382.65	Wetted Per. (ft)		256.37	
Min Ch El (ft)	1216.10	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		4.47	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	334.10	732.06	223.70
C & E Loss (ft)	0.00	Cum SA (acres)	99.45	92.67	76.95

Warning - Divided flow computed for this cross-section.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.912

INPUT
Description: Drop Structure, Upstream Face
Station Elevation Data num= 56

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4403.44	1229.6	4418.38	1229.59	4436.08	1230	4455.57	1230.4	4468.38	1230.23
4481.64	1230.4	4533.17	1230.31	4568.38	1230.31	4583.15	1230.25	4618.38	1229.88
4653.66	1229.6	4683.08	1229.64	4718.38	1229.4	4733.05	1229.38	4768.38	1229.69

4776.01	1229.8	4793.38	1229.87	4808.85	1229.24	4821	1229.2	4838.69	1227.35
4857.99	1226.5	4863.33	1226.2	4867.07	1226.69	4877.11	1226.7	4888.94	1223.66
4900.9	1220.7	4917.02	1219.35	4924.8	1218.52	4945.42	1217.46	4973.76	1217.2
4978.46	1217.1	5002.66	1216.9	5004.53	1216.46	5021.34	1216.73	5043.44	1216.86
5064.84	1217.2	5084.41	1218.02	5101.27	1220.05	5115.91	1223.32	5123.6	1225.28
5131.33	1226.4	5142.47	1226.9	5147.05	1225.85	5163.62	1227.15	5166.73	1227.61
5174.71	1227.8	5193.87	1226.99	5218.38	1226.85	5254.06	1227.23	5268.39	1227.33
5306.15	1226.9	5315.37	1226.99	5319.46	1226.42	5327.76	1226.88	5368.39	1226.8
5403.44	1226.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4403.44	.04	4877.11	.025	5142.47	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.11	5142.47	14.25	14.25	14.25	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4403.44	4877.11	1230	5142.47	5403.44	1230

Left Levee Station= 4793.38 Elevation= 1229.87
Right Levee Station= 5174.71 Elevation= 1227.8

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1224.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.		0.025	
E.G. Elev (ft)	1224.66	Reach Len. (ft)	14.25	14.25	14.25
Crit W.S. (ft)	1221.56	Flow Area (sq ft)		1330.12	
E.G. Slope (ft/ft)	0.001181	Area (sq ft)		1330.12	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	230.96	Top Width (ft)		230.96	
Vel Total (ft/s)	6.54	Avg. Vel. (ft/s)		6.54	
Max Chl Dpth (ft)	7.54	Hydr. Depth (ft)		5.76	
Conv. Total (cfs)	253148.6	Conv. (cfs)		253148.6	
Length Wtd. (ft)	14.25	Wetted Per. (ft)		232.14	
Min Ch El (ft)	1216.46	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		2.76	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.02	473.78	0.44
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	82.22	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1225.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.85	Wt. n-Val.		0.025	
E.G. Elev (ft)	1226.03	Reach Len. (ft)	14.25	14.25	14.25
Crit W.S. (ft)	1222.48	Flow Area (sq ft)		1607.37	
E.G. Slope (ft/ft)	0.001244	Area (sq ft)		1607.37	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	240.16	Top Width (ft)		240.16	
Vel Total (ft/s)	7.42	Avg. Vel. (ft/s)		7.42	
Max Chl Dpth (ft)	8.72	Hydr. Depth (ft)		6.69	
Conv. Total (cfs)	337919.7	Conv. (cfs)		337919.7	
Length Wtd. (ft)	14.25	Wetted Per. (ft)		241.63	
Min Ch El (ft)	1216.46	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		3.83	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	38.88	588.65	30.33
C & E Loss (ft)	0.00	Cum SA (acres)	20.28	86.51	18.89

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1226.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.02	Wt. n-Val.		0.025	
E.G. Elev (ft)	1227.57	Reach Len. (ft)	14.25	14.25	14.25
Crit W.S. (ft)	1223.45	Flow Area (sq ft)		1948.63	
E.G. Slope (ft/ft)	0.001257	Area (sq ft)	1.62	1948.63	4.26
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	278.54	Top Width (ft)	9.33	257.14	12.08
Vel Total (ft/s)	8.09	Avg. Vel. (ft/s)		8.09	

Max Chl Dpth (ft)	10.10	Hydr. Depth (ft)		7.58	
Conv. Total (cfs)	444840.6	Conv. (cfs)		444840.6	
Length Wtd. (ft)	14.25	Wetted Per. (ft)		258.88	
Min Ch El (ft)	1216.46	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		4.78	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	334.07	714.78	223.68
C & E Loss (ft)	0.00	Cum SA (acres)	99.36	90.42	76.89

Warning - Divided flow computed for this cross-section.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.909

INPUT
Description: Drop Structure, Downstream Face
Station Elevation Data num= 56

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4403.45	1229.6	4418.39	1229.77	4450.38	1230.49	4468.39	1230.26	4487.02	1230.56
4518.94	1230.4	4568.92	1230.44	4618.39	1229.92	4718.83	1229.25	4770.13	1229.69
4794.47	1229.8	4804.36	1229.52	4816.18	1229.1	4821.52	1229.08	4839.13	1227.34
4858.01	1226.4	4862.62	1226.13	4867.02	1226.68	4873	1226.55	4877	1226.64
4882.69	1225.2	4887.1	1223.96	4901.07	1220.71	4917.34	1219.33	4923.77	1218.42
4945.19	1217.6	4957.28	1217.25	4993.46	1217	5001.88	1216.67	5006.67	1216.79
5024.05	1216.8	5037.84	1216.95	5045.6	1216.95	5065.95	1217.32	5078.96	1217.81
5085.56	1218.2	5096.89	1219.56	5099.03	1219.47	5104.8	1220.1	5111.71	1221.82
5123.71	1225.3	5132.3	1226.46	5142.43	1226.85	5146.9	1225.83	5163.46	1227.1
5166.69	1227.5	5183.26	1227.53	5190.94	1227.14	5218.39	1226.85	5268.78	1227.38
5312.69	1226.9	5317.65	1226.38	5322.18	1226.96	5325.27	1226.84	5378.05	1226.77
5403.45	1226.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4403.45	.04	4877	.025	5142.43	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877	5142.43	502.4	502.4	502.4	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4403.45	4877	1230	5142.43	5403.45	1230

Left Levee Station= 4794.47 Elevation= 1229.8
Right Levee Station= 5183.26 Elevation= 1227.53

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1223.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.		0.025	
E.G. Elev (ft)	1224.65	Reach Len. (ft)	502.40	502.40	502.40
Crit W.S. (ft)	1221.56	Flow Area (sq ft)		1331.17	
E.G. Slope (ft/ft)	0.001186	Area (sq ft)		1331.17	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	232.15	Top Width (ft)		232.15	
Vel Total (ft/s)	6.54	Avg. Vel. (ft/s)		6.54	
Max Chl Dpth (ft)	7.31	Hydr. Depth (ft)		5.73	
Conv. Total (cfs)	252606.3	Conv. (cfs)		252606.3	
Length Wtd. (ft)	502.40	Wetted Per. (ft)		233.34	
Min Ch El (ft)	1216.67	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		2.76	
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)	0.02	473.34	0.44
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	82.15	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1225.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.85	Wt. n-Val.		0.025	
E.G. Elev (ft)	1226.01	Reach Len. (ft)	502.40	502.40	502.40
Crit W.S. (ft)	1222.46	Flow Area (sq ft)		1609.20	
E.G. Slope (ft/ft)	0.001242	Area (sq ft)		1609.20	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	

Top Width (ft)	240.40	Top Width (ft)		240.40	
Vel Total (ft/s)	7.41	Avg. Vel. (ft/s)		7.41	
Max Chl Dpth (ft)	8.49	Hydr. Depth (ft)		6.69	
Conv. Total (cfs)	338296.2	Conv. (cfs)		338296.2	
Length Wtd. (ft)	502.40	Wetted Per. (ft)		241.92	
Min Ch El (ft)	1216.67	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		3.82	
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	38.88	588.13	30.33
C & E Loss (ft)	0.01	Cum SA (acres)	20.28	86.44	18.89

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1226.54	Element			
Vel Head (ft)	1.01	Wt. n-Val.		0.025	
E.G. Elev (ft)	1227.55	Reach Len. (ft)	502.40	502.40	502.40
Crit W.S. (ft)	1223.43	Flow Area (sq ft)		1950.90	
E.G. Slope (ft/ft)	0.001251	Area (sq ft)	2.13	1950.90	4.39
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	280.03	Top Width (ft)	10.69	256.97	12.36
Vel Total (ft/s)	8.08	Avg. Vel. (ft/s)		8.08	
Max Chl Dpth (ft)	9.87	Hydr. Depth (ft)		7.59	
Conv. Total (cfs)	445836.9	Conv. (cfs)		445836.9	
Length Wtd. (ft)	502.40	Wetted Per. (ft)		258.76	
Min Ch El (ft)	1216.67	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		4.76	
Frctn Loss (ft)	0.67	Cum Volume (acre-ft)	334.07	714.14	223.68
C & E Loss (ft)	0.01	Cum SA (acres)	99.36	90.34	76.89

Warning - Divided flow computed for this cross-section.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.814

INPUT
Description:
Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4450.73	1226.69	4470.07	1226.38	4476.17	1226.1	4499.77	1226.59	4503.03	1226.53
4512.42	1225.81	4518.56	1226.3	4545.29	1227.1	4568.28	1227.4	4569.7	1227.49
4617.21	1228.18	4620.21	1228.17	4676.13	1226.7	4702.71	1226.08	4719.06	1225.81
4767.03	1225.11	4797.54	1225.22	4803.93	1225.5	4808.57	1224.27	4819.54	1225.17
4834.13	1225	4839.3	1225.22	4848.62	1225	4855.05	1224.98	4860.39	1224.61
4865.61	1225.97	4877.9	1225.76	4882.14	1224.8	4900.84	1219.2	4906.6	1219.63
4911.89	1219.47	4922.15	1217.54	4933.82	1217.2	4973.68	1216.87	4997.58	1216.46
5000.68	1216.19	5018.72	1216.61	5069.11	1217	5074.93	1216.8	5085.73	1218.09
5096.21	1219.67	5102.96	1219.37	5124.4	1225	5141.05	1226.49	5146.18	1225.39
5155.68	1226.66	5168.64	1228.17	5174.42	1228.1	5176.71	1228.38	5183.08	1228.14
5197.14	1228.76	5206.79	1228.54	5216.3	1228.1	5218.72	1227.1	5229.78	1227.92
5266.43	1227.69	5276.79	1227.79	5302.35	1227.8	5321.3	1227.67	5332.94	1227.14
5354.98	1227.33	5373.29	1228.32	5388.24	1227.8	5403.45	1227.96		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4450.73	.04	4865.61	.025	5141.05	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4865.61	5141.05	301.91	301.91	301.91	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4450.73	4865.61	1229	5141.05	5403.45	1229

Left Levee Station= 4617.21 Elevation= 1228.18
Right Levee Station= 5197.14 Elevation= 1228.76

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1223.25	Element			
Vel Head (ft)	0.74	Wt. n-Val.		0.025	
E.G. Elev (ft)	1223.99	Reach Len. (ft)	301.91	301.91	301.91

Crit W.S. (ft)	1221.17	Flow Area (sq ft)		1260.90	
E.G. Slope (ft/ft)	0.001410	Area (sq ft)		1260.90	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	230.43	Top Width (ft)		230.43	
Vel Total (ft/s)	6.90	Avg. Vel. (ft/s)		6.90	
Max Chl Dpth (ft)	7.06	Hydr. Depth (ft)		5.47	
Conv. Total (cfs)	231696.0	Conv. (cfs)		231696.0	
Length Wtd. (ft)	301.91	Wetted Per. (ft)		231.96	
Min Ch El (ft)	1216.19	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		3.30	
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	0.02	458.40	0.44
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	79.48	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1224.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.95	Wt. n-Val.		0.025	
E.G. Elev (ft)	1225.32	Reach Len. (ft)	301.91	301.91	301.91
Crit W.S. (ft)	1222.04	Flow Area (sq ft)		1524.07	
E.G. Slope (ft/ft)	0.001475	Area (sq ft)	0.09	1524.07	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	240.11	Top Width (ft)	1.66	238.45	
Vel Total (ft/s)	7.82	Avg. Vel. (ft/s)		7.82	
Max Chl Dpth (ft)	8.18	Hydr. Depth (ft)		6.39	
Conv. Total (cfs)	310391.1	Conv. (cfs)		310391.1	
Length Wtd. (ft)	301.91	Wetted Per. (ft)		240.29	
Min Ch El (ft)	1216.19	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		4.57	
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	38.88	570.06	30.33
C & E Loss (ft)	0.01	Cum SA (acres)	20.28	83.67	18.89

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1225.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.11	Wt. n-Val.		0.025	
E.G. Elev (ft)	1226.87	Reach Len. (ft)	301.91	301.91	301.91
Crit W.S. (ft)	1223.00	Flow Area (sq ft)		1863.59	
E.G. Slope (ft/ft)	0.001445	Area (sq ft)	82.30	1863.59	0.82
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	401.62	Top Width (ft)	142.18	254.96	4.47
Vel Total (ft/s)	8.46	Avg. Vel. (ft/s)		8.46	
Max Chl Dpth (ft)	9.57	Hydr. Depth (ft)		7.31	
Conv. Total (cfs)	414879.8	Conv. (cfs)		414879.8	
Length Wtd. (ft)	301.91	Wetted Per. (ft)		257.08	
Min Ch El (ft)	1216.19	Shear (lb/sq ft)		0.65	
Alpha	1.00	Stream Power (lb/ft s)		5.53	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	333.58	692.14	223.65
C & E Loss (ft)	0.01	Cum SA (acres)	98.47	87.39	76.79

Warning - Divided flow computed for this cross-section.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.757

INPUT
Description:
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4313.39	1221.5	4372.64	1221.83	4418.91	1222.24	4468.9	1222.57	4518.92	1222.66
4565.05	1222.7	4568.91	1222.71	4615.02	1222.98	4622.79	1222.91	4668.92	1222.73
4692.81	1222.1	4701.21	1222.45	4717.14	1222.85	4721.63	1222.84	4725.84	1223.21
4740.04	1223.7	4747.73	1223.43	4758.41	1223.52	4766.9	1225.3	4778.61	1225.01
4783.21	1224.7	4792.96	1221.69	4800.43	1219.25	4811.19	1219.6	4818.7	1217.66
4824.74	1217.6	4871.03	1216.12	4898.77	1215.87	4910.23	1215.65	4920.61	1216.39
4950.82	1216.6	4970.31	1216.71	4975.58	1216.83	4994.56	1218.89	5002.67	1218.88

5024.49	1224.3	5033.24	1225.45	5040.45	1226.17	5046.62	1224.75	5053.87	1225.6
5064.31	1226.4	5089.04	1227.14	5114.84	1227.86	5125.45	1227.09	5127.77	1227.45
5136.27	1227	5146.18	1227.61	5150.92	1227.53	5167.07	1228.03	5179.72	1228.12
5212.45	1229.2	5264.59	1229.14	5283.01	1229.46	5303.01	1228.29	5313.39	1228.08

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4313.39	.04	4766.9	.025	5040.45	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4766.9	5040.45	562.76	562.76	562.76	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4313.39	4766.9	1228	5040.45	5313.39	1228

Left Levee Station= 4766.9 Elevation= 1225.3
Right Levee Station= 5040.45 Elevation= 1226.17

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1222.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.		0.025	
E.G. Elev (ft)	1223.54	Reach Len. (ft)	562.76	562.76	562.76
Crit W.S. (ft)	1220.84	Flow Area (sq ft)		1219.67	
E.G. Slope (ft/ft)	0.001559	Area (sq ft)		1219.67	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	228.71	Top Width (ft)		228.71	
Vel Total (ft/s)	7.13	Avg. Vel. (ft/s)		7.13	
Max Chl Dpth (ft)	7.10	Hydr. Depth (ft)		5.33	
Conv. Total (cfs)	220352.5	Conv. (cfs)		220352.5	
Length Wtd. (ft)	562.76	Wetted Per. (ft)		230.15	
Min Ch El (ft)	1215.65	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		3.68	
Frctn Loss (ft)	1.35	Cum Volume (acre-ft)	0.02	449.80	0.44
C & E Loss (ft)	0.07	Cum SA (acres)	0.09	77.89	0.73

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

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1223.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.02	Wt. n-Val.		0.025	
E.G. Elev (ft)	1224.85	Reach Len. (ft)	562.76	562.76	562.76
Crit W.S. (ft)	1221.73	Flow Area (sq ft)		1471.14	
E.G. Slope (ft/ft)	0.001641	Area (sq ft)		1471.14	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	236.56	Top Width (ft)		236.56	
Vel Total (ft/s)	8.10	Avg. Vel. (ft/s)		8.10	
Max Chl Dpth (ft)	8.18	Hydr. Depth (ft)		6.22	
Conv. Total (cfs)	294258.1	Conv. (cfs)		294258.1	
Length Wtd. (ft)	562.76	Wetted Per. (ft)		238.30	
Min Ch El (ft)	1215.65	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		5.12	
Frctn Loss (ft)	1.17	Cum Volume (acre-ft)	38.88	559.68	30.33
C & E Loss (ft)	0.04	Cum SA (acres)	20.27	82.03	18.89

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

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1225.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.18	Wt. n-Val.		0.025	
E.G. Elev (ft)	1226.40	Reach Len. (ft)	562.76	562.76	562.76

Crit W.S. (ft)	1222.67	Flow Area (sq ft)		1811.07	
E.G. Slope (ft/ft)	0.001642	Area (sq ft)		1811.07	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	261.40	Top Width (ft)		261.40	
Vel Total (ft/s)	8.71	Avg. Vel. (ft/s)		8.71	
Max Chl Dpth (ft)	9.57	Hydr. Depth (ft)		6.93	
Conv. Total (cfs)	389225.0	Conv. (cfs)		389225.0	
Length Wtd. (ft)	562.76	Wetted Per. (ft)		263.40	
Min Ch El (ft)	1215.65	Shear (lb/sq ft)		0.70	
Alpha	1.00	Stream Power (lb/ft s)		6.14	
Frctn Loss (ft)	1.03	Cum Volume (acre-ft)	333.30	679.41	223.65
C & E Loss (ft)	0.02	Cum SA (acres)	97.98	85.60	76.78

Warning - The energy loss was 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: EMF
REACH: Reach 1 RS: 2.65

INPUT
Description: Dip Crossing - Begin Transition
Station Elevation Data num= 76

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4414.37	1219.4	4443.45	1219.37	4456.44	1219.08	4471.44	1219.16	4486.58	1219.09
4506.79	1219.2	4534.95	1219.53	4546.88	1219.88	4566.36	1219.97	4582.6	1220.12
4592.64	1220.6	4617.21	1220.97	4638.21	1220.62	4643.35	1220.36	4650.87	1219.85
4679.81	1220	4707.02	1219.9	4718.84	1219.96	4737.96	1220.28	4759.76	1220.54
4773.87	1224.1	4786.4	1224.29	4791.82	1224.06	4793.66	1224.28	4801.24	1223.36
4805.27	1223.3	4819.09	1224.11	4826.18	1224.33	4833.57	1224.24	4843.83	1224.4
4846.23	1224.3	4855.18	1224.55	4869.32	1224.44	4877.28	1223.97	4883.71	1223.15
4894.06	1220.2	4900.59	1218.51	4909.01	1217.29	4918.37	1216.32	4933.64	1215.88
4944.89	1216.1	4962.29	1216.03	4969.26	1216.09	4980.43	1216.36	4991.13	1216.32
5007.15	1215.8	5012.98	1215.8	5030.98	1216.06	5047.94	1216.12	5058.35	1216.32
5073.63	1216.3	5082.32	1217.1	5101.55	1217.26	5121.24	1223.06	5124.55	1223.26
5130.2	1224.6	5145.13	1224.98	5169.9	1224.81	5182.12	1224.91	5195.96	1224.81
5220.48	1224.8	5237.76	1224.9	5251	1225.12	5253.5	1225.05	5264.34	1225.85
5269.4	1225.9	5283.93	1225.84	5296.06	1225.25	5312.18	1224.74	5320.31	1225.43
5335.55	1224.7	5358.66	1225.11	5378.34	1225.74	5385.79	1226.33	5402.3	1226.64
5414.37	1227.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4414.37	.04	4869.32	.025	5145.13	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4869.32	5145.13	25	25	25	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4414.37	4869.32	1226	5145.13	5414.37	1226

Left Levee Station= 4855.18 Elevation= 1224.55
Right Levee Station= 5283.93 Elevation= 1225.84

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1220.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.47	Wt. n-Val.		0.025	
E.G. Elev (ft)	1222.12	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	1220.20	Flow Area (sq ft)		894.76	
E.G. Slope (ft/ft)	0.004161	Area (sq ft)		894.76	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	220.59	Top Width (ft)		220.59	
Vel Total (ft/s)	9.72	Avg. Vel. (ft/s)		9.72	
Max Chl Dpth (ft)	4.85	Hydr. Depth (ft)		4.06	
Conv. Total (cfs)	134867.0	Conv. (cfs)		134867.0	
Length Wtd. (ft)	25.00	Wetted Per. (ft)		221.56	
Min Ch El (ft)	1215.80	Shear (lb/sq ft)		1.05	
Alpha	1.00	Stream Power (lb/ft s)		10.20	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.02	436.14	0.44
C & E Loss (ft)	0.36	Cum SA (acres)	0.09	74.99	0.73

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.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1222.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.41	Wt. n-Val.		0.025	
E.G. Elev (ft)	1223.64	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	1221.09	Flow Area (sq ft)		1249.50	
E.G. Slope (ft/ft)	0.002742	Area (sq ft)		1249.50	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	231.43	Top Width (ft)		231.43	
Vel Total (ft/s)	9.54	Avg. Vel. (ft/s)		9.54	
Max Chl Dpth (ft)	6.42	Hydr. Depth (ft)		5.40	
Conv. Total (cfs)	227637.7	Conv. (cfs)		227637.7	
Length Wtd. (ft)	25.00	Wetted Per. (ft)		232.84	
Min Ch El (ft)	1215.80	Shear (lb/sq ft)		0.92	
Alpha	1.00	Stream Power (lb/ft s)		8.76	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	38.88	542.11	30.33
C & E Loss (ft)	0.36	Cum SA (acres)	20.27	79.00	18.89

Warning - The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning - The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1223.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.39	Wt. n-Val.		0.025	
E.G. Elev (ft)	1225.35	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	1222.05	Flow Area (sq ft)		1664.70	
E.G. Slope (ft/ft)	0.002048	Area (sq ft)		1664.70	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	250.08	Top Width (ft)		250.08	
Vel Total (ft/s)	9.47	Avg. Vel. (ft/s)		9.47	
Max Chl Dpth (ft)	8.16	Hydr. Depth (ft)		6.66	
Conv. Total (cfs)	348451.9	Conv. (cfs)		348451.9	
Length Wtd. (ft)	25.00	Wetted Per. (ft)		251.89	
Min Ch El (ft)	1215.80	Shear (lb/sq ft)		0.85	
Alpha	1.00	Stream Power (lb/ft s)		8.01	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	333.30	656.95	223.65
C & E Loss (ft)	0.38	Cum SA (acres)	97.98	82.29	76.78

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.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.646

INPUT
Description: Dip Crossing - Begin A.C. Pavement and End Transition
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4414.37	1219.4	4455.13	1219.56	4506.09	1219.31	4536.61	1219.31	4553.24	1219.22
4596.6	1219.4	4616	1219.48	4659.64	1219.86	4689.52	1219.96	4703.69	1220.1
4723.77	1220.1	4742.73	1220.93	4759.42	1221.78	4790.51	1223.49	4816.37	1223.14
4828.01	1222.8	4854.28	1220.29	4855.29	1220.28	4889.86	1216.77	4892.64	1216.52
4921.43	1215.9	4950.52	1215.97	4955.43	1216.07	4971.34	1216.09	4991.98	1216.01
5009.82	1216.2	5049.82	1216.28	5056.24	1216.17	5097.72	1216.14	5105.85	1216.46
5108.46	1216.7	5120.37	1217.34	5125.56	1217.91	5152.78	1220.35	5174.86	1222.43
5188.33	1223.4	5191.79	1223.38	5209.81	1224.48	5224.57	1225	5237.84	1225.02

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 5256.09  1225.4 5263.25  1225.4 5275.11 1225.65  5281.5 1225.65 5293.18 1225.21
  5306.9  1224.3 5315.59 1225.16 5326.51  1224.3 5349.63 1225.33 5361.98 1225.52
 5377.47    1226 5397.07 1226.64 5414.37 1226.78

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4414.37     .04 4790.51    .015 5275.11     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       4790.51 5275.11               24      24      24             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 4414.37 4790.51    1226
Left Levee      Station= 4790.51      Elevation= 1223.49
Right Levee     Station= 5275.11      Elevation= 1225.65

CROSS SECTION OUTPUT    Profile #Design

  W.S. Elev (ft)          1220.98   Element                  Left OB    Channel   Right OB
  Vel Head (ft)              0.74   Wt. n-Val.                           0.015
  E.G. Elev (ft)          1221.72   Reach Len. (ft)            24.00     24.00      24.00
  Crit W.S. (ft)          1219.68   Flow Area (sq ft)                  1261.77
  E.G. Slope (ft/ft)     0.000755   Area (sq ft)                       1261.77
  Q Total (cfs)           8700.00   Flow (cfs)                         8700.00
  Top Width (ft)           312.39   Top Width (ft)                      312.39
  Vel Total (ft/s)           6.90   Avg. Vel. (ft/s)                      6.90
  Max Chl Dpth (ft)          5.08   Hydr. Depth (ft)                      4.04
  Conv. Total (cfs)      316715.3   Conv. (cfs)                       316715.3
  Length Wtd. (ft)          24.00   Wetted Per. (ft)                    312.82
  Min Ch El (ft)          1215.90   Shear (lb/sq ft)                      0.19
  Alpha                      1.00   Stream Power (lb/ft s)                1.31
  Frctn Loss (ft)            0.04   Cum Volume (acre-ft)        0.02    435.52       0.44
  C & E Loss (ft)            0.07   Cum SA (acres)              0.09     74.83       0.73


Warning - The conveyance ratio (upstream 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 OUTPUT    Profile #Future

  W.S. Elev (ft)          1222.55   Element                  Left OB    Channel   Right OB
  Vel Head (ft)              0.70   Wt. n-Val.                           0.015
  E.G. Elev (ft)          1223.25   Reach Len. (ft)            24.00     24.00      24.00
  Crit W.S. (ft)          1220.45   Flow Area (sq ft)                  1780.23
  E.G. Slope (ft/ft)     0.000516   Area (sq ft)                       1780.23
  Q Total (cfs)          11920.00   Flow (cfs)                        11920.00
  Top Width (ft)           346.02   Top Width (ft)                      346.02
  Vel Total (ft/s)           6.70   Avg. Vel. (ft/s)                      6.70
  Max Chl Dpth (ft)          6.65   Hydr. Depth (ft)                      5.14
  Conv. Total (cfs)      524982.9   Conv. (cfs)                       524982.9
  Length Wtd. (ft)          24.00   Wetted Per. (ft)                    346.60
  Min Ch El (ft)          1215.90   Shear (lb/sq ft)                      0.17
  Alpha                      1.00   Stream Power (lb/ft s)                1.11
  Frctn Loss (ft)            0.02   Cum Volume (acre-ft)       38.88    541.24      30.33
  C & E Loss (ft)            0.03   Cum SA (acres)             20.27     78.84      18.89


Warning - The conveyance ratio (upstream 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 OUTPUT    Profile #Existing

  W.S. Elev (ft)          1224.31   Element                  Left OB    Channel   Right OB
  Vel Head (ft)              0.64   Wt. n-Val.                           0.015
  E.G. Elev (ft)          1224.95   Reach Len. (ft)            24.00     24.00      24.00
  Crit W.S. (ft)          1221.26   Flow Area (sq ft)                  2460.48
  E.G. Slope (ft/ft)     0.000393   Area (sq ft)             1646.92   2460.48
  Q Total (cfs)          15770.00   Flow (cfs)                        15770.00
  Top Width (ft)           792.71   Top Width (ft)            376.14    416.57
  Vel Total (ft/s)           6.41   Avg. Vel. (ft/s)                      6.41
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Max Chl Dpth (ft)	8.41	Hydr. Depth (ft)		5.91	
Conv. Total (cfs)	795576.3	Conv. (cfs)		795576.3	
Length Wtd. (ft)	24.00	Wetted Per. (ft)		417.24	
Min Ch El (ft)	1215.90	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.93	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	332.83	655.77	223.65
C & E Loss (ft)	0.01	Cum SA (acres)	97.87	82.10	76.78

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.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.641

INPUT
Description: Dip Crossing - Begin Loose Riprap, End A.C. Pavement and Begin Transition
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4414.37	1218.9	4465.87	1218.83	4557.55	1219.04	4608.54	1219.12	4630.38	1219.3
4678.28	1219.5	4696.01	1219.65	4708.3	1219.63	4725.21	1220.19	4740.63	1220.88
4755.37	1222	4768.36	1222.86	4787.4	1223.59	4807.8	1223.39	4828.21	1222.48
4865.24	1219.2	4880.37	1217.57	4890.12	1216.66	4896.65	1216.45	4912.95	1216.27
4952.86	1216.3	4990.81	1216.28	5006.63	1216.32	5033.07	1216.45	5060.34	1216.32
5067.48	1216.5	5087.3	1216.58	5094.6	1216.9	5108.98	1216.98	5115.33	1217.47
5124.47	1217.9	5135.63	1218.74	5156.87	1220.8	5159.81	1220.96	5174.78	1222.3
5181.26	1222.7	5191.49	1223.72	5226.16	1225.28	5280.63	1225.56	5287.92	1225.58
5326.89	1225.3	5350.59	1225.44	5360.52	1225.67	5366.26	1225.59	5379.18	1225.83
5397.63	1226.5	5414.37	1226.56						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4414.37	.04	4787.4	.03	5226.16	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4787.4	5226.16	25	25	25	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
4414.37	4787.4	1226

Left Levee Station= 4787.4 Elevation= 1223.59
Right Levee Station= 5287.92 Elevation= 1225.58

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1220.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.98	Wt. n-Val.		0.030	
E.G. Elev (ft)	1221.61	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	1219.89	Flow Area (sq ft)		1095.96	
E.G. Slope (ft/ft)	0.004695	Area (sq ft)		1095.96	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	306.02	Top Width (ft)		306.02	
Vel Total (ft/s)	7.94	Avg. Vel. (ft/s)		7.94	
Max Chl Dpth (ft)	4.36	Hydr. Depth (ft)		3.58	
Conv. Total (cfs)	126967.0	Conv. (cfs)		126967.0	
Length Wtd. (ft)	25.00	Wetted Per. (ft)		306.38	
Min Ch El (ft)	1216.27	Shear (lb/sq ft)		1.05	
Alpha	1.00	Stream Power (lb/ft s)		8.32	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	0.02	434.87	0.44
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	74.66	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1222.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.78	Wt. n-Val.		0.030	
E.G. Elev (ft)	1223.20	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	1220.65	Flow Area (sq ft)		1682.10	
E.G. Slope (ft/ft)	0.002509	Area (sq ft)		1682.10	

Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	347.90	Top Width (ft)		347.90	
Vel Total (ft/s)	7.09	Avg. Vel. (ft/s)		7.09	
Max Chl Dpth (ft)	6.15	Hydr. Depth (ft)		4.84	
Conv. Total (cfs)	237992.1	Conv. (cfs)		237992.1	
Length Wtd. (ft)	25.00	Wetted Per. (ft)		348.41	
Min Ch El (ft)	1216.27	Shear (lb/sq ft)		0.76	
Alpha	1.00	Stream Power (lb/ft s)		5.36	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	38.88	540.28	30.33
C & E Loss (ft)	0.10	Cum SA (acres)	20.27	78.65	18.89

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1224.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.68	Wt. n-Val.		0.030	
E.G. Elev (ft)	1224.92	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	1221.46	Flow Area (sq ft)		2377.52	
E.G. Slope (ft/ft)	0.001756	Area (sq ft)	1720.63	2377.52	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	788.61	Top Width (ft)	373.03	415.58	
Vel Total (ft/s)	6.63	Avg. Vel. (ft/s)		6.63	
Max Chl Dpth (ft)	7.97	Hydr. Depth (ft)		5.72	
Conv. Total (cfs)	376313.6	Conv. (cfs)		376313.6	
Length Wtd. (ft)	25.00	Wetted Per. (ft)		416.19	
Min Ch El (ft)	1216.27	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		4.15	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	331.90	654.44	223.65
C & E Loss (ft)	0.15	Cum SA (acres)	97.67	81.87	76.78

Warning - The cross-section end points had to be extended vertically for the computed water surface.
Warning - The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.636

INPUT
Description: Dip Crossing - End Loose Riprap and End Transition
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4414.37	1219.4	4446.96	1219.45	4459.76	1219.43	4490.82	1219.73	4511.62	1219.98
4527.5	1220	4553.47	1220.06	4602.39	1220.12	4627.55	1220.36	4657.4	1220.72
4694.71	1221	4716.34	1220.86	4739.99	1220.93	4751.78	1220.87	4764.79	1222.36
4767.3	1222.9	4775.24	1223.27	4778.82	1223.27	4786.43	1223.53	4796.78	1223.59
4801.68	1223.5	4815.8	1223.8	4825.2	1224.1	4827.82	1224.55	4837.01	1224.93
4851.65	1225.2	4864.79	1224.84	4876.07	1224.21	4882.59	1222.1	4891.78	1219.75
4898.47	1217.5	4904.6	1215.78	4916.45	1215.42	4950.17	1215.3	4954.73	1215.15
5006.52	1215.2	5030.25	1215.37	5053.47	1215.38	5082.98	1215.71	5095.63	1216.05
5098.78	1215.9	5107.59	1217.51	5119.1	1221.04	5122.45	1222.3	5126.27	1223.34
5129.82	1223.4	5135.4	1223.98	5149.76	1224.48	5163.7	1224.36	5175.95	1224.46
5184.08	1224.4	5201.68	1224.45	5219.42	1224.59	5250.31	1225.31	5256.02	1225.48
5272.8	1225.6	5281.11	1225.91	5305.27	1226.27	5326.27	1225.74	5340.48	1225.71
5353.1	1226	5408.46	1226.72	5414.37	1226.88				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4414.37	.04	4876.07	.025	5149.76	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4876.07	5149.76	347.49	347.49	347.49	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4414.37	4851.65	1226	5149.76	5414.37	1226

Left Levee Station= 4851.65 Elevation= 1225.2
Right Levee Station= 5149.76 Elevation= 1224.48

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1220.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.00	Wt. n-Val.		0.025	
E.G. Elev (ft)	1221.52	Reach Len. (ft)	347.49	347.49	347.49
Crit W.S. (ft)	1219.26	Flow Area (sq ft)		1081.50	
E.G. Slope (ft/ft)	0.002324	Area (sq ft)		1081.50	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	228.60	Top Width (ft)		228.60	
Vel Total (ft/s)	8.04	Avg. Vel. (ft/s)		8.04	
Max Chl Dpth (ft)	5.36	Hydr. Depth (ft)		4.73	
Conv. Total (cfs)	180464.4	Conv. (cfs)		180464.4	
Length Wtd. (ft)	347.49	Wetted Per. (ft)		229.91	
Min Ch El (ft)	1215.15	Shear (lb/sq ft)		0.68	
Alpha	1.00	Stream Power (lb/ft s)		5.49	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	0.02	434.25	0.44
C & E Loss (ft)	0.13	Cum SA (acres)	0.09	74.51	0.73

Warning - The conveyance ratio (upstream 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 OUTPUT Profile #Future

W.S. Elev (ft)	1221.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.10	Wt. n-Val.		0.025	
E.G. Elev (ft)	1223.05	Reach Len. (ft)	347.49	347.49	347.49
Crit W.S. (ft)	1220.15	Flow Area (sq ft)		1418.11	
E.G. Slope (ft/ft)	0.001873	Area (sq ft)		1418.11	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	238.38	Top Width (ft)		238.38	
Vel Total (ft/s)	8.41	Avg. Vel. (ft/s)		8.41	
Max Chl Dpth (ft)	6.81	Hydr. Depth (ft)		5.95	
Conv. Total (cfs)	275391.3	Conv. (cfs)		275391.3	
Length Wtd. (ft)	347.49	Wetted Per. (ft)		240.12	
Min Ch El (ft)	1215.15	Shear (lb/sq ft)		0.69	
Alpha	1.00	Stream Power (lb/ft s)		5.81	
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	38.88	539.39	30.33
C & E Loss (ft)	0.12	Cum SA (acres)	20.27	78.48	18.89

Warning - The conveyance ratio (upstream 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 OUTPUT Profile #Existing

W.S. Elev (ft)	1223.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.19	Wt. n-Val.		0.025	
E.G. Elev (ft)	1224.73	Reach Len. (ft)	347.49	347.49	347.49
Crit W.S. (ft)	1221.08	Flow Area (sq ft)		1804.80	
E.G. Slope (ft/ft)	0.001592	Area (sq ft)		1804.80	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	253.03	Top Width (ft)		253.03	
Vel Total (ft/s)	8.74	Avg. Vel. (ft/s)		8.74	
Max Chl Dpth (ft)	8.39	Hydr. Depth (ft)		7.13	
Conv. Total (cfs)	395195.9	Conv. (cfs)		395195.9	
Length Wtd. (ft)	347.49	Wetted Per. (ft)		255.23	
Min Ch El (ft)	1215.15	Shear (lb/sq ft)		0.70	
Alpha	1.00	Stream Power (lb/ft s)		6.14	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	331.40	653.24	223.65
C & E Loss (ft)	0.11	Cum SA (acres)	97.56	81.68	76.78

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.571

INPUT
Description:
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4412.1	1218.2	4429.86	1218.3	4468.71	1218.68	4518.72	1219.1	4541.97	1218.96
4556.19	1219.4	4570.15	1218.94	4602.84	1219.34	4618.71	1219.44	4657.36	1219.4

4680.11	1219.5	4718.72	1219.87	4768.71	1219.94	4799.36	1219.68	4802.2	1219.88
4809.06	1219.9	4827.5	1220.11	4856.89	1220.76	4864.98	1223.65	4876.78	1223.69
4883.52	1222.8	4909.38	1215.55	4925.01	1214.91	4937.11	1212.56	4942.69	1212.7
4970.33	1212.1	4975.54	1212.08	4987.84	1211.1	5000.85	1210.91	5012.53	1211.25
5020.78	1212.5	5033.27	1213.21	5076.37	1213.48	5094.77	1217.4	5104.16	1217.18
5125.65	1223.3	5128.76	1224.08	5135.03	1224.17	5141.82	1223.94	5147.17	1222.43
5162.74	1222.9	5167.14	1223.26	5184.43	1224.41	5218.71	1224.93	5268.71	1226.29
5318.72	1226.4	5330.7	1226.49	5368.72	1226.89	5394.6	1227.24	5409	1227.15
5412.1	1227								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4412.1	.04	4876.78	.025	5128.76	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4876.78	5128.76	500.02	500.02	500.02	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4412.1	4876.78	1225	5128.76	5412.1	1225

Left Levee Station= 4876.78 Elevation= 1223.69
Right Levee Station= 5135.03 Elevation= 1224.17

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1220.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.56	Wt. n-Val.		0.025	
E.G. Elev (ft)	1220.93	Reach Len. (ft)	500.02	500.02	500.02
Crit W.S. (ft)	1217.11	Flow Area (sq ft)		1450.77	
E.G. Slope (ft/ft)	0.000849	Area (sq ft)		1450.77	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	223.16	Top Width (ft)		223.16	
Vel Total (ft/s)	6.00	Avg. Vel. (ft/s)		6.00	
Max Chl Dpth (ft)	9.46	Hydr. Depth (ft)		6.50	
Conv. Total (cfs)	298641.8	Conv. (cfs)		298641.8	
Length Wtd. (ft)	500.02	Wetted Per. (ft)		225.09	
Min Ch El (ft)	1210.91	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		2.05	
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	0.02	424.15	0.44
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	72.71	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1221.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.		0.025	
E.G. Elev (ft)	1222.51	Reach Len. (ft)	500.02	500.02	500.02
Crit W.S. (ft)	1218.11	Flow Area (sq ft)		1780.50	
E.G. Slope (ft/ft)	0.000856	Area (sq ft)		1780.50	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	233.38	Top Width (ft)		233.38	
Vel Total (ft/s)	6.69	Avg. Vel. (ft/s)		6.69	
Max Chl Dpth (ft)	10.90	Hydr. Depth (ft)		7.63	
Conv. Total (cfs)	407412.9	Conv. (cfs)		407412.9	
Length Wtd. (ft)	500.02	Wetted Per. (ft)		235.71	
Min Ch El (ft)	1210.91	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		2.70	
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	38.88	526.63	30.33
C & E Loss (ft)	0.00	Cum SA (acres)	20.27	76.60	18.89

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1223.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.83	Wt. n-Val.		0.025	
E.G. Elev (ft)	1224.22	Reach Len. (ft)	500.02	500.02	500.02
Crit W.S. (ft)	1219.11	Flow Area (sq ft)		2159.71	
E.G. Slope (ft/ft)	0.000850	Area (sq ft)		2159.71	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	247.03	Top Width (ft)		247.03	
Vel Total (ft/s)	7.30	Avg. Vel. (ft/s)		7.30	

Max Chl Dpth (ft)	12.49	Hydr. Depth (ft)		8.74	
Conv. Total (cfs)	540803.9	Conv. (cfs)		540803.9	
Length Wtd. (ft)	500.02	Wetted Per. (ft)		249.75	
Min Ch El (ft)	1210.91	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		3.35	
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	331.40	637.42	223.65
C & E Loss (ft)	0.00	Cum SA (acres)	97.56	79.69	76.78

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.476

INPUT
Description:
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4512.19	1219.6	4522.39	1219.75	4547.45	1219.97	4568.48	1218.06	4593.16	1217.87
4615.18	1218.4	4626.72	1218.37	4640.19	1218.58	4666.33	1218.66	4670.66	1218.58
4685.46	1217.5	4690.33	1217.64	4728.64	1217.44	4787.45	1218.04	4798.33	1218.28
4809.73	1218.3	4858.81	1218.25	4868.38	1218.33	4879.4	1218.78	4890.78	1218.87
4896.93	1218.4	4935.93	1219.46	4945.49	1223.29	4957.61	1222.8	4964.83	1221.95
4987.37	1215.8	4996.06	1215.16	5005.35	1214.4	5014.07	1212.74	5038.22	1212.9
5053.05	1212.8	5063.68	1212.45	5073.39	1211.29	5086.72	1210.67	5090.48	1210.69
5103.33	1211.2	5109.68	1211.11	5117.77	1213.1	5120.84	1213.07	5141.57	1212.09
5153.73	1213	5174.46	1216.26	5181.58	1216.53	5188.78	1218.36	5203.42	1222.35
5209.12	1222.5	5221.97	1222.49	5227	1221.14	5246.98	1222.22	5254.21	1222.85
5274.15	1224	5291.52	1225.09	5310.19	1225.57	5386.38	1226.68	5410.28	1226.83
5448.33	1226.9	5476.37	1227.06	5495.91	1227.33	5508.71	1227.09	5512.19	1227.14

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4512.19	.04	4945.49	.025	5209.12	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4945.49	5209.12	500.08	500.08	500.08	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4512.19	4945.49	1225	5209.12	5512.19	1225

Left Levee Station= 4945.49 Elevation= 1223.29
Right Levee Station= 5209.12 Elevation= 1222.5

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1219.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.		0.025	
E.G. Elev (ft)	1220.48	Reach Len. (ft)	500.08	500.08	500.08
Crit W.S. (ft)	1216.88	Flow Area (sq ft)		1403.97	
E.G. Slope (ft/ft)	0.000939	Area (sq ft)		1403.97	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	221.94	Top Width (ft)		221.94	
Vel Total (ft/s)	6.20	Avg. Vel. (ft/s)		6.20	
Max Chl Dpth (ft)	9.21	Hydr. Depth (ft)		6.33	
Conv. Total (cfs)	283850.4	Conv. (cfs)		283850.4	
Length Wtd. (ft)	500.08	Wetted Per. (ft)		223.79	
Min Ch El (ft)	1210.67	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		2.28	
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	0.02	407.76	0.44
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	70.15	0.73

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1221.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.74	Wt. n-Val.		0.025	
E.G. Elev (ft)	1222.06	Reach Len. (ft)	500.08	500.08	500.08
Crit W.S. (ft)	1217.83	Flow Area (sq ft)		1731.52	
E.G. Slope (ft/ft)	0.000934	Area (sq ft)		1731.52	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	232.51	Top Width (ft)		232.51	
Vel Total (ft/s)	6.88	Avg. Vel. (ft/s)		6.88	

Max Chl Dpth (ft)	10.65	Hydr. Depth (ft)		7.45	
Conv. Total (cfs)	389971.3	Conv. (cfs)		389971.3	
Length Wtd. (ft)	500.08	Wetted Per. (ft)		234.75	
Min Ch El (ft)	1210.67	Shear (lb/sq ft)		0.43	
Alpha	1.00	Stream Power (lb/ft s)		2.96	
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	38.88	506.48	30.33
C & E Loss (ft)	0.00	Cum SA (acres)	20.27	73.92	18.89

CROSS SECTION OUTPUT *Profile #Existing*

			Left OB	Channel	Right OB
W.S. Elev (ft)	1222.91	Element			
Vel Head (ft)	0.86	Wt. n-Val.		0.025	
E.G. Elev (ft)	1223.77	Reach Len. (ft)	500.08	500.08	500.08
Crit W.S. (ft)	1218.84	Flow Area (sq ft)		2114.24	
E.G. Slope (ft/ft)	0.000947	Area (sq ft)		2114.24	38.09
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	300.30	Top Width (ft)		254.19	46.11
Vel Total (ft/s)	7.46	Avg. Vel. (ft/s)		7.46	
Max Chl Dpth (ft)	12.24	Hydr. Depth (ft)		8.32	
Conv. Total (cfs)	512492.6	Conv. (cfs)		512492.6	
Length Wtd. (ft)	500.08	Wetted Per. (ft)		256.71	
Min Ch El (ft)	1210.67	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		3.63	
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)	331.40	612.89	223.43
C & E Loss (ft)	0.00	Cum SA (acres)	97.56	76.81	76.51

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.381

INPUT
Description:
Station Elevation Data num= 68

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4512.19	1216.4	4530.01	1216.46	4580.02	1217	4612.9	1217.38	4626.48	1217.54
4658.62	1218.9	4669.51	1219.11	4672.23	1219.32	4709.98	1219.73	4731.08	1219.83
4746.35	1219.8	4750.77	1220	4772.83	1219.72	4791.12	1219.82	4796.77	1218.73
4801.64	1218.1	4811.27	1219.11	4816.03	1218.55	4837.42	1219	4844.06	1219.32
4856.09	1219.5	4865.25	1222.49	4873.13	1222.05	4876.84	1221.99	4882.93	1221.18
4904.71	1215.3	4916.21	1214.57	4923.46	1213.73	4932.78	1212.13	4960.04	1212.06
4972.27	1212.2	4980.19	1212.14	4991.62	1211.2	5007.77	1211.04	5024.56	1211.42
5040.7	1212.5	5072.02	1212.97	5102.14	1215.96	5122.43	1221.18	5124.32	1221.22
5127.73	1222	5141.63	1222.14	5150.52	1221.93	5167.12	1221.29	5185.39	1221.25
5209.99	1221.7	5217.76	1221.73	5232.03	1221.23	5259.21	1221.01	5268.64	1219.9
5276.77	1219.3	5282.74	1220	5289.05	1220.38	5299.03	1221.2	5304.2	1221.42
5317.31	1221.6	5343.13	1222.07	5363.77	1222.67	5381.24	1223.51	5391.1	1223.76
5400.65	1223.7	5414.31	1225.1	5434.71	1225.26	5452.02	1225.31	5467.78	1225.69
5482.7	1225.5	5499.05	1224.48	5512.19	1224.55				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4512.19	.04	4865.25	.025	5141.63	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4865.25	5141.63	401.11	401.11	401.11	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4512.19	4865.25	1224	5141.63	5512.19	1224

Left Levee Station= 4865.25 Elevation= 1222.49
Right Levee Station= 5141.63 Elevation= 1222.14

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1219.37	Element			
Vel Head (ft)	0.62	Wt. n-Val.		0.025	
E.G. Elev (ft)	1219.99	Reach Len. (ft)	401.11	401.11	401.11
Crit W.S. (ft)	1216.60	Flow Area (sq ft)		1378.38	
E.G. Slope (ft/ft)	0.001019	Area (sq ft)		1378.38	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	

Top Width (ft)	225.74	Top Width (ft)		225.74	
Vel Total (ft/s)	6.31	Avg. Vel. (ft/s)		6.31	
Max Chl Dpth (ft)	8.33	Hydr. Depth (ft)		6.11	
Conv. Total (cfs)	272561.6	Conv. (cfs)		272561.6	
Length Wtd. (ft)	401.11	Wetted Per. (ft)		227.15	
Min Ch El (ft)	1211.04	Shear (lb/sq ft)		0.39	
Alpha	1.00	Stream Power (lb/ft s)		2.44	
Frctn Loss (ft)	0.44	Cum Volume (acre-ft)	0.02	391.79	0.44
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	67.58	0.73

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1220.83	Element			
Vel Head (ft)	0.75	Wt. n-Val.		0.025	
E.G. Elev (ft)	1221.58	Reach Len. (ft)	401.11	401.11	401.11
Crit W.S. (ft)	1217.51	Flow Area (sq ft)		1716.32	
E.G. Slope (ft/ft)	0.000983	Area (sq ft)		1716.32	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	236.83	Top Width (ft)		236.83	
Vel Total (ft/s)	6.95	Avg. Vel. (ft/s)		6.95	
Max Chl Dpth (ft)	9.79	Hydr. Depth (ft)		7.25	
Conv. Total (cfs)	380118.3	Conv. (cfs)		380118.3	
Length Wtd. (ft)	401.11	Wetted Per. (ft)		238.62	
Min Ch El (ft)	1211.04	Shear (lb/sq ft)		0.44	
Alpha	1.00	Stream Power (lb/ft s)		3.07	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	38.88	486.69	30.33
C & E Loss (ft)	0.00	Cum SA (acres)	20.27	71.23	18.89

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1222.41	Element			
Vel Head (ft)	0.87	Wt. n-Val.		0.025	
E.G. Elev (ft)	1223.27	Reach Len. (ft)	401.11	401.11	401.11
Crit W.S. (ft)	1218.50	Flow Area (sq ft)		2110.88	
E.G. Slope (ft/ft)	0.001053	Area (sq ft)		2110.88	235.48
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	487.91	Top Width (ft)		274.87	213.04
Vel Total (ft/s)	7.47	Avg. Vel. (ft/s)		7.47	
Max Chl Dpth (ft)	11.37	Hydr. Depth (ft)		7.68	
Conv. Total (cfs)	485972.6	Conv. (cfs)		485972.6	
Length Wtd. (ft)	401.11	Wetted Per. (ft)		276.90	
Min Ch El (ft)	1211.04	Shear (lb/sq ft)		0.50	
Alpha	1.00	Stream Power (lb/ft s)		3.74	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	331.40	588.64	221.86
C & E Loss (ft)	0.00	Cum SA (acres)	97.56	73.77	75.02

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.305

INPUT
Description: Drop Structure, Upstream Face
Station Elevation Data num= 72

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4561.87	1217.1	4567.4	1217.25	4593.97	1216.87	4608.34	1217.3	4625.31	1216.43
4638.33	1216.3	4665.22	1216.28	4704.88	1216.32	4717.62	1216.14	4736.66	1216.33
4759.61	1216.4	4775.19	1216.14	4791.14	1215.7	4801.74	1216.52	4807.22	1217.07
4812.69	1217.1	4820.8	1216.73	4838.35	1217.57	4854.88	1218.47	4864.26	1221.52
4877.49	1221.6	4878.43	1221.4	4888.71	1218.27	4893.88	1216.95	4902.85	1214.46
4912.26	1213	4918.36	1212.48	4930.94	1212.19	4955.94	1212.34	4992.94	1212.2
5003.45	1211.6	5008.02	1212.17	5027.77	1212.13	5044.39	1212.39	5054.29	1212.11
5073.58	1212.4	5085.41	1213.21	5097.09	1214.39	5121.84	1220.05	5129.49	1221.36
5142.16	1221	5171.68	1219.05	5181.01	1217	5189.97	1219.32	5210.04	1219.8
5217.22	1219.3	5267.41	1220.07	5278.16	1220.19	5317.41	1220.92	5333.97	1221.11
5352.56	1221.8	5359.41	1222.52	5367.88	1223.13	5381.8	1222.7	5388.09	1220.21
5391.52	1219.2	5398.08	1219.21	5405.18	1219.85	5410.49	1223.8	5416.78	1223.82
5421.11	1223.6	5431.78	1223.75	5436.56	1223.77	5451.7	1222.96	5467.41	1223.57
5478.34	1223.6	5517.41	1224.1	5524.77	1224.13	5536.64	1224.43	5547.92	1223.66

5559.95 1223.6 5561.87 1223.93

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4561.87	.04	4877.49	.025	5129.49	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.49	5129.49	12.16	12.16	12.16	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4561.87	4877.49	1224	5129.49	5561.87	1224

Left Levee Station= 4877.49 Elevation= 1221.6
Right Levee Station= 5367.88 Elevation= 1223.13

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1218.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.		0.025	
E.G. Elev (ft)	1219.54	Reach Len. (ft)	12.16	12.16	12.16
Crit W.S. (ft)	1216.41	Flow Area (sq ft)		1330.84	
E.G. Slope (ft/ft)	0.001174	Area (sq ft)		1330.84	14.87
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	245.83	Top Width (ft)		230.02	15.82
Vel Total (ft/s)	6.54	Avg. Vel. (ft/s)		6.54	
Max Chl Dpth (ft)	7.28	Hydr. Depth (ft)		5.79	
Conv. Total (cfs)	253910.6	Conv. (cfs)		253910.6	
Length Wtd. (ft)	12.16	Wetted Per. (ft)		231.41	
Min Ch El (ft)	1211.60	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		2.76	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.02	379.32	0.37
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	65.49	0.65

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1220.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.78	Wt. n-Val.		0.025	
E.G. Elev (ft)	1221.16	Reach Len. (ft)	12.16	12.16	12.16
Crit W.S. (ft)	1217.34	Flow Area (sq ft)		1686.15	
E.G. Slope (ft/ft)	0.001074	Area (sq ft)		1686.15	117.11
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	379.33	Top Width (ft)		242.05	137.29
Vel Total (ft/s)	7.07	Avg. Vel. (ft/s)		7.07	
Max Chl Dpth (ft)	8.79	Hydr. Depth (ft)		6.97	
Conv. Total (cfs)	363778.3	Conv. (cfs)		363778.3	
Length Wtd. (ft)	12.16	Wetted Per. (ft)		243.82	
Min Ch El (ft)	1211.60	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		3.28	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	38.88	471.02	29.79
C & E Loss (ft)	0.01	Cum SA (acres)	20.27	69.02	18.26

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1221.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.89	Wt. n-Val.		0.025	
E.G. Elev (ft)	1222.86	Reach Len. (ft)	12.16	12.16	12.16
Crit W.S. (ft)	1218.32	Flow Area (sq ft)		2078.96	
E.G. Slope (ft/ft)	0.000988	Area (sq ft)	1591.78	2078.96	419.01
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	792.28	Top Width (ft)	315.62	252.00	224.66
Vel Total (ft/s)	7.59	Avg. Vel. (ft/s)		7.59	
Max Chl Dpth (ft)	10.37	Hydr. Depth (ft)		8.25	
Conv. Total (cfs)	501813.1	Conv. (cfs)		501813.1	
Length Wtd. (ft)	12.16	Wetted Per. (ft)		254.03	
Min Ch El (ft)	1211.60	Shear (lb/sq ft)		0.50	

Alpha	1.00	Stream Power (lb/ft s)		3.83	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	324.08	569.35	218.84
C & E Loss (ft)	0.01	Cum SA (acres)	96.11	71.35	73.01

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.303

INPUT
Description: Drop Structure, Downstream Face
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4565.86	1217.3	4601.14	1216.64	4611.91	1216.66	4625.32	1216.41	4667.39	1216.02
4719.32	1216	4767.39	1216.11	4774.52	1216.15	4793.79	1215.86	4804.56	1216.78
4810.6	1217.1	4820.16	1216.75	4825.63	1216.92	4838.38	1217.53	4847.63	1218.08
4855	1218.3	4864.32	1221.5	4877.6	1221.47	4880.56	1220.95	4902.58	1214.22
4913.99	1213.1	4923.29	1212.45	4938.02	1212.24	4961.36	1212.54	4978.54	1212.44
5005.44	1212.3	5039.67	1212.48	5045.08	1212.67	5079.01	1212.74	5081.62	1212.59
5087.78	1214	5094.67	1214.44	5109.33	1217.74	5129.35	1221.33	5143.32	1220.98
5174.16	1219.1	5183.25	1216.89	5191.87	1219.28	5212.52	1219.81	5220.14	1219.14
5261.42	1219.8	5317.4	1220.83	5349.57	1221.86	5360.11	1222.03	5375.68	1223.21
5389.41	1222.7	5391.73	1221.48	5399.34	1219.49	5405.44	1219.43	5414.18	1220.02
5419.29	1223.2	5428.52	1222.64	5438.49	1223.02	5443.26	1223.41	5453.3	1222.52
5467.57	1223.3	5518.53	1223.98	5537.73	1224.48	5549.78	1223.6	5562.13	1223.64
5565.86	1224								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4565.86	.04	4877.6	.025	5129.35	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.6	5129.35	502.87	502.87	502.87	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4565.86	4877.6	1224	5129.35	5565.86	1224

Left Levee Station= 4877.6 Elevation= 1221.47
Right Levee Station= 5375.68 Elevation= 1223.21

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1218.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.		0.025	
E.G. Elev (ft)	1219.52	Reach Len. (ft)	502.87	502.87	502.87
Crit W.S. (ft)	1216.64	Flow Area (sq ft)		1252.48	
E.G. Slope (ft/ft)	0.001416	Area (sq ft)		1252.48	13.64
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	241.90	Top Width (ft)		227.38	14.51
Vel Total (ft/s)	6.95	Avg. Vel. (ft/s)		6.95	
Max Chl Dpth (ft)	6.53	Hydr. Depth (ft)		5.51	
Conv. Total (cfs)	231236.1	Conv. (cfs)		231236.1	
Length Wtd. (ft)	502.87	Wetted Per. (ft)		228.78	
Min Ch El (ft)	1212.24	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		3.36	
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	0.02	378.96	0.37
C & E Loss (ft)	0.07	Cum SA (acres)	0.09	65.42	0.65

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1220.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.85	Wt. n-Val.		0.025	
E.G. Elev (ft)	1221.14	Reach Len. (ft)	502.87	502.87	502.87
Crit W.S. (ft)	1217.56	Flow Area (sq ft)		1607.59	
E.G. Slope (ft/ft)	0.001250	Area (sq ft)		1607.59	113.05
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	374.00	Top Width (ft)		240.80	133.20

Vel Total (ft/s)	7.41	Avg. Vel. (ft/s)		7.41	
Max Chl Dpth (ft)	8.05	Hydr. Depth (ft)		6.68	
Conv. Total (cfs)	337125.3	Conv. (cfs)		337125.3	
Length Wtd. (ft)	502.87	Wetted Per. (ft)		242.57	
Min Ch El (ft)	1212.24	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		3.84	
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	38.88	470.56	29.76
C & E Loss (ft)	0.06	Cum SA (acres)	20.27	68.96	18.22

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1221.88	Element			
Vel Head (ft)	0.96	Wt. n-Val.		0.025	
E.G. Elev (ft)	1222.84	Reach Len. (ft)	502.87	502.87	502.87
Crit W.S. (ft)	1218.55	Flow Area (sq ft)		2001.25	
E.G. Slope (ft/ft)	0.001120	Area (sq ft)	1590.12	2001.25	404.98
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	784.73	Top Width (ft)	311.74	251.75	221.24
Vel Total (ft/s)	7.88	Avg. Vel. (ft/s)		7.88	
Max Chl Dpth (ft)	9.64	Hydr. Depth (ft)		7.95	
Conv. Total (cfs)	471290.0	Conv. (cfs)		471290.0	
Length Wtd. (ft)	502.87	Wetted Per. (ft)		253.75	
Min Ch El (ft)	1212.24	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		4.34	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	323.63	568.78	218.73
C & E Loss (ft)	0.06	Cum SA (acres)	96.02	71.28	72.95

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.208

INPUT
Description:
Station Elevation Data num= 71

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4555.85	1215.1	4609.29	1214.66	4661.37	1215.15	4666.18	1215.26	4709.7	1215.51
4727.96	1215.5	4764.61	1215.42	4767.45	1215.37	4799.49	1215.72	4815.01	1216.16
4836.85	1217.3	4851.97	1217.87	4854.64	1217.49	4859.22	1219.29	4864.23	1220.91
4877.46	1221.1	4880.65	1220.14	4883.37	1220.11	4903.95	1214.26	4911.41	1213.24
4918.55	1213.1	4925.46	1211.62	4956.23	1211.09	4969.22	1210.8	4978.54	1210.43
4990.39	1209.8	4996.06	1208.65	5011.88	1208.46	5021	1208.59	5027.04	1209.51
5041.43	1210.9	5056.14	1211.34	5070.74	1211.23	5090.14	1213.44	5100.53	1214.82
5122.64	1220.2	5129.64	1220.81	5141.2	1220.64	5164.66	1218.58	5202.44	1218.63
5212.02	1218.5	5218.59	1218.61	5226.59	1218.42	5231.27	1218.76	5253.01	1218.08
5258.91	1216.3	5269.09	1218.72	5292.12	1219.73	5296.55	1219.25	5321.86	1219.85
5333.47	1220	5367.99	1220.82	5370.98	1220.7	5379.96	1221.62	5392.54	1221.58
5397.79	1218.8	5405.12	1218.37	5410.16	1219.27	5417.86	1221.57	5423.96	1222.48
5429.67	1222.7	5433.72	1222.01	5436.21	1222.21	5458.14	1223.49	5466.93	1224.1
5479.77	1224.1	5518.02	1224.12	5523.24	1223.9	5529.33	1223.15	5540.4	1222.89
5555.85	1223.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4555.85	.04	4877.46	.025	5129.64	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.46	5129.64	499.97	499.97	499.97	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4555.85	4877.46	1224	5129.64	5555.85	1224

Left Levee Station= 4877.46 Elevation= 1221.1
Right Levee Station= 5379.96 Elevation= 1221.62

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1218.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.		0.025	
E.G. Elev (ft)	1218.94	Reach Len. (ft)	499.97	499.97	499.97
Crit W.S. (ft)	1214.98	Flow Area (sq ft)		1504.41	
E.G. Slope (ft/ft)	0.000764	Area (sq ft)		1504.41	18.57
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	251.72	Top Width (ft)		226.01	25.71
Vel Total (ft/s)	5.78	Avg. Vel. (ft/s)		5.78	
Max Chl Dpth (ft)	9.96	Hydr. Depth (ft)		6.66	
Conv. Total (cfs)	314784.2	Conv. (cfs)		314784.2	
Length Wtd. (ft)	499.97	Wetted Per. (ft)		227.76	
Min Ch El (ft)	1208.46	Shear (lb/sq ft)		0.31	
Alpha	1.00	Stream Power (lb/ft s)		1.82	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	0.02	363.04	0.18
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	62.81	0.42

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1219.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.		0.025	
E.G. Elev (ft)	1220.59	Reach Len. (ft)	499.97	499.97	499.97
Crit W.S. (ft)	1215.93	Flow Area (sq ft)		1860.74	
E.G. Slope (ft/ft)	0.000757	Area (sq ft)		1860.74	206.68
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	418.90	Top Width (ft)		237.73	181.17
Vel Total (ft/s)	6.41	Avg. Vel. (ft/s)		6.41	
Max Chl Dpth (ft)	11.50	Hydr. Depth (ft)		7.83	
Conv. Total (cfs)	433378.1	Conv. (cfs)		433378.1	
Length Wtd. (ft)	499.97	Wetted Per. (ft)		239.88	
Min Ch El (ft)	1208.46	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		2.35	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	38.88	450.54	27.91
C & E Loss (ft)	0.00	Cum SA (acres)	20.27	66.20	16.41

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1221.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.		0.025	
E.G. Elev (ft)	1222.32	Reach Len. (ft)	499.97	499.97	499.97
Crit W.S. (ft)	1216.95	Flow Area (sq ft)		2259.96	
E.G. Slope (ft/ft)	0.000750	Area (sq ft)	1841.56	2259.96	569.05
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	823.58	Top Width (ft)	321.61	252.18	249.79
Vel Total (ft/s)	6.98	Avg. Vel. (ft/s)		6.98	
Max Chl Dpth (ft)	13.11	Hydr. Depth (ft)		8.96	
Conv. Total (cfs)	575942.2	Conv. (cfs)		575942.2	
Length Wtd. (ft)	499.97	Wetted Per. (ft)		254.55	
Min Ch El (ft)	1208.46	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		2.90	
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	303.82	544.19	213.11
C & E Loss (ft)	0.00	Cum SA (acres)	92.36	68.37	70.23

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.113

INPUT
Description:
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4515.75	1213.8	4524.51	1213.9	4556.23	1213.97	4573	1213.87	4603.9	1213.9
4619.73	1214.1	4635.55	1214.37	4647.92	1214.39	4663.64	1214.18	4676.71	1214.48

4716.45	1214.7	4761.72	1215.02	4766.45	1215.03	4801.37	1214.73	4835.73	1215.87
4838.98	1215.9	4854.82	1216.8	4864.22	1220.47	4876.78	1220.41	4880.27	1219.37
4882.5	1219.6	4893.84	1216.64	4904.02	1214.06	4914.54	1212.59	4926.7	1210.6
4935.69	1210.4	4960.65	1210.05	4969.25	1209.33	4985.52	1209.49	4992.18	1209.67
5005.64	1208.9	5018.56	1208.81	5021.44	1209.89	5045.54	1210.57	5059.03	1211.4
5079.68	1212	5097.49	1214.54	5103.32	1215.08	5122.34	1219.37	5131.65	1219.71
5142.15	1219.9	5148.16	1217.35	5166.46	1217.4	5193.94	1217.78	5211.24	1218.27
5229.27	1219.7	5246.64	1218.49	5253.15	1216.27	5256.96	1215.78	5259.26	1216.19
5263.72	1218.5	5267.61	1219.1	5280.46	1220.49	5306.66	1221.09	5316.46	1221.14
5370.62	1222	5420.58	1222.87	5466.46	1223.32	5473.86	1223.48	5497.13	1223.64
5499.66	1223.8	5501.62	1223.57	5515.75	1223.28				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4515.75	.04	4876.78	.025	5142.15	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4876.78	5142.15	499.87	499.87	499.87	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4515.75	4876.78	1223	5142.15	5515.75	1223

Left Levee Station= 4876.78 Elevation= 1220.41
Right Levee Station= 5142.15 Elevation= 1219.9

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1218.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.53	Wt. n-Val.		0.025	
E.G. Elev (ft)	1218.55	Reach Len. (ft)	499.87	499.87	499.87
Crit W.S. (ft)	1214.69	Flow Area (sq ft)		1482.97	
E.G. Slope (ft/ft)	0.000809	Area (sq ft)		1482.97	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	227.73	Top Width (ft)		227.73	
Vel Total (ft/s)	5.87	Avg. Vel. (ft/s)		5.87	
Max Chl Dpth (ft)	9.20	Hydr. Depth (ft)		6.51	
Conv. Total (cfs)	305948.0	Conv. (cfs)		305948.0	
Length Wtd. (ft)	499.87	Wetted Per. (ft)		229.32	
Min Ch El (ft)	1208.81	Shear (lb/sq ft)		0.33	
Alpha	1.00	Stream Power (lb/ft s)		1.92	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	0.02	345.90	0.08
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	60.20	0.27

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1219.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.025	
E.G. Elev (ft)	1220.20	Reach Len. (ft)	499.87	499.87	499.87
Crit W.S. (ft)	1215.66	Flow Area (sq ft)		1844.07	
E.G. Slope (ft/ft)	0.000819	Area (sq ft)		1844.07	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	246.97	Top Width (ft)		246.97	
Vel Total (ft/s)	6.46	Avg. Vel. (ft/s)		6.46	
Max Chl Dpth (ft)	10.74	Hydr. Depth (ft)		7.47	
Conv. Total (cfs)	416490.2	Conv. (cfs)		416490.2	
Length Wtd. (ft)	499.87	Wetted Per. (ft)		248.95	
Min Ch El (ft)	1208.81	Shear (lb/sq ft)		0.38	
Alpha	1.00	Stream Power (lb/ft s)		2.45	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	38.88	429.28	26.73
C & E Loss (ft)	0.00	Cum SA (acres)	20.27	63.41	15.37

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1221.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.		0.025	
E.G. Elev (ft)	1221.94	Reach Len. (ft)	499.87	499.87	499.87
Crit W.S. (ft)	1216.68	Flow Area (sq ft)		2274.63	

E.G. Slope (ft/ft)	0.000784	Area (sq ft)	2276.28	2274.63	427.10
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	803.83	Top Width (ft)	361.03	265.37	177.43
Vel Total (ft/s)	6.93	Avg. Vel. (ft/s)		6.93	
Max Chl Dpth (ft)	12.38	Hydr. Depth (ft)		8.57	
Conv. Total (cfs)	563248.1	Conv. (cfs)		563248.1	
Length Wtd. (ft)	499.87	Wetted Per. (ft)		267.49	
Min Ch El (ft)	1208.81	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		2.89	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	280.19	518.16	207.39
C & E Loss (ft)	0.00	Cum SA (acres)	88.45	65.40	67.78

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 2.018

INPUT
Description:
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4381.69	1214.2	4392.87	1214.56	4402.21	1214.41	4410.32	1214.07	4421.56	1214.25
4456.87	1214.3	4465.99	1214.13	4520.81	1214.64	4565.99	1214.73	4568.43	1214.77
4615.99	1214.8	4670.66	1215.13	4715.86	1215.51	4765.37	1215.7	4801.21	1215.59
4811.94	1216.2	4815.57	1215.79	4818.96	1215.83	4838.46	1216.41	4856.97	1216.61
4864.84	1219.4	4873.52	1219.19	4877.2	1219.24	4880.78	1218.33	4882.93	1218.88
4902.67	1214	4921.15	1211.66	4935.01	1210.18	4974.93	1209.92	4985.26	1209.74
4994.82	1209	5020.58	1208.98	5053.15	1210.48	5068.15	1211.22	5075.86	1211.5
5095.03	1212.9	5101.46	1212.77	5120.36	1217.99	5123.66	1219.06	5126.29	1219.34
5135.86	1219	5142.1	1218.89	5146.49	1217.23	5161.11	1218.24	5168.65	1219.76
5189.6	1220.8	5216	1221.53	5266	1221.64	5316	1222.55	5366	1222.79
5381.69	1222.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4381.69	.04	4864.84	.025	5126.29	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4864.84	5126.29	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4381.69	4864.84	1223	5126.29	5381.69	1223

Left Levee Station= 4864.84 Elevation= 1219.4
Right Levee Station= 5126.29 Elevation= 1219.34

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1217.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.		0.025	
E.G. Elev (ft)	1218.13	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1214.47	Flow Area (sq ft)		1467.46	
E.G. Slope (ft/ft)	0.000851	Area (sq ft)		1467.46	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	230.72	Top Width (ft)		230.72	
Vel Total (ft/s)	5.93	Avg. Vel. (ft/s)		5.93	
Max Chl Dpth (ft)	8.60	Hydr. Depth (ft)		6.36	
Conv. Total (cfs)	298164.2	Conv. (cfs)		298164.2	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		232.17	
Min Ch El (ft)	1208.98	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		1.99	
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	0.02	328.97	0.08
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	57.57	0.27

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1219.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.025	
E.G. Elev (ft)	1219.79	Reach Len. (ft)	500.00	500.00	500.00

Crit W.S. (ft)	1215.39	Flow Area (sq ft)		1836.17	
E.G. Slope (ft/ft)	0.000830	Area (sq ft)		1836.17	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	246.73	Top Width (ft)		246.73	
Vel Total (ft/s)	6.49	Avg. Vel. (ft/s)		6.49	
Max Chl Dpth (ft)	10.15	Hydr. Depth (ft)		7.44	
Conv. Total (cfs)	413751.3	Conv. (cfs)		413751.3	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		248.75	
Min Ch El (ft)	1208.98	Shear (lb/sq ft)		0.38	
Alpha	1.00	Stream Power (lb/ft s)		2.48	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	38.88	408.16	26.73
C & E Loss (ft)	0.00	Cum SA (acres)	20.27	60.58	15.37

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1220.80	Element			
Vel Head (ft)	0.75	Wt. n-Val.		0.025	
E.G. Elev (ft)	1221.55	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1216.38	Flow Area (sq ft)		2268.75	
E.G. Slope (ft/ft)	0.000775	Area (sq ft)	2764.03	2268.75	108.20
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	807.82	Top Width (ft)	483.15	261.45	63.22
Vel Total (ft/s)	6.95	Avg. Vel. (ft/s)		6.95	
Max Chl Dpth (ft)	11.82	Hydr. Depth (ft)		8.68	
Conv. Total (cfs)	566487.4	Conv. (cfs)		566487.4	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		263.49	
Min Ch El (ft)	1208.98	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		2.90	
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	251.27	492.09	204.32
C & E Loss (ft)	0.00	Cum SA (acres)	83.60	62.38	66.40

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 1.924

INPUT
Description:
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4381.69	1216.2	4401.99	1215.85	4412.23	1215.43	4428.98	1215.35	4441.07	1215.62
4455.5	1215.8	4460.87	1215.55	4472.88	1216.31	4477.75	1216.27	4485.31	1216.5
4510.75	1216.6	4515.53	1216.56	4532.05	1217.01	4546.65	1217.65	4565.11	1217.77
4576.92	1217.5	4580.55	1217.57	4593.11	1217.08	4618.63	1216.71	4624.81	1216.49
4656.45	1215.7	4686.12	1216.04	4693.83	1215.83	4708.37	1215.3	4736.74	1215.42
4765.53	1215.6	4789.14	1215.87	4801.21	1216.43	4810.91	1216.75	4817.16	1216.63
4840.47	1216.9	4850.71	1216.87	4857.86	1216.37	4865.29	1218.57	4876.94	1218.62
4880.06	1217.7	4885.84	1217.81	4905.48	1212.84	4909.08	1212.05	4916.79	1210.92
4932.55	1209.8	4956.79	1209.63	4971.45	1209.53	4990.28	1208.55	5004.26	1208
5015.19	1208.5	5023.9	1210.03	5035.62	1210.26	5047.16	1210.19	5057.32	1209.95
5080.72	1210.7	5093.36	1213.03	5102.54	1213.22	5121.97	1217.54	5129.02	1218.86
5132.37	1218.9	5142.74	1218.46	5146.92	1217.02	5166.03	1216.7	5186.93	1219.1
5219.7	1219	5265.54	1219.03	5315.54	1219.02	5337.41	1218.99	5365.54	1218.4
5381.69	1218.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4381.69	.04	4876.94	.025	5132.37	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4876.94	5132.37	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4381.69	4876.94	1222	5132.37	5381.69	1222

Left Levee Station= 4876.94 Elevation= 1218.62
Right Levee Station= 5186.93 Elevation= 1219.1

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1217.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.54	Wt. n-Val.		0.025	
E.G. Elev (ft)	1217.70	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1214.00	Flow Area (sq ft)		1473.32	
E.G. Slope (ft/ft)	0.000846	Area (sq ft)		1473.32	6.74
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	255.43	Top Width (ft)		231.87	23.55
Vel Total (ft/s)	5.91	Avg. Vel. (ft/s)		5.91	
Max Chl Dpth (ft)	9.16	Hydr. Depth (ft)		6.35	
Conv. Total (cfs)	299043.7	Conv. (cfs)		299043.7	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		233.47	
Min Ch El (ft)	1208.00	Shear (lb/sq ft)		0.33	
Alpha	1.00	Stream Power (lb/ft s)		1.97	
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	0.02	312.09	0.04
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	54.92	0.14

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1218.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.		0.025	
E.G. Elev (ft)	1219.37	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1214.92	Flow Area (sq ft)		1853.08	
E.G. Slope (ft/ft)	0.000825	Area (sq ft)	1186.39	1853.08	58.60
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	793.91	Top Width (ft)	495.25	251.38	47.28
Vel Total (ft/s)	6.43	Avg. Vel. (ft/s)		6.43	
Max Chl Dpth (ft)	10.73	Hydr. Depth (ft)		7.37	
Conv. Total (cfs)	415029.5	Conv. (cfs)		415029.5	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		253.34	
Min Ch El (ft)	1208.00	Shear (lb/sq ft)		0.38	
Alpha	1.00	Stream Power (lb/ft s)		2.42	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	32.07	386.99	26.39
C & E Loss (ft)	0.00	Cum SA (acres)	17.43	57.72	15.10

Warning - Divided flow computed for this cross-section.
Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1220.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.74	Wt. n-Val.		0.025	
E.G. Elev (ft)	1221.17	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1215.91	Flow Area (sq ft)		2286.49	
E.G. Slope (ft/ft)	0.000732	Area (sq ft)	2027.81	2286.49	442.12
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.00	Top Width (ft)	495.25	255.43	249.32
Vel Total (ft/s)	6.90	Avg. Vel. (ft/s)		6.90	
Max Chl Dpth (ft)	12.43	Hydr. Depth (ft)		8.95	
Conv. Total (cfs)	582903.7	Conv. (cfs)		582903.7	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		257.40	
Min Ch El (ft)	1208.00	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		2.80	
Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	223.77	465.95	201.16
C & E Loss (ft)	0.00	Cum SA (acres)	77.99	59.41	64.60

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 1.829

INPUT
Description:
Station Elevation Data num= 62

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

4381.69	1216.3	4385.18	1216.77	4412.86	1216.65	4416.13	1216.55	4433.67	1216.67
4443.77	1216.6	4447.85	1216.74	4465.08	1216.5	4515.08	1215.71	4520.61	1215.53
4536.9	1215.5	4546.04	1215.02	4568.41	1215.21	4615.08	1215.24	4710.43	1215.24
4719.72	1215.3	4765.08	1215.28	4778.37	1215.43	4794.58	1215.72	4800.84	1216.1
4810.77	1215.7	4817.36	1216.09	4838.75	1216	4852.62	1215.58	4858.27	1215.65
4864.11	1217.7	4877.14	1217.88	4880.82	1216.97	4885.16	1216.69	4902.76	1212.29
4909.25	1211.7	4926.38	1209.98	4947.87	1209.78	4978.91	1209.65	4982.31	1209.58
4989.55	1208.4	5006.17	1207.54	5022.16	1207.92	5031.5	1209.26	5043.77	1209.72
5075.81	1210	5080.72	1209.88	5092.34	1212.47	5102.83	1212.73	5124.14	1217.3
5128.75	1218.1	5142.45	1217.47	5147.9	1215.46	5174.31	1215.81	5214.68	1215.78
5223.44	1216.1	5234.56	1215.66	5265.07	1215.86	5290.39	1216.43	5305.43	1217.86
5316.54	1217.5	5335.92	1216.61	5344.17	1216.48	5359.07	1216.75	5366.37	1217.22
5373.96	1216.9	5381.69	1216.99						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4381.69	.04	4877.14	.025	5128.75	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.14	5128.75	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4381.69	4877.14	1222	5128.75	5381.69	1222

Left Levee Station= 4877.14 Elevation= 1217.88
Right Levee Station= 5128.75 Elevation= 1218.1

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1216.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.		0.025	
E.G. Elev (ft)	1217.27	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1213.69	Flow Area (sq ft)		1468.37	
E.G. Slope (ft/ft)	0.000880	Area (sq ft)		1468.37	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	236.87	Top Width (ft)		236.87	
Vel Total (ft/s)	5.92	Avg. Vel. (ft/s)		5.92	
Max Chl Dpth (ft)	9.19	Hydr. Depth (ft)		6.20	
Conv. Total (cfs)	293196.8	Conv. (cfs)		293196.8	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		238.47	
Min Ch El (ft)	1207.54	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		2.01	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	0.02	295.21	
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	52.23	

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1218.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.		0.025	
E.G. Elev (ft)	1218.96	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1214.60	Flow Area (sq ft)		1861.91	
E.G. Slope (ft/ft)	0.000812	Area (sq ft)	1270.61	1861.91	491.58
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	1000.00	Top Width (ft)	495.45	251.61	252.94
Vel Total (ft/s)	6.40	Avg. Vel. (ft/s)		6.40	
Max Chl Dpth (ft)	10.78	Hydr. Depth (ft)		7.40	
Conv. Total (cfs)	418199.5	Conv. (cfs)		418199.5	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		253.46	
Min Ch El (ft)	1207.54	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		2.39	
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	17.97	365.67	23.23
C & E Loss (ft)	0.03	Cum SA (acres)	11.74	54.84	13.38

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1220.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.73	Wt. n-Val.		0.025	

E.G. Elev (ft)	1220.81	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1215.57	Flow Area (sq ft)		2303.15	
E.G. Slope (ft/ft)	0.000700	Area (sq ft)	2139.46	2303.15	935.15
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.00	Top Width (ft)	495.45	251.61	252.94
Vel Total (ft/s)	6.85	Avg. Vel. (ft/s)		6.85	
Max Chl Dpth (ft)	12.54	Hydr. Depth (ft)		9.15	
Conv. Total (cfs)	596104.4	Conv. (cfs)		596104.4	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		253.46	
Min Ch El (ft)	1207.54	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		2.72	
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	199.85	439.61	193.25
C & E Loss (ft)	0.09	Cum SA (acres)	72.30	56.50	61.72

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 1.734

INPUT
Description: SR 587 Bridge Upstream Ineffective Area on Overbank Areas
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4381.69	1214.8	4402.73	1214.77	4420.15	1214.86	4450.7	1214.65	4481.36	1217.28
4614.6	1217.3	4659.9	1217.62	4714.6	1217.52	4759.99	1216.81	4807.77	1216.48
4821.79	1216.3	4829.2	1216.45	4838.13	1213.28	4846.64	1216.14	4858.24	1215.61
4864.68	1217.1	4873.26	1217.17	4879.52	1216.38	4884.07	1216.08	4901.29	1212.13
4913.16	1211	4920.2	1210.23	4929.78	1208.91	4960.41	1209.38	4978.43	1208.93
4983.51	1208.3	4994.49	1208.14	5006.06	1208.48	5028.21	1209.23	5038.19	1209.38
5054.13	1209	5079.62	1209.44	5089.64	1211.25	5103.08	1212.17	5121.58	1216.34
5124.19	1216.2	5129.02	1217.49	5131.9	1217.17	5142.45	1216.72	5146.92	1215.15
5166.68	1214.7	5181.67	1214.93	5211.9	1215.45	5224.23	1215.36	5239.39	1215.38
5256.58	1214.7	5268.99	1215.05	5318.8	1215.67	5343.69	1216.1	5366.79	1216.05
5381.69	1215.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4381.69	.04	4873.26	.025	5129.02	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4873.26	5129.02	217.56	217.56	217.56	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4381.69	4659.9	1222	5343.69	5381.69	1222

Left Levee Station= 4659.9 Elevation= 1217.62
Right Levee Station= 5129.02 Elevation= 1217.49
Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4381.69	4864.5	1216.6	5142.5	5381.69	1216.5

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1216.25	Element			
Vel Head (ft)	0.57	Wt. n-Val.		0.025	
E.G. Elev (ft)	1216.81	Reach Len. (ft)	217.56	217.56	217.56
Crit W.S. (ft)	1213.35	Flow Area (sq ft)		1441.74	
E.G. Slope (ft/ft)	0.000954	Area (sq ft)		1441.74	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	240.64	Top Width (ft)		240.64	
Vel Total (ft/s)	6.03	Avg. Vel. (ft/s)		6.03	
Max Chl Dpth (ft)	8.11	Hydr. Depth (ft)		5.99	
Conv. Total (cfs)	281607.7	Conv. (cfs)		281607.7	
Length Wtd. (ft)	217.56	Wetted Per. (ft)		242.01	
Min Ch El (ft)	1208.14	Shear (lb/sq ft)		0.35	
Alpha	1.00	Stream Power (lb/ft s)		2.14	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.02	278.51	
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	49.49	

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1218.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.53	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1218.55	Reach Len. (ft)	217.56	217.56	217.56
Crit W.S. (ft)	1214.27	Flow Area (sq ft)	216.10	1889.21	319.31
E.G. Slope (ft/ft)	0.000709	Area (sq ft)	477.78	1889.21	377.09
Q Total (cfs)	11920.00	Flow (cfs)	215.54	11293.01	411.46
Top Width (ft)	1000.00	Top Width (ft)	491.57	255.76	252.67
Vel Total (ft/s)	4.92	Avg. Vel. (ft/s)	1.00	5.98	1.29
Max Chl Dpth (ft)	9.88	Hydr. Depth (ft)	1.01	7.39	1.49
Conv. Total (cfs)	447674.4	Conv. (cfs)	8094.8	424126.7	15452.9
Length Wtd. (ft)	217.56	Wetted Per. (ft)	213.42	257.36	214.73
Min Ch El (ft)	1208.14	Shear (lb/sq ft)	0.04	0.32	0.07
Alpha	1.40	Stream Power (lb/ft s)	0.04	1.94	0.08
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	7.94	344.14	18.25
C & E Loss (ft)	0.02	Cum SA (acres)	6.08	51.92	10.47

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1220.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1220.43	Reach Len. (ft)	217.56	217.56	217.56
Crit W.S. (ft)	1215.25	Flow Area (sq ft)	642.59	2400.45	748.41
E.G. Slope (ft/ft)	0.000447	Area (sq ft)	1460.38	2400.45	882.16
Q Total (cfs)	15770.00	Flow (cfs)	1052.35	13366.41	1351.24
Top Width (ft)	1000.00	Top Width (ft)	491.57	255.76	252.67
Vel Total (ft/s)	4.16	Avg. Vel. (ft/s)	1.64	5.57	1.81
Max Chl Dpth (ft)	11.88	Hydr. Depth (ft)	3.01	9.39	3.49
Conv. Total (cfs)	745874.9	Conv. (cfs)	49773.1	632192.3	63909.5
Length Wtd. (ft)	217.56	Wetted Per. (ft)	213.42	257.36	214.73
Min Ch El (ft)	1208.14	Shear (lb/sq ft)	0.08	0.26	0.10
Alpha	1.55	Stream Power (lb/ft s)	0.14	1.45	0.18
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	179.19	412.61	182.82
C & E Loss (ft)	0.02	Cum SA (acres)	66.64	53.59	58.82

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 1.693

INPUT
Description: SR 587 Bridge Upstream Ineffective Area on Overbank Areas
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4382.97	1215.3	4396	1215.55	4415.1	1214.84	4424.29	1214.94	4453.24	1215.17
4478.42	1217	4514.39	1217.32	4564.4	1217.24	4642.12	1217.22	4664.4	1217.09
4714.4	1217.1	4742.21	1216.88	4764.4	1216.64	4795.1	1216	4804.8	1215.87
4812.51	1216	4822.37	1215.76	4829.26	1215.39	4837.47	1213.12	4841.09	1214.46
4845.98	1215.9	4858.86	1215.29	4864.37	1216.62	4877.18	1217.03	4879.87	1215.98
4884.26	1215.7	4898.41	1211.93	4912.04	1210.23	4933.1	1208.87	4969.55	1208.99
4980.23	1208.4	5012.05	1208.6	5023.82	1208.97	5049.88	1208.98	5061.9	1209.06
5078.93	1209.3	5091.55	1211.4	5102.79	1211.52	5106.29	1212.38	5121.38	1215.57
5128.98	1216.7	5141.73	1216.16	5146.8	1214.73	5166.23	1214.38	5190.88	1214.17
5214.39	1214.4	5242.68	1214.45	5264.39	1214.36	5336.03	1214.64	5364.39	1214.84
5382.97	1215								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4382.97	.04	4877.18	.025	5128.98	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.18	5128.98	234.54	234.54	234.54	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4382.97	4643	1221	5352	5382.97	1221

Left Levee Station= 4877.18 Elevation= 1217.03
Right Levee Station= 5128.98 Elevation= 1216.7
Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4382.97	4864.3	1216	5142	5382.97	1215.7

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1216.05	Element			
Vel Head (ft)	0.55	Wt. n-Val.		0.025	
E.G. Elev (ft)	1216.60	Reach Len. (ft)	234.54	234.54	234.54
Crit W.S. (ft)	1213.17	Flow Area (sq ft)		1456.14	
E.G. Slope (ft/ft)	0.000945	Area (sq ft)		1456.14	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	244.89	Top Width (ft)		244.89	
Vel Total (ft/s)	5.97	Avg. Vel. (ft/s)		5.97	
Max Chl Dpth (ft)	7.65	Hydr. Depth (ft)		5.95	
Conv. Total (cfs)	283031.3	Conv. (cfs)		283031.3	
Length Wtd. (ft)	234.54	Wetted Per. (ft)		246.23	
Min Ch El (ft)	1208.40	Shear (lb/sq ft)		0.35	
Alpha	1.00	Stream Power (lb/ft s)		2.08	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	0.02	271.27	
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	48.27	

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1217.93	Element			
Vel Head (ft)	0.45	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1218.38	Reach Len. (ft)	234.54	234.54	234.54
Crit W.S. (ft)	1214.07	Flow Area (sq ft)	307.93	1928.60	488.57
E.G. Slope (ft/ft)	0.000597	Area (sq ft)	601.57	1928.60	557.76
Q Total (cfs)	11920.00	Flow (cfs)	335.34	10836.88	747.78
Top Width (ft)	1000.00	Top Width (ft)	494.21	251.80	253.99
Vel Total (ft/s)	4.37	Avg. Vel. (ft/s)	1.09	5.62	1.53
Max Chl Dpth (ft)	9.53	Hydr. Depth (ft)	1.31	7.66	2.19
Conv. Total (cfs)	487897.8	Conv. (cfs)	13725.9	443564.8	30607.2
Length Wtd. (ft)	234.54	Wetted Per. (ft)	234.27	253.37	223.10
Min Ch El (ft)	1208.40	Shear (lb/sq ft)	0.05	0.28	0.08
Alpha	1.51	Stream Power (lb/ft s)	0.05	1.59	0.12
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	5.24	334.61	15.91
C & E Loss (ft)	0.05	Cum SA (acres)	3.61	50.66	9.21

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1219.98	Element			
Vel Head (ft)	0.35	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1220.33	Reach Len. (ft)	234.54	234.54	234.54
Crit W.S. (ft)	1215.03	Flow Area (sq ft)	786.27	2442.93	944.11
E.G. Slope (ft/ft)	0.000374	Area (sq ft)	1611.04	2442.93	1076.57
Q Total (cfs)	15770.00	Flow (cfs)	1266.92	12727.57	1775.51
Top Width (ft)	1000.00	Top Width (ft)	494.21	251.80	253.99
Vel Total (ft/s)	3.78	Avg. Vel. (ft/s)	1.61	5.21	1.88
Max Chl Dpth (ft)	11.58	Hydr. Depth (ft)	3.36	9.70	4.23
Conv. Total (cfs)	814998.4	Conv. (cfs)	65474.6	657764.7	91759.1
Length Wtd. (ft)	234.54	Wetted Per. (ft)	234.27	253.37	223.10
Min Ch El (ft)	1208.40	Shear (lb/sq ft)	0.08	0.23	0.10
Alpha	1.58	Stream Power (lb/ft s)	0.13	1.17	0.19
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	171.52	400.52	177.93
C & E Loss (ft)	0.11	Cum SA (acres)	64.17	52.32	57.55

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.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 1.649

INPUT
Description: SR 587 Bridge, Upstream Face
8 Span Bridge with Riprap
Protection
Use Field Survey Data for This Cross Section
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4383.34	1215	4502.42	1215.08	4525.84	1215	4601.96	1215.21	4622.04	1215.33
4692.82	1215.9	4760.51	1216.45	4834.05	1216.3	4882.32	1216.98	4889.5	1214.48
4899.46	1210.5	4912.93	1209.83	4914.9	1209.09	4926.33	1210	4942.95	1208.87
4972.9	1208.44	5003.01	1208.48	5033.7	1209.02	5064	1208.8	5093.68	1209.09
5099.29	1209.23	5117.12	1215.18	5122.16	1217.36	5177.08	1217.15	5203.58	1216.58
5232.4	1216.45	5242.91	1216.59	5282.25	1216.49	5293.51	1216.5	5304.73	1216.46
5339.34	1216.41	5352.67	1216.36	5386.74	1216.51				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4383.34	.04	4882.32	.03	5122.16	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4882.32	5122.16	47.26	47.26	47.26	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4383.34	4882.32	1222	5122.16	5386.74	1222

Left Levee Station= 4882.32 Elevation= 1216.98
Right Levee Station= 5122.16 Elevation= 1217.36

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1215.80	Element			
Vel Head (ft)	0.55	Wt. n-Val.		0.030	
E.G. Elev (ft)	1216.34	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)	1212.83	Flow Area (sq ft)		1465.80	
E.G. Slope (ft/ft)	0.001252	Area (sq ft)		1465.80	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	232.83	Top Width (ft)		232.83	
Vel Total (ft/s)	5.94	Avg. Vel. (ft/s)		5.94	
Max Chl Dpth (ft)	7.36	Hydr. Depth (ft)		6.30	
Conv. Total (cfs)	245906.3	Conv. (cfs)		245906.3	
Length Wtd. (ft)	0.00	Wetted Per. (ft)		235.15	
Min Ch El (ft)	1208.44	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		2.89	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.02	263.41	
C & E Loss (ft)		Cum SA (acres)	0.09	46.99	

Warning - The conveyance ratio (upstream 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 OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1217.51	Element			
Vel Head (ft)	0.63	Wt. n-Val.		0.030	
E.G. Elev (ft)	1218.14	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)	1213.71	Flow Area (sq ft)		1872.66	
E.G. Slope (ft/ft)	0.001083	Area (sq ft)	931.70	1872.66	221.06
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	1003.40	Top Width (ft)	498.98	239.84	264.58
Vel Total (ft/s)	6.37	Avg. Vel. (ft/s)		6.37	
Max Chl Dpth (ft)	9.07	Hydr. Depth (ft)		7.81	
Conv. Total (cfs)	362198.0	Conv. (cfs)		362198.0	
Length Wtd. (ft)	0.00	Wetted Per. (ft)		242.68	
Min Ch El (ft)	1208.44	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		3.32	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.12	324.37	13.82
C & E Loss (ft)	0.17	Cum SA (acres)	0.94	49.33	7.81

Warning - The cross-section end points had to be extended vertically for the computed water surface.
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.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1219.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.72	Wt. n-Val.		0.030	
E.G. Elev (ft)	1220.08	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)	1214.66	Flow Area (sq ft)		2316.25	
E.G. Slope (ft/ft)	0.000933	Area (sq ft)	1854.55	2316.25	710.40
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1003.40	Top Width (ft)	498.98	239.84	264.58
Vel Total (ft/s)	6.81	Avg. Vel. (ft/s)		6.81	
Max Chl Dpth (ft)	10.92	Hydr. Depth (ft)		9.66	
Conv. Total (cfs)	516203.2	Conv. (cfs)		516203.2	
Length Wtd. (ft)	0.00	Wetted Per. (ft)		242.68	
Min Ch El (ft)	1208.44	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		3.79	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	162.19	387.71	173.12
C & E Loss (ft)	0.29	Cum SA (acres)	61.50	51.00	56.16

Warning - The cross-section end points had to be extended vertically for the computed water surface.
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.

BRIDGE RIVER: EMF
REACH: Reach 1 RS: 1.644

INPUT
Description: SR 587 8-Span Bridge
Enlongated Piers with Semi-Circular Ends
Distance from Upstream XS = 0
Deck/Roadway Width = 47.26
Weir Coefficient = 2.6
Bridge Deck/Roadway Skew =
Upstream Deck/Roadway Coordinates
num= 50

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
4383.34	1215	1215	4530.68	1215.86	1215	4584.99	1215.94	1215
4655.78	1216.2	1215.2	4709.84	1216.49	1216	4762.54	1216.88	1216
4818.51	1217.13	1216	4825.11	1217.2	1216	4873.91	1217.32	1216.2
4888.22	1217.26	1214.53	4889.5	1217.26	1214.48	4889.501	1217.26	1214.48
4890.86	1217.26	1215.47	4907.65	1217.29	1215.54	4912.28	1217.3	1215.55
4915.8	1217.3	1215.56	4918.1	1217.31	1215.56	4918.57	1217.31	1215.56
4932.2	1217.33	1215.61	4934.8	1217.33	1215.62	4937.64	1217.33	1215.63
4948.11	1217.35	1215.64	4967.64	1217.38	1215.68	4978.13	1217.39	1215.71
4997.58	1217.42	1215.72	5006.69	1217.44	1215.73	5007.75	1217.44	1215.73
5008.06	1217.44	1215.73	5027.6	1217.48	1215.78	5038.03	1217.5	1215.77
5057.59	1217.54	1215.8	5068.05	1217.56	1215.77	5087.6	1217.58	1215.78
5089.36	1217.6	1215.78	5091.48	1217.59	1215.78	5096.72	1217.6	1215.79
5098.02	1217.6	1215.79	5098.99	1217.6	1215.79	5105.24	1217.62	1215.79
5107.1	1217.62	1215.8	5114.43	1217.66	1215.81	5117.09	1217.69	1215.81
5117.091	1217.69	1215.18	5167.31	1217.68	1216.68	5212.64	1217.52	1216.52
5222.21	1217.45		5274.83	1217.19		5329.72	1217.28	
5385.16	1217.39		5453.5	1217.42				

Upstream Bridge Cross Section Data
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4383.34	1215	4502.42	1215.08	4525.84	1215	4601.96	1215.21	4622.04	1215.33
4692.82	1215.9	4760.51	1216.45	4834.05	1216.3	4882.32	1216.98	4889.5	1214.48
4899.46	1210.5	4912.93	1209.83	4914.9	1209.09	4926.33	1210	4942.95	1208.87

```
  4972.9 1208.44 5003.01 1208.48  5033.7 1209.02    5064  1208.8 5093.68 1209.09
 5099.29 1209.23 5117.12 1215.18 5122.16 1217.36 5177.08 1217.15 5203.58 1216.58
  5232.4 1216.45 5242.91 1216.59 5282.25 1216.49 5293.51  1216.5 5304.73 1216.46
 5339.34 1216.41 5352.67 1216.36 5386.74 1216.51

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4383.34     .04 4882.32     .03 5122.16     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
       4882.32 5122.16             .3        .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4383.34 4882.32    1222 5122.16 5386.74    1222
Left Levee      Station= 4882.32      Elevation= 1216.98
Right Levee     Station= 5122.16      Elevation= 1217.36

Downstream  Deck/Roadway Coordinates
    num=      52
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
 4383.34    1215    1214 4530.68 1215.86    1214 4584.99 1215.94    1215
 4655.78  1216.2    1215 4709.84 1216.49    1215 4762.54 1216.88    1215
 4818.51 1217.13    1216 4825.11  1217.2    1216 4873.91 1217.32 1216.32
 4882.25 1217.28 1216.77 4888.22 1217.26 1214.89 4889.35 1217.26 1214.85
4889.351 1217.26 1214.85 4890.86 1217.26 1215.49  4907.4 1217.29 1215.53
 4912.28  1217.3 1215.54  4915.8  1217.3 1215.55 4917.85 1217.31 1215.55
 4918.57 1217.31 1215.55  4932.2 1217.33 1215.62  4934.8 1217.33 1215.63
 4937.38 1217.33 1215.64 4947.89 1217.35 1215.63 4967.36 1217.38 1215.69
 4997.39 1217.43 1215.74 5006.69 1217.44 1215.74 5007.75 1217.44 1215.74
 5007.89 1217.44 1215.74 5027.37 1217.48 1215.78 5037.82  1217.5 1215.77
 5057.42 1217.55  1215.8 5067.84 1217.56  1215.8 5087.37  1217.6 1215.82
 5089.36  1217.6 1215.82 5091.48  1217.6 1215.82 5096.72  1217.6 1215.81
 5097.87  1217.6 1215.81 5098.99  1217.6 1215.81 5105.24 1217.62  1215.8
  5107.1 1217.62  1215.8 5114.43 1217.66 1215.79    5116 1217.68 1215.79
5116.001 1217.69 1213.96 5117.09 1217.69 1214.04 5124.68 1217.68 1217.36
 5167.31 1217.68 1216.68 5212.64 1217.52 1216.52 5222.21 1217.45
 5274.83 1217.19         5329.72 1217.28         5385.16 1217.39
  5453.5 1217.42

Downstream Bridge Cross Section Data
Station Elevation Data    num=      35
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 4382.54  1214.9 4390.09 1214.82 4449.37 1214.86 4469.38 1214.86 4543.29 1215.04
 4560.14  1215.1 4652.59 1215.25 4710.53  1215.6 4761.16 1215.96 4836.34 1216.76
 4882.25 1216.77 4889.35 1214.85 4899.53 1210.56  4912.8 1209.52  4927.4 1209.68
 4936.16 1208.53  4942.8 1208.98 4972.77 1208.16 5002.87 1208.16 5032.86 1208.25
 5062.86 1208.92 5092.76 1208.58 5104.56 1210.21  5116.2 1213.96 5124.68 1217.36
 5169.43 1217.26 5175.71 1217.06 5179.73 1216.98 5229.28 1216.81 5241.65  1216.8
 5286.69 1216.43 5305.76 1216.54 5347.46 1216.63 5357.59 1216.59 5384.94  1216.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4382.54     .04 4882.25     .03 5124.68     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
       4882.25 5124.68             .3        .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4382.54 4882.25    1220 5124.68 5384.94    1220
Left Levee      Station= 4882.25      Elevation= 1216.77
Right Levee     Station= 5124.68      Elevation= 1217.36

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         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested
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Number of Piers =  7

Pier Data
Pier Station      Upstream= 4912.88    Downstream= 4912.63
Upstream      num=        5
    Width   Elev    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5 1208.83     1.5 1214.58    2.53 1214.58    2.53 1215.21   10.45 1215.54
Downstream      num=        5
    Width   Elev    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5 1208.52     1.5  1214.6    2.51  1214.6    2.51 1215.22   10.45 1215.55

Pier Data
Pier Station      Upstream= 4942.88    Downstream= 4942.64
Upstream      num=        5
    Width   Elev    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5 1207.87     1.5 1214.65     2.51214.651     2.5 1215.29   10.47 1215.63
Downstream      num=        5
    Width   Elev    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5 1207.98     1.5 1214.65    2.541214.651    2.54  1215.3   10.51 1215.63

Pier Data
Pier Station      Upstream= 4972.89    Downstream= 4972.61
Upstream      num=        5
    Width   Elev    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5 1207.44     1.5 1214.69    2.521214.691    2.52 1215.35   10.49 1215.68
Downstream      num=        5
    Width   Elev    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5 1207.16     1.5 1214.74     2.51214.741     2.5 1215.37    10.5 1215.69

Pier Data
Pier Station      Upstream= 5002.82    Downstream= 5002.64
Upstream      num=        5
    Width   Elev    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5 1207.48     1.5 1214.75    2.541214.751    2.54 1215.41   10.48 1215.72
Downstream      num=        5
    Width   Elev    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5 1207.16     1.5 1214.73    2.521214.731    2.52  1215.4    10.5 1215.74

Pier Data
Pier Station      Upstream= 5032.82    Downstream=  5032.6
Upstream      num=        5
    Width   Elev    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5 1208.02     1.5 1214.81    2.521214.811    2.52 1215.45   10.43 1215.77
Downstream      num=        5
    Width   Elev    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5 1207.25     1.5 1214.81    2.491214.811    2.49 1215.45   10.45 1215.77

Pier Data
Pier Station      Upstream= 5062.84    Downstream= 5062.63
Upstream      num=        5
    Width   Elev    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5  1207.8     1.5 1214.81    2.491214.811    2.49 1215.45   10.46 1215.77
Downstream      num=        5
    Width   Elev    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5 1207.92     1.5  1214.8     2.51214.801     2.5 1215.43   10.42 1215.79

Pier Data
Pier Station      Upstream= 5092.81    Downstream= 5092.62
Upstream      num=        5
    Width   Elev    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5 1208.09     1.5 1214.75    2.481214.751    2.48 1215.38   10.42 1215.78
Downstream      num=        5
    Width   Elev    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5 1207.58     1.5 1214.79    2.521214.791    2.52 1215.44    10.5 1215.81

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum                Cd    =    1.33
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       Yarnell                  KVal =       .9
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the downstream end
       Criteria to check for pressure flow = Upstream water surface

CROSS SECTION           RIVER: EMF
REACH: Reach 1             RS: 1.64

INPUT
Description: SR 587 Bridge, Downstream Face
8 Span Bridge with Riprap
             Protection
Use Field Survey Data for This Cross Section
Station Elevation Data    num=      35
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 4382.54  1214.9 4390.09 1214.82 4449.37 1214.86 4469.38 1214.86 4543.29 1215.04
 4560.14  1215.1 4652.59 1215.25 4710.53  1215.6 4761.16 1215.96 4836.34 1216.76
 4882.25 1216.77 4889.35 1214.85 4899.53 1210.56  4912.8 1209.52  4927.4 1209.68
 4936.16 1208.53  4942.8 1208.98 4972.77 1208.16 5002.87 1208.16 5032.86 1208.25
 5062.86 1208.92 5092.76 1208.58 5104.56 1210.21  5116.2 1213.96 5124.68 1217.36
 5169.43 1217.26 5175.71 1217.06 5179.73 1216.98 5229.28 1216.81 5241.65  1216.8
 5286.69 1216.43 5305.76 1216.54 5347.46 1216.63 5357.59 1216.59 5384.94  1216.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4382.54     .04 4882.25     .03 5124.68     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       4882.25 5124.68           500.72  500.72  500.72             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4382.54 4882.25    1220 5124.68 5384.94    1220
Left Levee      Station= 4882.25      Elevation= 1216.77
Right Levee     Station= 5124.68      Elevation= 1217.36

CROSS SECTION OUTPUT    Profile #Design

  W.S. Elev (ft)          1215.28   Element                  Left OB    Channel   Right OB
  Vel Head (ft)              0.59   Wt. n-Val.                           0.030
  E.G. Elev (ft)          1215.87   Reach Len. (ft)          500.72     500.72     500.72
  Crit W.S. (ft)          1212.56   Flow Area (sq ft)                  1408.93
  E.G. Slope (ft/ft)     0.001417   Area (sq ft)                       1408.93
  Q Total (cfs)           8700.00   Flow (cfs)                         8700.00
  Top Width (ft)           231.73   Top Width (ft)                      231.73
  Vel Total (ft/s)           6.17   Avg. Vel. (ft/s)                      6.17
  Max Chl Dpth (ft)          7.12   Hydr. Depth (ft)                      6.08
  Conv. Total (cfs)      231120.3   Conv. (cfs)                       231120.3
  Length Wtd. (ft)         500.72   Wetted Per. (ft)                    233.77
  Min Ch El (ft)          1208.16   Shear (lb/sq ft)                      0.53
  Alpha                      1.00   Stream Power (lb/ft s)                3.29
  Frctn Loss (ft)            0.55   Cum Volume (acre-ft)        0.02    261.97
  C & E Loss (ft)            0.03   Cum SA (acres)              0.09     46.80


CROSS SECTION OUTPUT    Profile #Future

  W.S. Elev (ft)          1216.60   Element                  Left OB    Channel   Right OB
  Vel Head (ft)              0.75   Wt. n-Val.                           0.030
  E.G. Elev (ft)          1217.34   Reach Len. (ft)          500.72     500.72     500.72
  Crit W.S. (ft)          1213.43   Flow Area (sq ft)                  1719.09
  E.G. Slope (ft/ft)     0.001438   Area (sq ft)                       1719.09
  Q Total (cfs)          11920.00   Flow (cfs)                        11920.00
```

Top Width (ft)	239.88	Top Width (ft)		239.88	
Vel Total (ft/s)	6.93	Avg. Vel. (ft/s)		6.93	
Max Chl Dpth (ft)	8.44	Hydr. Depth (ft)		7.17	
Conv. Total (cfs)	314357.4	Conv. (cfs)		314357.4	
Length Wtd. (ft)	500.72	Wetted Per. (ft)		242.34	
Min Ch El (ft)	1208.16	Shear (lb/sq ft)		0.64	
Alpha	1.00	Stream Power (lb/ft s)		4.42	
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	1.12	322.87	13.82
C & E Loss (ft)	0.05	Cum SA (acres)	0.94	49.33	7.81

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1217.49	Element			
Vel Head (ft)	1.03	Wt. n-Val.		0.030	
E.G. Elev (ft)	1218.52	Reach Len. (ft)	500.72	500.72	500.72
Crit W.S. (ft)	1214.39	Flow Area (sq ft)		1935.37	
E.G. Slope (ft/ft)	0.001721	Area (sq ft)	996.93	1935.37	178.49
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1002.40	Top Width (ft)	499.71	242.43	260.26
Vel Total (ft/s)	8.15	Avg. Vel. (ft/s)		8.15	
Max Chl Dpth (ft)	9.33	Hydr. Depth (ft)		7.98	
Conv. Total (cfs)	380158.1	Conv. (cfs)		380158.1	
Length Wtd. (ft)	500.72	Wetted Per. (ft)		245.06	
Min Ch El (ft)	1208.16	Shear (lb/sq ft)		0.85	
Alpha	1.00	Stream Power (lb/ft s)		6.91	
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)	161.69	386.12	173.03
C & E Loss (ft)	0.10	Cum SA (acres)	61.23	50.87	56.01

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 1.545

INPUT
Description: SR 587 Bridge Downstream Ineffective Areas
Station Elevation Data num= 56

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4457.76	1213.8	4490.17	1212.28	4500.03	1212.44	4508.97	1214.18	4523.46	1214.1
4555.93	1213.7	4569.42	1213.57	4605.32	1213.75	4618.48	1213.71	4663.68	1213.4
4759	1213.1	4796.98	1213.5	4812.12	1214.85	4841.04	1215.17	4845.19	1214.49
4853.68	1216.5	4869.74	1216.56	4872.5	1215.59	4876.84	1215.56	4890.18	1210.42
4901.62	1210	4917.1	1209.67	4930.87	1208.09	4939.75	1207.56	4953.13	1207.71
4985.92	1207.7	5000.98	1207.47	5010.55	1206.81	5018.57	1206.63	5022.97	1207.28
5051.62	1207.2	5076.21	1207.42	5083.76	1208.88	5097.31	1209.62	5104.7	1211.49
5120.77	1215.4	5123.39	1215.37	5127.77	1215.87	5134.63	1215.74	5140.82	1215.84
5146.17	1214.1	5160.24	1213.97	5178.6	1213.92	5209.72	1213.66	5245.71	1212.88
5272.1	1212.9	5314.86	1213.28	5343.6	1212.74	5365.65	1212.69	5385.51	1212.77
5396.24	1212.6	5406.52	1212.76	5414.15	1212.65	5442.47	1212.56	5451.11	1212.68
5457.76	1212.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4457.76	.04	4869.74	.025	5127.77	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4869.74	5127.77	365.97	365.97	365.97	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4457.76	4757	1218	5250	5457.76	1218

Left Levee Station= 4869.74 Elevation= 1216.56
Right Levee Station= 5140.82 Elevation= 1215.84
Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4457.76	4853	1215.6	5141	5457.76	1214.8

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1214.76	Element			

Vel Head (ft)	0.54	Wt. n-Val.		0.025	
E.G. Elev (ft)	1215.30	Reach Len. (ft)	365.97	365.97	365.97
Crit W.S. (ft)	1211.79	Flow Area (sq ft)		1477.34	
E.G. Slope (ft/ft)	0.000875	Area (sq ft)		1477.34	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	239.20	Top Width (ft)		239.20	
Vel Total (ft/s)	5.89	Avg. Vel. (ft/s)		5.89	
Max Chl Dpth (ft)	8.13	Hydr. Depth (ft)		6.18	
Conv. Total (cfs)	294119.8	Conv. (cfs)		294119.8	
Length Wtd. (ft)	365.97	Wetted Per. (ft)		240.99	
Min Ch El (ft)	1206.63	Shear (lb/sq ft)		0.33	
Alpha	1.00	Stream Power (lb/ft s)		1.97	
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	0.02	245.38	
C & E Loss (ft)	0.06	Cum SA (acres)	0.09	44.10	

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1216.08	Element			
Vel Head (ft)	0.65	Wt. n-Val.		0.025	0.040
E.G. Elev (ft)	1216.73	Reach Len. (ft)	365.97	365.97	365.97
Crit W.S. (ft)	1212.67	Flow Area (sq ft)		1805.56	142.18
E.G. Slope (ft/ft)	0.000898	Area (sq ft)		1805.56	408.80
Q Total (cfs)	11920.00	Flow (cfs)		11745.06	174.94
Top Width (ft)	586.66	Top Width (ft)		256.67	329.99
Vel Total (ft/s)	6.12	Avg. Vel. (ft/s)		6.50	1.23
Max Chl Dpth (ft)	9.45	Hydr. Depth (ft)		7.03	1.16
Conv. Total (cfs)	397669.3	Conv. (cfs)		391833.1	5836.3
Length Wtd. (ft)	365.97	Wetted Per. (ft)		258.80	122.40
Min Ch El (ft)	1206.63	Shear (lb/sq ft)		0.39	0.07
Alpha	1.11	Stream Power (lb/ft s)		2.55	0.08
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	1.12	302.62	11.47
C & E Loss (ft)	0.08	Cum SA (acres)	0.94	46.48	5.92

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1216.94	Element			
Vel Head (ft)	0.83	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1217.77	Reach Len. (ft)	365.97	365.97	365.97
Crit W.S. (ft)	1213.63	Flow Area (sq ft)	134.05	2025.41	246.47
E.G. Slope (ft/ft)	0.001023	Area (sq ft)	534.03	2025.41	690.37
Q Total (cfs)	15770.00	Flow (cfs)	178.67	15124.26	467.07
Top Width (ft)	1000.00	Top Width (ft)	411.98	258.03	329.99
Vel Total (ft/s)	6.55	Avg. Vel. (ft/s)	1.33	7.47	1.90
Max Chl Dpth (ft)	10.31	Hydr. Depth (ft)	1.19	7.85	2.02
Conv. Total (cfs)	492971.8	Conv. (cfs)	5585.4	472785.9	14600.5
Length Wtd. (ft)	365.97	Wetted Per. (ft)	112.85	260.24	122.40
Min Ch El (ft)	1206.63	Shear (lb/sq ft)	0.08	0.50	0.13
Alpha	1.25	Stream Power (lb/ft s)	0.10	3.71	0.24
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	152.89	363.36	168.03
C & E Loss (ft)	0.01	Cum SA (acres)	55.99	47.99	52.62

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 1.476

INPUT
Description: SR 587 Bridge Downstream Ineffective Areas
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4465.89	1213.6	4469.22	1213.5	4475.48	1212.82	4487.17	1212.24	4496.34	1211.34
4506.54	1213.6	4528.3	1213.21	4555.3	1213.22	4563.34	1213.82	4584.15	1213.9
4613.34	1213.9	4634.11	1213.96	4663.34	1213.87	4684.05	1213.59	4713.34	1213.48
4734.01	1213.3	4763.34	1213.03	4782.29	1212.8	4800.2	1212.43	4807.68	1215.06
4830.62	1214.2	4840.65	1214.41	4846.35	1214.35	4850.1	1214.76	4864.72	1215.64

4877.31	1215.7	4881.05	1214.42	4884.48	1214.69	4897.08	1211.65	4909.07	1210.77
4913.48	1210.5	4928.93	1208.26	4946.14	1207.95	4951.89	1208.01	4978.93	1208
4988.55	1207.9	4999.37	1207.61	5013.67	1206.65	5047.25	1206.91	5063.63	1206.87
5072.63	1207	5083.16	1209.8	5094.43	1210.32	5101.9	1210.33	5108.52	1211.87
5122.14	1214.9	5126.66	1215.31	5141.33	1215.41	5147.99	1212.77	5156.45	1211.69
5168.99	1212.5	5213.34	1212.39	5233.54	1212.49	5263.34	1212.49	5293.18	1212.58
5313.34	1212.5	5362.41	1212.55	5392.86	1212.38	5413.33	1212.59	5443.32	1212.56
5465.89	1212.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4465.89	.04	4877.31	.025	5141.33	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.31	5141.33	446	457.96	472	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4465.89	4666	1218	5341	5465.89	1218

Left Levee Station= 4877.31 Elevation= 1215.7
Right Levee Station= 5141.33 Elevation= 1215.41

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4465.89	4850	1214.7	5141.5	5465.89	1214.4

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1214.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.		0.025	
E.G. Elev (ft)	1214.83	Reach Len. (ft)	446.00	457.96	472.00
Crit W.S. (ft)	1211.99	Flow Area (sq ft)		1254.86	
E.G. Slope (ft/ft)	0.001440	Area (sq ft)		1254.86	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	231.46	Top Width (ft)		231.46	
Vel Total (ft/s)	6.93	Avg. Vel. (ft/s)		6.93	
Max Chl Dpth (ft)	7.43	Hydr. Depth (ft)		5.42	
Conv. Total (cfs)	229299.8	Conv. (cfs)		229299.8	
Length Wtd. (ft)	457.96	Wetted Per. (ft)		232.79	
Min Ch El (ft)	1206.65	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		3.36	
Frctn Loss (ft)	0.75	Cum Volume (acre-ft)	0.02	233.90	
C & E Loss (ft)	0.02	Cum SA (acres)	0.09	42.12	

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1215.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.92	Wt. n-Val.		0.025	
E.G. Elev (ft)	1216.24	Reach Len. (ft)	446.00	457.96	472.00
Crit W.S. (ft)	1212.90	Flow Area (sq ft)		1551.48	
E.G. Slope (ft/ft)	0.001475	Area (sq ft)		1551.48	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	249.56	Top Width (ft)		249.56	
Vel Total (ft/s)	7.68	Avg. Vel. (ft/s)		7.68	
Max Chl Dpth (ft)	8.67	Hydr. Depth (ft)		6.22	
Conv. Total (cfs)	310392.3	Conv. (cfs)		310392.3	
Length Wtd. (ft)	457.96	Wetted Per. (ft)		251.23	
Min Ch El (ft)	1206.65	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		4.37	
Frctn Loss (ft)	0.75	Cum Volume (acre-ft)	1.12	288.51	9.75
C & E Loss (ft)	0.02	Cum SA (acres)	0.94	44.35	4.53

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1216.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.80	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1217.35	Reach Len. (ft)	446.00	457.96	472.00
Crit W.S. (ft)	1213.88	Flow Area (sq ft)	368.77	1874.75	427.33
E.G. Slope (ft/ft)	0.001196	Area (sq ft)	738.31	1874.75	695.42
Q Total (cfs)	15770.00	Flow (cfs)	686.41	14172.58	911.01

Top Width (ft)	1000.00	Top Width (ft)	411.42	264.02	324.56
Vel Total (ft/s)	5.90	Avg. Vel. (ft/s)	1.86	7.56	2.13
Max Chl Dpth (ft)	9.90	Hydr. Depth (ft)	1.75	7.10	2.14
Conv. Total (cfs)	456061.3	Conv. (cfs)	19850.7	409864.7	26345.9
Length Wtd. (ft)	458.09	Wetted Per. (ft)	211.41	265.76	199.86
Min Ch El (ft)	1206.65	Shear (lb/sq ft)	0.13	0.53	0.16
Alpha	1.49	Stream Power (lb/ft s)	0.24	3.98	0.34
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	147.54	346.97	162.21
C & E Loss (ft)	0.08	Cum SA (acres)	52.53	45.80	49.87

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 1.389

INPUT
Description: Loose Riprap Channel From Sections 1.389 to 1.142
SR 587 Bridge
Downstream Ineffective Areas
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4378.2	1213	4397.7	1212.78	4403.97	1212.24	4415.38	1212.3	4441.65	1212.06
4467.27	1212	4476.5	1211.89	4502.39	1212.01	4512.53	1212.29	4523.04	1212.27
4552.85	1212.5	4581.44	1212.28	4615.52	1212.07	4661.35	1212.03	4696.13	1212.21
4748.43	1211.9	4776.08	1211.91	4801.61	1212.7	4829.78	1213.04	4849.75	1213.41
4852.26	1213.4	4863.35	1214.92	4878.84	1214.71	4895.57	1210.2	4896.39	1210.06
4909.47	1209.6	4916.14	1209.18	4928.6	1207.28	4951.83	1207.44	4971.18	1206.95
4987.8	1206.8	5008.93	1206.31	5018.81	1206.7	5043.51	1206.9	5065.41	1206.84
5073.76	1207.1	5077.15	1207.43	5088.87	1208.31	5093.89	1208.58	5107.1	1208.39
5112.31	1210.1	5121.79	1212.77	5127.89	1214.8	5142.9	1214.72	5149.42	1211.78
5161.63	1211.3	5168.11	1210.76	5172.55	1211.8	5226.24	1211.5	5322.12	1211.53
5378.2	1211.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4378.2	.04	4878.84	.03	5127.89	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4878.84	5127.89	344	436.27	522	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4378.2	4557	1217

Left Levee Station= 4863.35 Elevation= 1214.92
Right Levee Station= 5127.89 Elevation= 1214.8
Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4378.2	4863	1213.9	5143	5378.2	1213.8

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1213.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.68	Wt. n-Val.		0.030	
E.G. Elev (ft)	1214.06	Reach Len. (ft)	344.00	436.27	522.00
Crit W.S. (ft)	1211.19	Flow Area (sq ft)		1311.44	
E.G. Slope (ft/ft)	0.001877	Area (sq ft)		1311.44	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	239.82	Top Width (ft)		239.82	
Vel Total (ft/s)	6.63	Avg. Vel. (ft/s)		6.63	
Max Chl Dpth (ft)	7.07	Hydr. Depth (ft)		5.47	
Conv. Total (cfs)	200822.8	Conv. (cfs)		200822.8	
Length Wtd. (ft)	436.27	Wetted Per. (ft)		241.25	
Min Ch El (ft)	1206.31	Shear (lb/sq ft)		0.64	
Alpha	1.00	Stream Power (lb/ft s)		4.23	
Frctn Loss (ft)	0.81	Cum Volume (acre-ft)	0.02	220.41	
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	39.64	

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1214.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.85	Wt. n-Val.		0.030	
E.G. Elev (ft)	1215.46	Reach Len. (ft)	344.00	436.27	522.00
Crit W.S. (ft)	1212.06	Flow Area (sq ft)		1613.25	
E.G. Slope (ft/ft)	0.001851	Area (sq ft)		1613.25	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	248.13	Top Width (ft)		248.13	
Vel Total (ft/s)	7.39	Avg. Vel. (ft/s)		7.39	
Max Chl Dpth (ft)	8.30	Hydr. Depth (ft)		6.50	
Conv. Total (cfs)	277022.3	Conv. (cfs)		277022.3	
Length Wtd. (ft)	436.27	Wetted Per. (ft)		249.92	
Min Ch El (ft)	1206.31	Shear (lb/sq ft)		0.75	
Alpha	1.00	Stream Power (lb/ft s)		5.51	
Frctn Loss (ft)	0.80	Cum Volume (acre-ft)	1.12	271.88	9.75
C & E Loss (ft)	0.00	Cum SA (acres)	0.94	41.74	4.53

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1216.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.	0.040	0.030	0.040
E.G. Elev (ft)	1216.76	Reach Len. (ft)	344.00	436.27	522.00
Crit W.S. (ft)	1212.98	Flow Area (sq ft)	725.11	2010.53	587.60
E.G. Slope (ft/ft)	0.001064	Area (sq ft)	1137.93	2010.53	587.60
Q Total (cfs)	15770.00	Flow (cfs)	1510.08	13010.70	1249.23
Top Width (ft)	1000.00	Top Width (ft)	500.64	249.05	250.31
Vel Total (ft/s)	4.75	Avg. Vel. (ft/s)	2.08	6.47	2.13
Max Chl Dpth (ft)	9.90	Hydr. Depth (ft)	2.25	8.07	2.35
Conv. Total (cfs)	483371.4	Conv. (cfs)	46285.9	398795.1	38290.4
Length Wtd. (ft)	435.25	Wetted Per. (ft)	321.91	250.88	252.92
Min Ch El (ft)	1206.31	Shear (lb/sq ft)	0.15	0.53	0.15
Alpha	1.57	Stream Power (lb/ft s)	0.31	3.45	0.33
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	137.94	326.55	155.26
C & E Loss (ft)	0.05	Cum SA (acres)	47.86	43.10	46.76

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 1.306

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4413.07	1211.6	4416.02	1211.65	4427.55	1212.56	4453.75	1211.67	4474.7	1211.3
4497.06	1211.2	4502.58	1211.36	4528.98	1211.08	4539.63	1211.07	4555.59	1211.12
4581.56	1211.5	4594.8	1212.09	4611.47	1213.12	4627.05	1212.99	4647.35	1212.09
4680.45	1211.1	4699.57	1211.07	4740.94	1211.26	4758.56	1211.07	4766.06	1212.47
4785.17	1212.5	4793.58	1210.02	4794.88	1209.34	4804.95	1211.28	4807.08	1211.36
4834.12	1211.8	4850.77	1211.55	4868.22	1213.49	4874.91	1214.14	4888.93	1214.58
4912.11	1207.2	4925.92	1206.64	4933.73	1207.02	4947.59	1206.82	4956.07	1206.78
4968.27	1206.5	4980.58	1206.38	4999.49	1206.66	5025.37	1206.15	5043.75	1206.39
5064.08	1206.4	5083.45	1205.97	5095.17	1206.07	5109.46	1206.52	5138.12	1214.41
5151.52	1214.1	5153.33	1213.62	5162.24	1213.58	5176.55	1210.9	5180.48	1211.19
5205.59	1211.5	5216.22	1211.37	5224.55	1210.92	5249.88	1211.23	5266.5	1211.39
5279.39	1211	5284.57	1211.03	5319.02	1210.84	5335.58	1211.51	5337.49	1211.68
5352.29	1211	5355.41	1210.78	5364.05	1210.85	5381.72	1210.69	5413.07	1210.63

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4413.07	.04	4888.93	.03	5138.12	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4888.93	5138.12	308	316.52	328	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4413.07	4888.93	1217	5138.12	5413.07	1217

Left Levee Station= 4888.93 Elevation= 1214.58
Right Levee Station= 5138.12 Elevation= 1214.41

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1212.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.68	Wt. n-Val.		0.030	
E.G. Elev (ft)	1213.25	Reach Len. (ft)	308.00	316.52	328.00
Crit W.S. (ft)	1210.32	Flow Area (sq ft)		1315.69	
E.G. Slope (ft/ft)	0.001822	Area (sq ft)		1315.69	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	236.21	Top Width (ft)		236.21	
Vel Total (ft/s)	6.61	Avg. Vel. (ft/s)		6.61	
Max Chl Dpth (ft)	6.60	Hydr. Depth (ft)		5.57	
Conv. Total (cfs)	203791.8	Conv. (cfs)		203791.8	
Length Wtd. (ft)	316.52	Wetted Per. (ft)		237.91	
Min Ch El (ft)	1205.97	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		4.16	
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	0.02	207.25	
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	37.26	

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1213.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.85	Wt. n-Val.		0.030	
E.G. Elev (ft)	1214.66	Reach Len. (ft)	308.00	316.52	328.00
Crit W.S. (ft)	1211.19	Flow Area (sq ft)		1614.12	
E.G. Slope (ft/ft)	0.001816	Area (sq ft)		1614.12	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	244.62	Top Width (ft)		244.62	
Vel Total (ft/s)	7.38	Avg. Vel. (ft/s)		7.38	
Max Chl Dpth (ft)	7.84	Hydr. Depth (ft)		6.60	
Conv. Total (cfs)	279692.3	Conv. (cfs)		279692.3	
Length Wtd. (ft)	316.52	Wetted Per. (ft)		246.68	
Min Ch El (ft)	1205.97	Shear (lb/sq ft)		0.74	
Alpha	1.00	Stream Power (lb/ft s)		5.48	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	1.12	255.72	9.75
C & E Loss (ft)	0.02	Cum SA (acres)	0.94	39.27	4.53

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1215.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.04	Wt. n-Val.		0.030	
E.G. Elev (ft)	1216.11	Reach Len. (ft)	308.00	316.52	328.00
Crit W.S. (ft)	1212.13	Flow Area (sq ft)		1926.72	
E.G. Slope (ft/ft)	0.001808	Area (sq ft)	1582.37	1926.72	1016.16
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.00	Top Width (ft)	475.86	249.19	274.95
Vel Total (ft/s)	8.18	Avg. Vel. (ft/s)		8.18	
Max Chl Dpth (ft)	9.10	Hydr. Depth (ft)		7.73	
Conv. Total (cfs)	370912.3	Conv. (cfs)		370912.3	
Length Wtd. (ft)	316.52	Wetted Per. (ft)		251.45	
Min Ch El (ft)	1205.97	Shear (lb/sq ft)		0.86	
Alpha	1.00	Stream Power (lb/ft s)		7.08	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	127.20	306.83	145.65
C & E Loss (ft)	0.02	Cum SA (acres)	44.01	40.61	43.61

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 1.246

INPUT
Description:
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4372.2	1209.4	4382.83	1209.28	4394.75	1209.52	4416.5	1210.39	4435.52	1210.78
4464.87	1212.3	4491.45	1212.96	4527.68	1212.83	4537.74	1212.44	4561.26	1211.73
4572.21	1211.4	4589.13	1211.54	4602.74	1211.57	4607.56	1211.36	4618.35	1211.76

4633.56	1211.7	4649.94	1211.21	4696.85	1211.26	4714.64	1211.48	4726.17	1212.5
4746.33	1211	4752.22	1209.59	4755.34	1208.63	4764.83	1211.2	4786.67	1212.35
4796.94	1211.9	4803.89	1211.97	4820.48	1211.29	4826.83	1210.65	4849.88	1210.82
4861.08	1212	4872.88	1213.29	4888.2	1213.84	4909.27	1206.23	4952.27	1206.03
4967.37	1205.5	4972.78	1205.55	4981.63	1205.91	5000.48	1205.87	5024.6	1205.55
5055.3	1205.6	5072.05	1205.35	5090.98	1206.1	5106.25	1205.46	5139.48	1214.19
5153.04	1213.9	5154.38	1212.93	5162.29	1212.76	5174.93	1210.58	5199.39	1210.91
5233.99	1210.9	5244.1	1211.25	5252.93	1211.13	5277.47	1211.07	5372.2	1211.02

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4372.2	.04	4888.2	.03	5139.48	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4888.2	5139.48	390	319.39	260	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4372.2	4888.2	1216	5139.48	5372.2	1216

Left Levee Station= 4888.2 Elevation= 1213.84
Right Levee Station= 5139.48 Elevation= 1214.19

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1212.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.		0.030	
E.G. Elev (ft)	1212.69	Reach Len. (ft)	390.00	319.39	260.00
Crit W.S. (ft)	1209.61	Flow Area (sq ft)		1366.82	
E.G. Slope (ft/ft)	0.001626	Area (sq ft)		1366.82	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	238.27	Top Width (ft)		238.27	
Vel Total (ft/s)	6.37	Avg. Vel. (ft/s)		6.37	
Max Chl Dpth (ft)	6.71	Hydr. Depth (ft)		5.74	
Conv. Total (cfs)	215786.1	Conv. (cfs)		215786.1	
Length Wtd. (ft)	319.39	Wetted Per. (ft)		240.19	
Min Ch El (ft)	1205.35	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		3.68	
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	0.02	197.51	
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	35.54	

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1213.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.		0.030	
E.G. Elev (ft)	1214.10	Reach Len. (ft)	390.00	319.39	260.00
Crit W.S. (ft)	1210.49	Flow Area (sq ft)		1667.53	
E.G. Slope (ft/ft)	0.001648	Area (sq ft)		1667.53	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	246.42	Top Width (ft)		246.42	
Vel Total (ft/s)	7.15	Avg. Vel. (ft/s)		7.15	
Max Chl Dpth (ft)	7.95	Hydr. Depth (ft)		6.77	
Conv. Total (cfs)	293663.6	Conv. (cfs)		293663.6	
Length Wtd. (ft)	319.39	Wetted Per. (ft)		248.73	
Min Ch El (ft)	1205.35	Shear (lb/sq ft)		0.69	
Alpha	1.00	Stream Power (lb/ft s)		4.93	
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	1.12	243.79	9.75
C & E Loss (ft)	0.00	Cum SA (acres)	0.94	37.48	4.53

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1214.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.98	Wt. n-Val.		0.030	
E.G. Elev (ft)	1215.55	Reach Len. (ft)	390.00	319.39	260.00
Crit W.S. (ft)	1211.44	Flow Area (sq ft)		1982.99	
E.G. Slope (ft/ft)	0.001663	Area (sq ft)	1563.37	1982.99	762.90
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.00	Top Width (ft)	516.00	251.28	232.72
Vel Total (ft/s)	7.95	Avg. Vel. (ft/s)		7.95	
Max Chl Dpth (ft)	9.22	Hydr. Depth (ft)		7.89	

Conv. Total (cfs)	386746.3	Conv. (cfs)		386746.3		
Length Wtd. (ft)	319.39	Wetted Per. (ft)		253.79		
Min Ch El (ft)	1205.35	Shear (lb/sq ft)		0.81		
Alpha	1.00	Stream Power (lb/ft s)		6.45		
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	116.07	292.63	138.95	
C & E Loss (ft)	0.00	Cum SA (acres)	40.50	38.79	41.70	

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 1.186

INPUT
Description:
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4332.74	1209.5	4340.39	1209.56	4355.64	1208.89	4379.95	1208.78	4398.04	1208.83
4405.12	1209.5	4412.4	1210.42	4419.99	1210.45	4436.09	1210.72	4458	1210.25
4475.89	1210.1	4481.42	1210.18	4503.21	1210.03	4509.34	1209.52	4528.91	1207.33
4542.42	1209	4552.97	1210.19	4570.11	1210.59	4584.27	1211.01	4588.7	1211.26
4607.94	1211.4	4626.45	1211.07	4641.87	1210.69	4648.54	1210.69	4664.52	1211.06
4679.33	1210.5	4681.6	1210.21	4715.67	1210.33	4764.03	1210.14	4776.66	1210.18
4814.72	1210.1	4839.58	1209.76	4851.74	1210.93	4864.16	1212.86	4879.38	1213.19
4901.65	1206.1	4925.54	1206.16	4954.47	1205.32	4965.19	1205.33	4986.15	1205.56
5000.41	1205.2	5010.88	1205.45	5029.7	1205.33	5034.3	1205.4	5051.48	1205.26
5088.14	1204.9	5101.78	1205.22	5112.63	1207.47	5121.91	1210.48	5130.67	1213.45
5143.98	1213.2	5146.36	1212.32	5155.49	1212.53	5163.66	1210.96	5179.16	1211.13
5183.97	1211	5195.09	1210.37	5211.35	1211.25	5219.06	1210.89	5229.99	1211.16
5239.7	1211.5	5262.76	1211.37	5278.63	1210.1	5287.27	1210.63	5321.78	1211.13
5332.74	1211.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4332.74	.04	4879.38	.03	5130.67	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4879.38	5130.67	288	229.55	188	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4332.74	4879.38	1215	5130.67	5332.74	1215

Left Levee Station= 4879.38 Elevation= 1213.19
Right Levee Station= 5130.67 Elevation= 1213.45

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1211.49	Element			
Vel Head (ft)	0.66	Wt. n-Val.		0.030	
E.G. Elev (ft)	1212.15	Reach Len. (ft)	288.00	229.55	188.00
Crit W.S. (ft)	1209.22	Flow Area (sq ft)		1336.84	
E.G. Slope (ft/ft)	0.001767	Area (sq ft)		1336.84	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	240.17	Top Width (ft)		240.17	
Vel Total (ft/s)	6.51	Avg. Vel. (ft/s)		6.51	
Max Chl Dpth (ft)	6.59	Hydr. Depth (ft)		5.57	
Conv. Total (cfs)	206966.0	Conv. (cfs)		206966.0	
Length Wtd. (ft)	229.55	Wetted Per. (ft)		241.91	
Min Ch El (ft)	1204.90	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		3.97	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	0.02	187.60	
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	33.78	

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1212.73	Element			
Vel Head (ft)	0.82	Wt. n-Val.		0.030	
E.G. Elev (ft)	1213.55	Reach Len. (ft)	288.00	229.55	188.00
Crit W.S. (ft)	1210.08	Flow Area (sq ft)		1639.42	
E.G. Slope (ft/ft)	0.001754	Area (sq ft)		1639.42	

Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	247.73	Top Width (ft)		247.73	
Vel Total (ft/s)	7.27	Avg. Vel. (ft/s)		7.27	
Max Chl Dpth (ft)	7.83	Hydr. Depth (ft)		6.62	
Conv. Total (cfs)	284592.0	Conv. (cfs)		284592.0	
Length Wtd. (ft)	229.55	Wetted Per. (ft)		249.86	
Min Ch El (ft)	1204.90	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		5.22	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	1.12	231.67	9.75
C & E Loss (ft)	0.00	Cum SA (acres)	0.94	35.67	4.53

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1213.99	Element			
Vel Head (ft)	1.01	Wt. n-Val.		0.030	
E.G. Elev (ft)	1215.00	Reach Len. (ft)	288.00	229.55	188.00
Crit W.S. (ft)	1211.00	Flow Area (sq ft)		1955.54	
E.G. Slope (ft/ft)	0.001740	Area (sq ft)	2070.30	1955.54	554.75
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.00	Top Width (ft)	546.64	251.29	202.07
Vel Total (ft/s)	8.06	Avg. Vel. (ft/s)		8.06	
Max Chl Dpth (ft)	9.09	Hydr. Depth (ft)		7.78	
Conv. Total (cfs)	378037.3	Conv. (cfs)		378037.3	
Length Wtd. (ft)	229.55	Wetted Per. (ft)		253.62	
Min Ch El (ft)	1204.90	Shear (lb/sq ft)		0.84	
Alpha	1.00	Stream Power (lb/ft s)		6.76	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	99.81	278.19	135.02
C & E Loss (ft)	0.00	Cum SA (acres)	35.74	36.94	40.40

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 1.142

INPUT
Description:
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4392.46	1212.3	4409.79	1211.61	4423.75	1211.46	4436.88	1211.51	4442.62	1211.42
4450.65	1211.5	4468.9	1211.4	4484.82	1211.55	4498.23	1211.88	4529.1	1210.58
4539	1210	4573.77	1209.91	4590.48	1211.04	4605.59	1211.63	4617.01	1210.86
4632.13	1210.3	4638.4	1209.88	4646.16	1209.88	4686.88	1210.07	4764.99	1210.04
4786.88	1210.1	4828.33	1209.94	4835.8	1209.89	4847.17	1210.75	4859.39	1212.46
4874.25	1213.3	4897.48	1205.36	4918.46	1205.22	4951.15	1205.38	4961.1	1205.32
4980.34	1204.8	5003.05	1205.09	5008.91	1204.55	5016.2	1205	5043.3	1204.83
5073.17	1205	5092.66	1204.72	5104.78	1206.6	5108.25	1207.25	5125.33	1213.08
5138.4	1212.7	5141.5	1211.56	5151.83	1211.77	5163.71	1209.56	5186.88	1210.12
5208.34	1209.9	5219.77	1209.94	5236.88	1210.3	5274.68	1209.88	5289.56	1210.59
5301.81	1211	5341.7	1210.98	5367.25	1210.91	5392.46	1210.89		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4392.46	.04	4874.25	.03	5125.33	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4874.25	5125.33	357.97	357.97	357.97	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4392.46	4874.25	1215	5125.33	5392.46	1215

Left Levee Station= 4874.25 Elevation= 1213.3
Right Levee Station= 5125.33 Elevation= 1213.08

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1211.07	Element			
Vel Head (ft)	0.67	Wt. n-Val.		0.030	
E.G. Elev (ft)	1211.74	Reach Len. (ft)	357.97	357.97	357.97
Crit W.S. (ft)	1208.85	Flow Area (sq ft)		1323.75	

E.G. Slope (ft/ft)	0.001812	Area (sq ft)		1323.75
Q Total (cfs)	8700.00	Flow (cfs)		8700.00
Top Width (ft)	238.64	Top Width (ft)		238.64
Vel Total (ft/s)	6.57	Avg. Vel. (ft/s)		6.57
Max Chl Dpth (ft)	6.52	Hydr. Depth (ft)		5.55
Conv. Total (cfs)	204408.0	Conv. (cfs)		204408.0
Length Wtd. (ft)	357.97	Wetted Per. (ft)		240.48
Min Ch El (ft)	1204.55	Shear (lb/sq ft)		0.62
Alpha	1.00	Stream Power (lb/ft s)		4.09
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	0.02	180.59
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	32.52

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1212.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.84	Wt. n-Val.		0.030	
E.G. Elev (ft)	1213.14	Reach Len. (ft)	357.97	357.97	357.97
Crit W.S. (ft)	1209.71	Flow Area (sq ft)		1624.65	
E.G. Slope (ft/ft)	0.001792	Area (sq ft)		1624.65	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	245.91	Top Width (ft)		245.91	
Vel Total (ft/s)	7.34	Avg. Vel. (ft/s)		7.34	
Max Chl Dpth (ft)	7.76	Hydr. Depth (ft)		6.61	
Conv. Total (cfs)	281608.0	Conv. (cfs)		281608.0	
Length Wtd. (ft)	357.97	Wetted Per. (ft)		248.17	
Min Ch El (ft)	1204.55	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		5.37	
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	1.12	223.07	9.75
C & E Loss (ft)	0.01	Cum SA (acres)	0.94	34.37	4.53

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1213.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.03	Wt. n-Val.		0.030	
E.G. Elev (ft)	1214.60	Reach Len. (ft)	357.97	357.97	357.97
Crit W.S. (ft)	1210.64	Flow Area (sq ft)		1939.16	
E.G. Slope (ft/ft)	0.001790	Area (sq ft)	1390.85	1939.16	783.46
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.00	Top Width (ft)	481.79	251.08	267.13
Vel Total (ft/s)	8.13	Avg. Vel. (ft/s)		8.13	
Max Chl Dpth (ft)	9.02	Hydr. Depth (ft)		7.72	
Conv. Total (cfs)	372765.1	Conv. (cfs)		372765.1	
Length Wtd. (ft)	357.97	Wetted Per. (ft)		253.62	
Min Ch El (ft)	1204.55	Shear (lb/sq ft)		0.85	
Alpha	1.00	Stream Power (lb/ft s)		6.95	
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	88.37	267.93	132.13
C & E Loss (ft)	0.02	Cum SA (acres)	32.34	35.62	39.39

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 1.074

INPUT
Description:
Station Elevation Data num= 62

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4391.12	1211.4	4417.59	1210.84	4438.64	1210.48	4446.73	1210.45	4486.8	1210.8
4522.93	1210.5	4536.81	1210.47	4553.68	1210.13	4574.96	1209.87	4600.7	1209.66
4676.58	1209.6	4680.74	1209.61	4700.51	1209.97	4714.33	1210.07	4734.06	1209.58
4749.04	1209.4	4769.47	1209.94	4786.66	1209.38	4810.24	1209.55	4825.56	1209.58
4835.2	1210.3	4839.24	1210.92	4844.56	1211.46	4857.57	1211.85	4867.51	1212
4871.72	1212.2	4876.13	1211.31	4878.28	1211.47	4892.68	1207.6	4899.43	1205.69
4919.77	1205.8	4934.37	1205.16	4947.01	1205.19	4965.15	1204.27	4979.19	1204.16
4991.92	1203	5010.25	1202.89	5014.84	1202.97	5030.1	1204.51	5056.83	1204.37
5082.02	1204.6	5095.09	1205.15	5102.94	1206.96	5118.34	1207.47	5128.4	1210.58
5135.39	1212	5146.88	1212.63	5149.51	1211.52	5160.68	1209.85	5202.13	1210.14

```
 5207.07  1209.5 5219.56 1209.72 5243.93 1209.79 5253.87 1209.66  5256.3 1209.32
 5259.76  1209.4 5273.15 1209.46 5306.03 1208.98 5336.79 1208.78 5345.56 1208.86
 5382.49  1208.8 5391.12 1208.71

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 4391.12     .04 4871.72    .025 5146.88     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       4871.72 5146.88           342.08  342.08  342.08            .1        .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 4391.12 4871.72    1214 5146.88 5391.12    1214
Left Levee       Station= 4871.72      Elevation=  1212.2
Right Levee      Station= 5146.88      Elevation= 1212.63
```

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1210.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.		0.025	
E.G. Elev (ft)	1211.19	Reach Len. (ft)	342.08	342.08	342.08
Crit W.S. (ft)	1208.37	Flow Area (sq ft)		1330.55	
E.G. Slope (ft/ft)	0.001288	Area (sq ft)		1330.55	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	246.44	Top Width (ft)		246.44	
Vel Total (ft/s)	6.54	Avg. Vel. (ft/s)		6.54	
Max Chl Dpth (ft)	7.64	Hydr. Depth (ft)		5.40	
Conv. Total (cfs)	242395.9	Conv. (cfs)		242395.9	
Length Wtd. (ft)	342.08	Wetted Per. (ft)		247.96	
Min Ch El (ft)	1202.89	Shear (lb/sq ft)		0.43	
Alpha	1.00	Stream Power (lb/ft s)		2.82	
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	0.02	169.68	
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	30.53	

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1211.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.81	Wt. n-Val.		0.025	
E.G. Elev (ft)	1212.60	Reach Len. (ft)	342.08	342.08	342.08
Crit W.S. (ft)	1209.20	Flow Area (sq ft)		1648.90	
E.G. Slope (ft/ft)	0.001276	Area (sq ft)		1648.90	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	260.58	Top Width (ft)		260.58	
Vel Total (ft/s)	7.23	Avg. Vel. (ft/s)		7.23	
Max Chl Dpth (ft)	8.90	Hydr. Depth (ft)		6.33	
Conv. Total (cfs)	333741.3	Conv. (cfs)		333741.3	
Length Wtd. (ft)	342.08	Wetted Per. (ft)		262.39	
Min Ch El (ft)	1202.89	Shear (lb/sq ft)		0.50	
Alpha	1.00	Stream Power (lb/ft s)		3.62	
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	1.12	209.62	9.75
C & E Loss (ft)	0.00	Cum SA (acres)	0.94	32.29	4.53

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1213.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.97	Wt. n-Val.		0.025	
E.G. Elev (ft)	1214.04	Reach Len. (ft)	342.08	342.08	342.08
Crit W.S. (ft)	1210.11	Flow Area (sq ft)		1996.86	
E.G. Slope (ft/ft)	0.001268	Area (sq ft)	1395.43	1996.86	888.25
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.00	Top Width (ft)	480.60	275.16	244.24
Vel Total (ft/s)	7.90	Avg. Vel. (ft/s)		7.90	
Max Chl Dpth (ft)	10.19	Hydr. Depth (ft)		7.26	
Conv. Total (cfs)	442849.8	Conv. (cfs)		442849.8	
Length Wtd. (ft)	342.08	Wetted Per. (ft)		277.06	
Min Ch El (ft)	1202.89	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		4.51	
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	76.92	251.76	125.26

C & E Loss (ft)	0.00	Cum SA (acres)	28.39	33.46	37.29

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 1.01

INPUT
Description: Loose Riprap Channel From Sections 1.010 to 0.750
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4391.04	1207.8	4403.42	1207.92	4409.87	1207.81	4430.52	1207.93	4436.72	1207.69
4447.69	1207.9	4473.39	1208.19	4486.71	1207.88	4501.54	1208.1	4511.53	1207.64
4516.17	1207.3	4543.04	1207.35	4558.96	1207.55	4566.8	1207.51	4573.72	1207.85
4593.13	1208.3	4606.52	1208.06	4619.03	1207.75	4625.24	1207.47	4634.09	1207.93
4644.89	1208	4651.04	1208.38	4661.44	1208.49	4670.93	1208.77	4685.36	1208.95
4691.63	1208.9	4718.37	1208.94	4736.7	1209.24	4749.77	1209.23	4768.92	1209.1
4786.71	1208.8	4803.66	1208.94	4826.59	1208.99	4834.47	1208.87	4846.02	1209.74
4861.05	1211.7	4875.05	1210.81	4900.3	1204.78	4932.07	1203.57	4950.96	1202.99
4974.31	1203.5	4989.09	1202.94	4996.26	1203.22	5014.28	1203.42	5027.57	1204.21
5095.74	1204.4	5101.08	1205.49	5116.37	1209.4	5124.85	1211.44	5137.99	1211.38
5141.18	1211.2	5150.93	1209.82	5159.27	1208.83	5186.73	1208.62	5215.12	1208.12
5242.98	1208.8	5255.28	1209.59	5261.15	1209.25	5267.9	1209.19	5270.58	1209.5
5282.62	1209.4	5303.8	1208.45	5310.32	1208.47	5336.72	1208.39	5391.04	1208.4

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4391.04	.04	4861.05	.03	5124.85	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4861.05	5124.85	270	488.57	664	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4391.04	4861.05	1213	5124.85	5391.04	1213

Left Levee Station= 4861.05 Elevation= 1211.7
Right Levee Station= 5124.85 Elevation= 1211.44

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1210.02	Element			
Vel Head (ft)	0.65	Wt. n-Val.		0.030	
E.G. Elev (ft)	1210.68	Reach Len. (ft)	270.00	488.57	664.00
Crit W.S. (ft)	1207.69	Flow Area (sq ft)		1339.68	
E.G. Slope (ft/ft)	0.001755	Area (sq ft)		1339.68	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	240.61	Top Width (ft)		240.61	
Vel Total (ft/s)	6.49	Avg. Vel. (ft/s)		6.49	
Max Chl Dpth (ft)	7.08	Hydr. Depth (ft)		5.57	
Conv. Total (cfs)	207658.8	Conv. (cfs)		207658.8	
Length Wtd. (ft)	488.57	Wetted Per. (ft)		241.98	
Min Ch El (ft)	1202.94	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		3.94	
Frctn Loss (ft)	0.86	Cum Volume (acre-ft)	0.02	159.19	
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	28.61	

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1211.27	Element			
Vel Head (ft)	0.81	Wt. n-Val.		0.030	
E.G. Elev (ft)	1212.08	Reach Len. (ft)	270.00	488.57	664.00
Crit W.S. (ft)	1208.58	Flow Area (sq ft)		1647.63	
E.G. Slope (ft/ft)	0.001800	Area (sq ft)		1647.63	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	256.34	Top Width (ft)		256.34	
Vel Total (ft/s)	7.23	Avg. Vel. (ft/s)		7.23	
Max Chl Dpth (ft)	8.33	Hydr. Depth (ft)		6.43	
Conv. Total (cfs)	280930.5	Conv. (cfs)		280930.5	
Length Wtd. (ft)	488.57	Wetted Per. (ft)		257.97	

Min Ch El (ft)	1202.94	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		5.19	
Frctn Loss (ft)	0.87	Cum Volume (acre-ft)	1.12	196.67	9.75
C & E Loss (ft)	0.00	Cum SA (acres)	0.94	30.26	4.53

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1212.56	Element			
Vel Head (ft)	0.98	Wt. n-Val.		0.030	
E.G. Elev (ft)	1213.54	Reach Len. (ft)	270.00	488.57	664.00
Crit W.S. (ft)	1209.53	Flow Area (sq ft)		1985.08	
E.G. Slope (ft/ft)	0.001759	Area (sq ft)	1957.69	1985.08	970.82
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.00	Top Width (ft)	470.01	263.80	266.19
Vel Total (ft/s)	7.94	Avg. Vel. (ft/s)		7.94	
Max Chl Dpth (ft)	9.62	Hydr. Depth (ft)		7.52	
Conv. Total (cfs)	375985.6	Conv. (cfs)		375985.6	
Length Wtd. (ft)	488.57	Wetted Per. (ft)		265.46	
Min Ch El (ft)	1202.94	Shear (lb/sq ft)		0.82	
Alpha	1.00	Stream Power (lb/ft s)		6.52	
Frctn Loss (ft)	0.86	Cum Volume (acre-ft)	63.75	236.12	117.96
C & E Loss (ft)	0.00	Cum SA (acres)	24.66	31.34	35.28

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.917

INPUT
Description:
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4419.17	1207	4450.18	1206.81	4488.03	1206.93	4528.18	1206.52	4538.09	1206.5
4560.2	1206.8	4574.13	1206.84	4595.7	1206.65	4635.56	1206.58	4641.99	1206.6
4663.41	1206.2	4669.76	1206.24	4688.74	1206.75	4708.85	1206.85	4717.75	1207.23
4736.7	1207.2	4749.56	1206.93	4754.07	1206.64	4762.72	1206.54	4791.34	1206.43
4826.78	1206.2	4836.11	1206.25	4852.34	1210.05	4858.89	1210.58	4874.74	1210.92
4895.54	1204.3	4902.08	1203.92	4908.55	1202.92	4931.21	1203.12	4964.73	1203.31
4974.21	1202.5	4979.6	1202.82	4997.93	1202.77	5006.38	1202.51	5030.73	1203.49
5034.76	1203.5	5093.46	1202.91	5106.76	1204.58	5124.18	1210.99	5137.29	1210.8
5159.44	1206.2	5170.52	1205.5	5181.84	1205.61	5206.43	1206.03	5225.74	1205.97
5228.81	1205.9	5243.84	1206.14	5272.67	1206.07	5317.16	1206.06	5331.85	1206.19
5338.24	1205.6	5388.11	1205.51	5419.17	1205.68				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4419.17	.04	4874.74	.03	5124.18	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4874.74	5124.18	240	411.79	556	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4419.17	4874.74	1213	5124.18	5419.17	1213

Left Levee Station= 4874.74 Elevation= 1210.92
Right Levee Station= 5124.18 Elevation= 1210.99

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1209.15	Element			
Vel Head (ft)	0.66	Wt. n-Val.		0.030	
E.G. Elev (ft)	1209.82	Reach Len. (ft)	240.00	411.79	556.00
Crit W.S. (ft)	1206.90	Flow Area (sq ft)		1333.38	
E.G. Slope (ft/ft)	0.001771	Area (sq ft)		1333.38	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	238.90	Top Width (ft)		238.90	
Vel Total (ft/s)	6.52	Avg. Vel. (ft/s)		6.52	
Max Chl Dpth (ft)	6.65	Hydr. Depth (ft)		5.58	
Conv. Total (cfs)	206743.6	Conv. (cfs)		206743.6	

Length Wtd. (ft)	411.79	Wetted Per. (ft)		240.74
Min Ch El (ft)	1202.50	Shear (lb/sq ft)		0.61
Alpha	1.00	Stream Power (lb/ft s)		4.00
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)	0.02	144.20
C & E Loss (ft)	0.02	Cum SA (acres)	0.09	25.92

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1210.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.83	Wt. n-Val.		0.030	
E.G. Elev (ft)	1211.21	Reach Len. (ft)	240.00	411.79	556.00
Crit W.S. (ft)	1207.76	Flow Area (sq ft)		1630.36	
E.G. Slope (ft/ft)	0.001772	Area (sq ft)		1630.36	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	246.08	Top Width (ft)		246.08	
Vel Total (ft/s)	7.31	Avg. Vel. (ft/s)		7.31	
Max Chl Dpth (ft)	7.88	Hydr. Depth (ft)		6.63	
Conv. Total (cfs)	283141.7	Conv. (cfs)		283141.7	
Length Wtd. (ft)	411.79	Wetted Per. (ft)		248.32	
Min Ch El (ft)	1202.50	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		5.31	
Frctn Loss (ft)	0.85	Cum Volume (acre-ft)	1.12	178.29	9.75
C & E Loss (ft)	0.02	Cum SA (acres)	0.94	27.44	4.53

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1211.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.02	Wt. n-Val.		0.030	
E.G. Elev (ft)	1212.68	Reach Len. (ft)	240.00	411.79	556.00
Crit W.S. (ft)	1208.68	Flow Area (sq ft)		1948.51	
E.G. Slope (ft/ft)	0.001745	Area (sq ft)	2156.89	1948.51	1588.38
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.00	Top Width (ft)	455.57	249.44	294.99
Vel Total (ft/s)	8.09	Avg. Vel. (ft/s)		8.09	
Max Chl Dpth (ft)	9.16	Hydr. Depth (ft)		7.81	
Conv. Total (cfs)	377503.2	Conv. (cfs)		377503.2	
Length Wtd. (ft)	411.79	Wetted Per. (ft)		251.87	
Min Ch El (ft)	1202.50	Shear (lb/sq ft)		0.84	
Alpha	1.00	Stream Power (lb/ft s)		6.82	
Frctn Loss (ft)	0.82	Cum Volume (acre-ft)	51.00	214.06	98.46
C & E Loss (ft)	0.02	Cum SA (acres)	21.79	28.46	31.01

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.839

INPUT
Description:
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4441.09	1207.3	4461.87	1206.56	4484.71	1206.36	4503.59	1206.44	4522.06	1206.73
4540.9	1206.9	4582.77	1206.27	4630.87	1206.26	4641.76	1206.3	4653.25	1206.57
4709.42	1206.2	4720.28	1206.26	4765.59	1206.58	4812.29	1206.51	4823.64	1207.37
4837.73	1206.7	4851.73	1209.11	4859.63	1210.08	4876.5	1210.87	4896.79	1204.48
4907.94	1202.4	4940.15	1202.55	4943.62	1202.69	4960.94	1202.55	4989.6	1202.59
5000.54	1202.5	5031.84	1202.75	5056.48	1202.78	5072.24	1202.26	5093.73	1202.72
5102.11	1203.5	5104.55	1203.66	5115.53	1207.1	5126.69	1210.83	5140.7	1209.99
5161.09	1205.6	5169.7	1205.11	5186.94	1204.99	5259.96	1204.85	5262.4	1204.87
5274.62	1205.8	5287.67	1206.1	5293.99	1205.94	5301.49	1205.33	5304.96	1204.85
5346.45	1204.8	5355.71	1204.75	5364.29	1205.58	5374.45	1206.26	5399.65	1205.08
5403.79	1204.8	5425.13	1204.97	5435.66	1206.22	5441.09	1206.31		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4441.09	.04	4876.5	.03	5126.69	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4876.5	5126.69	240	388.08	530	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4441.09	4876.5	1212	5126.69	5441.09	1212

Left Levee Station= 4876.5 Elevation= 1210.87
Right Levee Station= 5126.69 Elevation= 1210.83

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1208.07	Element			
Vel Head (ft)	0.85	Wt. n-Val.		0.030	
E.G. Elev (ft)	1208.92	Reach Len. (ft)	240.00	388.08	530.00
Crit W.S. (ft)	1206.43	Flow Area (sq ft)		1176.03	
E.G. Slope (ft/ft)	0.002599	Area (sq ft)		1176.03	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	233.05	Top Width (ft)		233.05	
Vel Total (ft/s)	7.40	Avg. Vel. (ft/s)		7.40	
Max Chl Dpth (ft)	5.81	Hydr. Depth (ft)		5.05	
Conv. Total (cfs)	170643.8	Conv. (cfs)		170643.8	
Length Wtd. (ft)	388.08	Wetted Per. (ft)		234.54	
Min Ch El (ft)	1202.26	Shear (lb/sq ft)		0.81	
Alpha	1.00	Stream Power (lb/ft s)		6.02	
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	0.02	132.34	
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	23.69	

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1209.33	Element			
Vel Head (ft)	1.01	Wt. n-Val.		0.030	
E.G. Elev (ft)	1210.35	Reach Len. (ft)	240.00	388.08	530.00
Crit W.S. (ft)	1207.30	Flow Area (sq ft)		1474.51	
E.G. Slope (ft/ft)	0.002403	Area (sq ft)		1474.51	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	240.82	Top Width (ft)		240.82	
Vel Total (ft/s)	8.08	Avg. Vel. (ft/s)		8.08	
Max Chl Dpth (ft)	7.07	Hydr. Depth (ft)		6.12	
Conv. Total (cfs)	243162.6	Conv. (cfs)		243162.6	
Length Wtd. (ft)	388.08	Wetted Per. (ft)		242.71	
Min Ch El (ft)	1202.26	Shear (lb/sq ft)		0.91	
Alpha	1.00	Stream Power (lb/ft s)		7.37	
Frctn Loss (ft)	0.89	Cum Volume (acre-ft)	1.12	163.62	9.75
C & E Loss (ft)	0.02	Cum SA (acres)	0.94	25.14	4.53

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1210.64	Element			
Vel Head (ft)	1.20	Wt. n-Val.		0.030	
E.G. Elev (ft)	1211.84	Reach Len. (ft)	240.00	388.08	530.00
Crit W.S. (ft)	1208.23	Flow Area (sq ft)		1795.23	
E.G. Slope (ft/ft)	0.002285	Area (sq ft)		1795.23	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	248.90	Top Width (ft)		248.90	
Vel Total (ft/s)	8.78	Avg. Vel. (ft/s)		8.78	
Max Chl Dpth (ft)	8.38	Hydr. Depth (ft)		7.21	
Conv. Total (cfs)	329908.3	Conv. (cfs)		329908.3	
Length Wtd. (ft)	388.08	Wetted Per. (ft)		251.20	
Min Ch El (ft)	1202.26	Shear (lb/sq ft)		1.02	
Alpha	1.00	Stream Power (lb/ft s)		8.96	
Frctn Loss (ft)	0.84	Cum Volume (acre-ft)	45.06	196.37	88.32
C & E Loss (ft)	0.02	Cum SA (acres)	20.53	26.11	29.12

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.766

INPUT
Description:

Station Elevation Data num= 46

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4501.83	1206.8	4548.84	1206.44	4552.72	1206.38	4598.31	1206.34	4606.89	1206.35
4651.39	1206.1	4658.48	1206.13	4702.82	1206.2	4751.4	1205.94	4801.4	1206.45
4838.19	1206.4	4853.99	1208.71	4863.48	1209.64	4874.31	1210.06	4877.71	1210.1
4889.96	1206.2	4901.2	1202.39	4908.4	1201.67	4923.53	1201.53	4948.67	1200.98
4980.27	1201.5	4996.27	1201.28	4999.29	1201.43	5019.65	1201.81	5051.75	1201.65
5060.2	1201.8	5093.6	1201.86	5097.41	1202.32	5103.95	1201.91	5128.4	1210.05
5137.93	1209.9	5142.81	1209.59	5163.81	1206.28	5168.02	1206.03	5191.14	1206.28
5207.61	1206.3	5251.39	1205.62	5257.66	1205.62	5301.39	1205.87	5307.73	1205.86
5356.84	1205.5	5405.59	1205.67	5448.4	1205.42	5455.67	1205.39	5498.88	1205.66
5501.83	1205.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4501.83	.04	4877.71	.03	5128.4	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.71	5128.4	72.31	72.31	72.31	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4501.83	4877.71	1212	5128.4	5501.83	1212

Left Levee Station= 4877.71 Elevation= 1210.1
Right Levee Station= 5128.4 Elevation= 1210.05

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1207.10	Element			
Vel Head (ft)	0.83	Wt. n-Val.		0.030	
E.G. Elev (ft)	1207.93	Reach Len. (ft)	72.31	72.31	72.31
Crit W.S. (ft)	1205.39	Flow Area (sq ft)		1190.44	
E.G. Slope (ft/ft)	0.002490	Area (sq ft)		1190.44	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	232.39	Top Width (ft)		232.39	
Vel Total (ft/s)	7.31	Avg. Vel. (ft/s)		7.31	
Max Chl Dpth (ft)	6.12	Hydr. Depth (ft)		5.12	
Conv. Total (cfs)	174362.5	Conv. (cfs)		174362.5	
Length Wtd. (ft)	72.31	Wetted Per. (ft)		234.10	
Min Ch El (ft)	1200.98	Shear (lb/sq ft)		0.79	
Alpha	1.00	Stream Power (lb/ft s)		5.78	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	0.02	121.80	
C & E Loss (ft)	0.06	Cum SA (acres)	0.09	21.62	

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1208.48	Element			
Vel Head (ft)	0.96	Wt. n-Val.		0.030	
E.G. Elev (ft)	1209.44	Reach Len. (ft)	72.31	72.31	72.31
Crit W.S. (ft)	1206.26	Flow Area (sq ft)		1518.15	
E.G. Slope (ft/ft)	0.002184	Area (sq ft)		1518.15	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	240.90	Top Width (ft)		240.90	
Vel Total (ft/s)	7.85	Avg. Vel. (ft/s)		7.85	
Max Chl Dpth (ft)	7.50	Hydr. Depth (ft)		6.30	
Conv. Total (cfs)	255035.3	Conv. (cfs)		255035.3	
Length Wtd. (ft)	72.31	Wetted Per. (ft)		243.05	
Min Ch El (ft)	1200.98	Shear (lb/sq ft)		0.85	
Alpha	1.00	Stream Power (lb/ft s)		6.69	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	1.12	150.28	9.75
C & E Loss (ft)	0.06	Cum SA (acres)	0.94	23.00	4.53

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1209.85	Element			
Vel Head (ft)	1.12	Wt. n-Val.		0.030	
E.G. Elev (ft)	1210.98	Reach Len. (ft)	72.31	72.31	72.31
Crit W.S. (ft)	1207.19	Flow Area (sq ft)		1853.55	
E.G. Slope (ft/ft)	0.002062	Area (sq ft)		1853.55	

Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	249.31	Top Width (ft)		249.31	
Vel Total (ft/s)	8.51	Avg. Vel. (ft/s)		8.51	
Max Chl Dpth (ft)	8.87	Hydr. Depth (ft)		7.43	
Conv. Total (cfs)	347327.6	Conv. (cfs)		347327.6	
Length Wtd. (ft)	72.31	Wetted Per. (ft)		251.89	
Min Ch El (ft)	1200.98	Shear (lb/sq ft)		0.95	
Alpha	1.00	Stream Power (lb/ft s)		8.06	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	45.06	180.11	88.32
C & E Loss (ft)	0.06	Cum SA (acres)	20.53	23.89	29.12

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.752

INPUT
Description: Loose Riprap Drop Structure, Upstream Face
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4501.91	1206.6	4525.31	1206.71	4545.92	1206.69	4551.47	1206.57	4563.31	1206.66
4575.98	1206.3	4587.07	1205.82	4603.22	1206.17	4612.17	1206.27	4651.48	1206.11
4691.37	1206.1	4698.92	1206.06	4710.88	1206.37	4751.47	1205.99	4773.46	1206.14
4801.48	1206.3	4836.86	1206.19	4852.68	1208.69	4857.69	1209.23	4871.94	1210.1
4876.98	1210.1	4883.83	1208.08	4891.03	1206.53	4903.04	1201.95	4907.22	1200.91
4917.57	1200.5	4940.11	1200.19	4951.48	1200.2	4970.1	1200.49	4984.34	1199.88
4998.45	1200.6	5005.41	1200.67	5012.54	1200.51	5039.09	1200.48	5051.48	1200.3
5056.44	1200.3	5089.97	1201.18	5094.08	1201.75	5101.18	1201.64	5121.02	1208.36
5125.42	1209	5128.94	1209.96	5144.14	1209.31	5164.05	1206.51	5167.07	1205.81
5182.82	1205.5	5201.48	1205.95	5222.93	1205.88	5251.48	1205.72	5273.08	1205.56
5287.54	1205.6	5301.48	1205.83	5318.5	1205.81	5330.24	1205.67	5347.12	1205.63
5359	1205.4	5373.09	1205.44	5389.23	1205.99	5398.91	1206.38	5409.1	1206.37
5432.89	1206	5450.9	1205.96	5461.38	1206.09	5473.8	1206.08	5492.93	1205.93
5501.91	1206.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4501.91	.04	4876.98	.03	5128.94	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4876.98	5128.94	9.92	9.92	9.92	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4501.91	4876.98	1211	5128.94	5501.91	1211

Left Levee Station= 4876.98 Elevation= 1210.1
Right Levee Station= 5128.94 Elevation= 1209.96

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1207.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.62	Wt. n-Val.		0.030	
E.G. Elev (ft)	1207.73	Reach Len. (ft)	9.92	9.92	9.92
Crit W.S. (ft)	1204.44	Flow Area (sq ft)		1381.49	
E.G. Slope (ft/ft)	0.001489	Area (sq ft)		1381.49	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	228.99	Top Width (ft)		228.99	
Vel Total (ft/s)	6.30	Avg. Vel. (ft/s)		6.30	
Max Chl Dpth (ft)	7.23	Hydr. Depth (ft)		6.03	
Conv. Total (cfs)	225432.0	Conv. (cfs)		225432.0	
Length Wtd. (ft)	9.92	Wetted Per. (ft)		231.03	
Min Ch El (ft)	1199.88	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		3.50	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.02	119.67	
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	21.24	

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1208.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.		0.030	
E.G. Elev (ft)	1209.25	Reach Len. (ft)	9.92	9.92	9.92

Crit W.S. (ft)	1205.34	Flow Area (sq ft)		1705.72	
E.G. Slope (ft/ft)	0.001472	Area (sq ft)		1705.72	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	239.52	Top Width (ft)		239.52	
Vel Total (ft/s)	6.99	Avg. Vel. (ft/s)		6.99	
Max Chl Dpth (ft)	8.61	Hydr. Depth (ft)		7.12	
Conv. Total (cfs)	310642.4	Conv. (cfs)		310642.4	
Length Wtd. (ft)	9.92	Wetted Per. (ft)		241.93	
Min Ch El (ft)	1199.88	Shear (lb/sq ft)		0.65	
Alpha	1.00	Stream Power (lb/ft s)		4.53	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	1.12	147.61	9.75
C & E Loss (ft)	0.01	Cum SA (acres)	0.94	22.60	4.53

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1209.86	Element			
Vel Head (ft)	0.93	Wt. n-Val.		0.030	
E.G. Elev (ft)	1210.79	Reach Len. (ft)	9.92	9.92	9.92
Crit W.S. (ft)	1206.30	Flow Area (sq ft)		2042.42	
E.G. Slope (ft/ft)	0.001505	Area (sq ft)		2042.42	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	250.81	Top Width (ft)		250.81	
Vel Total (ft/s)	7.72	Avg. Vel. (ft/s)		7.72	
Max Chl Dpth (ft)	9.98	Hydr. Depth (ft)		8.14	
Conv. Total (cfs)	406484.2	Conv. (cfs)		406484.2	
Length Wtd. (ft)	9.92	Wetted Per. (ft)		253.58	
Min Ch El (ft)	1199.88	Shear (lb/sq ft)		0.76	
Alpha	1.00	Stream Power (lb/ft s)		5.84	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	45.06	176.88	88.32
C & E Loss (ft)	0.01	Cum SA (acres)	20.53	23.47	29.12

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.75

INPUT
Description: Loose Riprap Drop Structure, Downstream Face
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4501.92	1206.6	4508.23	1206.63	4520.42	1207.06	4536.16	1206.98	4543.04	1206.75
4568.08	1206.3	4587.76	1205.68	4602.45	1205.91	4616	1206.28	4651.49	1206.12
4691.74	1206.1	4697.67	1206.06	4710.26	1206.23	4726.92	1206.24	4751.48	1206.01
4763.56	1206.1	4801.49	1206.24	4836.98	1206.21	4852.67	1208.67	4855.81	1209.01
4868.38	1209.8	4877.45	1209.98	4881	1208.53	4886.48	1208.52	4905.63	1201.23
4915.36	1200.4	4945.31	1199.99	4972.68	1200.3	4981.93	1199.88	4990.83	1200.23
5003.62	1200.3	5018.3	1200.21	5044.78	1200.26	5054.17	1200.18	5074.38	1200.68
5088.13	1201.1	5093.23	1201.64	5101.31	1201.6	5122.26	1208.01	5129.06	1209.95
5144.03	1209.3	5164.46	1206.4	5166.72	1205.83	5172.09	1205.71	5191.46	1205.72
5201.5	1206	5213.03	1205.93	5251.49	1205.71	5277.57	1205.5	5282.72	1205.5
5301.49	1205.9	5324.4	1205.84	5345.62	1205.63	5352.34	1205.47	5367.55	1205.64
5394.97	1206.4	5400.13	1206.56	5405.56	1206.56	5441.6	1205.96	5451.18	1205.95
5470.13	1206.2	5485.45	1206.18	5501.92	1206.84				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4501.92	.04	4877.45	.025	5129.06	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.45	5129.06	503.85	503.85	503.85	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4501.92	4877.45	1211	5129.06	5501.92	1211

Left Levee Station= 4877.45 Elevation= 1209.98
Right Levee Station= 5129.06 Elevation= 1209.95

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1207.12	Element			
Vel Head (ft)	0.59	Wt. n-Val.		0.025	

E.G. Elev (ft)	1207.71	Reach Len. (ft)	503.85	503.85	503.85
Crit W.S. (ft)	1204.32	Flow Area (sq ft)		1412.16	
E.G. Slope (ft/ft)	0.000962	Area (sq ft)		1412.16	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	229.17	Top Width (ft)		229.17	
Vel Total (ft/s)	6.16	Avg. Vel. (ft/s)		6.16	
Max Chl Dpth (ft)	7.24	Hydr. Depth (ft)		6.16	
Conv. Total (cfs)	280479.9	Conv. (cfs)		280479.9	
Length Wtd. (ft)	503.85	Wetted Per. (ft)		231.17	
Min Ch El (ft)	1199.88	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		2.26	
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)	0.02	119.35	
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	21.19	

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1208.50	Element			
Vel Head (ft)	0.73	Wt. n-Val.		0.025	
E.G. Elev (ft)	1209.23	Reach Len. (ft)	503.85	503.85	503.85
Crit W.S. (ft)	1205.20	Flow Area (sq ft)		1734.93	
E.G. Slope (ft/ft)	0.000955	Area (sq ft)		1734.93	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	237.44	Top Width (ft)		237.44	
Vel Total (ft/s)	6.87	Avg. Vel. (ft/s)		6.87	
Max Chl Dpth (ft)	8.62	Hydr. Depth (ft)		7.31	
Conv. Total (cfs)	385624.5	Conv. (cfs)		385624.5	
Length Wtd. (ft)	503.85	Wetted Per. (ft)		239.90	
Min Ch El (ft)	1199.88	Shear (lb/sq ft)		0.43	
Alpha	1.00	Stream Power (lb/ft s)		2.96	
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	1.12	147.22	9.75
C & E Loss (ft)	0.01	Cum SA (acres)	0.94	22.54	4.53

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1209.87	Element			
Vel Head (ft)	0.90	Wt. n-Val.		0.025	
E.G. Elev (ft)	1210.77	Reach Len. (ft)	503.85	503.85	503.85
Crit W.S. (ft)	1206.18	Flow Area (sq ft)		2073.51	
E.G. Slope (ft/ft)	0.000996	Area (sq ft)		2073.51	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	251.07	Top Width (ft)		251.07	
Vel Total (ft/s)	7.61	Avg. Vel. (ft/s)		7.61	
Max Chl Dpth (ft)	9.99	Hydr. Depth (ft)		8.26	
Conv. Total (cfs)	499680.4	Conv. (cfs)		499680.4	
Length Wtd. (ft)	503.85	Wetted Per. (ft)		253.99	
Min Ch El (ft)	1199.88	Shear (lb/sq ft)		0.51	
Alpha	1.00	Stream Power (lb/ft s)		3.86	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	45.06	176.41	88.32
C & E Loss (ft)	0.01	Cum SA (acres)	20.53	23.42	29.12

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.655

INPUT
Description:
Station Elevation Data num= 59

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4501.93	1206.6	4510.6	1206.47	4552.09	1206.42	4560.56	1206.52	4602.08	1206.44
4642.26	1206.6	4666.22	1206.52	4683.86	1207.13	4696.62	1207.36	4706.18	1207.44
4712.81	1207.9	4718.52	1208.64	4724.6	1208.65	4730.3	1208.98	4736.15	1208.43
4753	1208.5	4762.22	1208.95	4769.49	1209.15	4779.11	1209.64	4786.03	1207.4
4797.59	1206.9	4808.52	1208.82	4828.28	1209.23	4835.31	1208.22	4839.18	1208.73
4843.39	1208.8	4851.42	1208.62	4860.98	1209.22	4875.69	1209.34	4879.45	1208.23
4885.09	1207.6	4905.37	1201.73	4913.8	1201.38	4982.63	1199.4	4998.7	1198.4
5007.13	1197.7	5019.05	1198.21	5027.48	1199	5045.77	1199.8	5052.07	1200.15
5082.66	1201.3	5098.77	1201.77	5121.31	1207.78	5128.11	1208.41	5140.93	1208.72
5164.46	1207	5203.35	1207.21	5235.37	1206.99	5241.3	1206.91	5251.12	1207.16

5253.74 1207.5 5293.04 1208.26 5302.08 1208.26 5329.44 1207.63 5338.76 1207.57
5352.07 1208.3 5394.59 1208.55 5417.44 1208.54 5458.6 1208.88

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4501.93	.04	4875.69	.025	5140.93	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4875.69	5140.93	499.99	499.99	499.99	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4501.93	4875.69	1211	5140.93	5458.6	1211

Left Levee Station= 4875.69 Elevation= 1209.34
Right Levee Station= 5140.93 Elevation= 1208.72

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1206.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.		0.025	
E.G. Elev (ft)	1207.17	Reach Len. (ft)	499.99	499.99	499.99
Crit W.S. (ft)	1204.01	Flow Area (sq ft)		1335.41	
E.G. Slope (ft/ft)	0.001146	Area (sq ft)		1335.41	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	227.70	Top Width (ft)		227.70	
Vel Total (ft/s)	6.51	Avg. Vel. (ft/s)		6.51	
Max Chl Dpth (ft)	8.81	Hydr. Depth (ft)		5.86	
Conv. Total (cfs)	257003.0	Conv. (cfs)		257003.0	
Length Wtd. (ft)	499.99	Wetted Per. (ft)		229.20	
Min Ch El (ft)	1197.70	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		2.72	
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	0.02	103.46	
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	18.54	

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1207.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.80	Wt. n-Val.		0.025	
E.G. Elev (ft)	1208.70	Reach Len. (ft)	499.99	499.99	499.99
Crit W.S. (ft)	1204.92	Flow Area (sq ft)		1659.76	
E.G. Slope (ft/ft)	0.001121	Area (sq ft)		1659.76	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	240.27	Top Width (ft)		240.27	
Vel Total (ft/s)	7.18	Avg. Vel. (ft/s)		7.18	
Max Chl Dpth (ft)	10.20	Hydr. Depth (ft)		6.91	
Conv. Total (cfs)	356001.9	Conv. (cfs)		356001.9	
Length Wtd. (ft)	499.99	Wetted Per. (ft)		242.11	
Min Ch El (ft)	1197.70	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		3.45	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	1.12	127.58	9.75
C & E Loss (ft)	0.01	Cum SA (acres)	0.94	19.78	4.53

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1209.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.96	Wt. n-Val.		0.025	
E.G. Elev (ft)	1210.21	Reach Len. (ft)	499.99	499.99	499.99
Crit W.S. (ft)	1205.90	Flow Area (sq ft)		2004.12	
E.G. Slope (ft/ft)	0.001192	Area (sq ft)		2004.12	431.22
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	582.62	Top Width (ft)		264.95	317.67
Vel Total (ft/s)	7.87	Avg. Vel. (ft/s)		7.87	
Max Chl Dpth (ft)	11.55	Hydr. Depth (ft)		7.56	
Conv. Total (cfs)	456675.5	Conv. (cfs)		456675.5	
Length Wtd. (ft)	499.99	Wetted Per. (ft)		266.98	
Min Ch El (ft)	1197.70	Shear (lb/sq ft)		0.56	
Alpha	1.00	Stream Power (lb/ft s)		4.40	
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	45.06	152.83	85.83
C & E Loss (ft)	0.01	Cum SA (acres)	20.53	20.43	27.29

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.56

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4501.93	1205.6	4511.18	1205.55	4552.66	1205.55	4561.13	1205.65	4602.66	1205.77
4644.29	1205.6	4652.65	1205.52	4694.34	1205.72	4710.93	1205.73	4752.67	1205.49
4802.66	1205.6	4820.09	1205.49	4839.5	1206.47	4863.78	1208.25	4877.17	1208.36
4880.42	1207.3	4885.29	1207.16	4905.4	1201.03	4922.32	1200.24	4933.32	1200.05
4944.22	1199.5	4957.61	1199.58	4976.03	1199.39	4986.36	1197.88	5000.87	1197.53
5013.81	1198.2	5026.37	1197.94	5040.66	1199.5	5053.19	1200	5075.16	1200.56
5089.16	1200.4	5098.59	1200.08	5121.17	1206.6	5125.27	1207.38	5127.99	1208.26
5136.87	1208.2	5141.4	1207.92	5165.79	1205.82	5196.42	1205.69	5205.26	1205.72
5247.23	1205.4	5252.65	1205.31	5302.65	1205.77	5320.69	1205.83	5351.16	1206.2
5360.17	1206.2	5402.66	1206.13	5452.65	1206.63	5501.93	1206.77		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4501.93	.04	4877.17	.025	5127.99	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.17	5127.99	294.28	294.28	294.28	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4501.93	4877.17	1210	5127.99	5501.93	1210

Left Levee Station= 4877.17 Elevation= 1208.36
Right Levee Station= 5127.99 Elevation= 1208.26

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1205.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.		0.025	
E.G. Elev (ft)	1206.61	Reach Len. (ft)	294.28	294.28	294.28
Crit W.S. (ft)	1203.38	Flow Area (sq ft)		1366.19	
E.G. Slope (ft/ft)	0.001078	Area (sq ft)		1366.19	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	229.84	Top Width (ft)		229.84	
Vel Total (ft/s)	6.37	Avg. Vel. (ft/s)		6.37	
Max Chl Dpth (ft)	8.45	Hydr. Depth (ft)		5.94	
Conv. Total (cfs)	265037.2	Conv. (cfs)		265037.2	
Length Wtd. (ft)	294.28	Wetted Per. (ft)		231.68	
Min Ch El (ft)	1197.53	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		2.53	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	0.02	87.95	
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	15.92	

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1207.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.77	Wt. n-Val.		0.025	
E.G. Elev (ft)	1208.15	Reach Len. (ft)	294.28	294.28	294.28
Crit W.S. (ft)	1204.26	Flow Area (sq ft)		1696.59	
E.G. Slope (ft/ft)	0.001072	Area (sq ft)		1696.59	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	245.09	Top Width (ft)		245.09	
Vel Total (ft/s)	7.03	Avg. Vel. (ft/s)		7.03	
Max Chl Dpth (ft)	9.85	Hydr. Depth (ft)		6.92	
Conv. Total (cfs)	364090.4	Conv. (cfs)		364090.4	
Length Wtd. (ft)	294.28	Wetted Per. (ft)		247.29	
Min Ch El (ft)	1197.53	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		3.23	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	1.12	108.32	9.75
C & E Loss (ft)	0.00	Cum SA (acres)	0.94	16.99	4.53

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1208.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.94	Wt. n-Val.		0.025	
E.G. Elev (ft)	1209.64	Reach Len. (ft)	294.28	294.28	294.28
Crit W.S. (ft)	1205.23	Flow Area (sq ft)		2025.67	
E.G. Slope (ft/ft)	0.001073	Area (sq ft)	1072.68	2025.67	956.06
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.00	Top Width (ft)	375.24	250.82	373.94
Vel Total (ft/s)	7.79	Avg. Vel. (ft/s)		7.79	
Max Chl Dpth (ft)	11.17	Hydr. Depth (ft)		8.08	
Conv. Total (cfs)	481458.4	Conv. (cfs)		481458.4	
Length Wtd. (ft)	294.28	Wetted Per. (ft)		253.32	
Min Ch El (ft)	1197.53	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		4.17	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	38.90	129.70	77.87
C & E Loss (ft)	0.00	Cum SA (acres)	18.38	17.47	23.32

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.504

INPUT
Description:
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4502.27	1205.8	4552.99	1205.57	4603	1205.86	4667.07	1205.85	4702.99	1205.81
4752.99	1205.6	4789.08	1205.7	4803	1205.69	4832.48	1205.51	4842.8	1206.4
4853.07	1206.7	4864.32	1208.07	4877.34	1207.89	4880.56	1206.77	4884.85	1206.93
4906.11	1200.3	4932.71	1199.57	4961.54	1199.46	4969.44	1199.33	4988.22	1198.02
4997.59	1198	5008.88	1198.29	5015.65	1197.98	5045.45	1198.35	5079.93	1199.97
5098.35	1200.3	5118.59	1206.14	5123.45	1206.69	5128.08	1207.68	5140.95	1207.29
5153.24	1206.5	5165.95	1205.34	5170.66	1205.29	5189.09	1205.46	5201.97	1204.48
5207.07	1204.7	5221.45	1204.82	5233.27	1204.75	5253	1205.03	5262.39	1205.5
5287.83	1205.8	5302.99	1205.66	5326.68	1205.77	5353.9	1205.85	5388.08	1206.1
5423.6	1206.8	5443.5	1206.93	5455.66	1206.95	5493.26	1207.1	5502.27	1206.84

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4502.27	.04	4877.34	.025	5128.08	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4877.34	5128.08	240.5	240.5	240.5	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4502.27	4877.34	1210	5128.08	5502.27	1210

Left Levee Station= 4864.32 Elevation= 1208.07
Right Levee Station= 5128.08 Elevation= 1207.68

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1205.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.		0.025	
E.G. Elev (ft)	1206.29	Reach Len. (ft)	240.50	240.50	240.50
Crit W.S. (ft)	1203.03	Flow Area (sq ft)		1361.10	
E.G. Slope (ft/ft)	0.001078	Area (sq ft)		1361.10	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	227.96	Top Width (ft)		227.96	
Vel Total (ft/s)	6.39	Avg. Vel. (ft/s)		6.39	
Max Chl Dpth (ft)	7.67	Hydr. Depth (ft)		5.97	
Conv. Total (cfs)	264954.9	Conv. (cfs)		264954.9	
Length Wtd. (ft)	240.50	Wetted Per. (ft)		229.64	
Min Ch El (ft)	1197.98	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		2.55	
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	0.02	78.74	
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	14.37	

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1207.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.77	Wt. n-Val.		0.025	
E.G. Elev (ft)	1207.83	Reach Len. (ft)	240.50	240.50	240.50
Crit W.S. (ft)	1203.96	Flow Area (sq ft)		1690.40	
E.G. Slope (ft/ft)	0.001086	Area (sq ft)		1690.40	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	245.42	Top Width (ft)		245.42	
Vel Total (ft/s)	7.05	Avg. Vel. (ft/s)		7.05	
Max Chl Dpth (ft)	9.08	Hydr. Depth (ft)		6.89	
Conv. Total (cfs)	361685.8	Conv. (cfs)		361685.8	
Length Wtd. (ft)	240.50	Wetted Per. (ft)		247.49	
Min Ch El (ft)	1197.98	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		3.27	
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	1.12	96.88	9.75
C & E Loss (ft)	0.00	Cum SA (acres)	0.94	15.34	4.53

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1208.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.95	Wt. n-Val.		0.025	
E.G. Elev (ft)	1209.32	Reach Len. (ft)	240.50	240.50	240.50
Crit W.S. (ft)	1204.93	Flow Area (sq ft)		2020.16	
E.G. Slope (ft/ft)	0.001081	Area (sq ft)	934.67	2020.16	891.04
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.00	Top Width (ft)	375.07	250.74	374.19
Vel Total (ft/s)	7.81	Avg. Vel. (ft/s)		7.81	
Max Chl Dpth (ft)	10.40	Hydr. Depth (ft)		8.06	
Conv. Total (cfs)	479659.5	Conv. (cfs)		479659.5	
Length Wtd. (ft)	240.50	Wetted Per. (ft)		253.01	
Min Ch El (ft)	1197.98	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		4.21	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	32.12	116.03	71.63
C & E Loss (ft)	0.01	Cum SA (acres)	15.84	15.78	20.79

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.459

INPUT
Description: Begin Transition into Drop Structure.
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4507.5	1206.3	4552.78	1206.46	4584.33	1206.37	4641.93	1206.14	4658.58	1206.24
4695.26	1206.1	4723.22	1206.03	4737.5	1206.07	4748.78	1206.01	4762.09	1206.26
4773.24	1206.6	4786.58	1206.79	4819.2	1206.57	4824.68	1206.58	4837.58	1207.16
4843.62	1207.2	4853.5	1207.56	4863.62	1206.88	4876.23	1206.44	4880.39	1206.09
4883.21	1206.4	4889.93	1204.47	4899.01	1201.68	4903.7	1199.93	4905.17	1199.6
4924.76	1199.3	4957.81	1199.45	4965.22	1199.34	4974.24	1198.96	4979.57	1198.53
4993.88	1198.3	5005.74	1198.67	5025.65	1198.67	5043.31	1198.55	5072.23	1199.32
5081.87	1199.5	5097.17	1199.45	5111.14	1203.72	5119.55	1206.1	5127.6	1206.76
5145.47	1206.9	5154	1207.25	5160.32	1207.36	5177.09	1207.16	5185.19	1207.23
5200.24	1206.7	5210.92	1206.96	5238.44	1206.51	5249.12	1205.22	5266.88	1204.95
5279.33	1204.8	5294.08	1205.28	5325.02	1205.12	5337.88	1205.21	5359.86	1205.14
5384.77	1205.3	5420.53	1205.53	5443.66	1205.76	5463.95	1205.65	5474.81	1205.67
5493.02	1206	5503.07	1206.33	5507.59	1206.24				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4507.5	.04	4853.5	.025	5160.32	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4853.5	5160.32	25	25	25	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4507.5	4853.5	1210	5160.32	5507.59	1210

Left Levee Station= 4853.5 Elevation= 1207.56
Right Levee Station= 5160.32 Elevation= 1207.36

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1205.33	Element			
Vel Head (ft)	0.68	Wt. n-Val.		0.025	
E.G. Elev (ft)	1206.01	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	1202.97	Flow Area (sq ft)		1318.41	
E.G. Slope (ft/ft)	0.001213	Area (sq ft)		1318.41	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	229.91	Top Width (ft)		229.91	
Vel Total (ft/s)	6.60	Avg. Vel. (ft/s)		6.60	
Max Chl Dpth (ft)	7.03	Hydr. Depth (ft)		5.73	
Conv. Total (cfs)	249750.7	Conv. (cfs)		249750.7	
Length Wtd. (ft)	25.00	Wetted Per. (ft)		231.71	
Min Ch El (ft)	1198.30	Shear (lb/sq ft)		0.43	
Alpha	1.00	Stream Power (lb/ft s)		2.84	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.02	71.34	
C & E Loss (ft)	0.17	Cum SA (acres)	0.09	13.11	

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

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1206.74	Element			
Vel Head (ft)	0.81	Wt. n-Val.		0.025	
E.G. Elev (ft)	1207.54	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	1203.87	Flow Area (sq ft)		1654.86	
E.G. Slope (ft/ft)	0.001257	Area (sq ft)		1654.86	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	259.66	Top Width (ft)		259.66	
Vel Total (ft/s)	7.20	Avg. Vel. (ft/s)		7.20	
Max Chl Dpth (ft)	8.44	Hydr. Depth (ft)		6.37	
Conv. Total (cfs)	336274.6	Conv. (cfs)		336274.6	
Length Wtd. (ft)	25.00	Wetted Per. (ft)		261.79	
Min Ch El (ft)	1198.30	Shear (lb/sq ft)		0.50	
Alpha	1.00	Stream Power (lb/ft s)		3.57	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	1.12	87.65	9.75
C & E Loss (ft)	0.22	Cum SA (acres)	0.94	13.94	4.53

Warning - The conveyance ratio (upstream 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 OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1208.12	Element			
Vel Head (ft)	0.90	Wt. n-Val.		0.025	
E.G. Elev (ft)	1209.03	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	1204.83	Flow Area (sq ft)		2066.04	
E.G. Slope (ft/ft)	0.001309	Area (sq ft)	603.60	2066.04	820.20
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.09	Top Width (ft)	346.00	306.82	347.27
Vel Total (ft/s)	7.63	Avg. Vel. (ft/s)		7.63	
Max Chl Dpth (ft)	9.82	Hydr. Depth (ft)		6.73	
Conv. Total (cfs)	435848.2	Conv. (cfs)		435848.2	
Length Wtd. (ft)	25.00	Wetted Per. (ft)		308.98	
Min Ch El (ft)	1198.30	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		4.17	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	27.87	104.75	66.90
C & E Loss (ft)	0.24	Cum SA (acres)	13.85	14.24	18.80

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.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.454

INPUT
Description: Upstream Side of Dip Crossing - End Transition and Begin A.C. Pavement.

Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4507.53	1204.4	4531.28	1204.47	4586.52	1204.29	4617.79	1204.32	4631.07	1204.26
4653.21	1204.4	4669.86	1204.69	4694.69	1205	4708.48	1204.88	4718.61	1204.53
4745.53	1205.8	4751.33	1205.79	4760.38	1206.02	4774.79	1206.5	4796.4	1206.29
4816.9	1205.7	4819.28	1205.56	4842.57	1203.64	4872.76	1201	4888.99	1199.86
4890.59	1199.8	4912.24	1199.24	4965.77	1198.95	4991.85	1198.77	5011.49	1198.86
5040.78	1199.1	5075.34	1199.33	5108.1	1198.96	5137.66	1201.16	5176.93	1204.94
5205.4	1206.6	5241.62	1206.12	5259.38	1205.6	5294.41	1205.02	5373.56	1204.93
5423.4	1205.3	5454.07	1205.64	5489.04	1205.8	5507.59	1206.1		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4507.53	.04	4774.79	.015	5205.4	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4774.79	5205.4		24	24	24	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4507.53	4774.79	1210	5205.4	5507.59	1210

Left Levee Station= 4774.79 Elevation= 1206.5
Right Levee Station= 5205.4 Elevation= 1206.6

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1205.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.015	
E.G. Elev (ft)	1205.83	Reach Len. (ft)	24.00	24.00	24.00
Crit W.S. (ft)	1202.53	Flow Area (sq ft)		1856.70	
E.G. Slope (ft/ft)	0.000257	Area (sq ft)		1856.70	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	366.17	Top Width (ft)		366.17	
Vel Total (ft/s)	4.69	Avg. Vel. (ft/s)		4.69	
Max Chl Dpth (ft)	6.72	Hydr. Depth (ft)		5.07	
Conv. Total (cfs)	542344.6	Conv. (cfs)		542344.6	
Length Wtd. (ft)	24.00	Wetted Per. (ft)		366.69	
Min Ch El (ft)	1198.77	Shear (lb/sq ft)		0.08	
Alpha	1.00	Stream Power (lb/ft s)		0.38	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.02	70.43	
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	12.94	

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

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1206.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.		0.015	
E.G. Elev (ft)	1207.31	Reach Len. (ft)	24.00	24.00	24.00
Crit W.S. (ft)	1203.27	Flow Area (sq ft)		2443.18	
E.G. Slope (ft/ft)	0.000240	Area (sq ft)	593.28	2443.18	451.34
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	1000.06	Top Width (ft)	267.26	430.61	302.19
Vel Total (ft/s)	4.88	Avg. Vel. (ft/s)		4.88	
Max Chl Dpth (ft)	8.17	Hydr. Depth (ft)		5.67	
Conv. Total (cfs)	769228.4	Conv. (cfs)		769228.4	
Length Wtd. (ft)	24.00	Wetted Per. (ft)		431.18	
Min Ch El (ft)	1198.77	Shear (lb/sq ft)		0.08	
Alpha	1.00	Stream Power (lb/ft s)		0.41	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.95	86.47	9.62
C & E Loss (ft)	0.01	Cum SA (acres)	0.86	13.75	4.44

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.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1208.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.		0.015	
E.G. Elev (ft)	1208.77	Reach Len. (ft)	24.00	24.00	24.00
Crit W.S. (ft)	1204.06	Flow Area (sq ft)		3050.99	
E.G. Slope (ft/ft)	0.000200	Area (sq ft)	970.51	3050.99	877.88
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.06	Top Width (ft)	267.26	430.61	302.19
Vel Total (ft/s)	5.17	Avg. Vel. (ft/s)		5.17	
Max Chl Dpth (ft)	9.59	Hydr. Depth (ft)		7.09	
Conv. Total (cfs)	1113943.4	Conv. (cfs)		1113943.4	
Length Wtd. (ft)	24.00	Wetted Per. (ft)		431.18	
Min Ch El (ft)	1198.77	Shear (lb/sq ft)		0.09	
Alpha	1.00	Stream Power (lb/ft s)		0.46	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	27.42	103.28	66.42
C & E Loss (ft)	0.01	Cum SA (acres)	13.68	14.03	18.61

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.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.449

INPUT
Description: Downstream Side of Dip Crossing - Begin Transition and Begin Loose Riprap.
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4507.56	1204.5	4562.88	1204.68	4586.22	1204.73	4632.27	1204.57	4645.75	1204.41
4696.1	1204.6	4711.29	1204.61	4734.92	1204.85	4764.04	1205.84	4771.43	1206.16
4784.47	1206.5	4801.12	1206.44	4817.09	1205.34	4843.94	1203.05	4862.83	1202.1
4866.36	1202.1	4878.49	1201.32	4901.59	1199.4	4907.98	1198.97	4944.06	1198.93
4948	1199.1	4956.51	1198.95	4982.85	1198.79	4994.85	1198.66	5047.85	1198.9
5096.52	1199.1	5101.06	1199.48	5111.33	1199.71	5113.72	1200.23	5115.23	1200.09
5132.01	1201.6	5143.66	1202.62	5174.25	1205.81	5178.2	1205.71	5191.87	1206.36
5201.61	1206.8	5224.15	1206.79	5243.55	1206.28	5245.75	1205.73	5271.76	1205.17
5280.18	1204.9	5301.06	1204.7	5326.49	1204.74	5359.89	1205.01	5386.01	1205.18
5409.04	1205.2	5429.68	1205.2	5457.27	1205.46	5467.4	1205.66	5491.51	1205.74
5507.59	1205.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4507.56	.04	4801.12	.03	5201.61	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4801.12	5201.61		25	25	25 .3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4507.56	4801.12	1210	5201.61	5507.59	1210

Left Levee Station= 4801.12 Elevation= 1206.44
Right Levee Station= 5201.61 Elevation= 1206.8

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1205.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.		0.030	
E.G. Elev (ft)	1205.81	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	1202.59	Flow Area (sq ft)		1802.43	
E.G. Slope (ft/ft)	0.001092	Area (sq ft)		1802.43	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	355.29	Top Width (ft)		355.29	

Vel Total (ft/s)	4.83	Avg. Vel. (ft/s)		4.83
Max Chl Dpth (ft)	6.79	Hydr. Depth (ft)		5.07
Conv. Total (cfs)	263289.7	Conv. (cfs)		263289.7
Length Wtd. (ft)	25.00	Wetted Per. (ft)		355.88
Min Ch El (ft)	1198.66	Shear (lb/sq ft)		0.35
Alpha	1.00	Stream Power (lb/ft s)		1.67
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.02	69.43
C & E Loss (ft)	0.07	Cum SA (acres)	0.09	12.74

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1206.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.		0.030	
E.G. Elev (ft)	1207.30	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	1203.37	Flow Area (sq ft)		2354.39	
E.G. Slope (ft/ft)	0.000987	Area (sq ft)	587.63	2354.39	455.78
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	1000.03	Top Width (ft)	293.56	400.49	305.98
Vel Total (ft/s)	5.06	Avg. Vel. (ft/s)		5.06	
Max Chl Dpth (ft)	8.24	Hydr. Depth (ft)		5.88	
Conv. Total (cfs)	379425.1	Conv. (cfs)		379425.1	
Length Wtd. (ft)	25.00	Wetted Per. (ft)		401.16	
Min Ch El (ft)	1198.66	Shear (lb/sq ft)		0.36	
Alpha	1.00	Stream Power (lb/ft s)		1.83	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.62	85.15	9.37
C & E Loss (ft)	0.11	Cum SA (acres)	0.71	13.52	4.28

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1208.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.		0.030	
E.G. Elev (ft)	1208.75	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	1204.16	Flow Area (sq ft)		2914.45	
E.G. Slope (ft/ft)	0.000848	Area (sq ft)	998.15	2914.45	883.68
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.03	Top Width (ft)	293.56	400.49	305.98
Vel Total (ft/s)	5.41	Avg. Vel. (ft/s)		5.41	
Max Chl Dpth (ft)	9.64	Hydr. Depth (ft)		7.28	
Conv. Total (cfs)	541488.9	Conv. (cfs)		541488.9	
Length Wtd. (ft)	25.00	Wetted Per. (ft)		401.16	
Min Ch El (ft)	1198.66	Shear (lb/sq ft)		0.38	
Alpha	1.00	Stream Power (lb/ft s)		2.08	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	26.88	101.64	65.93
C & E Loss (ft)	0.14	Cum SA (acres)	13.52	13.80	18.44

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.445

INPUT
Description: End Transition and End Loose Riprap
Station Elevation Data num= 68

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4507.59	1204.6	4554.16	1204.71	4603.37	1204.38	4631.53	1204.54	4653.36	1204.47
4681.95	1204.5	4705.56	1204.44	4723.65	1204.65	4751.24	1204.54	4764.46	1205.98
4786.9	1207	4805.07	1206.53	4820.4	1206.77	4832.97	1206.91	4845.32	1207.43
4855.79	1207.6	4861.86	1206.82	4870.27	1206.89	4876.4	1206.69	4887.36	1203.45
4890.78	1202.6	4895.67	1202.04	4897.87	1202.01	4906.66	1199.84	4914.05	1199.07
4919.82	1198.9	4933.25	1198.78	4941.91	1199.2	4961.77	1198.5	4969.08	1198.15
4982.9	1198.1	4987.03	1198.03	4996.68	1198.12	5003.58	1198.53	5013.79	1198.42
5019.62	1198.1	5024.84	1199.07	5030.41	1198.48	5039.75	1198.46	5070.25	1197.94
5081.63	1198.6	5095.92	1199.07	5111.46	1202.62	5119.18	1204.87	5124.14	1206.61
5137.16	1207.2	5149.16	1206.88	5154.94	1207.23	5159.73	1207.31	5179.56	1206.54
5196.03	1206.8	5213.45	1206.39	5233.28	1206.42	5243.14	1205.75	5249.26	1205.64

5256.71	1204.5	5260.16	1204.72	5266.43	1204.81	5275.25	1204.51	5298.62	1204.5
5300.57	1205	5318.88	1204.85	5353.59	1205.16	5403.35	1205.69	5453.36	1206.12
5474.76	1206	5482.92	1206.05	5507.59	1206.55				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4507.59	.04	4870.27	.025	5137.16	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4870.27	5137.16	185.5	185.5	185.5	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4507.59	4855.79	1209	5159.73	5507.59	1209

Left Levee Station= 4855.79 Elevation= 1207.6
Right Levee Station= 5159.73 Elevation= 1207.31

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1205.10	Element			
Vel Head (ft)	0.61	Wt. n-Val.		0.025	
E.G. Elev (ft)	1205.71	Reach Len. (ft)	185.50	185.50	185.50
Crit W.S. (ft)	1202.54	Flow Area (sq ft)		1389.71	
E.G. Slope (ft/ft)	0.001065	Area (sq ft)		1389.71	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	238.06	Top Width (ft)		238.06	
Vel Total (ft/s)	6.26	Avg. Vel. (ft/s)		6.26	
Max Chl Dpth (ft)	7.16	Hydr. Depth (ft)		5.84	
Conv. Total (cfs)	266564.3	Conv. (cfs)		266564.3	
Length Wtd. (ft)	185.50	Wetted Per. (ft)		239.71	
Min Ch El (ft)	1197.94	Shear (lb/sq ft)		0.39	
Alpha	1.00	Stream Power (lb/ft s)		2.41	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.02	68.51	
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	12.57	

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1206.40	Element			
Vel Head (ft)	0.76	Wt. n-Val.		0.025	
E.G. Elev (ft)	1207.16	Reach Len. (ft)	185.50	185.50	185.50
Crit W.S. (ft)	1203.42	Flow Area (sq ft)		1704.72	
E.G. Slope (ft/ft)	0.001060	Area (sq ft)		1704.72	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	246.17	Top Width (ft)		246.17	
Vel Total (ft/s)	6.99	Avg. Vel. (ft/s)		6.99	
Max Chl Dpth (ft)	8.46	Hydr. Depth (ft)		6.92	
Conv. Total (cfs)	366074.2	Conv. (cfs)		366074.2	
Length Wtd. (ft)	185.50	Wetted Per. (ft)		248.23	
Min Ch El (ft)	1197.94	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		3.18	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.45	83.98	9.24
C & E Loss (ft)	0.00	Cum SA (acres)	0.63	13.33	4.19

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1207.65	Element			
Vel Head (ft)	0.94	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1208.58	Reach Len. (ft)	185.50	185.50	185.50
Crit W.S. (ft)	1204.36	Flow Area (sq ft)	9.29	2027.38	12.48
E.G. Slope (ft/ft)	0.001156	Area (sq ft)	871.03	2027.38	685.45
Q Total (cfs)	15770.00	Flow (cfs)	8.71	15750.68	10.61
Top Width (ft)	1000.00	Top Width (ft)	362.68	266.89	370.43
Vel Total (ft/s)	7.70	Avg. Vel. (ft/s)	0.94	7.77	0.85
Max Chl Dpth (ft)	9.71	Hydr. Depth (ft)	0.64	7.60	0.55
Conv. Total (cfs)	463731.1	Conv. (cfs)	256.1	463162.9	312.0
Length Wtd. (ft)	185.50	Wetted Per. (ft)	14.53	269.04	22.59
Min Ch El (ft)	1197.94	Shear (lb/sq ft)	0.05	0.54	0.04
Alpha	1.02	Stream Power (lb/ft s)	0.04	4.23	0.03
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	26.34	100.22	65.48

C & E Loss (ft)	0.01	Cum SA (acres)	13.34	13.61	18.25

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.41

INPUT
Description:
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4502.27	1204.6	4539.36	1204.26	4553.58	1204.22	4567.78	1204.27	4603.58	1204.54
4653.57	1204.3	4739.61	1204.53	4767.53	1204.54	4813.47	1204.53	4822.98	1205.36
4834.14	1205.1	4839.19	1205.71	4850.77	1205.6	4855.79	1205.23	4864.94	1207.13
4876.65	1207.2	4880.55	1205.34	4884.65	1205.75	4906.51	1199.11	4925.87	1198.6
4932.56	1198.1	4946.72	1198.62	4969.41	1198.67	4991.58	1198.59	4997.68	1197.79
5007.39	1197.4	5015.82	1198.08	5034.9	1198.73	5051.22	1198.54	5058.26	1198.27
5070.68	1198.2	5090.4	1198.46	5098.28	1198.4	5121.95	1205.46	5127.29	1206.4
5140.14	1206.2	5145.63	1204.42	5155.67	1203.84	5168.39	1203.55	5196.39	1203.96
5203.58	1203.8	5245.87	1204.19	5263.24	1203.97	5302.86	1204.47	5349.18	1204.73
5353.59	1204.7	5403.58	1205.34	5416.38	1205.3	5430.13	1205.4	5435.76	1205.52
5449.5	1205.2	5465.09	1205.77	5478.87	1205.86	5502.27	1206.12		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4502.27	.04	4876.65	.025	5127.29	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4876.65	5127.29	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4502.27	4876.65	1209	5127.29	5502.27	1209

Left Levee Station= 4876.65 Elevation= 1207.2
Right Levee Station= 5127.29 Elevation= 1206.4

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1204.87	Element			
Vel Head (ft)	0.63	Wt. n-Val.		0.025	
E.G. Elev (ft)	1205.51	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1202.33	Flow Area (sq ft)		1361.09	
E.G. Slope (ft/ft)	0.001108	Area (sq ft)		1361.09	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	232.43	Top Width (ft)		232.43	
Vel Total (ft/s)	6.39	Avg. Vel. (ft/s)		6.39	
Max Chl Dpth (ft)	7.47	Hydr. Depth (ft)		5.86	
Conv. Total (cfs)	261372.6	Conv. (cfs)		261372.6	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		234.37	
Min Ch El (ft)	1197.40	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		2.57	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	0.02	62.65	
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	11.57	

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1206.16	Element			
Vel Head (ft)	0.79	Wt. n-Val.		0.025	
E.G. Elev (ft)	1206.95	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1203.23	Flow Area (sq ft)		1670.65	
E.G. Slope (ft/ft)	0.001142	Area (sq ft)		1670.65	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	247.13	Top Width (ft)		247.13	
Vel Total (ft/s)	7.13	Avg. Vel. (ft/s)		7.13	
Max Chl Dpth (ft)	8.76	Hydr. Depth (ft)		6.76	
Conv. Total (cfs)	352716.3	Conv. (cfs)		352716.3	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		249.55	
Min Ch El (ft)	1197.40	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		3.41	

Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	0.45	76.80	9.24
C & E Loss (ft)	0.00	Cum SA (acres)	0.63	12.28	4.19

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1207.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.		0.025	
E.G. Elev (ft)	1208.36	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1204.18	Flow Area (sq ft)		1970.22	
E.G. Slope (ft/ft)	0.001177	Area (sq ft)	1012.77	1970.22	986.07
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.00	Top Width (ft)	374.38	250.64	374.98
Vel Total (ft/s)	8.00	Avg. Vel. (ft/s)		8.00	
Max Chl Dpth (ft)	9.96	Hydr. Depth (ft)		7.86	
Conv. Total (cfs)	459688.2	Conv. (cfs)		459688.2	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		253.32	
Min Ch El (ft)	1197.40	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		4.57	
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	22.33	91.71	61.92
C & E Loss (ft)	0.00	Cum SA (acres)	11.77	12.51	16.66

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.315

INPUT
Description:
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4502.27	1204.4	4518.41	1204.43	4554.16	1204.36	4604.16	1204.48	4654.15	1204.34
4704.17	1204.5	4754.16	1204.26	4795.59	1204.48	4809.2	1203.96	4821.5	1205.33
4838.45	1205.5	4851.24	1203.93	4856.27	1204.15	4864.77	1205.9	4876.91	1206.05
4880.96	1204.6	4883.34	1205.07	4906.02	1198.46	4934.15	1198.29	4950.4	1198.27
4974.15	1198.4	4989.23	1197.69	4993.37	1196.8	4998.36	1196.75	5001.69	1197.03
5009.62	1198.1	5020.69	1198.3	5040.34	1198	5052.59	1197.2	5065.22	1197.11
5074.15	1197.5	5088.73	1198	5097.39	1198.14	5120.87	1204.85	5137.42	1205.51
5139.35	1205.5	5146.23	1202.64	5156.88	1202.52	5167.81	1201.95	5204.16	1202.07
5240.76	1202.7	5254.15	1202.93	5290.81	1203.07	5304.15	1203.22	5340.89	1203.43
5370.45	1203.8	5398.44	1204.14	5415.06	1203.21	5424.72	1204.21	5433.64	1204
5454.15	1203.9	5464.44	1204.36	5497.27	1204.74	5502.27	1204.74		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4502.27	.04	4876.91	.025	5137.42	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4876.91	5137.42	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4502.27	4876.91	1208	5137.42	5502.27	1208

Left Levee Station= 4876.91 Elevation= 1206.05
Right Levee Station= 5137.42 Elevation= 1205.51

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1204.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.		0.025	
E.G. Elev (ft)	1204.93	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1201.87	Flow Area (sq ft)		1336.83	
E.G. Slope (ft/ft)	0.001179	Area (sq ft)		1336.83	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	232.78	Top Width (ft)		232.78	
Vel Total (ft/s)	6.51	Avg. Vel. (ft/s)		6.51	
Max Chl Dpth (ft)	7.52	Hydr. Depth (ft)		5.74	
Conv. Total (cfs)	253404.9	Conv. (cfs)		253404.9	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		234.72	
Min Ch El (ft)	1196.75	Shear (lb/sq ft)		0.42	

Alpha	1.00	Stream Power (lb/ft s)		2.73
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)	0.02	47.17
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	8.90

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1205.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.		0.025	
E.G. Elev (ft)	1206.34	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1202.74	Flow Area (sq ft)		1640.82	
E.G. Slope (ft/ft)	0.001290	Area (sq ft)		1640.82	805.03
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	623.89	Top Width (ft)		259.04	364.85
Vel Total (ft/s)	7.26	Avg. Vel. (ft/s)		7.26	
Max Chl Dpth (ft)	8.78	Hydr. Depth (ft)		6.33	
Conv. Total (cfs)	331866.5	Conv. (cfs)		331866.5	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		261.39	
Min Ch El (ft)	1196.75	Shear (lb/sq ft)		0.51	
Alpha	1.00	Stream Power (lb/ft s)		3.67	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	0.45	57.79	4.62
C & E Loss (ft)	0.00	Cum SA (acres)	0.63	9.38	2.09

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1206.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.01	Wt. n-Val.		0.025	
E.G. Elev (ft)	1207.75	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1203.72	Flow Area (sq ft)		1956.06	
E.G. Slope (ft/ft)	0.001267	Area (sq ft)	830.64	1956.06	1247.06
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.00	Top Width (ft)	374.64	260.51	364.85
Vel Total (ft/s)	8.06	Avg. Vel. (ft/s)		8.06	
Max Chl Dpth (ft)	9.99	Hydr. Depth (ft)		7.51	
Conv. Total (cfs)	443040.6	Conv. (cfs)		443040.6	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		262.95	
Min Ch El (ft)	1196.75	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		4.74	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	11.75	69.18	49.10
C & E Loss (ft)	0.00	Cum SA (acres)	7.47	9.57	12.42

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.22

INPUT
Description:
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4502.27	1204.5	4554.74	1204.62	4604.73	1204.62	4654.74	1204.48	4704.75	1204.55
4718.76	1204.5	4754.74	1204.67	4796.47	1205.02	4807.62	1205.07	4816.98	1205.91
4821.88	1205.7	4837.93	1205.85	4848.63	1204.13	4851.58	1203.52	4855.26	1203.98
4859.33	1203.9	4864.96	1205.01	4873.1	1205.16	4876.97	1205.1	4905.44	1198.11
4922.84	1197.9	4948.83	1198.18	4963.23	1198.17	4976.38	1197.95	4984.69	1197.19
4988.83	1195.4	4995.64	1195.51	4998.21	1195.36	5008.61	1197.03	5016.98	1197.55
5052.81	1198.1	5058.39	1197.8	5064.85	1197.2	5068.82	1196.23	5075.35	1195.78
5081.57	1197	5089.34	1197.89	5099.9	1197.5	5124.61	1204.41	5133.74	1205.48
5141.89	1205	5148.92	1202.87	5159.45	1201.43	5165.66	1201.33	5204.74	1201.34
5217.61	1201.5	5251.75	1201.55	5266.56	1201.02	5282.65	1201.31	5304.75	1201.63
5404.74	1201.4	5417.93	1201.58	5454.73	1201.93	5467.87	1201.89	5502.27	1201.93

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4502.27	.04	4876.97	.025	5133.74	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4876.97	5133.74	500	500	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4502.27	4876.97	1207	5133.74	5502.27	1207

Left Levee Station= 4816.98 Elevation= 1205.91
Right Levee Station= 5133.74 Elevation= 1205.48

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1203.67	Element			
Vel Head (ft)	0.66	Wt. n-Val.		0.025	
E.G. Elev (ft)	1204.33	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1201.34	Flow Area (sq ft)		1333.09	
E.G. Slope (ft/ft)	0.001236	Area (sq ft)	0.14	1333.09	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	241.03	Top Width (ft)	1.88	239.14	
Vel Total (ft/s)	6.53	Avg. Vel. (ft/s)		6.53	
Max Chl Dpth (ft)	8.31	Hydr. Depth (ft)		5.57	
Conv. Total (cfs)	247430.4	Conv. (cfs)		247430.4	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		241.57	
Min Ch El (ft)	1195.36	Shear (lb/sq ft)		0.43	
Alpha	1.00	Stream Power (lb/ft s)		2.78	
Frctn Loss (ft)	0.72	Cum Volume (acre-ft)	0.02	31.85	
C & E Loss (ft)	0.02	Cum SA (acres)	0.08	6.19	

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1204.87	Element			
Vel Head (ft)	0.83	Wt. n-Val.		0.025	
E.G. Elev (ft)	1205.70	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1202.22	Flow Area (sq ft)		1626.04	
E.G. Slope (ft/ft)	0.001275	Area (sq ft)	15.01	1626.04	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	270.77	Top Width (ft)	20.18	250.58	
Vel Total (ft/s)	7.33	Avg. Vel. (ft/s)		7.33	
Max Chl Dpth (ft)	9.51	Hydr. Depth (ft)		6.49	
Conv. Total (cfs)	333834.4	Conv. (cfs)		333834.4	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		253.29	
Min Ch El (ft)	1195.36	Shear (lb/sq ft)		0.51	
Alpha	1.00	Stream Power (lb/ft s)		3.75	
Frctn Loss (ft)	0.74	Cum Volume (acre-ft)	0.37	39.04	
C & E Loss (ft)	0.02	Cum SA (acres)	0.51	6.45	

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1206.07	Element			
Vel Head (ft)	1.03	Wt. n-Val.		0.025	
E.G. Elev (ft)	1207.10	Reach Len. (ft)	500.00	500.00	500.00
Crit W.S. (ft)	1203.19	Flow Area (sq ft)		1932.94	
E.G. Slope (ft/ft)	0.001295	Area (sq ft)	510.10	1932.94	1615.49
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	1000.00	Top Width (ft)	374.70	256.77	368.53
Vel Total (ft/s)	8.16	Avg. Vel. (ft/s)		8.16	
Max Chl Dpth (ft)	10.71	Hydr. Depth (ft)		7.53	
Conv. Total (cfs)	438143.6	Conv. (cfs)		438143.6	
Length Wtd. (ft)	500.00	Wetted Per. (ft)		259.54	
Min Ch El (ft)	1195.36	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		4.91	
Frctn Loss (ft)	0.74	Cum Volume (acre-ft)	4.06	46.86	32.68
C & E Loss (ft)	0.02	Cum SA (acres)	3.17	6.60	8.21

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.125

INPUT
Description:
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4502.27	1204.7	4555.33	1204.8	4605.32	1204.78	4641.21	1204.82	4691.27	1204.63
4719.33	1204.7	4755.32	1204.86	4775.57	1204.84	4794.78	1204.94	4802	1205.45
4804.1	1205	4815.04	1204.62	4821.38	1203.59	4829.8	1204.8	4837.57	1204.39
4853.35	1202.6	4857.26	1202.35	4860.07	1202.66	4866.6	1204.46	4878.22	1204.18
4882.33	1203.4	4885.28	1203.48	4903.75	1198.59	4928.68	1197.59	4946.04	1197.29
4974.54	1197.2	4982.72	1197.12	4994.56	1195.19	5010.97	1195.04	5019.4	1196.9
5033.21	1197.7	5064.07	1196.77	5072.25	1196.46	5078.75	1196.62	5086.45	1197.06
5097.56	1198.1	5121.06	1204.14	5127.44	1203.93	5139.25	1204.52	5141.4	1204.48
5148.01	1202	5163.52	1200.65	5191.98	1200.97	5205.32	1201.2	5241.92	1201.45
5255.33	1201.4	5291.99	1201.01	5355.31	1200.93	5392.09	1200.96	5405.32	1200.9
5418.51	1200.9	5455.32	1200.77	5475.26	1200.86	5492.83	1200.86	5498.79	1200.77

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4502.27	.04	4878.22	.025	5121.06	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4878.22	5121.06	220.03	220.03	220.03	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4502.27	4866.6	1207	5139.25	5498.79	1207

Left Levee Station= 4802 Elevation= 1205.45
Right Levee Station= 5139.25 Elevation= 1204.52

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1202.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.84	Wt. n-Val.		0.025	
E.G. Elev (ft)	1203.59	Reach Len. (ft)	220.03	220.03	220.03
Crit W.S. (ft)	1200.98	Flow Area (sq ft)		1186.26	
E.G. Slope (ft/ft)	0.001701	Area (sq ft)	1.92	1186.26	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	236.08	Top Width (ft)	8.43	227.65	
Vel Total (ft/s)	7.33	Avg. Vel. (ft/s)		7.33	
Max Chl Dpth (ft)	7.71	Hydr. Depth (ft)		5.21	
Conv. Total (cfs)	210923.4	Conv. (cfs)		210923.4	
Length Wtd. (ft)	220.03	Wetted Per. (ft)		229.27	
Min Ch El (ft)	1195.04	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		4.03	
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)	0.00	17.39	
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	3.51	

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.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1203.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.05	Wt. n-Val.		0.025	
E.G. Elev (ft)	1204.93	Reach Len. (ft)	220.03	220.03	220.03
Crit W.S. (ft)	1201.88	Flow Area (sq ft)		1450.38	
E.G. Slope (ft/ft)	0.001758	Area (sq ft)	19.99	1450.38	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	266.69	Top Width (ft)	26.39	240.30	
Vel Total (ft/s)	8.22	Avg. Vel. (ft/s)		8.22	
Max Chl Dpth (ft)	8.85	Hydr. Depth (ft)		6.04	
Conv. Total (cfs)	284270.7	Conv. (cfs)		284270.7	
Length Wtd. (ft)	220.03	Wetted Per. (ft)		242.21	
Min Ch El (ft)	1195.04	Shear (lb/sq ft)		0.66	
Alpha	1.00	Stream Power (lb/ft s)		5.40	

Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	0.16	21.39
C & E Loss (ft)	0.00	Cum SA (acres)	0.24	3.63

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.

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1205.07	Element			
Vel Head (ft)	1.27	Wt. n-Val.	0.040	0.025	0.040
E.G. Elev (ft)	1206.34	Reach Len. (ft)	220.03	220.03	220.03
Crit W.S. (ft)	1202.83	Flow Area (sq ft)	8.67	1736.68	16.52
E.G. Slope (ft/ft)	0.001705	Area (sq ft)	80.56	1736.68	1449.88
Q Total (cfs)	15770.00	Flow (cfs)	10.95	15735.31	23.74
Top Width (ft)	695.00	Top Width (ft)	74.43	242.84	377.73
Vel Total (ft/s)	8.95	Avg. Vel. (ft/s)	1.26	9.06	1.44
Max Chl Dpth (ft)	10.03	Hydr. Depth (ft)	0.75	7.15	0.91
Conv. Total (cfs)	381942.7	Conv. (cfs)	265.1	381102.4	575.1
Length Wtd. (ft)	220.03	Wetted Per. (ft)	11.62	244.80	18.21
Min Ch El (ft)	1195.04	Shear (lb/sq ft)	0.08	0.76	0.10
Alpha	1.02	Stream Power (lb/ft s)	0.10	6.84	0.14
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	0.67	25.80	15.08
C & E Loss (ft)	0.00	Cum SA (acres)	0.59	3.74	3.92

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.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.084

INPUT
Description: Begin Loose Riprap
Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4504.08	1204.5	4561.41	1204.64	4649.64	1204.39	4655.58	1204.34	4705.59	1204.34
4755.59	1204.7	4801.73	1205.1	4811.56	1204.75	4824.27	1204.9	4835.3	1204.2
4851.83	1202.2	4855.42	1202.64	4860.15	1202.53	4866.14	1203.76	4874.73	1204.07
4879.27	1203.9	4899.96	1198.85	4911.82	1198.37	4926.9	1196.77	4955.59	1197.41
4983.14	1197.1	5003.62	1196.27	5010.96	1195.57	5043.48	1196.06	5064.05	1196.49
5074.29	1195.7	5082.84	1196.73	5102.02	1197.21	5124.22	1203.18	5128.94	1203.89
5143.24	1203.9	5149.08	1201.69	5165.59	1200.43	5205.59	1200.71	5255.57	1200.63
5305.57	1200.2	5362.36	1199.98	5405.58	1200.06	5412.42	1200.1	5455.59	1200.18
5499.88	1199.7	5504.08	1199.73						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4504.08	.04	4874.73	.035	5128.94	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4874.73	5128.94	34.2	34.2	34.2	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4504.08	4874.73	1206	5128.94	5504.08	1206

Left Levee Station= 4801.73 Elevation= 1205.1
Right Levee Station= 5128.94 Elevation= 1203.89

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1202.19	Element			
Vel Head (ft)	0.87	Wt. n-Val.		0.035	
E.G. Elev (ft)	1203.06	Reach Len. (ft)	34.20	34.20	34.20
Crit W.S. (ft)	1200.61	Flow Area (sq ft)		1164.36	
E.G. Slope (ft/ft)	0.003679	Area (sq ft)		1164.36	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	234.25	Top Width (ft)		234.25	
Vel Total (ft/s)	7.47	Avg. Vel. (ft/s)		7.47	

Max Chl Dpth (ft)	6.62	Hydr. Depth (ft)	4.97
Conv. Total (cfs)	143435.8	Conv. (cfs)	143435.8
Length Wtd. (ft)	34.20	Wetted Per. (ft)	235.57
Min Ch El (ft)	1195.57	Shear (lb/sq ft)	1.14
Alpha	1.00	Stream Power (lb/ft s)	8.48
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	11.45
C & E Loss (ft)	0.01	Cum SA (acres)	2.34

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1203.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.07	Wt. n-Val.		0.035	
E.G. Elev (ft)	1204.39	Reach Len. (ft)	34.20	34.20	34.20
Crit W.S. (ft)	1201.49	Flow Area (sq ft)		1435.47	
E.G. Slope (ft/ft)	0.003625	Area (sq ft)	13.50	1435.47	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	265.03	Top Width (ft)	21.48	243.55	
Vel Total (ft/s)	8.30	Avg. Vel. (ft/s)		8.30	
Max Chl Dpth (ft)	7.75	Hydr. Depth (ft)		5.89	
Conv. Total (cfs)	197986.8	Conv. (cfs)		197986.8	
Length Wtd. (ft)	34.20	Wetted Per. (ft)		245.15	
Min Ch El (ft)	1195.57	Shear (lb/sq ft)		1.33	
Alpha	1.00	Stream Power (lb/ft s)		11.00	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.08	14.10	
C & E Loss (ft)	0.01	Cum SA (acres)	0.12	2.41	

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1204.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.28	Wt. n-Val.		0.035	
E.G. Elev (ft)	1205.81	Reach Len. (ft)	34.20	34.20	34.20
Crit W.S. (ft)	1202.43	Flow Area (sq ft)		1739.31	
E.G. Slope (ft/ft)	0.003543	Area (sq ft)	53.55	1739.31	1527.10
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	674.11	Top Width (ft)	44.76	254.21	375.14
Vel Total (ft/s)	9.07	Avg. Vel. (ft/s)		9.07	
Max Chl Dpth (ft)	8.97	Hydr. Depth (ft)		6.84	
Conv. Total (cfs)	264940.6	Conv. (cfs)		264940.6	
Length Wtd. (ft)	34.20	Wetted Per. (ft)		255.92	
Min Ch El (ft)	1195.57	Shear (lb/sq ft)		1.50	
Alpha	1.00	Stream Power (lb/ft s)		13.63	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.33	17.02	7.56
C & E Loss (ft)	0.01	Cum SA (acres)	0.29	2.48	2.02

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.077

INPUT
Description:
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4502.56	1204.6	4545.62	1204.57	4595.68	1204.64	4615.51	1204.58	4655.61	1204.27
4705.62	1204.3	4774.82	1204.86	4804.19	1205.03	4813.03	1204.8	4825	1204.88
4838.74	1203.9	4849.55	1202.44	4853.03	1202.12	4859.78	1202.56	4866.93	1203.78
4879.36	1203.9	4888.47	1201.48	4900.23	1198.71	4910.15	1198.14	4919.22	1197.51
4927.93	1196.8	4944.67	1196.95	4955.62	1197.15	4982.61	1196.97	5010.6	1195.87
5034.02	1195.9	5052.62	1196.09	5058.99	1196.23	5063.07	1195.97	5077.13	1195.67
5086.71	1196.6	5103.94	1197.25	5109.87	1198.64	5117.43	1200.05	5122.23	1201.35
5126.46	1203.2	5129.79	1204	5137.66	1203.91	5143.91	1204.11	5149.87	1201.65
5166.19	1200.5	5205.62	1200.71	5255.6	1200.66	5305.61	1200.31	5355.61	1200.11
5396.63	1199.9	5405.62	1199.9	5446.7	1200.13	5455.62	1200.15	5464.78	1200.05
5502.56	1200.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4502.56	.04	4879.36	.03	5129.79	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4879.36	5129.79	450	307.99	138	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4502.56	4879.36	1206	5143.91	5502.56	1206

Left Levee Station= 4804.19 Elevation= 1205.03
Right Levee Station= 5143.91 Elevation= 1204.11

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1202.11	Element			
Vel Head (ft)	0.83	Wt. n-Val.		0.030	
E.G. Elev (ft)	1202.94	Reach Len. (ft)	450.00	307.99	138.00
Crit W.S. (ft)	1200.47	Flow Area (sq ft)		1192.14	
E.G. Slope (ft/ft)	0.002548	Area (sq ft)		1192.14	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	237.88	Top Width (ft)		237.88	
Vel Total (ft/s)	7.30	Avg. Vel. (ft/s)		7.30	
Max Chl Dpth (ft)	6.44	Hydr. Depth (ft)		5.01	
Conv. Total (cfs)	172345.3	Conv. (cfs)		172345.3	
Length Wtd. (ft)	307.99	Wetted Per. (ft)		239.07	
Min Ch El (ft)	1195.67	Shear (lb/sq ft)		0.79	
Alpha	1.00	Stream Power (lb/ft s)		5.79	
Frctn Loss (ft)	0.79	Cum Volume (acre-ft)		10.52	
C & E Loss (ft)	0.00	Cum SA (acres)		2.16	

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1203.25	Element			
Vel Head (ft)	1.02	Wt. n-Val.		0.030	
E.G. Elev (ft)	1204.28	Reach Len. (ft)	450.00	307.99	138.00
Crit W.S. (ft)	1201.33	Flow Area (sq ft)		1467.89	
E.G. Slope (ft/ft)	0.002490	Area (sq ft)	13.44	1467.89	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	265.23	Top Width (ft)	20.33	244.90	
Vel Total (ft/s)	8.12	Avg. Vel. (ft/s)		8.12	
Max Chl Dpth (ft)	7.58	Hydr. Depth (ft)		5.99	
Conv. Total (cfs)	238883.0	Conv. (cfs)		238883.0	
Length Wtd. (ft)	307.99	Wetted Per. (ft)		246.47	
Min Ch El (ft)	1195.67	Shear (lb/sq ft)		0.93	
Alpha	1.00	Stream Power (lb/ft s)		7.52	
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)	0.07	12.96	
C & E Loss (ft)	0.00	Cum SA (acres)	0.11	2.22	

Warning - Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1204.47	Element			
Vel Head (ft)	1.23	Wt. n-Val.		0.030	0.040
E.G. Elev (ft)	1205.70	Reach Len. (ft)	450.00	307.99	138.00
Crit W.S. (ft)	1202.23	Flow Area (sq ft)		1770.68	6.95
E.G. Slope (ft/ft)	0.002402	Area (sq ft)	55.53	1770.68	1474.41
Q Total (cfs)	15770.00	Flow (cfs)		15762.11	7.89
Top Width (ft)	671.83	Top Width (ft)	48.63	250.43	372.77
Vel Total (ft/s)	8.87	Avg. Vel. (ft/s)		8.90	1.13
Max Chl Dpth (ft)	8.80	Hydr. Depth (ft)		7.07	0.49
Conv. Total (cfs)	321750.9	Conv. (cfs)		321590.0	160.9
Length Wtd. (ft)	307.95	Wetted Per. (ft)		252.18	14.12
Min Ch El (ft)	1195.67	Shear (lb/sq ft)		1.05	0.07
Alpha	1.01	Stream Power (lb/ft s)		9.37	0.08
Frctn Loss (ft)	0.75	Cum Volume (acre-ft)	0.29	15.64	6.39
C & E Loss (ft)	0.01	Cum SA (acres)	0.25	2.28	1.73

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.019

INPUT
Description:
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4592.48	1197	4624.51	1196.61	4631.96	1196.27	4637.8	1195.68	4655.87	1196.61
4681.39	1197.1	4702.41	1197.36	4723.93	1200.1	4744.3	1203.09	4755.76	1203.2
4769.11	1202.9	4779.73	1202.78	4794.38	1203.16	4801.67	1202.38	4810.74	1201.79
4823.98	1201.6	4858.7	1201.25	4863.2	1201.42	4872.43	1203.8	4888.74	1203.69
4910.34	1196	4914.34	1196.06	4925.4	1195.47	4971.95	1196.03	5014.13	1196.01
5063.75	1195.8	5079.57	1195.27	5085.53	1194.97	5094.49	1195.88	5107.97	1195.71
5110.51	1196.5	5133.34	1203.6	5142.02	1203.44	5147.67	1203.12	5153.14	1200.92
5166.2	1200	5202.05	1200.11	5225.82	1200.06	5258.63	1200.06	5265.7	1199.97
5270.99	1200.1	5317.11	1200.02	5337.04	1199.86	5374.37	1199.78	5383.46	1199.39
5393.67	1198.6	5401.03	1199.66	5409.76	1199.42	5473.19	1200.34	5489.68	1200.48
5535.55	1200.5	5548.42	1200.15	5556.69	1198.21	5564.71	1199.63	5592.48	1200.02

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4592.48	.04	4888.74	.03	5133.34	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4888.74	5133.34	78.04	78.04	78.04	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4592.48	4872.43	1206	5133.34	5592.48	1206

Left Levee Station= 4872.43 Elevation= 1203.8
Right Levee Station= 5133.34 Elevation= 1203.6

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1201.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.85	Wt. n-Val.		0.030	
E.G. Elev (ft)	1202.15	Reach Len. (ft)	78.04	78.04	78.04
Crit W.S. (ft)	1199.63	Flow Area (sq ft)		1174.85	
E.G. Slope (ft/ft)	0.002575	Area (sq ft)		1174.85	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	230.47	Top Width (ft)		230.47	
Vel Total (ft/s)	7.41	Avg. Vel. (ft/s)		7.41	
Max Chl Dpth (ft)	6.33	Hydr. Depth (ft)		5.10	
Conv. Total (cfs)	171444.5	Conv. (cfs)		171444.5	
Length Wtd. (ft)	78.04	Wetted Per. (ft)		232.32	
Min Ch El (ft)	1194.97	Shear (lb/sq ft)		0.81	
Alpha	1.00	Stream Power (lb/ft s)		6.02	
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)		2.16	
C & E Loss (ft)	0.31	Cum SA (acres)		0.50	

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.

CROSS SECTION OUTPUT Profile #Future

W.S. Elev (ft)	1202.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.06	Wt. n-Val.		0.030	
E.G. Elev (ft)	1203.50	Reach Len. (ft)	78.04	78.04	78.04
Crit W.S. (ft)	1200.52	Flow Area (sq ft)		1442.11	
E.G. Slope (ft/ft)	0.002543	Area (sq ft)		1442.11	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	237.35	Top Width (ft)		237.35	
Vel Total (ft/s)	8.27	Avg. Vel. (ft/s)		8.27	
Max Chl Dpth (ft)	7.47	Hydr. Depth (ft)		6.08	
Conv. Total (cfs)	236364.7	Conv. (cfs)		236364.7	

Length Wtd. (ft)	78.04	Wetted Per. (ft)	239.57
Min Ch El (ft)	1194.97	Shear (lb/sq ft)	0.96
Alpha	1.00	Stream Power (lb/ft s)	7.90
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	2.67
C & E Loss (ft)	0.37	Cum SA (acres)	0.51

Warning - The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning - The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #Existing

W.S. Elev (ft)	1203.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.28	Wt. n-Val.		0.030	
E.G. Elev (ft)	1204.94	Reach Len. (ft)	78.04	78.04	78.04
Crit W.S. (ft)	1201.46	Flow Area (sq ft)		1736.96	
E.G. Slope (ft/ft)	0.002496	Area (sq ft)		1736.96	1633.29
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	703.66	Top Width (ft)		244.52	459.14
Vel Total (ft/s)	9.08	Avg. Vel. (ft/s)		9.08	
Max Chl Dpth (ft)	8.69	Hydr. Depth (ft)		7.10	
Conv. Total (cfs)	315677.3	Conv. (cfs)		315677.3	
Length Wtd. (ft)	78.04	Wetted Per. (ft)		247.13	
Min Ch El (ft)	1194.97	Shear (lb/sq ft)		1.10	
Alpha	1.00	Stream Power (lb/ft s)		9.94	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)		3.24	1.46
C & E Loss (ft)	0.42	Cum SA (acres)		0.53	0.41

Warning - The cross-section end points had to be extended vertically for the computed water surface.
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.

CROSS SECTION RIVER: EMF
REACH: Reach 1 RS: 0.004

INPUT
Description: Begin Grouted Riprap
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4588.42	1197	4599.28	1197.4	4625.17	1197.52	4700.4	1196.5	4750.32	1195.27
4762.91	1195.8	4784.01	1196.43	4807.06	1197.37	4841.48	1203.48	4863.61	1203.93
4876.53	1204.3	4892.28	1203.98	4917.02	1195.59	4941.14	1195.41	4977.83	1195.68
5010.48	1195.6	5020.21	1195.63	5063.32	1195.36	5070.19	1195.57	5083.08	1195.54
5087.97	1195.7	5093.87	1196.43	5103.34	1196.28	5128.14	1203.8	5147.97	1203.28
5154.35	1200.7	5166.91	1200.15	5171.73	1199.85	5180.92	1199.77	5213.49	1200.28
5248.48	1199.8	5272.7	1199.98	5321.09	1200.02	5327.69	1200	5341.4	1200.14
5353.12	1200.1	5359.05	1199.85	5378.83	1199.1	5387.22	1198.16	5391.5	1198.72
5399.42	1198.4	5407.37	1199.76	5433.07	1200.09	5466.07	1199.72	5504.71	1199.74
5521.47	1199.4	5531.51	1197.88	5547.87	1199.38	5588.42	1200.03		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4588.42	.04	4892.28	.03	5128.14	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4892.28	5128.14	21.96	21.96	21.96	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4588.42	4876.53	1205	5128.14	5588.42	1205

Left Levee Station= 4876.53 Elevation= 1204.3
Right Levee Station= 5128.14 Elevation= 1203.8

CROSS SECTION OUTPUT Profile #Design

W.S. Elev (ft)	1199.61	Element	Left OB	Channel	Right OB

Vel Head (ft)	1.89	Wt. n-Val.		0.030	
E.G. Elev (ft)	1201.50	Reach Len. (ft)	21.96	21.96	21.96
Crit W.S. (ft)	1199.61	Flow Area (sq ft)		788.19	
E.G. Slope (ft/ft)	0.008534	Area (sq ft)		788.19	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	209.15	Top Width (ft)		209.15	
Vel Total (ft/s)	11.04	Avg. Vel. (ft/s)		11.04	
Max Chl Dpth (ft)	4.34	Hydr. Depth (ft)		3.77	
Conv. Total (cfs)	94177.4	Conv. (cfs)		94177.4	
Length Wtd. (ft)	21.96	Wetted Per. (ft)		210.36	
Min Ch El (ft)	1195.36	Shear (lb/sq ft)		2.00	
Alpha	1.00	Stream Power (lb/ft s)		22.03	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		0.40	
C & E Loss (ft)	0.36	Cum SA (acres)		0.11	

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 - 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 OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1200.53	Element			
Vel Head (ft)	2.28	Wt. n-Val.		0.030	
E.G. Elev (ft)	1202.81	Reach Len. (ft)	21.96	21.96	21.96
Crit W.S. (ft)	1200.53	Flow Area (sq ft)		983.29	
E.G. Slope (ft/ft)	0.007959	Area (sq ft)		983.29	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	214.90	Top Width (ft)		214.90	
Vel Total (ft/s)	12.12	Avg. Vel. (ft/s)		12.12	
Max Chl Dpth (ft)	5.26	Hydr. Depth (ft)		4.58	
Conv. Total (cfs)	133610.4	Conv. (cfs)		133610.4	
Length Wtd. (ft)	21.96	Wetted Per. (ft)		216.40	
Min Ch El (ft)	1195.36	Shear (lb/sq ft)		2.26	
Alpha	1.00	Stream Power (lb/ft s)		27.37	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		0.50	
C & E Loss (ft)	0.43	Cum SA (acres)		0.11	

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 - 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 OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1201.51	Element			
Vel Head (ft)	2.69	Wt. n-Val.		0.030	
E.G. Elev (ft)	1204.21	Reach Len. (ft)	21.96	21.96	21.96
Crit W.S. (ft)	1201.51	Flow Area (sq ft)		1197.89	
E.G. Slope (ft/ft)	0.007503	Area (sq ft)		1197.89	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	221.05	Top Width (ft)		221.05	
Vel Total (ft/s)	13.16	Avg. Vel. (ft/s)		13.16	
Max Chl Dpth (ft)	6.24	Hydr. Depth (ft)		5.42	
Conv. Total (cfs)	182060.8	Conv. (cfs)		182060.8	
Length Wtd. (ft)	21.96	Wetted Per. (ft)		222.86	
Min Ch El (ft)	1195.36	Shear (lb/sq ft)		2.52	
Alpha	1.00	Stream Power (lb/ft s)		33.15	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		0.61	
C & E Loss (ft)	0.06	Cum SA (acres)		0.12	

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 - 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: EMF
REACH: Reach 1 RS: 0.000

INPUT
Description: Top of Drop Structure at the Downstream End of East Maricopa Floodway, Grouted Riprap
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4592.48	1195.2	4601.36	1196.5	4632.45	1197.63	4637.88	1197.7	4684.93	1197.14
4704.54	1197	4739	1196.5	4762.38	1195.65	4781.13	1195.15	4792.05	1195.63
4807.15	1196.6	4815.89	1196.62	4839.17	1197.36	4856.51	1199.71	4869.84	1200.99
4879.86	1201.3	4896.78	1200.67	4904.87	1199.19	4909.98	1198.01	4919.42	1195.04
4923.01	1194.8	4946.12	1194.7	4970.19	1194.93	5002.63	1195.14	5036.13	1195.19
5067.84	1195	5071.88	1195.17	5094.83	1195.34	5105.71	1195.93	5108.42	1196.86
5111.44	1197	5115.93	1198.4	5131.39	1203.56	5133.12	1203.92	5145.17	1203.89
5155.94	1203.7	5161.54	1203.14	5167.5	1203.04	5172.42	1200.91	5184.47	1200.19
5190.93	1199.9	5214.03	1200.27	5244.52	1199.98	5254.51	1199.83	5260.19	1199.88
5291.18	1199.9	5317.72	1199.93	5345.64	1199.81	5362.55	1199.8	5372.1	1199.36
5383.58	1198.1	5388.42	1199.18	5398.45	1198.68	5406.08	1198.11	5416.28	1199.76
5432.56	1199.8	5455.18	1199.63	5472.37	1199.28	5492.23	1199.43	5508.79	1199.2
5517.85	1198.4	5527.05	1197.74	5532.93	1198.86	5537.83	1199.29	5547.84	1199.57
5592.48	1200.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4592.48	.04	4879.86	.03	5133.12	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
4879.86	5133.12	0	0	0	.3	.5

Left Levee Station= 4879.86 Elevation= 1201.3
Right Levee Station= 5133.12 Elevation= 1203.92

CROSS SECTION OUTPUT Profile #Design

			Left OB	Channel	Right OB
W.S. Elev (ft)	1199.06	Element			
Vel Head (ft)	1.88	Wt. n-Val.		0.030	
E.G. Elev (ft)	1200.94	Reach Len. (ft)			
Crit W.S. (ft)	1199.06	Flow Area (sq ft)		790.43	
E.G. Slope (ft/ft)	0.008625	Area (sq ft)		790.43	
Q Total (cfs)	8700.00	Flow (cfs)		8700.00	
Top Width (ft)	212.46	Top Width (ft)		212.46	
Vel Total (ft/s)	11.01	Avg. Vel. (ft/s)		11.01	
Max Chl Dpth (ft)	4.36	Hydr. Depth (ft)		3.72	
Conv. Total (cfs)	93680.9	Conv. (cfs)		93680.9	
Length Wtd. (ft)		Wetted Per. (ft)		213.55	
Min Ch El (ft)	1194.70	Shear (lb/sq ft)		1.99	
Alpha	1.00	Stream Power (lb/ft s)		21.94	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

CROSS SECTION OUTPUT Profile #Future

			Left OB	Channel	Right OB
W.S. Elev (ft)	1199.98	Element			
Vel Head (ft)	2.25	Wt. n-Val.		0.030	
E.G. Elev (ft)	1202.23	Reach Len. (ft)			
Crit W.S. (ft)	1199.98	Flow Area (sq ft)		989.57	
E.G. Slope (ft/ft)	0.008034	Area (sq ft)		989.57	
Q Total (cfs)	11920.00	Flow (cfs)		11920.00	
Top Width (ft)	220.11	Top Width (ft)		220.11	
Vel Total (ft/s)	12.05	Avg. Vel. (ft/s)		12.05	
Max Chl Dpth (ft)	5.28	Hydr. Depth (ft)		4.50	

Conv. Total (cfs)	132984.1	Conv. (cfs)	132984.1
Length Wtd. (ft)		Wetted Per. (ft)	221.43
Min Ch El (ft)	1194.70	Shear (lb/sq ft)	2.24
Alpha	1.00	Stream Power (lb/ft s)	27.00
Frctn Loss (ft)		Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

CROSS SECTION OUTPUT Profile #Existing

			Left OB	Channel	Right OB
W.S. Elev (ft)	1201.03	Element			
Vel Head (ft)	2.57	Wt. n-Val.		0.030	
E.G. Elev (ft)	1203.60	Reach Len. (ft)			
Crit W.S. (ft)	1201.03	Flow Area (sq ft)		1225.93	
E.G. Slope (ft/ft)	0.007588	Area (sq ft)		1225.93	
Q Total (cfs)	15770.00	Flow (cfs)		15770.00	
Top Width (ft)	236.57	Top Width (ft)		236.57	
Vel Total (ft/s)	12.86	Avg. Vel. (ft/s)		12.86	
Max Chl Dpth (ft)	6.33	Hydr. Depth (ft)		5.18	
Conv. Total (cfs)	181037.7	Conv. (cfs)		181037.7	
Length Wtd. (ft)		Wetted Per. (ft)		238.13	
Min Ch El (ft)	1194.70	Shear (lb/sq ft)		2.44	
Alpha	1.00	Stream Power (lb/ft s)		31.37	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

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

Reach	River Sta.	n1	n2	n3
Reach 1	4.487	.04	.025	.04
Reach 1	4.393	.04	.025	.04
Reach 1	4.298	.04	.025	.04
Reach 1	4.203	.04	.025	.04
Reach 1	4.161	.04	.03	.04
Reach 1	4.156	.04	.03	.04
Reach 1	4.152	Bridge		
Reach 1	4.148	.04	.03	.04
Reach 1	4.142	.04	.025	.04
Reach 1	4.08	.04	.025	.04
Reach 1	4.047	.04	.025	.04
Reach 1	3.964	.04	.025	.04
Reach 1	3.899	.04	.03	.04
Reach 1	3.88	.04	.025	.04
Reach 1	3.877	.04	.025	.04
Reach 1	3.782	.04	.025	.04
Reach 1	3.688	.04	.025	.04
Reach 1	3.593	.04	.025	.04
Reach 1	3.527	.04	.025	.04
Reach 1	3.524	.04	.025	.04
Reach 1	3.429	.04	.025	.04
Reach 1	3.334	.04	.025	.04
Reach 1	3.176	.04	.025	.04
Reach 1	3.174	.04	.025	.04
Reach 1	3.079	.04	.025	.04
Reach 1	2.985	.04	.025	.04
Reach 1	2.912	.04	.025	.04
Reach 1	2.909	.04	.025	.04
Reach 1	2.814	.04	.025	.04
Reach 1	2.757	.04	.025	.04

Reach 1	2.65	.04	.025	.04
Reach 1	2.646	.04	.015	.04
Reach 1	2.641	.04	.03	.04
Reach 1	2.636	.04	.025	.04
Reach 1	2.571	.04	.025	.04
Reach 1	2.476	.04	.025	.04
Reach 1	2.381	.04	.025	.04
Reach 1	2.305	.04	.025	.04
Reach 1	2.303	.04	.025	.04
Reach 1	2.208	.04	.025	.04
Reach 1	2.113	.04	.025	.04
Reach 1	2.018	.04	.025	.04
Reach 1	1.924	.04	.025	.04
Reach 1	1.829	.04	.025	.04
Reach 1	1.734	.04	.025	.04
Reach 1	1.693	.04	.025	.04
Reach 1	1.649	.04	.03	.04
Reach 1	1.644	Bridge		
Reach 1	1.64	.04	.03	.04
Reach 1	1.545	.04	.025	.04
Reach 1	1.476	.04	.025	.04
Reach 1	1.389	.04	.03	.04
Reach 1	1.306	.04	.03	.04
Reach 1	1.246	.04	.03	.04
Reach 1	1.186	.04	.03	.04
Reach 1	1.142	.04	.03	.04
Reach 1	1.074	.04	.025	.04
Reach 1	1.01	.04	.03	.04
Reach 1	0.917	.04	.03	.04
Reach 1	0.839	.04	.03	.04
Reach 1	0.766	.04	.03	.04
Reach 1	0.752	.04	.03	.04
Reach 1	0.75	.04	.025	.04
Reach 1	0.655	.04	.025	.04
Reach 1	0.56	.04	.025	.04
Reach 1	0.504	.04	.025	.04
Reach 1	0.459	.04	.025	.04
Reach 1	0.454	.04	.015	.04
Reach 1	0.449	.04	.03	.04
Reach 1	0.445	.04	.025	.04
Reach 1	0.41	.04	.025	.04
Reach 1	0.315	.04	.025	.04
Reach 1	0.22	.04	.025	.04
Reach 1	0.125	.04	.025	.04
Reach 1	0.084	.04	.035	.04
Reach 1	0.077	.04	.03	.04
Reach 1	0.019	.04	.03	.04
Reach 1	0.004	.04	.03	.04
Reach 1	0.000	.04	.03	.04

SUMMARY OF REACH LENGTHS

River: EMF

Reach	River Sta.	Left	Channel	Right
Reach 1	4.487	500	500	500
Reach 1	4.393	500	500	500
Reach 1	4.298	500	500	500
Reach 1	4.203	224.35	224.35	224.35
Reach 1	4.161	27.45	27.45	27.45
Reach 1	4.156	39.32	39.32	39.32
Reach 1	4.152	Bridge		
Reach 1	4.148	56	34.44	20
Reach 1	4.142	396	325.42	268
Reach 1	4.08	212	175.36	142
Reach 1	4.047	380	439.13	492

Reach 1	3.964	272	341.84	422
Reach 1	3.899	100.08	100.08	100.08
Reach 1	3.88	15.35	15.35	15.35
Reach 1	3.877	500	500	500
Reach 1	3.782	500	500	500
Reach 1	3.688	500	500	500
Reach 1	3.593	349.43	349.43	349.43
Reach 1	3.527	14.83	14.83	14.83
Reach 1	3.524	500	500	500
Reach 1	3.429	500	500	500
Reach 1	3.334	836.68	836.68	836.68
Reach 1	3.176	11.07	11.07	11.07
Reach 1	3.174	500	500	500
Reach 1	3.079	499.97	499.97	499.97
Reach 1	2.985	382.65	382.65	382.65
Reach 1	2.912	14.25	14.25	14.25
Reach 1	2.909	502.4	502.4	502.4
Reach 1	2.814	301.91	301.91	301.91
Reach 1	2.757	562.76	562.76	562.76
Reach 1	2.65	25	25	25
Reach 1	2.646	24	24	24
Reach 1	2.641	25	25	25
Reach 1	2.636	347.49	347.49	347.49
Reach 1	2.571	500.02	500.02	500.02
Reach 1	2.476	500.08	500.08	500.08
Reach 1	2.381	401.11	401.11	401.11
Reach 1	2.305	12.16	12.16	12.16
Reach 1	2.303	502.87	502.87	502.87
Reach 1	2.208	499.97	499.97	499.97
Reach 1	2.113	499.87	499.87	499.87
Reach 1	2.018	500	500	500
Reach 1	1.924	500	500	500
Reach 1	1.829	500	500	500
Reach 1	1.734	217.56	217.56	217.56
Reach 1	1.693	234.54	234.54	234.54
Reach 1	1.649	47.26	47.26	47.26
Reach 1	1.644	Bridge		
Reach 1	1.64	500.72	500.72	500.72
Reach 1	1.545	365.97	365.97	365.97
Reach 1	1.476	446	457.96	472
Reach 1	1.389	344	436.27	522
Reach 1	1.306	308	316.52	328
Reach 1	1.246	390	319.39	260
Reach 1	1.186	288	229.55	188
Reach 1	1.142	357.97	357.97	357.97
Reach 1	1.074	342.08	342.08	342.08
Reach 1	1.01	270	488.57	664
Reach 1	0.917	240	411.79	556
Reach 1	0.839	240	388.08	530
Reach 1	0.766	72.31	72.31	72.31
Reach 1	0.752	9.92	9.92	9.92
Reach 1	0.75	503.85	503.85	503.85
Reach 1	0.655	499.99	499.99	499.99
Reach 1	0.56	294.28	294.28	294.28
Reach 1	0.504	240.5	240.5	240.5
Reach 1	0.459	25	25	25
Reach 1	0.454	24	24	24
Reach 1	0.449	25	25	25
Reach 1	0.445	185.5	185.5	185.5
Reach 1	0.41	500	500	500
Reach 1	0.315	500	500	500
Reach 1	0.22	500	500	500
Reach 1	0.125	220.03	220.03	220.03
Reach 1	0.084	34.2	34.2	34.2
Reach 1	0.077	450	307.99	138
Reach 1	0.019	78.04	78.04	78.04
Reach 1	0.004	21.96	21.96	21.96
Reach 1	0.000	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: EMF

Reach	River Sta.		Contr.	Expan.
Reach 1	4.487		.1	.3
Reach 1	4.393		.1	.3
Reach 1	4.298		.1	.3
Reach 1	4.203		.1	.3
Reach 1	4.161		.3	.5
Reach 1	4.156		.3	.5
Reach 1	4.152	Bridge		
Reach 1	4.148		.3	.5
Reach 1	4.142		.3	.5
Reach 1	4.08		.1	.3
Reach 1	4.047		.1	.3
Reach 1	3.964		.1	.3
Reach 1	3.899		.1	.3
Reach 1	3.88		.1	.3
Reach 1	3.877		.1	.3
Reach 1	3.782		.1	.3
Reach 1	3.688		.1	.3
Reach 1	3.593		.1	.3
Reach 1	3.527		.1	.3
Reach 1	3.524		.1	.3
Reach 1	3.429		.1	.3
Reach 1	3.334		.1	.3
Reach 1	3.176		.1	.3
Reach 1	3.174		.1	.3
Reach 1	3.079		.1	.3
Reach 1	2.985		.1	.3
Reach 1	2.912		.1	.3
Reach 1	2.909		.1	.3
Reach 1	2.814		.1	.3
Reach 1	2.757		.1	.3
Reach 1	2.65		.3	.5
Reach 1	2.646		.3	.5
Reach 1	2.641		.3	.5
Reach 1	2.636		.1	.3
Reach 1	2.571		.1	.3
Reach 1	2.476		.1	.3
Reach 1	2.381		.1	.3
Reach 1	2.305		.1	.3
Reach 1	2.303		.1	.3
Reach 1	2.208		.1	.3
Reach 1	2.113		.1	.3
Reach 1	2.018		.1	.3
Reach 1	1.924		.1	.3
Reach 1	1.829		.1	.3
Reach 1	1.734		.1	.3
Reach 1	1.693		.3	.5
Reach 1	1.649		.3	.5
Reach 1	1.644	Bridge		
Reach 1	1.64		.3	.5
Reach 1	1.545		.3	.5
Reach 1	1.476		.1	.3
Reach 1	1.389		.1	.3
Reach 1	1.306		.1	.3
Reach 1	1.246		.1	.3
Reach 1	1.186		.1	.3
Reach 1	1.142		.1	.3
Reach 1	1.074		.1	.3
Reach 1	1.01		.1	.3
Reach 1	0.917		.1	.3
Reach 1	0.839		.1	.3
Reach 1	0.766		.1	.3
Reach 1	0.752		.1	.3

Reach 1	0.75	.1	.3
Reach 1	0.655	.1	.3
Reach 1	0.56	.1	.3
Reach 1	0.504	.1	.3
Reach 1	0.459	.3	.5
Reach 1	0.454	.3	.5
Reach 1	0.449	.3	.5
Reach 1	0.445	.1	.3
Reach 1	0.41	.1	.3
Reach 1	0.315	.1	.3
Reach 1	0.22	.1	.3
Reach 1	0.125	.1	.3
Reach 1	0.084	.1	.3
Reach 1	0.077	.1	.3
Reach 1	0.019	.3	.5
Reach 1	0.004	.3	.5
Reach 1	0.000	.3	.5

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 1	4.487	8700.00	1230.05	1237.47	1235.37	1238.17	0.001571	6.73	1291.94	266.63	0.54
Reach 1	4.487	11920.00	1230.05	1238.84	1236.33	1239.59	0.001577	6.95	1760.62	795.65	0.54
Reach 1	4.487	15770.00	1230.05	1240.23	1237.34	1240.98	0.001226	7.01	2401.62	1000.00	0.50
Reach 1	4.393	8700.00	1229.55	1236.74	1234.45	1237.43	0.001380	6.66	1305.39	248.13	0.51
Reach 1	4.393	11920.00	1229.55	1238.03	1235.43	1238.85	0.001352	7.28	1636.33	267.95	0.52
Reach 1	4.393	15770.00	1229.55	1239.58	1236.45	1240.40	0.001055	7.40	2427.12	783.63	0.48
Reach 1	4.298	8700.00	1228.91	1236.04	1233.89	1236.73	0.001444	6.63	1311.88	260.08	0.52
Reach 1	4.298	11920.00	1228.91	1237.35	1234.83	1238.14	0.001471	7.13	1670.91	301.15	0.53
Reach 1	4.298	15770.00	1228.91	1239.13	1235.82	1239.83	0.001107	6.77	2582.73	861.88	0.47
Reach 1	4.203	8700.00	1228.65	1235.23	1233.32	1235.96	0.001625	6.82	1275.13	264.70	0.55
Reach 1	4.203	11920.00	1228.65	1236.55	1234.24	1237.35	0.001672	7.21	1654.24	323.33	0
Reach 1	4.203	15770.00	1228.65	1238.75	1235.20	1239.26	0.000934	5.89	3048.94	1000.00	0
Reach 1	4.161	8700.00	1227.99	1234.67	1232.94	1235.50	0.002443	7.32	1188.34	228.01	0
Reach 1	4.161	11920.00	1227.99	1235.85	1233.82	1236.88	0.002424	8.16	1460.39	236.28	0
Reach 1	4.161	15770.00	1227.99	1238.02	1234.76	1238.96	0.001517	7.83	2102.80	1000.00	0.
Reach 1	4.156	8700.00	1228.04	1234.61	1232.78	1235.44	0.002326	7.29	1192.95	221.00	0.55
Reach 1	4.156	11920.00	1228.04	1235.78	1233.67	1236.82	0.002426	8.17	1459.88	235.49	0.58
Reach 1	4.156	15770.00	1228.04	1237.93	1234.62	1238.90	0.001664	7.93	1988.61	909.22	0.50
Reach 1	4.152	Bridge									
Reach 1	4.148	8700.00	1228.12	1234.05	1232.59	1234.99	0.002899	7.78	1117.70	222.00	0.61
Reach 1	4.148	11920.00	1228.12	1235.13	1233.47	1236.32	0.002949	8.77	1359.74	228.48	0.63
Reach 1	4.148	15770.00	1228.12	1236.30	1234.39	1237.74	0.003016	9.64	1635.44	242.20	0.65
Reach 1	4.142	8700.00	1226.74	1234.04	1232.23	1234.84	0.001613	7.18	1211.95	230.90	0.55
Reach 1	4.142	11920.00	1226.74	1235.13	1233.10	1236.16	0.001664	8.12	1467.21	237.28	0.58
Reach 1	4.142	15770.00	1226.74	1236.31	1234.05	1237.57	0.001719	9.00	1752.43	248.94	0.60
Reach 1	4.08	8700.00	1226.40	1233.59	1231.52	1234.32	0.001411	6.86	1269.12	234.40	0.52
Reach 1	4.08	11920.00	1226.40	1234.66	1232.40	1235.61	0.001501	7.82	1523.43	241.46	0.55
Reach 1	4.08	15770.00	1226.40	1235.85	1233.34	1236.99	0.001498	8.60	1920.01	578.84	0.56
Reach 1	4.047	8700.00	1226.59	1233.08	1231.65	1234.00	0.002070	7.71	1128.24	233.07	0.62
Reach 1	4.047	11920.00	1226.59	1234.10	1232.53	1235.27	0.002119	8.70	1369.42	239.82	0.64
Reach 1	4.047	15770.00	1226.59	1235.21	1233.47	1236.64	0.002121	9.62	1639.66	247.16	0.66
Reach 1	3.964	8700.00	1226.11	1232.18	1230.75	1233.10	0.002043	7.70	1129.77	231.53	0.61
Reach 1	3.964	11920.00	1226.11	1233.11	1231.62	1234.32	0.002199	8.83	1349.44	237.60	0.65
Reach 1	3.964	15770.00	1226.11	1234.20	1232.56	1235.69	0.002218	9.79	1611.41	244.65	0.67
Reach 1	3.899	8700.00	1224.23	1229.99	1229.93	1231.77	0.008149	10.71	812.15	217.65	0.98
Reach 1	3.899	11920.00	1224.23	1231.31	1230.81	1233.11	0.005818	10.79	1105.19	227.40	0.86
Reach 1	3.899	15770.00	1224.23	1232.70	1231.76	1234.59	0.004588	11.03	1429.67	237.73	0.79
Reach 1	3.88	8700.00	1224.04	1230.15	1228.84	1231.15	0.002235	8.01	1086.82	224.95	0.64
Reach 1	3.88	11920.00	1224.04	1231.44	1229.72	1232.60	0.001982	8.63	1381.77	233.27	0.62
Reach 1	3.88	15770.00	1224.04	1232.83	1230.66	1234.15	0.001794	9.21	1711.39	242.45	0.61
Reach 1	3.877	8700.00	1224.04	1229.89	1228.99	1231.09	0.002935	8.78	991.27	219.01	0.73
Reach 1	3.877	11920.00	1224.04	1231.20	1229.88	1232.54	0.002435	9.29	1282.97	225.76	0.69
Reach 1	3.877	15770.00	1224.04	1232.59	1230.81	1234.10	0.002139	9.84	1602.60	234.42	0.66
Reach 1	3.782	8700.00	1220.72	1229.52	1226.56	1230.13	0.000972	6.28	1385.99	220.59	0.44
Reach 1	3.782	11920.00	1220.72	1230.85	1227.52	1231.63	0.001008	7.06	1687.98	231.10	0
Reach 1	3.782	15770.00	1220.72	1232.27	1228.54	1233.21	0.001029	7.80	2022.48	242.21	0
Reach 1	3.688	8700.00	1220.40	1228.90	1226.37	1229.59	0.001174	6.63	1311.64	221.61	0
Reach 1	3.688	11920.00	1220.40	1230.22	1227.32	1231.07	0.001184	7.40	1611.27	232.27	0

Reach 1	3.688	15770.00	1220.40	1231.63	1228.34	1232.65	0.001183	8.10	1946.21	244.30	0.51
Reach 1	3.593	8700.00	1220.19	1228.35	1225.71	1229.01	0.001106	6.49	1340.50	223.73	0.47
Reach 1	3.593	11920.00	1220.19	1229.67	1226.64	1230.49	0.001127	7.26	1641.59	234.56	0.48
Reach 1	3.593	15770.00	1220.19	1231.08	1227.66	1232.06	0.001136	7.96	1980.89	247.76	0.50
Reach 1	3.527	8700.00	1220.53	1227.90	1225.53	1228.60	0.001242	6.70	1297.91	225.36	0.49
Reach 1	3.527	11920.00	1220.53	1229.21	1226.46	1230.07	0.001230	7.45	1601.01	235.53	0.50
Reach 1	3.527	15770.00	1220.53	1230.62	1227.44	1231.65	0.001216	8.12	1941.87	248.34	0.51
Reach 1	3.524	8700.00	1221.16	1227.73	1225.88	1228.56	0.001636	7.30	1191.89	224.07	0.56
Reach 1	3.524	11920.00	1221.16	1229.05	1226.80	1230.04	0.001537	7.98	1493.98	234.30	0.56
Reach 1	3.524	15770.00	1221.16	1230.47	1227.77	1231.62	0.001453	8.60	1833.65	246.05	0.56
Reach 1	3.429	8700.00	1218.34	1227.31	1224.21	1227.89	0.000904	6.14	1418.07	221.41	0.43
Reach 1	3.429	11920.00	1218.34	1228.62	1225.18	1229.37	0.000960	6.95	1715.15	232.14	0.45
Reach 1	3.429	15770.00	1218.34	1230.03	1226.20	1230.95	0.001014	7.69	2051.55	248.31	0.47
Reach 1	3.334	8700.00	1218.24	1226.78	1224.00	1227.41	0.001034	6.36	1367.98	223.99	0.45
Reach 1	3.334	11920.00	1218.24	1228.06	1224.94	1228.86	0.001084	7.18	1660.91	234.80	0.48
Reach 1	3.334	15770.00	1218.24	1229.44	1225.95	1230.41	0.001117	7.91	1994.78	249.24	0.49
Reach 1	3.176	8700.00	1218.73	1225.53	1223.60	1226.34	0.001567	7.19	1209.20	224.91	0.55
Reach 1	3.176	11920.00	1218.73	1226.78	1224.51	1227.77	0.001525	7.97	1496.27	233.72	0.55
Reach 1	3.176	15770.00	1218.73	1228.16	1225.47	1229.32	0.001473	8.63	1826.33	312.82	0.56
Reach 1	3.174	8700.00	1218.74	1225.53	1223.56	1226.32	0.001521	7.13	1220.23	224.92	0.54
Reach 1	3.174	11920.00	1218.74	1226.78	1224.47	1227.75	0.001487	7.91	1507.25	233.51	0.55
Reach 1	3.174	15770.00	1218.74	1228.16	1225.42	1229.30	0.001441	8.59	1836.63	310.65	0.55
Reach 1	3.079	8700.00	1216.12	1224.99	1222.30	1225.64	0.001079	6.42	1354.38	225.46	0.46
Reach 1	3.079	11920.00	1216.12	1226.24	1223.25	1227.06	0.001136	7.26	1641.17	235.96	0.49
Reach 1	3.079	15770.00	1216.12	1227.63	1224.26	1228.62	0.001140	7.98	1977.31	268.29	0.50
Reach 1	2.985	8700.00	1216.10	1224.47	1221.78	1225.10	0.001066	6.37	1365.99	228.44	0.46
Reach 1	2.985	11920.00	1216.10	1225.68	1222.71	1226.49	0.001133	7.23	1648.25	238.26	0.48
Reach 1	2.985	15770.00	1216.10	1227.06	1223.69	1228.04	0.001163	7.94	1986.80	266.18	0.50
Reach 1	2.912	8700.00	1216.46	1224.00	1221.56	1224.66	0.001181	6.54	1330.12	230.96	0.48
Reach 1	2.912	11920.00	1216.46	1225.18	1222.48	1226.03	0.001244	7.42	1607.37	240.16	0.51
Reach 1	2.912	15770.00	1216.46	1226.56	1223.45	1227.57	0.001257	8.09	1948.63	278.54	0.52
Reach 1	2.909	8700.00	1216.67	1223.98	1221.56	1224.65	0.001186	6.54	1331.17	232.15	0.48
Reach 1	2.909	11920.00	1216.67	1225.16	1222.46	1226.01	0.001242	7.41	1609.20	240.40	0.50
Reach 1	2.909	15770.00	1216.67	1226.54	1223.43	1227.55	0.001251	8.08	1950.90	280.03	0.52
Reach 1	2.814	8700.00	1216.19	1223.25	1221.17	1223.99	0.001410	6.90	1260.90	230.43	0.52
Reach 1	2.814	11920.00	1216.19	1224.37	1222.04	1225.32	0.001475	7.82	1524.07	240.11	0.55
Reach 1	2.814	15770.00	1216.19	1225.76	1223.00	1226.87	0.001445	8.46	1863.59	401.62	0.55
Reach 1	2.757	8700.00	1215.65	1222.75	1220.84	1223.54	0.001559	7.13	1219.67	228.71	0.54
Reach 1	2.757	11920.00	1215.65	1223.83	1221.73	1224.85	0.001641	8.10	1471.14	236.56	0.57
Reach 1	2.757	15770.00	1215.65	1225.22	1222.67	1226.40	0.001642	8.71	1811.07	261.40	0.58
Reach 1	2.65	8700.00	1215.80	1220.65	1220.20	1222.12	0.004161	9.72	894.76	220.59	0.85
Reach 1	2.65	11920.00	1215.80	1222.22	1221.09	1223.64	0.002742	9.54	1249.50	231.43	0.72
Reach 1	2.65	15770.00	1215.80	1223.96	1222.05	1225.35	0.002048	9.47	1664.70	250.08	0.65
Reach 1	2.646	8700.00	1215.90	1220.98	1219.68	1221.72	0.000755	6.90	1261.77	312.39	0.60
Reach 1	2.646	11920.00	1215.90	1222.55	1220.45	1223.25	0.000516	6.70	1780.23	346.02	0.52
Reach 1	2.646	15770.00	1215.90	1224.31	1221.26	1224.95	0.000393	6.41	2460.48	792.71	0.46
Reach 1	2.641	8700.00	1216.27	1220.63	1219.89	1221.61	0.004695	7.94	1095.96	306.02	0.74
Reach 1	2.641	11920.00	1216.27	1222.42	1220.65	1223.20	0.002509	7.09	1682.10	347.90	0.57
Reach 1	2.641	15770.00	1216.27	1224.24	1221.46	1224.92	0.001756	6.63	2377.52	788.61	0.49
Reach 1	2.636	8700.00	1215.15	1220.51	1219.26	1221.52	0.002324	8.04	1081.50	228.60	0.65
Reach 1	2.636	11920.00	1215.15	1221.96	1220.15	1223.05	0.001873	8.41	1418.11	238.38	0.61
Reach 1	2.636	15770.00	1215.15	1223.54	1221.08	1224.73	0.001592	8.74	1804.80	253.03	0.58
Reach 1	2.571	8700.00	1210.91	1220.37	1217.11	1220.93	0.000849	6.00	1450.77	223.16	0.41
Reach 1	2.571	11920.00	1210.91	1221.81	1218.11	1222.51	0.000856	6.69	1780.50	233.38	0.43
Reach 1	2.571	15770.00	1210.91	1223.40	1219.11	1224.22	0.000850	7.30	2159.71	247.03	0.44
Reach 1	2.476	8700.00	1210.67	1219.88	1216.88	1220.48	0.000939	6.20	1403.97	221.94	0.43
Reach 1	2.476	11920.00	1210.67	1221.32	1217.83	1222.06	0.000934	6.88	1731.52	232.51	0.44
Reach 1	2.476	15770.00	1210.67	1222.91	1218.84	1223.77	0.000947	7.46	2114.24	300.30	0.46
Reach 1	2.381	8700.00	1211.04	1219.37	1216.60	1219.99	0.001019	6.31	1378.38	225.74	0.45
Reach 1	2.381	11920.00	1211.04	1220.83	1217.51	1221.58	0.000983	6.95	1716.32	236.83	0.45
Reach 1	2.381	15770.00	1211.04	1222.41	1218.50	1223.27	0.001053	7.47	2110.88	487.91	0.48
Reach 1	2.305	8700.00	1211.60	1218.88	1216.41	1219.54	0.001174	6.54	1330.84	245.83	0.48
Reach 1	2.305	11920.00	1211.60	1220.39	1217.34	1221.16	0.001074	7.07	1686.15	379.33	0.47
Reach 1	2.305	15770.00	1211.60	1221.97	1218.32	1222.86	0.000988	7.59	2078.96	792.28	0.47
Reach 1	2.303	8700.00	1212.24	1218.77	1216.64	1219.52	0.001416	6.95	1252.48	241.90	0.52
Reach 1	2.303	11920.00	1212.24	1220.29	1217.56	1221.14	0.001250	7.41	1607.59	374.00	0.51
Reach 1	2.303	15770.00	1212.24	1221.88	1218.55	1222.84	0.001120	7.88	2001.25	784.73	0.49
Reach 1	2.208	8700.00	1208.46	1218.42	1214.98	1218.94	0.000764	5.78	1504.41	251.72	0.40
Reach 1	2.208	11920.00	1208.46	1219.96	1215.93	1220.59	0.000757	6.41	1860.74	418.90	0.40
Reach 1	2.208	15770.00	1208.46	1221.57	1216.95	1222.32	0.000750	6.98	2259.96	823.58	0.41
Reach 1	2.113	8700.00	1208.81	1218.01	1214.69	1218.55	0.000809	5.87	1482.97	227.73	0.41

Reach 1	2.113	11920.00	1208.81	1219.55	1215.66	1220.20	0.000819	6.46	1844.07	246.97	[illegible]
Reach 1	2.113	15770.00	1208.81	1221.19	1216.68	1221.94	0.000784	6.93	2274.63	803.83	[illegible]
Reach 1	2.018	8700.00	1208.98	1217.58	1214.47	1218.13	0.000851	5.93	1467.46	230.72	[illegible]
Reach 1	2.018	11920.00	1208.98	1219.13	1215.39	1219.79	0.000830	6.49	1836.17	246.73	[illegible]
Reach 1	2.018	15770.00	1208.98	1220.80	1216.38	1221.55	0.000775	6.95	2268.75	807.82	0.42
Reach 1	1.924	8700.00	1208.00	1217.16	1214.00	1217.70	0.000846	5.91	1473.32	255.43	0.41
Reach 1	1.924	11920.00	1208.00	1218.73	1214.92	1219.37	0.000825	6.43	1853.08	793.91	0.42
Reach 1	1.924	15770.00	1208.00	1220.43	1215.91	1221.17	0.000732	6.90	2286.49	1000.00	0.41
Reach 1	1.829	8700.00	1207.54	1216.73	1213.69	1217.27	0.000880	5.92	1468.37	236.87	0.42
Reach 1	1.829	11920.00	1207.54	1218.32	1214.60	1218.96	0.000812	6.40	1861.91	1000.00	0.41
Reach 1	1.829	15770.00	1207.54	1220.08	1215.57	1220.81	0.000700	6.85	2303.15	1000.00	0.40
Reach 1	1.734	8700.00	1208.14	1216.25	1213.35	1216.81	0.000954	6.03	1441.74	240.64	0.43
Reach 1	1.734	11920.00	1208.14	1218.02	1214.27	1218.55	0.000709	5.98	2424.62	1000.00	0.39
Reach 1	1.734	15770.00	1208.14	1220.02	1215.25	1220.43	0.000447	5.57	3791.45	1000.00	0.32
Reach 1	1.693	8700.00	1208.40	1216.05	1213.17	1216.60	0.000945	5.97	1456.14	244.89	0.43
Reach 1	1.693	11920.00	1208.40	1217.93	1214.07	1218.38	0.000597	5.62	2725.10	1000.00	0.36
Reach 1	1.693	15770.00	1208.40	1219.98	1215.03	1220.33	0.000374	5.21	4173.31	1000.00	0.29
Reach 1	1.649	8700.00	1208.44	1215.80	1212.83	1216.34	0.001252	5.94	1465.80	232.83	0.42
Reach 1	1.649	11920.00	1208.44	1217.51	1213.71	1218.14	0.001083	6.37	1872.66	1003.40	0.40
Reach 1	1.649	15770.00	1208.44	1219.36	1214.66	1220.08	0.000933	6.81	2316.25	1003.40	0.39
Reach 1	1.644	Bridge									
Reach 1	1.64	8700.00	1208.16	1215.28	1212.56	1215.87	0.001417	6.17	1408.93	231.73	0.44
Reach 1	1.64	11920.00	1208.16	1216.60	1213.43	1217.34	0.001438	6.93	1719.09	239.88	0.46
Reach 1	1.64	15770.00	1208.16	1217.49	1214.39	1218.52	0.001721	8.15	1935.37	1002.40	0.51
Reach 1	1.545	8700.00	1206.63	1214.76	1211.79	1215.30	0.000875	5.89	1477.34	239.20	0.42
Reach 1	1.545	11920.00	1206.63	1216.08	1212.67	1216.73	0.000898	6.50	1947.74	586.66	0.43
Reach 1	1.545	15770.00	1206.63	1216.94	1213.63	1217.77	0.001023	7.47	2405.93	1000.00	0.47
Reach 1	1.476	8700.00	1206.65	1214.08	1211.99	1214.83	0.001440	6.93	1254.86	231.46	0.52
Reach 1	1.476	11920.00	1206.65	1215.32	1212.90	1216.24	0.001475	7.68	1551.48	249.56	0.54
Reach 1	1.476	15770.00	1206.65	1216.55	1213.88	1217.35	0.001196	7.56	2670.85	1000.00	0.50
Reach 1	1.389	8700.00	1206.31	1213.38	1211.19	1214.06	0.001877	6.63	1311.44	239.82	0.50
Reach 1	1.389	11920.00	1206.31	1214.61	1212.06	1215.46	0.001851	7.39	1613.25	248.13	0.51
Reach 1	1.389	15770.00	1206.31	1216.21	1212.98	1216.76	0.001064	6.47	3323.24	1000.00	[illegible]
Reach 1	1.306	8700.00	1205.97	1212.57	1210.32	1213.25	0.001822	6.61	1315.69	236.21	[illegible]
Reach 1	1.306	11920.00	1205.97	1213.81	1211.19	1214.66	0.001816	7.38	1614.12	244.62	[illegible]
Reach 1	1.306	15770.00	1205.97	1215.07	1212.13	1216.11	0.001808	8.18	1926.72	1000.00	[illegible]
Reach 1	1.246	8700.00	1205.35	1212.06	1209.61	1212.69	0.001626	6.37	1366.82	238.27	[illegible]
Reach 1	1.246	11920.00	1205.35	1213.30	1210.49	1214.10	0.001648	7.15	1667.53	246.42	0.48
Reach 1	1.246	15770.00	1205.35	1214.57	1211.44	1215.55	0.001663	7.95	1982.99	1000.00	0.50
Reach 1	1.186	8700.00	1204.90	1211.49	1209.22	1212.15	0.001767	6.51	1336.84	240.17	0.49
Reach 1	1.186	11920.00	1204.90	1212.73	1210.08	1213.55	0.001754	7.27	1639.42	247.73	0.50
Reach 1	1.186	15770.00	1204.90	1213.99	1211.00	1215.00	0.001740	8.06	1955.54	1000.00	0.51
Reach 1	1.142	8700.00	1204.55	1211.07	1208.85	1211.74	0.001812	6.57	1323.75	238.64	0.49
Reach 1	1.142	11920.00	1204.55	1212.31	1209.71	1213.14	0.001792	7.34	1624.65	245.91	0.50
Reach 1	1.142	15770.00	1204.55	1213.57	1210.64	1214.60	0.001790	8.13	1939.16	1000.00	0.52
Reach 1	1.074	8700.00	1202.89	1210.53	1208.37	1211.19	0.001288	6.54	1330.55	246.44	0.50
Reach 1	1.074	11920.00	1202.89	1211.79	1209.20	1212.60	0.001276	7.23	1648.90	260.58	0.51
Reach 1	1.074	15770.00	1202.89	1213.08	1210.11	1214.04	0.001268	7.90	1996.86	1000.00	0.52
Reach 1	1.01	8700.00	1202.94	1210.02	1207.69	1210.68	0.001755	6.49	1339.68	240.61	0.49
Reach 1	1.01	11920.00	1202.94	1211.27	1208.58	1212.08	0.001800	7.23	1647.63	256.34	0.50
Reach 1	1.01	15770.00	1202.94	1212.56	1209.53	1213.54	0.001759	7.94	1985.08	1000.00	0.51
Reach 1	0.917	8700.00	1202.50	1209.15	1206.90	1209.82	0.001771	6.52	1333.38	238.90	0.49
Reach 1	0.917	11920.00	1202.50	1210.38	1207.76	1211.21	0.001772	7.31	1630.36	246.08	0.50
Reach 1	0.917	15770.00	1202.50	1211.66	1208.68	1212.68	0.001745	8.09	1948.51	1000.00	0.51
Reach 1	0.839	8700.00	1202.26	1208.07	1206.43	1208.92	0.002599	7.40	1176.03	233.05	0.58
Reach 1	0.839	11920.00	1202.26	1209.33	1207.30	1210.35	0.002403	8.08	1474.51	240.82	0.58
Reach 1	0.839	15770.00	1202.26	1210.64	1208.23	1211.84	0.002285	8.78	1795.23	248.90	0.58
Reach 1	0.766	8700.00	1200.98	1207.10	1205.39	1207.93	0.002490	7.31	1190.44	232.39	0.57
Reach 1	0.766	11920.00	1200.98	1208.48	1206.26	1209.44	0.002184	7.85	1518.15	240.90	0.55
Reach 1	0.766	15770.00	1200.98	1209.85	1207.19	1210.98	0.002062	8.51	1853.55	249.31	0.55
Reach 1	0.752	8700.00	1199.88	1207.11	1204.44	1207.73	0.001489	6.30	1381.49	228.99	0.45
Reach 1	0.752	11920.00	1199.88	1208.49	1205.34	1209.25	0.001472	6.99	1705.72	239.52	0.46
Reach 1	0.752	15770.00	1199.88	1209.86	1206.30	1210.79	0.001505	7.72	2042.42	250.81	0.48
Reach 1	0.75	8700.00	1199.88	1207.12	1204.32	1207.71	0.000962	6.16	1412.16	229.17	0.44
Reach 1	0.75	11920.00	1199.88	1208.50	1205.20	1209.23	0.000955	6.87	1734.93	237.44	0.45
Reach 1	0.75	15770.00	1199.88	1209.87	1206.18	1210.77	0.000996	7.61	2073.51	251.07	0.47
Reach 1	0.655	8700.00	1197.70	1206.51	1204.01	1207.17	0.001146	6.51	1335.41	227.70	[illegible]
Reach 1	0.655	11920.00	1197.70	1207.90	1204.92	1208.70	0.001121	7.18	1659.76	240.27	[illegible]
Reach 1	0.655	15770.00	1197.70	1209.25	1205.90	1210.21	0.001192	7.87	2004.12	582.62	[illegible]
Reach 1	0.56	8700.00	1197.53	1205.98	1203.38	1206.61	0.001078	6.37	1366.19	229.84	[illegible]
Reach 1	0.56	11920.00	1197.53	1207.38	1204.26	1208.15	0.001072	7.03	1696.59	245.09	[illegible]

Reach 1	0.56	15770.00	1197.53	1208.70	1205.23	1209.64	0.001073	7.79	2025.67	1000.00	0.48
Reach 1	0.504	8700.00	1197.98	1205.65	1203.03	1206.29	0.001078	6.39	1361.10	227.96	0.46
Reach 1	0.504	11920.00	1197.98	1207.06	1203.96	1207.83	0.001086	7.05	1690.40	245.42	0.47
Reach 1	0.504	15770.00	1197.98	1208.38	1204.93	1209.32	0.001081	7.81	2020.16	1000.00	0.48
Reach 1	0.459	8700.00	1198.30	1205.33	1202.97	1206.01	0.001213	6.60	1318.41	229.91	0.49
Reach 1	0.459	11920.00	1198.30	1206.74	1203.87	1207.54	0.001257	7.20	1654.86	259.66	0.50
Reach 1	0.459	15770.00	1198.30	1208.12	1204.83	1209.03	0.001309	7.63	2066.04	1000.09	0.52
Reach 1	0.454	8700.00	1198.77	1205.49	1202.53	1205.83	0.000257	4.69	1856.70	366.17	0.37
Reach 1	0.454	11920.00	1198.77	1206.94	1203.27	1207.31	0.000240	4.88	2443.18	1000.06	0.36
Reach 1	0.454	15770.00	1198.77	1208.36	1204.06	1208.77	0.000200	5.17	3050.99	1000.06	0.34
Reach 1	0.449	8700.00	1198.66	1205.45	1202.59	1205.81	0.001092	4.83	1802.43	355.29	0.38
Reach 1	0.449	11920.00	1198.66	1206.90	1203.37	1207.30	0.000987	5.06	2354.39	1000.03	0.37
Reach 1	0.449	15770.00	1198.66	1208.30	1204.16	1208.75	0.000848	5.41	2914.45	1000.03	0.35
Reach 1	0.445	8700.00	1197.94	1205.10	1202.54	1205.71	0.001065	6.26	1389.71	238.06	0.46
Reach 1	0.445	11920.00	1197.94	1206.40	1203.42	1207.16	0.001060	6.99	1704.72	246.17	0.47
Reach 1	0.445	15770.00	1197.94	1207.65	1204.36	1208.58	0.001156	7.77	2049.15	1000.00	0.50
Reach 1	0.41	8700.00	1197.40	1204.87	1202.33	1205.51	0.001108	6.39	1361.09	232.43	0.47
Reach 1	0.41	11920.00	1197.40	1206.16	1203.23	1206.95	0.001142	7.13	1670.65	247.13	0.48
Reach 1	0.41	15770.00	1197.40	1207.36	1204.18	1208.36	0.001177	8.00	1970.22	1000.00	0.50
Reach 1	0.315	8700.00	1196.75	1204.27	1201.87	1204.93	0.001179	6.51	1336.83	232.78	0.48
Reach 1	0.315	11920.00	1196.75	1205.53	1202.74	1206.34	0.001290	7.26	1640.82	623.89	0.51
Reach 1	0.315	15770.00	1196.75	1206.74	1203.72	1207.75	0.001267	8.06	1956.06	1000.00	0.52
Reach 1	0.22	8700.00	1195.36	1203.67	1201.34	1204.33	0.001236	6.53	1333.09	241.03	0.49
Reach 1	0.22	11920.00	1195.36	1204.87	1202.22	1205.70	0.001275	7.33	1626.04	270.77	0.51
Reach 1	0.22	15770.00	1195.36	1206.07	1203.19	1207.10	0.001295	8.16	1932.94	1000.00	0.52
Reach 1	0.125	8700.00	1195.04	1202.75	1200.98	1203.59	0.001701	7.33	1186.26	236.08	0.57
Reach 1	0.125	11920.00	1195.04	1203.89	1201.88	1204.93	0.001758	8.22	1450.38	266.69	0.59
Reach 1	0.125	15770.00	1195.04	1205.07	1202.83	1206.34	0.001705	9.06	1761.87	695.00	0.60
Reach 1	0.084	8700.00	1195.57	1202.19	1200.61	1203.06	0.003679	7.47	1164.36	234.25	0.59
Reach 1	0.084	11920.00	1195.57	1203.32	1201.49	1204.39	0.003625	8.30	1435.47	265.03	0.60
Reach 1	0.084	15770.00	1195.57	1204.54	1202.43	1205.81	0.003543	9.07	1739.31	674.11	0.61
Reach 1	0.077	8700.00	1195.67	1202.11	1200.47	1202.94	0.002548	7.30	1192.14	237.88	0.57
Reach 1	0.077	11920.00	1195.67	1203.25	1201.33	1204.28	0.002490	8.12	1467.89	265.23	0.58
Reach 1	0.077	15770.00	1195.67	1204.47	1202.23	1205.70	0.002402	8.90	1777.63	671.83	0.59
Reach 1	0.019	8700.00	1194.97	1201.30	1199.63	1202.15	0.002575	7.41	1174.85	230.47	0.58
Reach 1	0.019	11920.00	1194.97	1202.44	1200.52	1203.50	0.002543	8.27	1442.11	237.35	0.59
Reach 1	0.019	15770.00	1194.97	1203.66	1201.46	1204.94	0.002496	9.08	1736.96	703.66	0.60
Reach 1	0.004	8700.00	1195.36	1199.61	1199.61	1201.50	0.008534	11.04	788.19	209.15	1.00
Reach 1	0.004	11920.00	1195.36	1200.53	1200.53	1202.81	0.007959	12.12	983.29	214.90	1.00
Reach 1	0.004	15770.00	1195.36	1201.51	1201.51	1204.21	0.007503	13.16	1197.89	221.05	1.00
Reach 1	0.000	8700.00	1194.70	1199.06	1199.06	1200.94	0.008625	11.01	790.43	212.46	1.01
Reach 1	0.000	11920.00	1194.70	1199.98	1199.98	1202.23	0.008034	12.05	989.57	220.11	1.00
Reach 1	0.000	15770.00	1194.70	1201.03	1201.03	1203.60	0.007588	12.86	1225.93	236.57	1.00

Profile Output Table - Standard Table 2

Reach	River Sta	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Reach 1	4.487	1238.17	1237.47	0.70	0.74	0.00		8700.00		266.63
Reach 1	4.487	1239.59	1238.84	0.75	0.73	0.01	47.73	11872.27		795.65
Reach 1	4.487	1240.98	1240.23	0.74	0.57	0.01	407.58	15360.73	1.68	1000.00
Reach 1	4.393	1237.43	1236.74	0.69	0.71	0.00		8700.00		248.13
Reach 1	4.393	1238.85	1238.03	0.82	0.70	0.01		11920.00		267.95
Reach 1	4.393	1240.40	1239.58	0.82	0.54	0.04	508.44	15244.37	17.19	783.63
Reach 1	4.298	1236.73	1236.04	0.68	0.77	0.00		8700.00		260.08
Reach 1	4.298	1238.14	1237.35	0.79	0.78	0.00		11920.00		301.15
Reach 1	4.298	1239.83	1239.13	0.70	0.51	0.06	246.82	15485.31	37.87	861.88
Reach 1	4.203	1235.96	1235.23	0.72	0.44	0.01		8700.00		264.70
Reach 1	4.203	1237.35	1236.55	0.81	0.45	0.02		11920.00		323.33
Reach 1	4.203	1239.26	1238.75	0.51	0.26	0.04	625.11	14950.26	194.62	1000.00
Reach 1	4.161	1235.50	1234.67	0.83	0.07	0.00		8700.00		228.01
Reach 1	4.161	1236.88	1235.85	1.03	0.07	0.00		11920.00		236.28
Reach 1	4.161	1238.96	1238.02	0.94	0.04	0.01	92.28	15508.25	169.47	1000.00
Reach 1	4.156	1235.44	1234.61	0.83				8700.00		221.00
Reach 1	4.156	1236.82	1235.78	1.04				11920.00		235.49
Reach 1	4.156	1238.90	1237.93	0.98	0.00	0.32		15770.00		909.22
Reach 1	4.152	Bridge								
Reach 1	4.148	1234.99	1234.05	0.94	0.07	0.07		8700.00		222.00
Reach 1	4.148	1236.32	1235.13	1.19	0.07	0.08		11920.00		228.48
Reach 1	4.148	1237.74	1236.30	1.44	0.08	0.09		15770.00		242.20
Reach 1	4.142	1234.84	1234.04	0.80	0.49	0.04		8700.00		230.90

Reach 1	4.142	1236.16	1235.13	1.02	0.51	0.04		11920.00	237.28
Reach 1	4.142	1237.57	1236.31	1.26	0.52	0.06		15770.00	248.94
Reach 1	4.08	1234.32	1233.59	0.73	0.30	0.02		8700.00	234.40
Reach 1	4.08	1235.61	1234.66	0.95	0.31	0.02		11920.00	241.46
Reach 1	4.08	1236.99	1235.85	1.14	0.31	0.03	151.56	15618.44	578.84
Reach 1	4.047	1234.00	1233.08	0.92	0.90	0.00		8700.00	233.07
Reach 1	4.047	1235.27	1234.10	1.18	0.95	0.00		11920.00	239.82
Reach 1	4.047	1236.64	1235.21	1.44	0.95	0.01		15770.00	247.16
Reach 1	3.964	1233.10	1232.18	0.92	1.24	0.09		8700.00	231.53
Reach 1	3.964	1234.32	1233.11	1.21	1.15	0.06		11920.00	237.60
Reach 1	3.964	1235.69	1234.20	1.49	1.05	0.04		15770.00	244.65
Reach 1	3.899	1231.77	1229.99	1.78	0.39	0.24		8700.00	217.65
Reach 1	3.899	1233.11	1231.31	1.81	0.32	0.19		11920.00	227.40
Reach 1	3.899	1234.59	1232.70	1.89	0.27	0.17		15770.00	237.73
Reach 1	3.88	1231.15	1230.15	1.00	0.04	0.02		8700.00	224.95
Reach 1	3.88	1232.60	1231.44	1.16	0.03	0.02		11920.00	233.27
Reach 1	3.88	1234.15	1232.83	1.32	0.03	0.02		15770.00	242.45
Reach 1	3.877	1231.09	1229.89	1.20	0.78	0.17		8700.00	219.01
Reach 1	3.877	1232.54	1231.20	1.34	0.75	0.17		11920.00	225.76
Reach 1	3.877	1234.10	1232.59	1.50	0.72	0.17		15770.00	234.42
Reach 1	3.782	1230.13	1229.52	0.61	0.53	0.01		8700.00	220.59
Reach 1	3.782	1231.63	1230.85	0.77	0.55	0.01		11920.00	231.10
Reach 1	3.782	1233.21	1232.27	0.94	0.55	0.01		15770.00	242.21
Reach 1	3.688	1229.59	1228.90	0.68	0.57	0.01		8700.00	221.61
Reach 1	3.688	1231.07	1230.22	0.85	0.58	0.01		11920.00	232.27
Reach 1	3.688	1232.65	1231.63	1.02	0.58	0.01		15770.00	244.30
Reach 1	3.593	1229.01	1228.35	0.65	0.41	0.00		8700.00	223.73
Reach 1	3.593	1230.49	1229.67	0.82	0.41	0.00		11920.00	234.56
Reach 1	3.593	1232.06	1231.08	0.98	0.41	0.00		15770.00	247.76
Reach 1	3.527	1228.60	1227.90	0.70	0.02	0.01		8700.00	225.36
Reach 1	3.527	1230.07	1229.21	0.86	0.02	0.01		11920.00	235.53
Reach 1	3.527	1231.65	1230.62	1.02	0.02	0.01		15770.00	248.34
Reach 1	3.524	1228.56	1227.73	0.83	0.60	0.07		8700.00	224.07
Reach 1	3.524	1230.04	1229.05	0.99	0.60	0.07		11920.00	234.30
Reach 1	3.524	1231.62	1230.47	1.15	0.60	0.07		15770.00	246.05
Reach 1	3.429	1227.89	1227.31	0.58	0.48	0.00		8700.00	221.41
Reach 1	3.429	1229.37	1228.62	0.75	0.51	0.00		11920.00	232.14
Reach 1	3.429	1230.95	1230.03	0.92	0.53	0.01		15770.00	248.31
Reach 1	3.334	1227.41	1226.78	0.63	1.05	0.02		8700.00	223.99
Reach 1	3.334	1228.86	1228.06	0.80	1.07	0.02		11920.00	234.80
Reach 1	3.334	1230.41	1229.44	0.97	1.07	0.02		15770.00	249.24
Reach 1	3.176	1226.34	1225.53	0.80	0.02	0.00		8700.00	224.91
Reach 1	3.176	1227.77	1226.78	0.99	0.02	0.00		11920.00	233.72
Reach 1	3.176	1229.32	1228.16	1.16	0.02	0.00		15770.00	312.02
Reach 1	3.174	1226.32	1225.53	0.79	0.64	0.04		8700.00	224.92
Reach 1	3.174	1227.75	1226.78	0.97	0.65	0.05		11920.00	233.51
Reach 1	3.174	1229.30	1228.16	1.14	0.64	0.05		15770.00	310.65
Reach 1	3.079	1225.64	1224.99	0.64	0.54	0.00		8700.00	225.46
Reach 1	3.079	1227.06	1226.24	0.82	0.57	0.00		11920.00	235.96
Reach 1	3.079	1228.62	1227.63	0.99	0.58	0.00		15770.00	268.29
Reach 1	2.985	1225.10	1224.47	0.63	0.43	0.00		8700.00	228.44
Reach 1	2.985	1226.49	1225.68	0.81	0.46	0.00		11920.00	238.26
Reach 1	2.985	1228.04	1227.06	0.98	0.46	0.00		15770.00	266.18
Reach 1	2.912	1224.66	1224.00	0.66	0.02	0.00		8700.00	230.96
Reach 1	2.912	1226.03	1225.18	0.85	0.02	0.00		11920.00	240.16
Reach 1	2.912	1227.57	1226.56	1.02	0.02	0.00		15770.00	278.54
Reach 1	2.909	1224.65	1223.98	0.66	0.65	0.01		8700.00	232.15
Reach 1	2.909	1226.01	1225.16	0.85	0.68	0.01		11920.00	240.40
Reach 1	2.909	1227.55	1226.54	1.01	0.67	0.01		15770.00	280.03
Reach 1	2.814	1223.99	1223.25	0.74	0.45	0.01		8700.00	230.43
Reach 1	2.814	1225.32	1224.37	0.95	0.47	0.01		11920.00	240.11
Reach 1	2.814	1226.87	1225.76	1.11	0.46	0.01		15770.00	401.62
Reach 1	2.757	1223.54	1222.75	0.79	1.35	0.07		8700.00	228.71
Reach 1	2.757	1224.85	1223.83	1.02	1.17	0.04		11920.00	236.56
Reach 1	2.757	1226.40	1225.22	1.18	1.03	0.02		15770.00	261.40
Reach 1	2.65	1222.12	1220.65	1.47	0.04	0.36		8700.00	220.59
Reach 1	2.65	1223.64	1222.22	1.41	0.03	0.36		11920.00	231.43
Reach 1	2.65	1225.35	1223.96	1.39	0.02	0.38		15770.00	250.08
Reach 1	2.646	1221.72	1220.98	0.74	0.04	0.07		8700.00	312.39
Reach 1	2.646	1223.25	1222.55	0.70	0.02	0.03		11920.00	346.02
Reach 1	2.646	1224.95	1224.31	0.64	0.02	0.01		15770.00	792.71

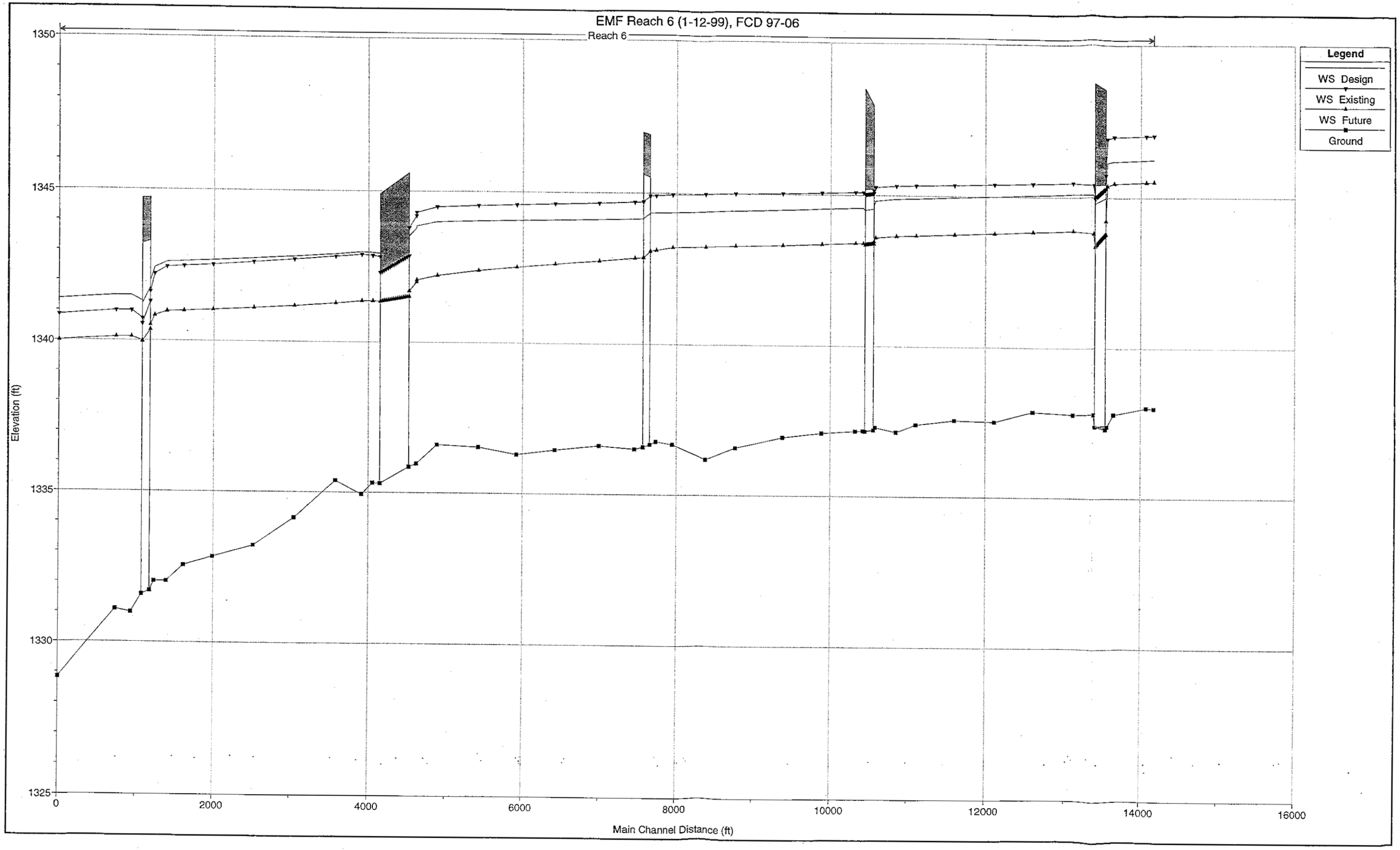
Reach 1	2.641	1221.61	1220.63	0.98	0.08	0.01		8700.00		306.02
Reach 1	2.641	1223.20	1222.42	0.78	0.05	0.10		11920.00		347.90
Reach 1	2.641	1224.92	1224.24	0.68	0.04	0.15		15770.00		788.61
Reach 1	2.636	1221.52	1220.51	1.00	0.46	0.13		8700.00		228.60
Reach 1	2.636	1223.05	1221.96	1.10	0.42	0.12		11920.00		238.38
Reach 1	2.636	1224.73	1223.54	1.19	0.39	0.11		15770.00		253.03
Reach 1	2.571	1220.93	1220.37	0.56	0.45	0.00		8700.00		223.16
Reach 1	2.571	1222.51	1221.81	0.70	0.45	0.00		11920.00		233.38
Reach 1	2.571	1224.22	1223.40	0.83	0.45	0.00		15770.00		247.03
Reach 1	2.476	1220.48	1219.88	0.60	0.49	0.00		8700.00		221.94
Reach 1	2.476	1222.06	1221.32	0.74	0.48	0.00		11920.00		232.51
Reach 1	2.476	1223.77	1222.91	0.86	0.50	0.00		15770.00		300.30
Reach 1	2.381	1219.99	1219.37	0.62	0.44	0.00		8700.00		225.74
Reach 1	2.381	1221.58	1220.83	0.75	0.41	0.00		11920.00		236.83
Reach 1	2.381	1223.27	1222.41	0.87	0.41	0.00		15770.00		487.91
Reach 1	2.305	1219.54	1218.88	0.66	0.02	0.01		8700.00		245.83
Reach 1	2.305	1221.16	1220.39	0.78	0.01	0.01		11920.00		379.33
Reach 1	2.305	1222.86	1221.97	0.89	0.01	0.01		15770.00		792.28
Reach 1	2.303	1219.52	1218.77	0.75	0.51	0.07		8700.00		241.90
Reach 1	2.303	1221.14	1220.29	0.85	0.48	0.06		11920.00		374.00
Reach 1	2.303	1222.84	1221.88	0.96	0.46	0.06		15770.00		784.73
Reach 1	2.208	1218.94	1218.42	0.52	0.39	0.00		8700.00		251.72
Reach 1	2.208	1220.59	1219.96	0.64	0.39	0.00		11920.00		418.90
Reach 1	2.208	1222.32	1221.57	0.76	0.38	0.00		15770.00		823.58
Reach 1	2.113	1218.55	1218.01	0.53	0.41	0.00		8700.00		227.73
Reach 1	2.113	1220.20	1219.55	0.65	0.41	0.00		11920.00		246.97
Reach 1	2.113	1221.94	1221.19	0.75	0.39	0.00		15770.00		803.83
Reach 1	2.018	1218.13	1217.58	0.55	0.42	0.00		8700.00		230.72
Reach 1	2.018	1219.79	1219.13	0.65	0.41	0.00		11920.00		246.73
Reach 1	2.018	1221.55	1220.80	0.75	0.38	0.00		15770.00		807.82
Reach 1	1.924	1217.70	1217.16	0.54	0.43	0.00		8700.00		255.43
Reach 1	1.924	1219.37	1218.73	0.64	0.41	0.00		11920.00		793.91
Reach 1	1.924	1221.17	1220.43	0.74	0.36	0.00		15770.00		1000.00
Reach 1	1.829	1217.27	1216.73	0.55	0.46	0.00		8700.00		236.87
Reach 1	1.829	1218.96	1218.32	0.64	0.38	0.03		11920.00		1000.00
Reach 1	1.829	1220.81	1220.08	0.73	0.28	0.09		15770.00		1000.00
Reach 1	1.734	1216.81	1216.25	0.57	0.21	0.00		8700.00		240.64
Reach 1	1.734	1218.55	1218.02	0.53	0.14	0.02	215.54	11293.01	411.46	1000.00
Reach 1	1.734	1220.43	1220.02	0.42	0.09	0.02	1052.35	13366.41	1351.24	1000.00
Reach 1	1.693	1216.60	1216.05	0.55	0.25	0.00		8700.00		244.89
Reach 1	1.693	1218.38	1217.93	0.45	0.18	0.05	335.34	10836.88	747.78	1000.00
Reach 1	1.693	1220.33	1219.98	0.35	0.13	0.11	1266.92	12727.57	1775.51	1000.00
Reach 1	1.649	1216.34	1215.80	0.55				8700.00		232.83
Reach 1	1.649	1218.14	1217.51	0.63	0.00	0.17		11920.00		1003.40
Reach 1	1.649	1220.08	1219.36	0.72	0.00	0.29		15770.00		1003.40
Reach 1	1.644	Bridge								
Reach 1	1.64	1215.87	1215.28	0.59	0.55	0.03		8700.00		231.73
Reach 1	1.64	1217.34	1216.60	0.75	0.56	0.05		11920.00		239.88
Reach 1	1.64	1218.52	1217.49	1.03	0.65	0.10		15770.00		1002.40
Reach 1	1.545	1215.30	1214.76	0.54	0.40	0.06		8700.00		239.20
Reach 1	1.545	1216.73	1216.08	0.65	0.41	0.08		11745.06	174.94	586.66
Reach 1	1.545	1217.77	1216.94	0.83	0.40	0.01	178.67	15124.26	467.07	1000.00
Reach 1	1.476	1214.83	1214.08	0.75	0.75	0.02		8700.00		231.46
Reach 1	1.476	1216.24	1215.32	0.92	0.75	0.02		11920.00		249.56
Reach 1	1.476	1217.35	1216.55	0.80	0.52	0.08	686.41	14172.58	911.01	1000.00
Reach 1	1.389	1214.06	1213.38	0.68	0.81	0.00		8700.00		239.82
Reach 1	1.389	1215.46	1214.61	0.85	0.80	0.00		11920.00		248.13
Reach 1	1.389	1216.76	1216.21	0.55	0.59	0.05	1510.08	13010.70	1249.23	1000.00
Reach 1	1.306	1213.25	1212.57	0.68	0.54	0.01		8700.00		236.21
Reach 1	1.306	1214.66	1213.81	0.85	0.55	0.02		11920.00		244.62
Reach 1	1.306	1216.11	1215.07	1.04	0.55	0.02		15770.00		1000.00
Reach 1	1.246	1212.69	1212.06	0.63	0.54	0.00		8700.00		238.27
Reach 1	1.246	1214.10	1213.30	0.79	0.54	0.00		11920.00		246.42
Reach 1	1.246	1215.55	1214.57	0.98	0.54	0.00		15770.00		1000.00
Reach 1	1.186	1212.15	1211.49	0.66	0.41	0.00		8700.00		240.17
Reach 1	1.186	1213.55	1212.73	0.82	0.41	0.00		11920.00		247.73
Reach 1	1.186	1215.00	1213.99	1.01	0.41	0.00		15770.00		1000.00
Reach 1	1.142	1211.74	1211.07	0.67	0.54	0.00		8700.00		238.64
Reach 1	1.142	1213.14	1212.31	0.84	0.54	0.01		11920.00		245.91
Reach 1	1.142	1214.60	1213.57	1.03	0.54	0.02		15770.00		1000.00
Reach 1	1.074	1211.19	1210.53	0.66	0.51	0.00		8700.00		246.44

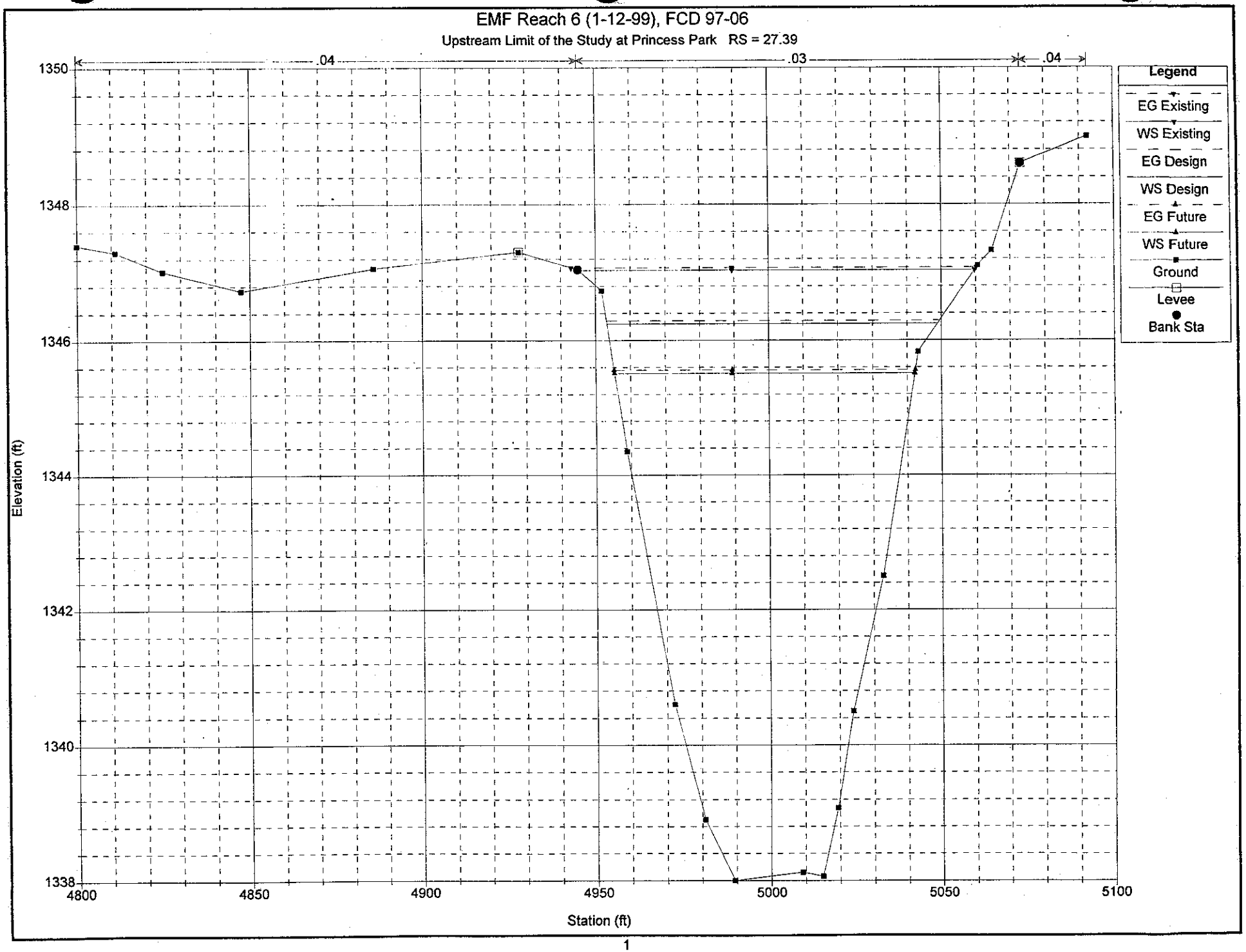
Reach 1	1.074	1212.60	1211.79	0.81	0.51	0.00		11920.00		260.58
Reach 1	1.074	1214.04	1213.08	0.97	0.51	0.00		15770.00		1000.00
Reach 1	1.01	1210.68	1210.02	0.65	0.86	0.00		8700.00		240.61
Reach 1	1.01	1212.08	1211.27	0.81	0.87	0.00		11920.00		256.34
Reach 1	1.01	1213.54	1212.56	0.98	0.86	0.00		15770.00		1000.00
Reach 1	0.917	1209.82	1209.15	0.66	0.88	0.02		8700.00		238.90
Reach 1	0.917	1211.21	1210.38	0.83	0.85	0.02		11920.00		246.08
Reach 1	0.917	1212.68	1211.66	1.02	0.82	0.02		15770.00		1000.00
Reach 1	0.839	1208.92	1208.07	0.85	0.99	0.01		8700.00		233.05
Reach 1	0.839	1210.35	1209.33	1.01	0.89	0.02		11920.00		240.82
Reach 1	0.839	1211.84	1210.64	1.20	0.84	0.02		15770.00		248.90
Reach 1	0.766	1207.93	1207.10	0.83	0.14	0.06		8700.00		232.39
Reach 1	0.766	1209.44	1208.48	0.96	0.13	0.06		11920.00		240.90
Reach 1	0.766	1210.98	1209.85	1.12	0.13	0.06		15770.00		249.31
Reach 1	0.752	1207.73	1207.11	0.62	0.01	0.01		8700.00		228.99
Reach 1	0.752	1209.25	1208.49	0.76	0.01	0.01		11920.00		239.52
Reach 1	0.752	1210.79	1209.86	0.93	0.01	0.01		15770.00		250.81
Reach 1	0.75	1207.71	1207.12	0.59	0.53	0.01		8700.00		229.17
Reach 1	0.75	1209.23	1208.50	0.73	0.52	0.01		11920.00		237.44
Reach 1	0.75	1210.77	1209.87	0.90	0.55	0.01		15770.00		251.07
Reach 1	0.655	1207.17	1206.51	0.66	0.56	0.01		8700.00		227.70
Reach 1	0.655	1208.70	1207.90	0.80	0.55	0.01		11920.00		240.27
Reach 1	0.655	1210.21	1209.25	0.96	0.56	0.01		15770.00		582.62
Reach 1	0.56	1206.61	1205.98	0.63	0.32	0.00		8700.00		229.84
Reach 1	0.56	1208.15	1207.38	0.77	0.32	0.00		11920.00		245.09
Reach 1	0.56	1209.64	1208.70	0.94	0.32	0.00		15770.00		1000.00
Reach 1	0.504	1206.29	1205.65	0.63	0.27	0.00		8700.00		227.96
Reach 1	0.504	1207.83	1207.06	0.77	0.28	0.00		11920.00		245.42
Reach 1	0.504	1209.32	1208.38	0.95	0.29	0.01		15770.00		1000.00
Reach 1	0.459	1206.01	1205.33	0.68	0.01	0.17		8700.00		229.91
Reach 1	0.459	1207.54	1206.74	0.81	0.01	0.22		11920.00		259.66
Reach 1	0.459	1209.03	1208.12	0.90	0.01	0.24		15770.00		1000.09
Reach 1	0.454	1205.83	1205.49	0.34	0.01	0.01		8700.00		366.17
Reach 1	0.454	1207.31	1206.94	0.37	0.01	0.01		11920.00		1000.06
Reach 1	0.454	1208.77	1208.36	0.41	0.01	0.01		15770.00		1000.06
Reach 1	0.449	1205.81	1205.45	0.36	0.03	0.07		8700.00		355.29
Reach 1	0.449	1207.30	1206.90	0.40	0.03	0.11		11920.00		1000.03
Reach 1	0.449	1208.75	1208.30	0.45	0.02	0.14		15770.00		1000.03
Reach 1	0.445	1205.71	1205.10	0.61	0.20	0.00		8700.00		238.06
Reach 1	0.445	1207.16	1206.40	0.76	0.20	0.00		11920.00		246.17
Reach 1	0.445	1208.58	1207.65	0.94	0.22	0.01	8.71	15750.68	10.61	1000.00
Reach 1	0.41	1205.51	1204.87	0.63	0.57	0.00		8700.00		232.43
Reach 1	0.41	1206.95	1206.16	0.79	0.61	0.00		11920.00		247.13
Reach 1	0.41	1208.36	1207.36	0.99	0.61	0.00		15770.00		1000.00
Reach 1	0.315	1204.93	1204.27	0.66	0.60	0.00		8700.00		232.78
Reach 1	0.315	1206.34	1205.53	0.82	0.64	0.00		11920.00		623.89
Reach 1	0.315	1207.75	1206.74	1.01	0.64	0.00		15770.00		1000.00
Reach 1	0.22	1204.33	1203.67	0.66	0.72	0.02		8700.00		241.03
Reach 1	0.22	1205.70	1204.87	0.83	0.74	0.02		11920.00		270.77
Reach 1	0.22	1207.10	1206.07	1.03	0.74	0.02		15770.00		1000.00
Reach 1	0.125	1203.59	1202.75	0.84	0.53	0.00		8700.00		236.08
Reach 1	0.125	1204.93	1203.89	1.05	0.54	0.00		11920.00		266.69
Reach 1	0.125	1206.34	1205.07	1.27	0.52	0.00	10.95	15735.31	23.74	695.00
Reach 1	0.084	1203.06	1202.19	0.87	0.10	0.01		8700.00		234.25
Reach 1	0.084	1204.39	1203.32	1.07	0.10	0.01		11920.00		265.03
Reach 1	0.084	1205.81	1204.54	1.28	0.10	0.01		15770.00		674.11
Reach 1	0.077	1202.94	1202.11	0.83	0.79	0.00		8700.00		237.88
Reach 1	0.077	1204.28	1203.25	1.02	0.78	0.00		11920.00		265.23
Reach 1	0.077	1205.70	1204.47	1.23	0.75	0.01		15762.11	7.89	671.83
Reach 1	0.019	1202.15	1201.30	0.85	0.34	0.31		8700.00		230.47
Reach 1	0.019	1203.50	1202.44	1.06	0.32	0.37		11920.00		237.35
Reach 1	0.019	1204.94	1203.66	1.28	0.31	0.42		15770.00		703.66
Reach 1	0.004	1201.50	1199.61	1.89	0.07	0.36		8700.00		209.15
Reach 1	0.004	1202.81	1200.53	2.28	0.07	0.43		11920.00		214.90
Reach 1	0.004	1204.21	1201.51	2.69	0.17	0.06		15770.00		221.05
Reach 1	0.000	1200.94	1199.06	1.88				8700.00		212.46
Reach 1	0.000	1202.23	1199.98	2.25				11920.00		220.11
Reach 1	0.000	1203.60	1201.03	2.57				15770.00		236.57

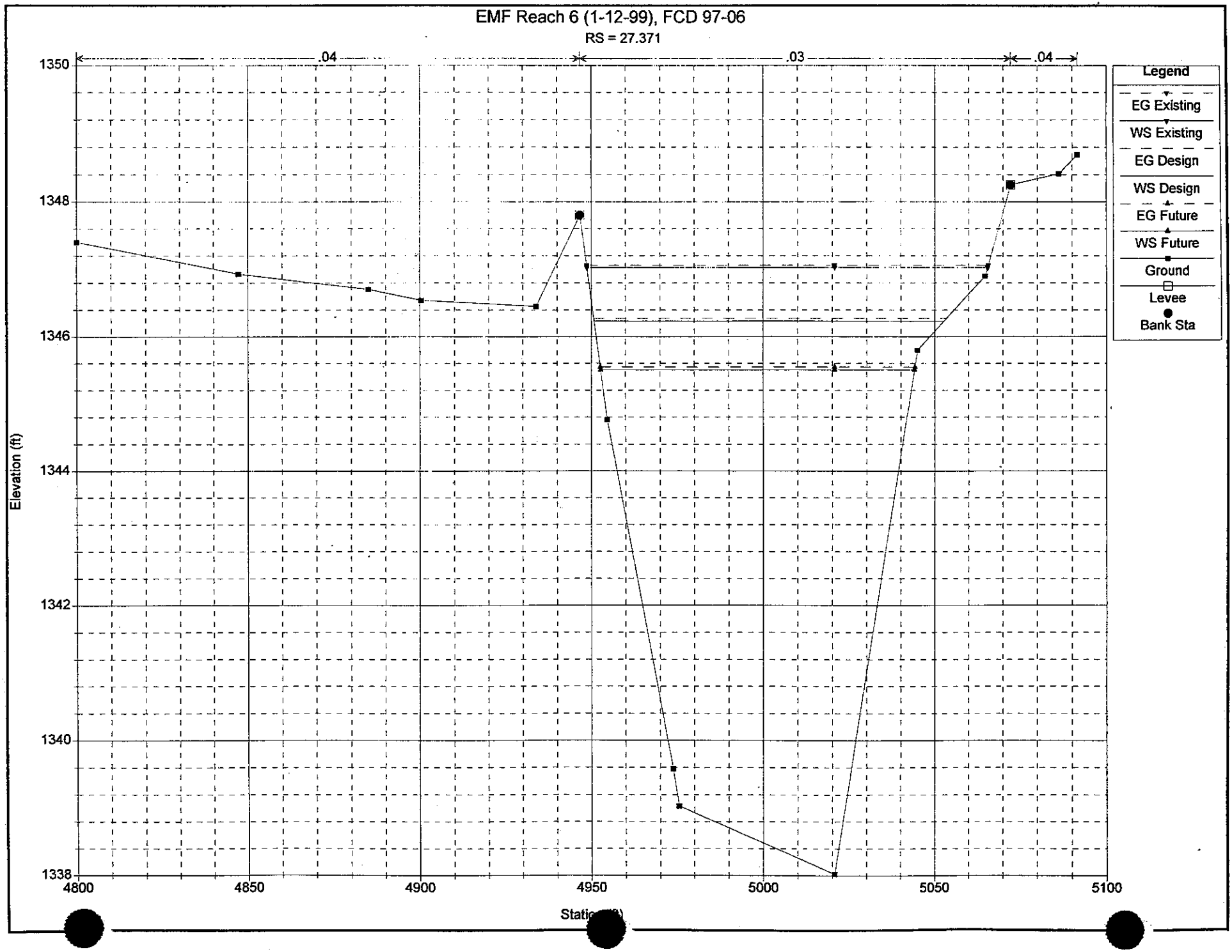
APPENDIX C

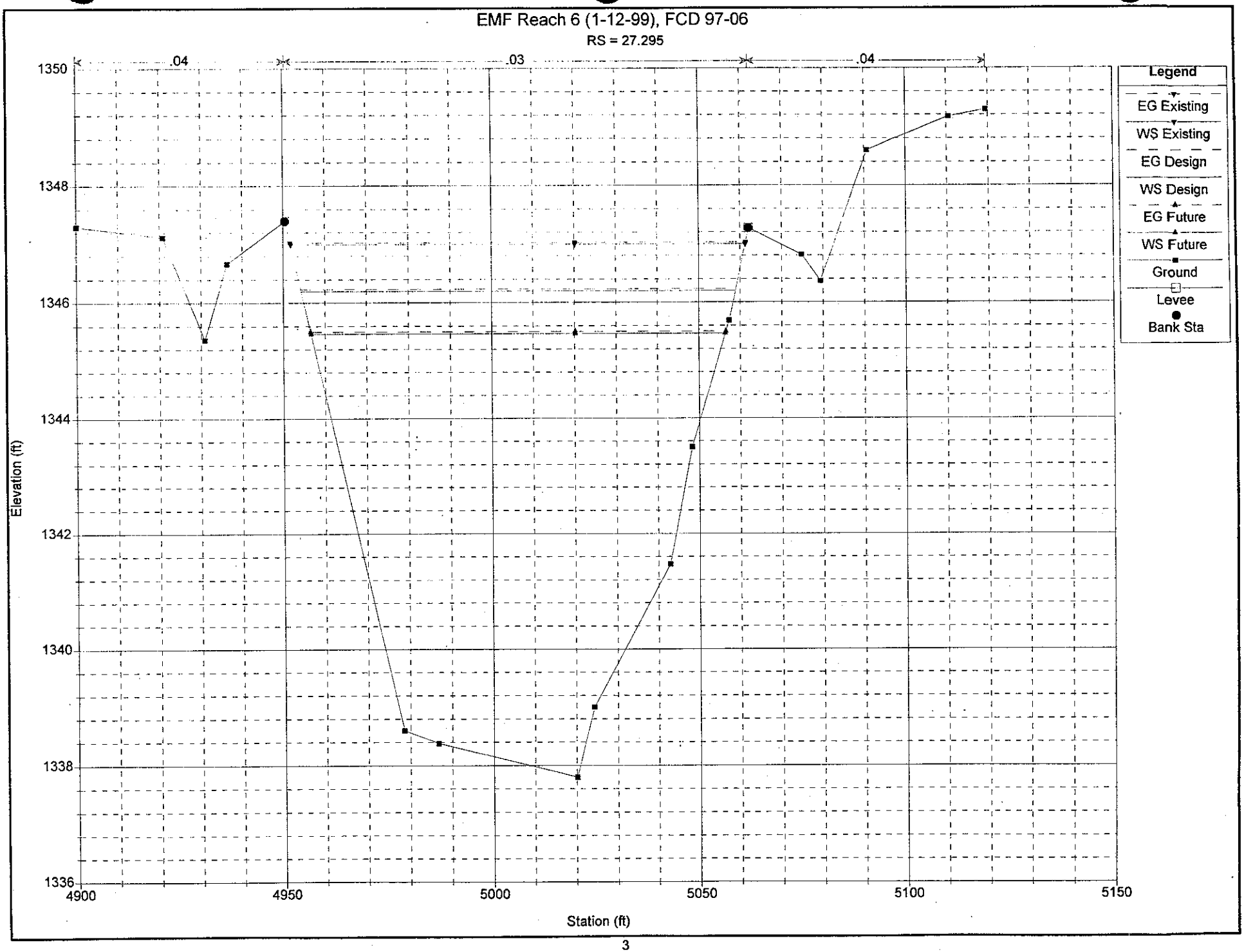
HYDRAULIC ASSESSMENT REULTS

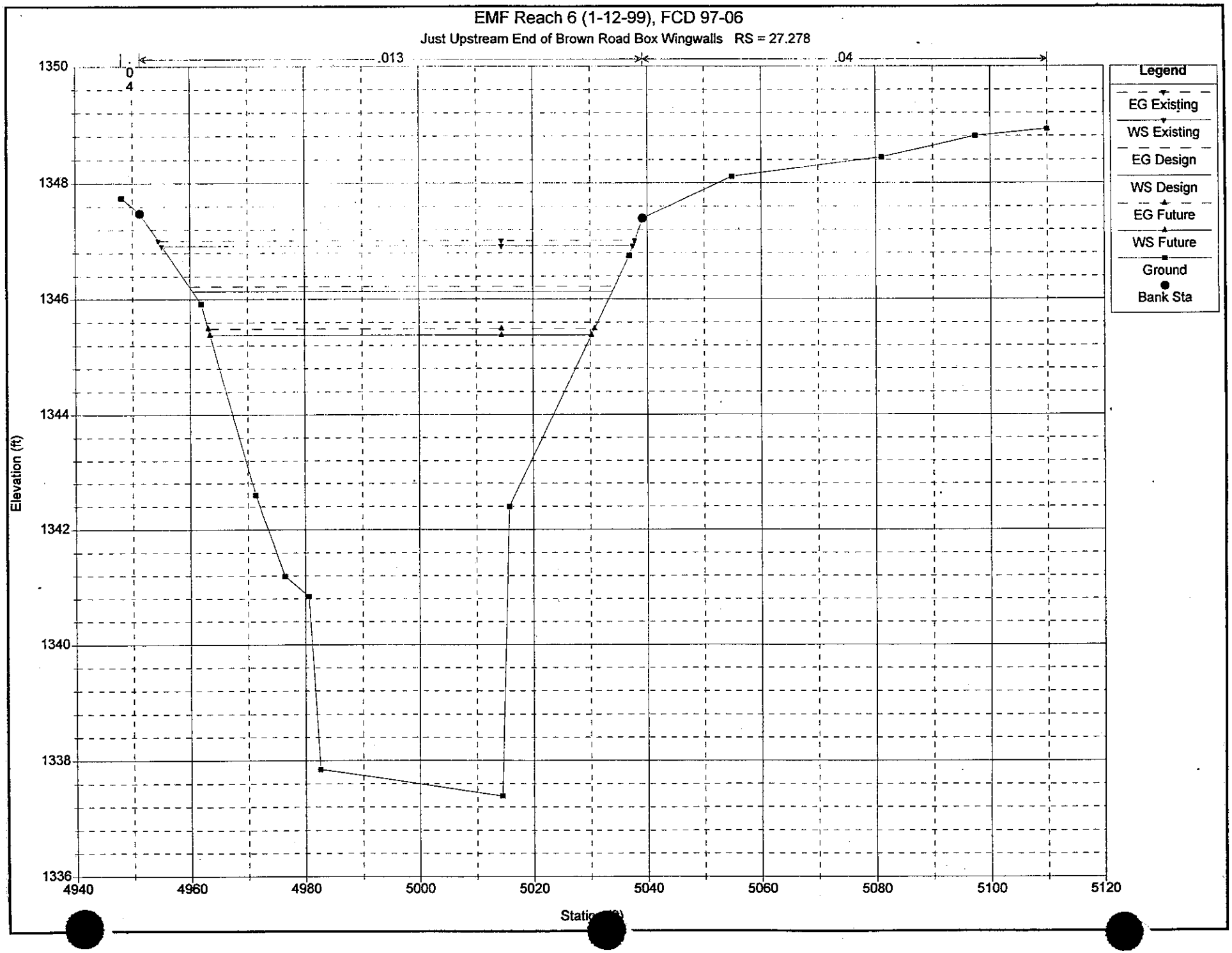
2. HEC-RAS Cross Section Plots

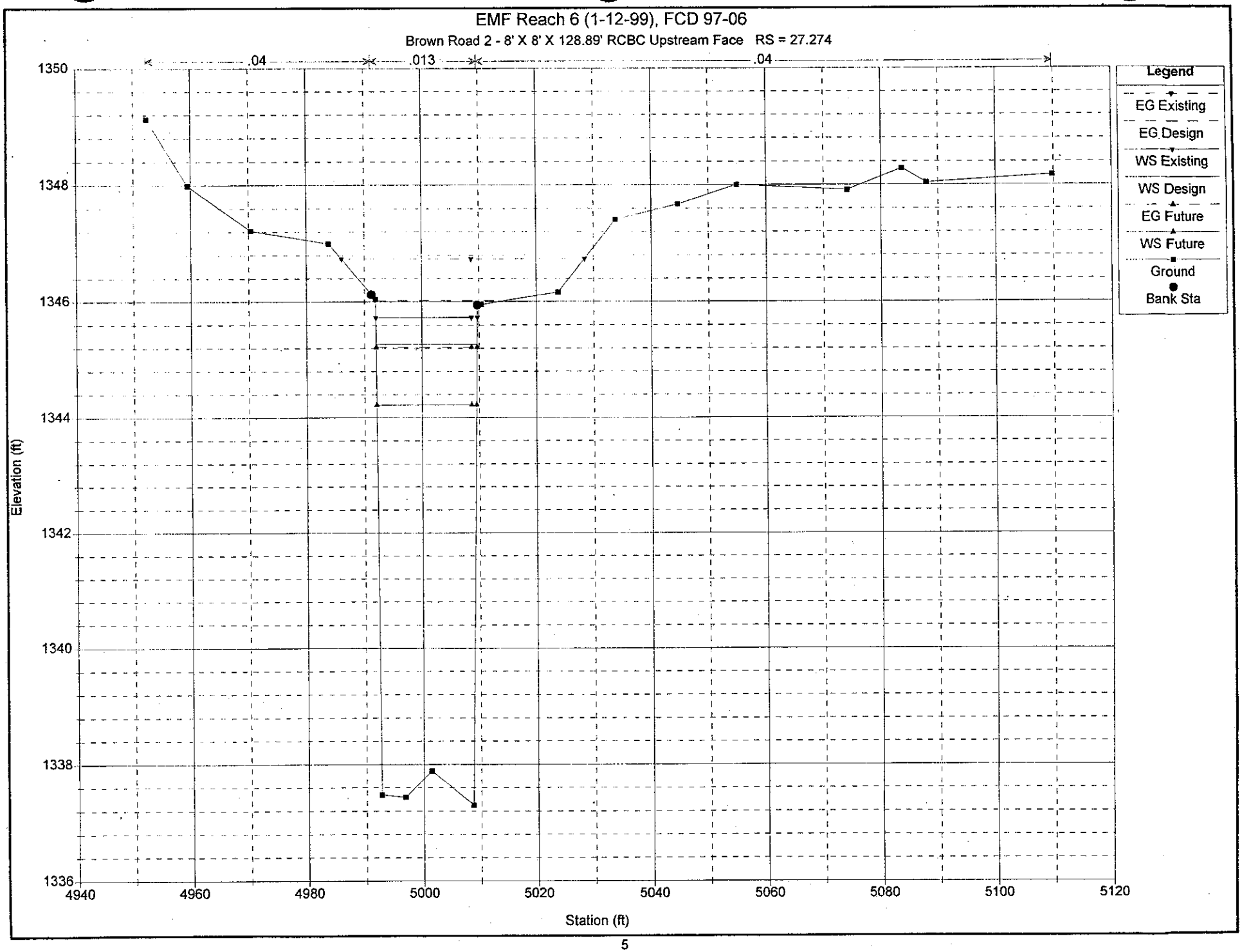

EMF Reach 6 (1-12-99), FCD 97-06
Reach 6
Legend
WS Design
WS Existing
WS Future
Ground
Elevation (ft)
1350
1345
1340
1335
1330
1325
0
2000
4000
6000
8000
10000
12000
14000
16000
Main Channel Distance (ft)

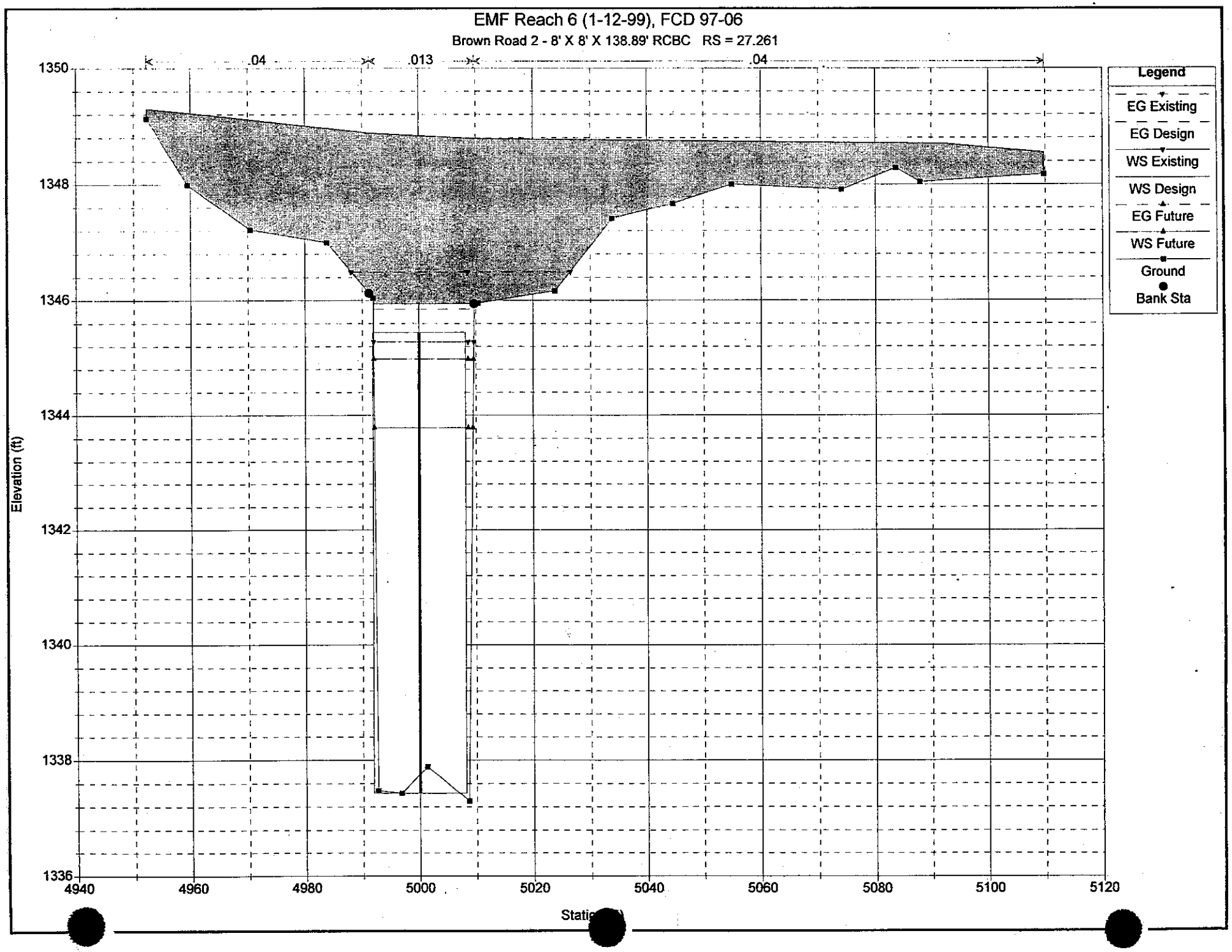

EMF Reach 6 (1-12-99), FCD 97-06
Upstream Limit of the Study at Princess Park RS = 27.39
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
4800
4850
4900
4950
5000
5050
5100
Station (ft)

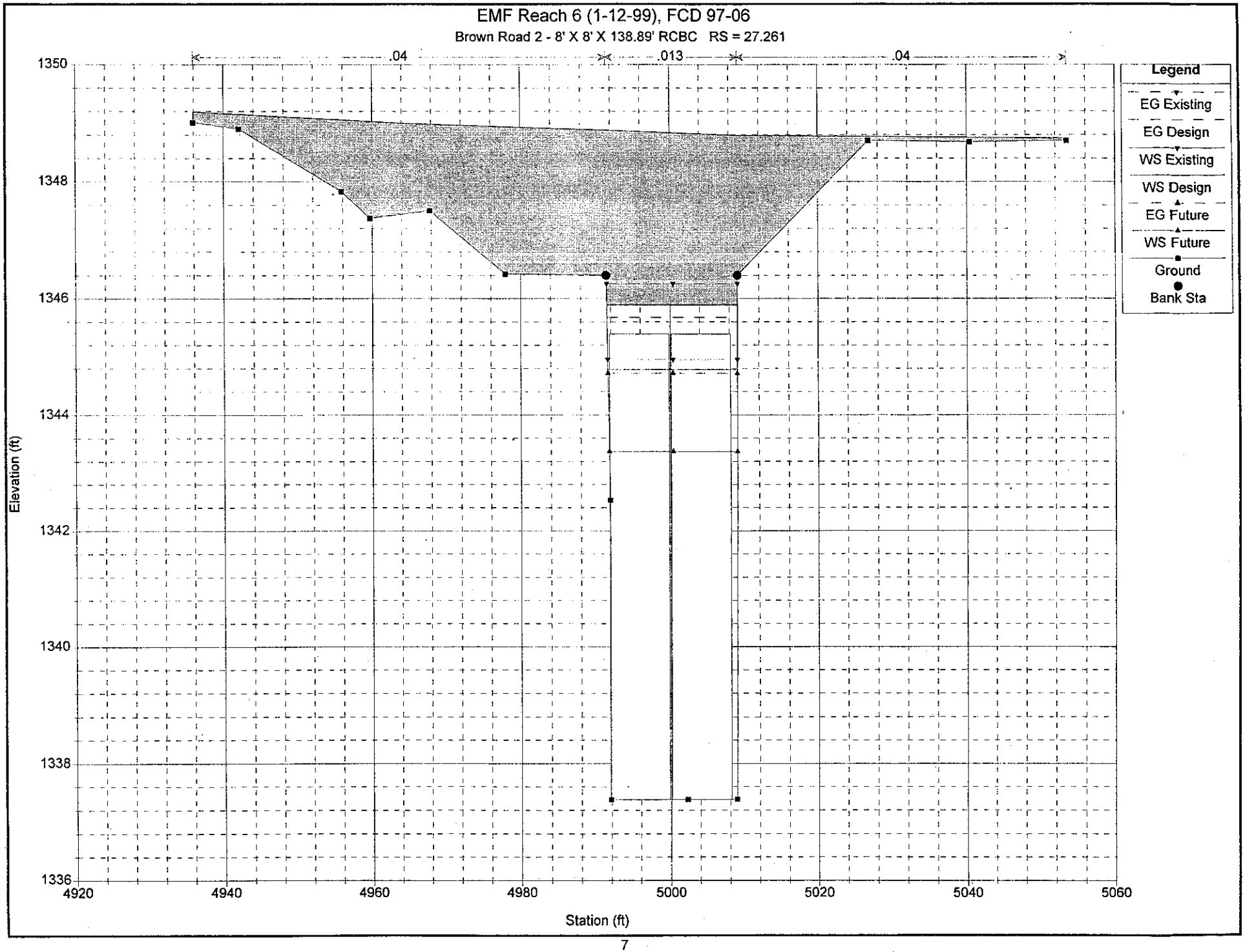

EMF Reach 6 (1-12-99), FCD 97-06
RS = 27.371
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
4800
4850
4900
4950
5000
5050
5100

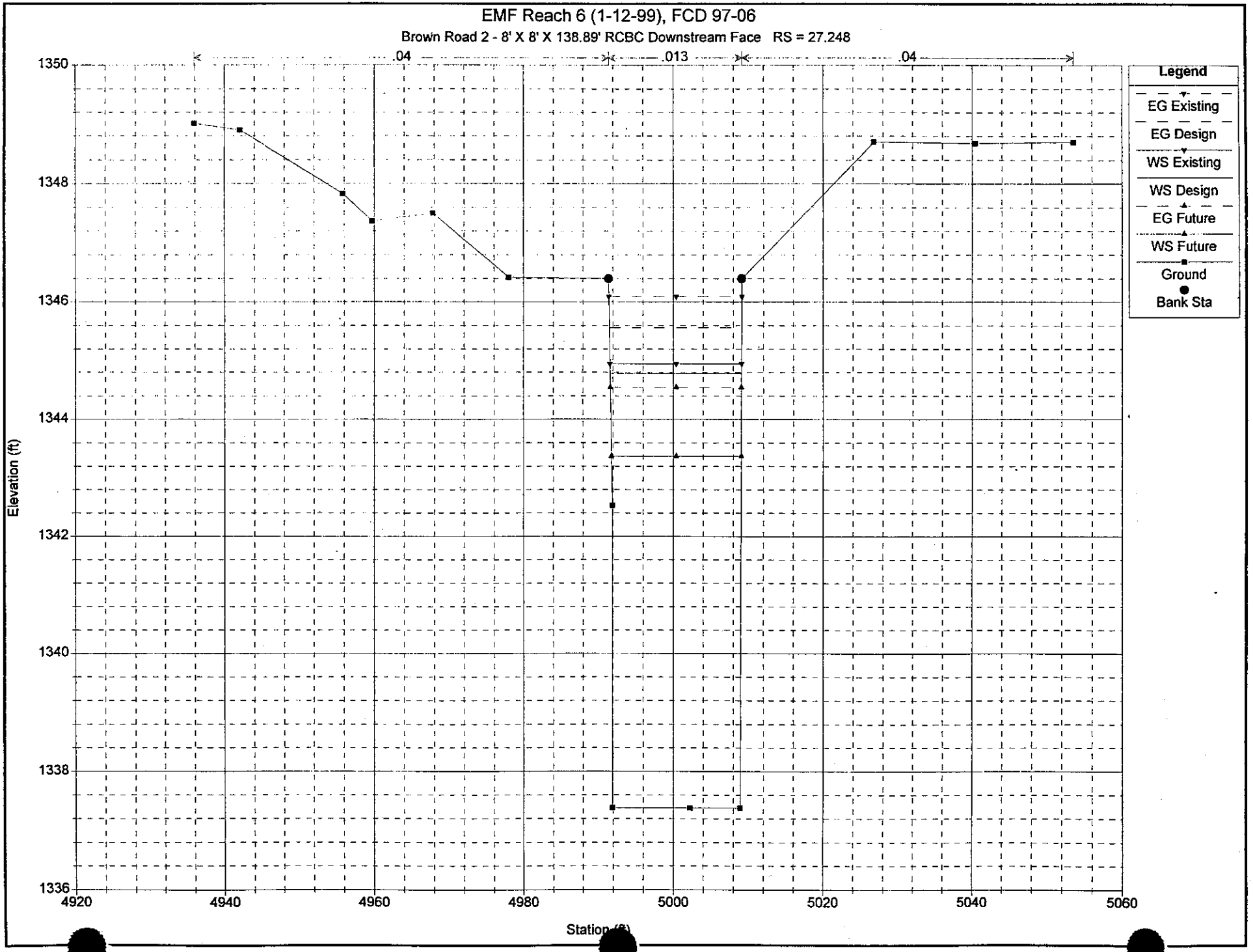

EMF Reach 6 (1-12-99), FCD 97-06
RS = 27.295
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4900
4950
5000
5050
5100
5150
Station (ft)

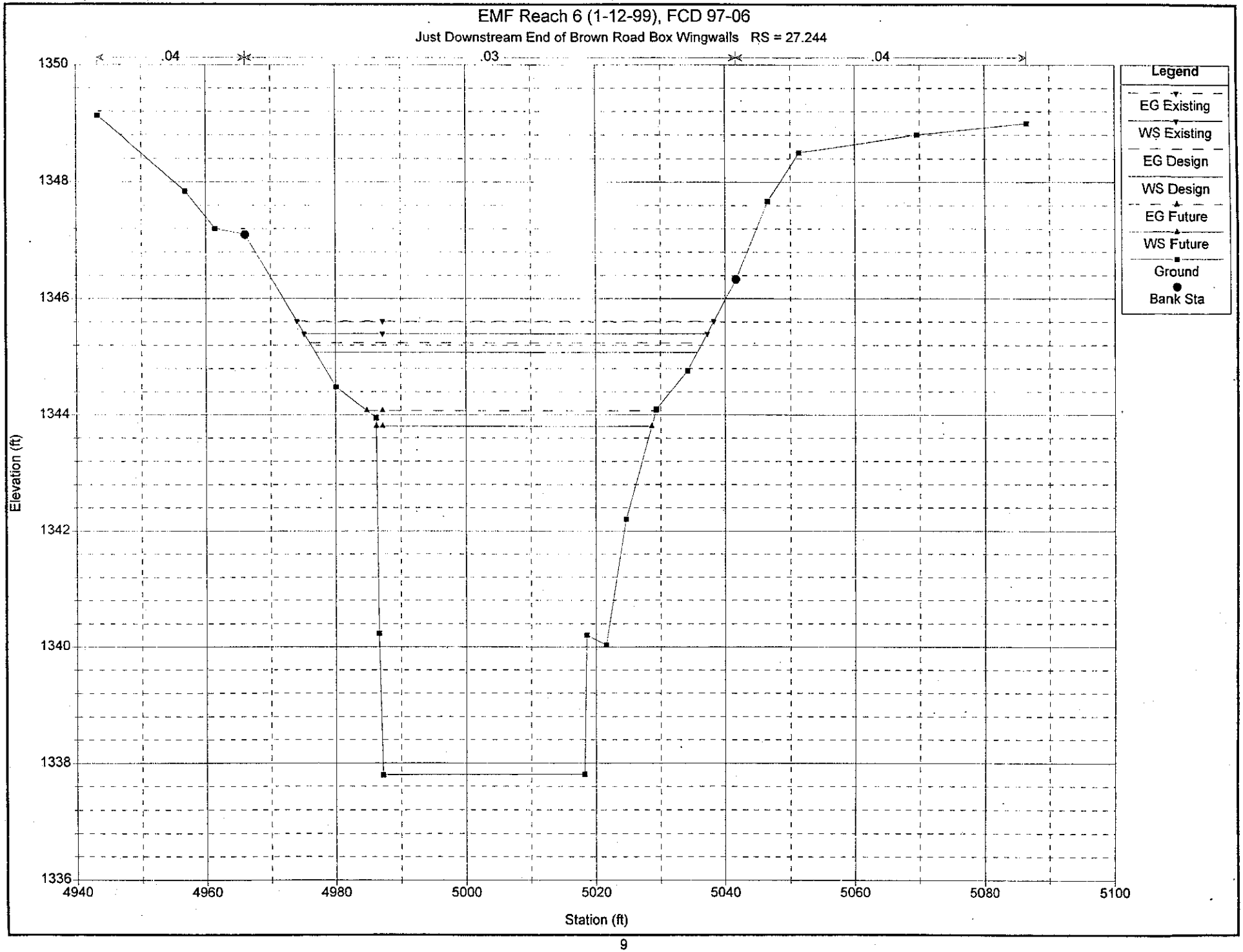

EMF Reach 6 (1-12-99), FCD 97-06
Just Upstream End of Brown Road Box Wingwalls RS = 27.278
.013
.04
0
4
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4940
4960
4980
5000
5020
5040
5060
5080
5100
5120

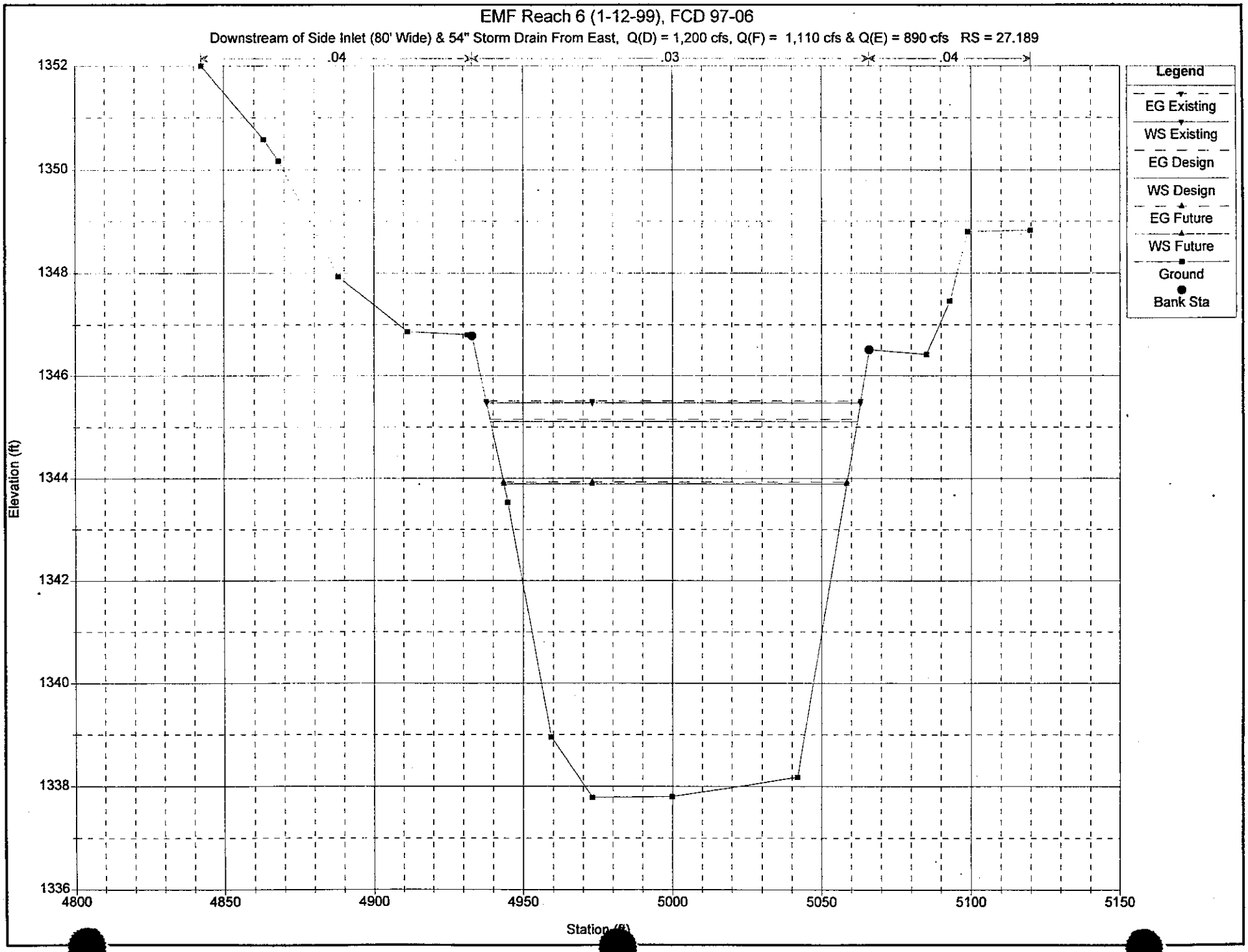

EMF Reach 6 (1-12-99), FCD 97-06
Brown Road 2 - 8' X 8' X 128.89' RCBC Upstream Face RS = 27.274
.04
.013
.04
Legend
EG Existing
EG Design
WS Existing
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4940
4960
4980
5000
5020
5040
5060
5080
5100
5120
Station (ft)

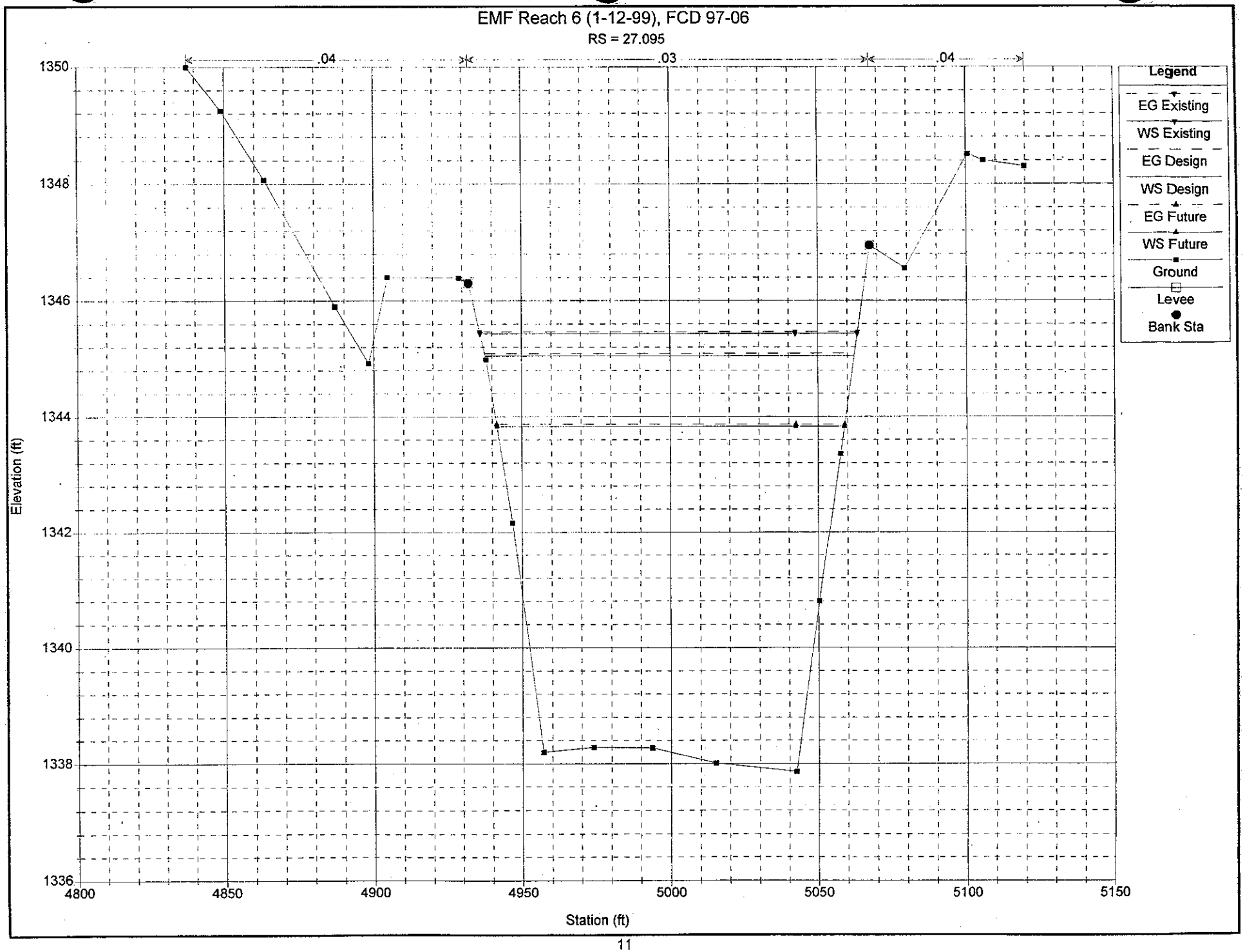

EMF Reach 6 (1-12-99), FCD 97-06
Brown Road 2 - 8' X 8' X 138.89' RCBC RS = 27.261
.04
.013
.04
Legend
EG Existing
EG Design
WS Existing
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4940
4960
4980
5000
5020
5040
5060
5080
5100
5120

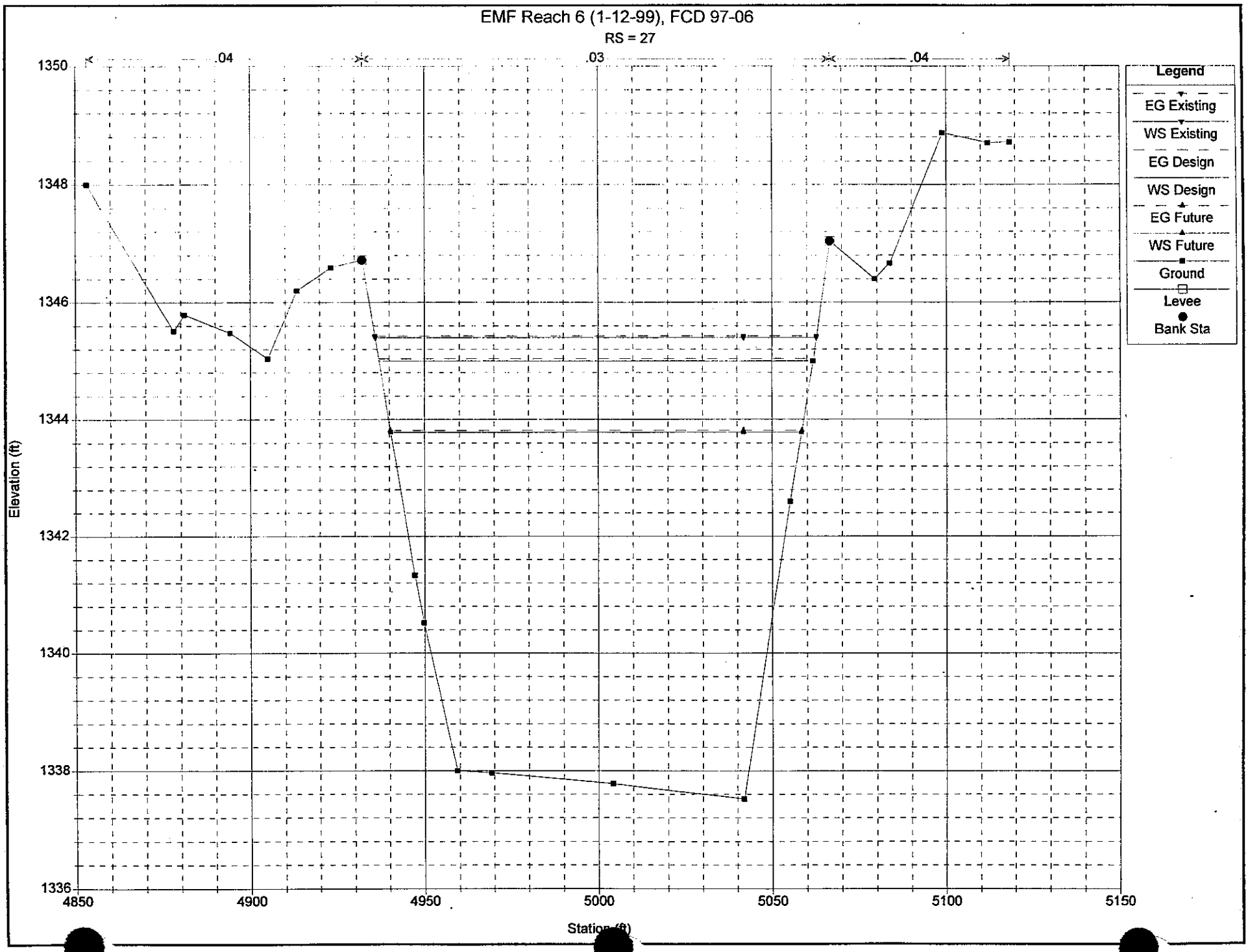

EMF Reach 6 (1-12-99), FCD 97-06
Brown Road 2 - 8' X 8' X 138.89' RCBC RS = 27.261
.04
.013
.04
Legend
EG Existing
EG Design
WS Existing
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4920
4940
4960
4980
5000
5020
5040
5060
Station (ft)

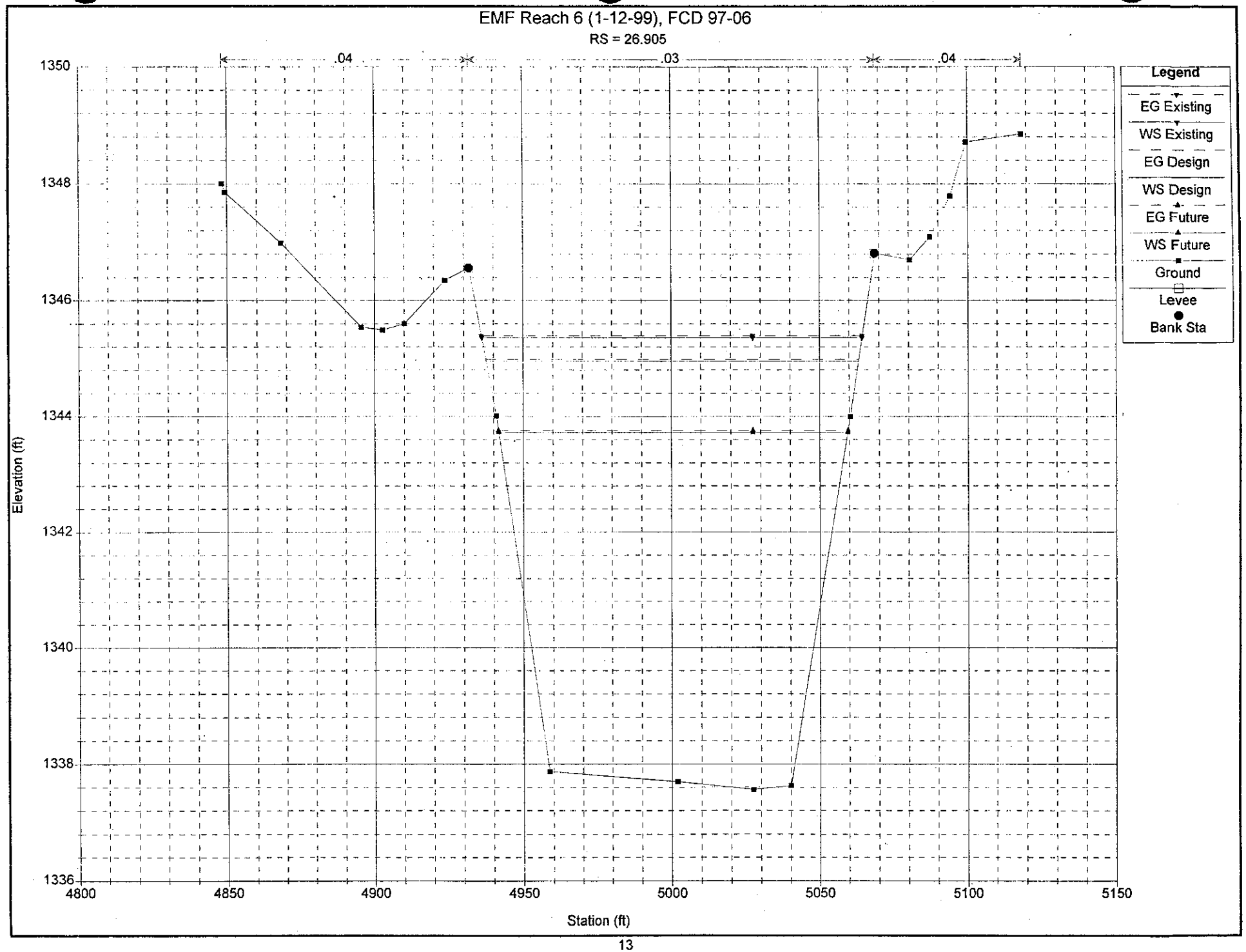

EMF Reach 6 (1-12-99), FCD 97-06
Brown Road 2 - 8' X 8' X 138.89' RCBC Downstream Face RS = 27.248
.04
.013
.04
Legend
EG Existing
EG Design
WS Existing
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4920
4940
4960
4980
5000
5020
5040
5060
Station (ft)

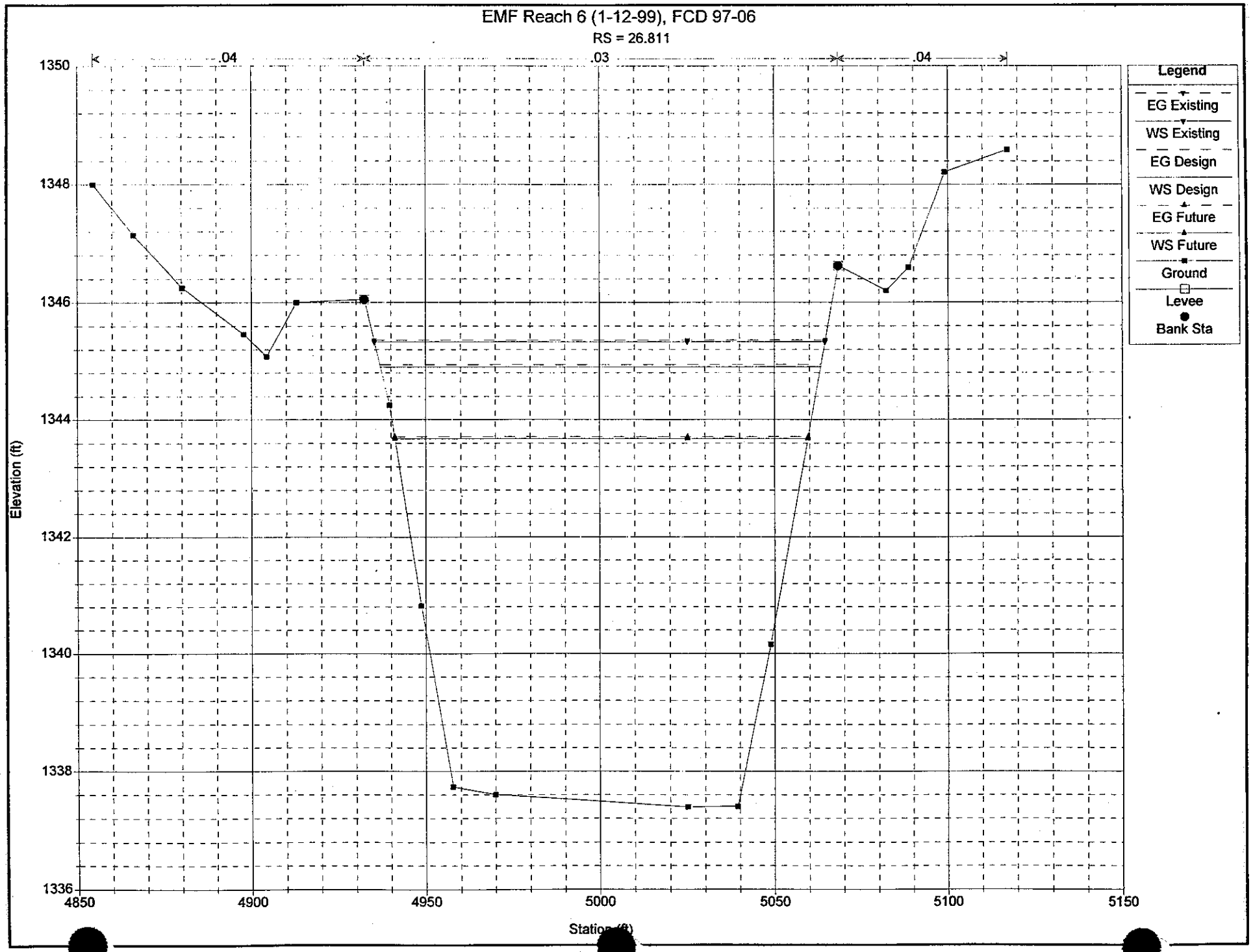

EMF Reach 6 (1-12-99), FCD 97-06
Just Downstream End of Brown Road Box Wingwalls RS = 27.244
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4940
4960
4980
5000
5020
5040
5060
5080
5100
Station (ft)

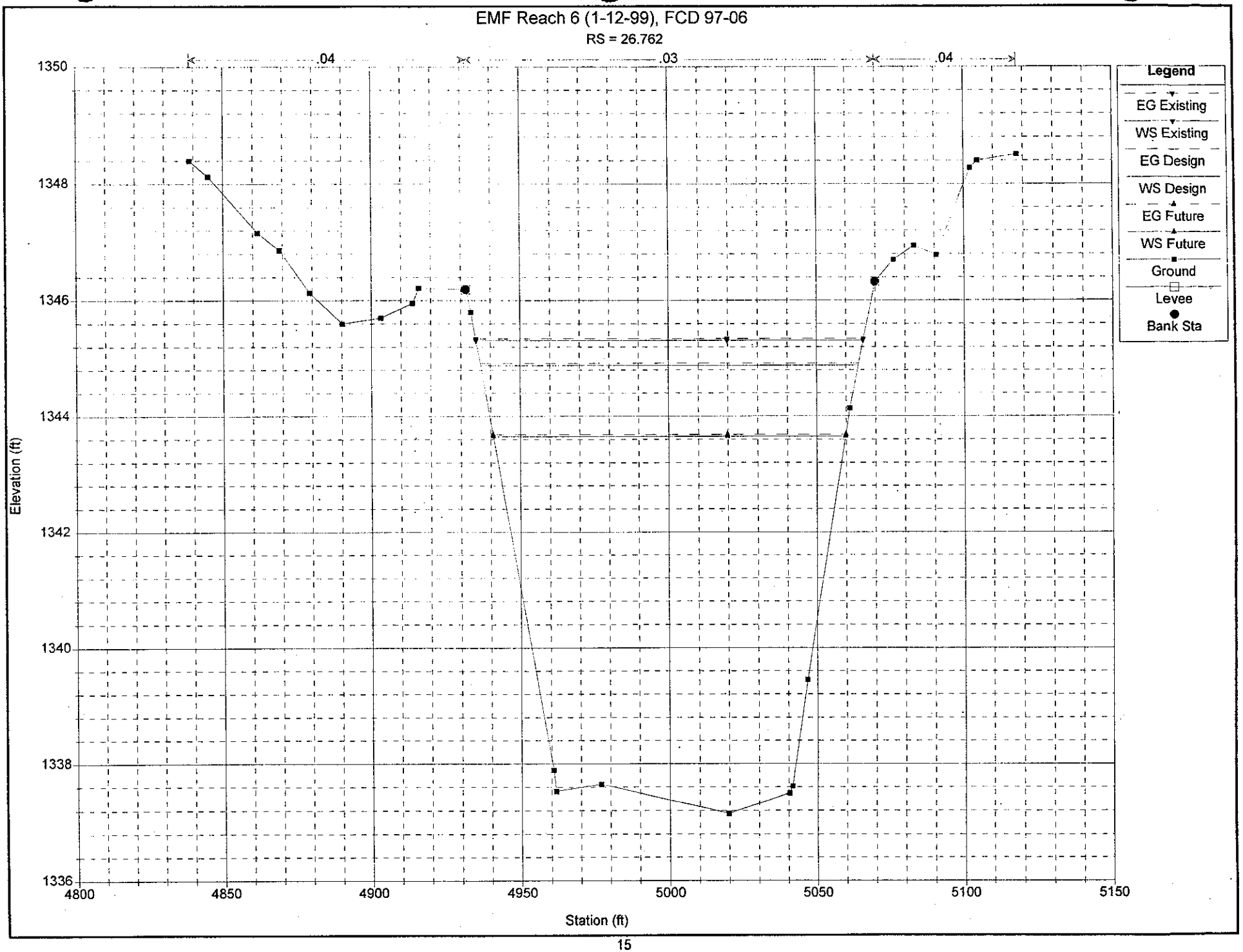

EMF Reach 6 (1-12-99), FCD 97-06
Downstream of Side Inlet (80' Wide) & 54" Storm Drain From East, Q(D) = 1,200 cfs, Q(F) = 1,110 cfs & Q(E) = 890 cfs RS = 27.189
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1352
1350
1348
1346
1344
1342
1340
1338
1336
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

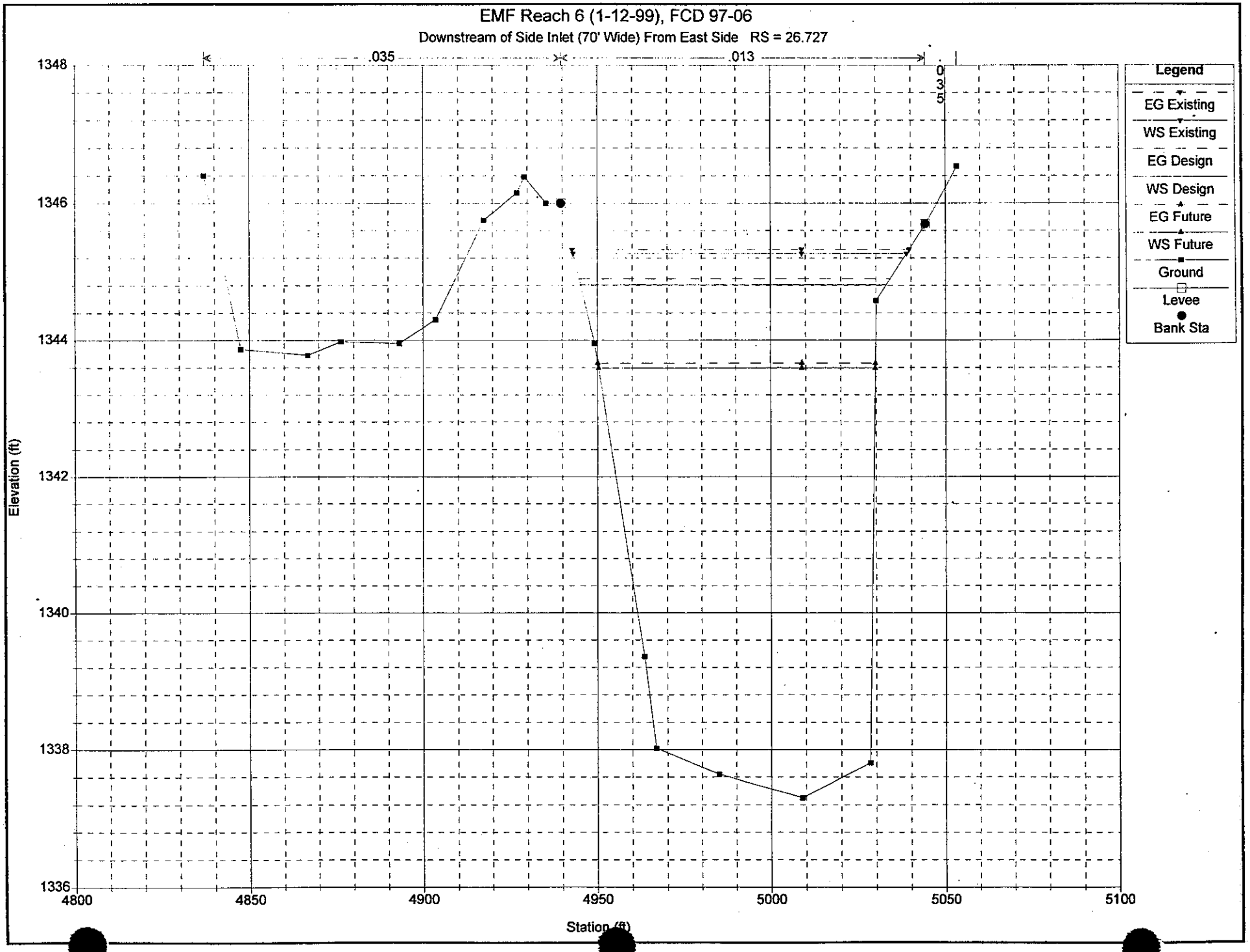

EMF Reach 6 (1-12-99), FCD 97-06
RS = 27.095
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

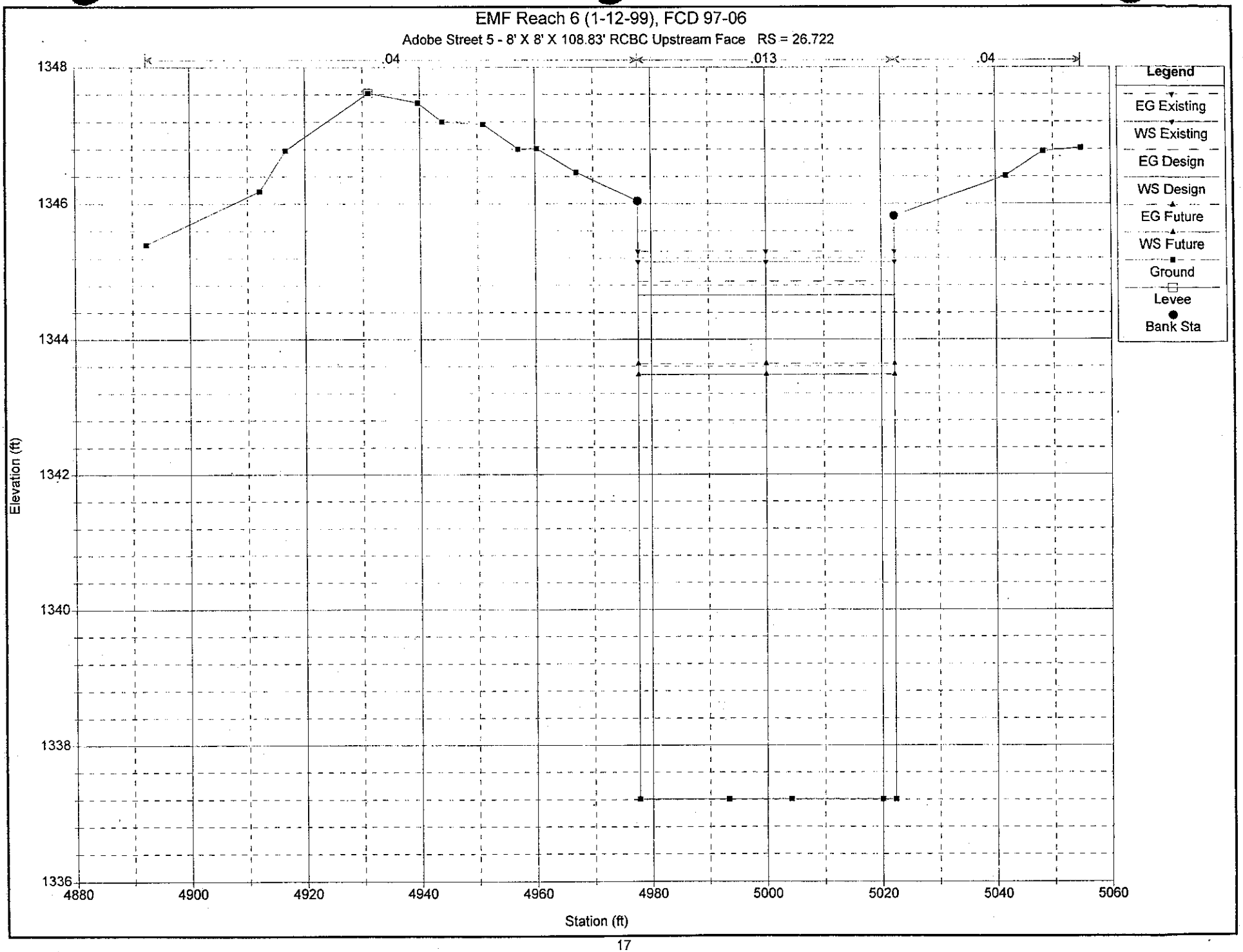

EMF Reach 6 (1-12-99), FCD 97-06
RS = 27
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4850
4900
4950
5000
5050
5100
5150
Station (ft)

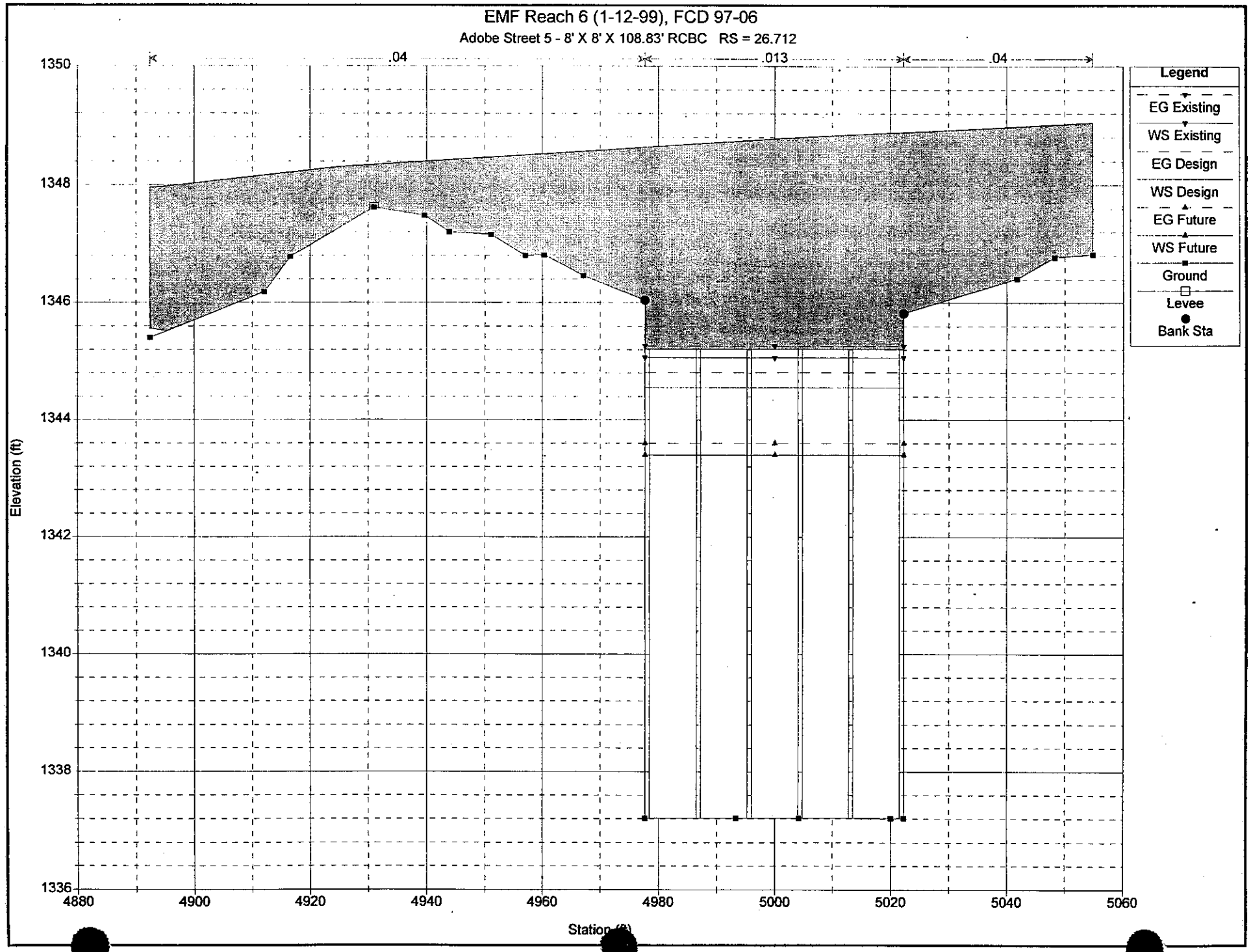

EMF Reach 6 (1-12-99), FCD 97-06
RS = 26.905
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

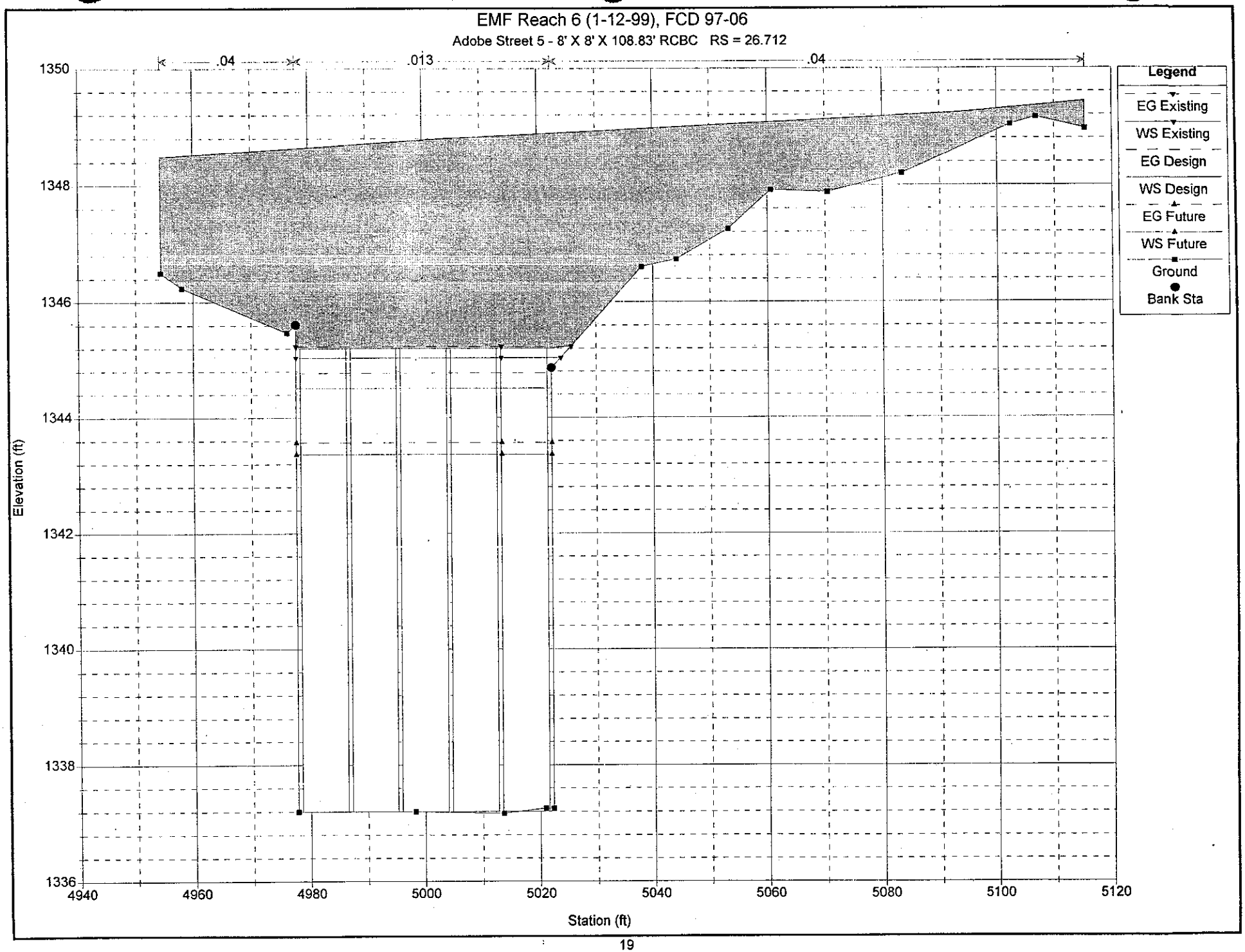

EMF Reach 6 (1-12-99), FCD 97-06
RS = 26.811
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4850
4900
4950
5000
5050
5100
5150
Station (ft)

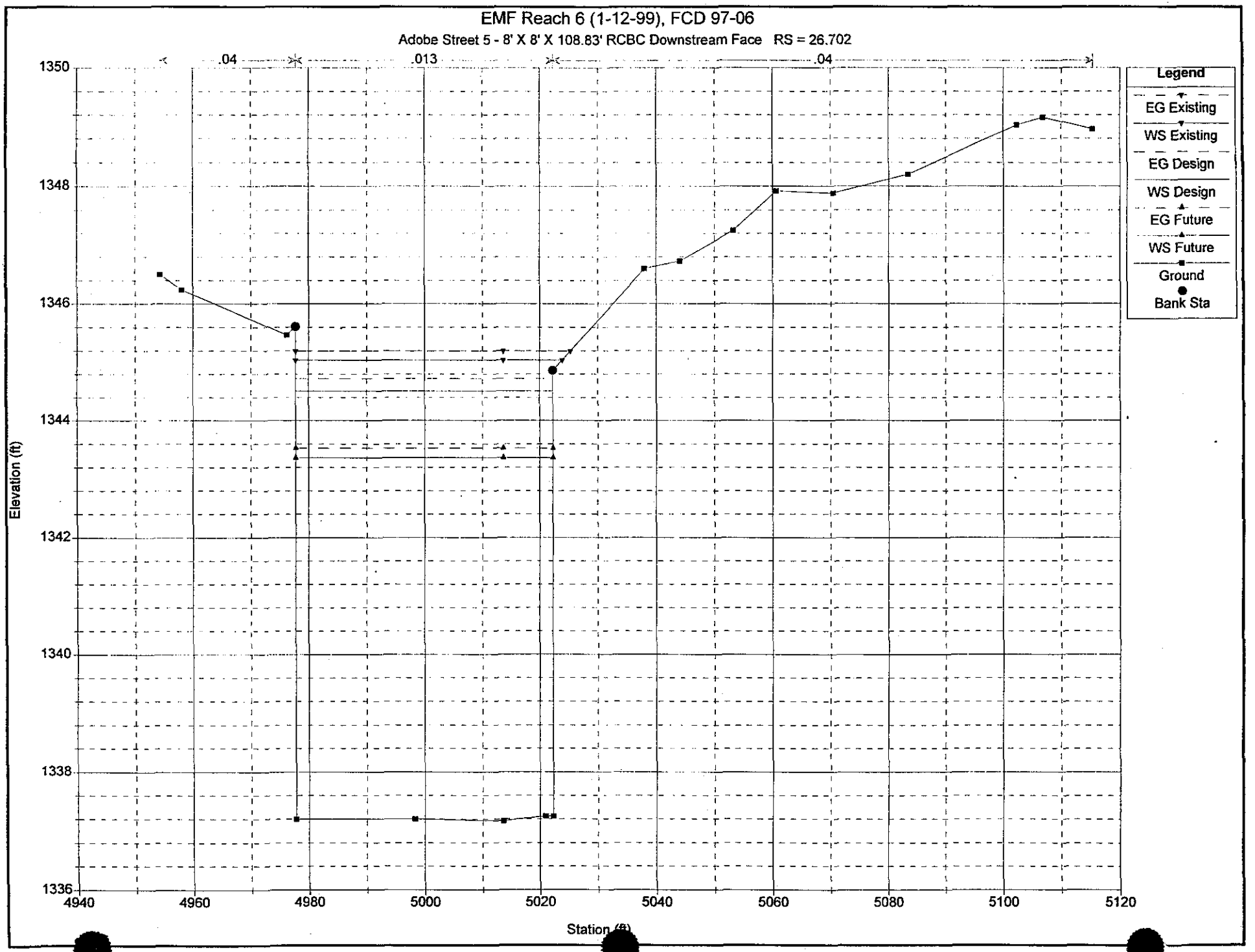

EMF Reach 6 (1-12-99), FCD 97-06
RS = 26.762
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

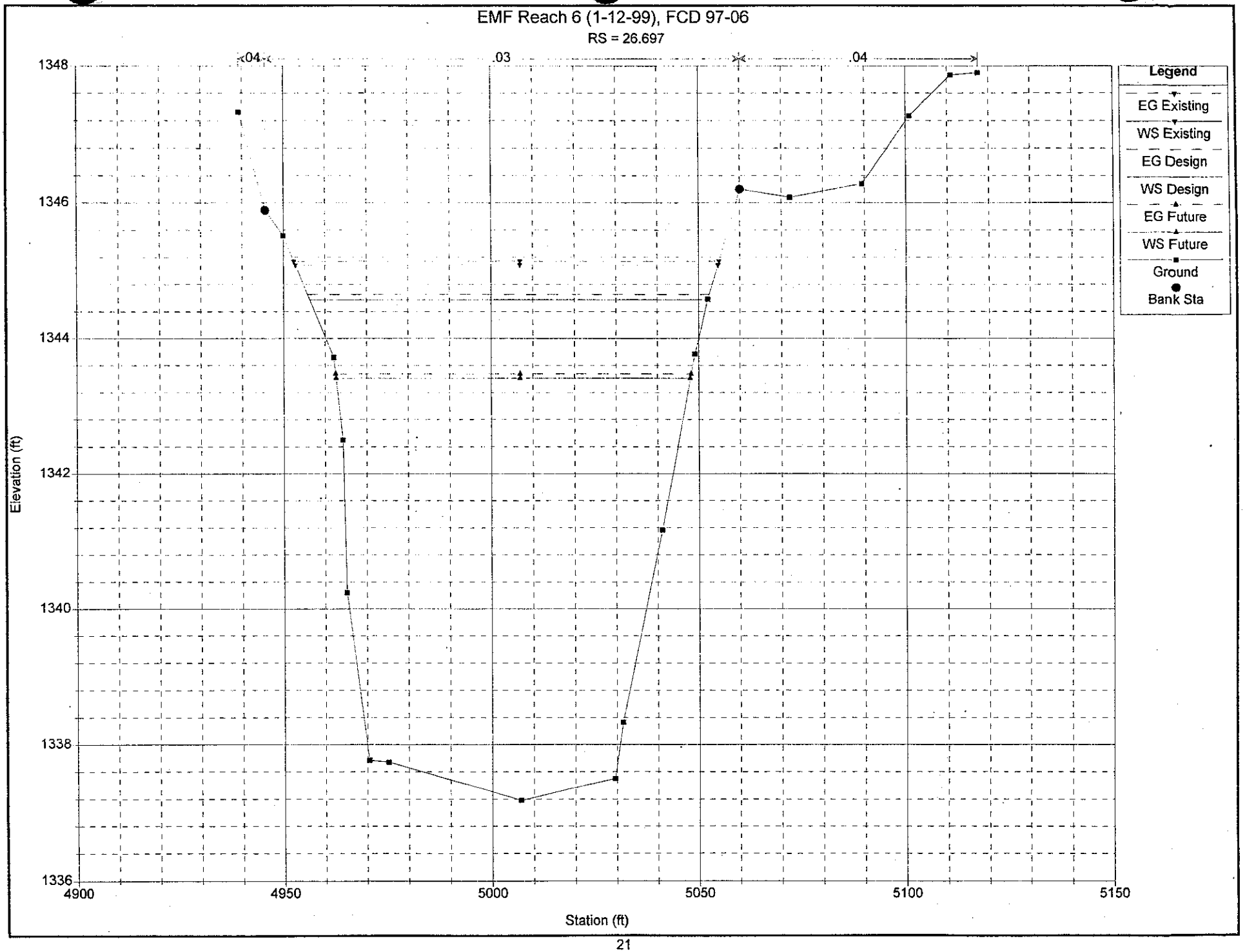

EMF Reach 6 (1-12-99), FCD 97-06
Downstream of Side Inlet (70' Wide) From East Side RS = 26.727
.035
.013
0
3
5
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
4800
4850
4900
4950
5000
5050
5100
Station (ft)

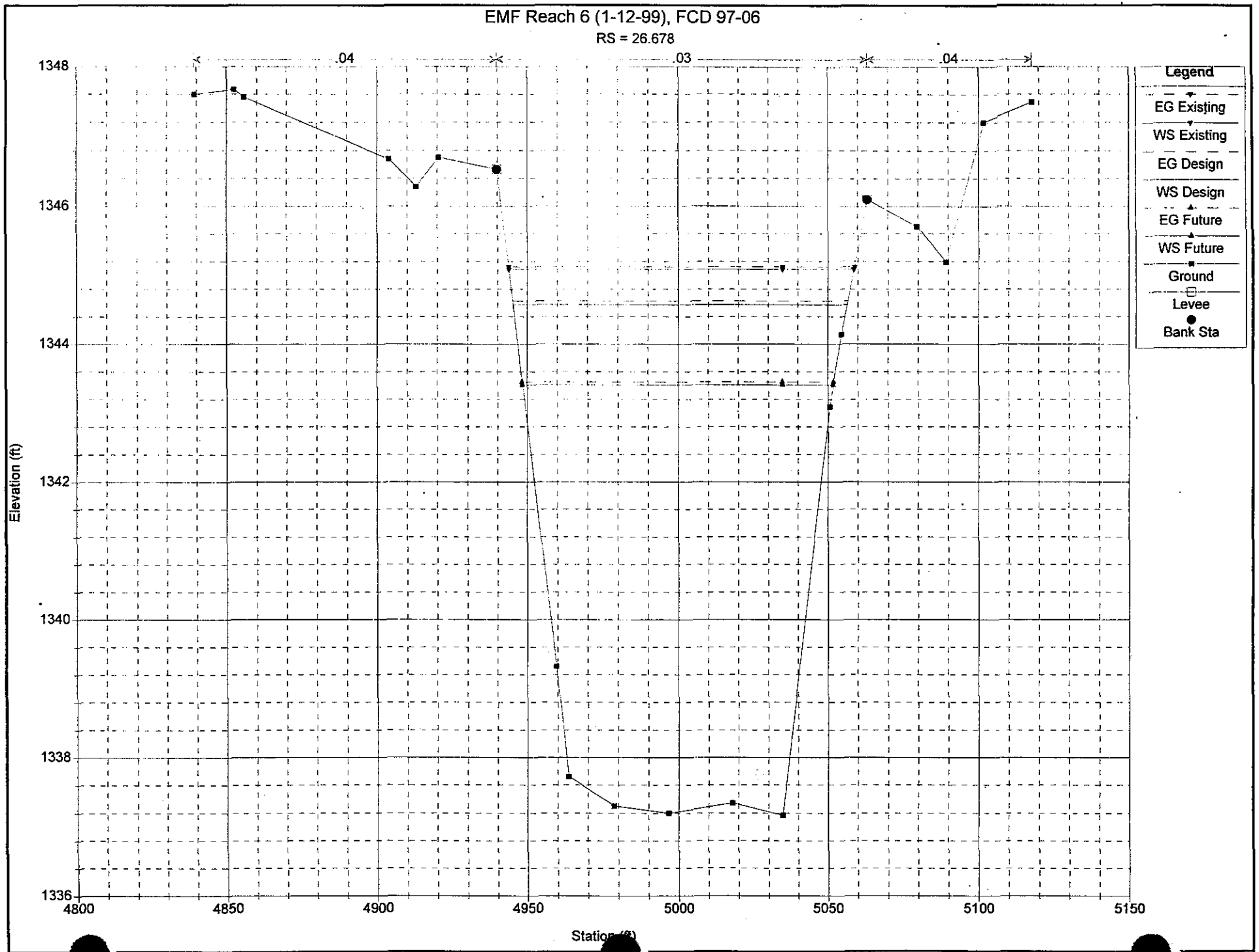

EMF Reach 6 (1-12-99), FCD 97-06
Adobe Street 5 - 8' X 8' X 108.83' RCBC Upstream Face RS = 26.722
.04
.013
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
4880
4900
4920
4940
4960
4980
5000
5020
5040
5060
Station (ft)

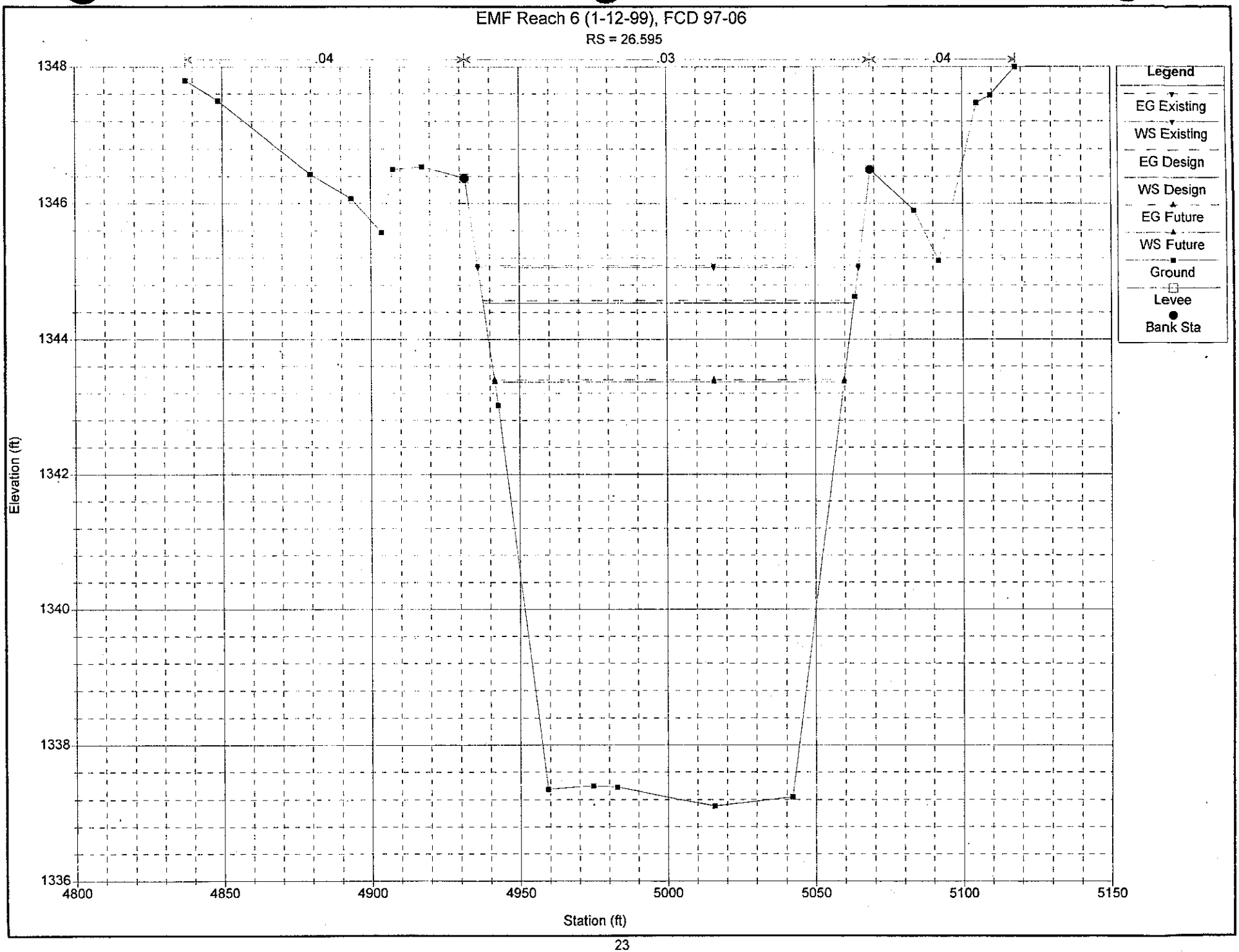

EMF Reach 6 (1-12-99), FCD 97-06
Adobe Street 5 - 8' X 8' X 108.83' RCBC RS = 26.712
.04
.013
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4880
4900
4920
4940
4960
4980
5000
5020
5040
5060
Station (ft)

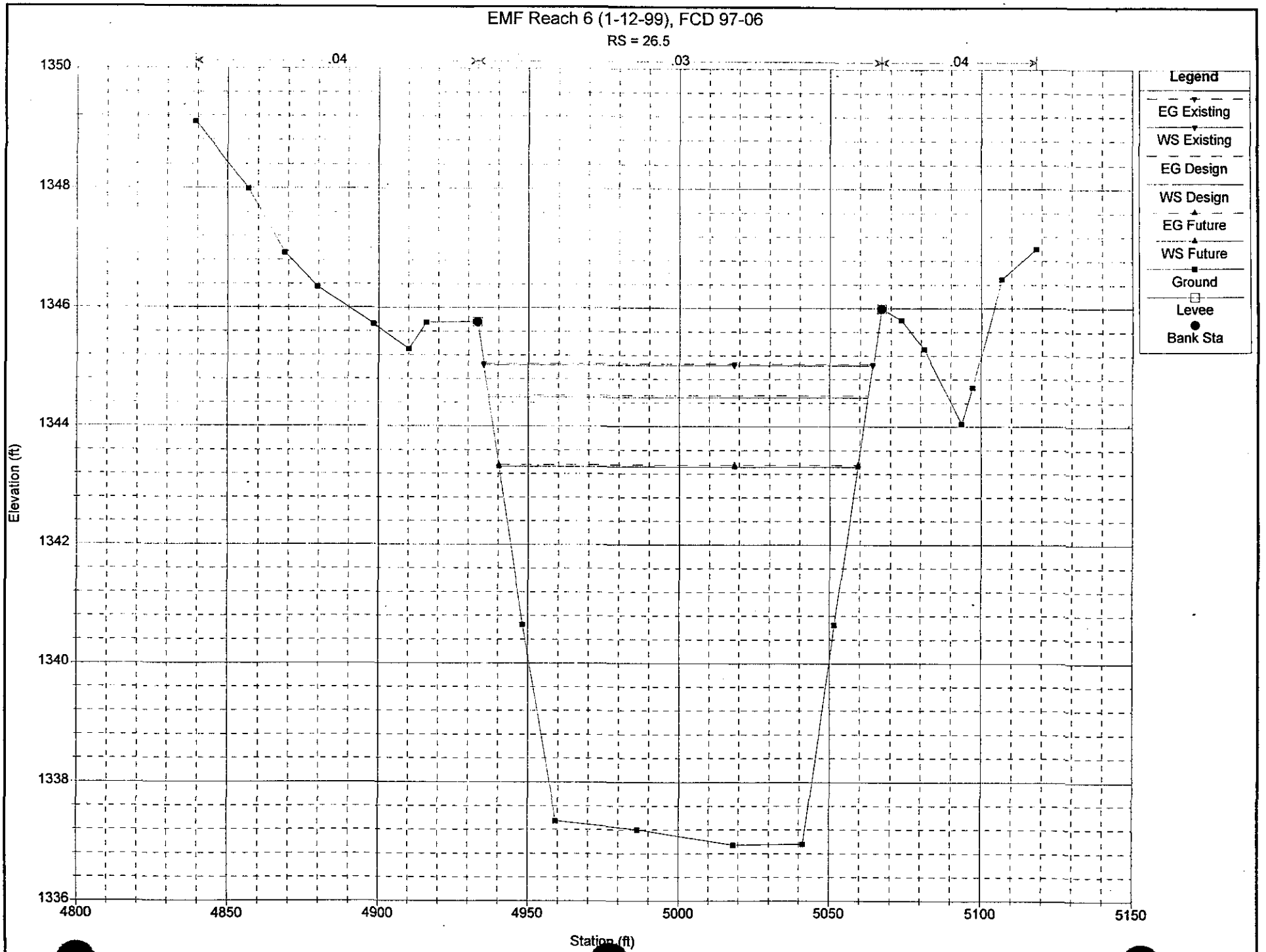

EMF Reach 6 (1-12-99), FCD 97-06
Adobe Street 5 - 8' X 8' X 108.83' RCBC RS = 26.712
.04
.013
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4940
4960
4980
5000
5020
5040
5060
5080
5100
5120
Station (ft)

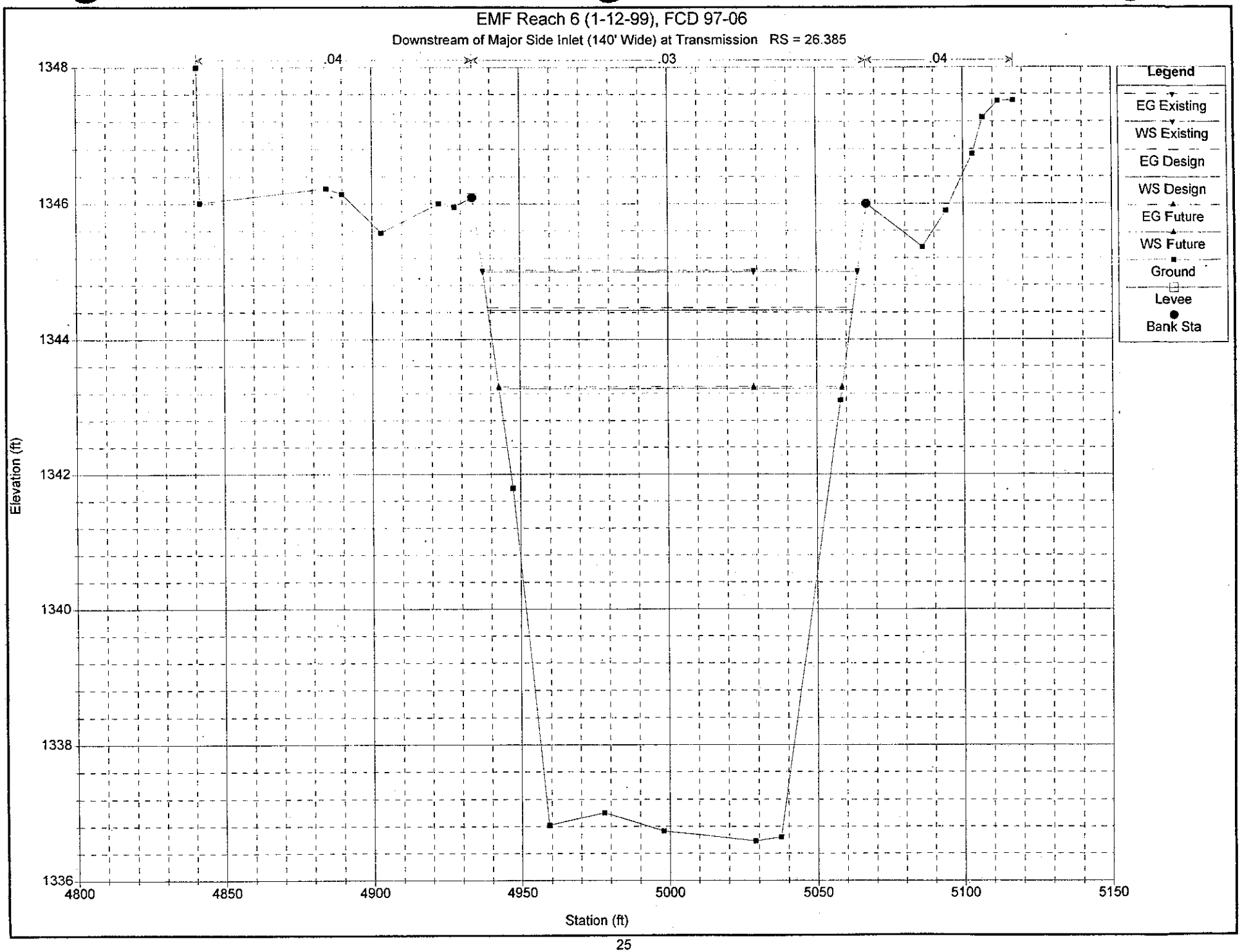

EMF Reach 6 (1-12-99), FCD 97-06
Adobe Street 5 - 8' X 8' X 108.83' RCBC Downstream Face RS = 26.702
.04
.013
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4940
4960
4980
5000
5020
5040
5060
5080
5100
5120
Station (ft)

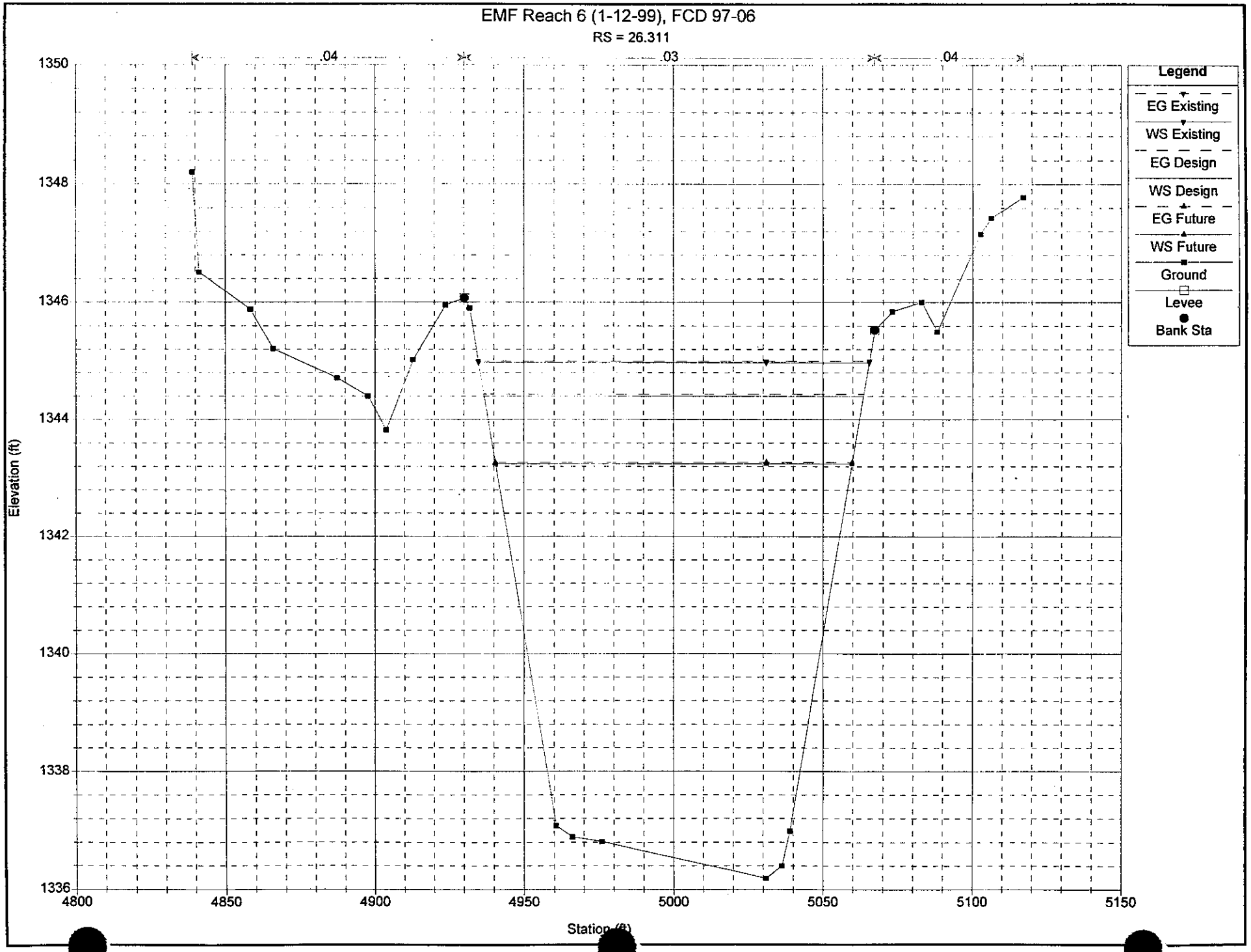

EMF Reach 6 (1-12-99), FCD 97-06
RS = 26.697
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
4900
4950
5000
5050
5100
5150
Station (ft)

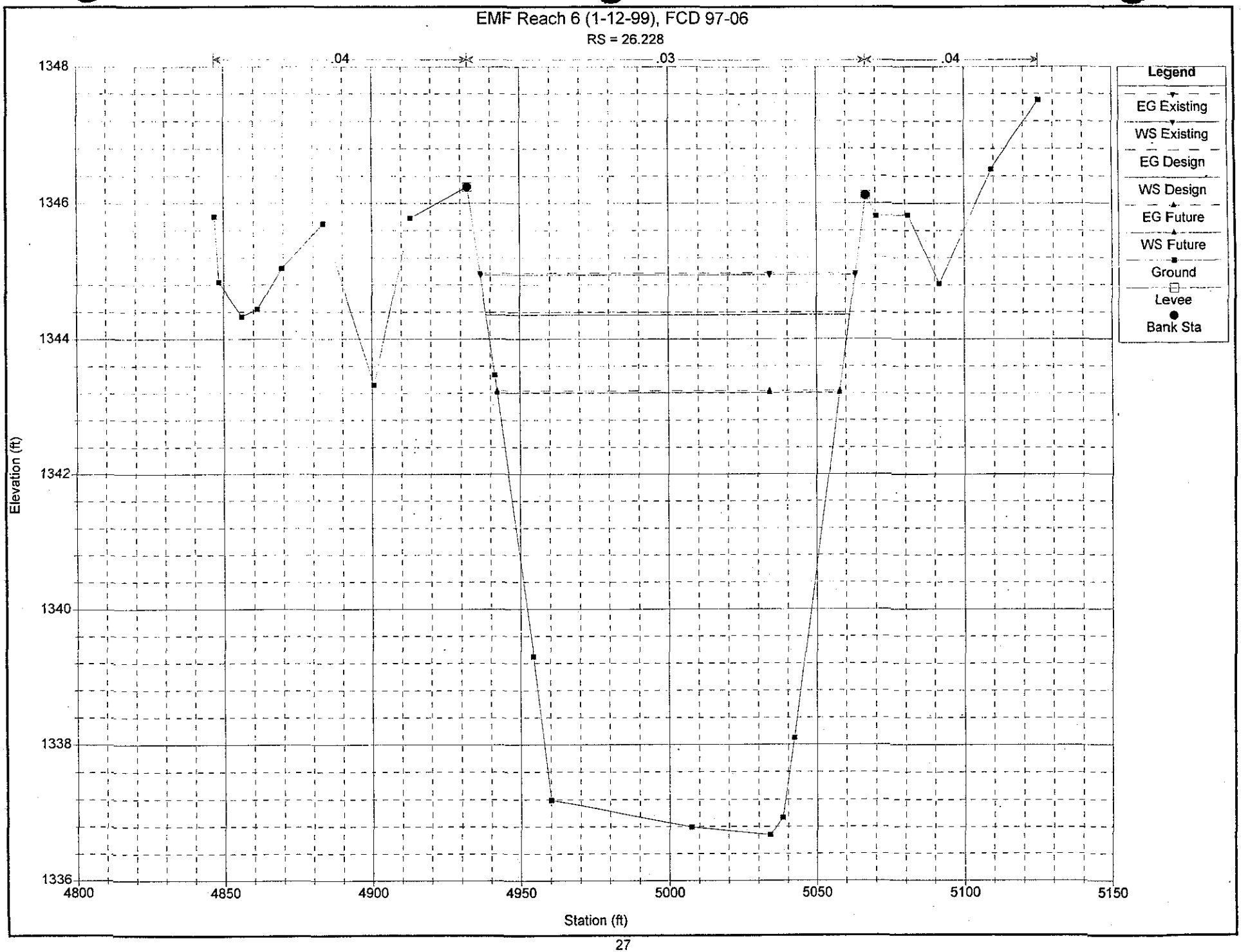

EMF Reach 6 (1-12-99), FCD 97-06
RS = 26.678
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

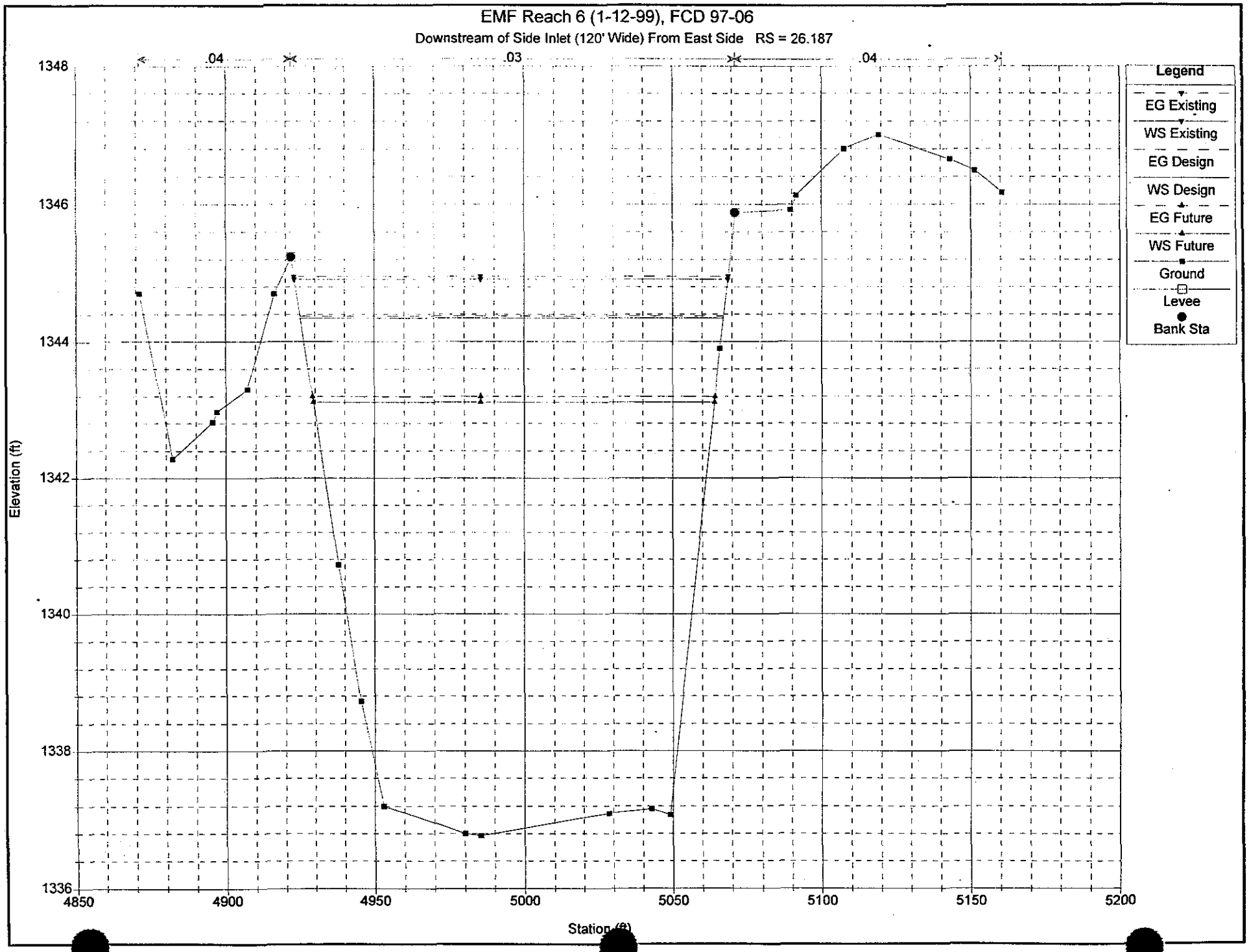

EMF Reach 6 (1-12-99), FCD 97-06
RS = 26.595
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

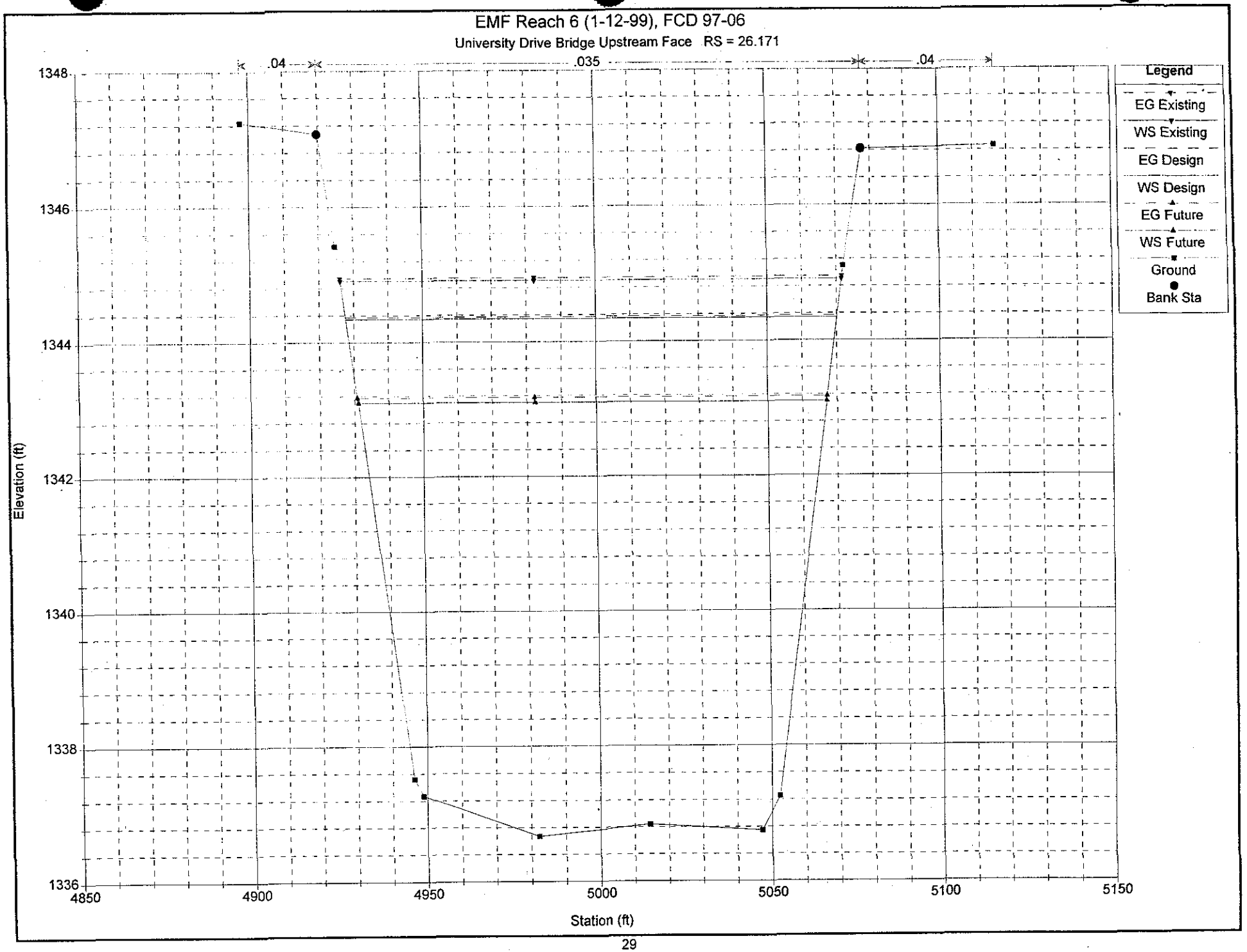

EMF Reach 6 (1-12-99), FCD 97-06
RS = 26.5
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

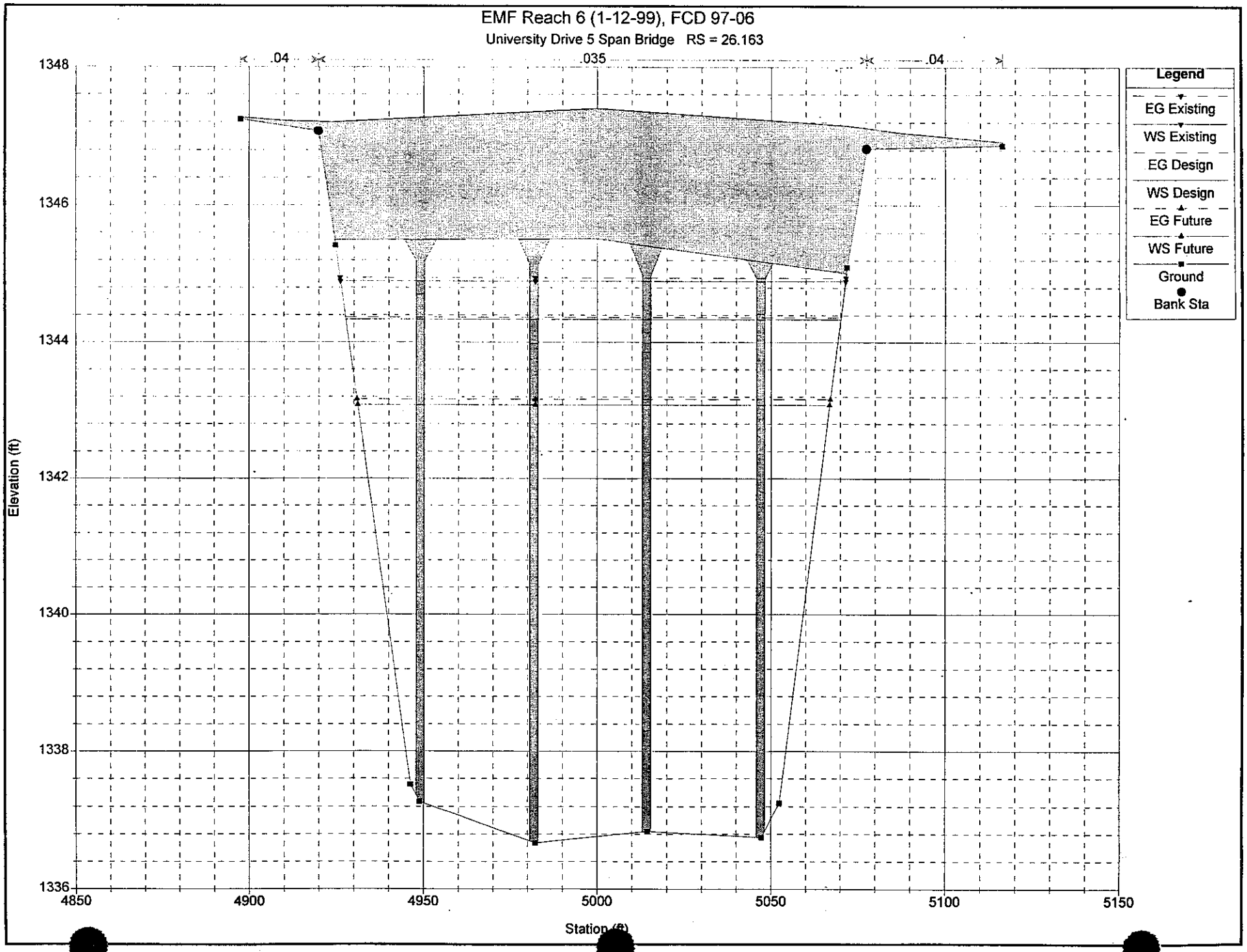

EMF Reach 6 (1-12-99), FCD 97-06
Downstream of Major Side Inlet (140' Wide) at Transmission RS = 26.385
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

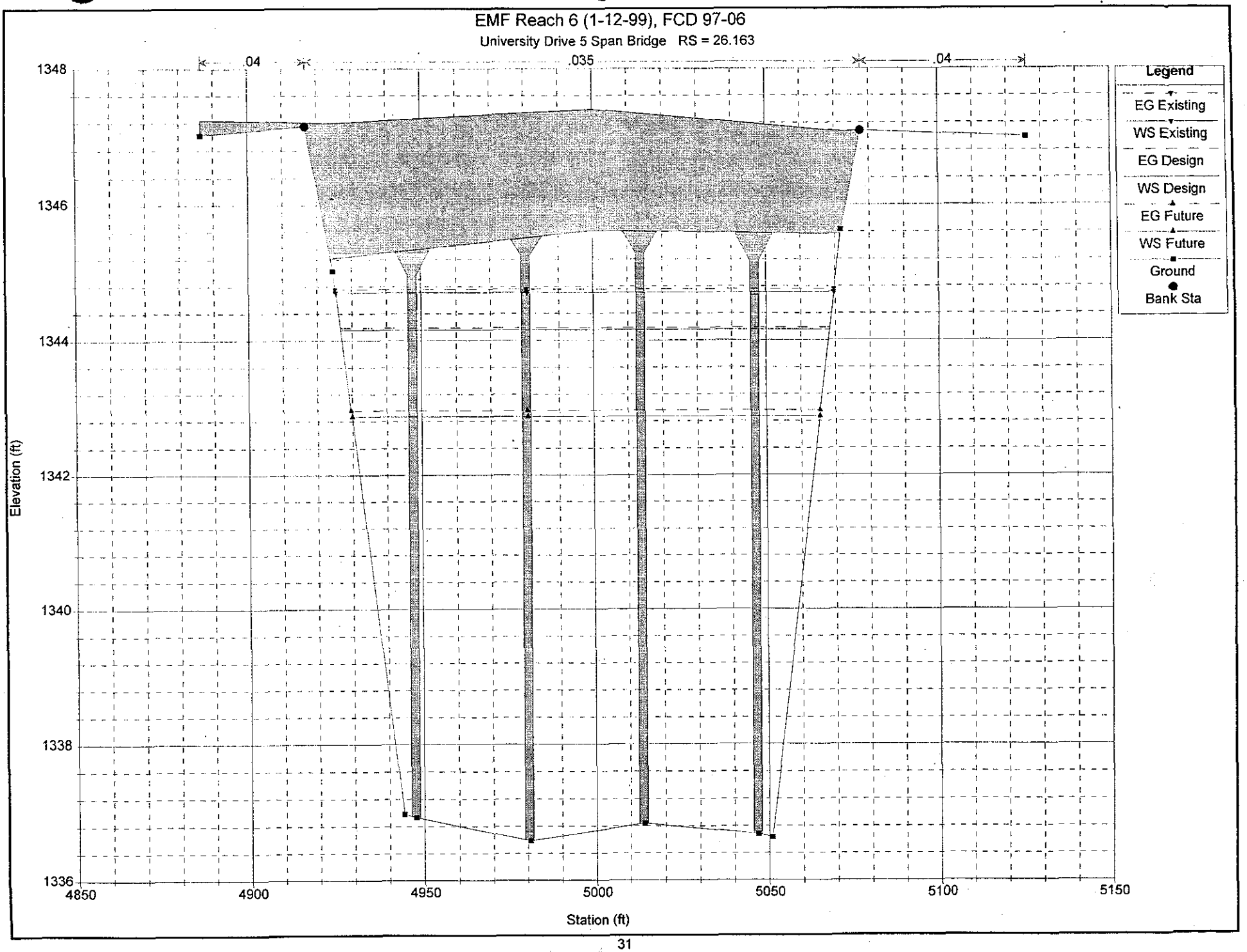

EMF Reach 6 (1-12-99), FCD 97-06
RS = 26.311
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

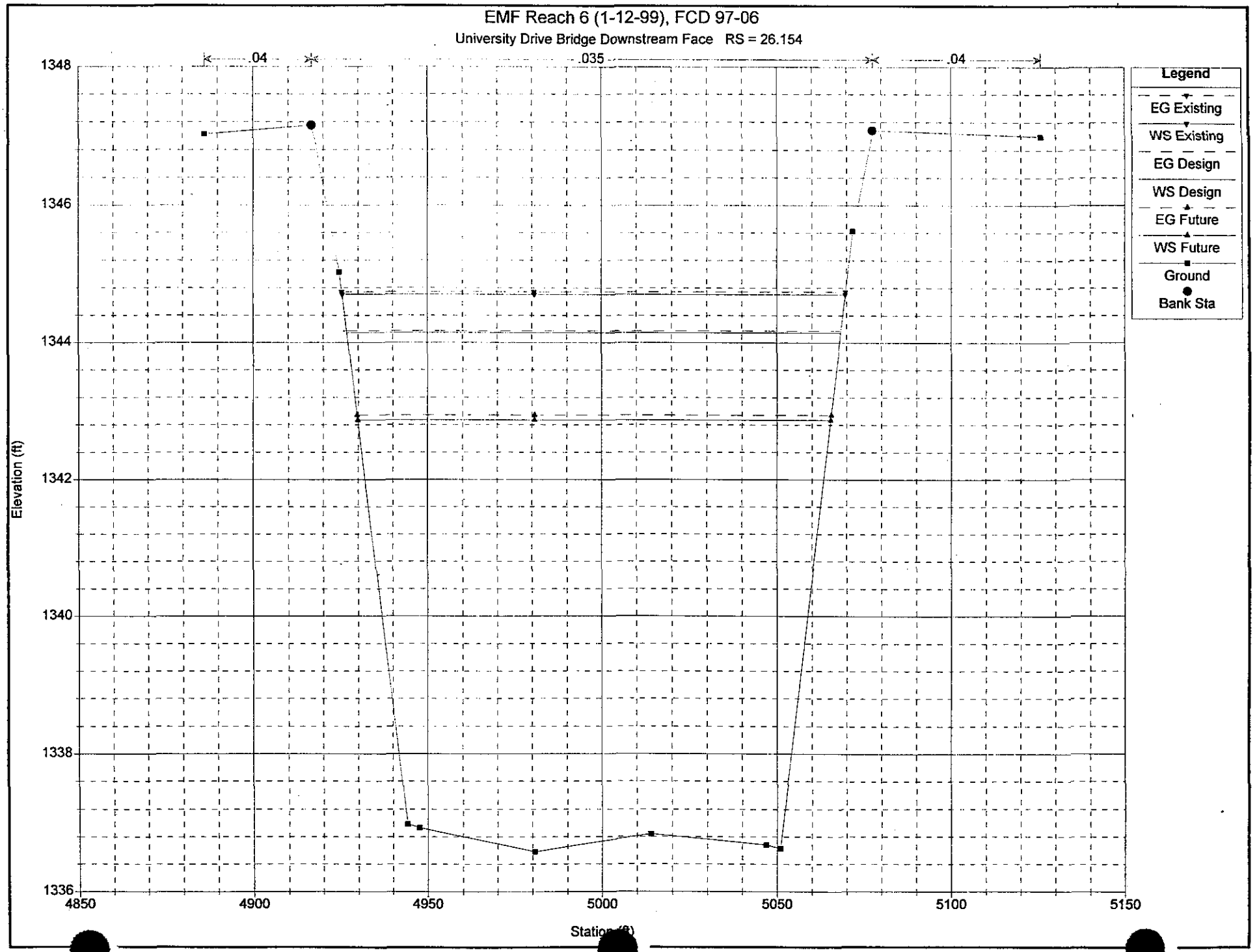

EMF Reach 6 (1-12-99), FCD 97-06
RS = 26.228
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

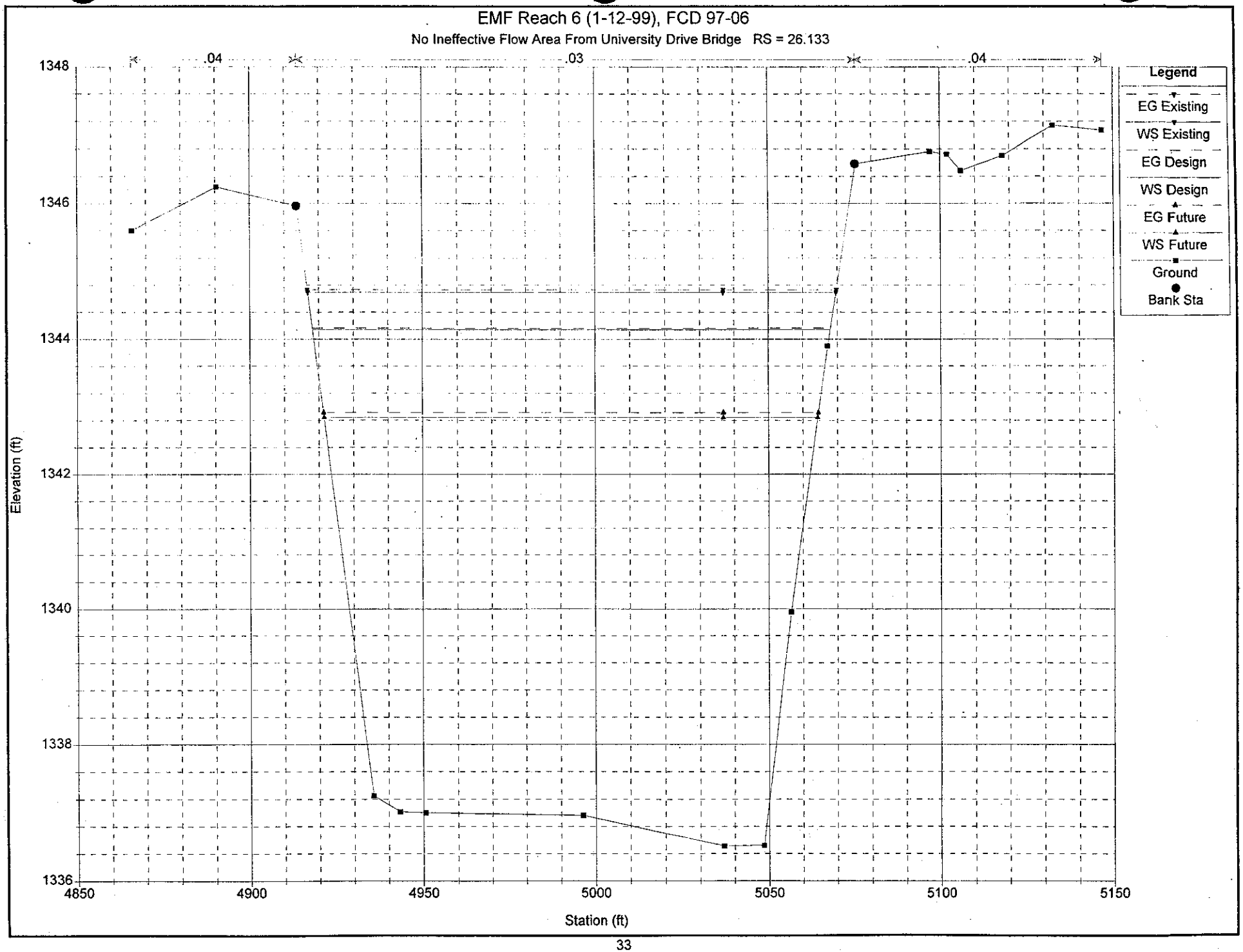

EMF Reach 6 (1-12-99), FCD 97-06
Downstream of Side Inlet (120' Wide) From East Side RS = 26.187
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)

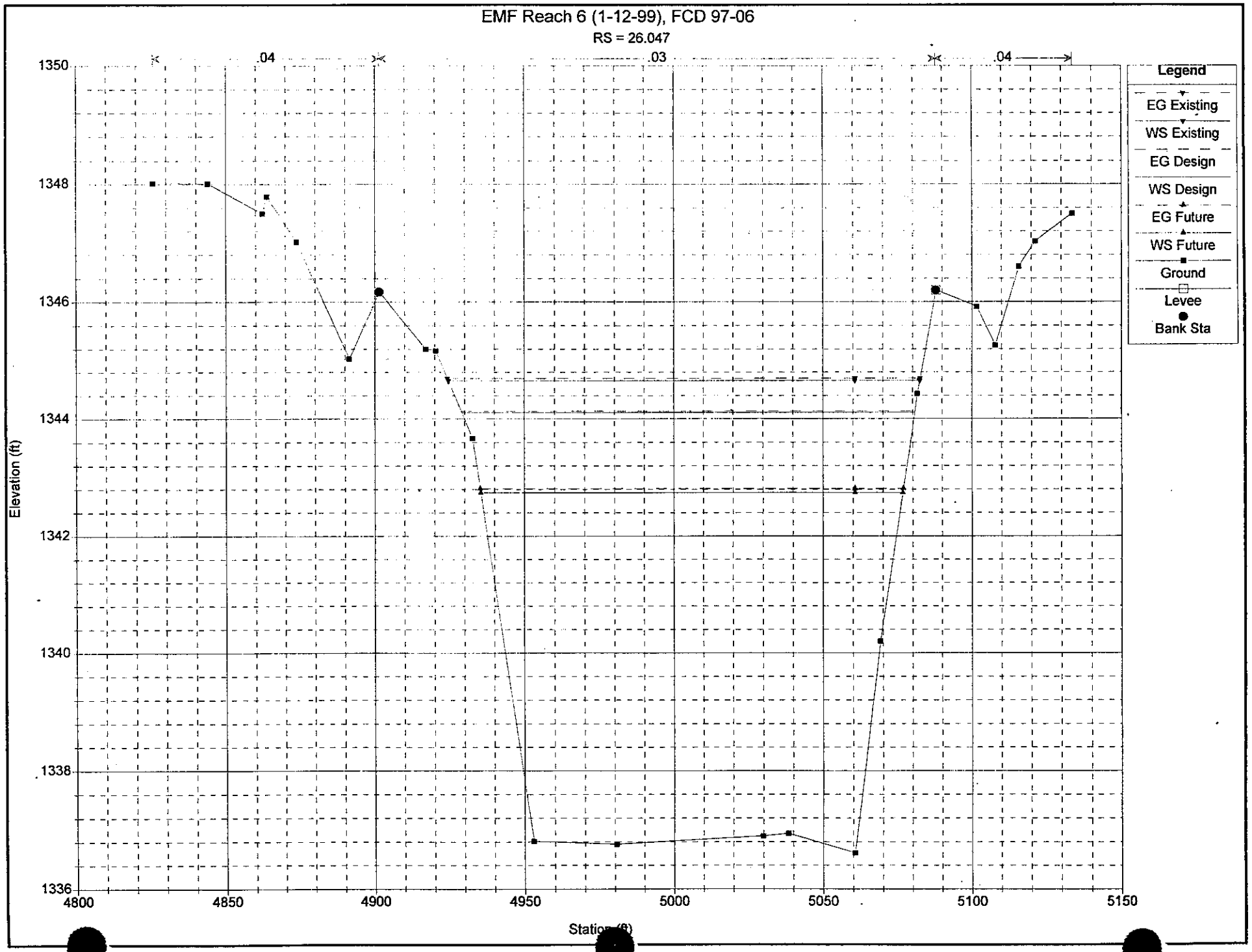

EMF Reach 6 (1-12-99), FCD 97-06
University Drive Bridge Upstream Face RS = 26.171
.04
.035
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
4850
4900
4950
5000
5050
5100
5150
Station (ft)

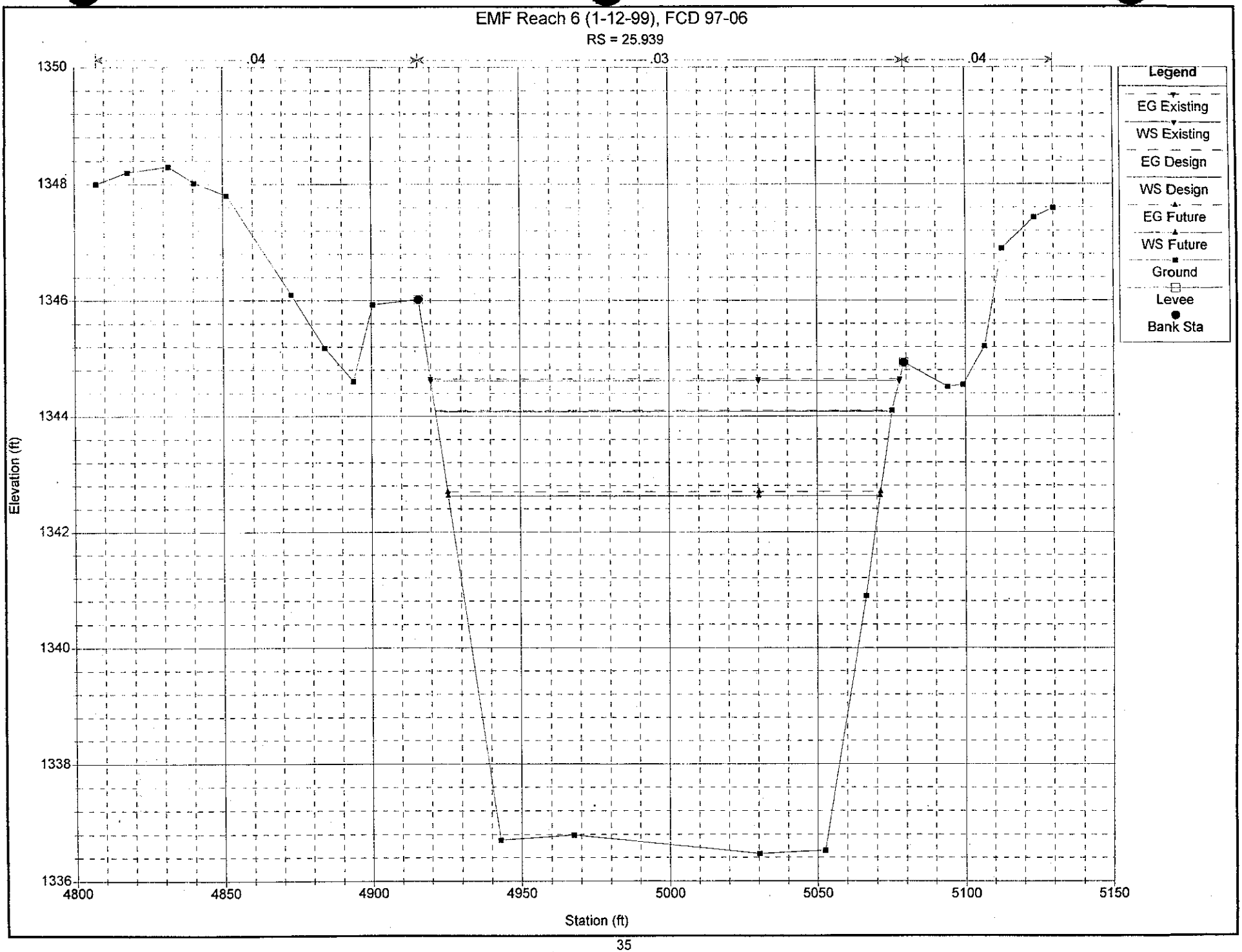

EMF Reach 6 (1-12-99), FCD 97-06
University Drive 5 Span Bridge RS = 26.163
.04
.035
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
4850
4900
4950
5000
5050
5100
5150
Station (ft)

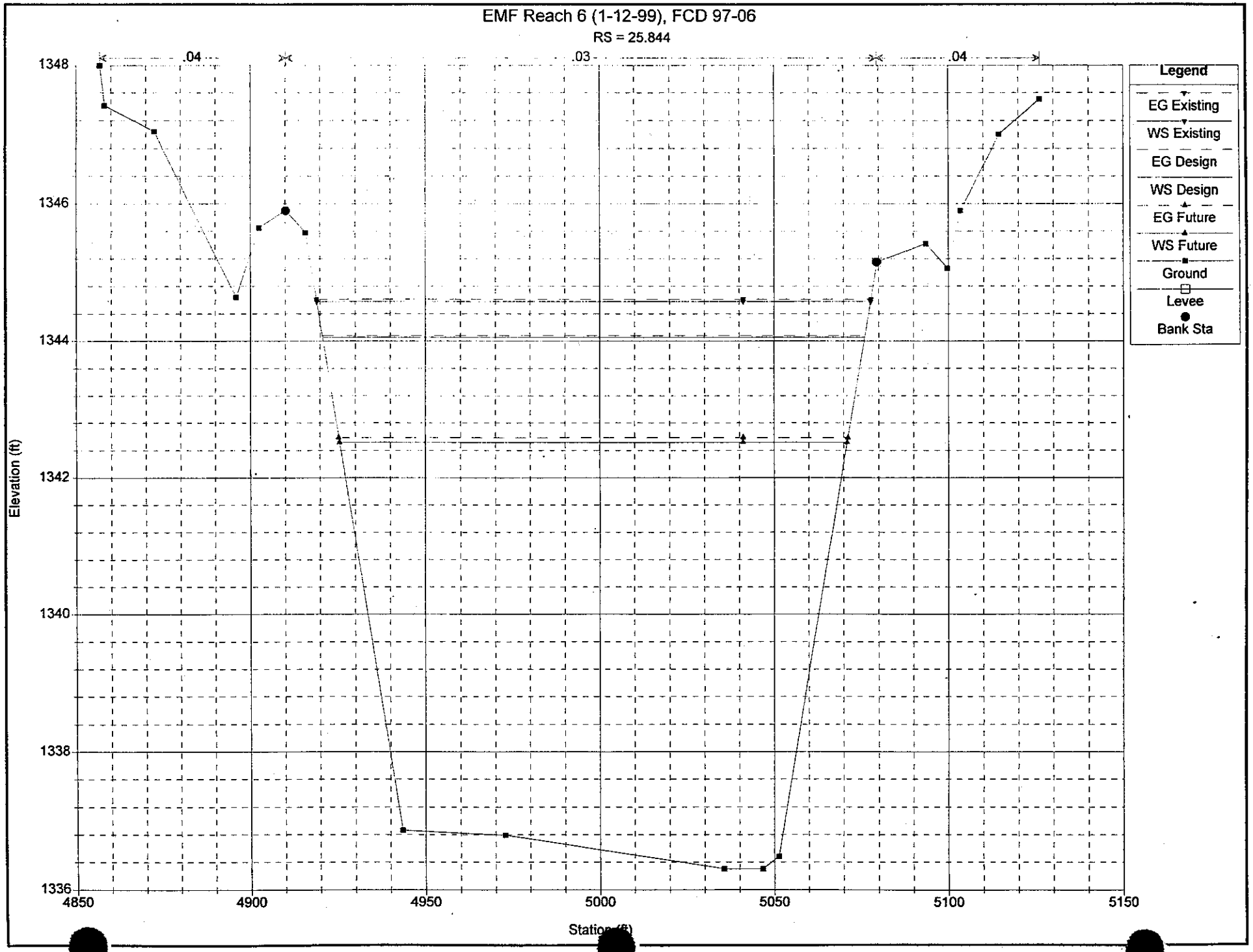

EMF Reach 6 (1-12-99), FCD 97-06
University Drive 5 Span Bridge RS = 26.163
.04
.035
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
4850
4900
4950
5000
5050
5100
5150
Station (ft)

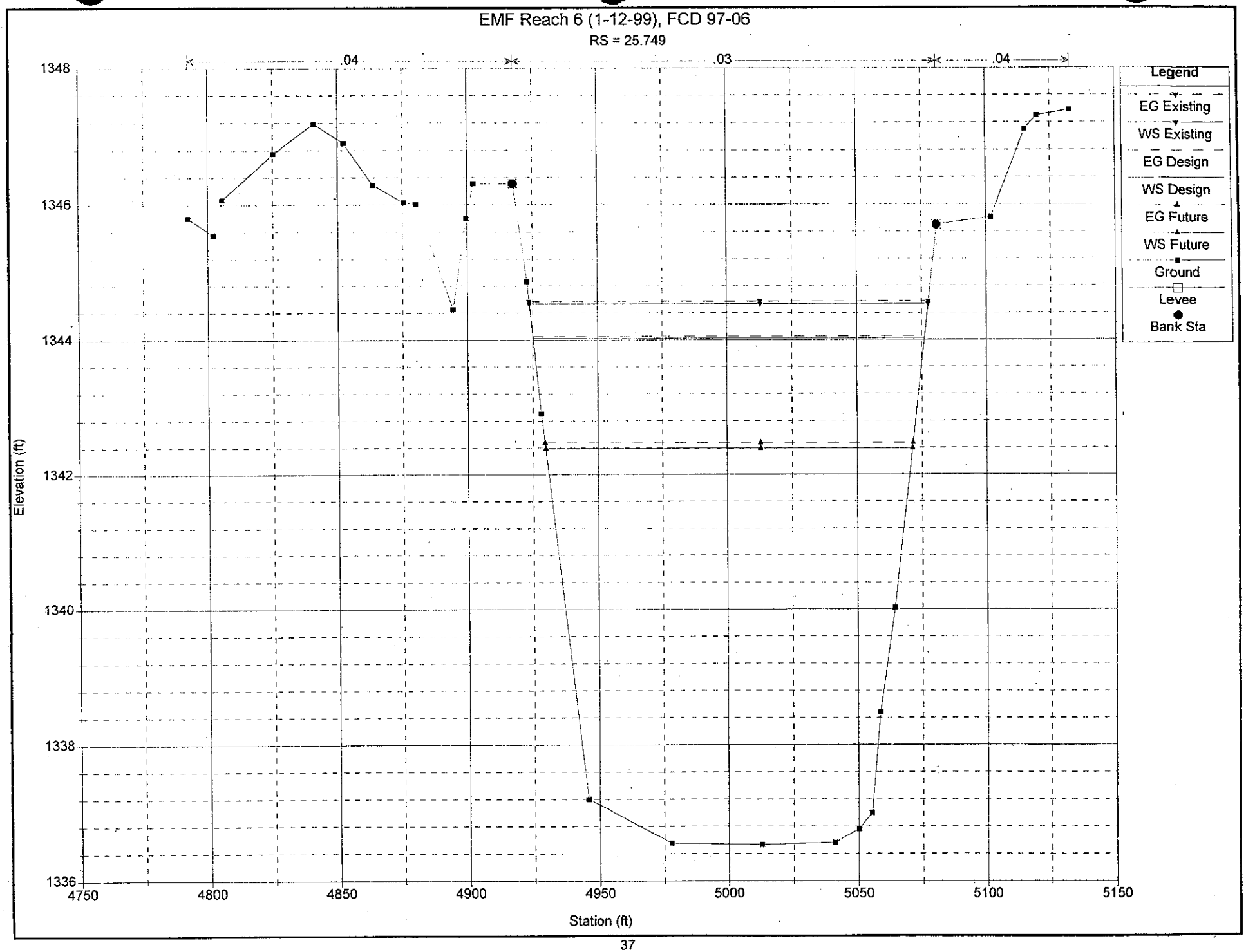

EMF Reach 6 (1-12-99), FCD 97-06
University Drive Bridge Downstream Face RS = 26.154
.04
.035
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
4850
4900
4950
5000
5050
5100
5150
Station (ft)

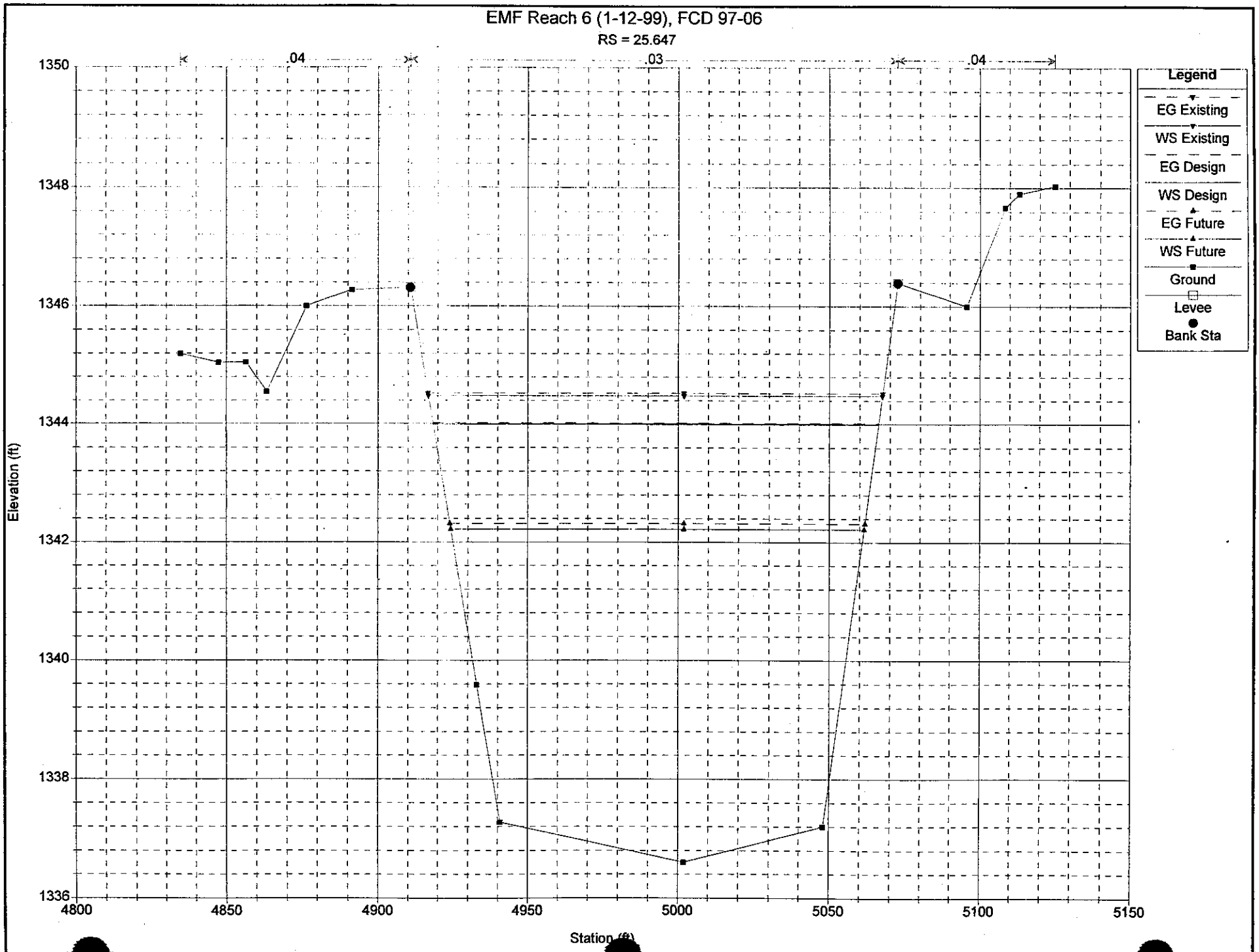

EMF Reach 6 (1-12-99), FCD 97-06
No Ineffective Flow Area From University Drive Bridge RS = 26.133
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
4850
4900
4950
5000
5050
5100
5150
Station (ft)

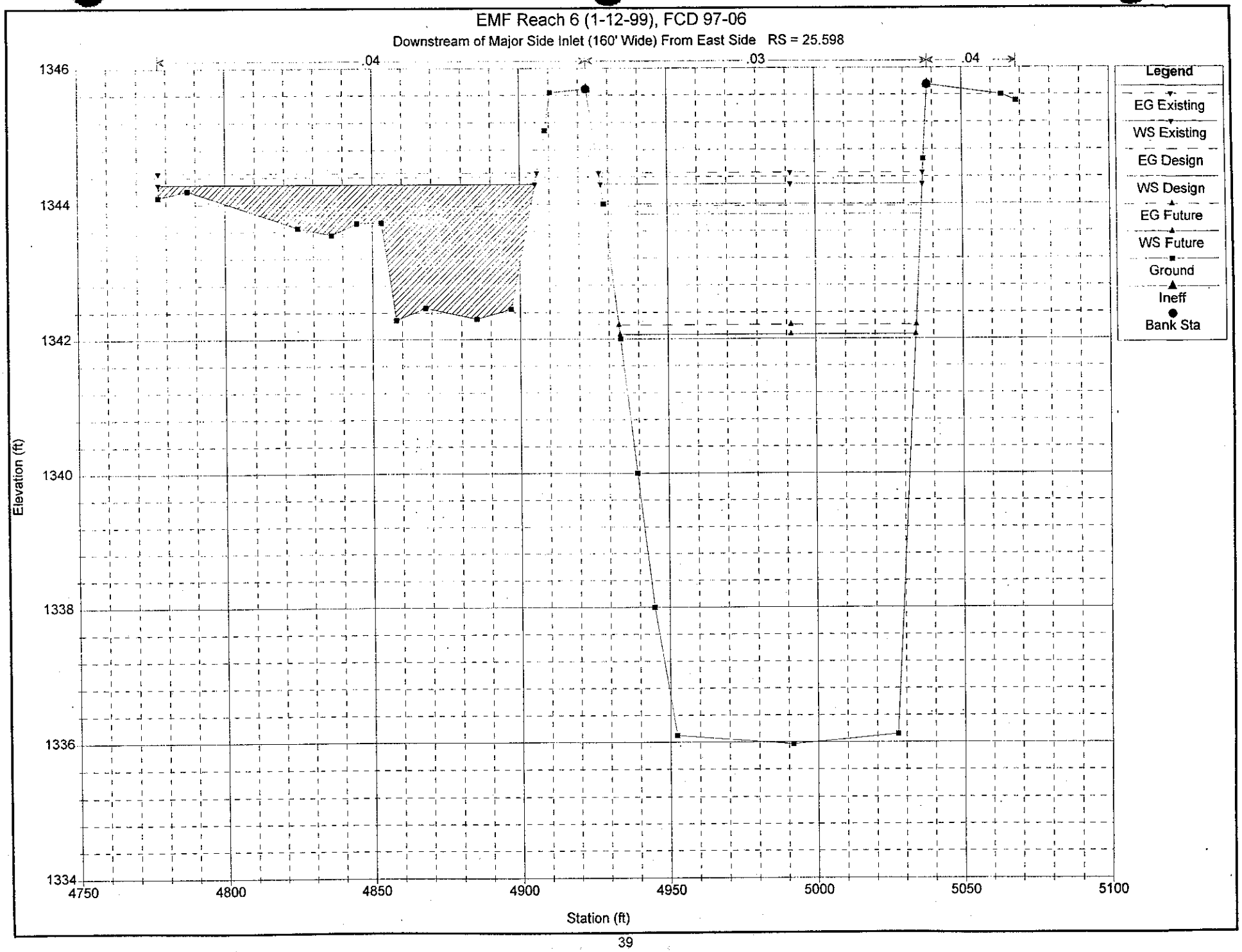

EMF Reach 6 (1-12-99), FCD 97-06
RS = 26.047
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

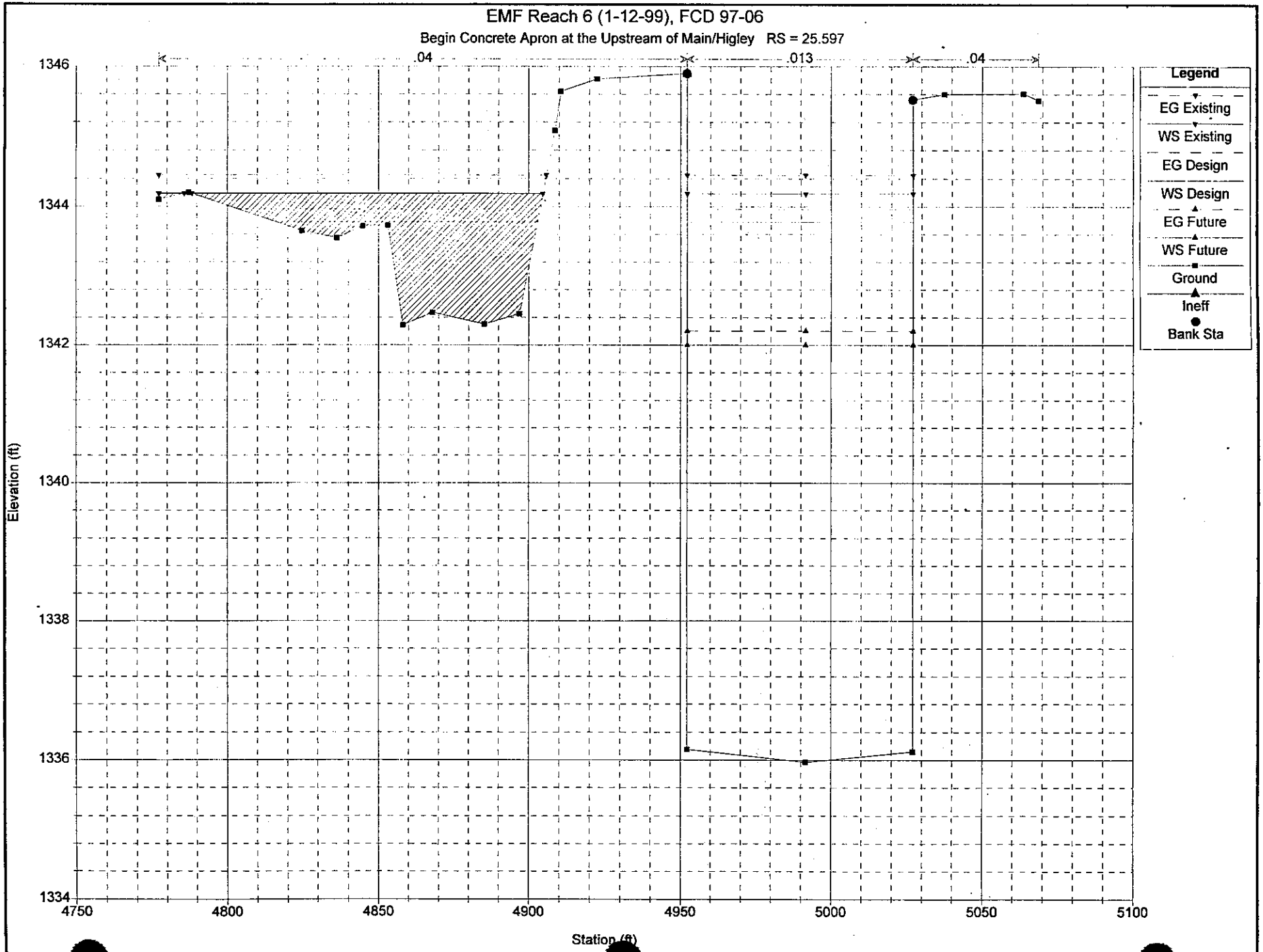

EMF Reach 6 (1-12-99), FCD 97-06
RS = 25.939
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

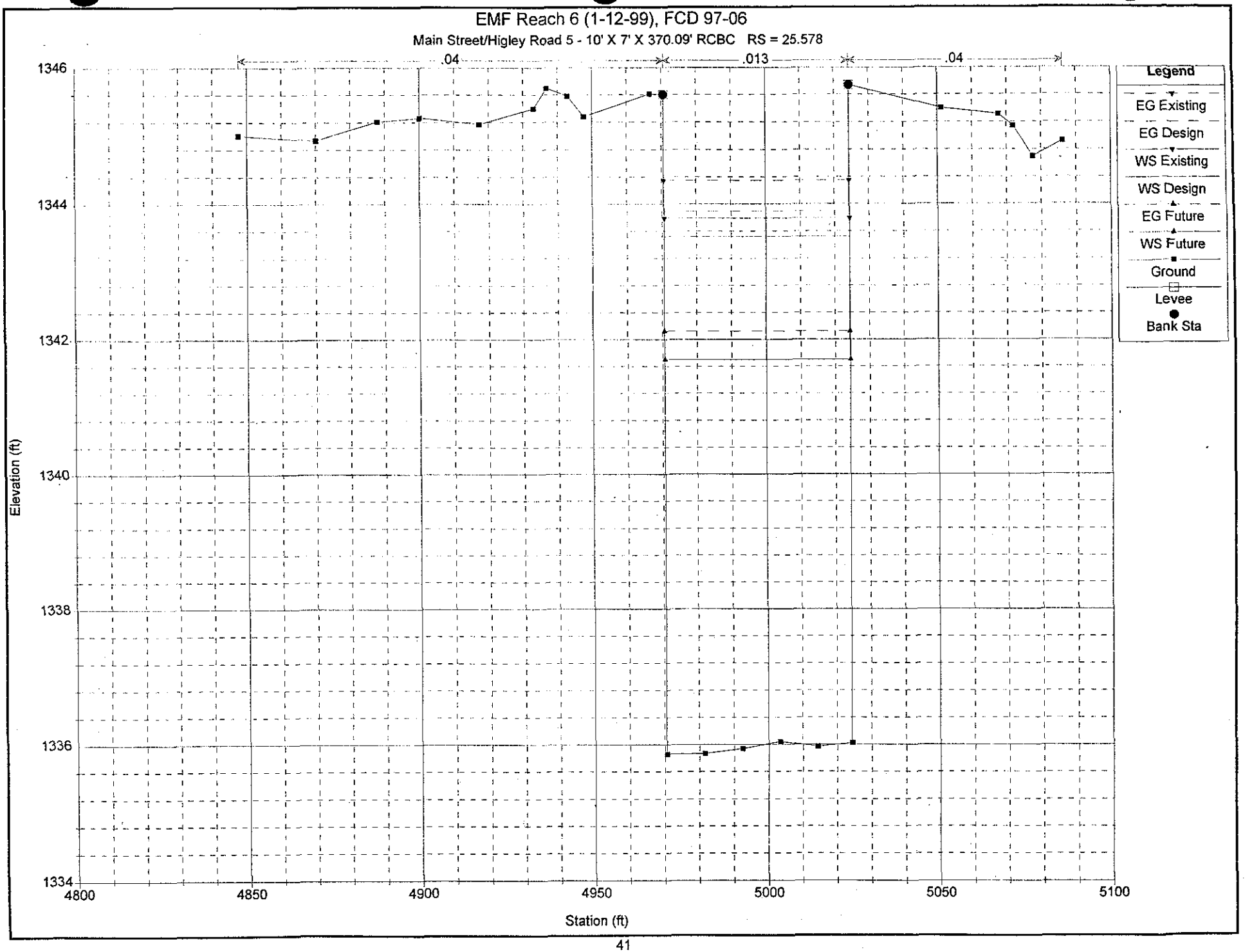

EMF Reach 6 (1-12-99), FCD 97-06
RS = 25.844
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
4850
4900
4950
5000
5050
5100
5150
Station (ft)

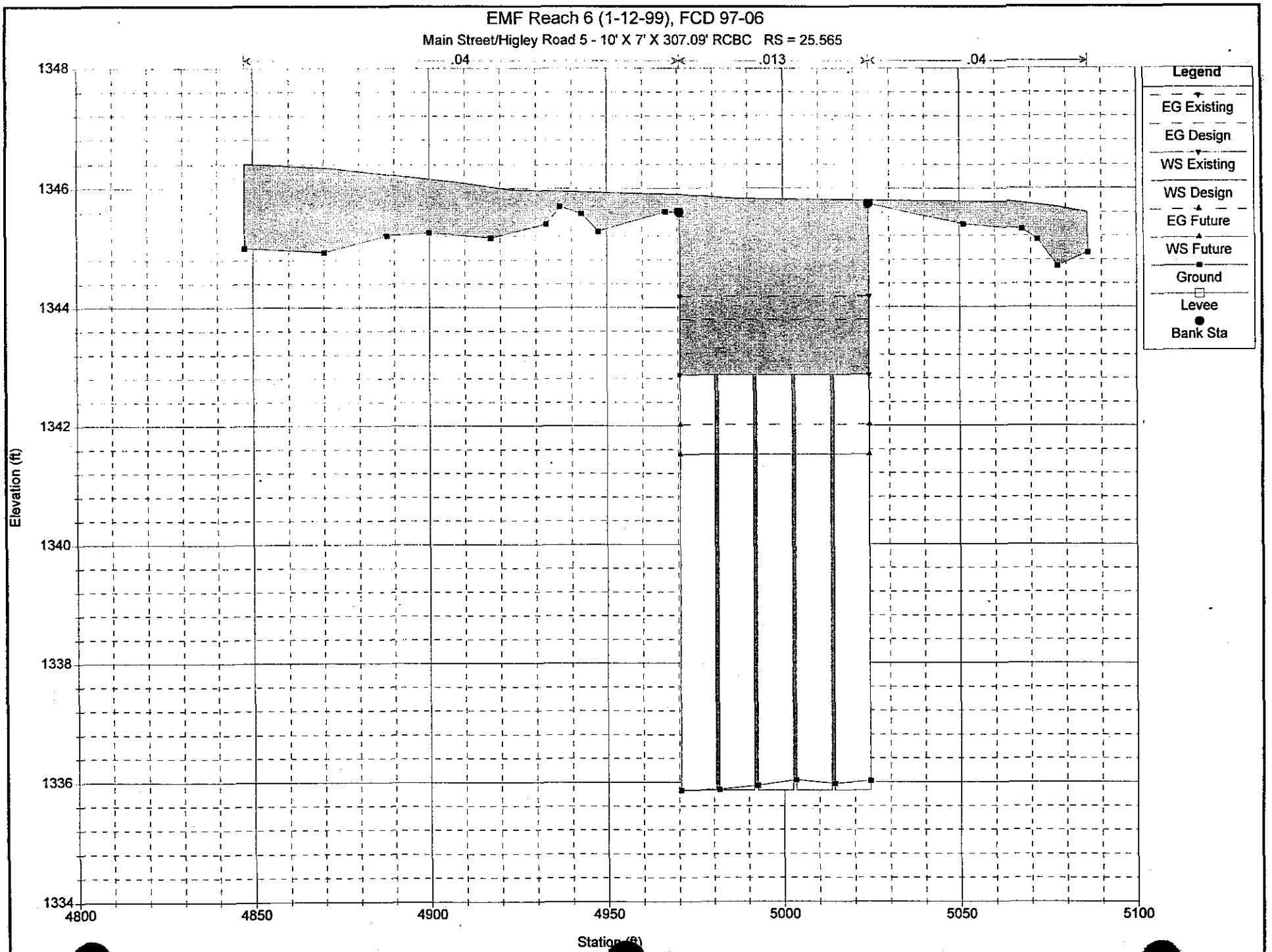

EMF Reach 6 (1-12-99), FCD 97-06
RS = 25.749
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
4750
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

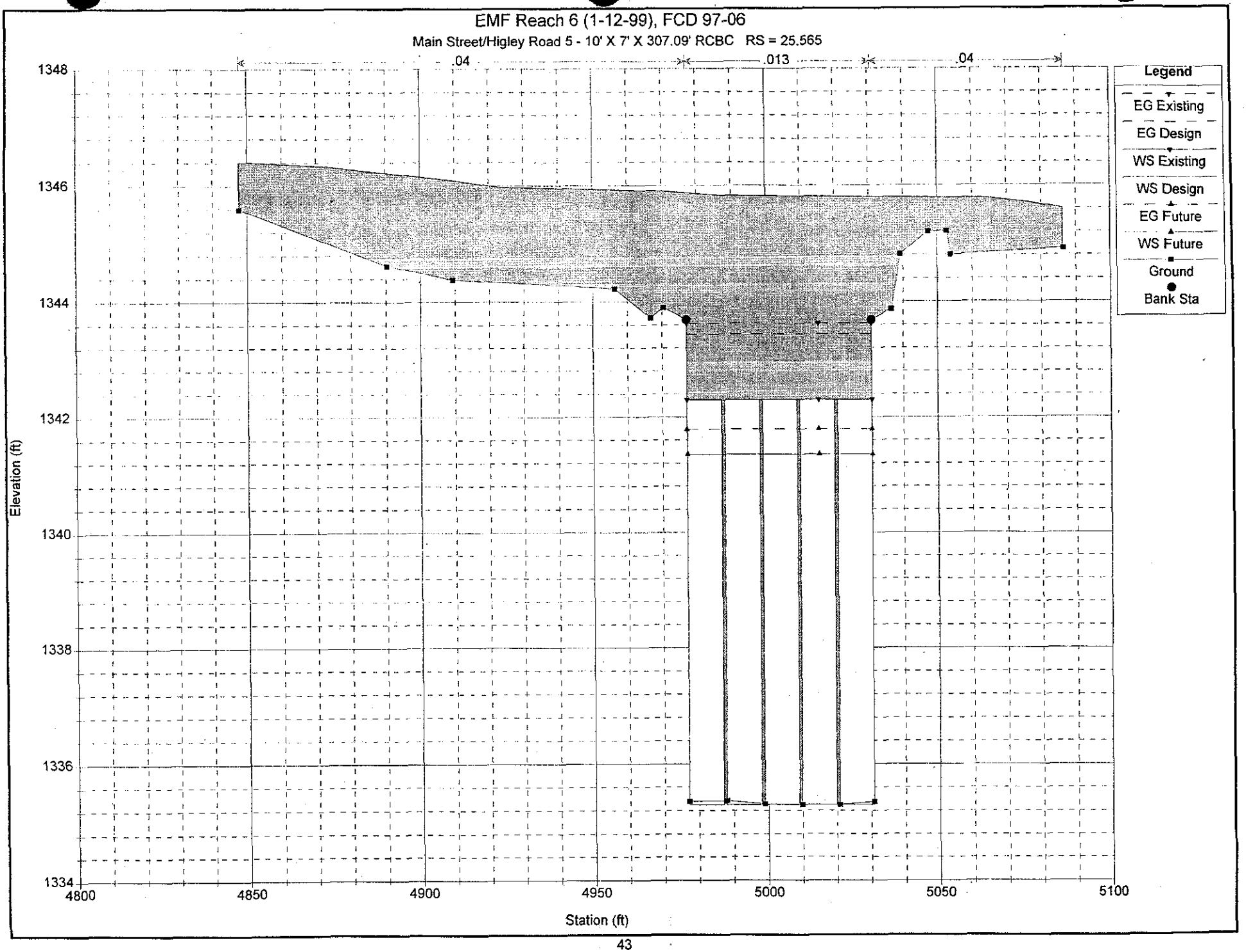

EMF Reach 6 (1-12-99), FCD 97-06
RS = 25.647
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1348
1346
1344
1342
1340
1338
1336
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

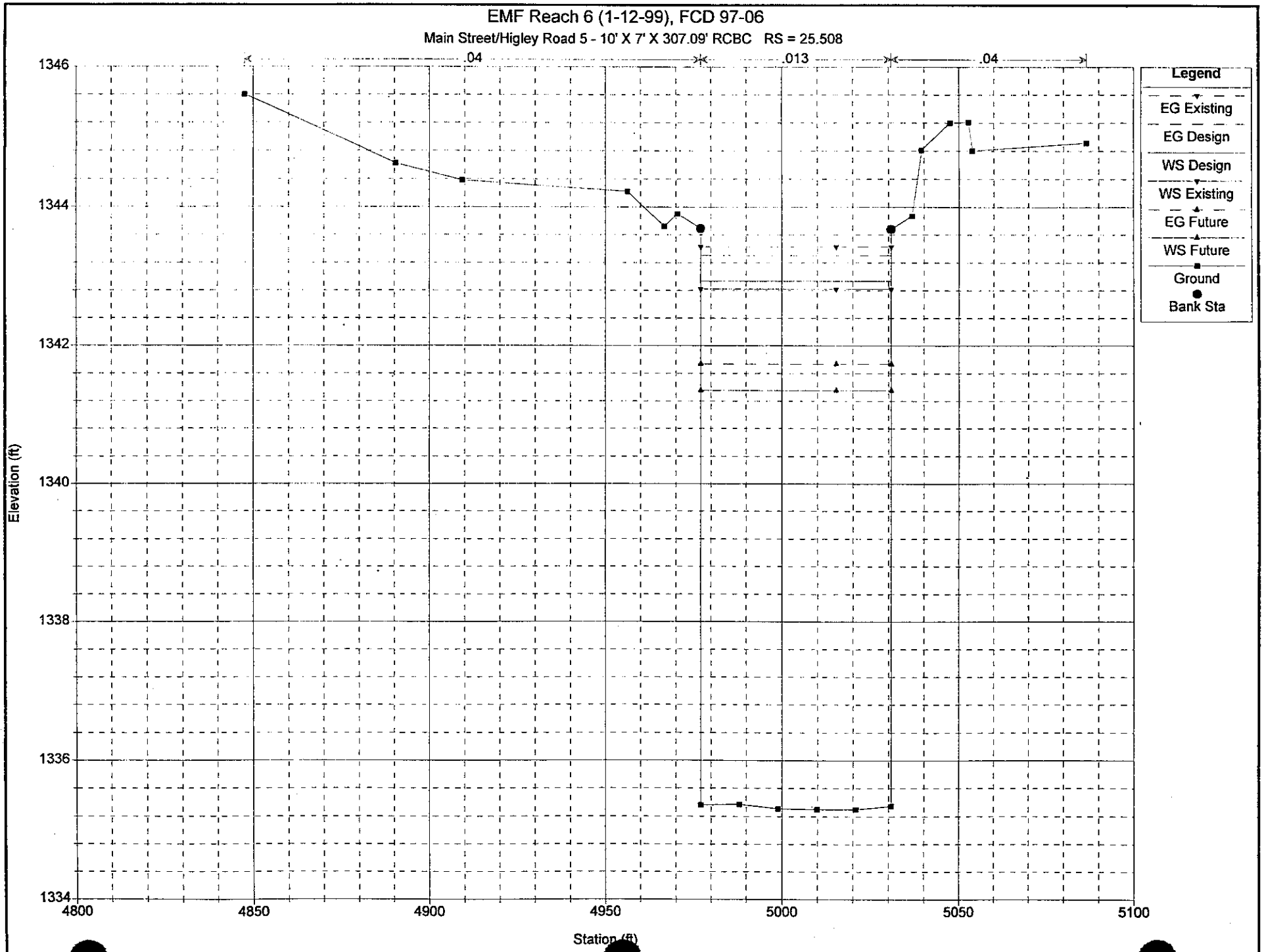

EMF Reach 6 (1-12-99), FCD 97-06
Downstream of Major Side Inlet (160' Wide) From East Side RS = 25.598
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Ineff
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
4750
4800
4850
4900
4950
5000
5050
5100
Station (ft)

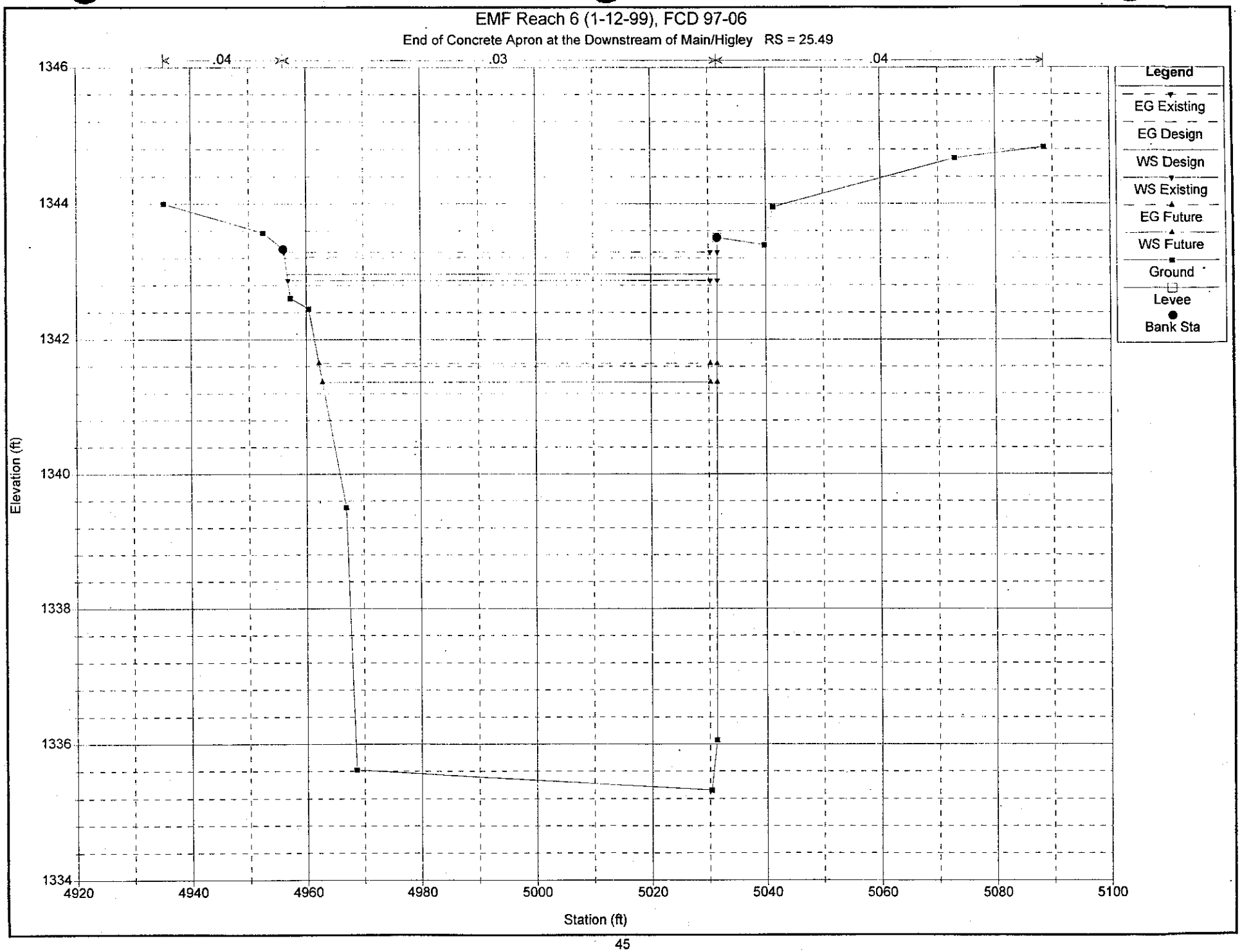

EMF Reach 6 (1-12-99), FCD 97-06
Begin Concrete Apron at the Upstream of Main/Higley RS = 25.597
.04
.013
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Ineff
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
4750
4800
4850
4900
4950
5000
5050
5100
Station (ft)

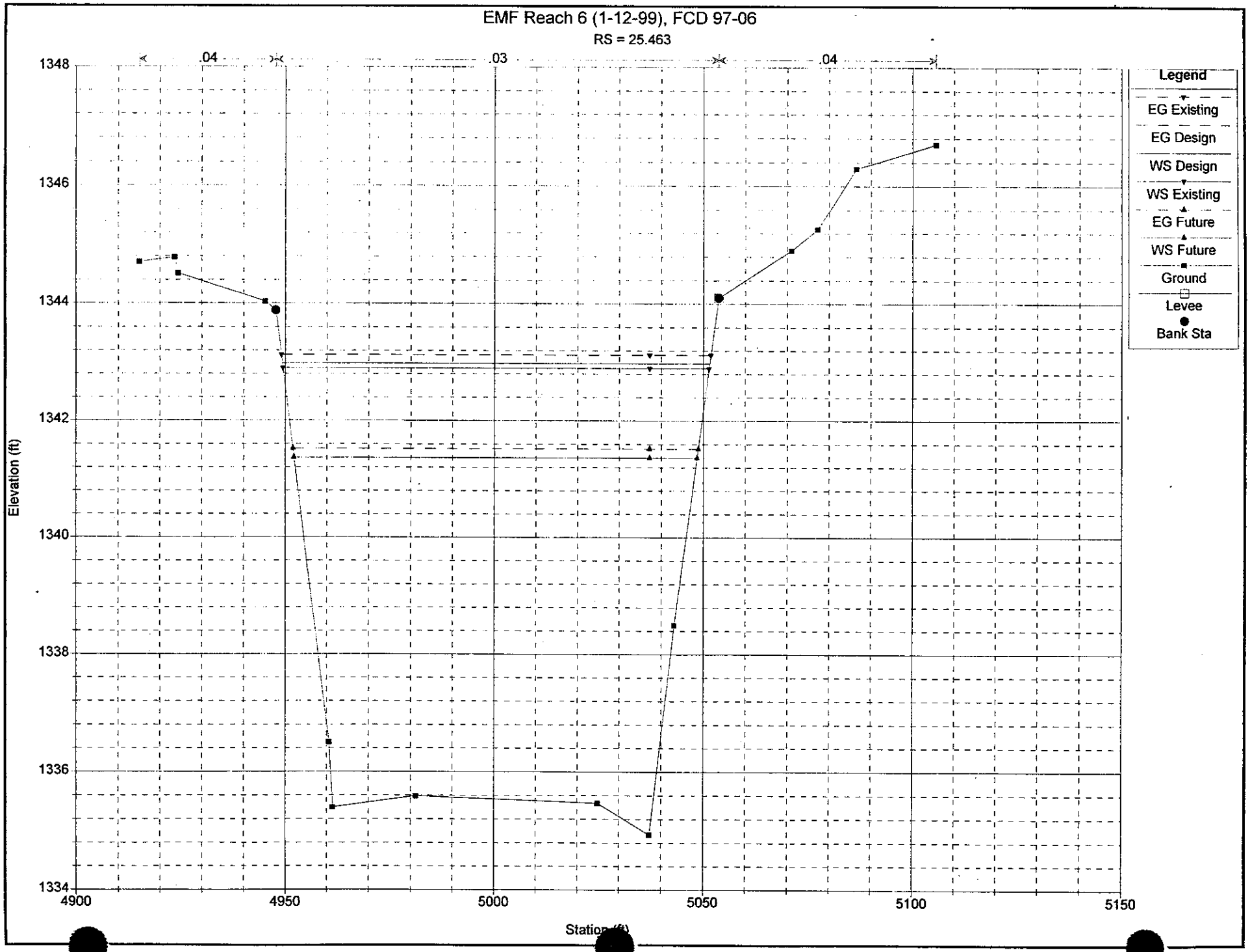

EMF Reach 6 (1-12-99), FCD 97-06
Main Street/Higley Road 5 - 10' X 7' X 370.09' RCBC RS = 25.578
.04
.013
.04
Legend
EG Existing
EG Design
WS Existing
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
4800
4850
4900
4950
5000
5050
5100
Station (ft)

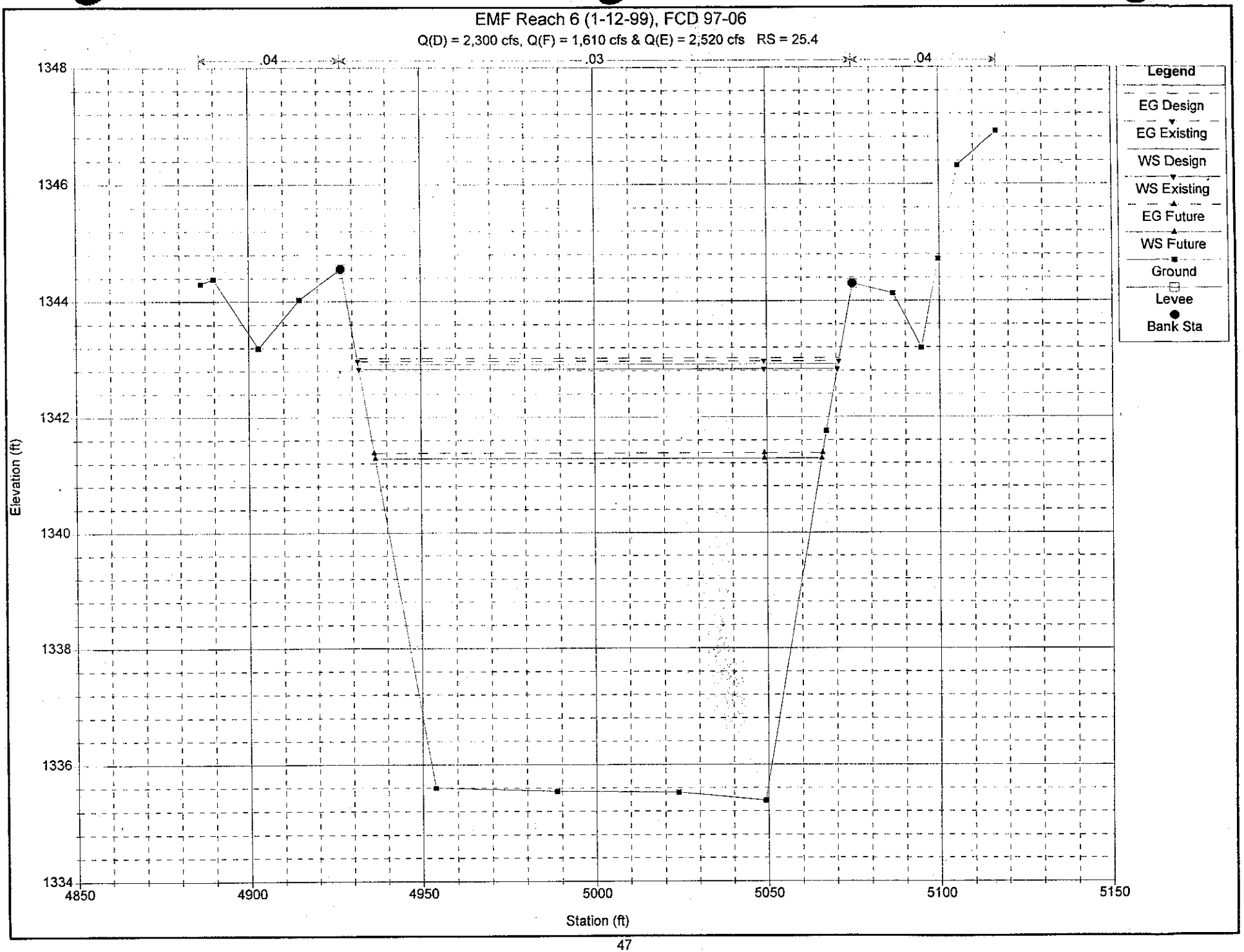

EMF Reach 6 (1-12-99), FCD 97-06
Main Street/Higley Road 5 - 10' X 7' X 307.09' RCBC RS = 25.565
.04
.013
.04
Legend
EG Existing
EG Design
WS Existing
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
1334
4800
4850
4900
4950
5000
5050
5100
Station (ft)

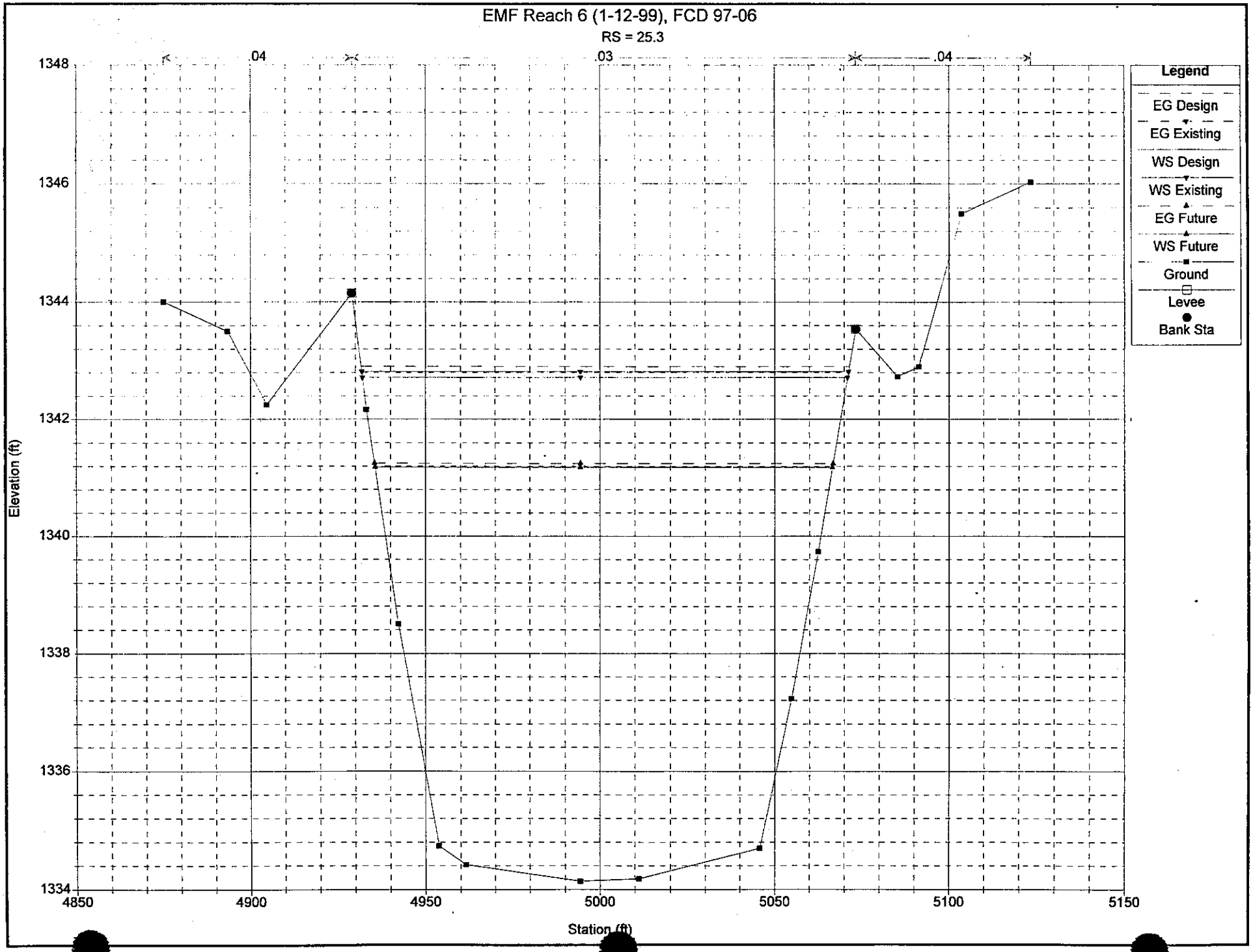

EMF Reach 6 (1-12-99), FCD 97-06
Main Street/Higley Road 5 - 10' X 7' X 307.09' RCBC RS = 25.565
.04
.013
.04
Legend
EG Existing
EG Design
WS Existing
WS Design
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
1334
4800
4850
4900
4950
5000
5050
5100
Station (ft)

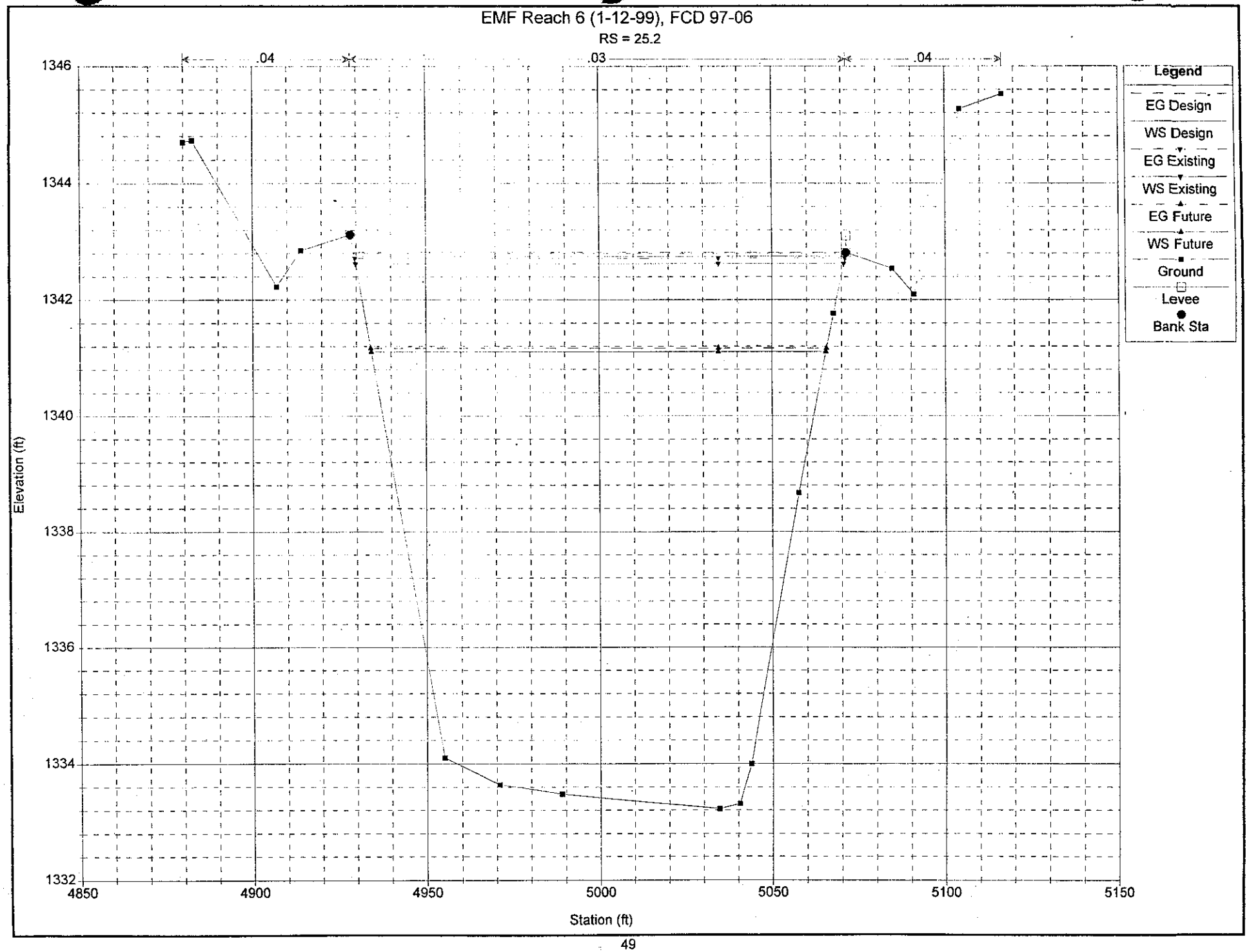

EMF Reach 6 (1-12-99), FCD 97-06
Main Street/Higley Road 5 - 10' X 7' X 307.09' RCBC RS = 25.508
.04
.013
.04
Legend
EG Existing
EG Design
WS Design
WS Existing
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
4800
4850
4900
4950
5000
5050
5100
Station (ft)

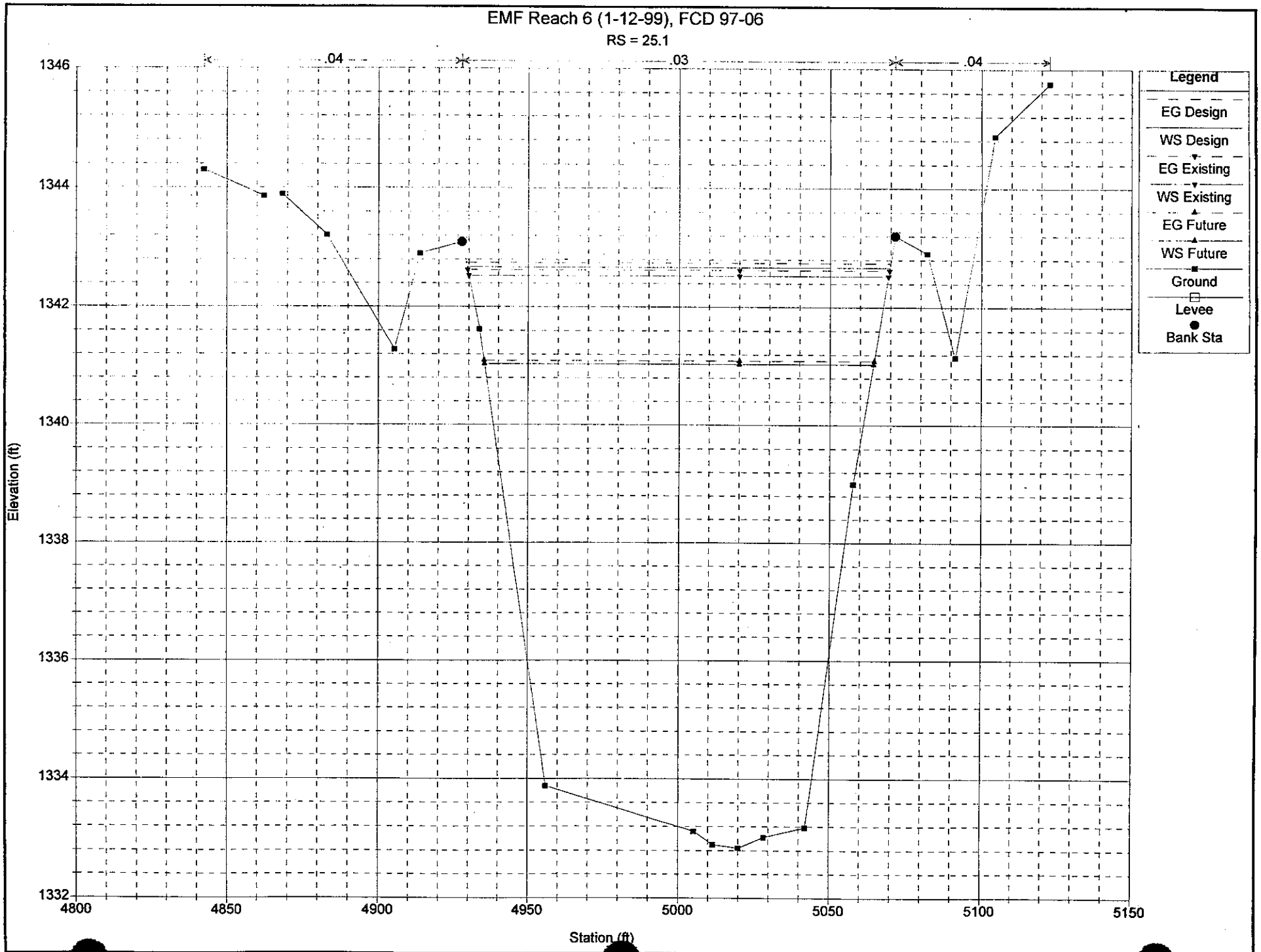

EMF Reach 6 (1-12-99), FCD 97-06
End of Concrete Apron at the Downstream of Main/Higley RS = 25.49
.04
.03
.04
Legend
EG Existing
EG Design
WS Design
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
4920
4940
4960
4980
5000
5020
5040
5060
5080
5100
Station (ft)

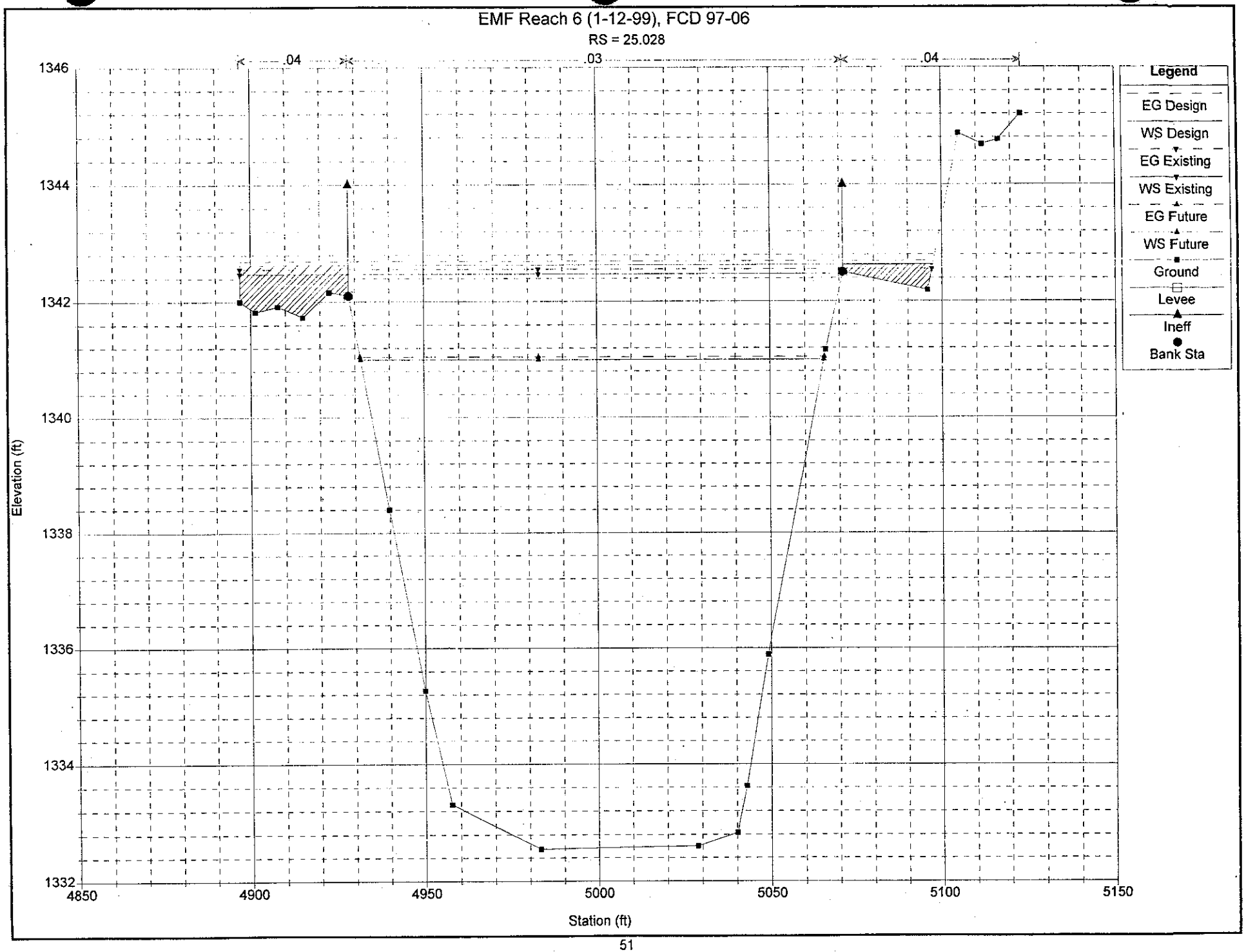

EMF Reach 6 (1-12-99), FCD 97-06
RS = 25.463
.04
.03
.04
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
1334
4900
4950
5000
5050
5100
5150
Station (ft)
Legend
EG Existing
EG Design
WS Design
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta

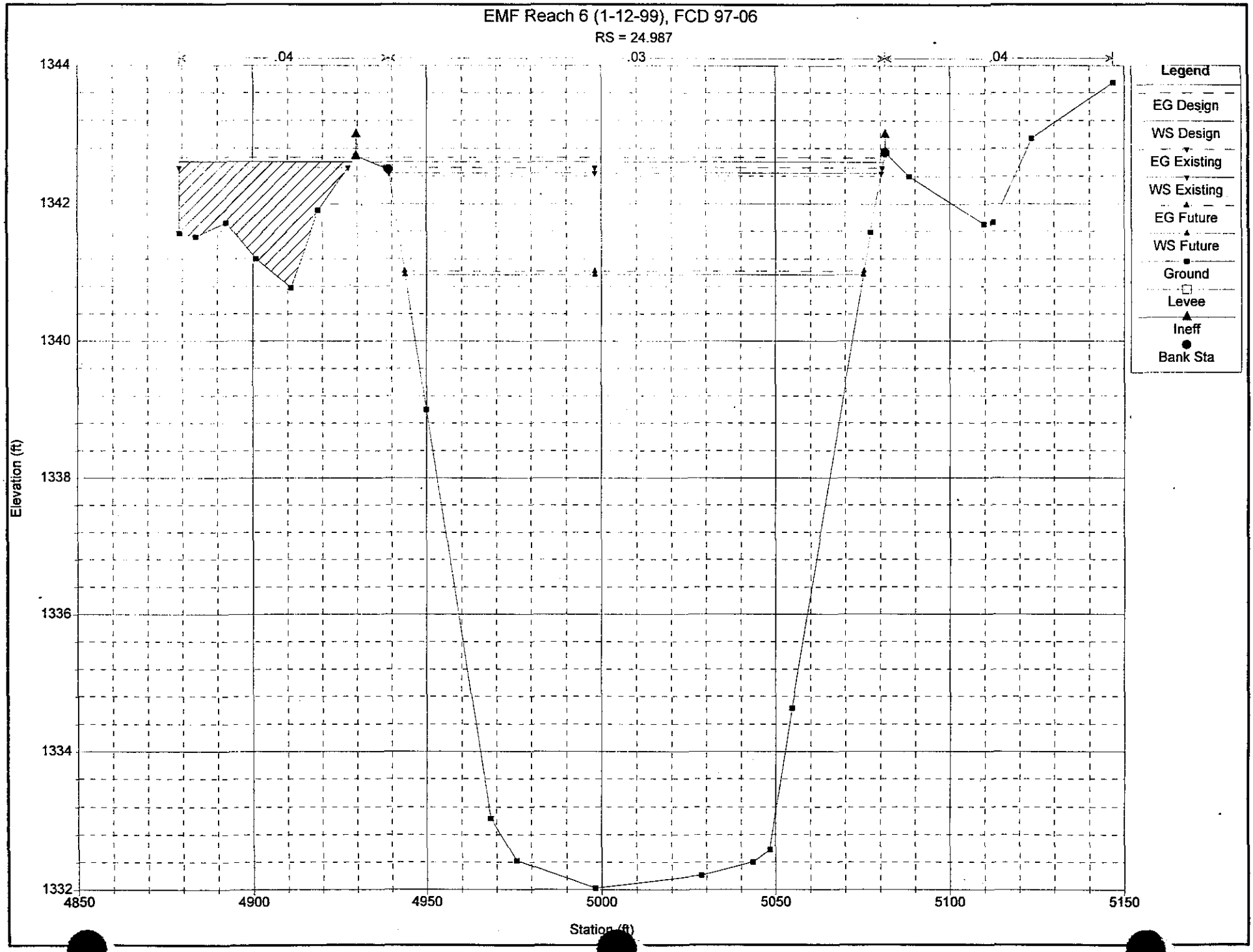

EMF Reach 6 (1-12-99), FCD 97-06
Q(D) = 2,300 cfs, Q(F) = 1,610 cfs & Q(E) = 2,520 cfs RS = 25.4
.04
.03
.04
Legend
EG Design
EG Existing
WS Design
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
1334
4850
4900
4950
5000
5050
5100
5150
Station (ft)

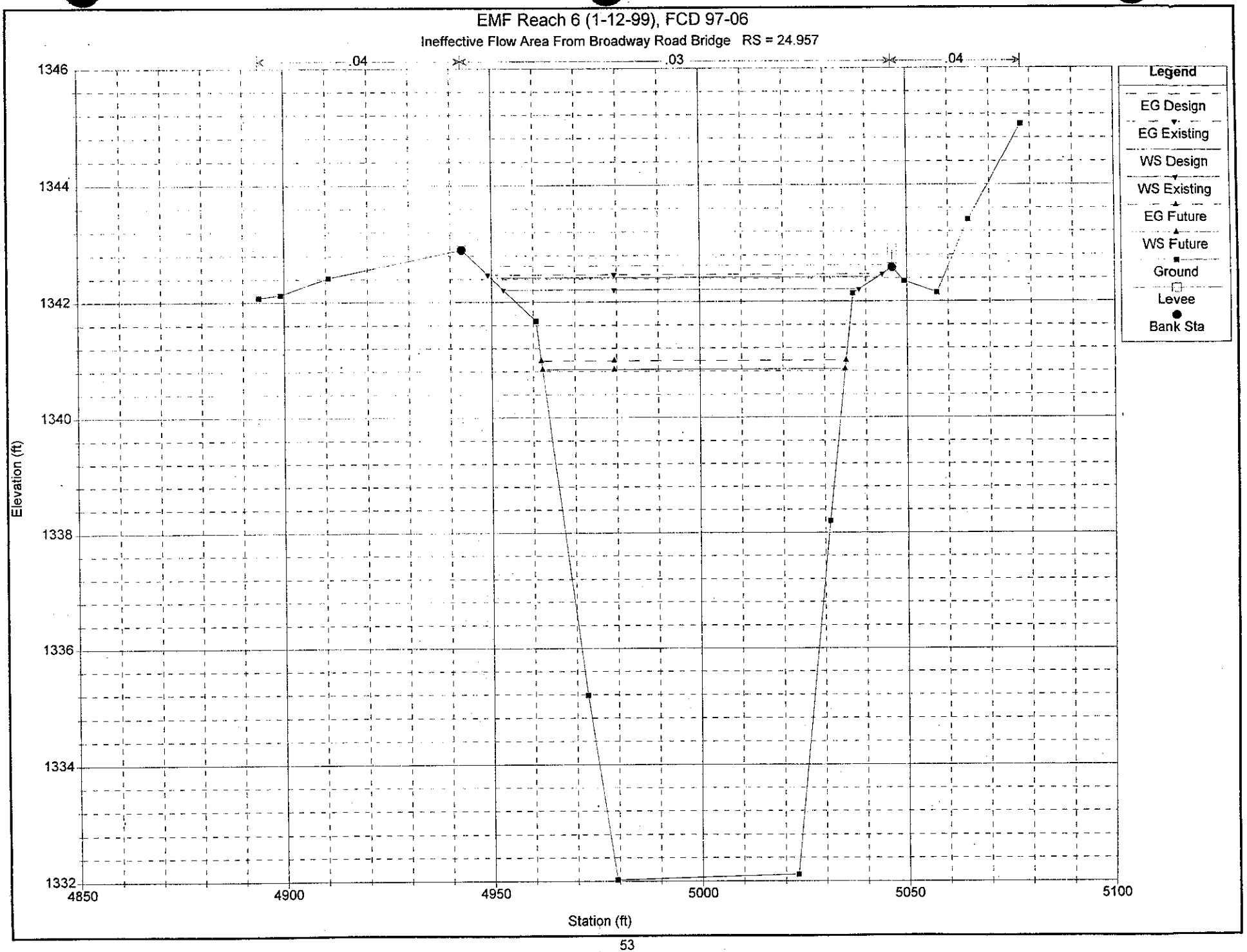

EMF Reach 6 (1-12-99), FCD 97-06
RS = 25.3
.04
.03
.04
Legend
EG Design
EG Existing
WS Design
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
1334
4850
4900
4950
5000
5050
5100
5150
Station (ft)

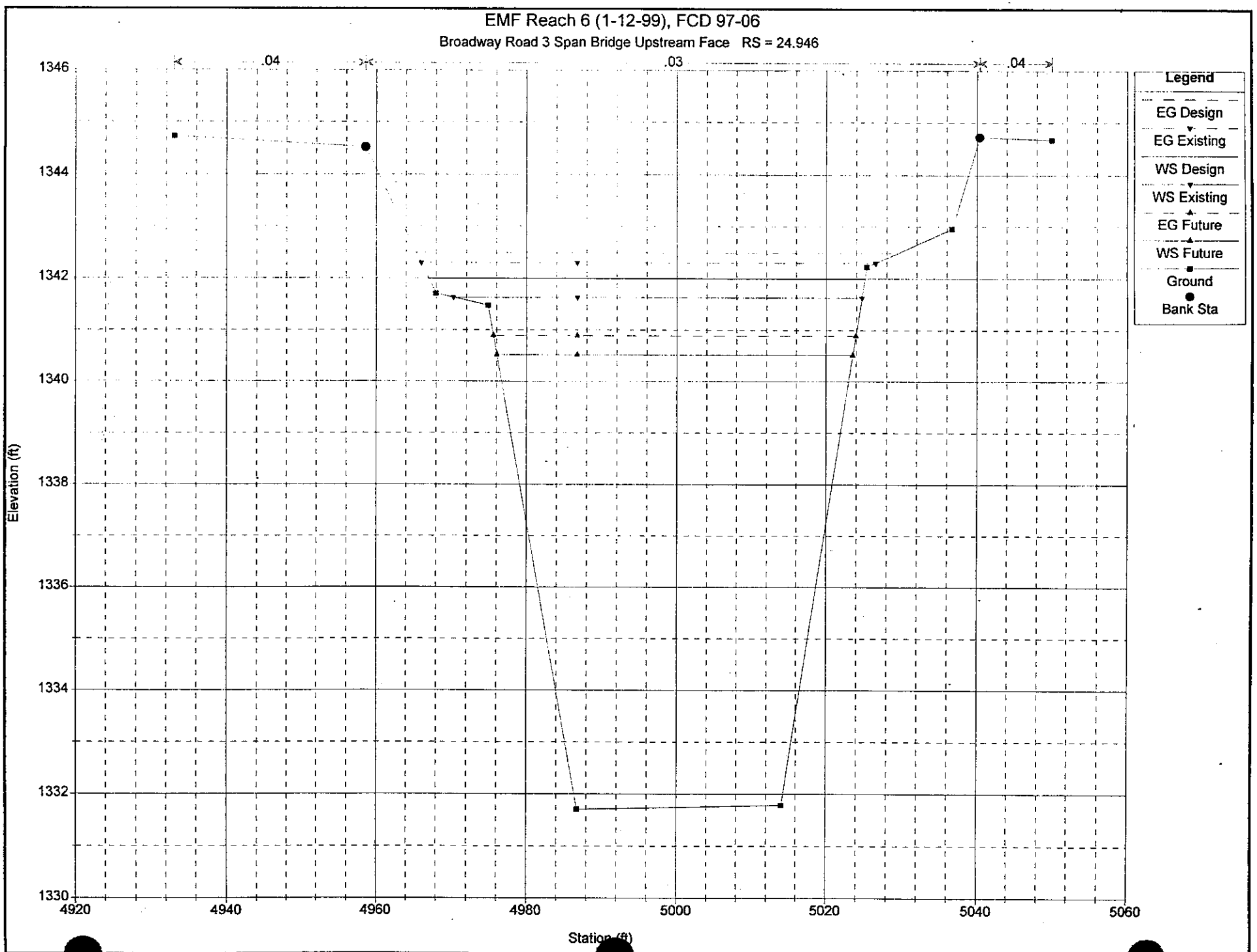

EMF Reach 6 (1-12-99), FCD 97-06
RS = 25.2
.04
.03
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
1332
4850
4900
4950
5000
5050
5100
5150
Station (ft)

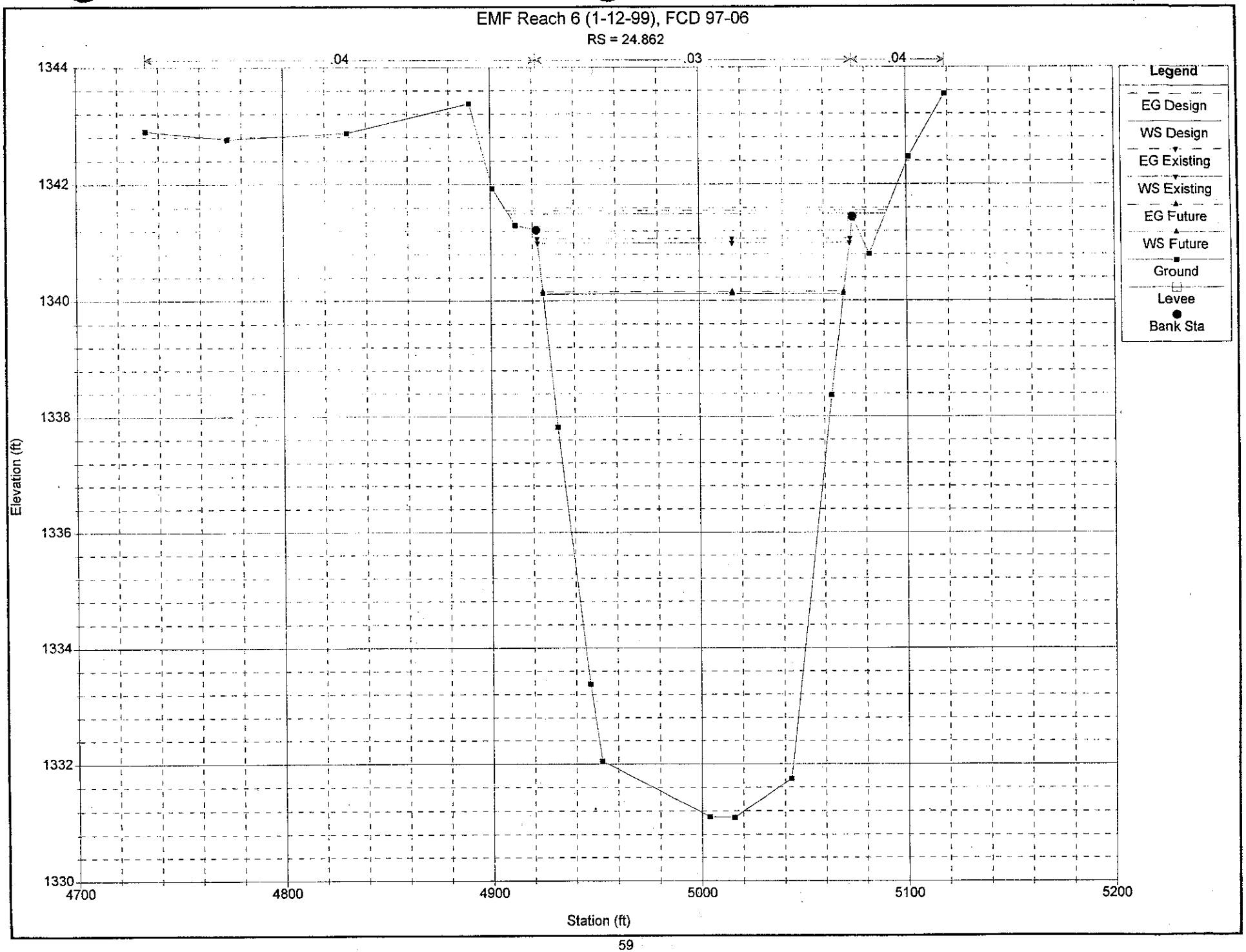

EMF Reach 6 (1-12-99), FCD 97-06
RS = 25.1
.04
.03
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
1332
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

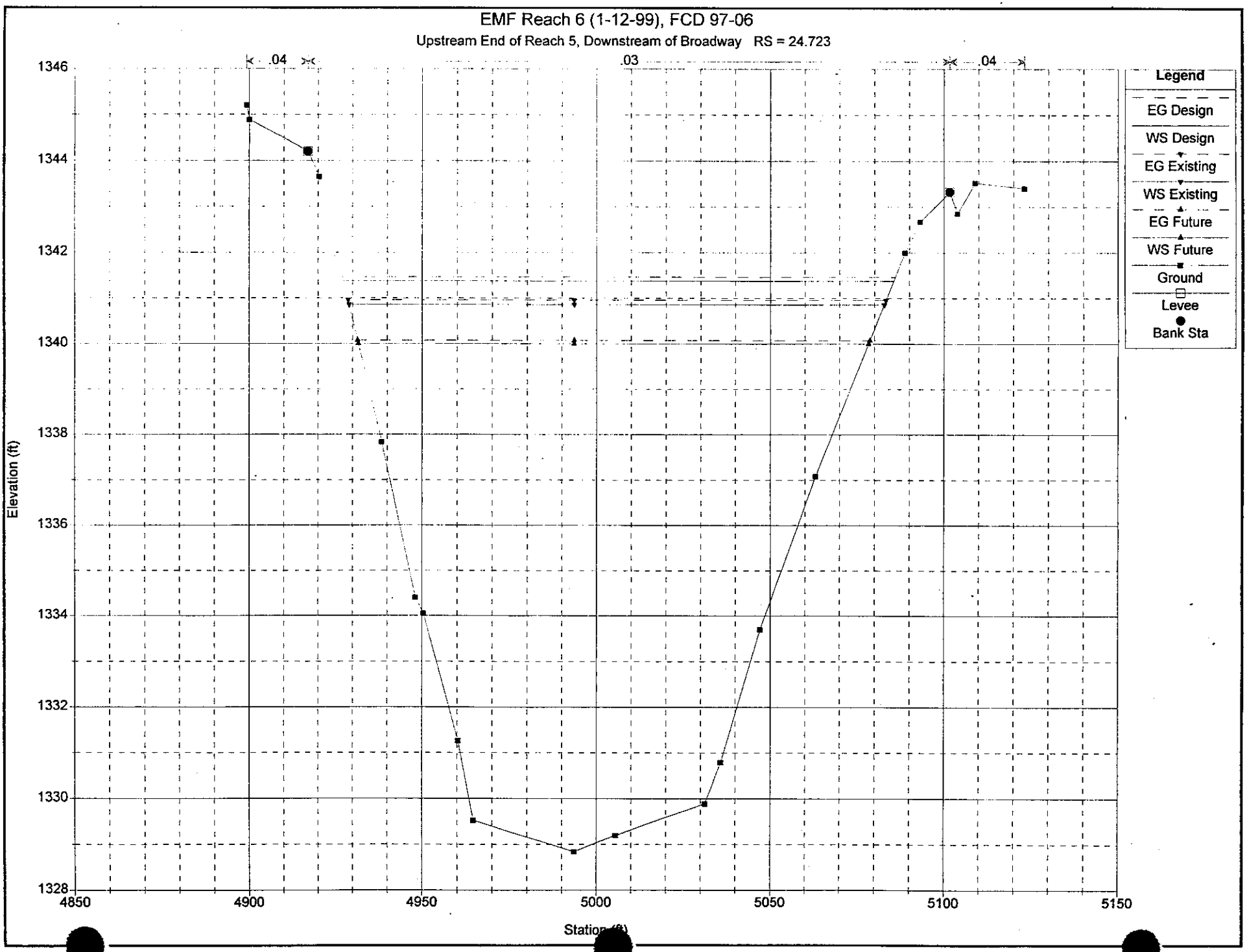

EMF Reach 6 (1-12-99), FCD 97-06
RS = 25.028
.04
.03
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
1332
4850
4900
4950
5000
5050
5100
5150
Station (ft)

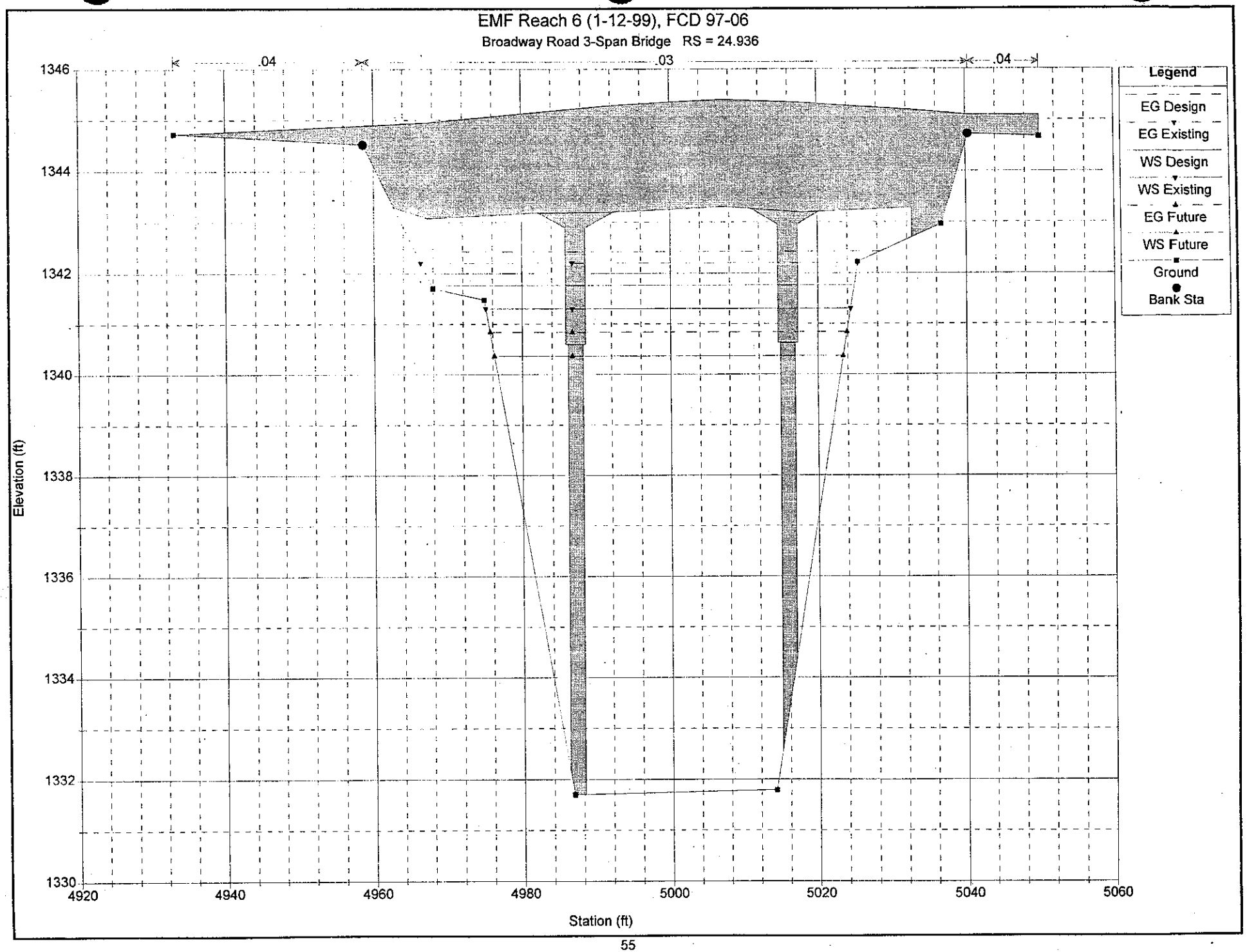

EMF Reach 6 (1-12-99), FCD 97-06
RS = 24.987
.04
.03
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
4850
4900
4950
5000
5050
5100
5150
Station (ft)

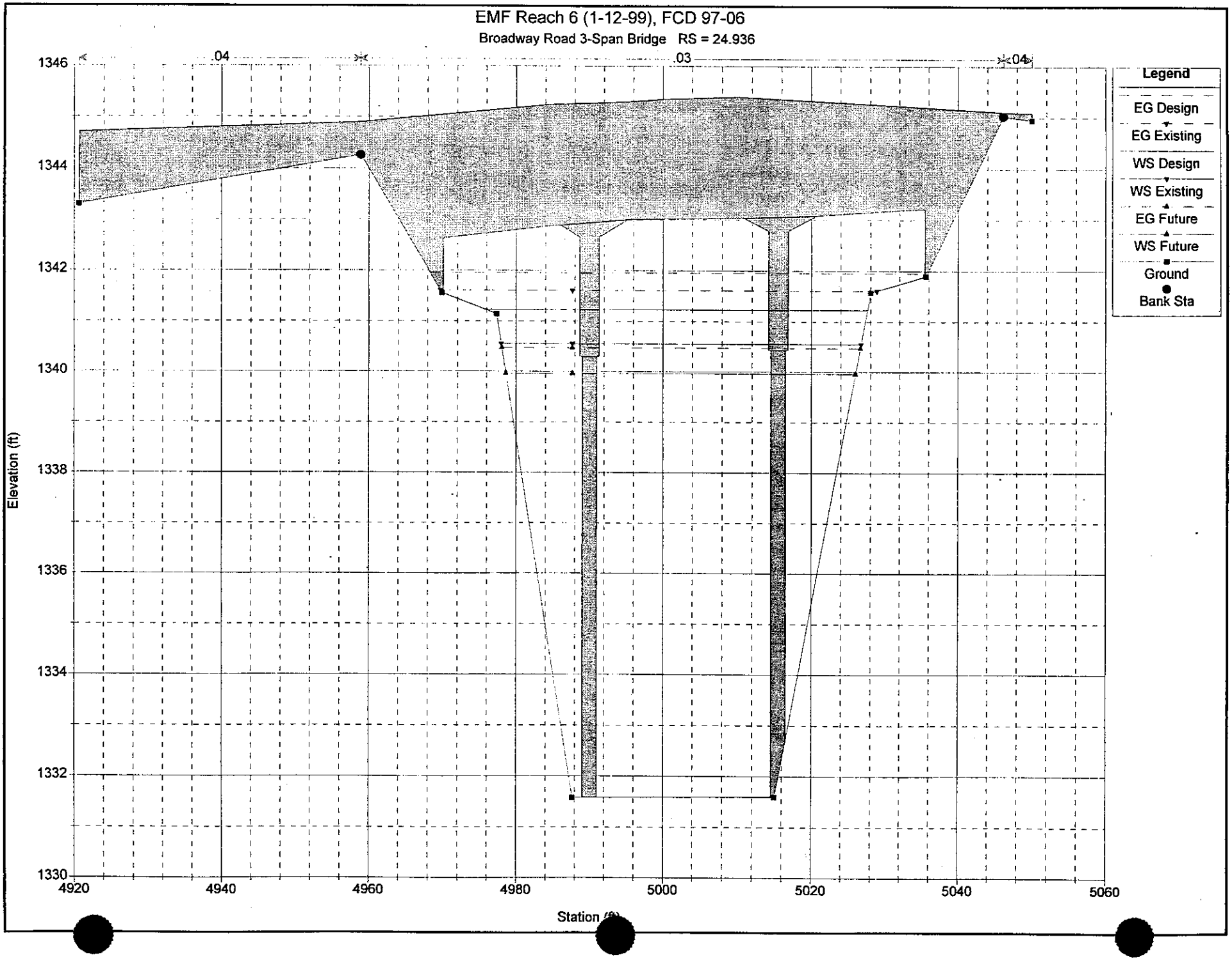

EMF Reach 6 (1-12-99), FCD 97-06
Ineffective Flow Area From Broadway Road Bridge RS = 24.957
.04
.03
.04
Legend
EG Design
EG Existing
WS Design
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
1332
4850
4900
4950
5000
5050
5100
Station (ft)

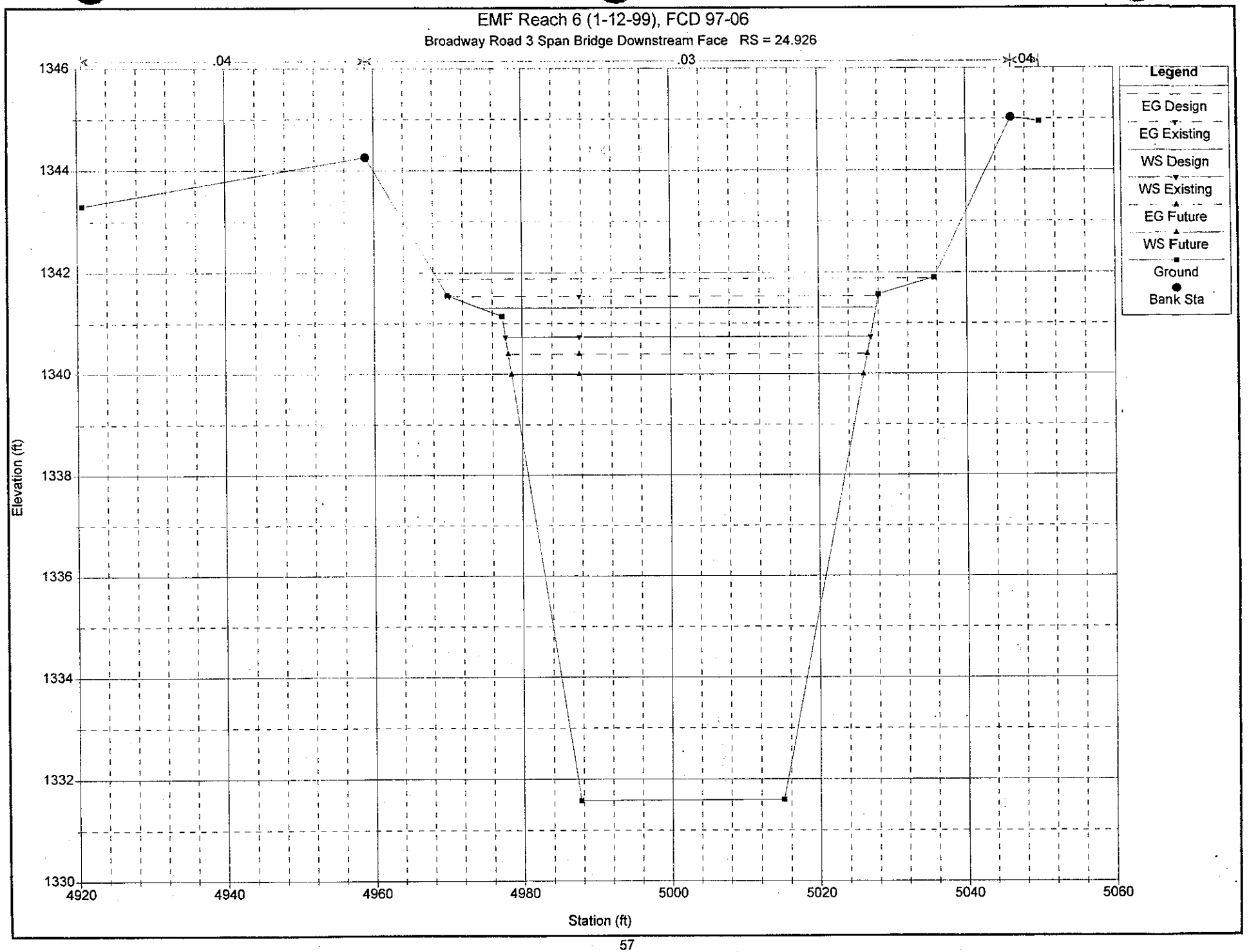

EMF Reach 6 (1-12-99), FCD 97-06
Broadway Road 3 Span Bridge Upstream Face RS = 24.946
.04
.03
.04
Legend
EG Design
EG Existing
WS Design
WS Existing
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
1332
1330
4920
4940
4960
4980
5000
5020
5040
5060
Station (ft)

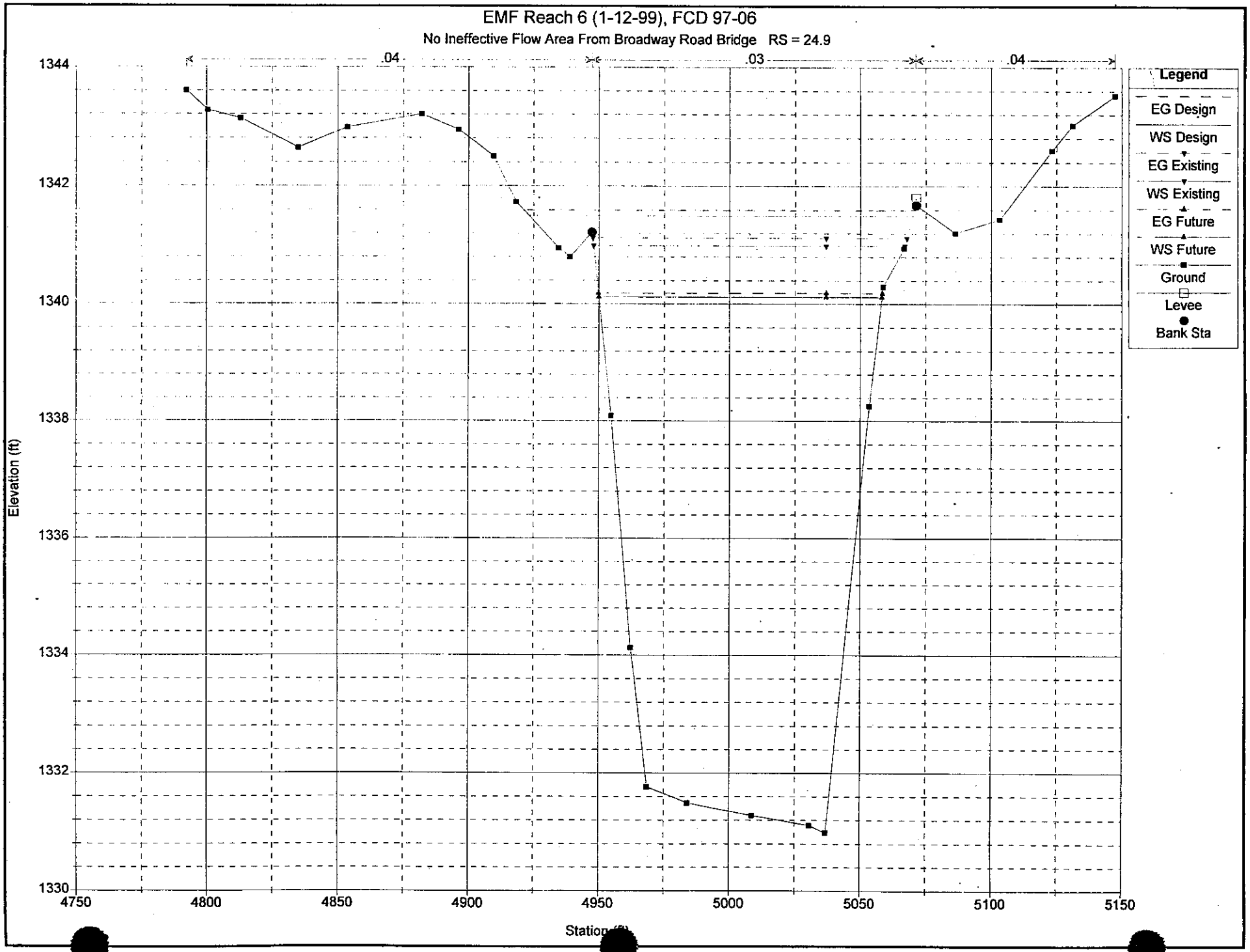

EMF Reach 6 (1-12-99), FCD 97-06
RS = 24.862
.04
.03
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
1330
4700
4800
4900
5000
5100
5200
Station (ft)

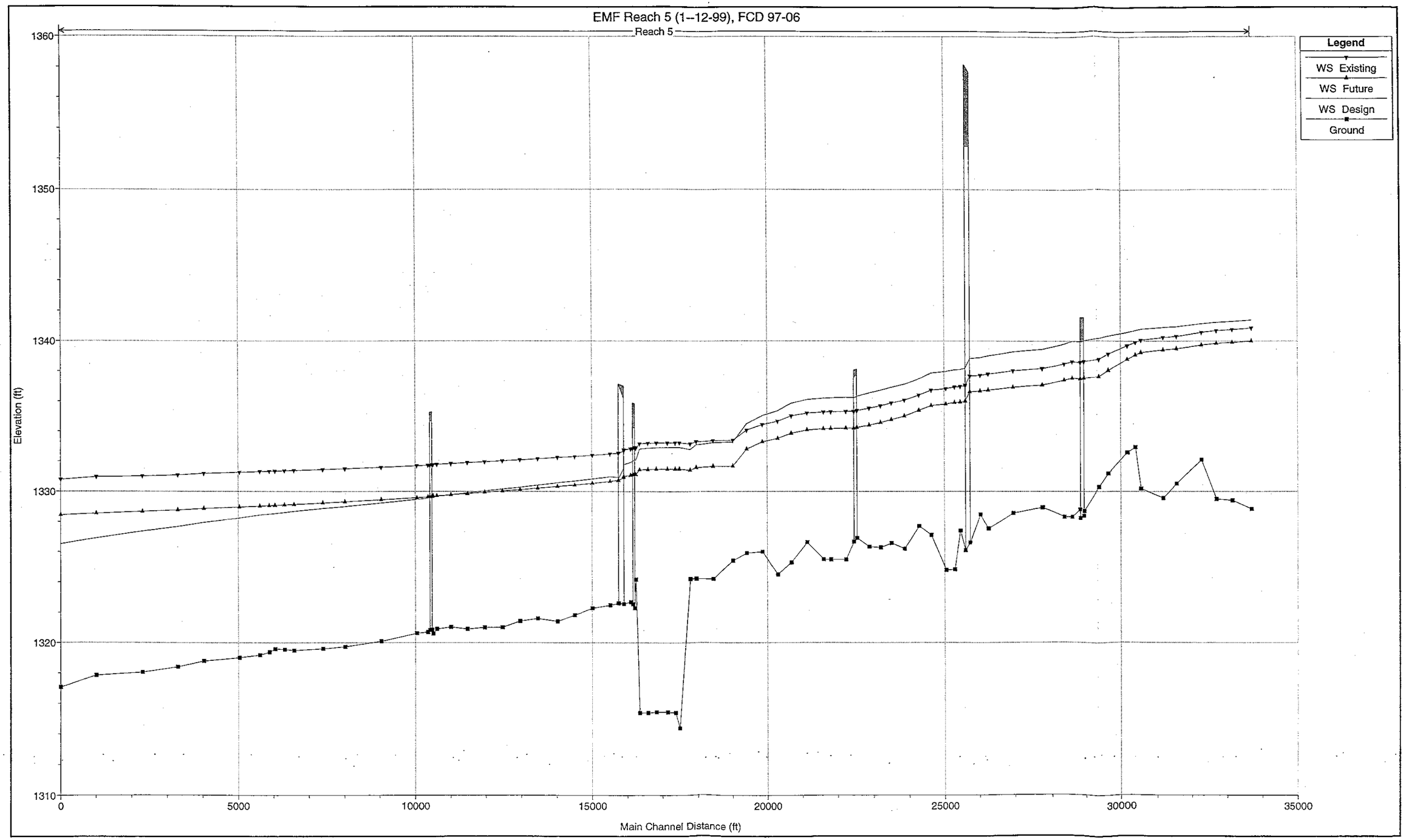

EMF Reach 6 (1-12-99), FCD 97-06
Upstream End of Reach 5, Downstream of Broadway RS = 24.723
.04
.03
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
1332
1330
1328
4850
4900
4950
5000
5050
5100
5150
Station (ft)

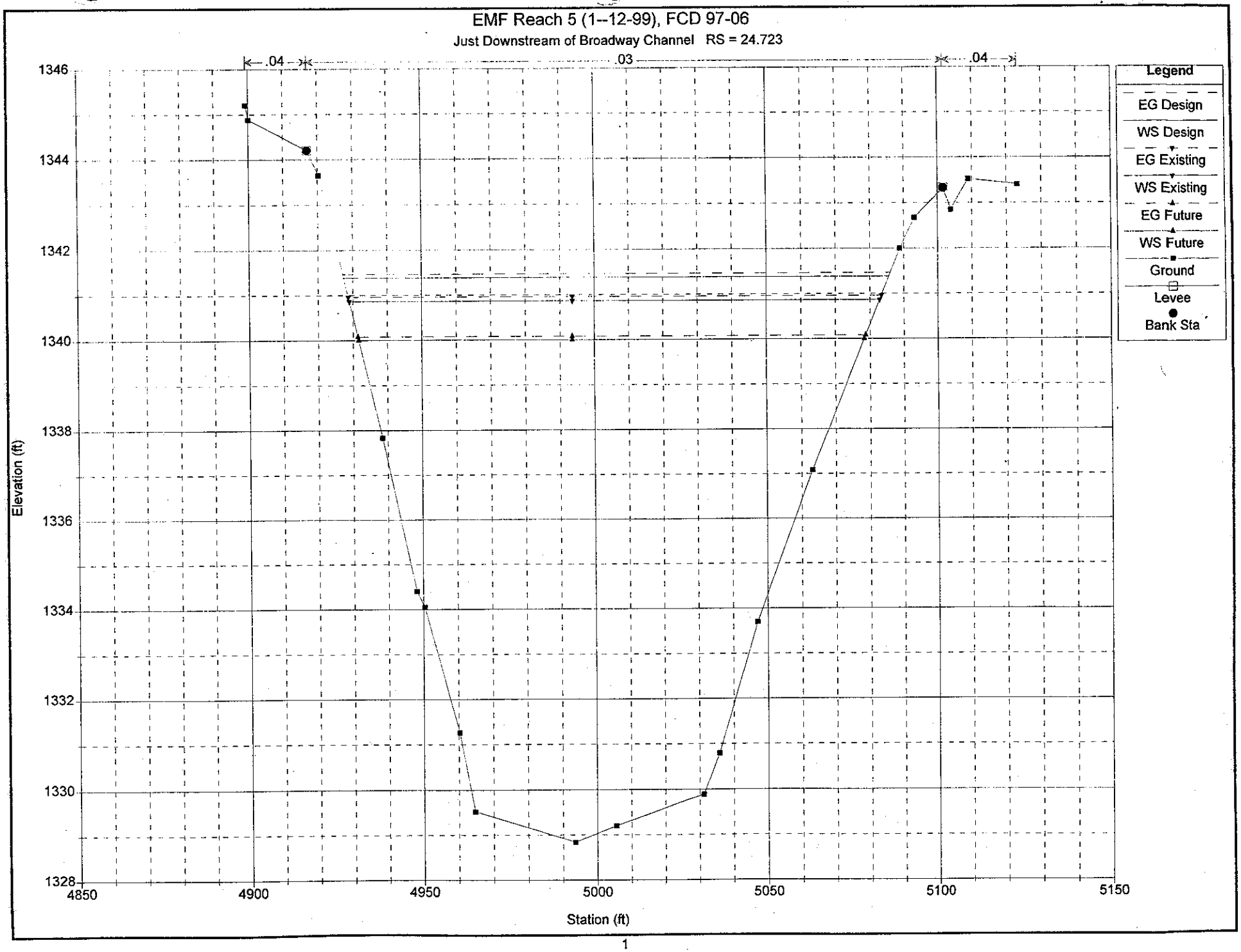

EMF Reach 6 (1-12-99), FCD 97-06
Broadway Road 3-Span Bridge RS = 24.936
.04
.03
.04
Legend
EG Design
EG Existing
WS Design
WS Existing
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
1332
1330
4920
4940
4960
4980
5000
5020
5040
5060
Station (ft)

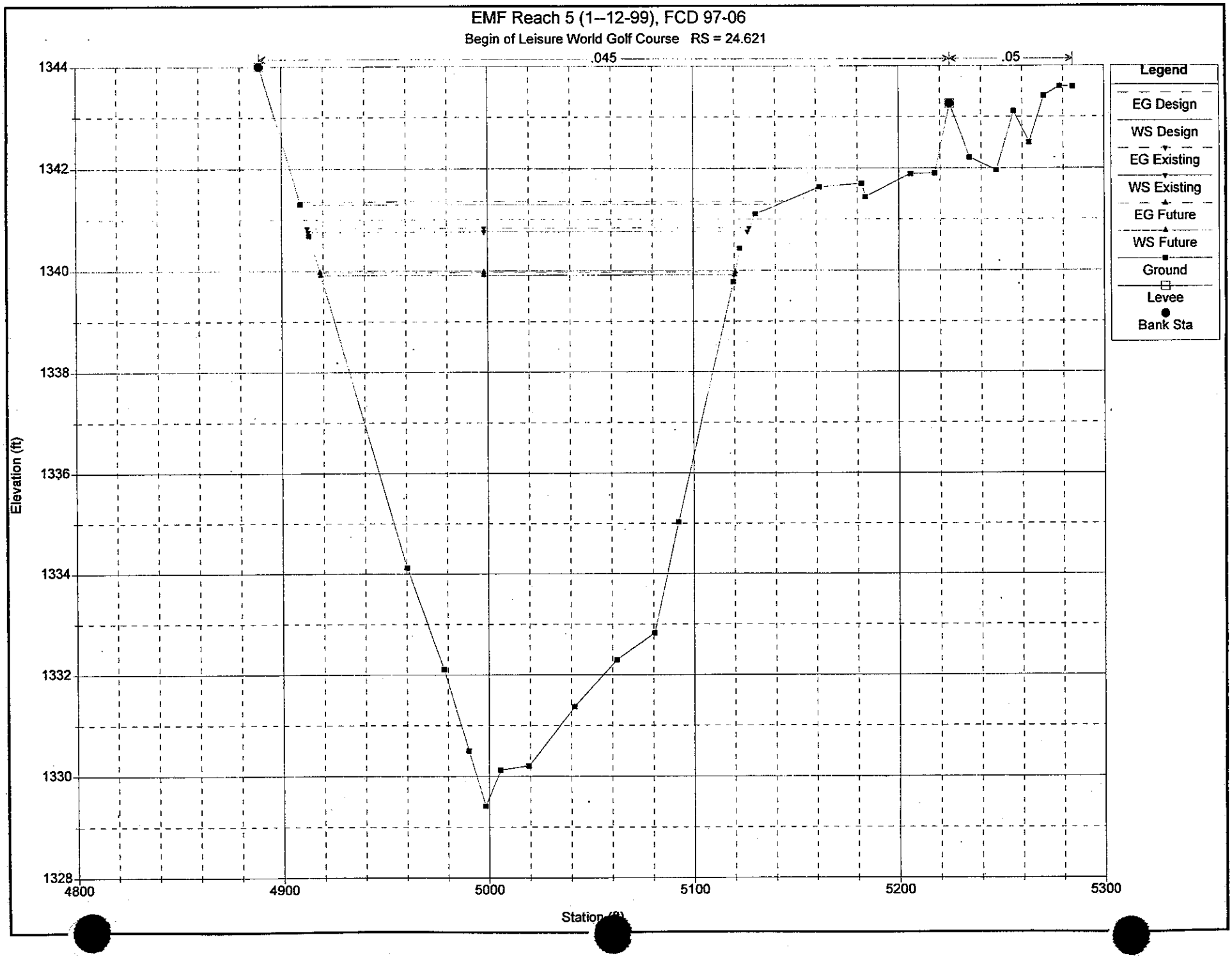

EMF Reach 6 (1-12-99), FCD 97-06
Broadway Road 3-Span Bridge RS = 24.936
.04
.03
.04
Legend
EG Design
EG Existing
WS Design
WS Existing
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
1332
1330
4920
4940
4960
4980
5000
5020
5040
5060
Station (ft)

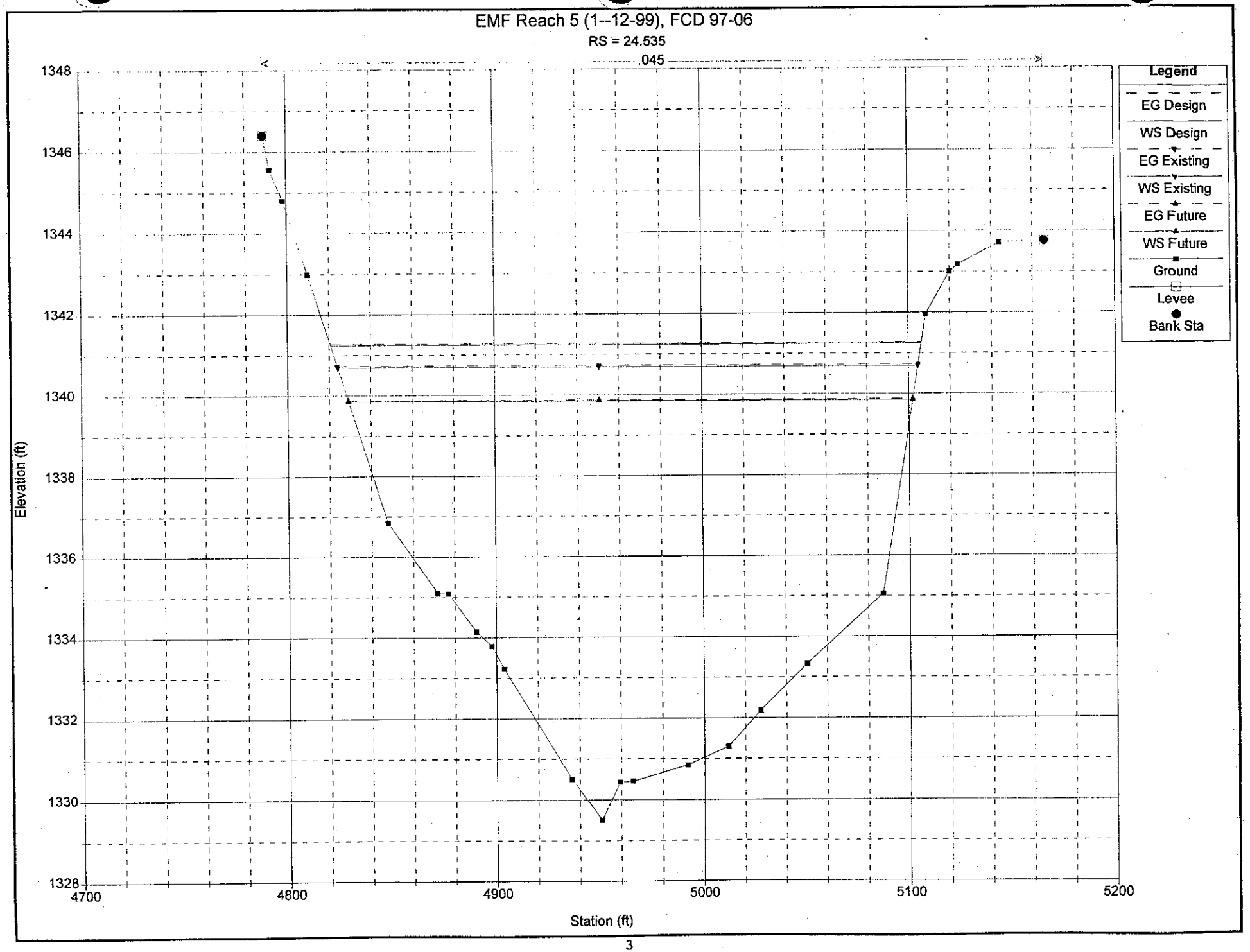

EMF Reach 6 (1-12-99), FCD 97-06
Broadway Road 3 Span Bridge Downstream Face RS = 24.926
.04
.03
.04
Legend
EG Design
EG Existing
WS Design
WS Existing
EG Future
WS Future
Ground
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
1332
1330
4920
4940
4960
4980
5000
5020
5040
5060
Station (ft)

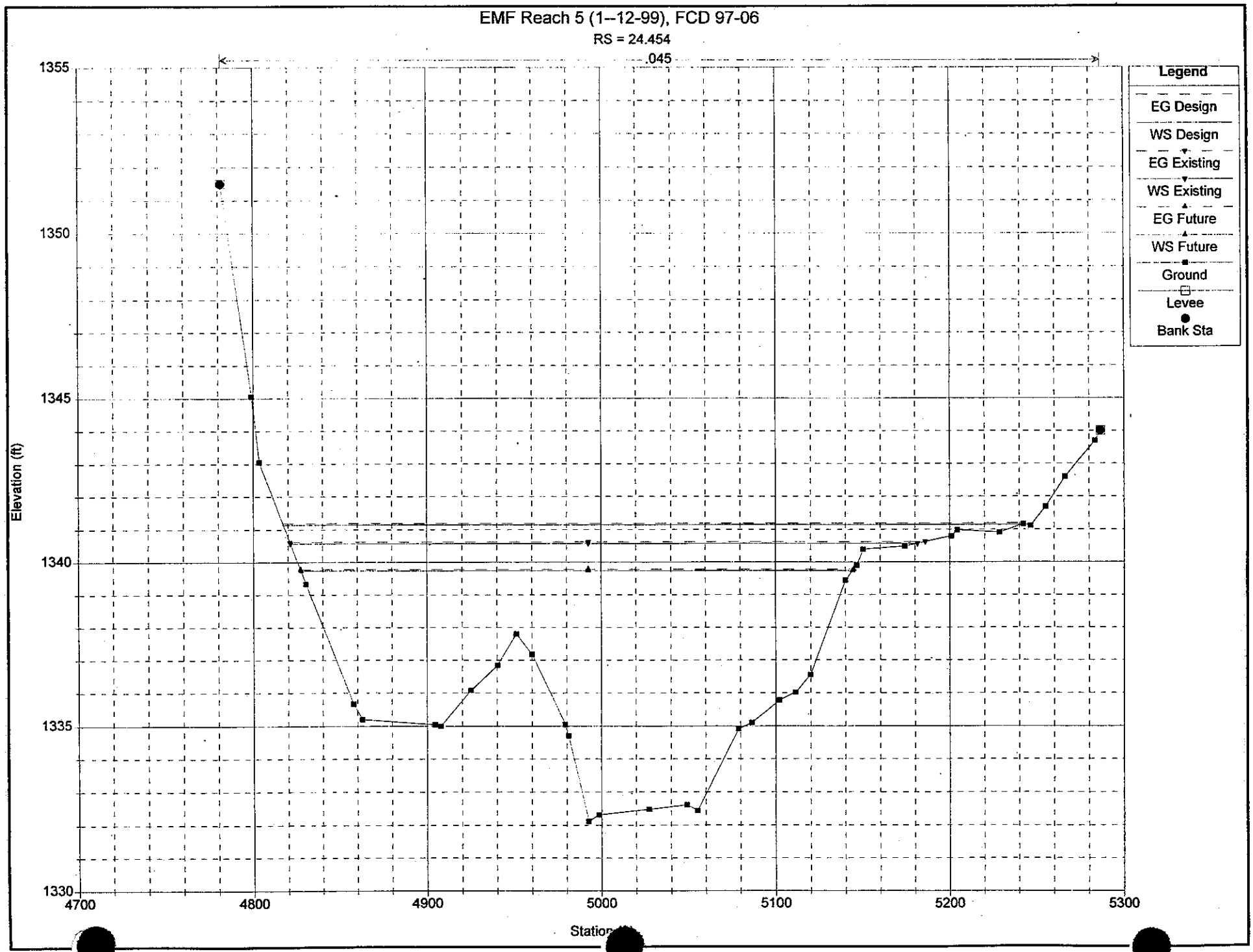

EMF Reach 6 (1-12-99), FCD 97-06
No Ineffective Flow Area From Broadway Road Bridge RS = 24.9
.04
.03
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
1330
4750
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

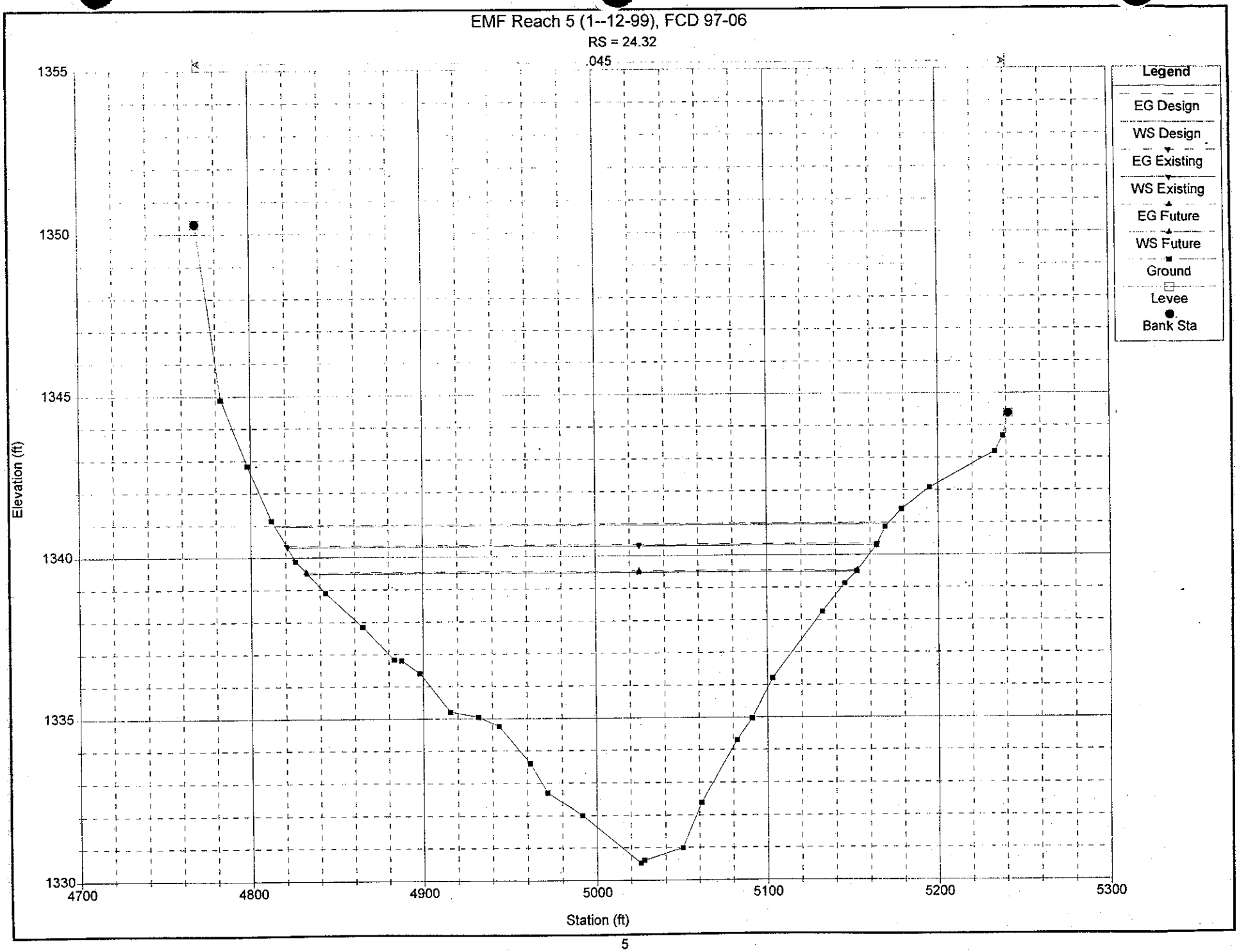

EMF Reach 5 (1--12-99), FCD 97-06
Reach 5
Legend
WS Existing
WS Future
WS Design
Ground
Elevation (ft)
1360
1350
1340
1330
1320
1310
0
5000
10000
15000
20000
25000
30000
35000
Main Channel Distance (ft)

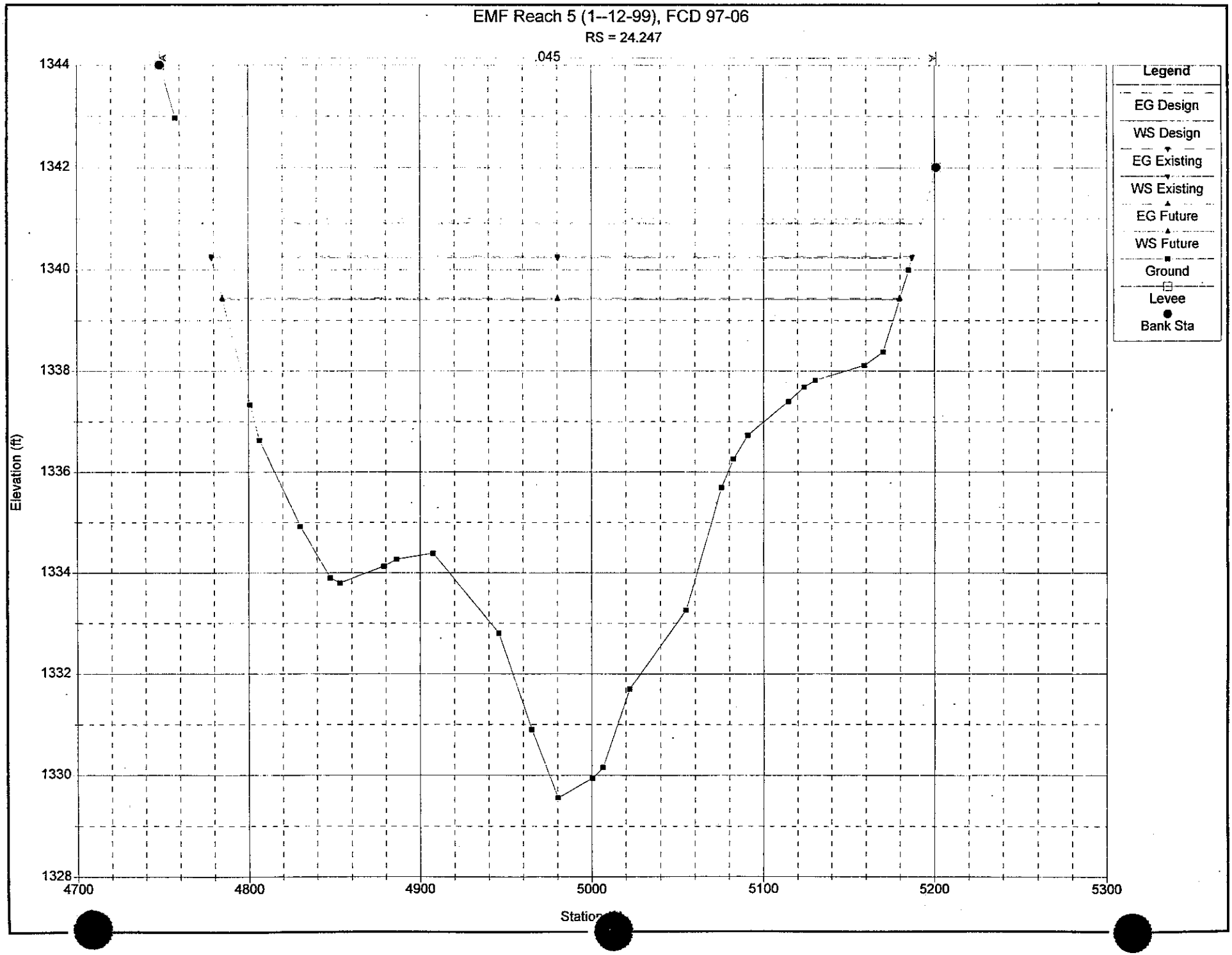

EMF Reach 5 (1--12-99), FCD 97-06
Just Downstream of Broadway Channel RS = 24.723
.04
.03
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
1332
1330
1328
4850
4900
4950
5000
5050
5100
5150
Station (ft)

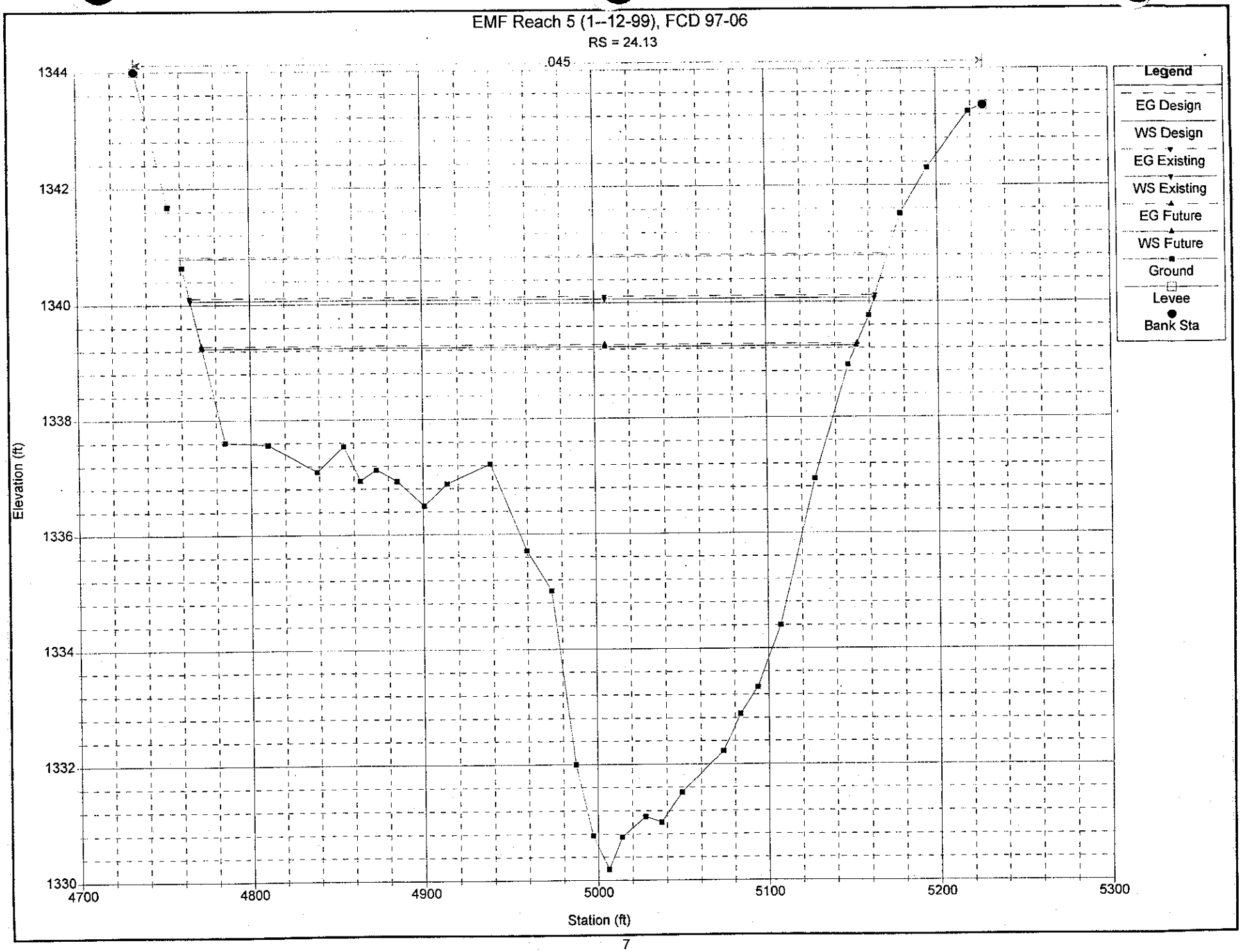

EMF Reach 5 (1--12-99), FCD 97-06
Begin of Leisure World Golf Course RS = 24.621
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
1330
1328
4800
4900
5000
5100
5200
5300
Station (ft)

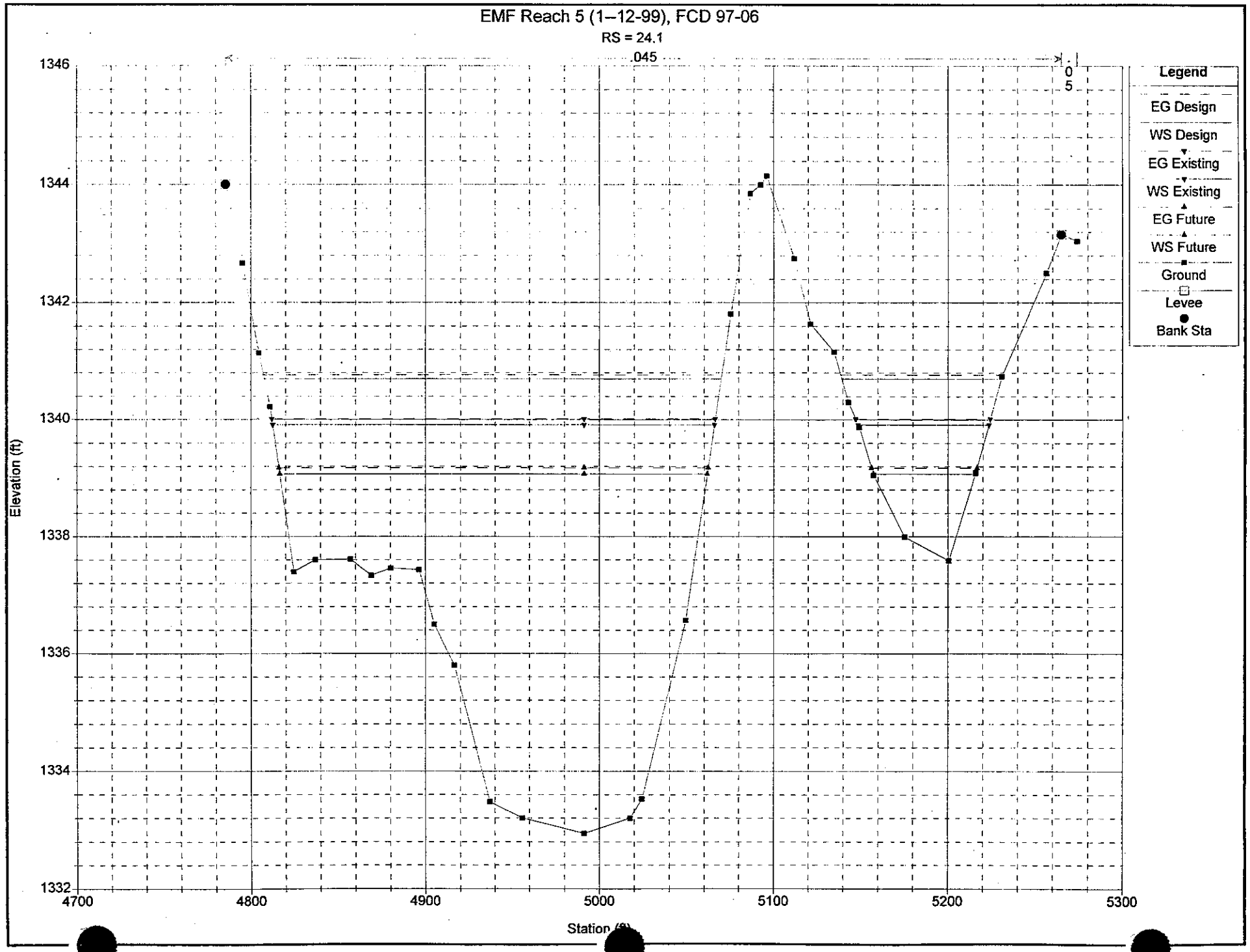

EMF Reach 5 (1--12-99), FCD 97-06
RS = 24.535
.045
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1348
1346
1344
1342
1340
1338
1336
1334
1332
1330
1328
4700
4800
4900
5000
5100
5200
Station (ft)

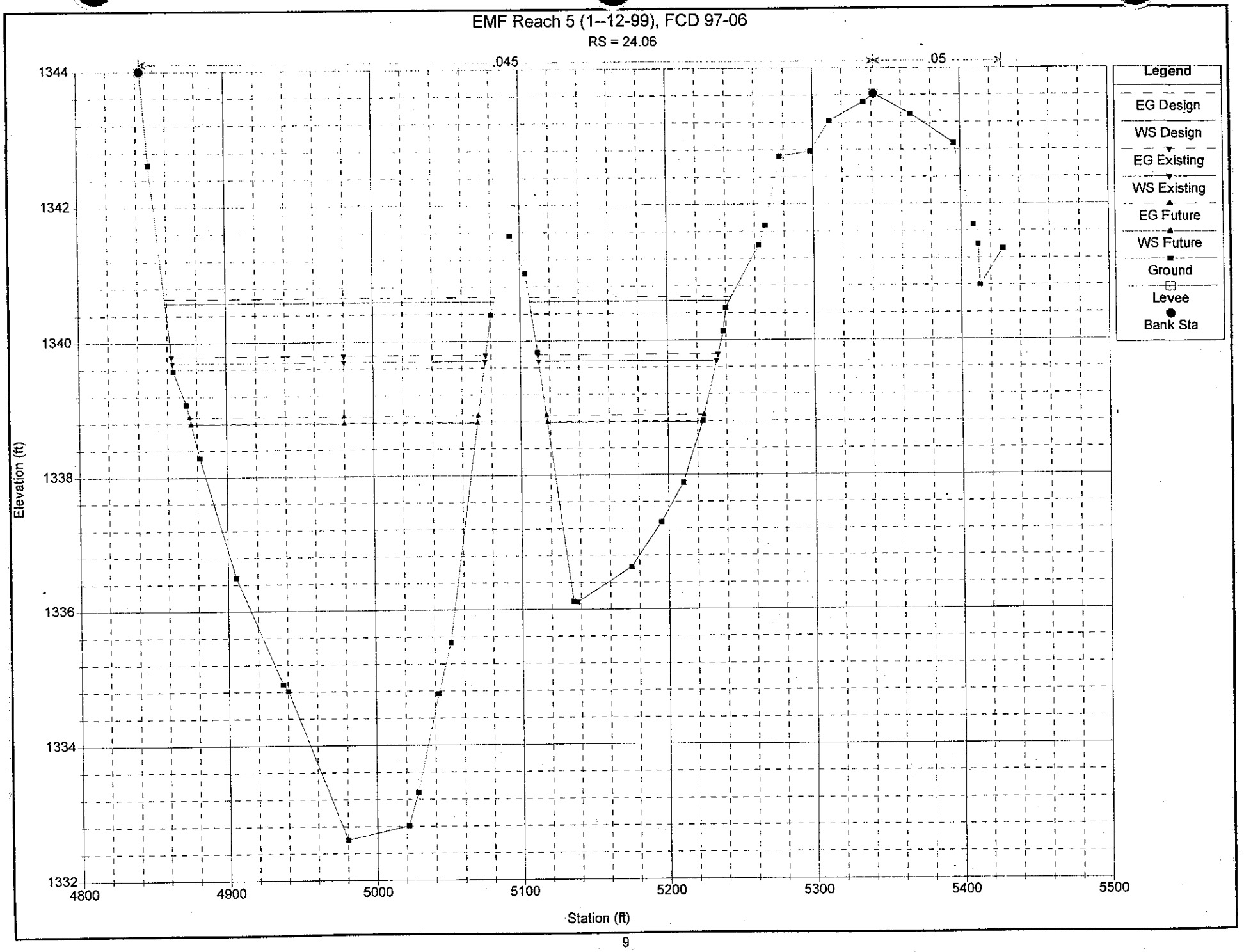

EMF Reach 5 (1--12-99), FCD 97-06
RS = 24.454
.045
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1355
1350
1345
1340
1335
1330
4700
4800
4900
5000
5100
5200
5300
Station

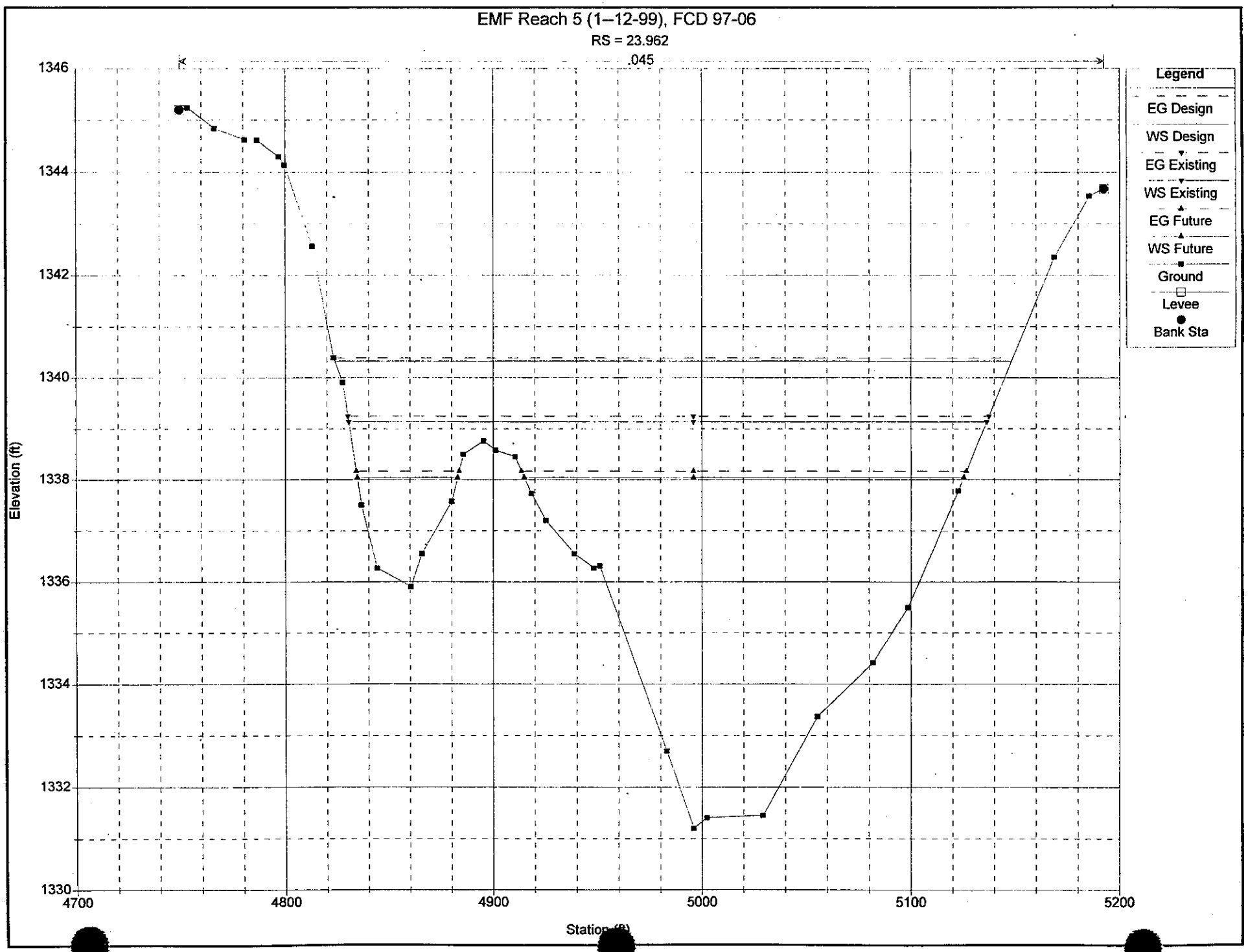

EMF Reach 5 (1--12-99), FCD 97-06
RS = 24.32
.045
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1355
1350
1345
1340
1335
1330
4700
4800
4900
5000
5100
5200
5300
Station (ft)

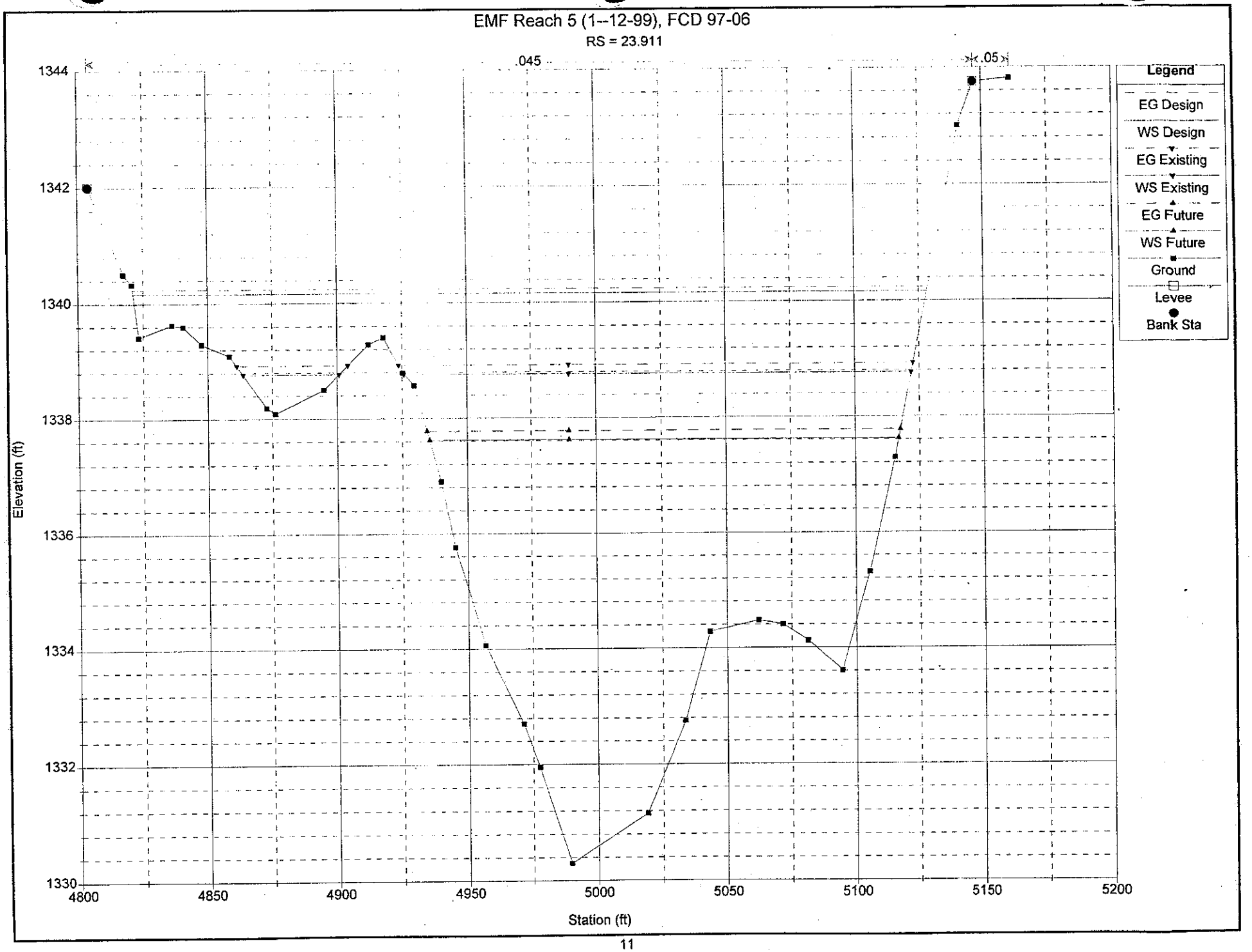

EMF Reach 5 (1--12-99), FCD 97-06
RS = 24.247
.045
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
1330
1328
4700
4800
4900
5000
5100
5200
5300
Station
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta

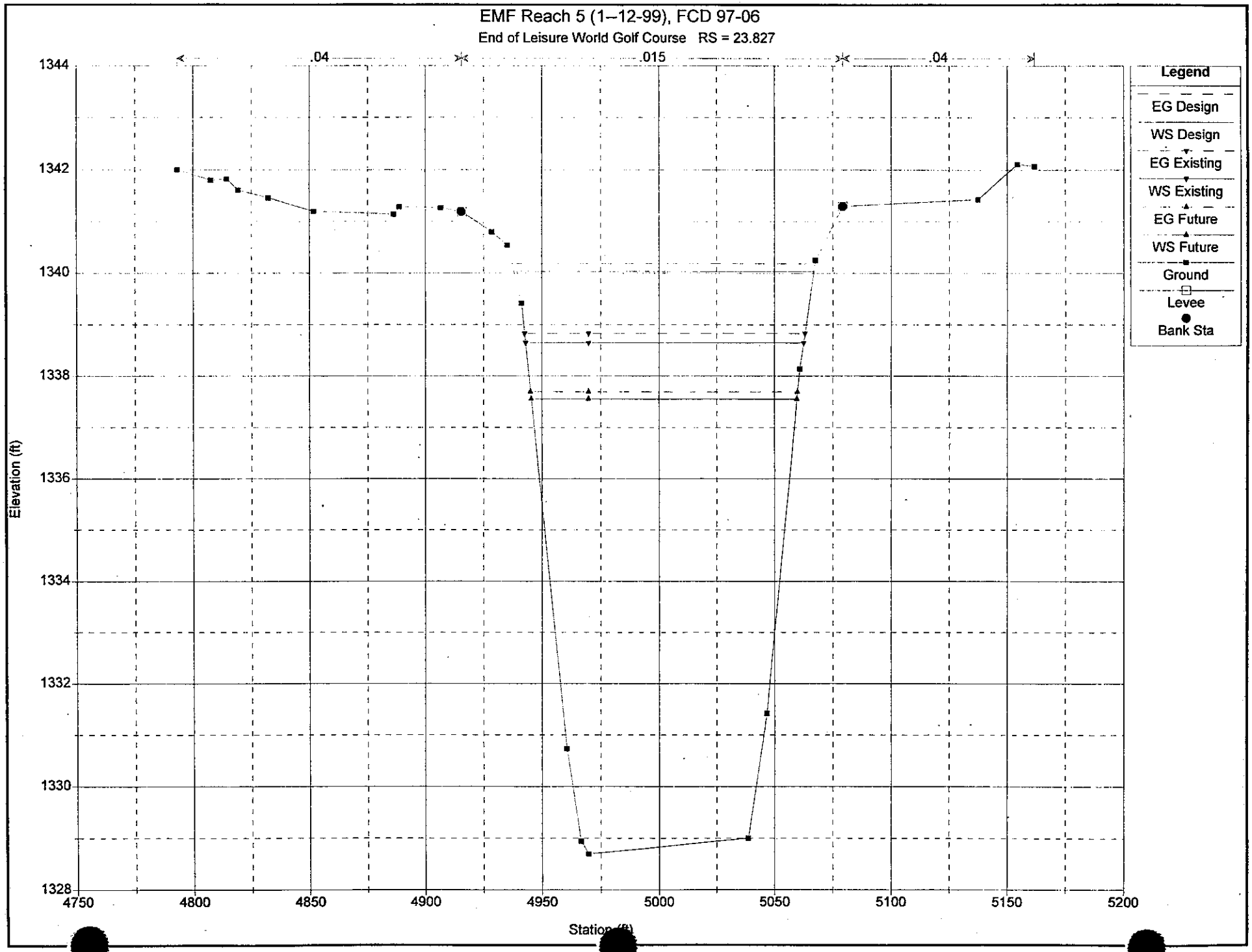

EMF Reach 5 (1--12-99), FCD 97-06
RS = 24.13
.045
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
1330
4700
4800
4900
5000
5100
5200
5300
Station (ft)

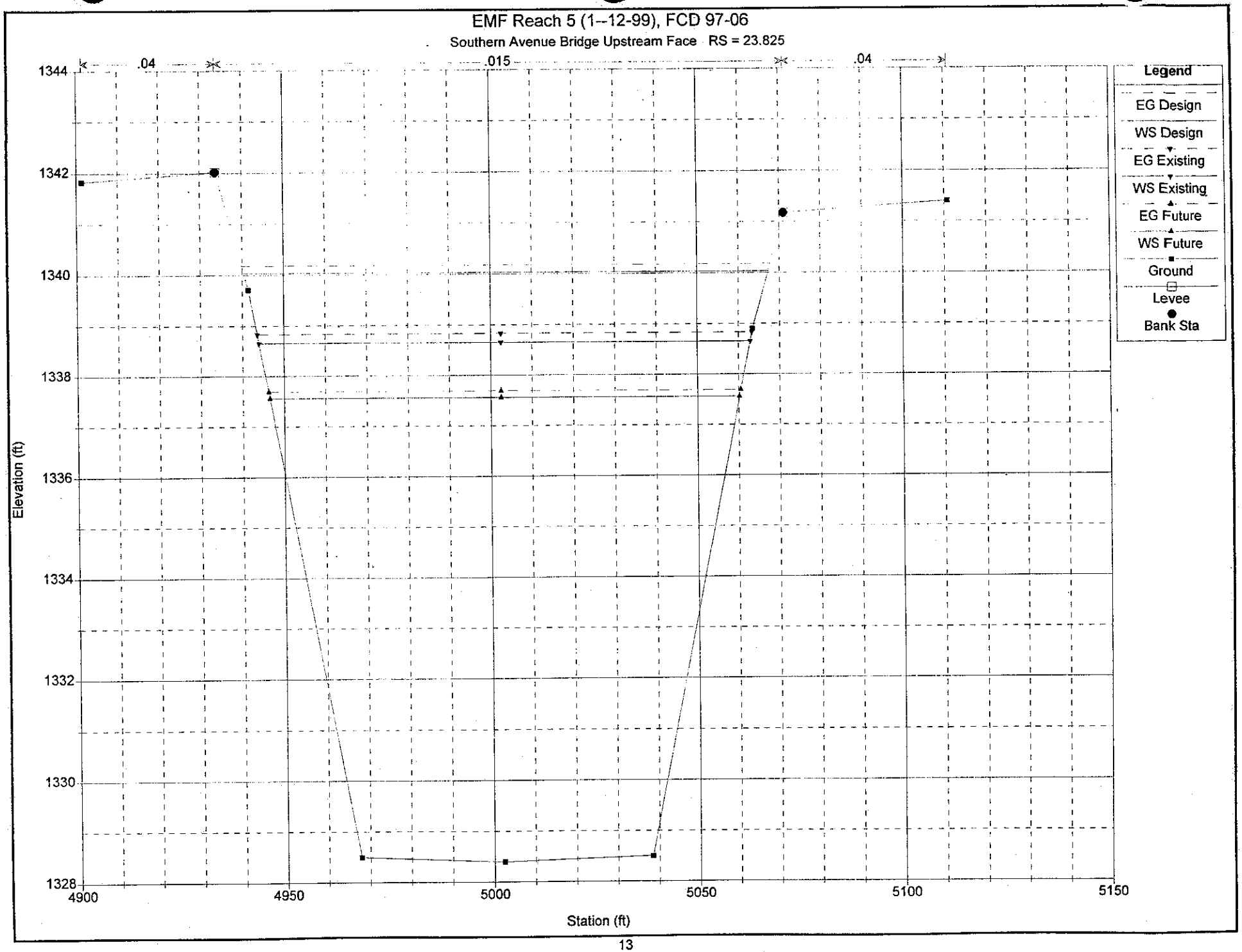

EMF Reach 5 (1--12-99), FCD 97-06
RS = 24.1
.045
0
5
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
1332
4700
4800
4900
5000
5100
5200
5300
Station (ft)

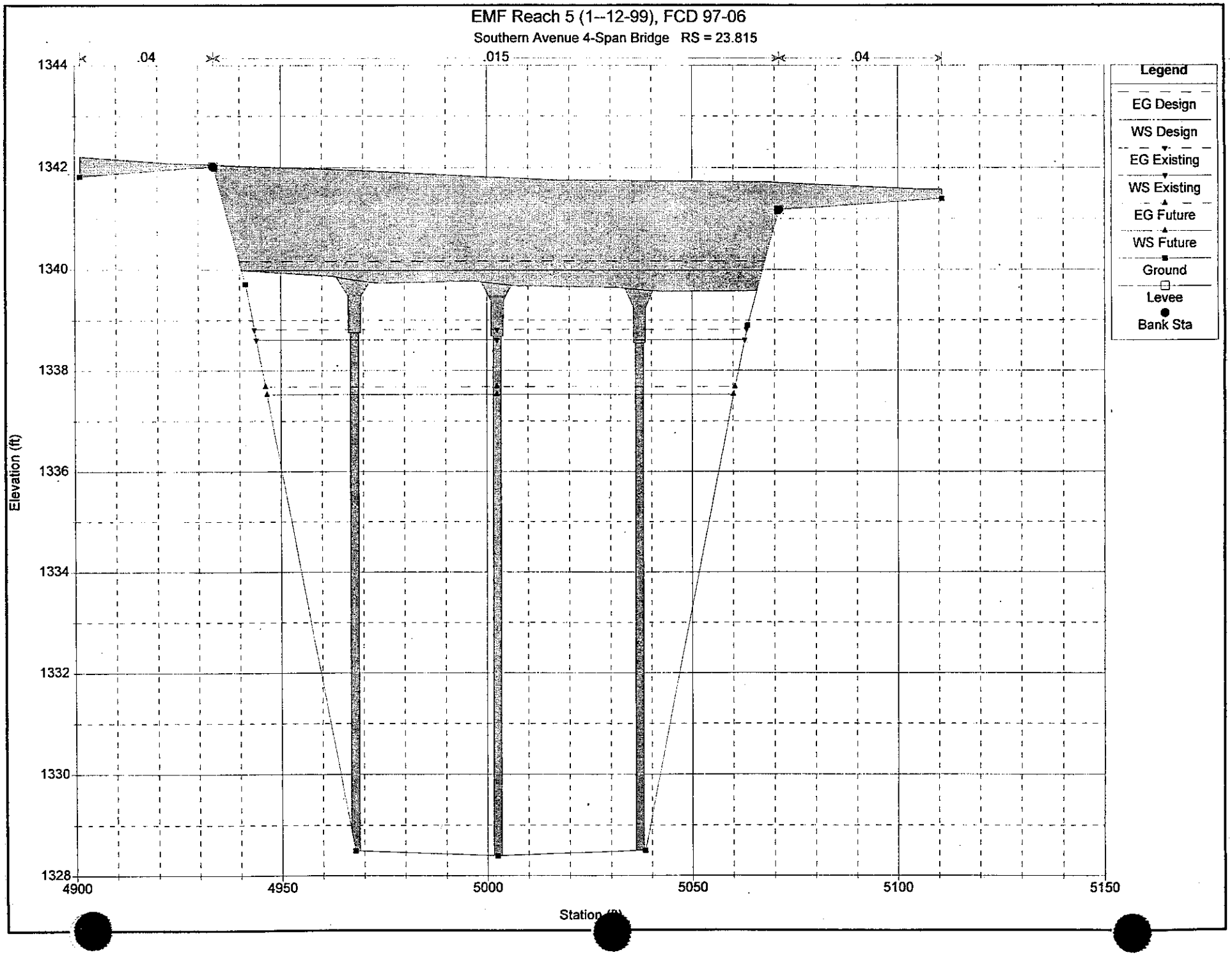

EMF Reach 5 (1--12-99), FCD 97-06
RS = 24.06
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
4800
4900
5000
5100
5200
5300
5400
5500
Station (ft)

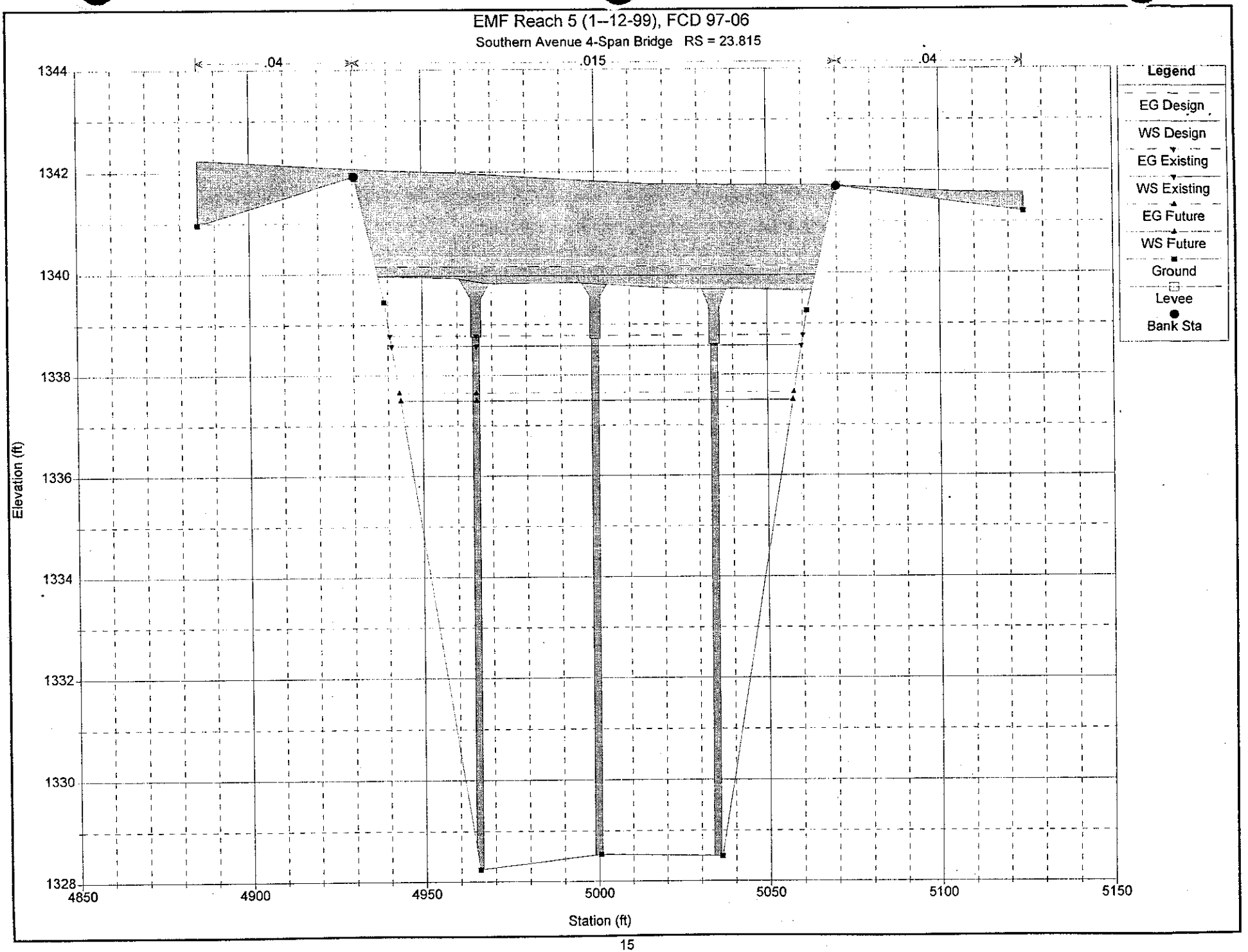

EMF Reach 5 (1--12-99), FCD 97-06
RS = 23.962
.045
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
1332
1330
4700
4800
4900
5000
5100
5200
Station (ft)

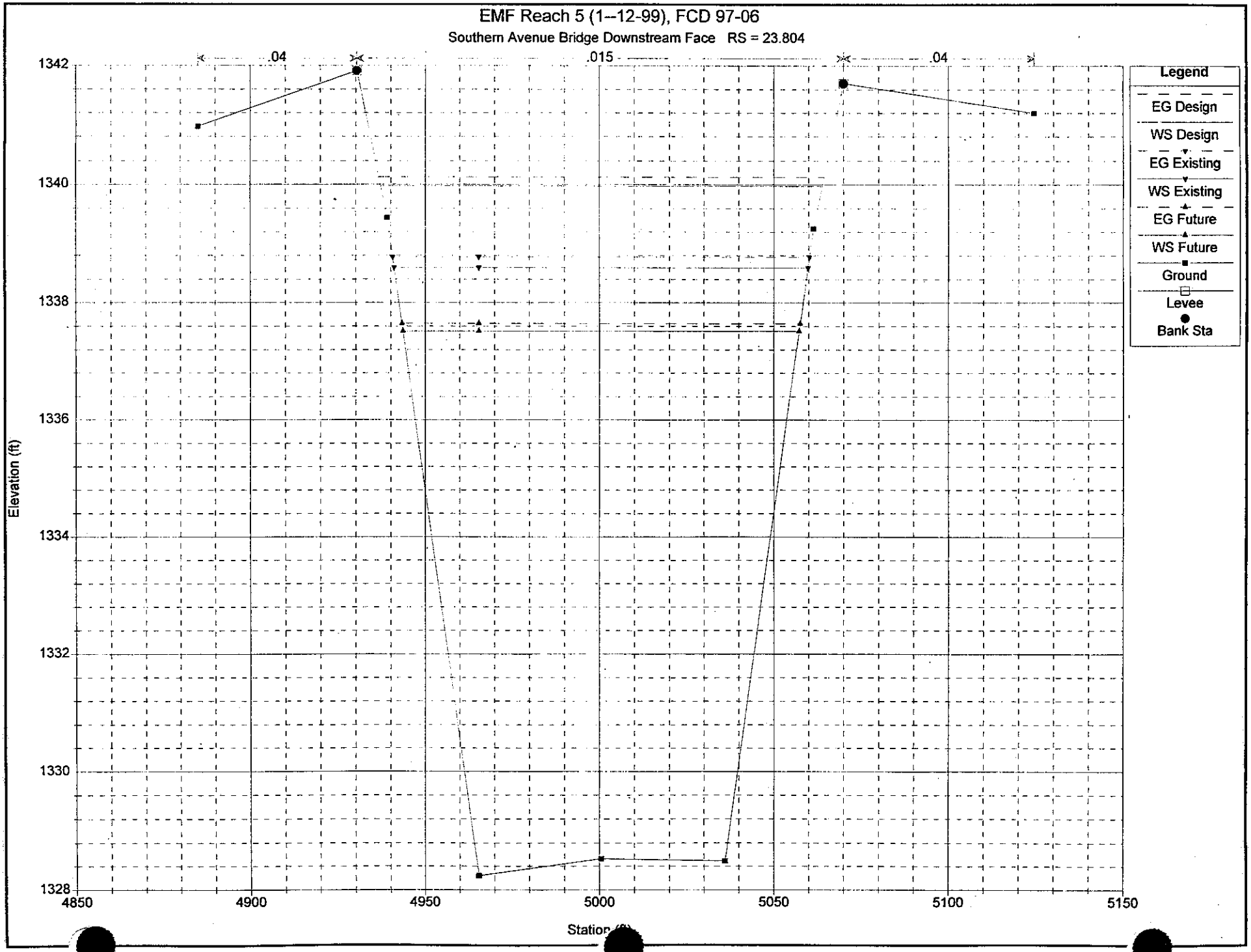

EMF Reach 5 (1--12-99), FCD 97-06
RS = 23.911
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
1330
4800
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)

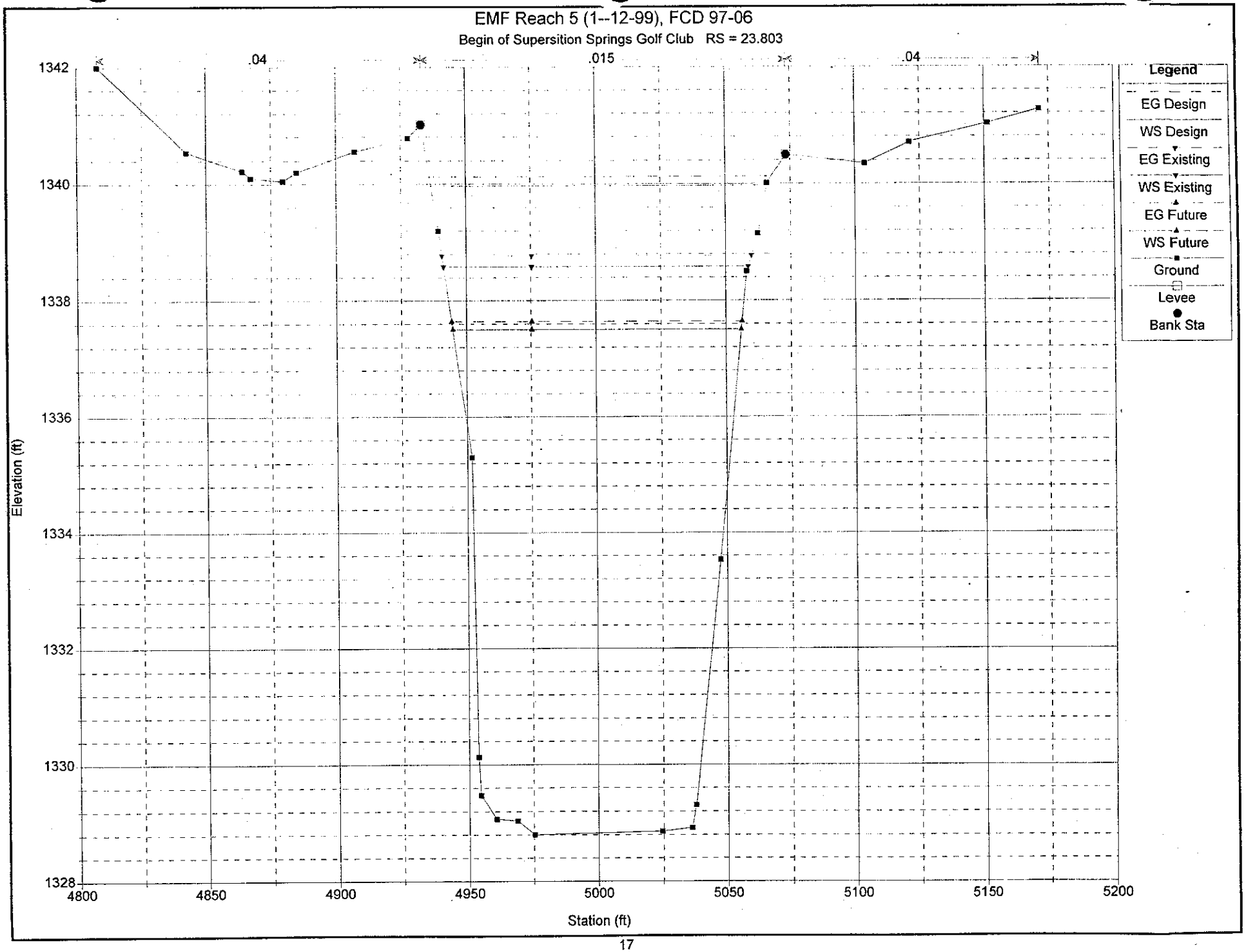

EMF Reach 5 (1--12-99), FCD 97-06
End of Leisure World Golf Course RS = 23.827
.04
.015
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
1330
1328
4750
4800
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)

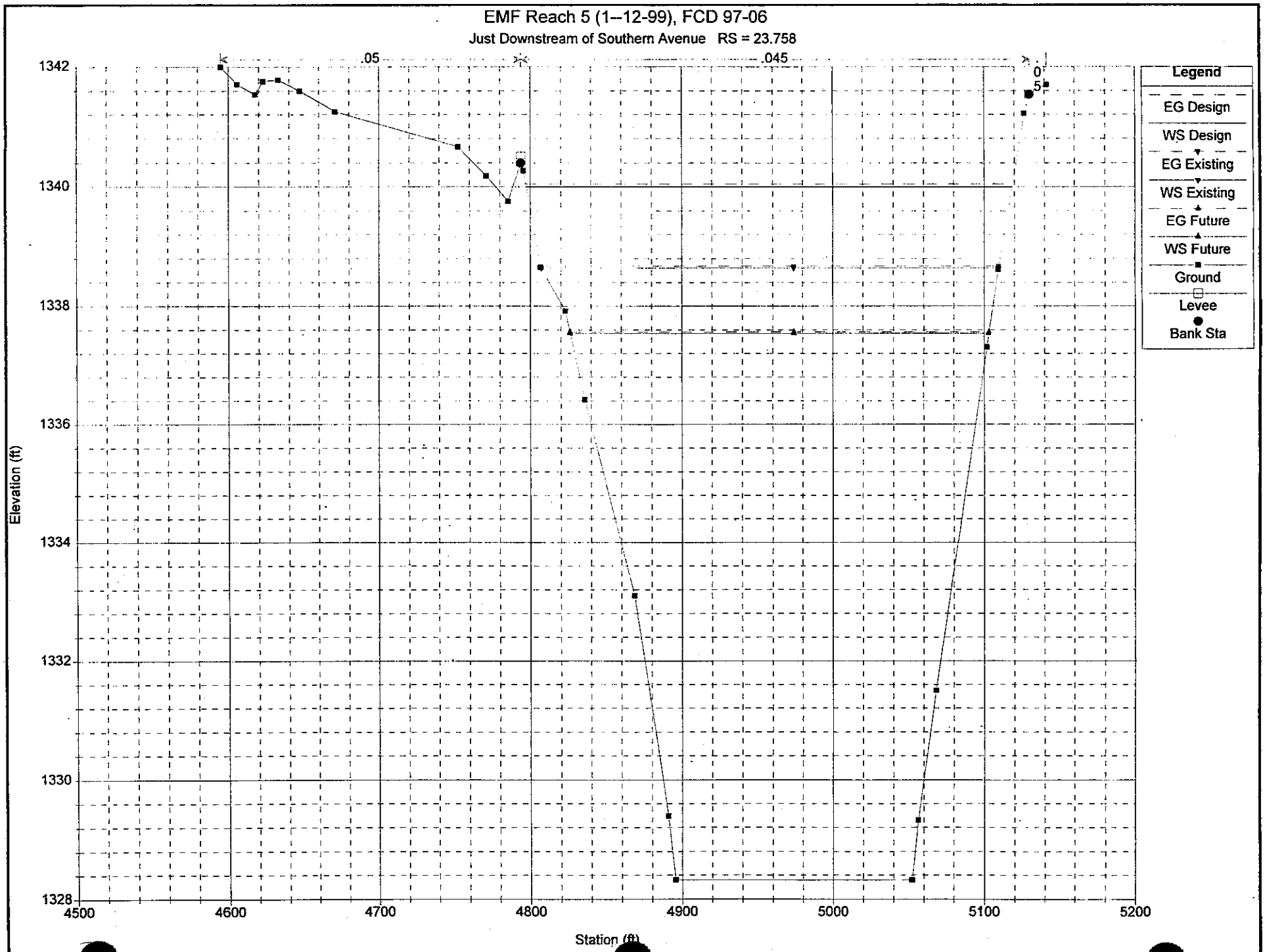

EMF Reach 5 (1--12-99), FCD 97-06
Southern Avenue Bridge Upstream Face RS = 23.825
.04
.015
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
1330
1328
4900
4950
5000
5050
5100
5150
Station (ft)

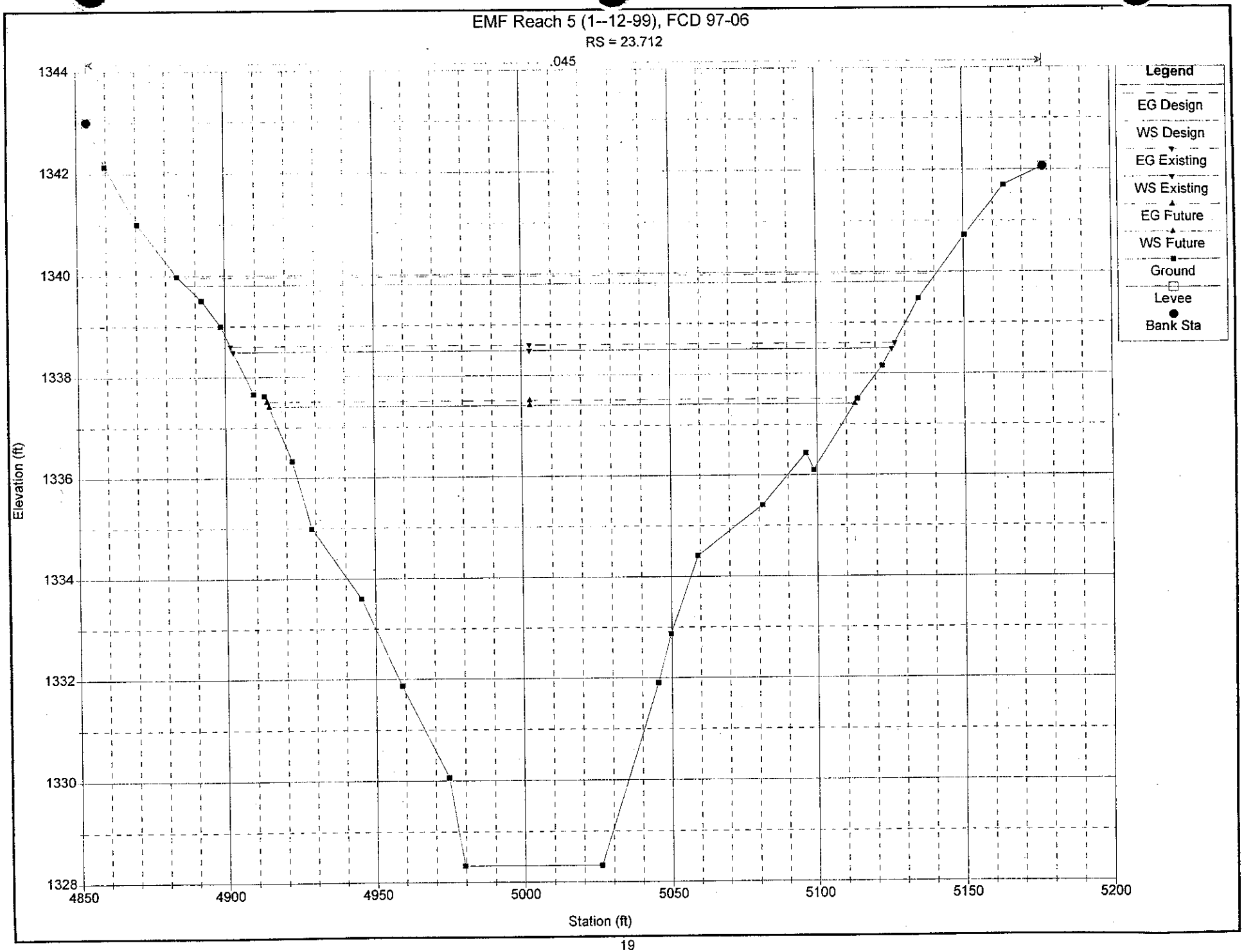

EMF Reach 5 (1--12-99), FCD 97-06
Southern Avenue 4-Span Bridge RS = 23.815
.04
.015
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
1330
1328
4900
4950
5000
5050
5100
5150
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Southern Avenue 4-Span Bridge RS = 23.815
.04
.015
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
1330
1328
4850
4900
4950
5000
5050
5100
5150
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Southern Avenue Bridge Downstream Face RS = 23.804
.04
.015
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1342
1340
1338
1336
1334
1332
1330
1328
4850
4900
4950
5000
5050
5100
5150
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Begin of Supersition Springs Golf Club RS = 23.803
.04
.015
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1342
1340
1338
1336
1334
1332
1330
1328
4800
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Just Downstream of Southern Avenue RS = 23.758
.05
.045
0.5
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1342
1340
1338
1336
1334
1332
1330
1328
4500
4600
4700
4800
4900
5000
5100
5200
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 23.712
.045
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
1330
1328
4850
4900
4950
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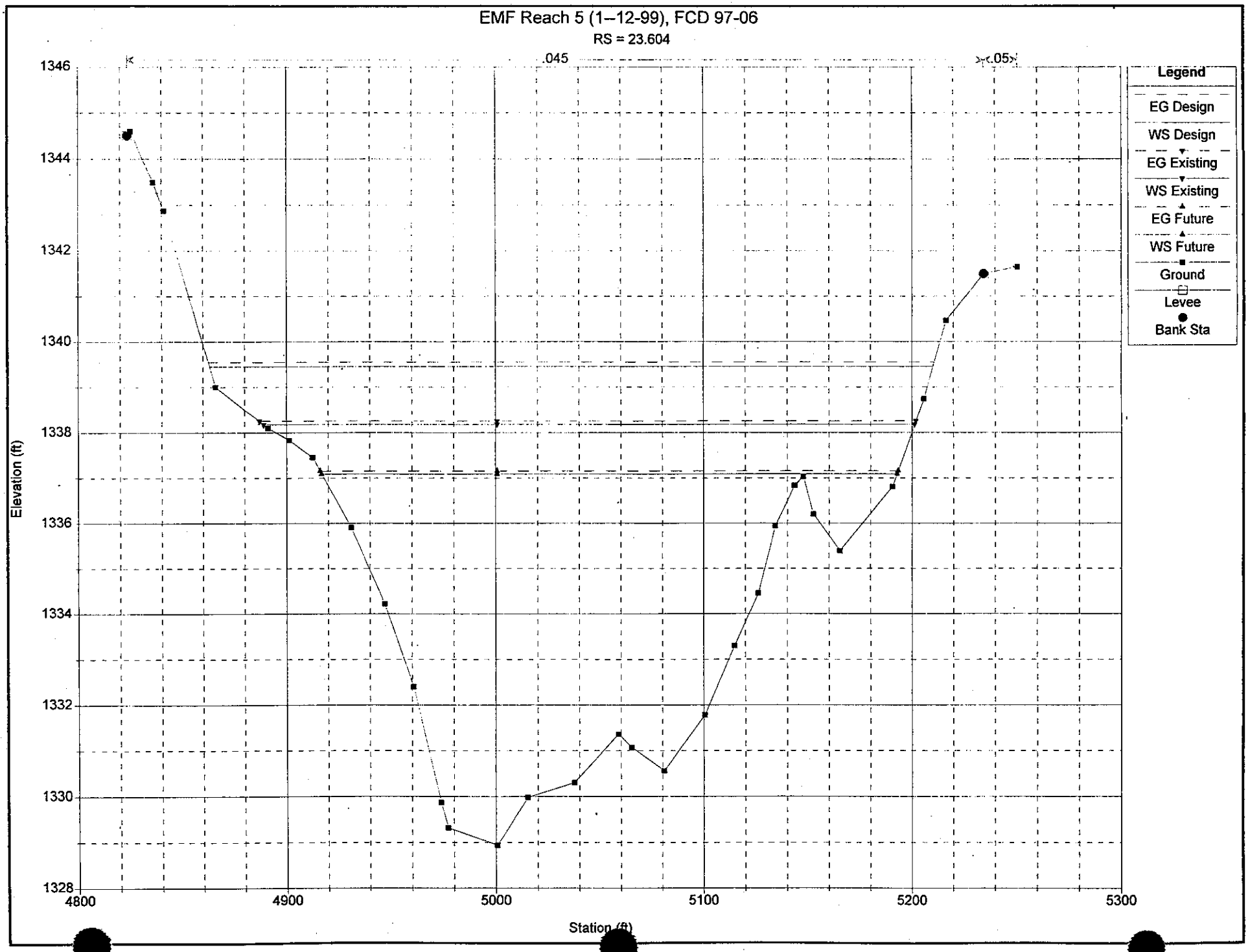
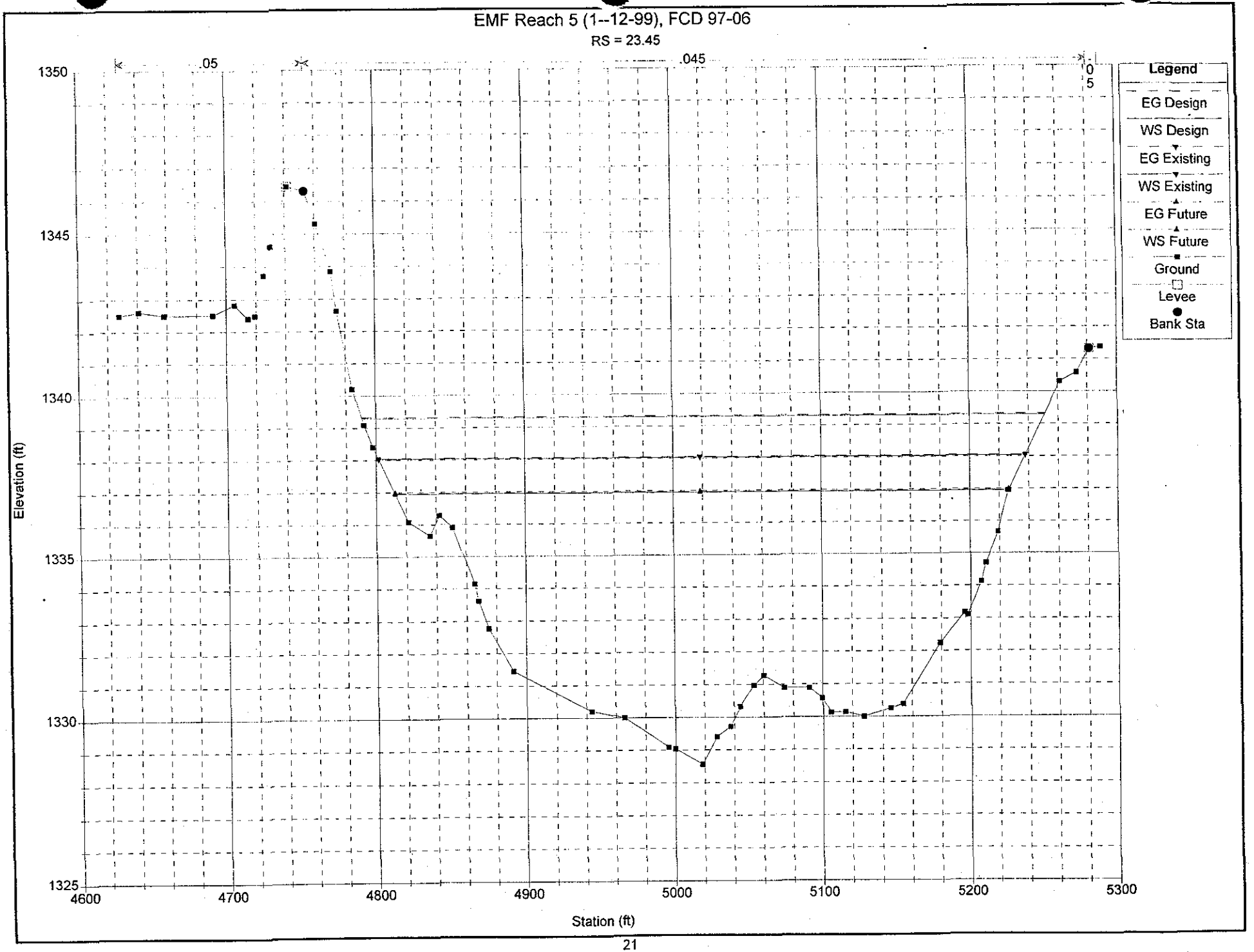
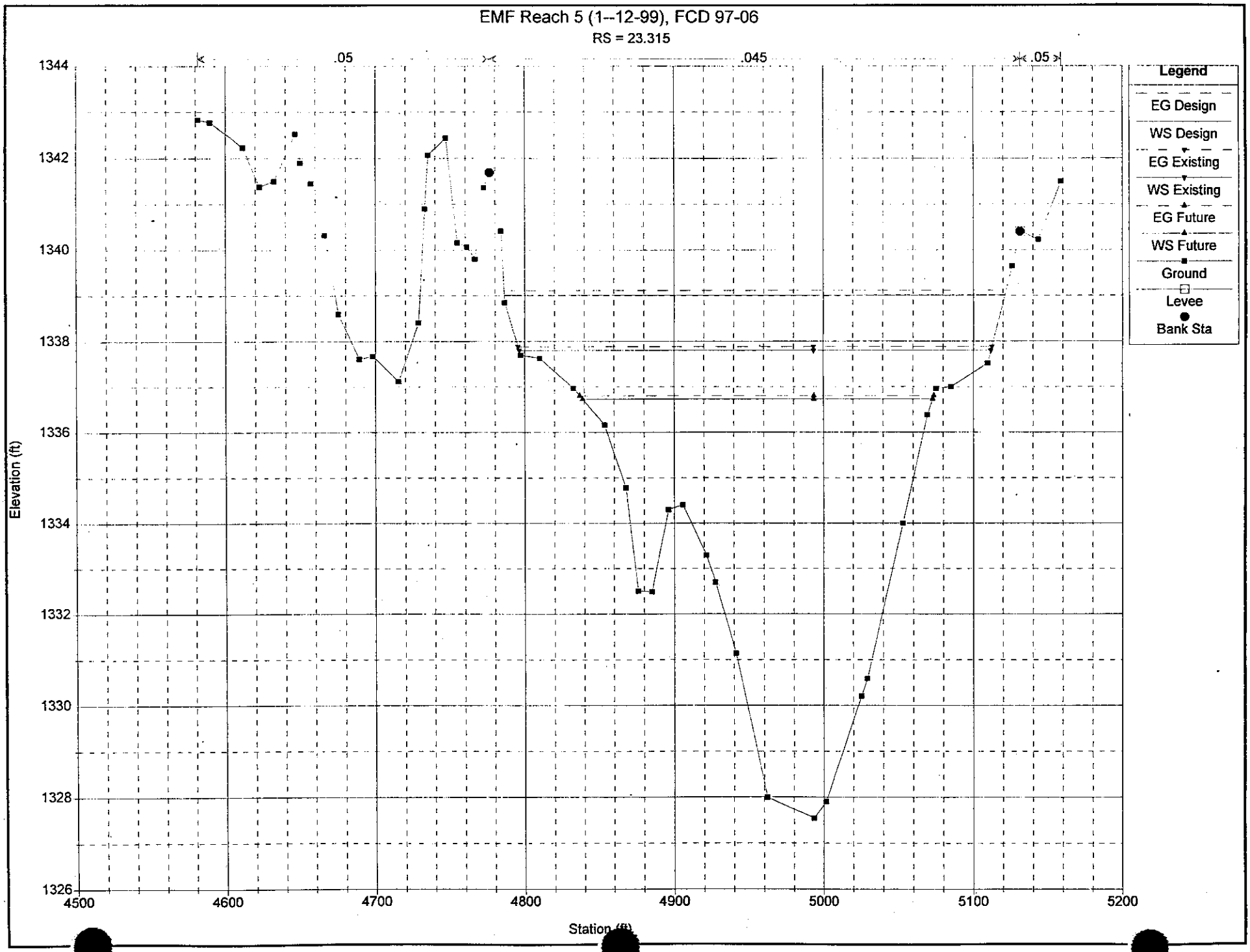
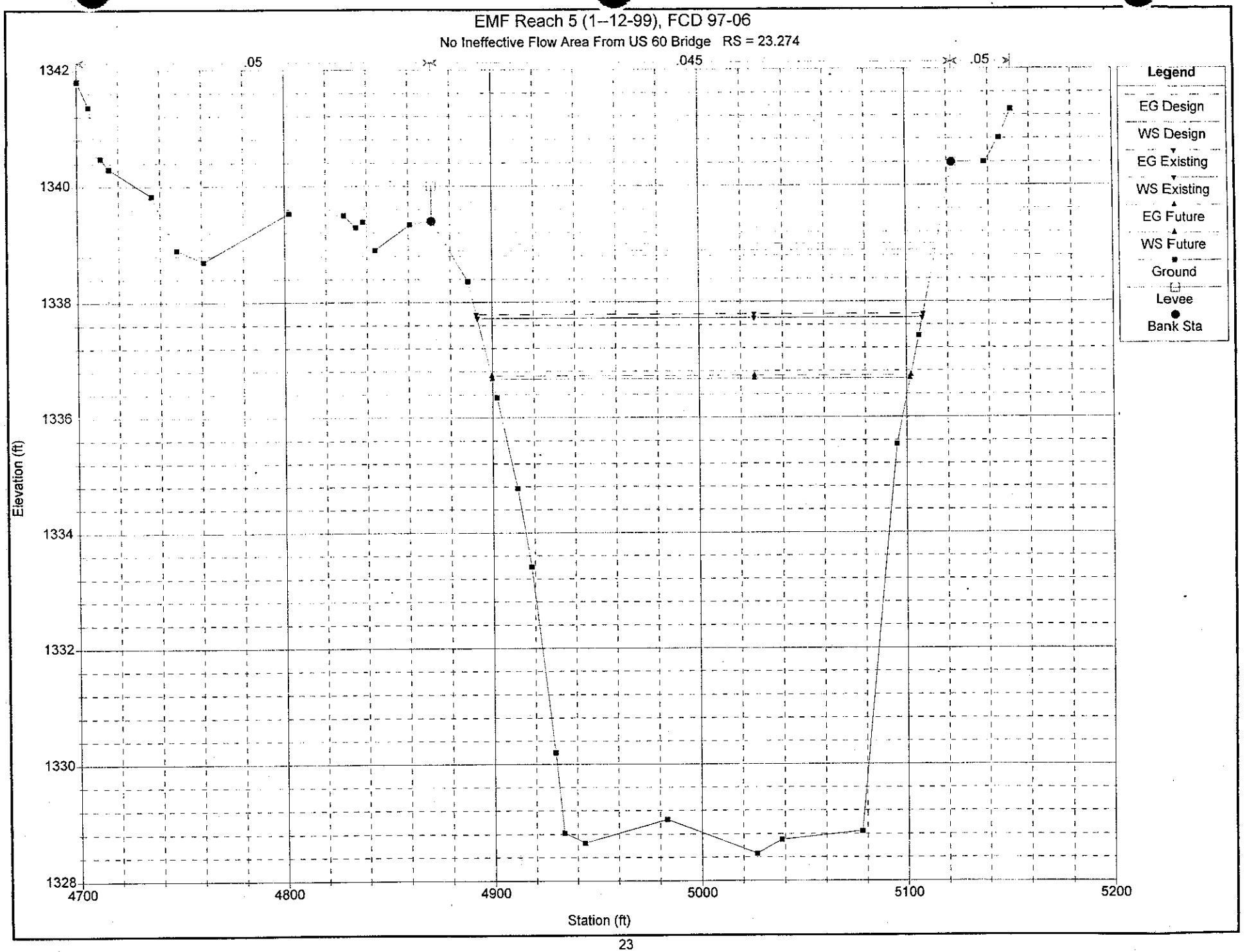
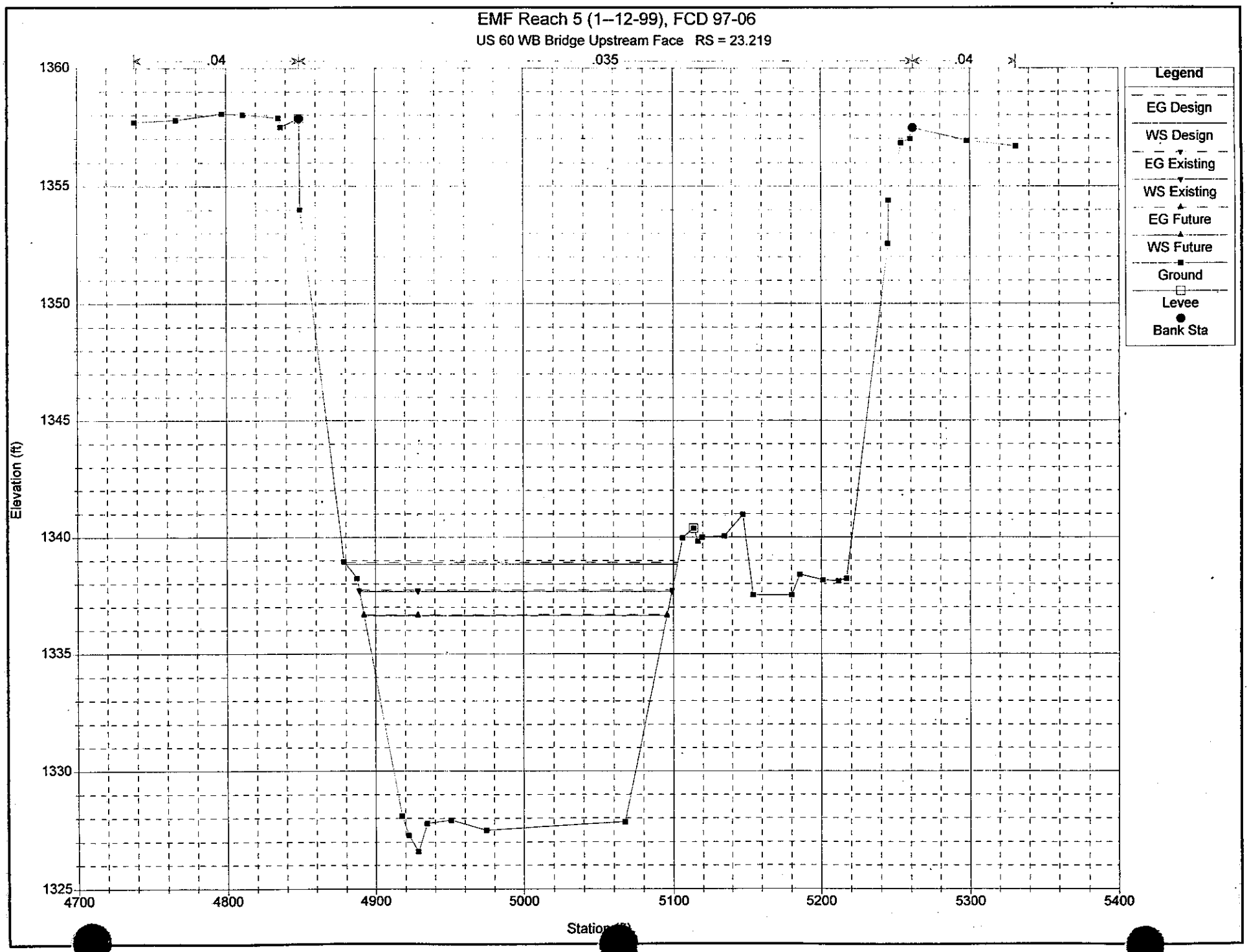
5050
5100
5150
5200
Station (ft)

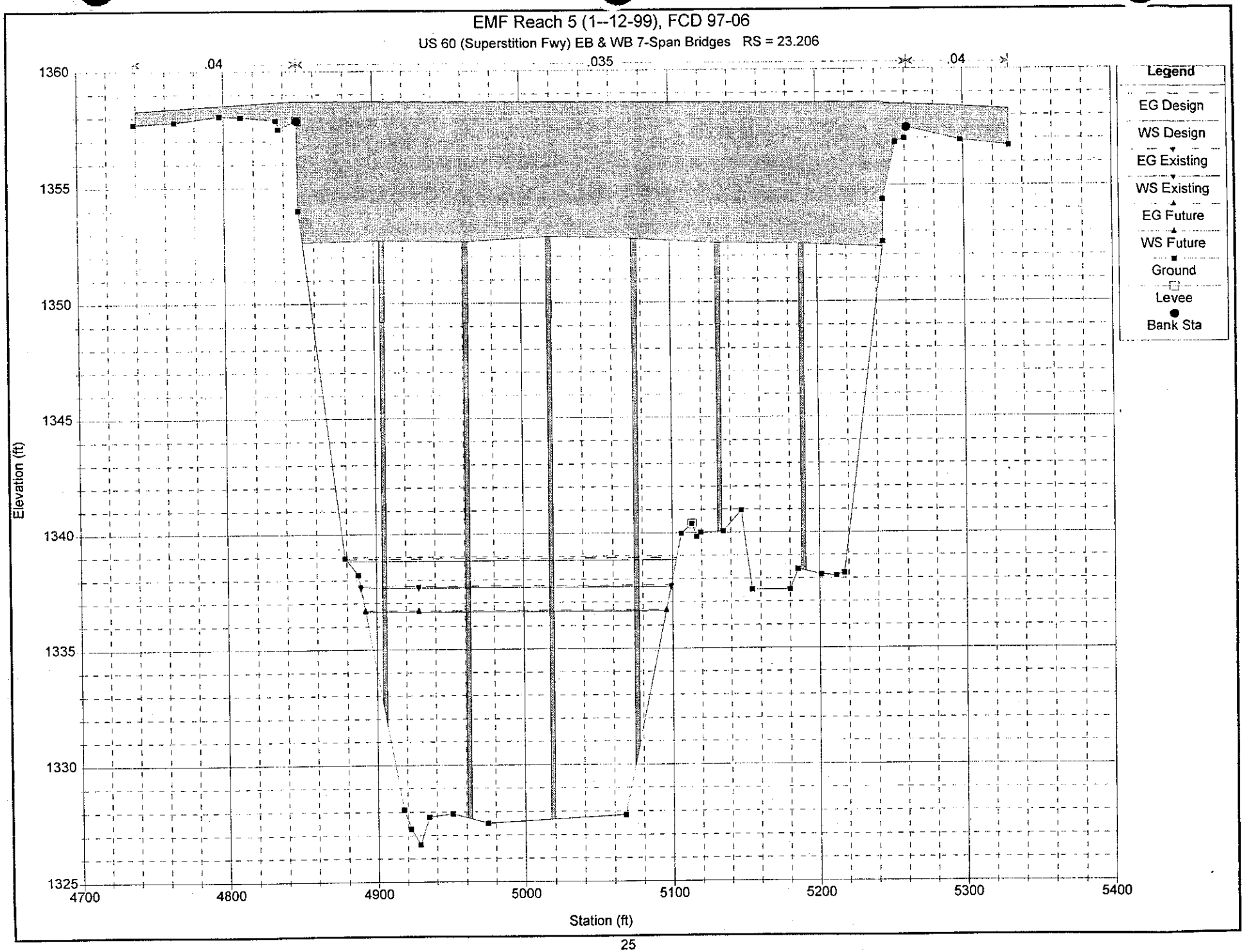

EMF Reach 5 (1--12-99), FCD 97-06
RS = 23.604
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1346
1344
1342
1340
1338
1336
1334
1332
1330
1328
4800
4900
5000
5100
5200
5300
Station (ft)

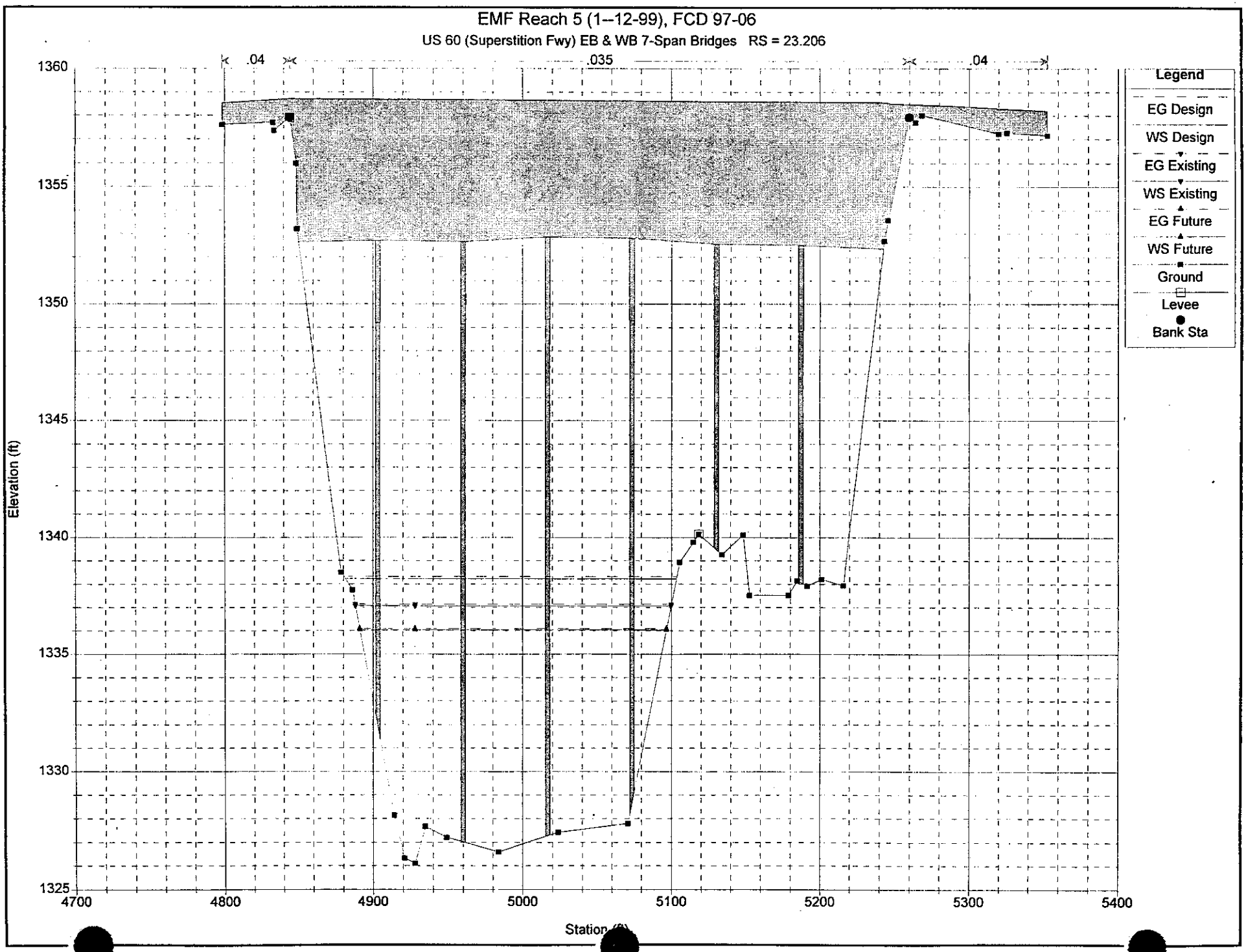

EMF Reach 5 (1--12-99), FCD 97-06
RS = 23.45
.05
.045
0.5
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1345
1340
1335
1330
1325
4600
4700
4800
4900
5000
5100
5200
5300
Station (ft)

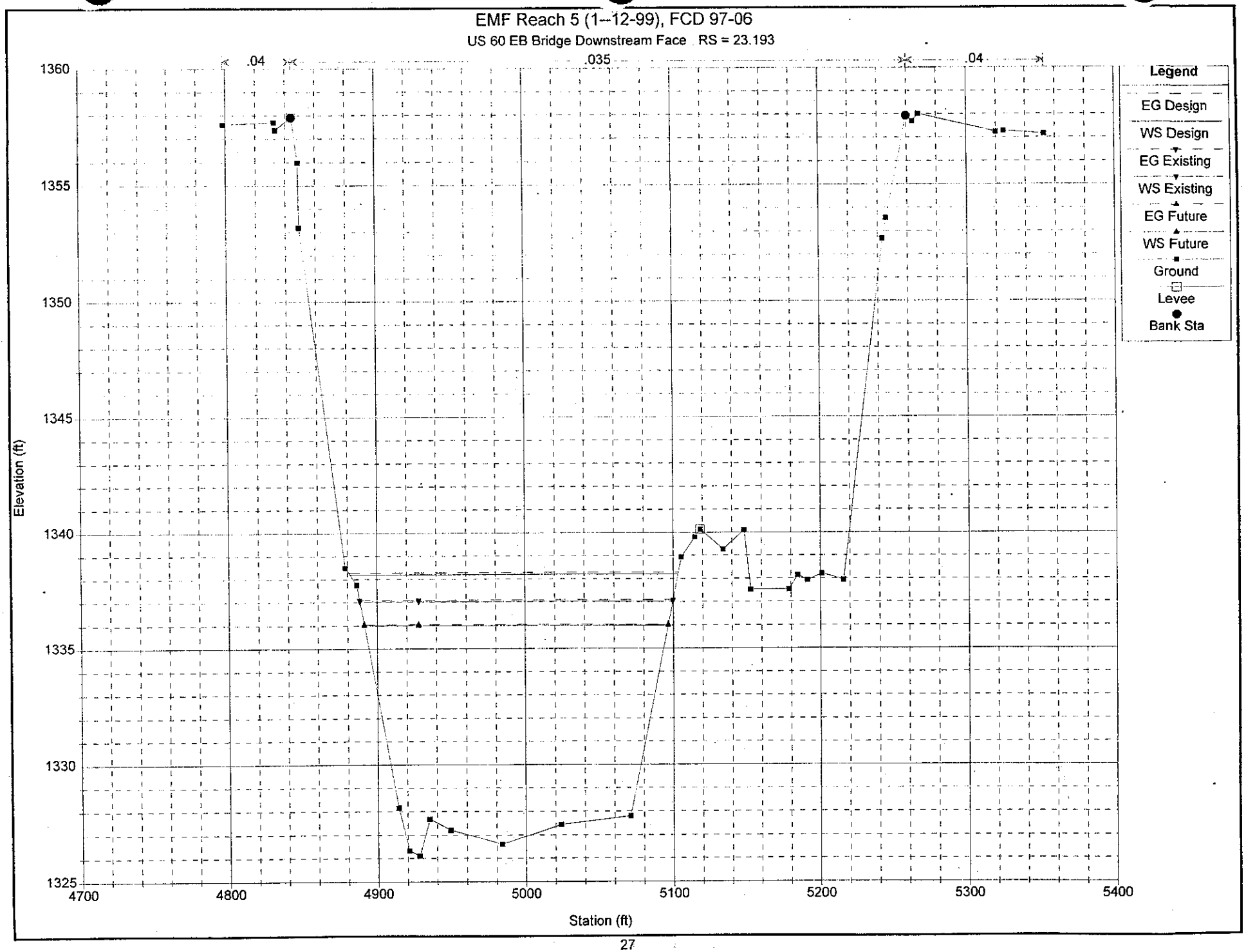

EMF Reach 5 (1--12-99), FCD 97-06
RS = 23.315
.05
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
1330
1328
1326
4500
4600
4700
4800
4900
5000
5100
5200
Station (ft)

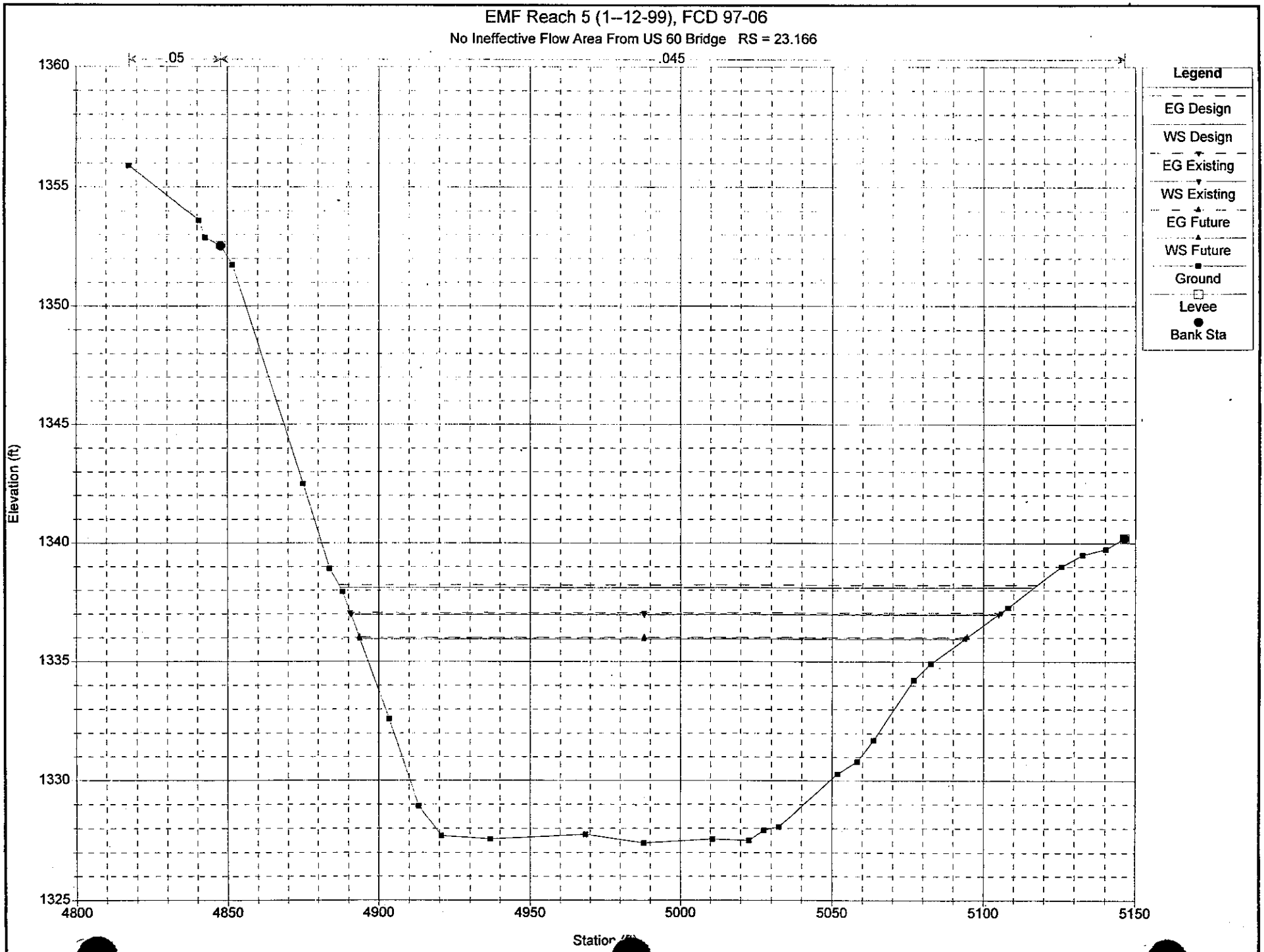

EMF Reach 5 (1--12-99), FCD 97-06
No Ineffective Flow Area From US 60 Bridge RS = 23.274
.05
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1342
1340
1338
1336
1334
1332
1330
1328
4700
4800
4900
5000
5100
5200
Station (ft)

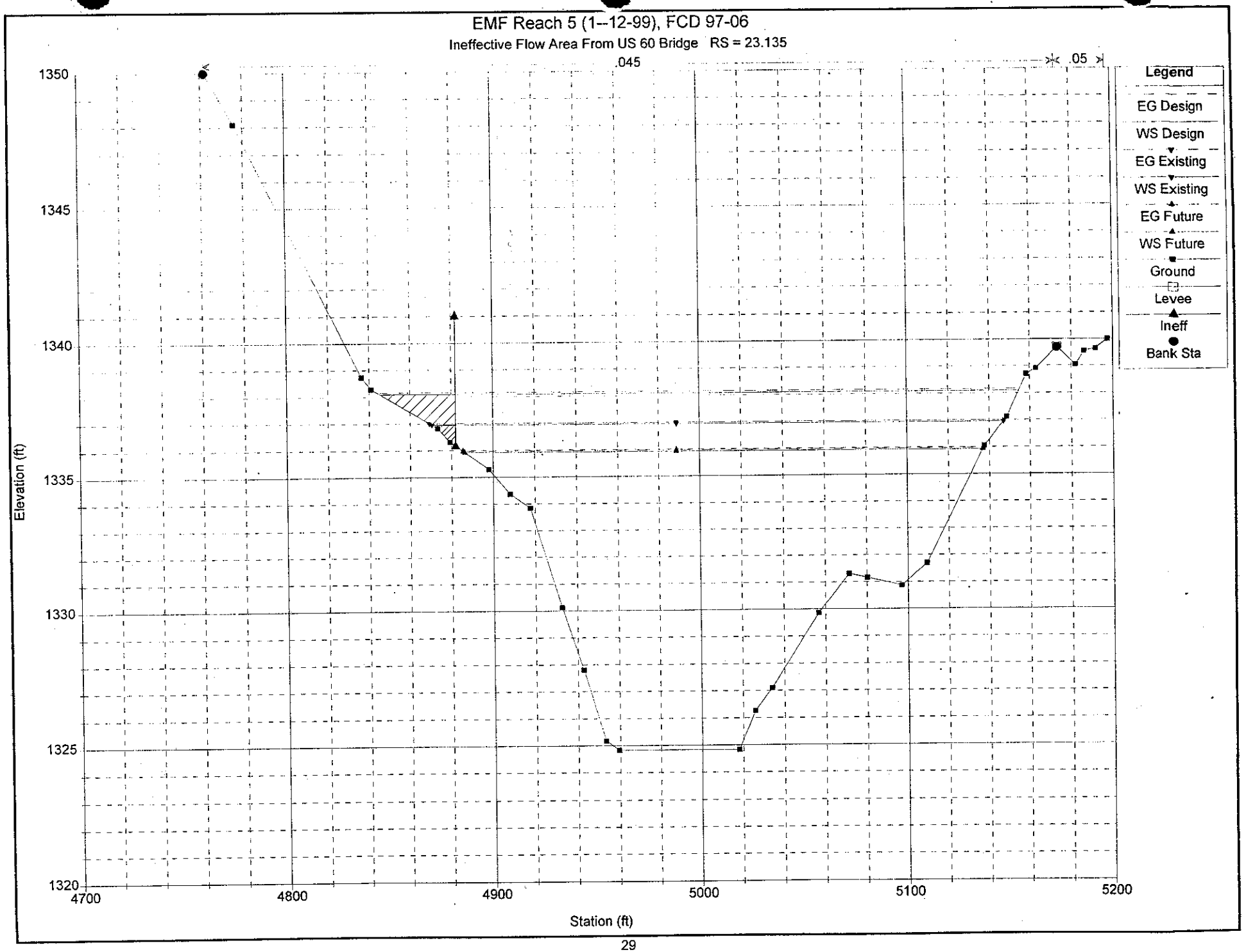

EMF Reach 5 (1--12-99), FCD 97-06
US 60 WB Bridge Upstream Face RS = 23.219
.04
.035
.04
Elevation (ft)
1360
1355
1350
1345
1340
1335
1330
1325
4700
4800
4900
5000
5100
5200
5300
5400
Station
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta

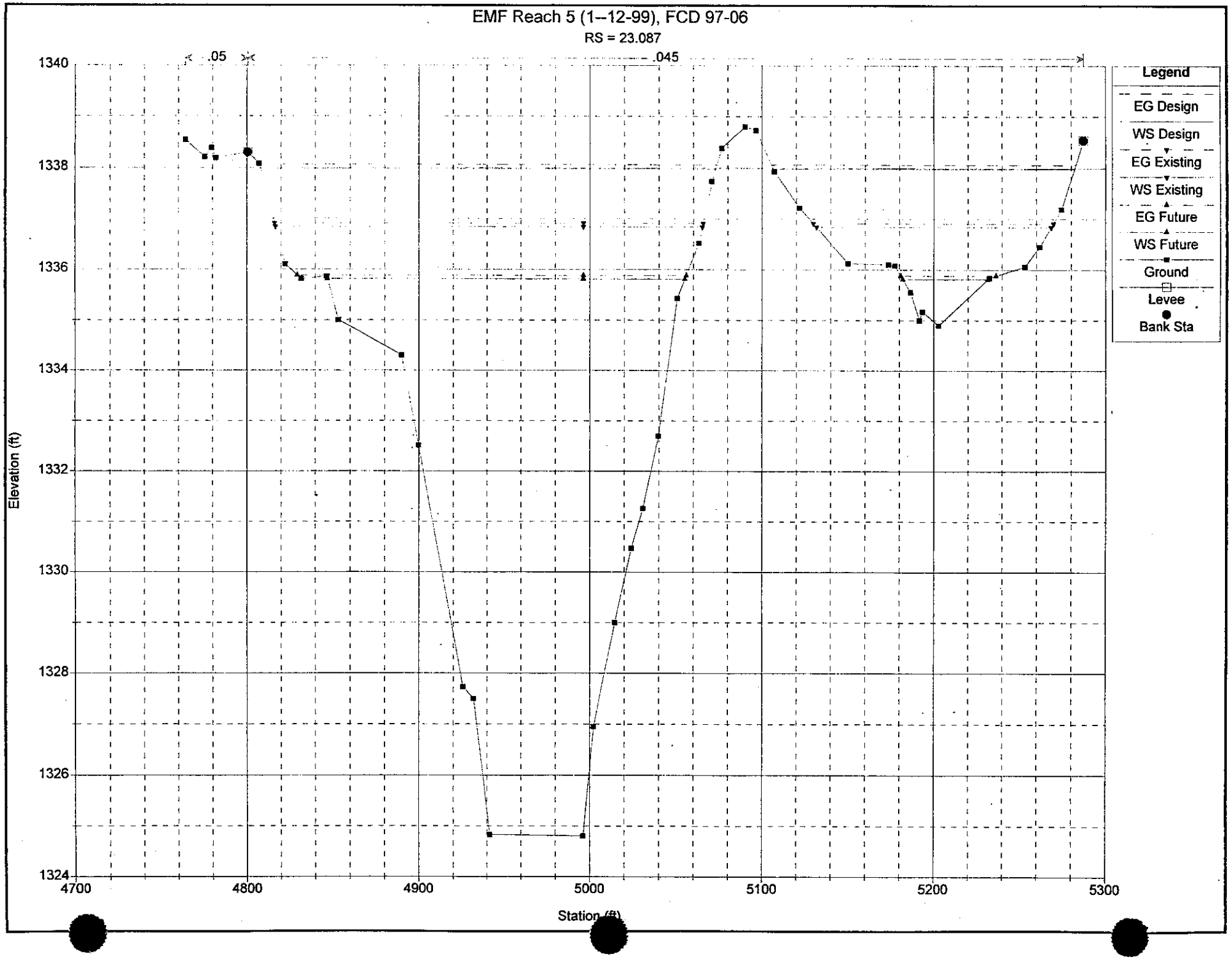

EMF Reach 5 (1--12-99), FCD 97-06
US 60 (Superstition Fwy) EB & WB 7-Span Bridges RS = 23.206
.04
.035
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1360
1355
1350
1345
1340
1335
1330
1325
4700
4800
4900
5000
5100
5200
5300
5400
Station (ft)

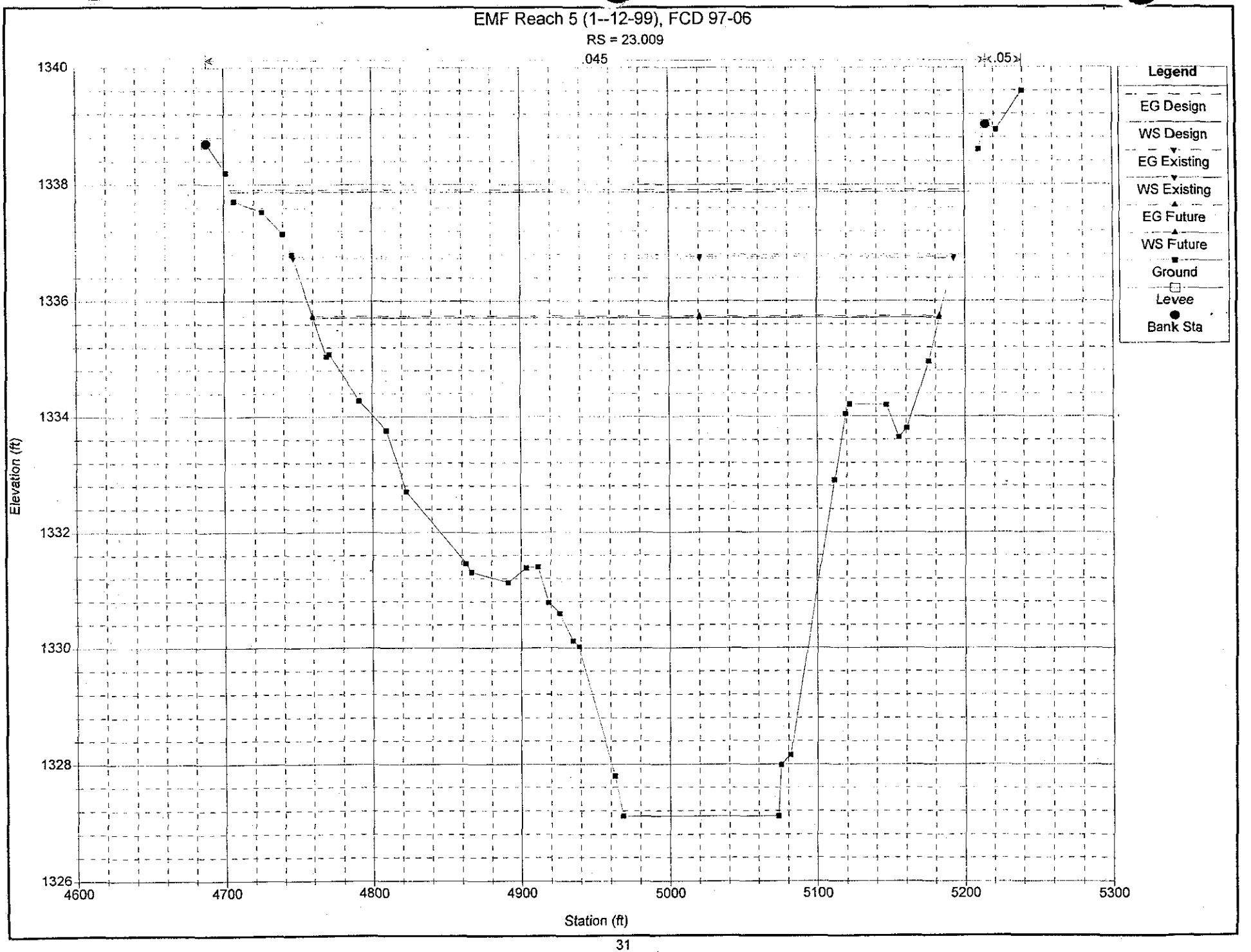

EMF Reach 5 (1--12-99), FCD 97-06
US 60 (Superstition Fwy) EB & WB 7-Span Bridges RS = 23.206
.04
.035
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1360
1355
1350
1345
1340
1335
1330
1325
4700
4800
4900
5000
5100
5200
5300
5400
Station (ft)

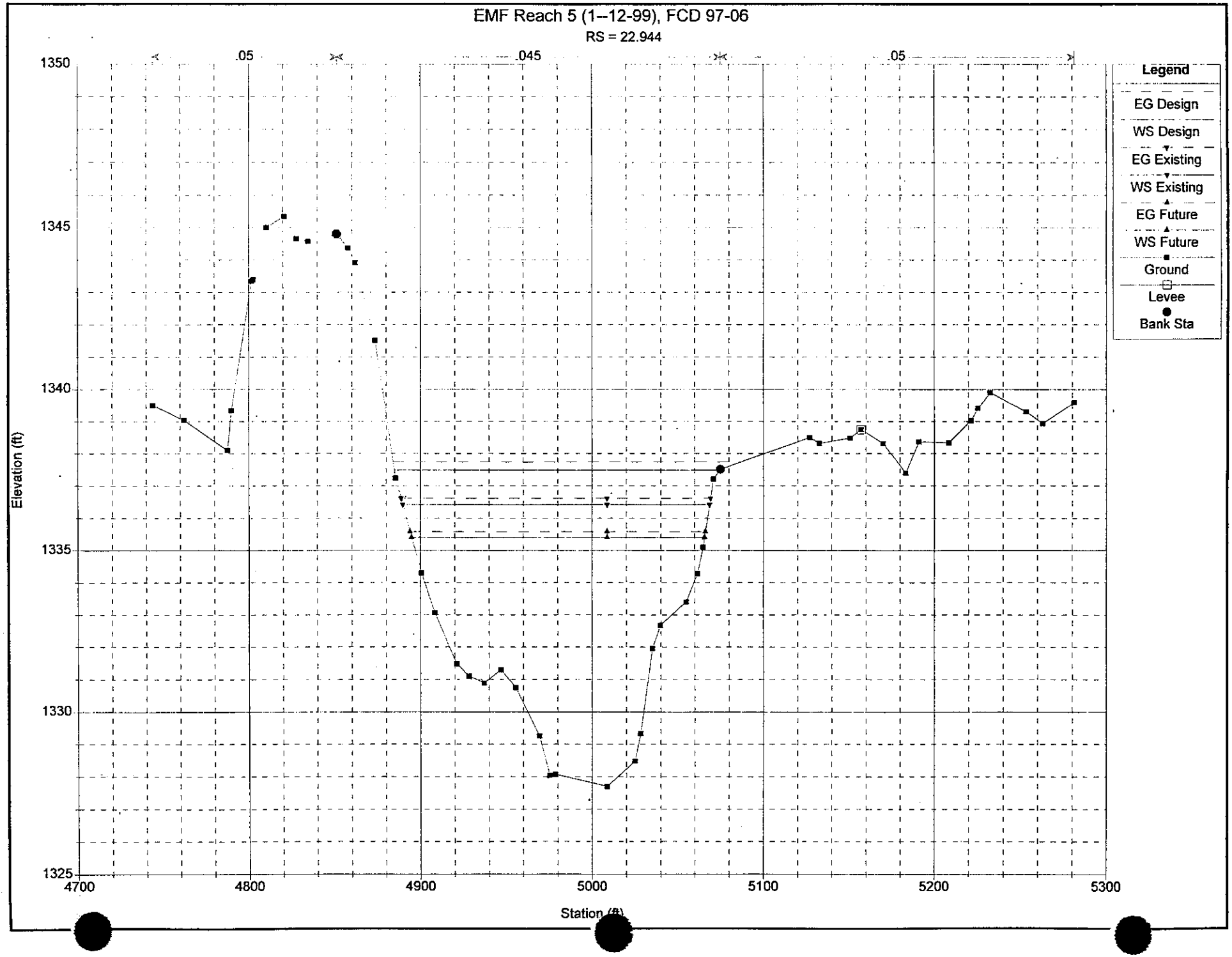

EMF Reach 5 (1--12-99), FCD 97-06
US 60 EB Bridge Downstream Face RS = 23.193
.04
.035
.04
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1360
1355
1350
1345
1340
1335
1330
1325
4700
4800
4900
5000
5100
5200
5300
5400
Station (ft)

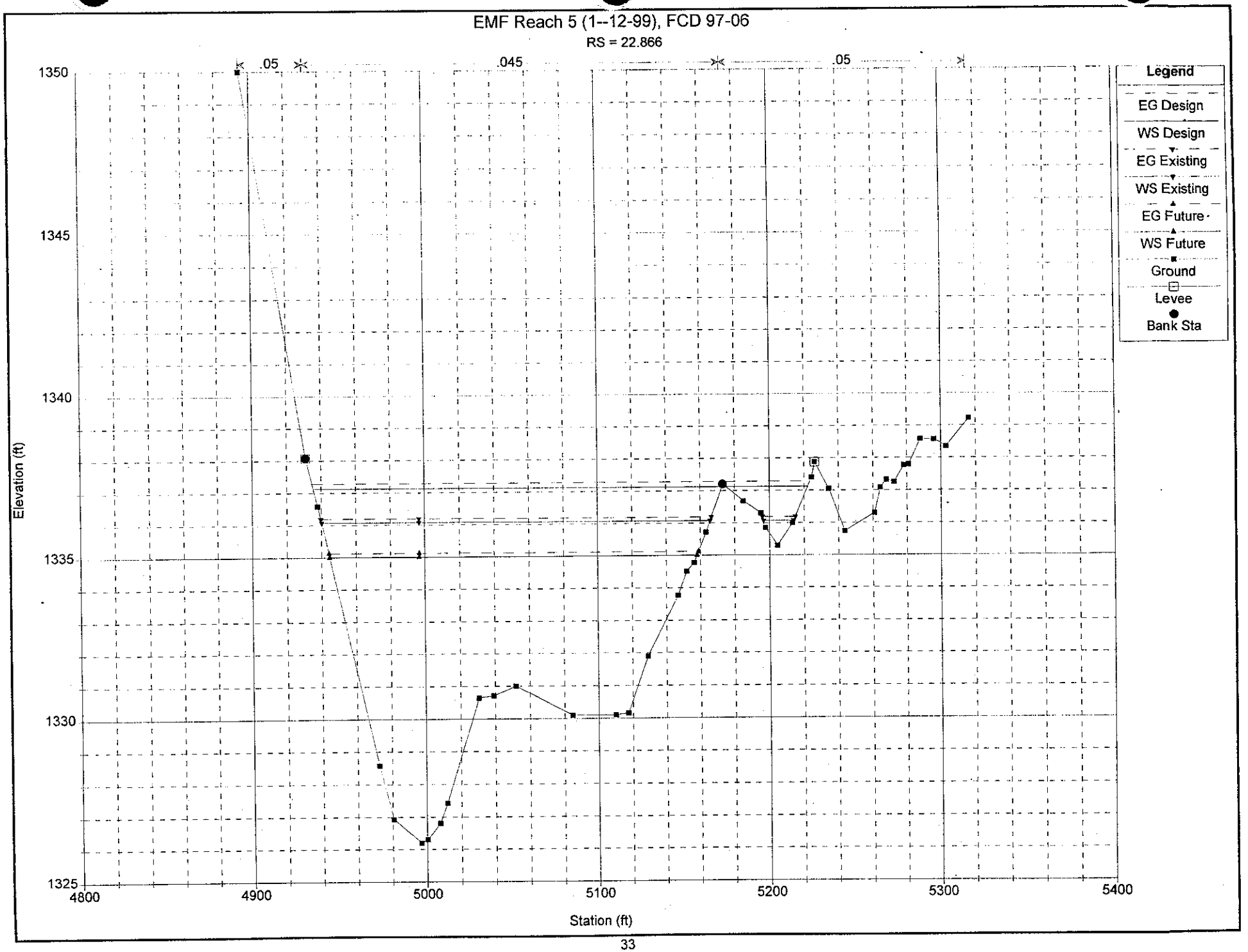

EMF Reach 5 (1--12-99), FCD 97-06
No Ineffective Flow Area From US 60 Bridge RS = 23.166
.05
.045
Elevation (ft)
1360
1355
1350
1345
1340
1335
1330
1325
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta

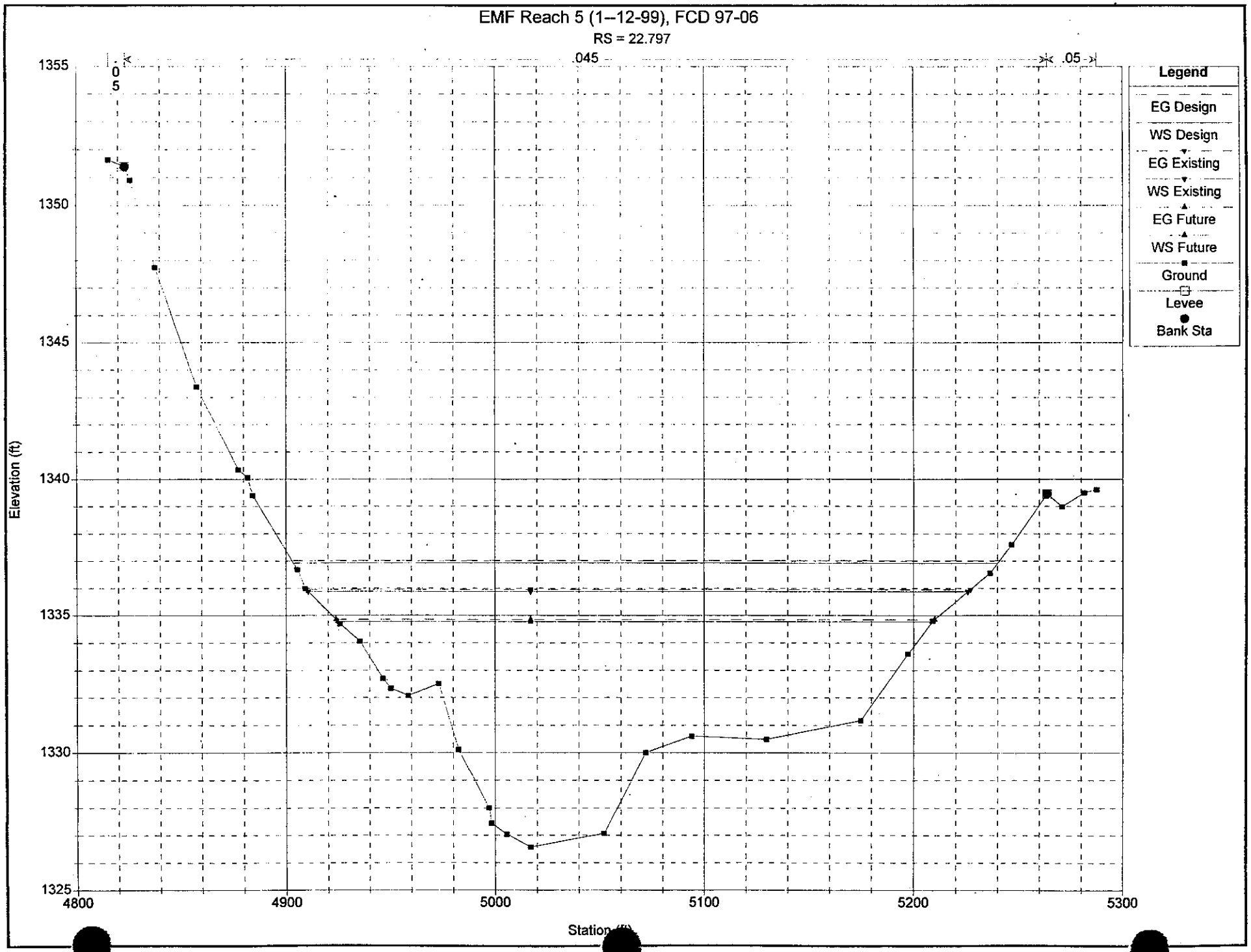

EMF Reach 5 (1--12-99), FCD 97-06
Ineffective Flow Area From US 60 Bridge RS = 23.135
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1350
1345
1340
1335
1330
1325
1320
4700
4800
4900
5000
5100
5200
Station (ft)

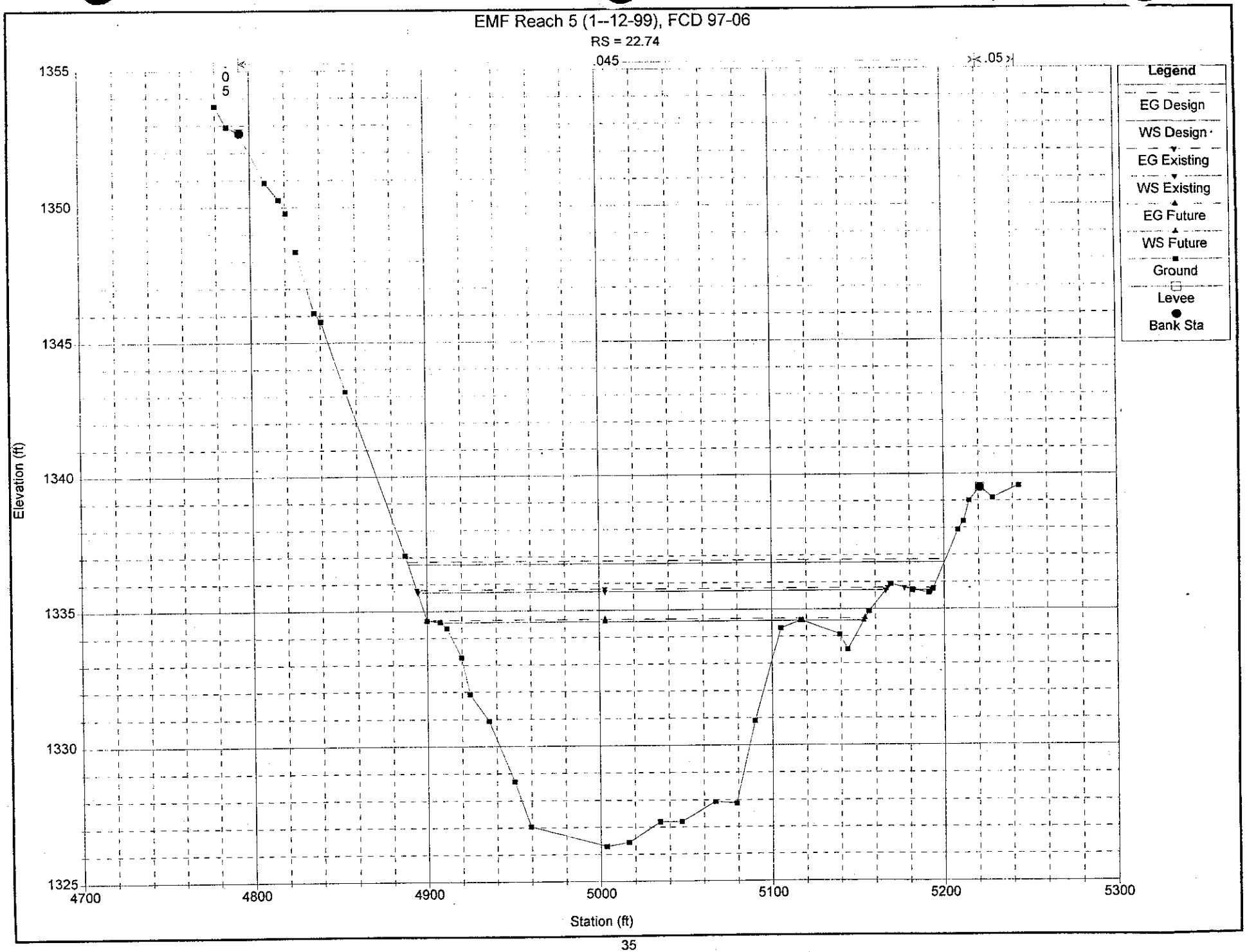

EMF Reach 5 (1--12-99), FCD 97-06
RS = 23.087
.05
.045
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
1326
1324
4700
4800
4900
5000
5100
5200
5300
Station (ft)
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta

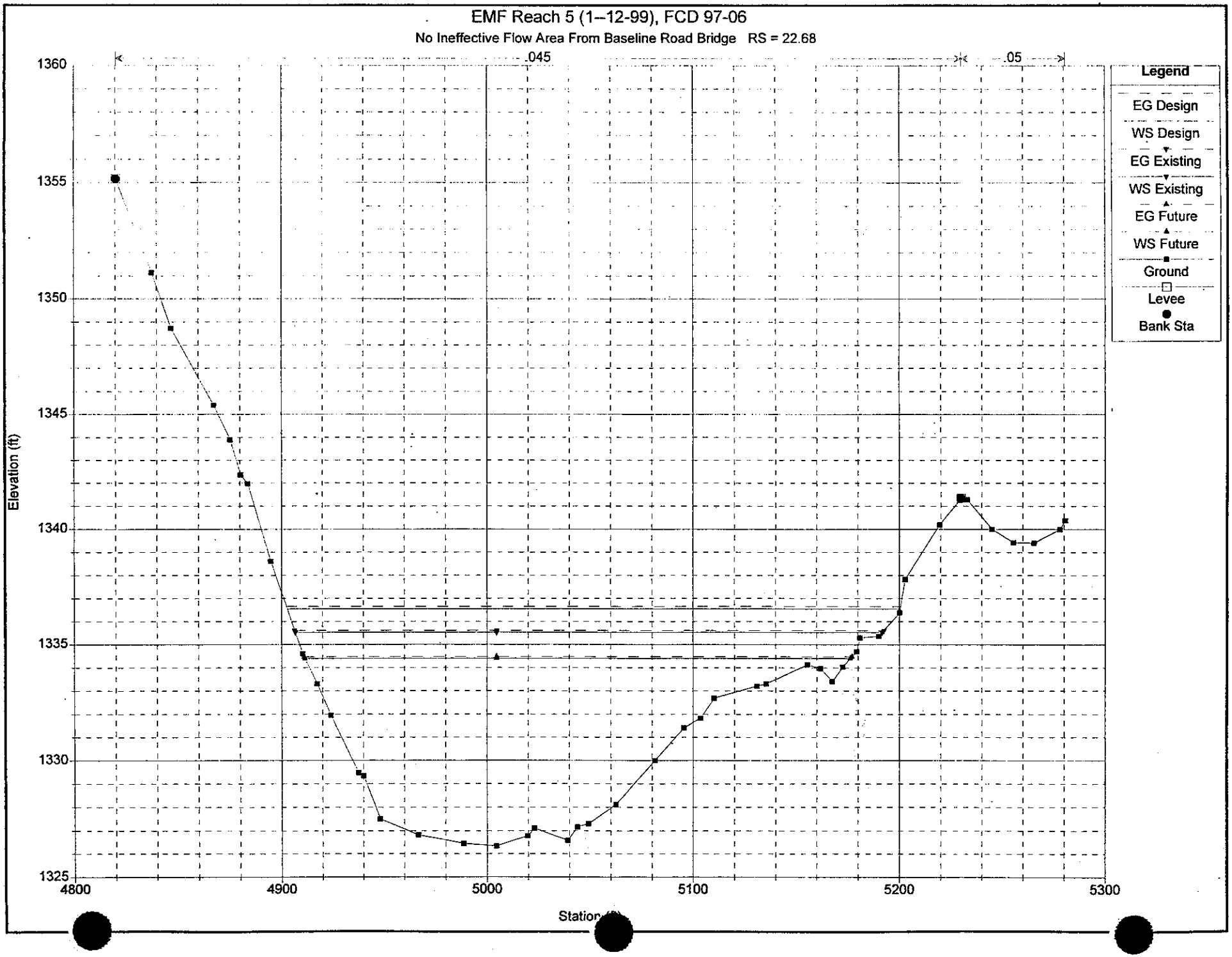

EMF Reach 5 (1--12-99), FCD 97-06
RS = 23.009
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
1326
4600
4700
4800
4900
5000
5100
5200
5300
Station (ft)

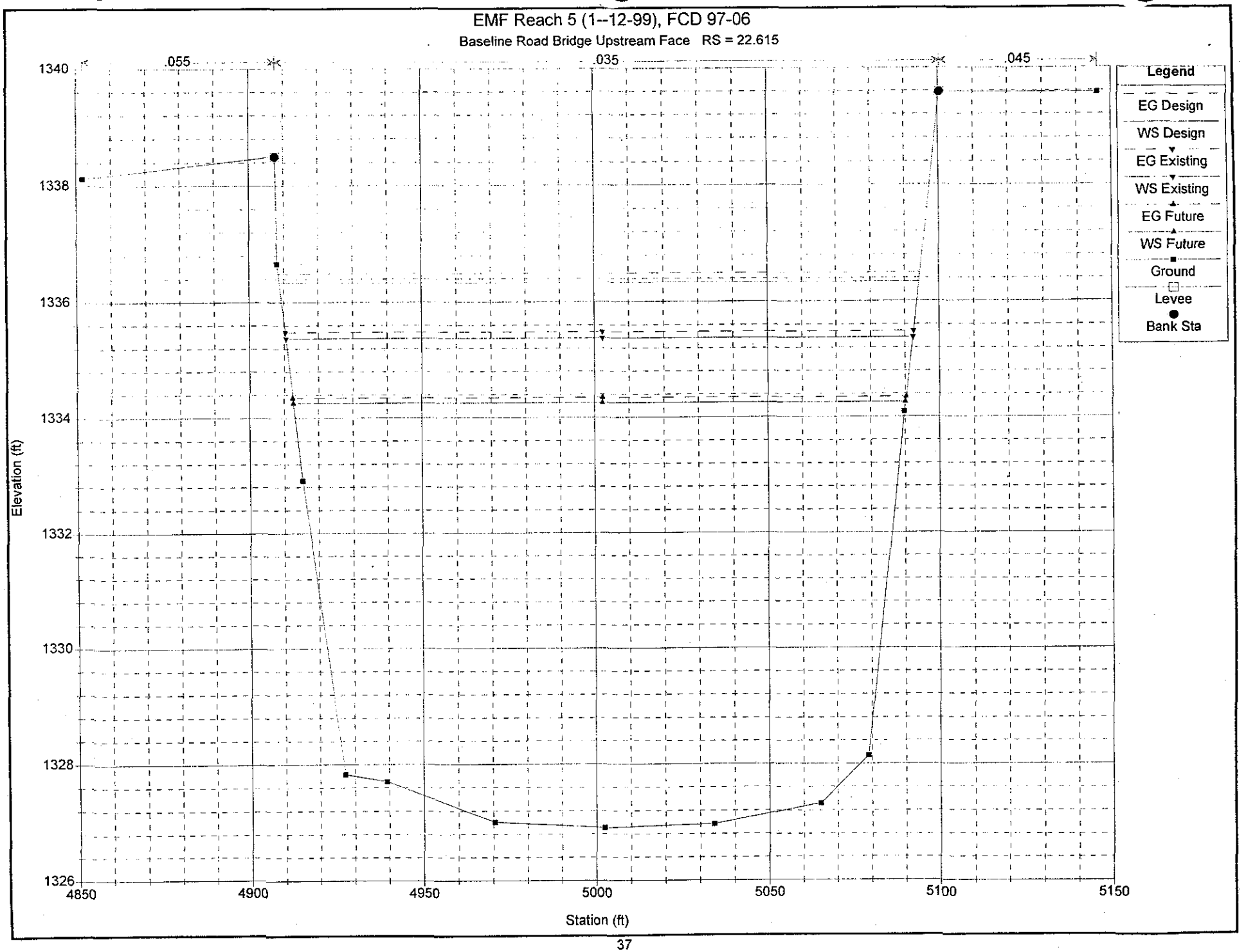

EMF Reach 5 (1--12-99), FCD 97-06
RS = 22.944
.05
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1345
1340
1335
1330
1325
4700
4800
4900
5000
5100
5200
5300
Station (ft)

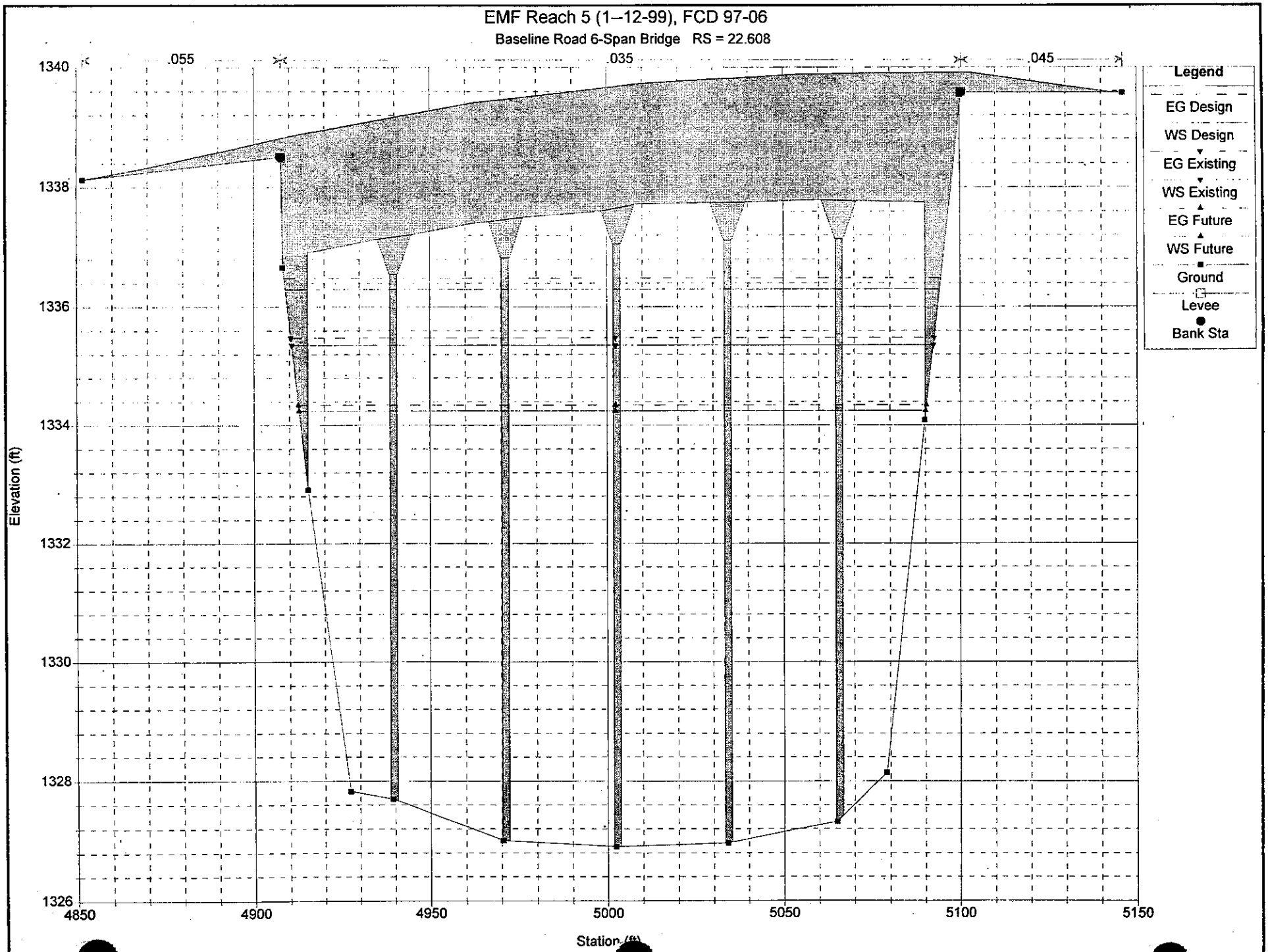

EMF Reach 5 (1--12-99), FCD 97-06
RS = 22.866
.05
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1350
1345
1340
1335
1330
1325
4800
4900
5000
5100
5200
5300
5400
Station (ft)

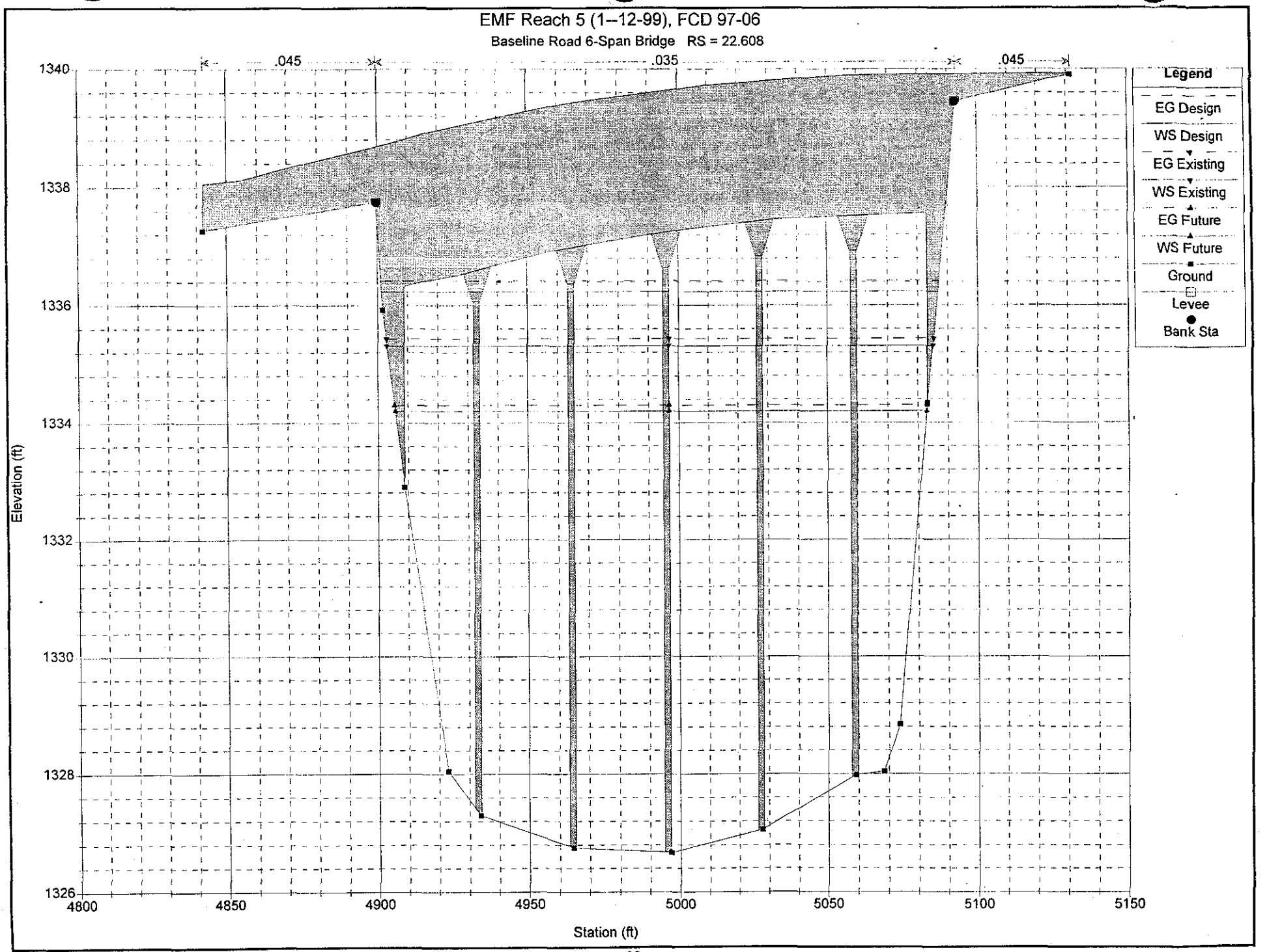

EMF Reach 5 (1--12-99), FCD 97-06
RS = 22.797
.045
.05
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1355
1350
1345
1340
1335
1330
1325
4800
4900
5000
5100
5200
5300
Station (ft)

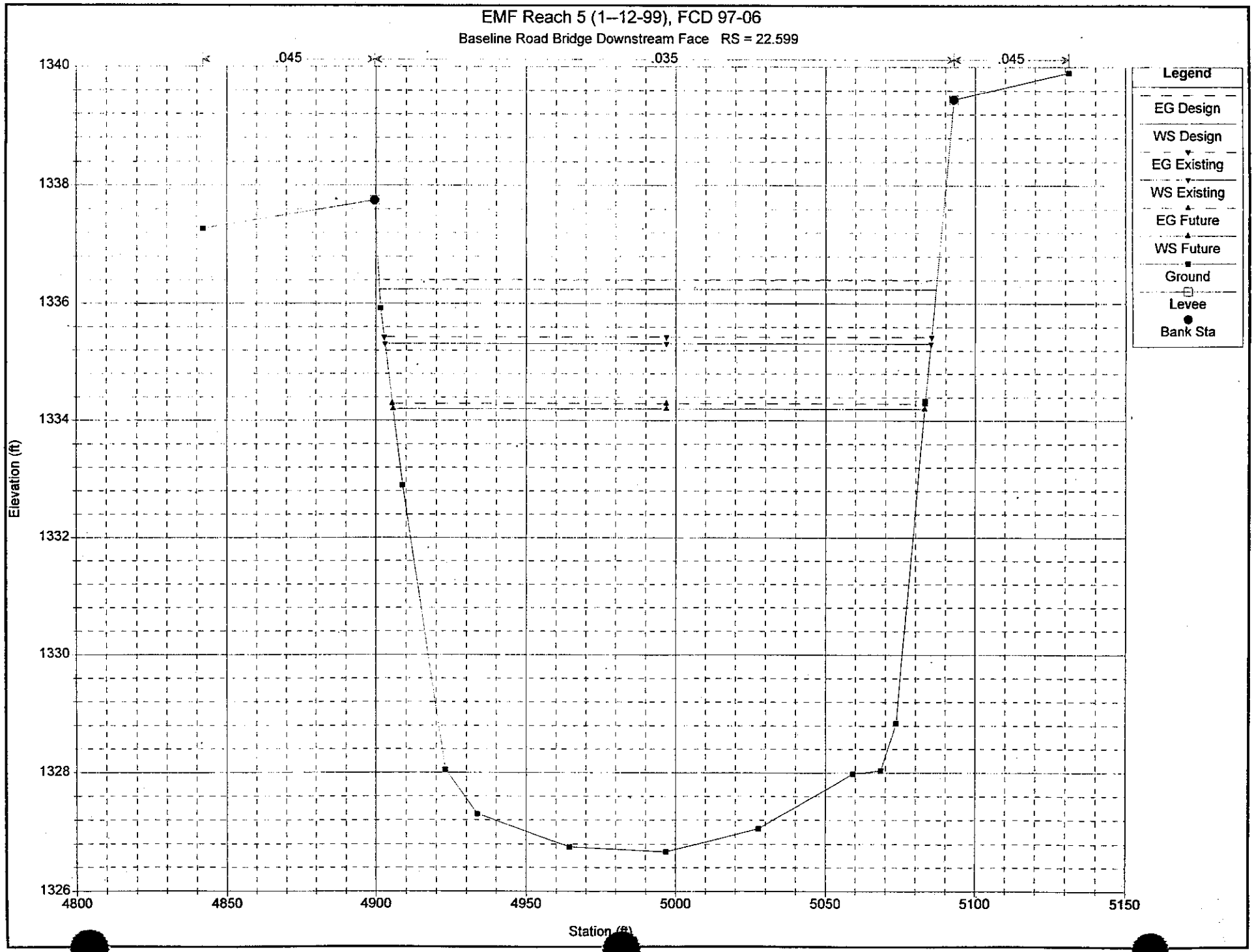

EMF Reach 5 (1--12-99), FCD 97-06
RS = 22.74
.045
.05
0
5
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1355
1350
1345
1340
1335
1330
1325
4700
4800
4900
5000
5100
5200
5300
Station (ft)

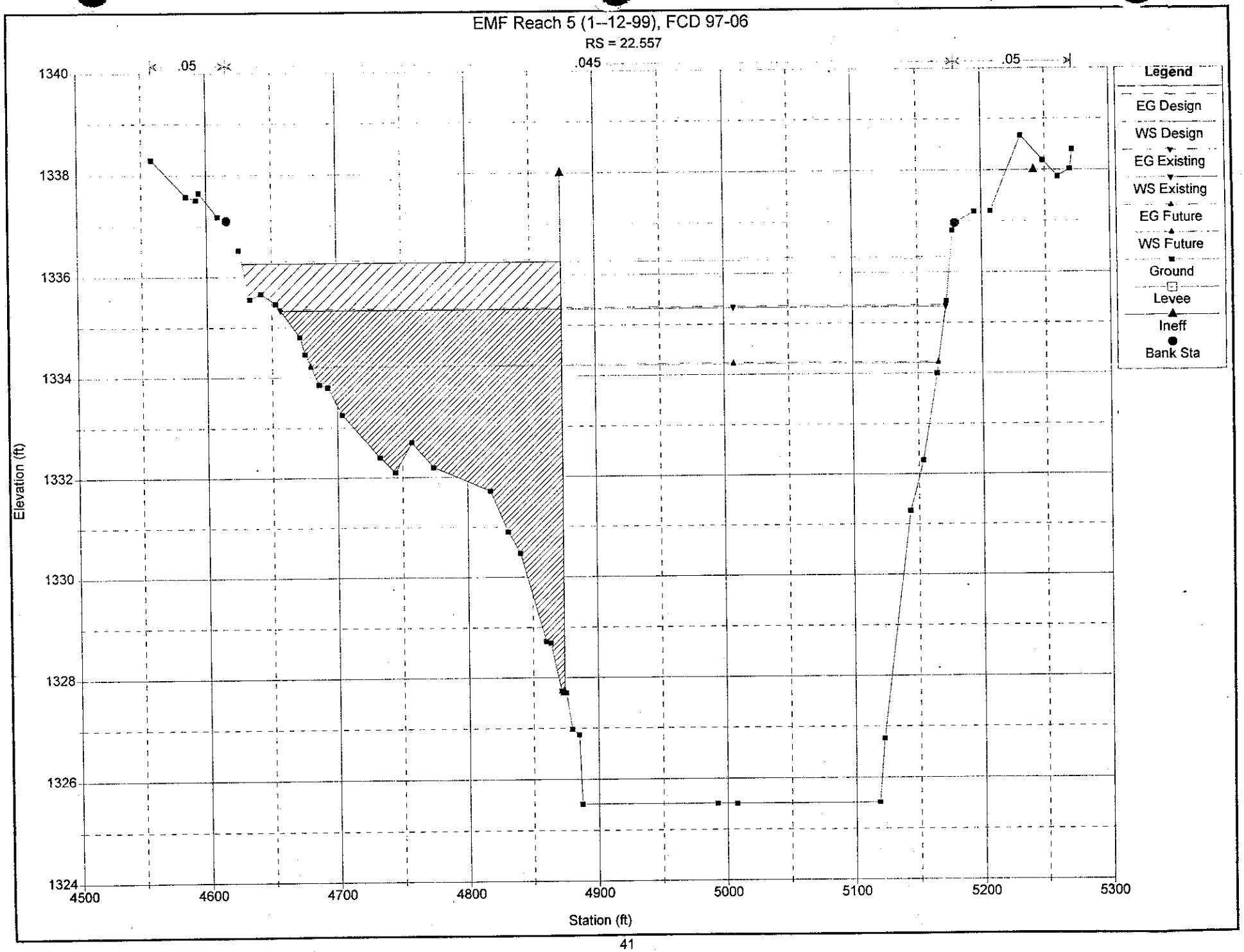

EMF Reach 5 (1--12-99), FCD 97-06
No Ineffective Flow Area From Baseline Road Bridge RS = 22.68
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1360
1355
1350
1345
1340
1335
1330
1325
4800
4900
5000
5100
5200
5300
Station

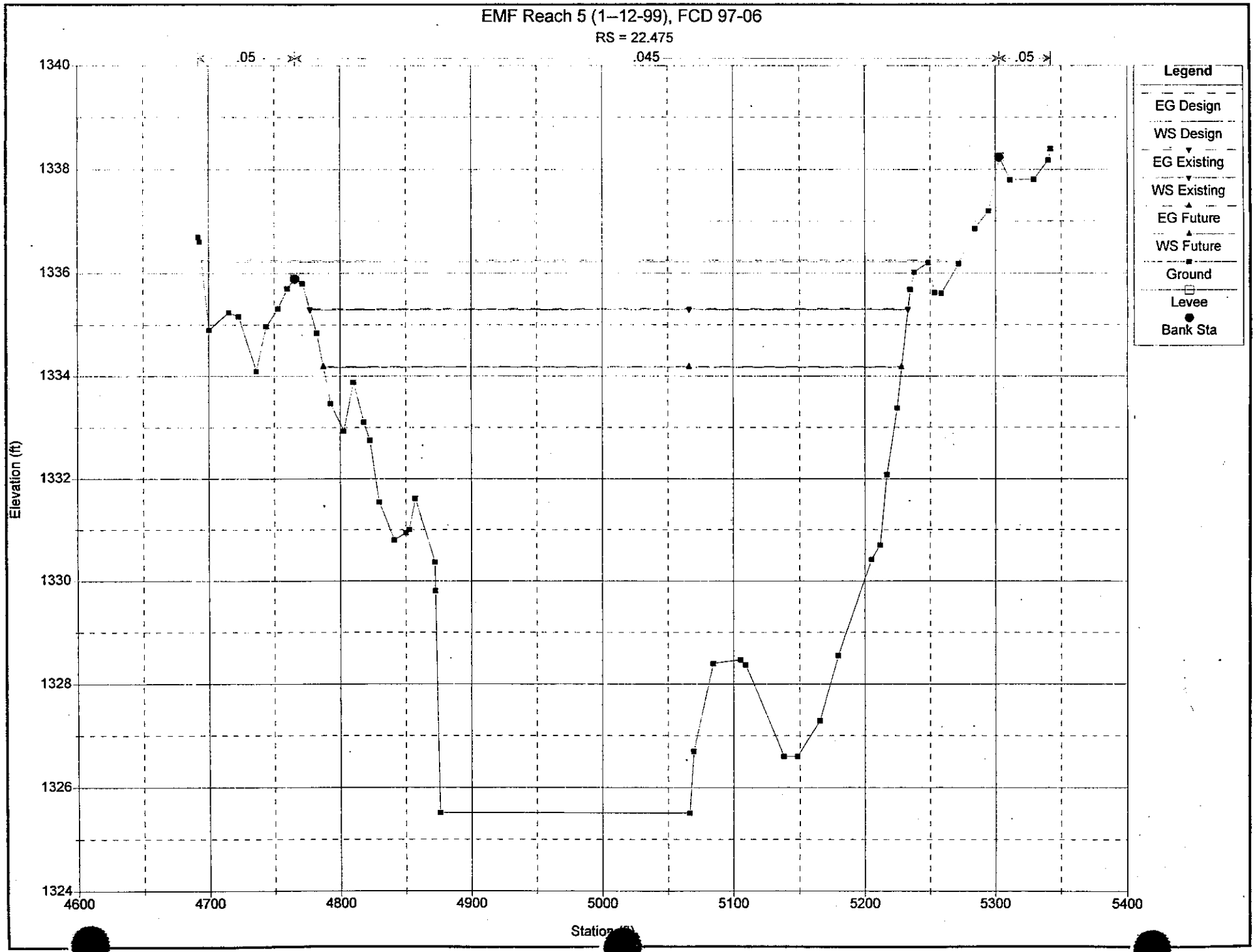

EMF Reach 5 (1--12-99), FCD 97-06
Baseline Road Bridge Upstream Face RS = 22.615
.055
.035
.045
1340
1338
1336
1334
1332
1330
1328
1326
Elevation (ft)
4850
4900
4950
5000
5050
5100
5150
Station (ft)
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta

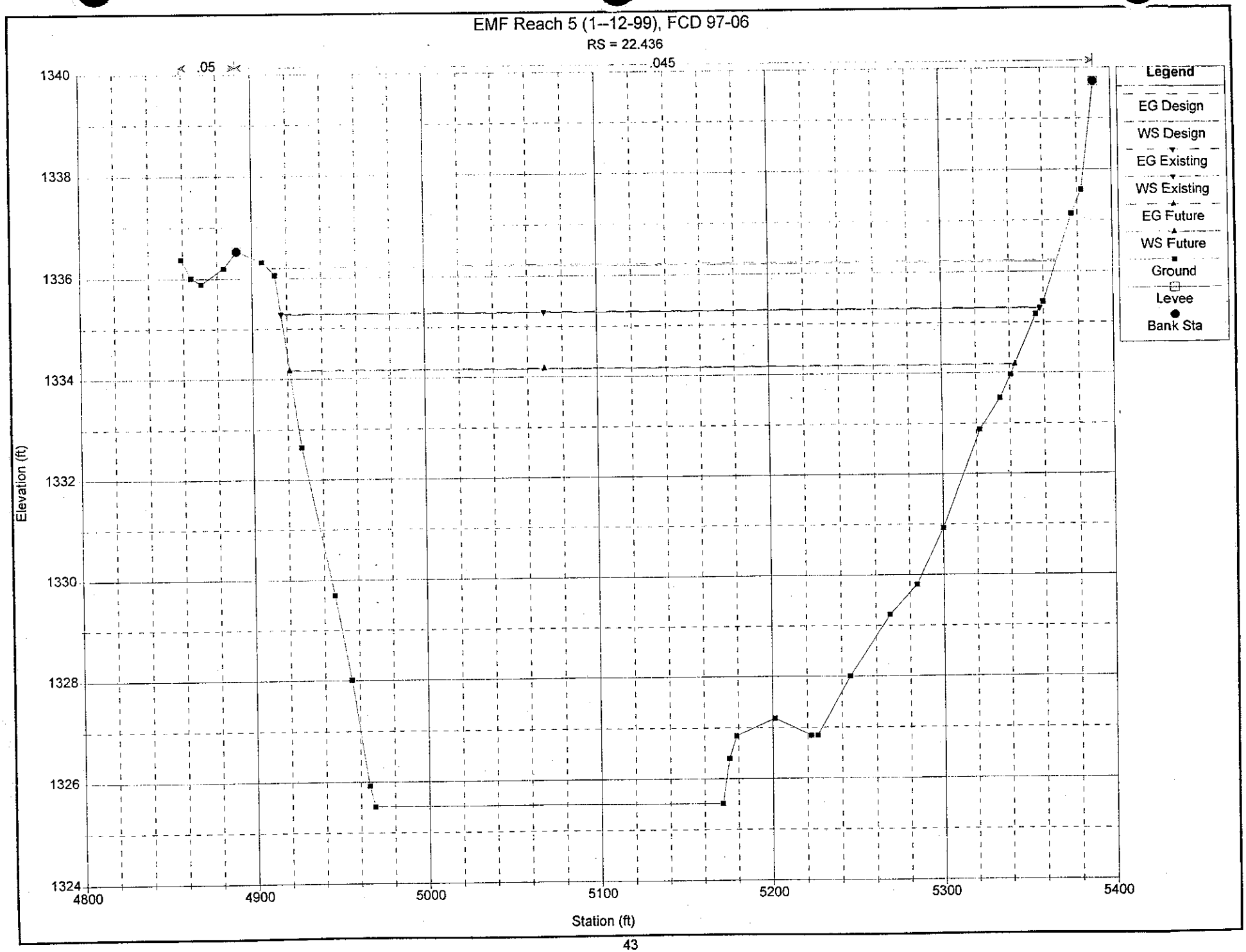

EMF Reach 5 (1–12-99), FCD 97-06
Baseline Road 6-Span Bridge RS = 22.608
.055
.035
.045
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
1326
4850
4900
4950
5000
5050
5100
5150
Station (ft)

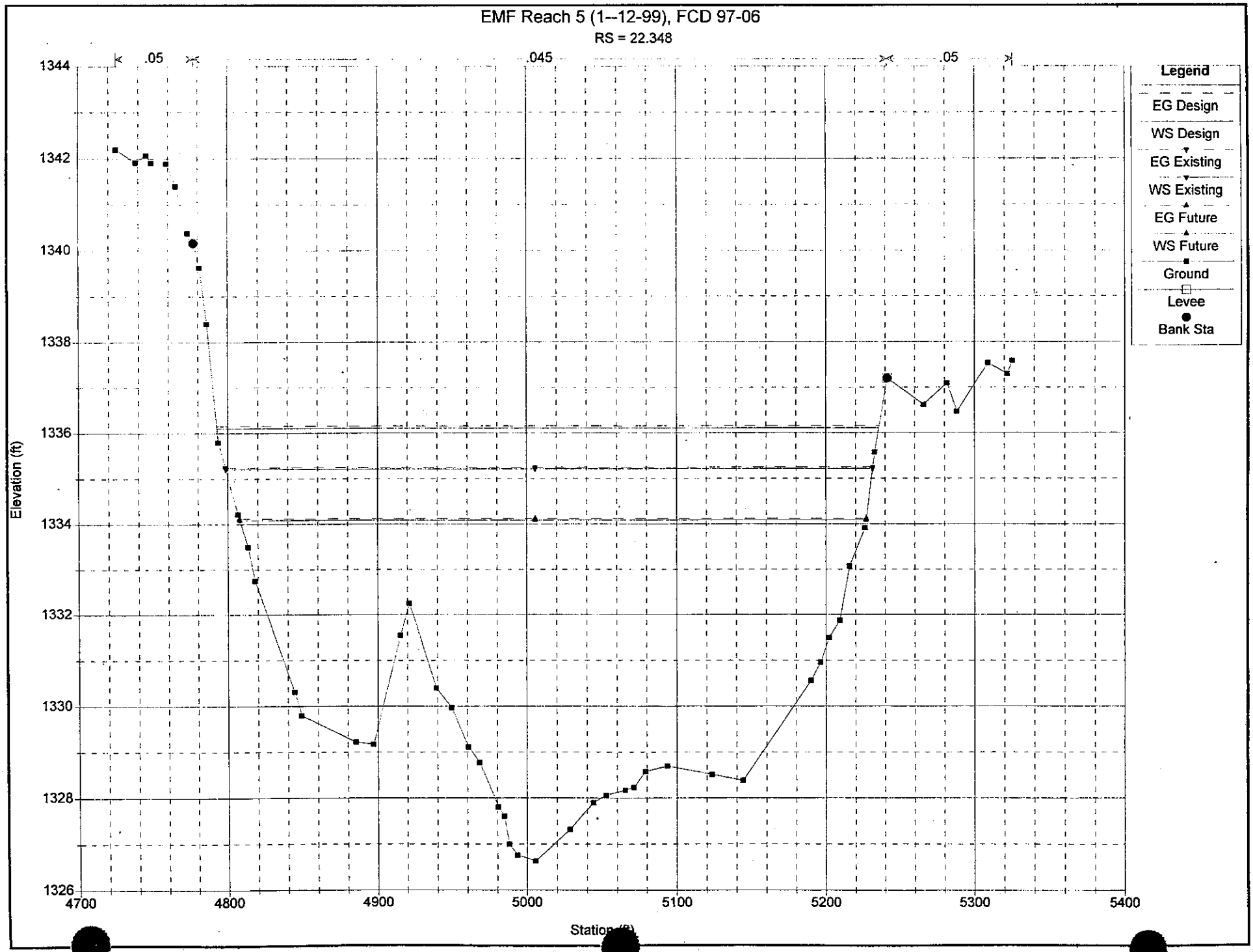

EMF Reach 5 (1--12-99), FCD 97-06
Baseline Road 6-Span Bridge RS = 22.608
.045
.035
.045
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
1326
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)

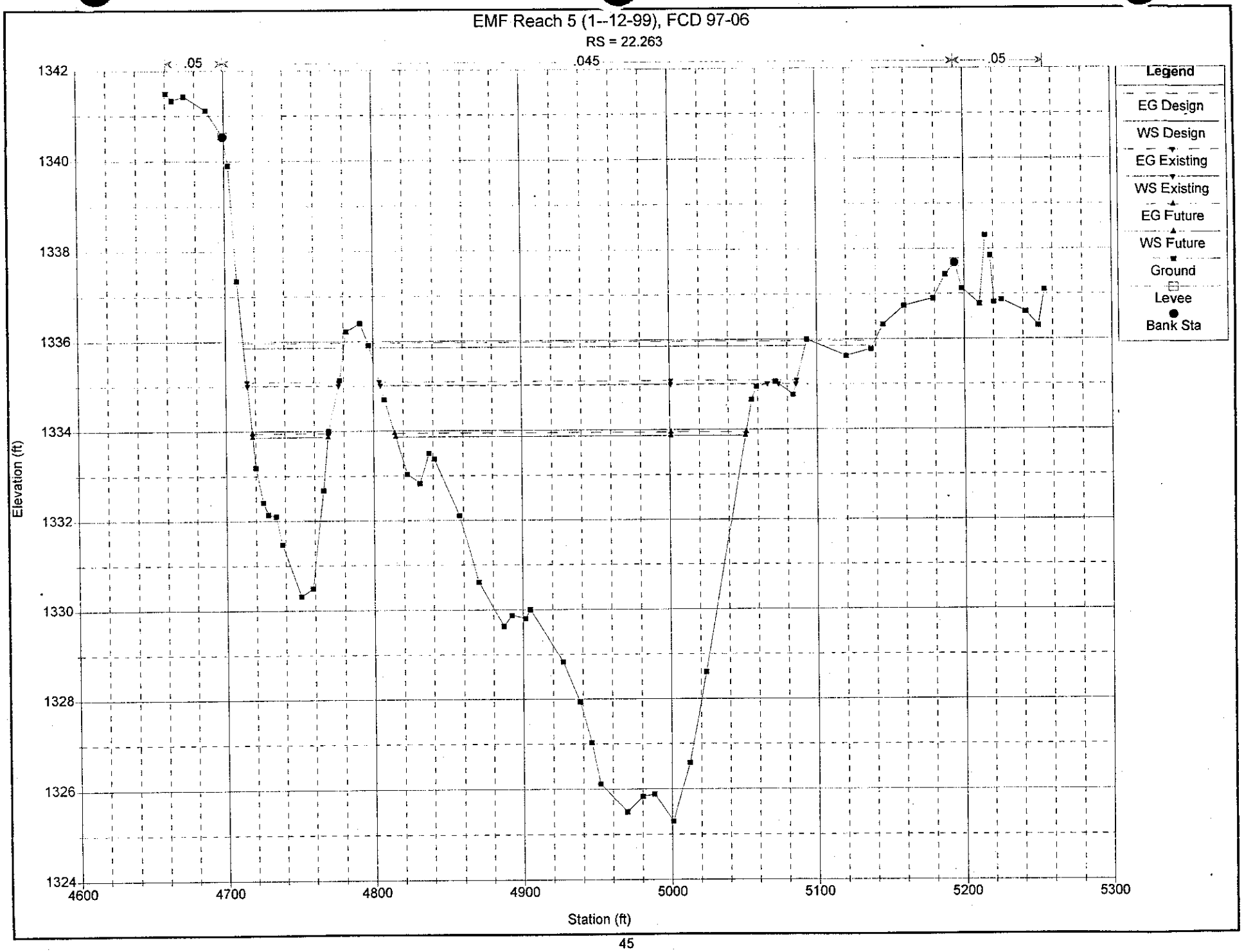

EMF Reach 5 (1--12-99), FCD 97-06
Baseline Road Bridge Downstream Face RS = 22.599
.045
.035
.045
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
1326
4800
4850
4900
4950
5000
5050
5100
5150
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 22.557
.05
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
1326
1324
4500
4600
4700
4800
4900
5000
5100
5200
5300
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 22.475
.05
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
1326
1324
4600
4700
4800
4900
5000
5100
5200
5300
5400
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 22.436
.05
.045
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
1326
1324
4800
4900
5000
5100
5200
5300
5400
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 22.348
.05
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
1330
1328
1326
4700
4800
4900
5000
5100
5200
5300
5400
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 22.263
.05
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1342
1340
1338
1336
1334
1332
1330
1328
1326
1324
4600
4700
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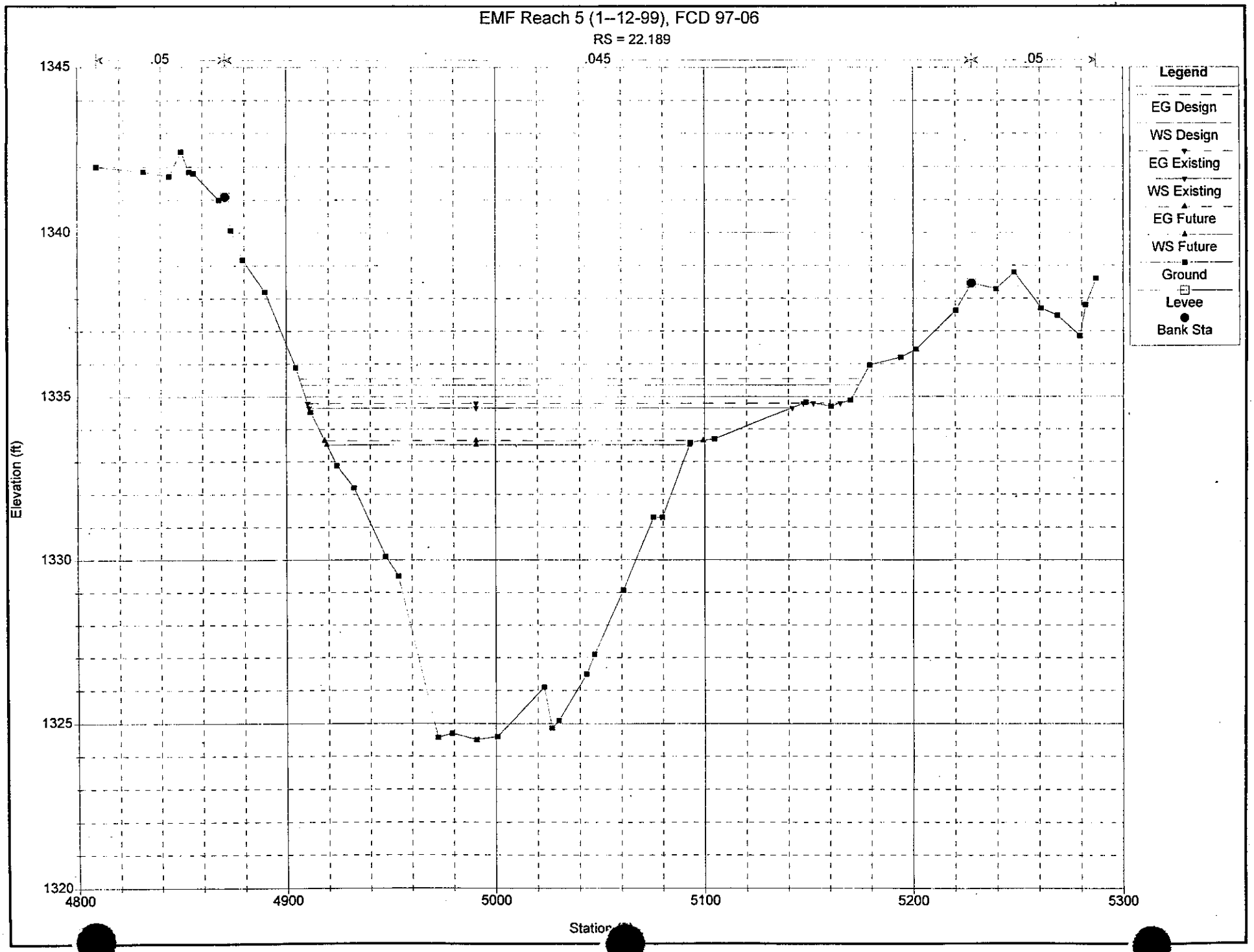
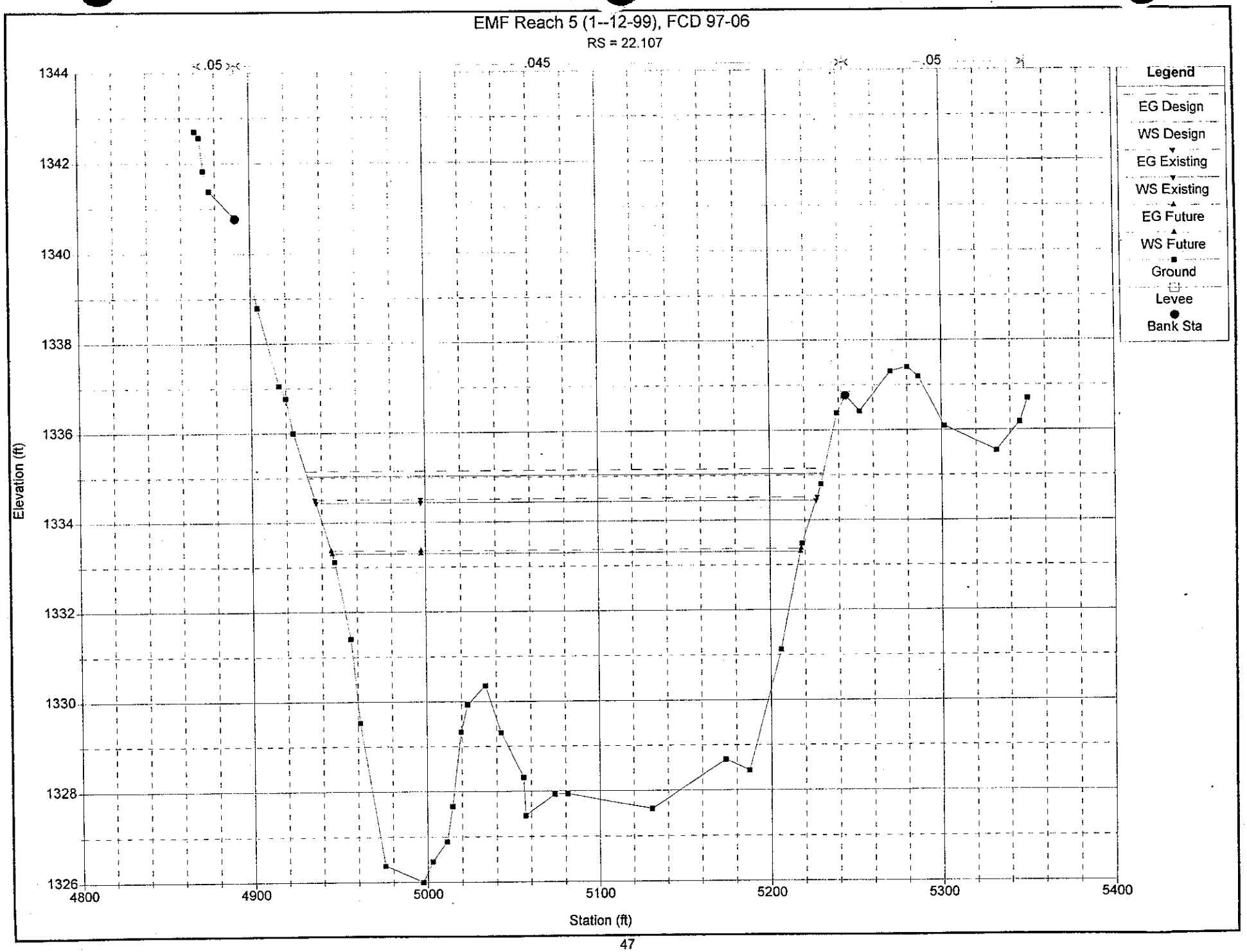
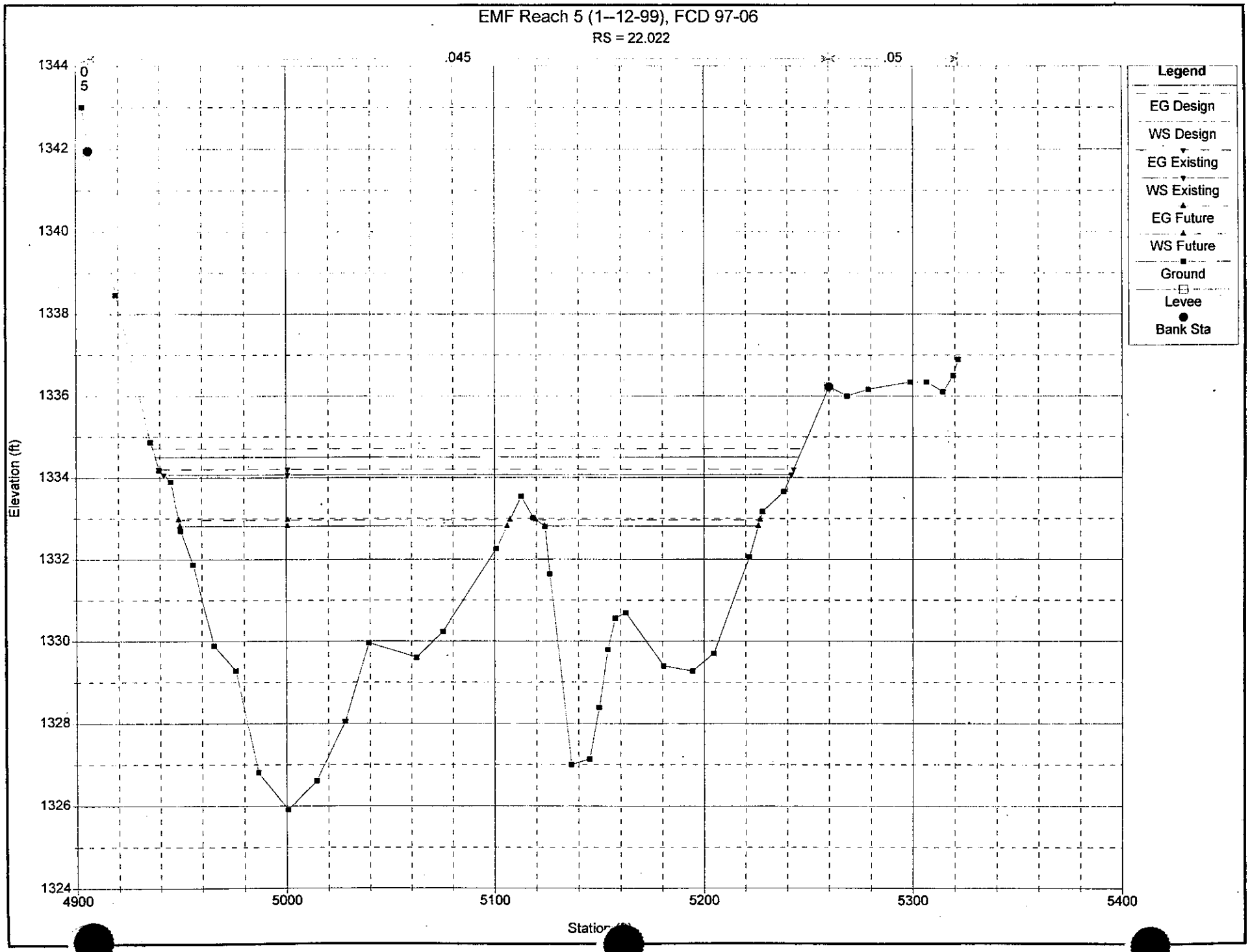
4900
5000
5100
5200
5300
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 22.189
.05
.045
.05
1345
1340
1335
1330
1325
1320
Elevation (ft)
4800
4900
5000
5100
5200
5300
Station (ft)
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta


EMF Reach 5 (1--12-99), FCD 97-06
RS = 22.107
.05
.045
.05
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
1334
1332
1330
1328
1326
4800
4900
5000
5100
5200
5300
5400
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 22.022
.045
.05
0
5
Legend
EG Design
WS Design
EG Existing
WS Existing
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1344
1342
1340
1338
1336
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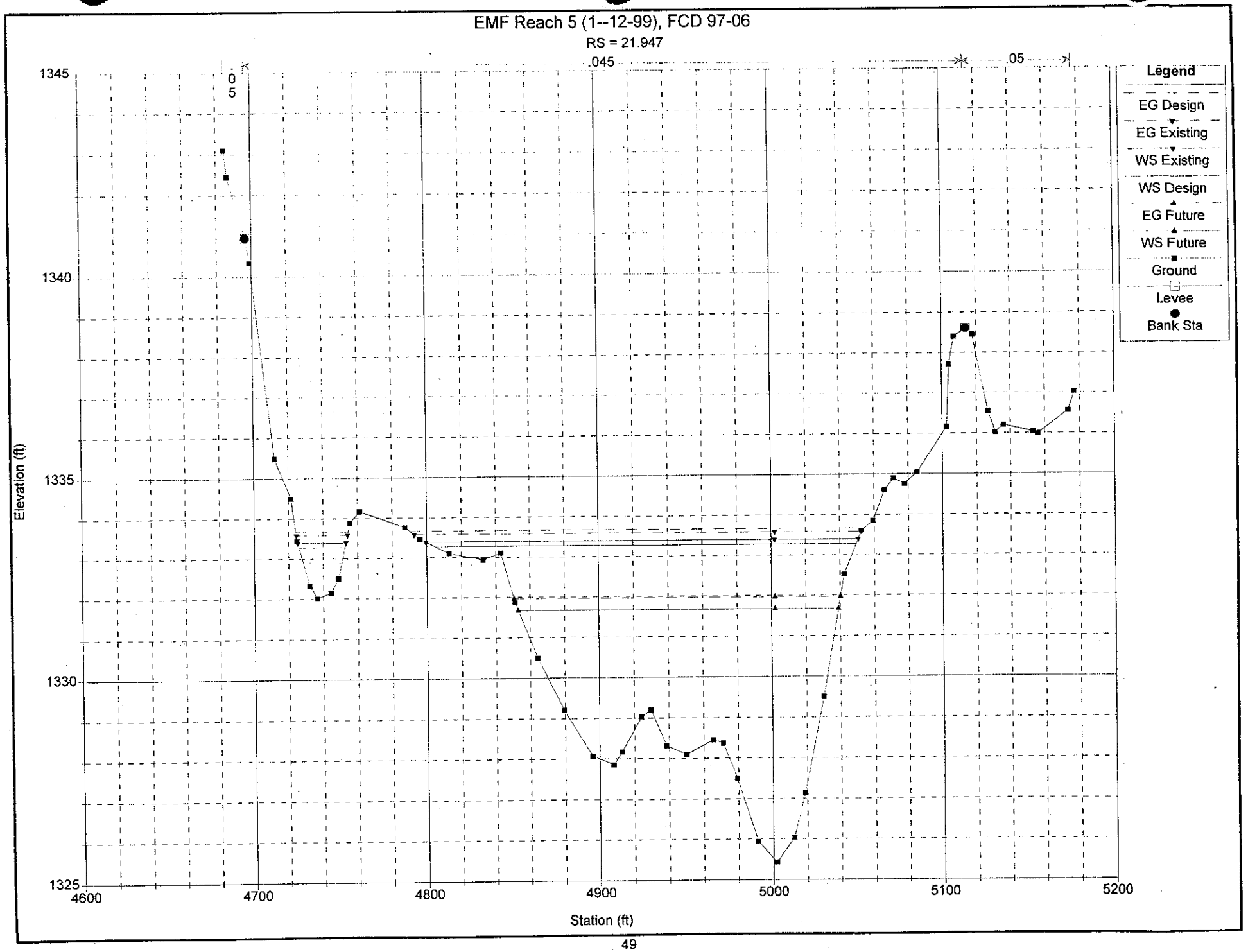
5200
5300
5400


EMF Reach 5 (1--12-99), FCD 97-06
RS = 21.947
.045
.05
0
5
Legend
EG Design
EG Existing
WS Existing
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
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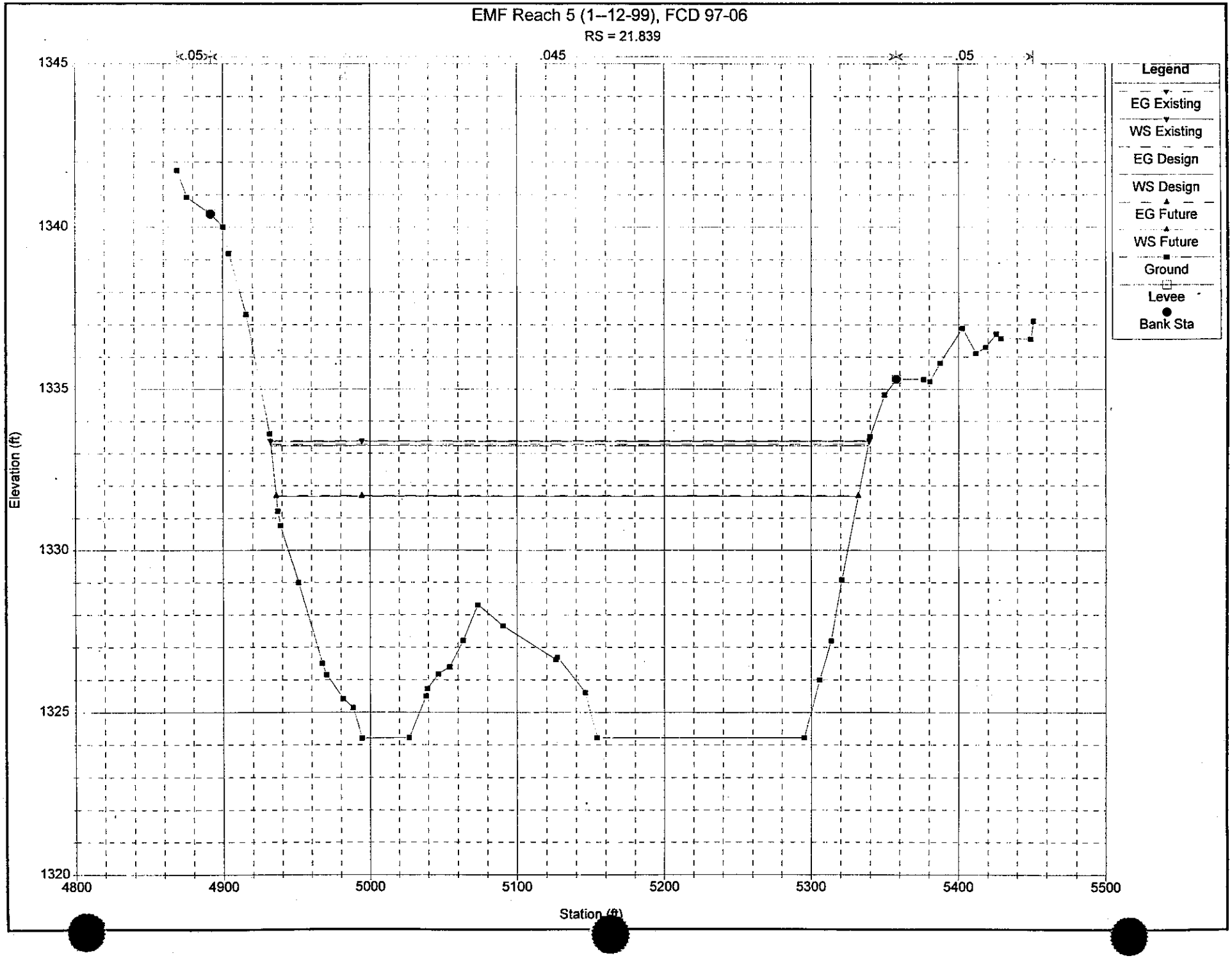
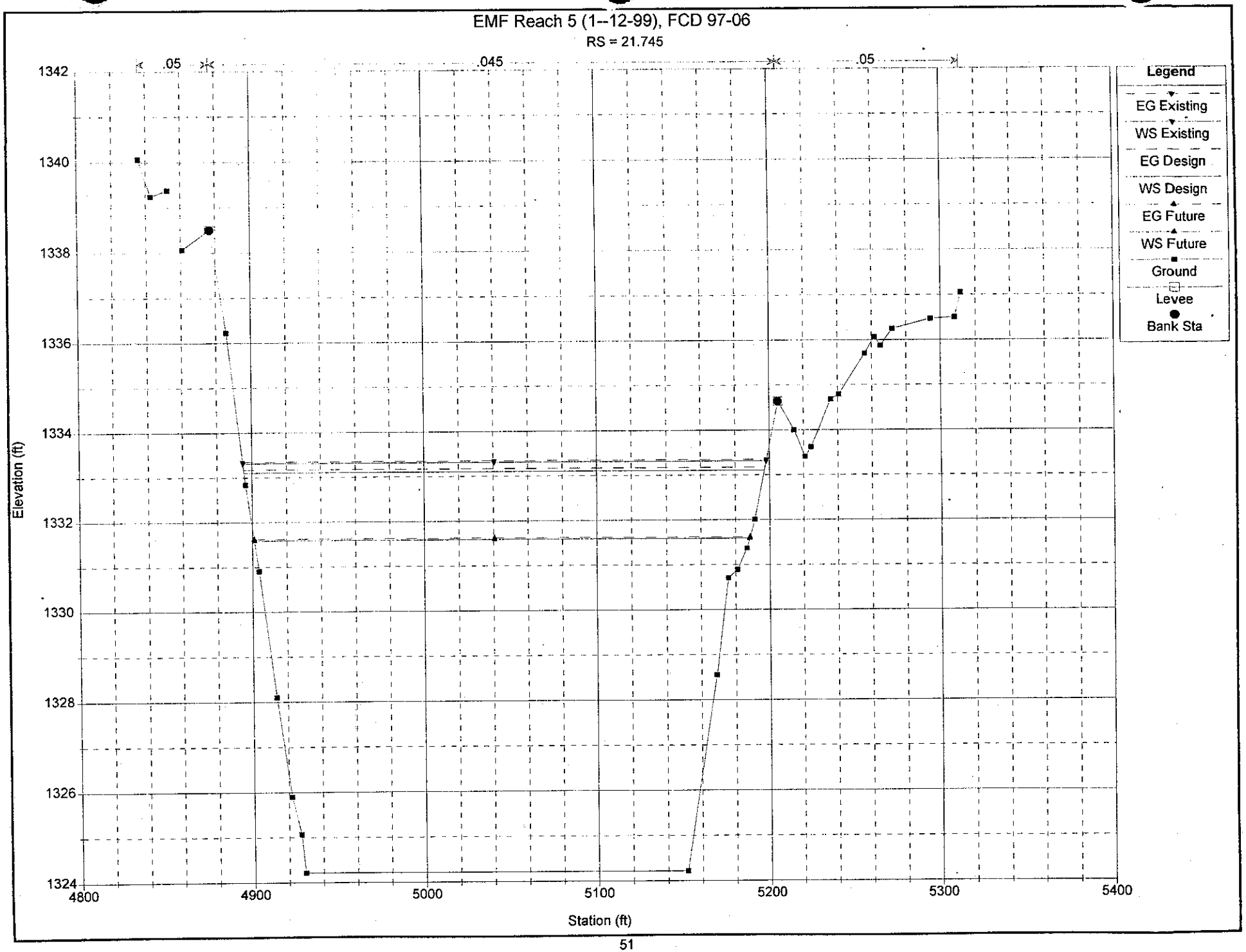
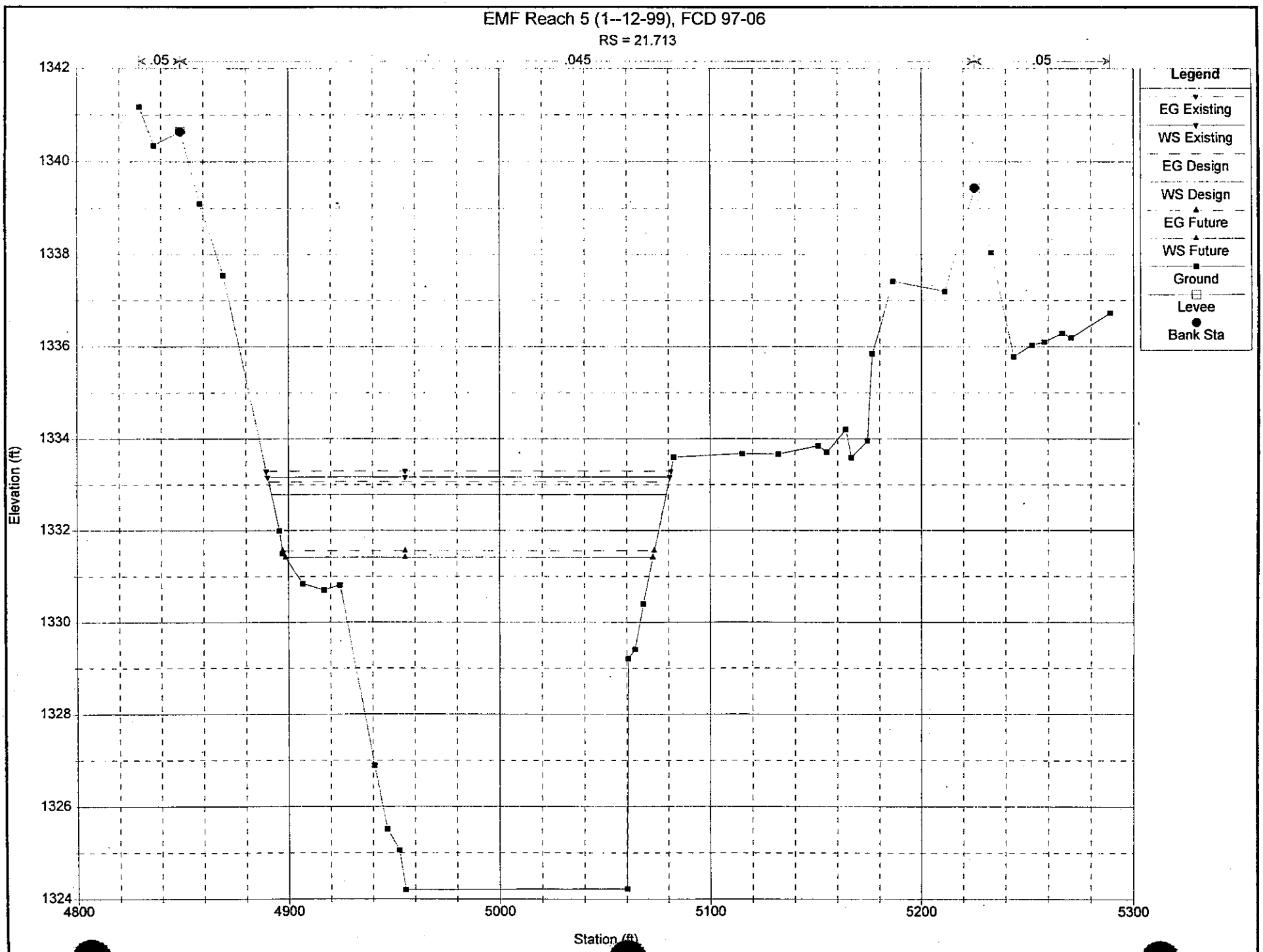
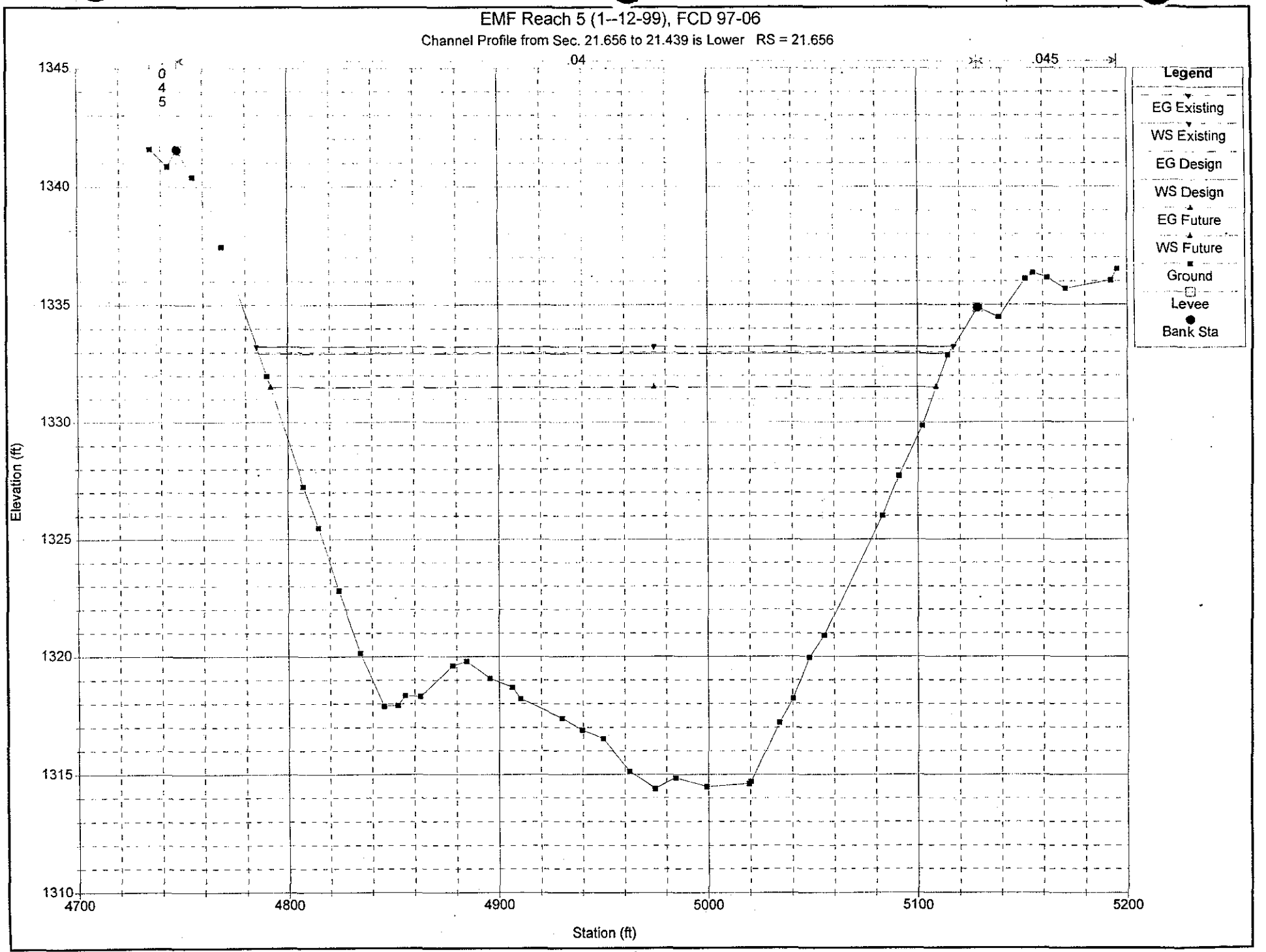
1340
1335
1330
1325
4600
4700
4800
4900
5000
5100
5200
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 21.839
.05
.045
.05
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1345
1340
1335
1330
1325
1320
4800
4900
5000
5100
5200
5300
5400
5500
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 21.745
.05
.045
.05
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1342
1340
1338
1336
1334
1332
1330
1328
1326
1324
4800
4900
5000
5100
5200
5300
5400
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 21.713
.05
.045
.05
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1342
1340
1338
1336
1334
1332
1330
1328
1326
1324
4800
4900
5000
5100
5200
5300
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Channel Profile from Sec. 21.656 to 21.439 is Lower RS = 21.656
.04
.045
0
4
5
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1345
1340
1335
1330
1325
1320
1315
1310
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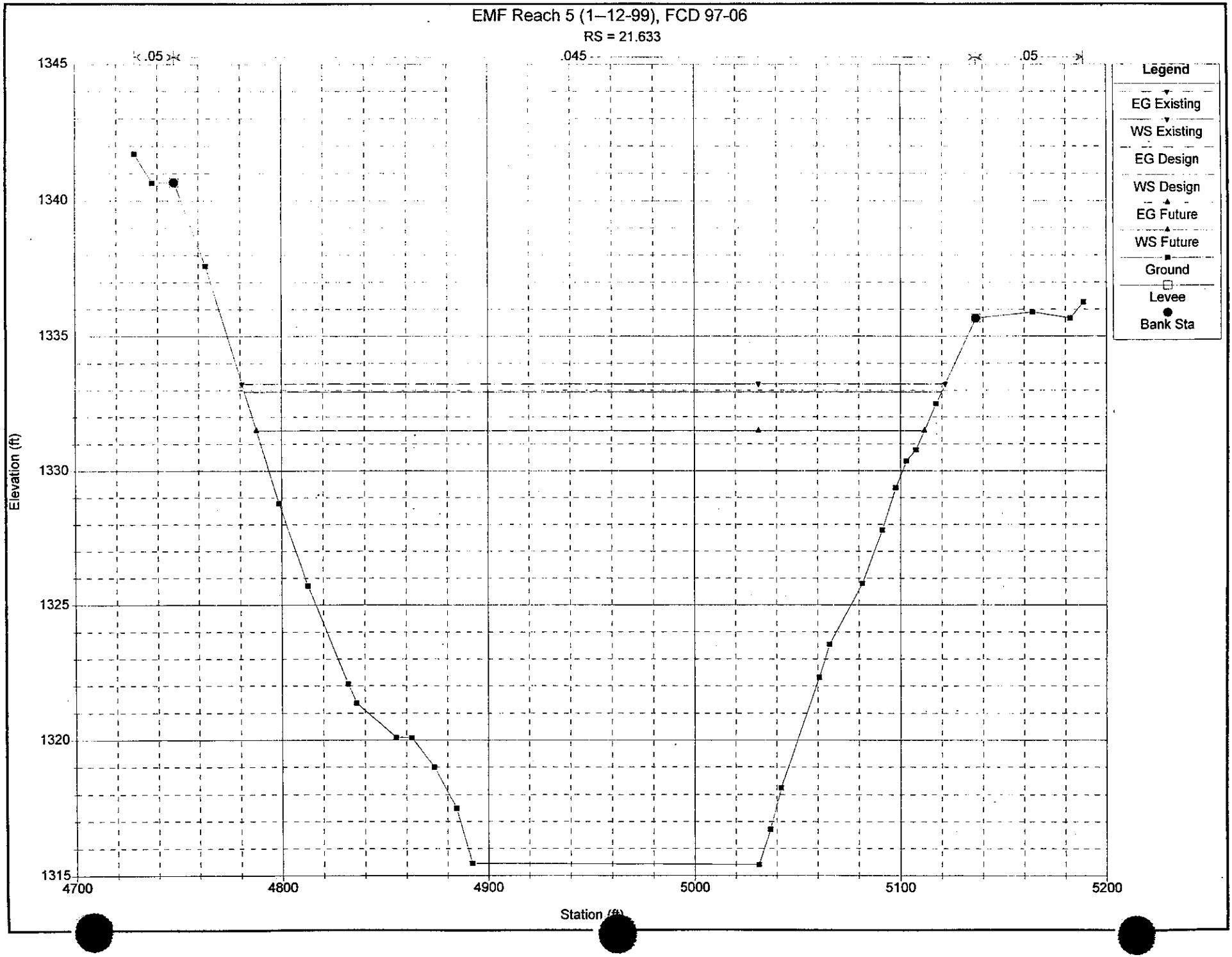
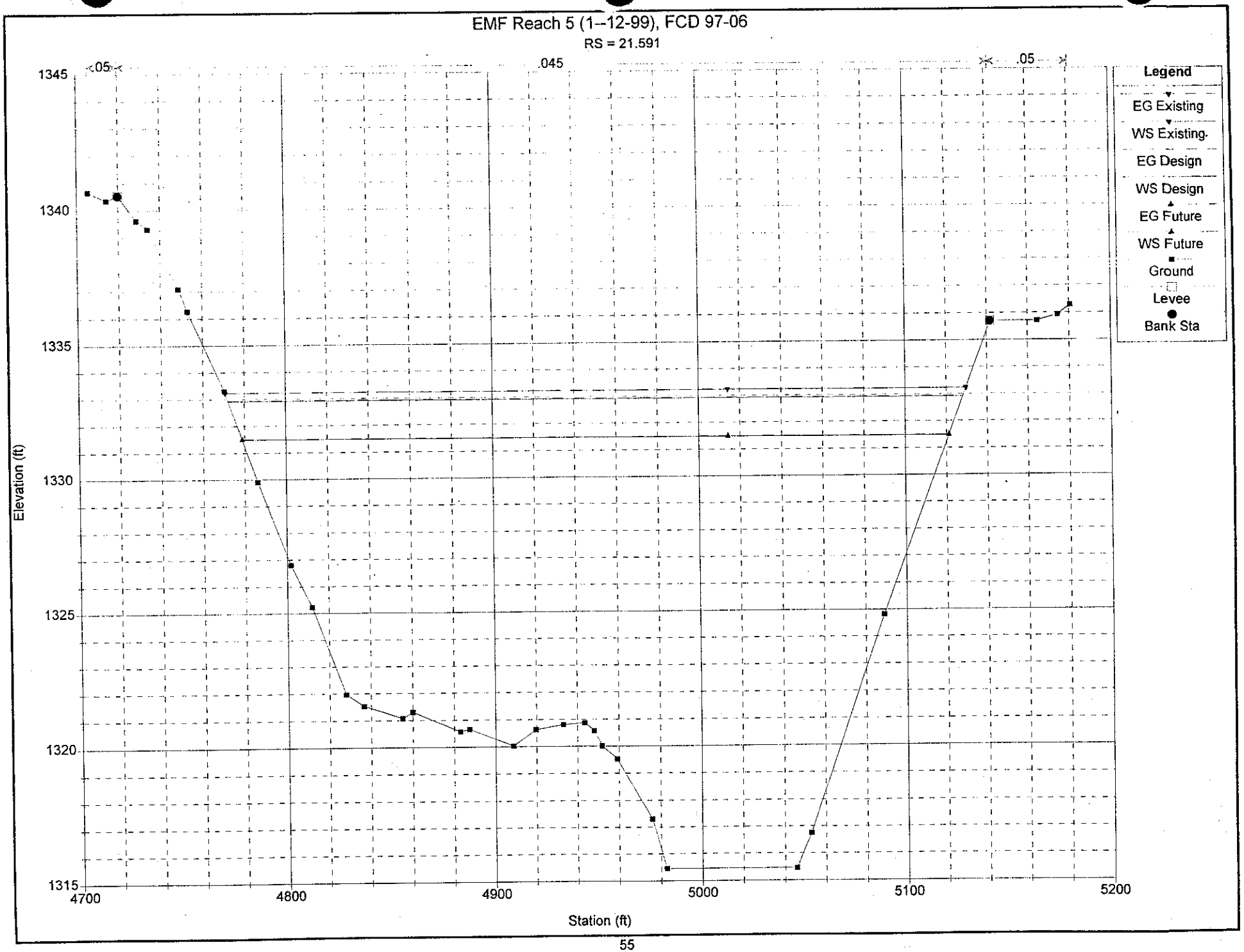
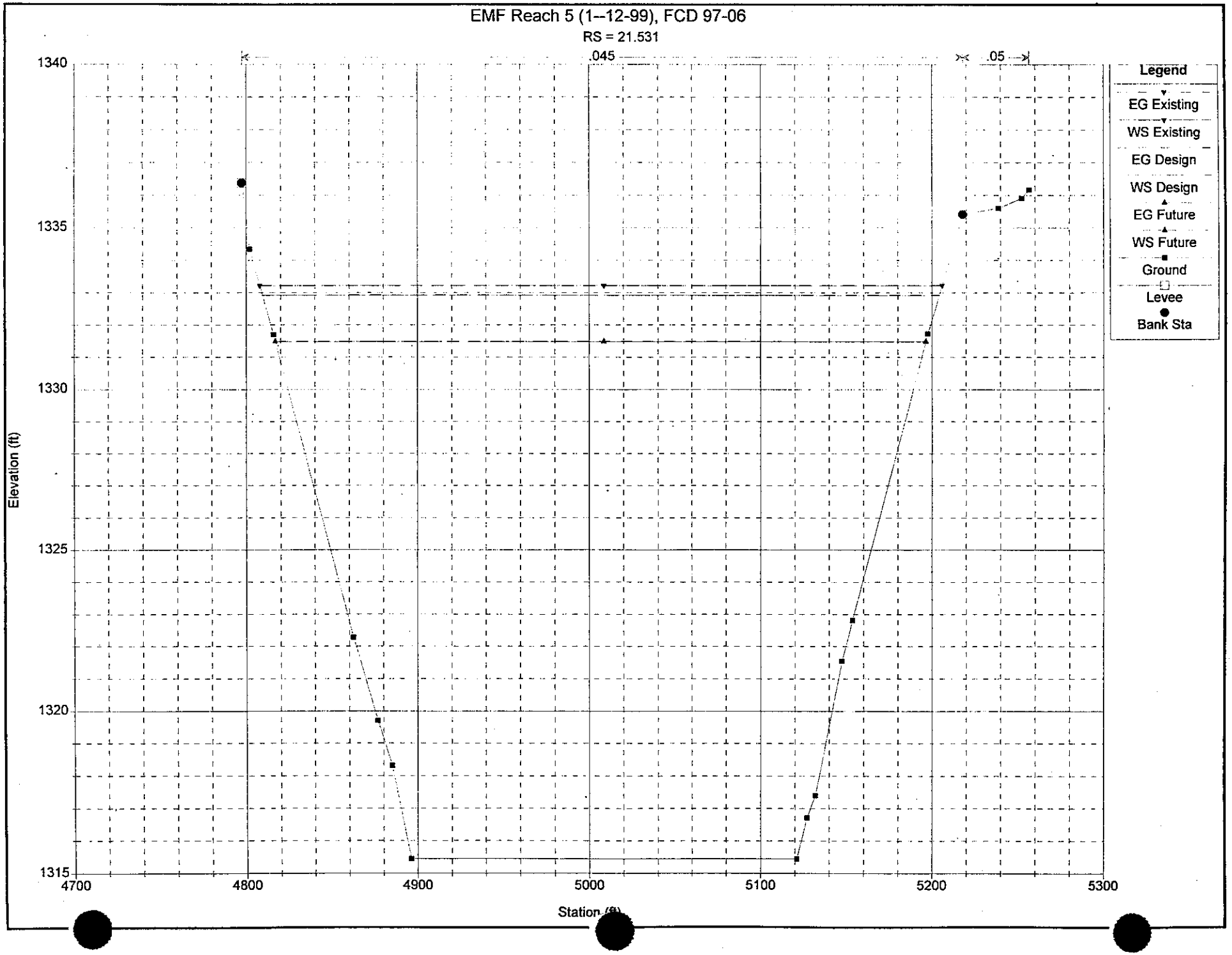
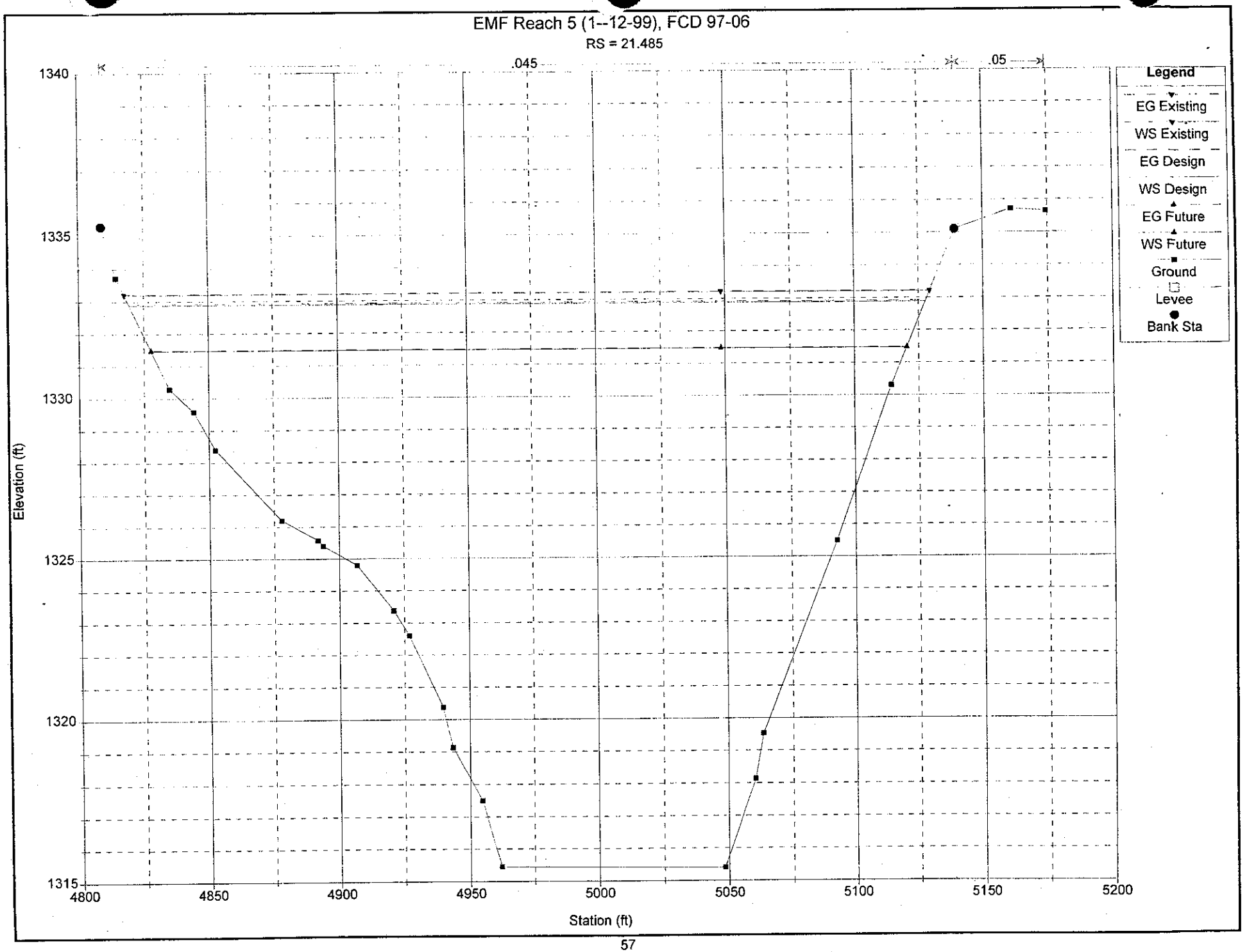
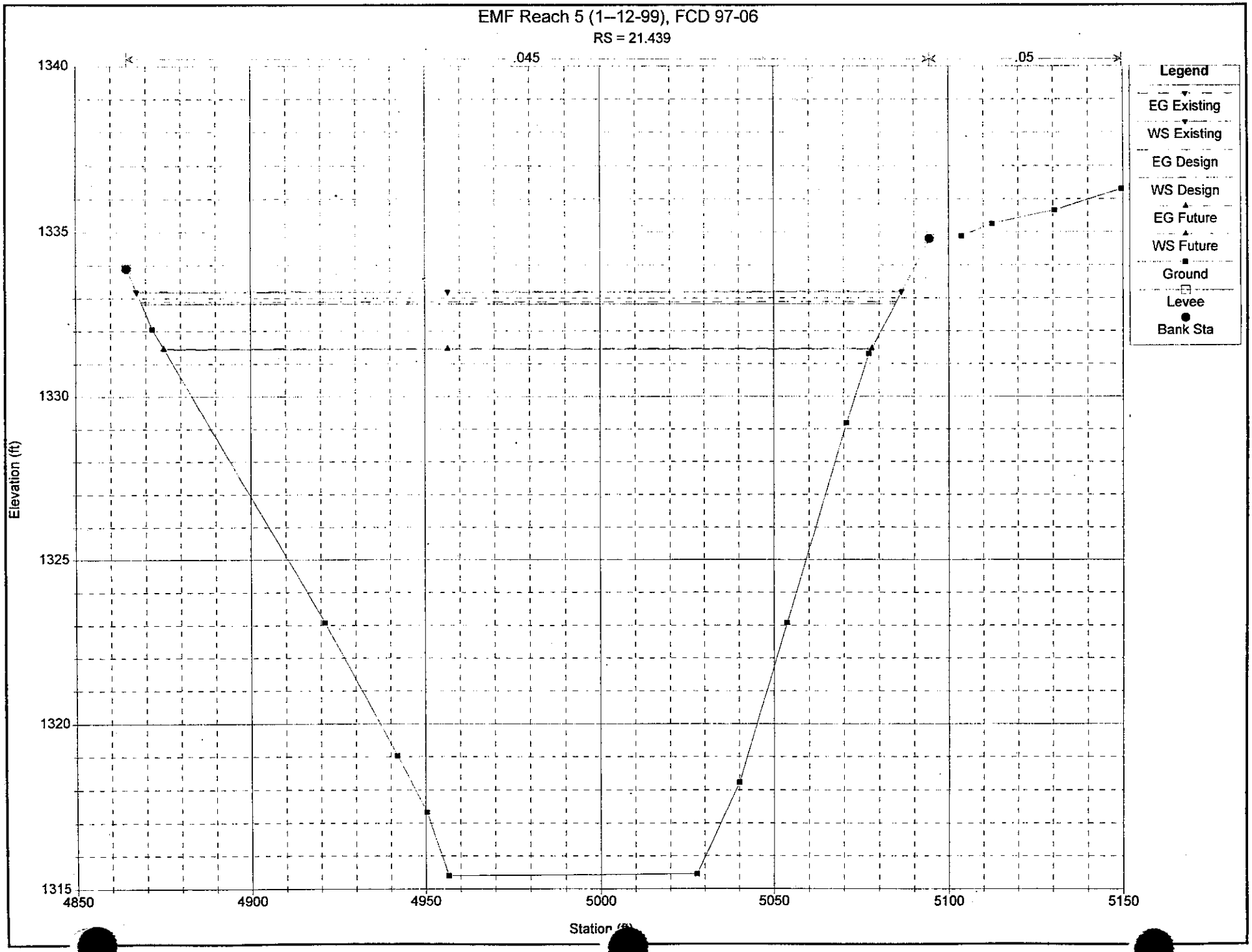
5000
5100
5200
Station (ft)

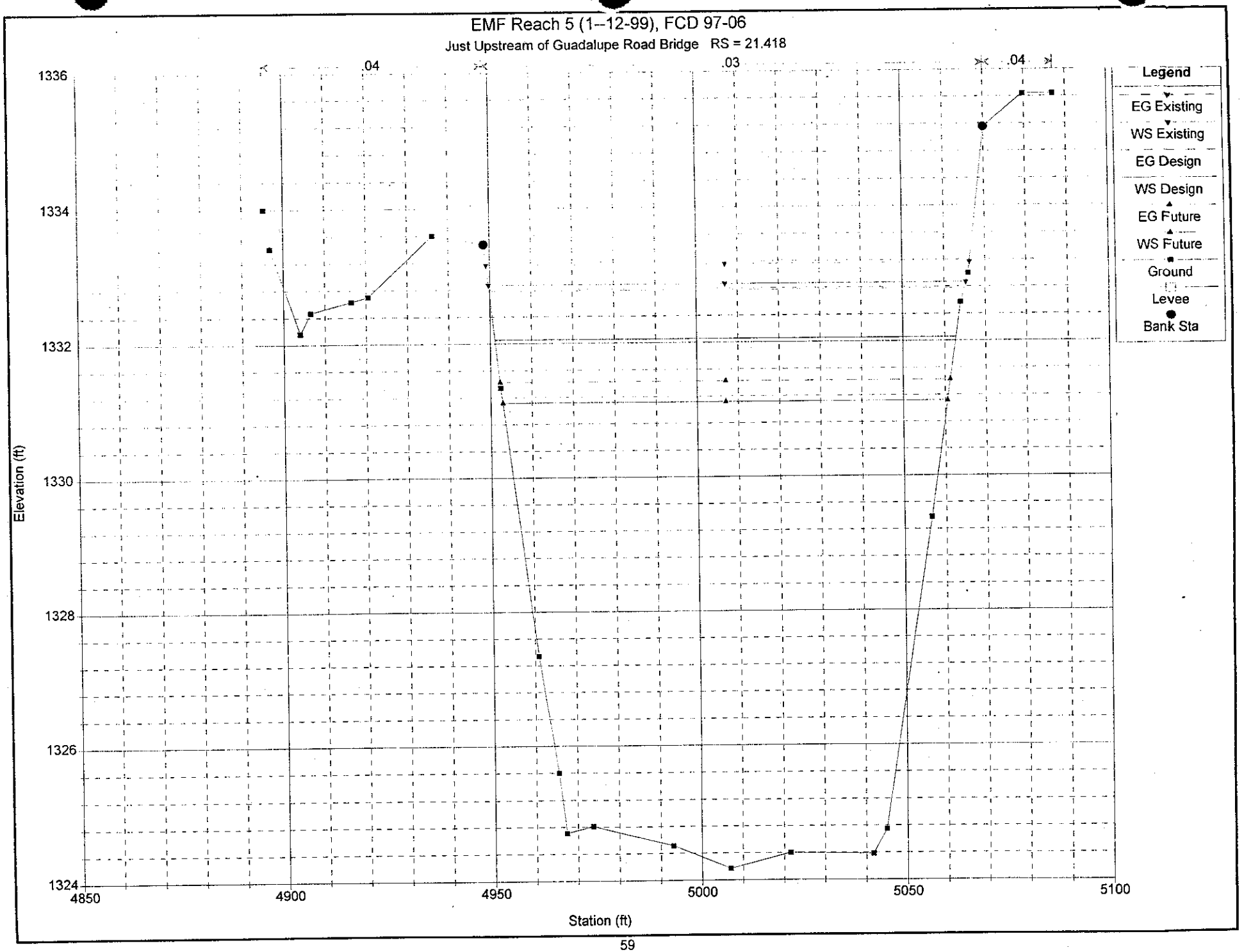

EMF Reach 5 (1–12-99), FCD 97-06
RS = 21.633
.05
.045
.05
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1345
1340
1335
1330
1325
1320
1315
4700
4800
4900
5000
5100
5200
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 21.591
.05
.045
.05
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1345
1340
1335
1330
1325
1320
1315
4700
4800
4900
5000
5100
5200
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 21.531
.045
.05
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1340
1335
1330
1325
1320
1315
4700
4800
4900
5000
5100
5200
5300
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 21.485
.045
.05
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1340
1335
1330
1325
1320
1315
4800
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 21.439
.045
.05
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1340
1335
1330
1325
1320
1315
4850
4900
4950
5000
5050
5100
5150
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Just Upstream of Guadalupe Road Bridge RS = 21.418
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1336
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1332
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4950
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5050
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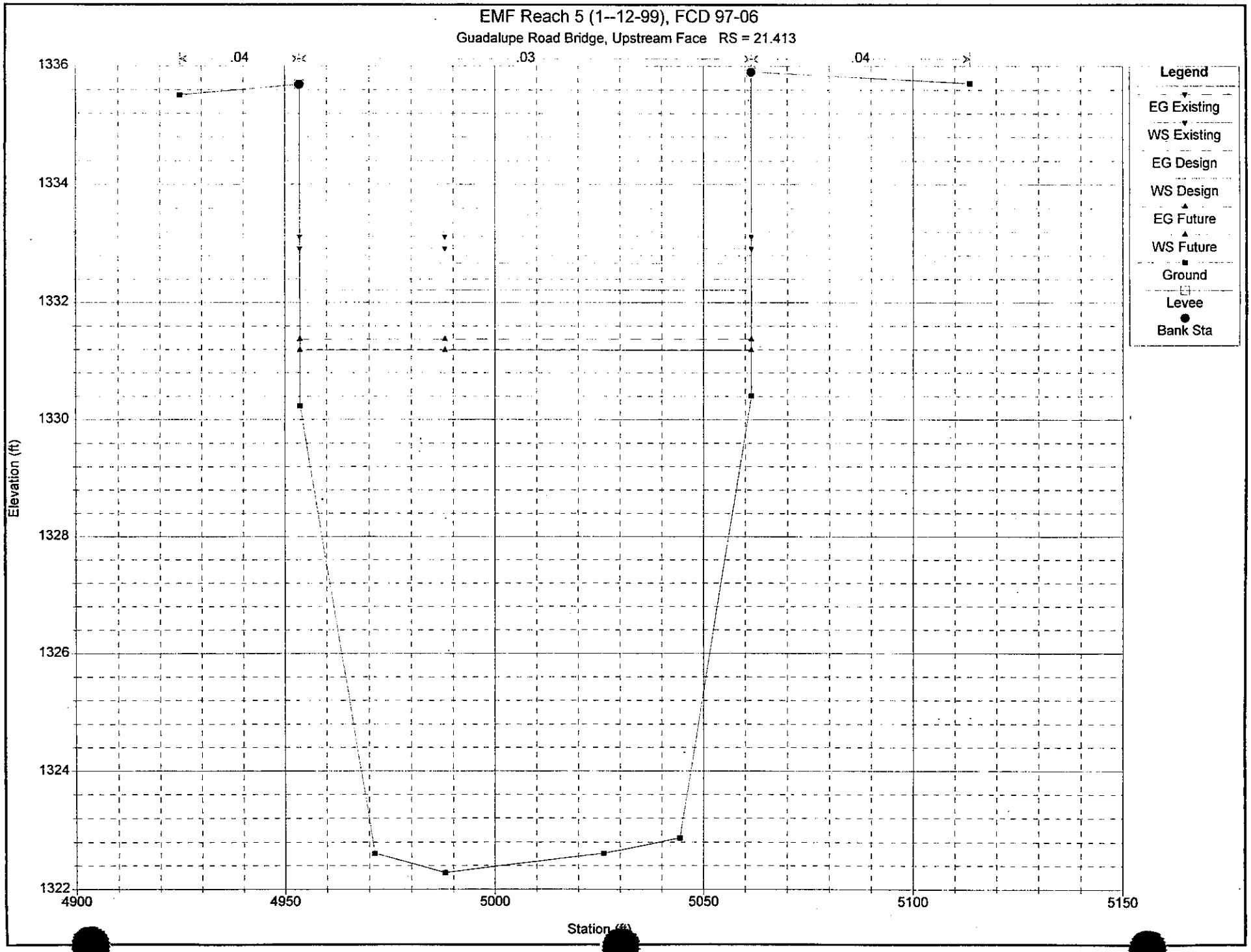
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Guadalupe Road Bridge, Upstream Face RS = 21.413
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1336
1334
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1330
1328
1326
1324
1322
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4950
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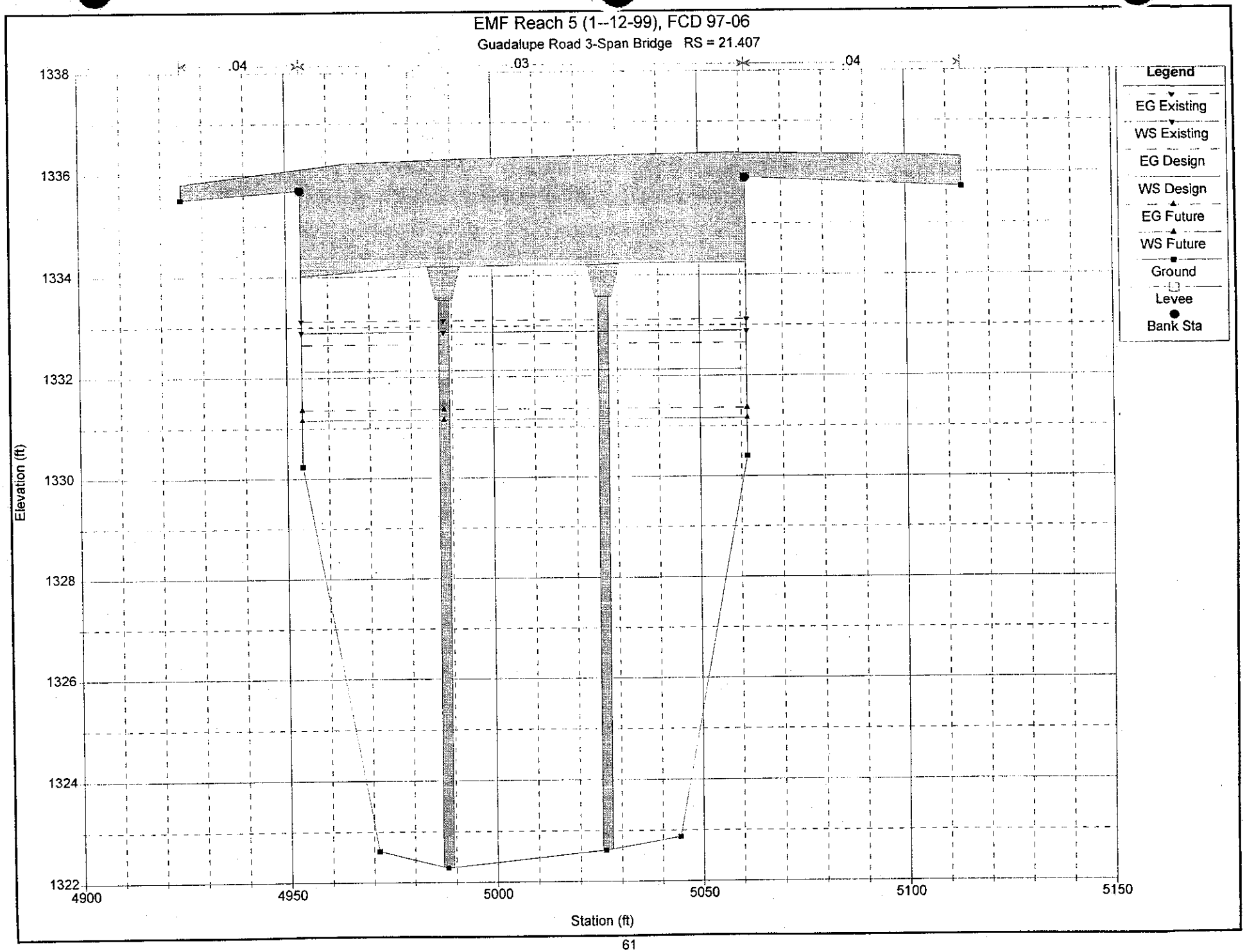
5050
5100
5150
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Guadalupe Road 3-Span Bridge RS = 21.407
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
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1330
1328
1326
1324
1322
4900
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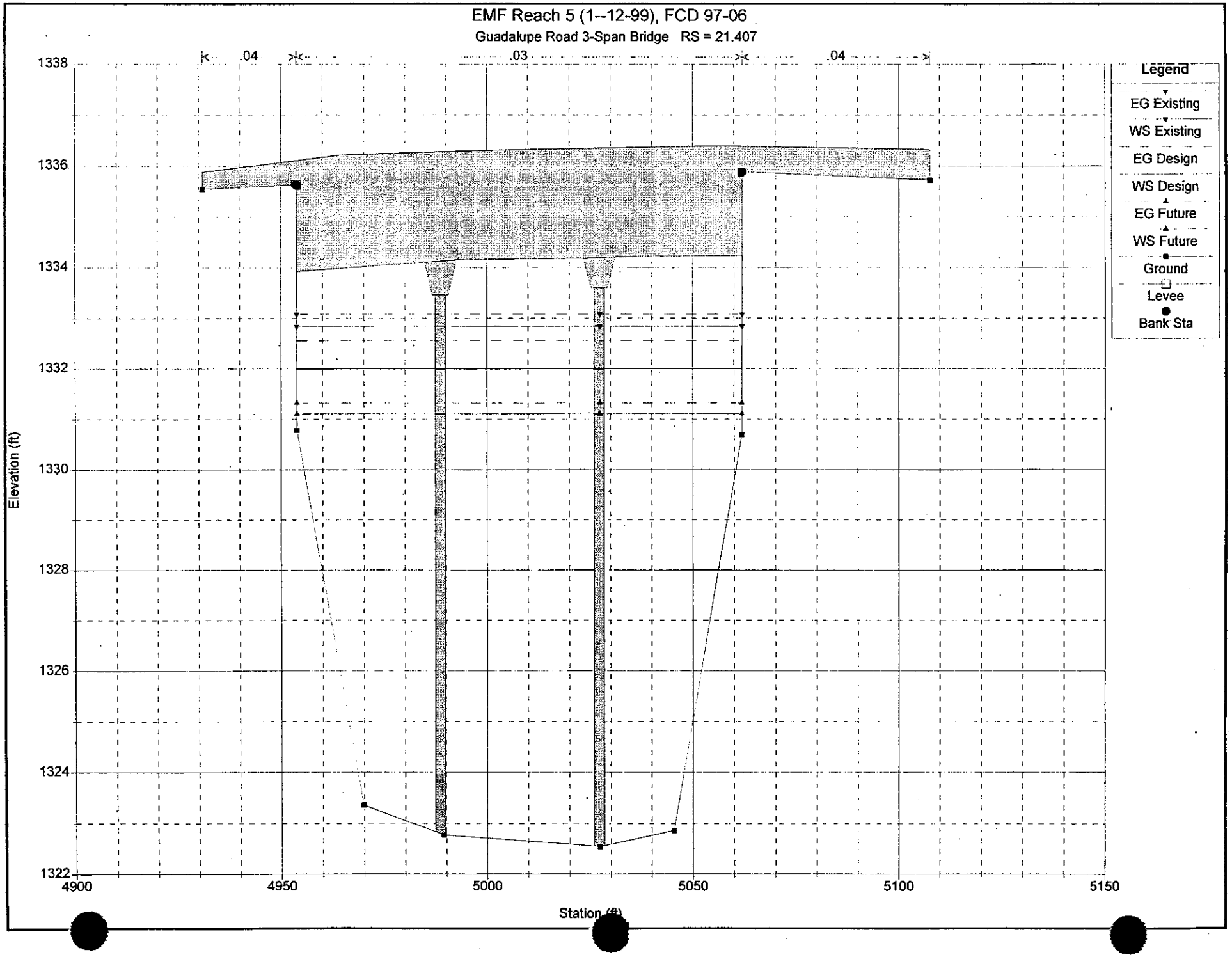
5050
5100
5150
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Guadalupe Road 3-Span Bridge RS = 21.407
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
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1328
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1324
1322
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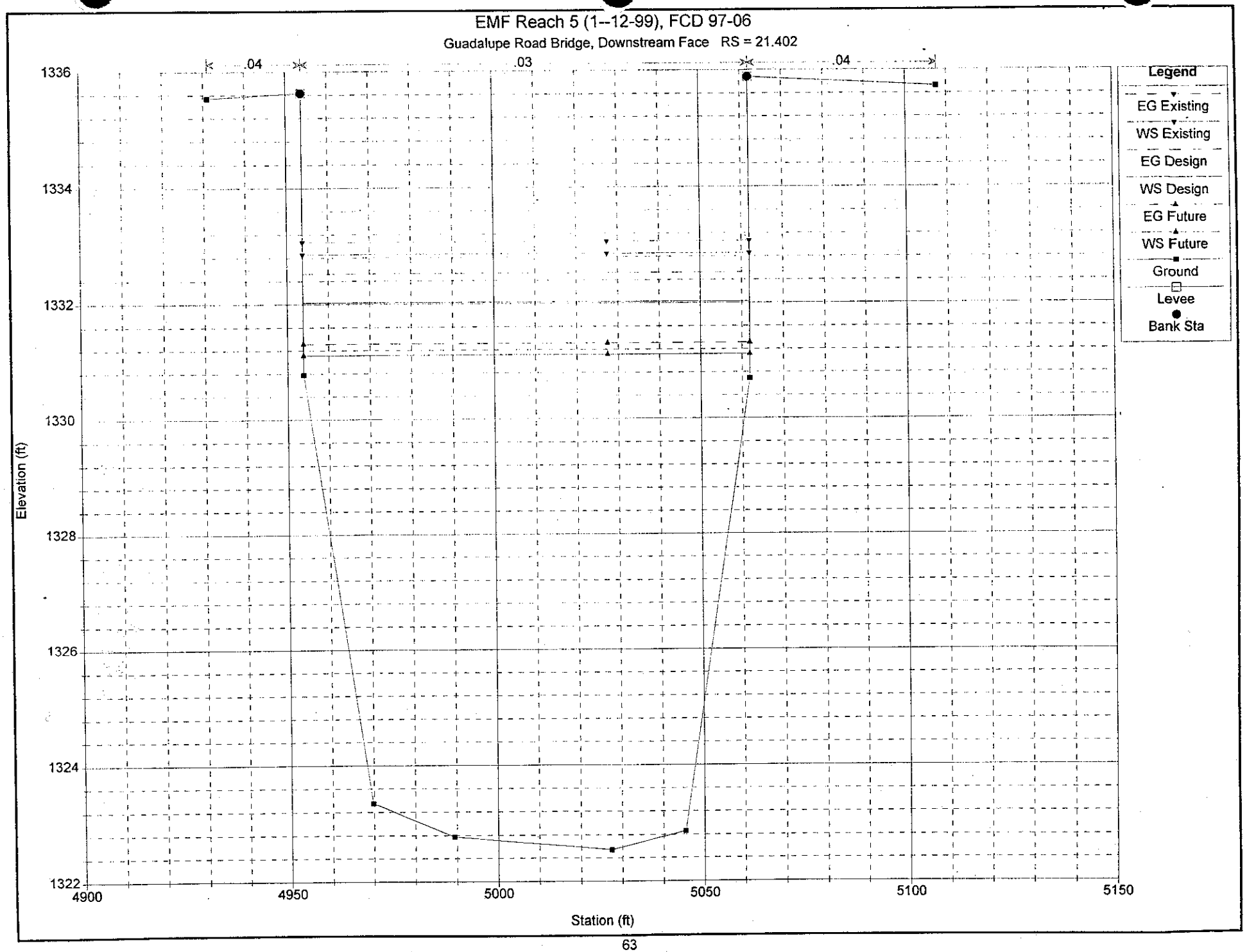
5100
5150
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Guadalupe Road Bridge, Downstream Face RS = 21.402
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1336
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1330
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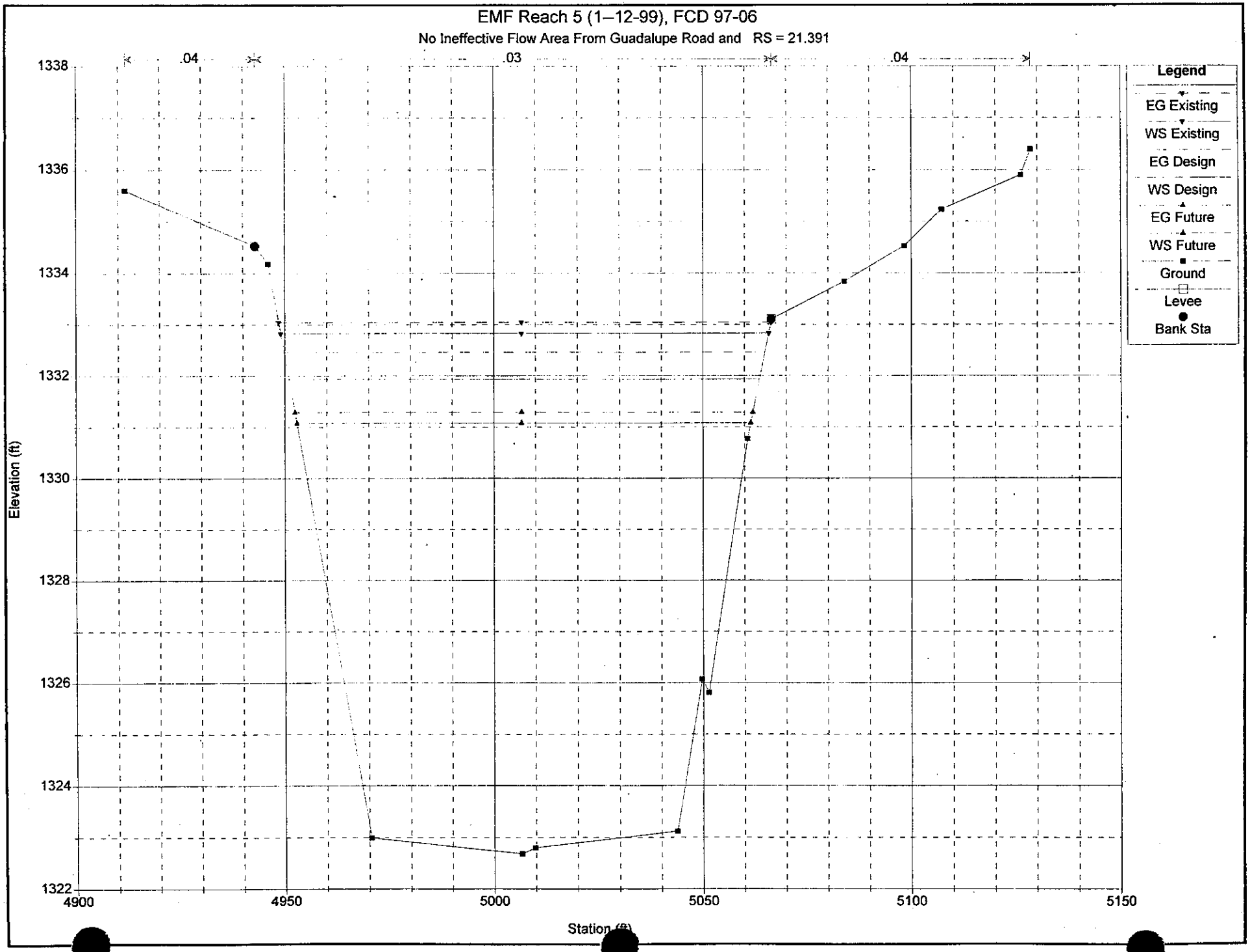
4900
4950
5000
5050
5100
5150
Station (ft)


EMF Reach 5 (1–12-99), FCD 97-06
No Ineffective Flow Area From Guadalupe Road and RS = 21.391
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
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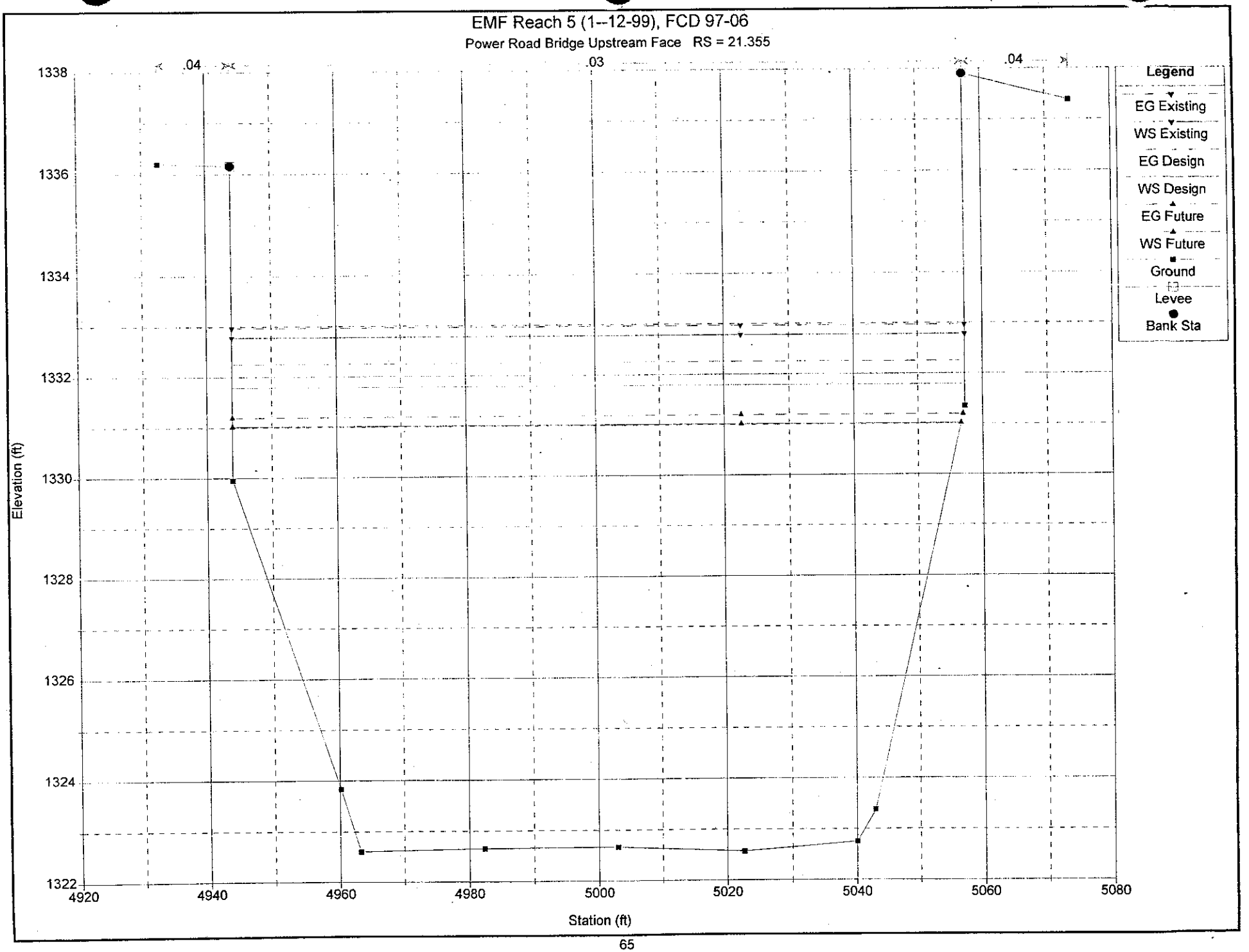
1324
1322
4900
4950
5000
5050
5100
5150
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Power Road Bridge Upstream Face RS = 21.355
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
1326
1324
1322
4920
4940
4960
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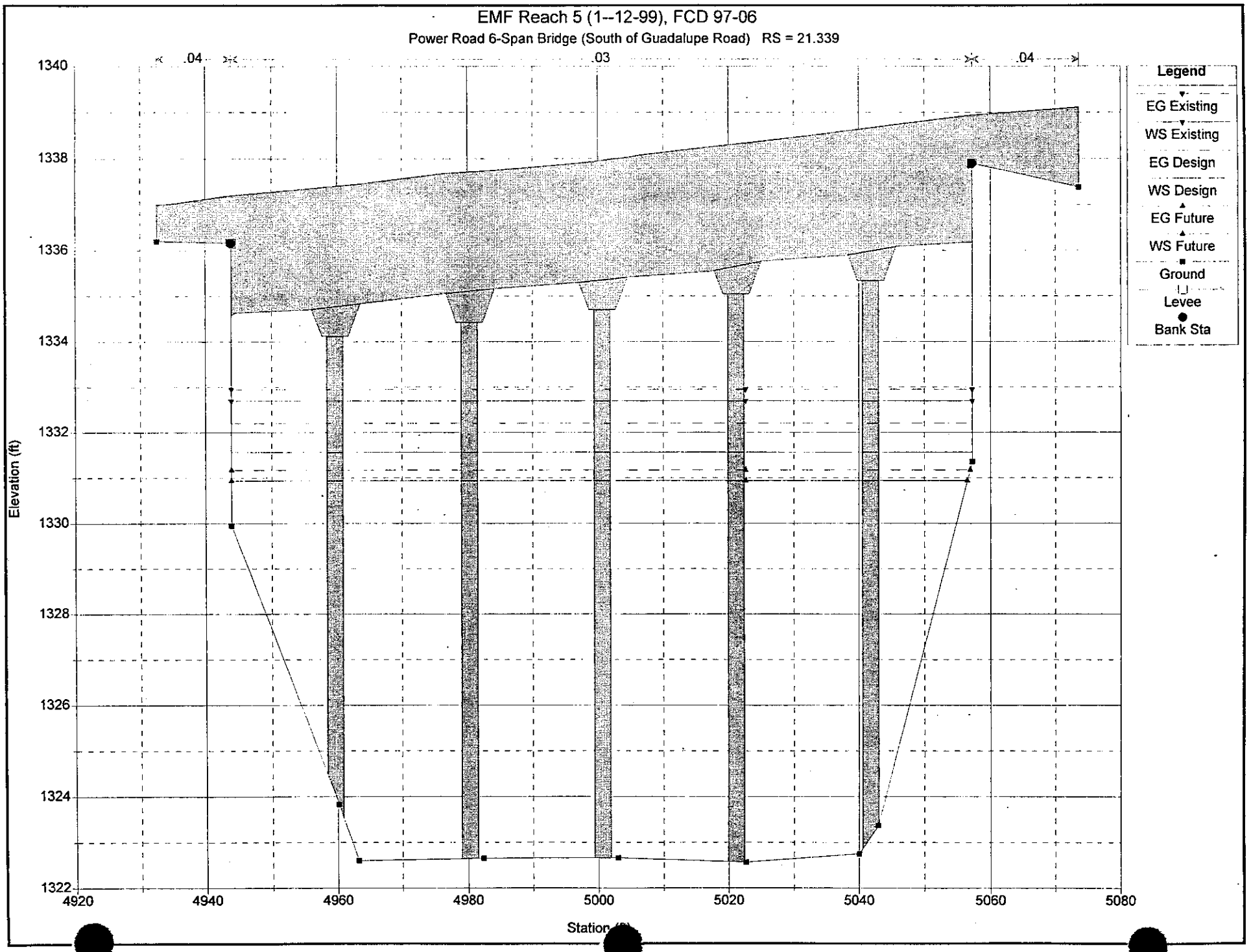
5040
5060
5080
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Power Road 6-Span Bridge (South of Guadalupe Road) RS = 21.339
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
1326
1324
1322
4920
4940
4960
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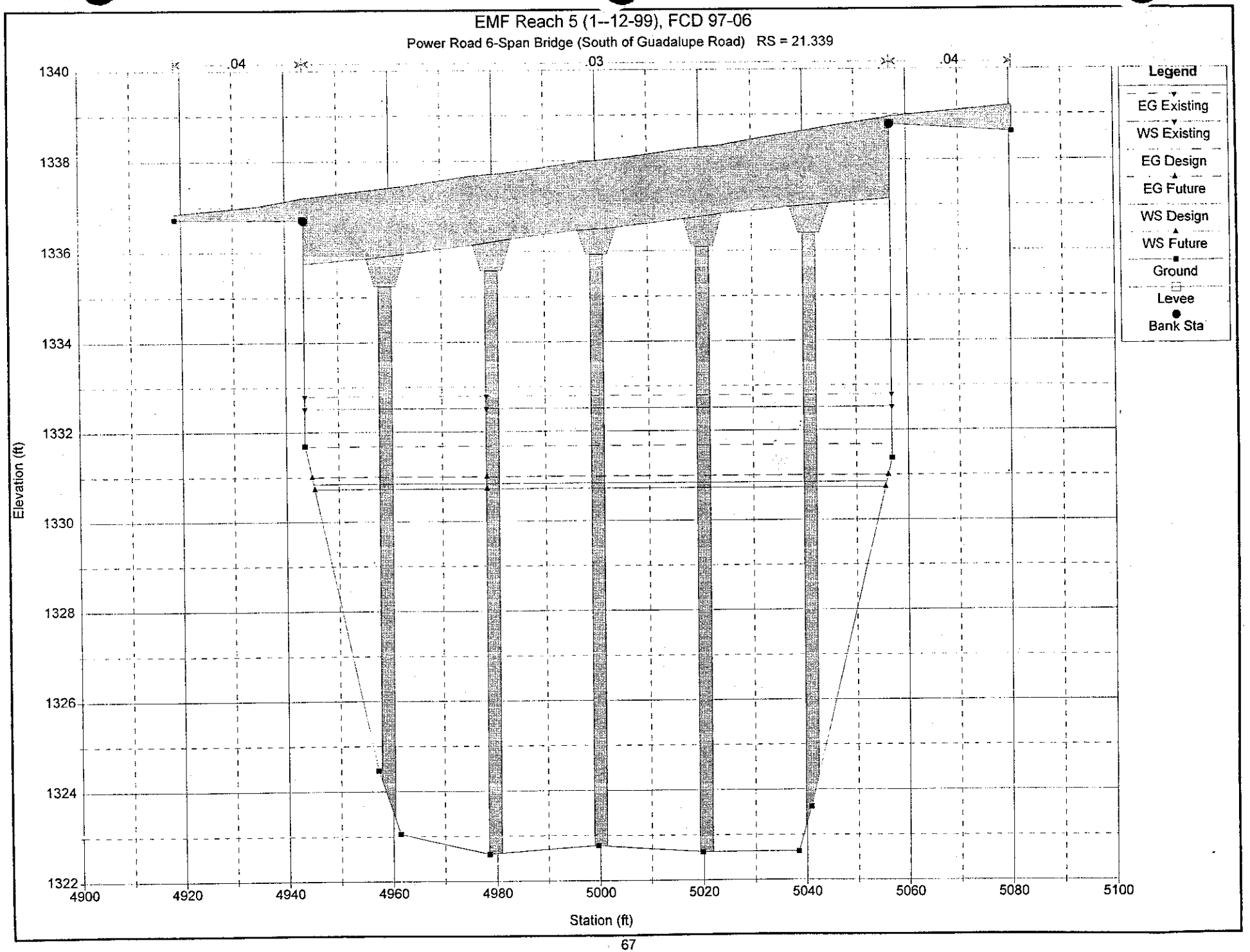
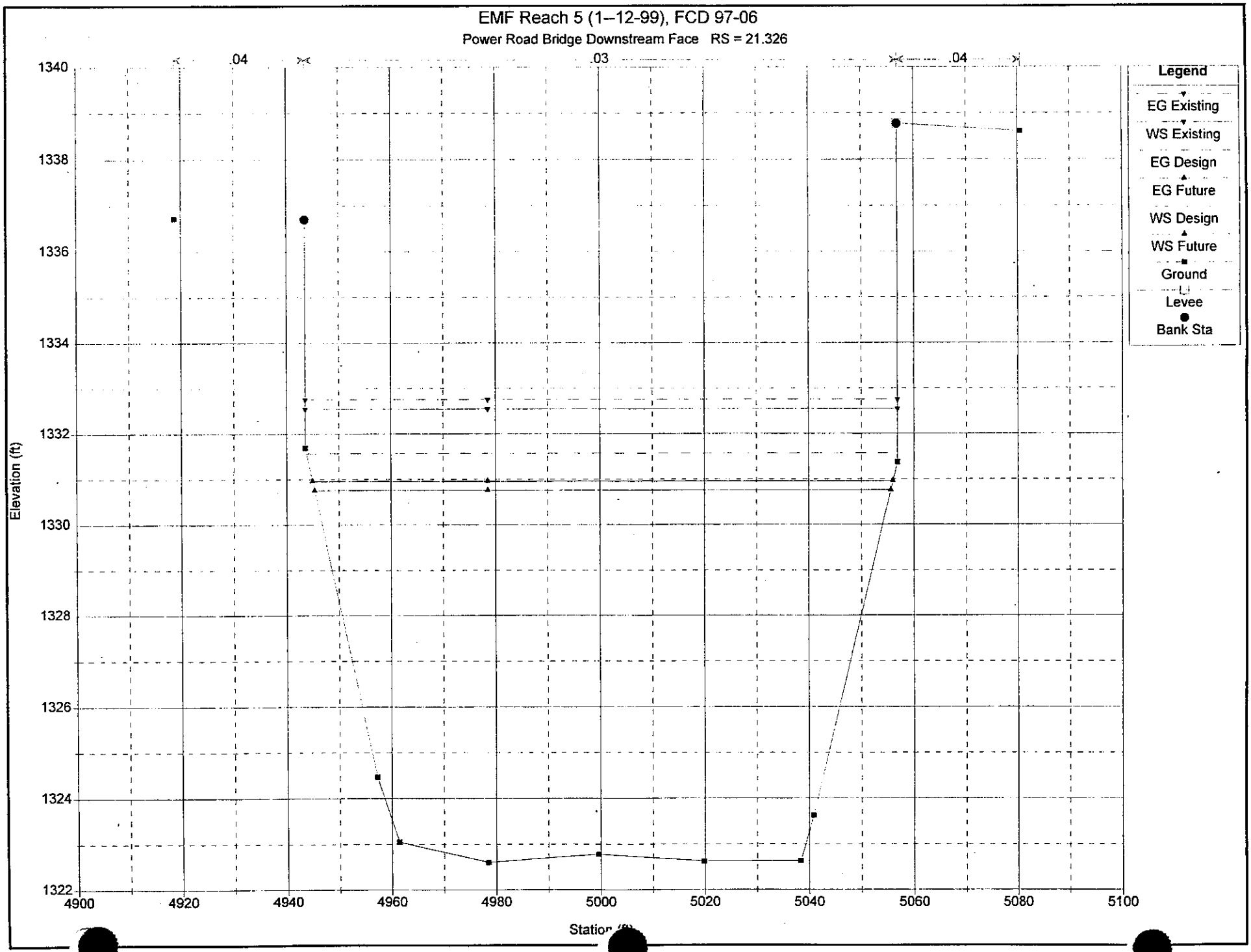
5020
5040
5060
5080
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Power Road 6-Span Bridge (South of Guadalupe Road) RS = 21.339
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
EG Future
WS Design
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
1326
1324
1322
4900
4920
4940
4960
4980
5000
5020
5040
5060
5080
5100
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Power Road Bridge Downstream Face RS = 21.326
.04
.03
.04
Legend
EG Existing
WS Existing
EG Design
EG Future
WS Design
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
1326
1324
1322
4900
4920
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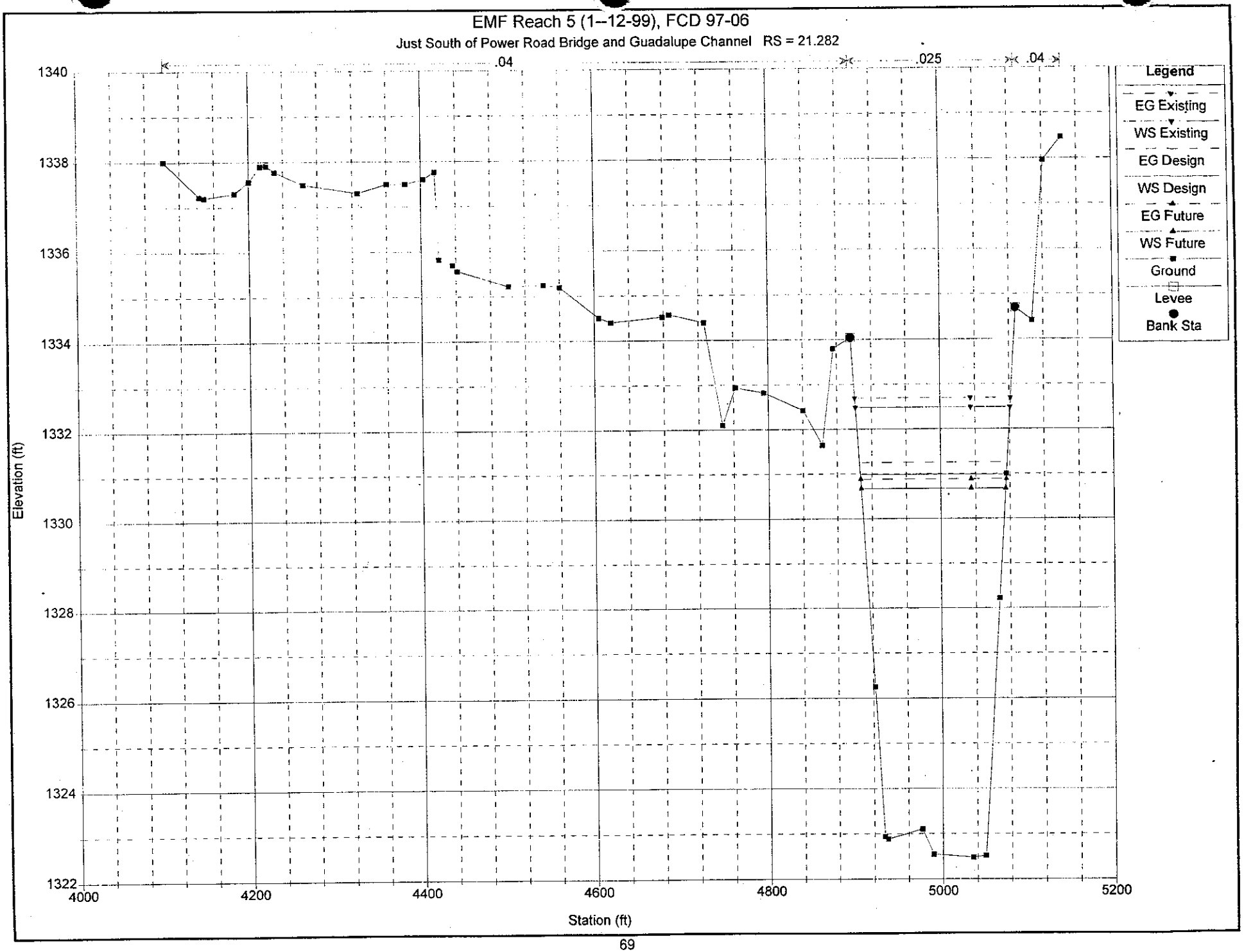
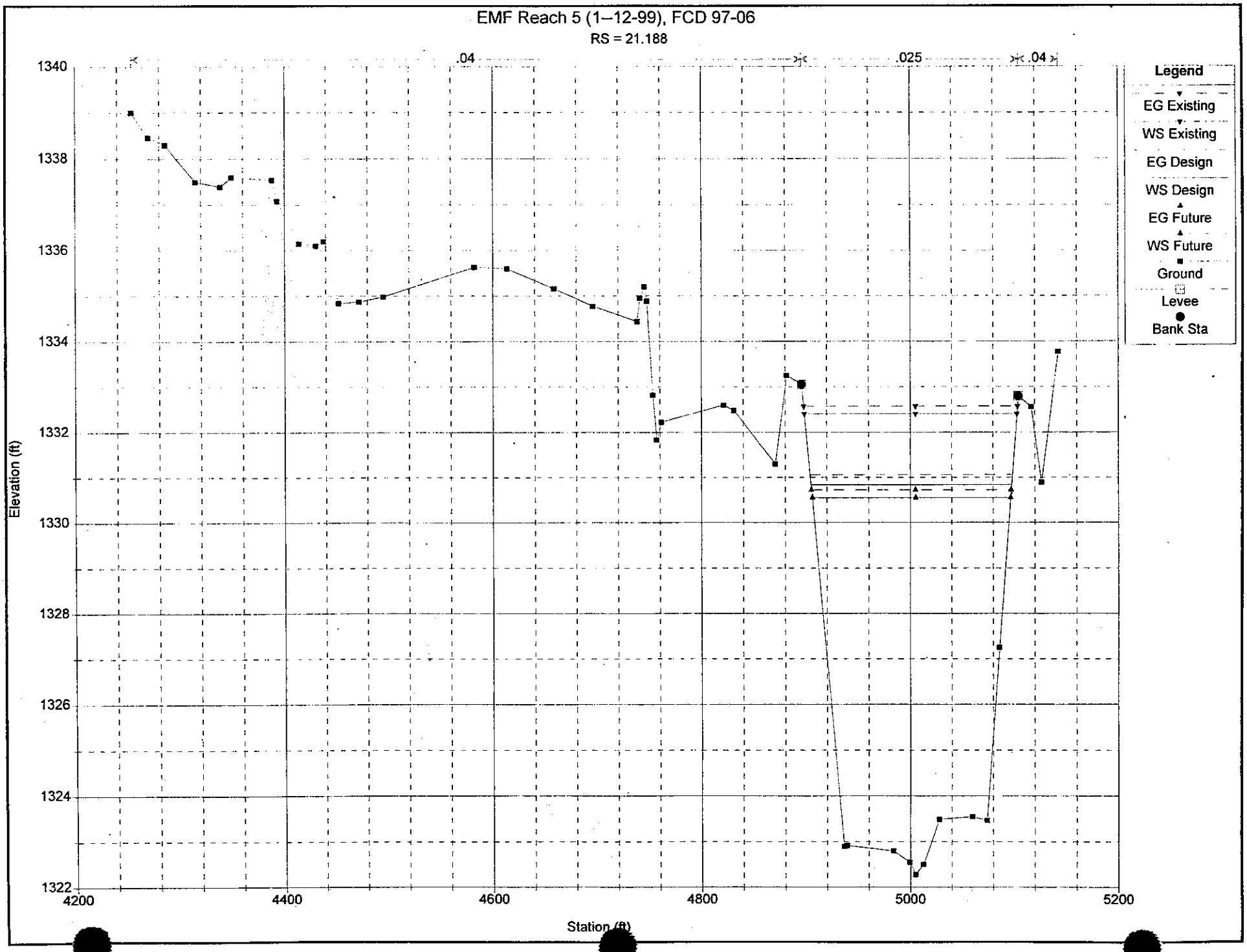
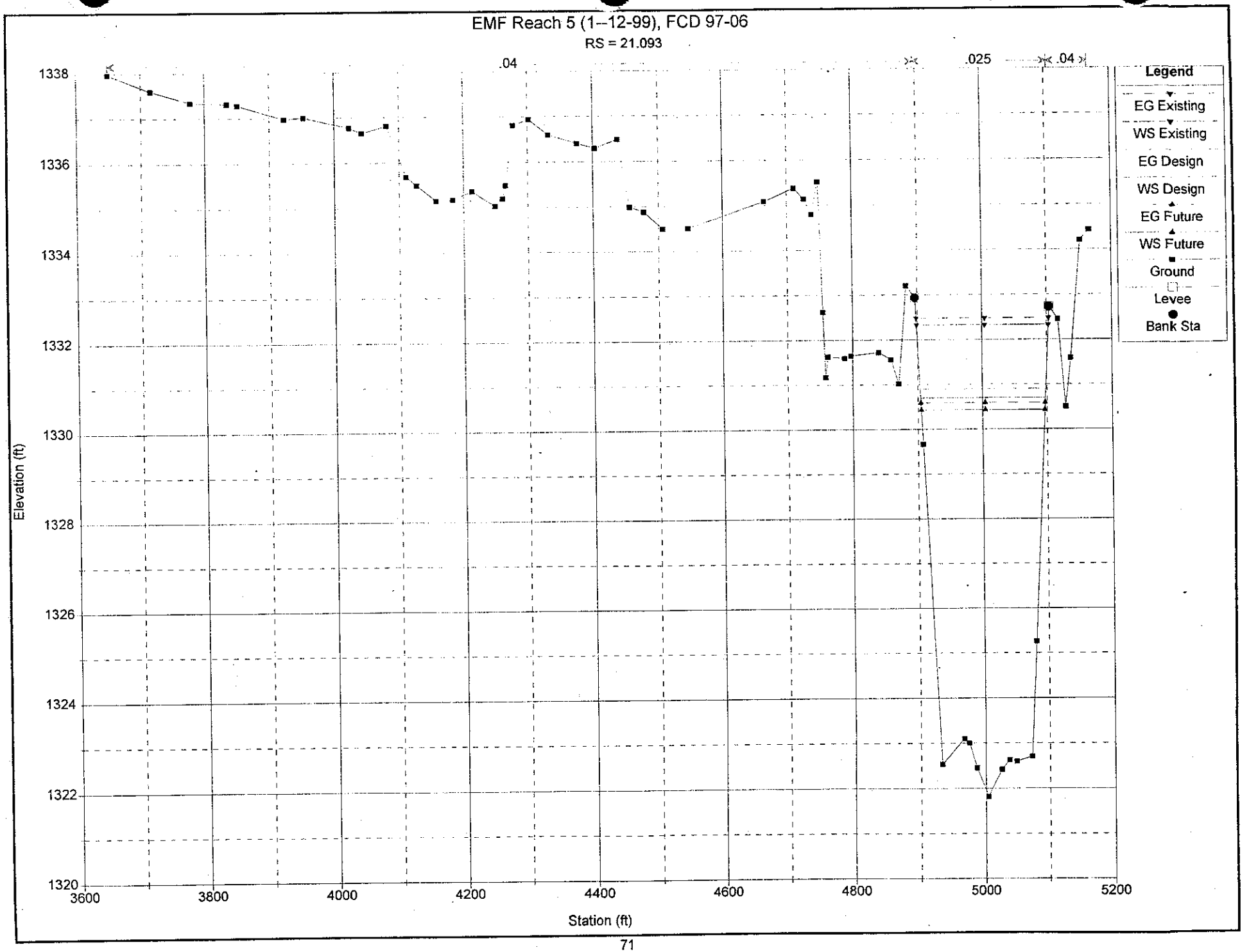
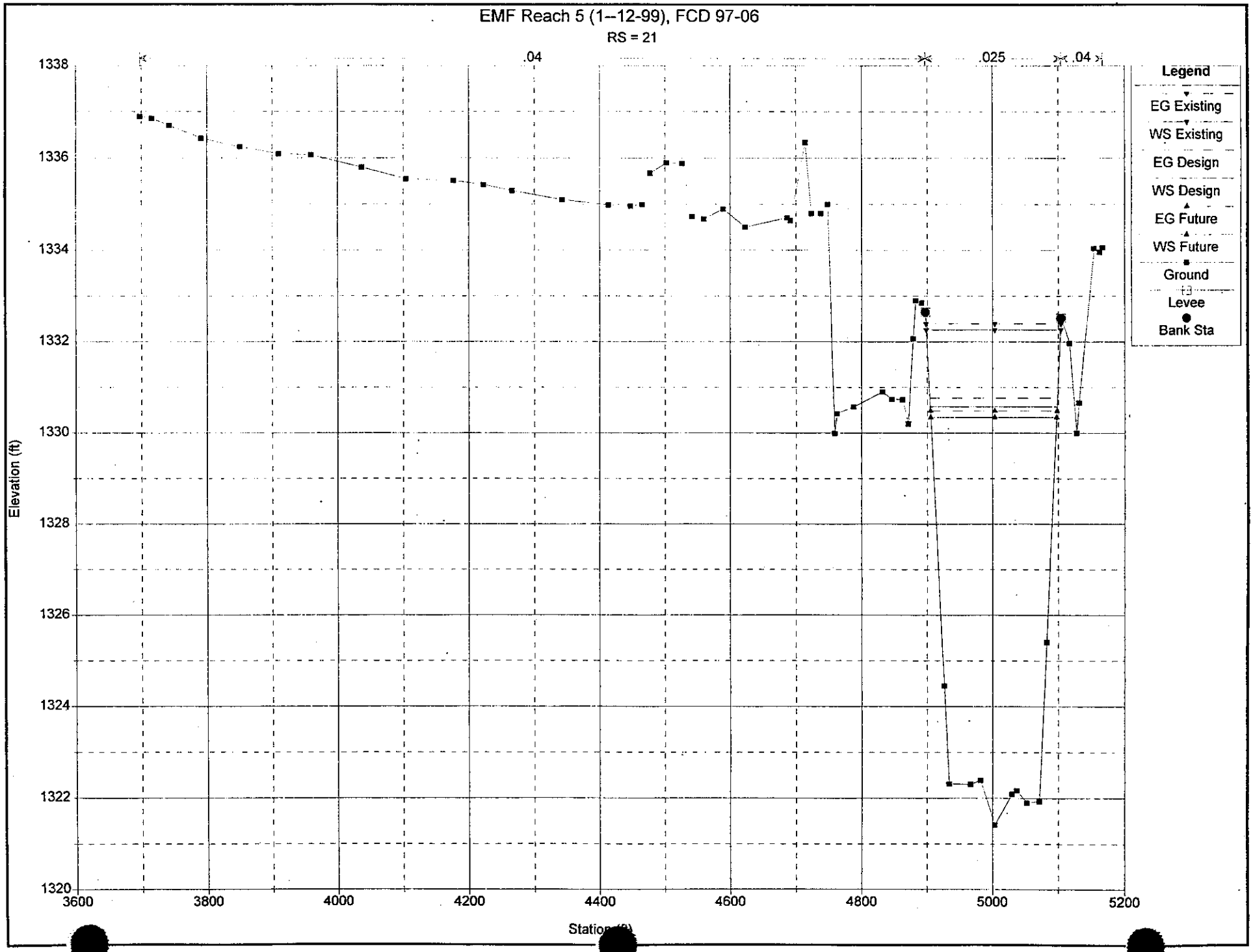
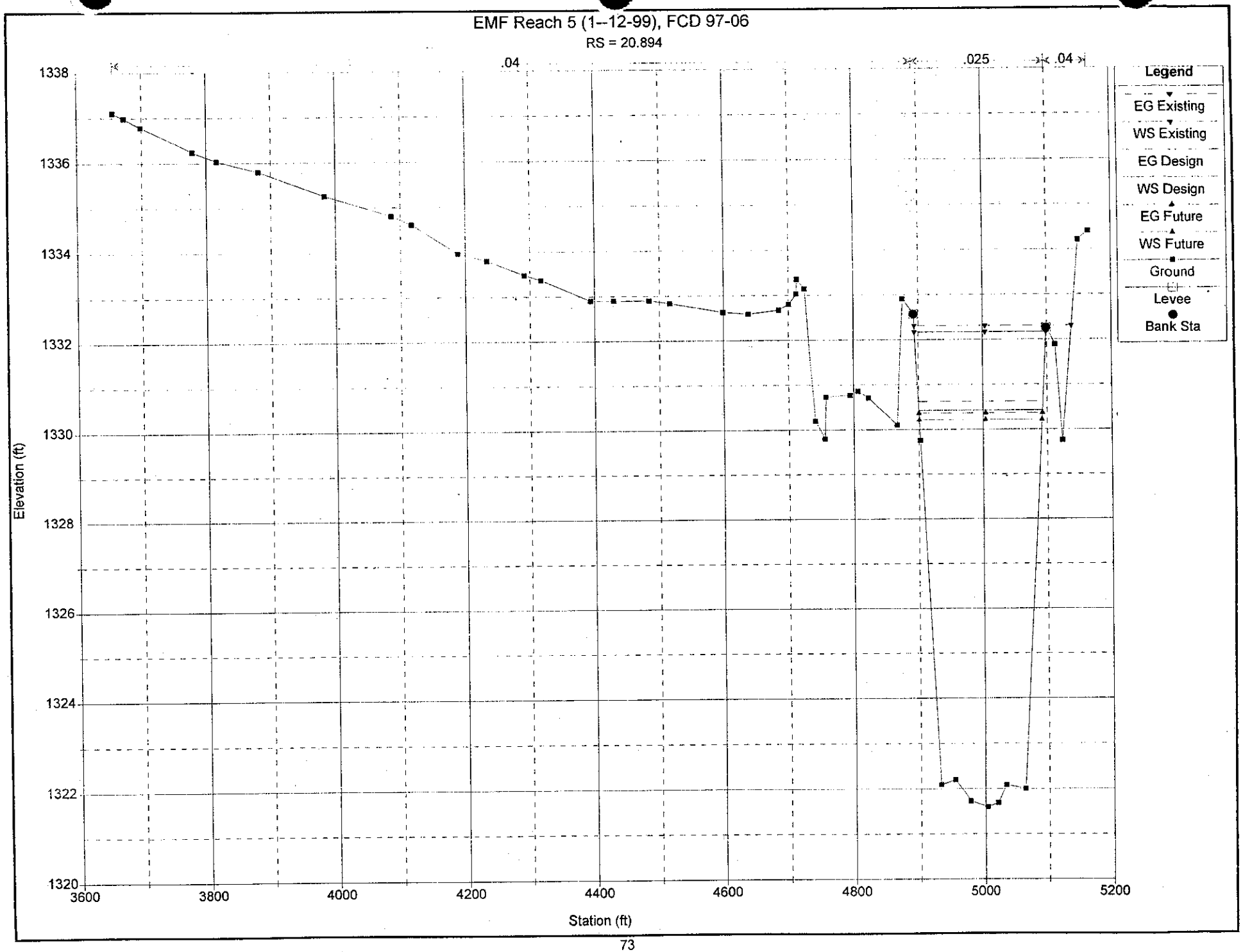
5020
5040
5060
5080
5100

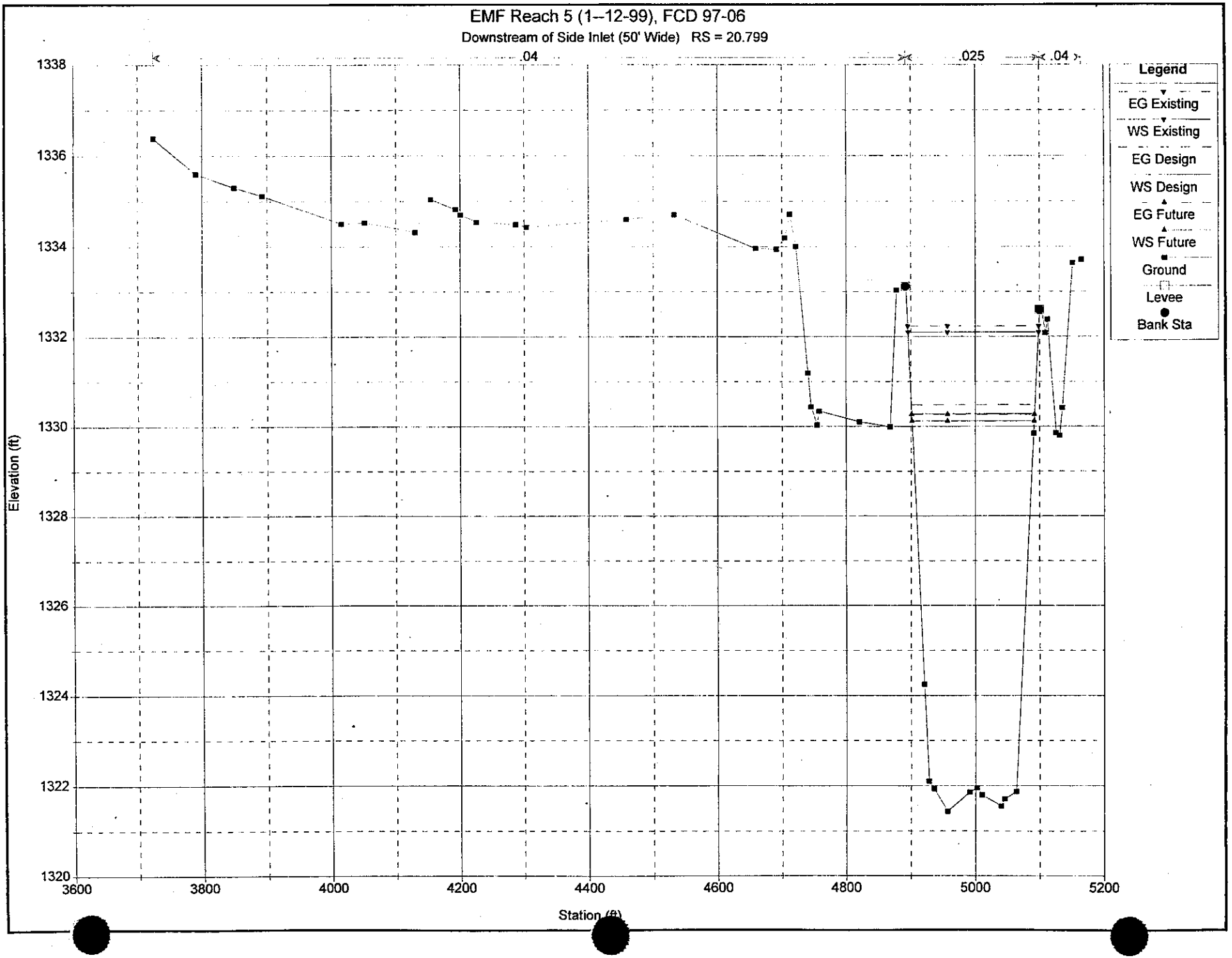

EMF Reach 5 (1--12-99), FCD 97-06
Just South of Power Road Bridge and Guadalupe Channel RS = 21.282
.04
.025
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
1326
1324
1322
4000
4200
4400
4600
4800
5000
5200
Station (ft)

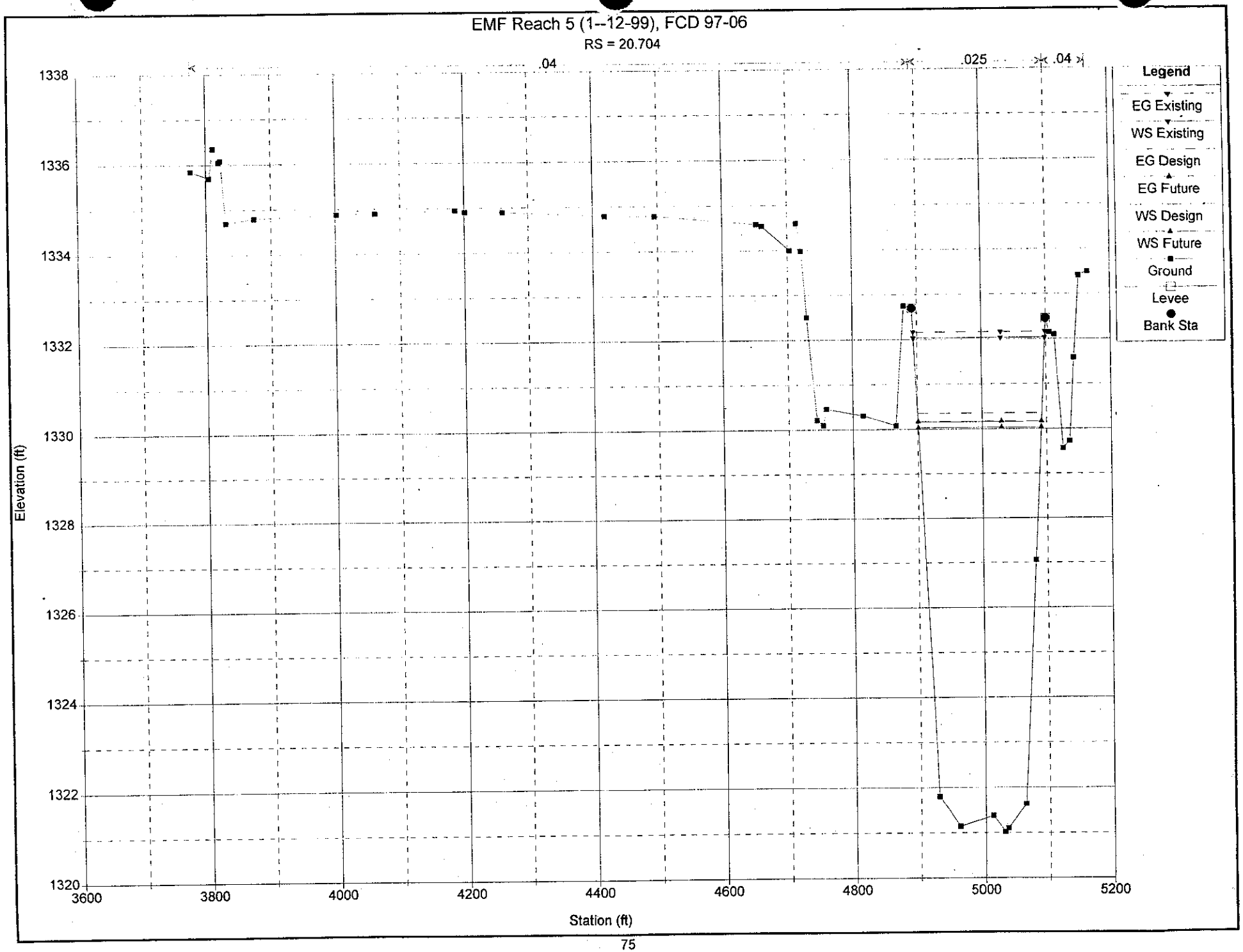

EMF Reach 5 (1–12-99), FCD 97-06
RS = 21.188
.04
.025
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1340
1338
1336
1334
1332
1330
1328
1326
1324
1322
4200
4400
4600
4800
5000
5200
Station (ft)

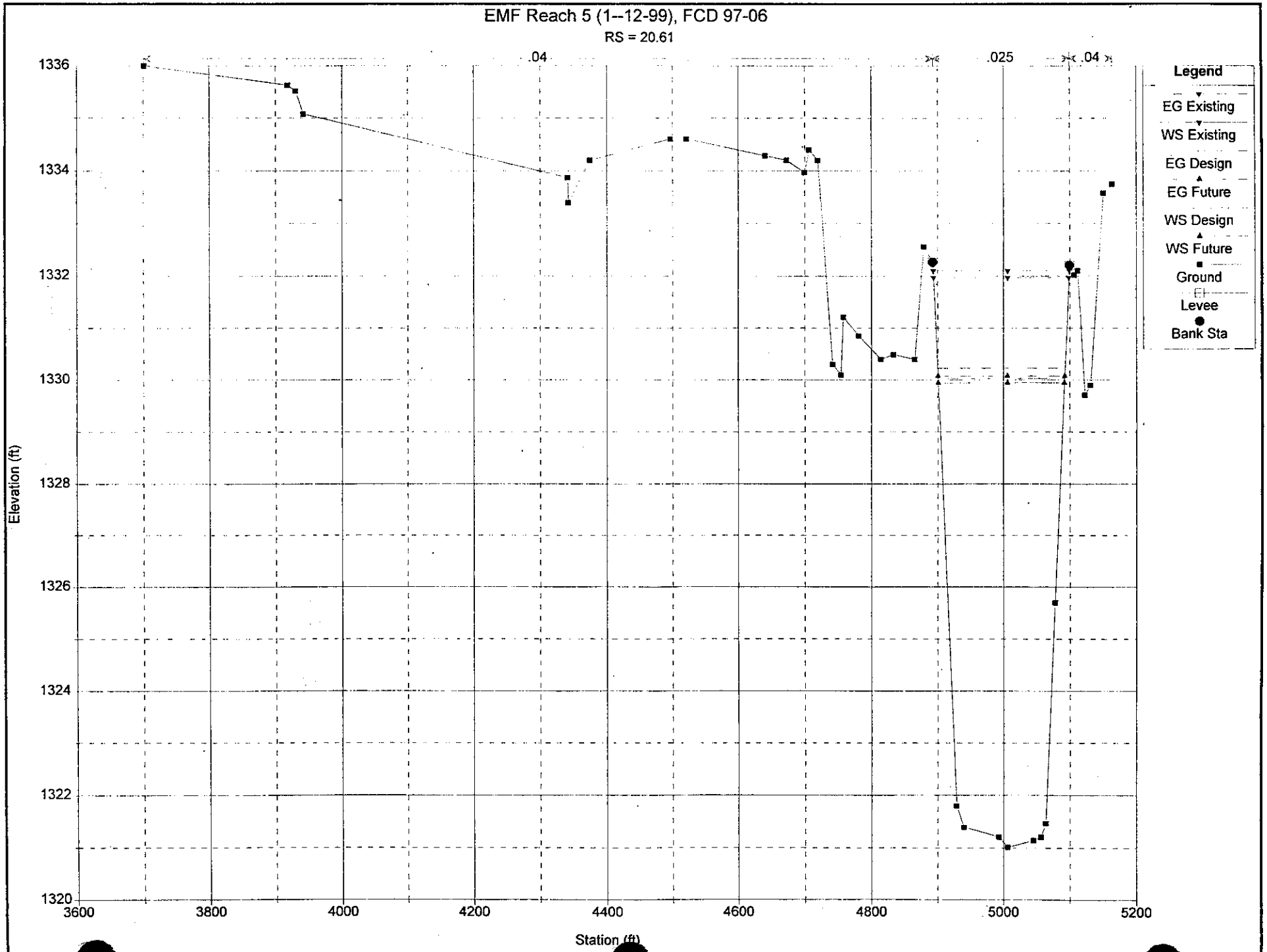

EMF Reach 5 (1--12-99), FCD 97-06
RS = 21.093
.04
.025
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
1326
1324
1322
1320
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

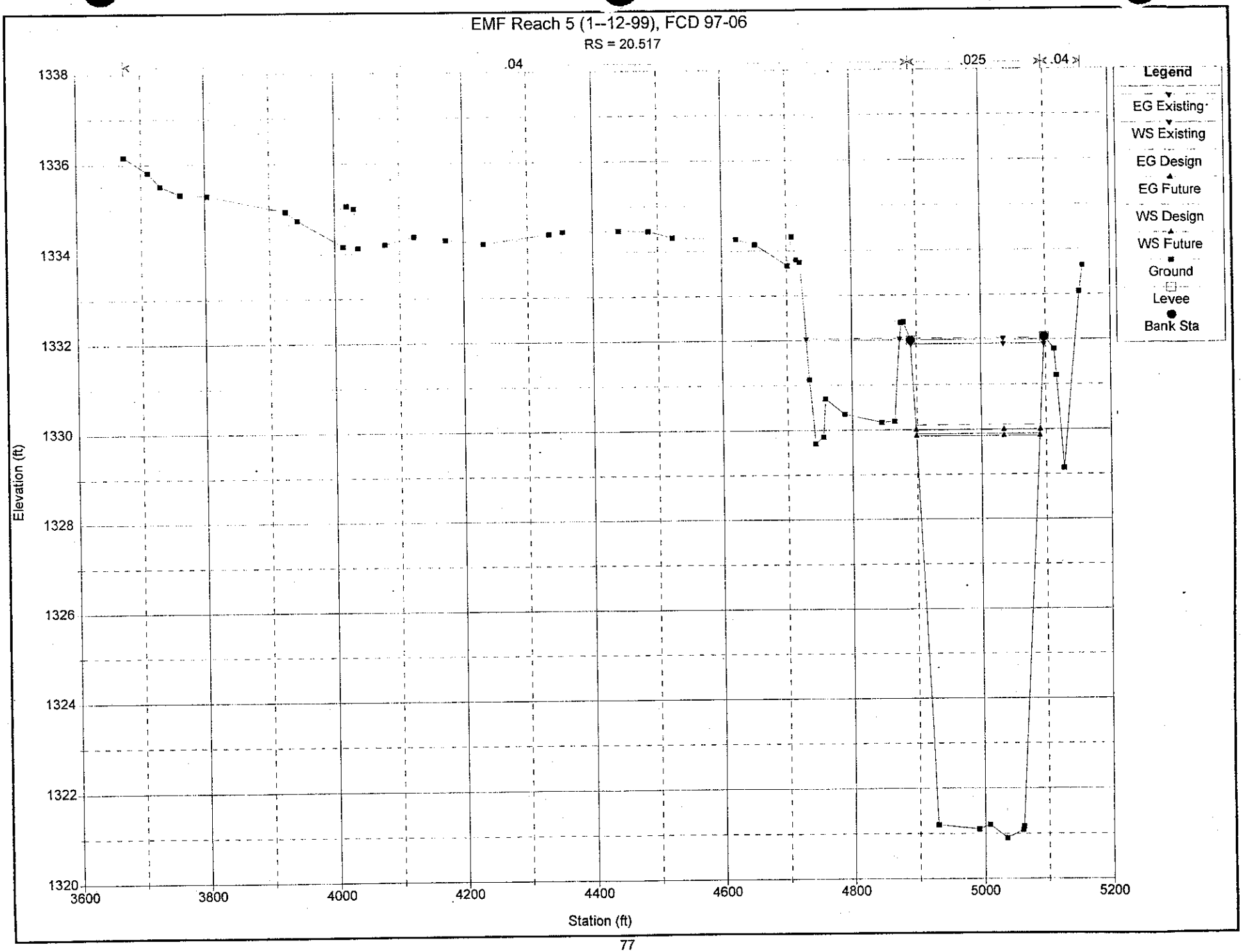

EMF Reach 5 (1--12-99), FCD 97-06
RS = 21
.04
.025
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
1326
1324
1322
1320
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

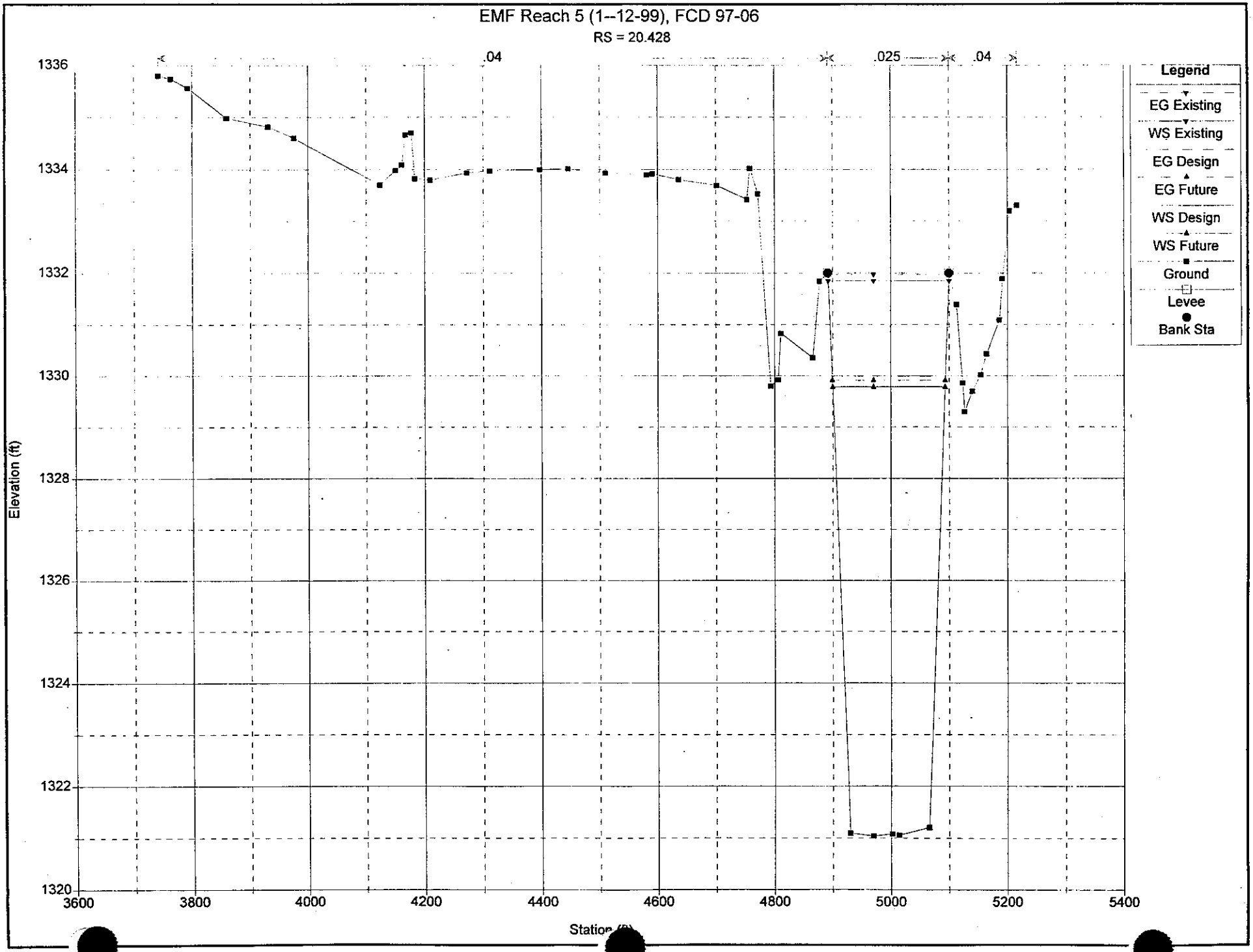

EMF Reach 5 (1--12-99), FCD 97-06
RS = 20.894
.04
.025
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
1326
1324
1322
1320
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Downstream of Side Inlet (50' Wide) RS = 20.799
.04
.025
.04
Legend
EG Existing
WS Existing
EG Design
WS Design
EG Future
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
1326
1324
1322
1320
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 20.704
.04
.025
.04
Legend
EG Existing
WS Existing
EG Design
EG Future
WS Design
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
1326
1324
1322
1320
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 20.61
.04
.025
.04
Legend
EG Existing
WS Existing
EG Design
EG Future
WS Design
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
1322
1320
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 20.517
.04
.025
.04
Legend
EG Existing
WS Existing
EG Design
EG Future
WS Design
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
1326
1324
1322
1320
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
RS = 20.428
.04
.025
.04
Legend
EG Existing
WS Existing
EG Design
EG Future
WS Design
WS Future
Ground
Levee
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
1322
1320
3600
3800
4000
4200
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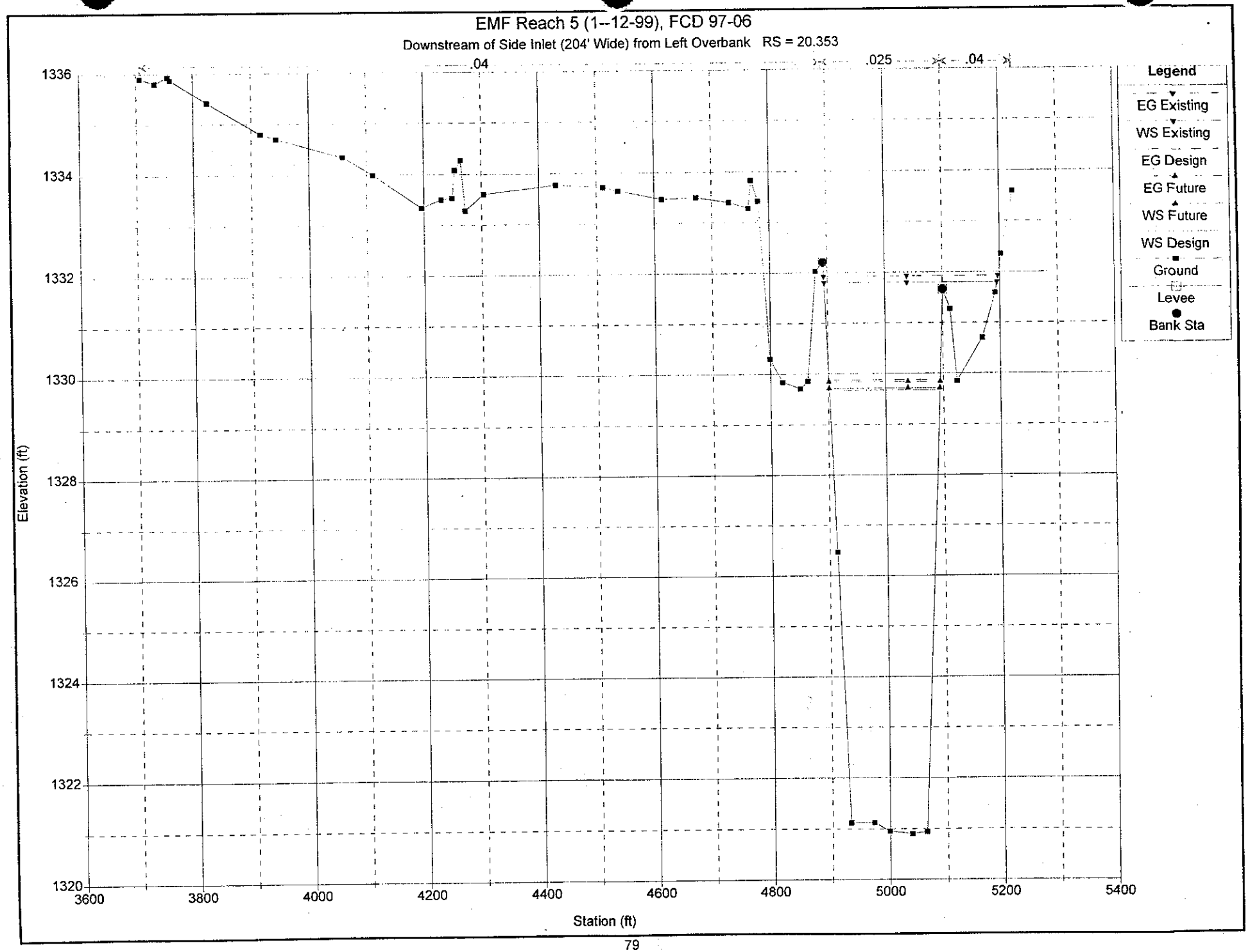
5000
5200
5400
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
Downstream of Side Inlet (204' Wide) from Left Overbank RS = 20.353
.04
.025
.04
Legend
EG Existing
WS Existing
EG Design
EG Future
WS Future
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
1322
1320
3600
3800
4000
4200
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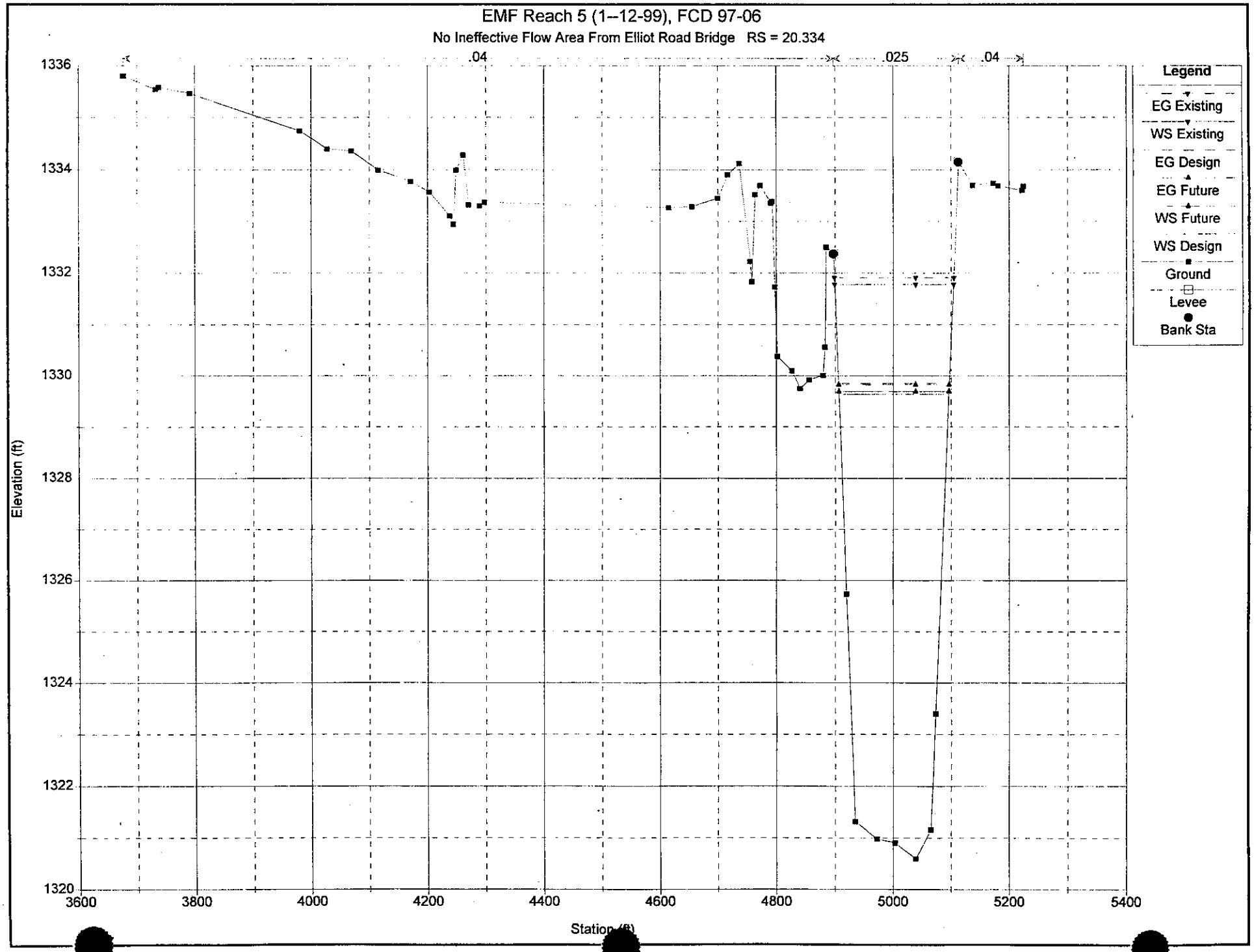
4800
5000
5200
5400
Station (ft)


EMF Reach 5 (1--12-99), FCD 97-06
No Ineffective Flow Area From Elliot Road Bridge RS = 20.334
.04
.025
.04
Legend
EG Existing
WS Existing
EG Design
EG Future
WS Future
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
1322
1320
3600
3800
4000
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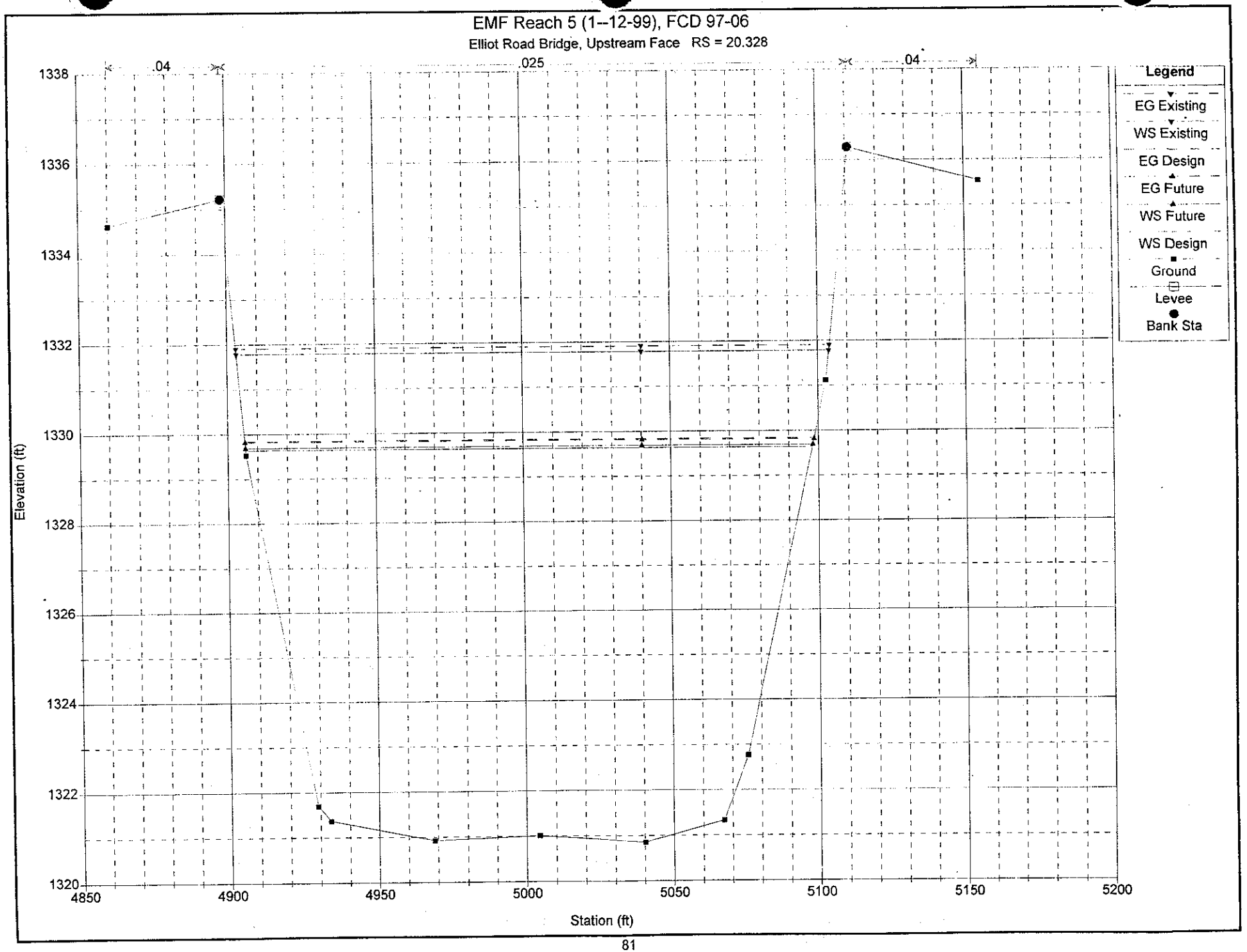
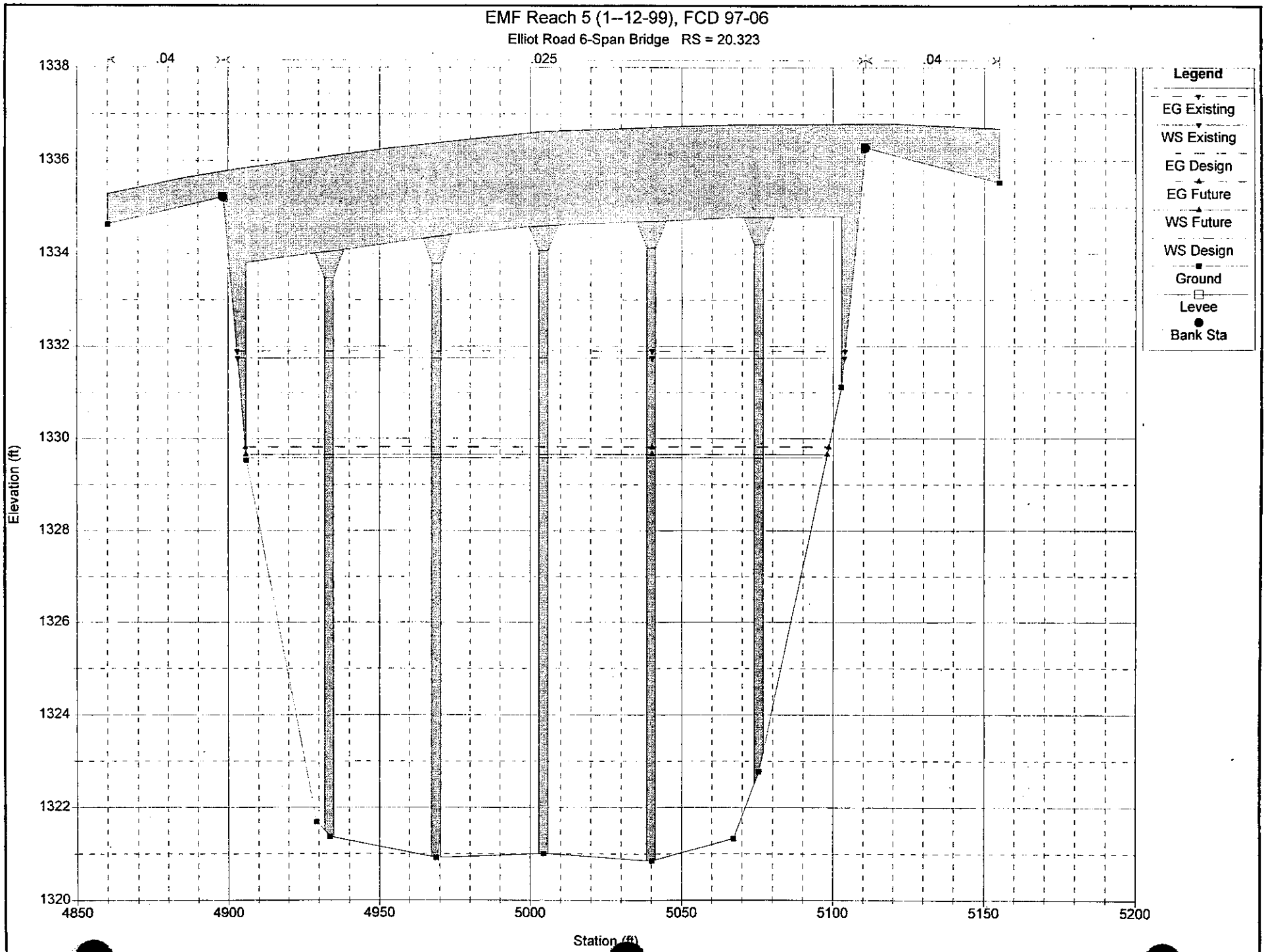
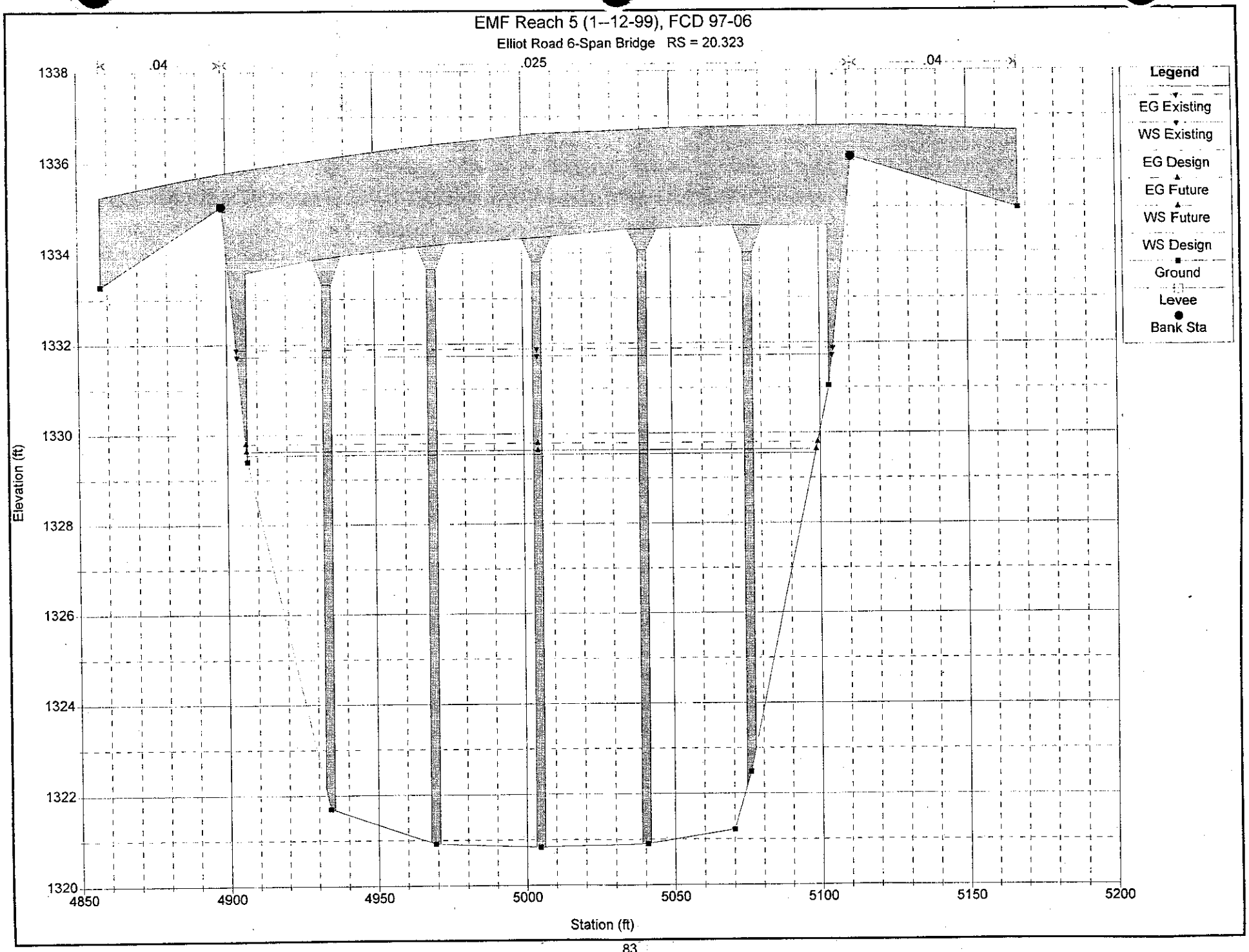
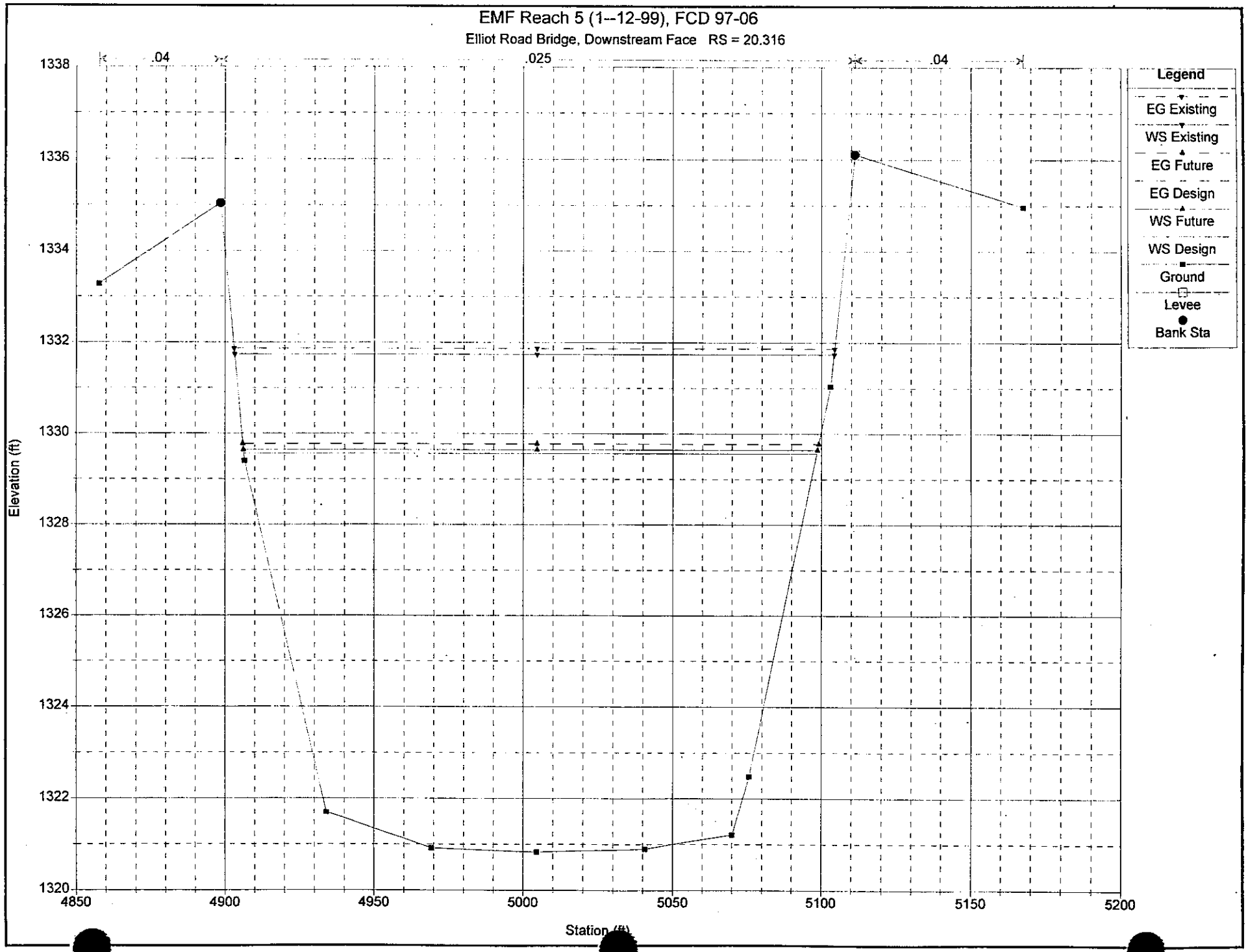
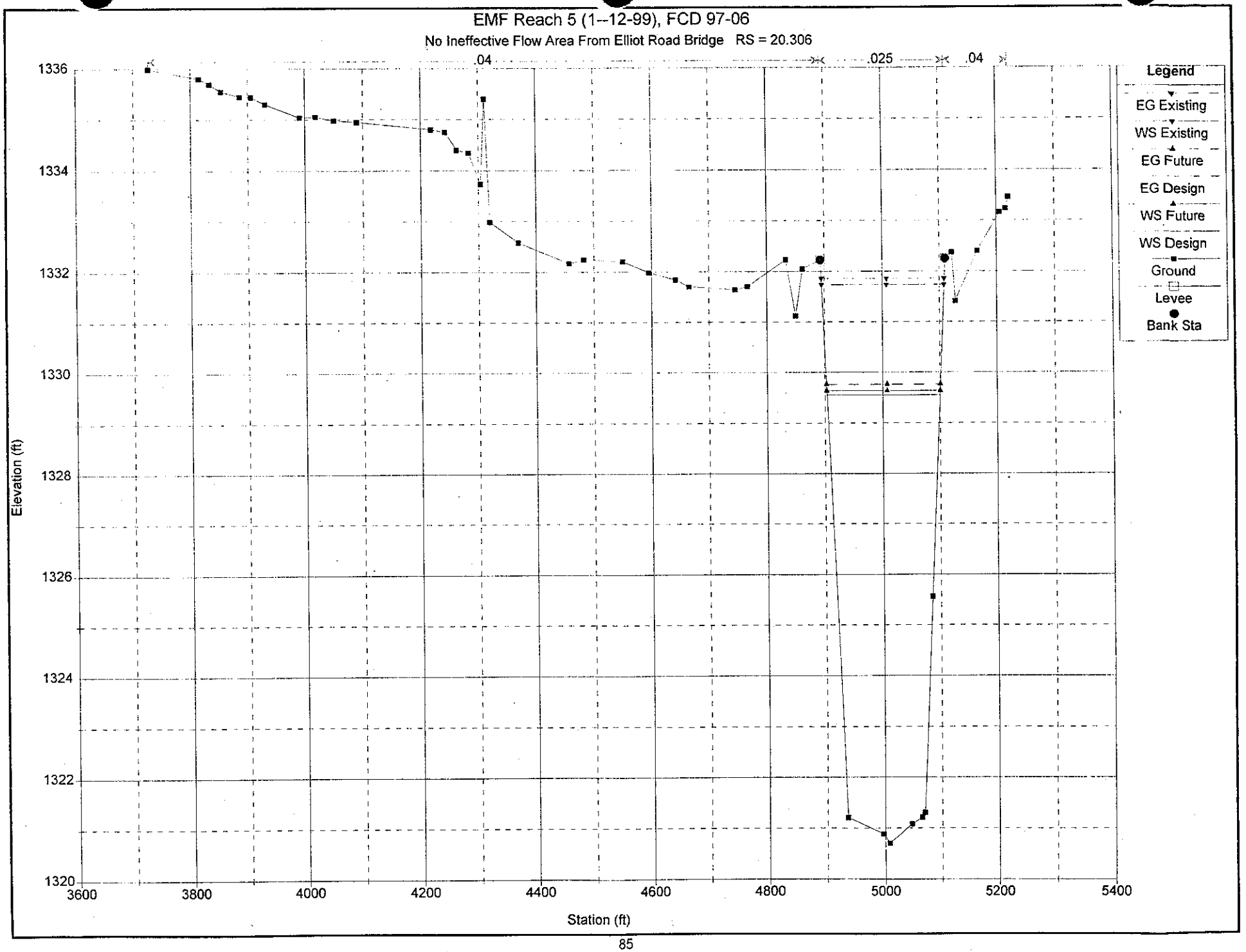
4800
5000
5200
5400
Station (ft)

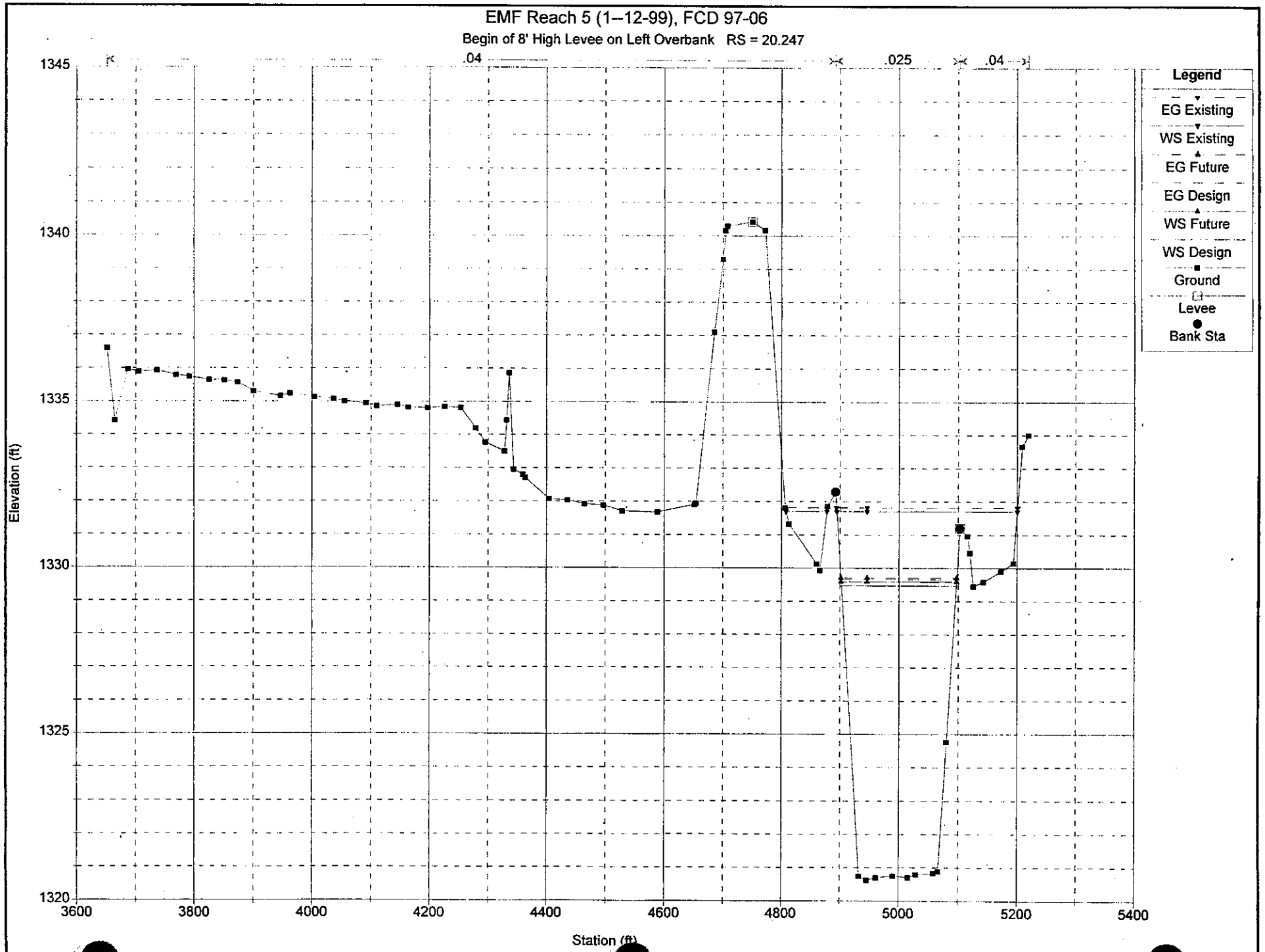

EMF Reach 5 (1--12-99), FCD 97-06
Elliot Road Bridge, Upstream Face RS = 20.328
.04
.025
.04
Legend
EG Existing
WS Existing
EG Design
EG Future
WS Future
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
1326
1324
1322
1320
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)

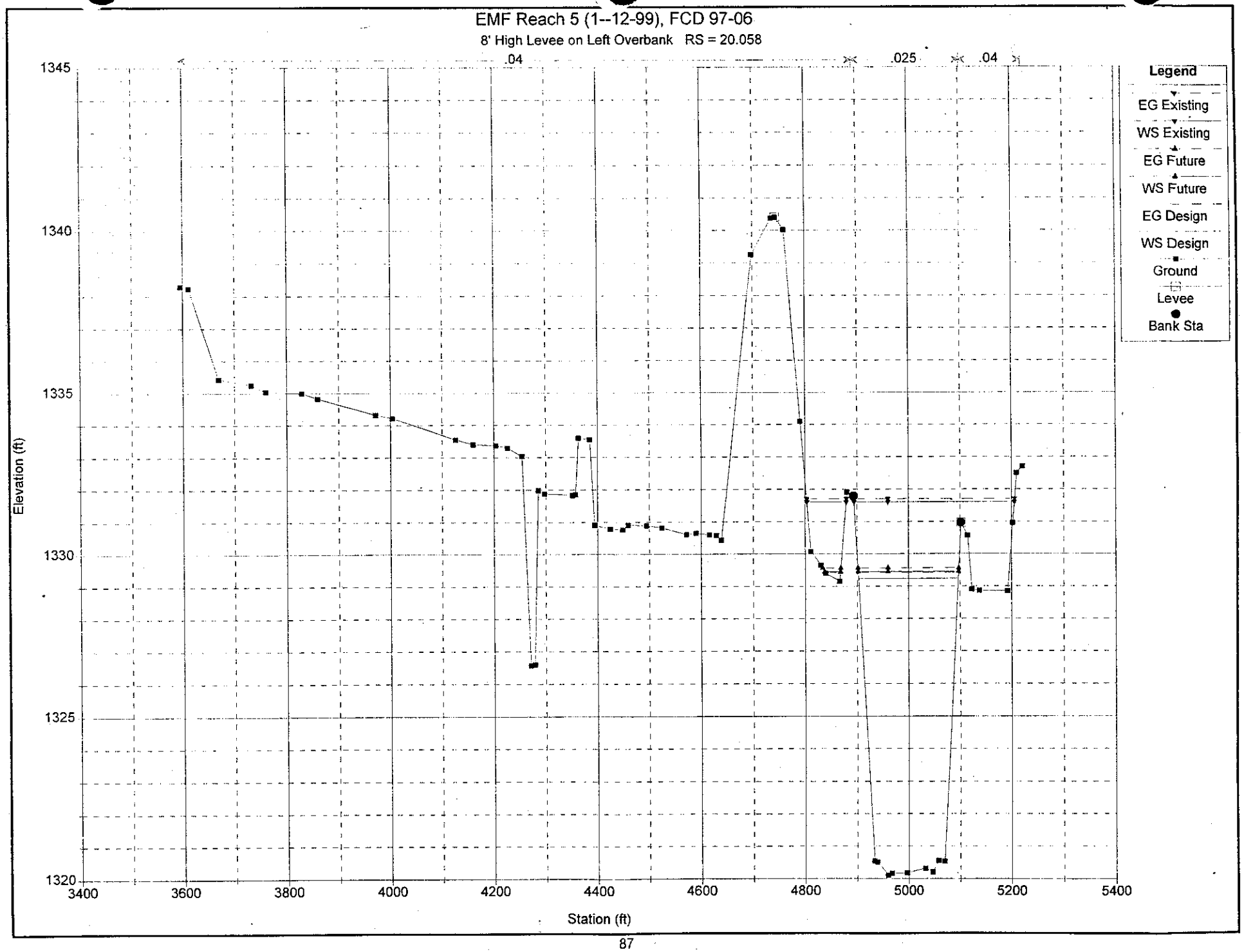

EMF Reach 5 (1--12-99), FCD 97-06
Elliot Road 6-Span Bridge RS = 20.323
.04
.025
.04
Legend
EG Existing
WS Existing
EG Design
EG Future
WS Future
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
1326
1324
1322
1320
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)

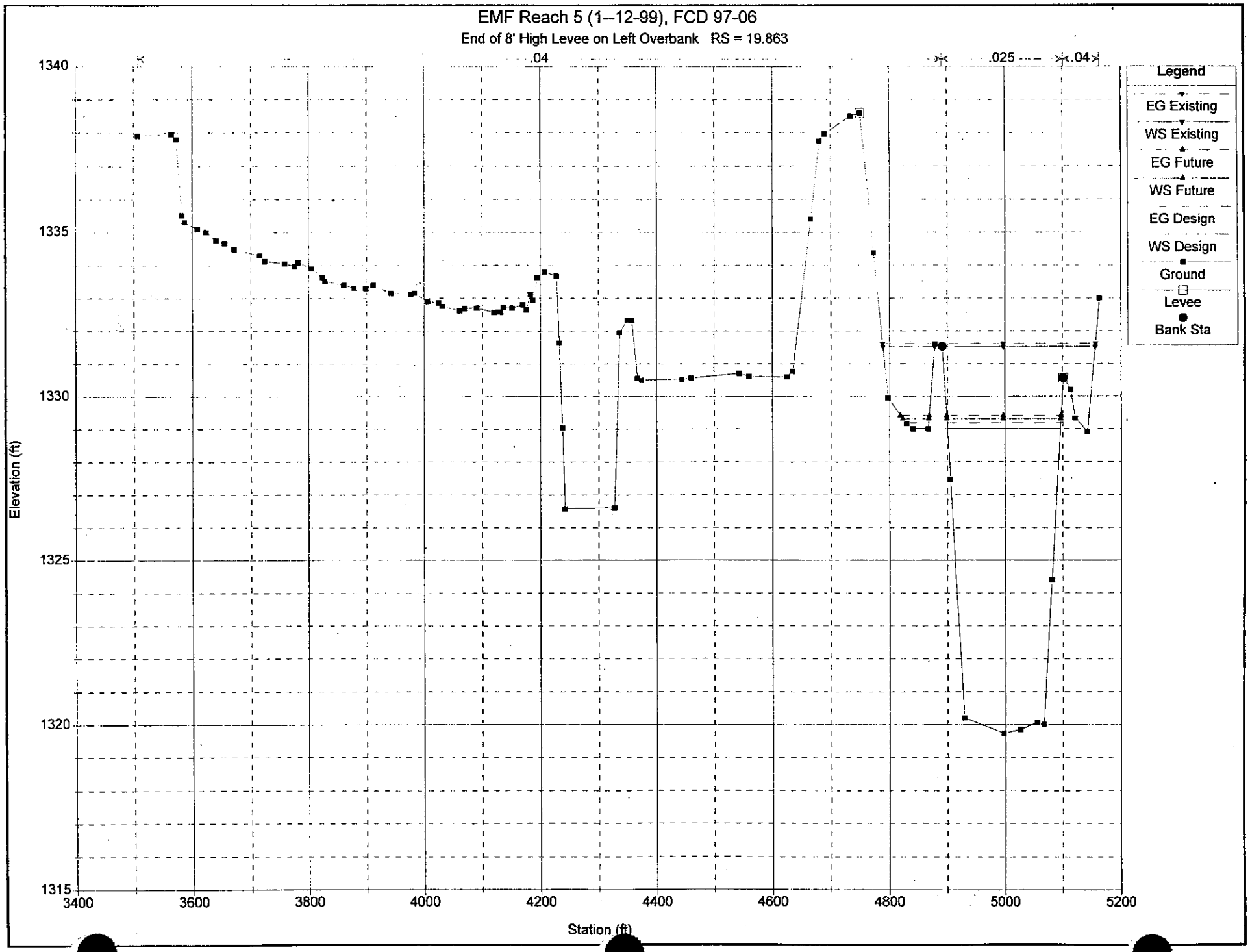

EMF Reach 5 (1--12-99), FCD 97-06
Elliot Road 6-Span Bridge RS = 20.323
.04
.025
.04
Legend
EG Existing
WS Existing
EG Design
EG Future
WS Future
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
1326
1324
1322
1320
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)

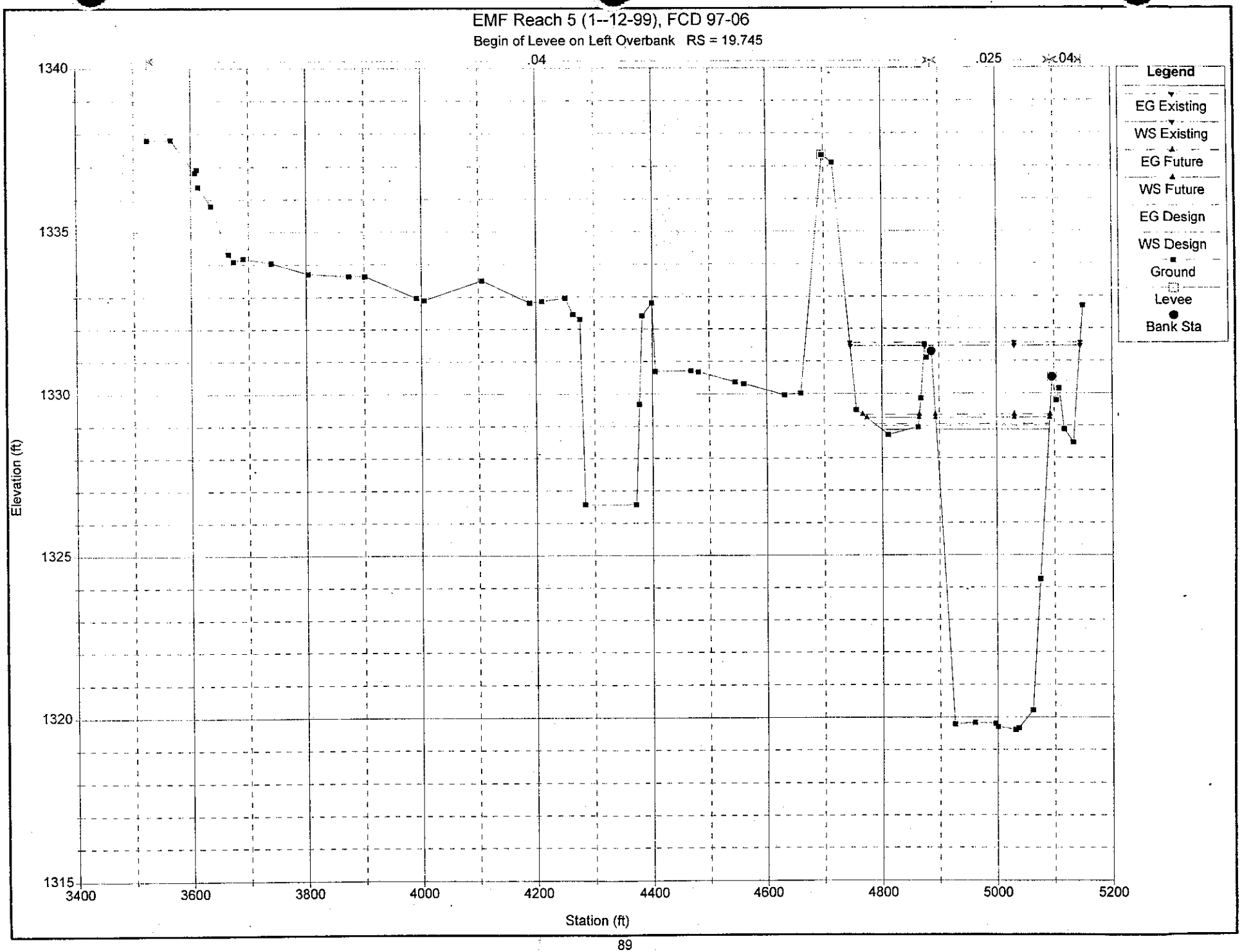

EMF Reach 5 (1--12-99), FCD 97-06
Elliot Road Bridge, Downstream Face RS = 20.316
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
EG Design
WS Future
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
1326
1324
1322
1320
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)

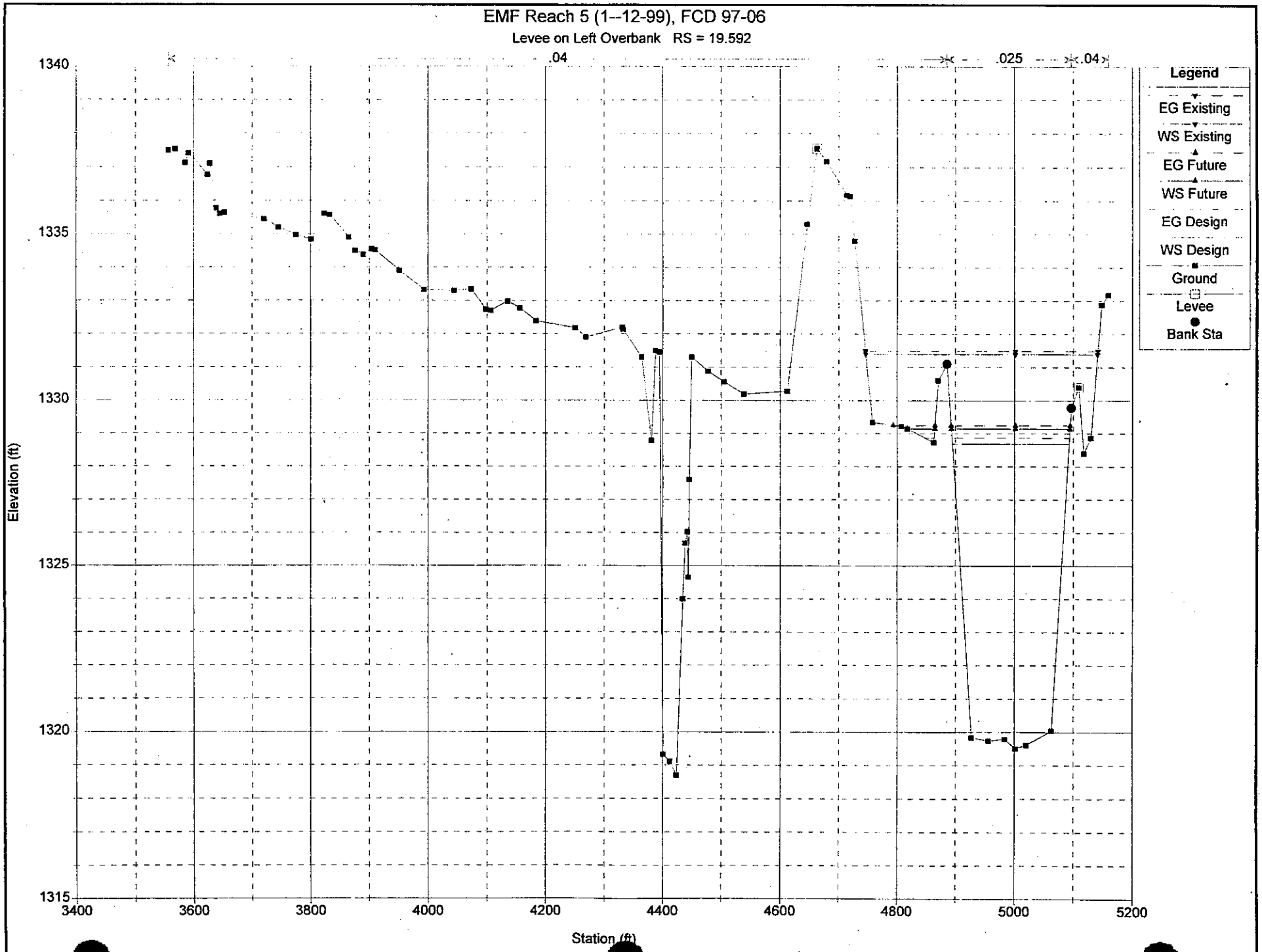

EMF Reach 5 (1--12-99), FCD 97-06
No Ineffective Flow Area From Elliot Road Bridge RS = 20.306
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
EG Design
WS Future
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
1322
1320
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

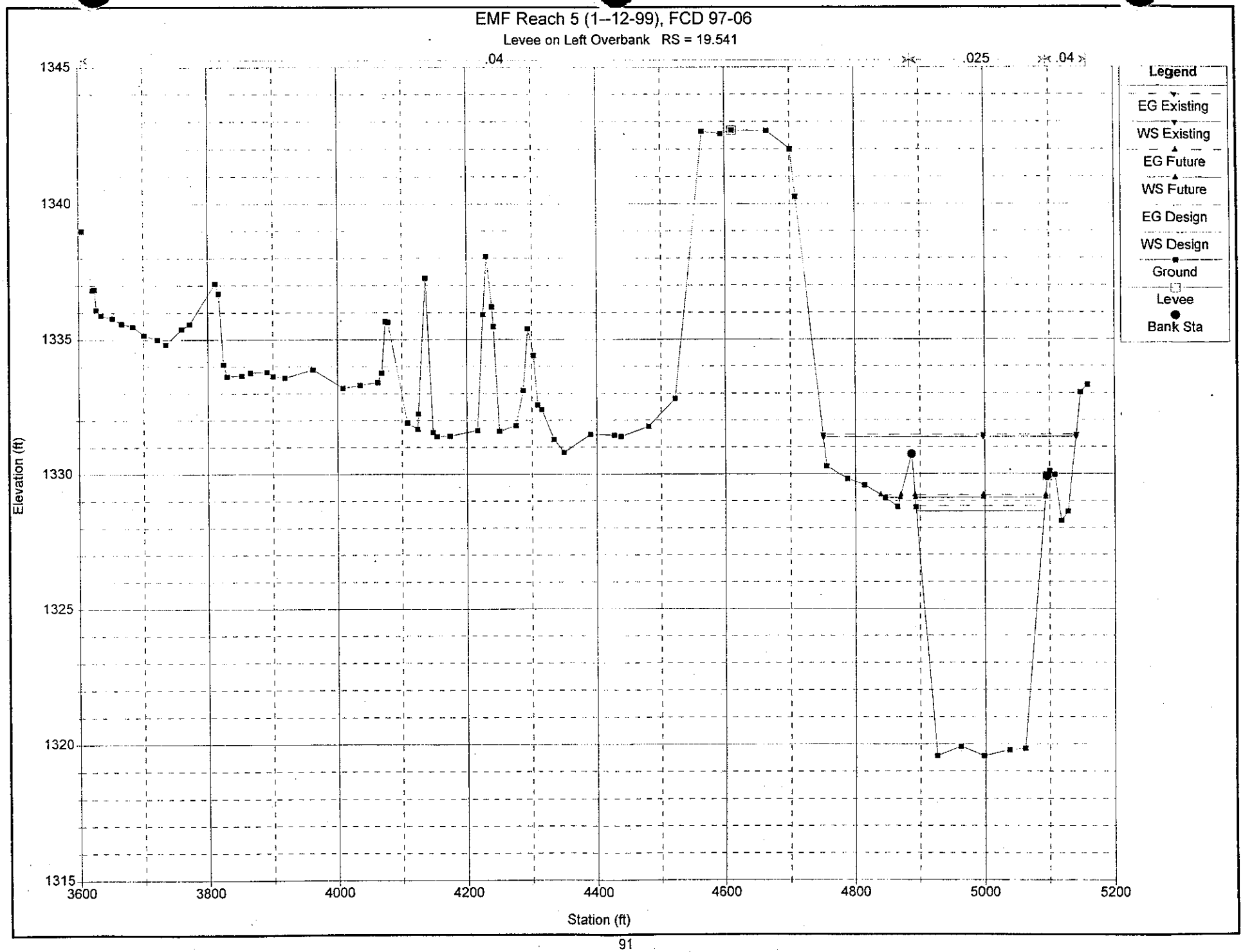

EMF Reach 5 (1--12-99), FCD 97-06
Begin of 8' High Levee on Left Overbank RS = 20.247
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
EG Design
WS Future
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1345
1340
1335
1330
1325
1320
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

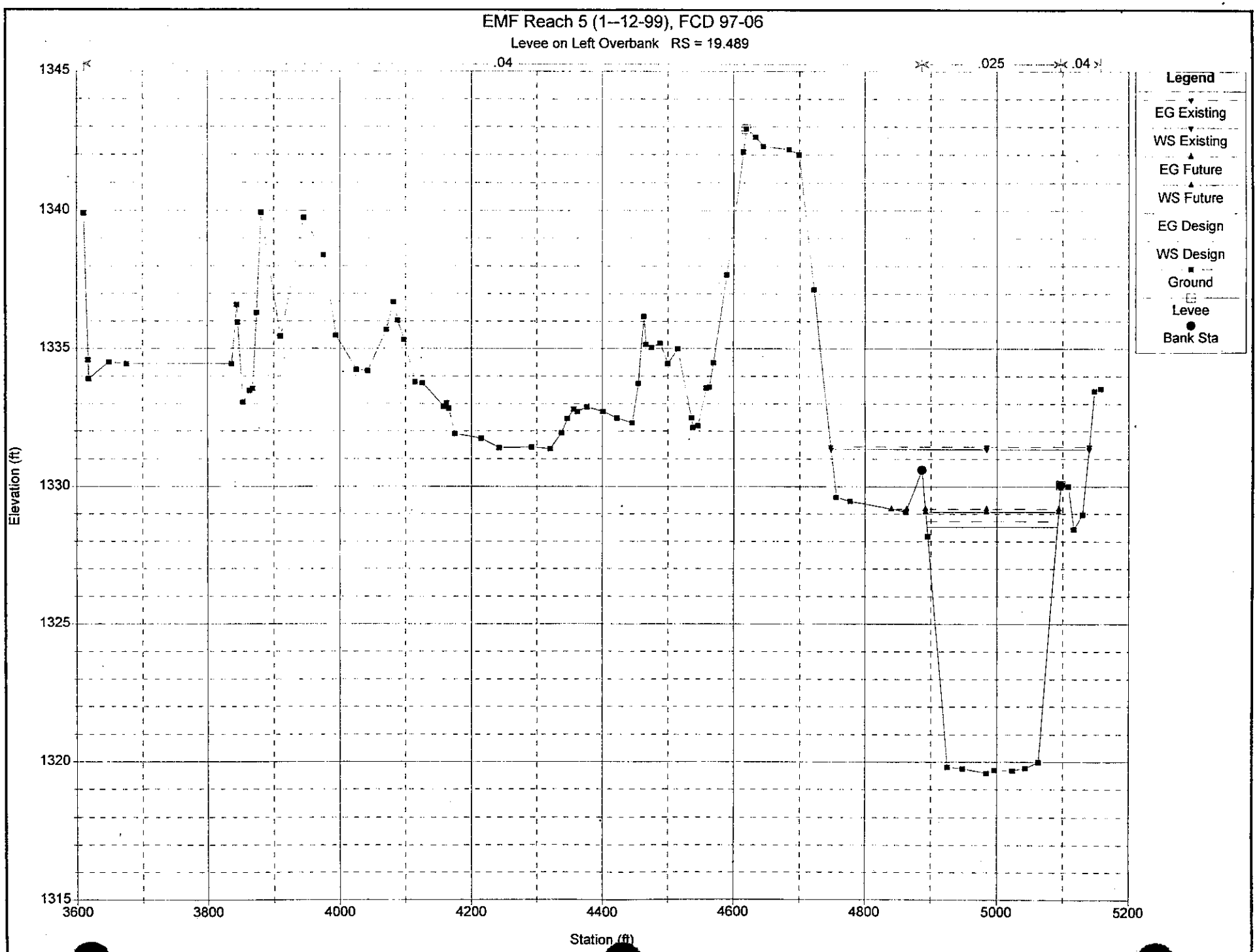

EMF Reach 5 (1--12-99), FCD 97-06
8' High Levee on Left Overbank RS = 20.058
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1345
1340
1335
1330
1325
1320
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

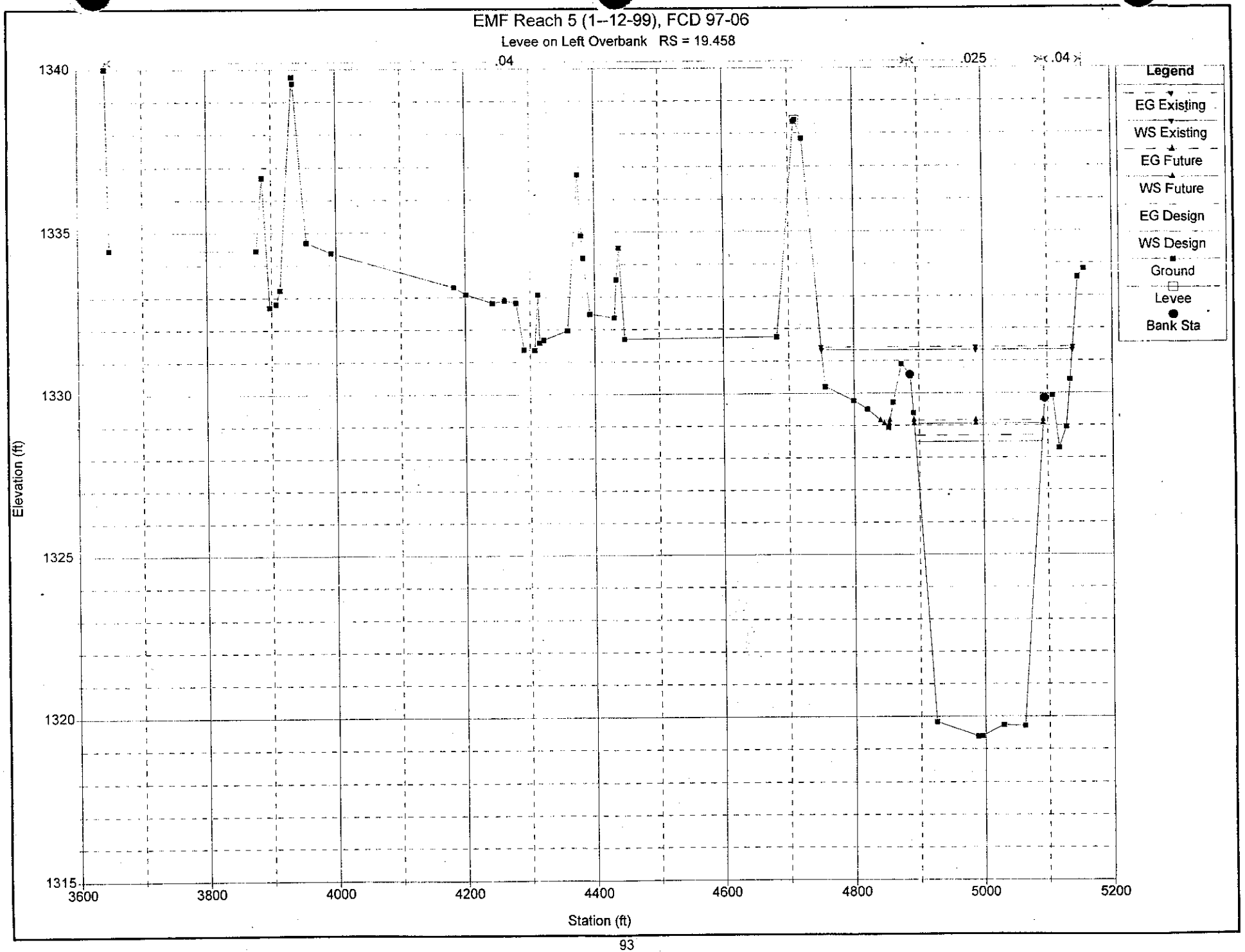

EMF Reach 5 (1--12-99), FCD 97-06
End of 8' High Levee on Left Overbank RS = 19.863
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1340
1335
1330
1325
1320
1315
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

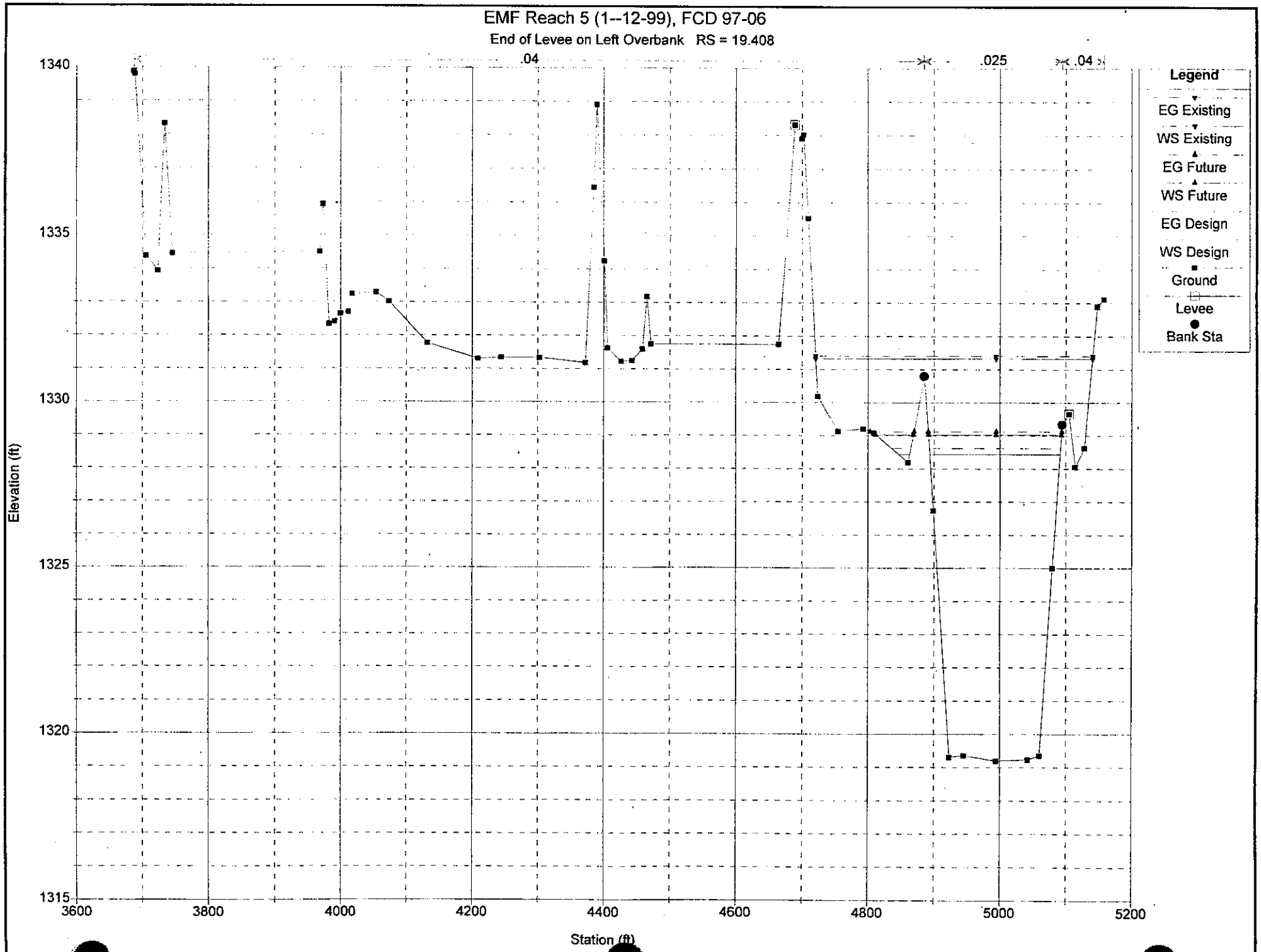

EMF Reach 5 (1--12-99), FCD 97-06
Begin of Levee on Left Overbank RS = 19.745
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1340
1335
1330
1325
1320
1315
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

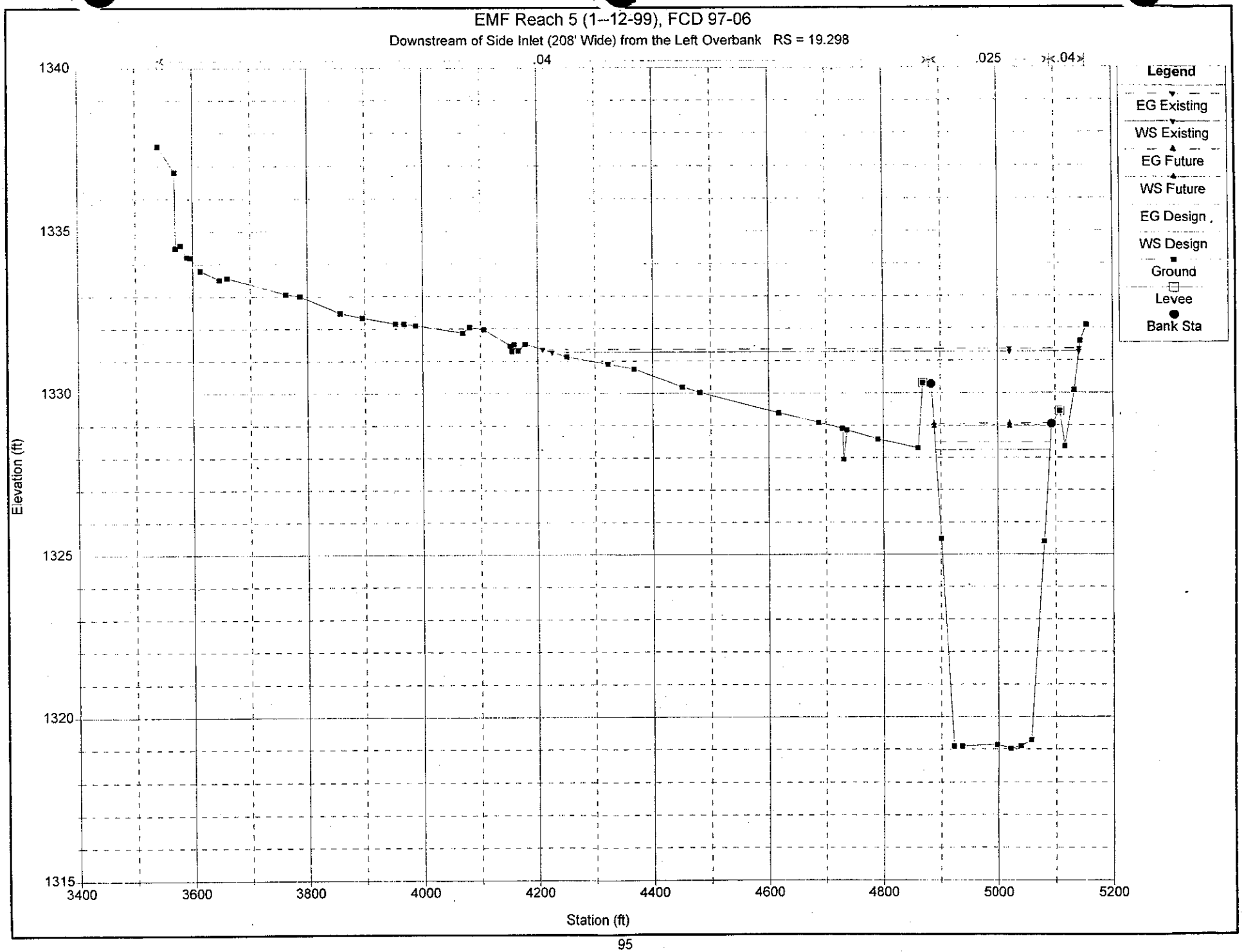

EMF Reach 5 (1--12-99), FCD 97-06
Levee on Left Overbank RS = 19.592
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1340
1335
1330
1325
1320
1315
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

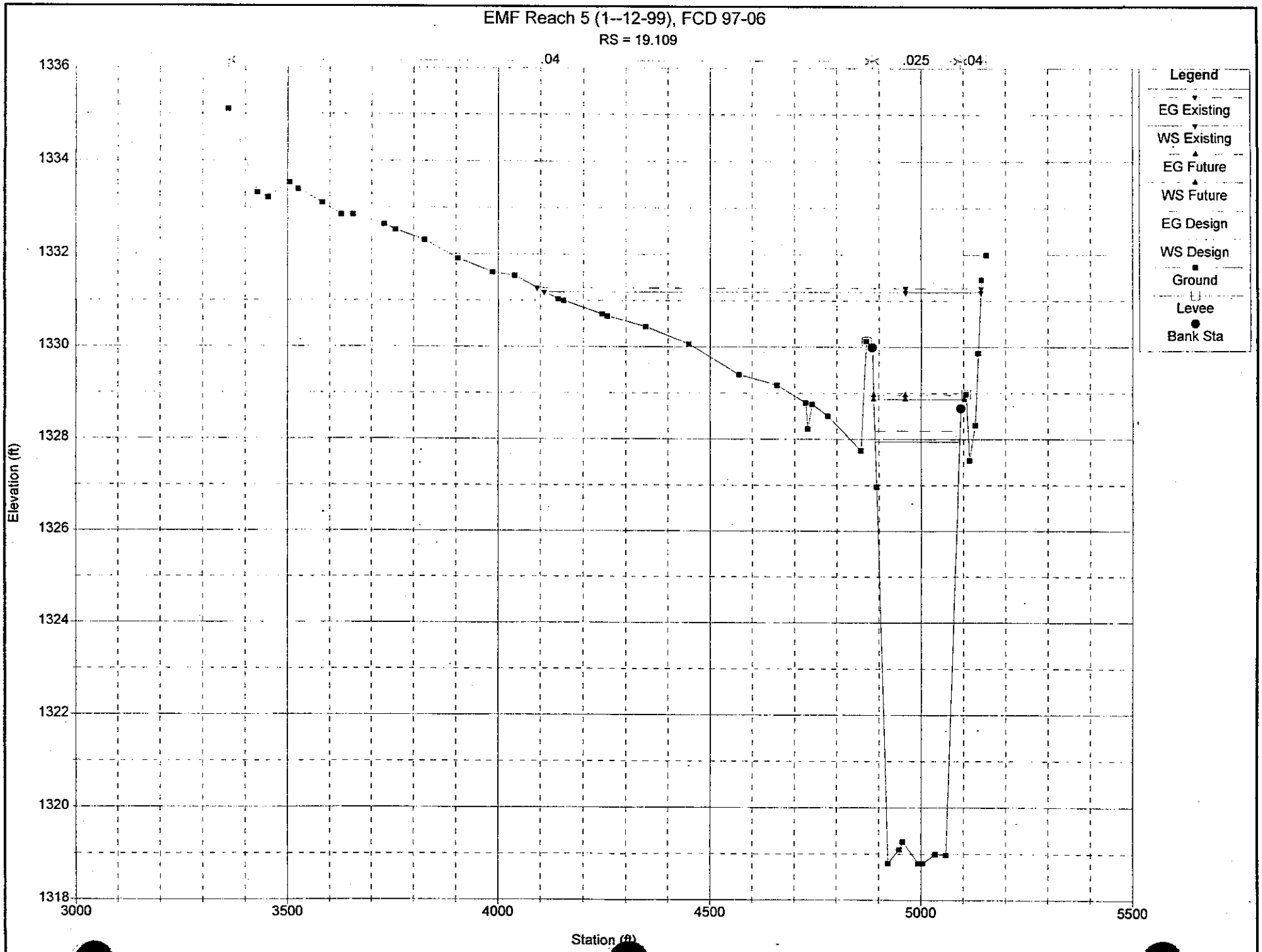

EMF Reach 5 (1--12-99), FCD 97-06
Levee on Left Overbank RS = 19.541
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1345
1340
1335
1330
1325
1320
1315
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

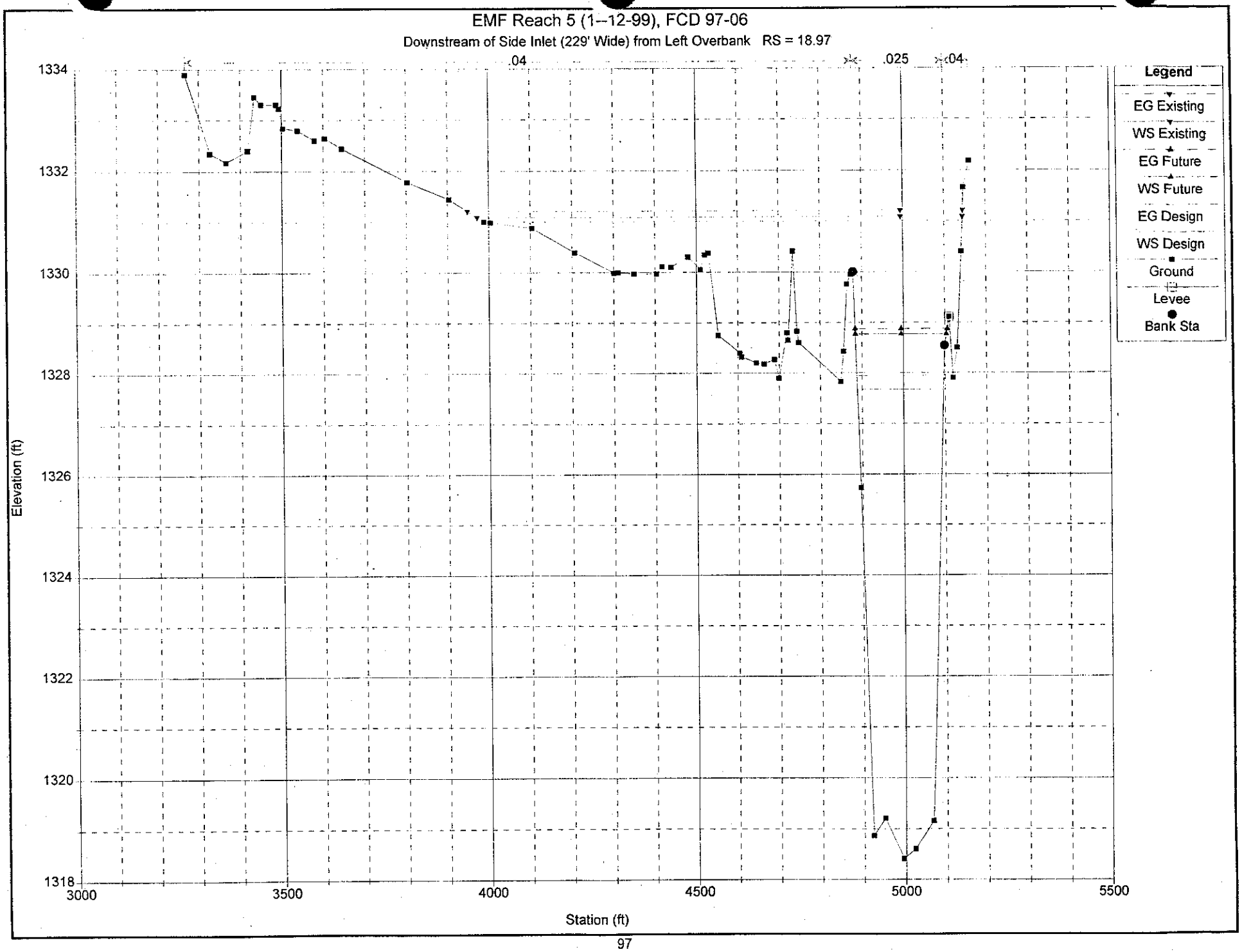

EMF Reach 5 (1--12-99), FCD 97-06
Levee on Left Overbank RS = 19.489
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1345
1340
1335
1330
1325
1320
1315
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

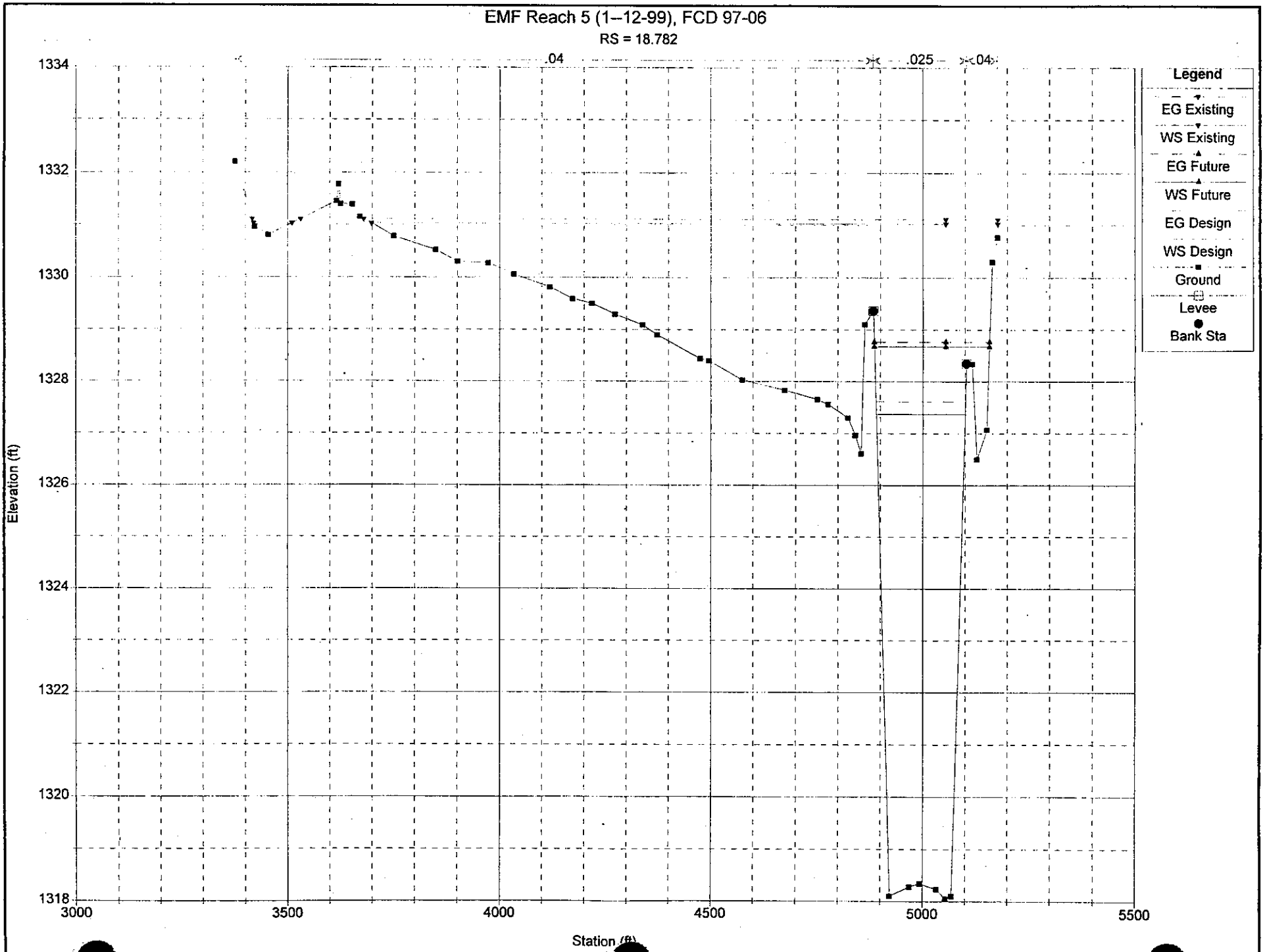

EMF Reach 5 (1--12-99), FCD 97-06
Levee on Left Overbank RS = 19.458
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1340
1335
1330
1325
1320
1315
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

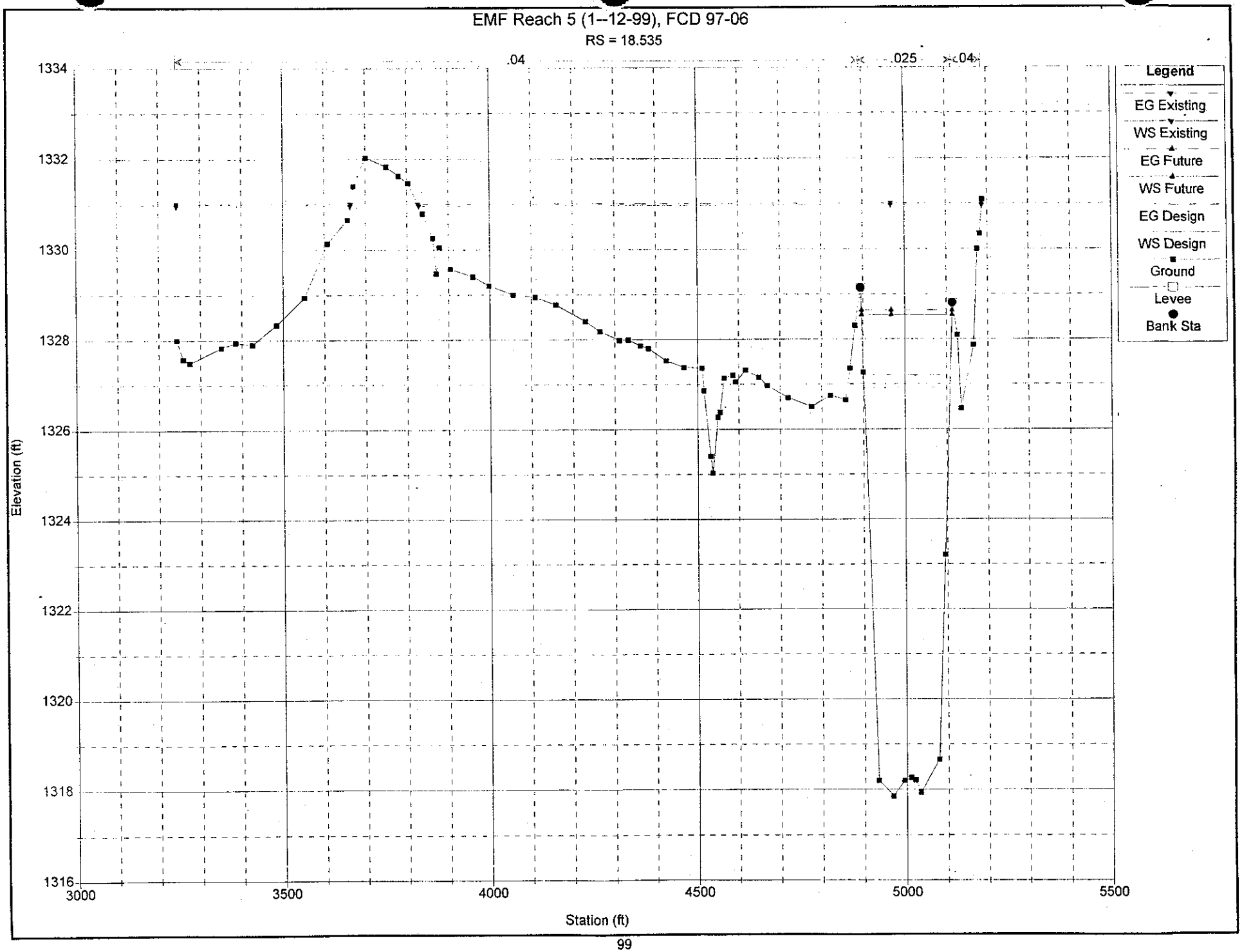

EMF Reach 5 (1--12-99), FCD 97-06
End of Levee on Left Overbank RS = 19.408
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1340
1335
1330
1325
1320
1315
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

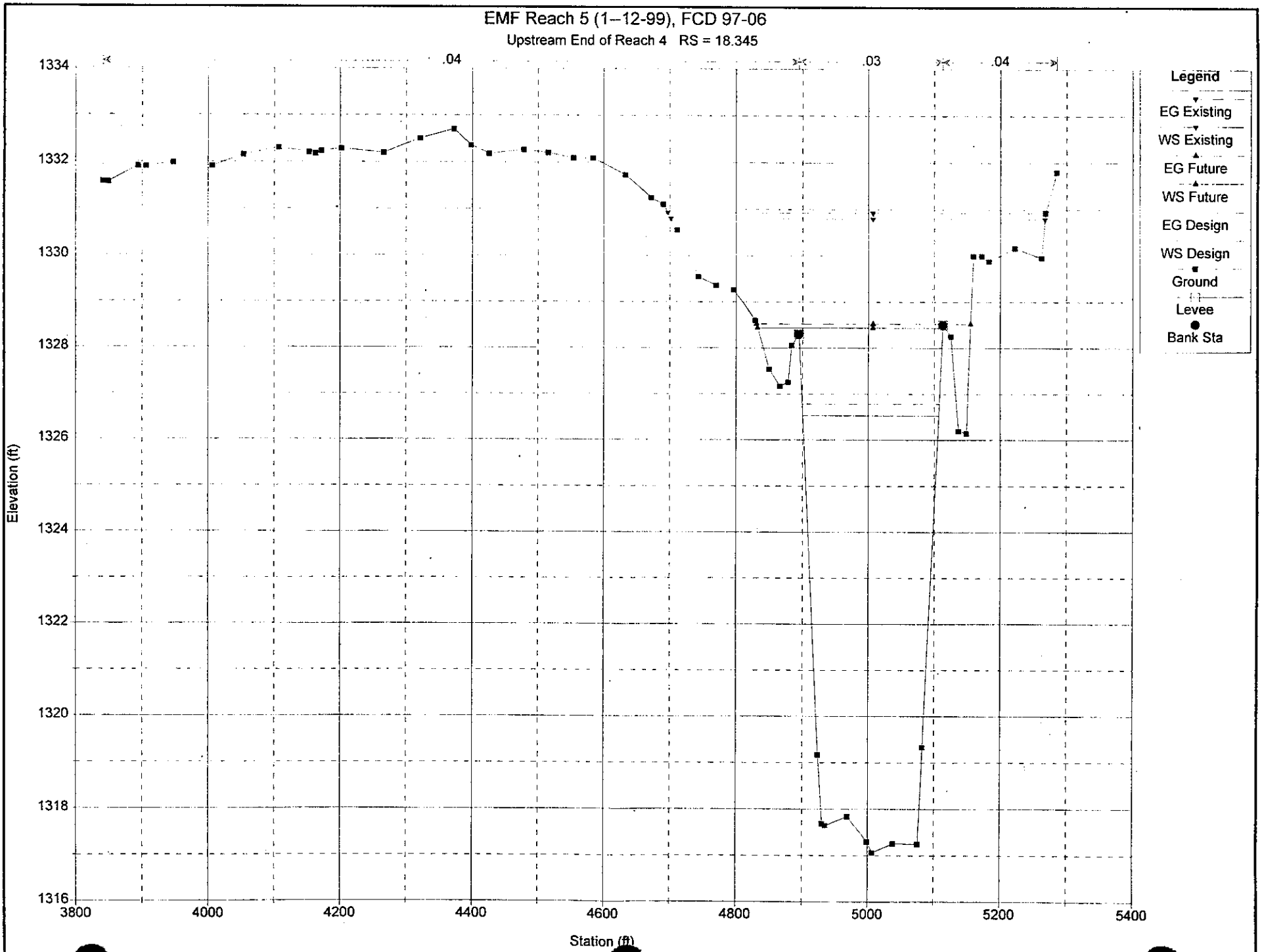

EMF Reach 5 (1--12-99), FCD 97-06
Downstream of Side Inlet (208' Wide) from the Left Overbank RS = 19.298
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1340
1335
1330
1325
1320
1315
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

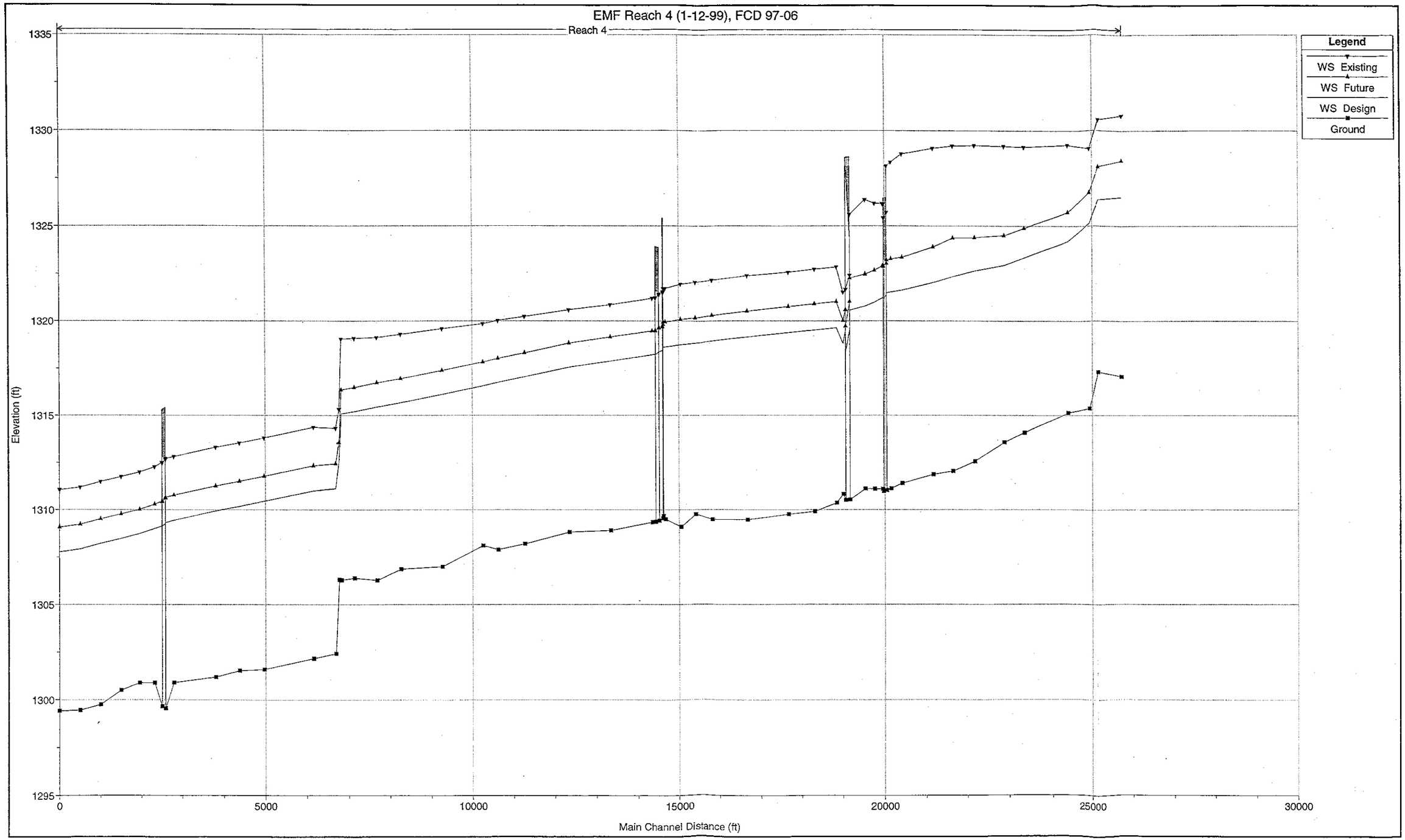

EMF Reach 5 (1--12-99), FCD 97-06
RS = 19.109
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1336
1334
1332
1330
1328
1326
1324
1322
1320
1318
3000
3500
4000
4500
5000
5500
Station (ft)

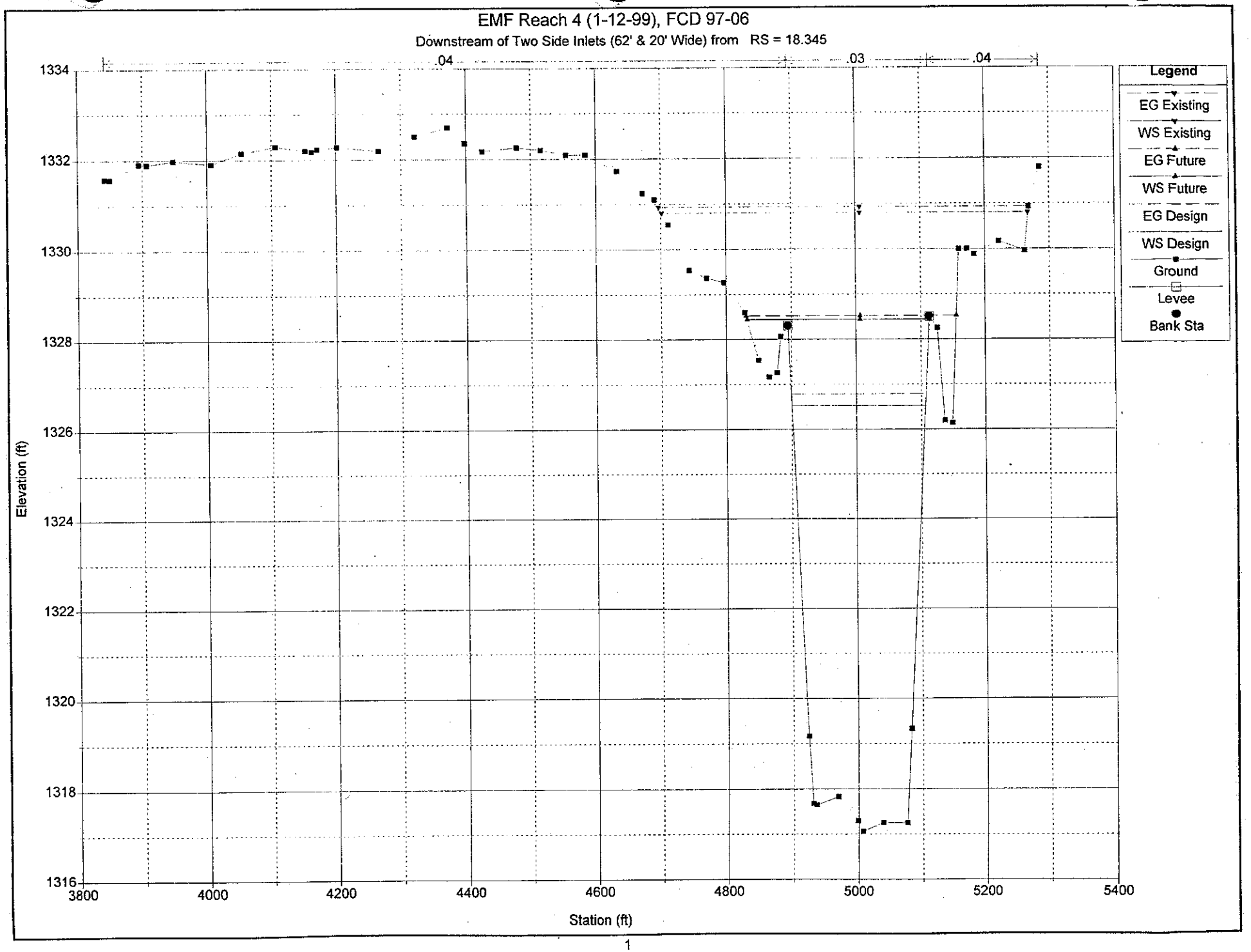

EMF Reach 5 (1--12-99), FCD 97-06
Downstream of Side Inlet (229' Wide) from Left Overbank RS = 18.97
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1334
1332
1330
1328
1326
1324
1322
1320
1318
3000
3500
4000
4500
5000
5500
Station (ft)

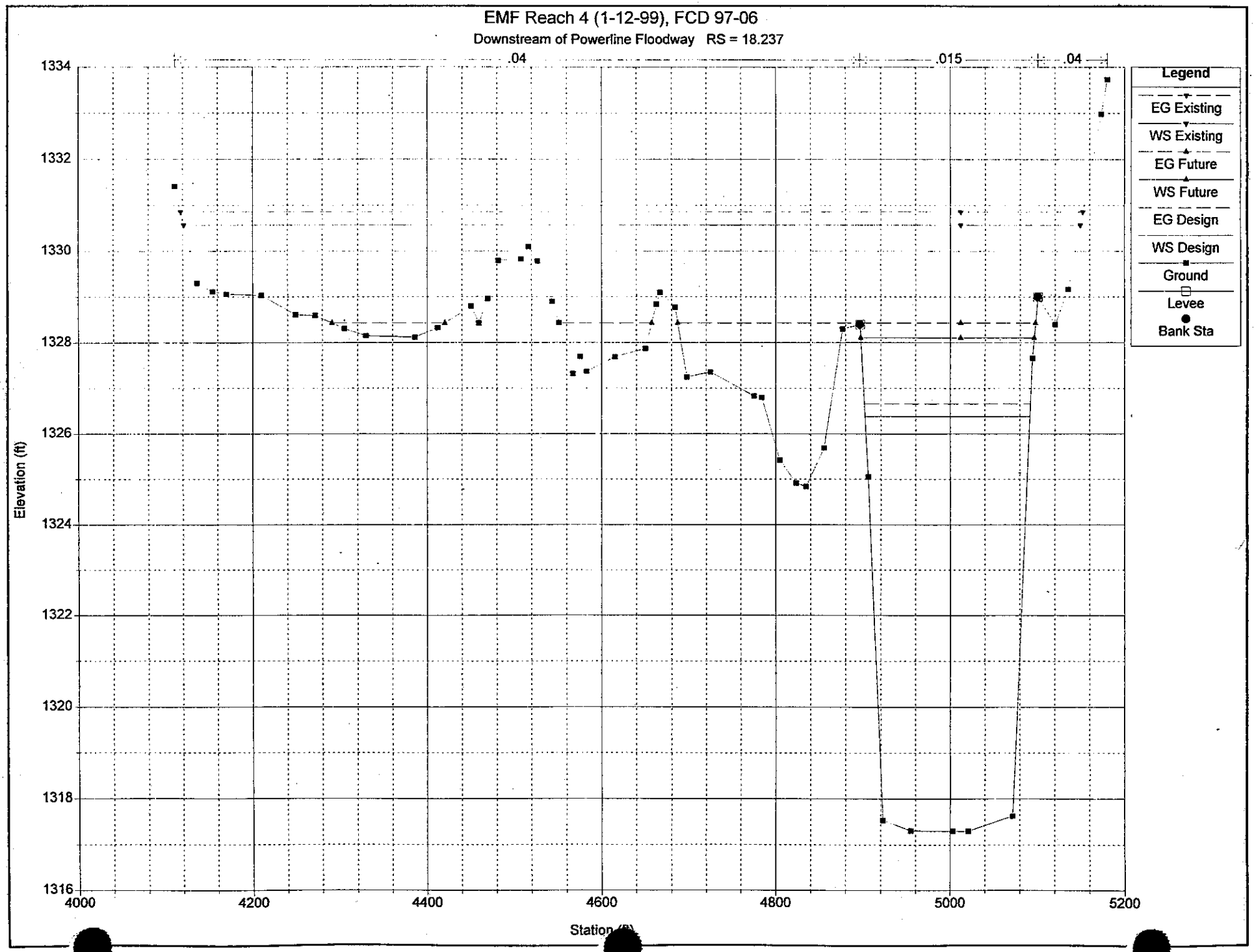

EMF Reach 5 (1--12-99), FCD 97-06
RS = 18.782
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1334
1332
1330
1328
1326
1324
1322
1320
1318
3000
3500
4000
4500
5000
5500
Station (ft)

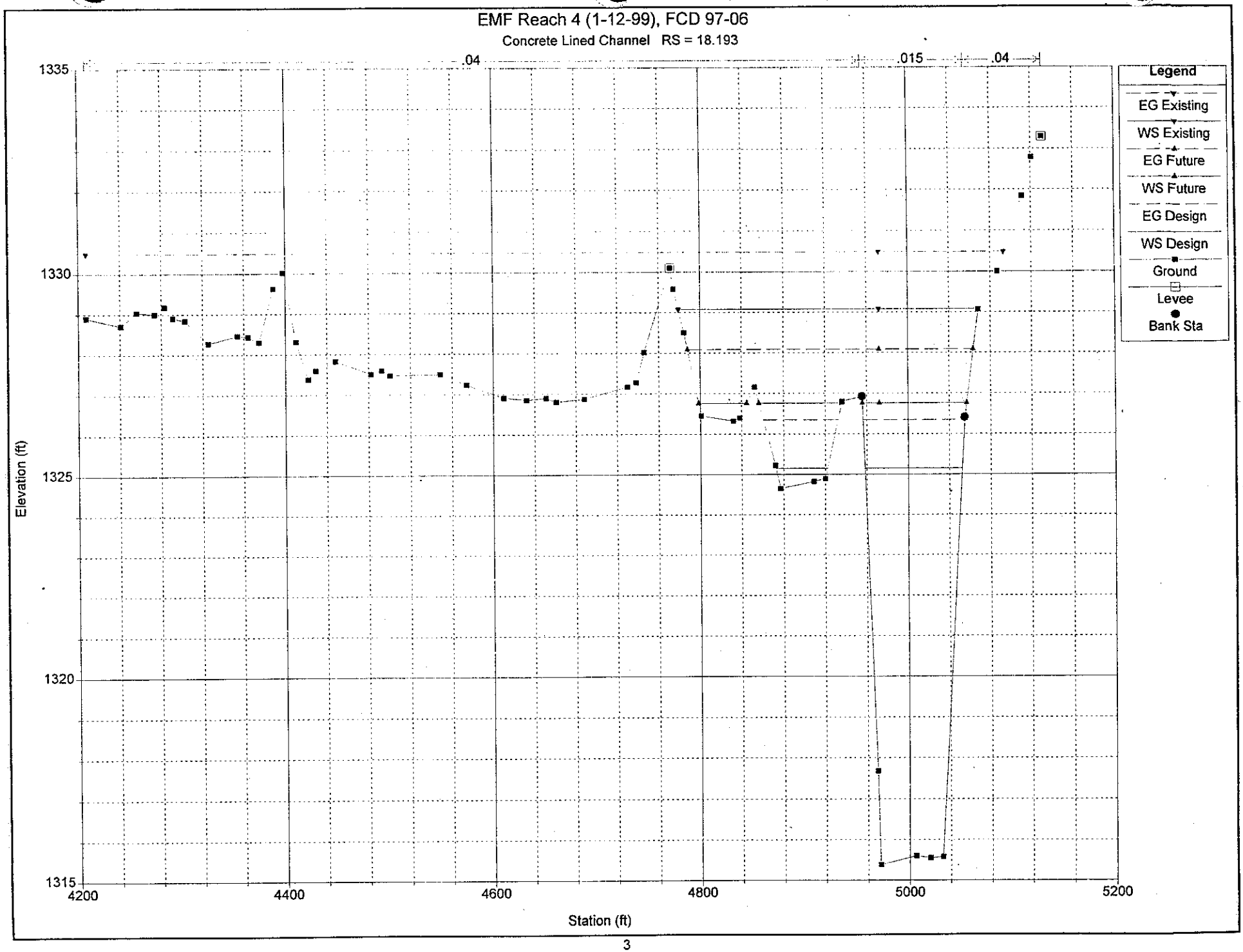

EMF Reach 5 (1--12-99), FCD 97-06
RS = 18.535
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1334
1332
1330
1328
1326
1324
1322
1320
1318
1316
3000
3500
4000
4500
5000
5500
Station (ft)

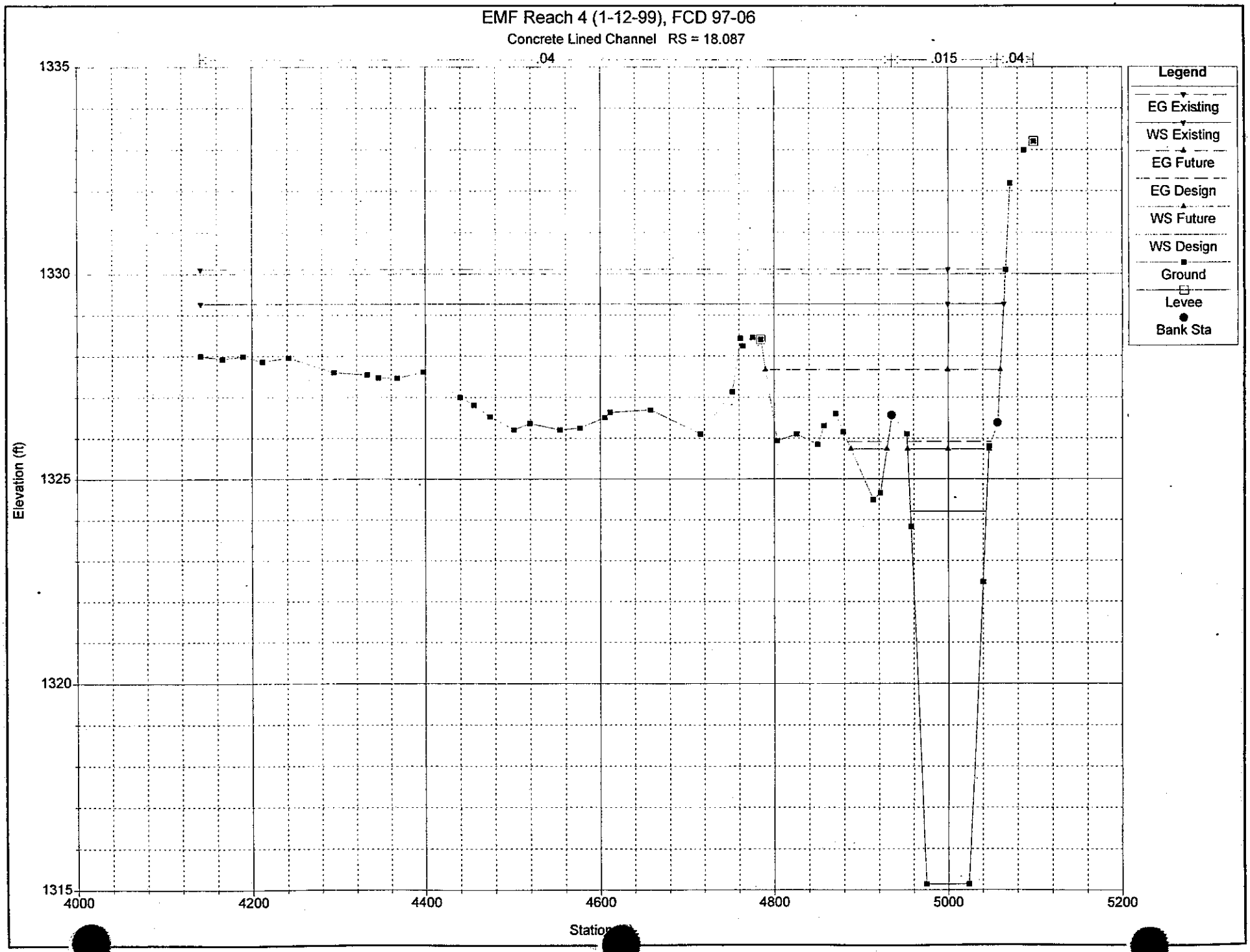

EMF Reach 5 (1--12-99), FCD 97-06
Upstream End of Reach 4 RS = 18.345
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1334
1332
1330
1328
1326
1324
1322
1320
1318
1316
3800
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

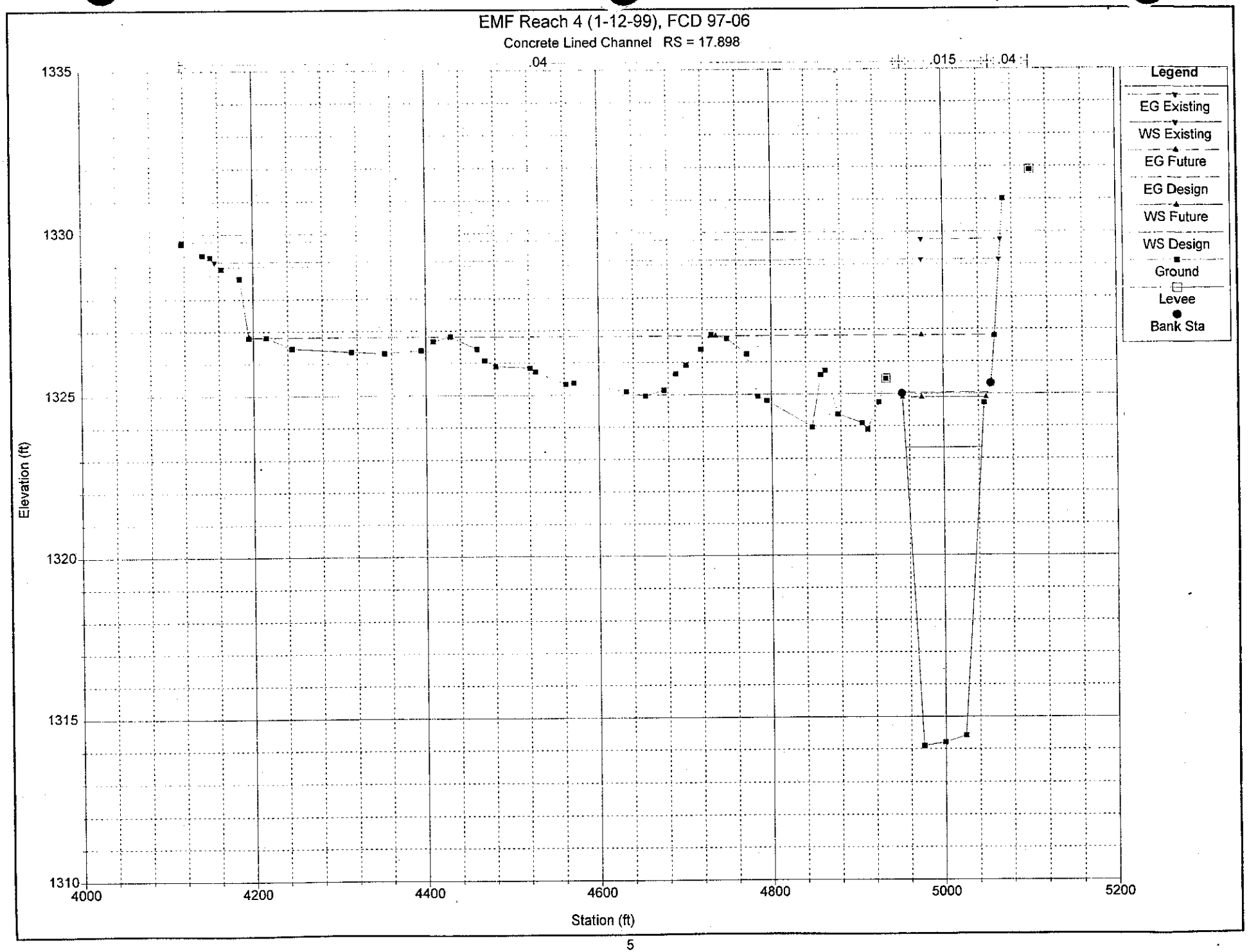

EMF Reach 4 (1-12-99), FCD 97-06
Reach 4
Legend
WS Existing
WS Future
WS Design
Ground
Elevation (ft)
1335
1330
1325
1320
1315
1310
1305
1300
1295
0
5000
10000
15000
20000
25000
30000
Main Channel Distance (ft)

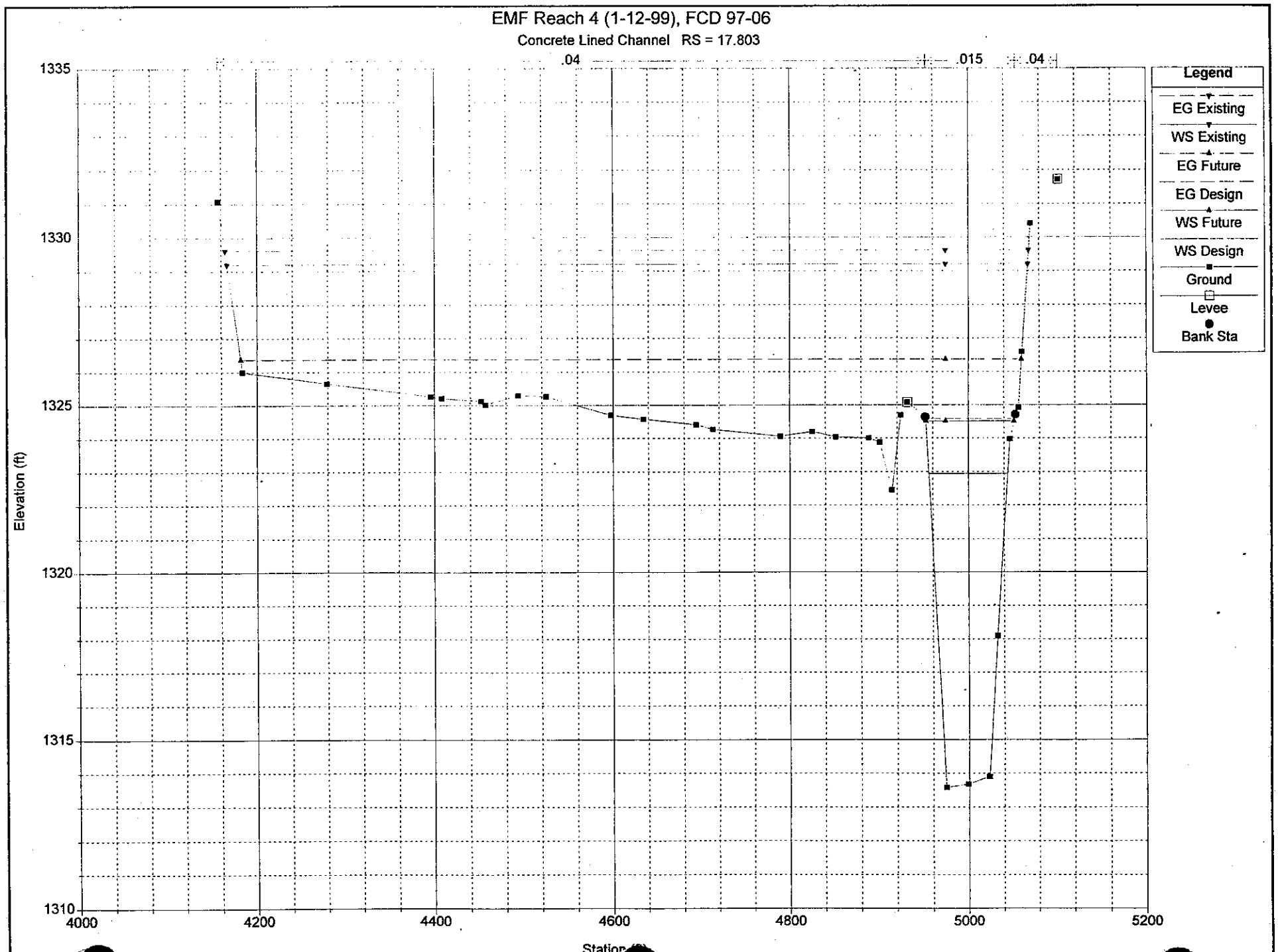

EMF Reach 4 (1-12-99), FCD 97-06
Downstream of Two Side Inlets (62' & 20' Wide) from RS = 18.345
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1334
1332
1330
1328
1326
1324
1322
1320
1318
1316
3800
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

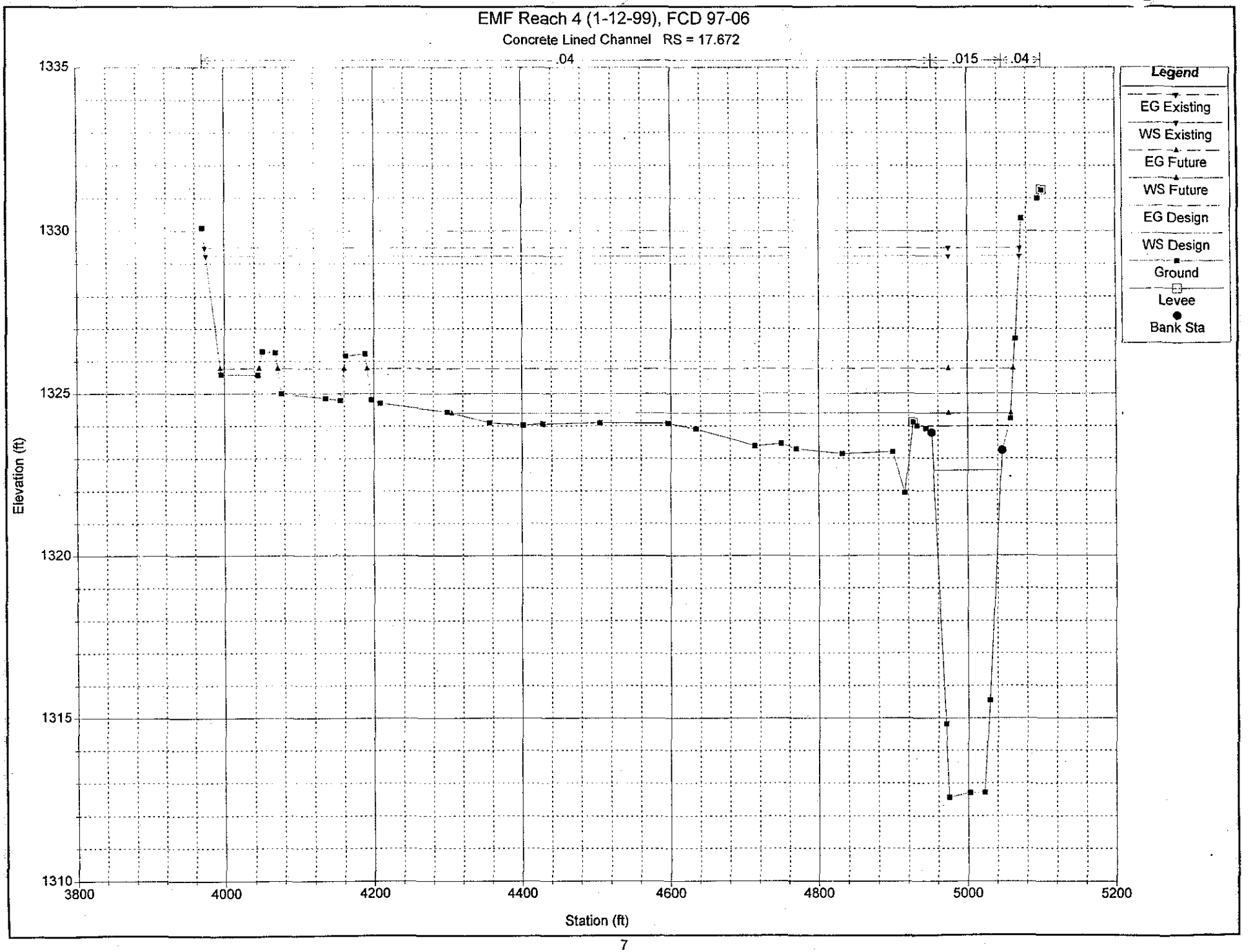

EMF Reach 4 (1-12-99), FCD 97-06
Downstream of Powerline Floodway RS = 18.237
.04
.015
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1334
1332
1330
1328
1326
1324
1322
1320
1318
1316
4000
4200
4400
4600
4800
5000
5200
Station (ft)

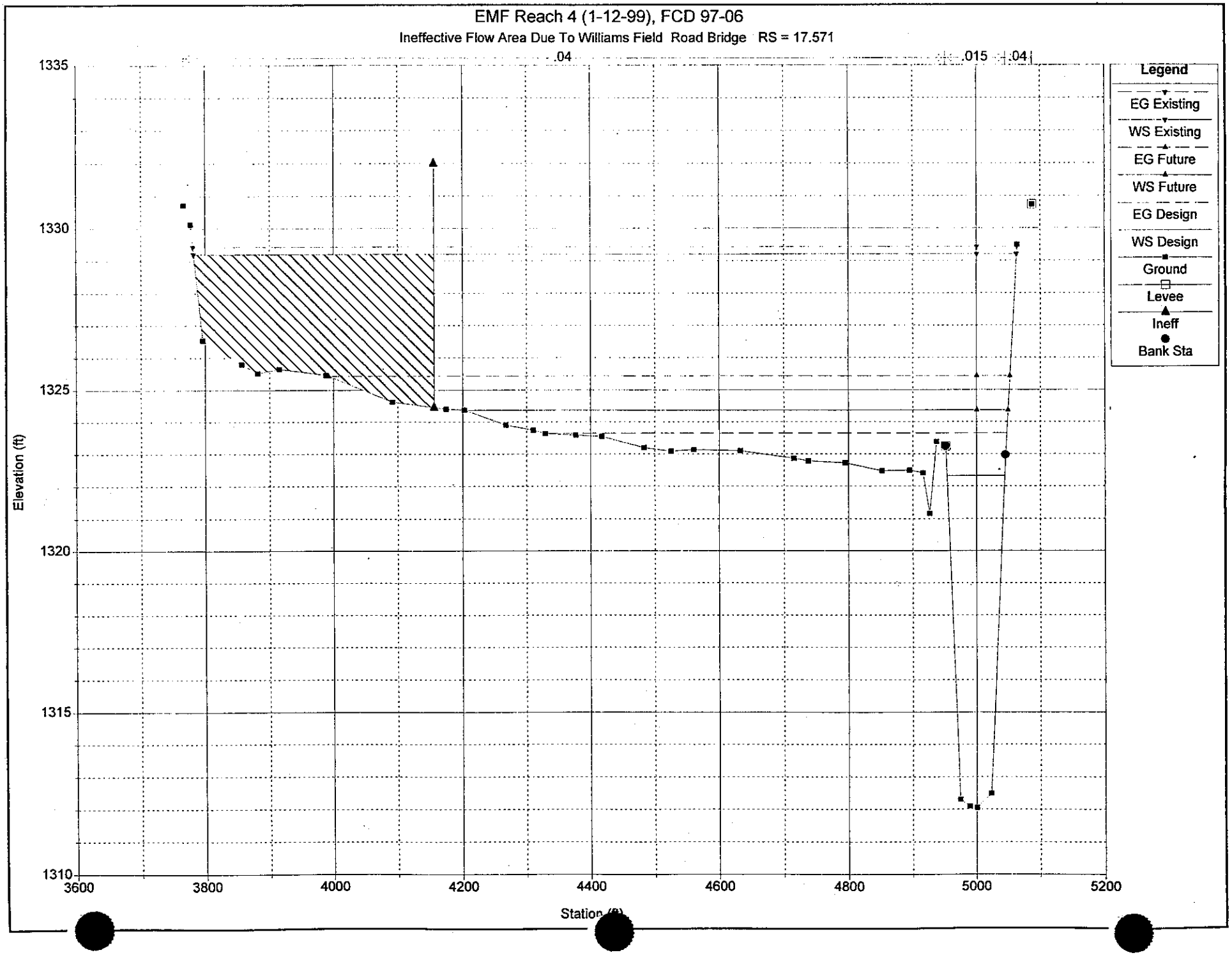

EMF Reach 4 (1-12-99), FCD 97-06
Concrete Lined Channel RS = 18.193
.04
.015
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1335
1330
1325
1320
1315
4200
4400
4600
4800
5000
5200
Station (ft)

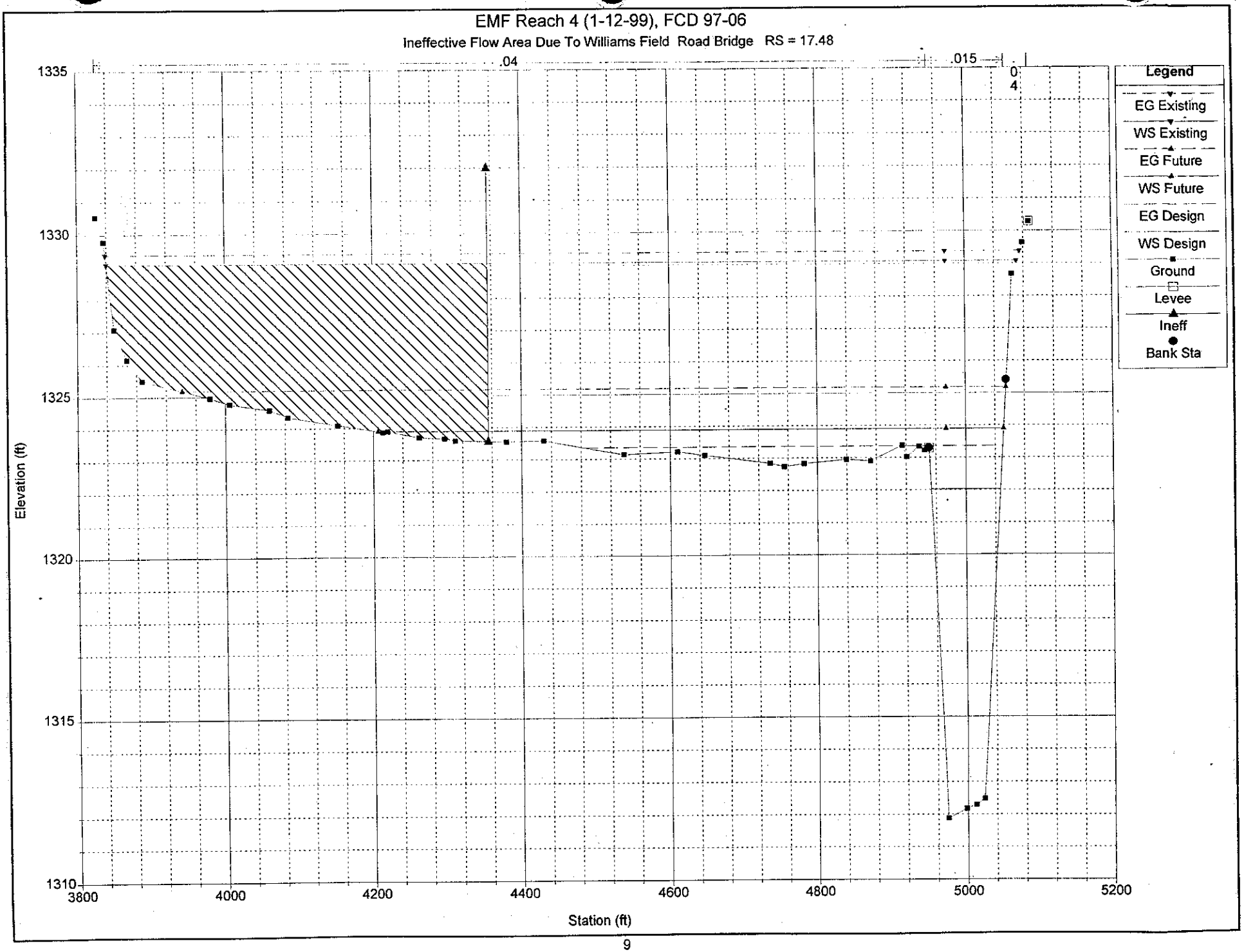

EMF Reach 4 (1-12-99), FCD 97-06
Concrete Lined Channel RS = 18.087
.04
.015
.04
Legend
EG Existing
WS Existing
EG Future
EG Design
WS Future
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1335
1330
1325
1320
1315
4000
4200
4400
4600
4800
5000
5200
Station

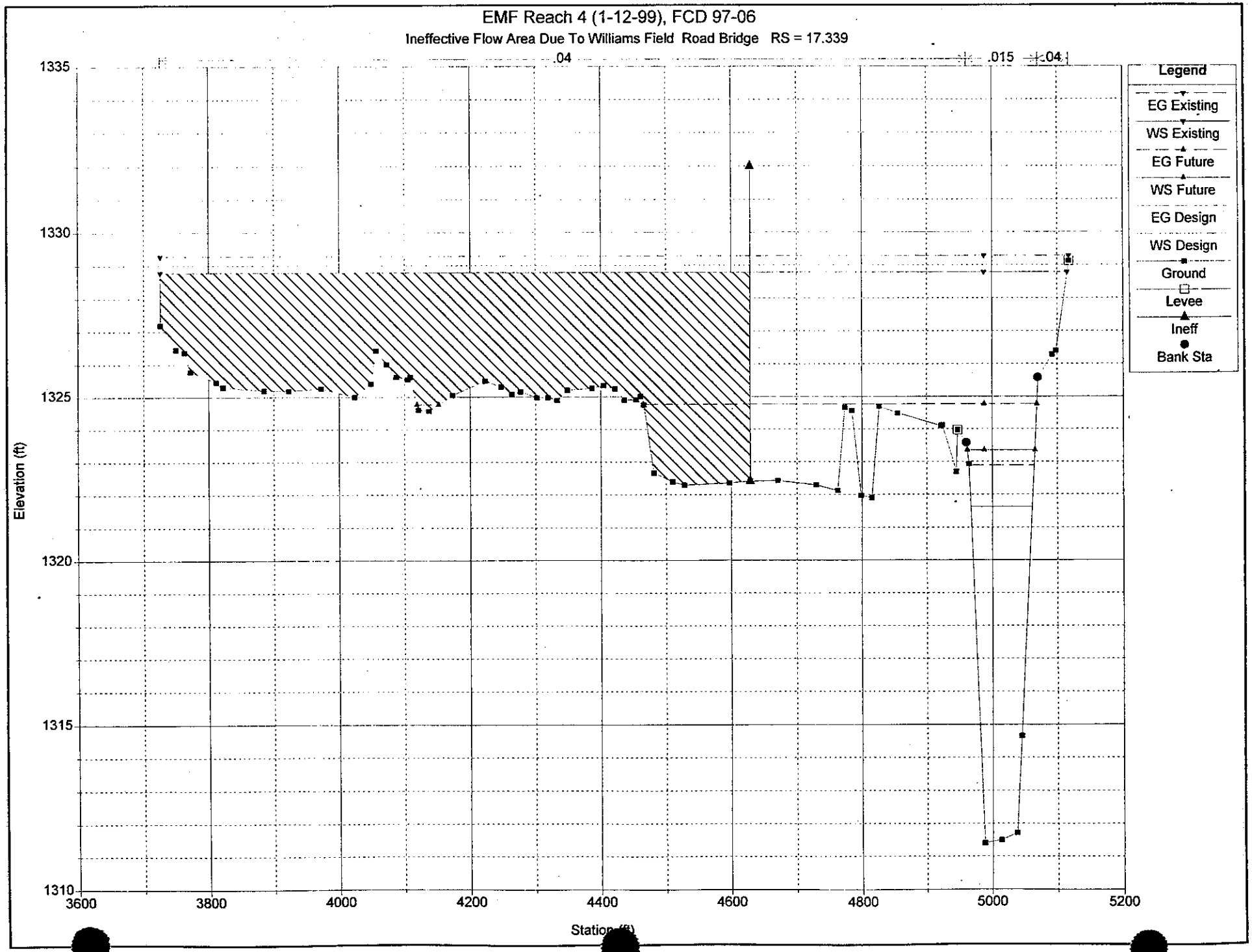

EMF Reach 4 (1-12-99), FCD 97-06
Concrete Lined Channel RS = 17.898
.04
.015
.04
Legend
EG Existing
WS Existing
EG Future
EG Design
WS Future
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1335
1330
1325
1320
1315
1310
4000
4200
4400
4600
4800
5000
5200
Station (ft)

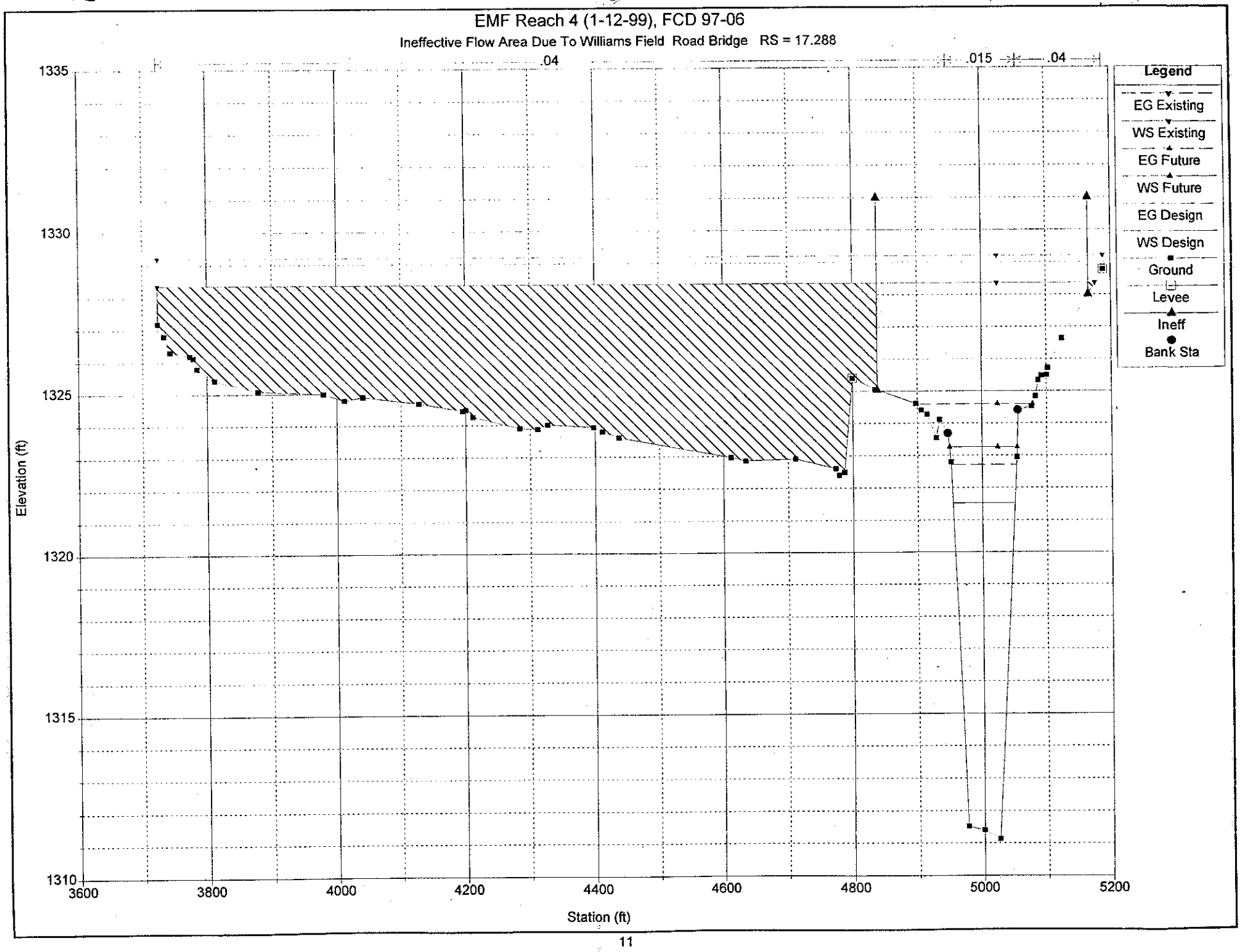

EMF Reach 4 (1-12-99), FCD 97-06
Concrete Lined Channel RS = 17.803
.04
.015
.04
Legend
EG Existing
WS Existing
EG Future
EG Design
WS Future
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1335
1330
1325
1320
1315
1310
4000
4200
4400
4600
4800
5000
5200
Station

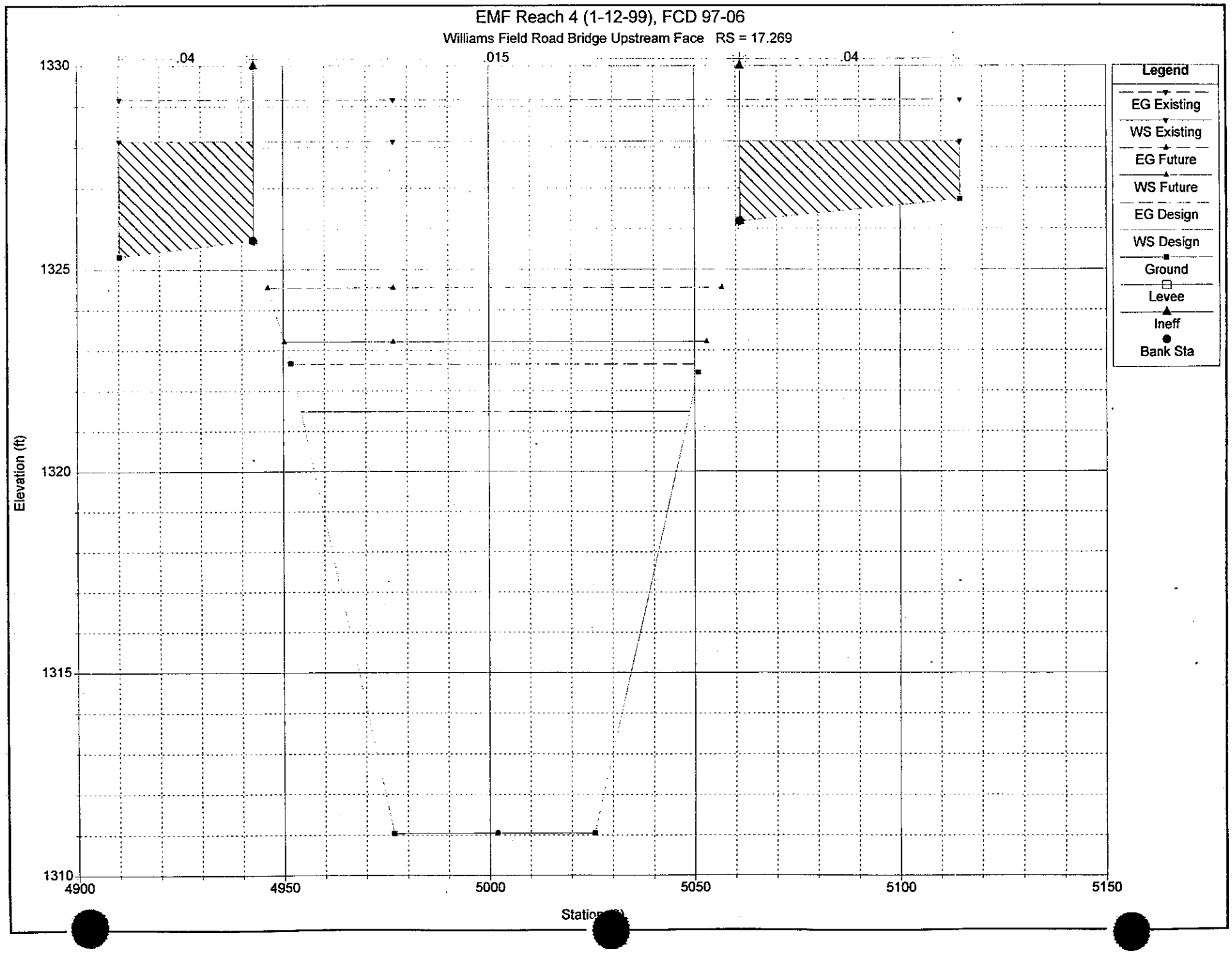

EMF Reach 4 (1-12-99), FCD 97-06
Concrete Lined Channel RS = 17.672
.04
.015
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1335
1330
1325
1320
1315
1310
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

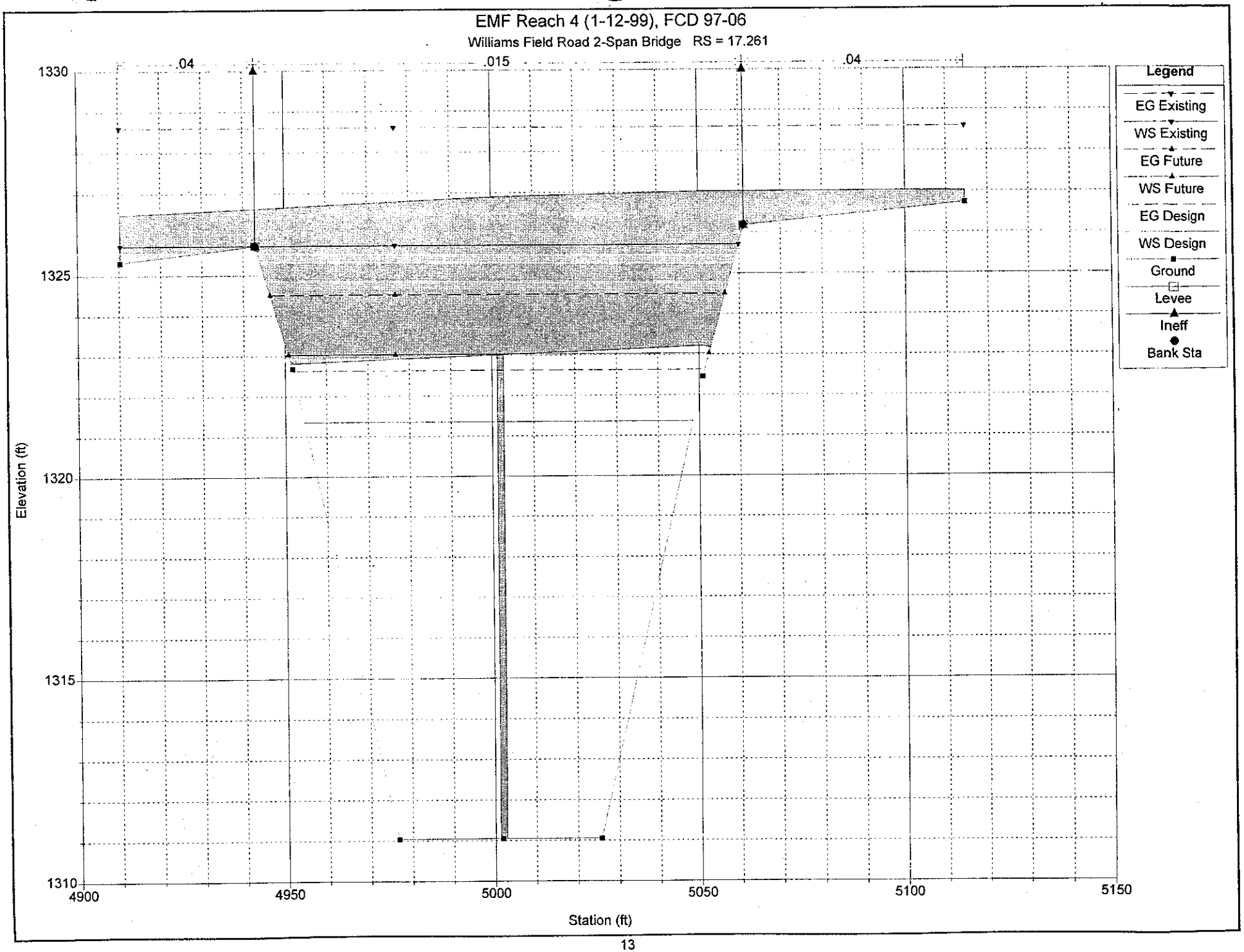

EMF Reach 4 (1-12-99), FCD 97-06
Ineffective Flow Area Due To Williams Field Road Bridge RS = 17.571
.04
.015
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1335
1330
1325
1320
1315
1310
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

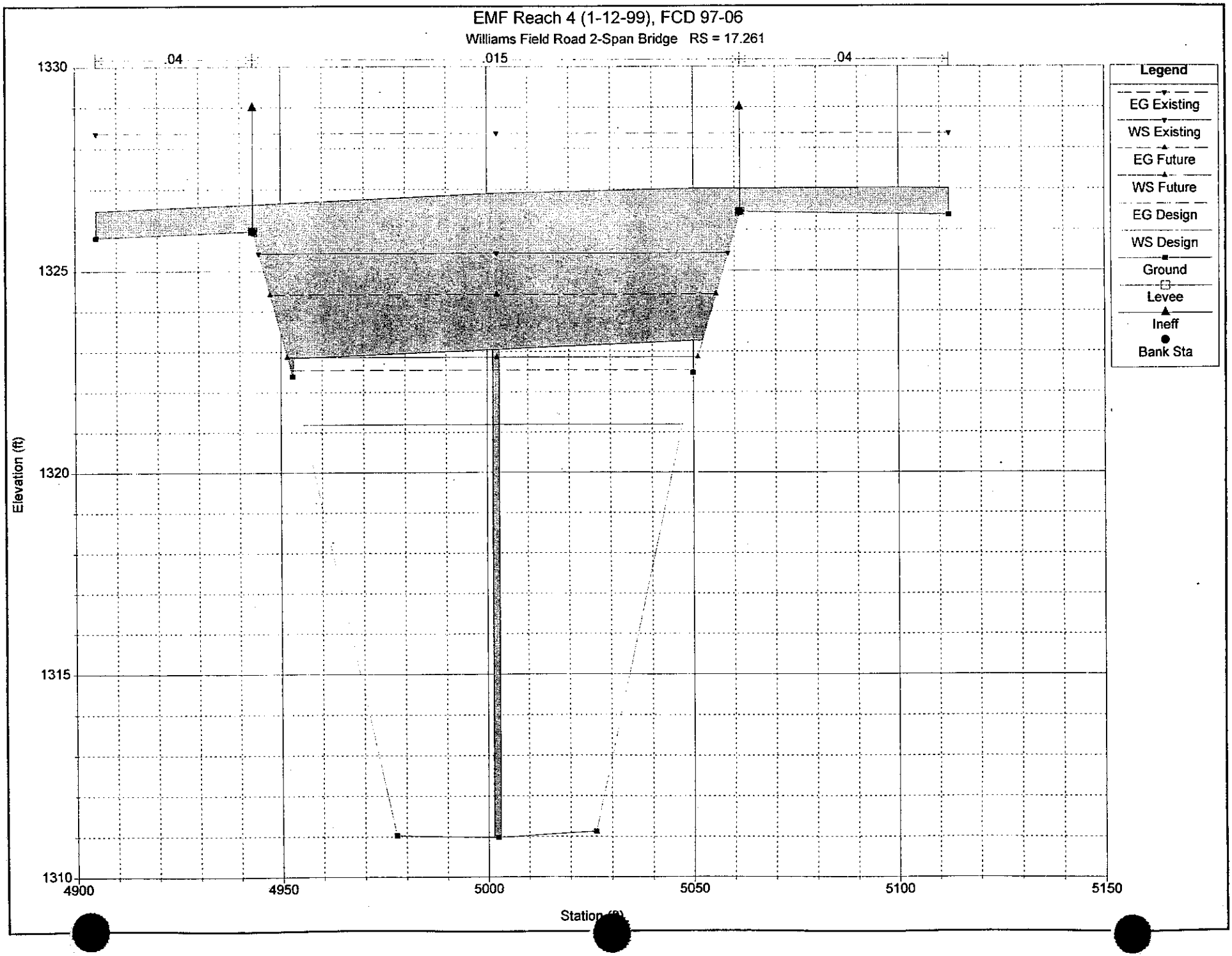

EMF Reach 4 (1-12-99), FCD 97-06
Ineffective Flow Area Due To Williams Field Road Bridge RS = 17.48
.04
.015
0
4
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1335
1330
1325
1320
1315
1310
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

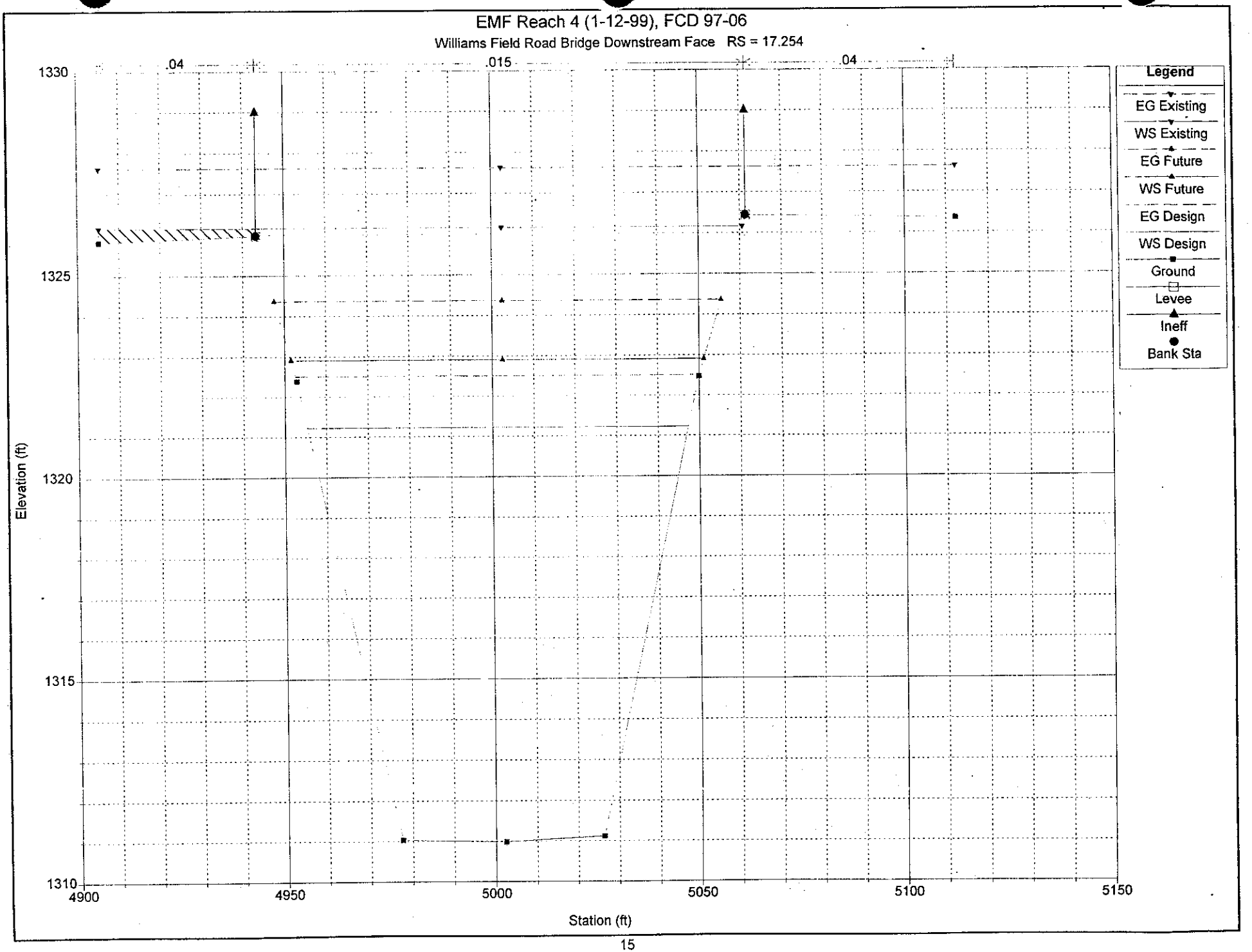

EMF Reach 4 (1-12-99), FCD 97-06
Ineffective Flow Area Due To Williams Field Road Bridge RS = 17.339
.04
.015
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1335
1330
1325
1320
1315
1310
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

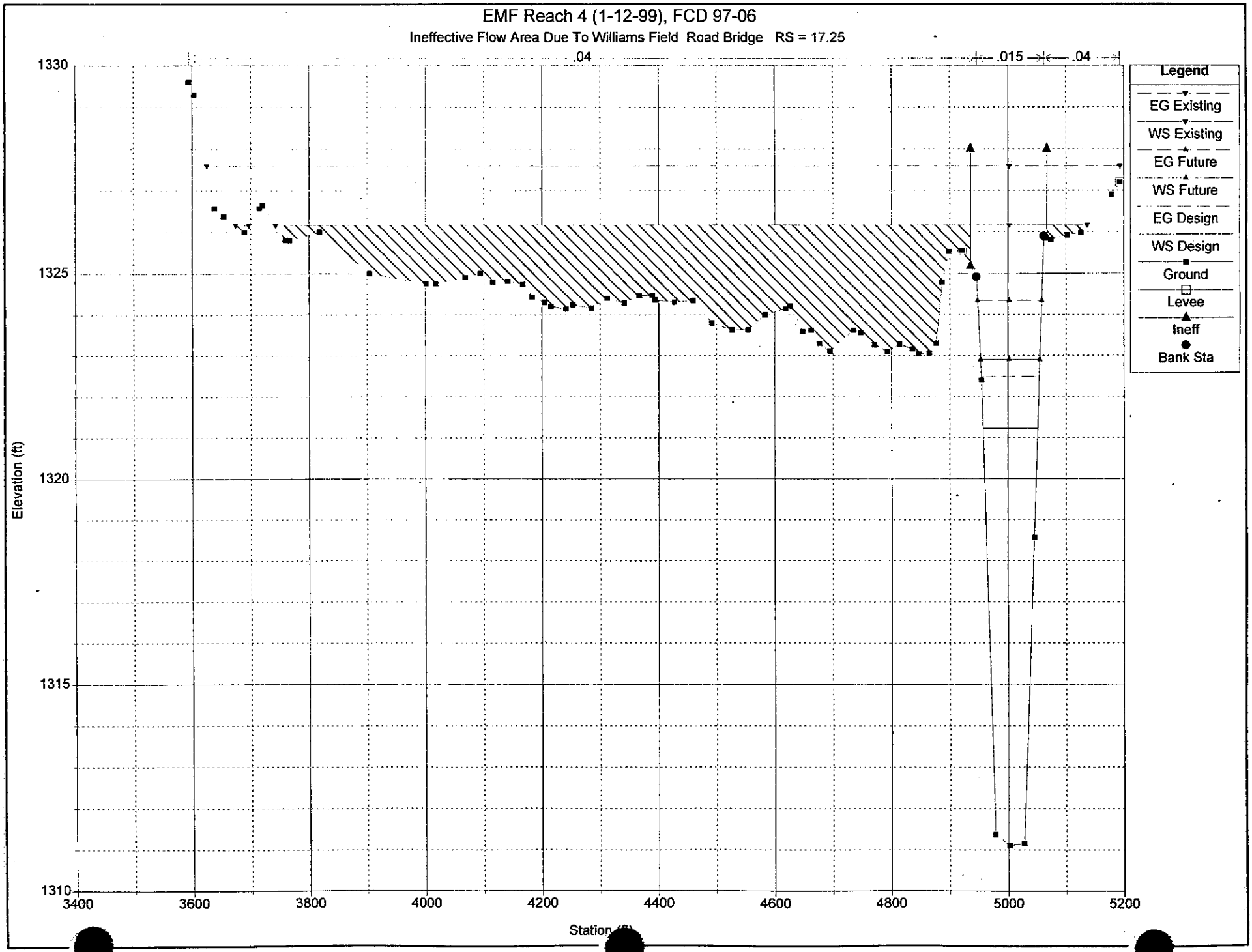

EMF Reach 4 (1-12-99), FCD 97-06
Ineffective Flow Area Due To Williams Field Road Bridge RS = 17.288
.04
.015
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1335
1330
1325
1320
1315
1310
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

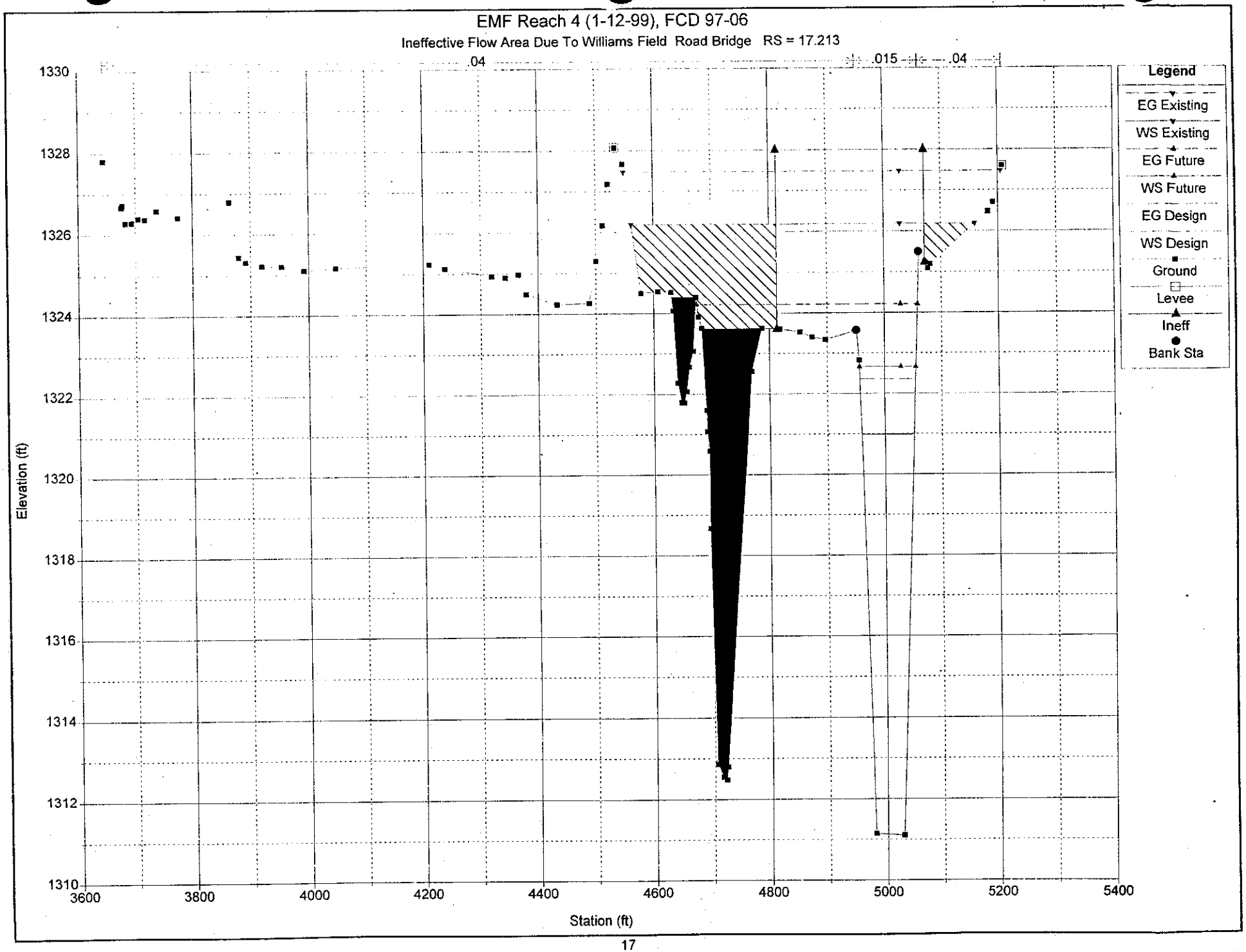

EMF Reach 4 (1-12-99), FCD 97-06
Williams Field Road Bridge Upstream Face RS = 17.269
.04
.015
.04
1330
1325
1320
1315
1310
Elevation (ft)
4900
4950
5000
5050
5100
5150
Station
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta


EMF Reach 4 (1-12-99), FCD 97-06
Williams Field Road 2-Span Bridge RS = 17.261
.04
.015
.04
1330
1325
1320
1315
1310
Elevation (ft)
4900
4950
5000
5050
5100
5150
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta


EMF Reach 4 (1-12-99), FCD 97-06
Williams Field Road 2-Span Bridge RS = 17.261
.04
.015
.04
1330
1325
1320
1315
1310
Elevation (ft)
4900
4950
5000
5050
5100
5150
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta


EMF Reach 4 (1-12-99), FCD 97-06
Williams Field Road Bridge Downstream Face RS = 17.254
.04
.015
.04
1330
1325
1320
1315
1310
Elevation (ft)
4900
4950
5000
5050
5100
5150
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta


EMF Reach 4 (1-12-99), FCD 97-06
Ineffective Flow Area Due To Williams Field Road Bridge RS = 17.25
.04
.015
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1330
1325
1320
1315
1310
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)


EMF Reach 4 (1-12-99), FCD 97-06
Ineffective Flow Area Due To Williams Field Road Bridge RS = 17.213
.04
.015
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1330
1328
1326
1324
1322
1320
1318
1316
1314
1312
1310
3600
3800
4000
4200
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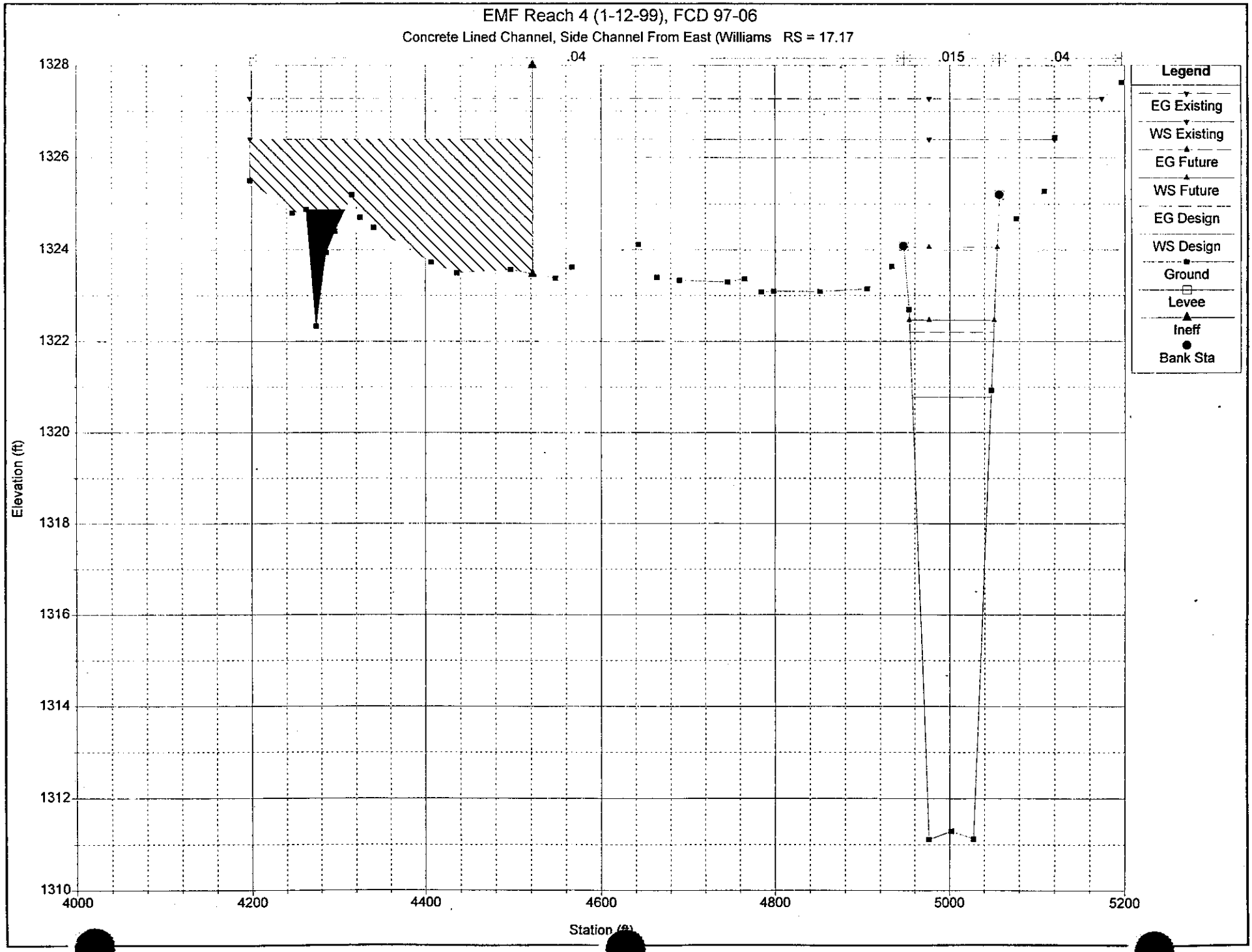
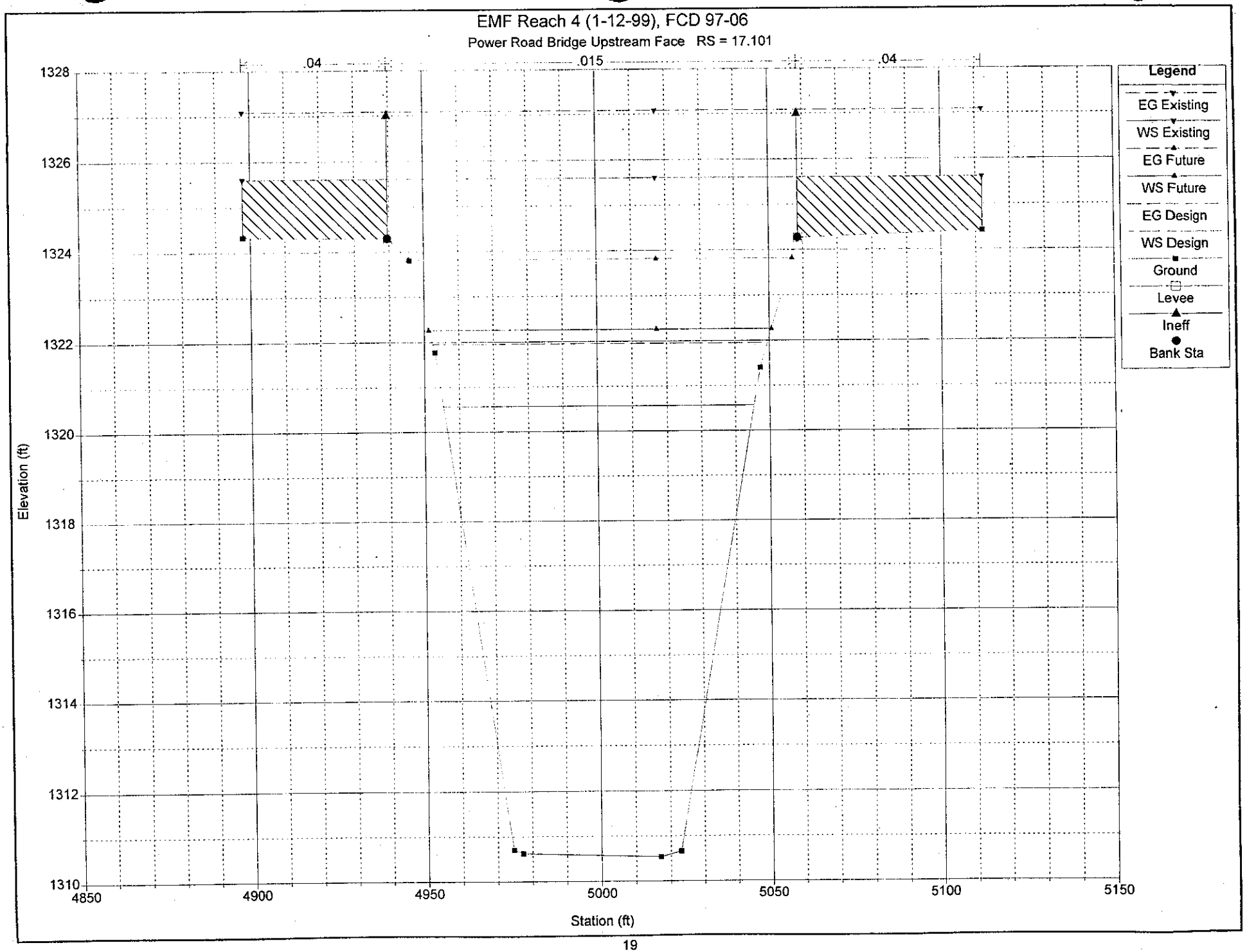
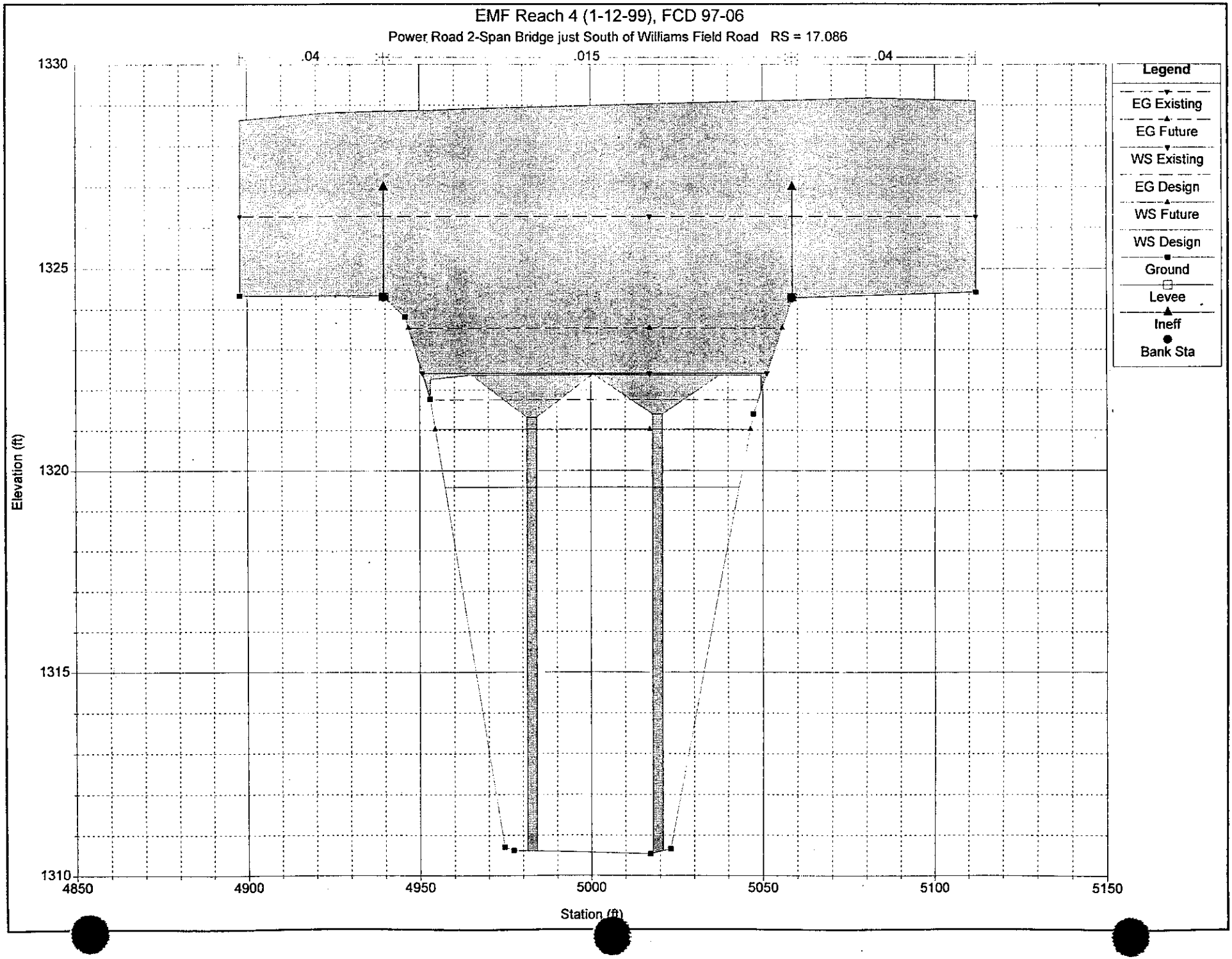
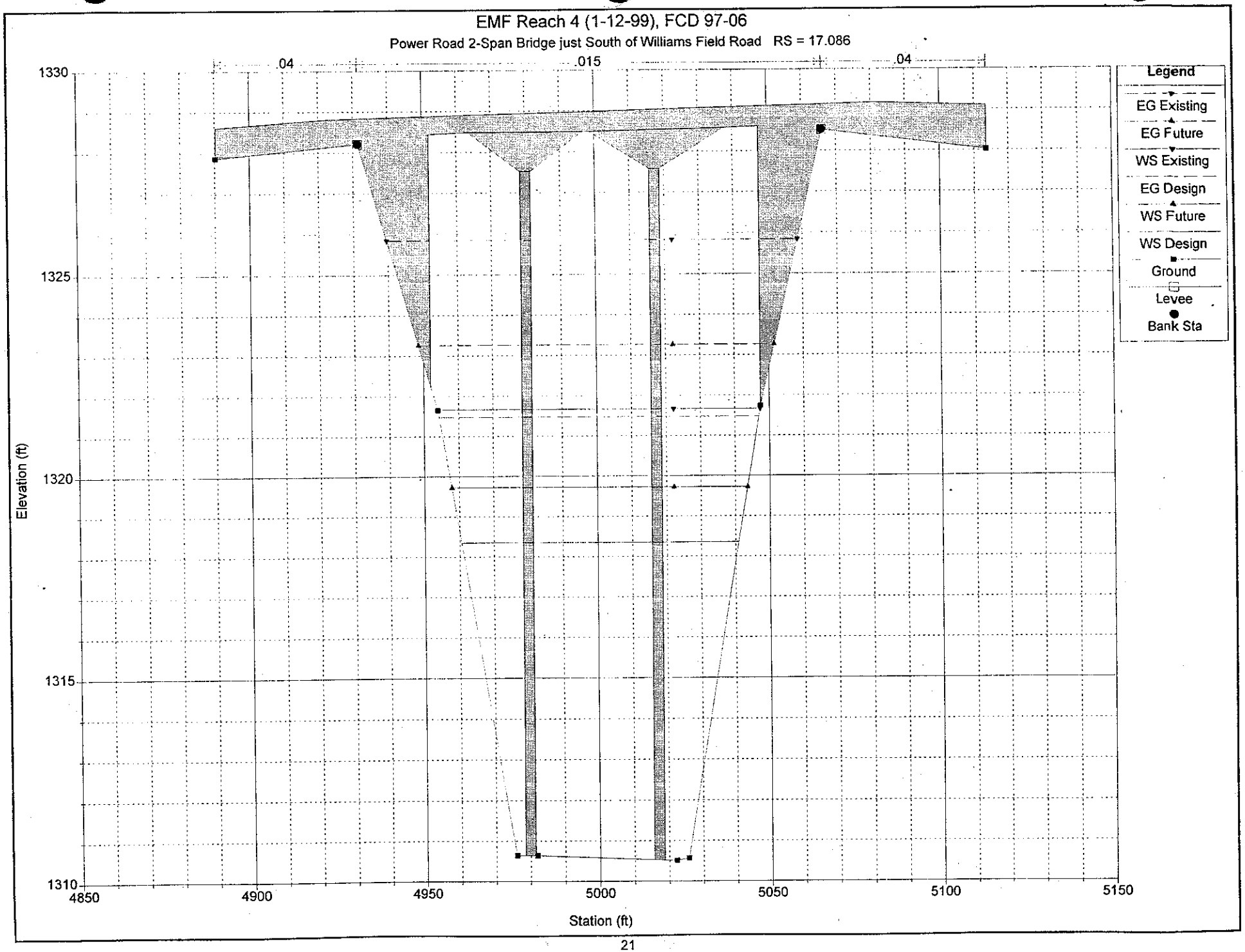
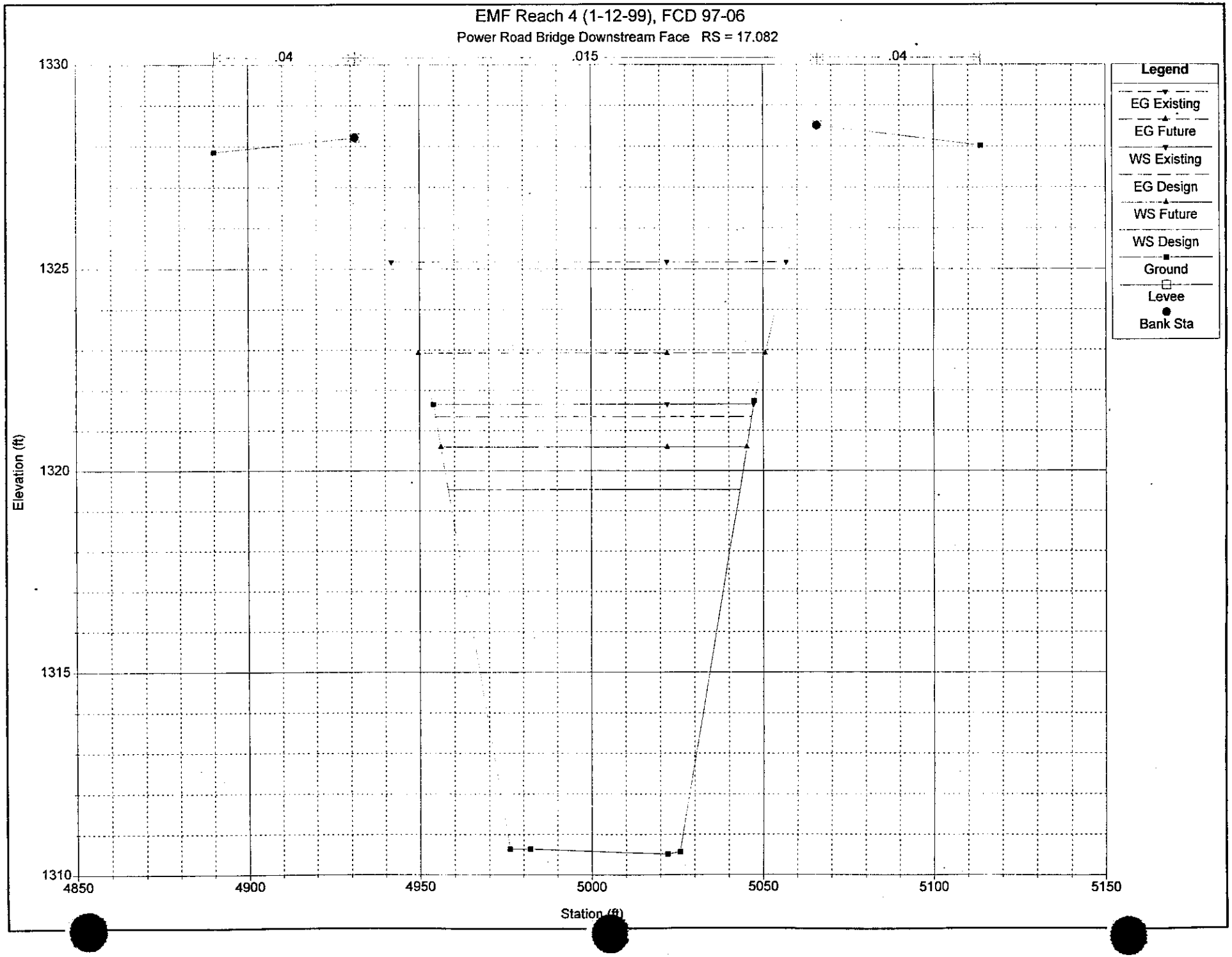
4600
4800
5000
5200
5400
Station (ft)

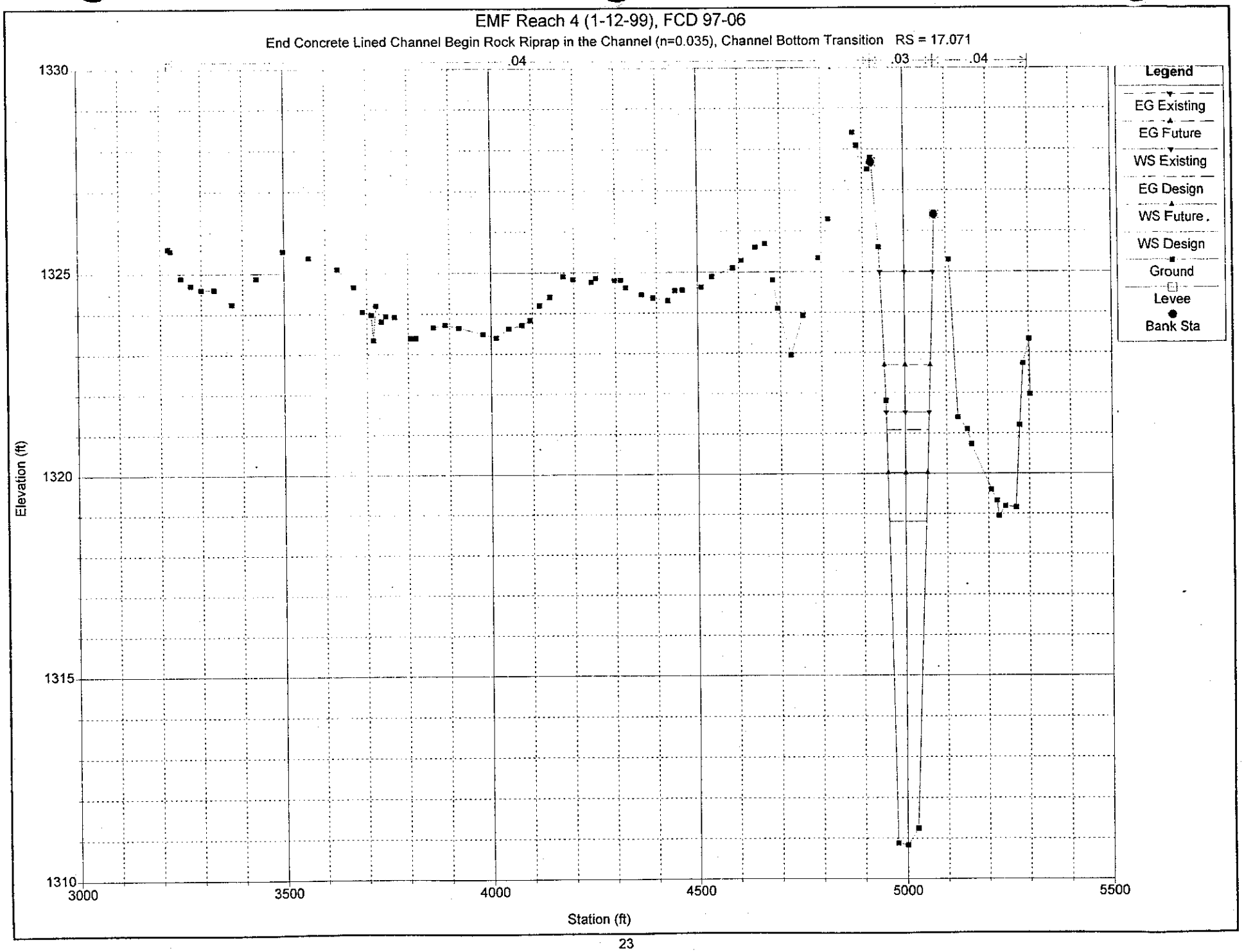

EMF Reach 4 (1-12-99), FCD 97-06
Concrete Lined Channel, Side Channel From East (Williams RS = 17.17
.04
.015
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1328
1326
1324
1322
1320
1318
1316
1314
1312
1310
4000
4200
4400
4600
4800
5000
5200
Station (ft)

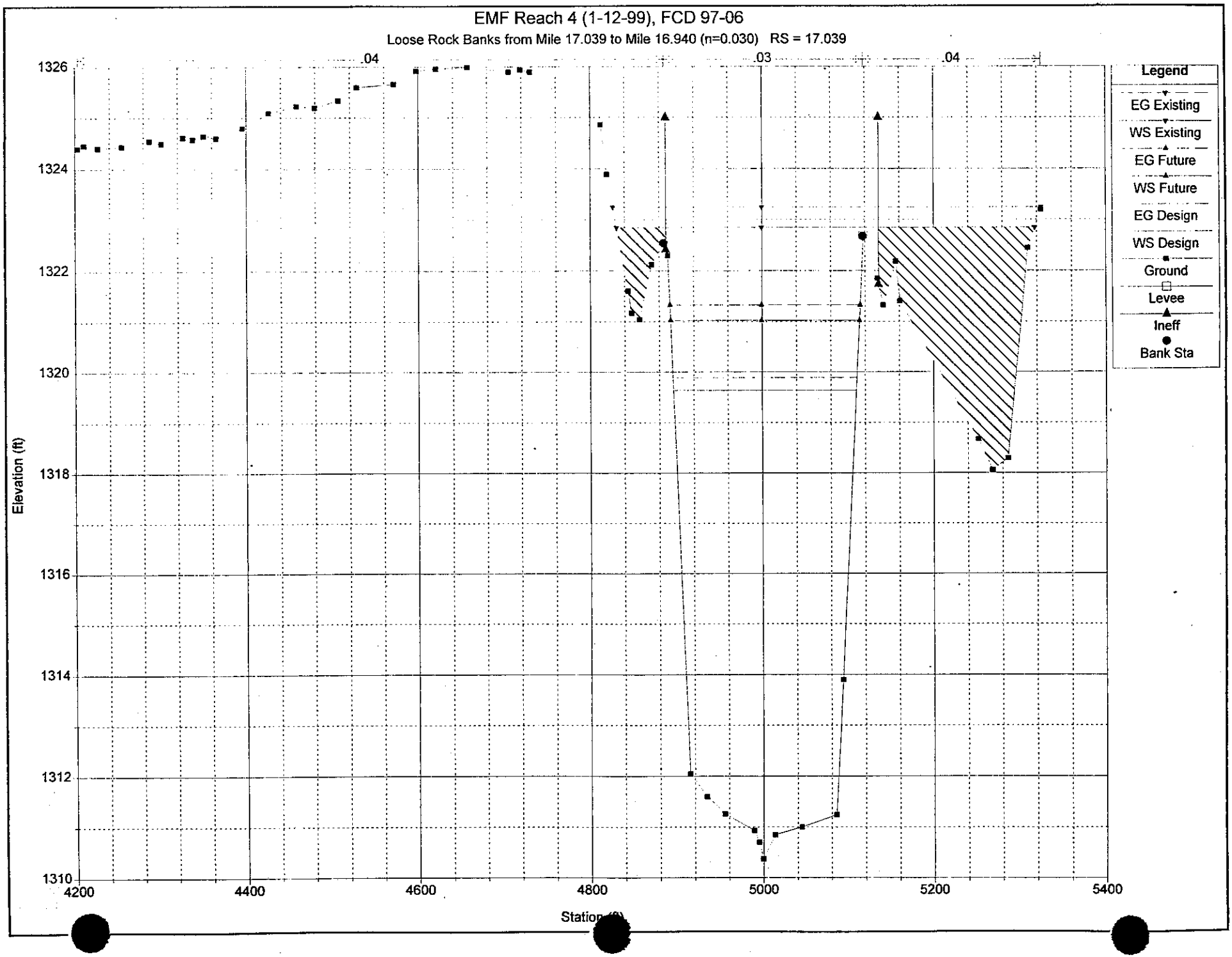

EMF Reach 4 (1-12-99), FCD 97-06
Power Road Bridge Upstream Face RS = 17.101
.04
.015
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1328
1326
1324
1322
1320
1318
1316
1314
1312
1310
4850
4900
4950
5000
5050
5100
5150
Station (ft)

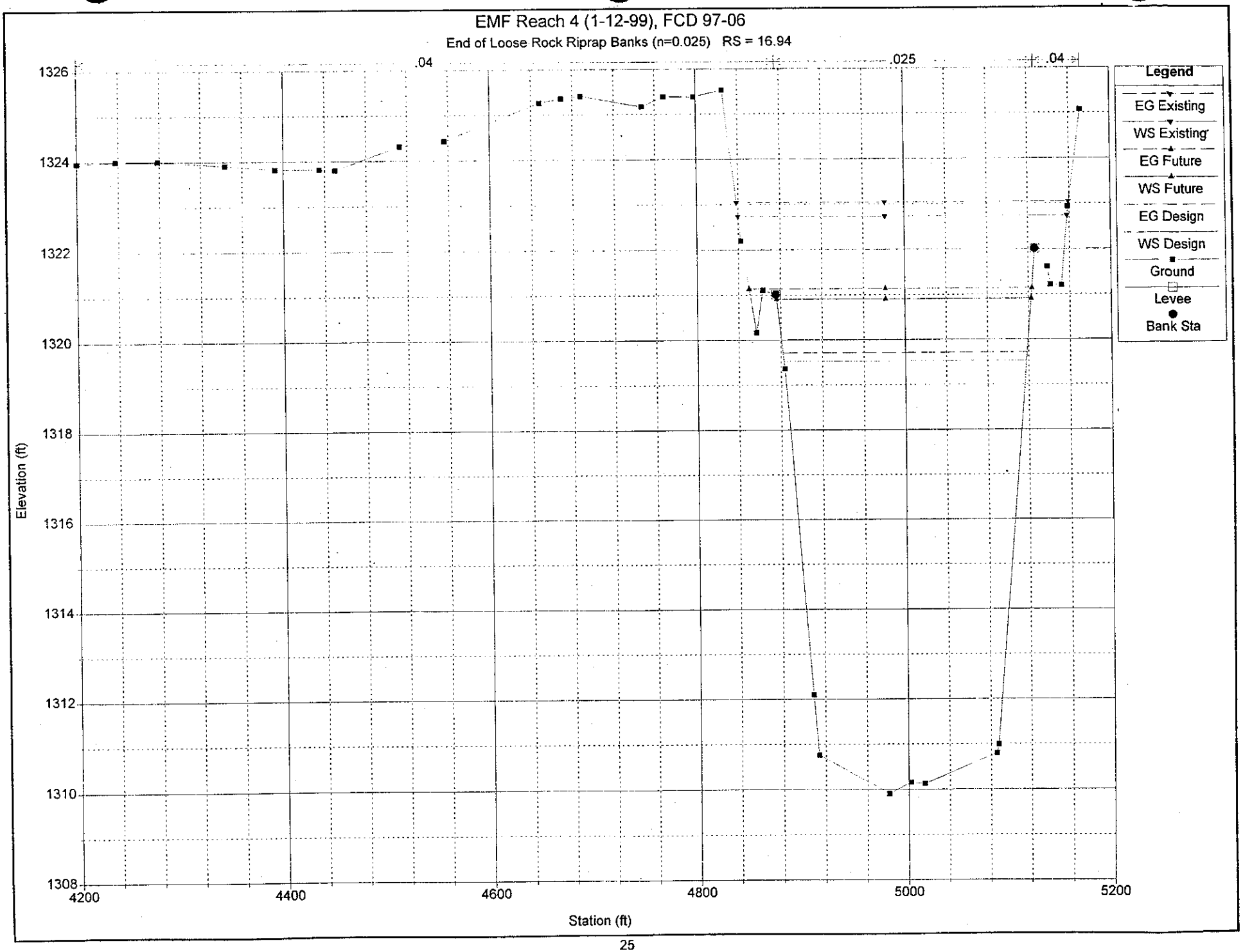

EMF Reach 4 (1-12-99), FCD 97-06
Power Road 2-Span Bridge just South of Williams Field Road RS = 17.086
.04
.015
.04
1330
1325
1320
1315
1310
Elevation (ft)
4850
4900
4950
5000
5050
5100
5150
Station (ft)
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Ineff
Bank Sta

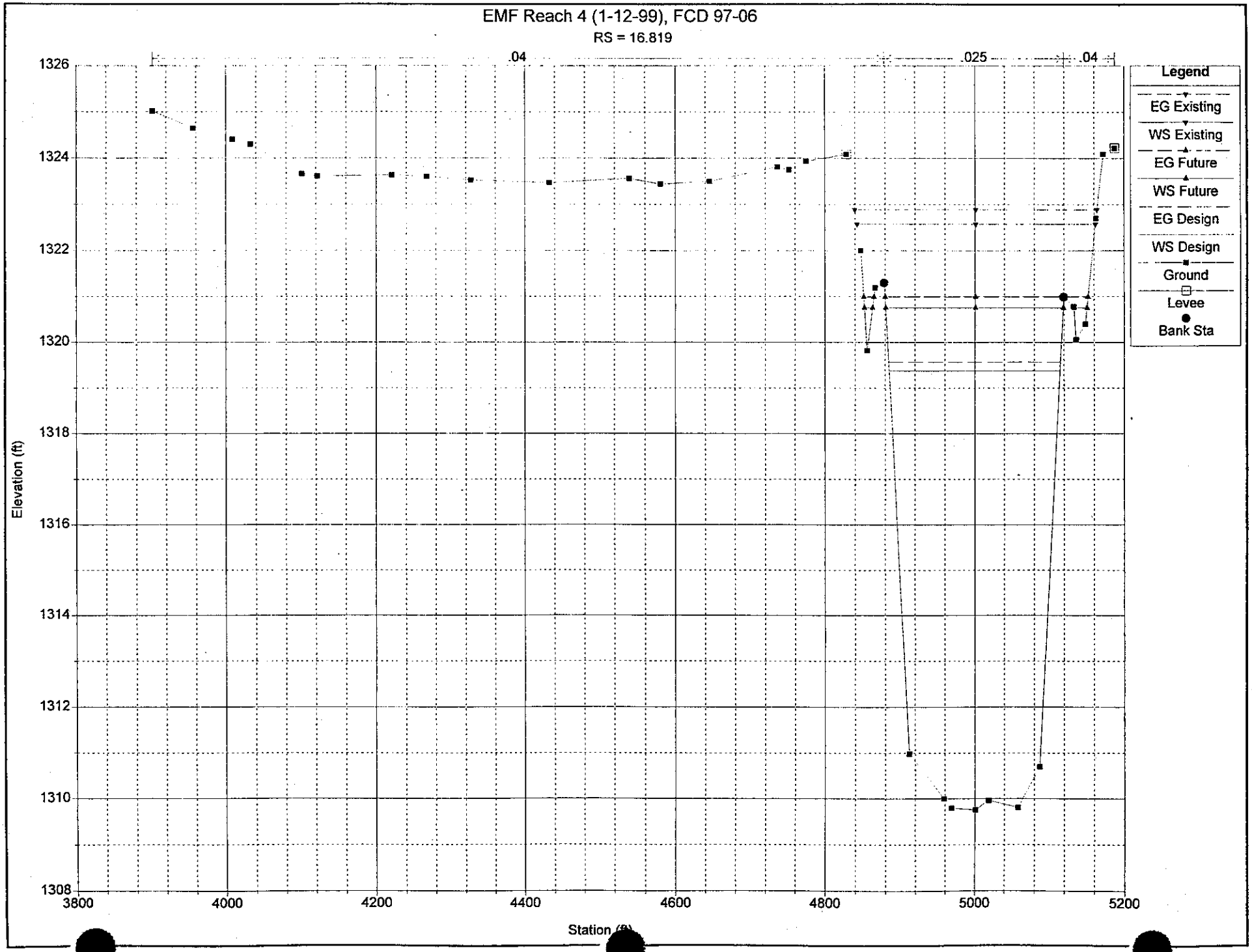

EMF Reach 4 (1-12-99), FCD 97-06
Power Road 2-Span Bridge just South of Williams Field Road RS = 17.086
.04
.015
.04
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1330
1325
1320
1315
1310
4850
4900
4950
5000
5050
5100
5150
Station (ft)

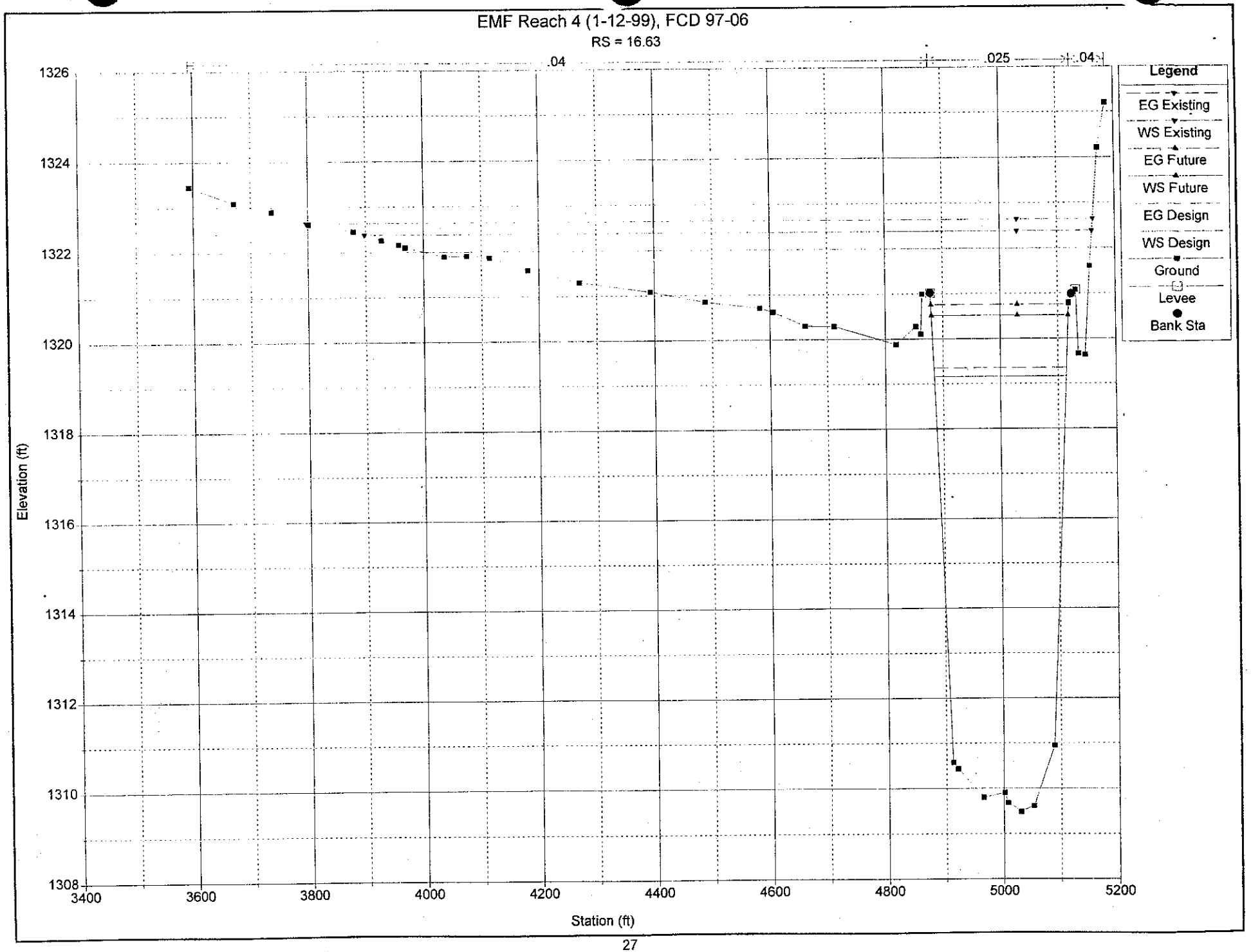

EMF Reach 4 (1-12-99), FCD 97-06
Power Road Bridge Downstream Face RS = 17.082
.04
.015
.04
1330
1325
1320
1315
1310
Elevation (ft)
4850
4900
4950
5000
5050
5100
5150
Station (ft)
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Bank Sta

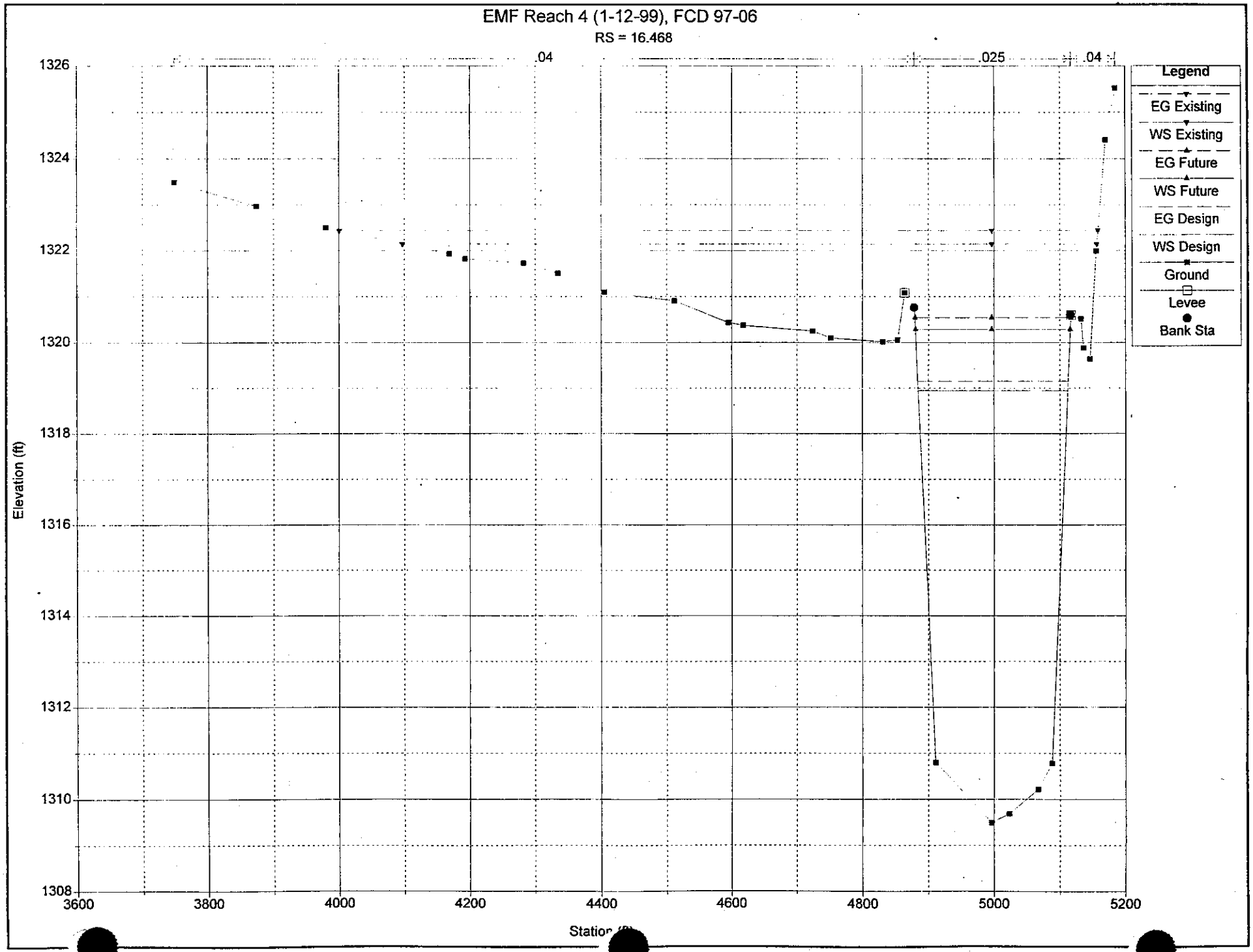

EMF Reach 4 (1-12-99), FCD 97-06
End Concrete Lined Channel Begin Rock Riprap in the Channel (n=0.035), Channel Bottom Transition RS = 17.071
.04
.03
.04
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1330
1325
1320
1315
1310
3000
3500
4000
4500
5000
5500
Station (ft)

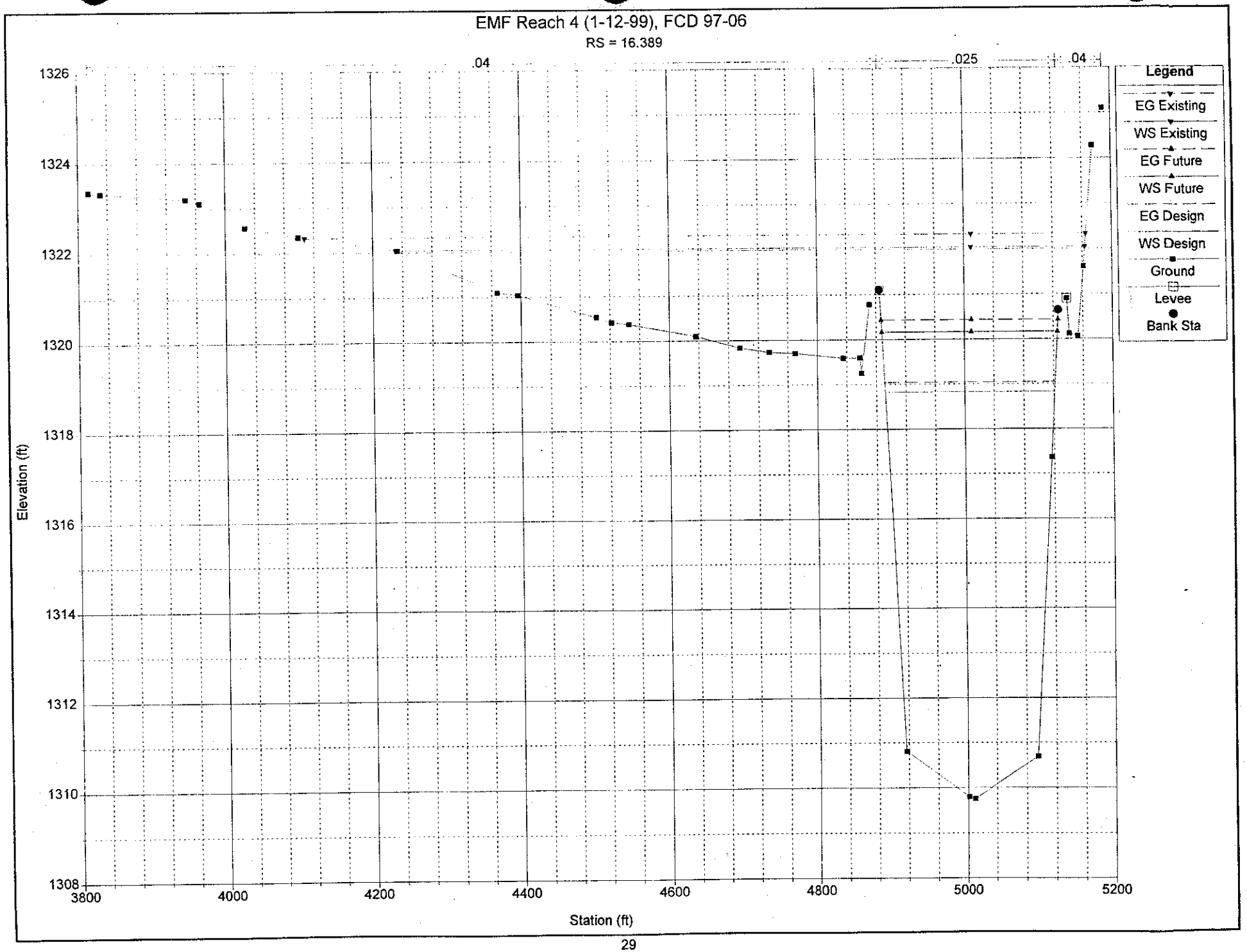

EMF Reach 4 (1-12-99), FCD 97-06
Loose Rock Banks from Mile 17.039 to Mile 16.940 (n=0.030) RS = 17.039
.04
.03
.04
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
1312
1310
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

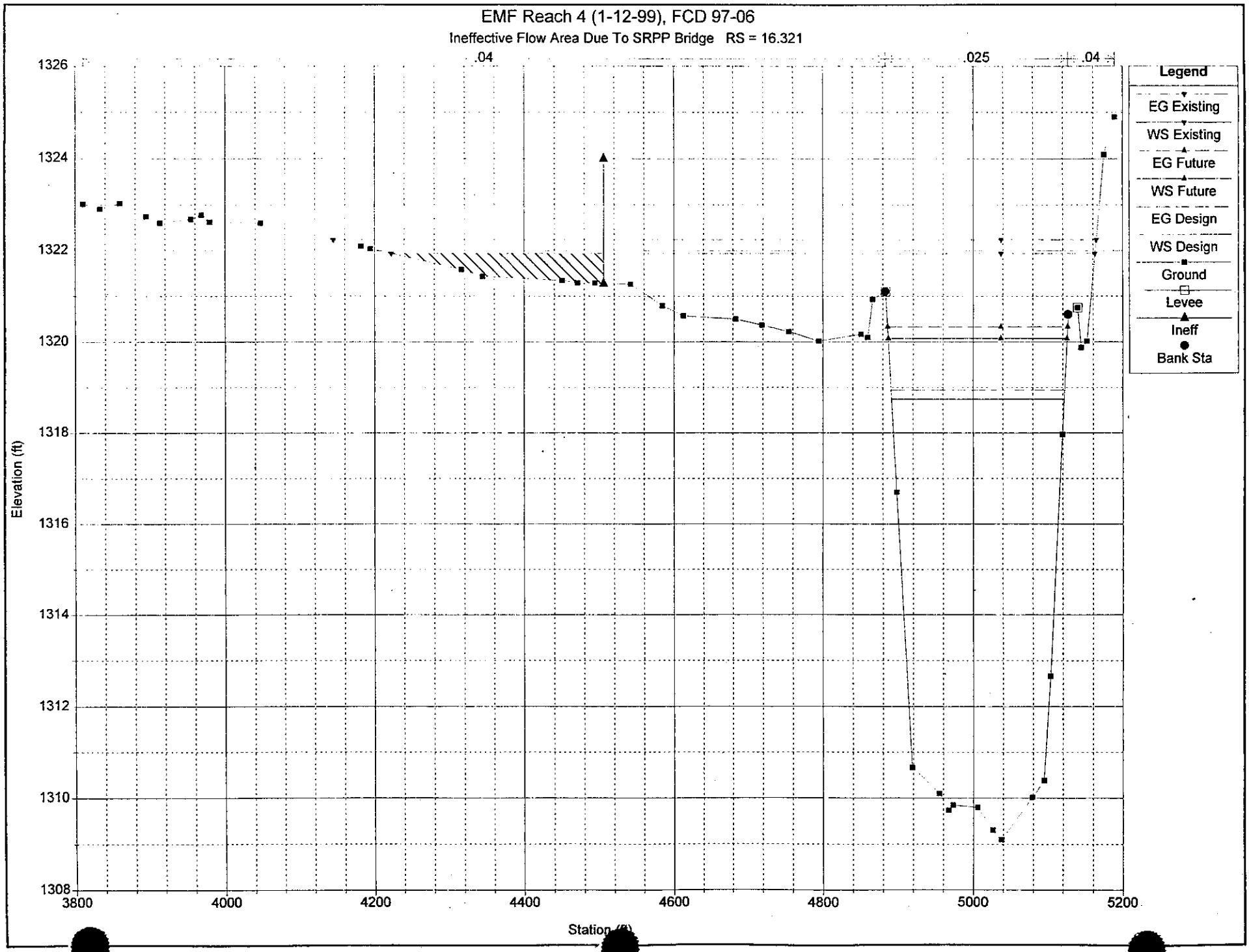

EMF Reach 4 (1-12-99), FCD 97-06
End of Loose Rock Riprap Banks (n=0.025) RS = 16.94
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
1312
1310
1308
4200
4400
4600
4800
5000
5200
Station (ft)

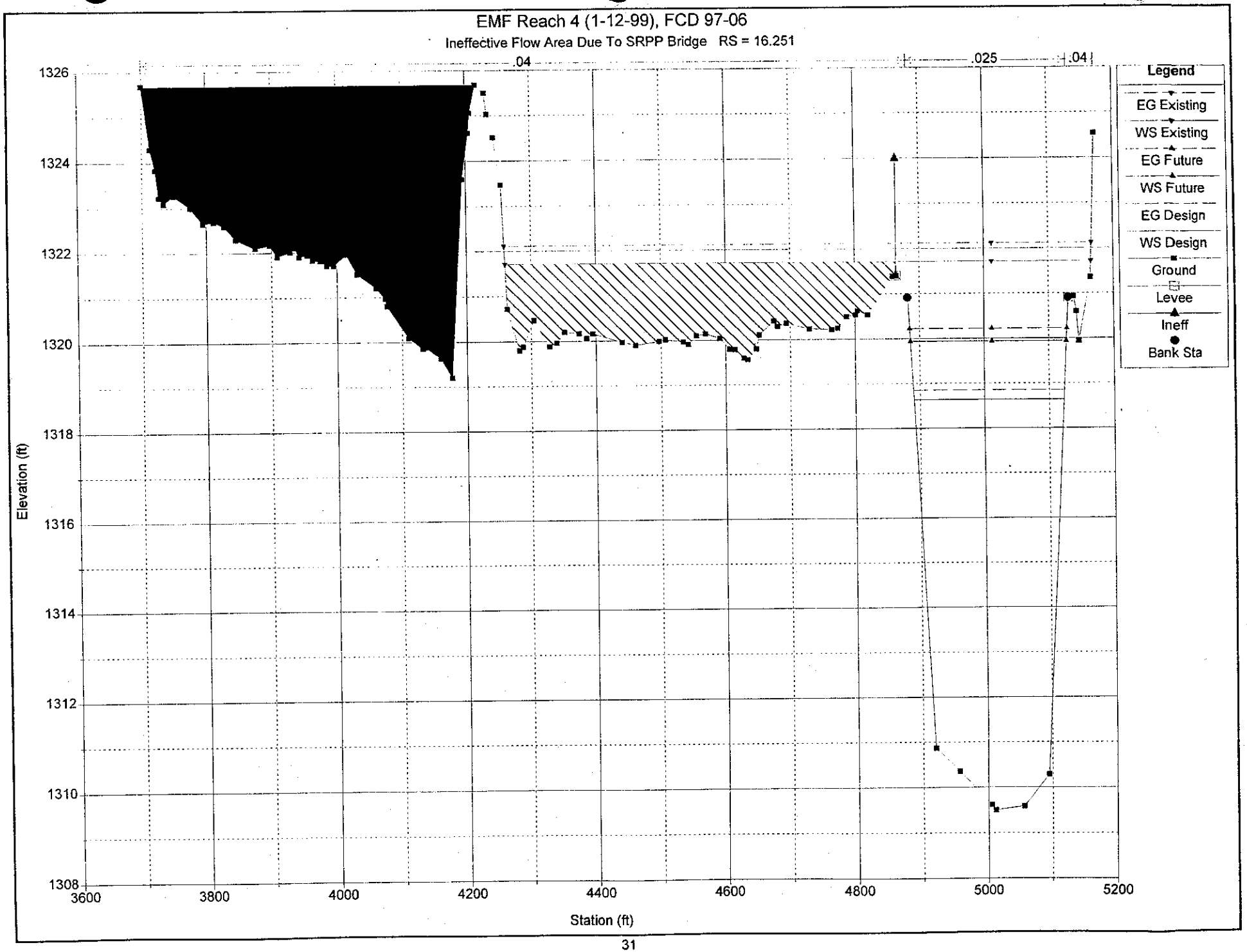

EMF Reach 4 (1-12-99), FCD 97-06
RS = 16.819
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
1312
1310
1308
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

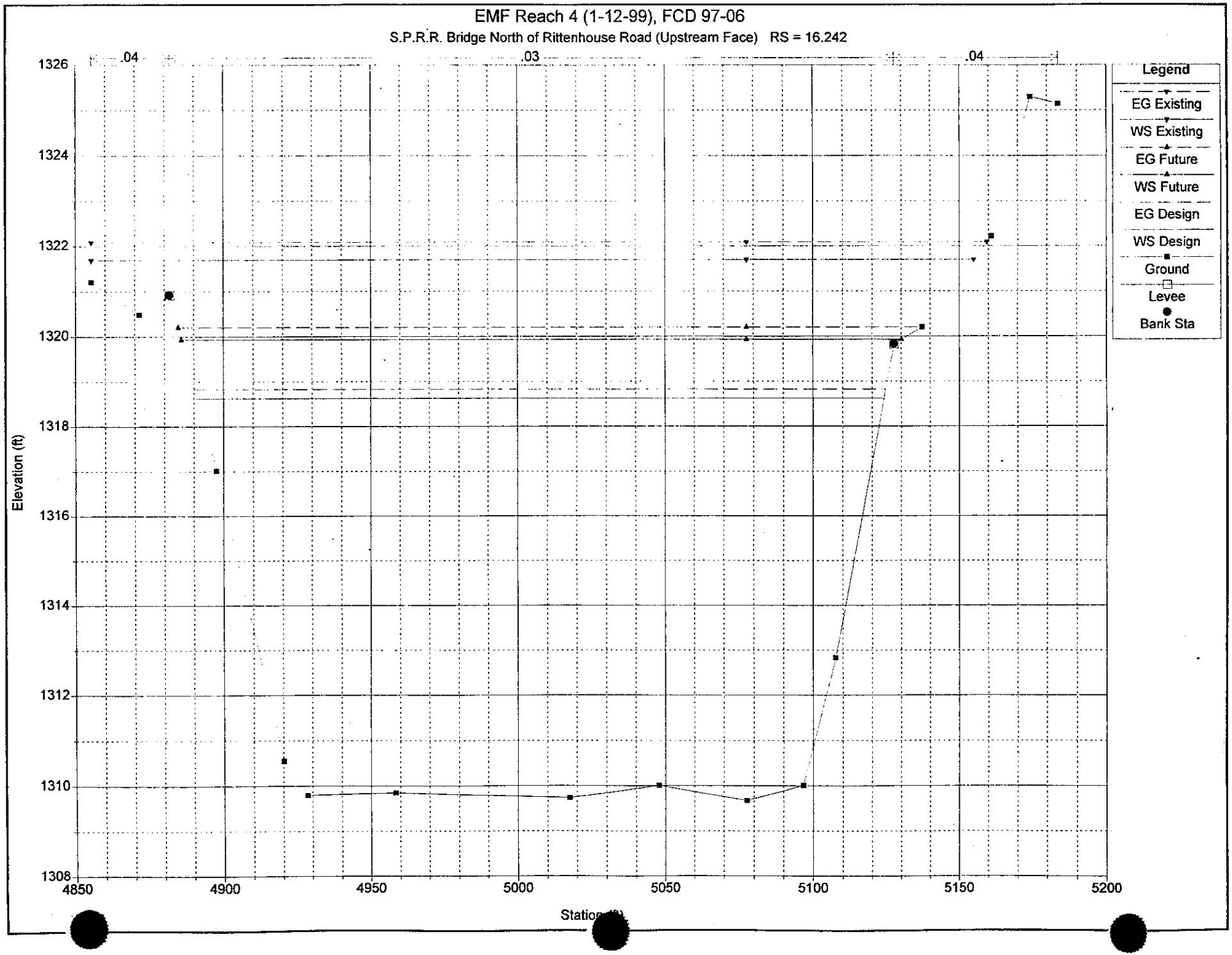

EMF Reach 4 (1-12-99), FCD 97-06
RS = 16.63
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
1312
1310
1308
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)


EMF Reach 4 (1-12-99), FCD 97-06
RS = 16.468
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
1312
1310
1308
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)


EMF Reach 4 (1-12-99), FCD 97-06
RS = 16.389
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
1312
1310
1308
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)


EMF Reach 4 (1-12-99), FCD 97-06
Ineffective Flow Area Due To SRPP Bridge RS = 16.321
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
1312
1310
1308
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)


EMF Reach 4 (1-12-99), FCD 97-06
Ineffective Flow Area Due To SRPP Bridge RS = 16.251
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
1312
1310
1308
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)


EMF Reach 4 (1-12-99), FCD 97-06
S.P.R.R. Bridge North of Rittenhouse Road (Upstream Face) RS = 16.242
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
1312
1310
1308
4850
4900
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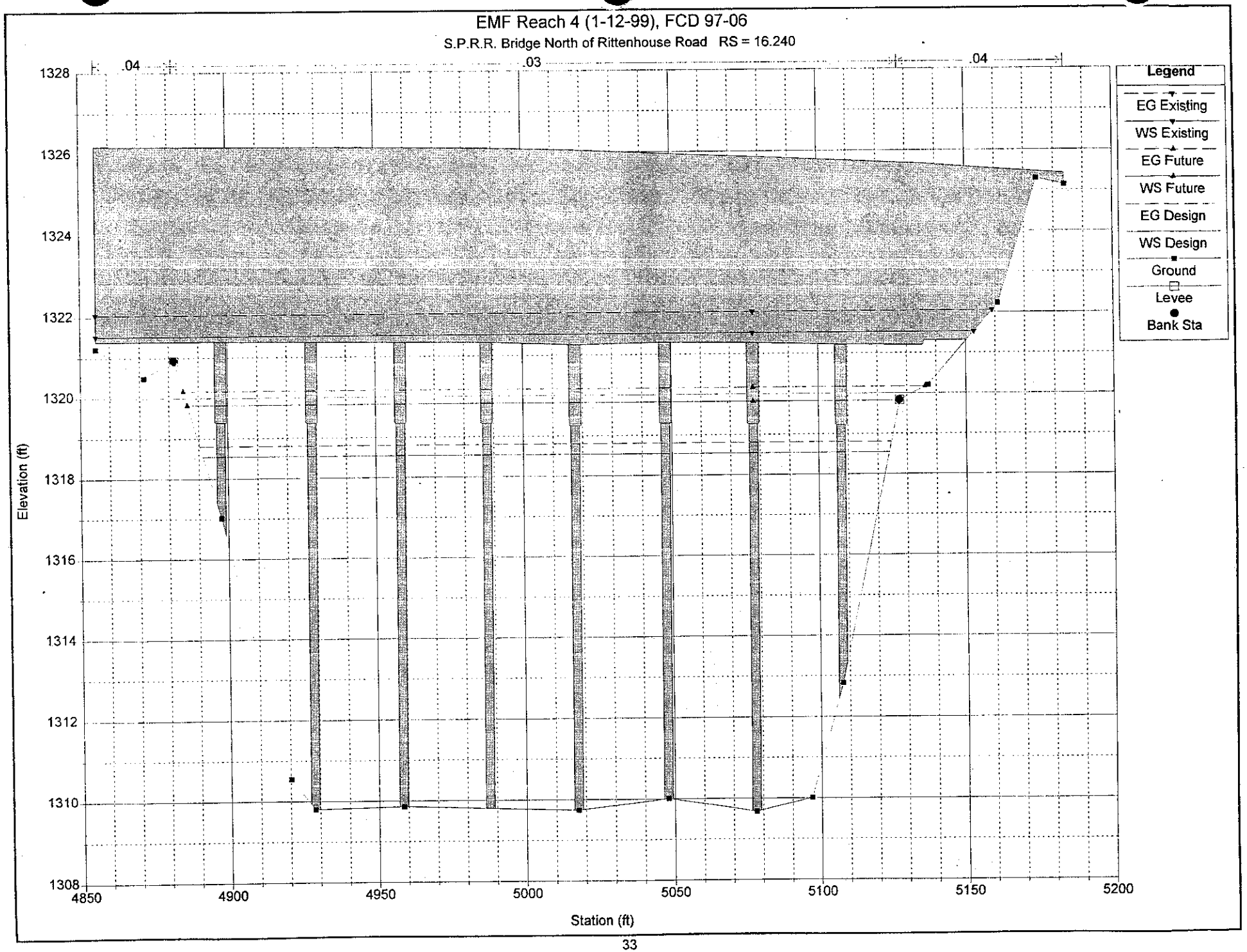
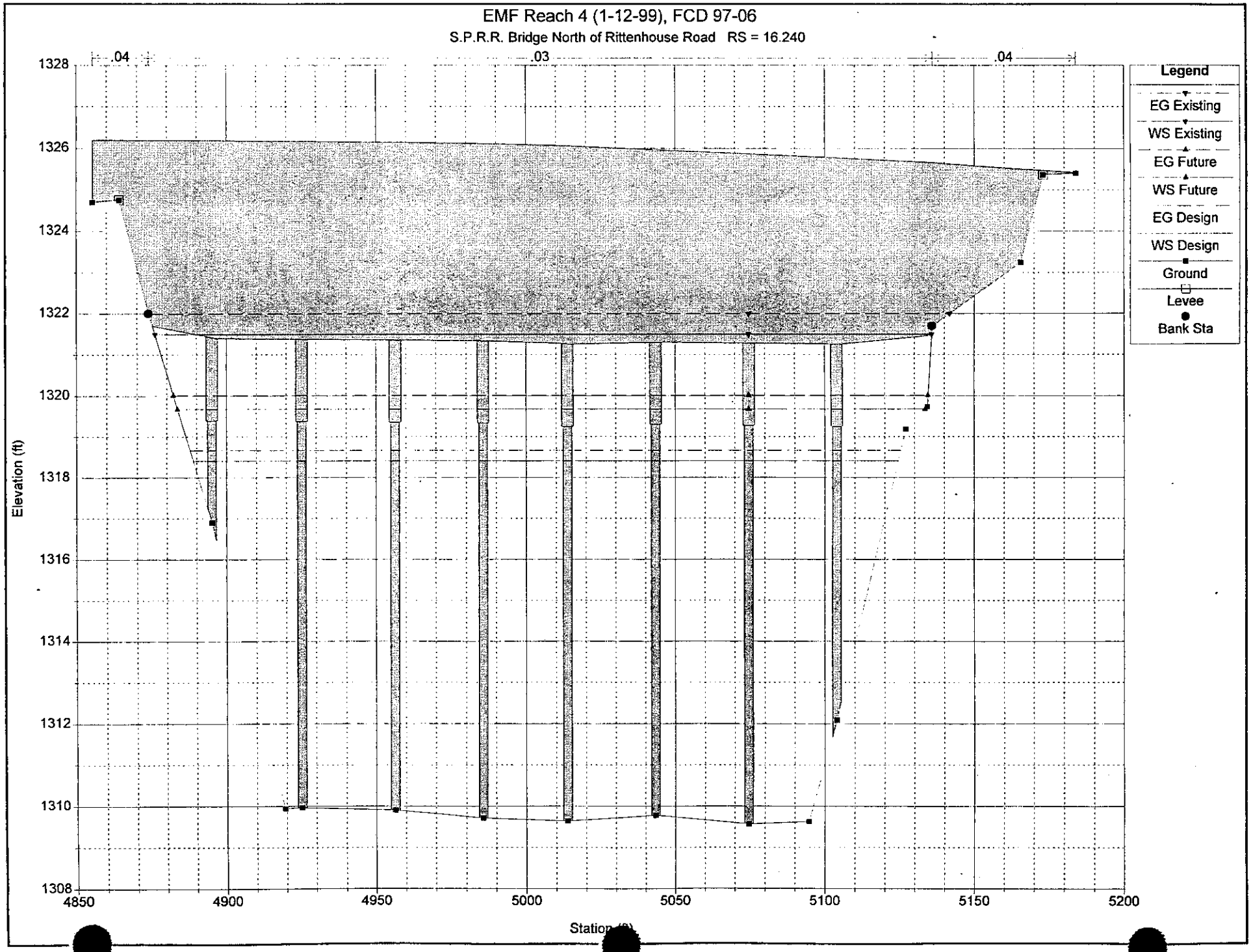
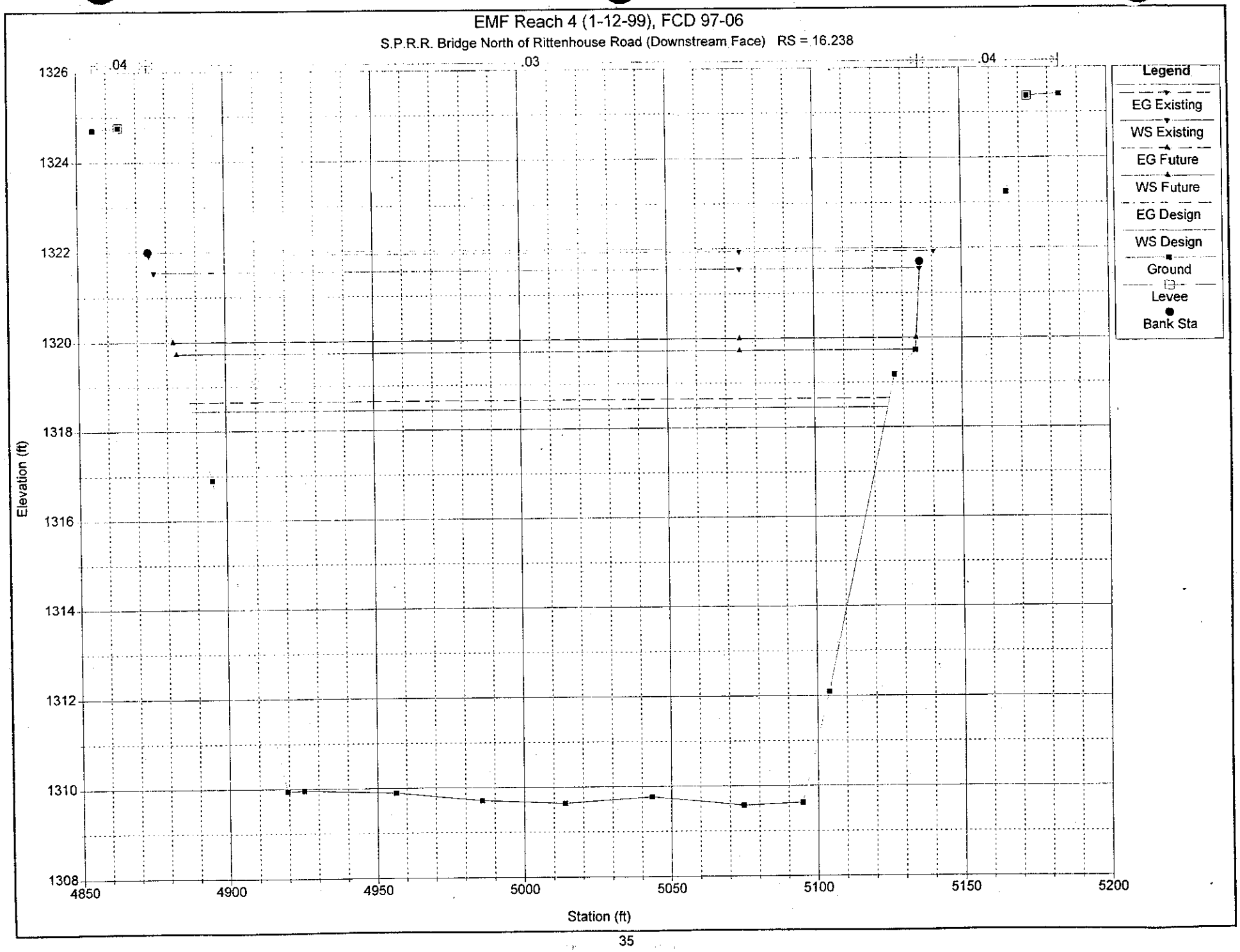
5000
5050
5100
5150
5200


EMF Reach 4 (1-12-99), FCD 97-06
S.P.R.R. Bridge North of Rittenhouse Road RS = 16.240
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1328
1326
1324
1322
1320
1318
1316
1314
1312
1310
1308
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)


EMF Reach 4 (1-12-99), FCD 97-06
S.P.R.R. Bridge North of Rittenhouse Road RS = 16.240
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1328
1326
1324
1322
1320
1318
1316
1314
1312
1310
1308
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)


EMF Reach 4 (1-12-99), FCD 97-06
S.P.R.R. Bridge North of Rittenhouse Road (Downstream Face) RS = 16.238
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
1312
1310
1308
4850
4900
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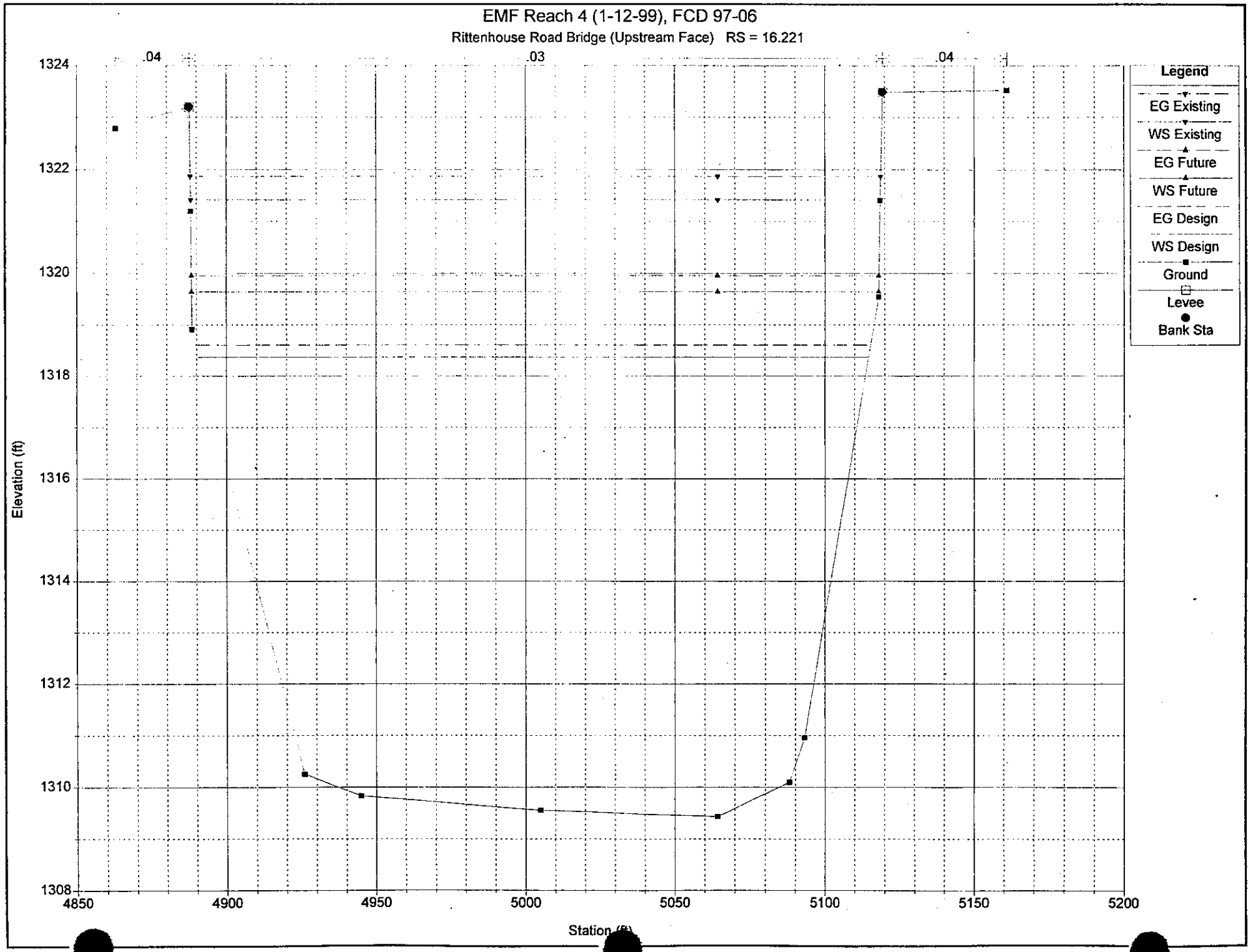
5100
5150
5200
Station (ft)


EMF Reach 4 (1-12-99), FCD 97-06
Rittenhouse Road Bridge (Upstream Face) RS = 16.221
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1324
1322
1320
1318
1316
1314
1312
1310
1308
4850
4900
4950
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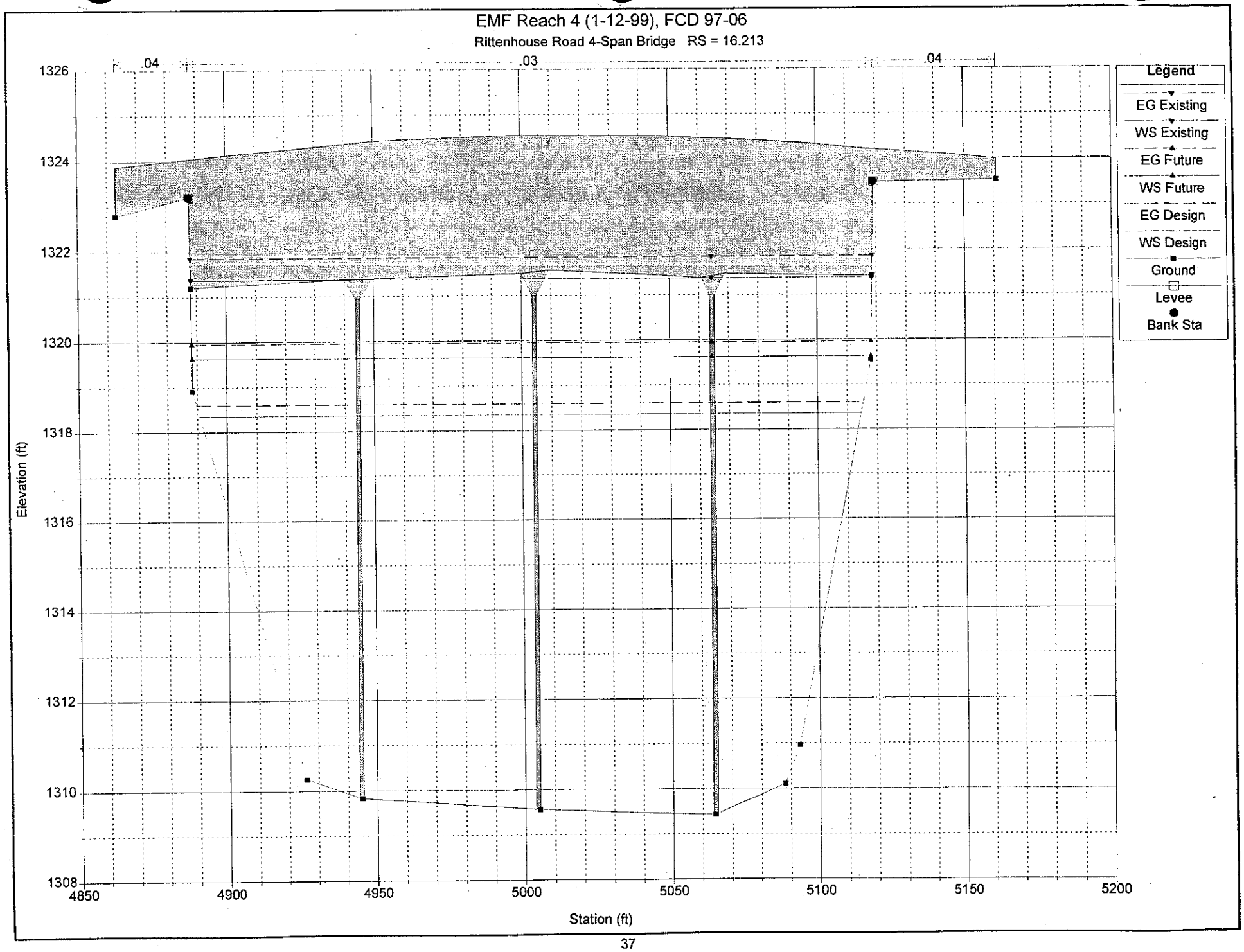
5100
5150
5200
Station (ft)


EMF Reach 4 (1-12-99), FCD 97-06
Rittenhouse Road 4-Span Bridge RS = 16.213
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
1312
1310
1308
4850
4900
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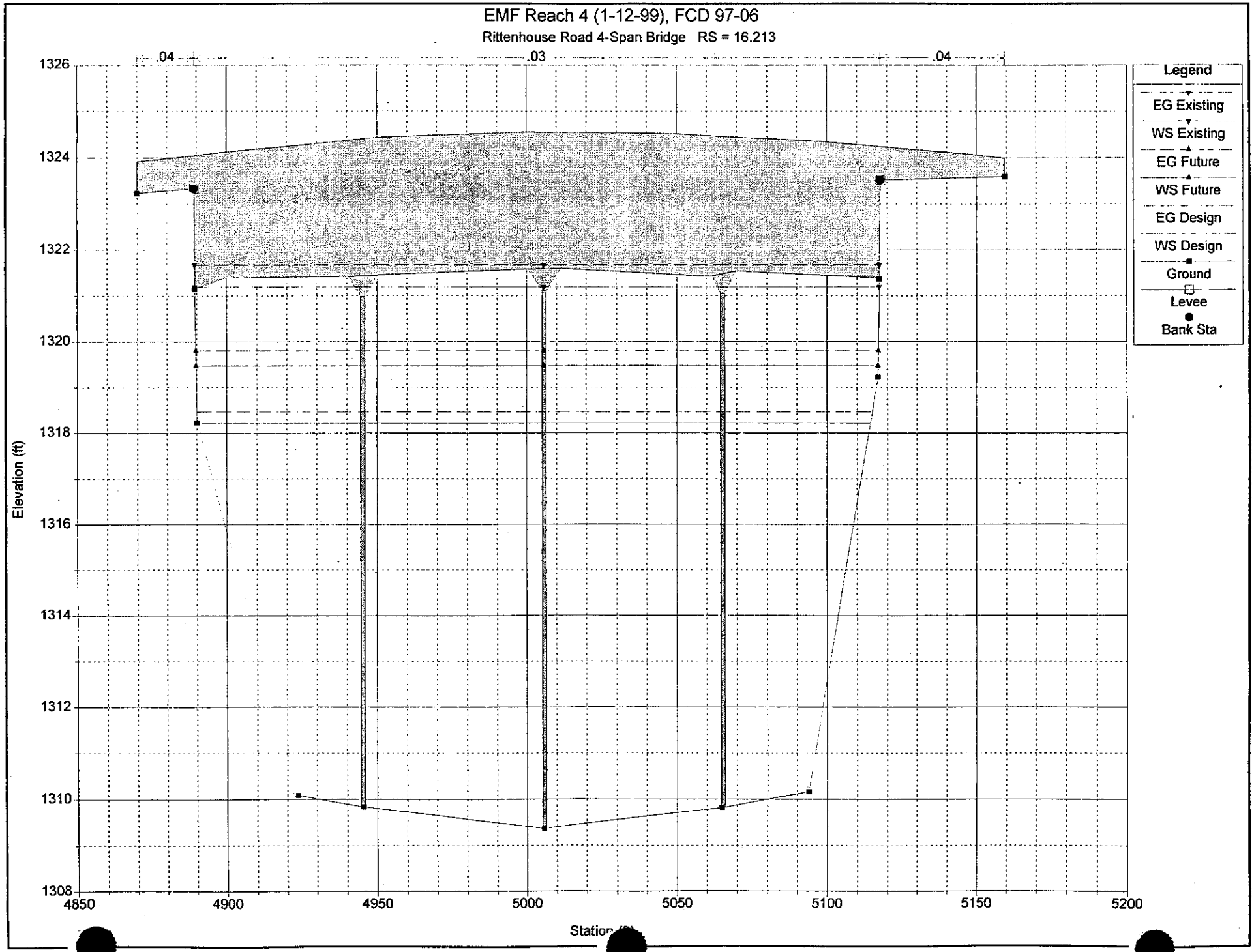
5100
5150
5200
Station (ft)


EMF Reach 4 (1-12-99), FCD 97-06
Rittenhouse Road 4-Span Bridge RS = 16.213
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
1312
1310
1308
4850
4900
4950
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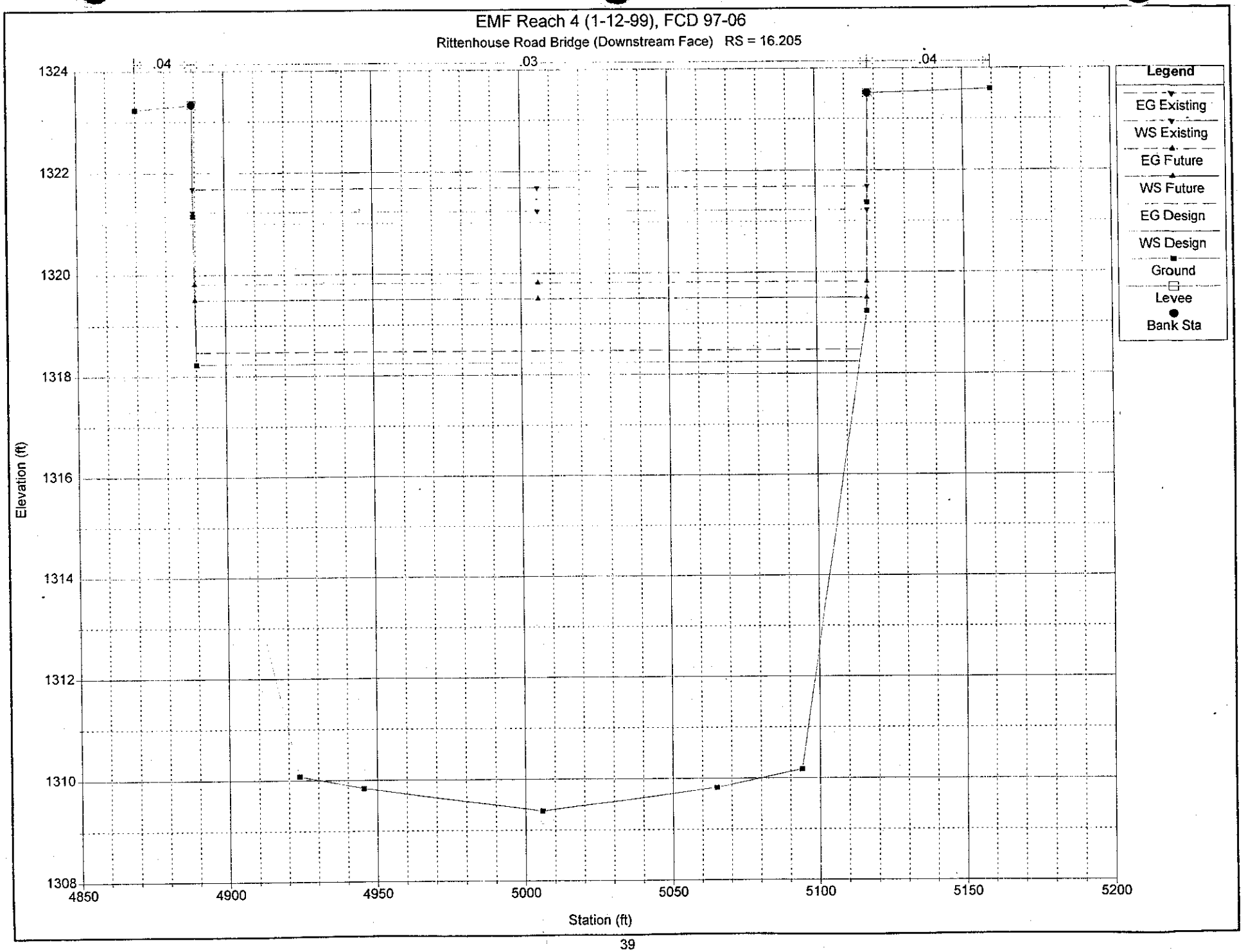
5050
5100
5150
5200
Station (ft)


EMF Reach 4 (1-12-99), FCD 97-06
Rittenhouse Road Bridge (Downstream Face) RS = 16.205
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1324
1322
1320
1318
1316
1314
1312
1310
1308
4850
4900
4950
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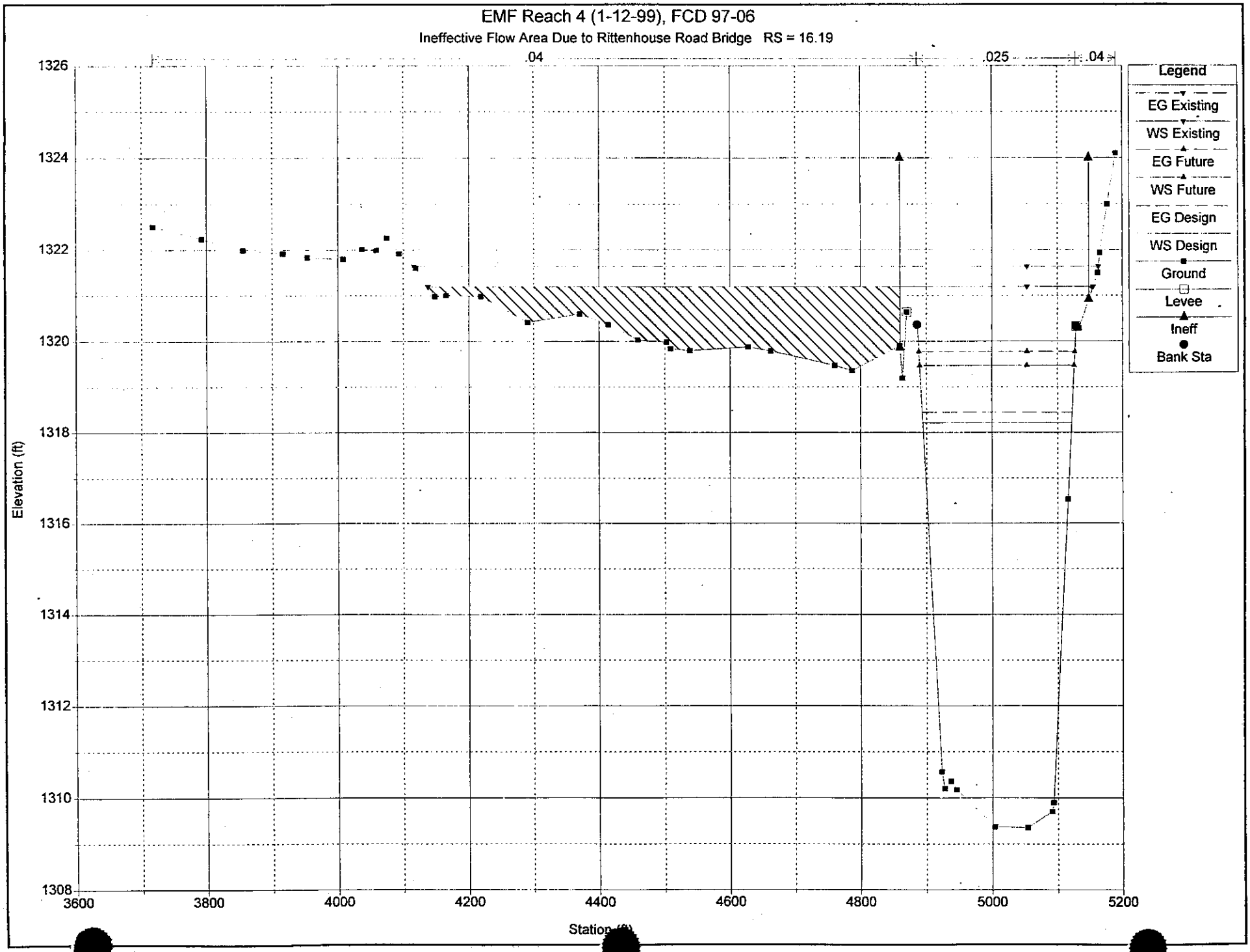
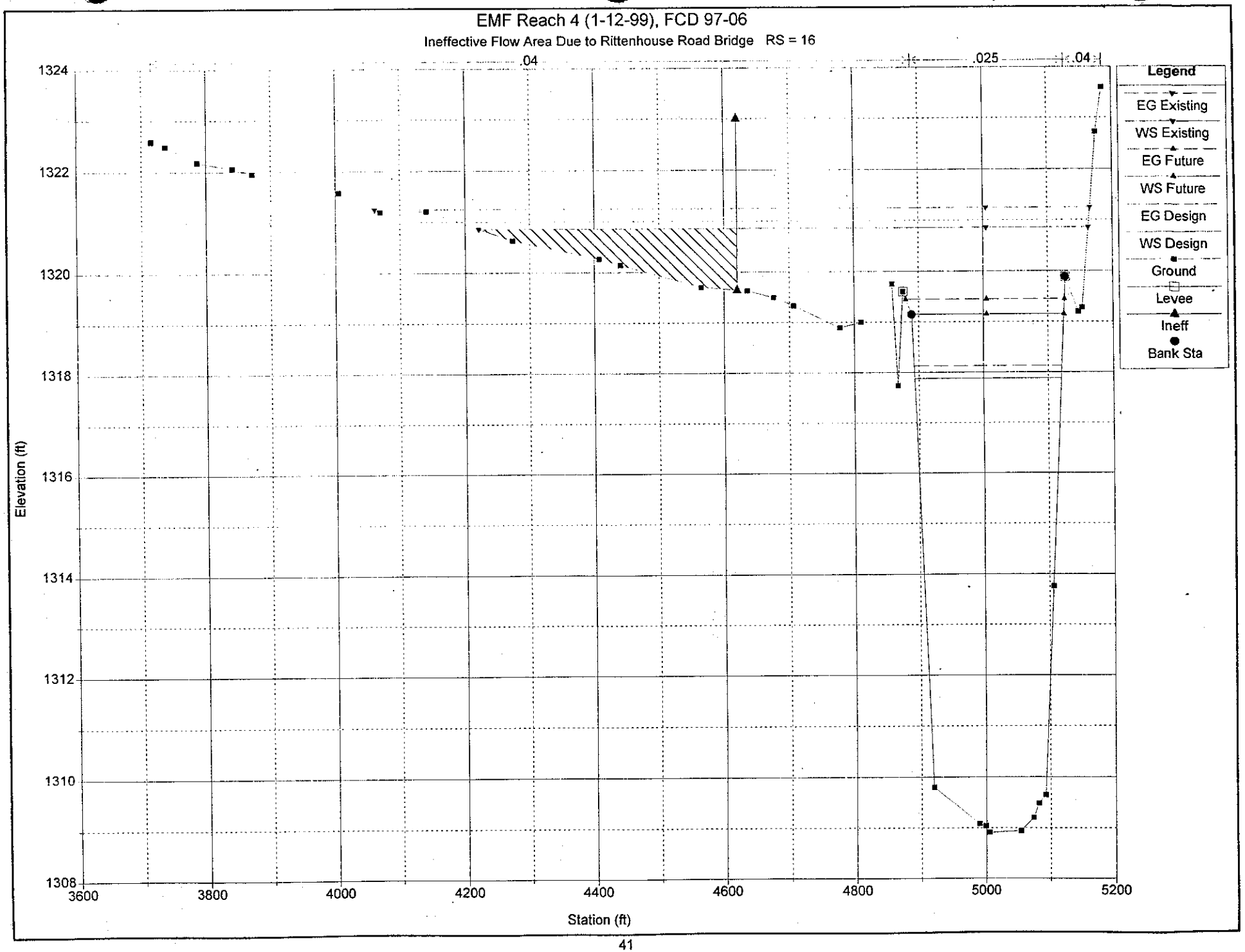
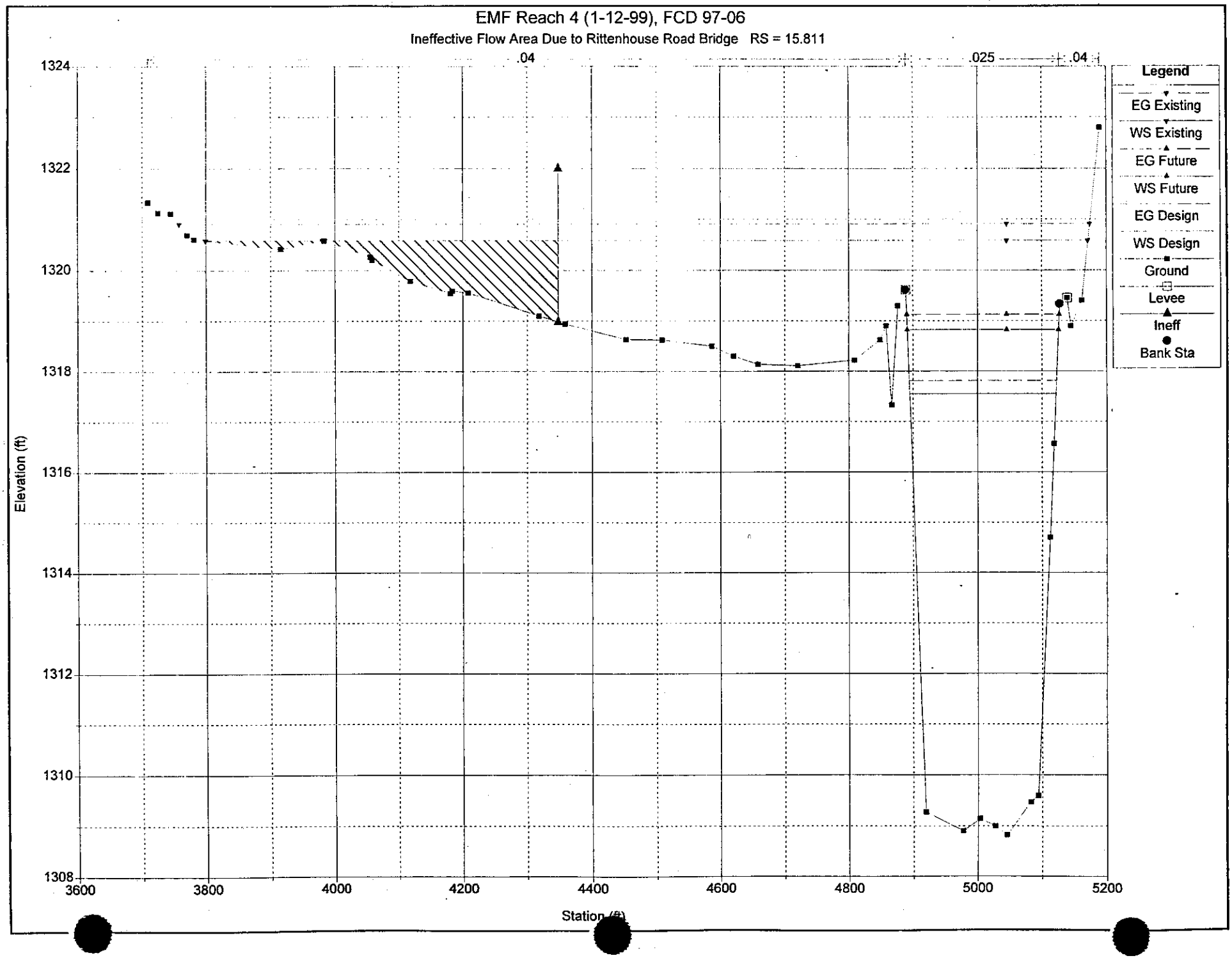
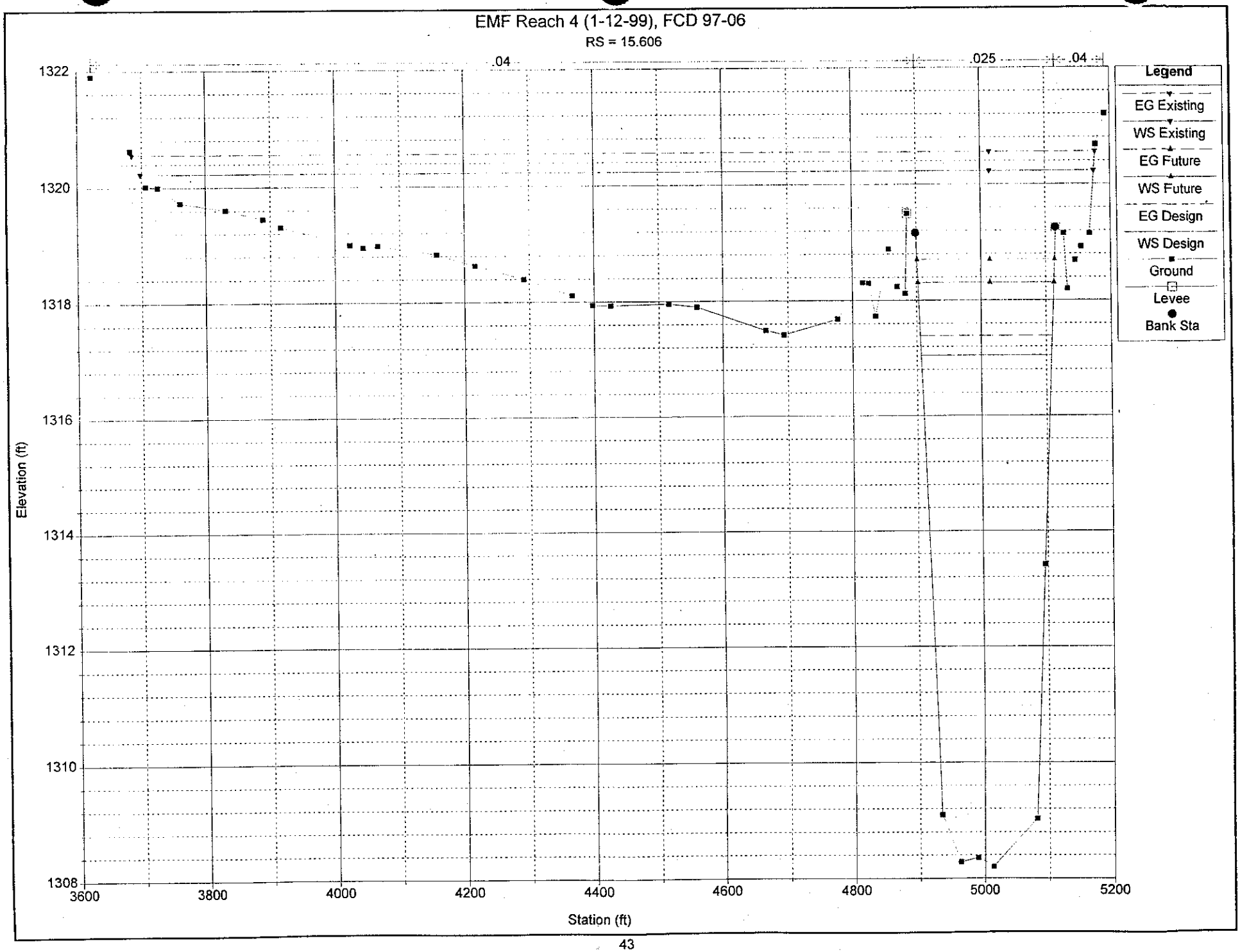
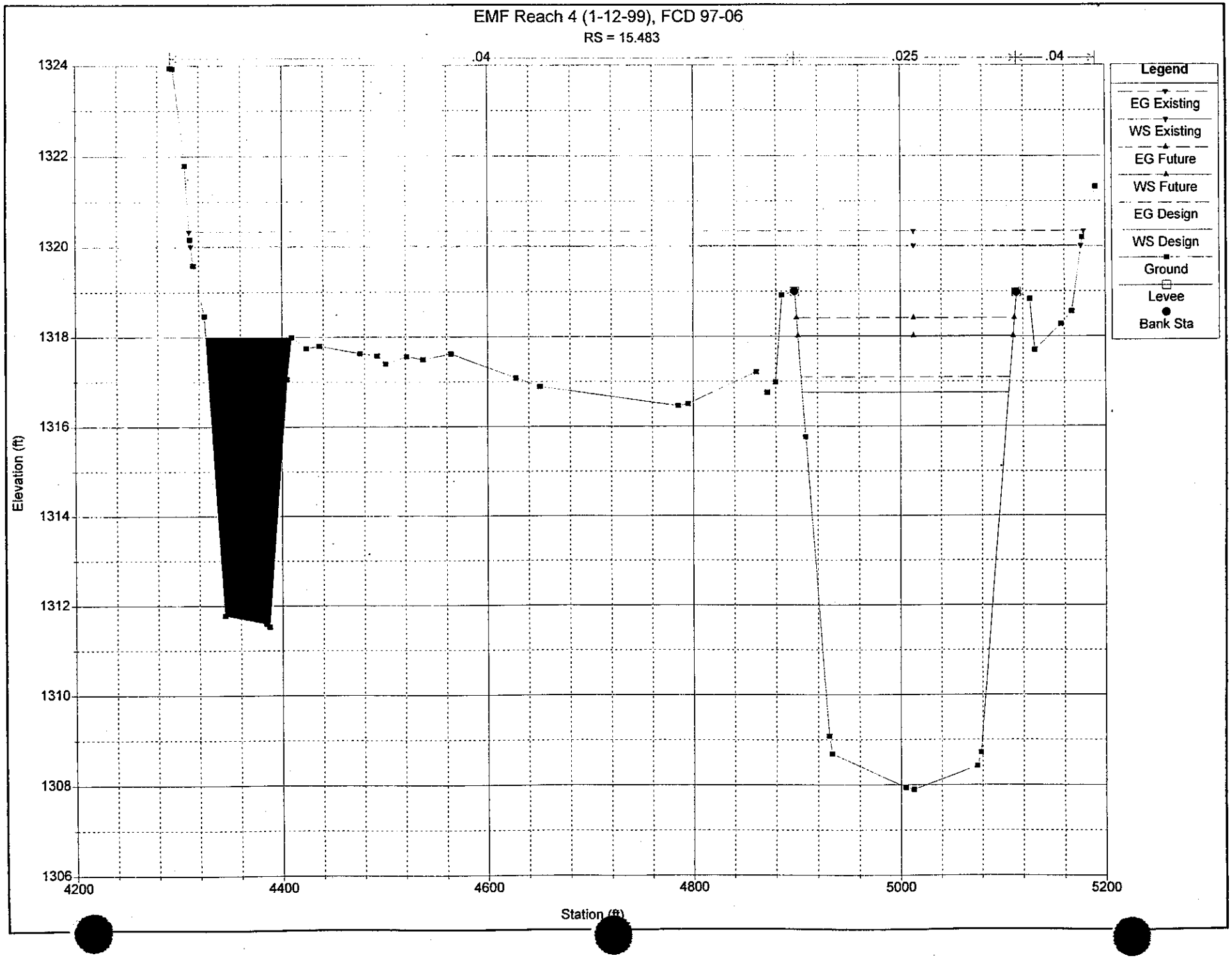
5050
5100
5150
5200
Station (ft)

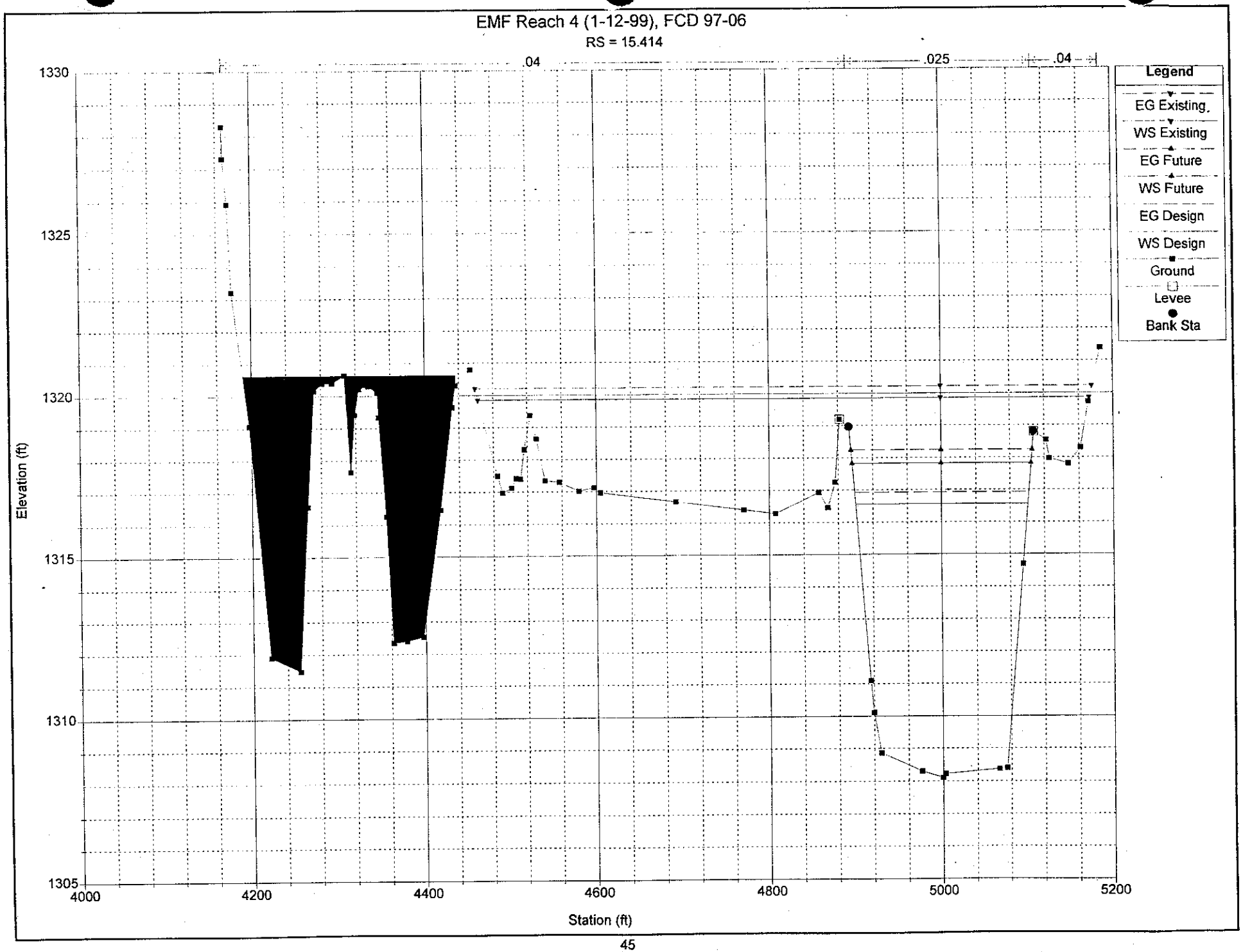

EMF Reach 4 (1-12-99), FCD 97-06
Ineffective Flow Area Due to Rittenhouse Road Bridge RS = 16.19
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1326
1324
1322
1320
1318
1316
1314
1312
1310
1308
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

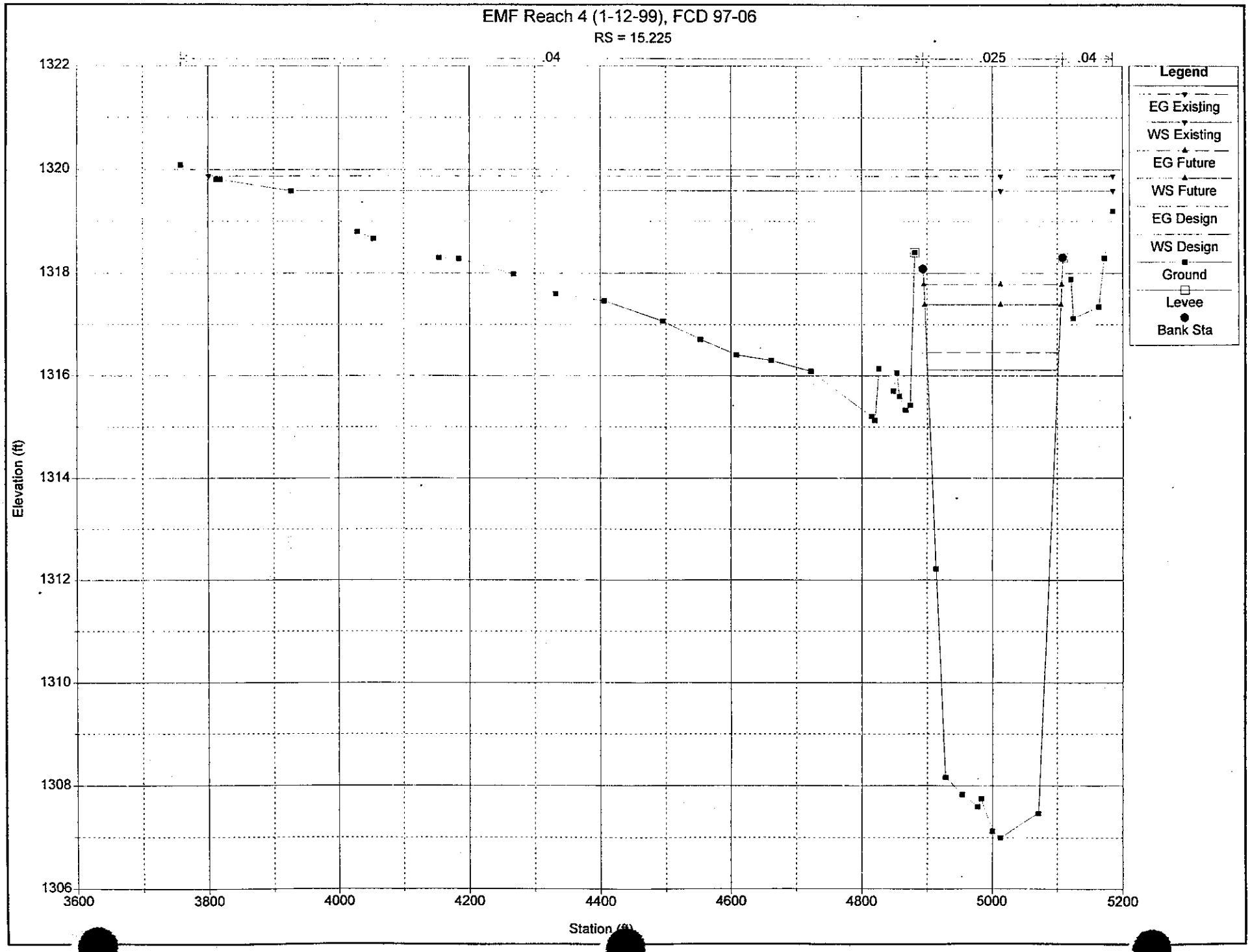

EMF Reach 4 (1-12-99), FCD 97-06
Ineffective Flow Area Due to Rittenhouse Road Bridge RS = 16
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1324
1322
1320
1318
1316
1314
1312
1310
1308
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

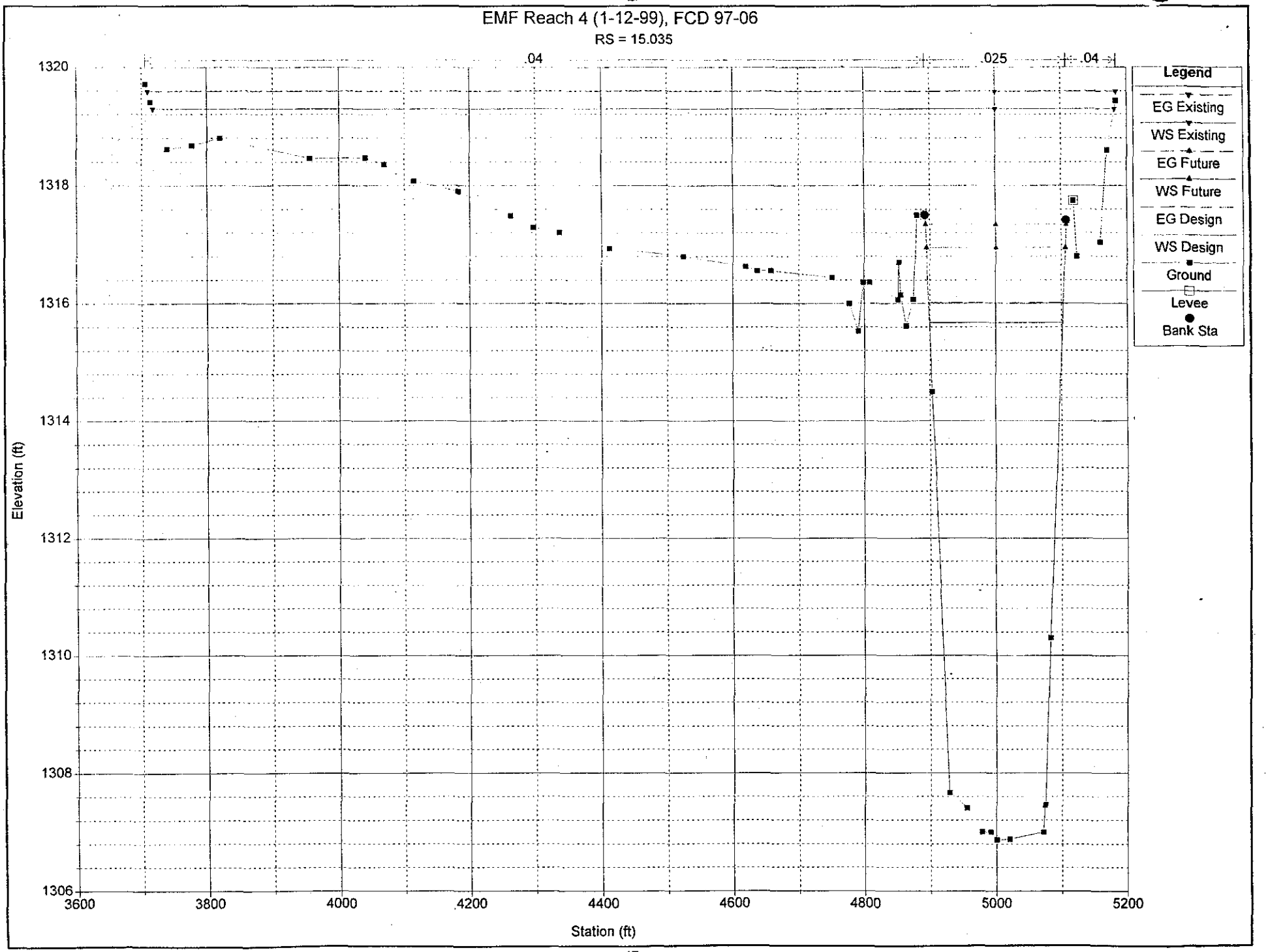

EMF Reach 4 (1-12-99), FCD 97-06
Ineffective Flow Area Due to Rittenhouse Road Bridge RS = 15.811
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1324
1322
1320
1318
1316
1314
1312
1310
1308
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

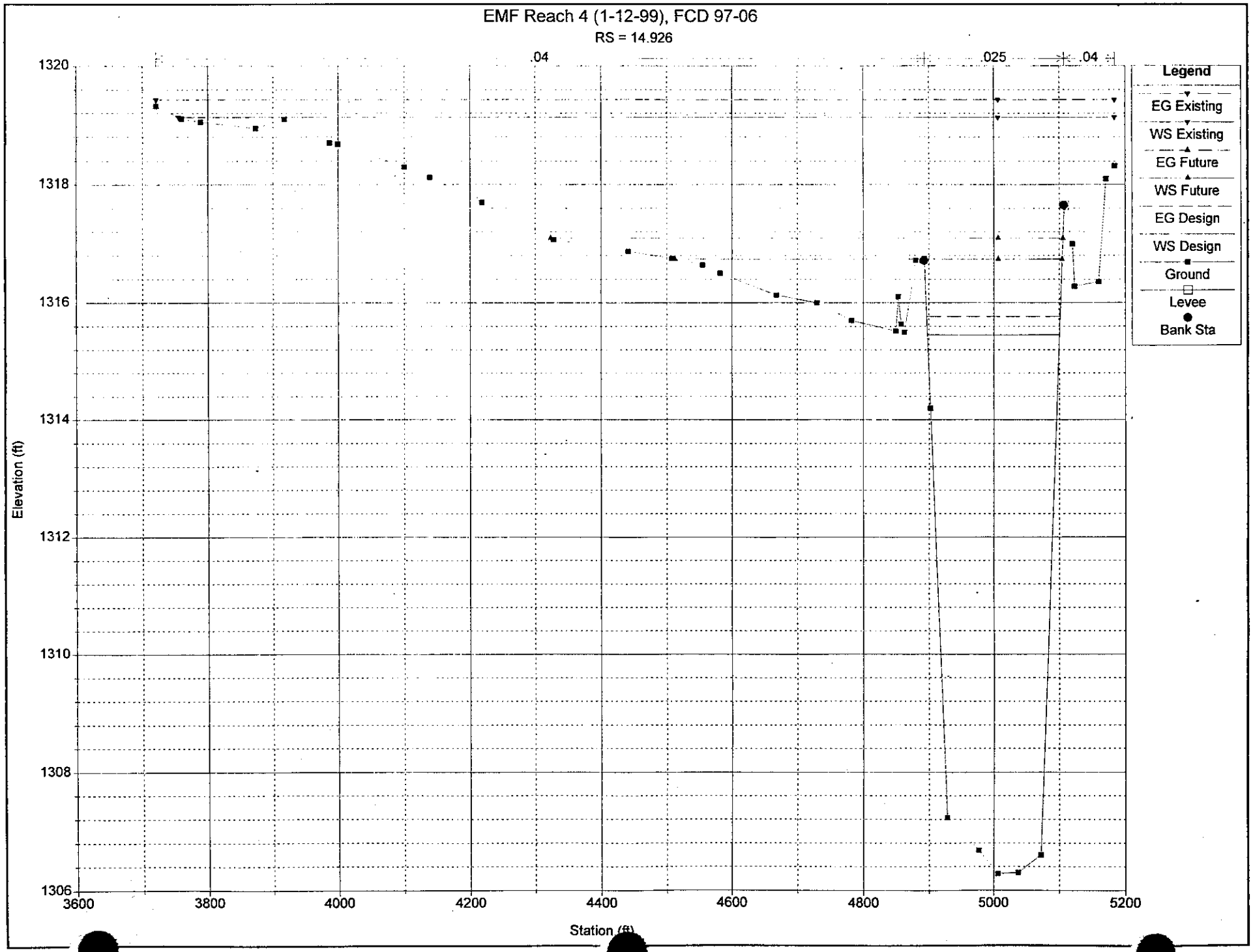

EMF Reach 4 (1-12-99), FCD 97-06
RS = 15.606
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
1310
1308
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

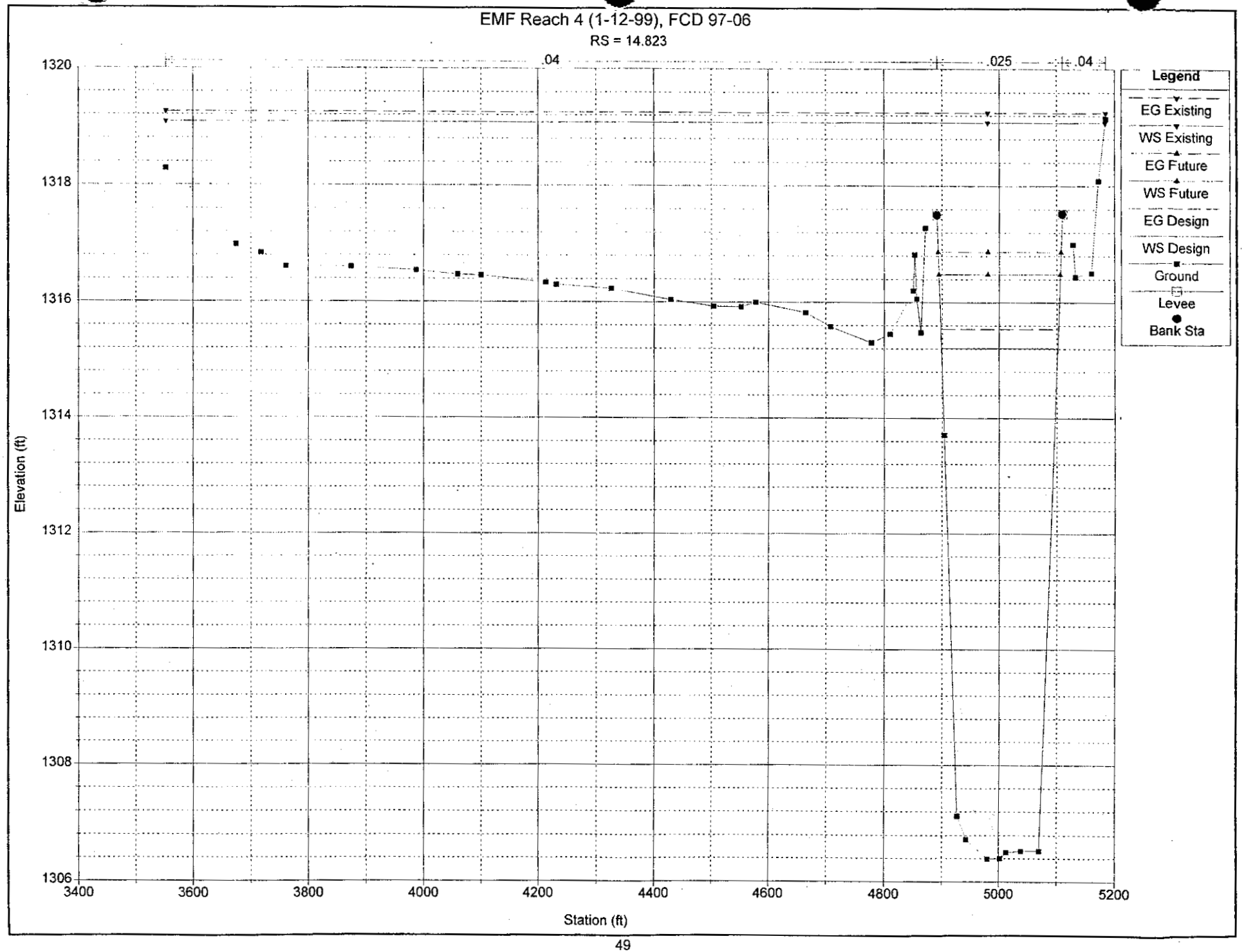

EMF Reach 4 (1-12-99), FCD 97-06
RS = 15.483
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1324
1322
1320
1318
1316
1314
1312
1310
1308
1306
4200
4400
4600
4800
5000
5200
Station (ft)

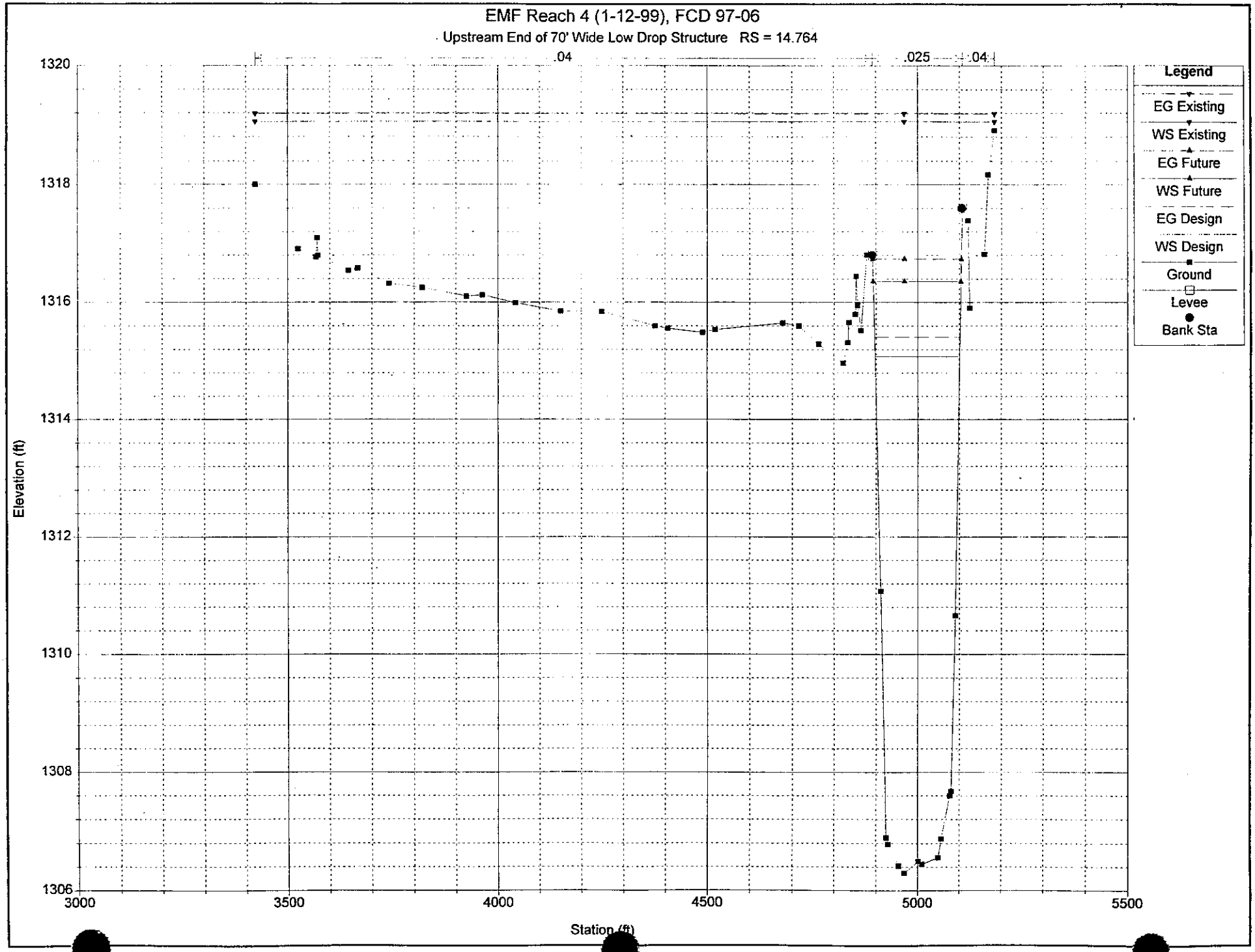

EMF Reach 4 (1-12-99), FCD 97-06
RS = 15.414
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1330
1325
1320
1315
1310
1305
4000
4200
4400
4600
4800
5000
5200
Station (ft)

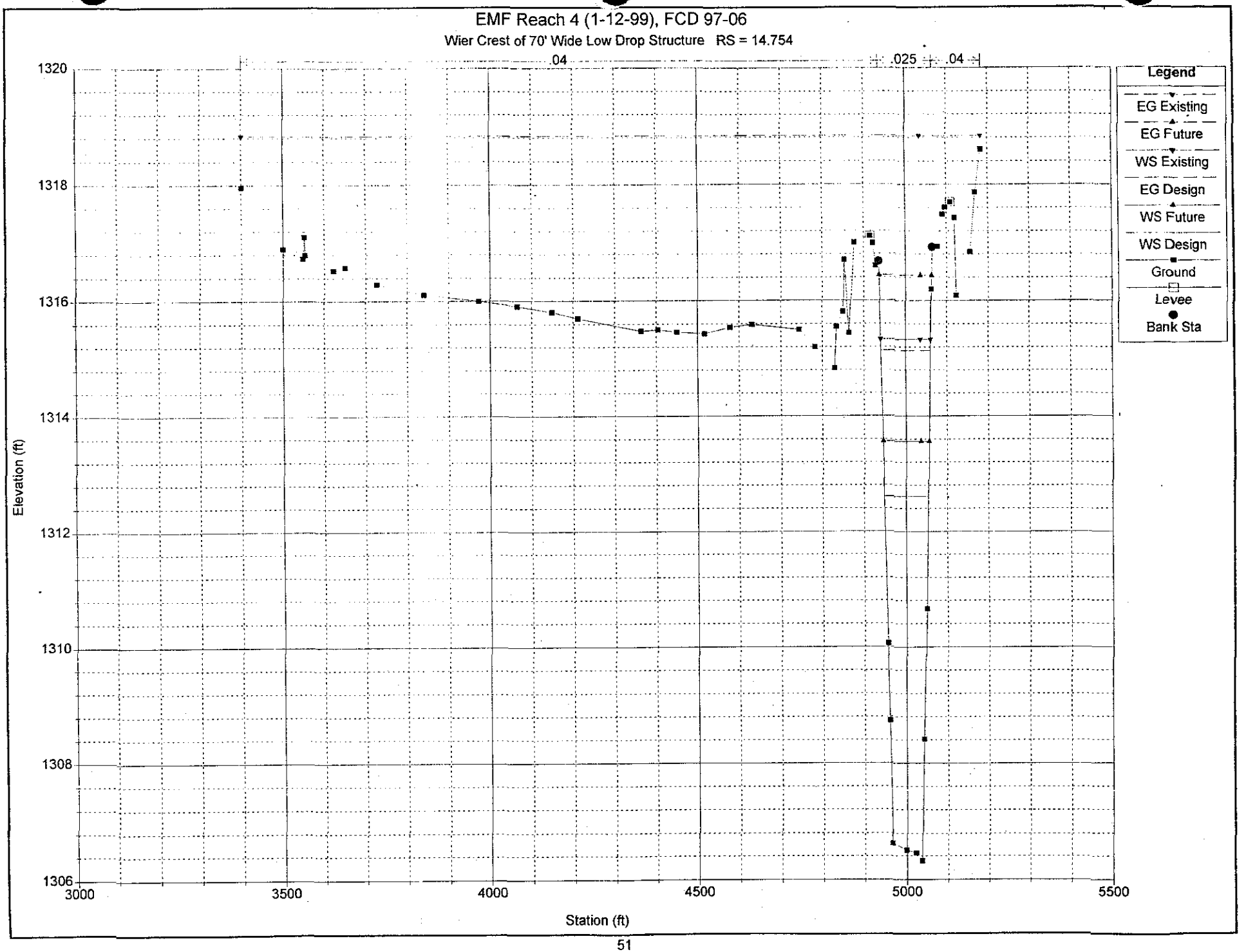

EMF Reach 4 (1-12-99), FCD 97-06
RS = 15.225
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1322
1320
1318
1316
1314
1312
1310
1308
1306
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

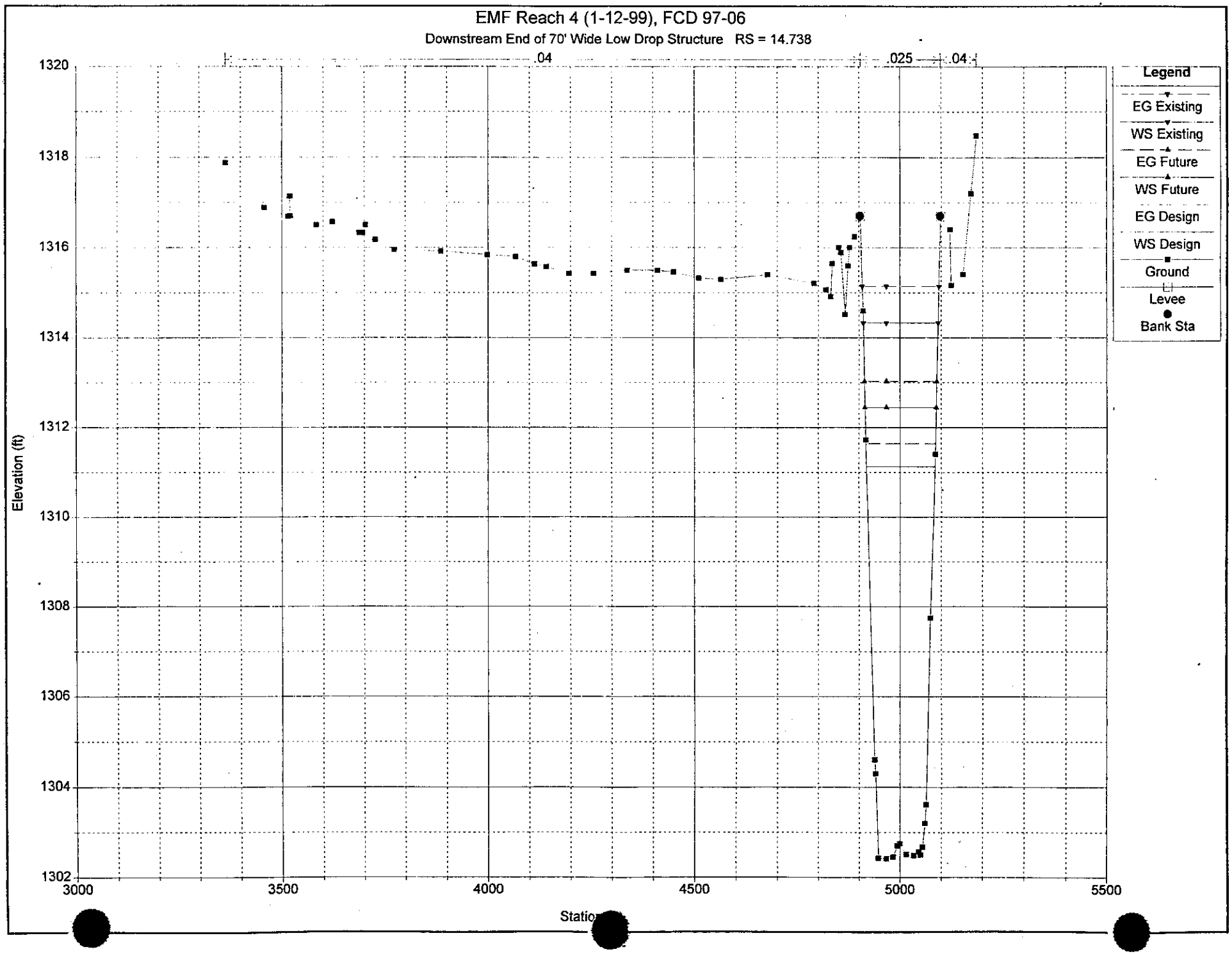

EMF Reach 4 (1-12-99), FCD 97-06
RS = 15.035
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1320
1318
1316
1314
1312
1310
1308
1306
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

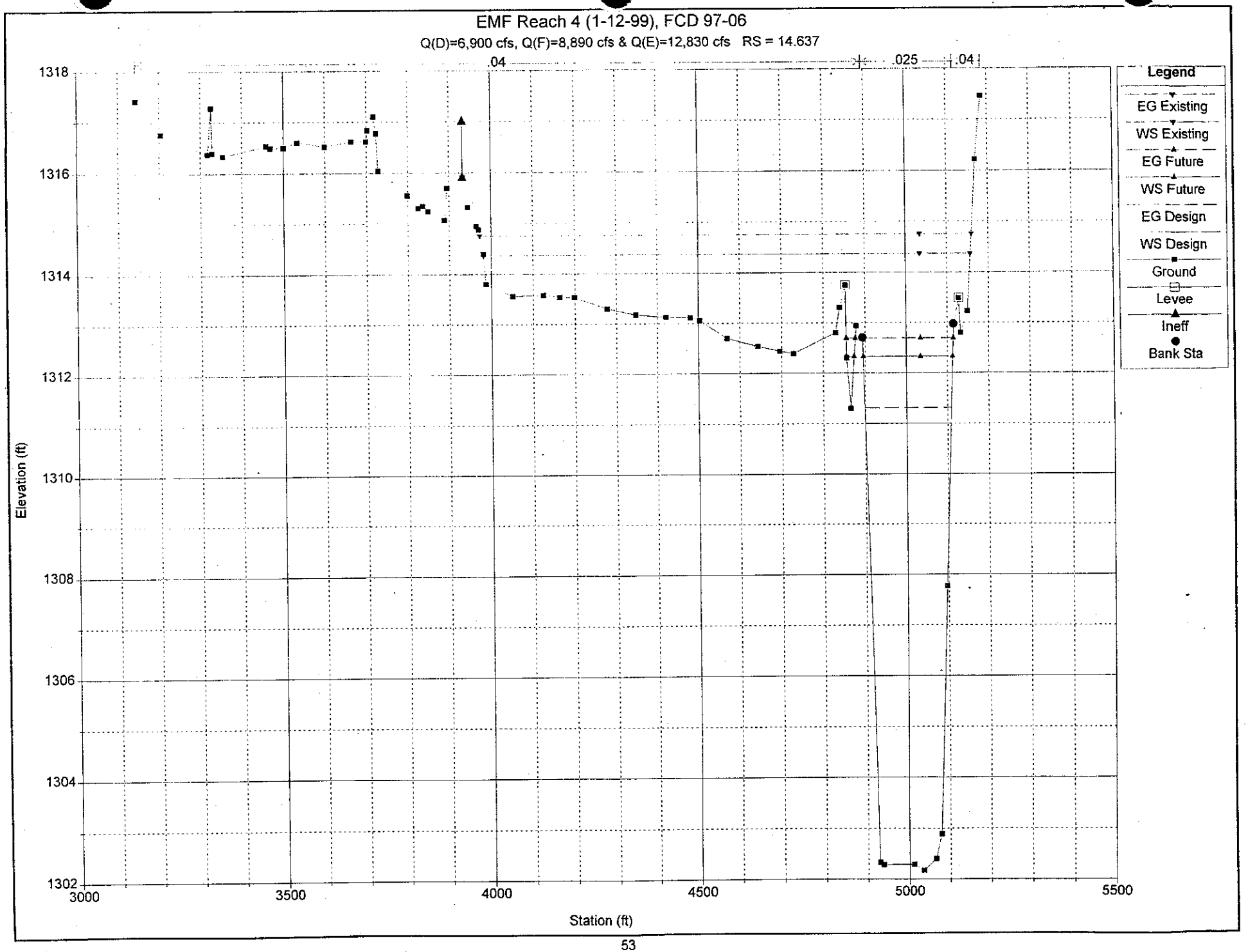

EMF Reach 4 (1-12-99), FCD 97-06
RS = 14.926
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1320
1318
1316
1314
1312
1310
1308
1306
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

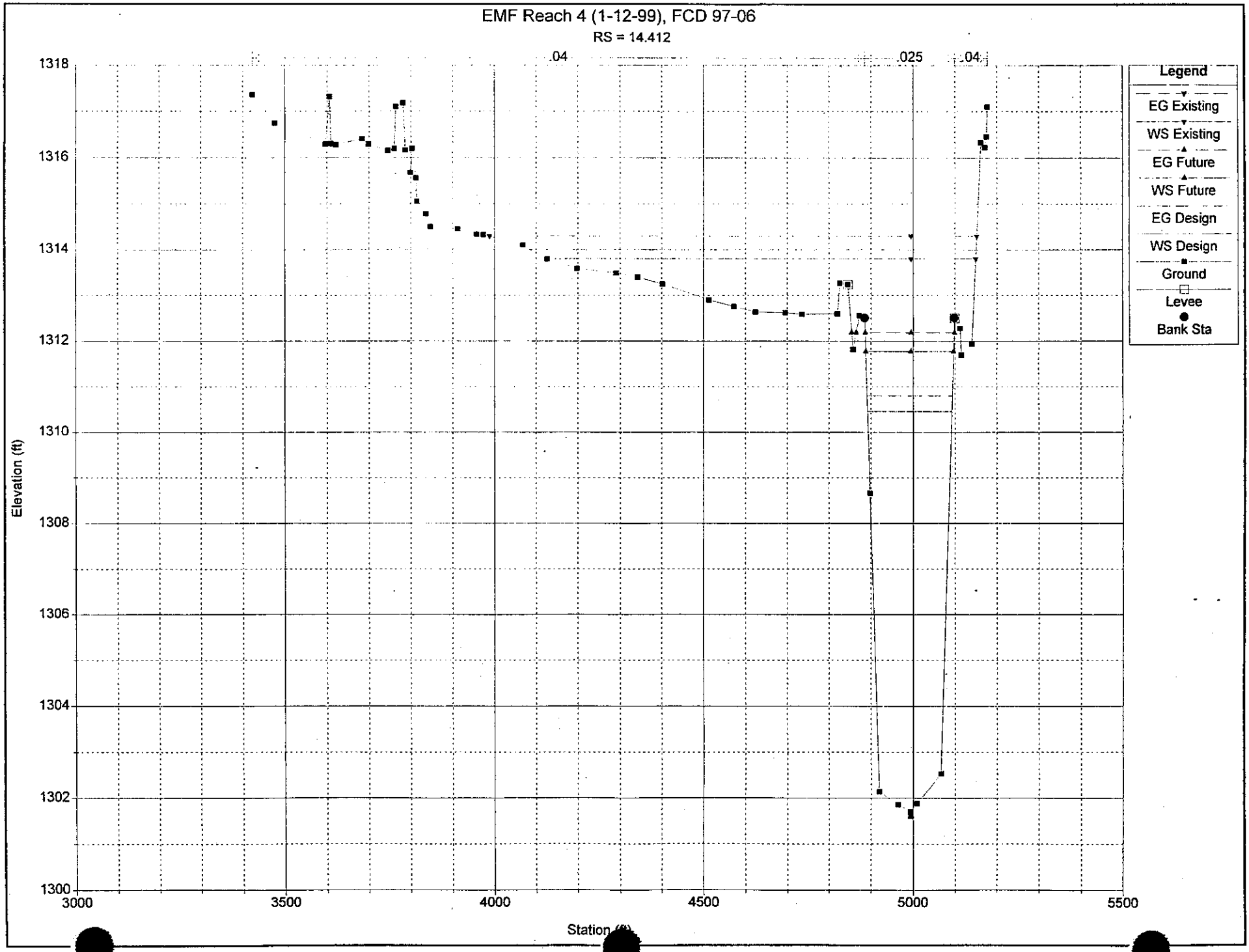

EMF Reach 4 (1-12-99), FCD 97-06
RS = 14.823
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1320
1318
1316
1314
1312
1310
1308
1306
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

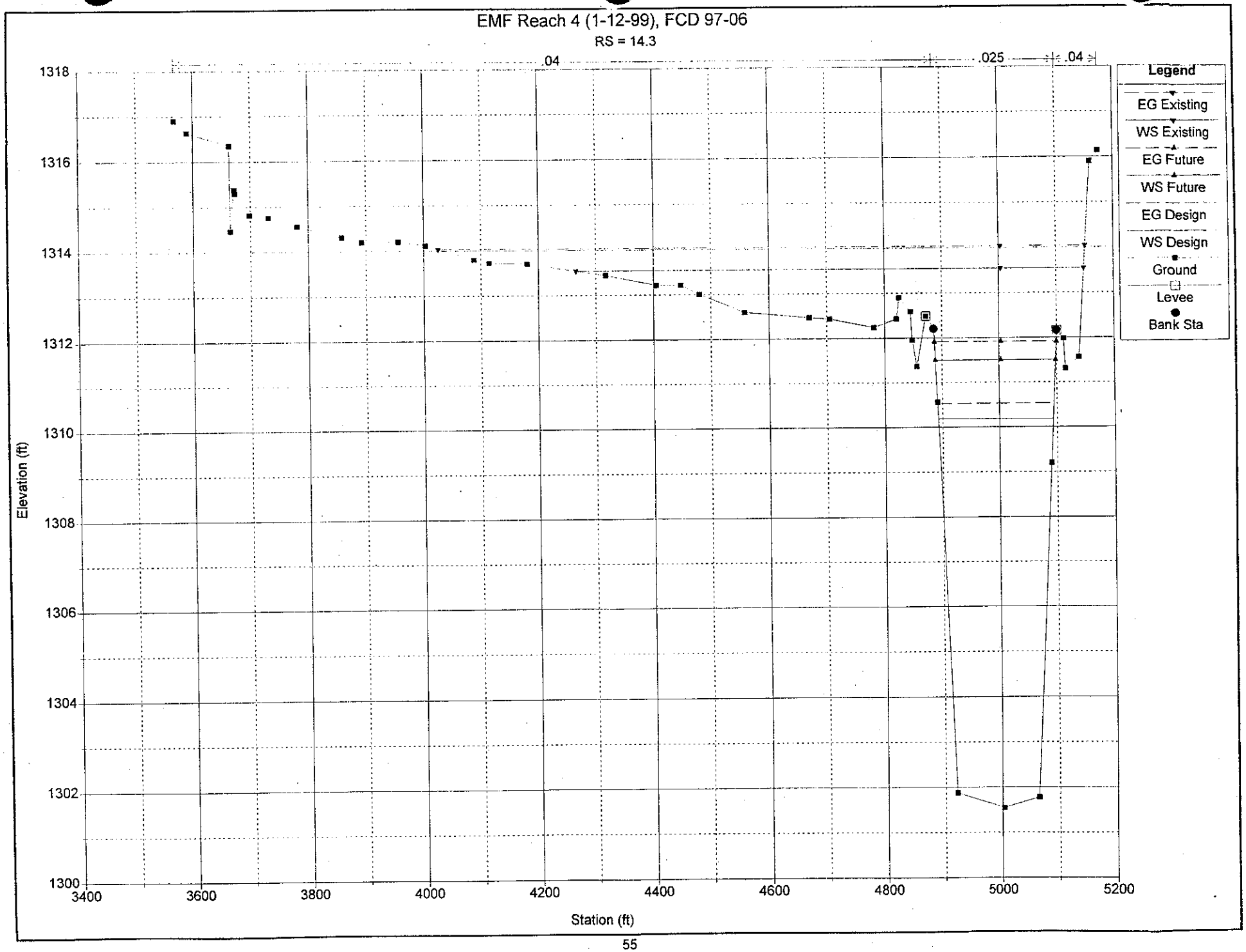

EMF Reach 4 (1-12-99), FCD 97-06
Upstream End of 70' Wide Low Drop Structure RS = 14.764
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1320
1318
1316
1314
1312
1310
1308
1306
3000
3500
4000
4500
5000
5500
Station (ft)

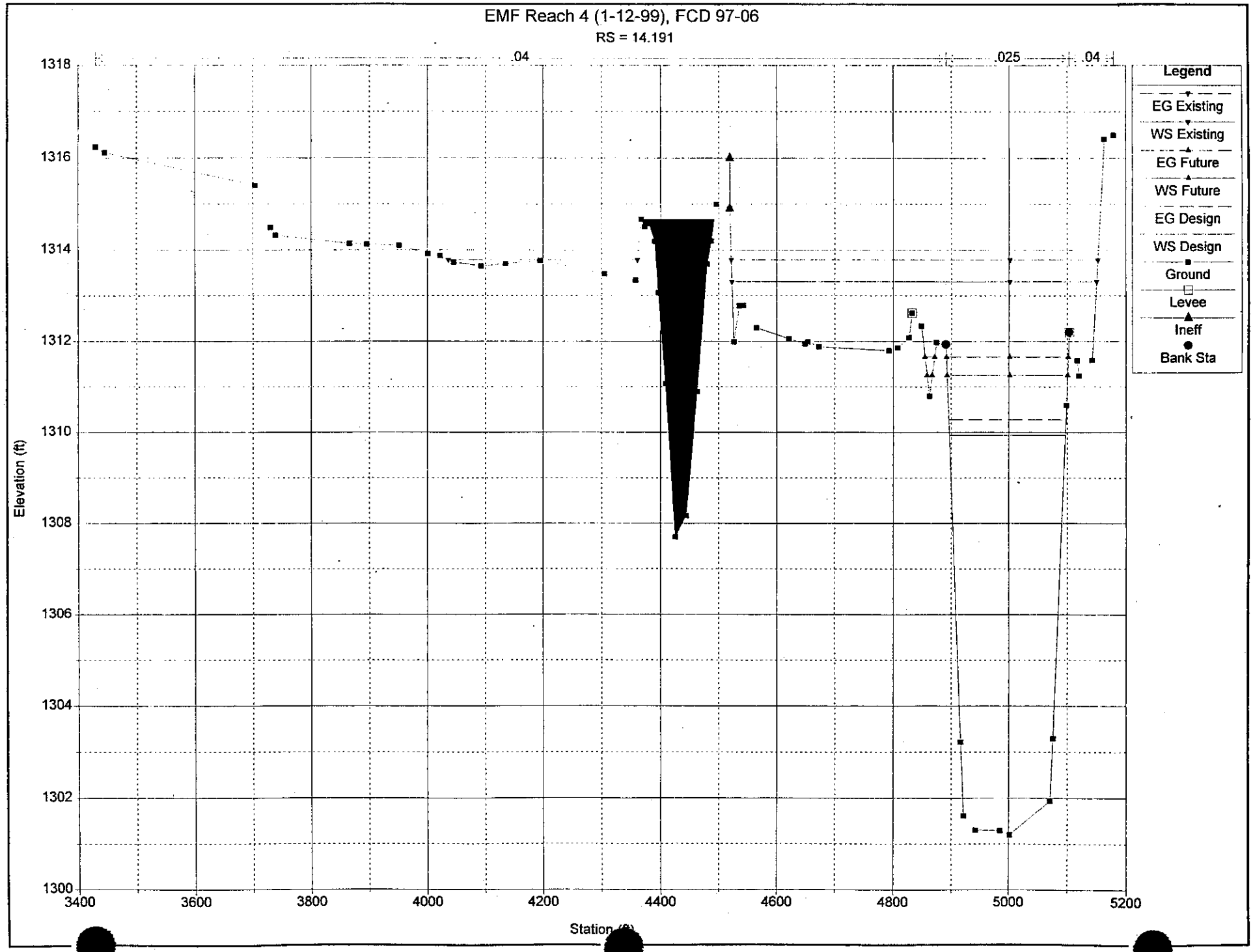

EMF Reach 4 (1-12-99), FCD 97-06
Wier Crest of 70' Wide Low Drop Structure RS = 14.754
.04
.025
.04
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1320
1318
1316
1314
1312
1310
1308
1306
3000
3500
4000
4500
5000
5500
Station (ft)

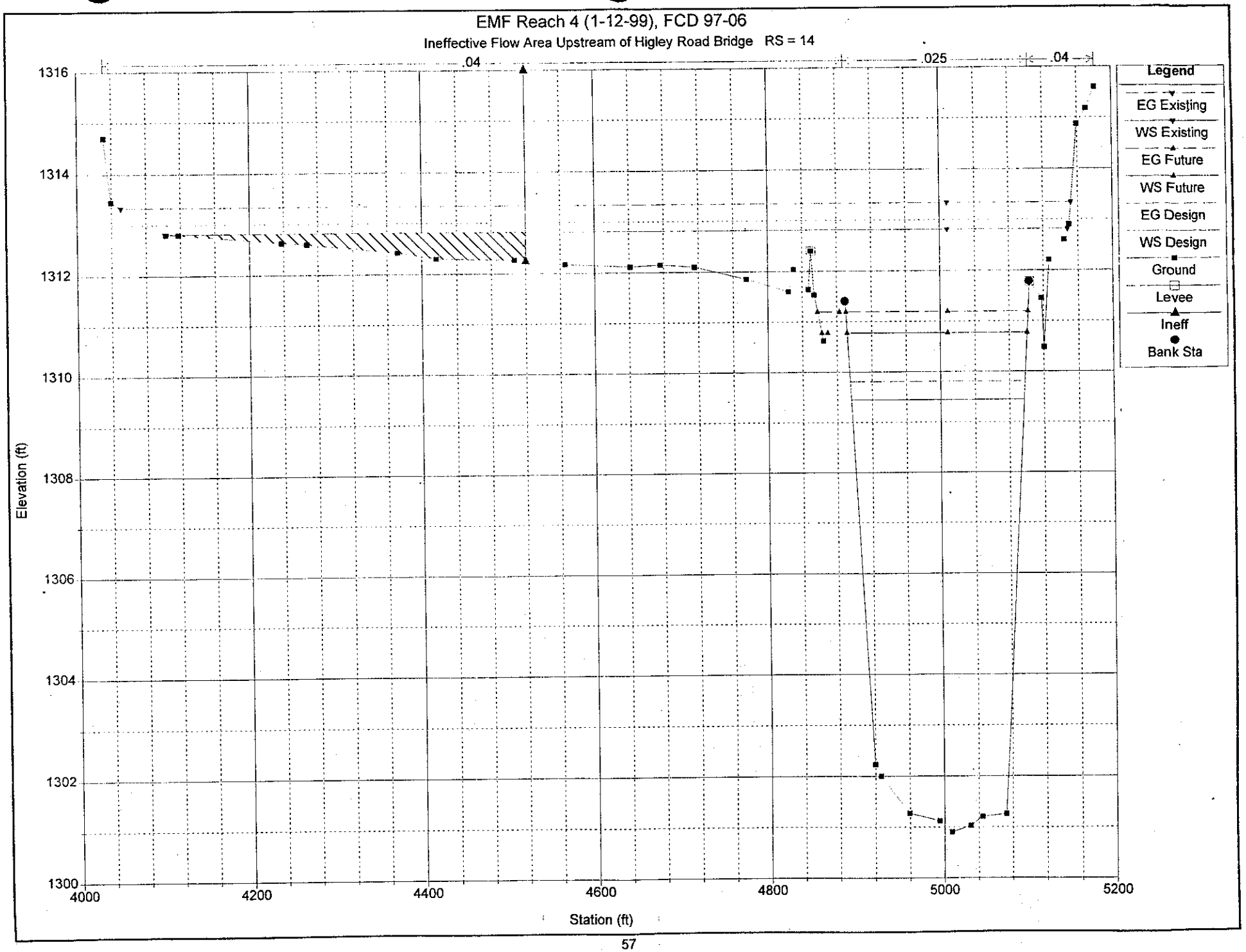

EMF Reach 4 (1-12-99), FCD 97-06
Downstream End of 70' Wide Low Drop Structure RS = 14.738
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1320
1318
1316
1314
1312
1310
1308
1306
1304
1302
3000
3500
4000
4500
5000
5500
Station

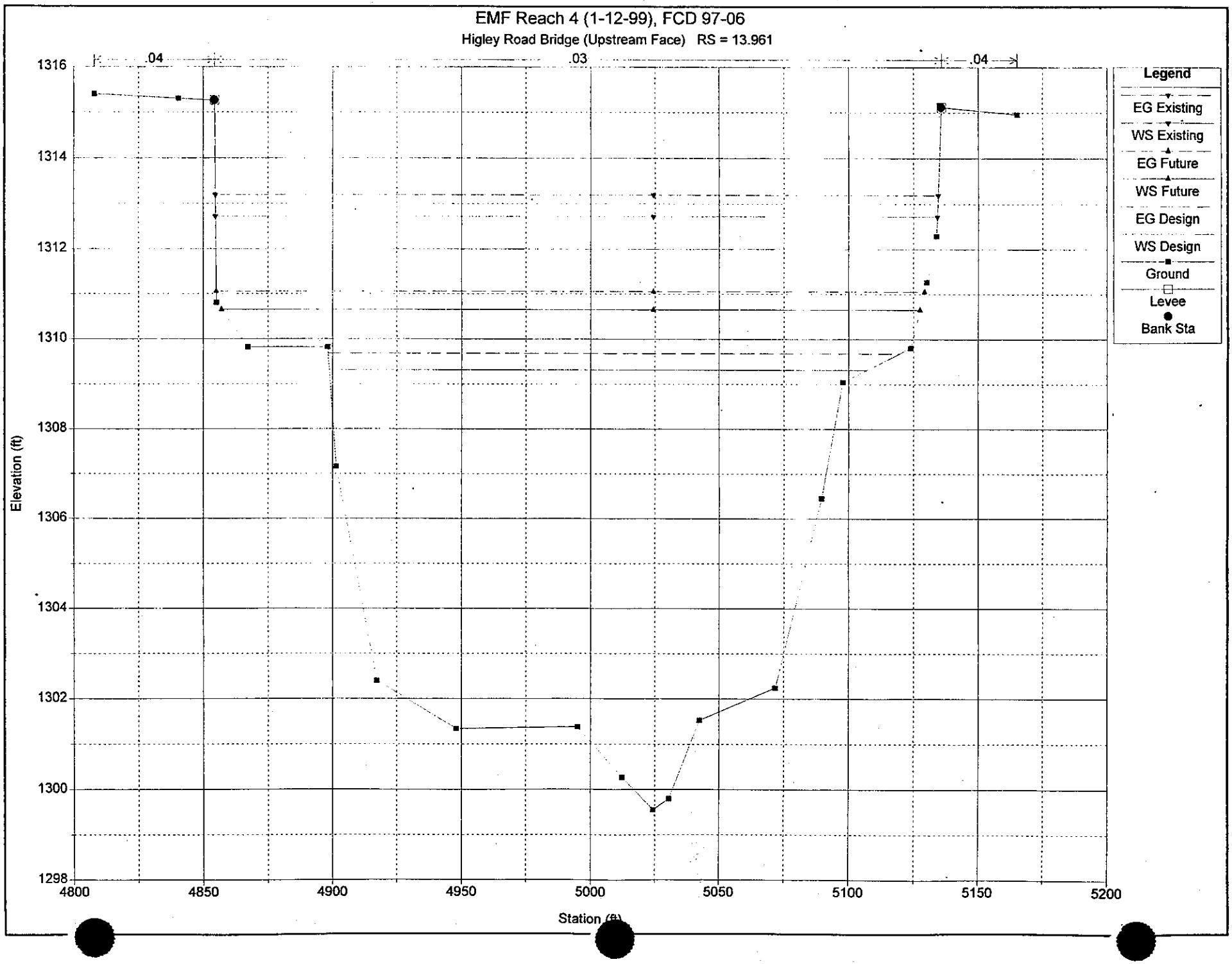

EMF Reach 4 (1-12-99), FCD 97-06
Q(D)=6,900 cfs, Q(F)=8,890 cfs & Q(E)=12,830 cfs RS = 14.637
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1318
1316
1314
1312
1310
1308
1306
1304
1302
3000
3500
4000
4500
5000
5500
Station (ft)

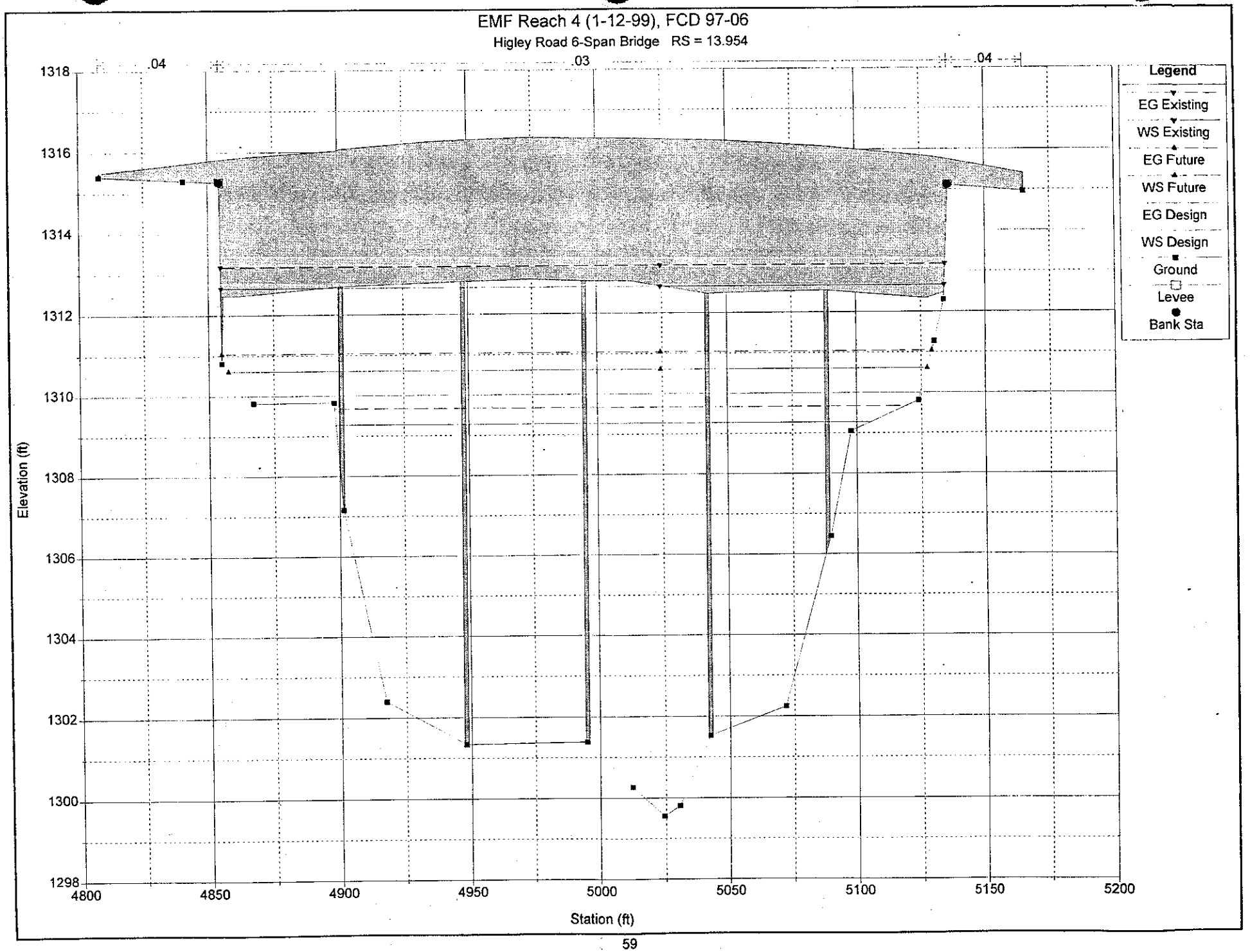

EMF Reach 4 (1-12-99), FCD 97-06
RS = 14.412
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1318
1316
1314
1312
1310
1308
1306
1304
1302
1300
3000
3500
4000
4500
5000
5500
Station (ft)

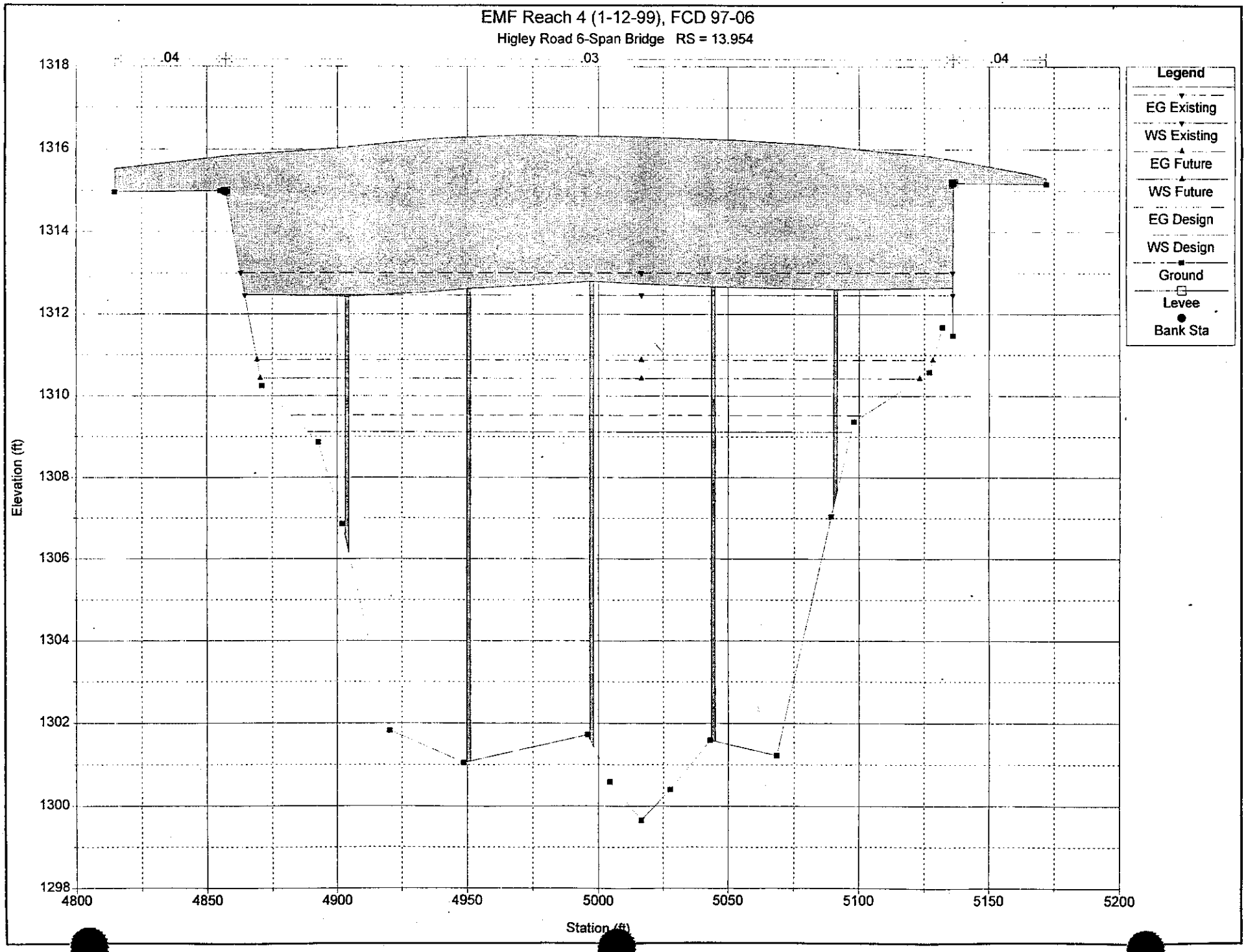

EMF Reach 4 (1-12-99), FCD 97-06
RS = 14.3
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1318
1316
1314
1312
1310
1308
1306
1304
1302
1300
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

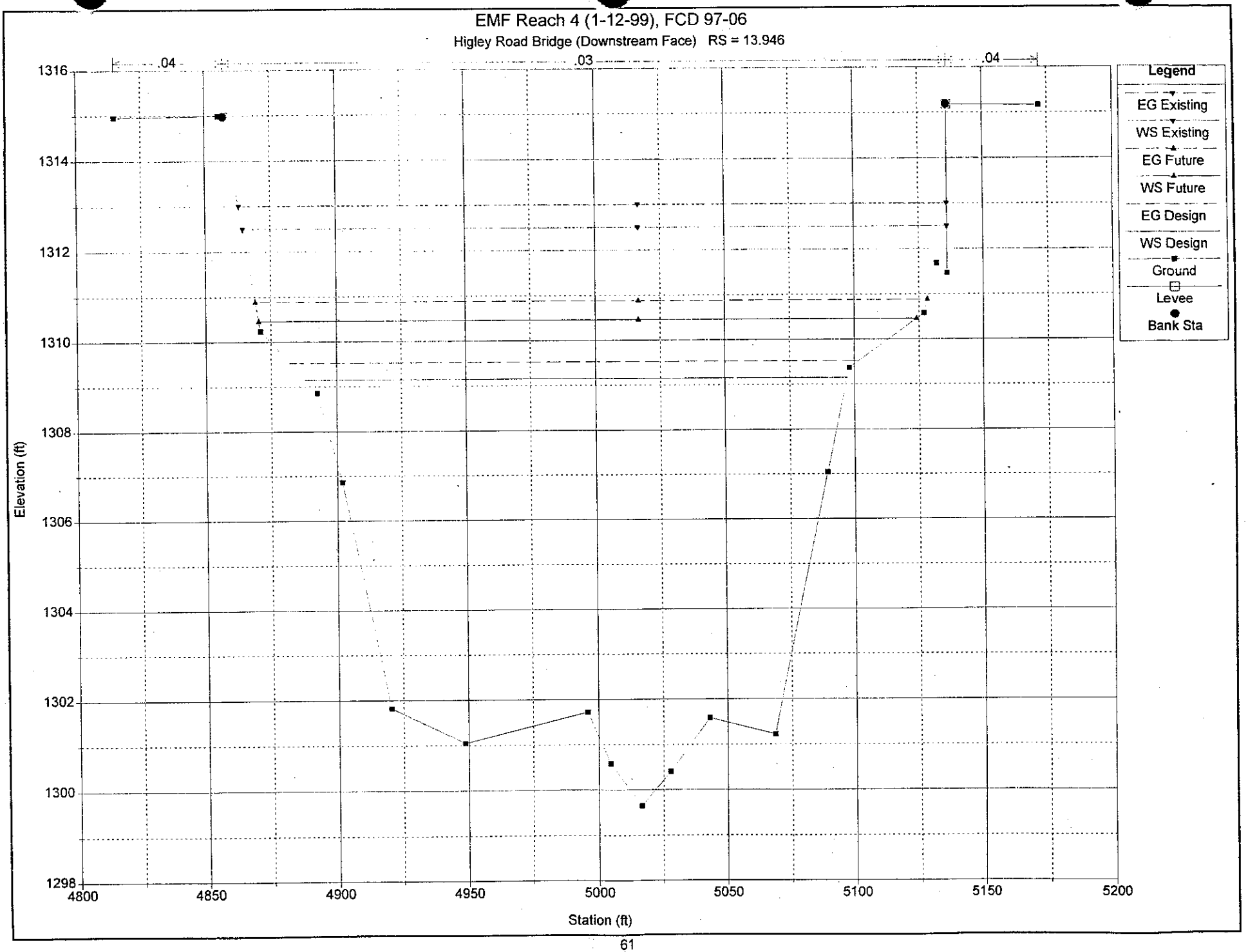

EMF Reach 4 (1-12-99), FCD 97-06
RS = 14.191
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1318
1316
1314
1312
1310
1308
1306
1304
1302
1300
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

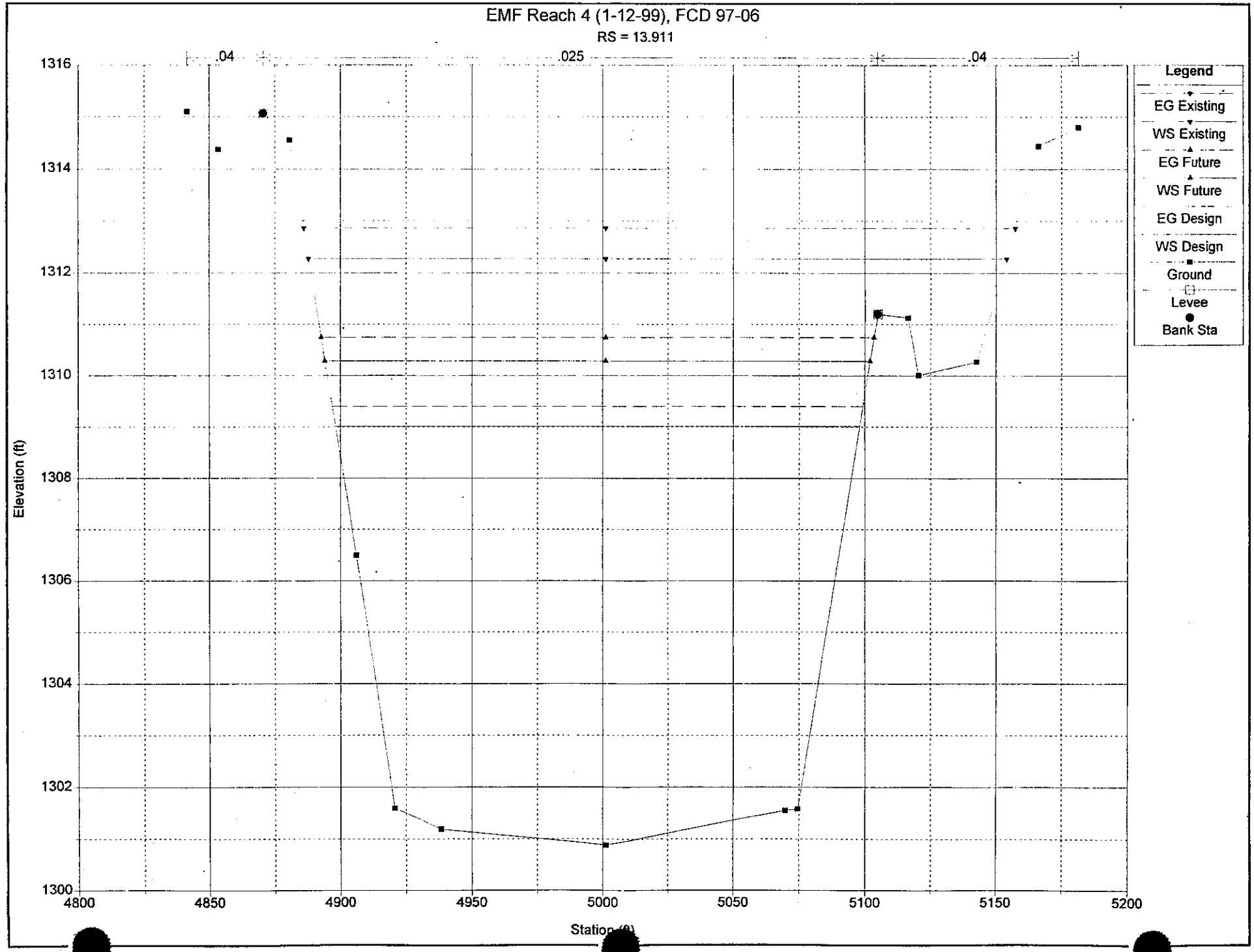

EMF Reach 4 (1-12-99), FCD 97-06
Ineffective Flow Area Upstream of Higley Road Bridge RS = 14
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
4000
4200
4400
4600
4800
5000
5200
Station (ft)

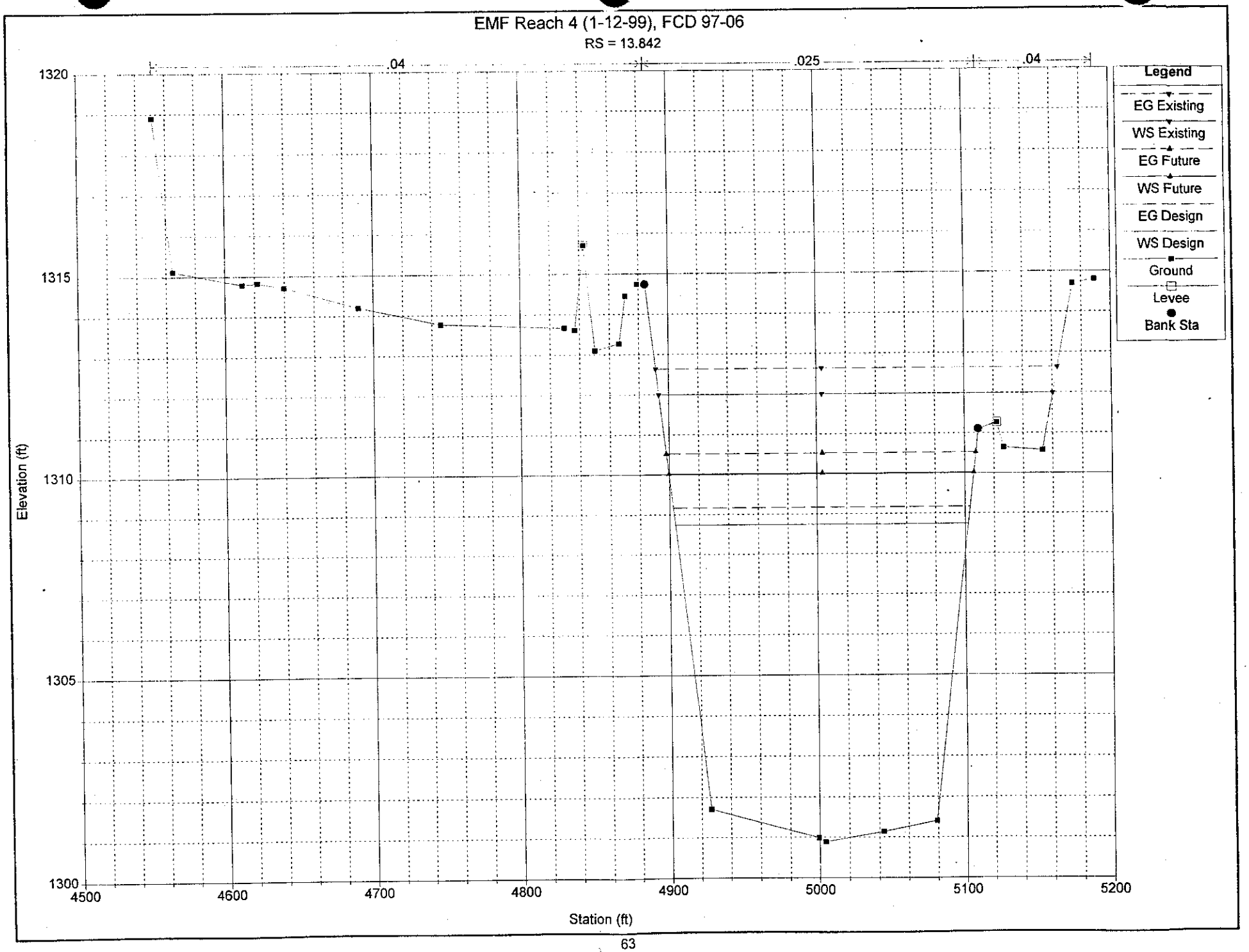

EMF Reach 4 (1-12-99), FCD 97-06
Higley Road Bridge (Upstream Face) RS = 13.961
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
4800
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)

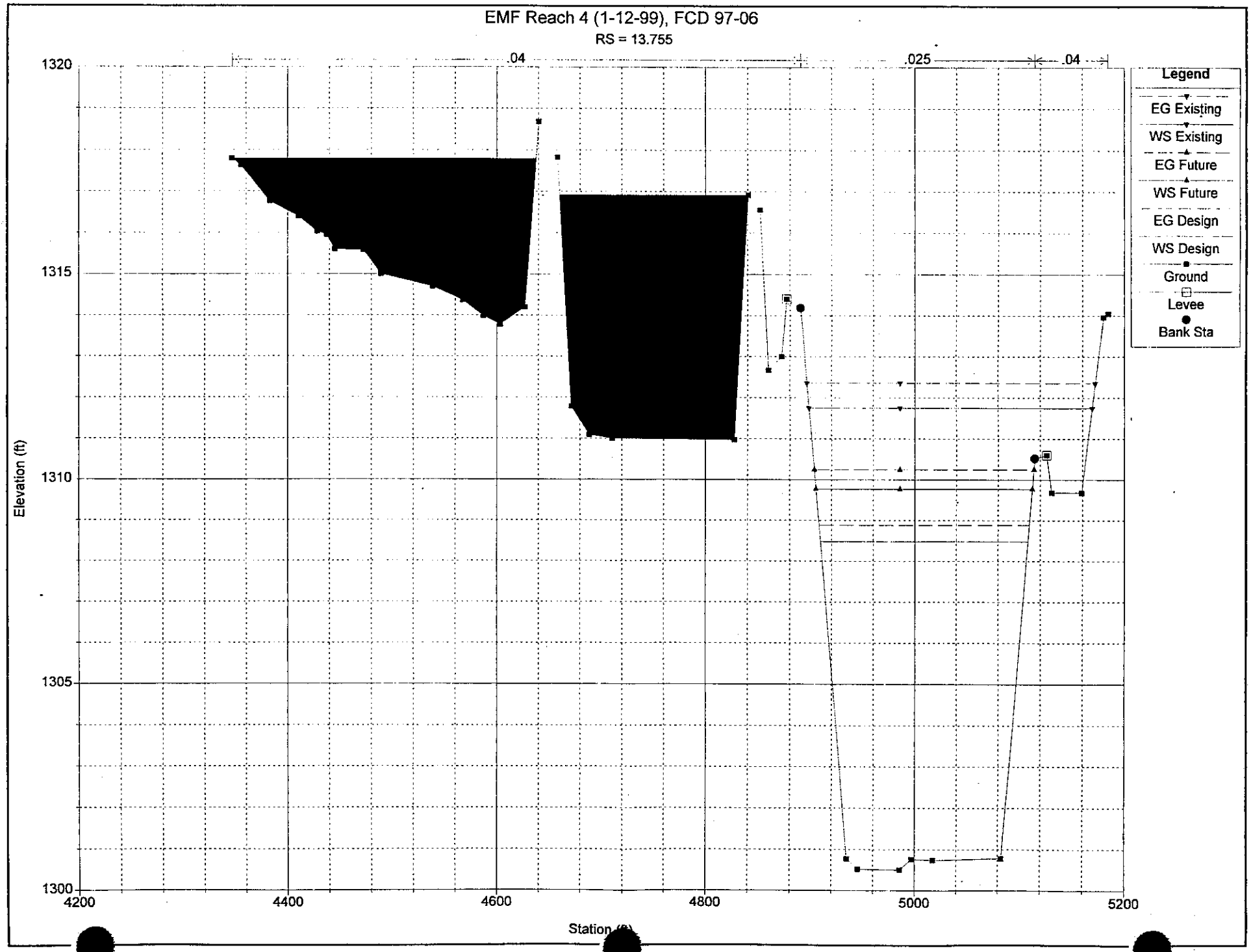

EMF Reach 4 (1-12-99), FCD 97-06
Higley Road 6-Span Bridge RS = 13.954
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1318
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
4800
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)

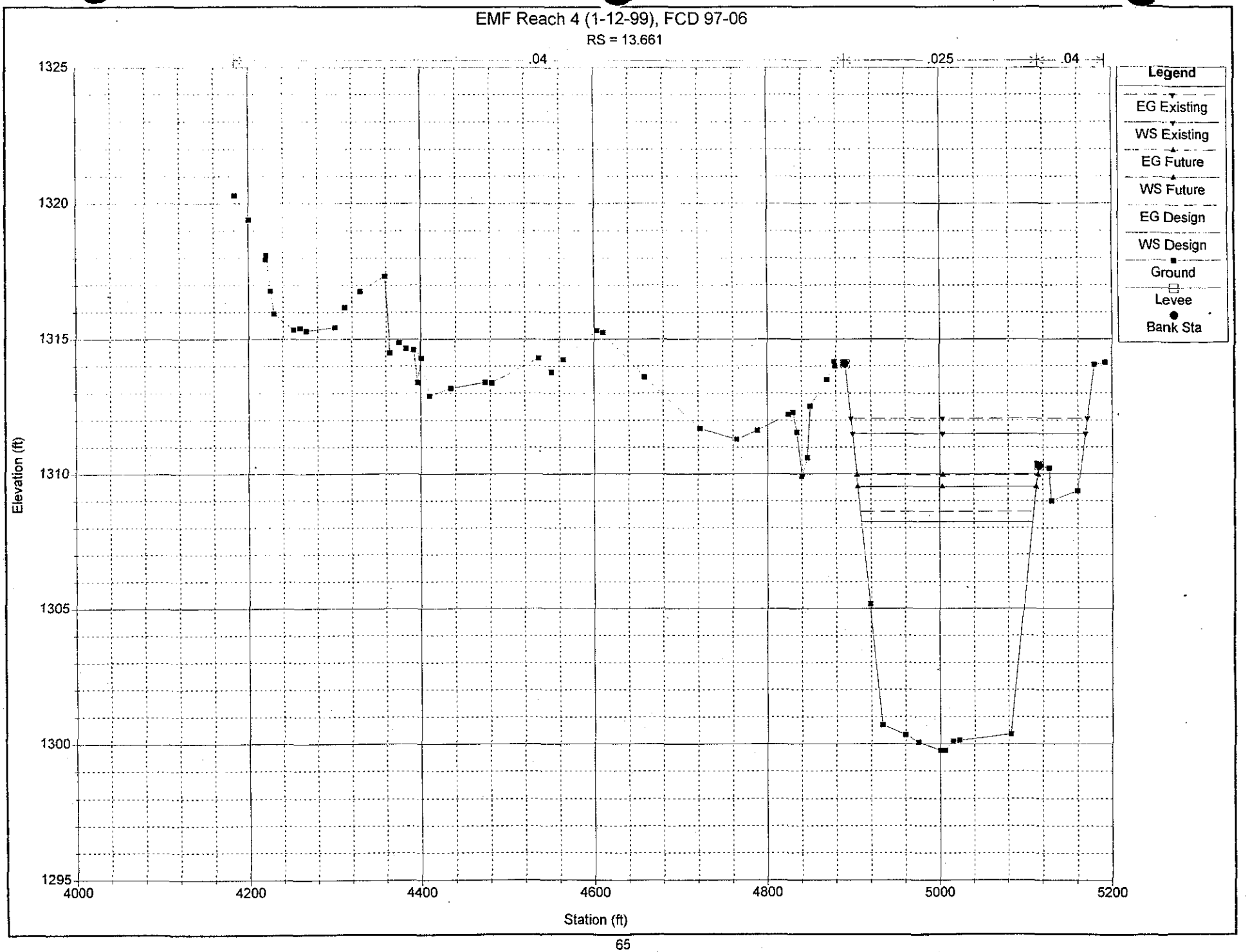

EMF Reach 4 (1-12-99), FCD 97-06
Higley Road 6-Span Bridge RS = 13.954
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1318
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
4800
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)

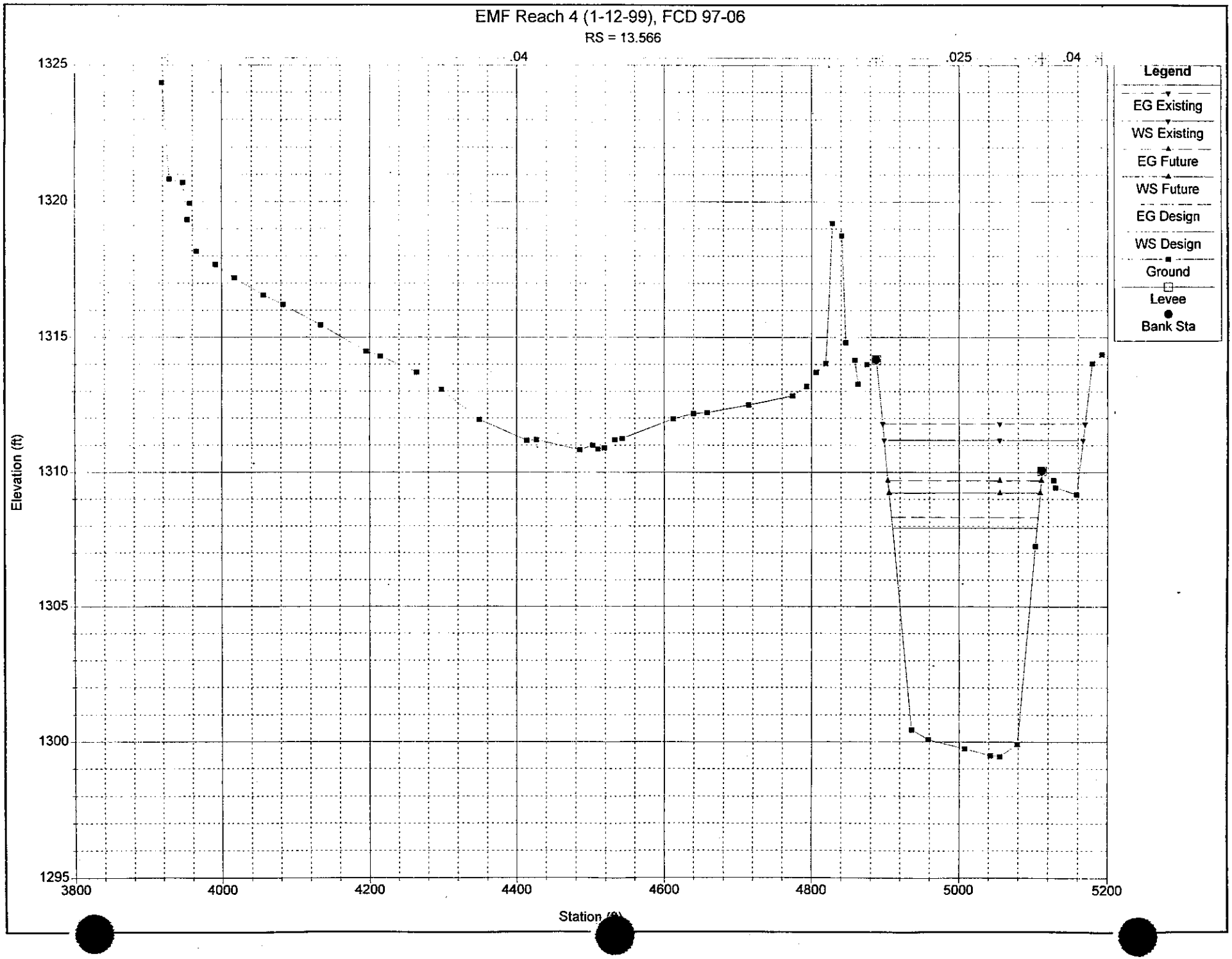

EMF Reach 4 (1-12-99), FCD 97-06
Higley Road Bridge (Downstream Face) RS = 13.946
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
4800
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)

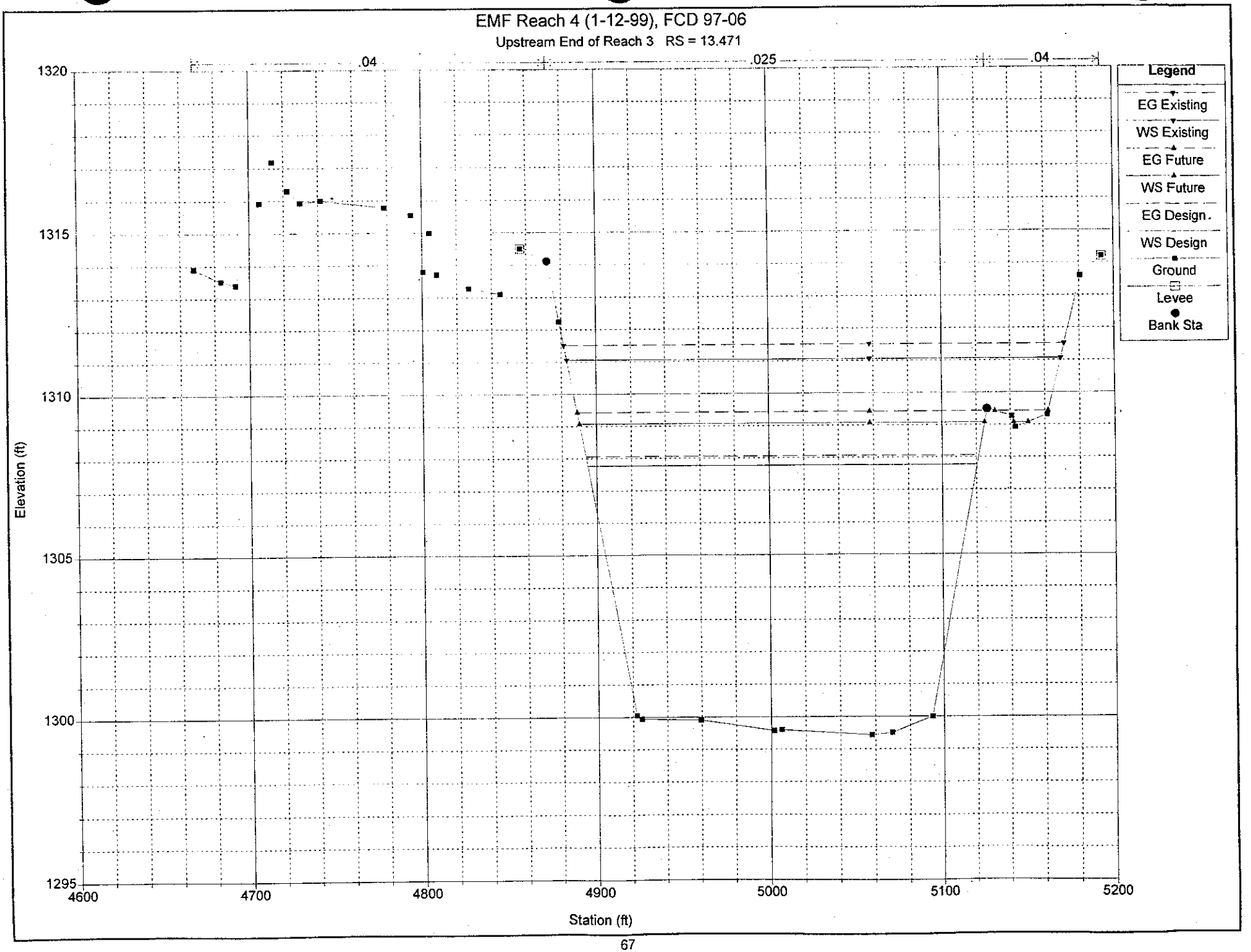

EMF Reach 4 (1-12-99), FCD 97-06
RS = 13.911
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
4800
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)

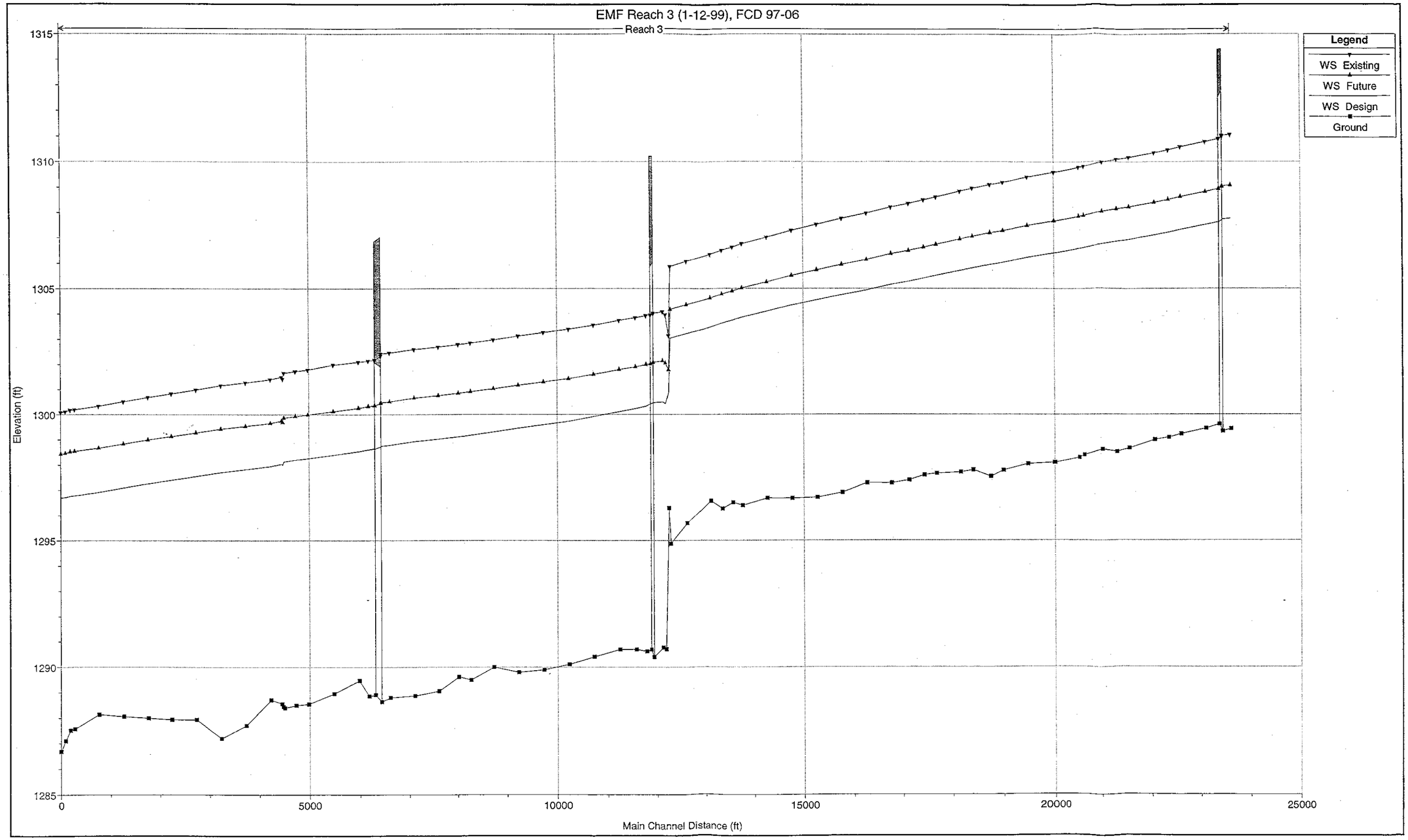

EMF Reach 4 (1-12-99), FCD 97-06
RS = 13.842
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1320
1315
1310
1305
1300
4500
4600
4700
4800
4900
5000
5100
5200
Station (ft)

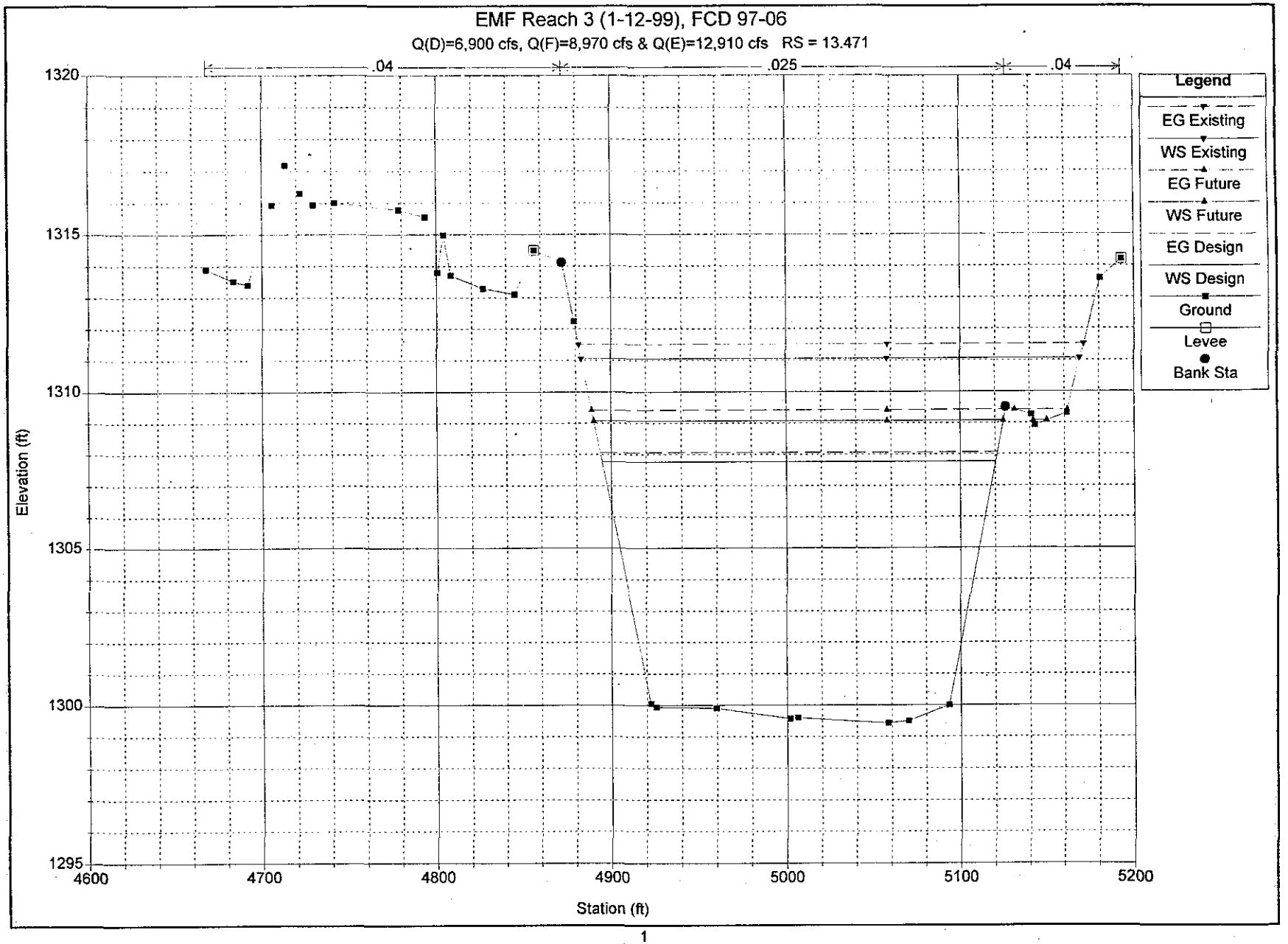

EMF Reach 4 (1-12-99), FCD 97-06
RS = 13.755
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1320
1315
1310
1305
1300
4200
4400
4600
4800
5000
5200
Station (ft)

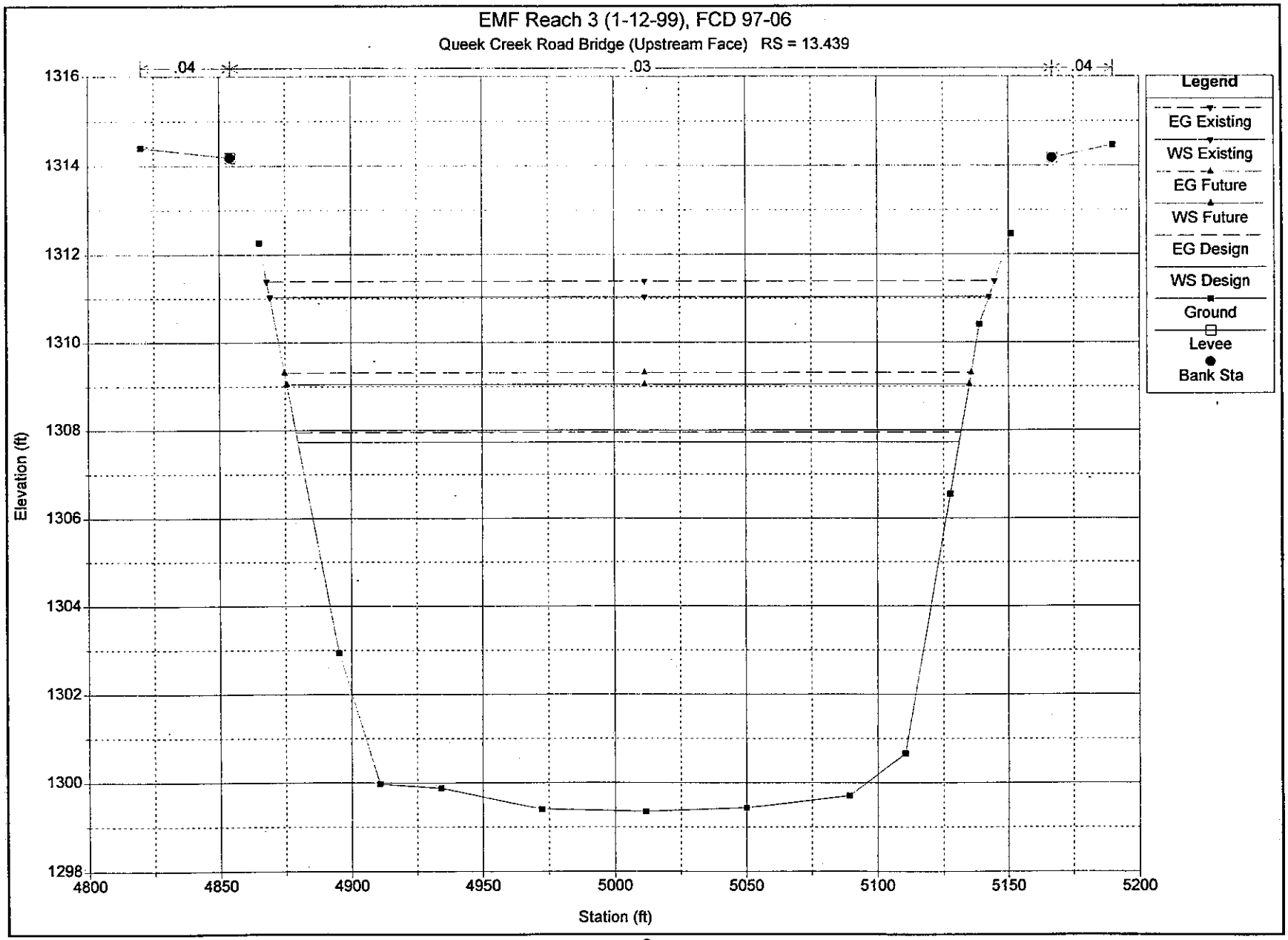

EMF Reach 4 (1-12-99), FCD 97-06
RS = 13.661
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1325
1320
1315
1310
1305
1300
1295
4000
4200
4400
4600
4800
5000
5200
Station (ft)

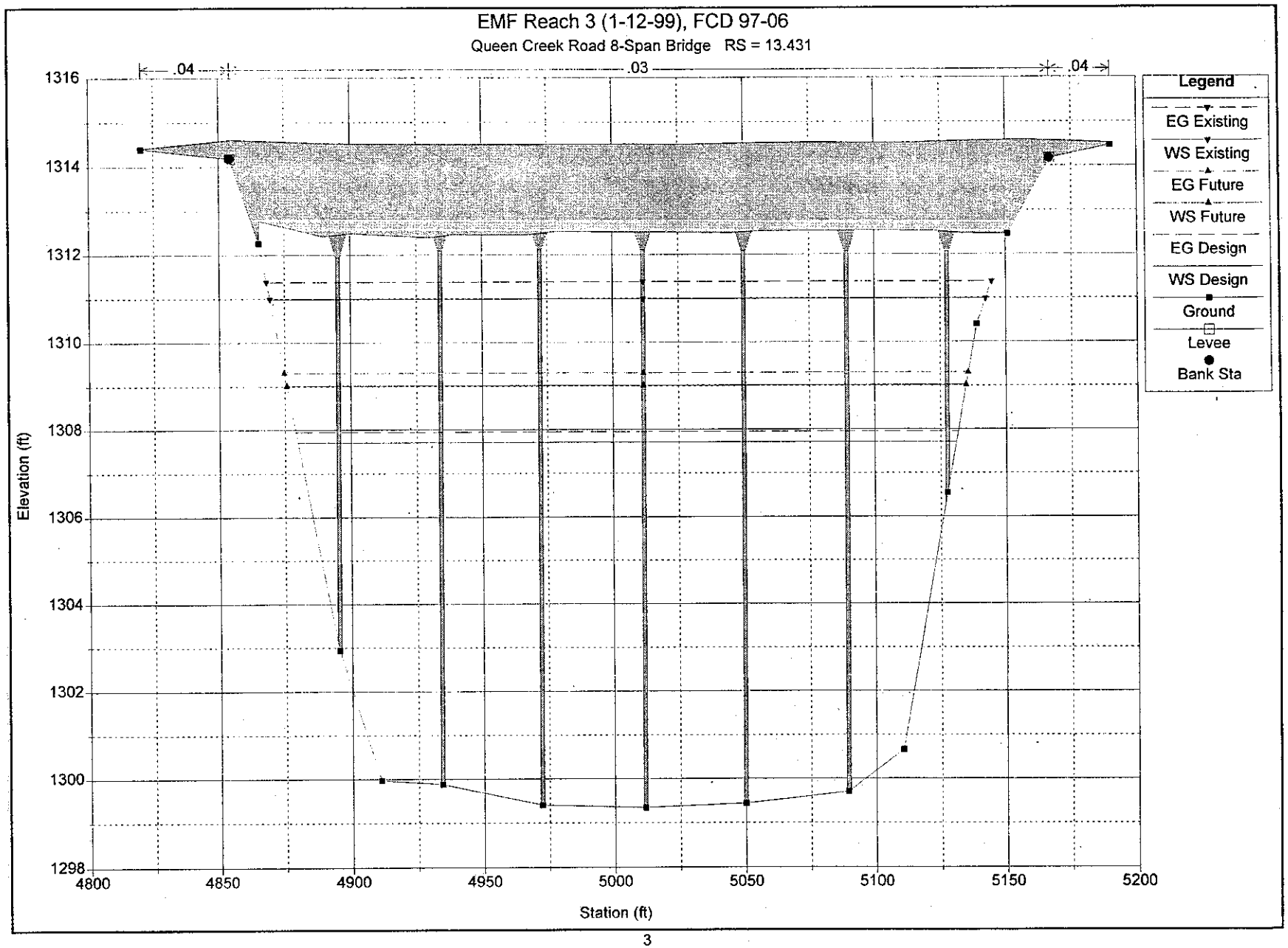

EMF Reach 4 (1-12-99), FCD 97-06
RS = 13.566
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1325
1320
1315
1310
1305
1300
1295
3800
4000
4200
4400
4600
4800
5000
5200
Station (ft)

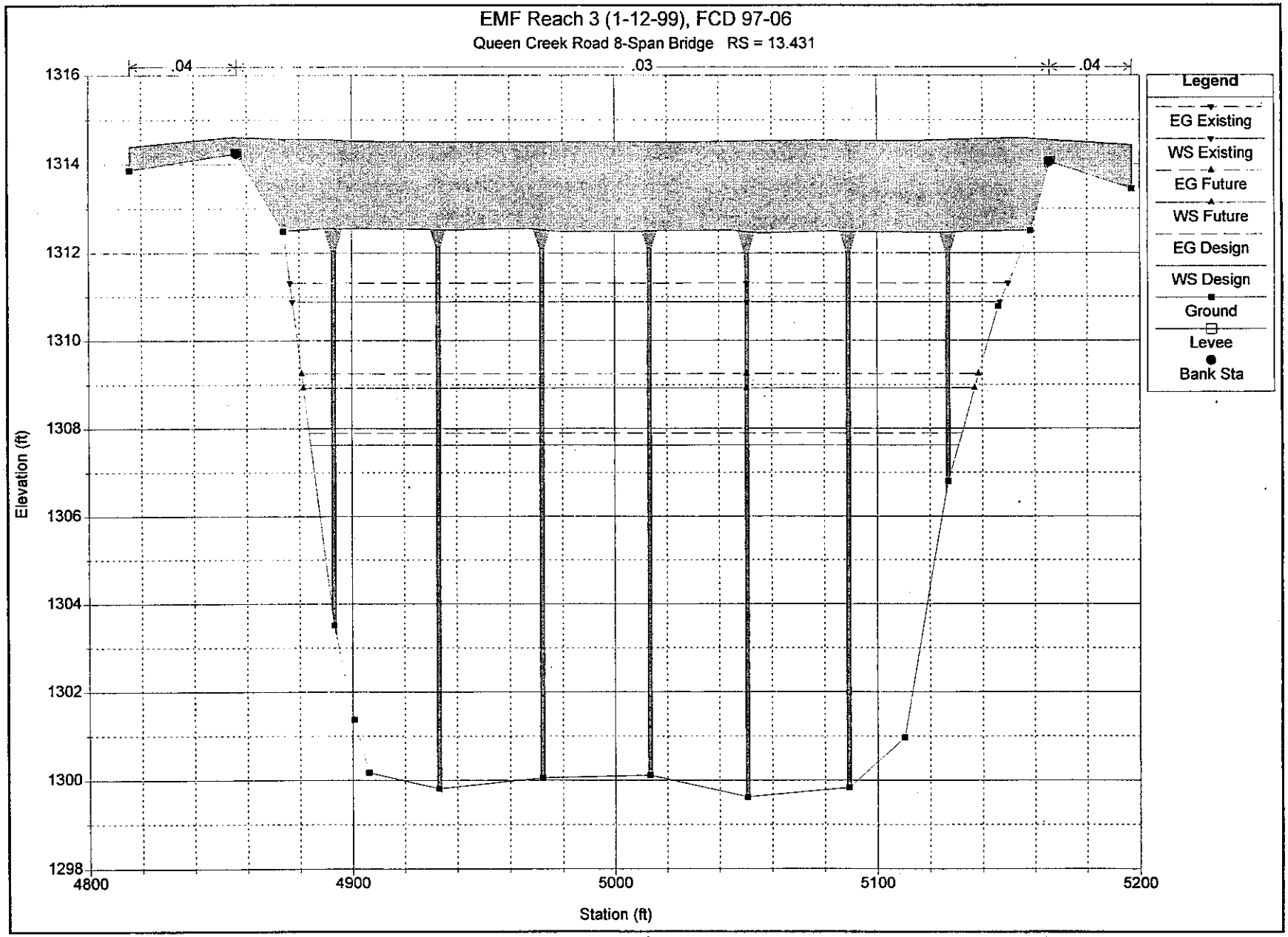

EMF Reach 4 (1-12-99), FCD 97-06
Upstream End of Reach 3 RS = 13.471
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1320
1315
1310
1305
1300
1295
4600
4700
4800
4900
5000
5100
5200
Station (ft)

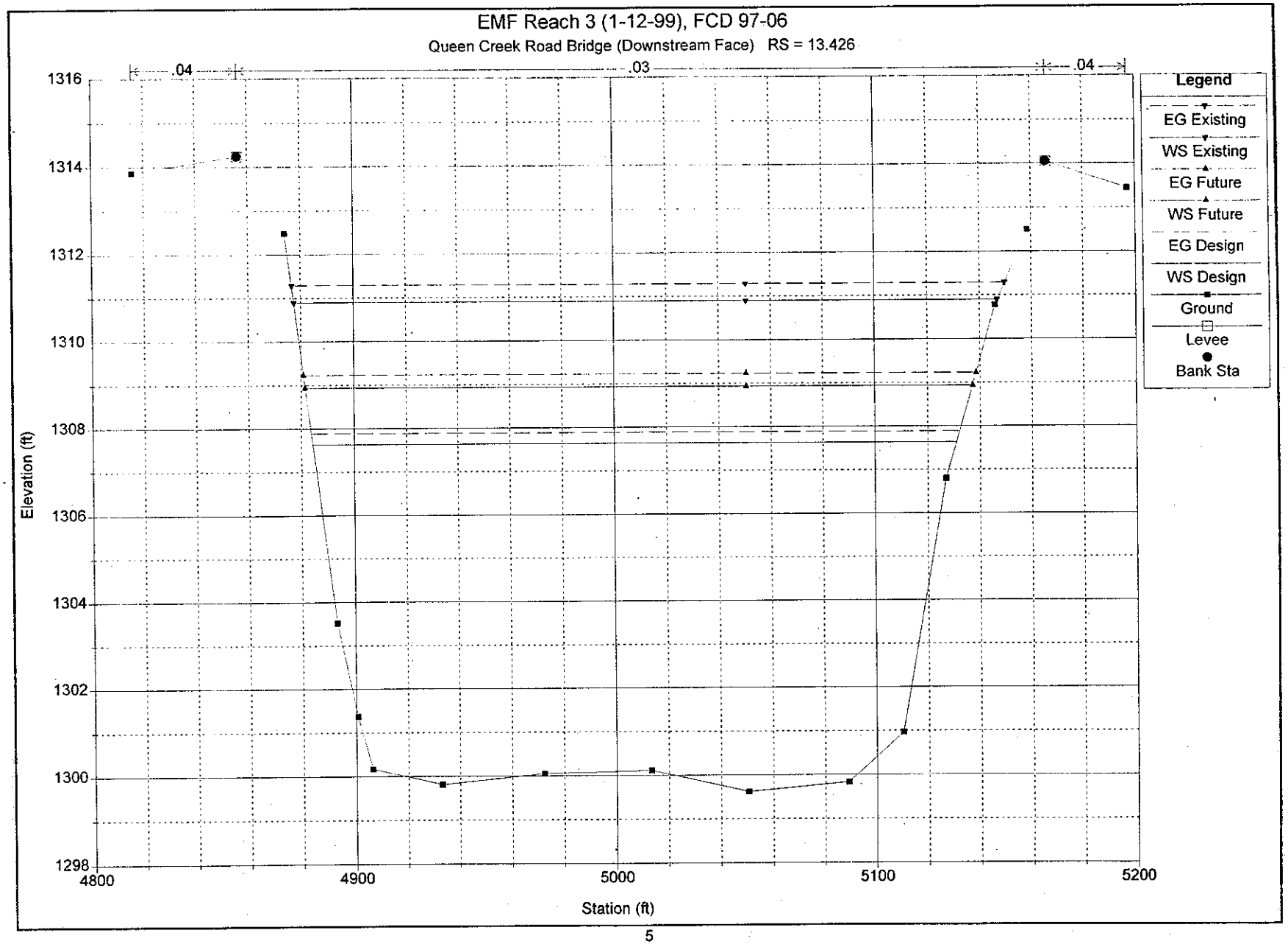

EMF Reach 3 (1-12-99), FCD 97-06
Reach 3
Legend
WS Existing
WS Future
WS Design
Ground
Elevation (ft)
1315
1310
1305
1300
1295
1290
1285
0
5000
10000
15000
20000
25000
Main Channel Distance (ft)

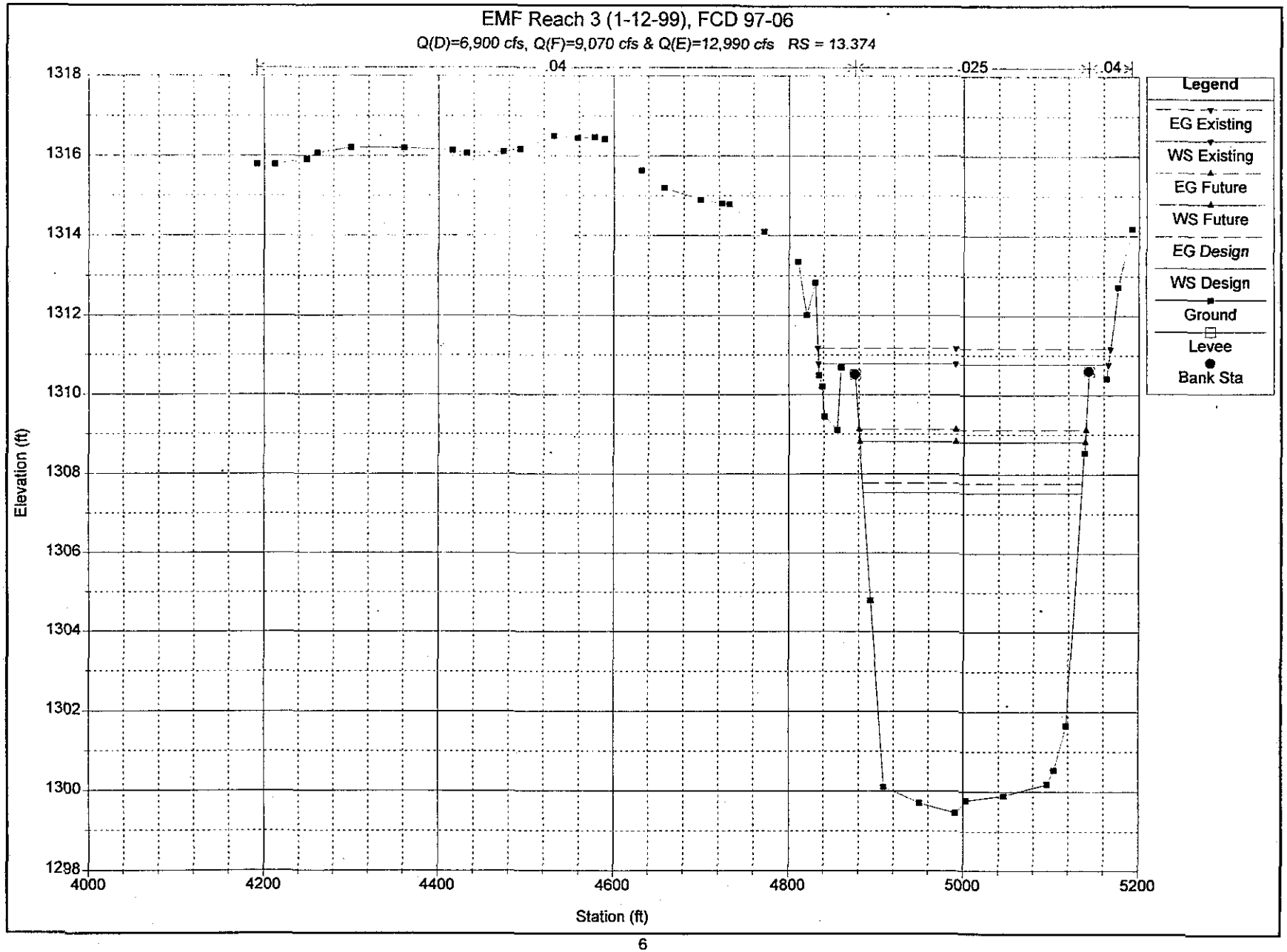

EMF Reach 3 (1-12-99), FCD 97-06
Q(D)=6,900 cfs, Q(F)=8,970 cfs & Q(E)=12,910 cfs RS = 13.471
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1320
1315
1310
1305
1300
1295
4600
4700
4800
4900
5000
5100
5200
Station (ft)

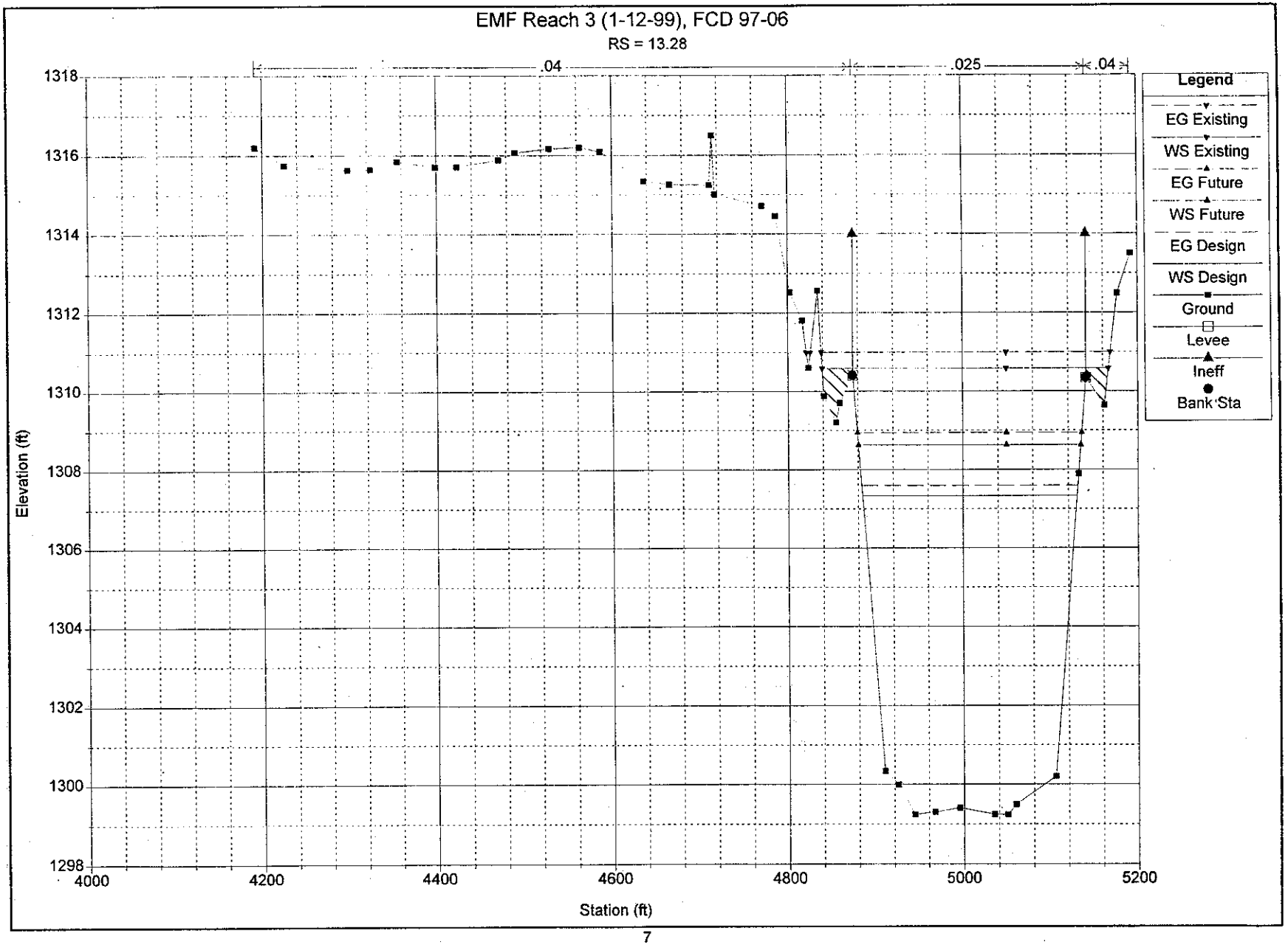

EMF Reach 3 (1-12-99), FCD 97-06
Queek Creek Road Bridge (Upstream Face) RS = 13.439
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
4800
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)

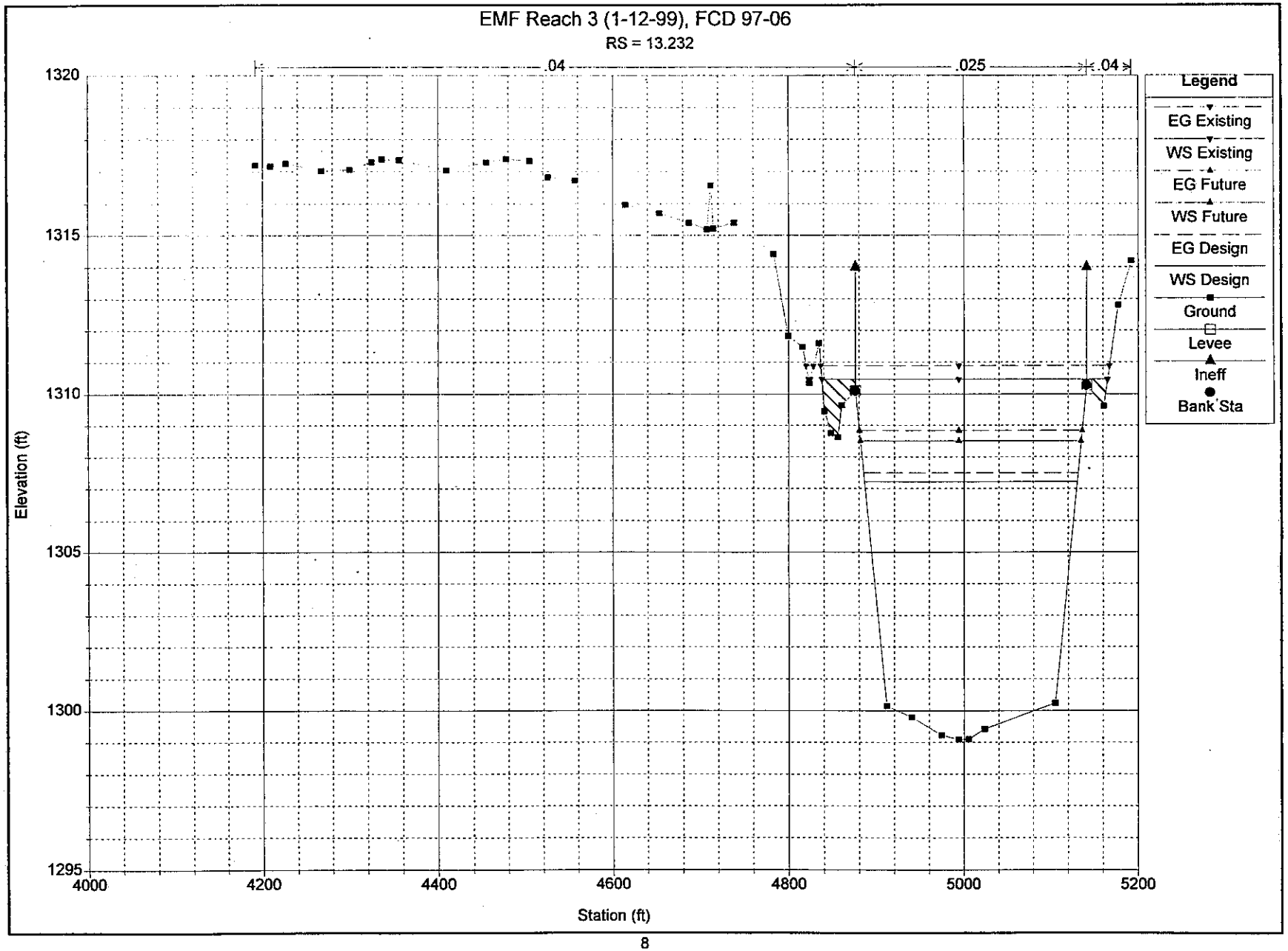

EMF Reach 3 (1-12-99), FCD 97-06
Queen Creek Road 8-Span Bridge RS = 13.431
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
4800
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)

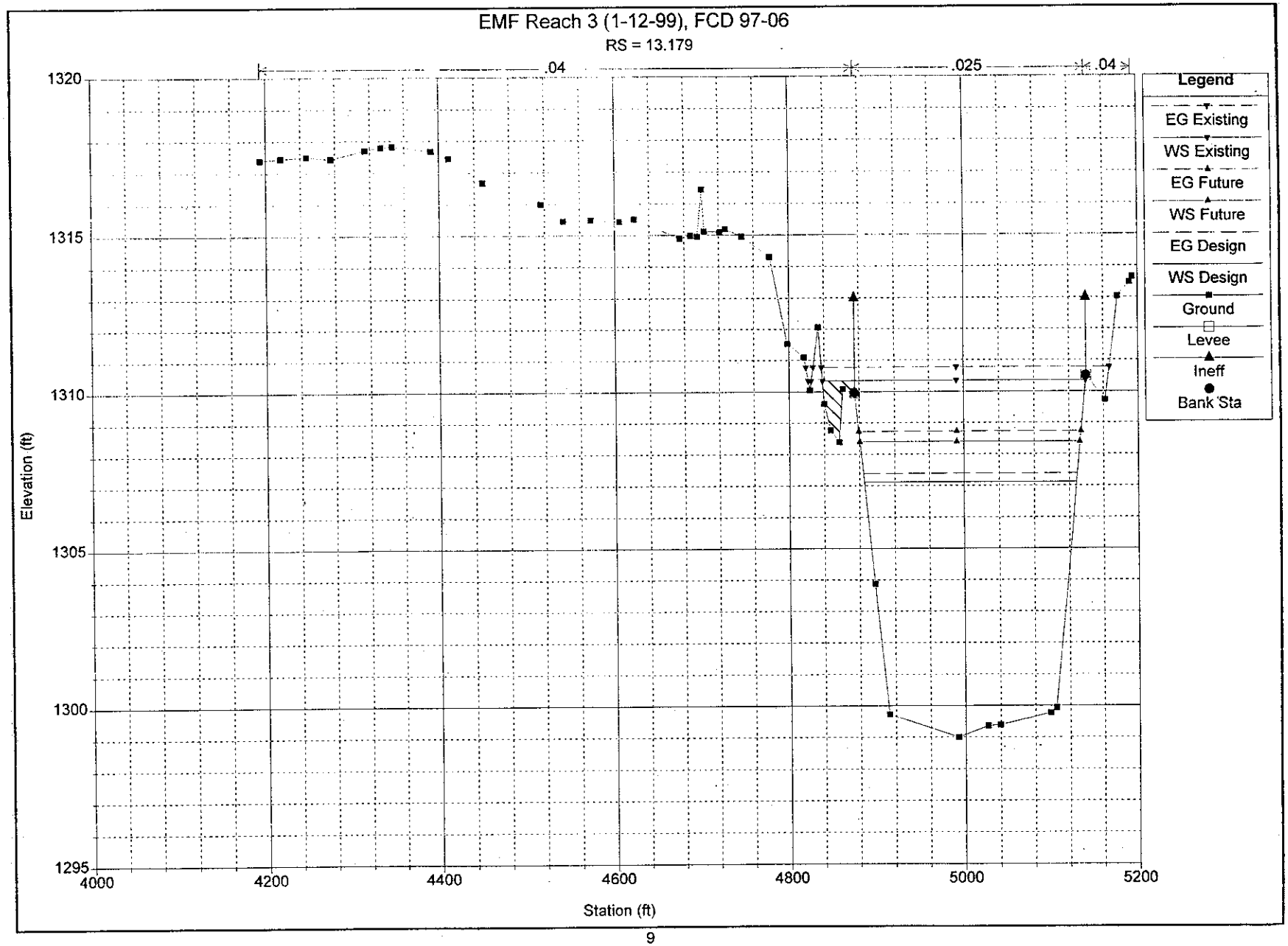

EMF Reach 3 (1-12-99), FCD 97-06
Queen Creek Road 8-Span Bridge RS = 13.431
.04
.03
.04
Elevation (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
4800
4900
5000
5100
5200
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta

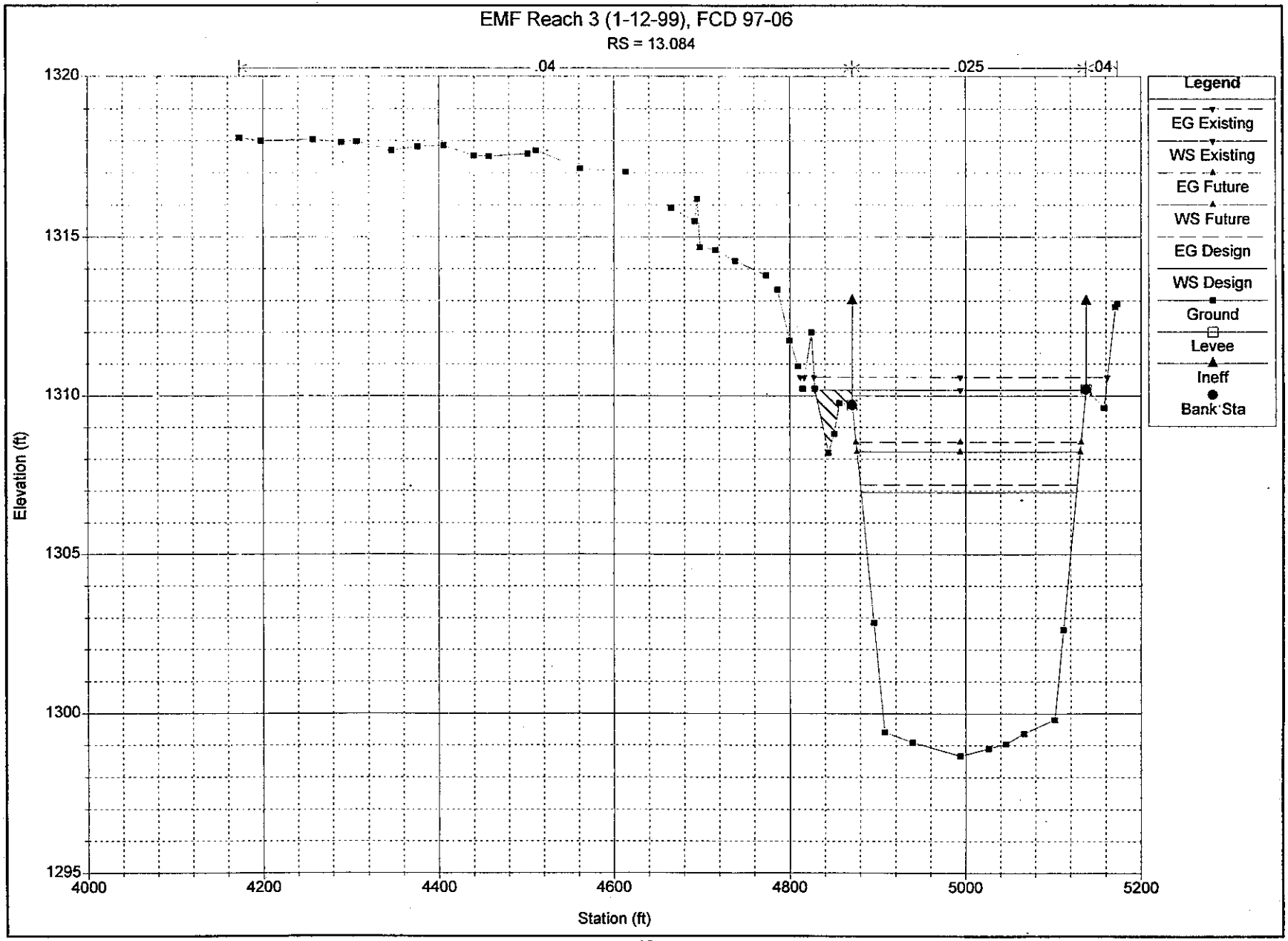

EMF Reach 3 (1-12-99), FCD 97-06
Queen Creek Road Bridge (Downstream Face) RS = 13.426
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
4800
4900
5000
5100
5200
Station (ft)

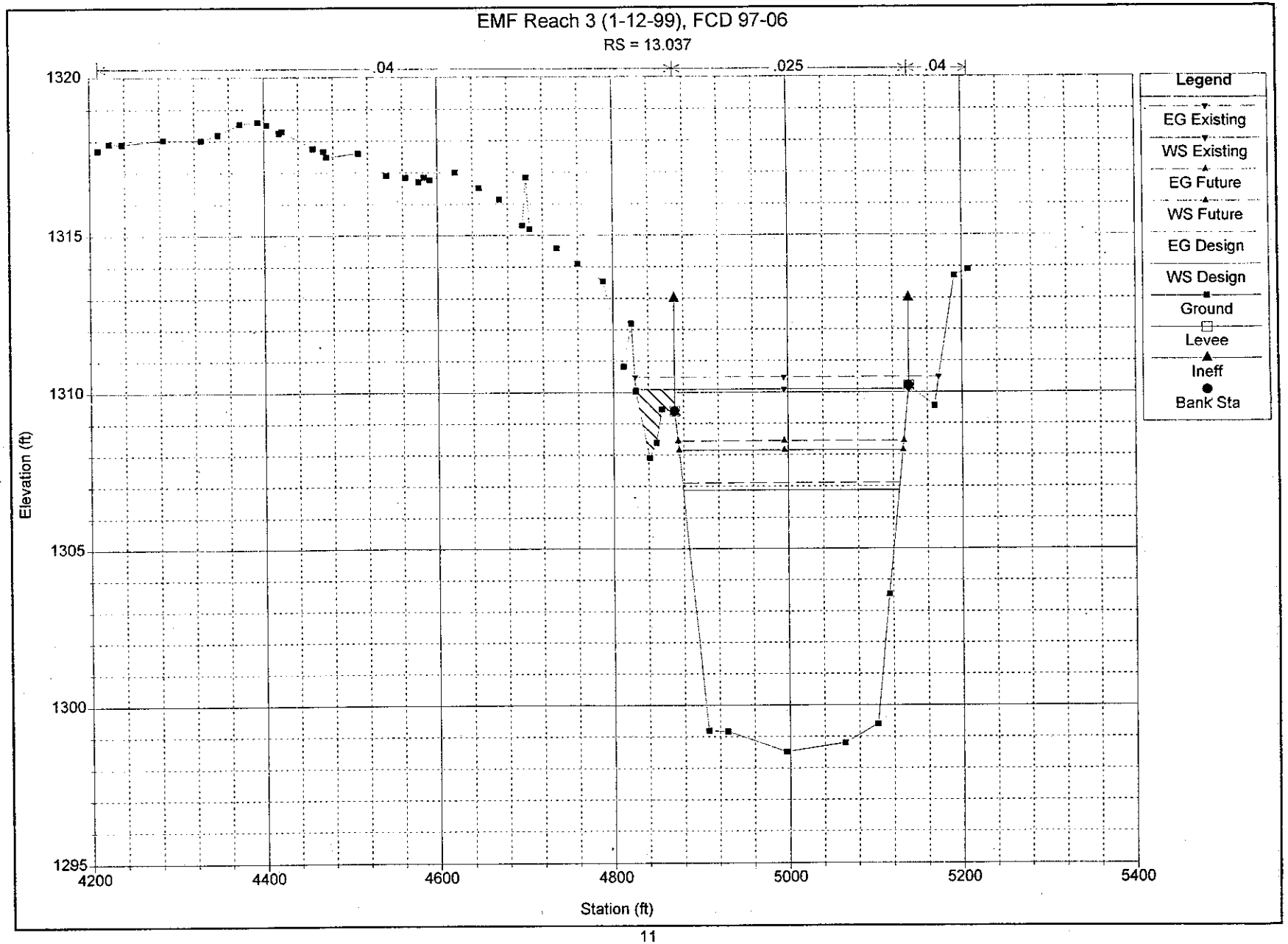

EMF Reach 3 (1-12-99), FCD 97-06
Q(D)=6,900 cfs, Q(F)=9,070 cfs & Q(E)=12,990 cfs RS = 13.374
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1318
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
4000
4200
4400
4600
4800
5000
5200
Station (ft)

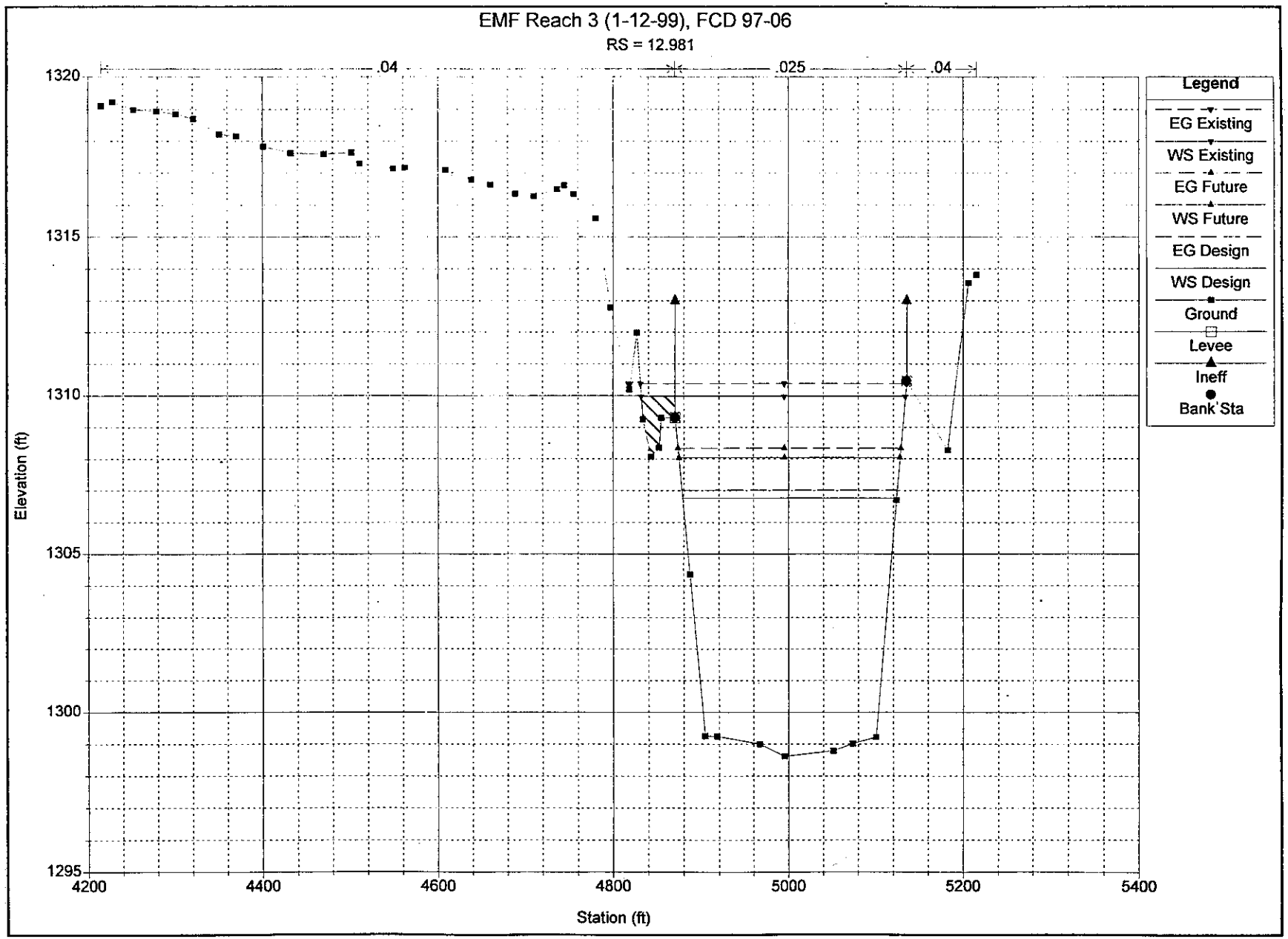

EMF Reach 3 (1-12-99), FCD 97-06
RS = 13.28
.04
.025
.04
Elevation (ft)
1318
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
4000
4200
4400
4600
4800
5000
5200
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

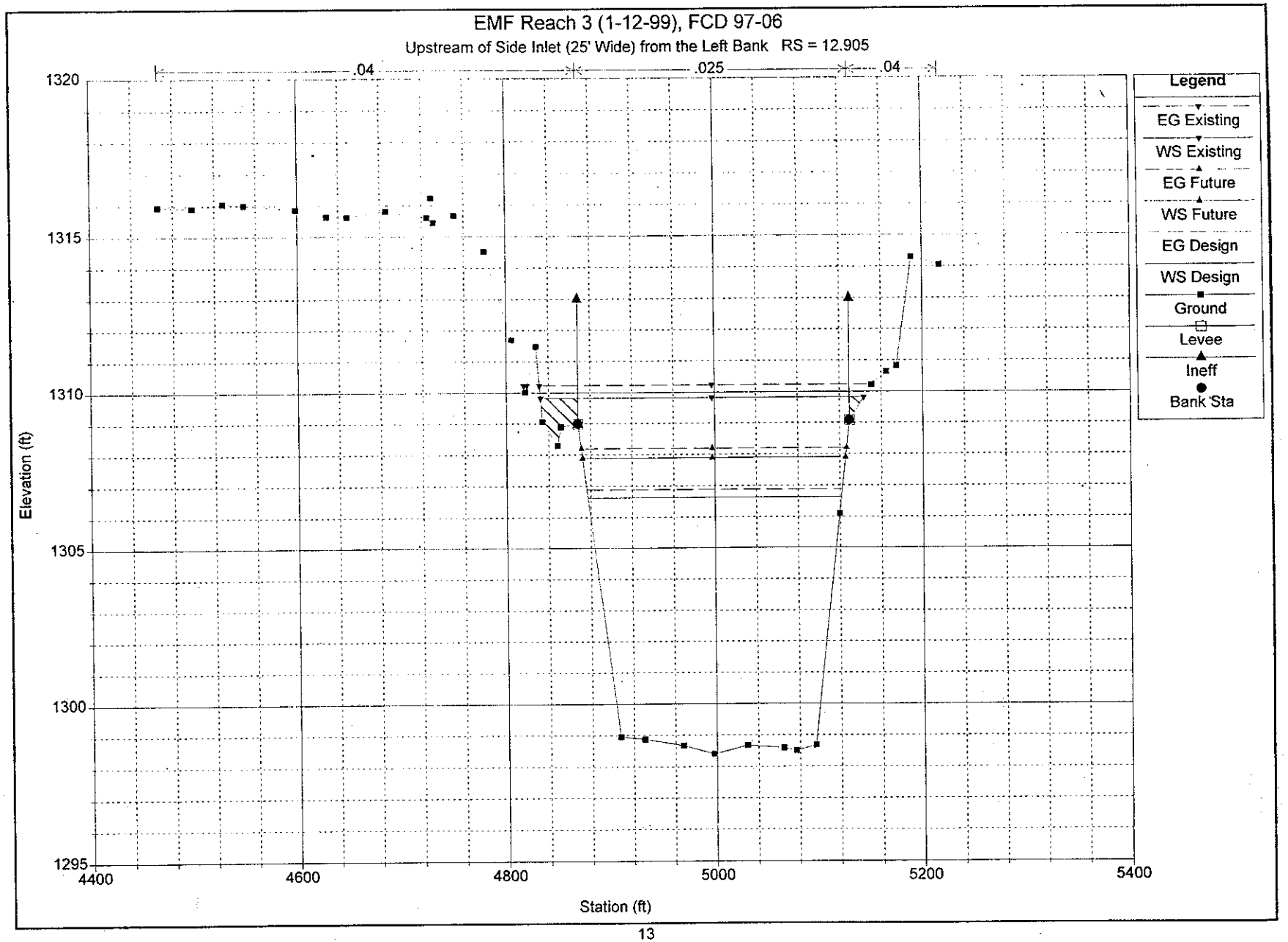

EMF Reach 3 (1-12-99), FCD 97-06
RS = 13.232
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1320
1315
1310
1305
1300
1295
4000
4200
4400
4600
4800
5000
5200
Station (ft)

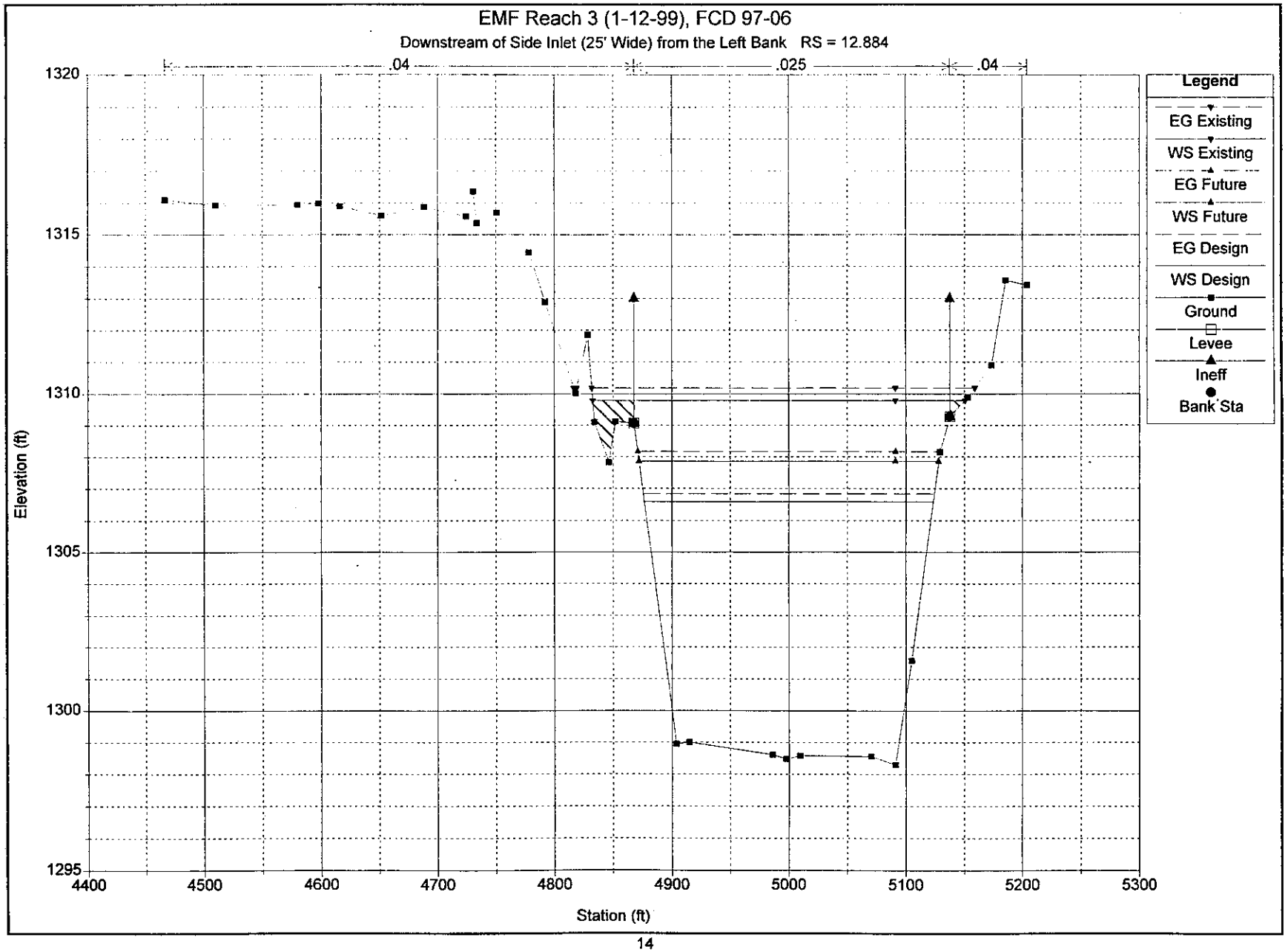

EMF Reach 3 (1-12-99), FCD 97-06
RS = 13.179
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1320
1315
1310
1305
1300
1295
4000
4200
4400
4600
4800
5000
5200
Station (ft)

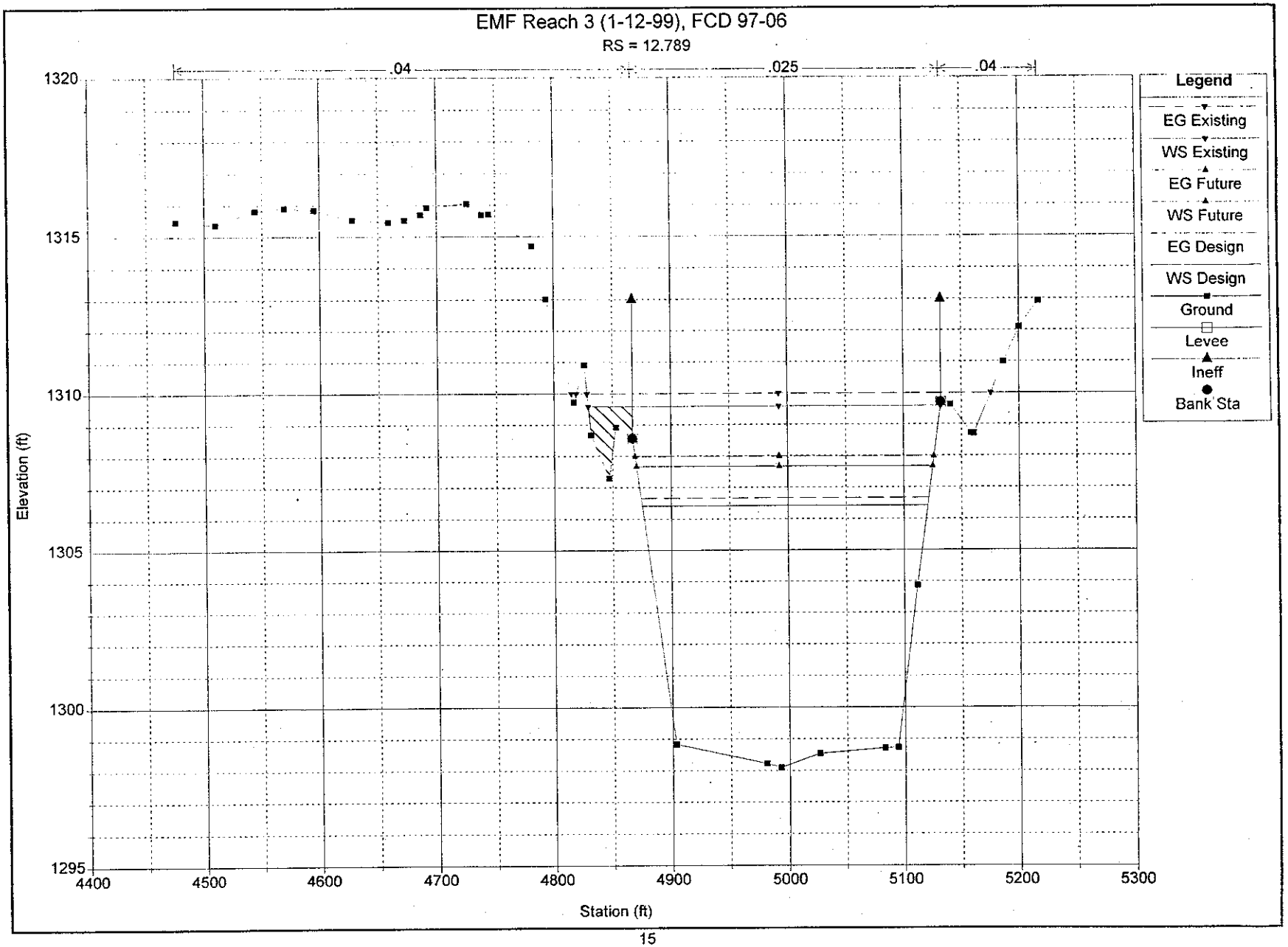

EMF Reach 3 (1-12-99), FCD 97-06
RS = 13.084
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1320
1315
1310
1305
1300
1295
4000
4200
4400
4600
4800
5000
5200
Station (ft)

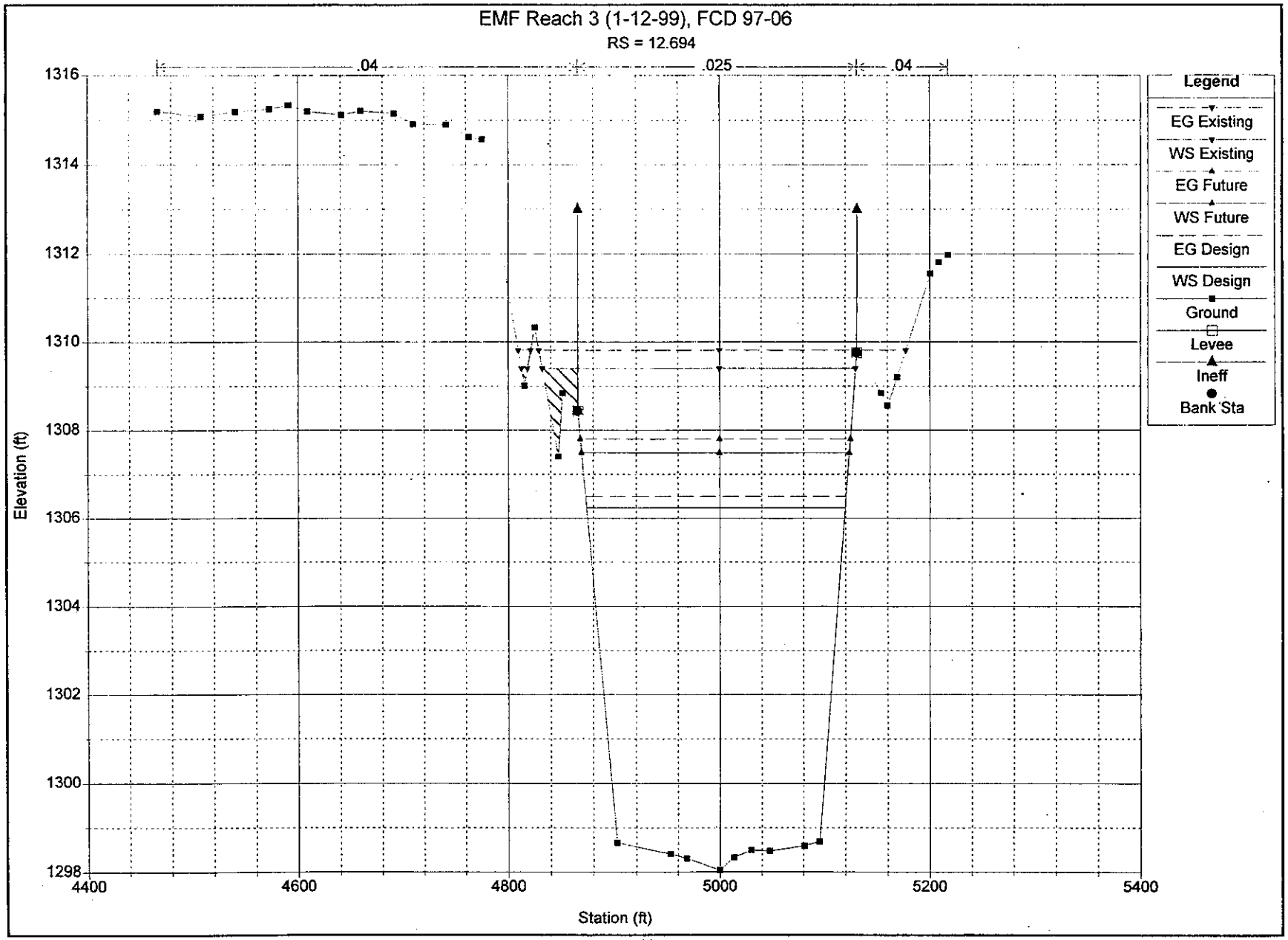

EMF Reach 3 (1-12-99), FCD 97-06
RS = 13.037
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1320
1315
1310
1305
1300
1295
4200
4400
4600
4800
5000
5200
5400
Station (ft)

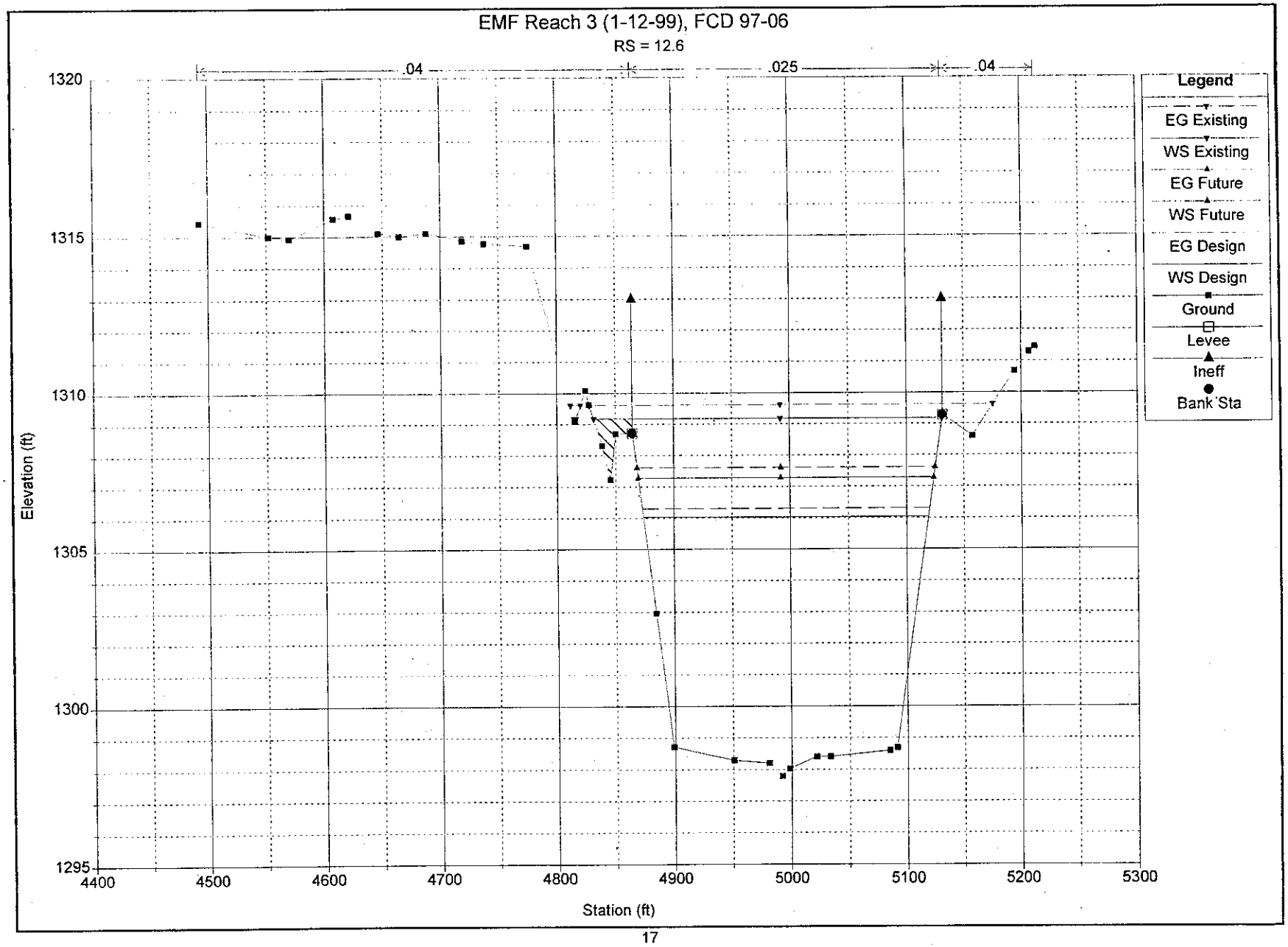

EMF Reach 3 (1-12-99), FCD 97-06
RS = 12.981
.04
.025
.04
1320
1315
1310
1305
1300
1295
Elevation (ft)
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

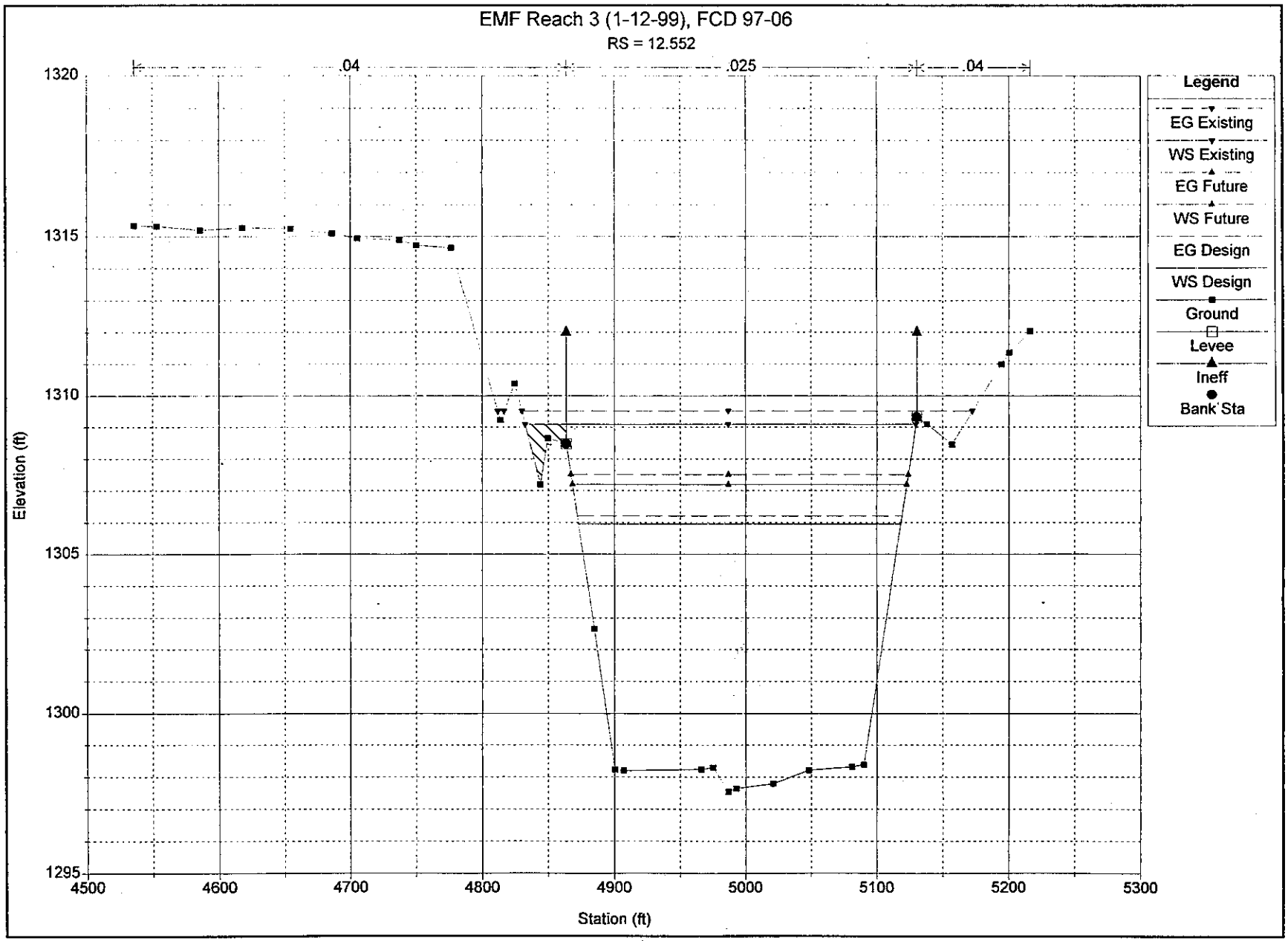

EMF Reach 3 (1-12-99), FCD 97-06
Upstream of Side Inlet (25' Wide) from the Left Bank RS = 12.905
.04
.025
.04
1320
1315
1310
1305
1300
1295
Elevation (ft)
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

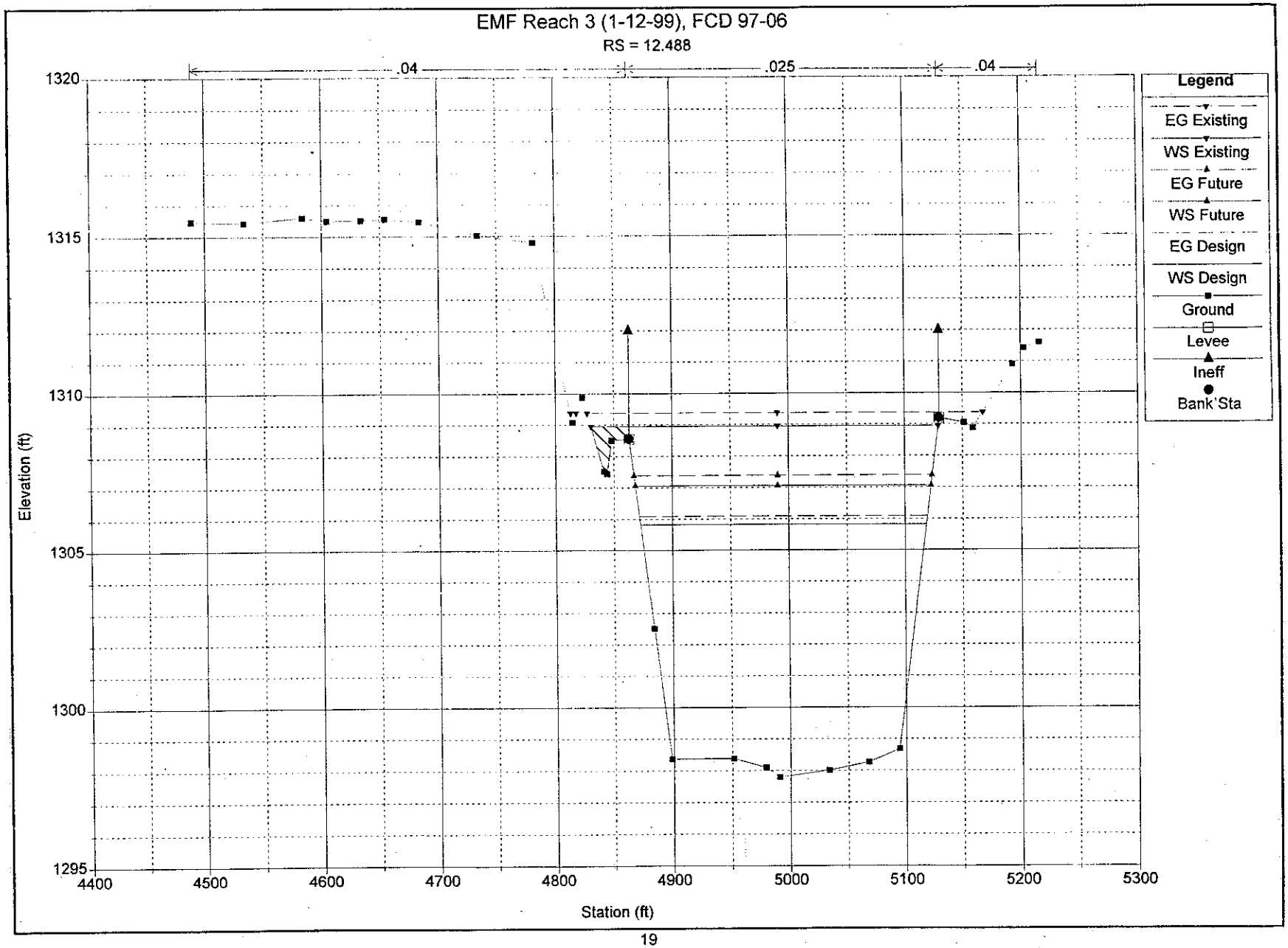

EMF Reach 3 (1-12-99), FCD 97-06
Downstream of Side Inlet (25' Wide) from the Left Bank RS = 12.884
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1320
1315
1310
1305
1300
1295
4400
4500
4600
4700
4800
4900
5000
5100
5200
5300
Station (ft)

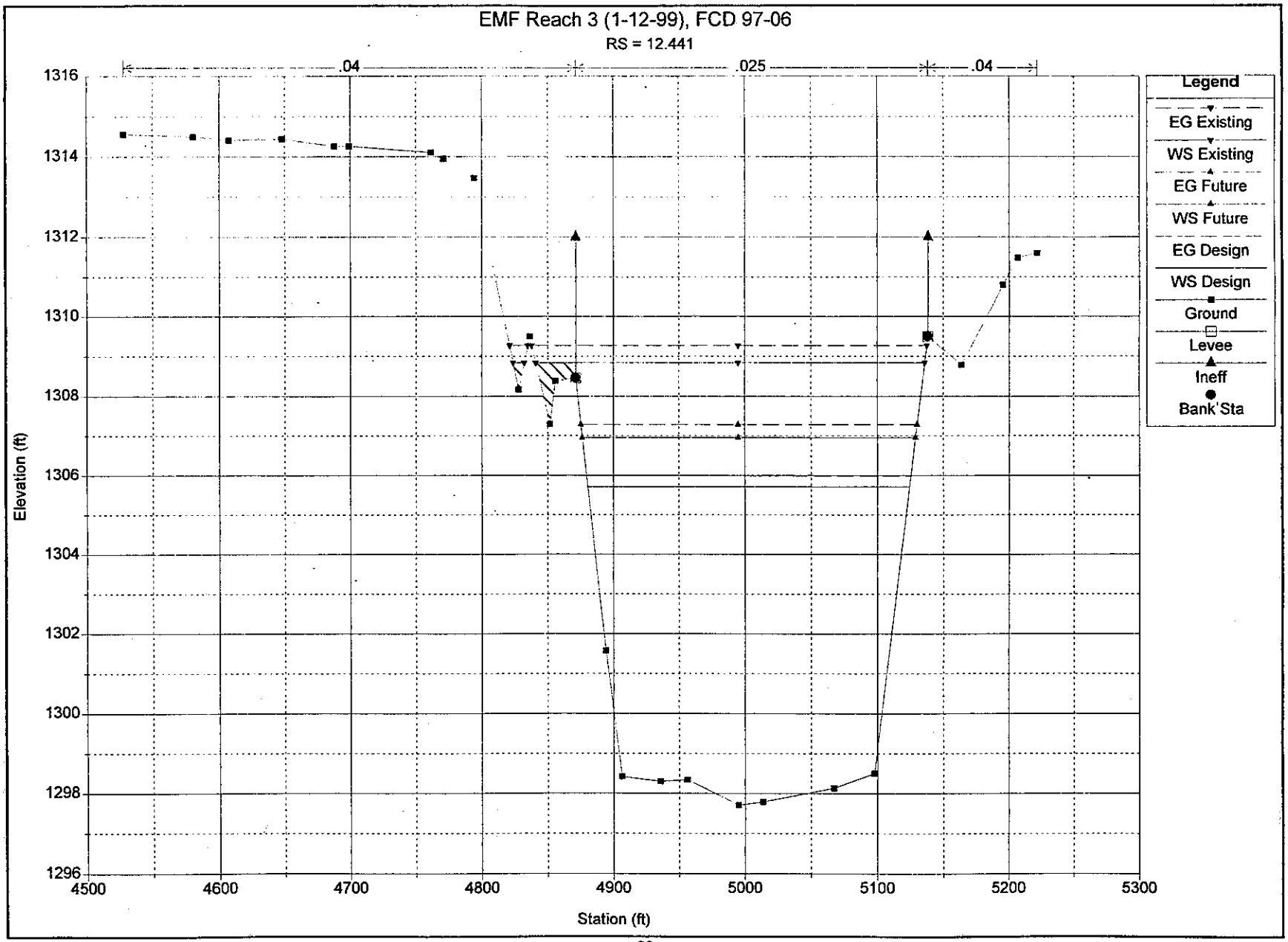

EMF Reach 3 (1-12-99), FCD 97-06
RS = 12.789
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1320
1315
1310
1305
1300
1295
4400
4500
4600
4700
4800
4900
5000
5100
5200
5300
Station (ft)

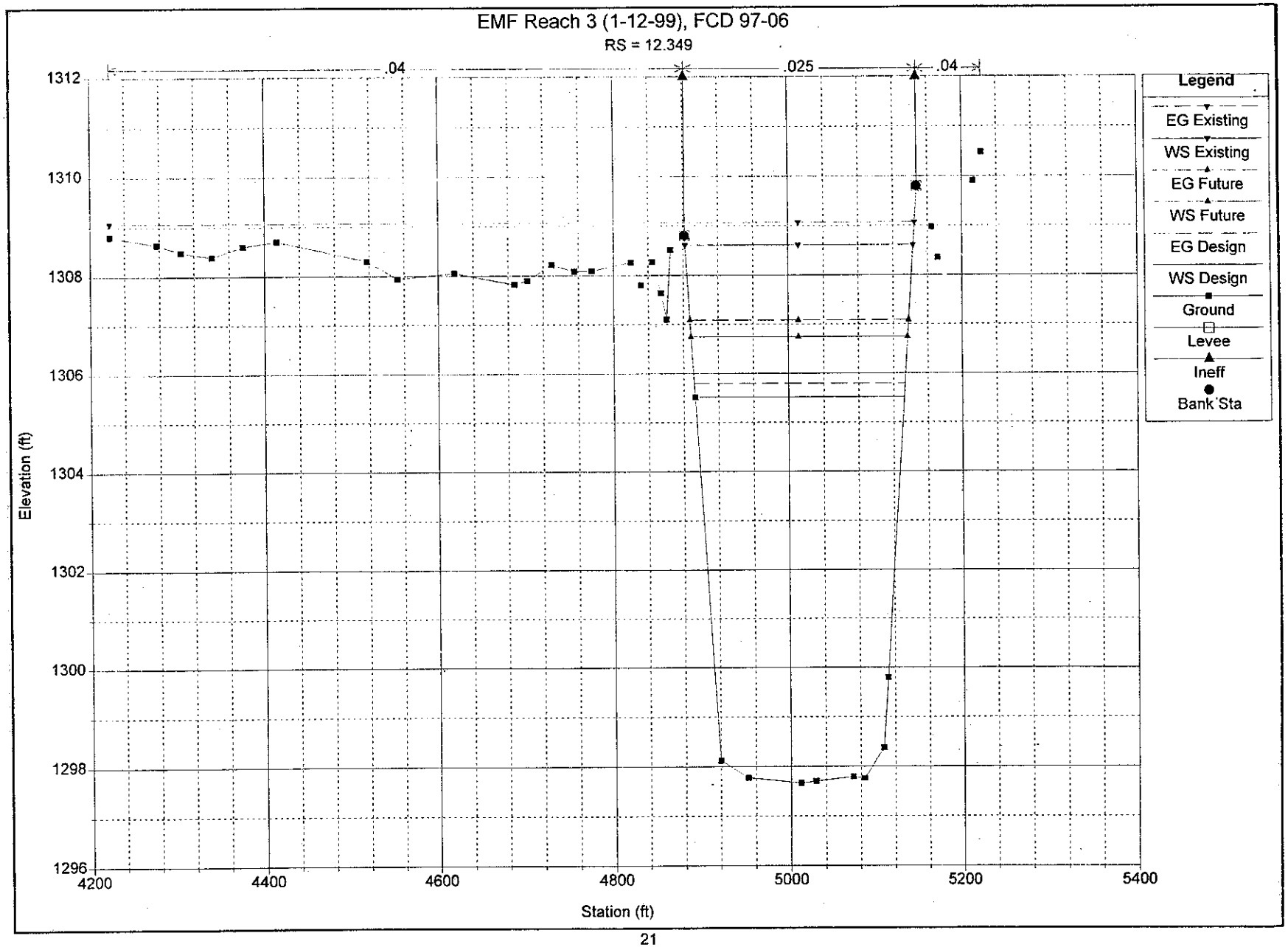

EMF Reach 3 (1-12-99), FCD 97-06
RS = 12.694
.04
.025
.04
Elevation (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

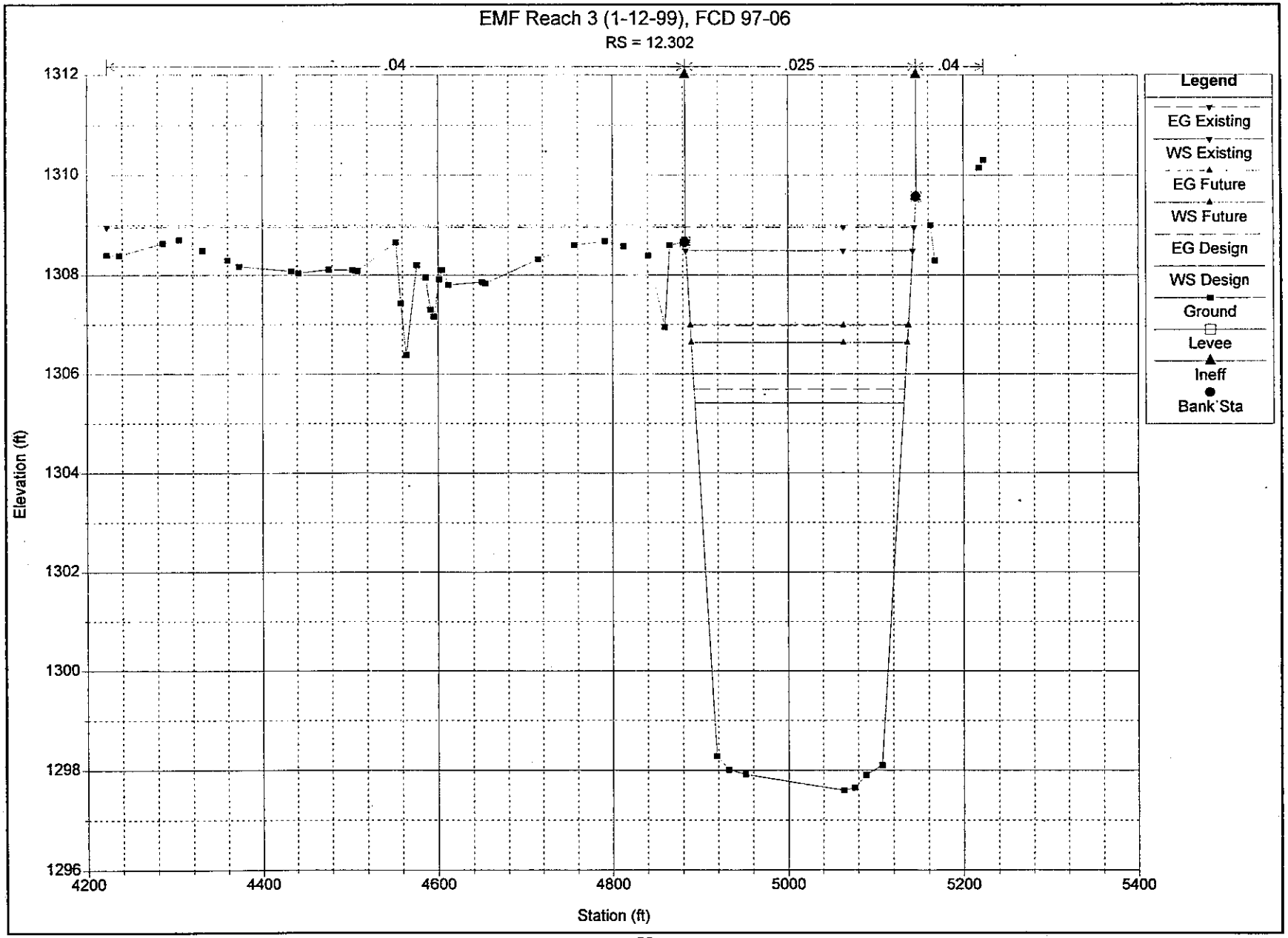

EMF Reach 3 (1-12-99), FCD 97-06
RS = 12.6
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1320
1315
1310
1305
1300
1295
4400
4500
4600
4700
4800
4900
5000
5100
5200
5300
Station (ft)

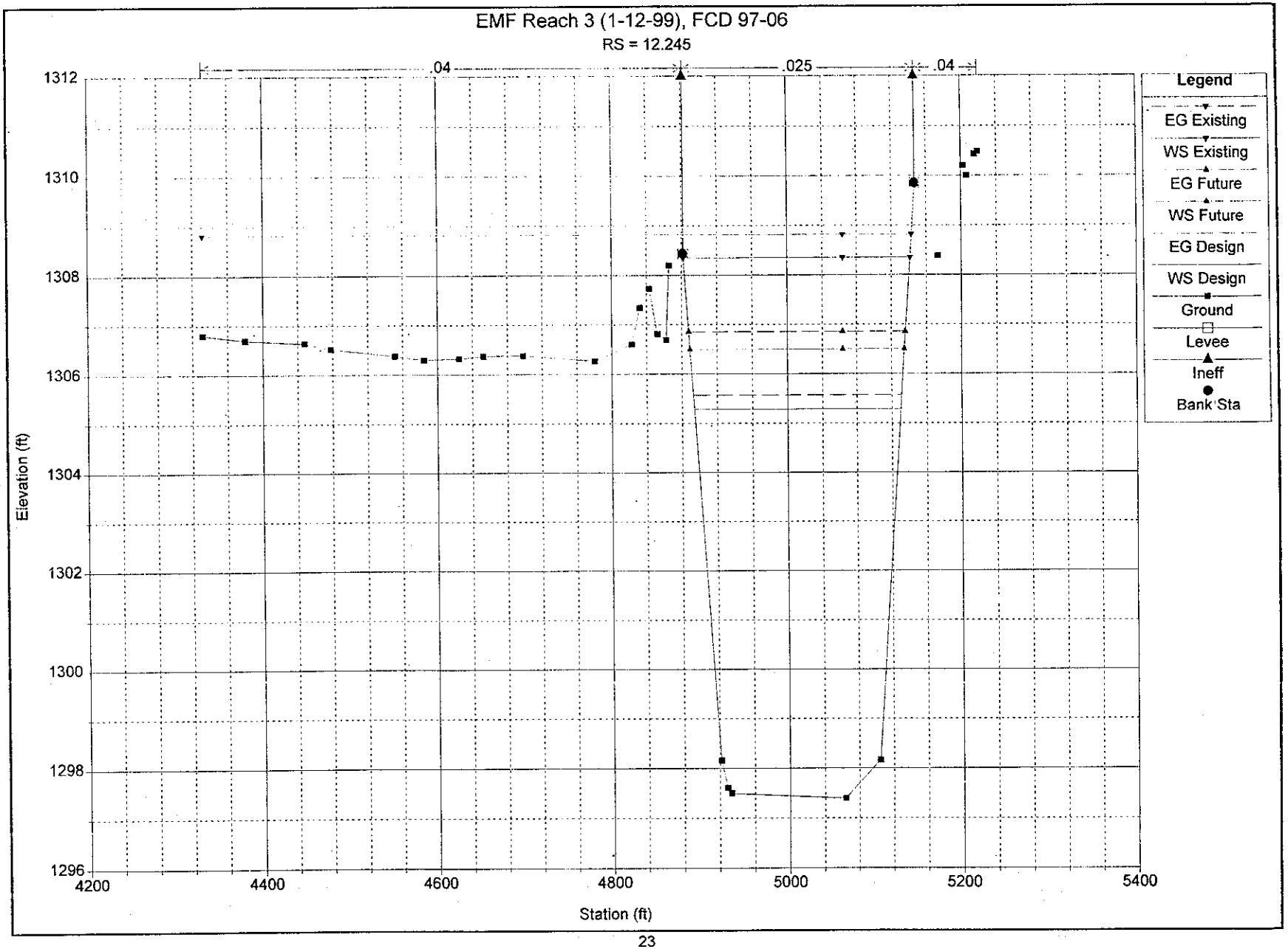

EMF Reach 3 (1-12-99), FCD 97-06
RS = 12.552
.04
.025
.04
Elevation (ft)
1320
1315
1310
1305
1300
1295
4500
4600
4700
4800
4900
5000
5100
5200
5300
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

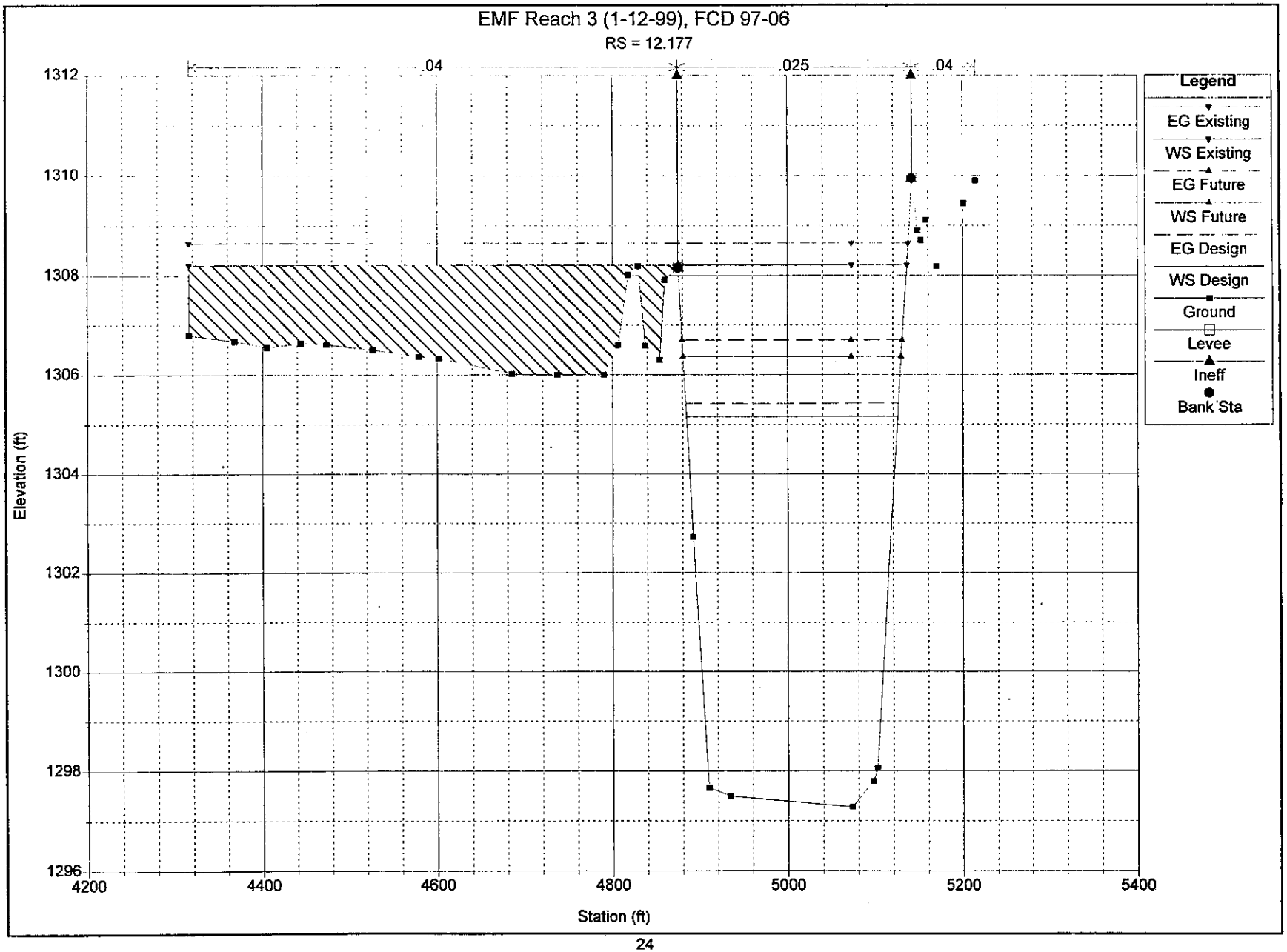

EMF Reach 3 (1-12-99), FCD 97-06
RS = 12.488
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1320
1315
1310
1305
1300
1295
4400
4500
4600
4700
4800
4900
5000
5100
5200
5300
Station (ft)

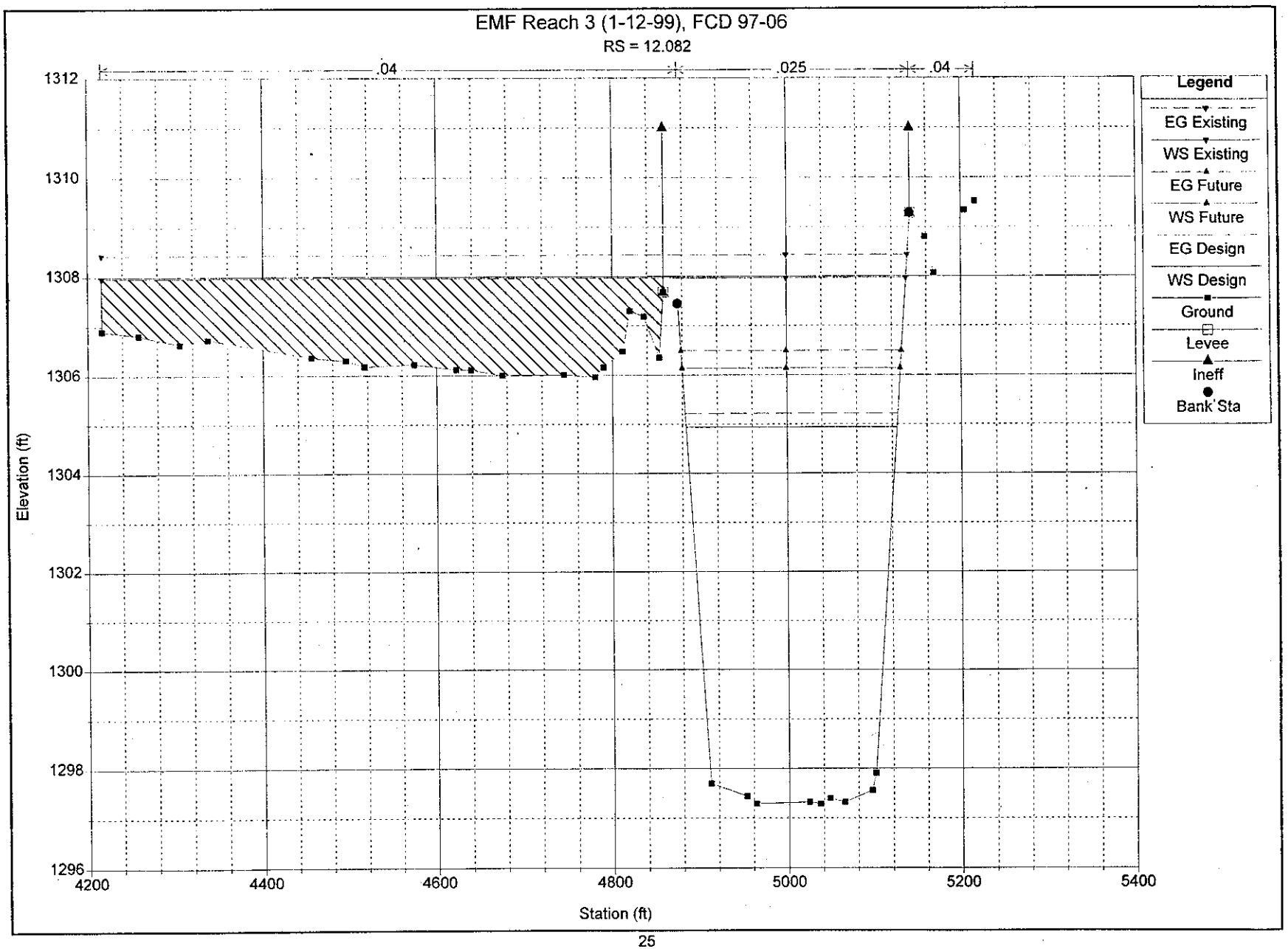

EMF Reach 3 (1-12-99), FCD 97-06
RS = 12.441
.04
.025
.04
Elevation (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
1296
4500
4600
4700
4800
4900
5000
5100
5200
5300
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

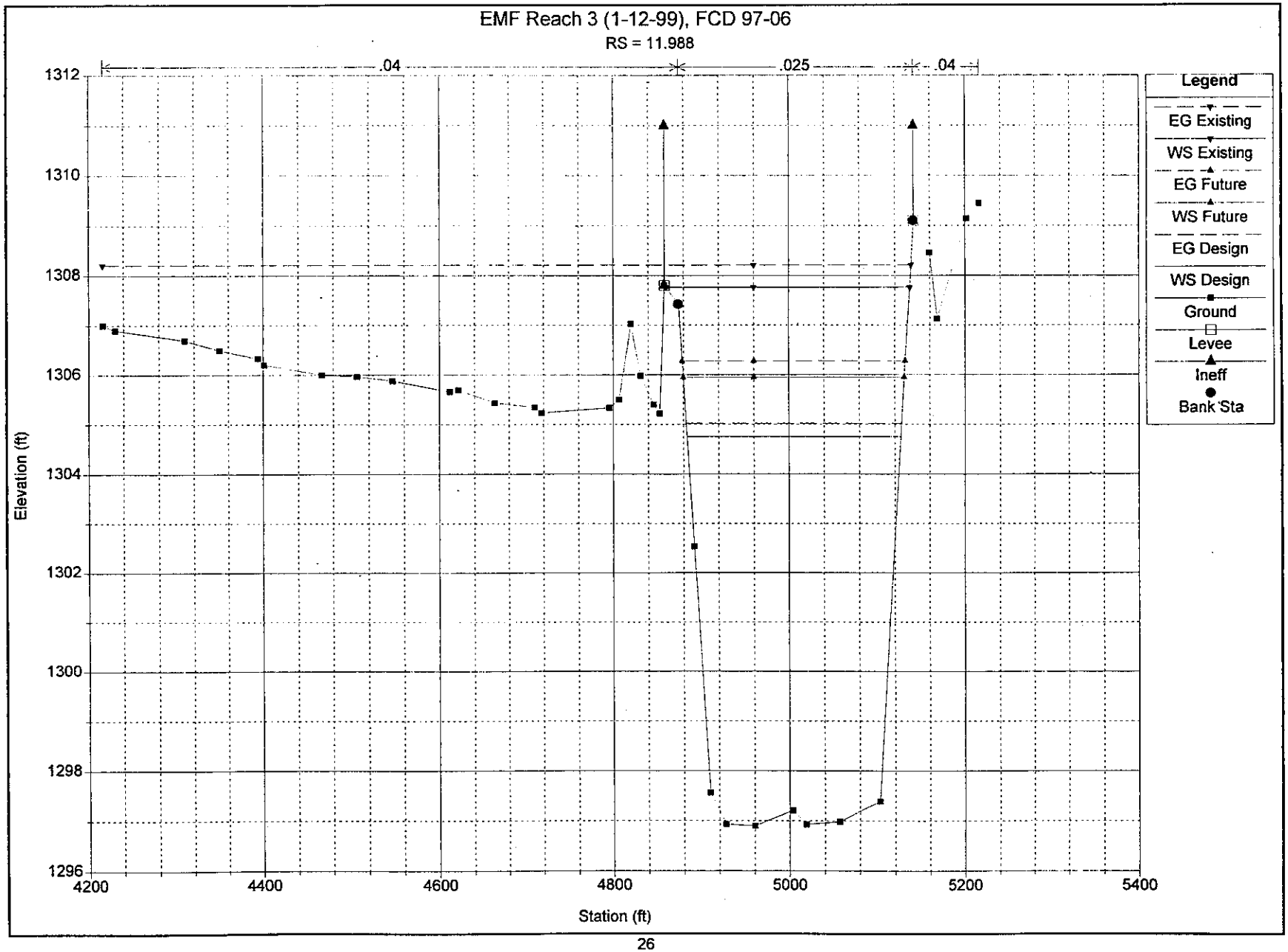

EMF Reach 3 (1-12-99), FCD 97-06
RS = 12.349
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1312
1310
1308
1306
1304
1302
1300
1298
1296
4200
4400
4600
4800
5000
5200
5400
Station (ft)

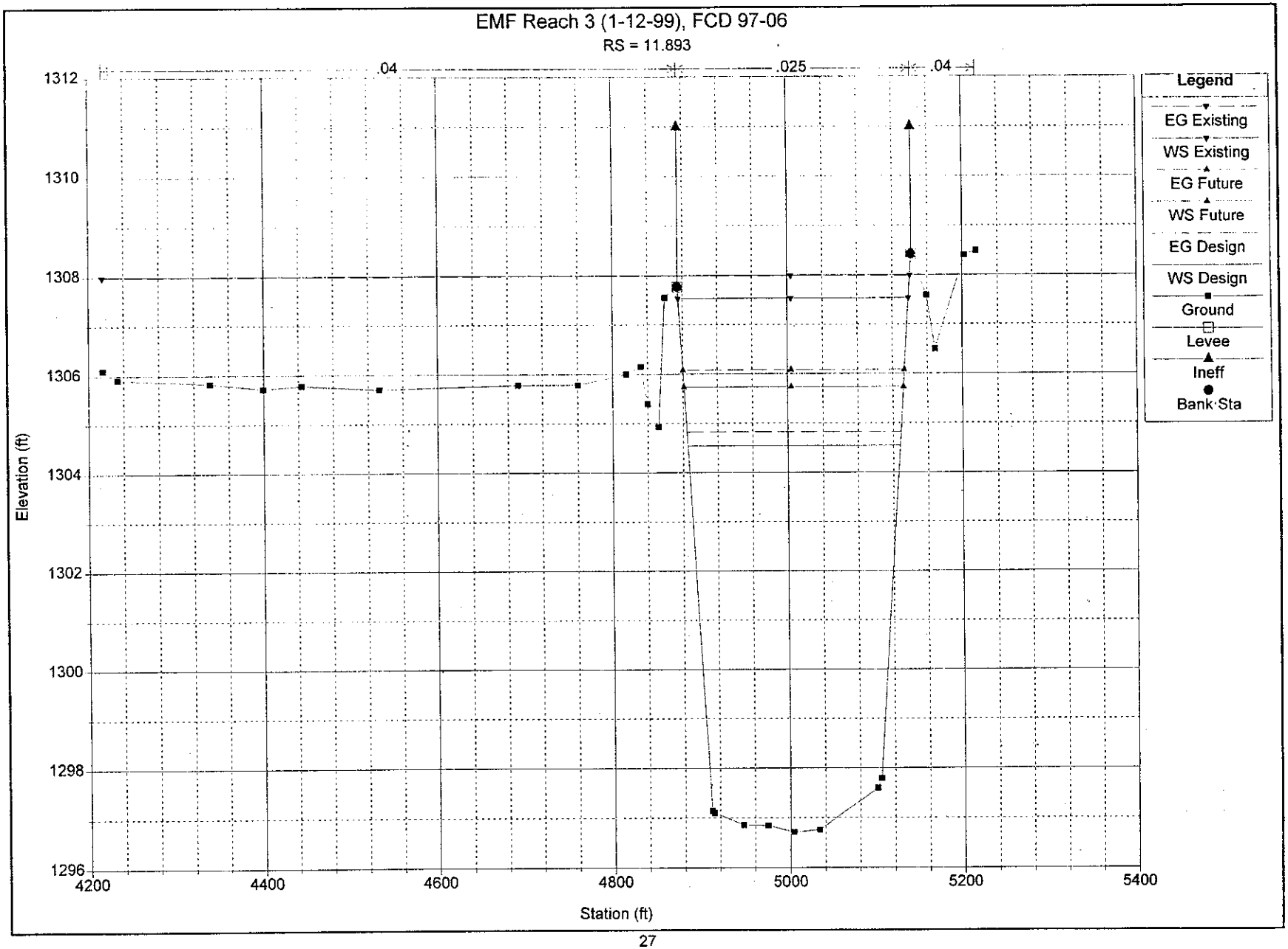

EMF Reach 3 (1-12-99), FCD 97-06
RS = 12.302
.04
.025
.04
Elevation (ft)
1312
1310
1308
1306
1304
1302
1300
1298
1296
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

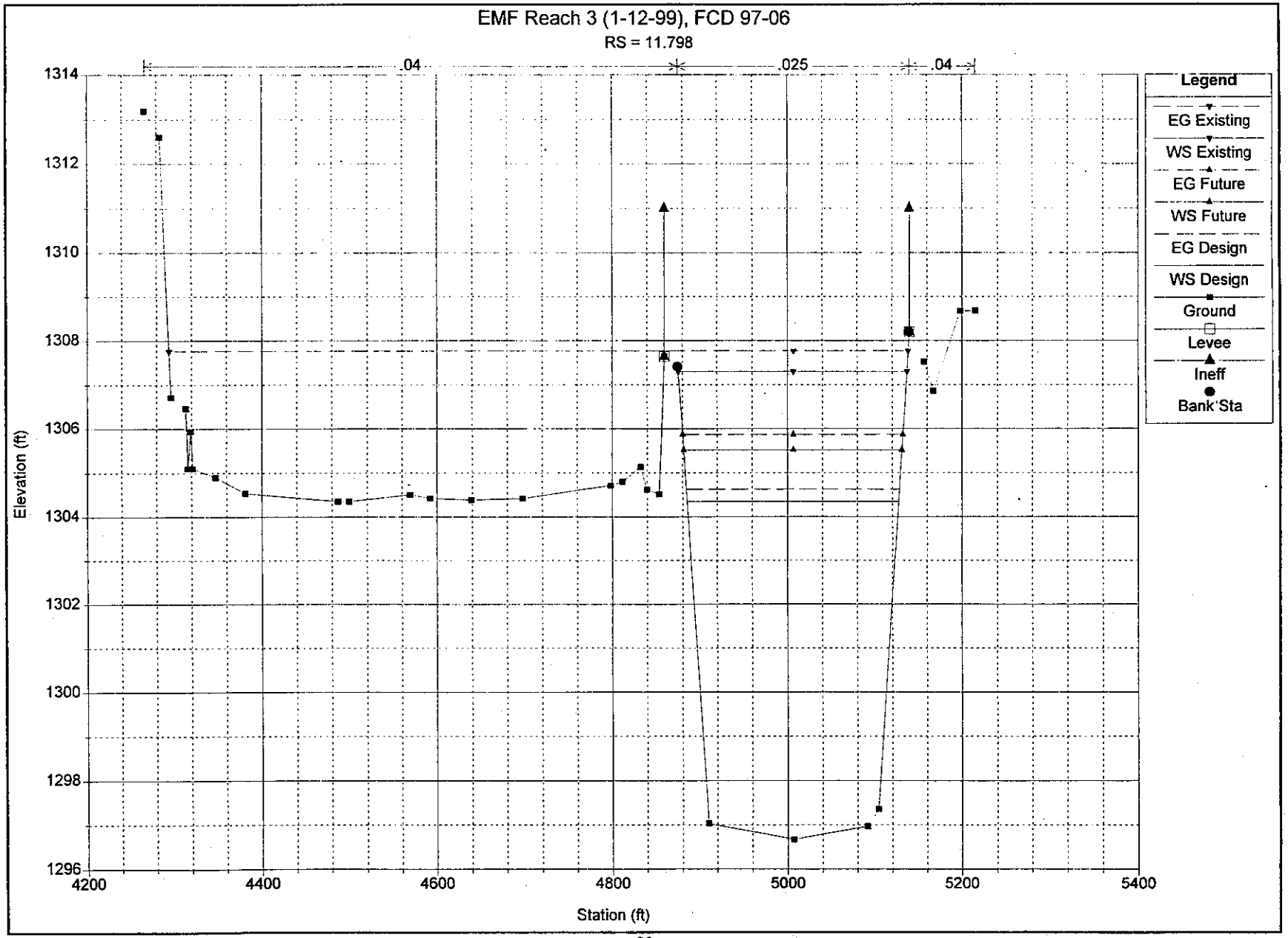

EMF Reach 3 (1-12-99), FCD 97-06
RS = 12.245
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1312
1310
1308
1306
1304
1302
1300
1298
1296
4200
4400
4600
4800
5000
5200
5400
Station (ft)

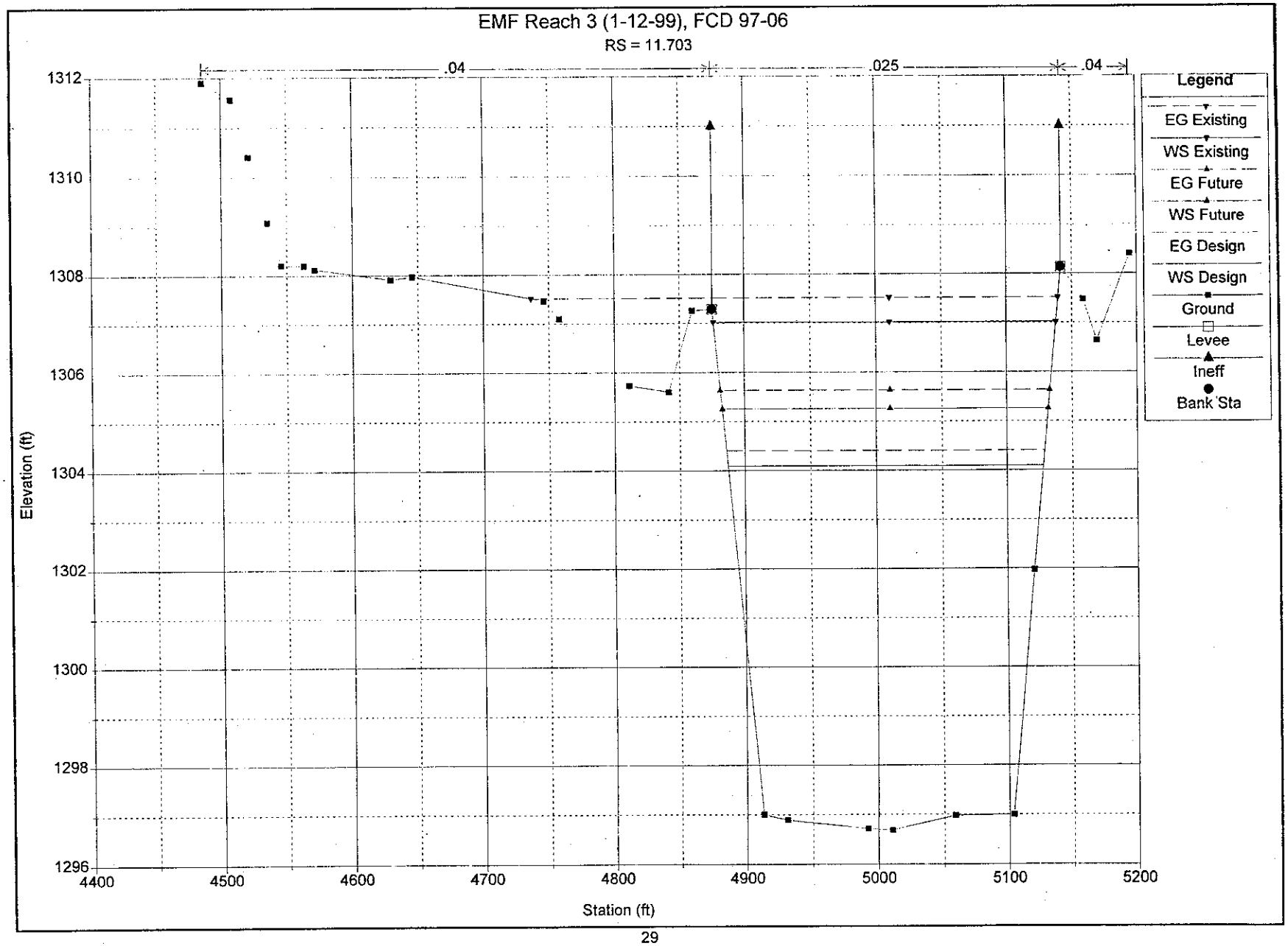

EMF Reach 3 (1-12-99), FCD 97-06
RS = 12.177
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1312
1310
1308
1306
1304
1302
1300
1298
1296
4200
4400
4600
4800
5000
5200
5400
Station (ft)

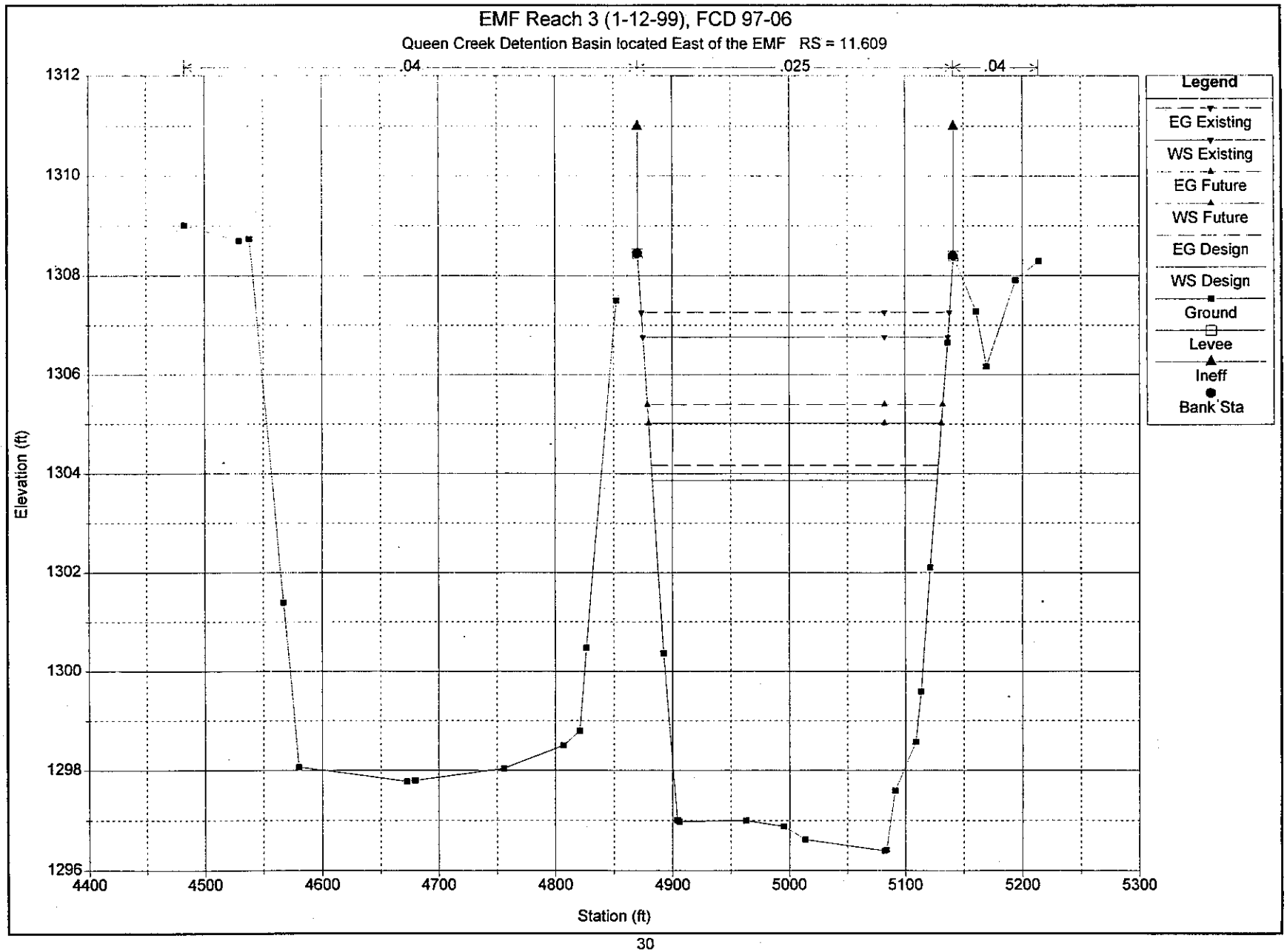

EMF Reach 3 (1-12-99), FCD 97-06
RS = 12.082
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1312
1310
1308
1306
1304
1302
1300
1298
1296
4200
4400
4600
4800
5000
5200
5400
Station (ft)

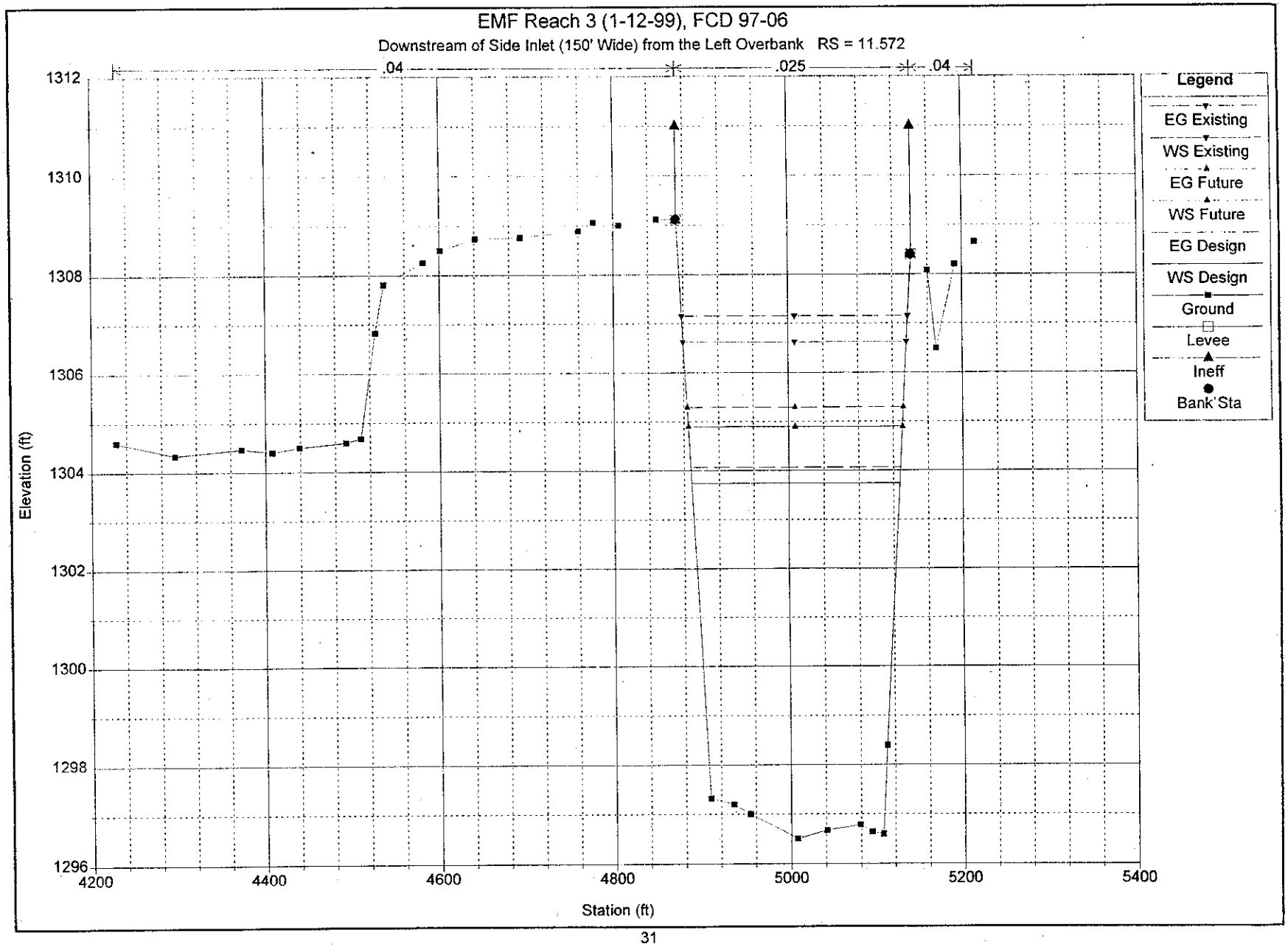

EMF Reach 3 (1-12-99), FCD 97-06
RS = 11.988
.04
.025
.04
Elevation (ft)
1312
1310
1308
1306
1304
1302
1300
1298
1296
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

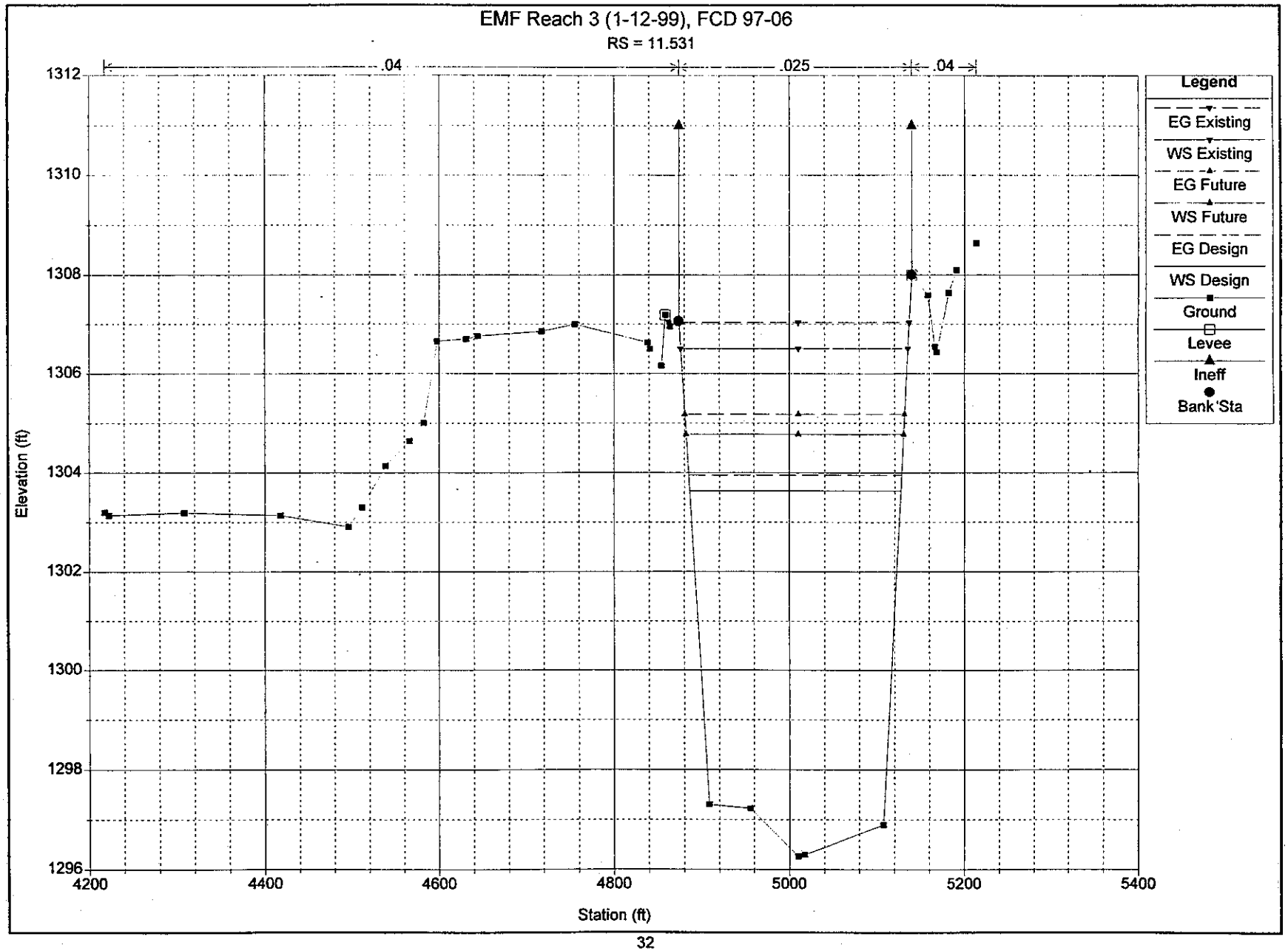

EMF Reach 3 (1-12-99), FCD 97-06
RS = 11.893
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1312
1310
1308
1306
1304
1302
1300
1298
1296
4200
4400
4600
4800
5000
5200
5400
Station (ft)

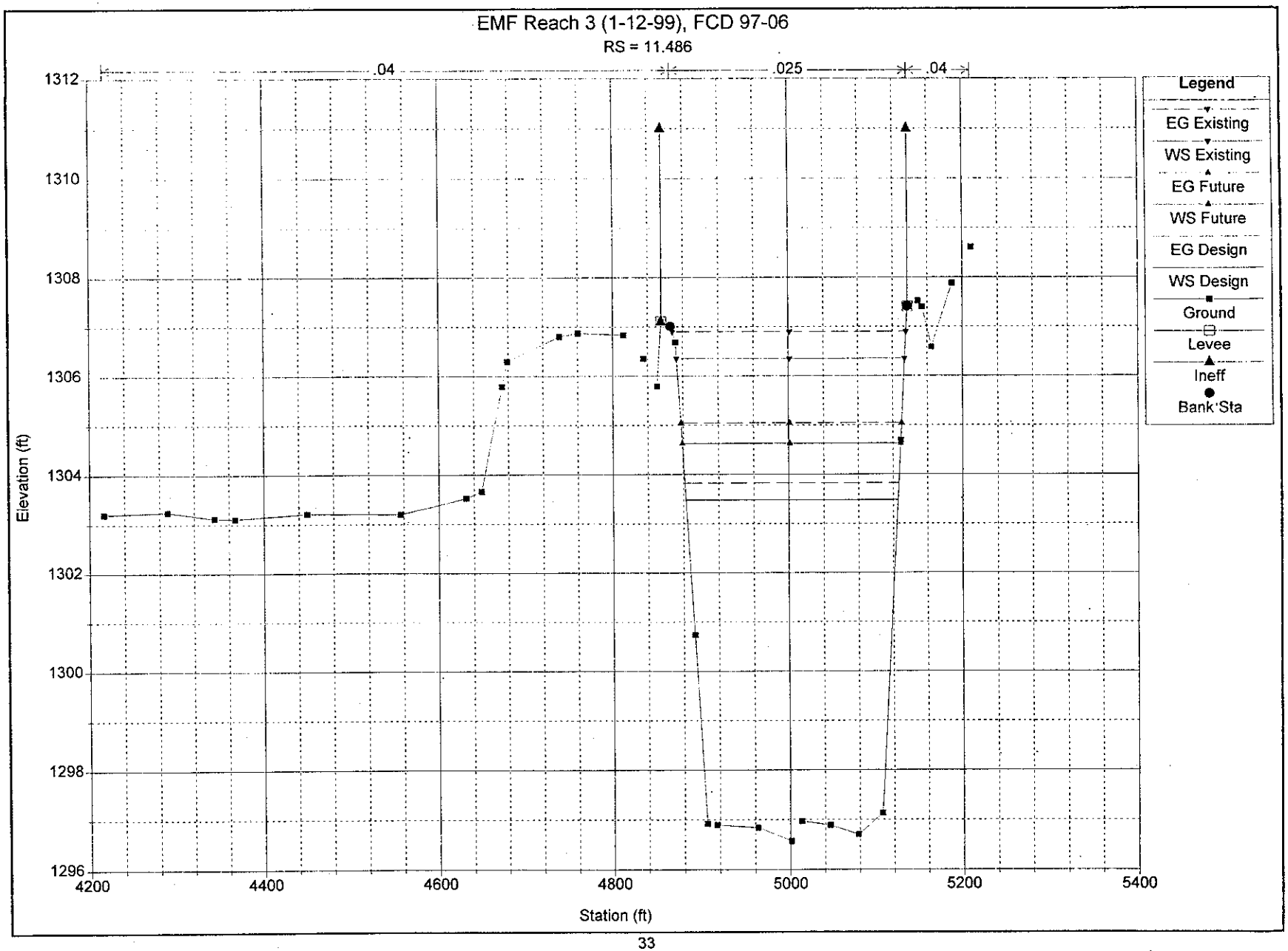

EMF Reach 3 (1-12-99), FCD 97-06
RS = 11.798
.04
.025
.04
Elevation (ft)
1314
1312
1310
1308
1306
1304
1302
1300
1298
1296
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

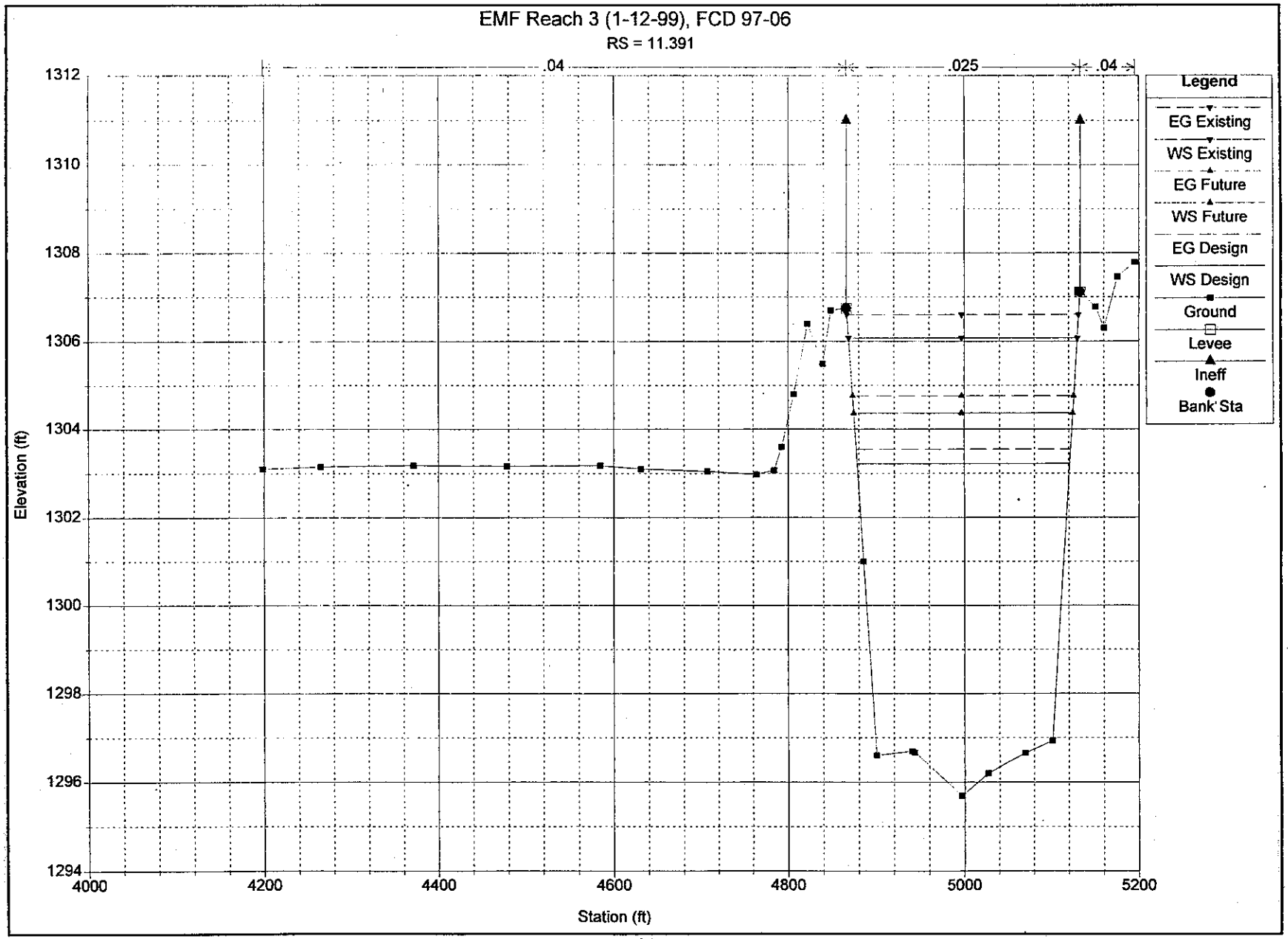

EMF Reach 3 (1-12-99), FCD 97-06
RS = 11.703
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1312
1310
1308
1306
1304
1302
1300
1298
1296
4400
4500
4600
4700
4800
4900
5000
5100
5200
Station (ft)

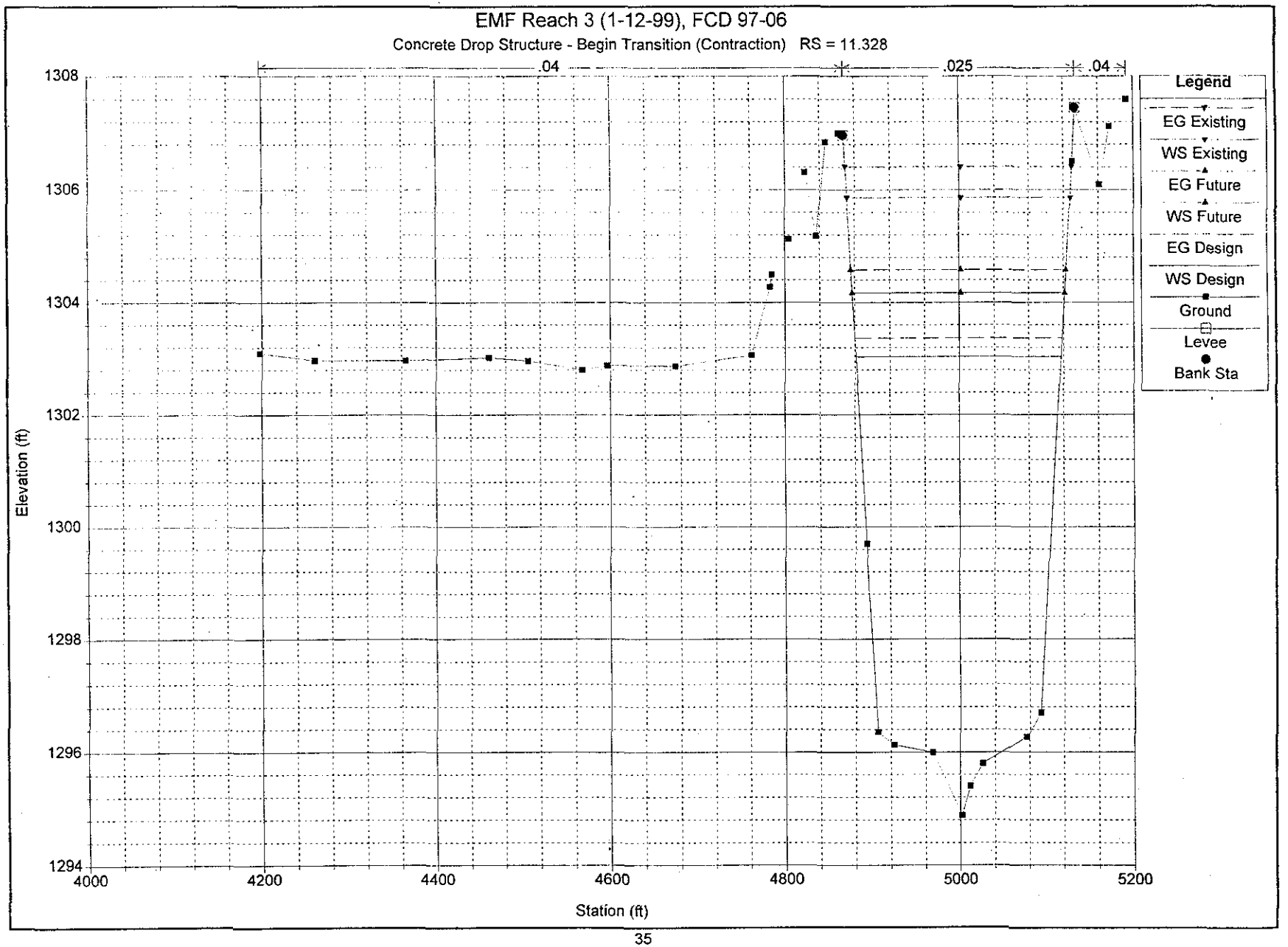

EMF Reach 3 (1-12-99), FCD 97-06
Queen Creek Detention Basin located East of the EMF RS = 11.609
.04
.025
.04
Elevation (ft)
1312
1310
1308
1306
1304
1302
1300
1298
1296
4400
4500
4600
4700
4800
4900
5000
5100
5200
5300
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

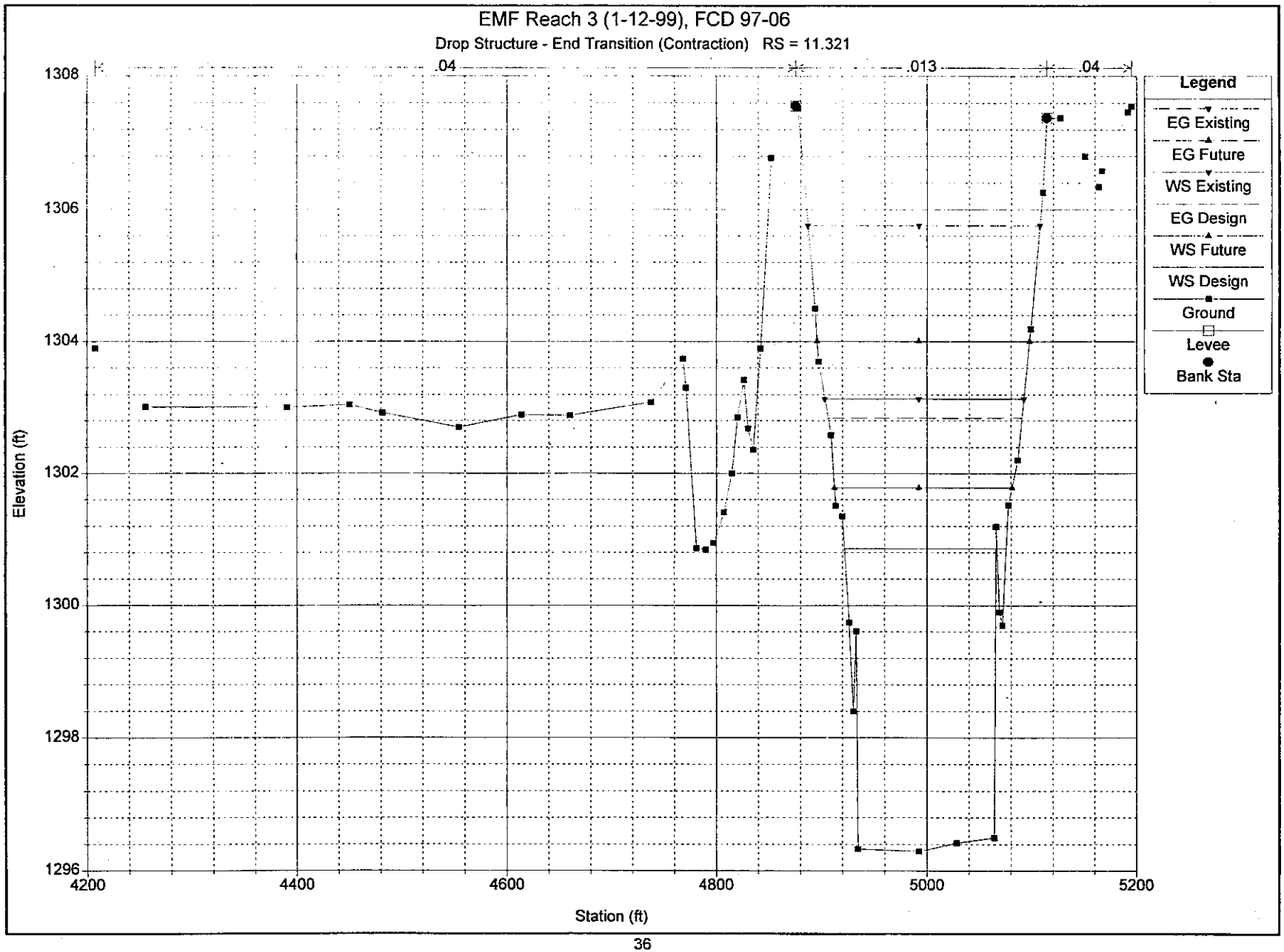

EMF Reach 3 (1-12-99), FCD 97-06
Downstream of Side Inlet (150' Wide) from the Left Overbank RS = 11.572
.04
.025
.04
Elevation (ft)
1312
1310
1308
1306
1304
1302
1300
1298
1296
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

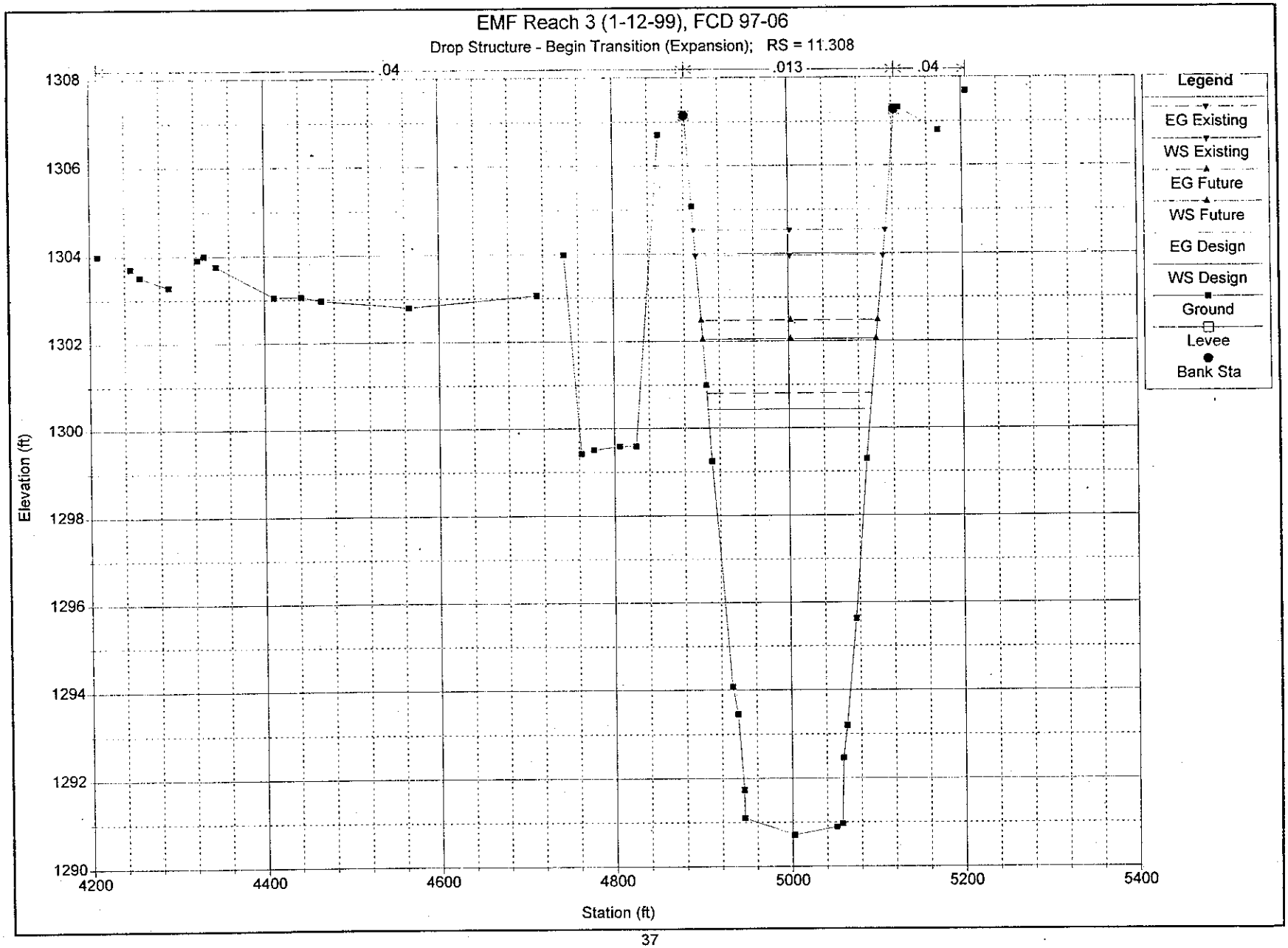

EMF Reach 3 (1-12-99), FCD 97-06
RS = 11.531
.04
.025
.04
Elevation (ft)
1312
1310
1308
1306
1304
1302
1300
1298
1296
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

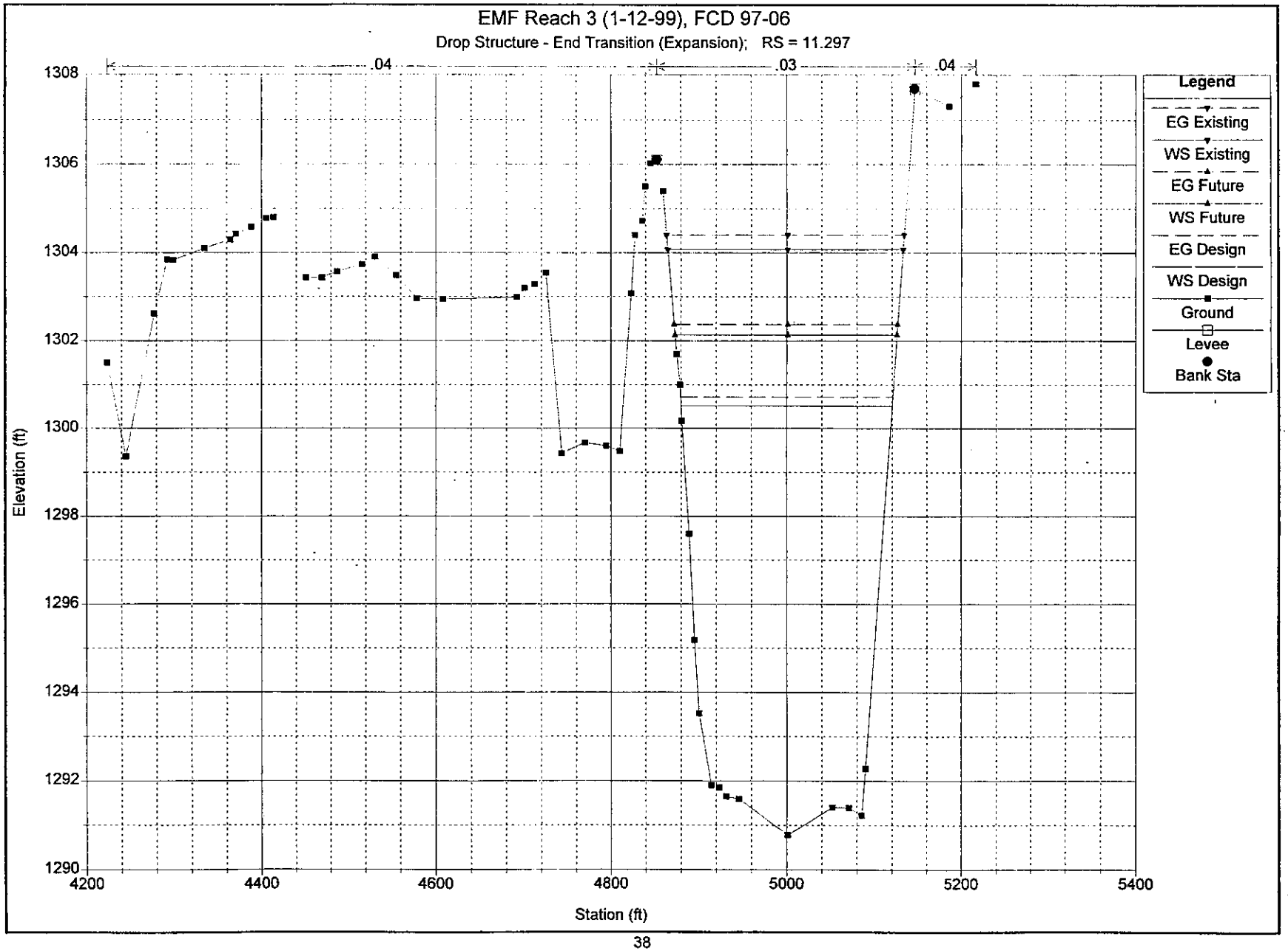

EMF Reach 3 (1-12-99), FCD 97-06
RS = 11.486
.04
.025
.04
Elevation (ft)
1312
1310
1308
1306
1304
1302
1300
1298
1296
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

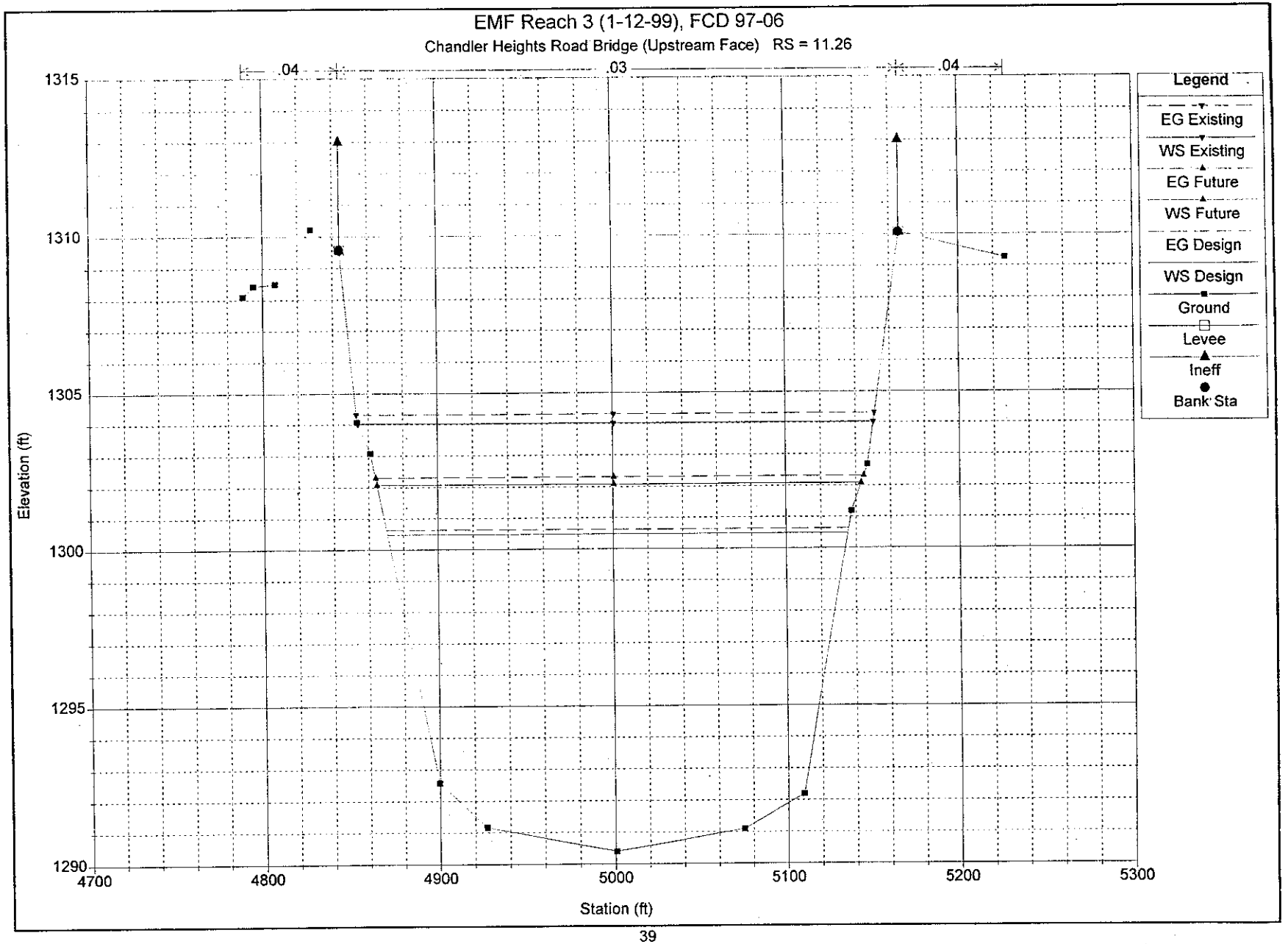

EMF Reach 3 (1-12-99), FCD 97-06
RS = 11.391
.04
.025
.04
Elevation (ft)
1312
1310
1308
1306
1304
1302
1300
1298
1296
1294
4000
4200
4400
4600
4800
5000
5200
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

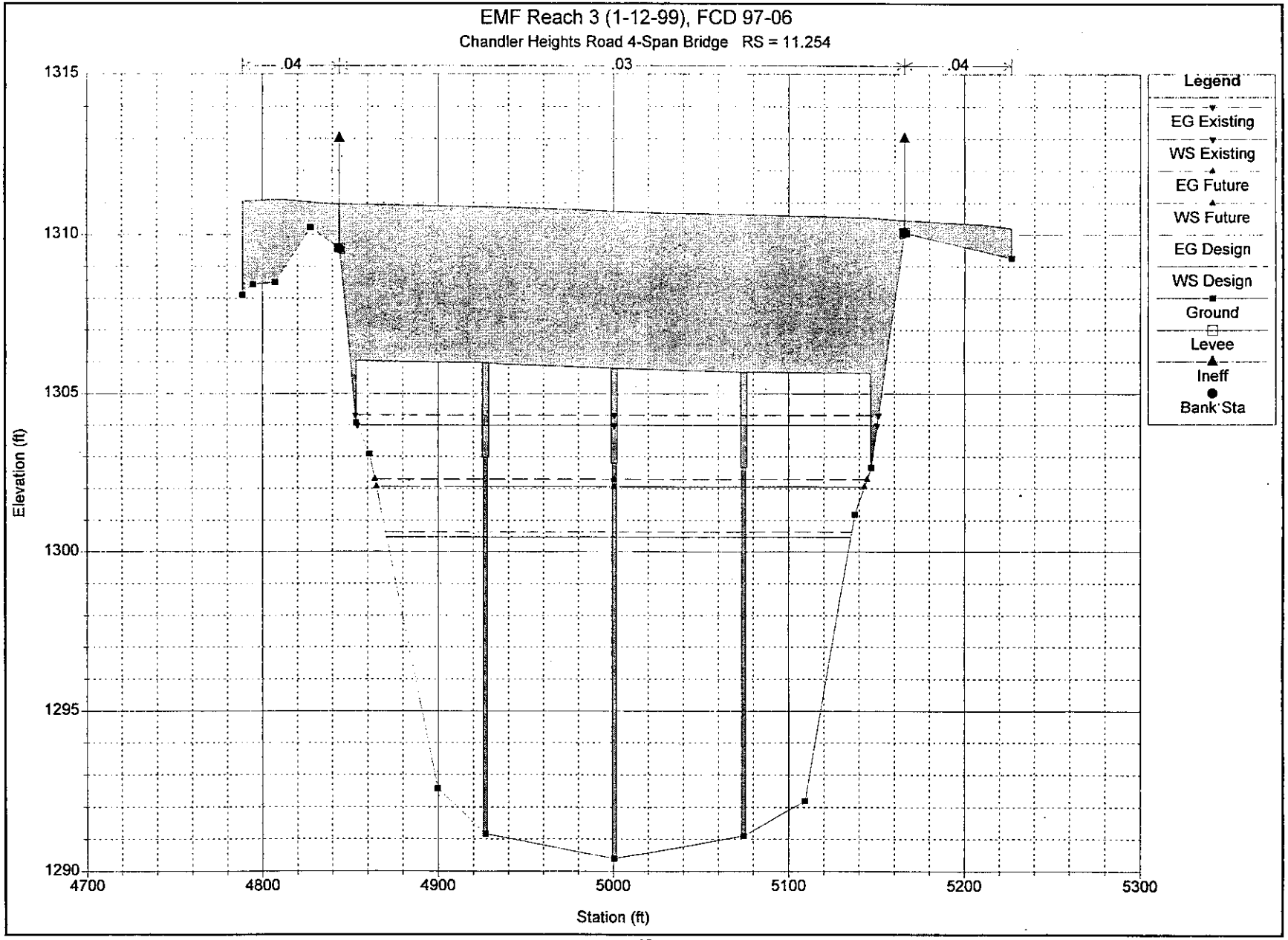

EMF Reach 3 (1-12-99), FCD 97-06
Concrete Drop Structure - Begin Transition (Contraction) RS = 11.328
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1308
1306
1304
1302
1300
1298
1296
1294
4000
4200
4400
4600
4800
5000
5200
Station (ft)

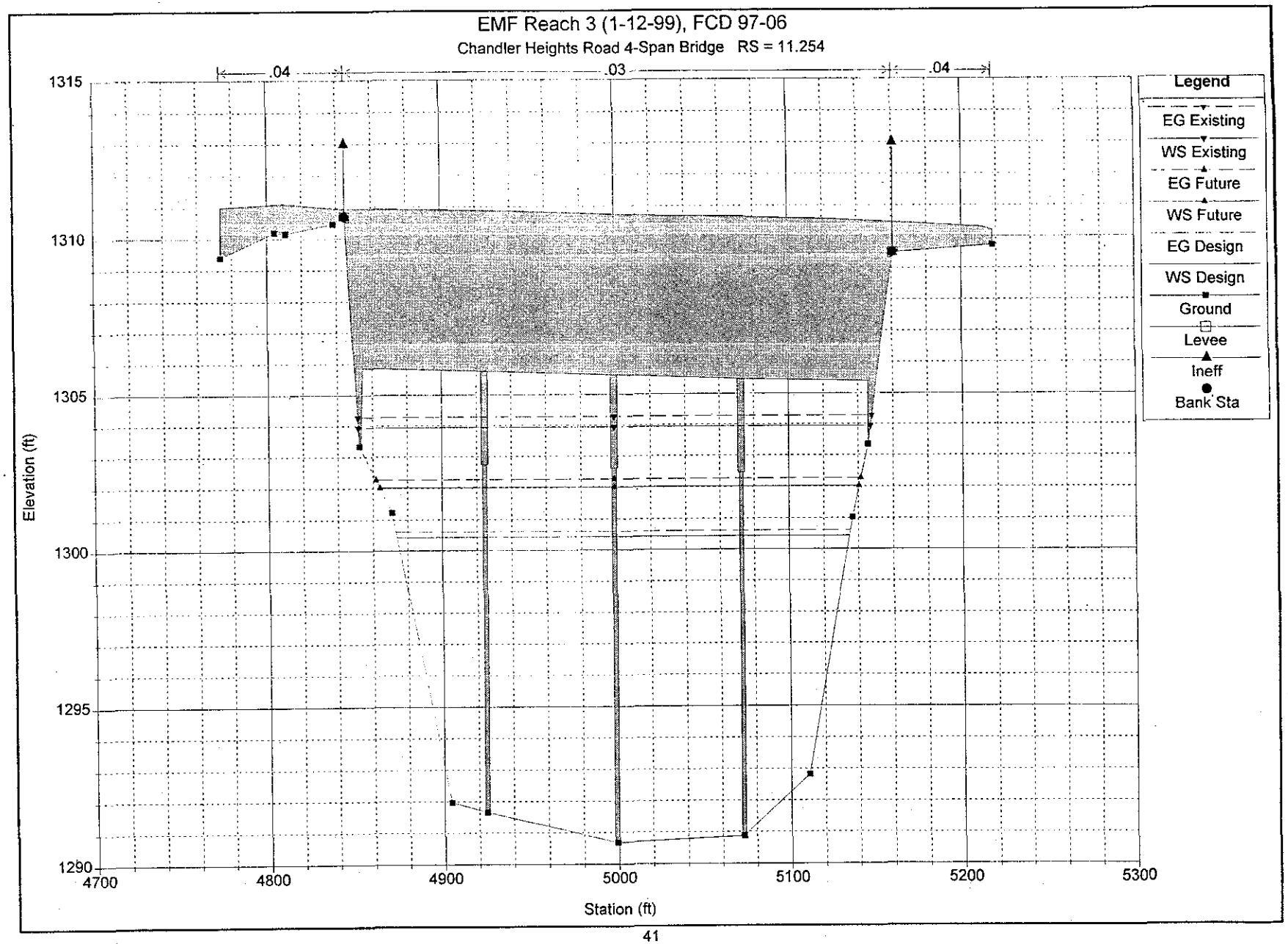

EMF Reach 3 (1-12-99), FCD 97-06
Drop Structure - End Transition (Contraction) RS = 11.321
.04
.013
.04
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1308
1306
1304
1302
1300
1298
1296
4200
4400
4600
4800
5000
5200
Station (ft)

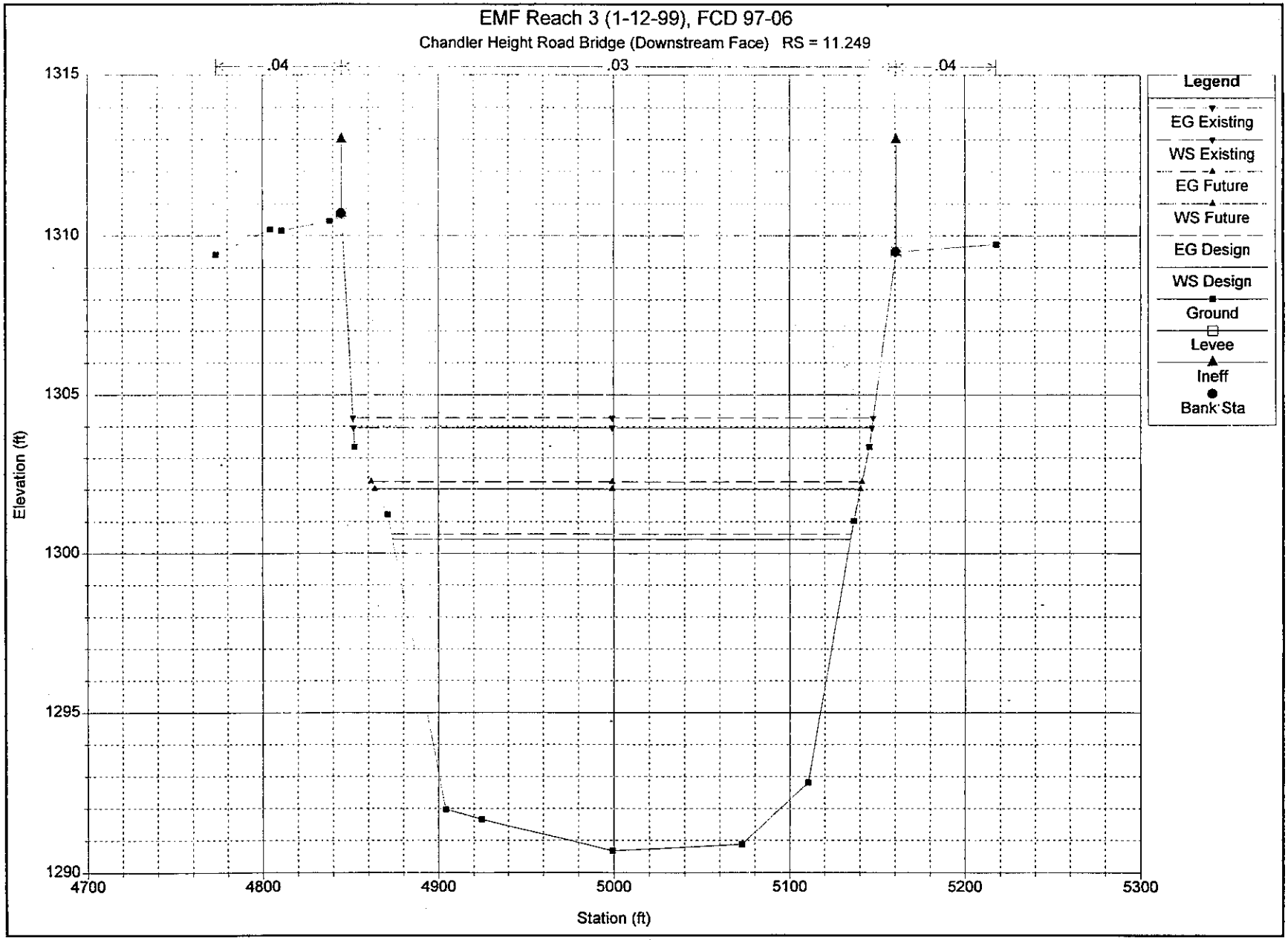

EMF Reach 3 (1-12-99), FCD 97-06
Drop Structure - Begin Transition (Expansion); RS = 11.308
.04
.013
.04
Elevation (ft)
1308
1306
1304
1302
1300
1298
1296
1294
1292
1290
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta

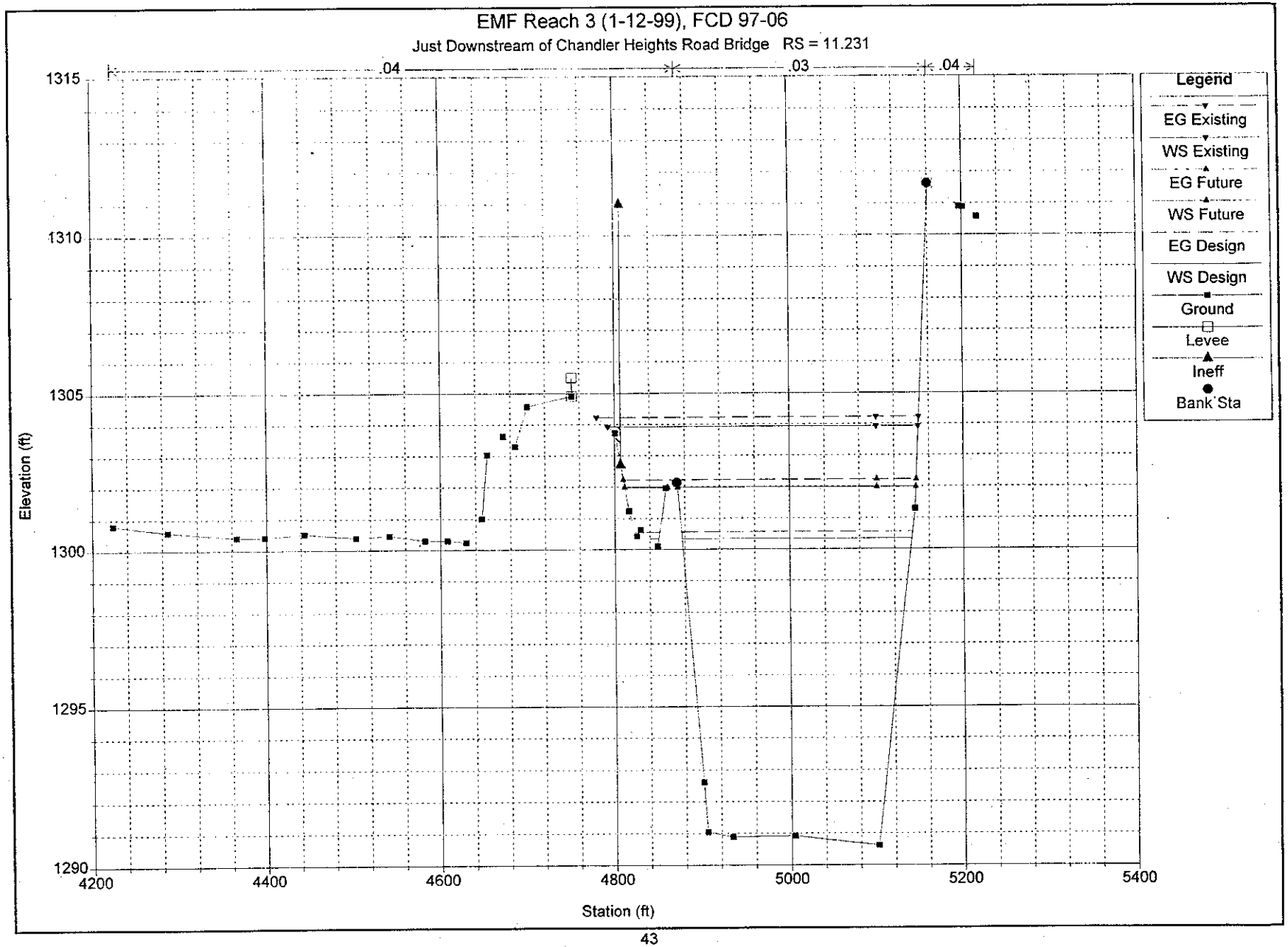

EMF Reach 3 (1-12-99), FCD 97-06
Drop Structure - End Transition (Expansion); RS = 11.297
.04
.03
.04
Elevation (ft)
1308
1306
1304
1302
1300
1298
1296
1294
1292
1290
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta

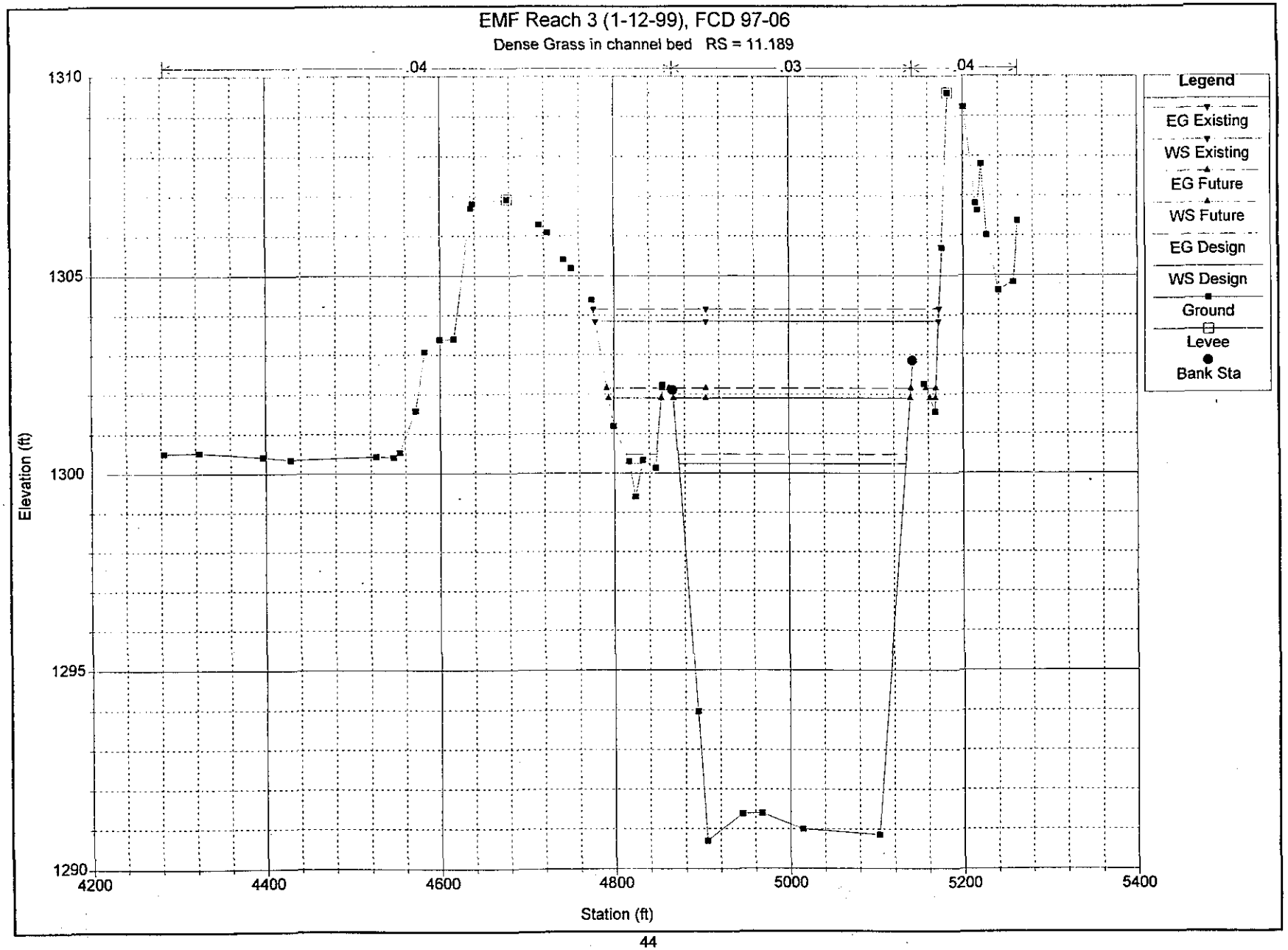

EMF Reach 3 (1-12-99), FCD 97-06
Chandler Heights Road Bridge (Upstream Face) RS = 11.26
.04
.03
.04
1315
1310
1305
1300
1295
1290
Elevation (ft)
4700
4800
4900
5000
5100
5200
5300
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

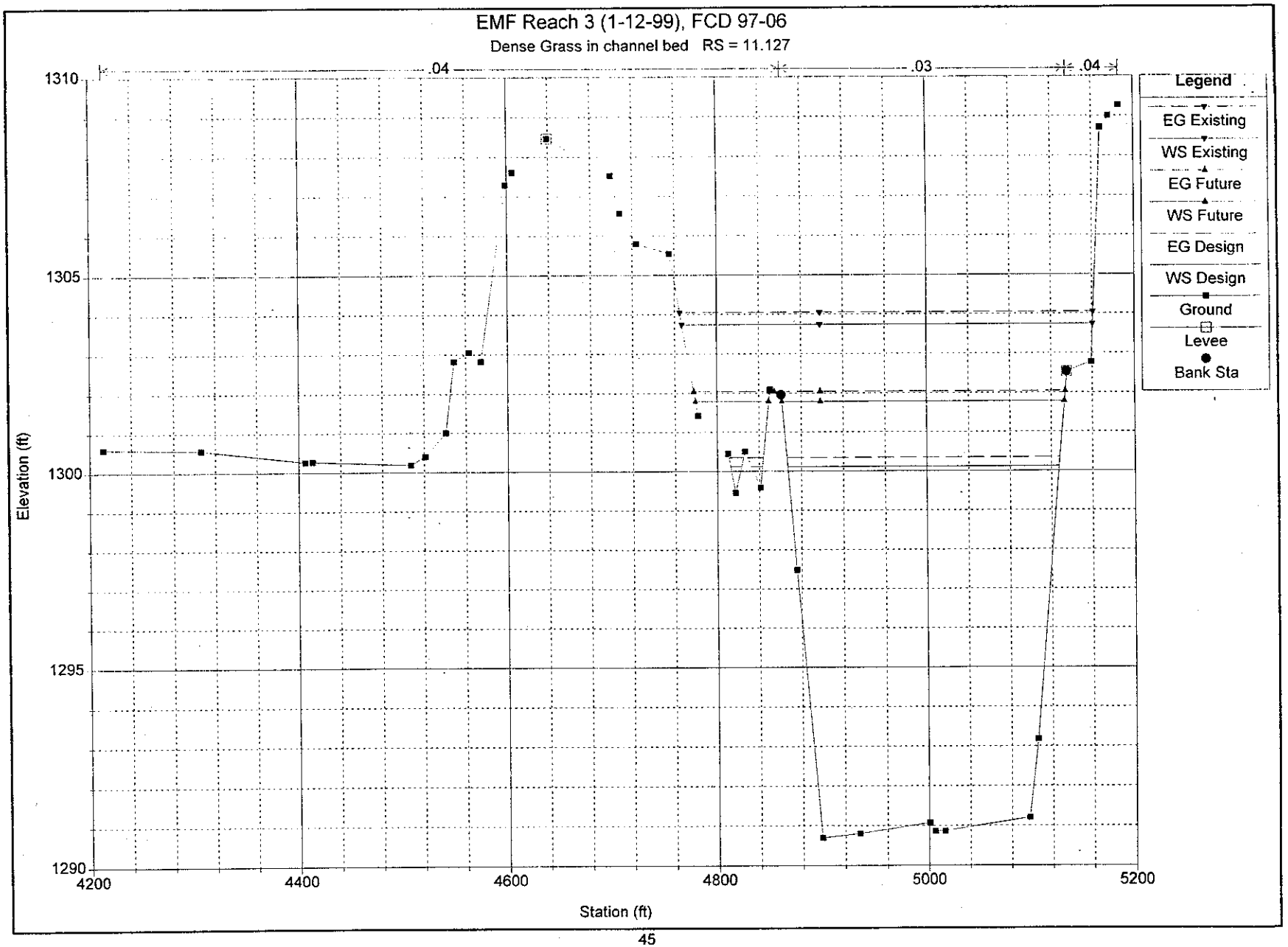

EMF Reach 3 (1-12-99), FCD 97-06
Chandler Heights Road 4-Span Bridge RS = 11.254
.04
.03
.04
1315
1310
1305
1300
1295
1290
Elevation (ft)
4700
4800
4900
5000
5100
5200
5300
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

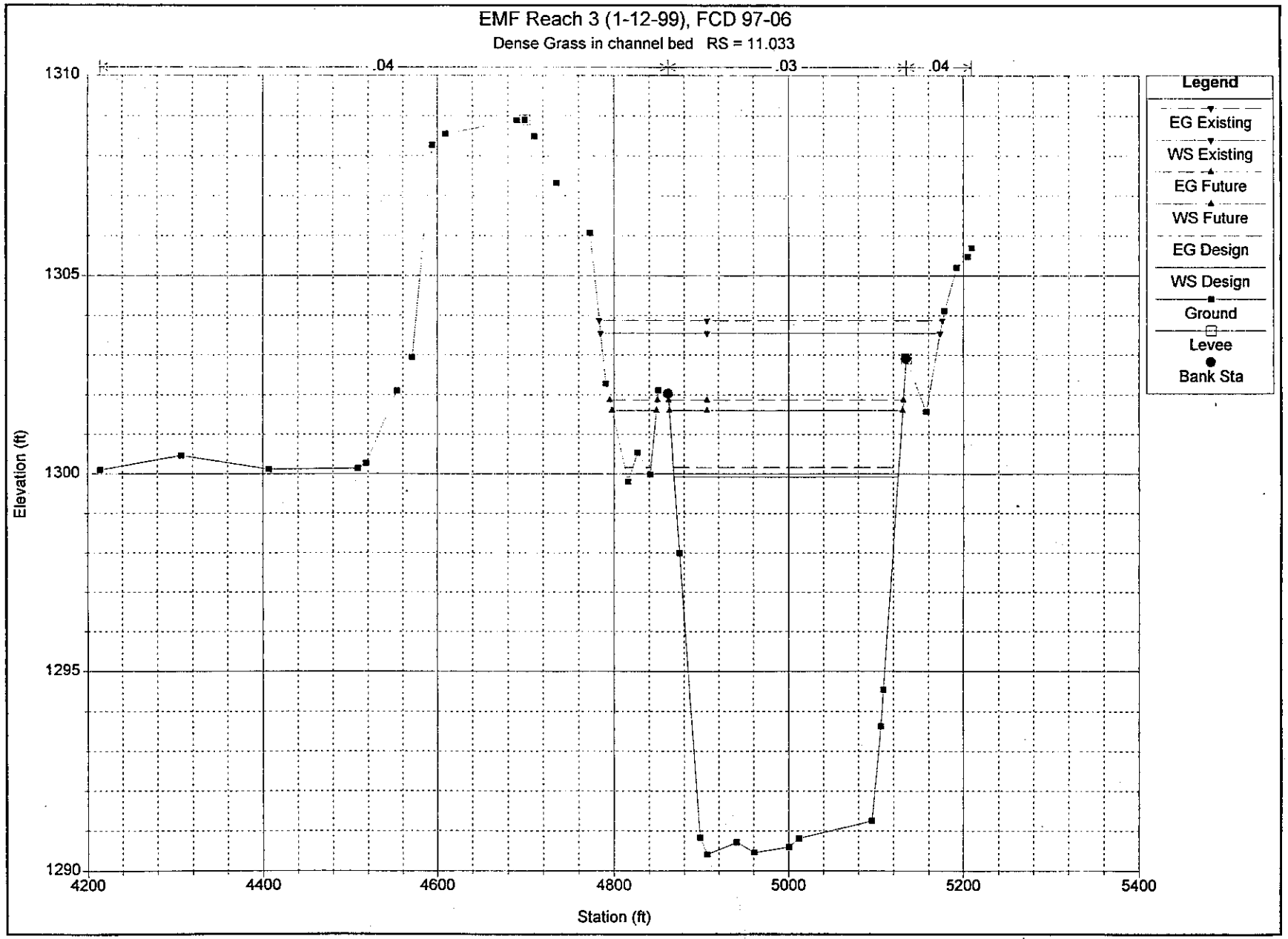

EMF Reach 3 (1-12-99), FCD 97-06
Chandler Heights Road 4-Span Bridge RS = 11.254
.04
.03
.04
1315
1310
1305
1300
1295
1290
Elevation (ft)
4700
4800
4900
5000
5100
5200
5300
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

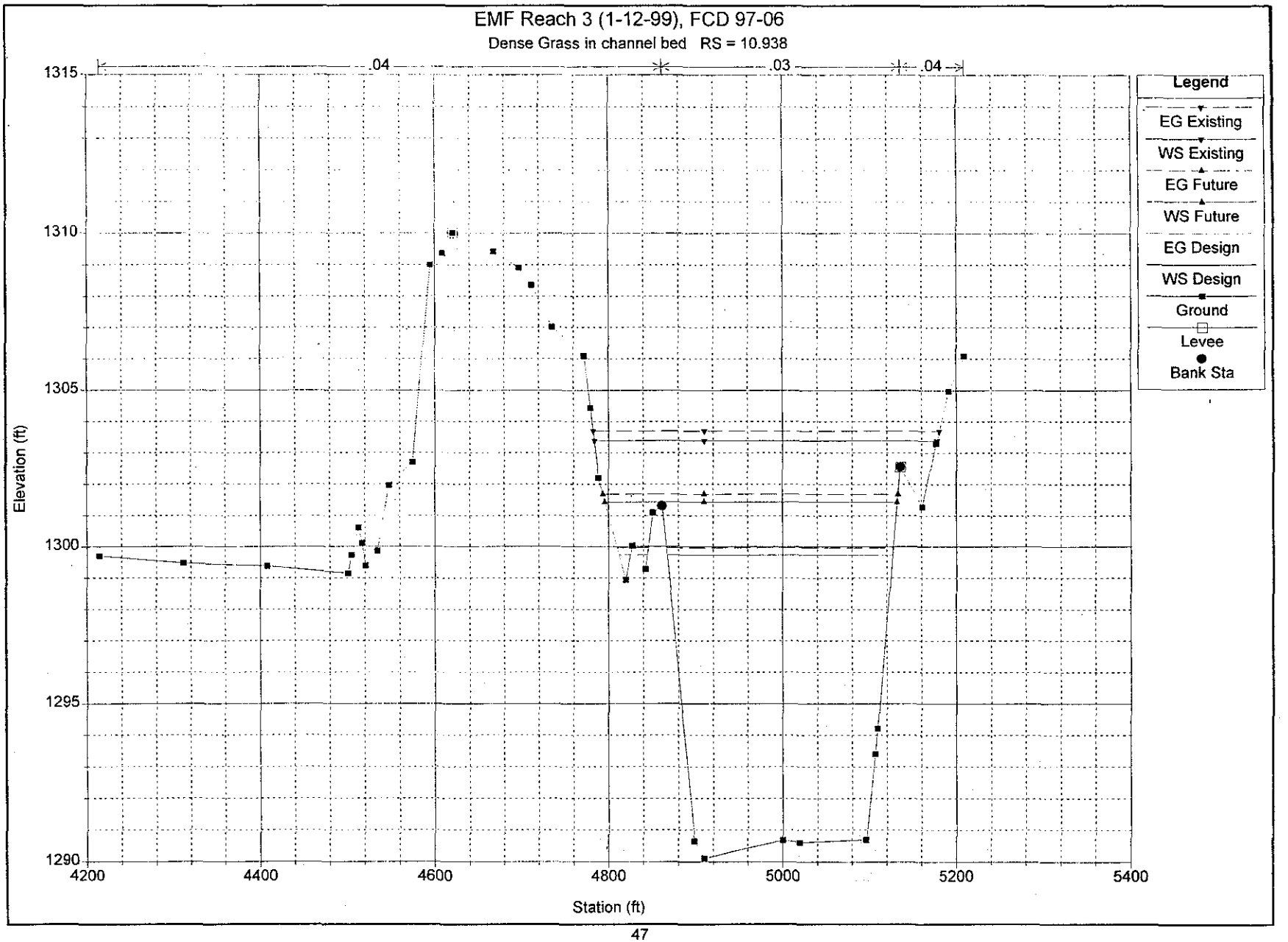

EMF Reach 3 (1-12-99), FCD 97-06
Chandler Height Road Bridge (Downstream Face) RS = 11.249
.04
.03
.04
1315
1310
1305
1300
1295
1290
Elevation (ft)
4700
4800
4900
5000
5100
5200
5300
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

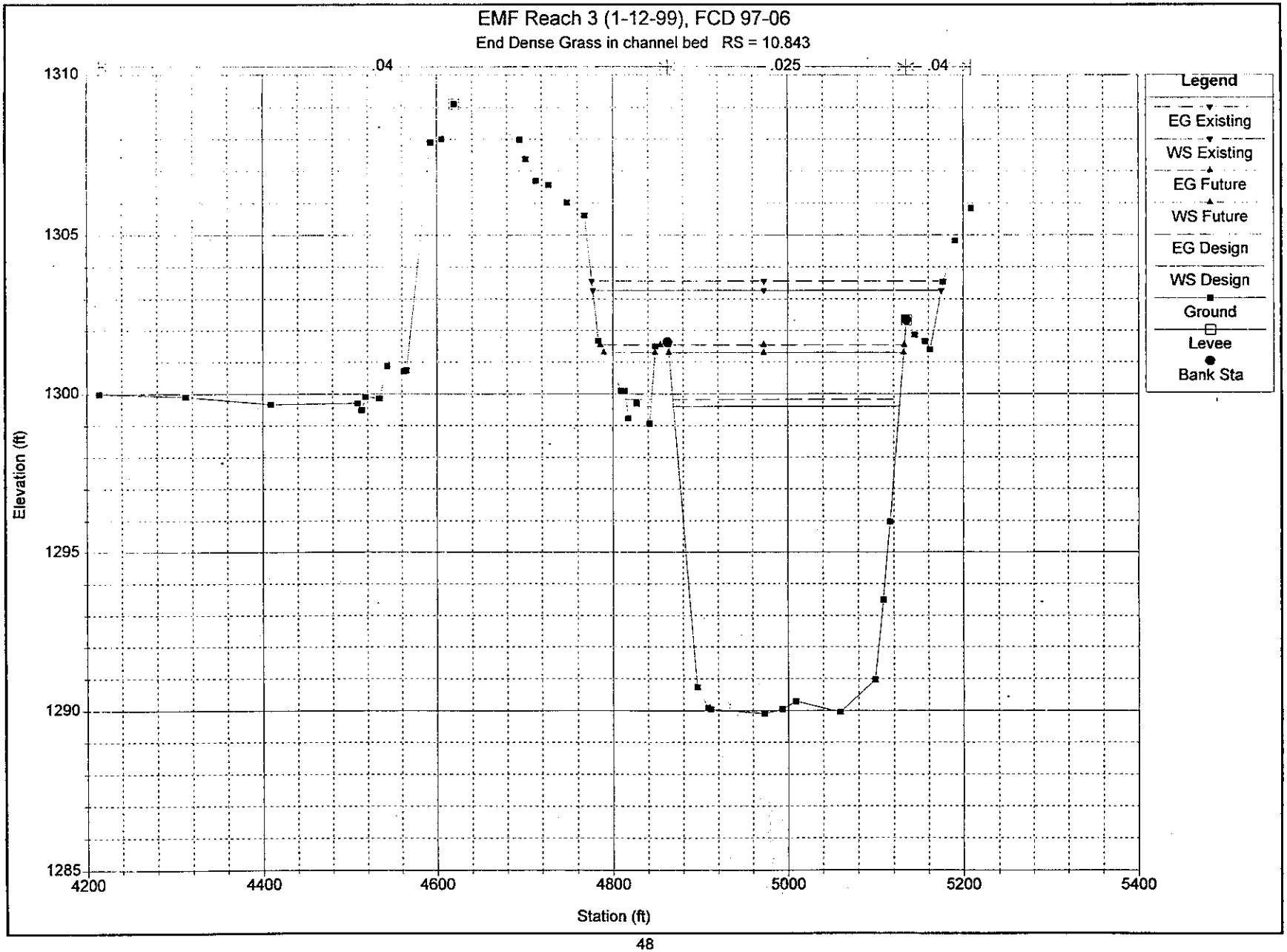

EMF Reach 3 (1-12-99), FCD 97-06
Just Downstream of Chandler Heights Road Bridge RS = 11.231
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1315
1310
1305
1300
1295
1290
4200
4400
4600
4800
5000
5200
5400
Station (ft)

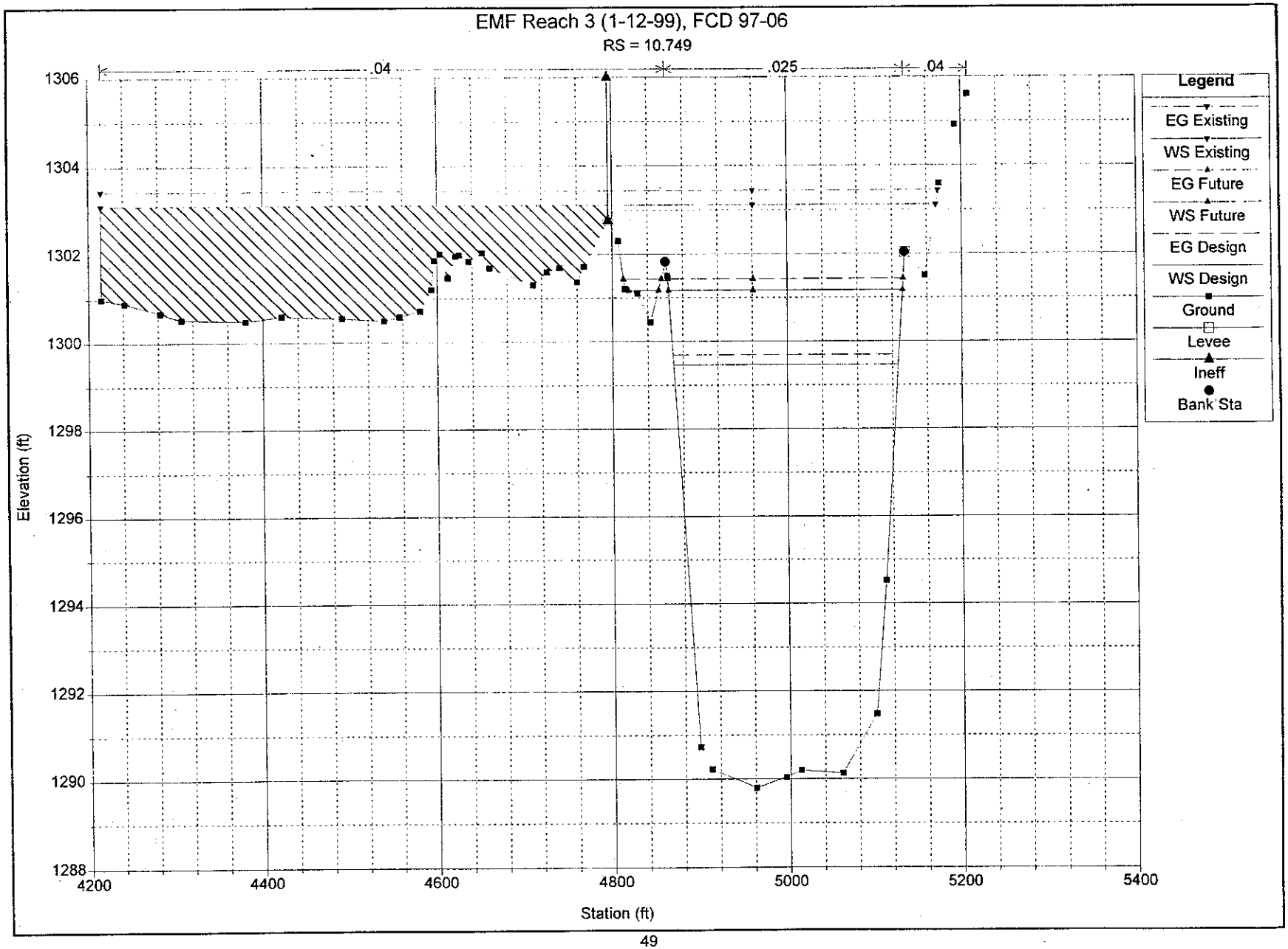

EMF Reach 3 (1-12-99), FCD 97-06
Dense Grass in channel bed RS = 11.189
.04
.03
.04
1310
1305
1300
1295
1290
Elevation (ft)
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta

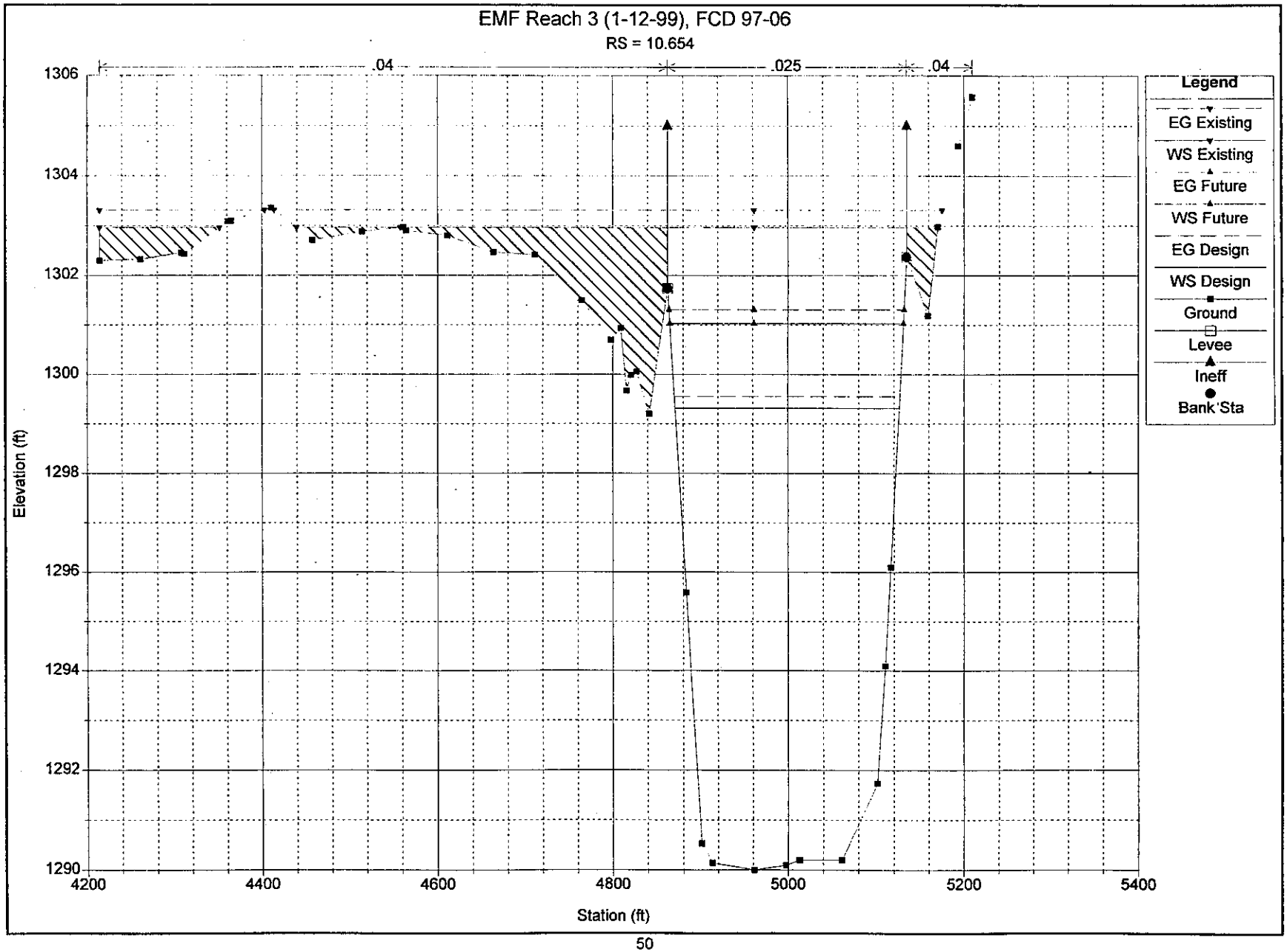

EMF Reach 3 (1-12-99), FCD 97-06
Dense Grass in channel bed RS = 11.127
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1310
1305
1300
1295
1290
4200
4400
4600
4800
5000
5200
Station (ft)

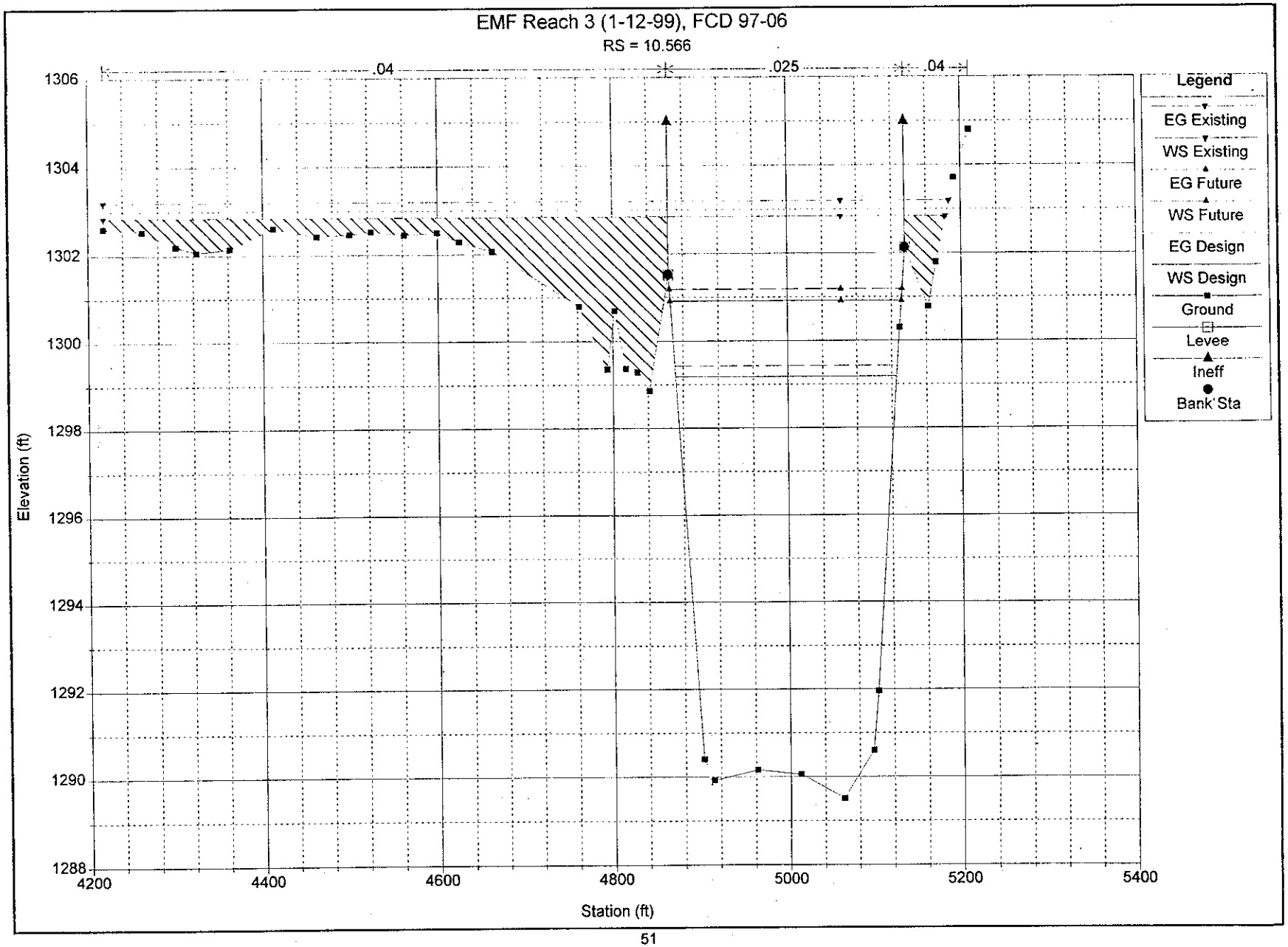

EMF Reach 3 (1-12-99), FCD 97-06
Dense Grass in channel bed RS = 11.033
.04
.03
.04
1310
1305
1300
1295
1290
Elevation (ft)
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta

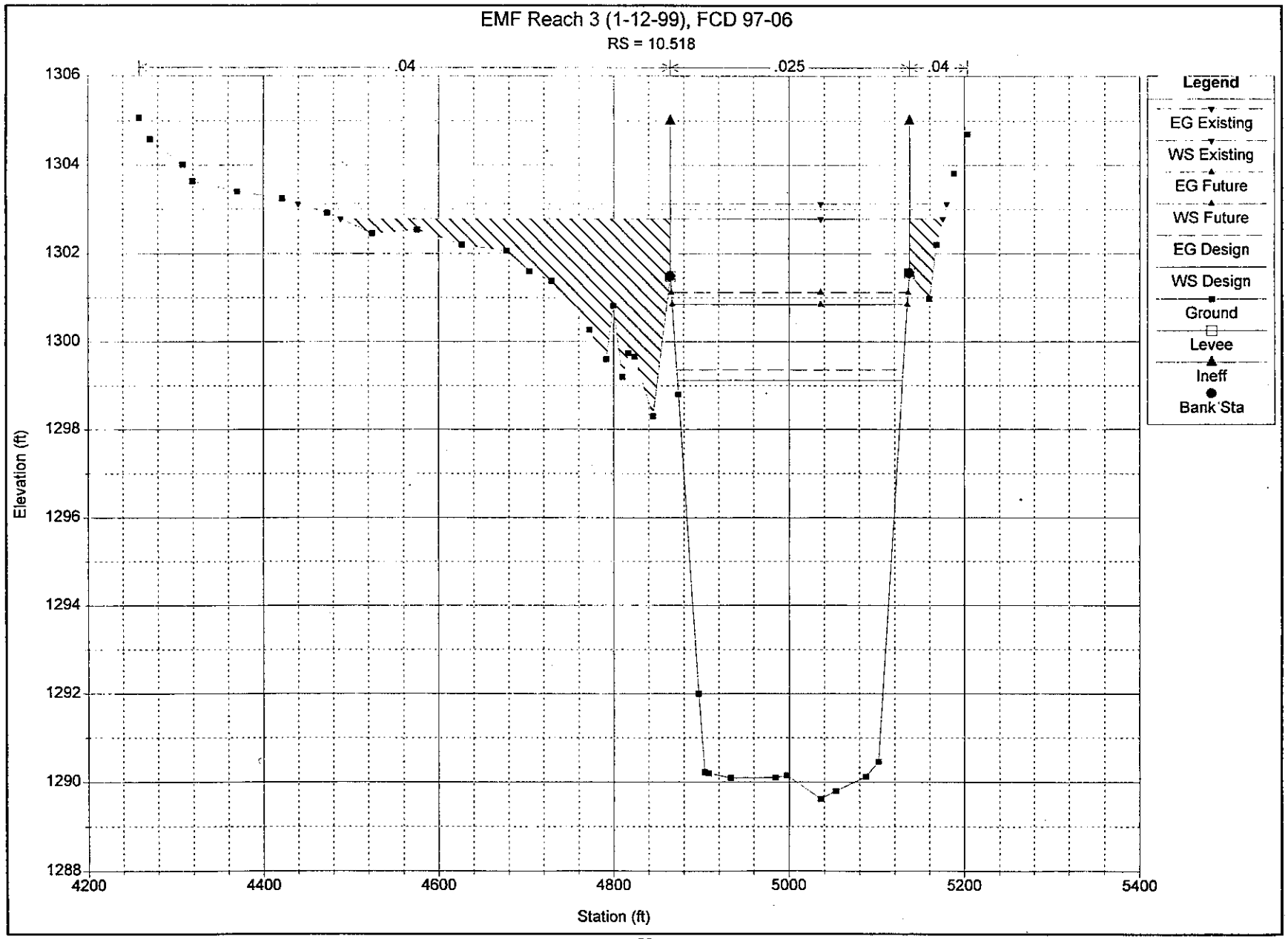

EMF Reach 3 (1-12-99), FCD 97-06
Dense Grass in channel bed RS = 10.938
.04
.03
.04
1315
1310
1305
1300
1295
1290
Elevation (ft)
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta

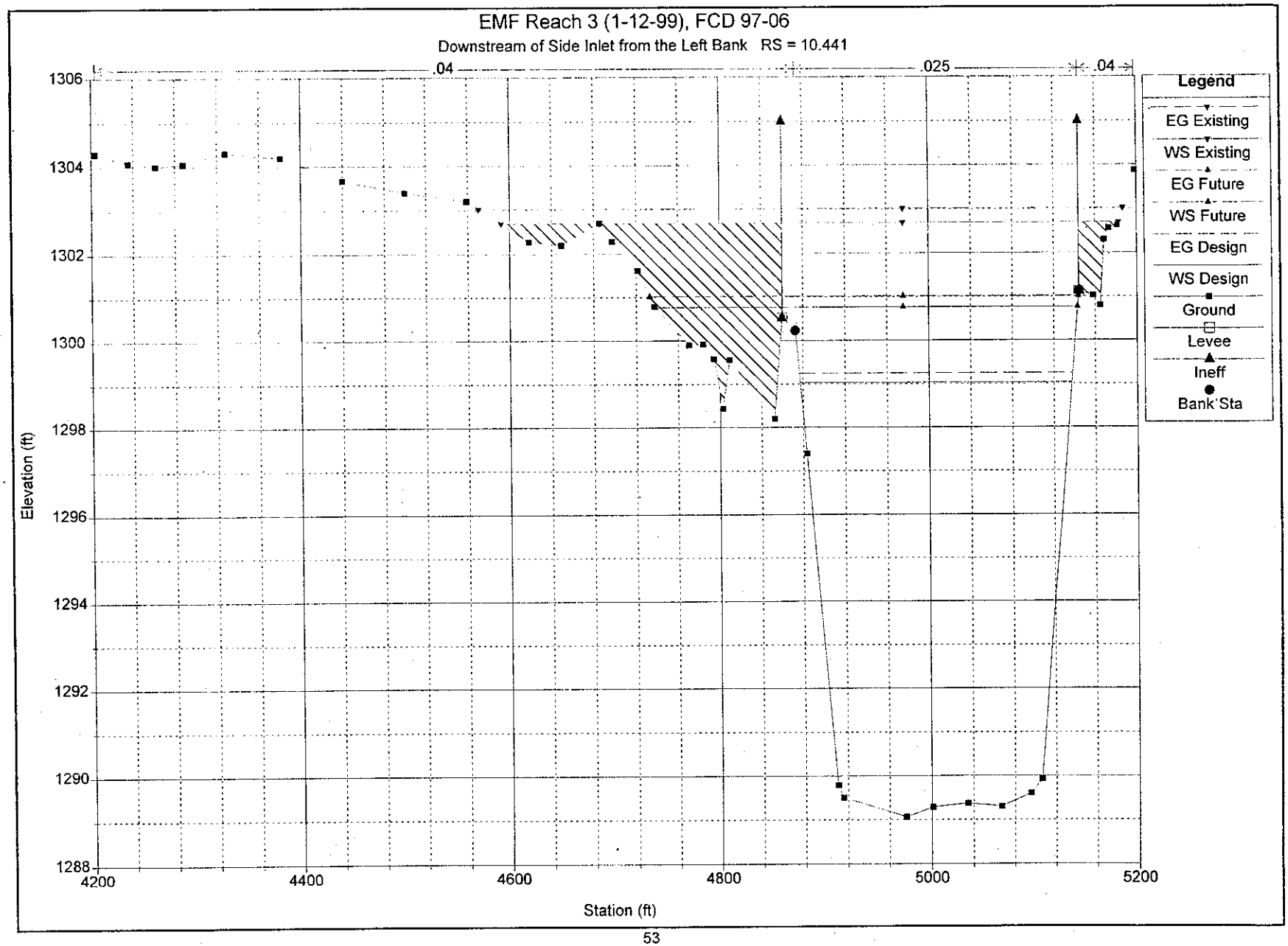

EMF Reach 3 (1-12-99), FCD 97-06
End Dense Grass in channel bed RS = 10.843
.04
.025
.04
Elevation (ft)
1310
1305
1300
1295
1290
1285
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta

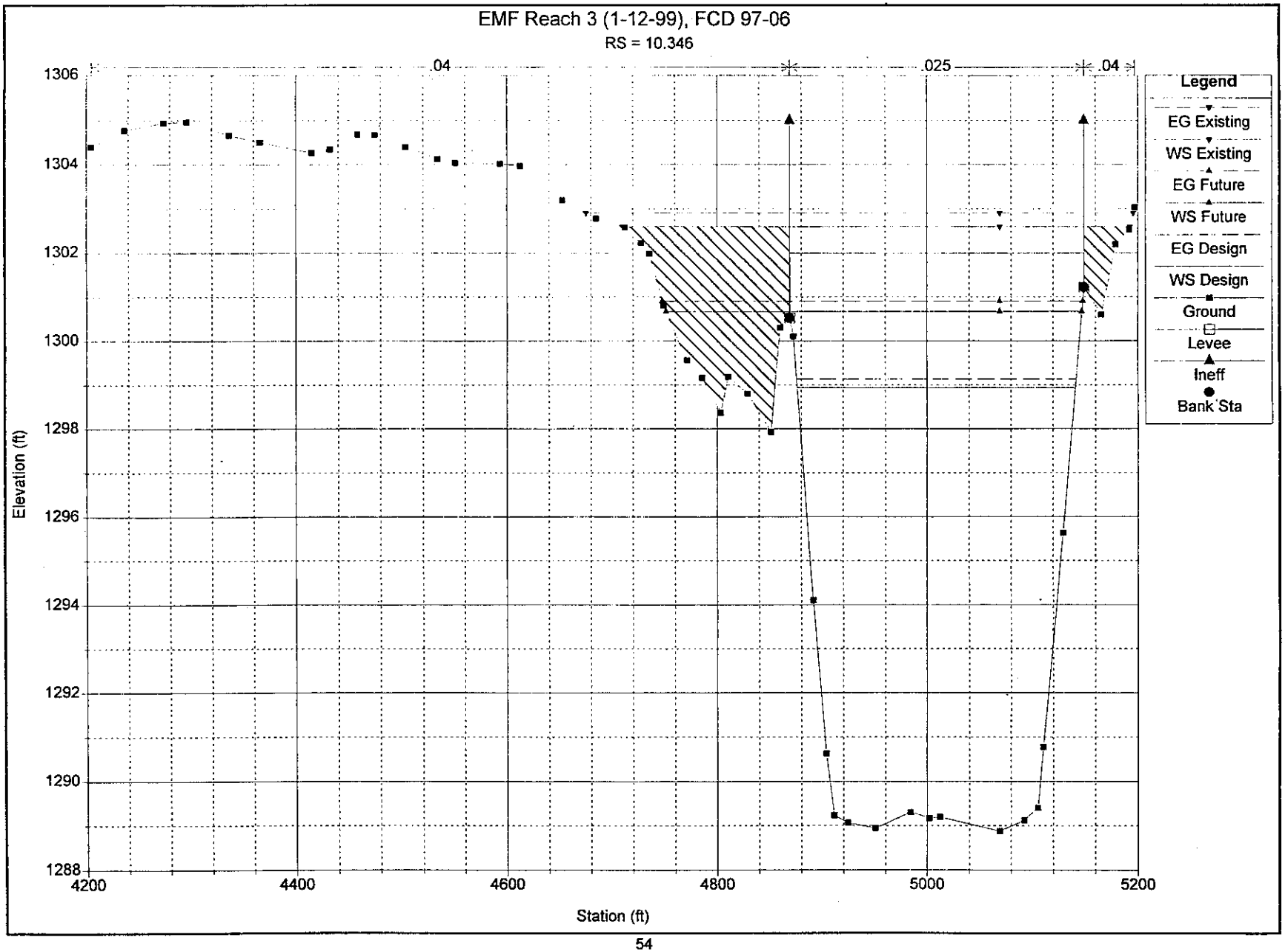

EMF Reach 3 (1-12-99), FCD 97-06
RS = 10.749
.04
.025
.04
Elevation (ft)
1306
1304
1302
1300
1298
1296
1294
1292
1290
1288
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

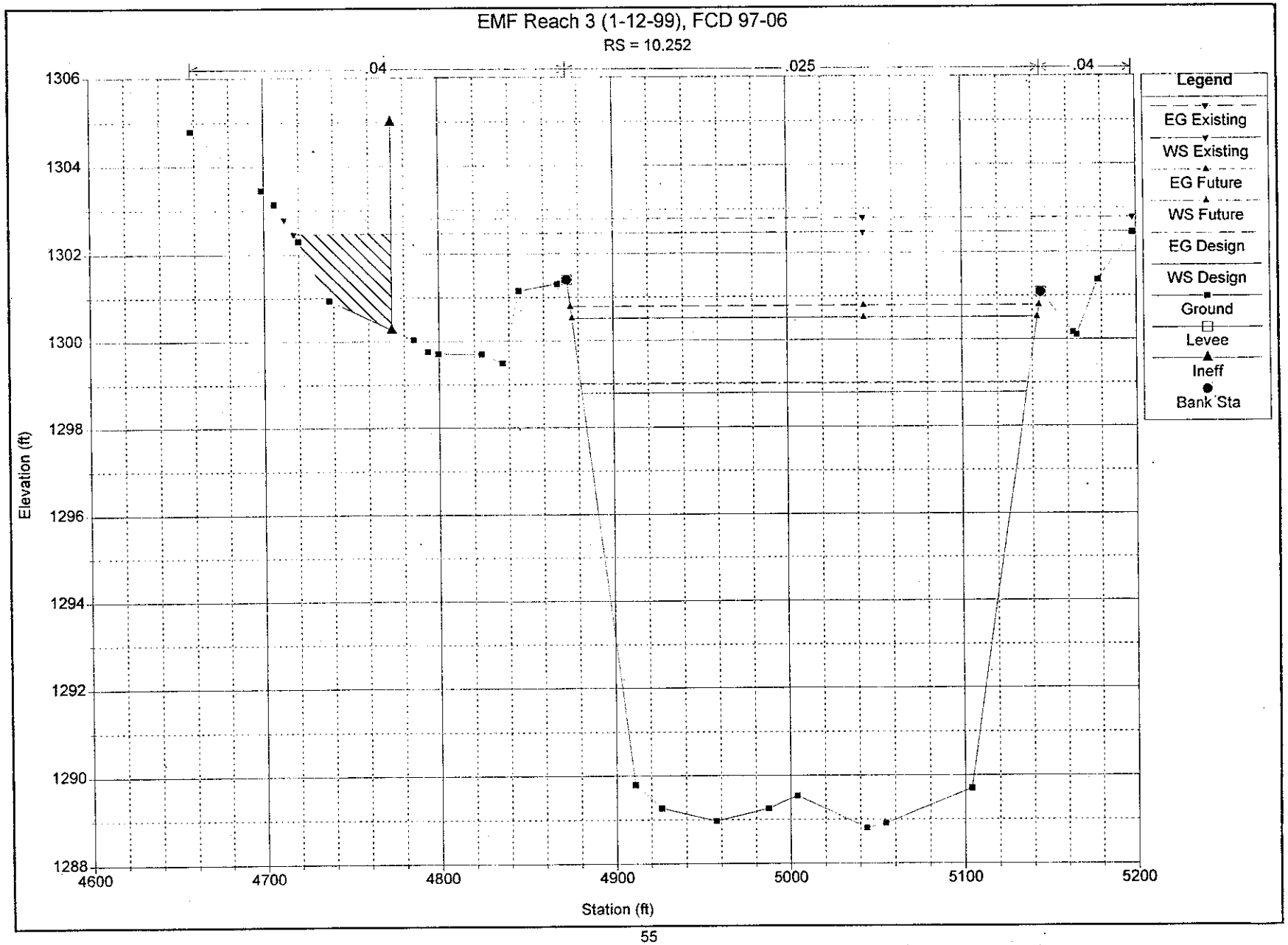

EMF Reach 3 (1-12-99), FCD 97-06
RS = 10.654
.04
.025
.04
1306
1304
1302
1300
1298
1296
1294
1292
1290
Elevation (ft)
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

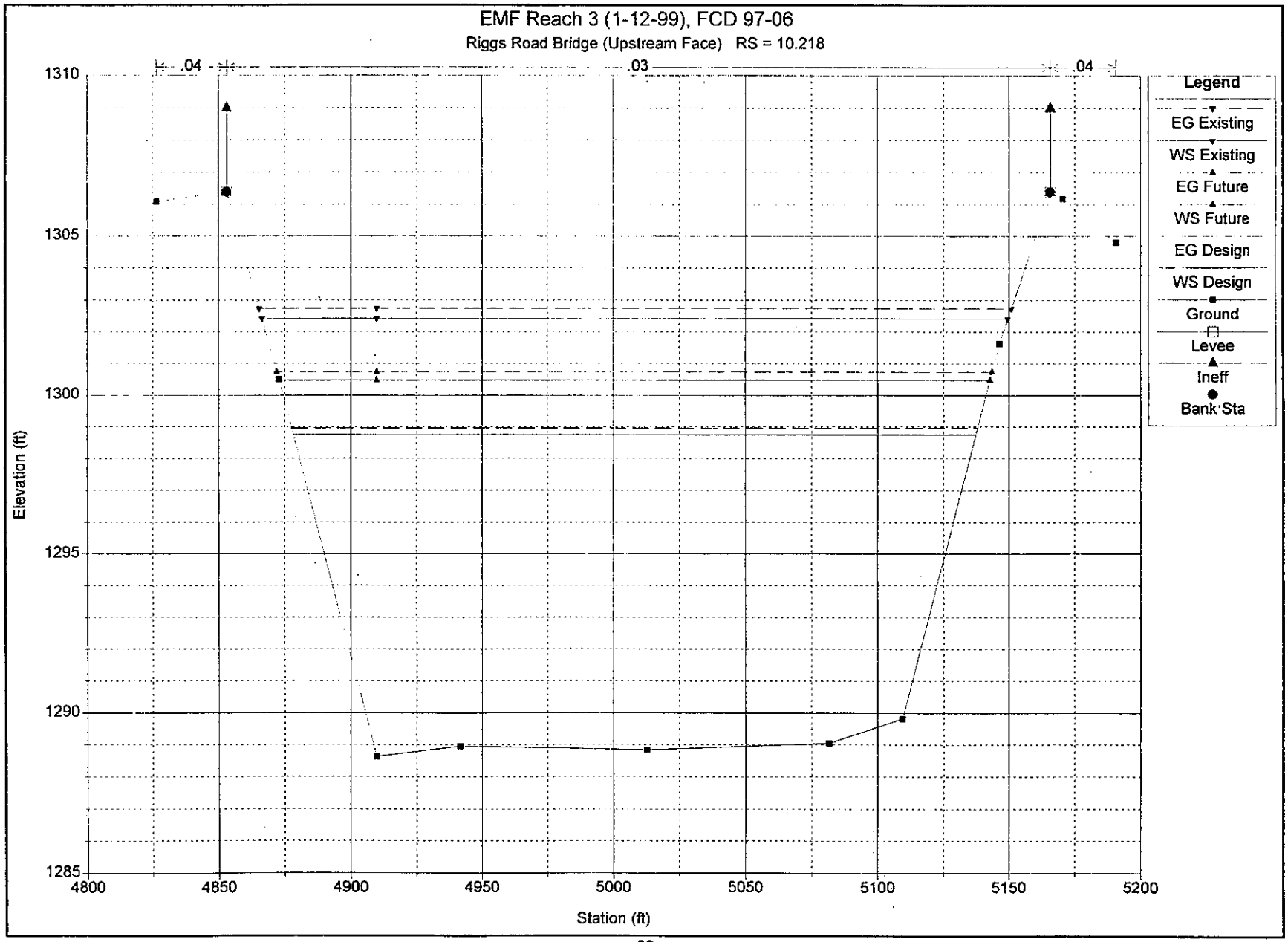

EMF Reach 3 (1-12-99), FCD 97-06
RS = 10.566
.04
.025
.04
Elevation (ft)
1306
1304
1302
1300
1298
1296
1294
1292
1290
1288
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

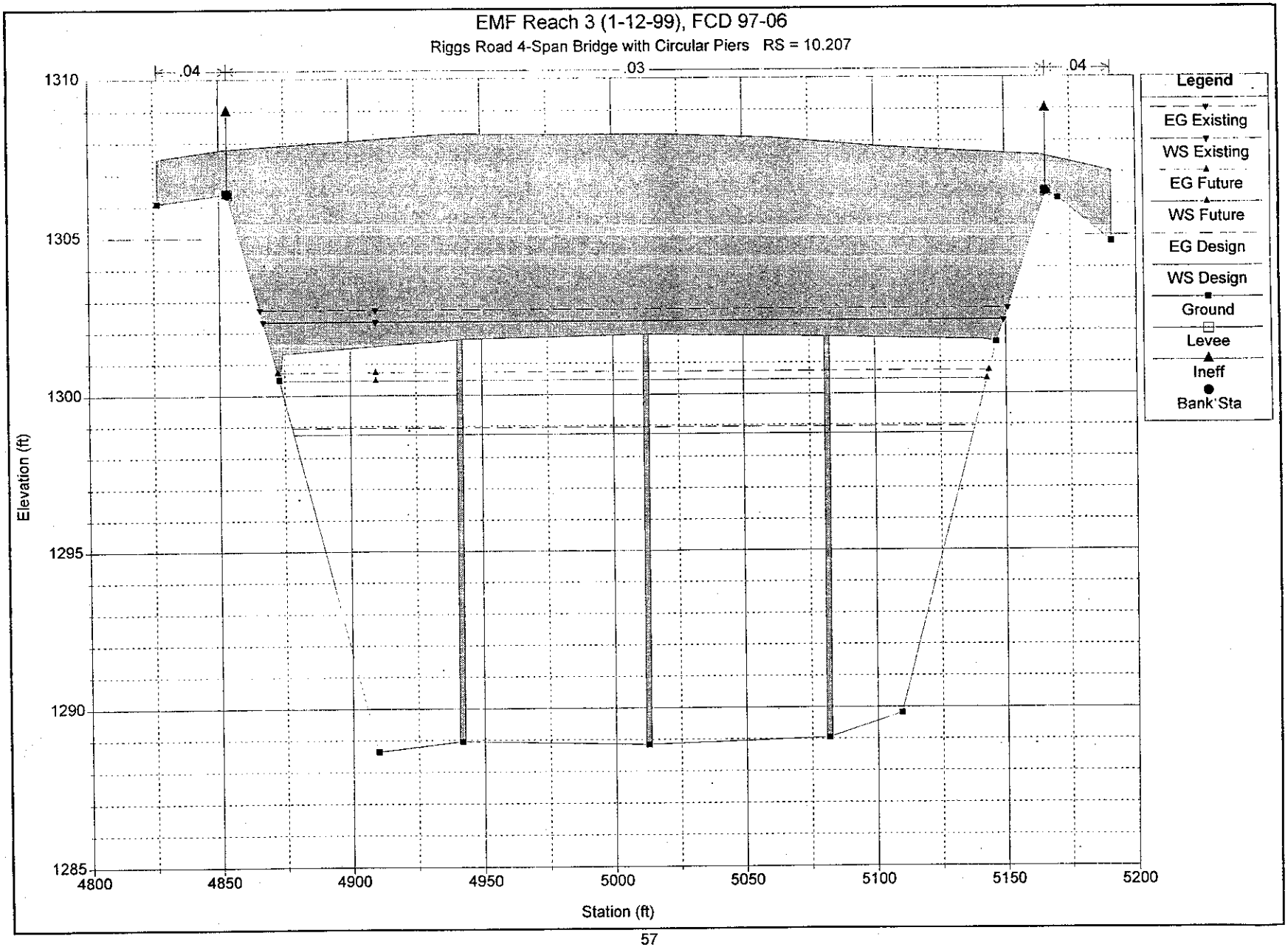

EMF Reach 3 (1-12-99), FCD 97-06
RS = 10.518
.04
.025
.04
Elevation (ft)
1306
1304
1302
1300
1298
1296
1294
1292
1290
1288
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

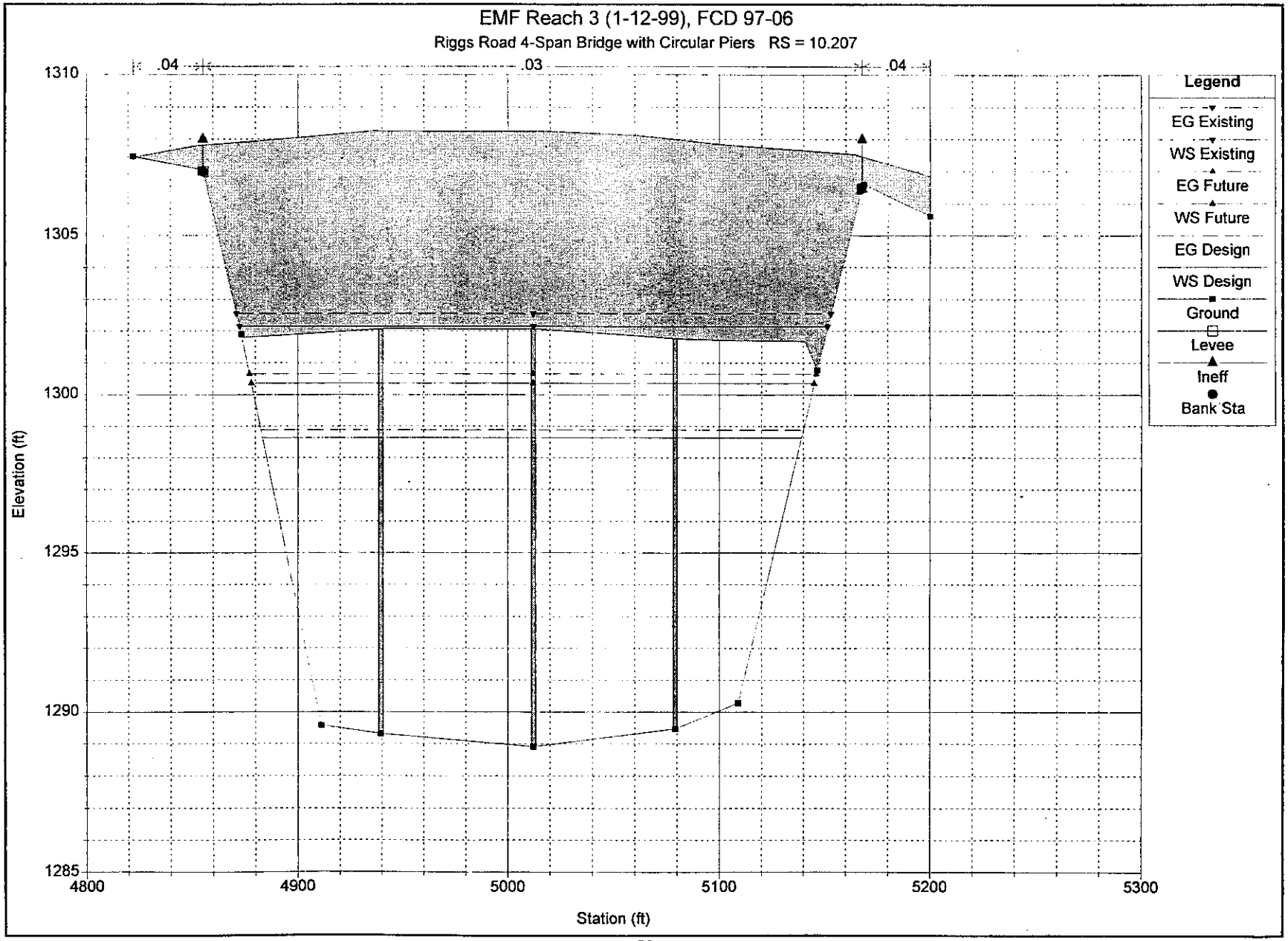

EMF Reach 3 (1-12-99), FCD 97-06
Downstream of Side Inlet from the Left Bank RS = 10.441
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1306
1304
1302
1300
1298
1296
1294
1292
1290
1288
4200
4400
4600
4800
5000
5200
Station (ft)

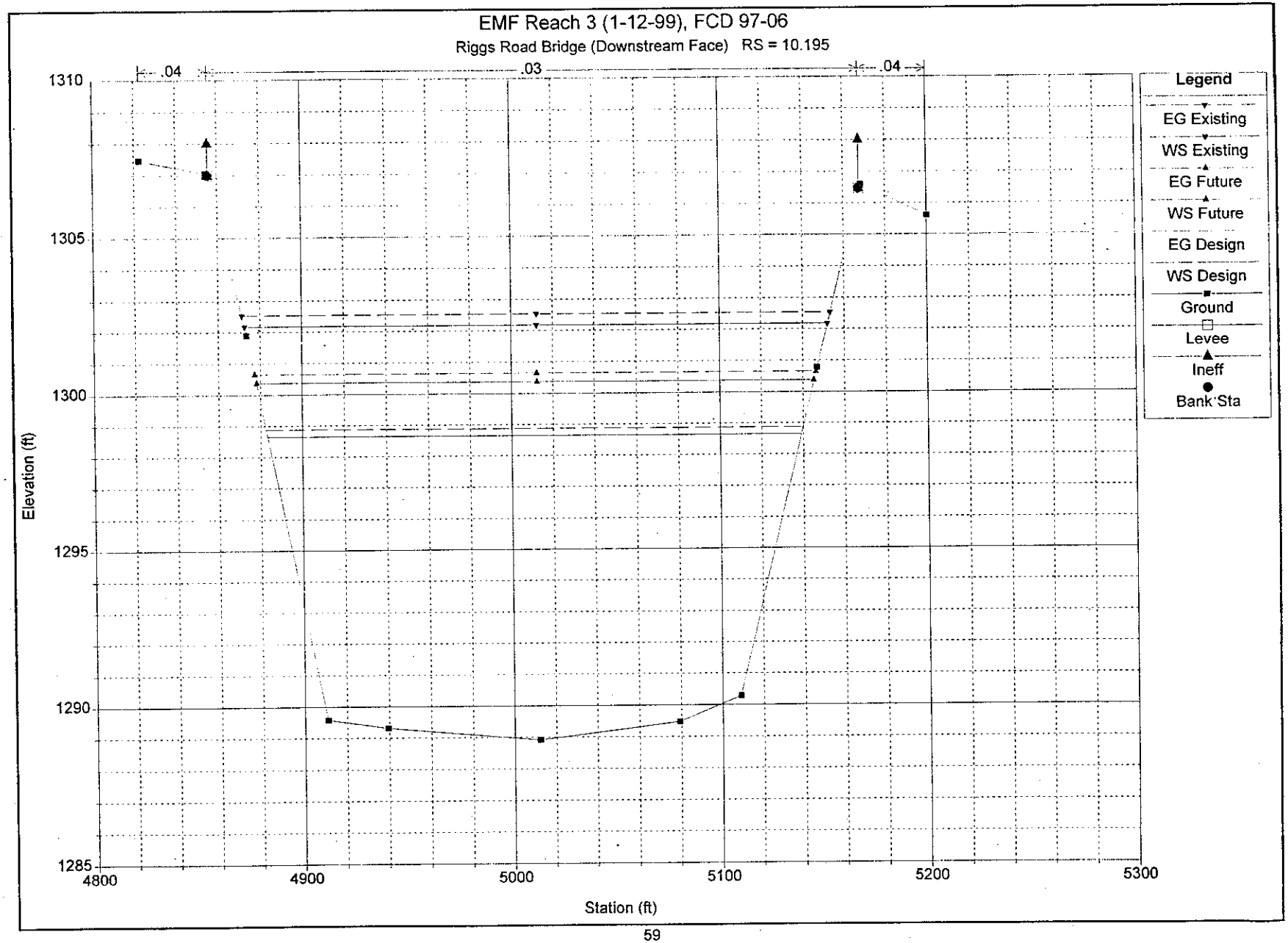

EMF Reach 3 (1-12-99), FCD 97-06
RS = 10.346
.04
.025
.04
Elevation (ft)
1306
1304
1302
1300
1298
1296
1294
1292
1290
1288
4200
4400
4600
4800
5000
5200
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

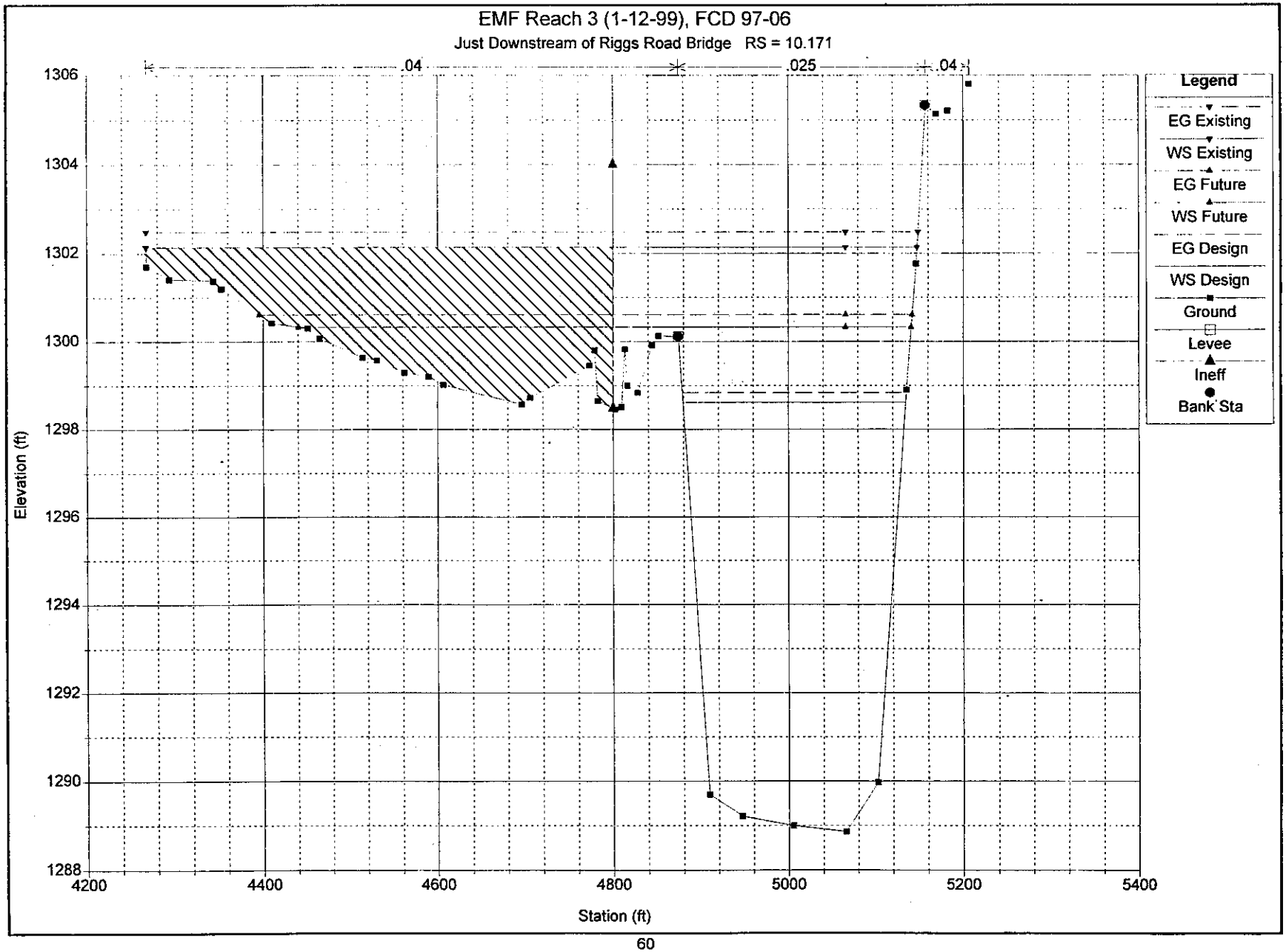

EMF Reach 3 (1-12-99), FCD 97-06
RS = 10.252
.04
.025
.04
Elevation (ft)
1306
1304
1302
1300
1298
1296
1294
1292
1290
1288
4600
4700
4800
4900
5000
5100
5200
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

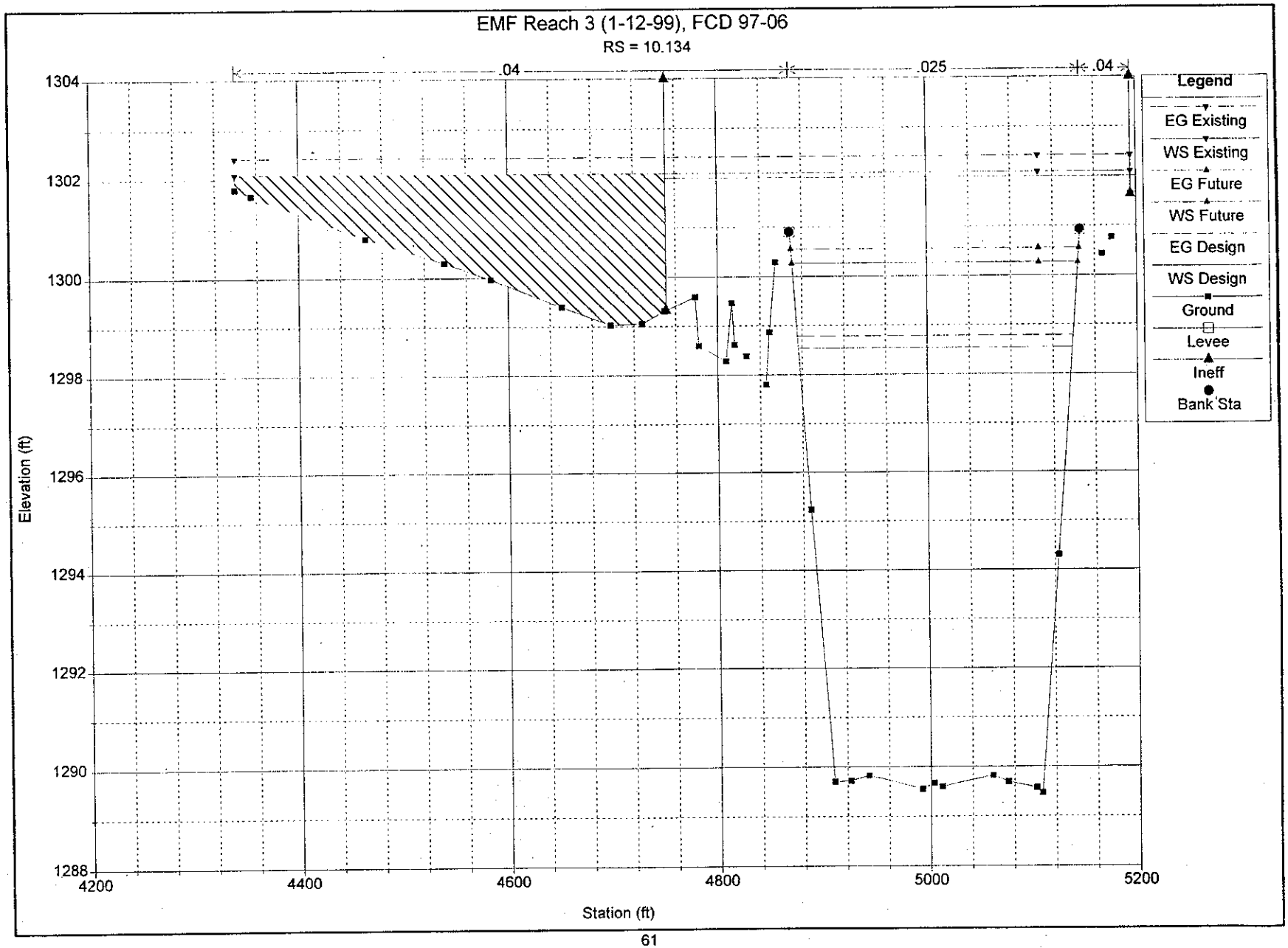

EMF Reach 3 (1-12-99), FCD 97-06
Riggs Road Bridge (Upstream Face) RS = 10.218
.04
.03
.04
1310
1305
1300
1295
1290
1285
Elevation (ft)
4800
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

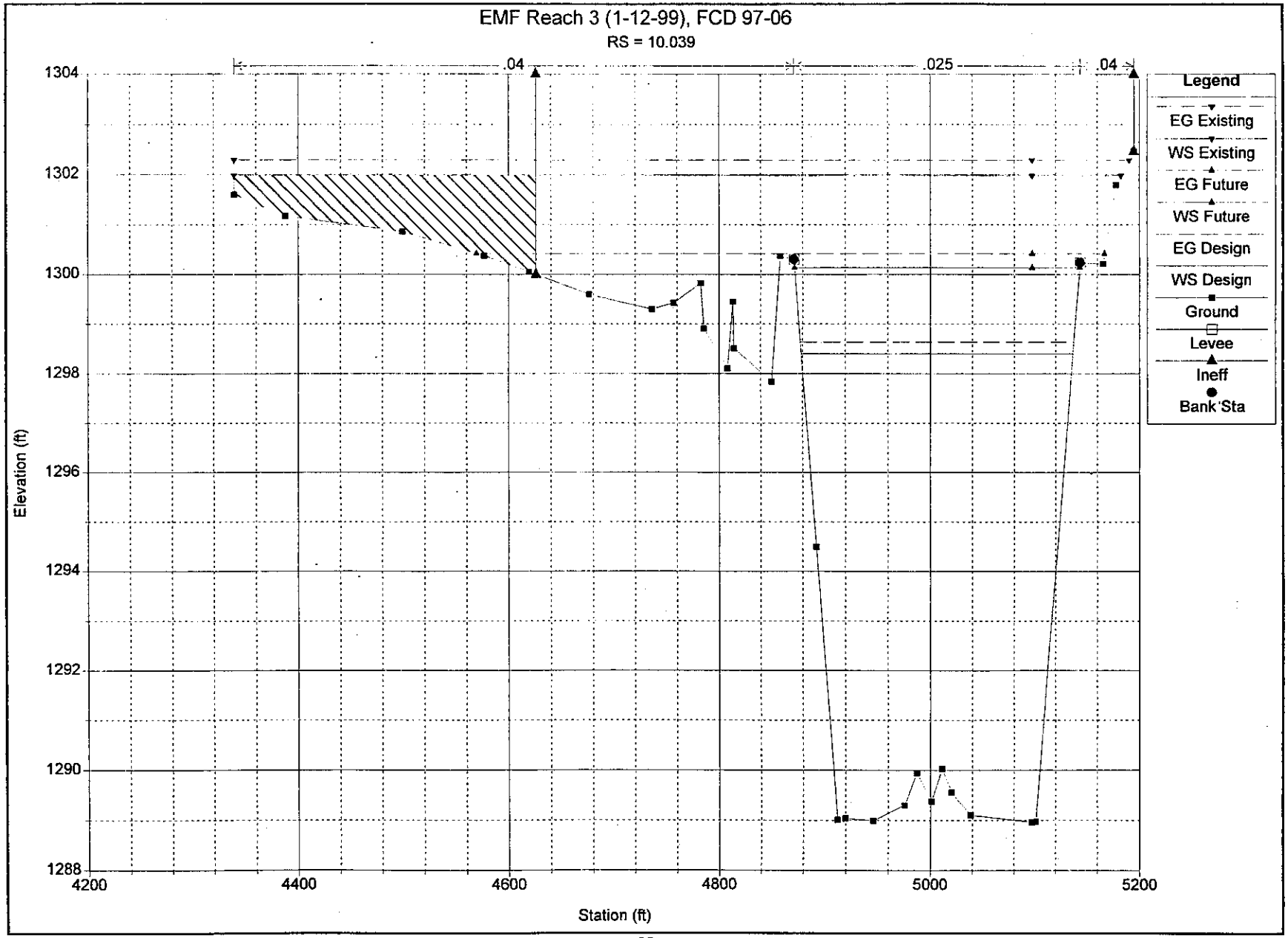

EMF Reach 3 (1-12-99), FCD 97-06
Riggs Road 4-Span Bridge with Circular Piers RS = 10.207
.04
.03
.04
1310
1305
1300
1295
1290
1285
Elevation (ft)
4800
4850
4900
4950
5000
5050
5100
5150
5200
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

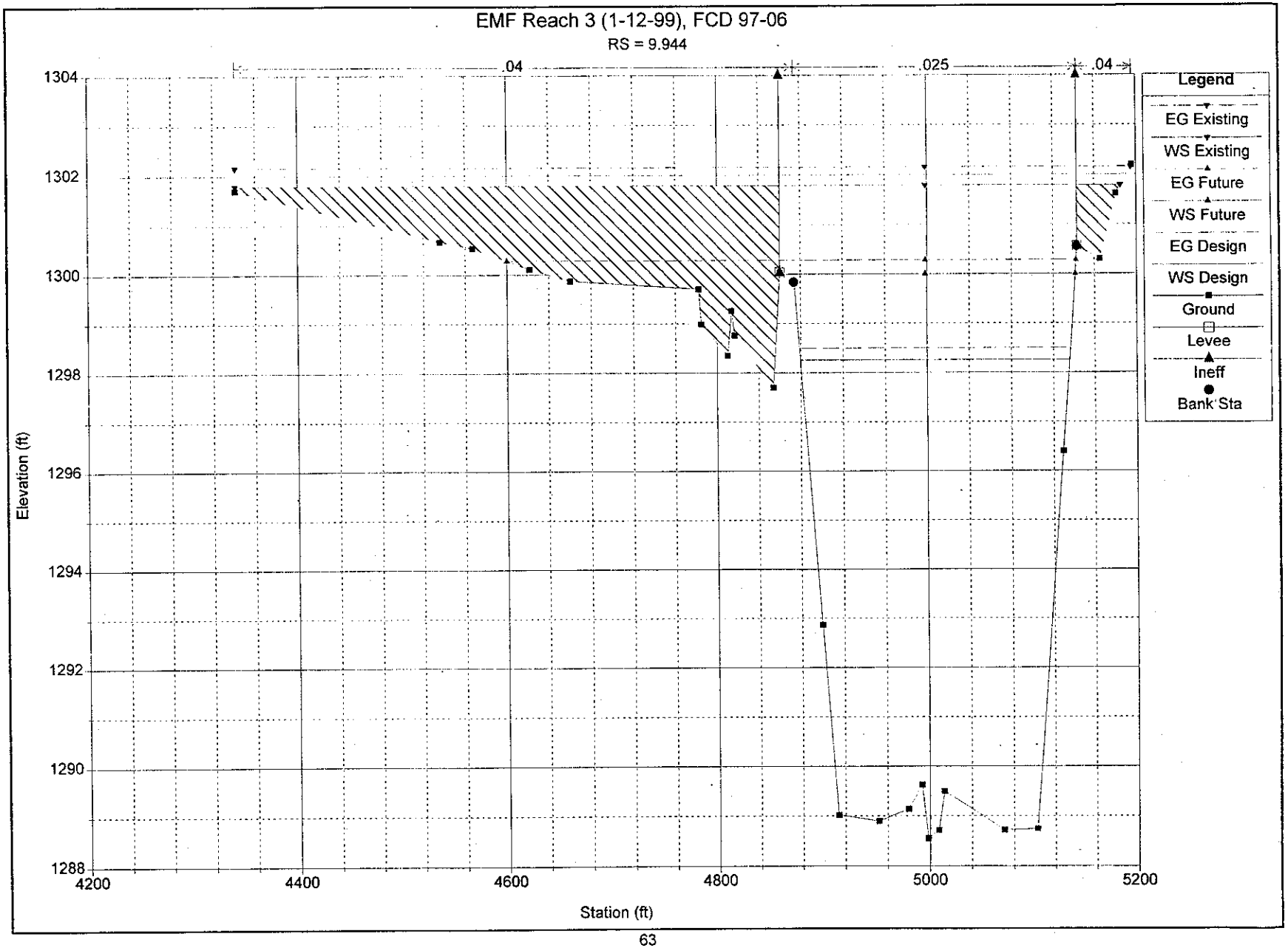

EMF Reach 3 (1-12-99), FCD 97-06
Riggs Road 4-Span Bridge with Circular Piers RS = 10.207
.04
.03
.04
1310
1305
1300
1295
1290
1285
Elevation (ft)
4800
4900
5000
5100
5200
5300
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

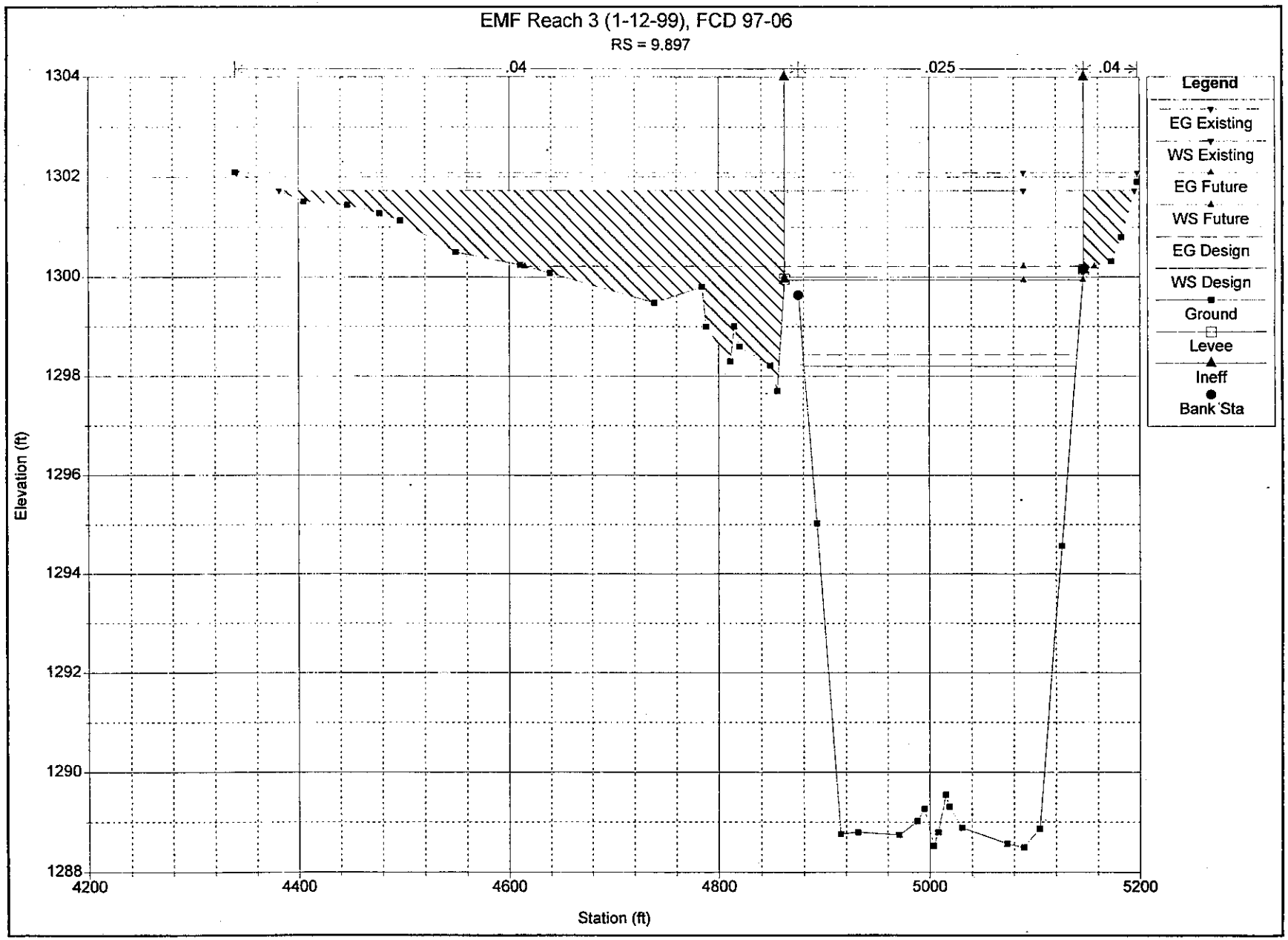

EMF Reach 3 (1-12-99), FCD 97-06
Riggs Road Bridge (Downstream Face) RS = 10.195
.04
.03
.04
1310
1305
1300
1295
1290
1285
Elevation (ft)
4800
4900
5000
5100
5200
5300
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

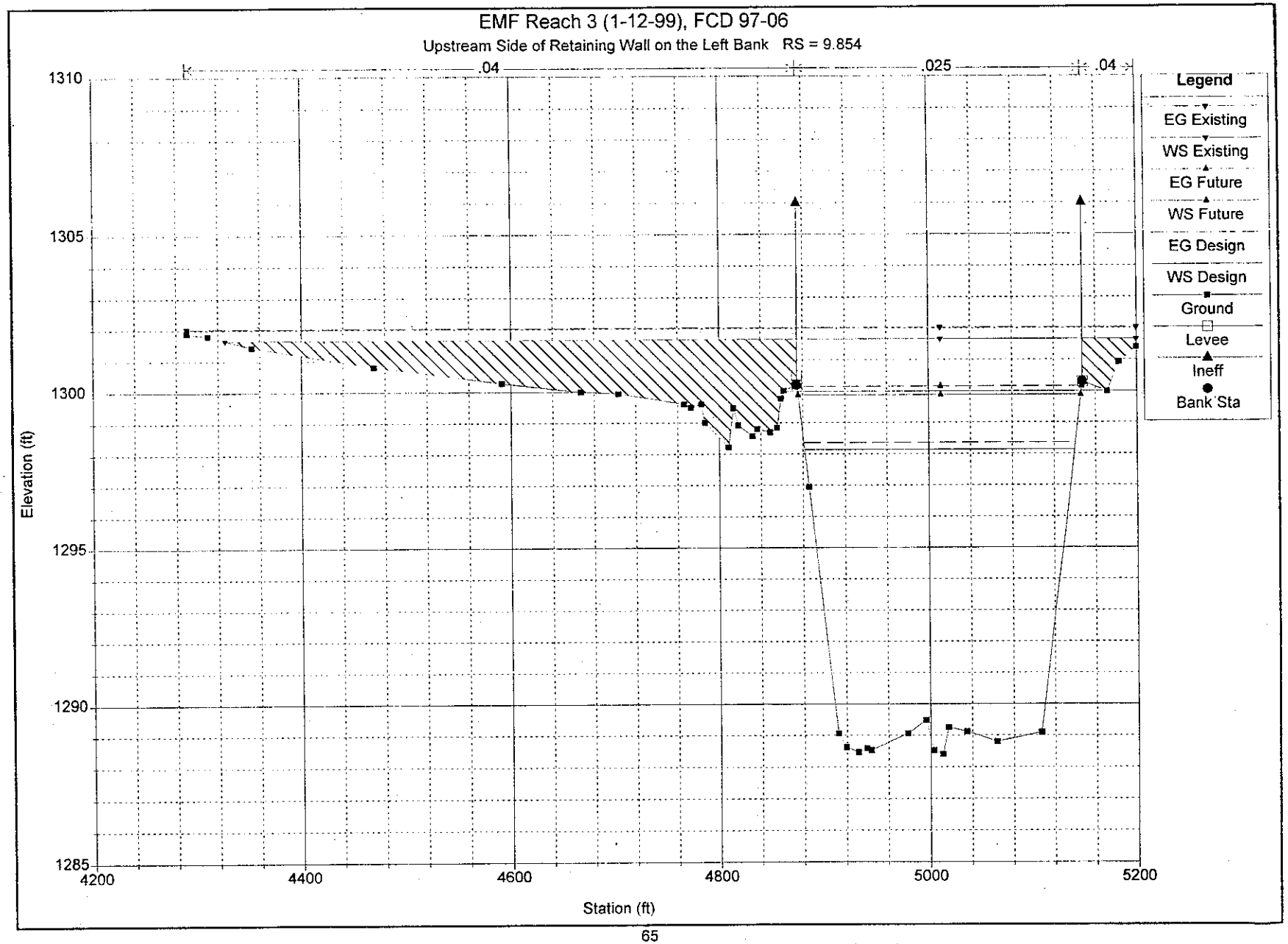

EMF Reach 3 (1-12-99), FCD 97-06
Just Downstream of Riggs Road Bridge RS = 10.171
.04
.025
.04
Elevation (ft)
1306
1304
1302
1300
1298
1296
1294
1292
1290
1288
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

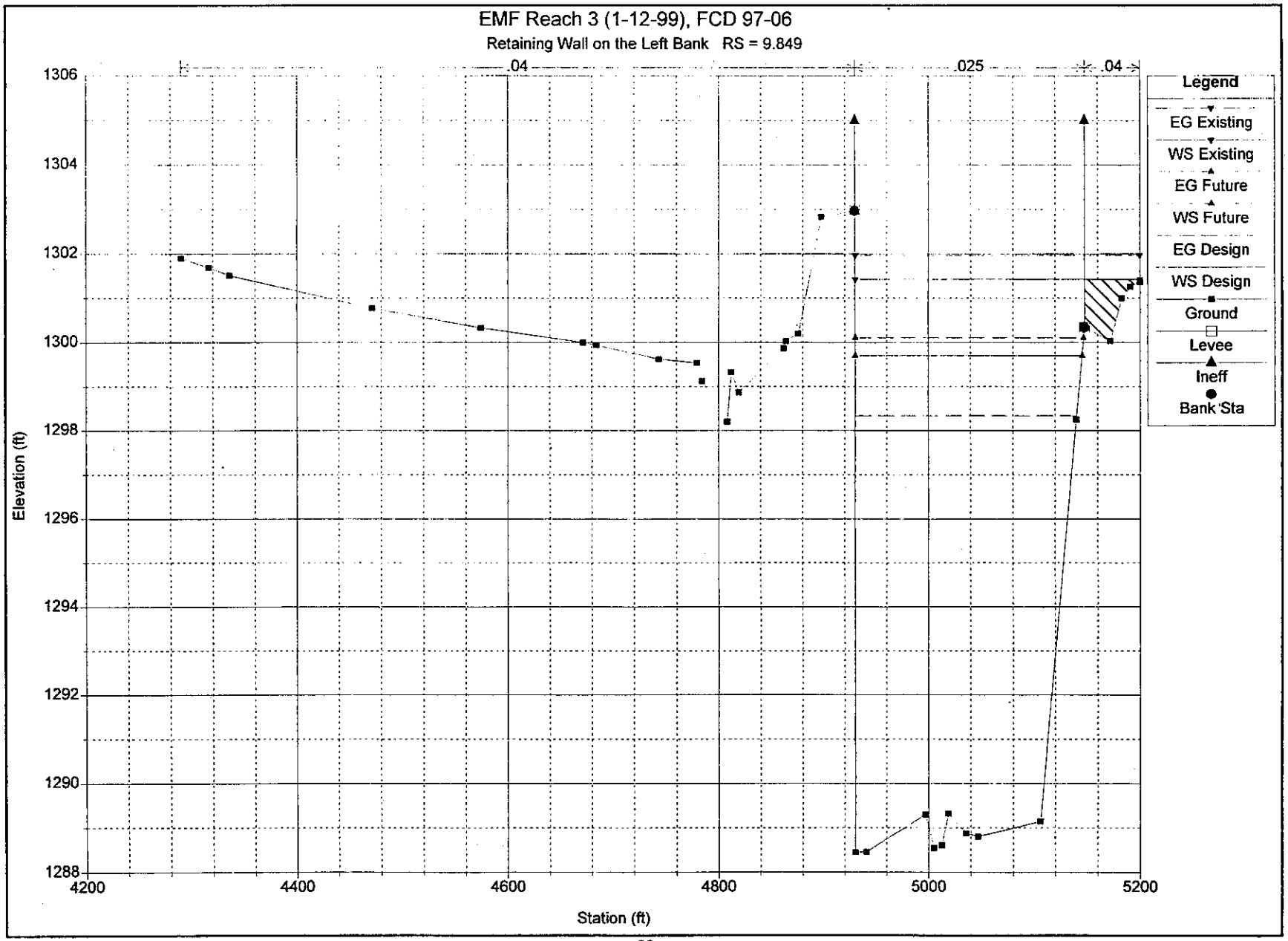

EMF Reach 3 (1-12-99), FCD 97-06
RS = 10.134
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1304
1302
1300
1298
1296
1294
1292
1290
1288
4200
4400
4600
4800
5000
5200
Station (ft)

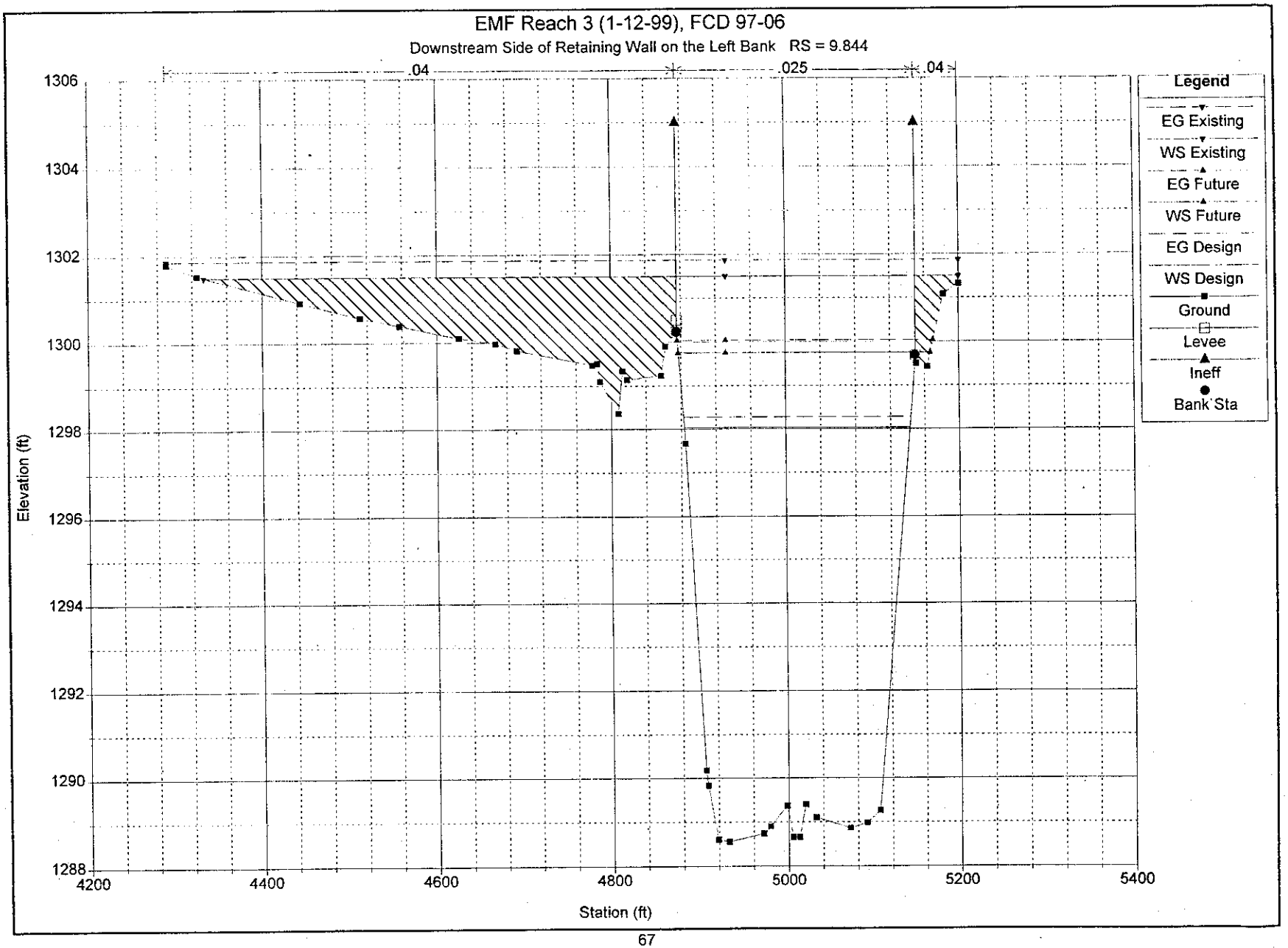

EMF Reach 3 (1-12-99), FCD 97-06
RS = 10.039
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1304
1302
1300
1298
1296
1294
1292
1290
1288
4200
4400
4600
4800
5000
5200
Station (ft)

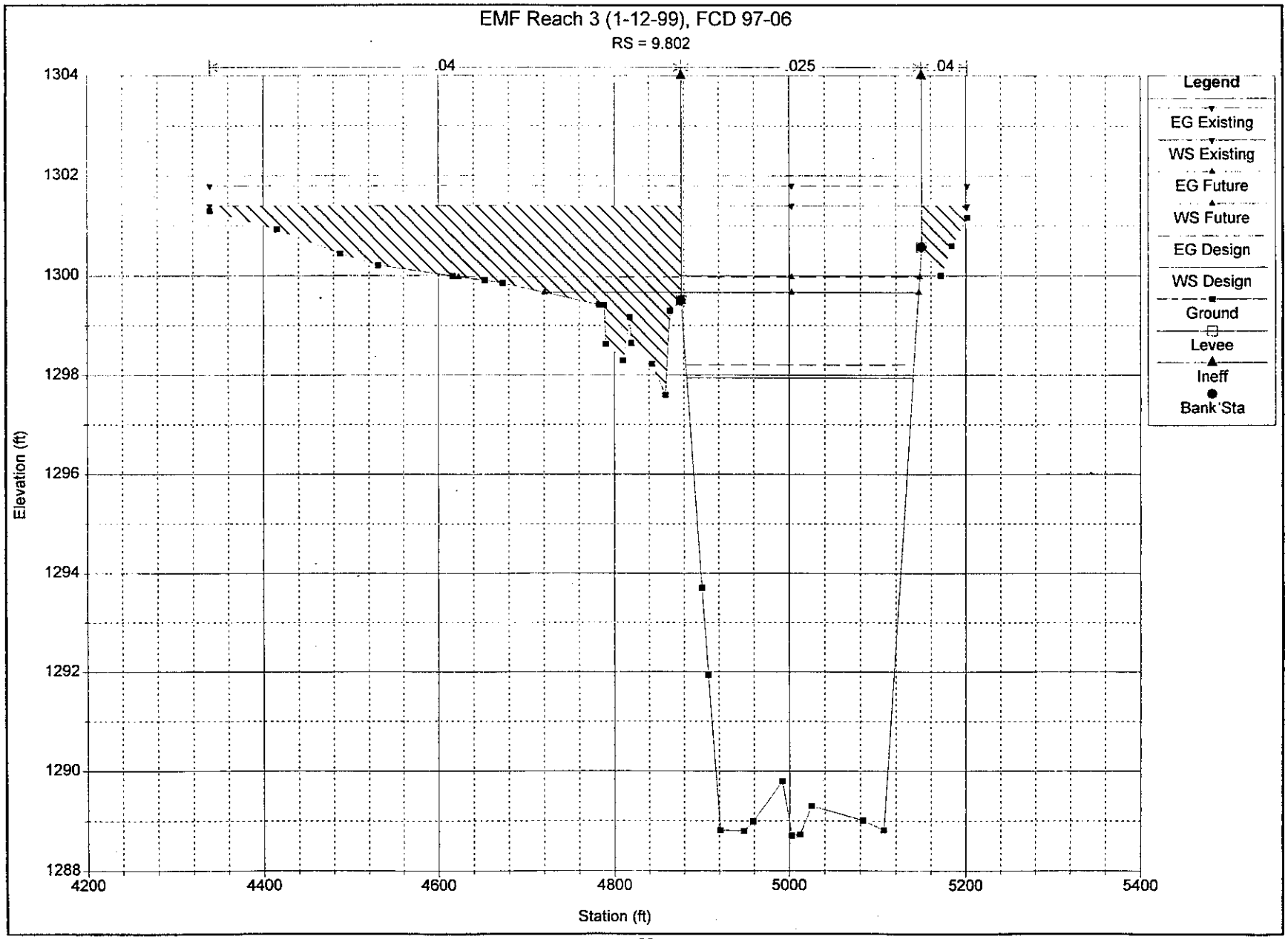

EMF Reach 3 (1-12-99), FCD 97-06
RS = 9.944
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1304
1302
1300
1298
1296
1294
1292
1290
1288
4200
4400
4600
4800
5000
5200
Station (ft)

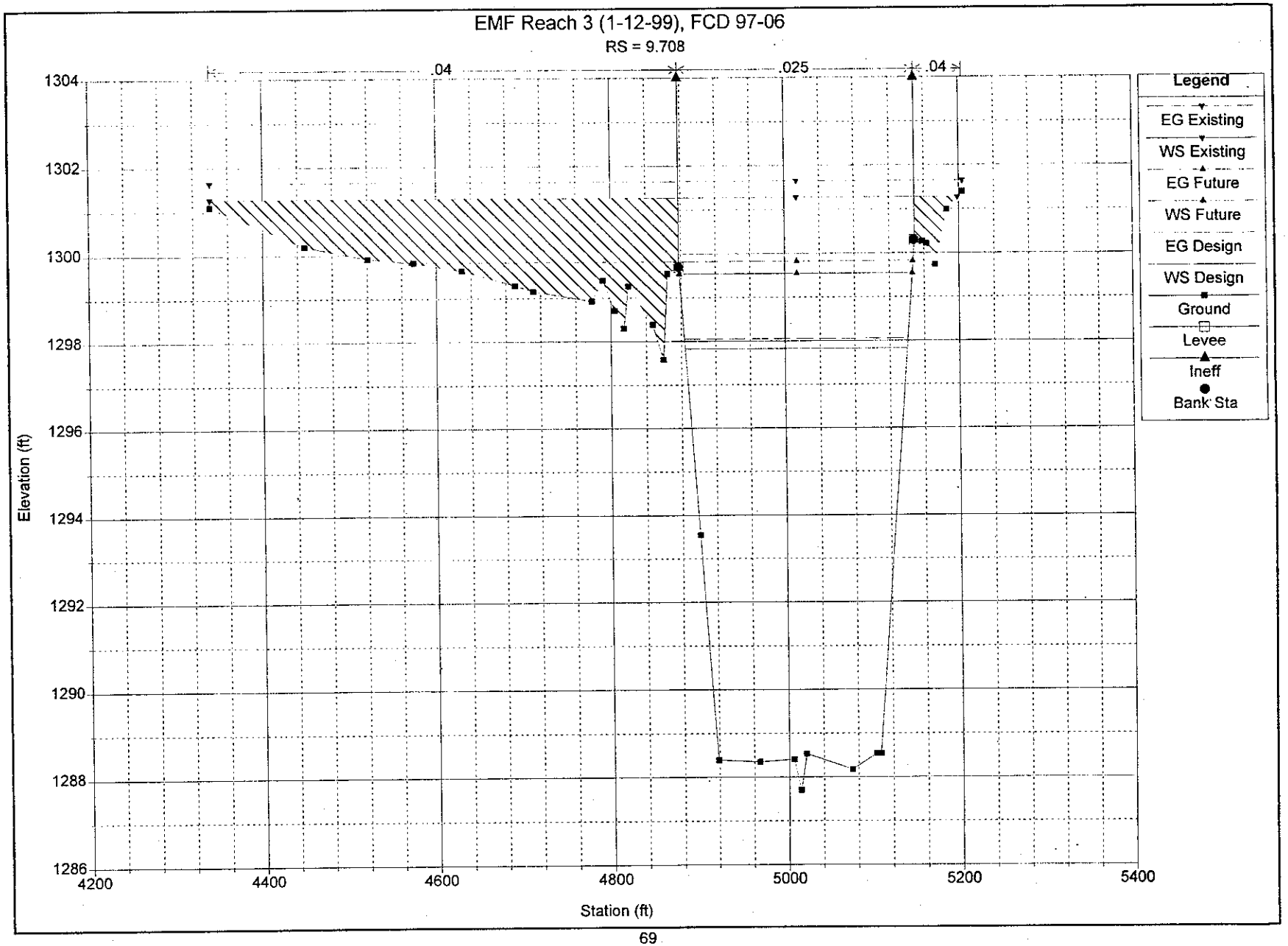

EMF Reach 3 (1-12-99), FCD 97-06
RS = 9.897
.04
.025
.04
1304
1302
1300
1298
1296
1294
1292
1290
1288
Elevation (ft)
4200
4400
4600
4800
5000
5200
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

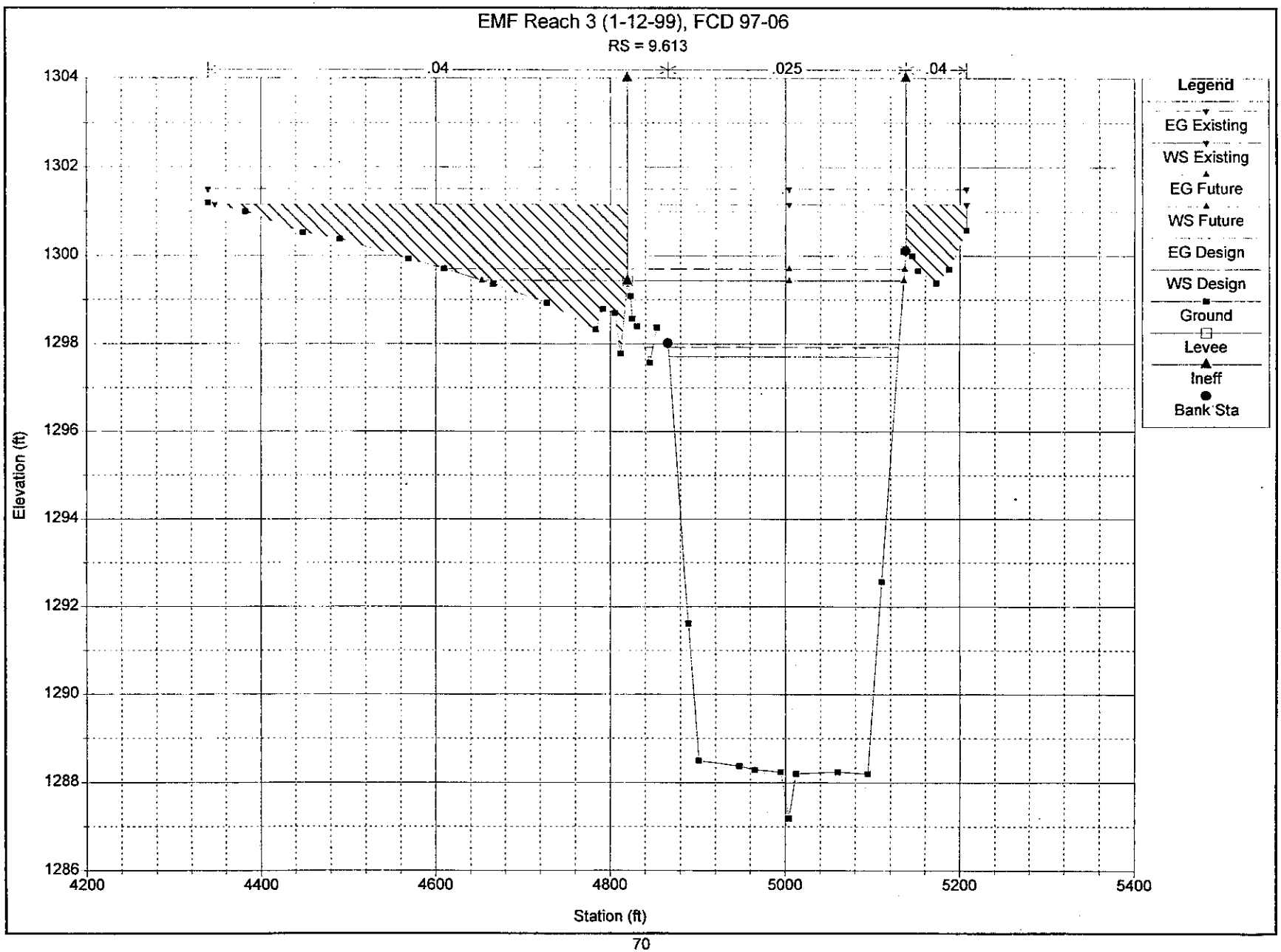

EMF Reach 3 (1-12-99), FCD 97-06
Upstream Side of Retaining Wall on the Left Bank RS = 9.854
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1310
1305
1300
1295
1290
1285
4200
4400
4600
4800
5000
5200
Station (ft)

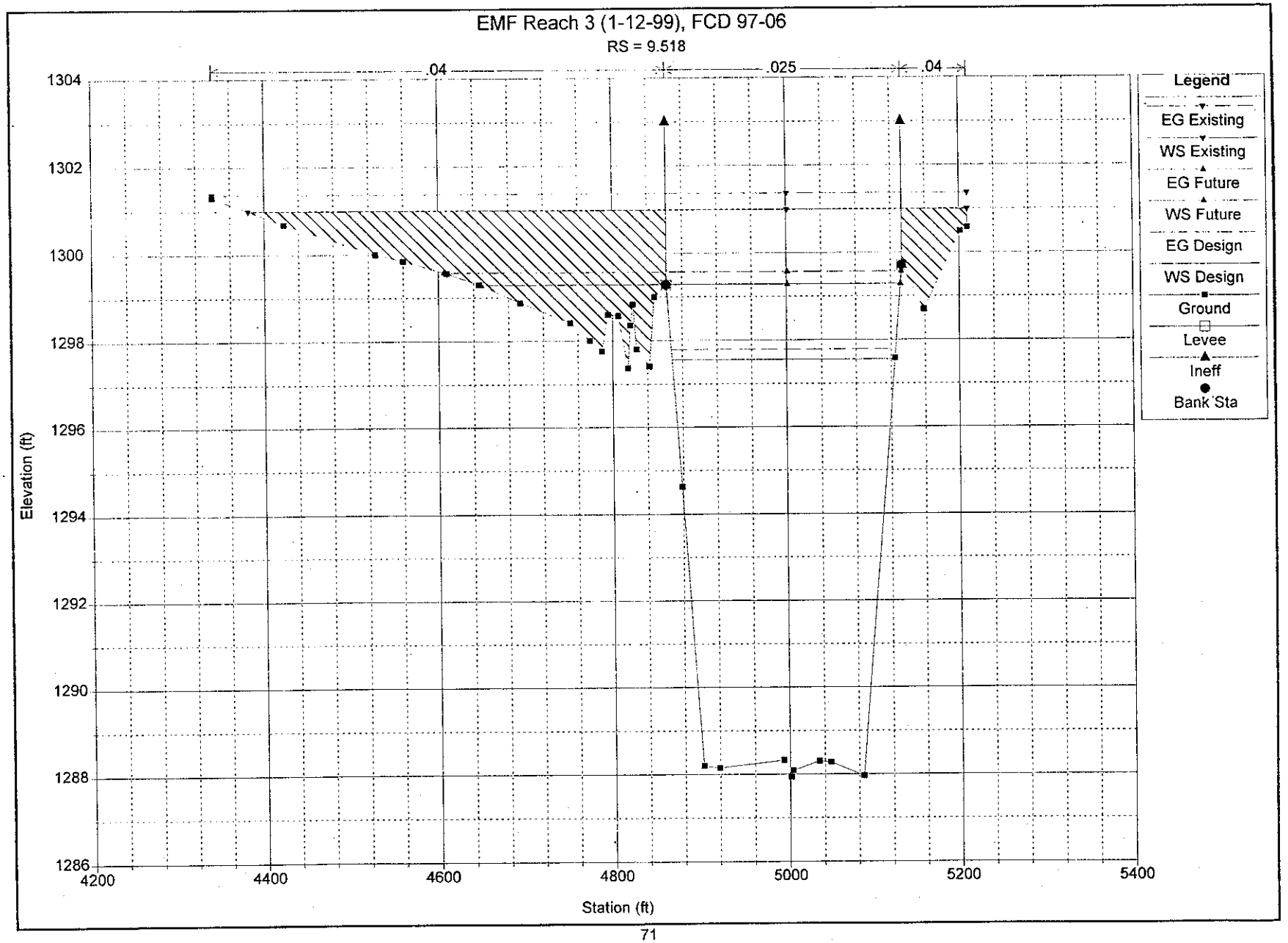

EMF Reach 3 (1-12-99), FCD 97-06
Retaining Wall on the Left Bank RS = 9.849
.04
.025
.04
1306
1304
1302
1300
1298
1296
1294
1292
1290
1288
Elevation (ft)
4200
4400
4600
4800
5000
5200
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

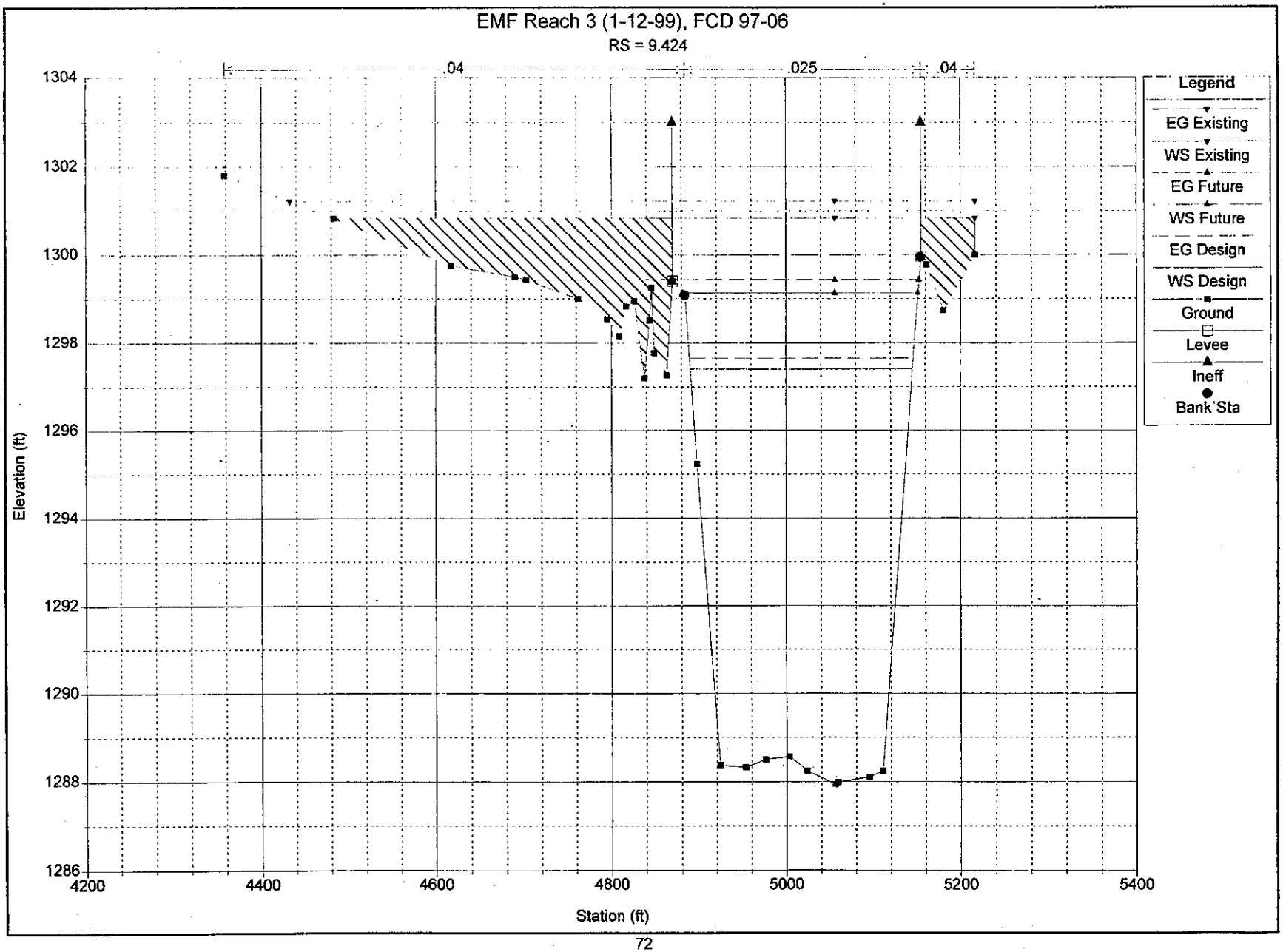

EMF Reach 3 (1-12-99), FCD 97-06
Downstream Side of Retaining Wall on the Left Bank RS = 9.844
.04
.025
.04
Elevation (ft)
1306
1304
1302
1300
1298
1296
1294
1292
1290
1288
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

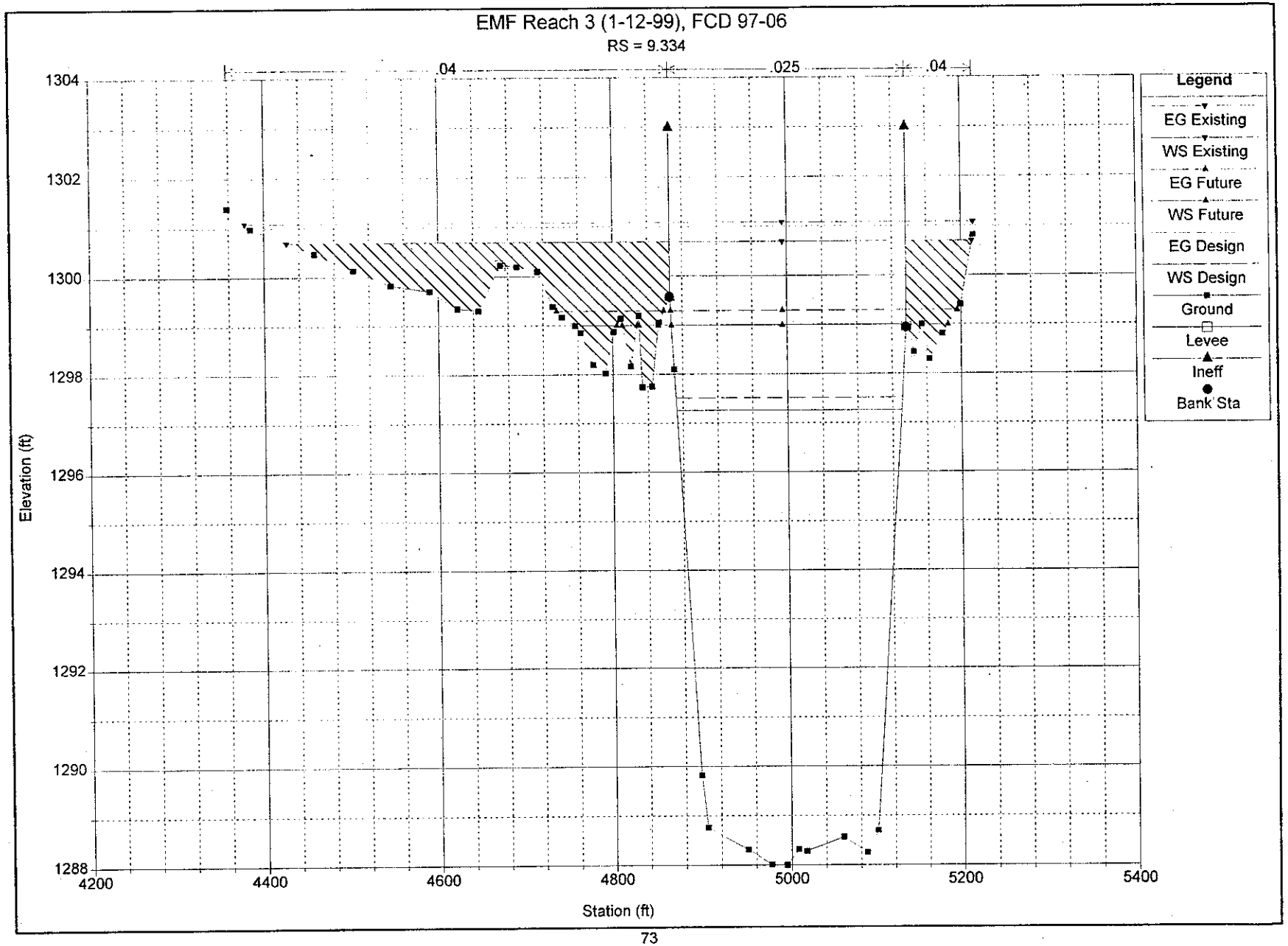

EMF Reach 3 (1-12-99), FCD 97-06
RS = 9.802
.04
.025
.04
1304
1302
1300
1298
1296
1294
1292
1290
1288
Elevation (ft)
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

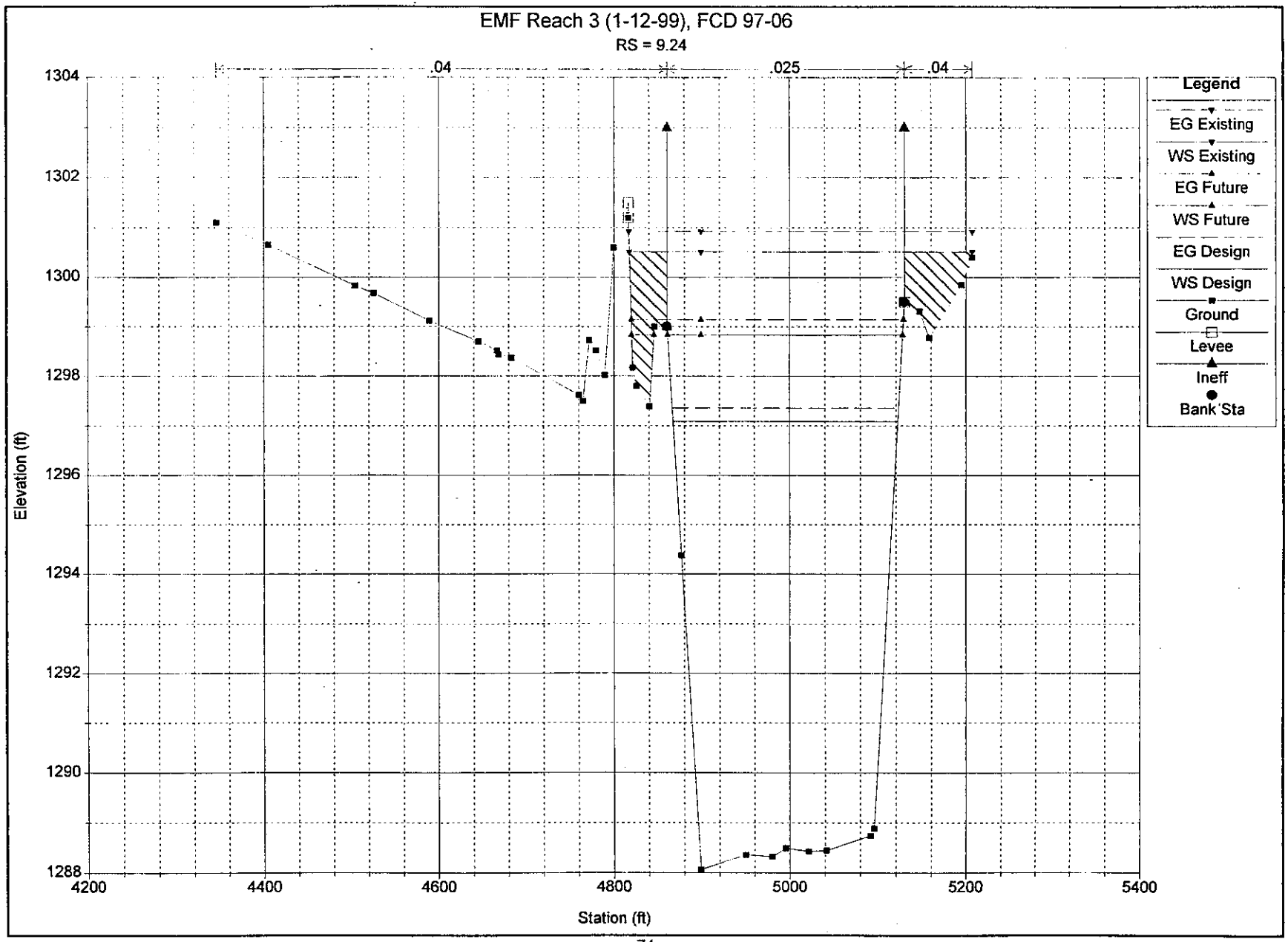

EMF Reach 3 (1-12-99), FCD 97-06
RS = 9.708
.04
.025
.04
Elevation (ft)
1304
1302
1300
1298
1296
1294
1292
1290
1288
1286
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

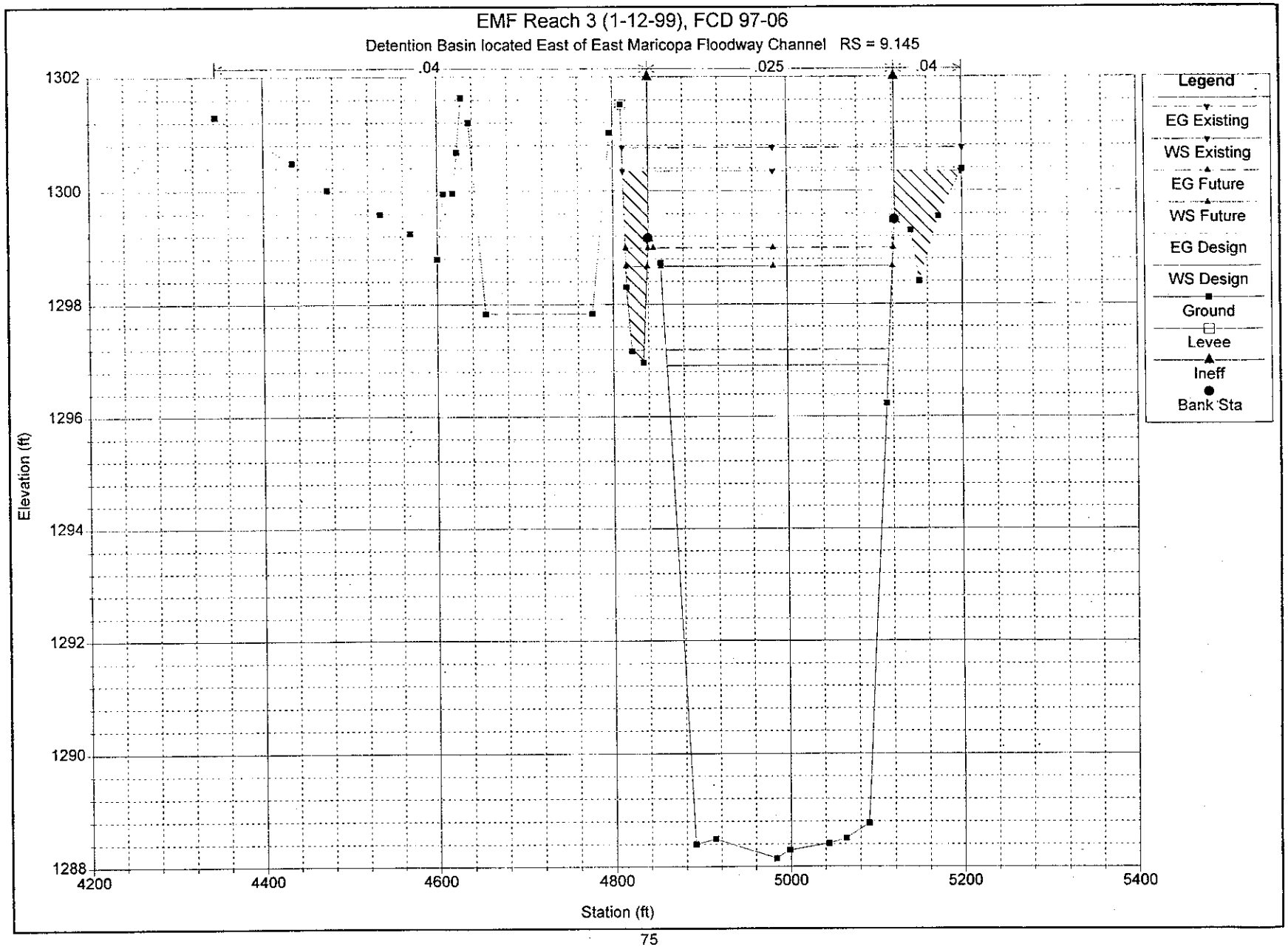

EMF Reach 3 (1-12-99), FCD 97-06
RS = 9.613
.04
.025
.04
Elevation (ft)
1304
1302
1300
1298
1296
1294
1292
1290
1288
1286
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

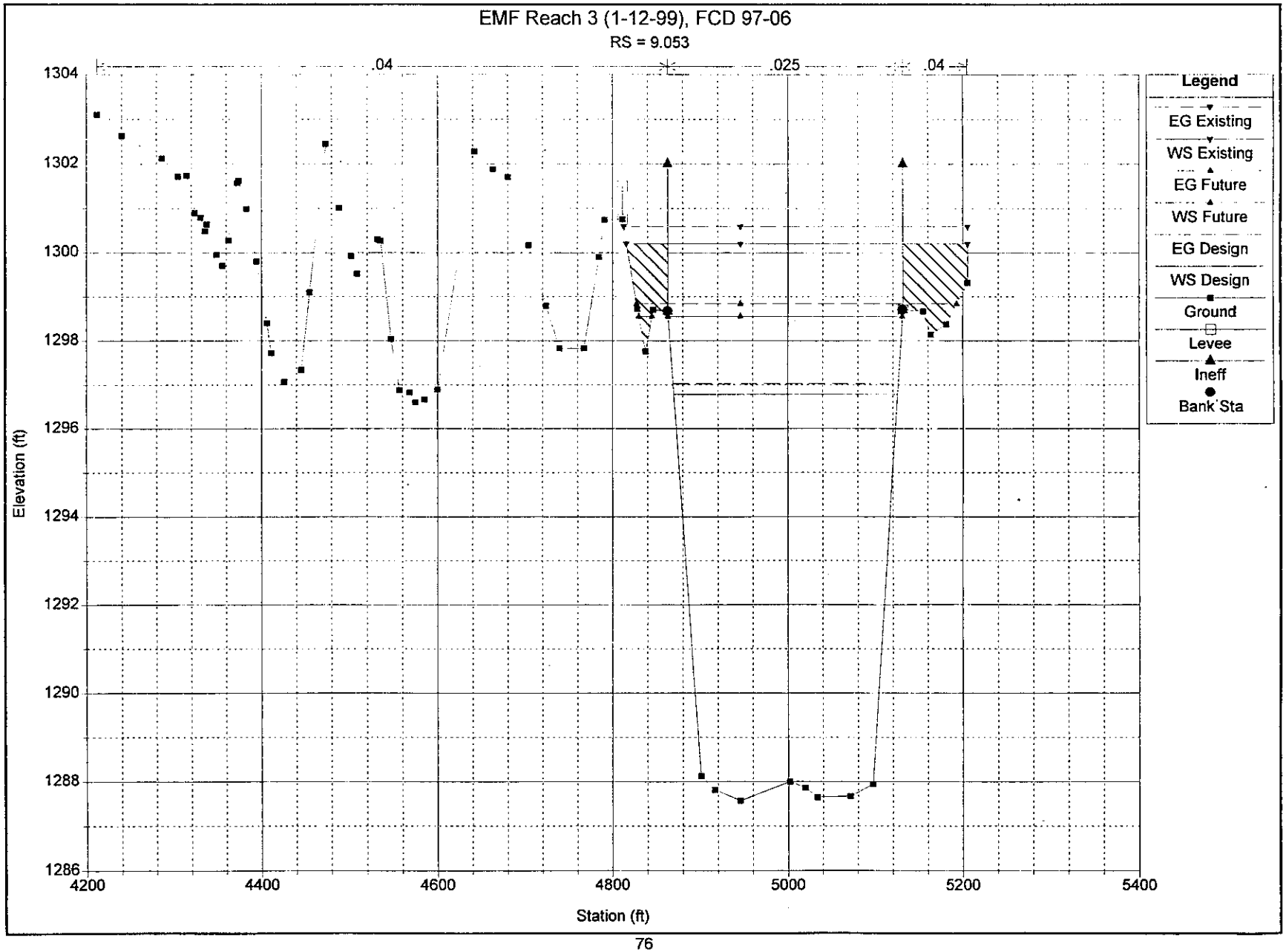

EMF Reach 3 (1-12-99), FCD 97-06
RS = 9.518
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1304
1302
1300
1298
1296
1294
1292
1290
1288
1286
4200
4400
4600
4800
5000
5200
5400
Station (ft)

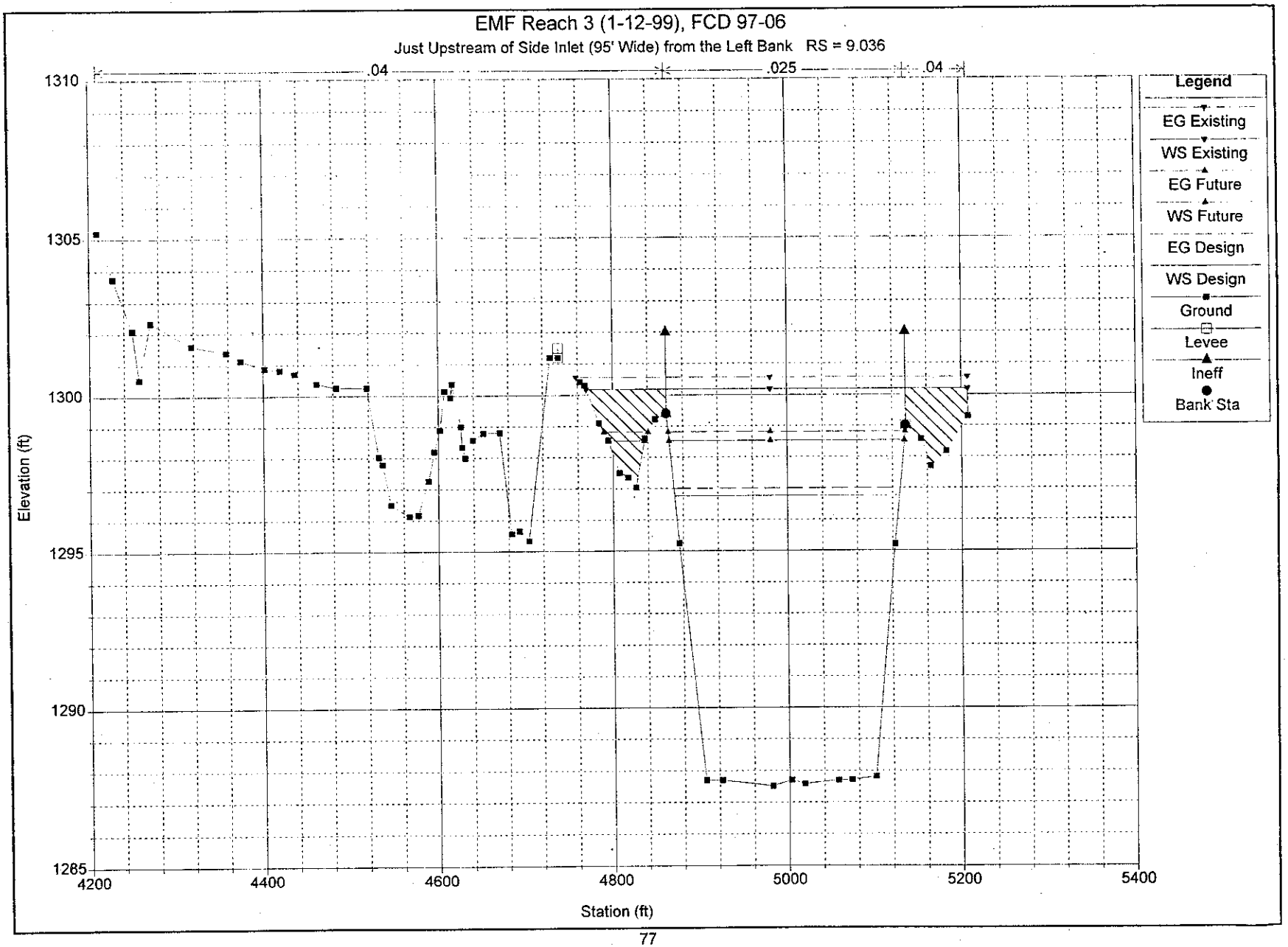

EMF Reach 3 (1-12-99), FCD 97-06
RS = 9.424
.04
.025
.04
Elevation (ft)
1304
1302
1300
1298
1296
1294
1292
1290
1288
1286
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

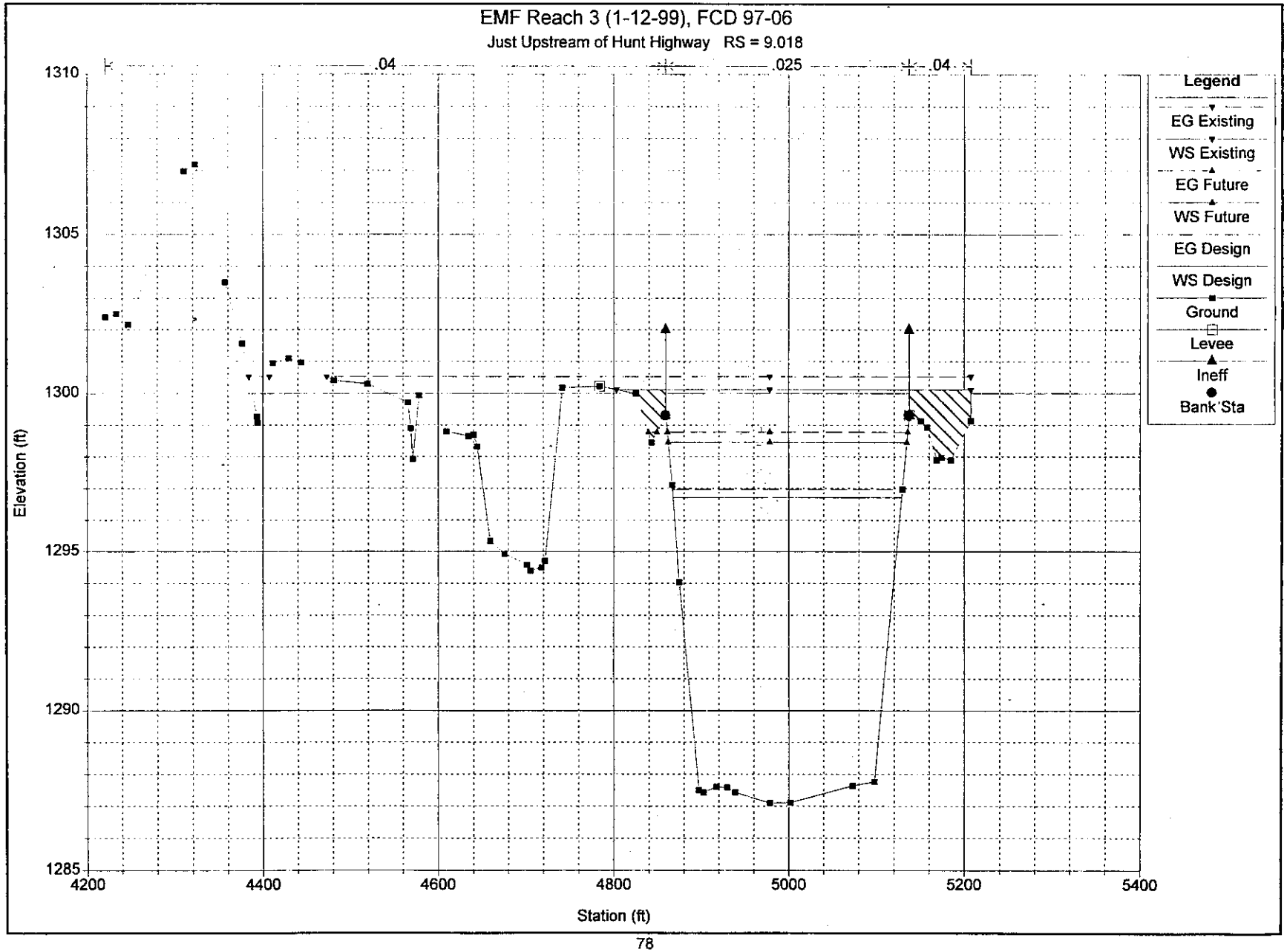

EMF Reach 3 (1-12-99), FCD 97-06
RS = 9.334
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1304
1302
1300
1298
1296
1294
1292
1290
1288
4200
4400
4600
4800
5000
5200
5400
Station (ft)

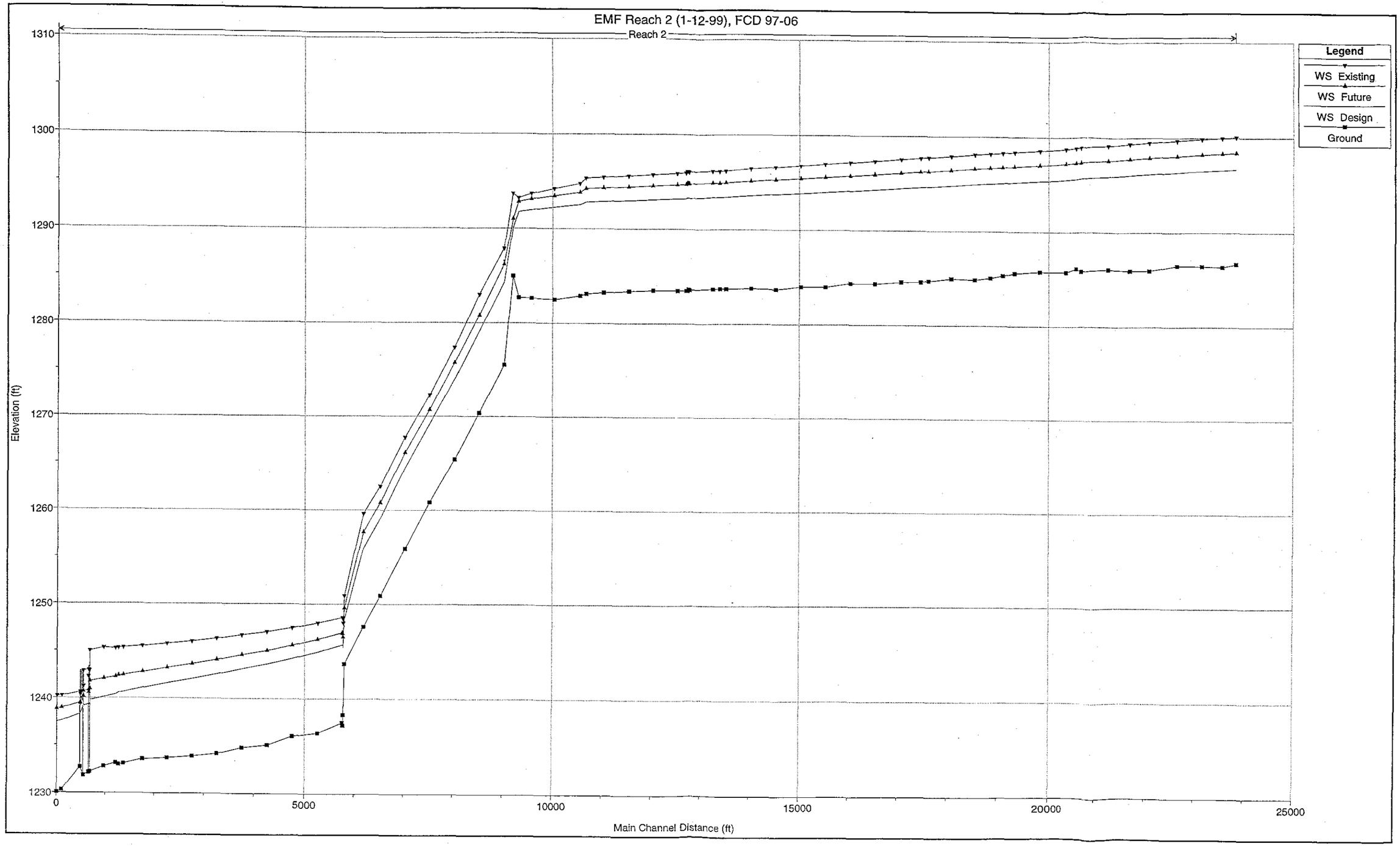

EMF Reach 3 (1-12-99), FCD 97-06
RS = 9.24
.04
.025
.04
Elevation (ft)
1304
1302
1300
1298
1296
1294
1292
1290
1288
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

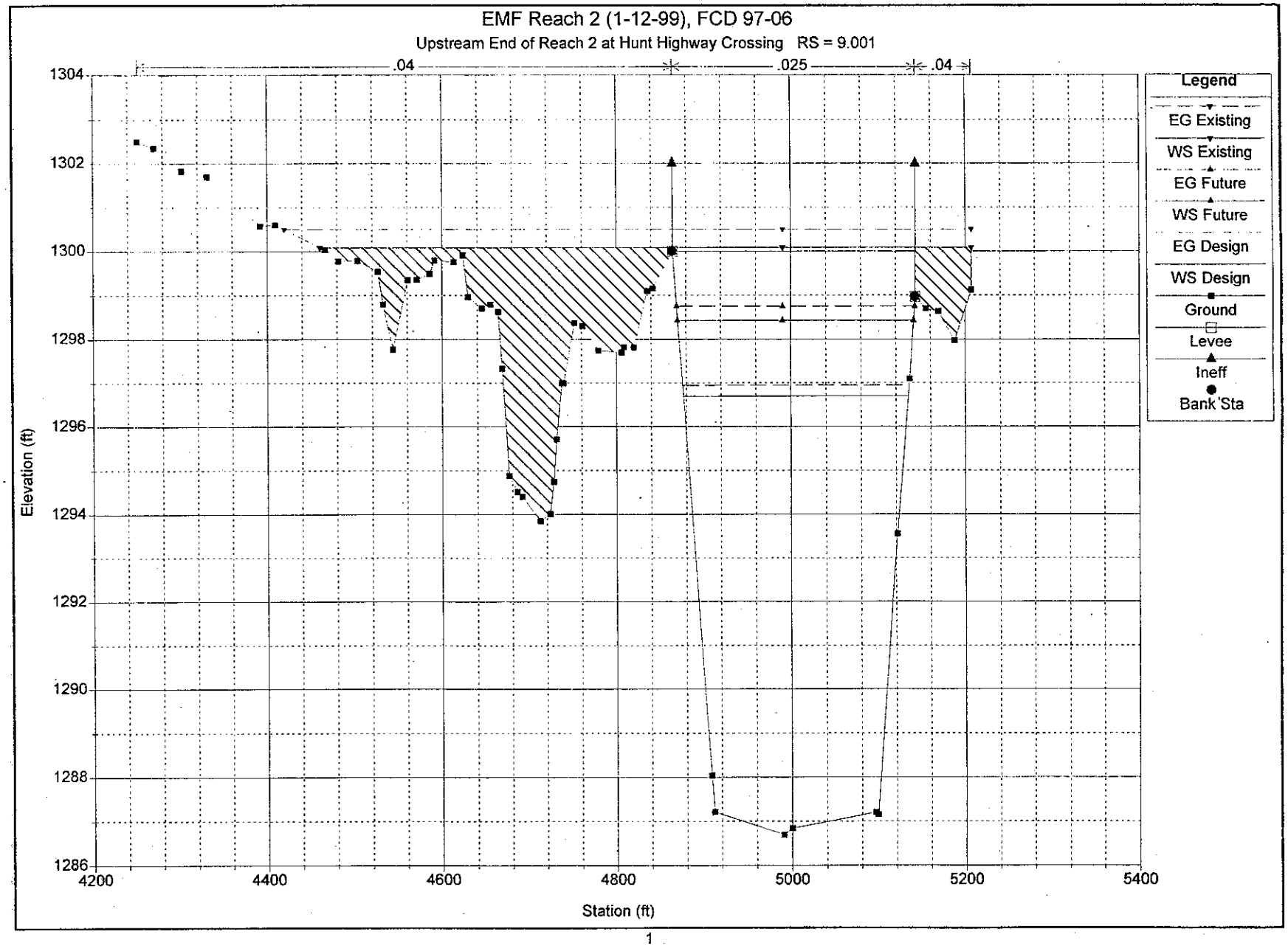

EMF Reach 3 (1-12-99), FCD 97-06
Detention Basin located East of East Maricopa Floodway Channel RS = 9.145
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1302
1300
1298
1296
1294
1292
1290
1288
4200
4400
4600
4800
5000
5200
5400
Station (ft)

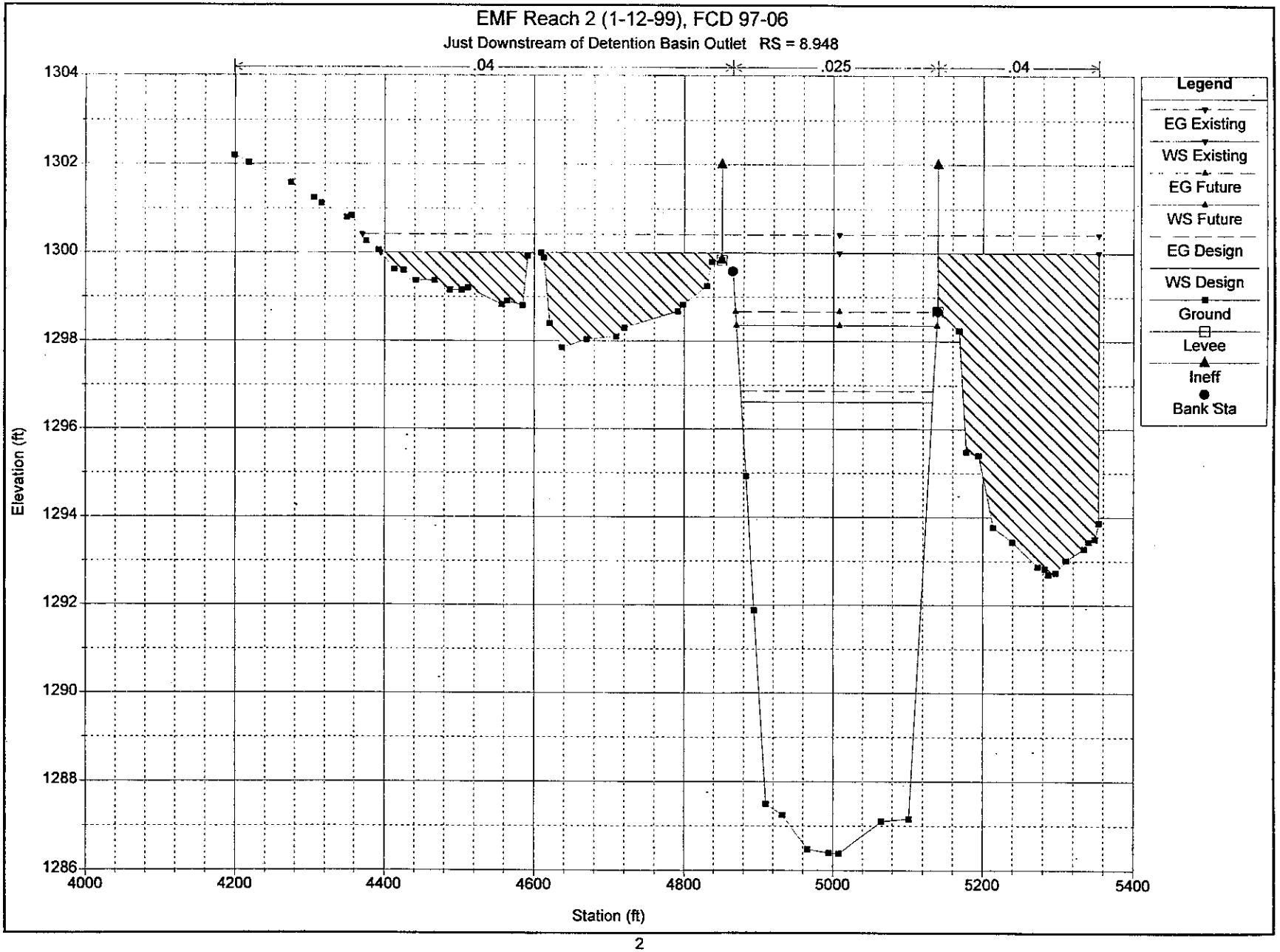

EMF Reach 3 (1-12-99), FCD 97-06
RS = 9.053
.04
.025
.04
1304
1302
1300
1298
1296
1294
1292
1290
1288
1286
Elevation (ft)
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

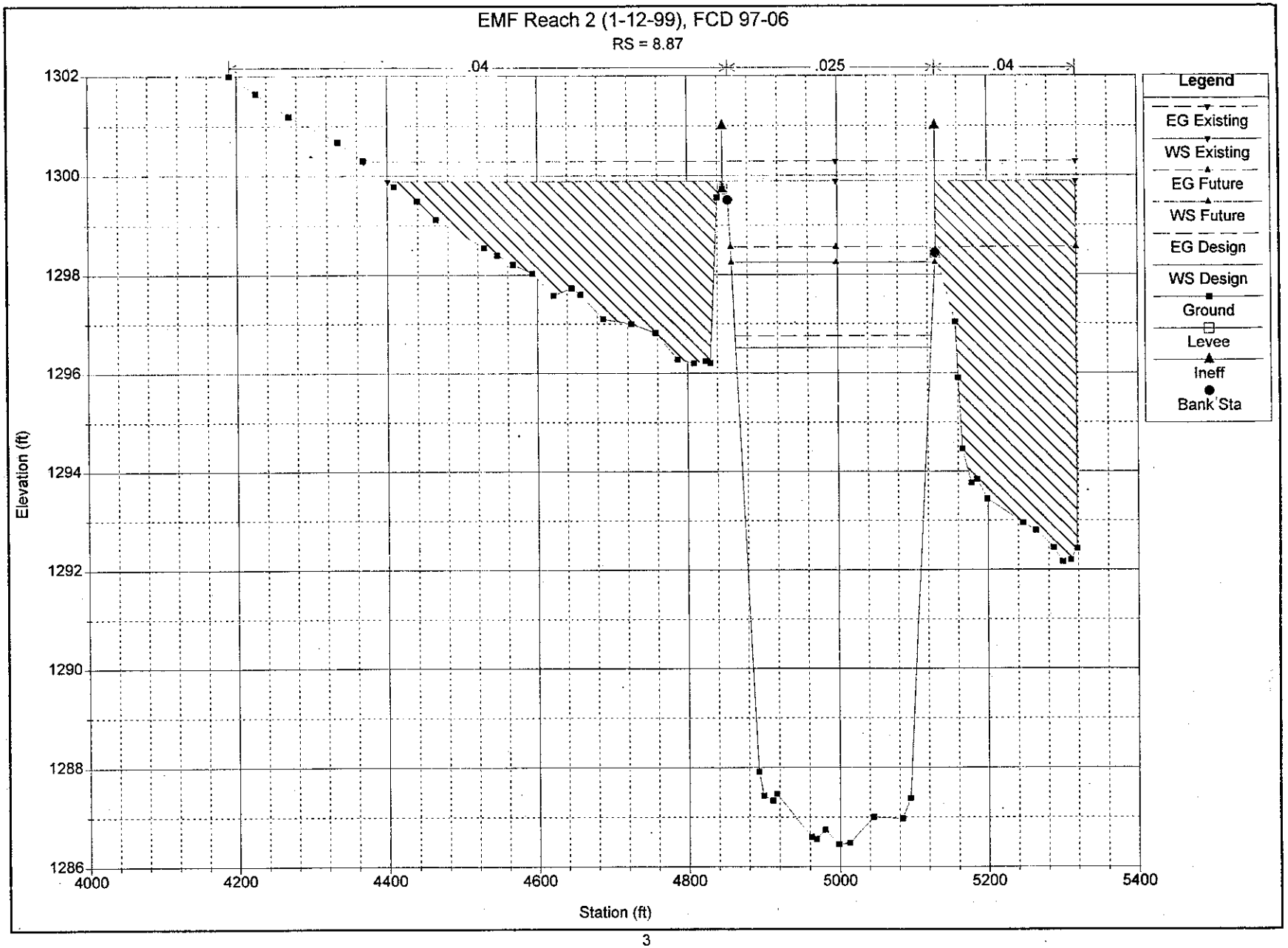

EMF Reach 3 (1-12-99), FCD 97-06
Just Upstream of Side Inlet (95' Wide) from the Left Bank RS = 9.036
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1310
1305
1300
1295
1290
1285
4200
4400
4600
4800
5000
5200
5400
Station (ft)

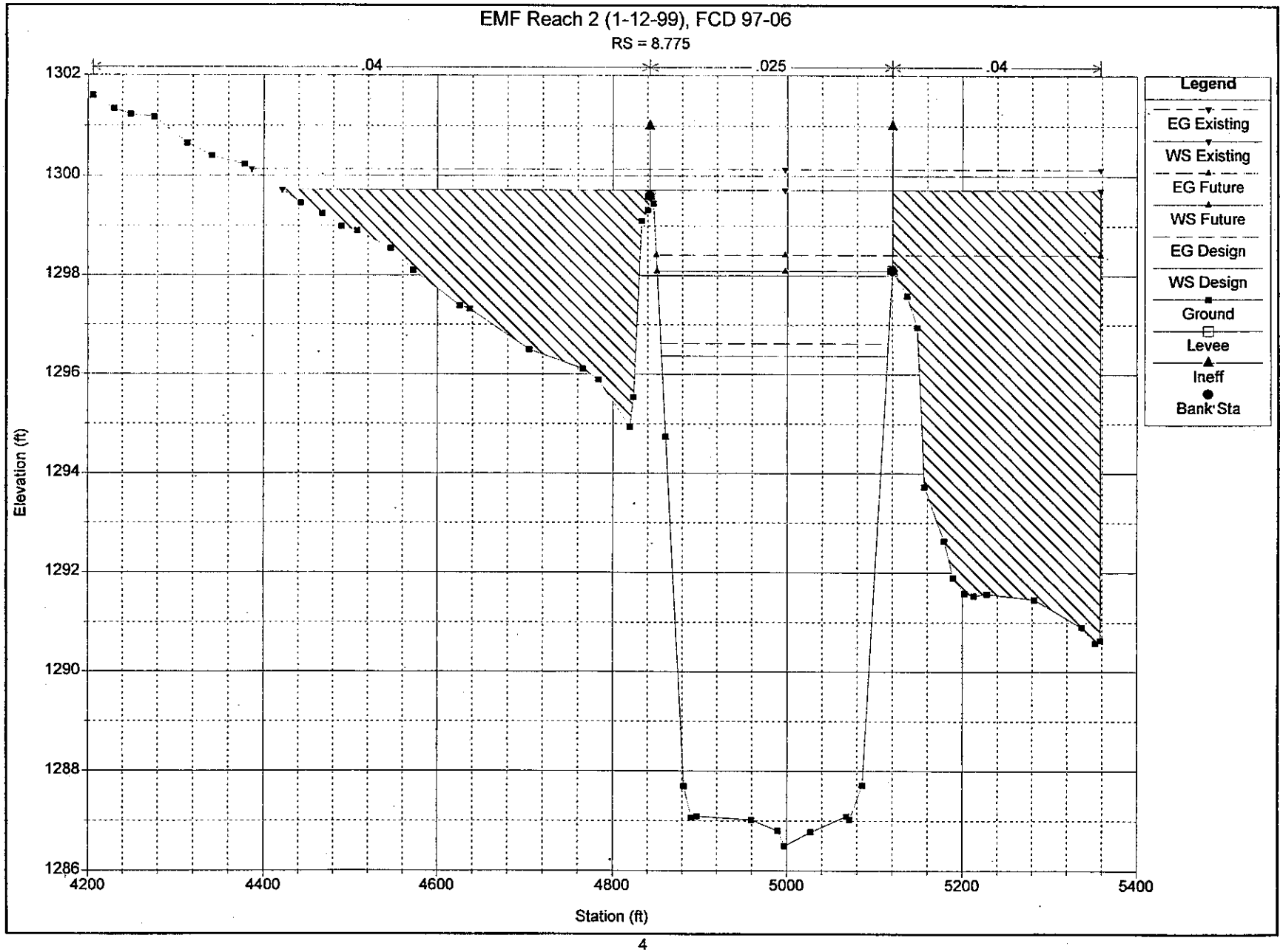

EMF Reach 3 (1-12-99), FCD 97-06
Just Upstream of Hunt Highway RS = 9.018
.04
.025
.04
1310
1305
1300
1295
1290
1285
Elevation (ft)
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

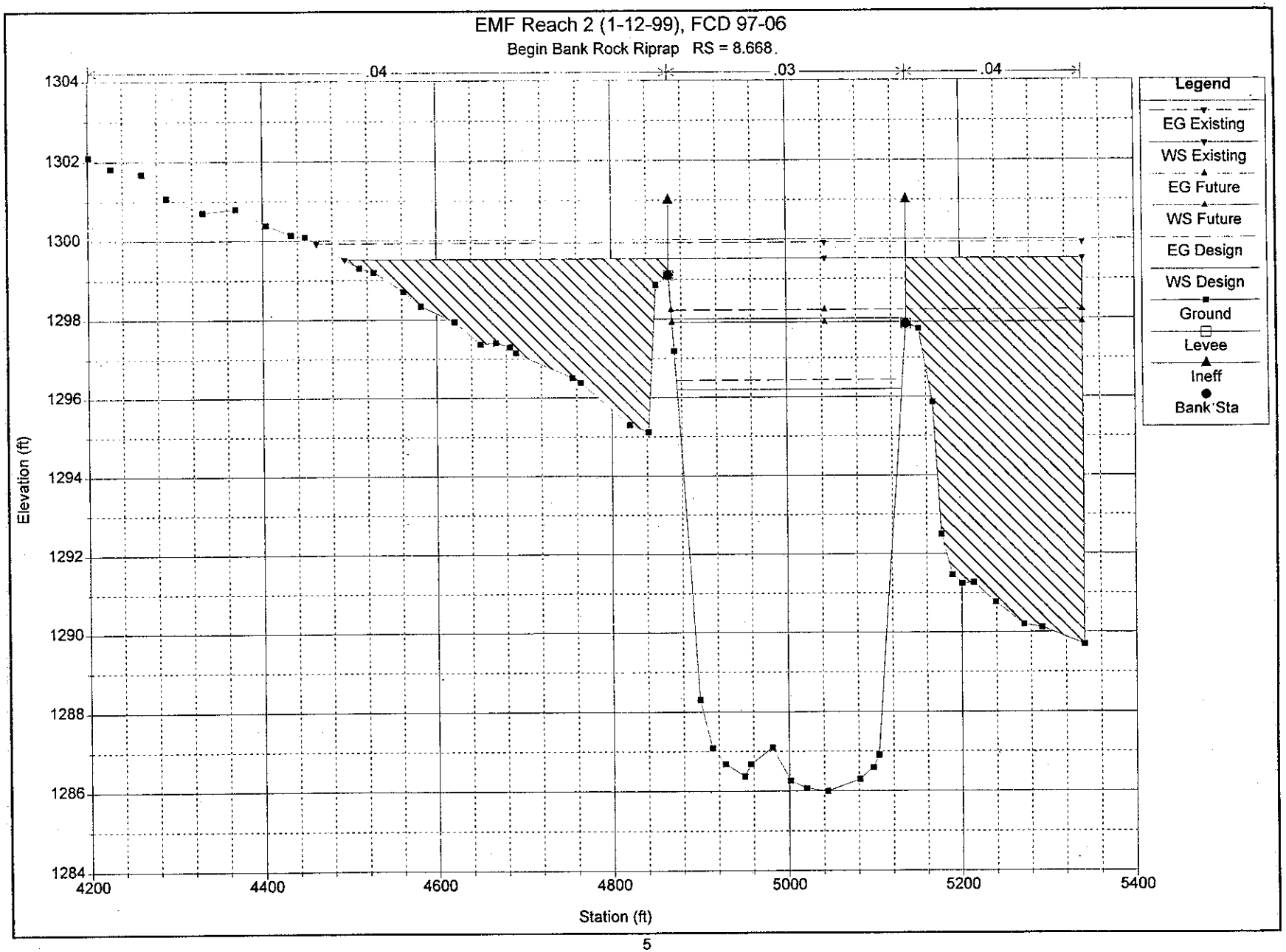

EMF Reach 2 (1-12-99), FCD 97-06
Reach 2
Legend
WS Existing
WS Future
WS Design
Ground
Elevation (ft)
1310
1300
1290
1280
1270
1260
1250
1240
1230
0
5000
10000
15000
20000
25000
Main Channel Distance (ft)

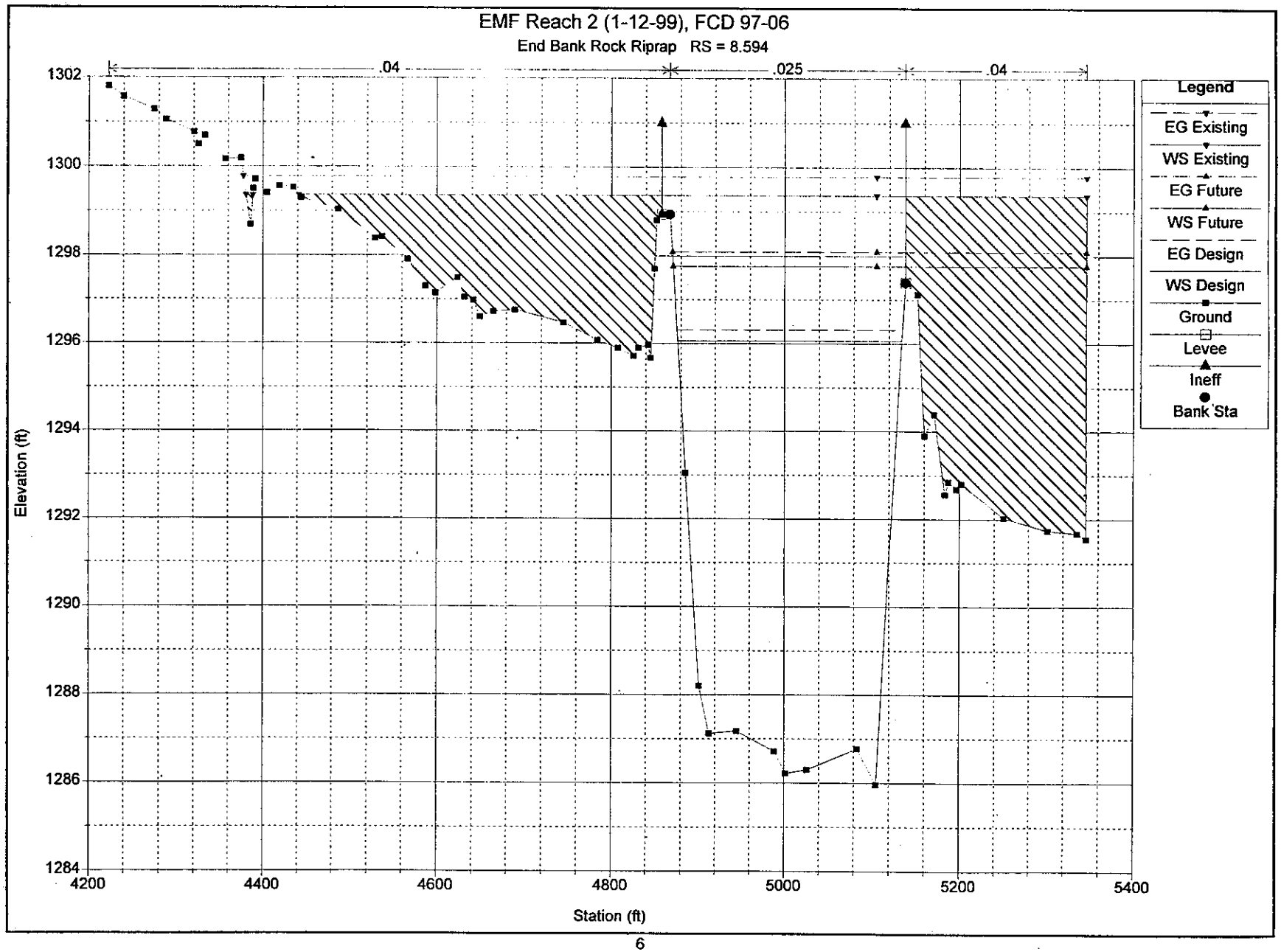

EMF Reach 2 (1-12-99), FCD 97-06
Upstream End of Reach 2 at Hunt Highway Crossing RS = 9.001
.04
.025
.04
Elevation (ft)
1304
1302
1300
1298
1296
1294
1292
1290
1288
1286
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

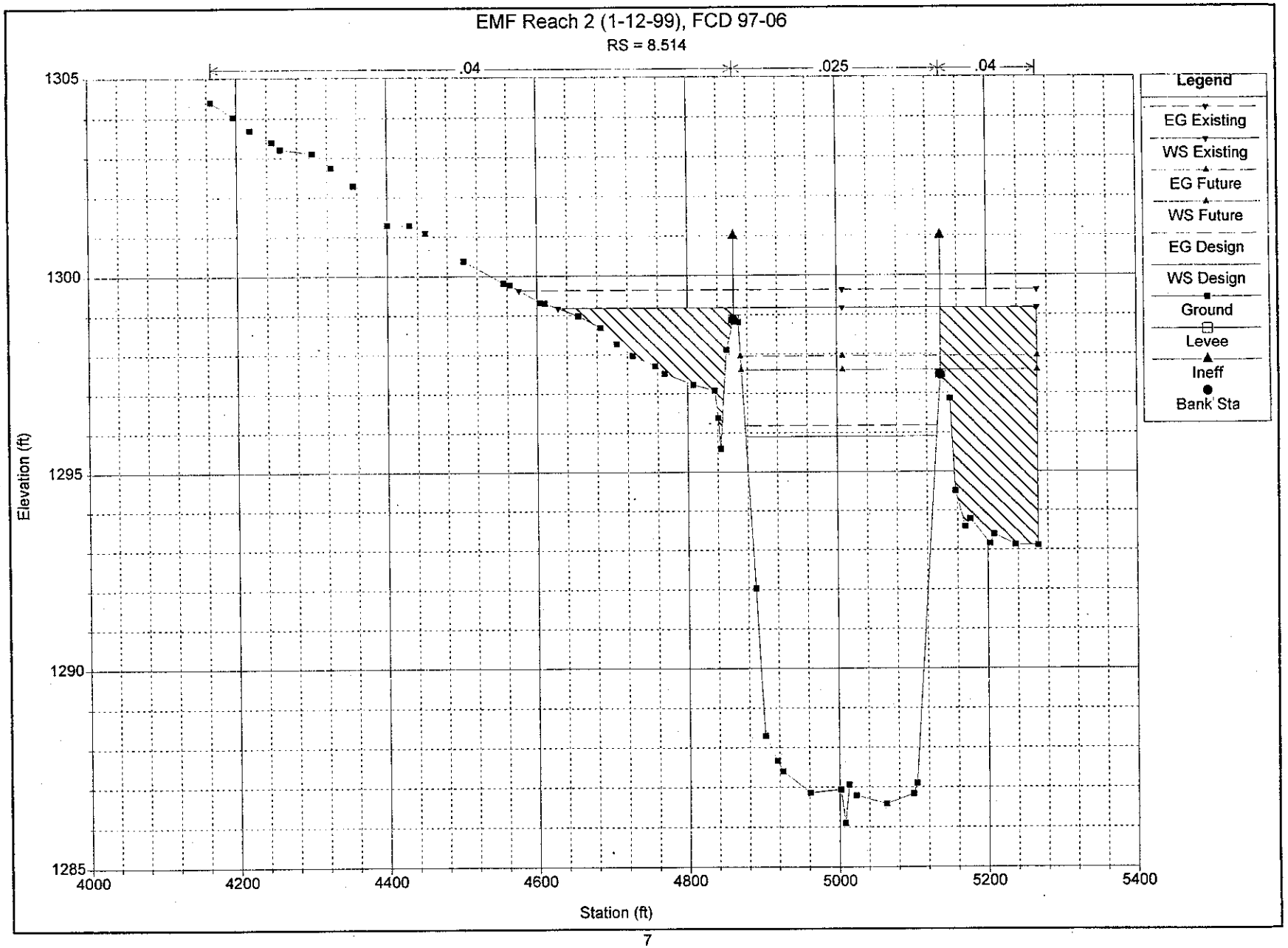

EMF Reach 2 (1-12-99), FCD 97-06
Just Downstream of Detention Basin Outlet RS = 8.948
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1304
1302
1300
1298
1296
1294
1292
1290
1288
1286
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

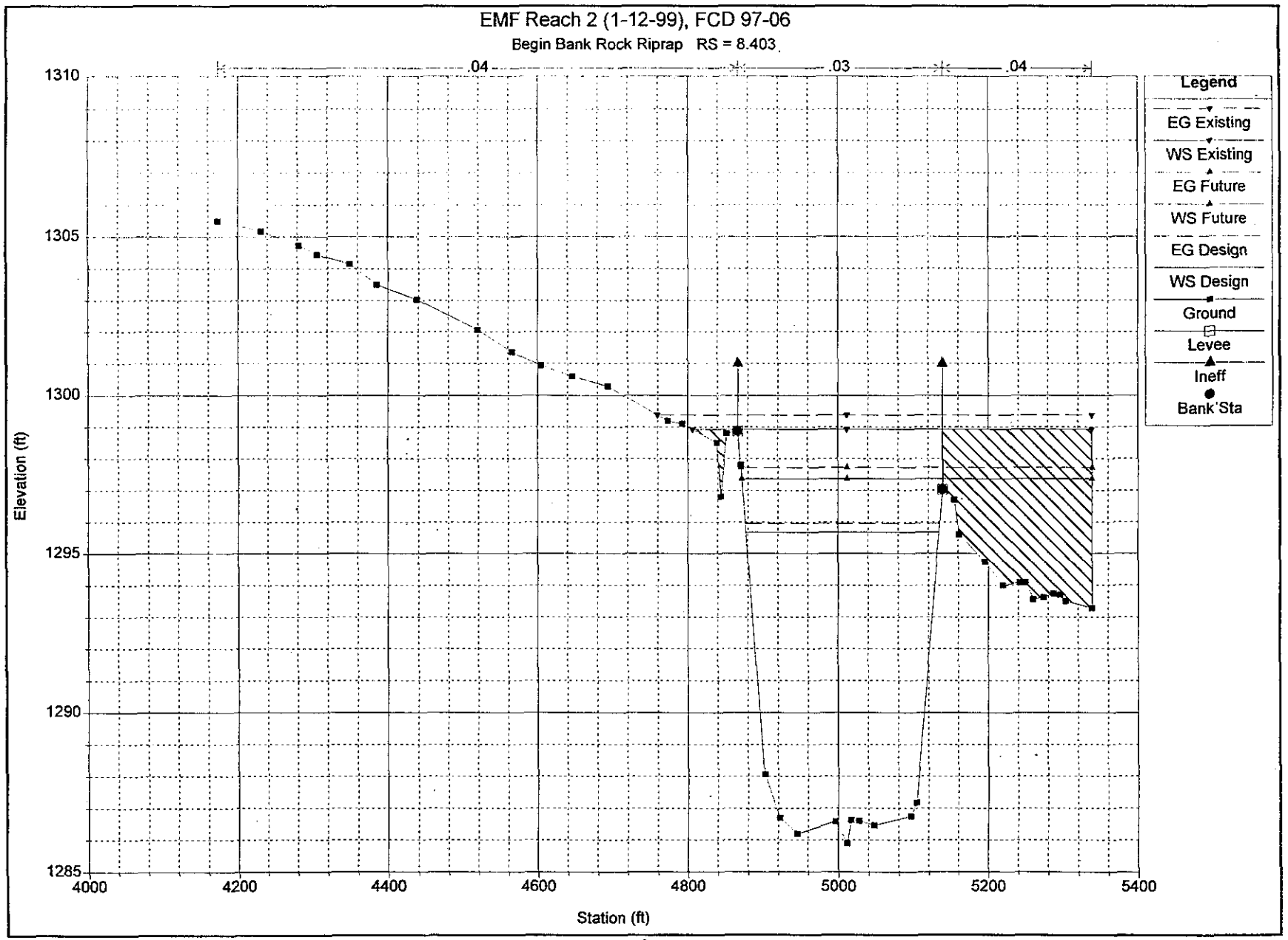

EMF Reach 2 (1-12-99), FCD 97-06
RS = 8.87
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1302
1300
1298
1296
1294
1292
1290
1288
1286
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

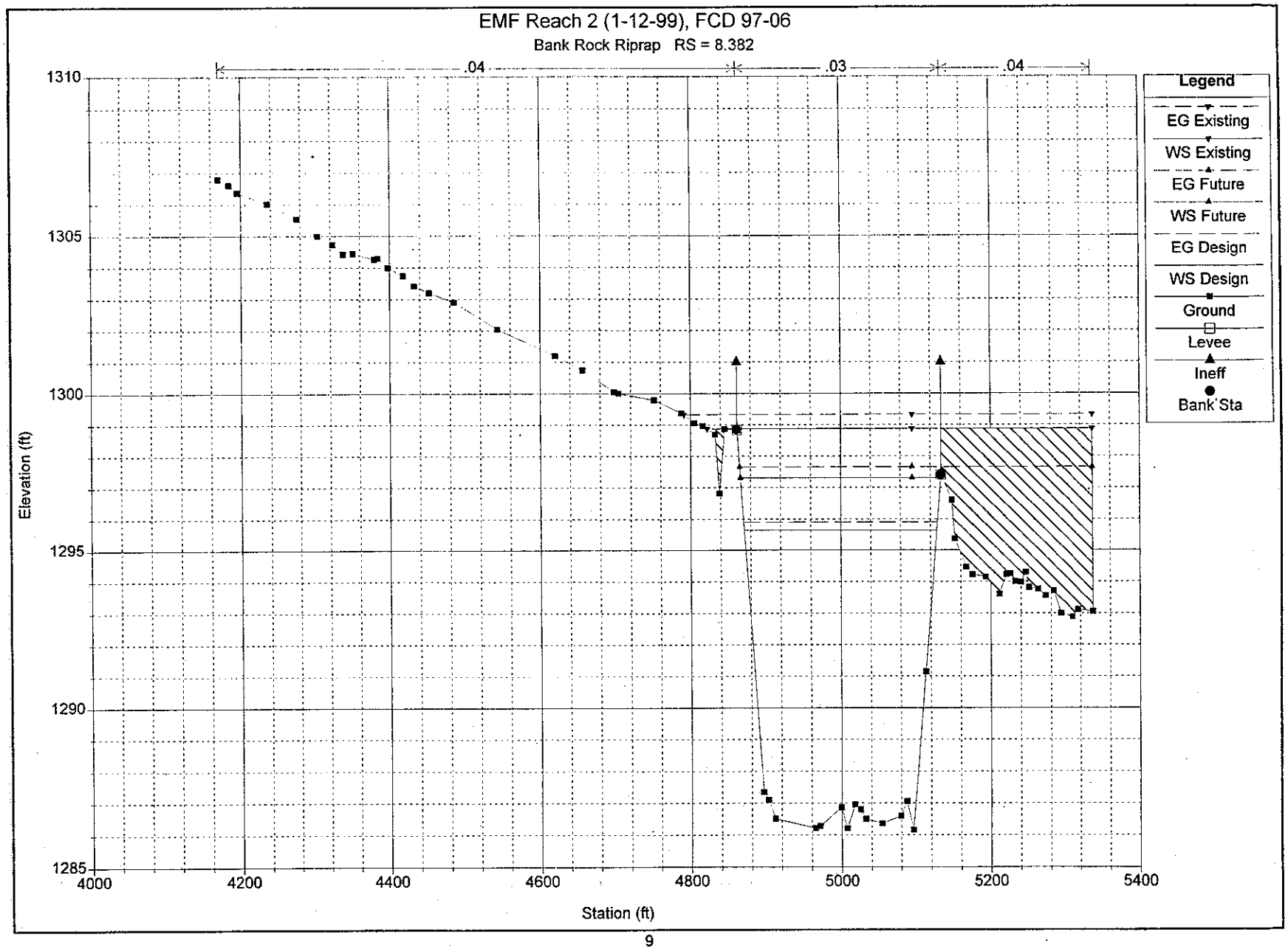

EMF Reach 2 (1-12-99), FCD 97-06
RS = 8.775
.04
.025
.04
Elevation (ft)
1302
1300
1298
1296
1294
1292
1290
1288
1286
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

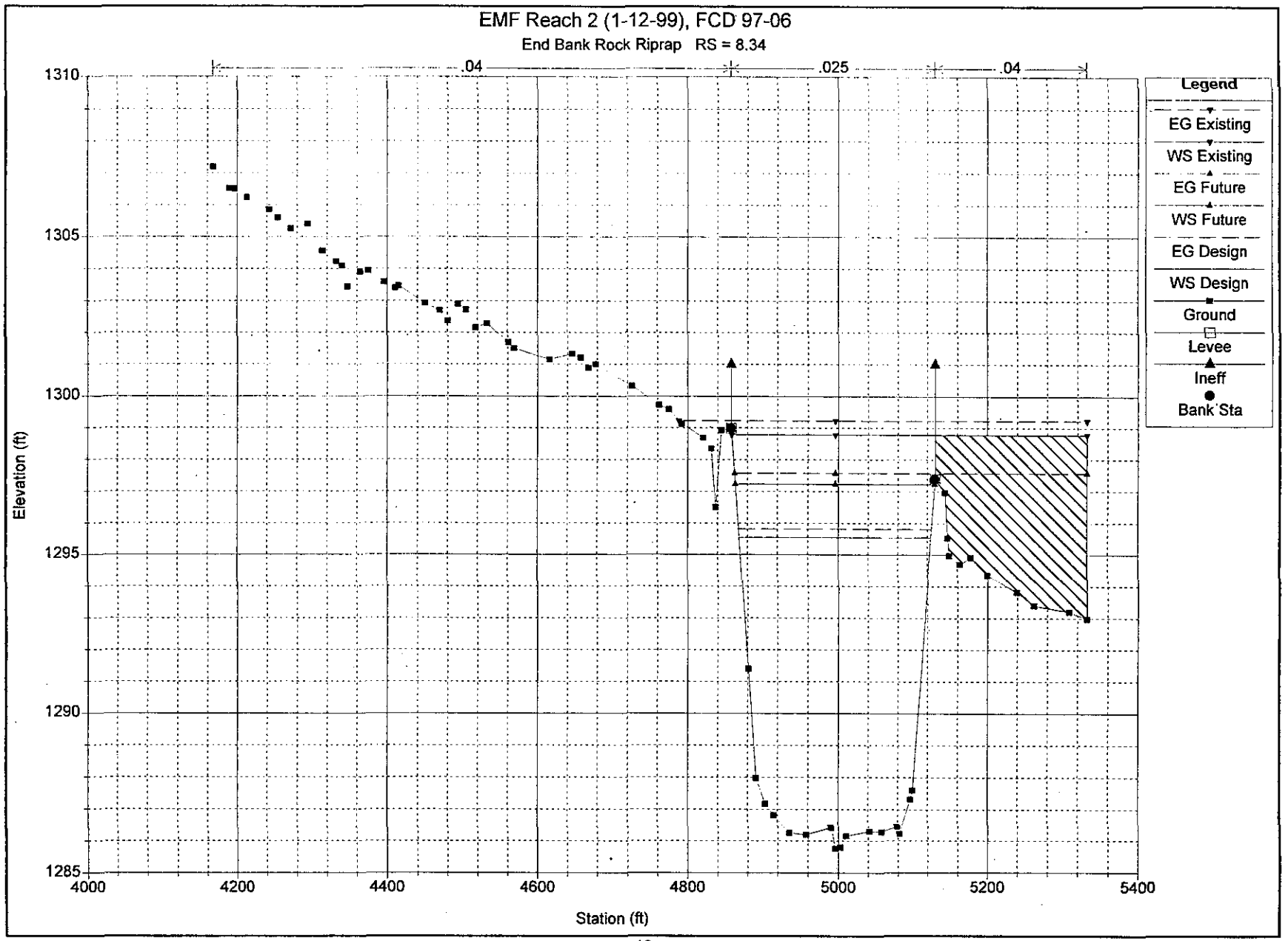

EMF Reach 2 (1-12-99), FCD 97-06
Begin Bank Rock Riprap RS = 8.668.
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1304
1302
1300
1298
1296
1294
1292
1290
1288
1286
1284
4200
4400
4600
4800
5000
5200
5400
Station (ft)

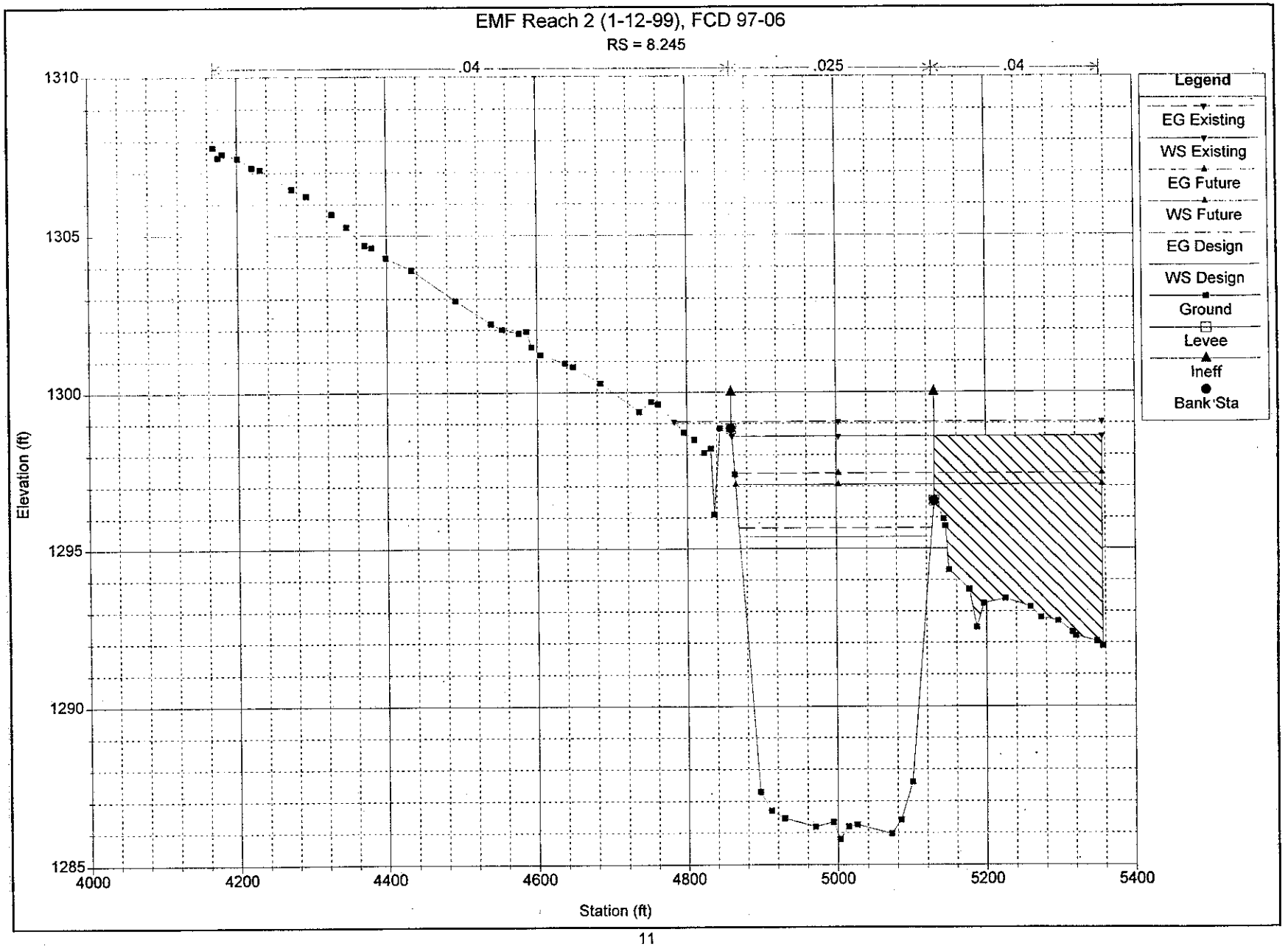

EMF Reach 2 (1-12-99), FCD 97-06
End Bank Rock Riprap RS = 8.594
.04
.025
.04
Elevation (ft)
1302
1300
1298
1296
1294
1292
1290
1288
1286
1284
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

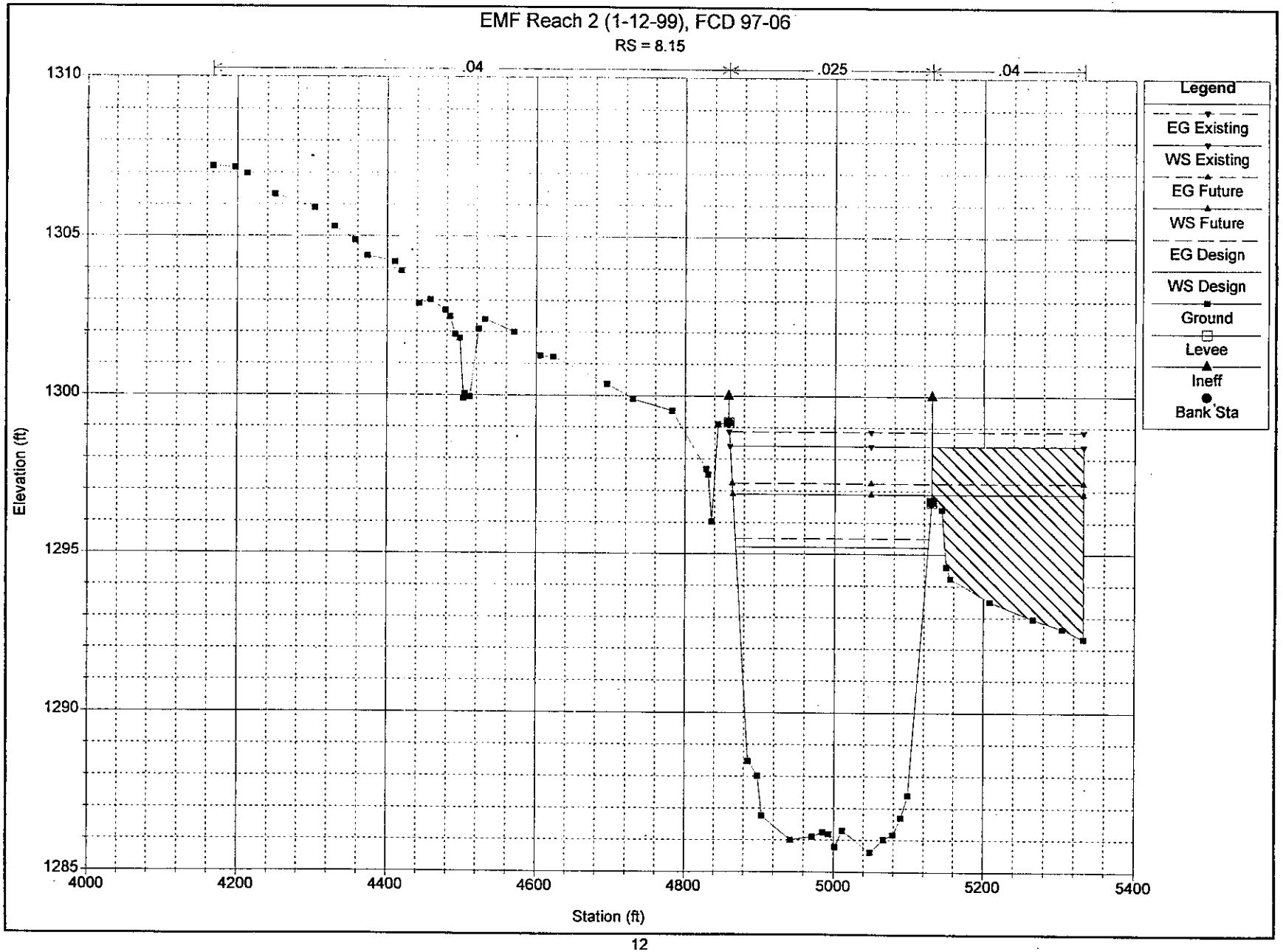

EMF Reach 2 (1-12-99), FCD 97-06
RS = 8.514
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1305
1300
1295
1290
1285
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

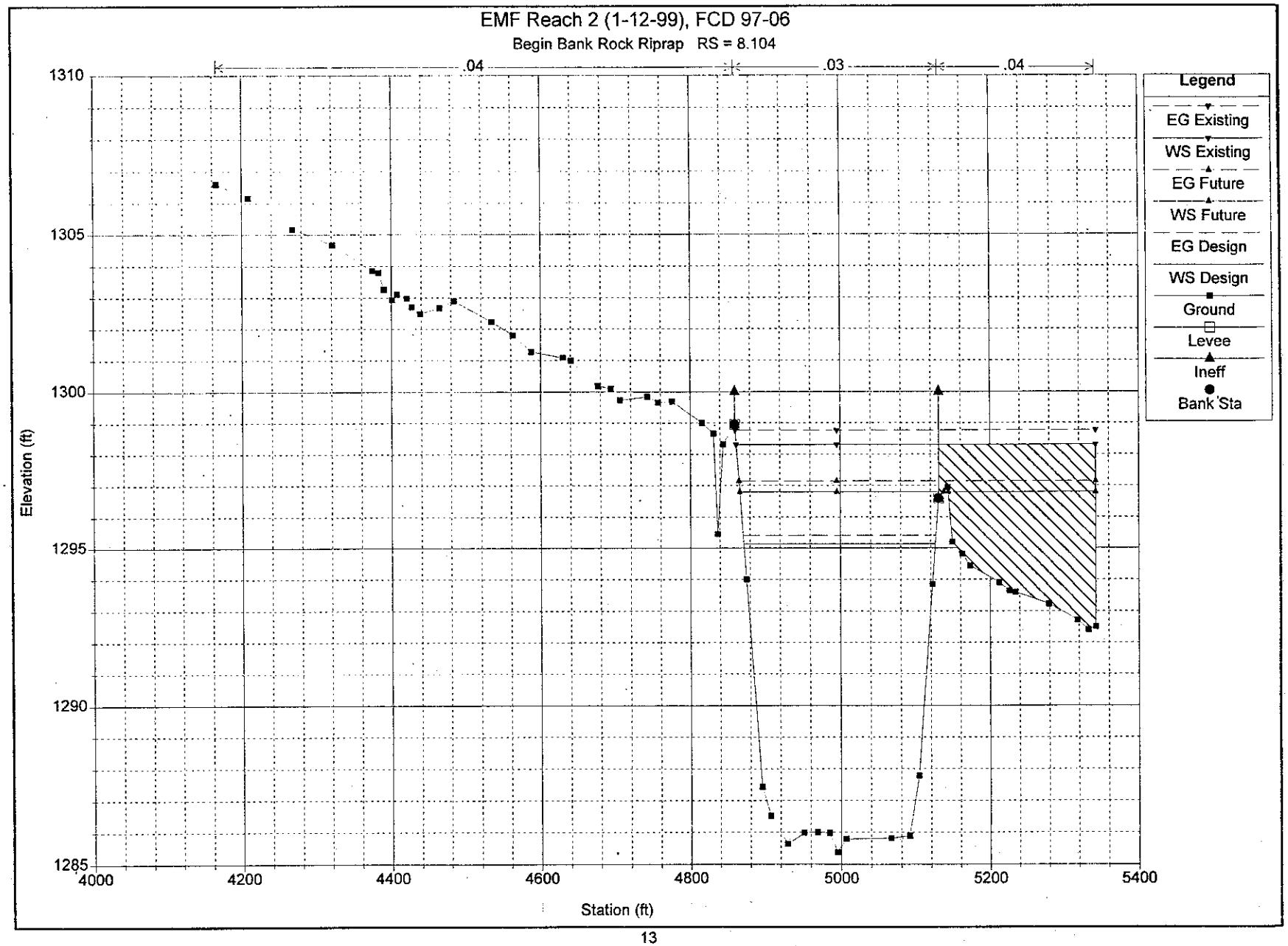

EMF Reach 2 (1-12-99), FCD 97-06
Begin Bank Rock Riprap RS = 8.403
.04
.03
.04
1310
1305
1300
1295
1290
1285
Elevation (ft)
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

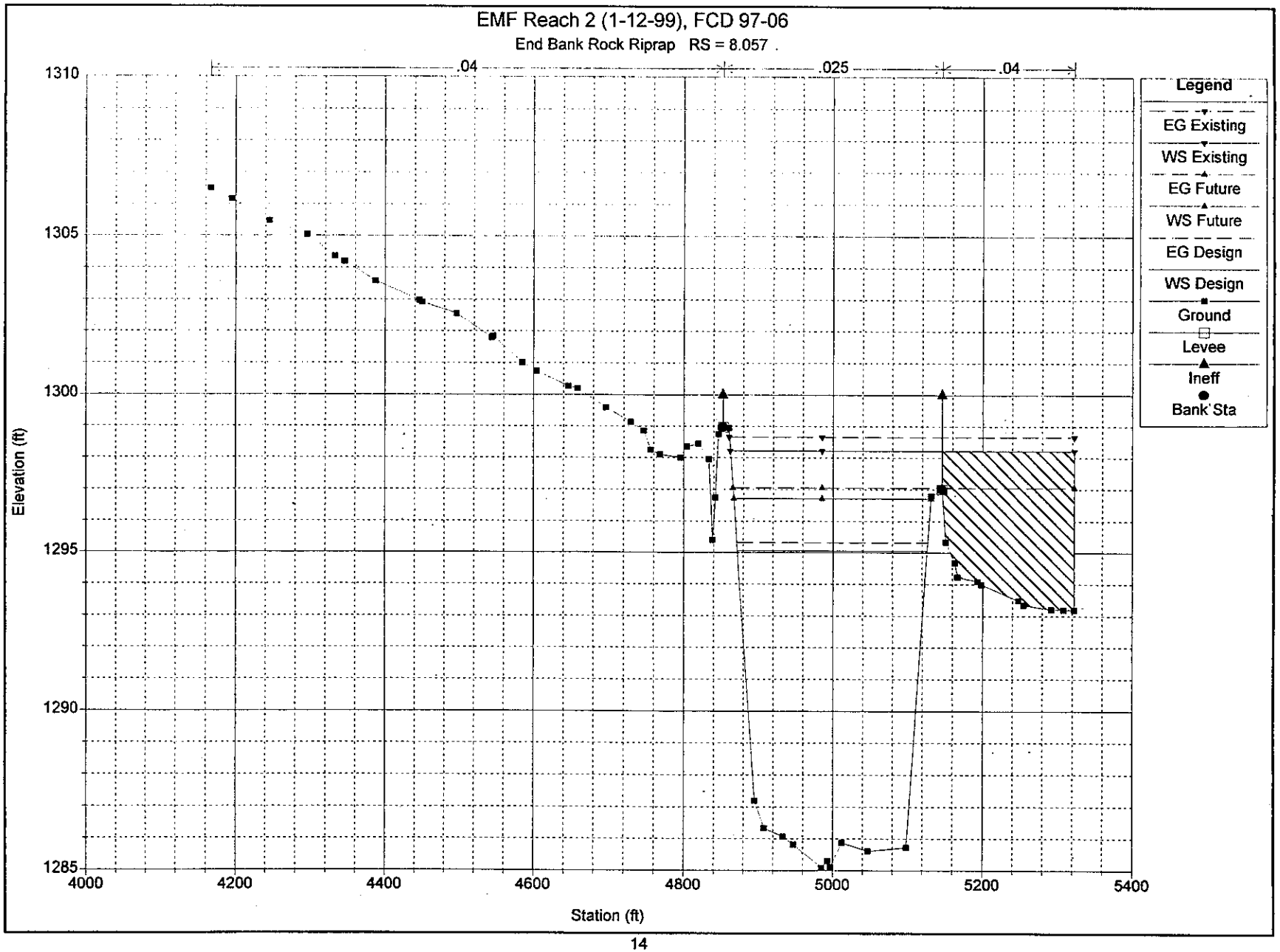

EMF Reach 2 (1-12-99), FCD 97-06
Bank Rock Riprap RS = 8.382
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1310
1305
1300
1295
1290
1285
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

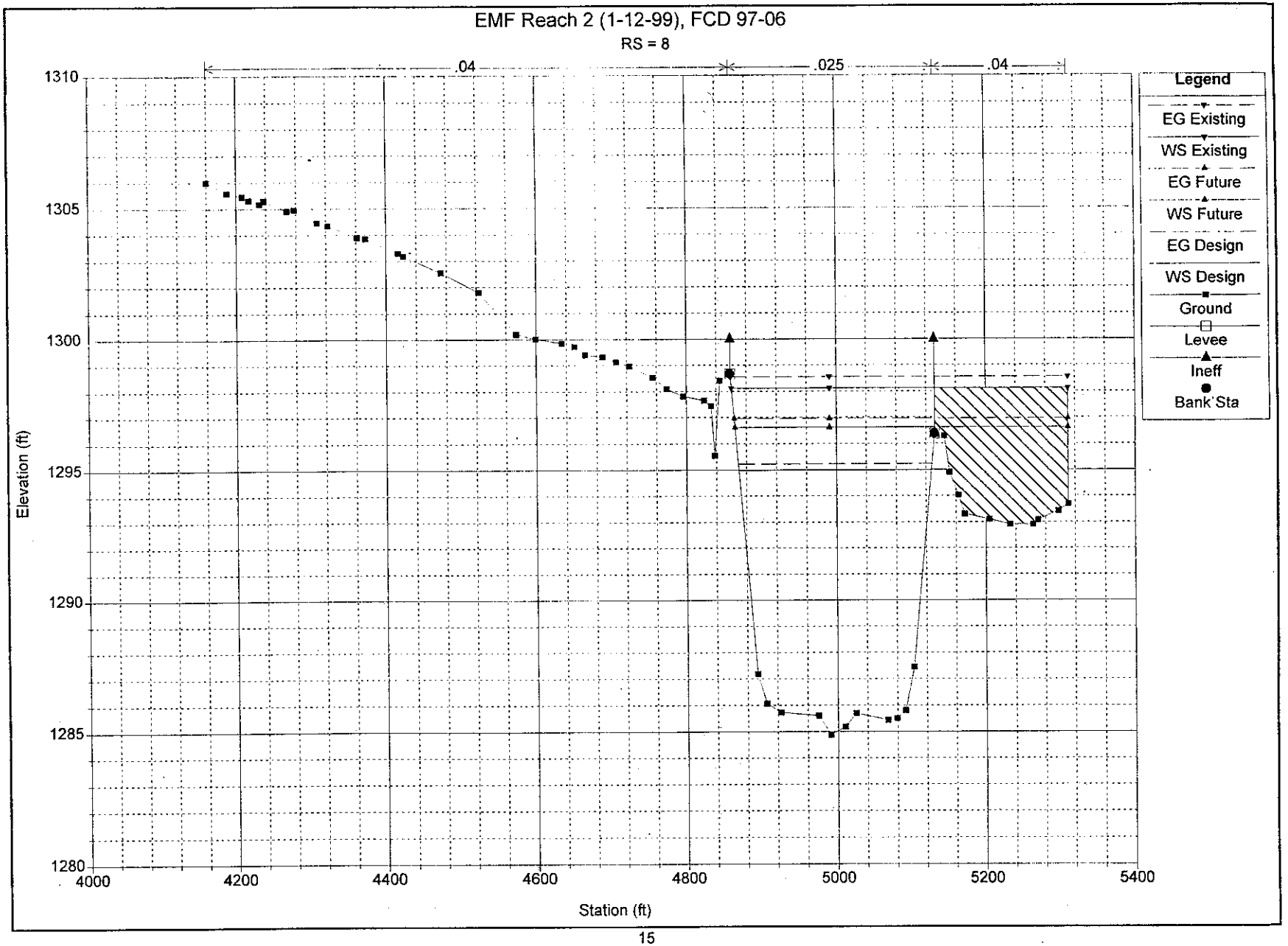

EMF Reach 2 (1-12-99), FCD 97-06
End Bank Rock Riprap RS = 8.34
.04
.025
.04
Elevation (ft)
1310
1305
1300
1295
1290
1285
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

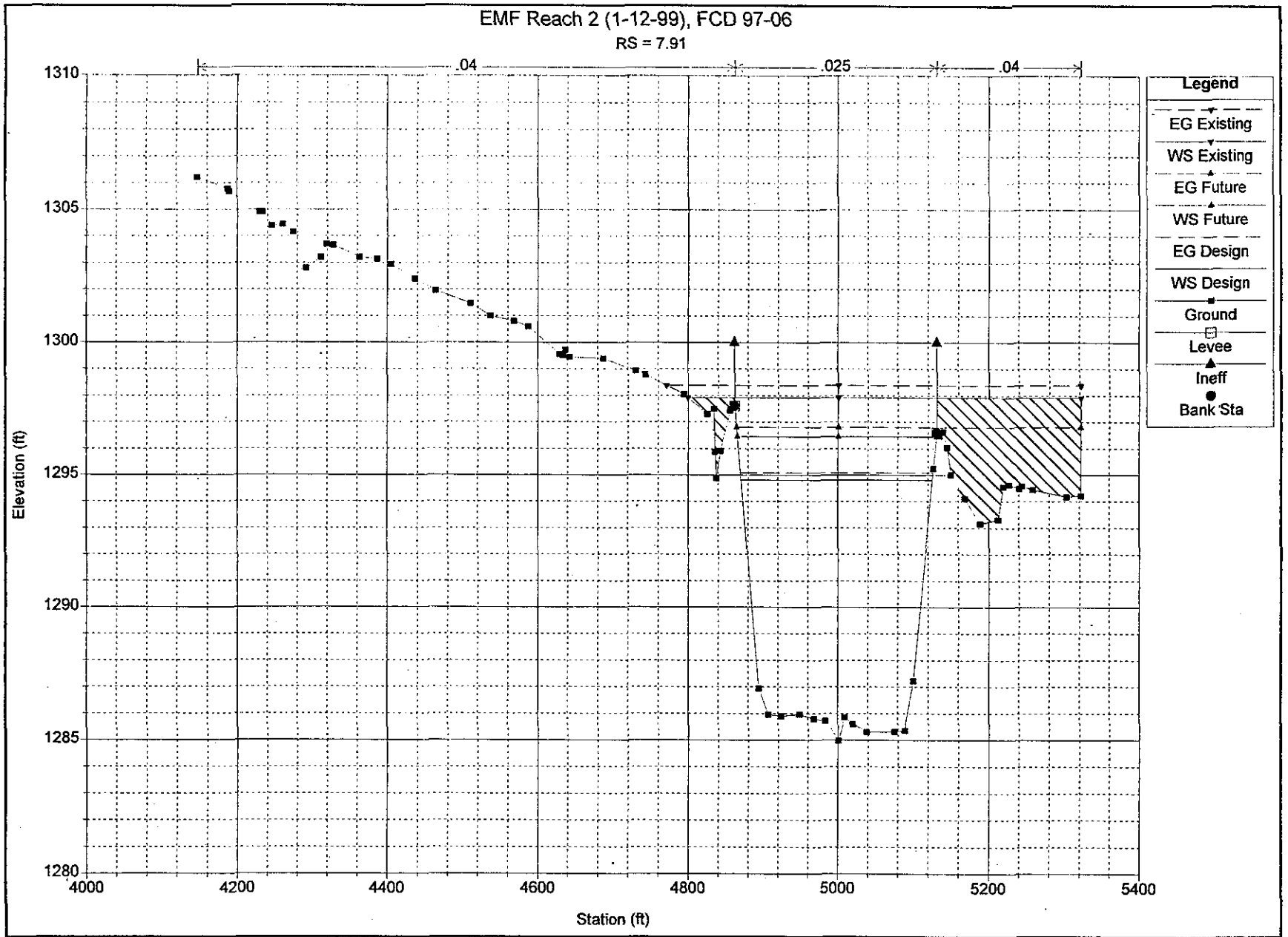

EMF Reach 2 (1-12-99), FCD 97-06
RS = 8.245
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1310
1305
1300
1295
1290
1285
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

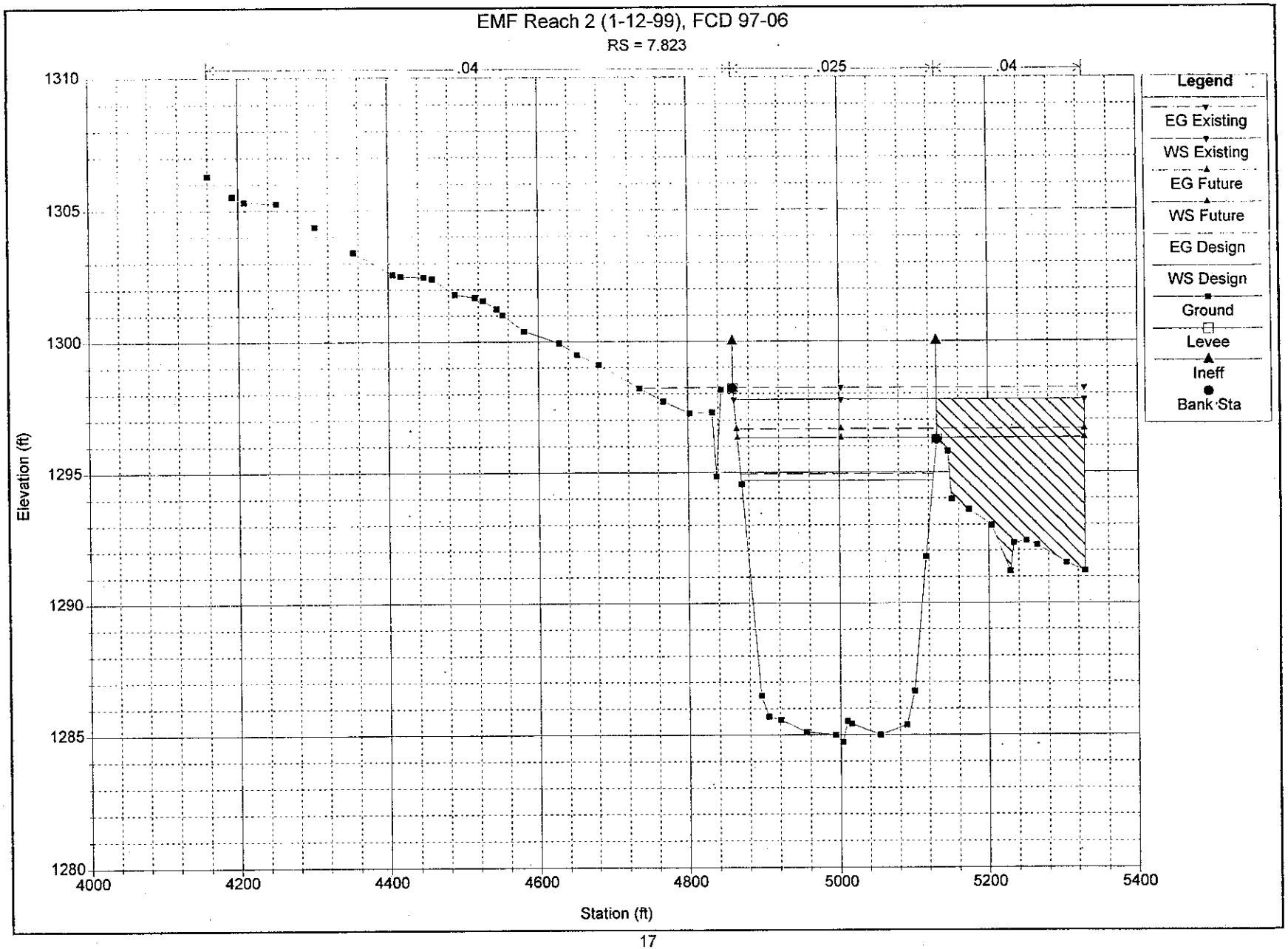

EMF Reach 2 (1-12-99), FCD 97-06
RS = 8.15
.04
.025
.04
Elevation (ft)
1310
1305
1300
1295
1290
1285
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

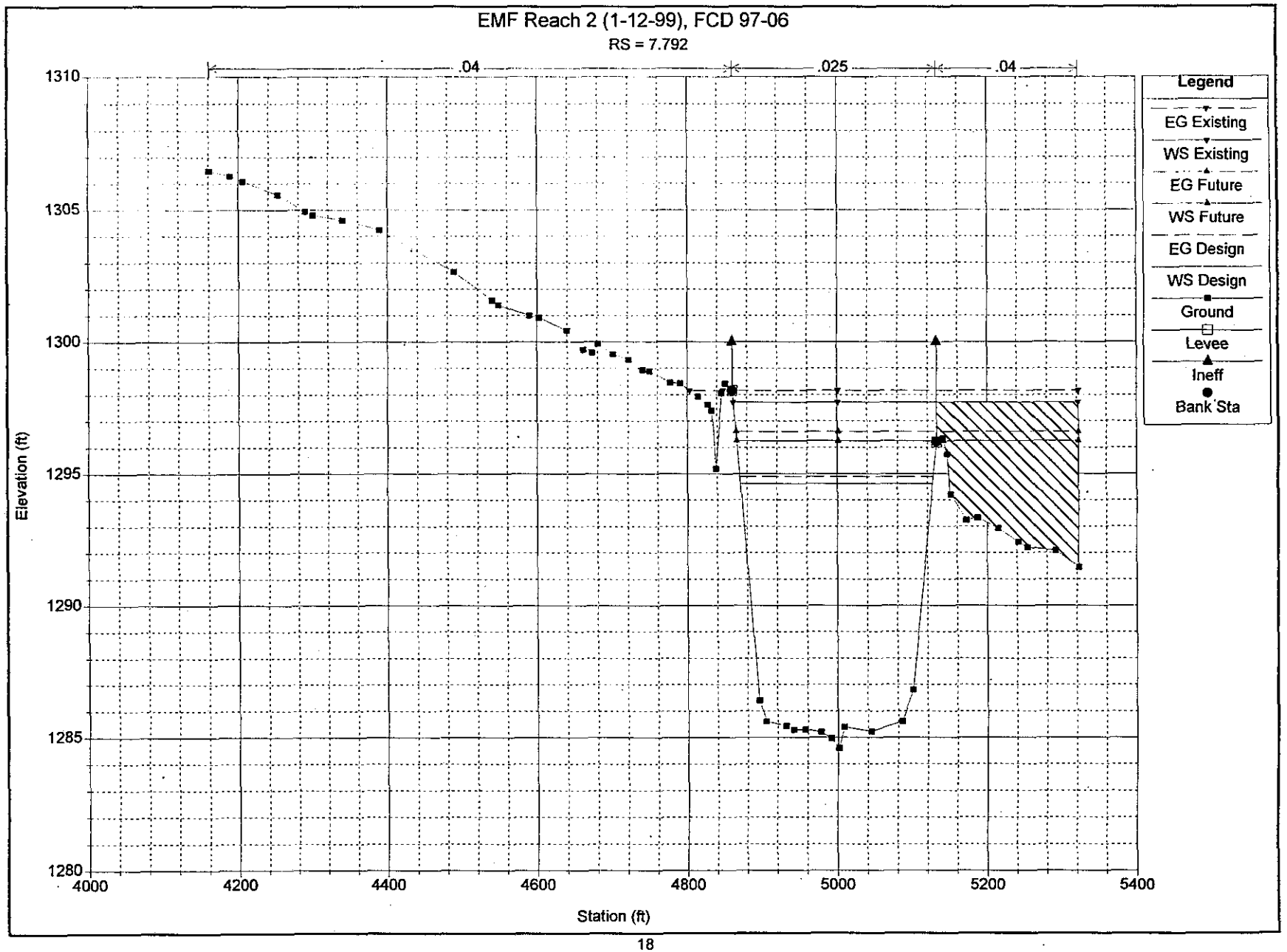

EMF Reach 2 (1-12-99), FCD 97-06
Begin Bank Rock Riprap RS = 8.104
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1310
1305
1300
1295
1290
1285
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

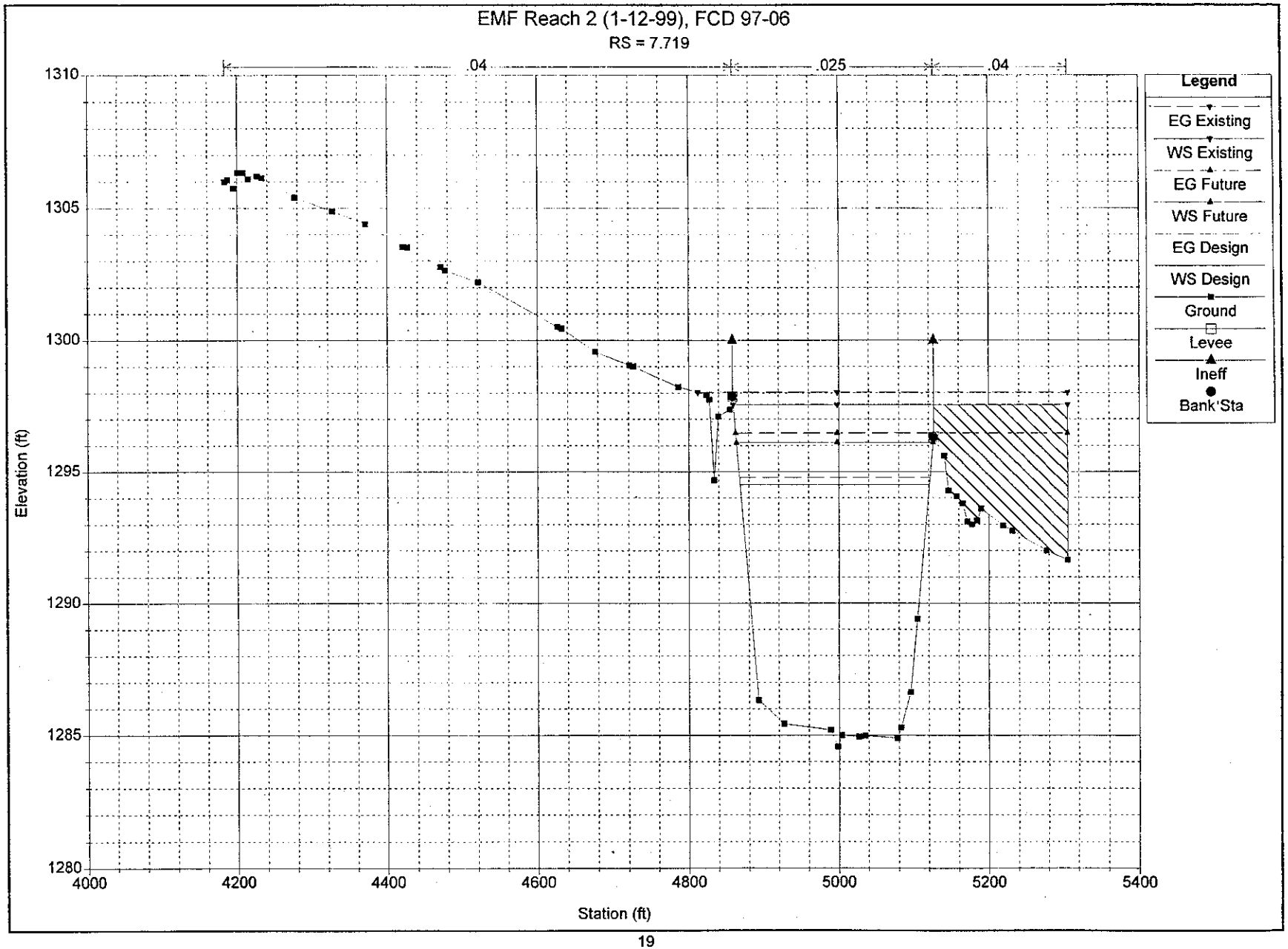

EMF Reach 2 (1-12-99), FCD 97-06
End Bank Rock Riprap RS = 8.057
.04
.025
.04
Elevation (ft)
1310
1305
1300
1295
1290
1285
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

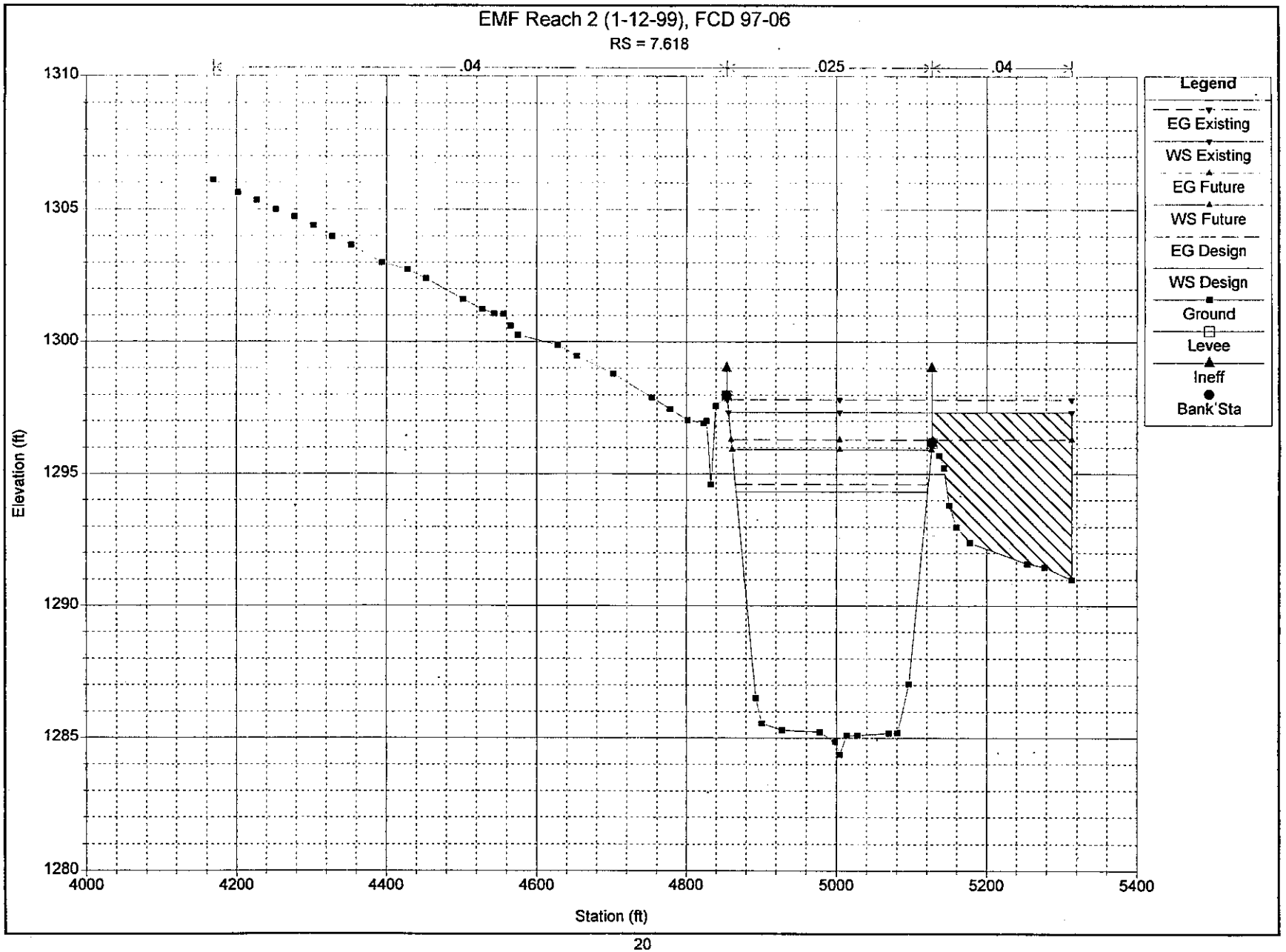

EMF Reach 2 (1-12-99), FCD 97-06
RS = 8
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1310
1305
1300
1295
1290
1285
1280
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

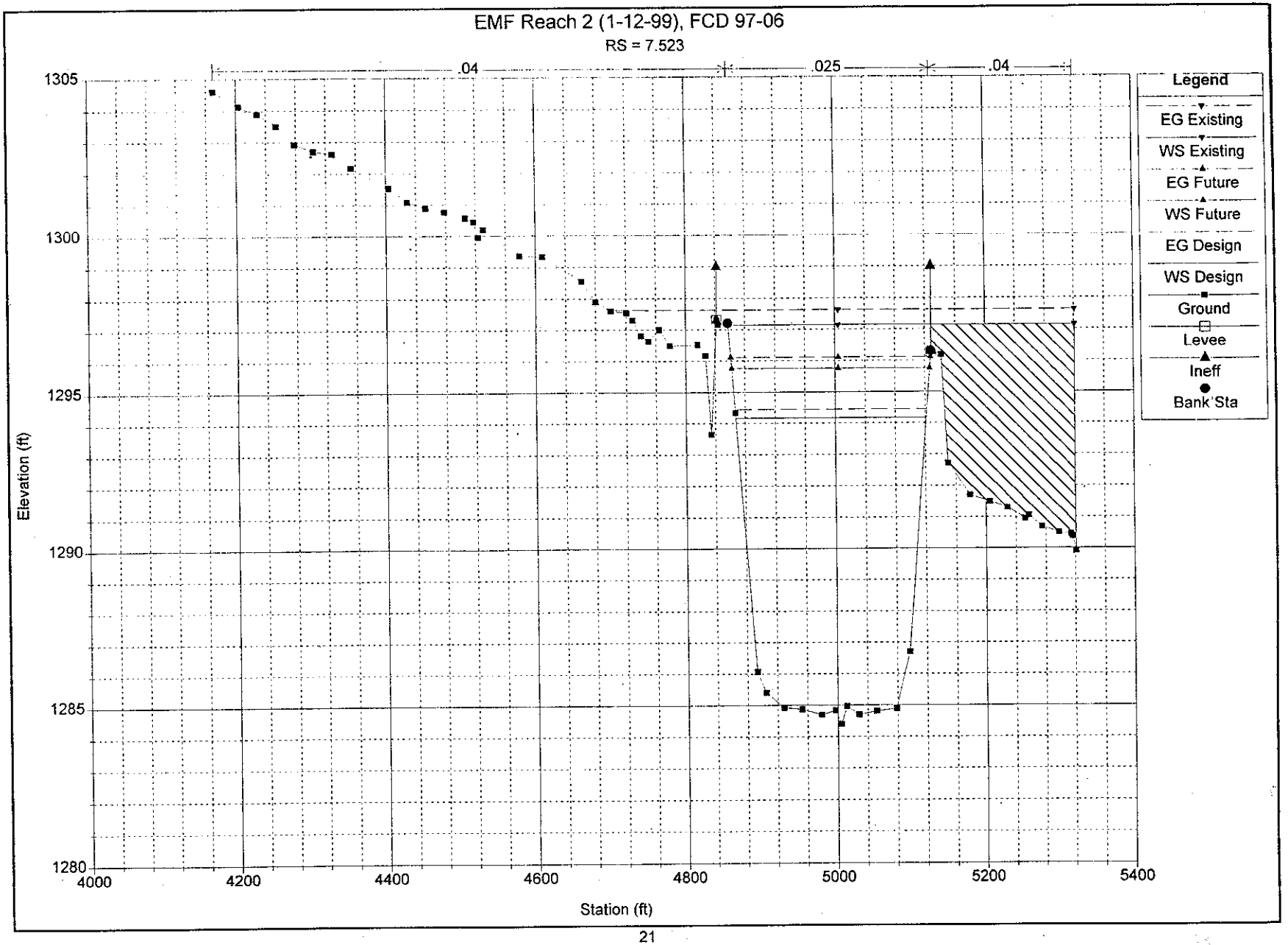

EMF Reach 2 (1-12-99), FCD 97-06
RS = 7.91
.04
.025
.04
Elevation (ft)
1310
1305
1300
1295
1290
1285
1280
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

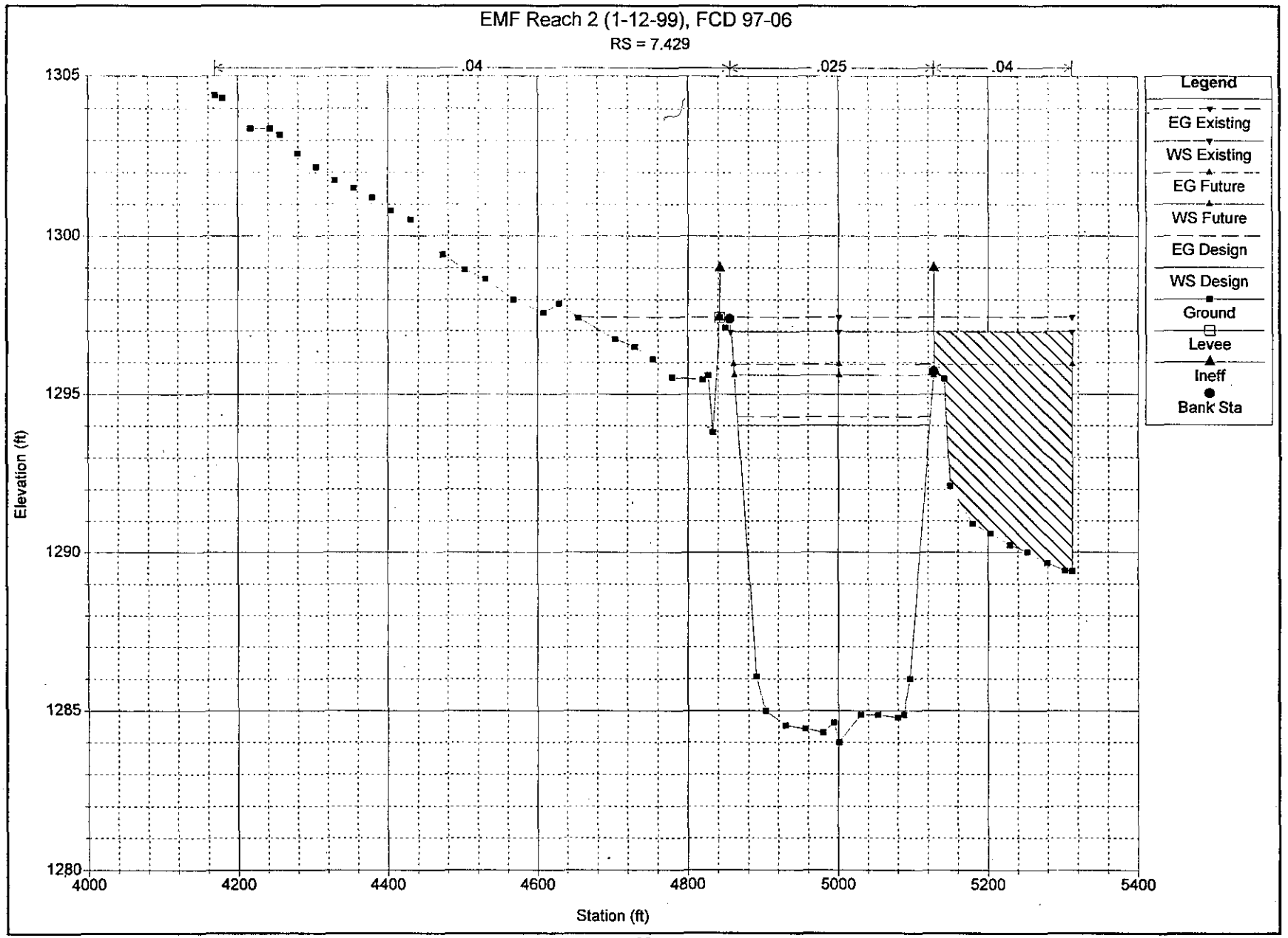

EMF Reach 2 (1-12-99), FCD 97-06
RS = 7.823
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1310
1305
1300
1295
1290
1285
1280
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

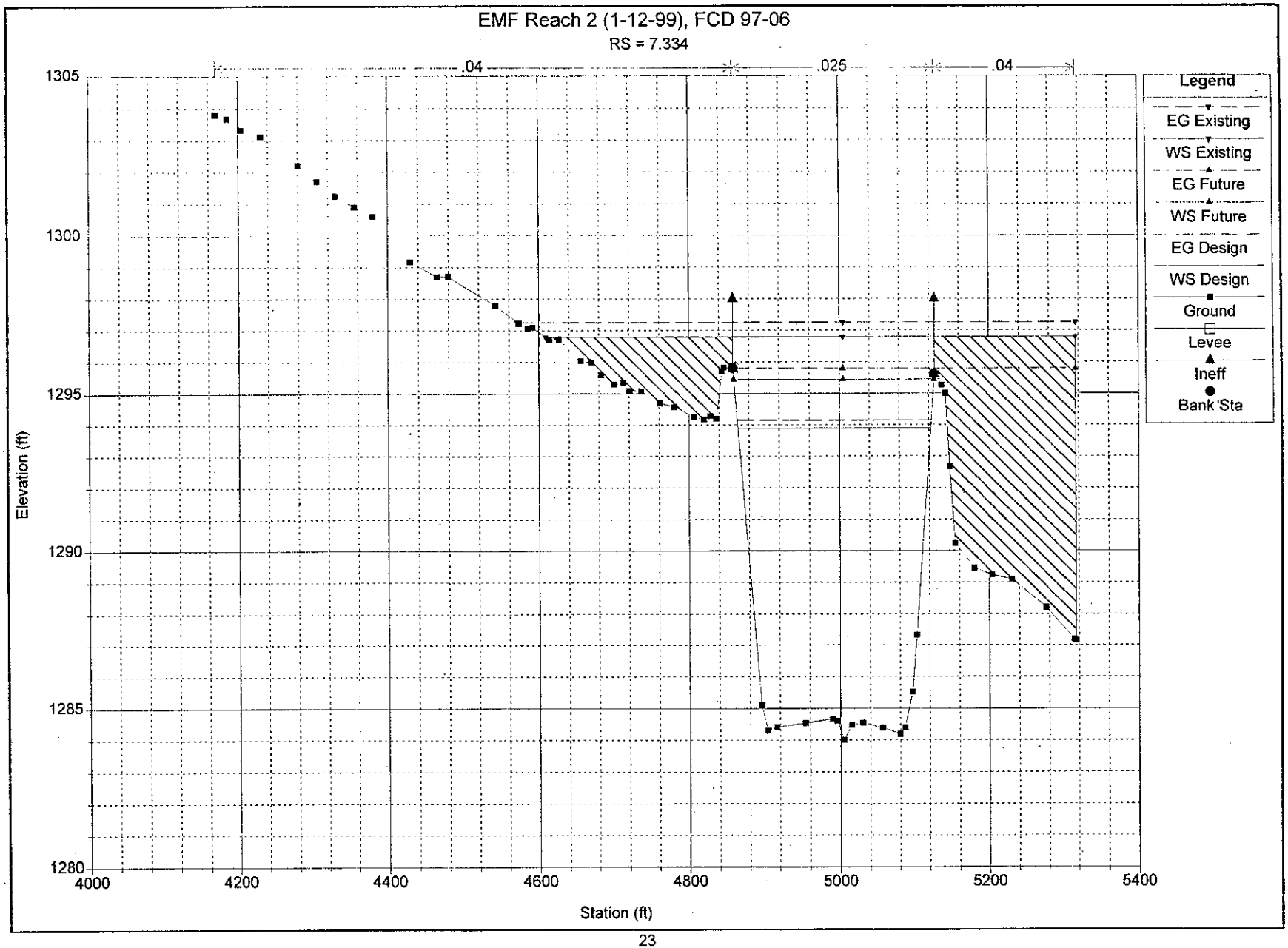

EMF Reach 2 (1-12-99), FCD 97-06
RS = 7.792
.04
.025
.04
Elevation (ft)
1310
1305
1300
1295
1290
1285
1280
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

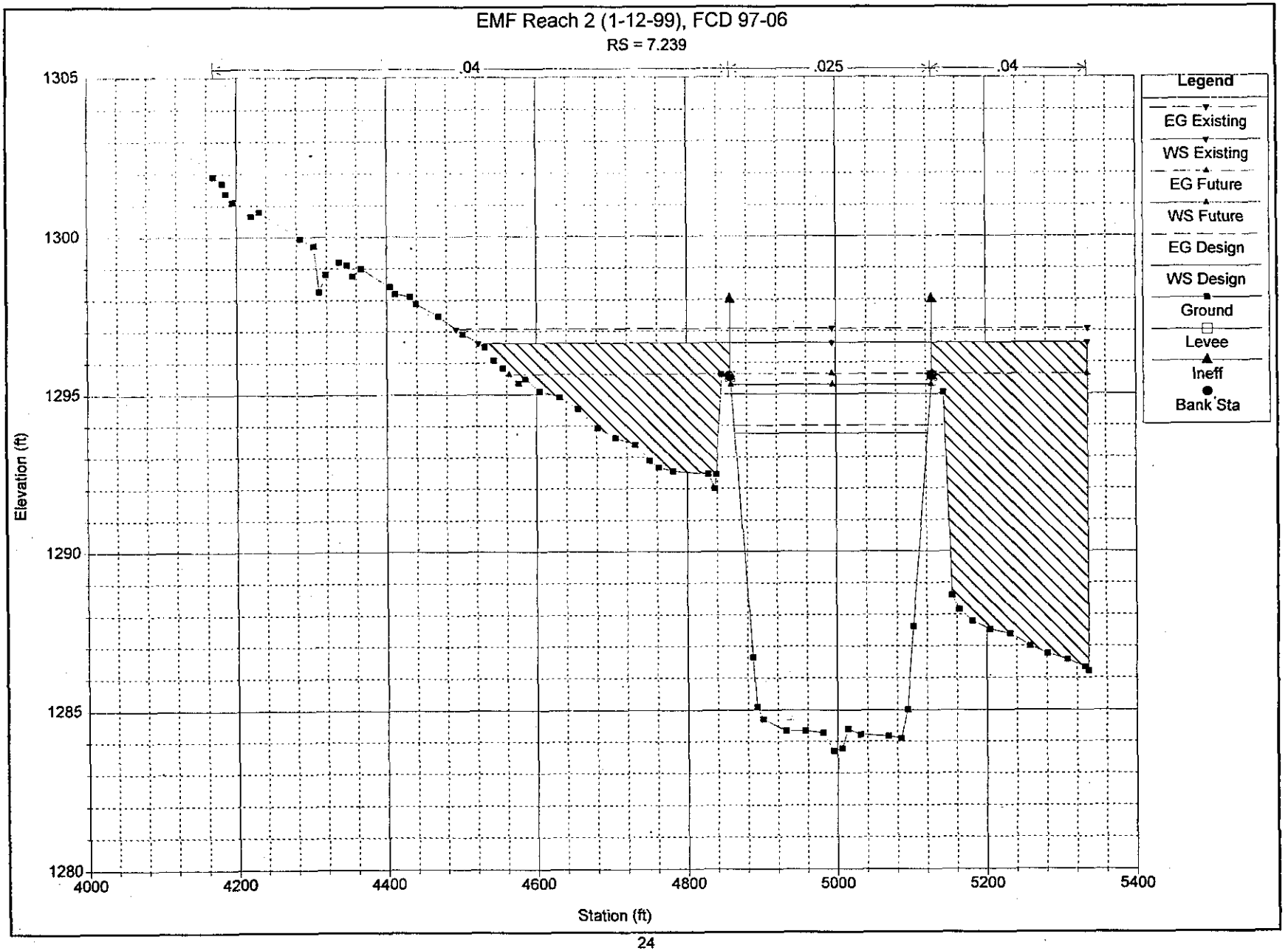

EMF Reach 2 (1-12-99), FCD 97-06
RS = 7.719
.04
.025
.04
Elevation (ft)
1310
1305
1300
1295
1290
1285
1280
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

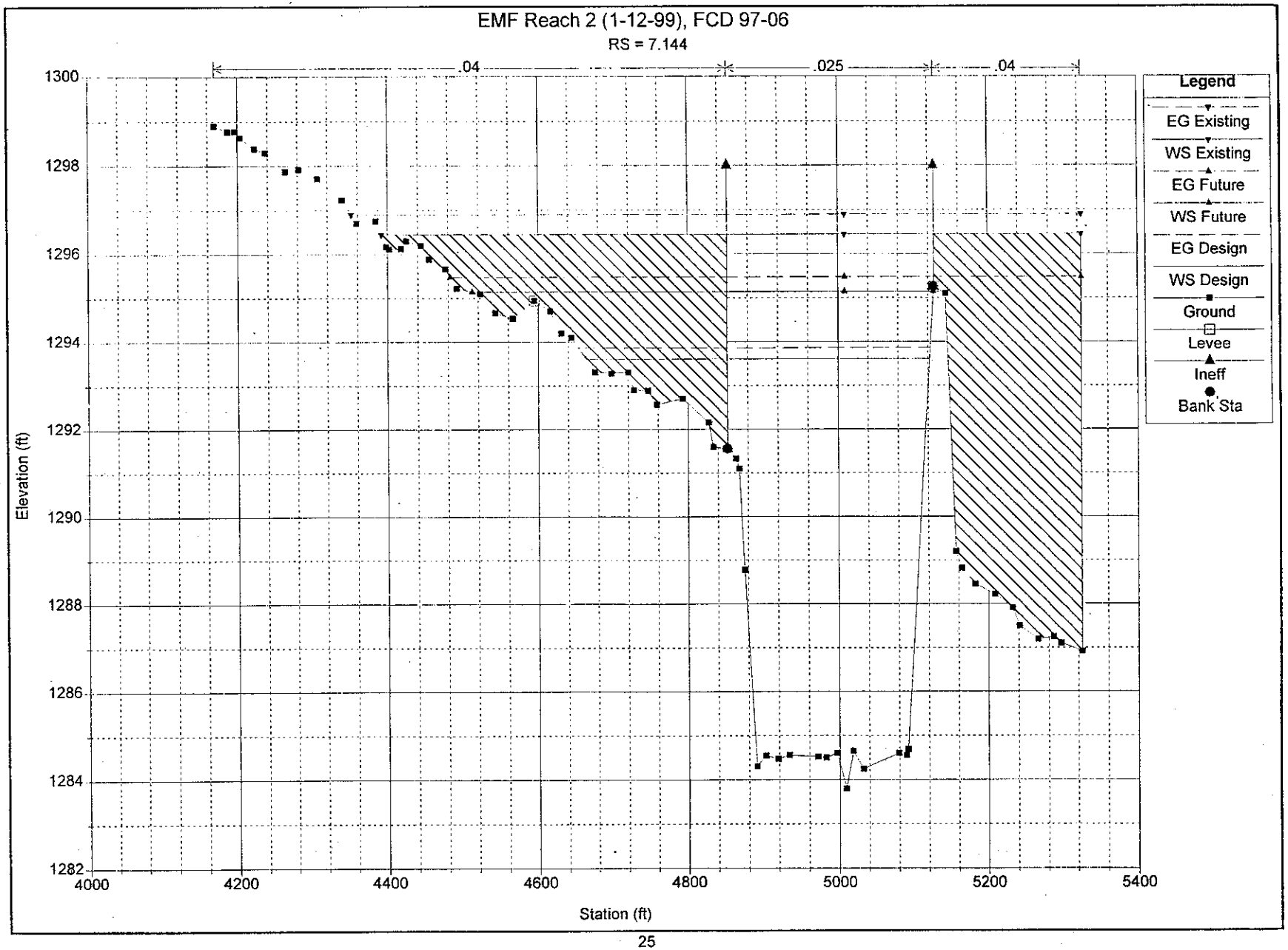

EMF Reach 2 (1-12-99), FCD 97-06
RS = 7.618
.04
.025
.04
Elevation (ft)
1310
1305
1300
1295
1290
1285
1280
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

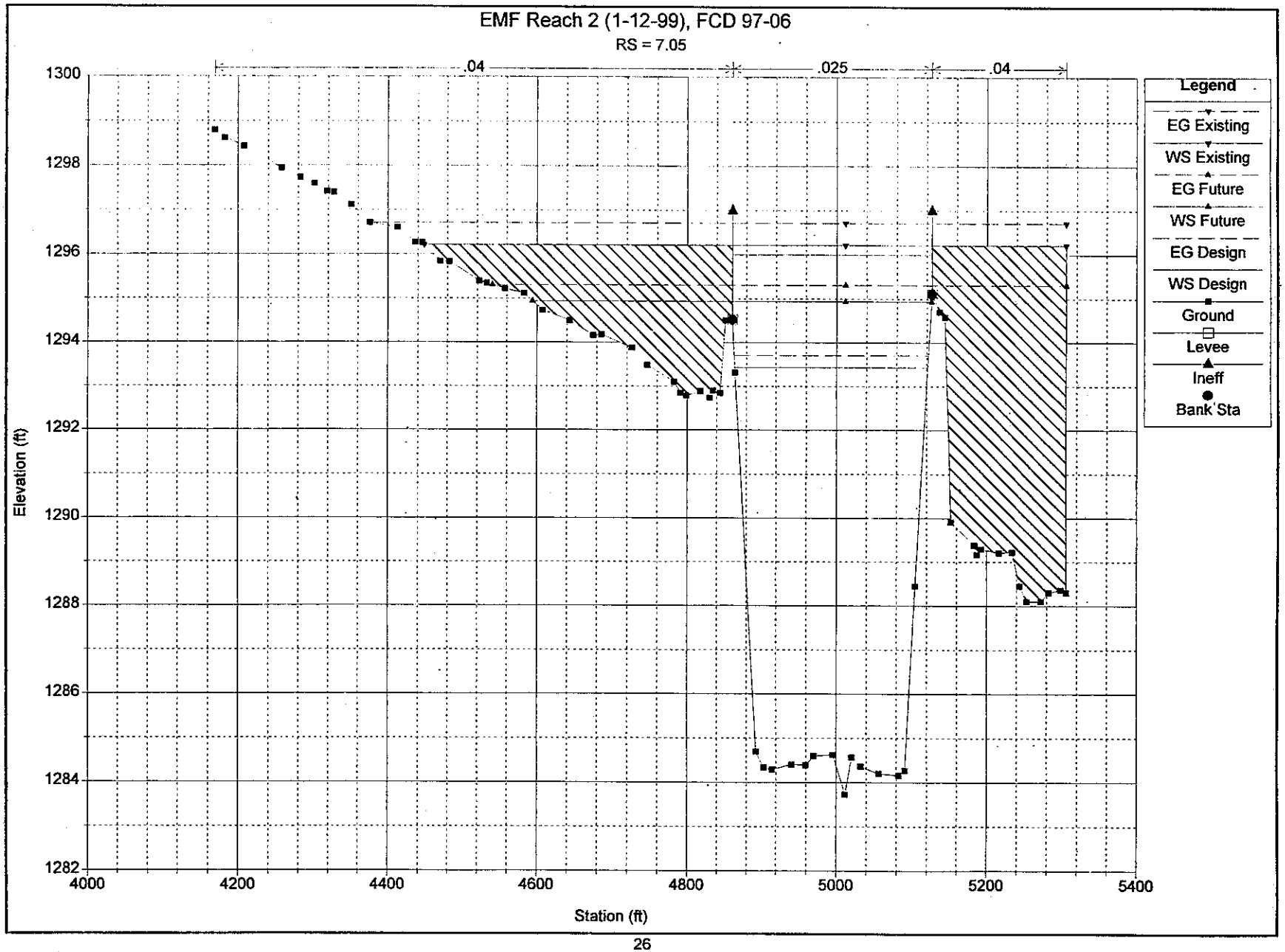

EMF Reach 2 (1-12-99), FCD 97-06
RS = 7.523
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1305
1300
1295
1290
1285
1280
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

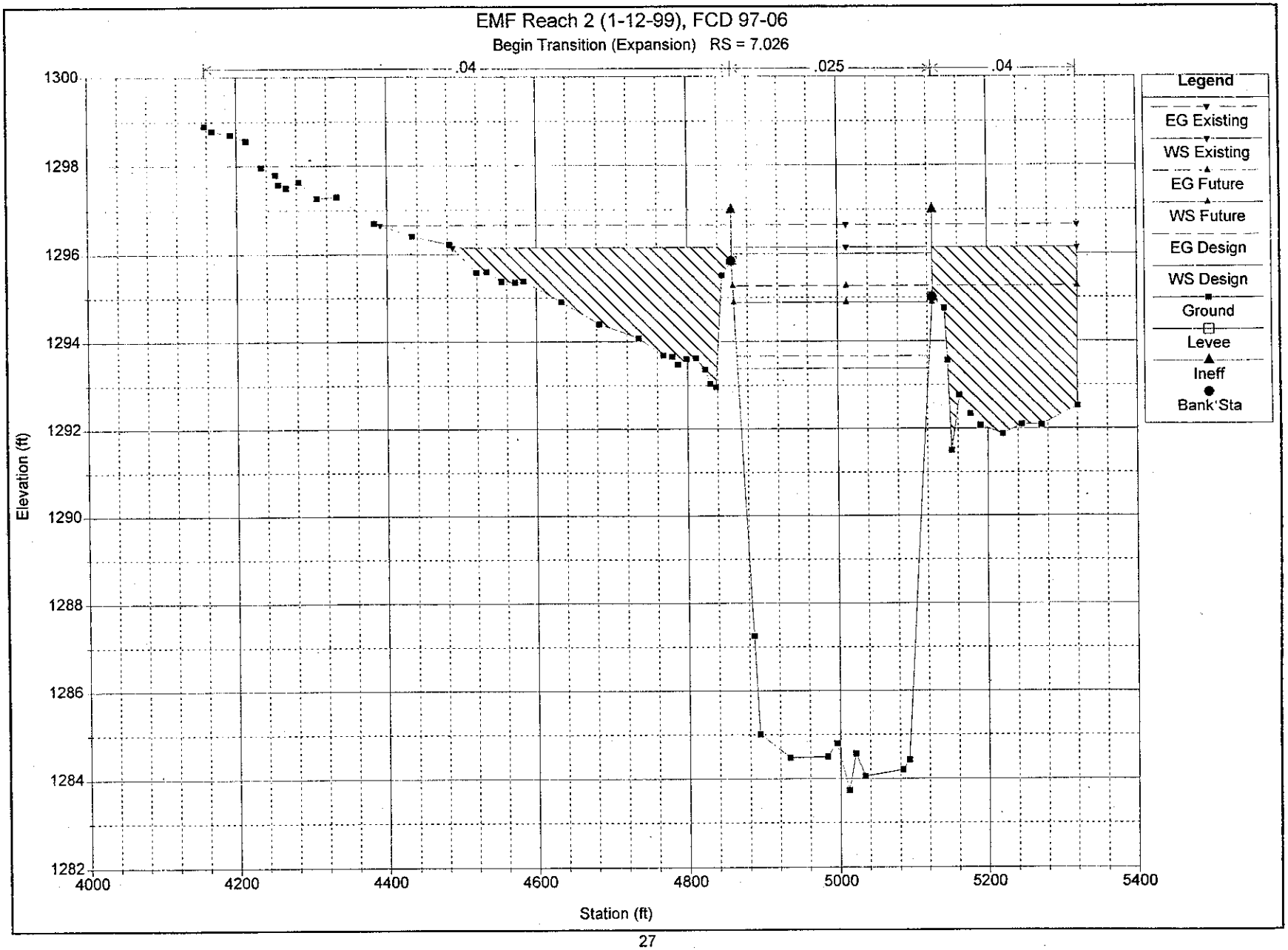

EMF Reach 2 (1-12-99), FCD 97-06
RS = 7.429
.04
.025
.04
1305
1300
1295
1290
1285
1280
Elevation (ft)
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

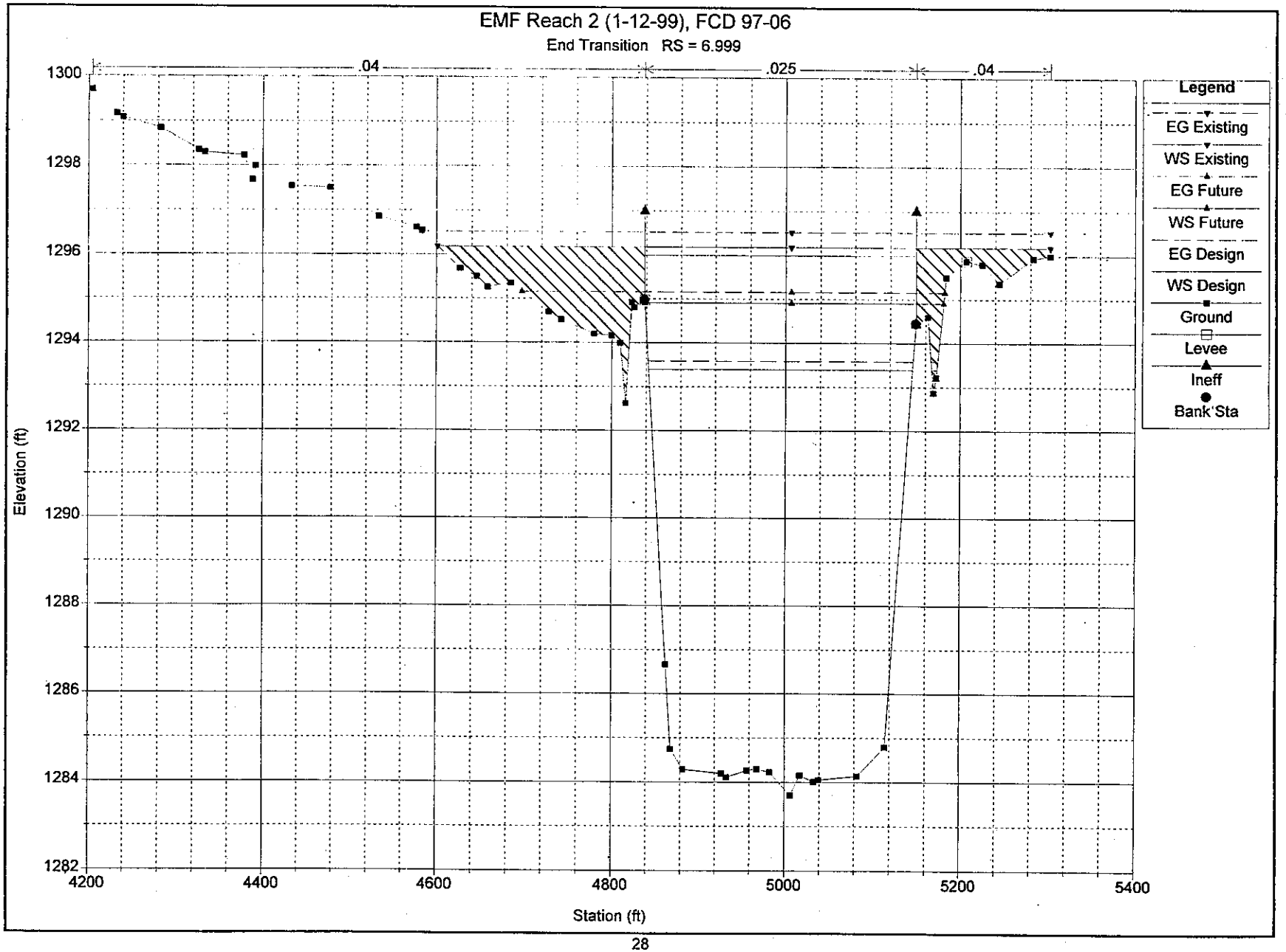

EMF Reach 2 (1-12-99), FCD 97-06
RS = 7.334
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1305
1300
1295
1290
1285
1280
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

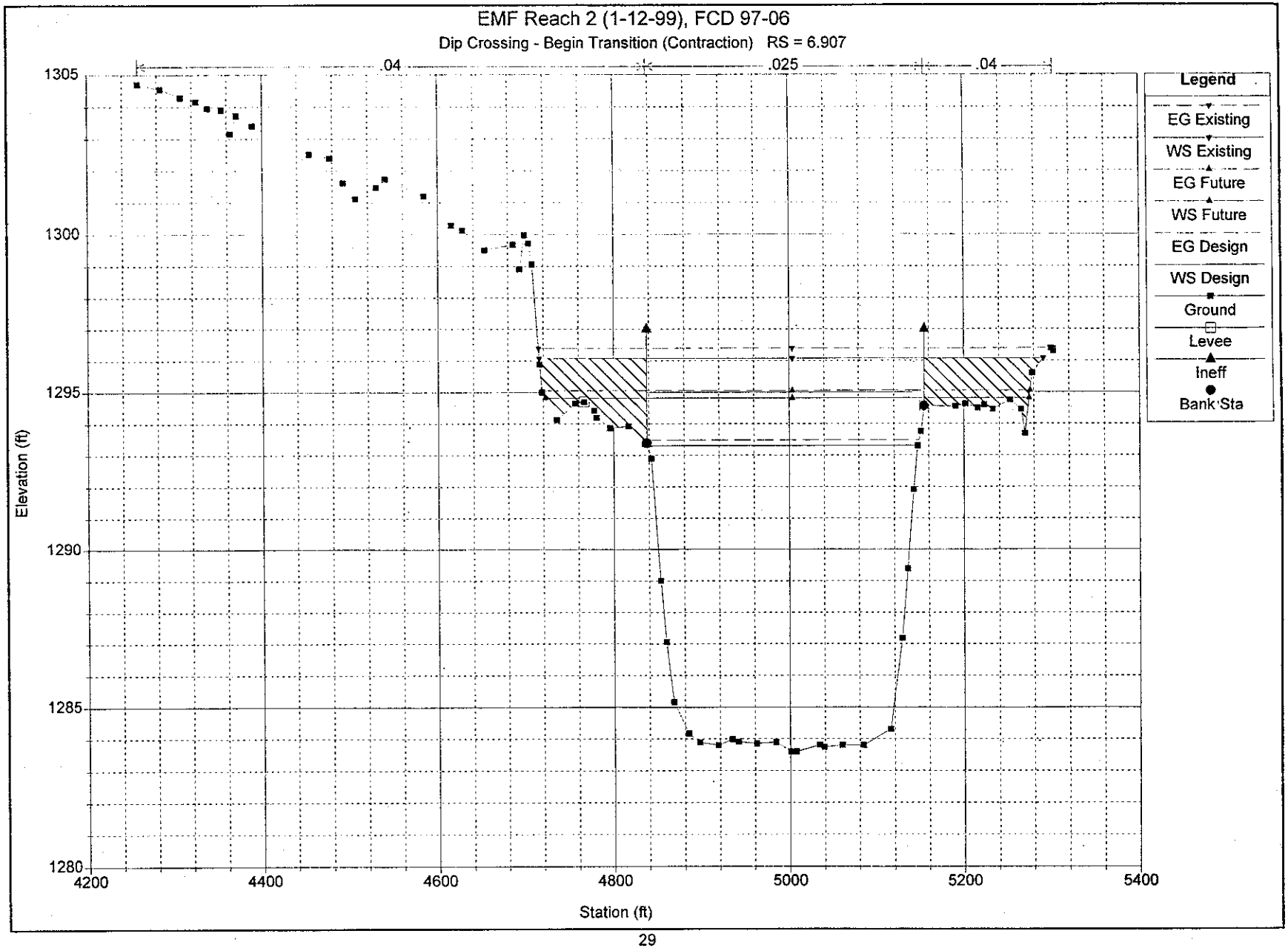

EMF Reach 2 (1-12-99), FCD 97-06
RS = 7.239
.04
.025
.04
1305
1300
1295
1290
1285
1280
Elevation (ft)
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

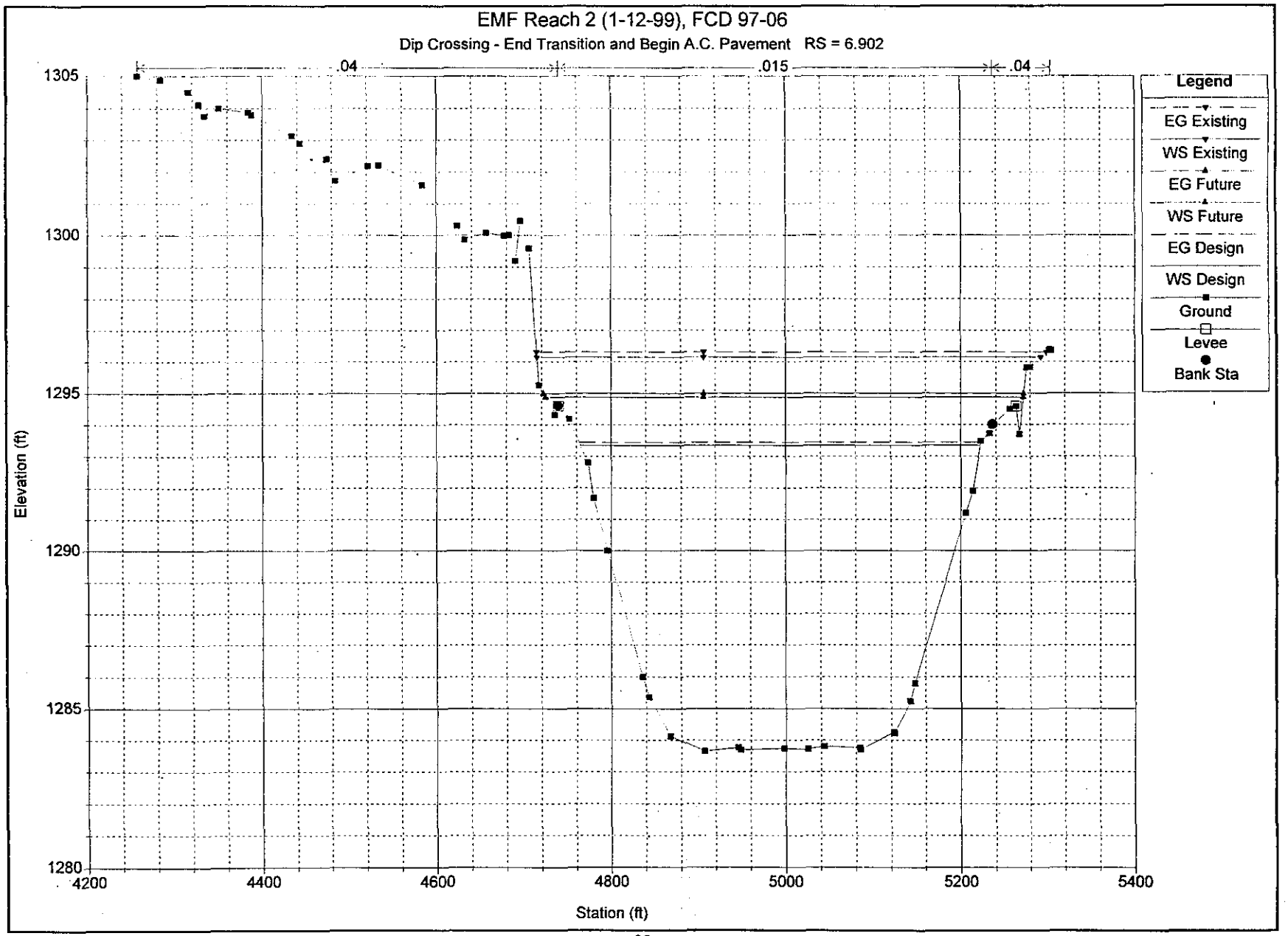

EMF Reach 2 (1-12-99), FCD 97-06
RS = 7.144
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1300
1298
1296
1294
1292
1290
1288
1286
1284
1282
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

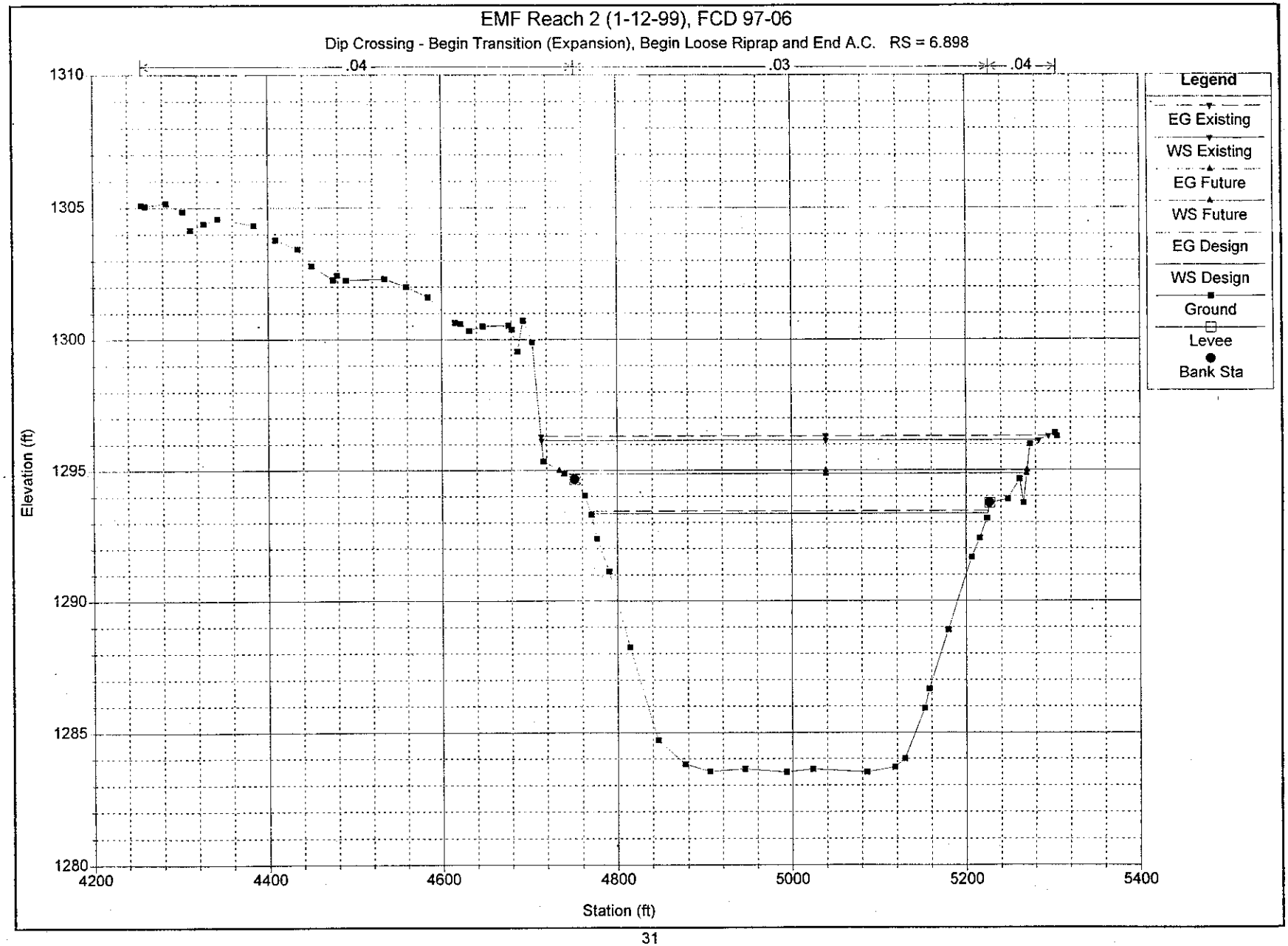

EMF Reach 2 (1-12-99), FCD 97-06
RS = 7.05
.04
.025
.04
Elevation (ft)
1300
1298
1296
1294
1292
1290
1288
1286
1284
1282
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

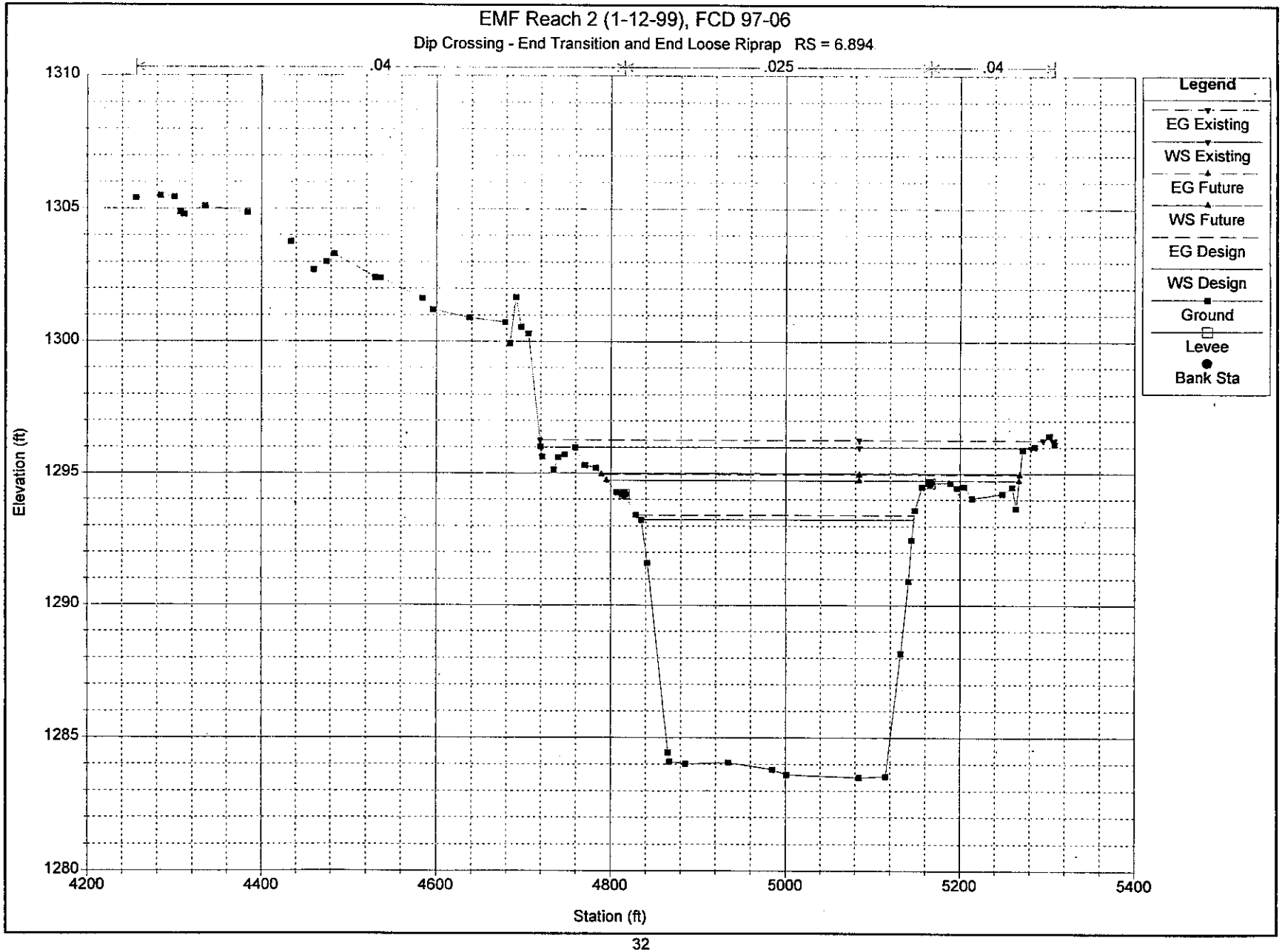

EMF Reach 2 (1-12-99), FCD 97-06
Begin Transition (Expansion) RS = 7.026
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1300
1298
1296
1294
1292
1290
1288
1286
1284
1282
4000
4200
4400
4600
4800
5000
5200
5400
Station (ft)

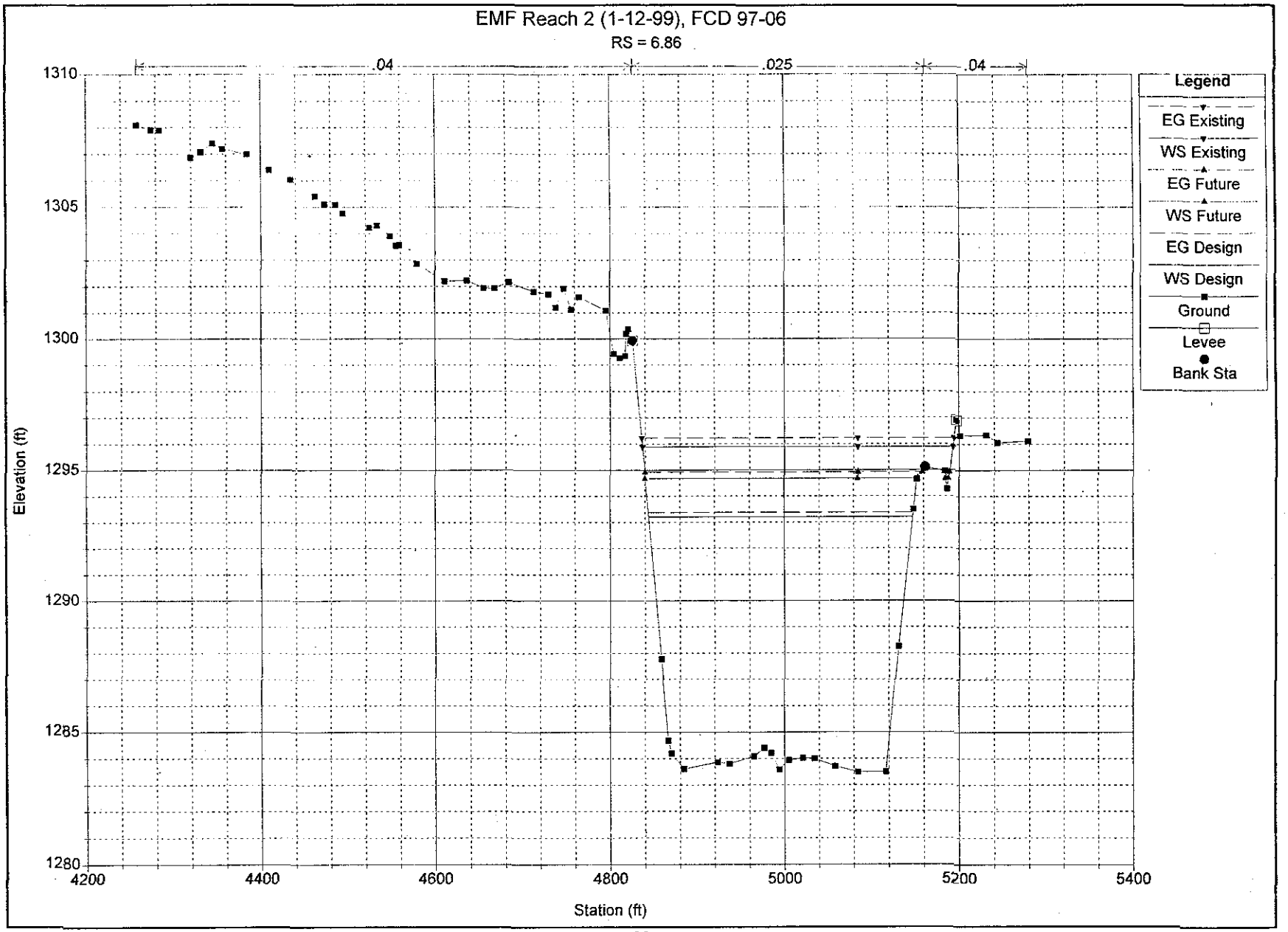

EMF Reach 2 (1-12-99), FCD 97-06
End Transition RS = 6.999
.04
.025
.04
Elevation (ft)
1300
1298
1296
1294
1292
1290
1288
1286
1284
1282
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

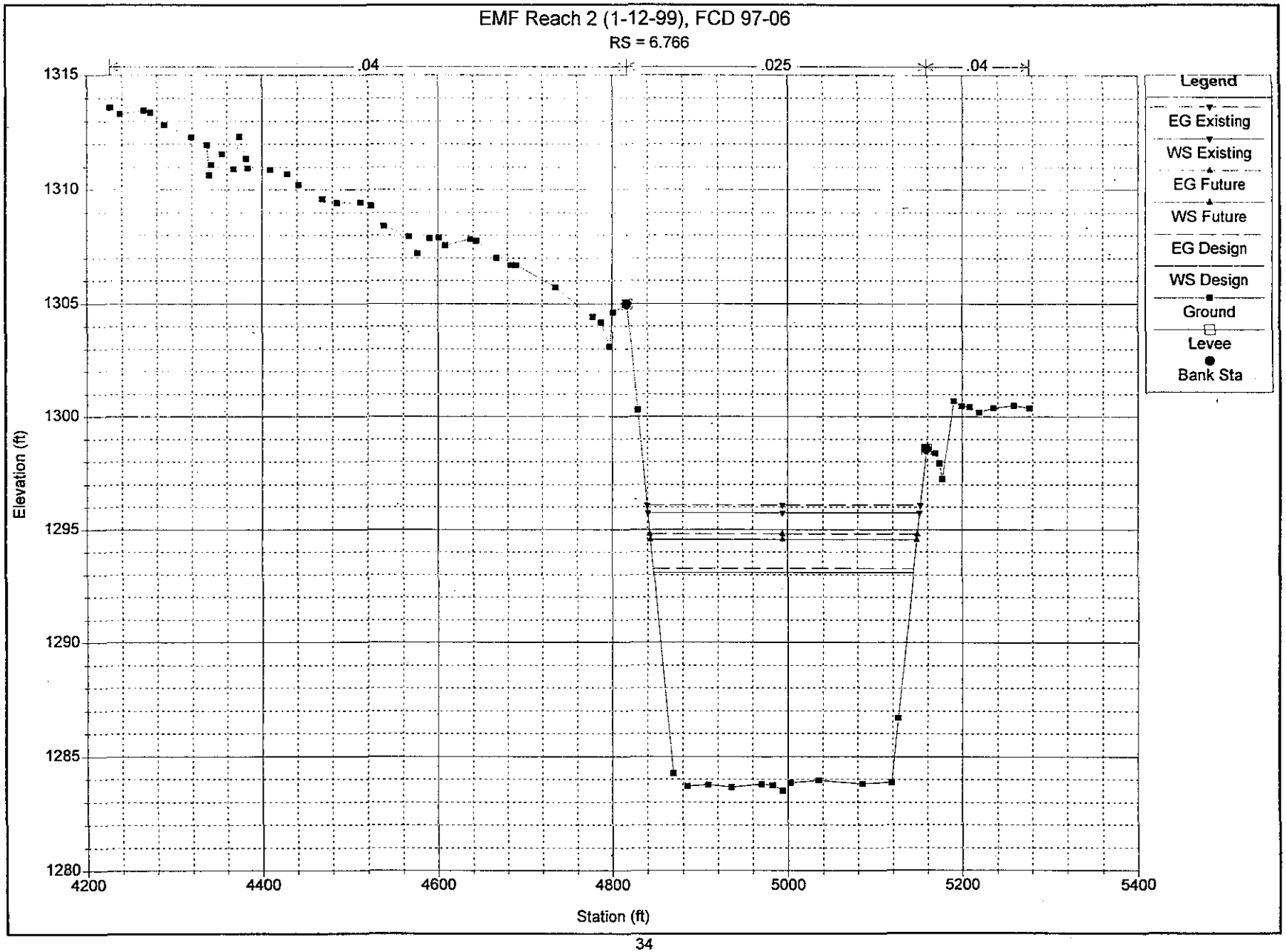

EMF Reach 2 (1-12-99), FCD 97-06
Dip Crossing - Begin Transition (Contraction) RS = 6.907
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1305
1300
1295
1290
1285
1280
4200
4400
4600
4800
5000
5200
5400
Station (ft)

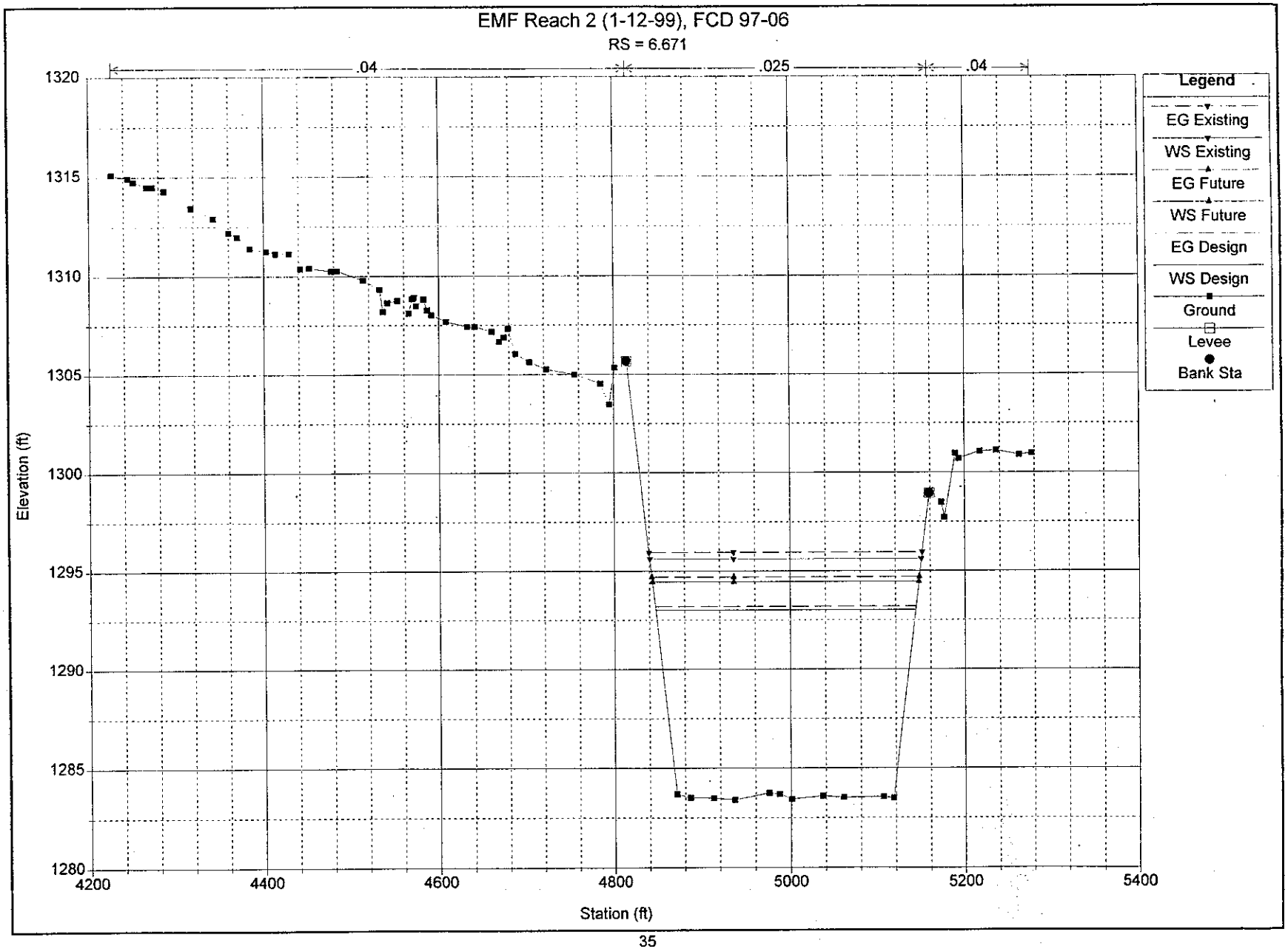

EMF Reach 2 (1-12-99), FCD 97-06
Dip Crossing - End Transition and Begin A.C. Pavement RS = 6.902
.04
.015
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1305
1300
1295
1290
1285
1280
4200
4400
4600
4800
5000
5200
5400
Station (ft)

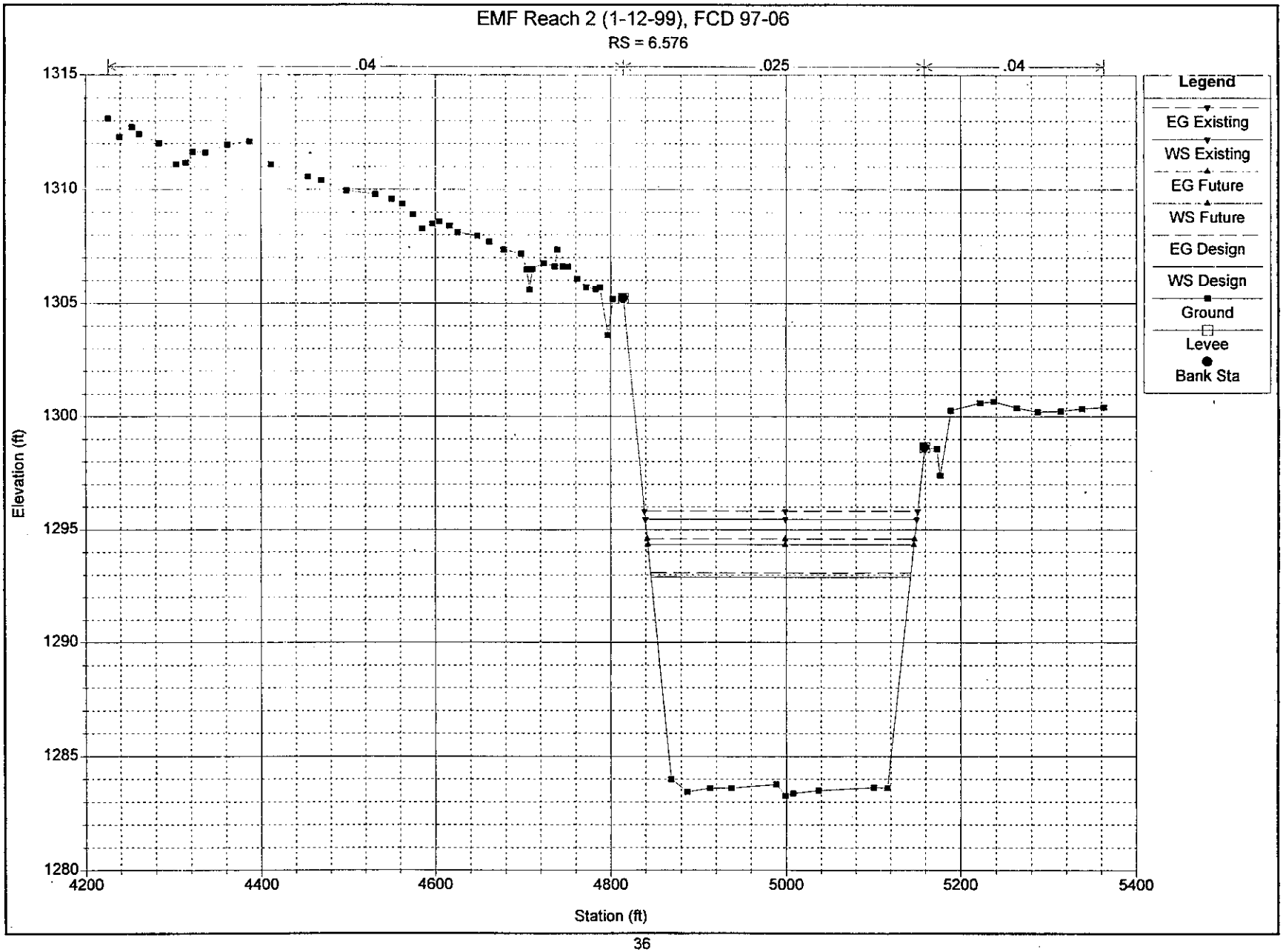

EMF Reach 2 (1-12-99), FCD 97-06
Dip Crossing - Begin Transition (Expansion), Begin Loose Riprap and End A.C. RS = 6.898
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1310
1305
1300
1295
1290
1285
1280
4200
4400
4600
4800
5000
5200
5400
Station (ft)

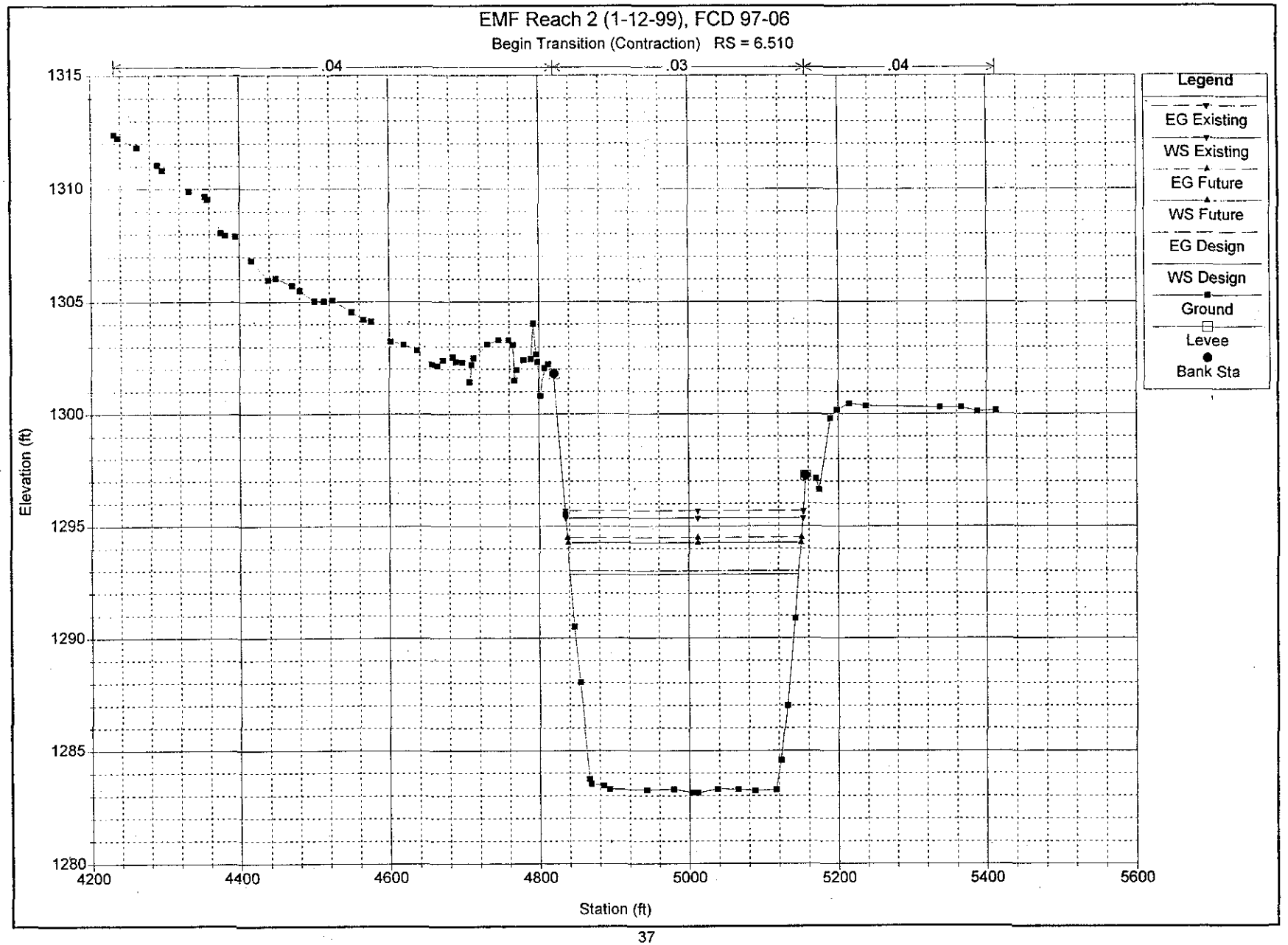

EMF Reach 2 (1-12-99), FCD 97-06
Dip Crossing - End Transition and End Loose Riprap RS = 6.894
.04
.025
.04
Elevation (ft)
1310
1305
1300
1295
1290
1285
1280
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta

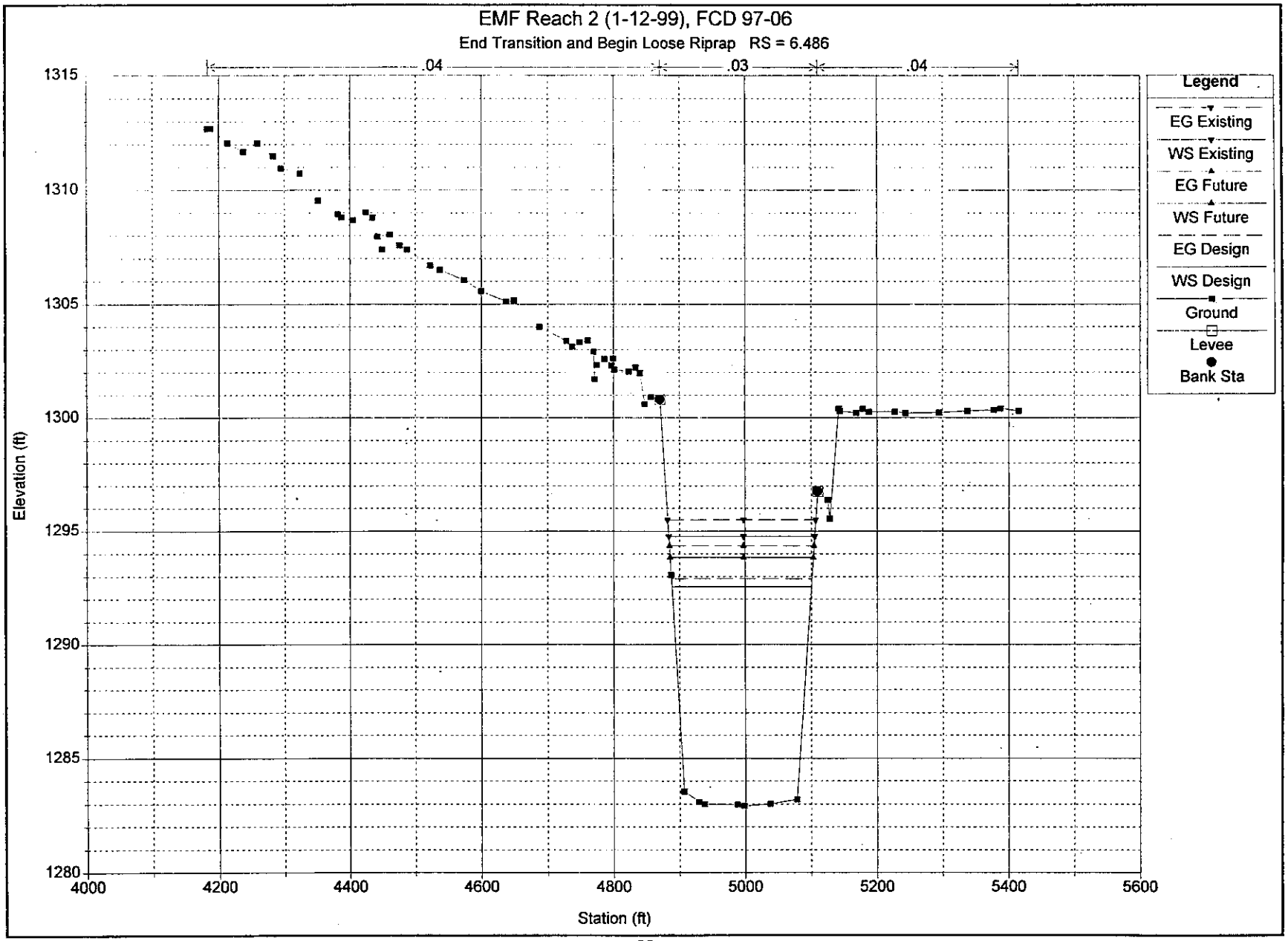

EMF Reach 2 (1-12-99), FCD 97-06
RS = 6.86
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1310
1305
1300
1295
1290
1285
1280
4200
4400
4600
4800
5000
5200
5400
Station (ft)

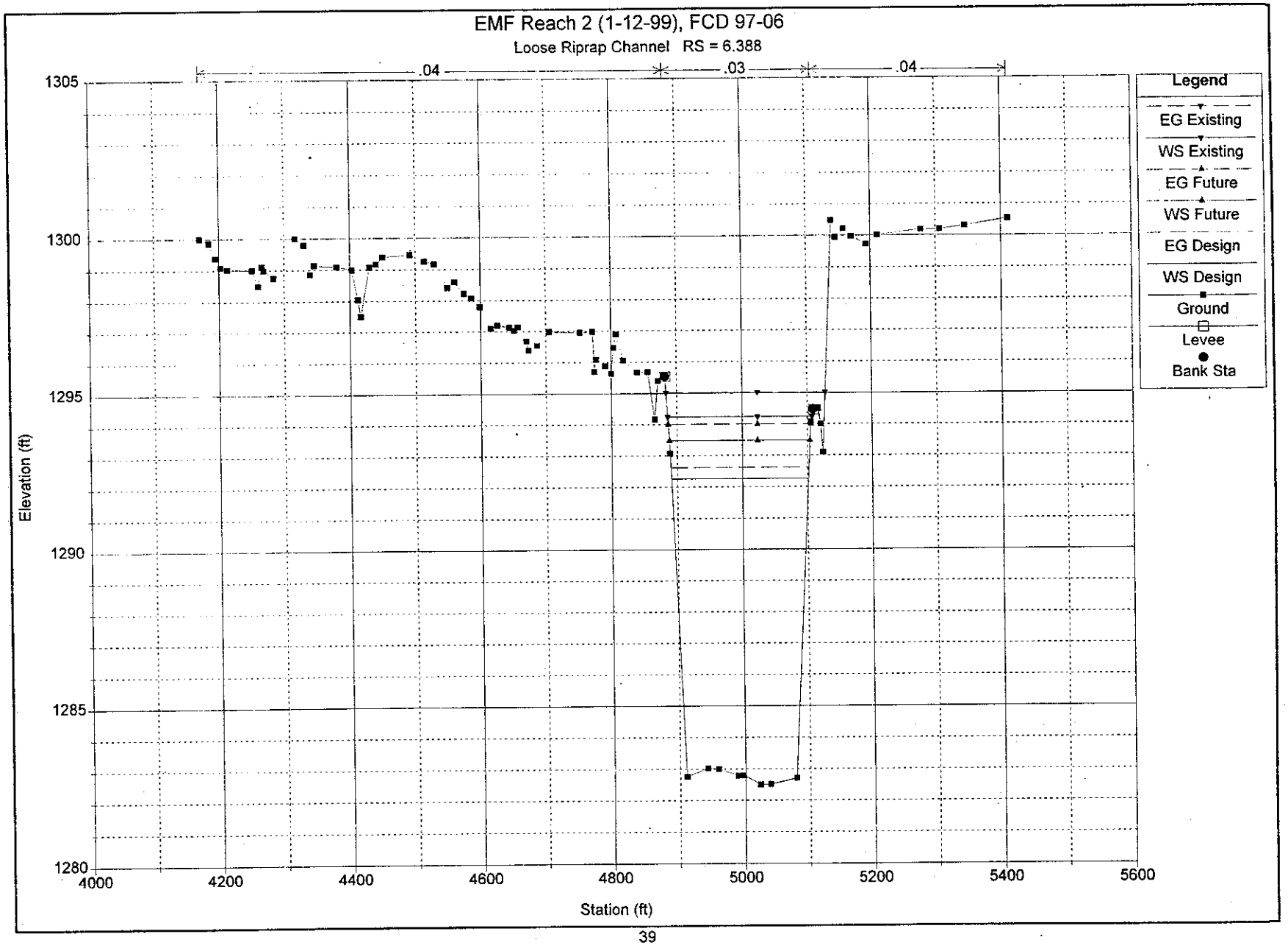

EMF Reach 2 (1-12-99), FCD 97-06
RS = 6.766
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1315
1310
1305
1300
1295
1290
1285
1280
4200
4400
4600
4800
5000
5200
5400
Station (ft)

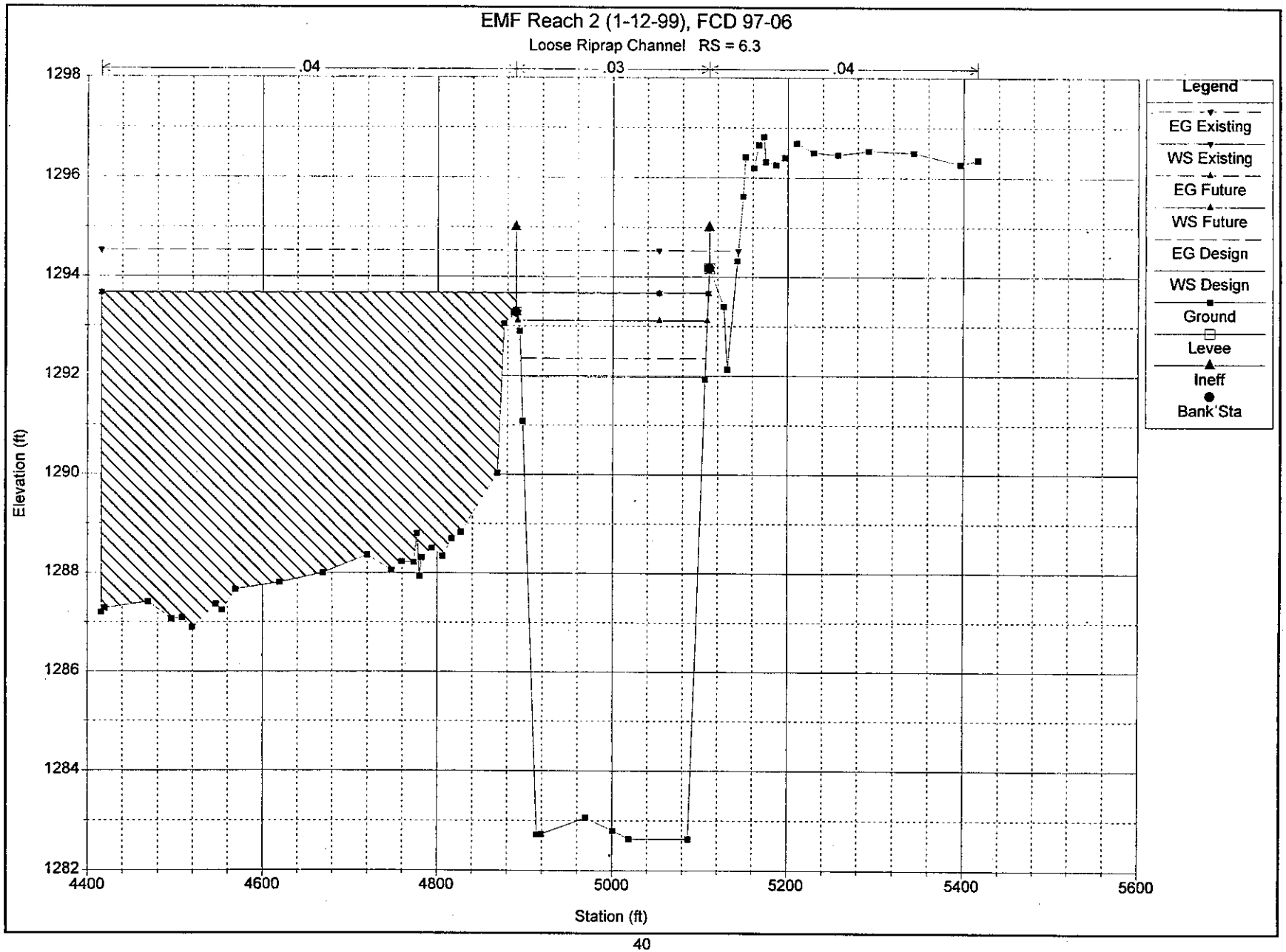

EMF Reach 2 (1-12-99), FCD 97-06
RS = 6.671
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1320
1315
1310
1305
1300
1295
1290
1285
1280
4200
4400
4600
4800
5000
5200
5400
Station (ft)

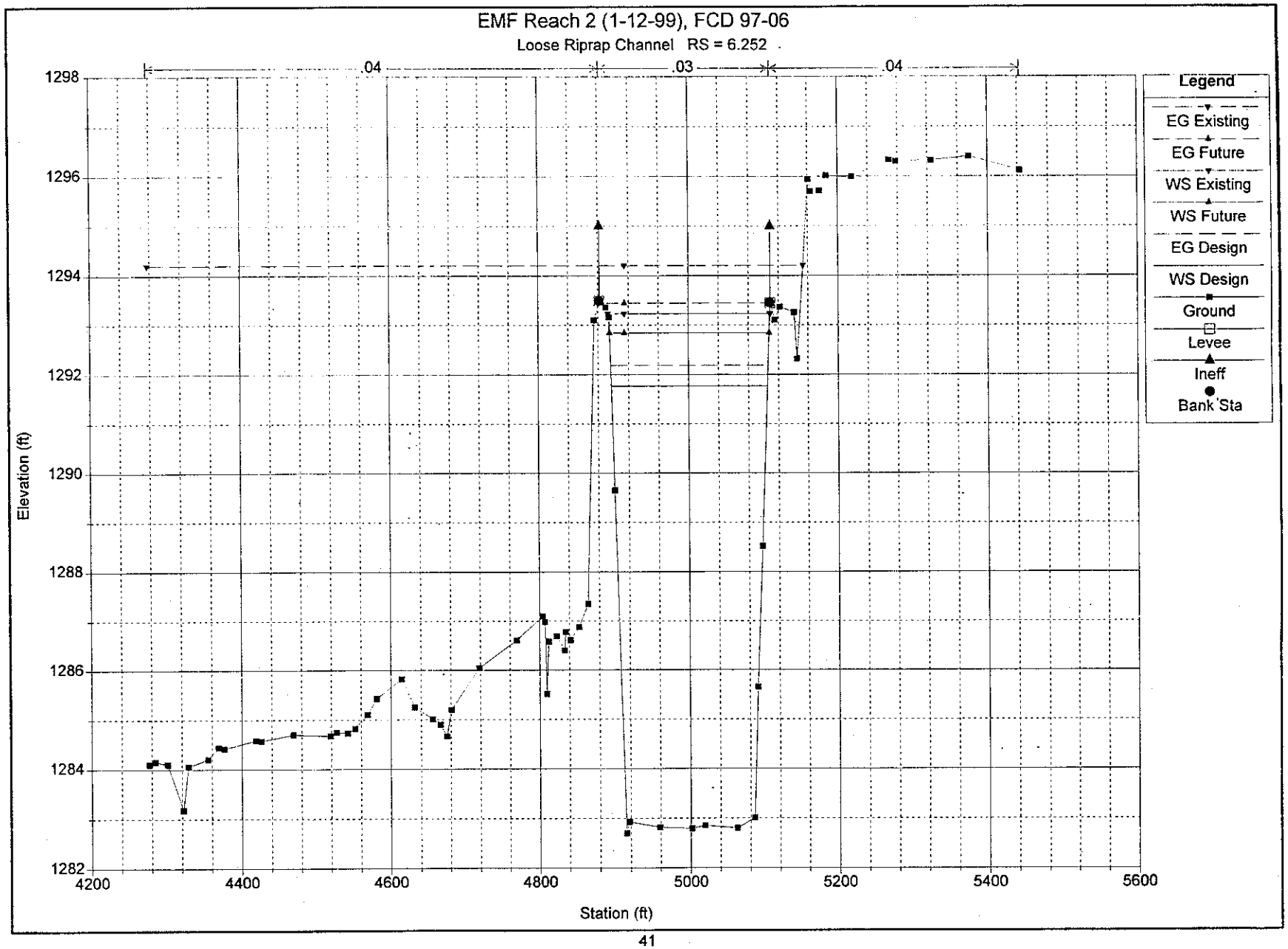

EMF Reach 2 (1-12-99), FCD 97-06
RS = 6.576
.04
.025
.04
Elevation (ft)
1315
1310
1305
1300
1295
1290
1285
1280
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta

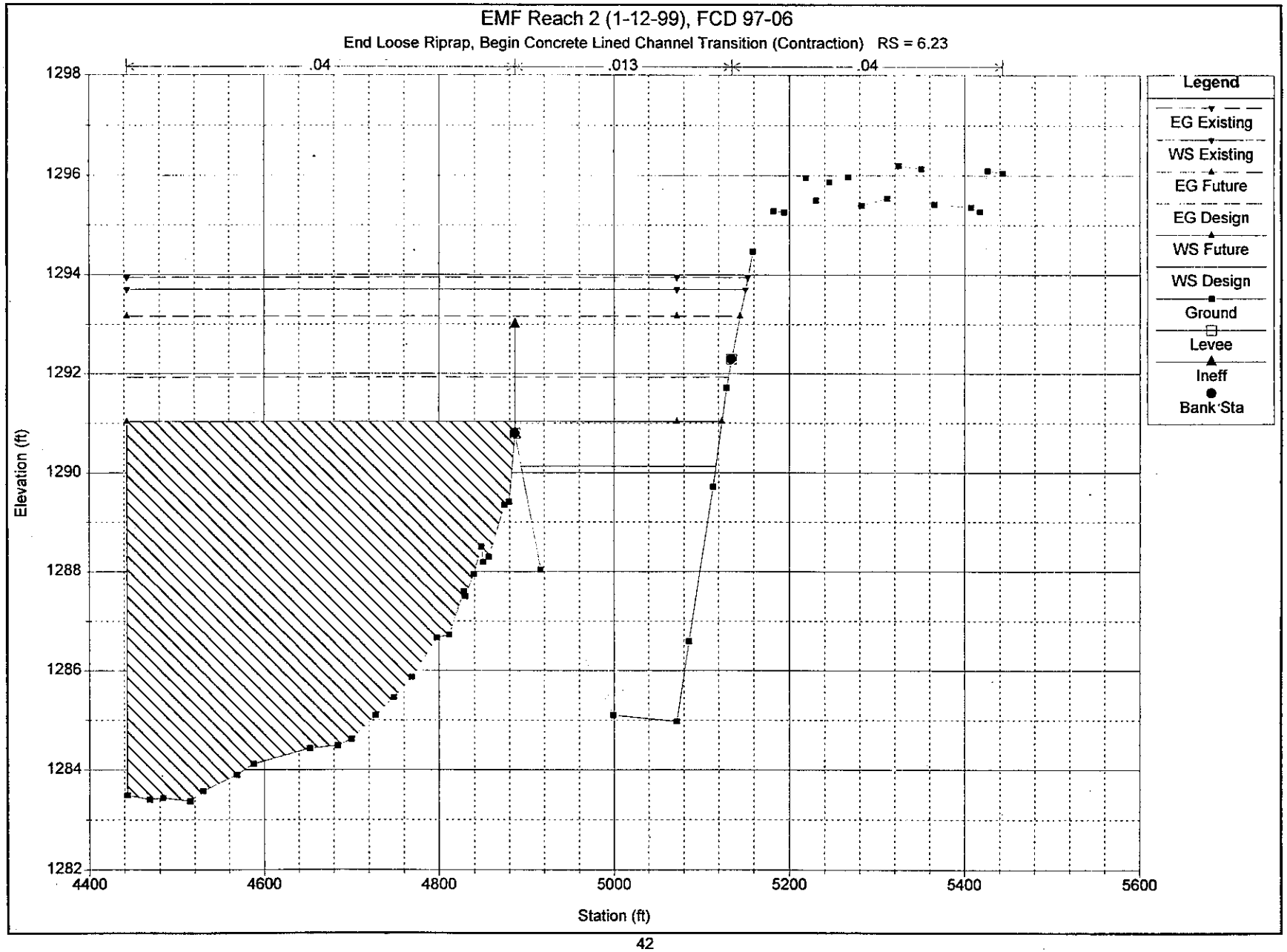

EMF Reach 2 (1-12-99), FCD 97-06
Begin Transition (Contraction) RS = 6.510
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1315
1310
1305
1300
1295
1290
1285
1280
4200
4400
4600
4800
5000
5200
5400
5600
Station (ft)

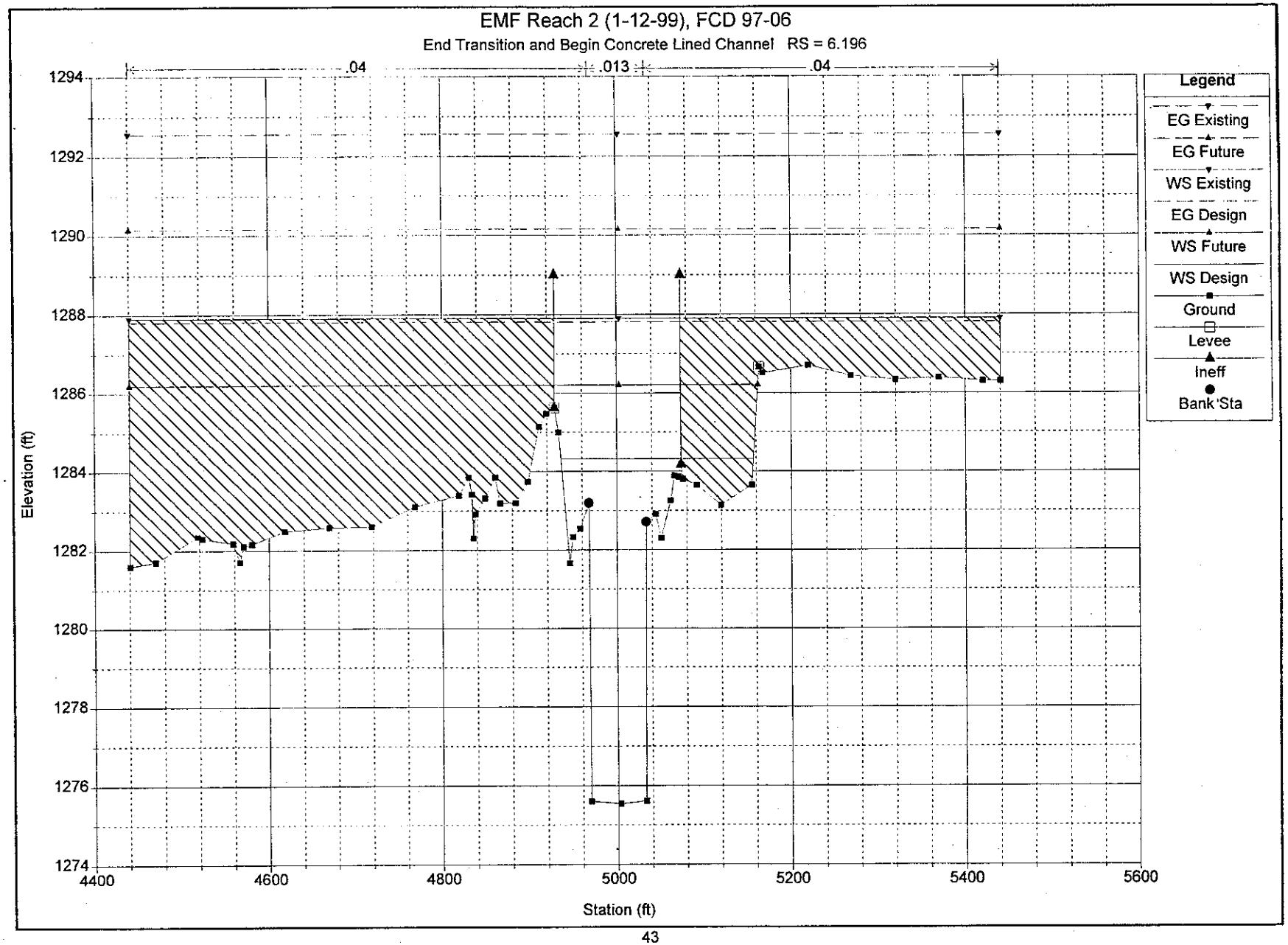

EMF Reach 2 (1-12-99), FCD 97-06
End Transition and Begin Loose Riprap RS = 6.486
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1315
1310
1305
1300
1295
1290
1285
1280
4000
4200
4400
4600
4800
5000
5200
5400
5600
Station (ft)

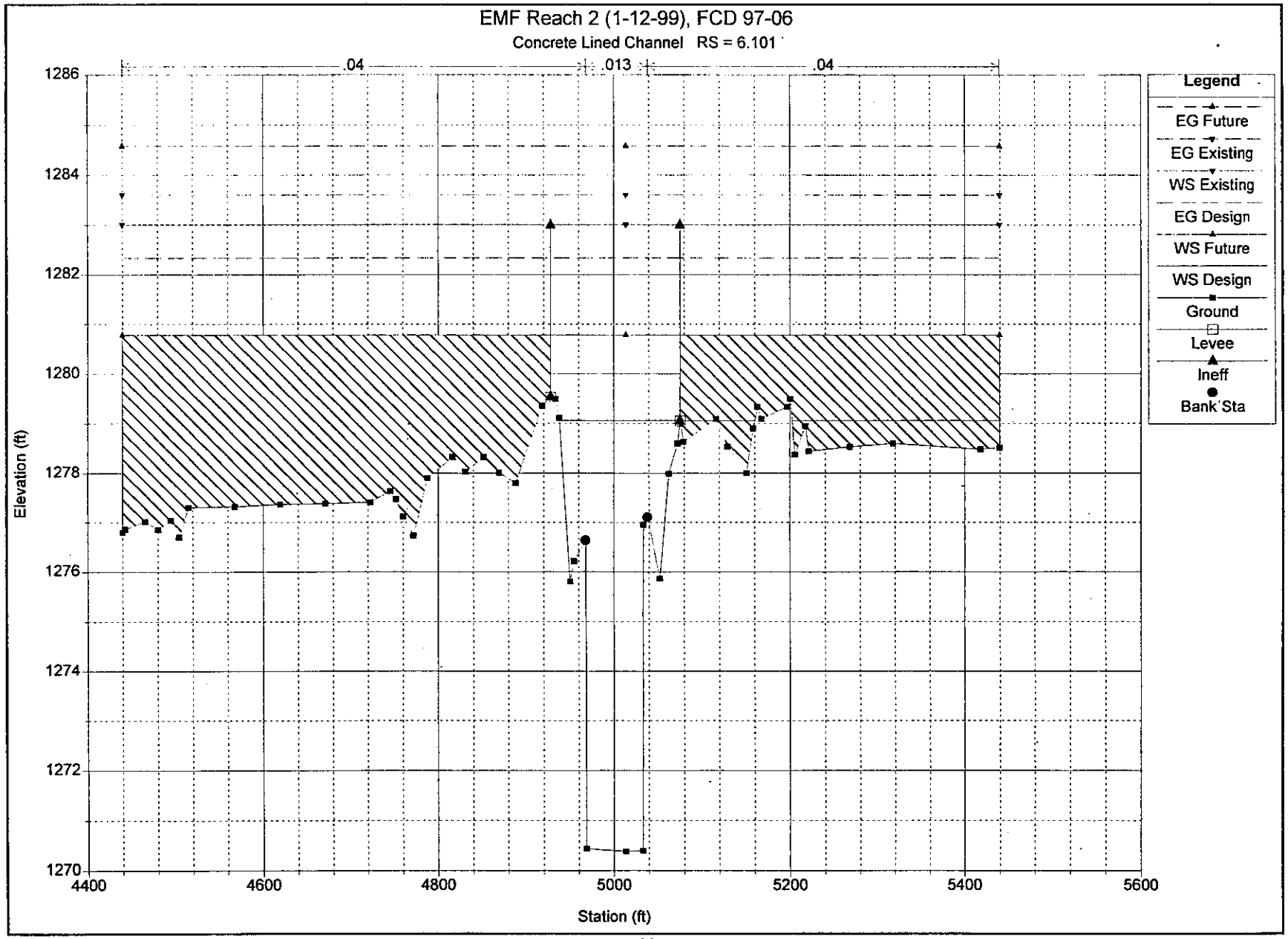

EMF Reach 2 (1-12-99), FCD 97-06
Loose Riprap Channel RS = 6.388
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1305
1300
1295
1290
1285
1280
4000
4200
4400
4600
4800
5000
5200
5400
5600
Station (ft)

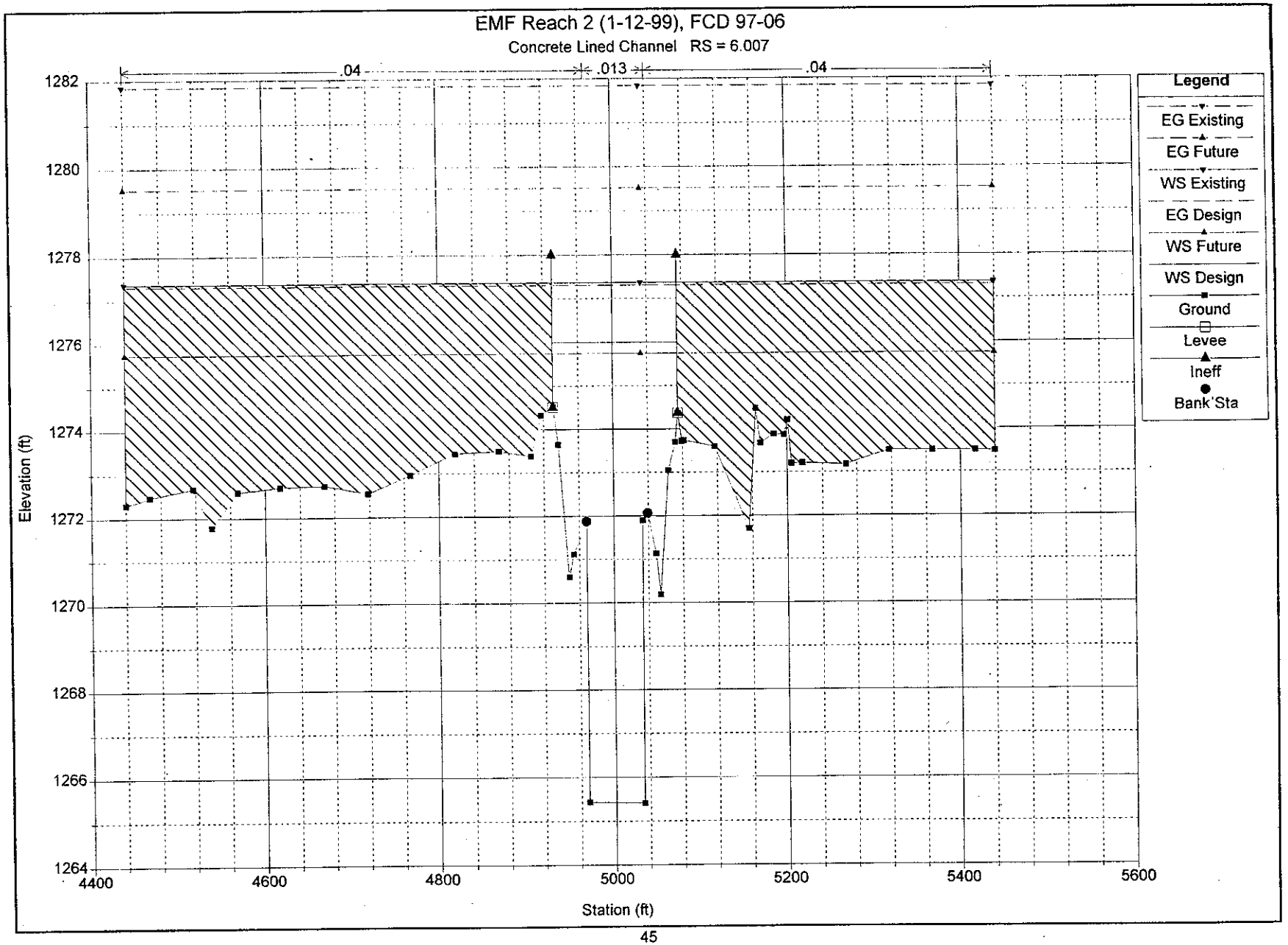

EMF Reach 2 (1-12-99), FCD 97-06
Loose Riprap Channel RS = 6.3
.04
.03
.04
Elevation (ft)
1298
1296
1294
1292
1290
1288
1286
1284
1282
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

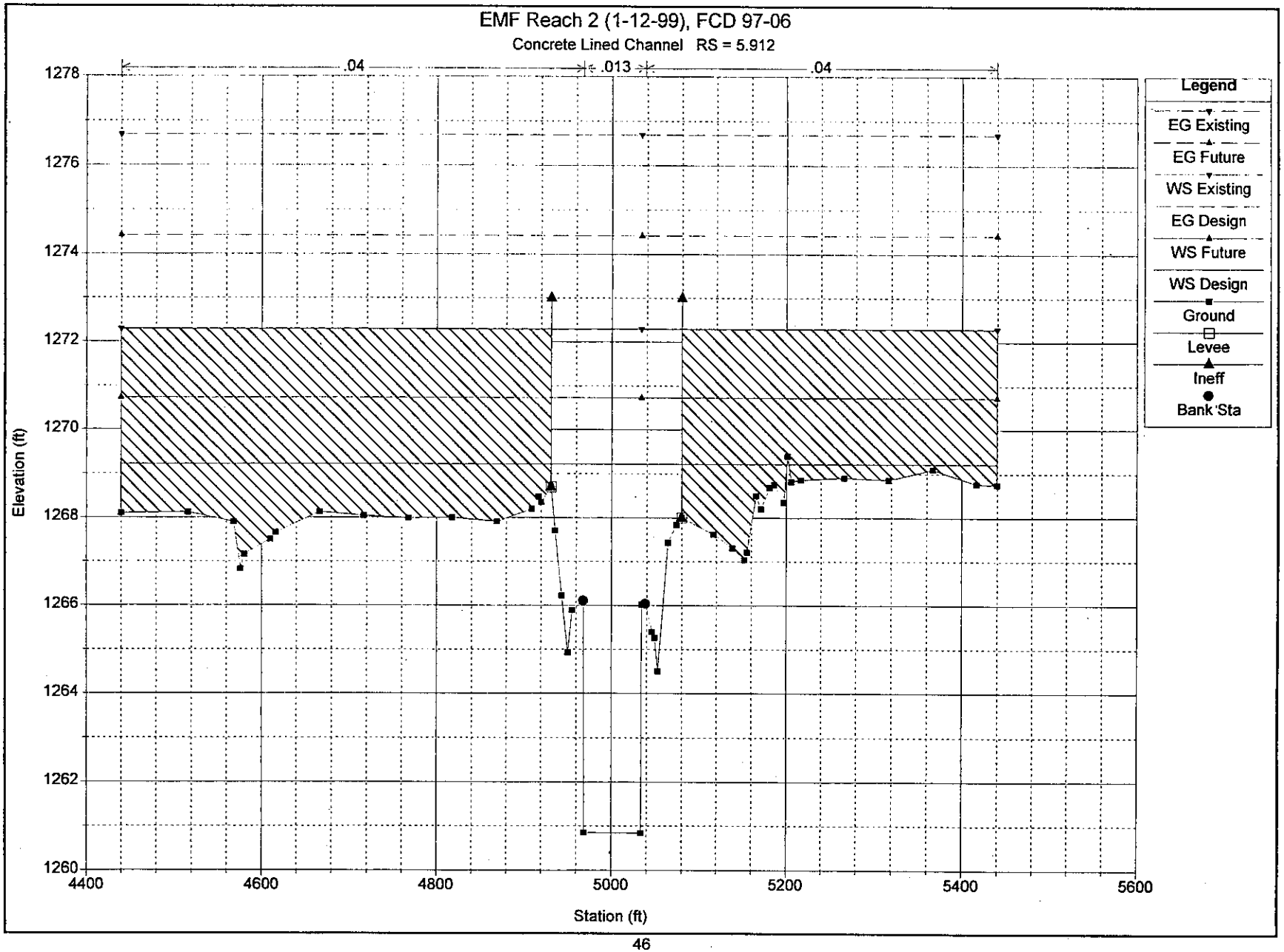

EMF Reach 2 (1-12-99), FCD 97-06
Loose Riprap Channel RS = 6.252
.04
.03
.04
Elevation (ft)
1298
1296
1294
1292
1290
1288
1286
1284
1282
4200
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
EG Future
WS Existing
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

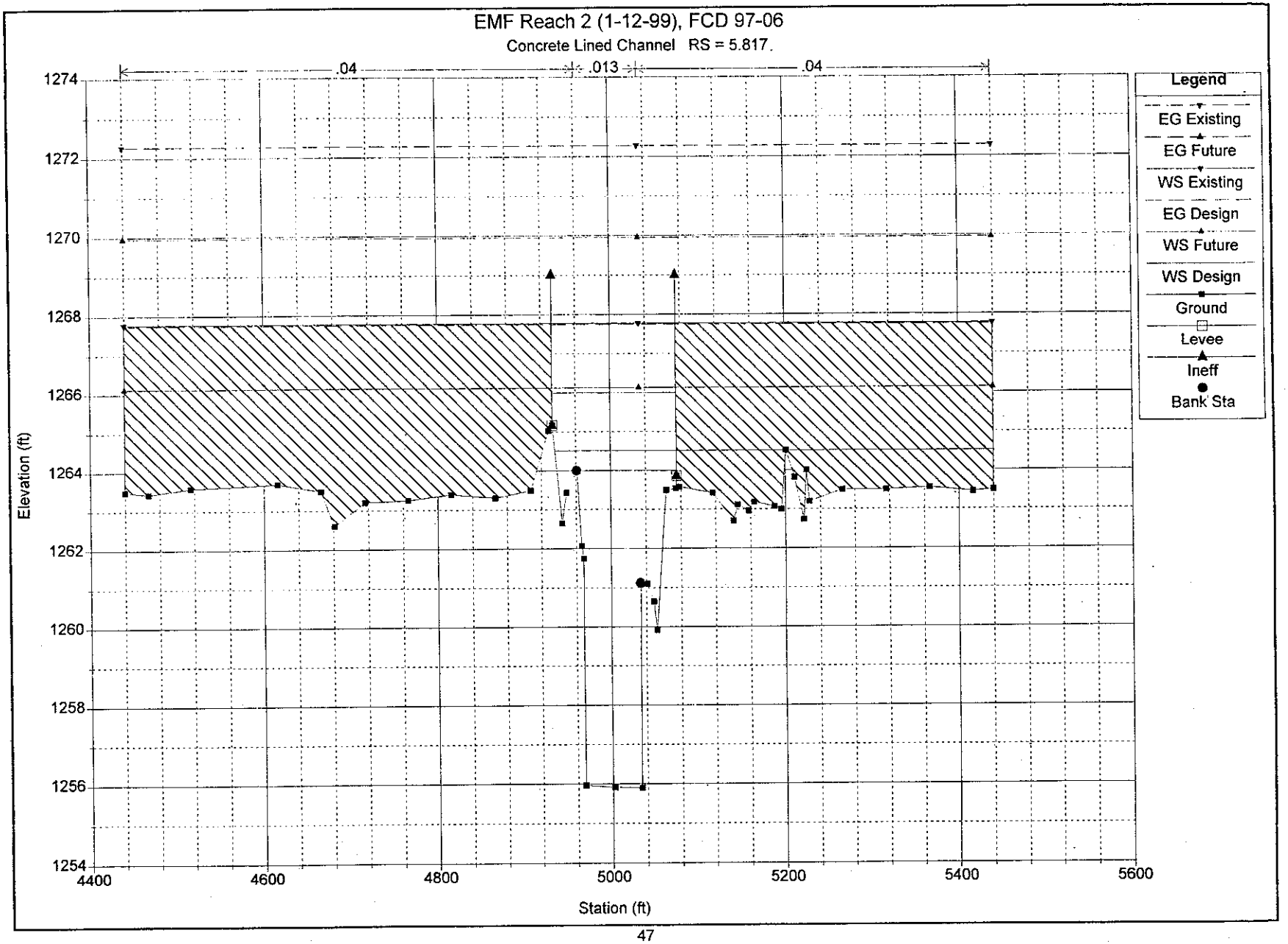

EMF Reach 2 (1-12-99), FCD 97-06
End Loose Riprap, Begin Concrete Lined Channel Transition (Contraction) RS = 6.23
.04
.013
.04
Legend
EG Existing
WS Existing
EG Future
EG Design
WS Future
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1298
1296
1294
1292
1290
1288
1286
1284
1282
4400
4600
4800
5000
5200
5400
5600
Station (ft)

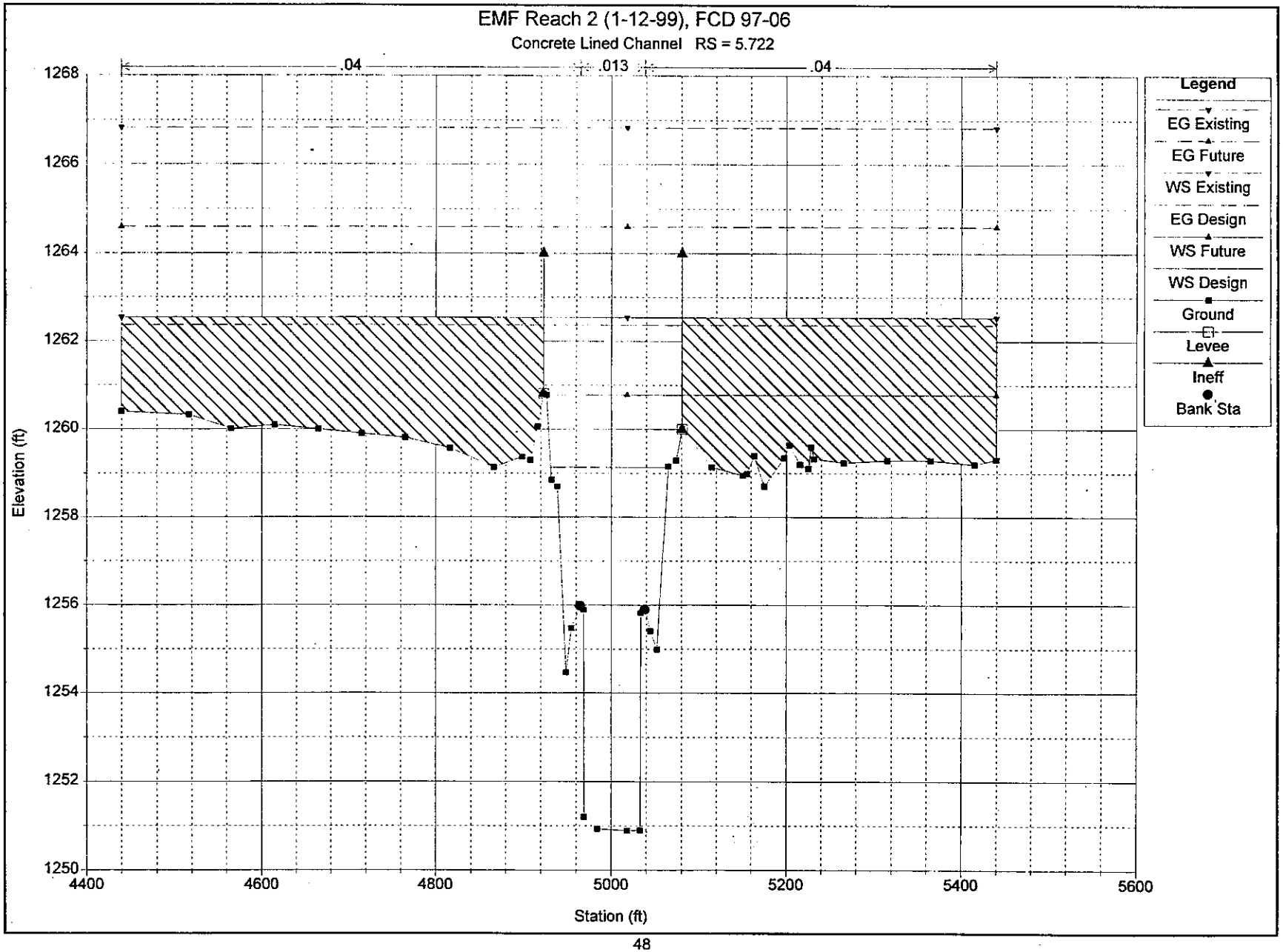

EMF Reach 2 (1-12-99), FCD 97-06
End Transition and Begin Concrete Lined Channel RS = 6.196
.04
.013
.04
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1294
1292
1290
1288
1286
1284
1282
1280
1278
1276
1274
4400
4600
4800
5000
5200
5400
5600
Station (ft)

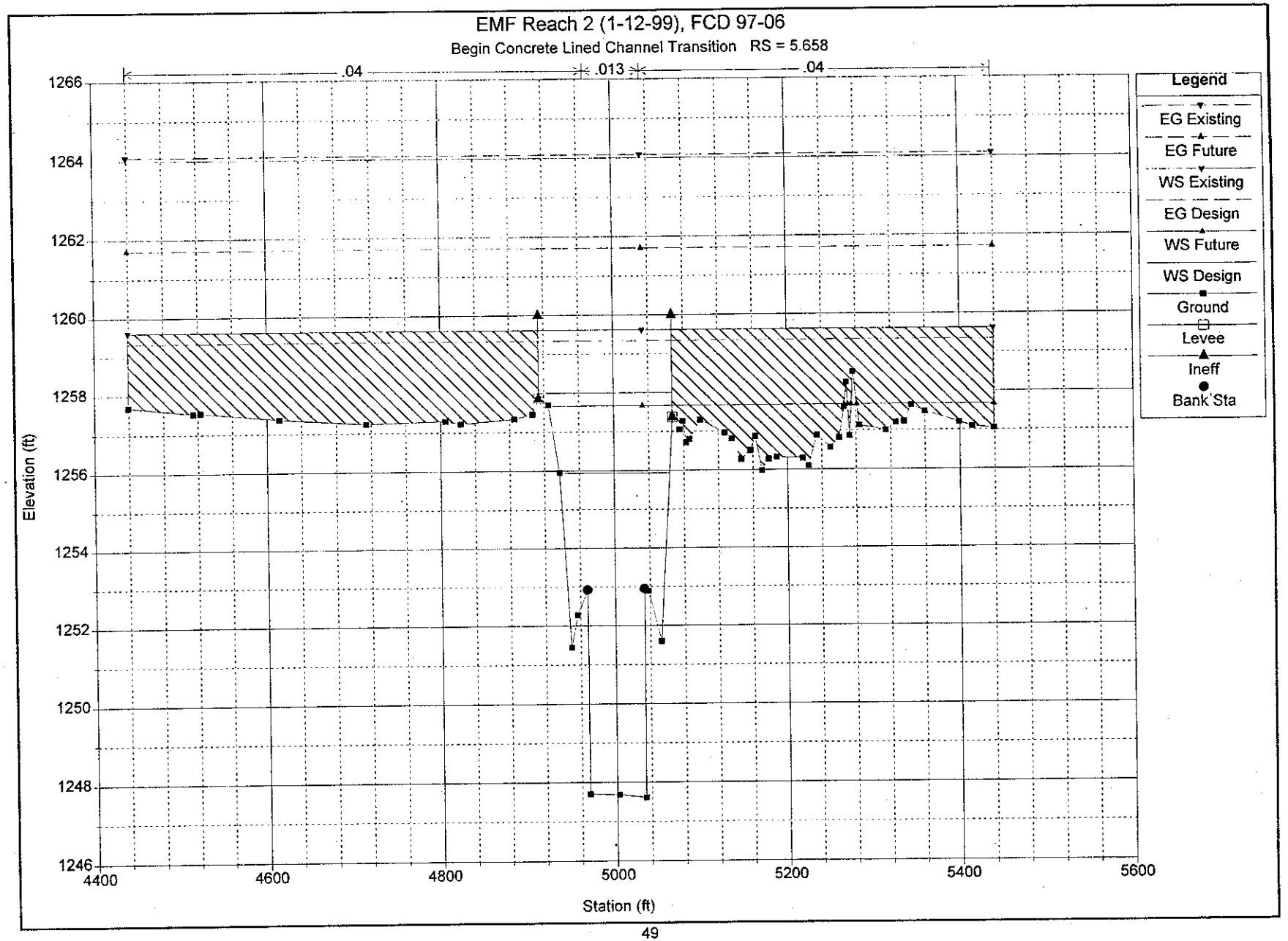

EMF Reach 2 (1-12-99), FCD 97-06
Concrete Lined Channel RS = 6.101
.04
.013
.04
Elevation (ft)
1286
1284
1282
1280
1278
1276
1274
1272
1270
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Future
EG Existing
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Ineff
Bank Sta

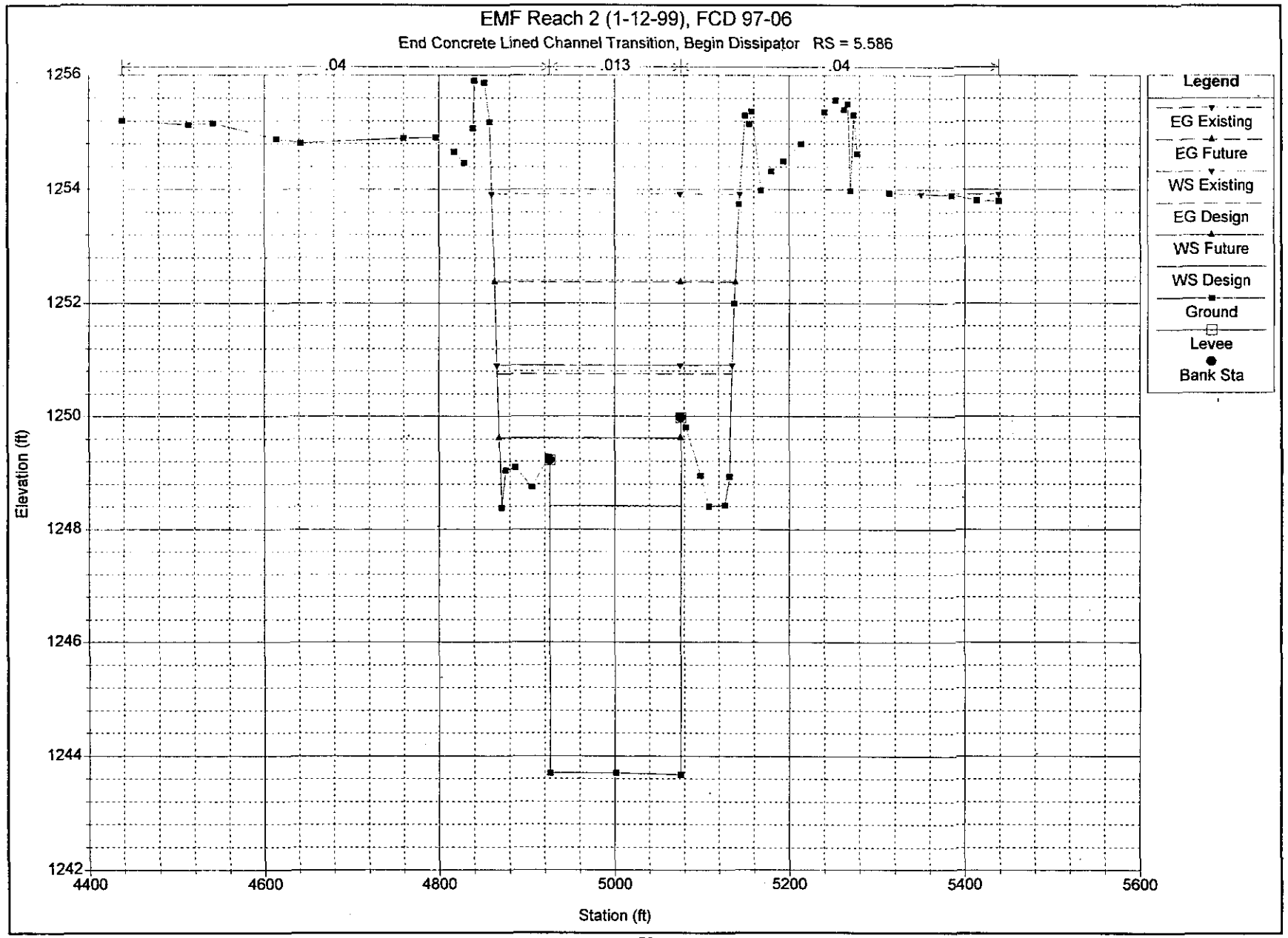

EMF Reach 2 (1-12-99), FCD 97-06
Concrete Lined Channel RS = 6.007
.04
.013
.04
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1282
1280
1278
1276
1274
1272
1270
1268
1266
1264
4400
4600
4800
5000
5200
5400
5600
Station (ft)

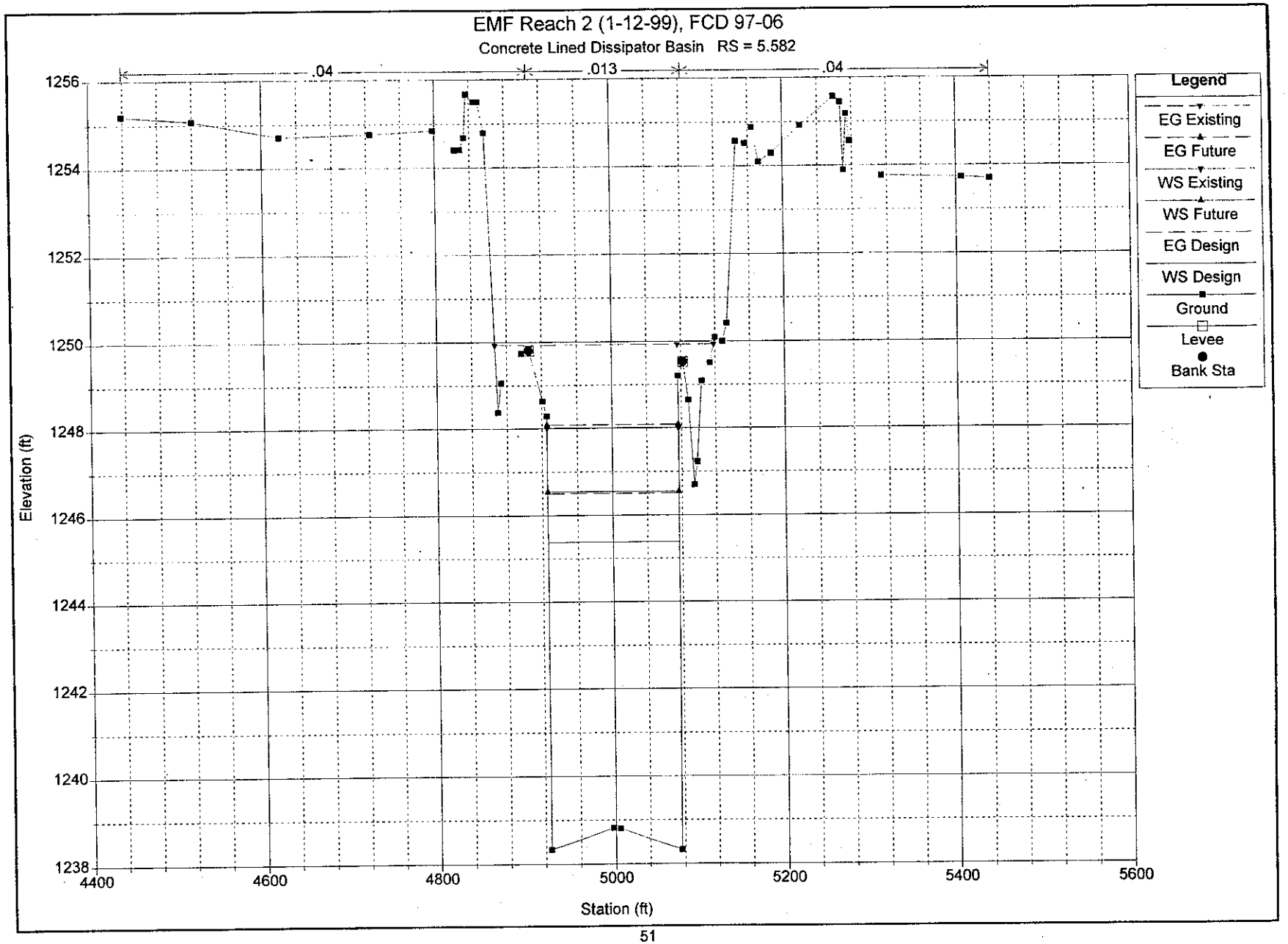

EMF Reach 2 (1-12-99), FCD 97-06
Concrete Lined Channel RS = 5.912
.04
.013
.04
Elevation (ft)
1278
1276
1274
1272
1270
1268
1266
1264
1262
1260
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Ineff
Bank Sta

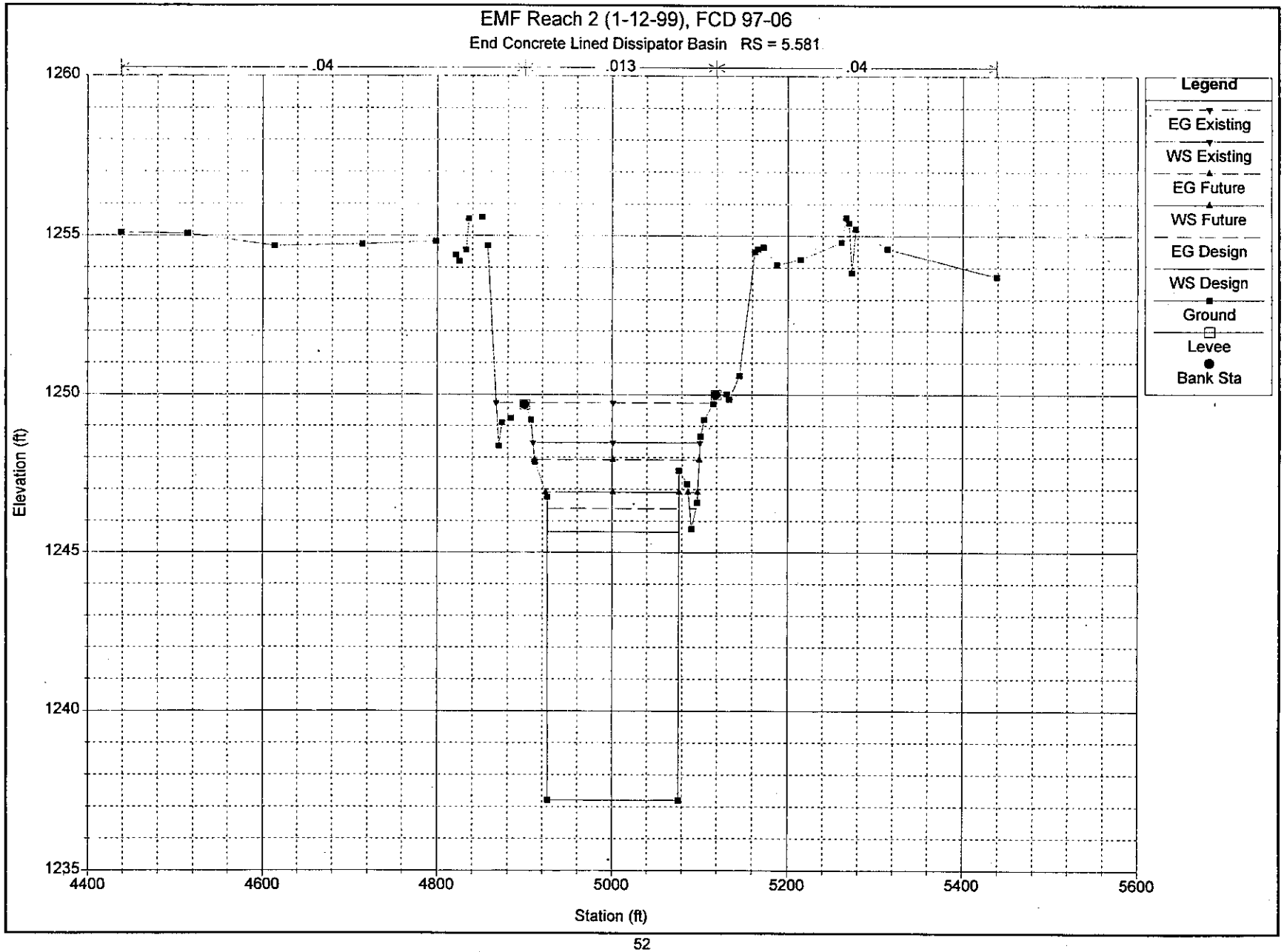

EMF Reach 2 (1-12-99), FCD 97-06
Concrete Lined Channel RS = 5.817
.04
.013
.04
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1274
1272
1270
1268
1266
1264
1262
1260
1258
1256
1254
4400
4600
4800
5000
5200
5400
5600
Station (ft)

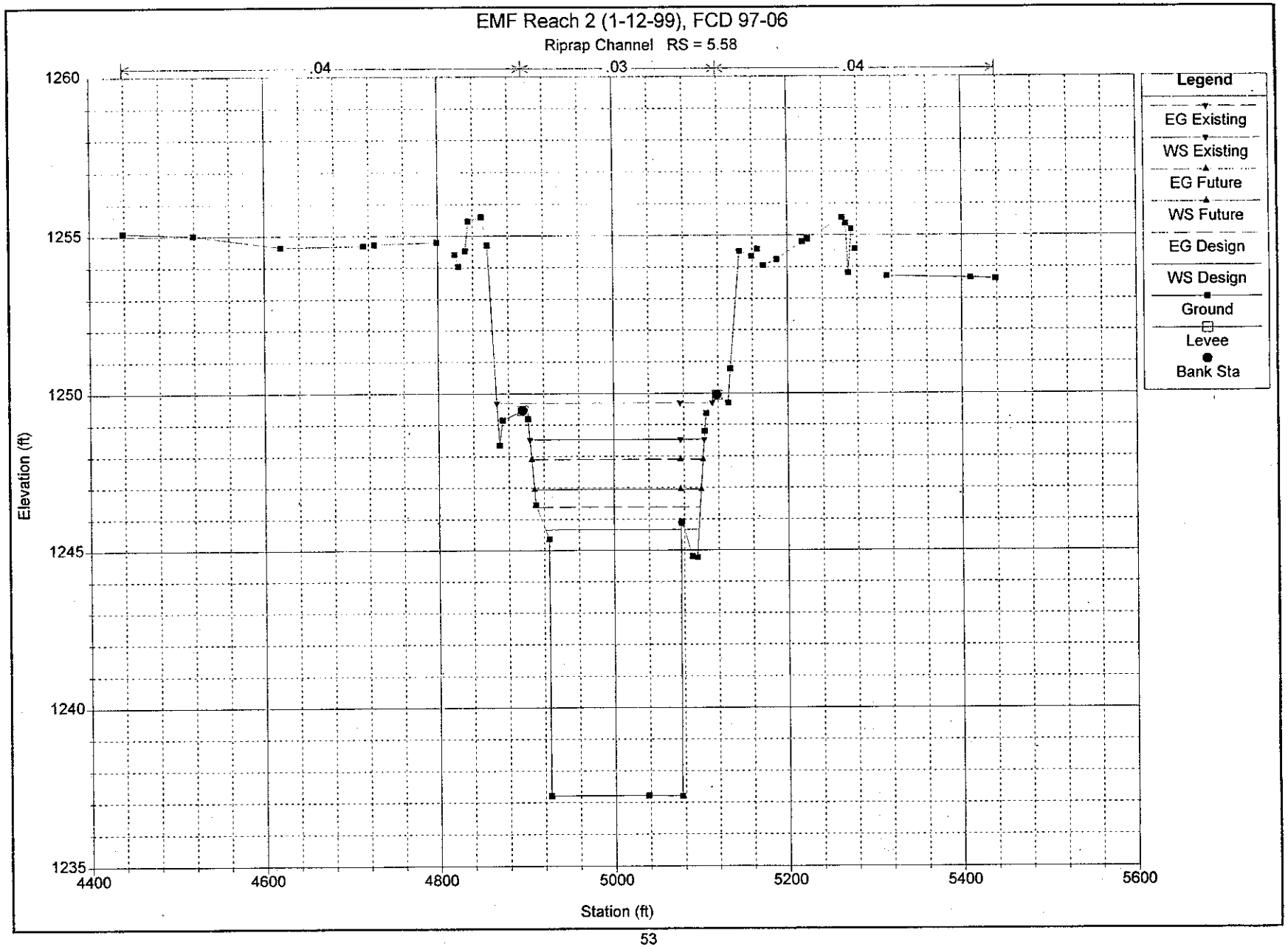

EMF Reach 2 (1-12-99), FCD 97-06
Concrete Lined Channel RS = 5.722
.04
.013
.04
Elevation (ft)
1268
1266
1264
1262
1260
1258
1256
1254
1252
1250
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Ineff
Bank Sta

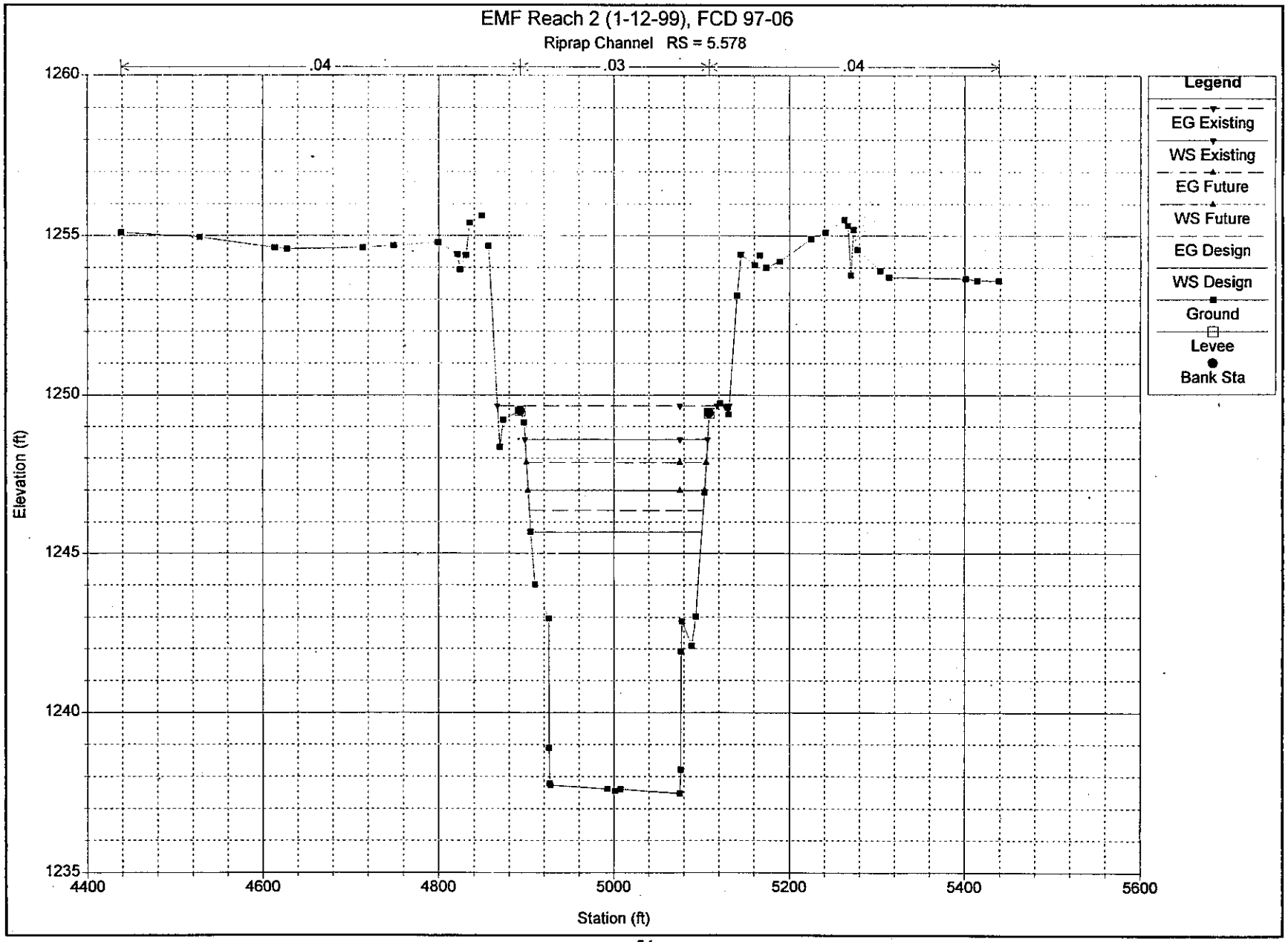

EMF Reach 2 (1-12-99), FCD 97-06
Begin Concrete Lined Channel Transition RS = 5.658
.04
.013
.04
Elevation (ft)
1266
1264
1262
1260
1258
1256
1254
1252
1250
1248
1246
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Ineff
Bank Sta

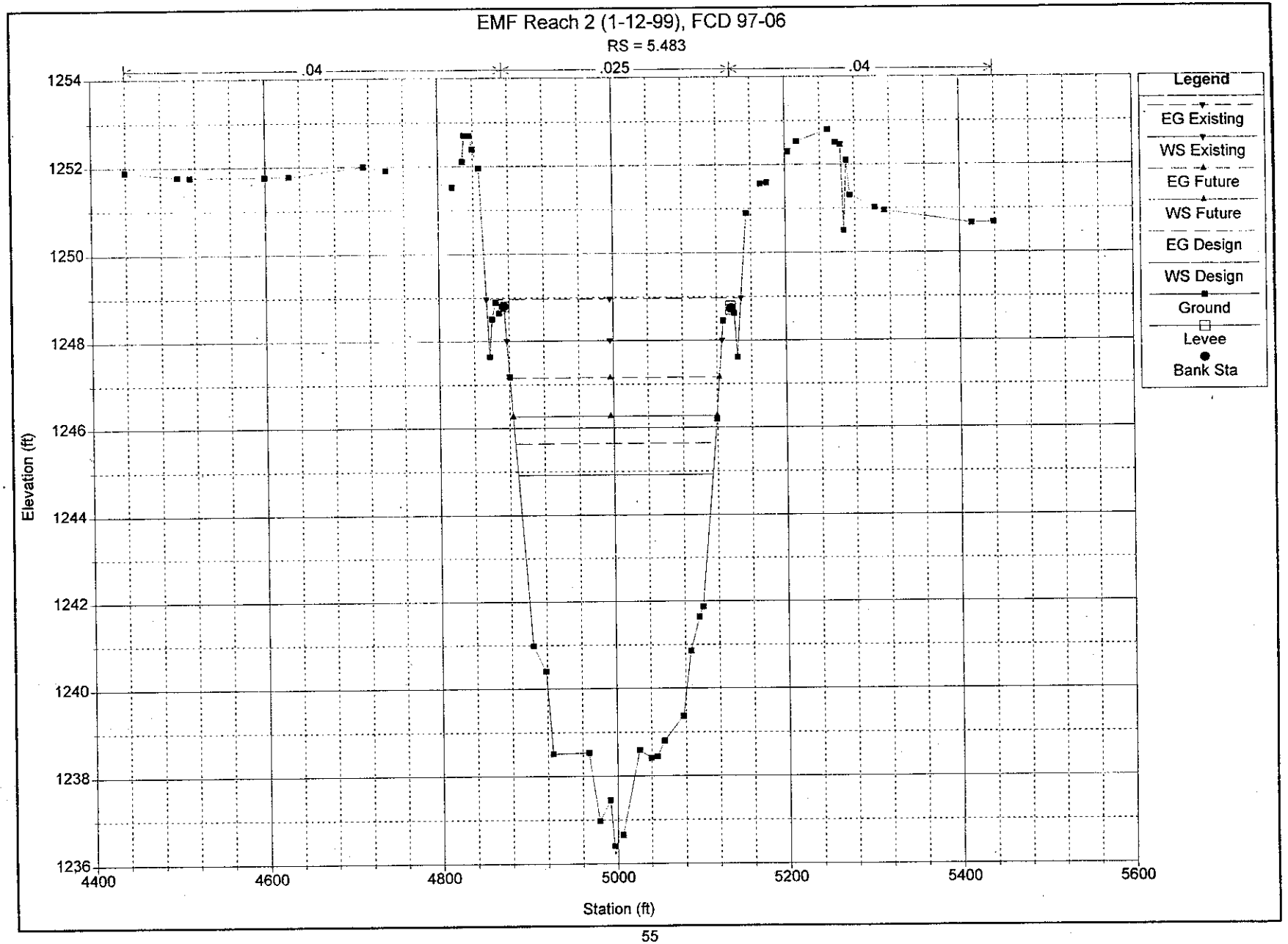

EMF Reach 2 (1-12-99), FCD 97-06
End Concrete Lined Channel Transition, Begin Dissipator RS = 5.586
.04
.013
.04
Elevation (ft)
1256
1254
1252
1250
1248
1246
1244
1242
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Bank Sta

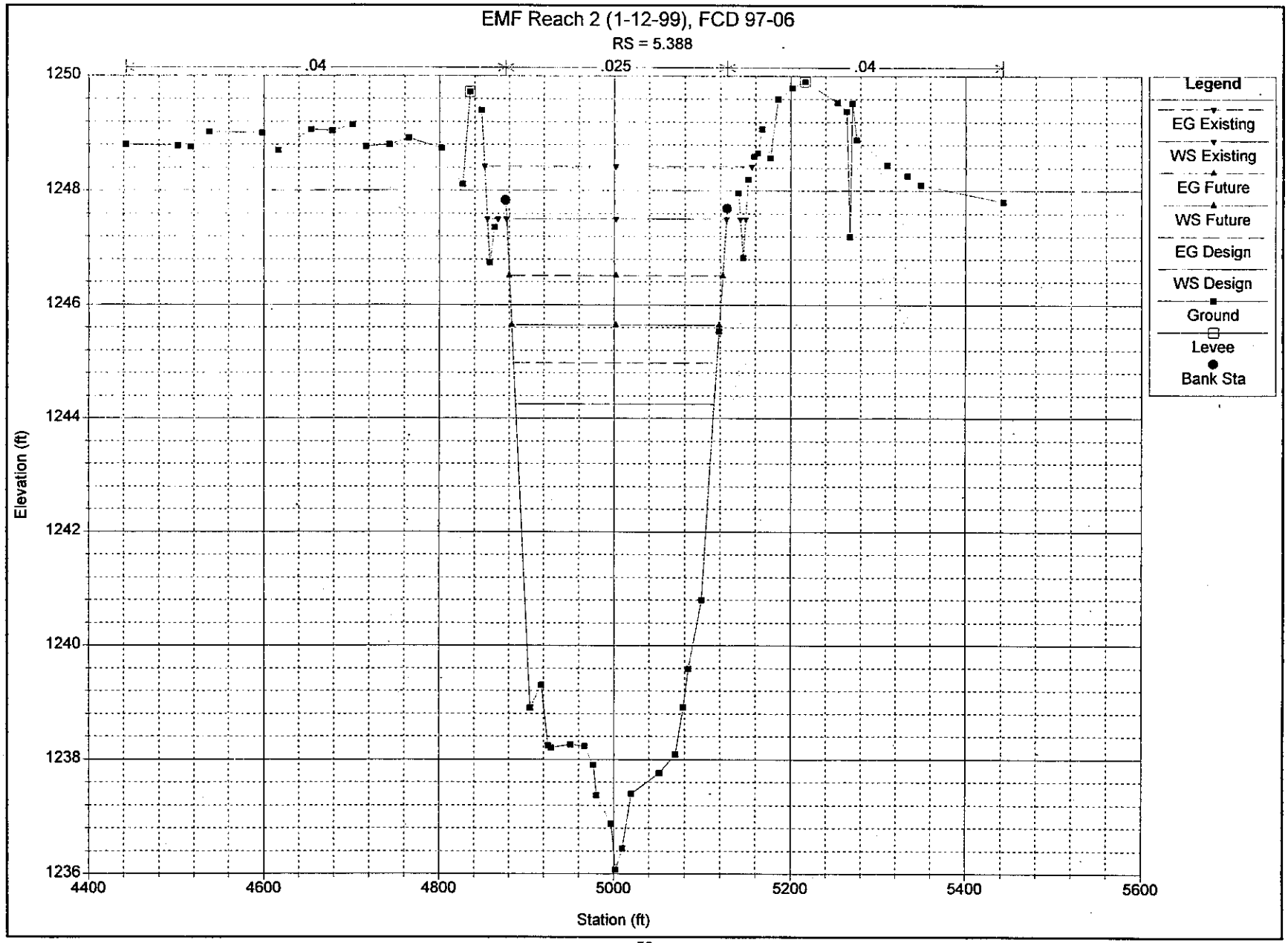

EMF Reach 2 (1-12-99), FCD 97-06
Concrete Lined Dissipator Basin RS = 5.582
.04
.013
.04
Legend
EG Existing
EG Future
WS Existing
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1256
1254
1252
1250
1248
1246
1244
1242
1240
1238
4400
4600
4800
5000
5200
5400
5600
Station (ft)

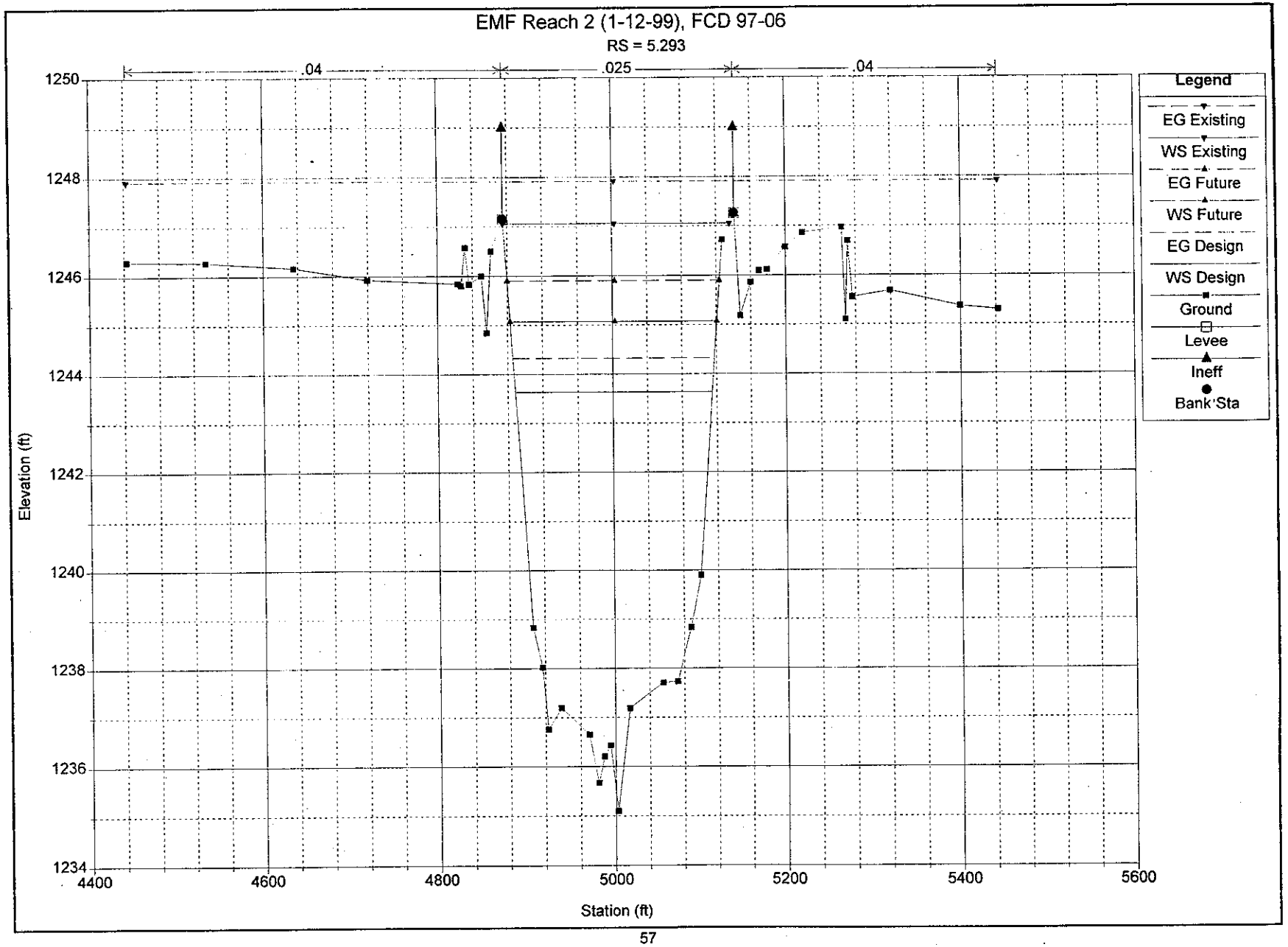

EMF Reach 2 (1-12-99), FCD 97-06
End Concrete Lined Dissipator Basin RS = 5.581
.04
.013
.04
1260
1255
1250
1245
1240
1235
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta

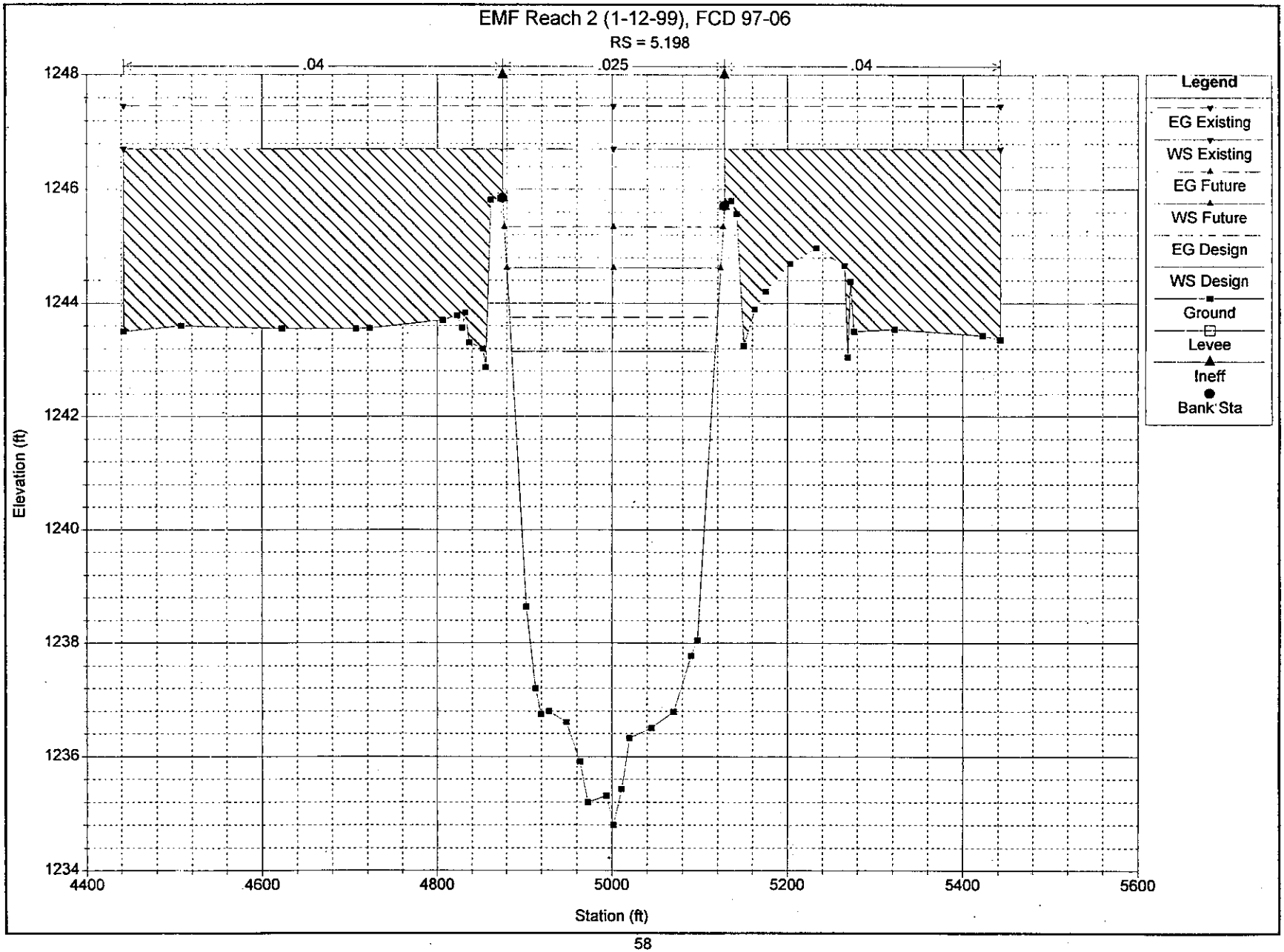

EMF Reach 2 (1-12-99), FCD 97-06
Riprap Channel RS = 5.58
.04
.03
.04
1260
1255
1250
1245
1240
1235
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta

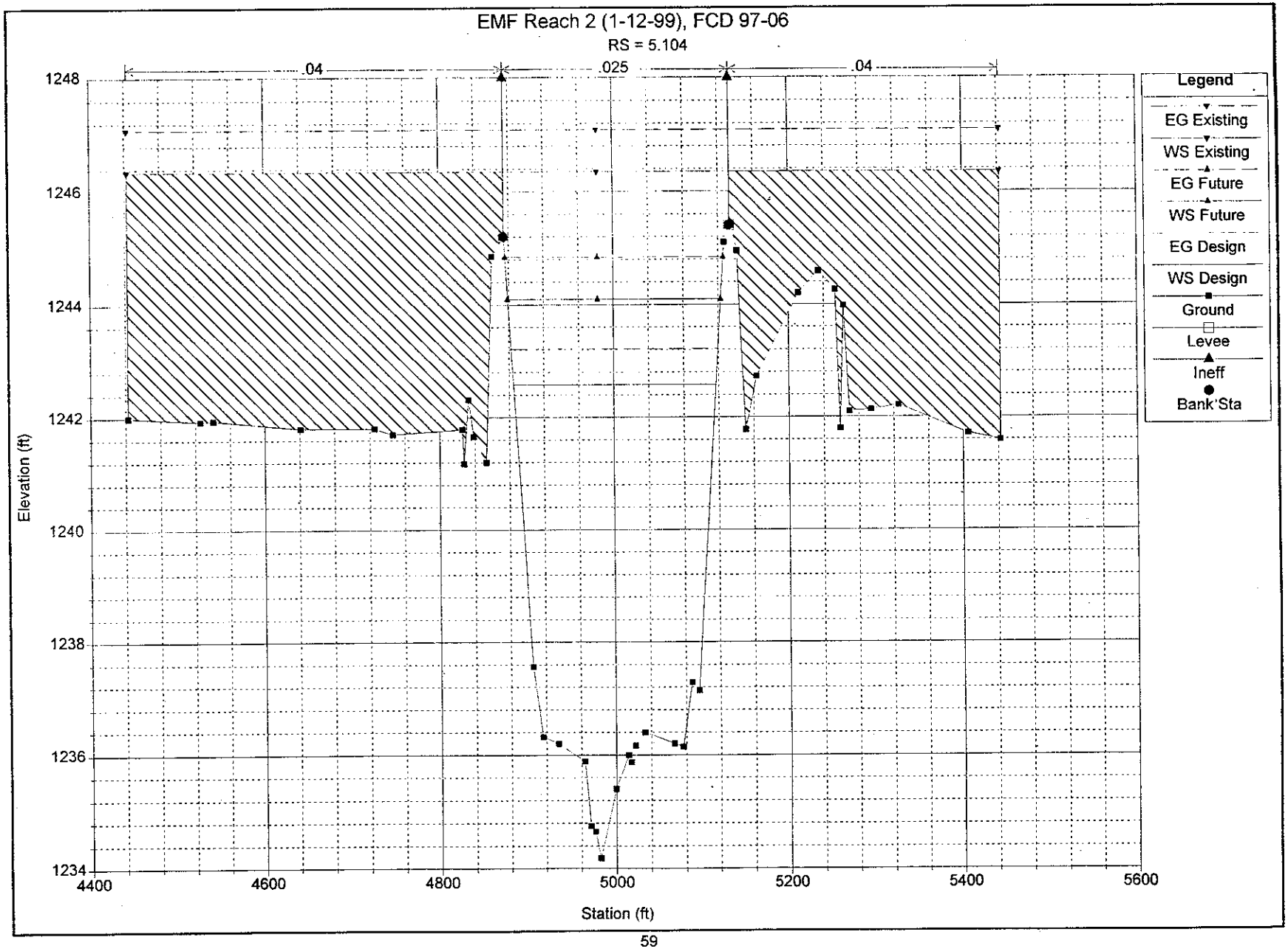

EMF Reach 2 (1-12-99), FCD 97-06
Riprap Channel RS = 5.578
.04
.03
.04
1260
1255
1250
1245
1240
1235
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta

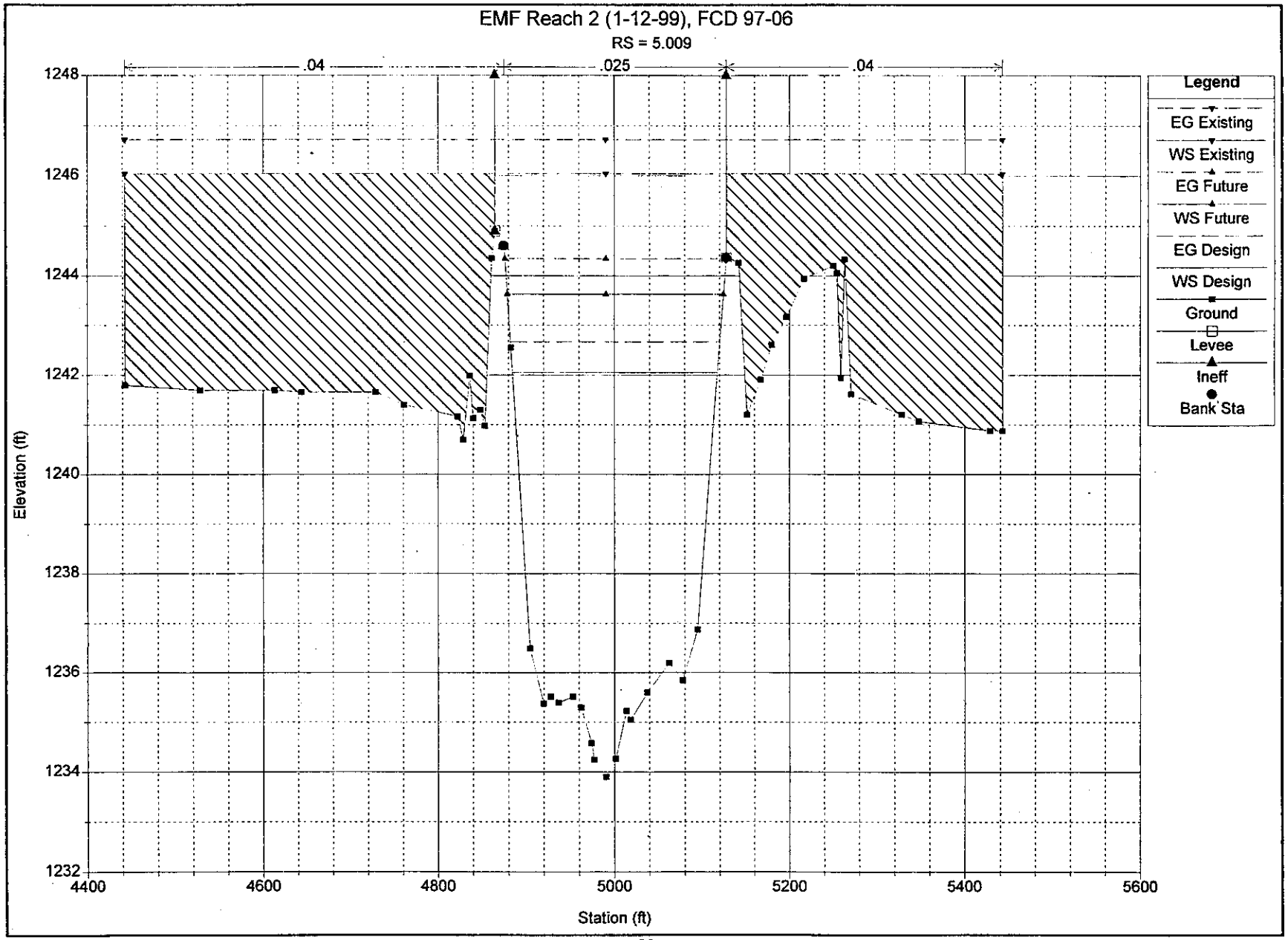

EMF Reach 2 (1-12-99), FCD 97-06
RS = 5.483
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1254
1252
1250
1248
1246
1244
1242
1240
1238
1236
4400
4600
4800
5000
5200
5400
5600
Station (ft)

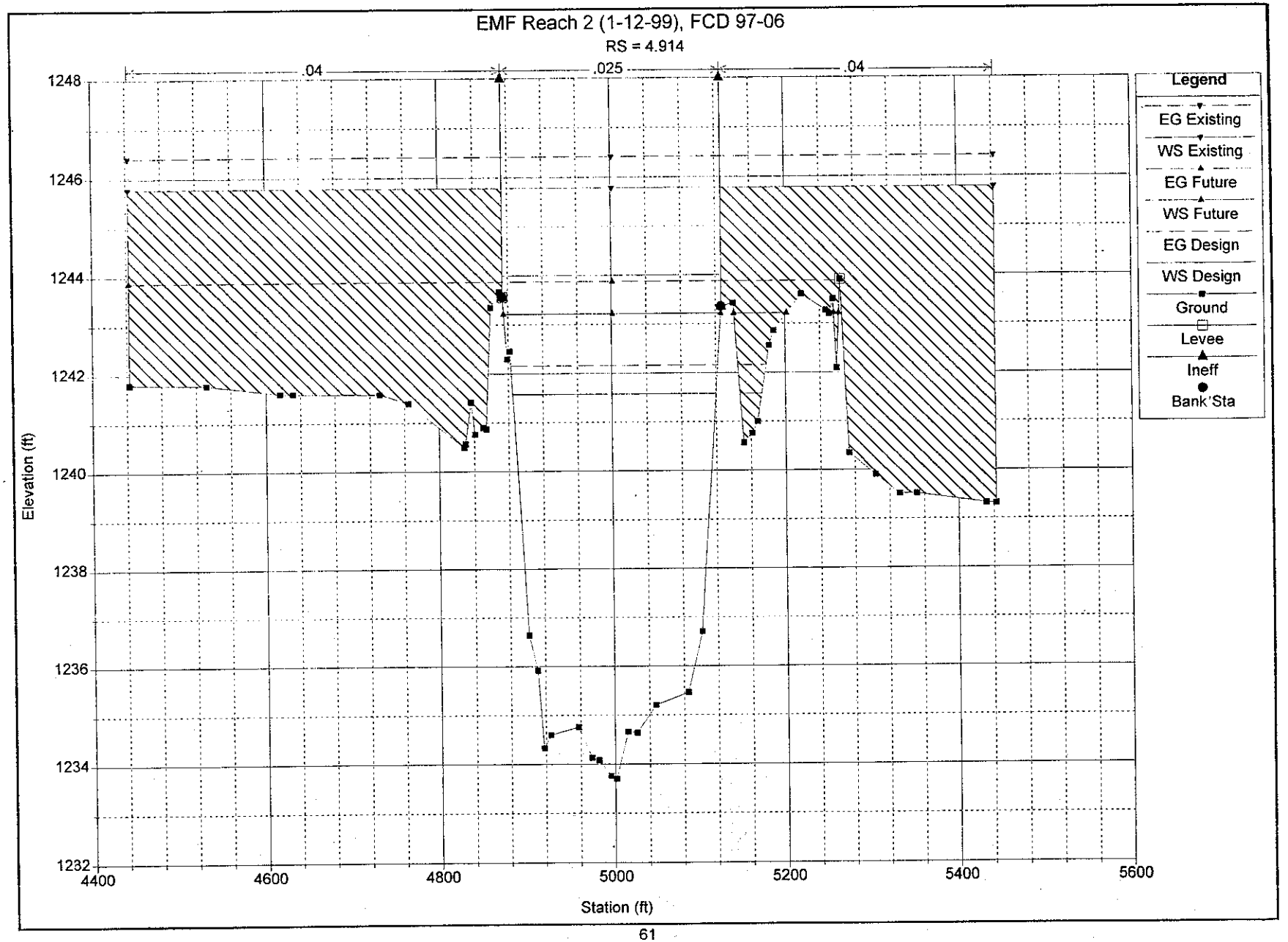

EMF Reach 2 (1-12-99), FCD 97-06
RS = 5.388
.04
.025
.04
1250
1248
1246
1244
1242
1240
1238
1236
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta

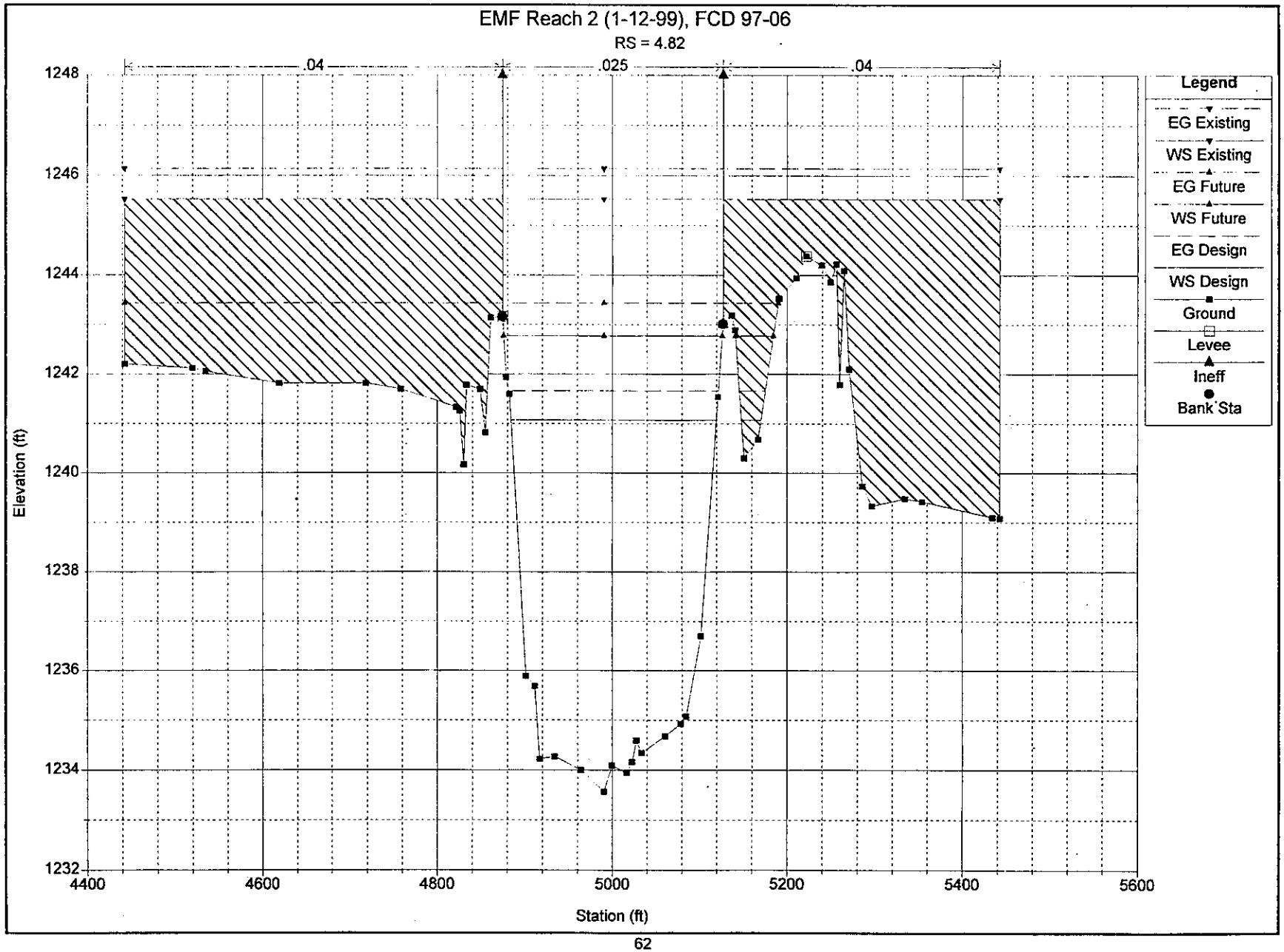

EMF Reach 2 (1-12-99), FCD 97-06
RS = 5.293
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1250
1248
1246
1244
1242
1240
1238
1236
1234
4400
4600
4800
5000
5200
5400
5600
Station (ft)

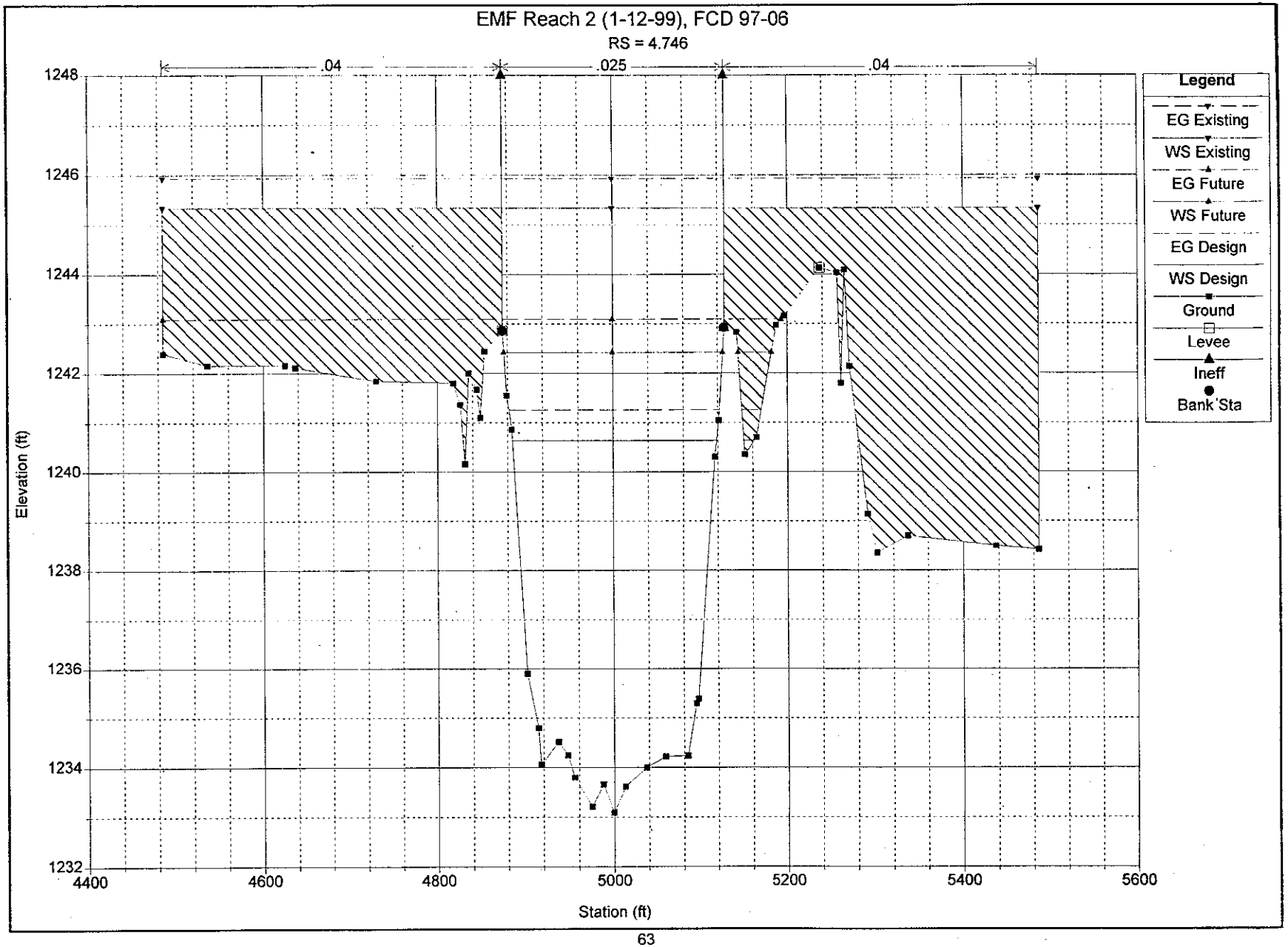

EMF Reach 2 (1-12-99), FCD 97-06
RS = 5.198
.04
.025
.04
1248
1246
1244
1242
1240
1238
1236
1234
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

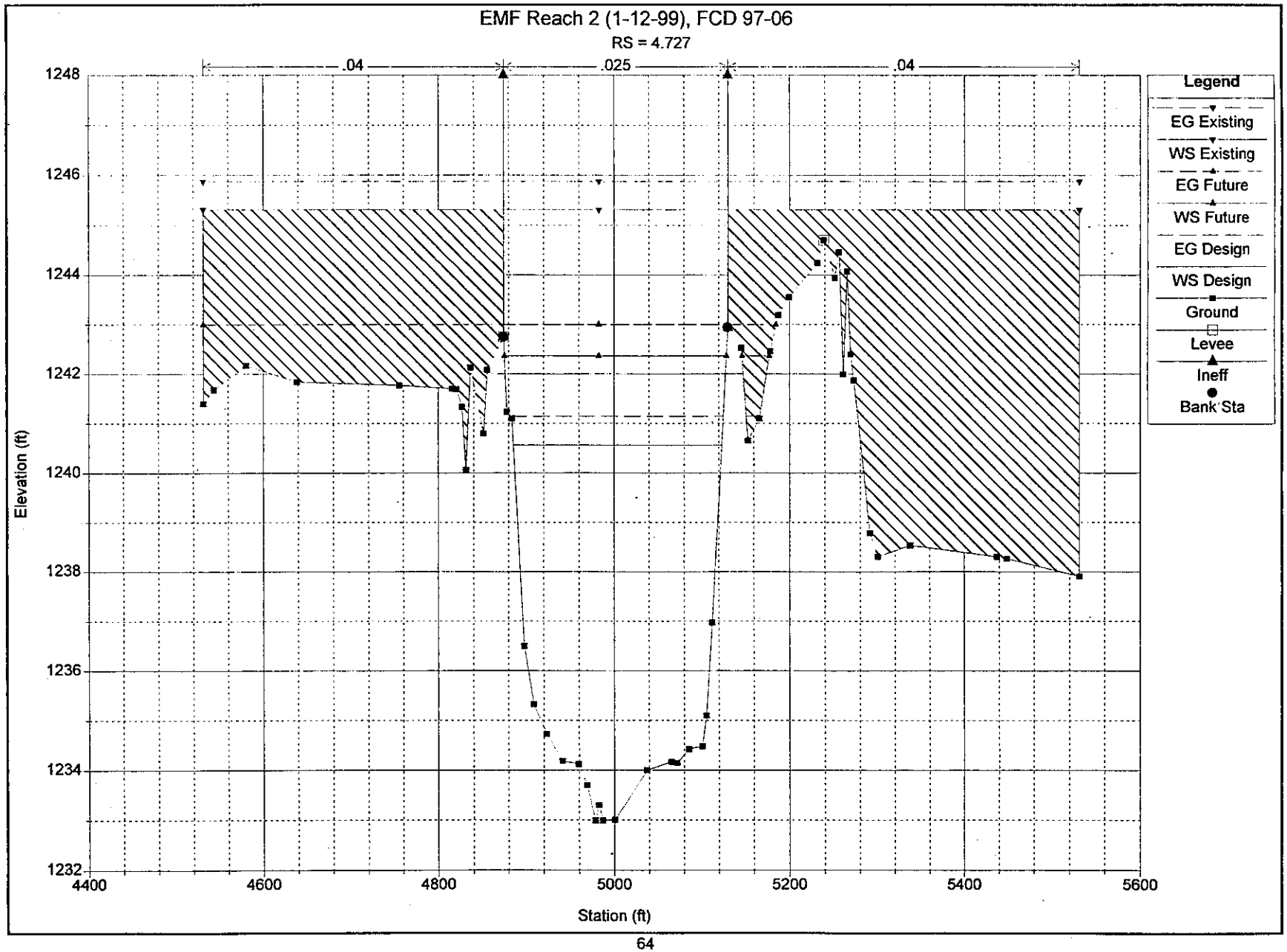

EMF Reach 2 (1-12-99), FCD 97-06
RS = 5.104
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1248
1246
1244
1242
1240
1238
1236
1234
4400
4600
4800
5000
5200
5400
5600
Station (ft)

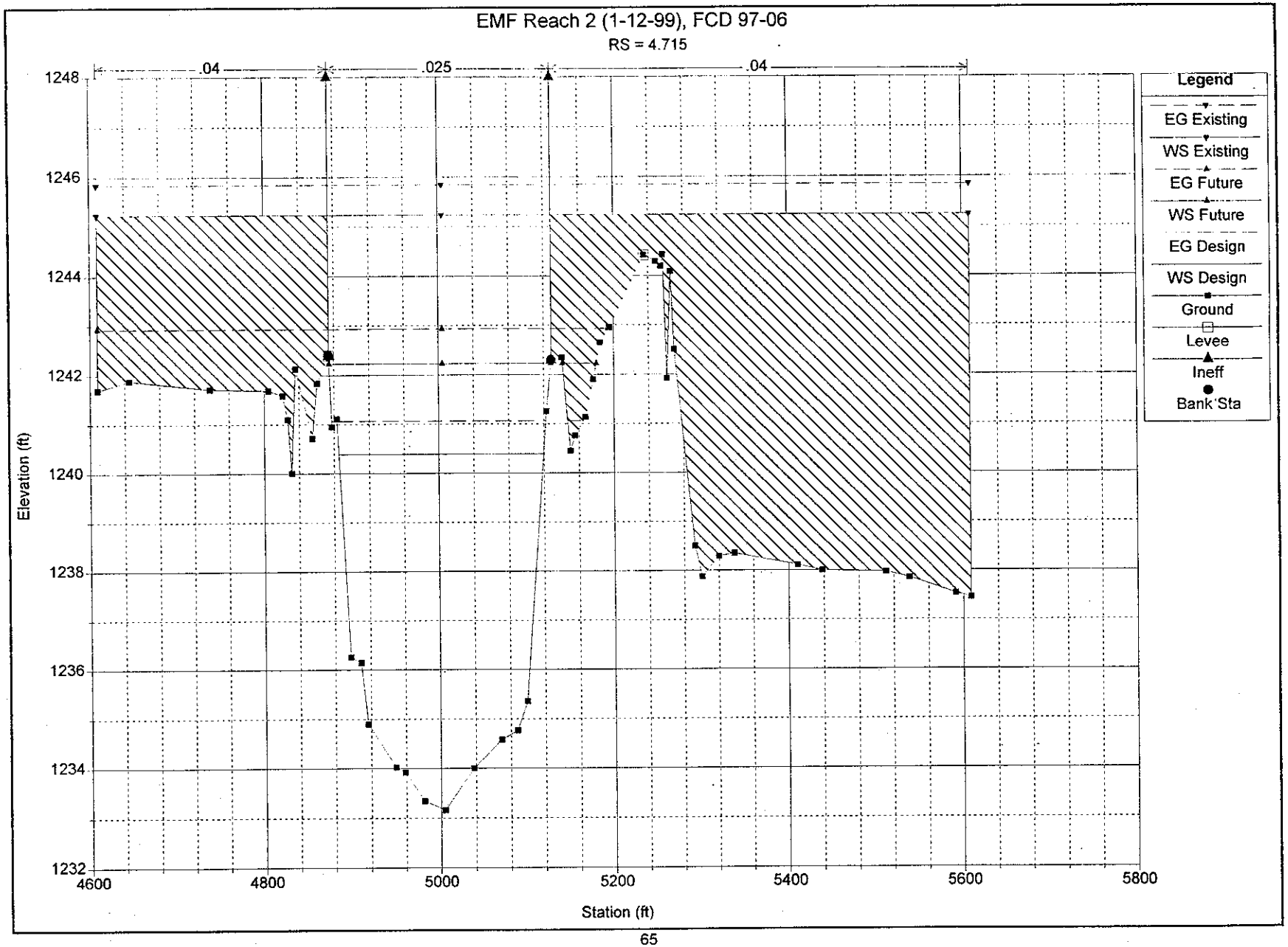

EMF Reach 2 (1-12-99), FCD 97-06
RS = 5.009
.04
.025
.04
Elevation (ft)
1248
1246
1244
1242
1240
1238
1236
1234
1232
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

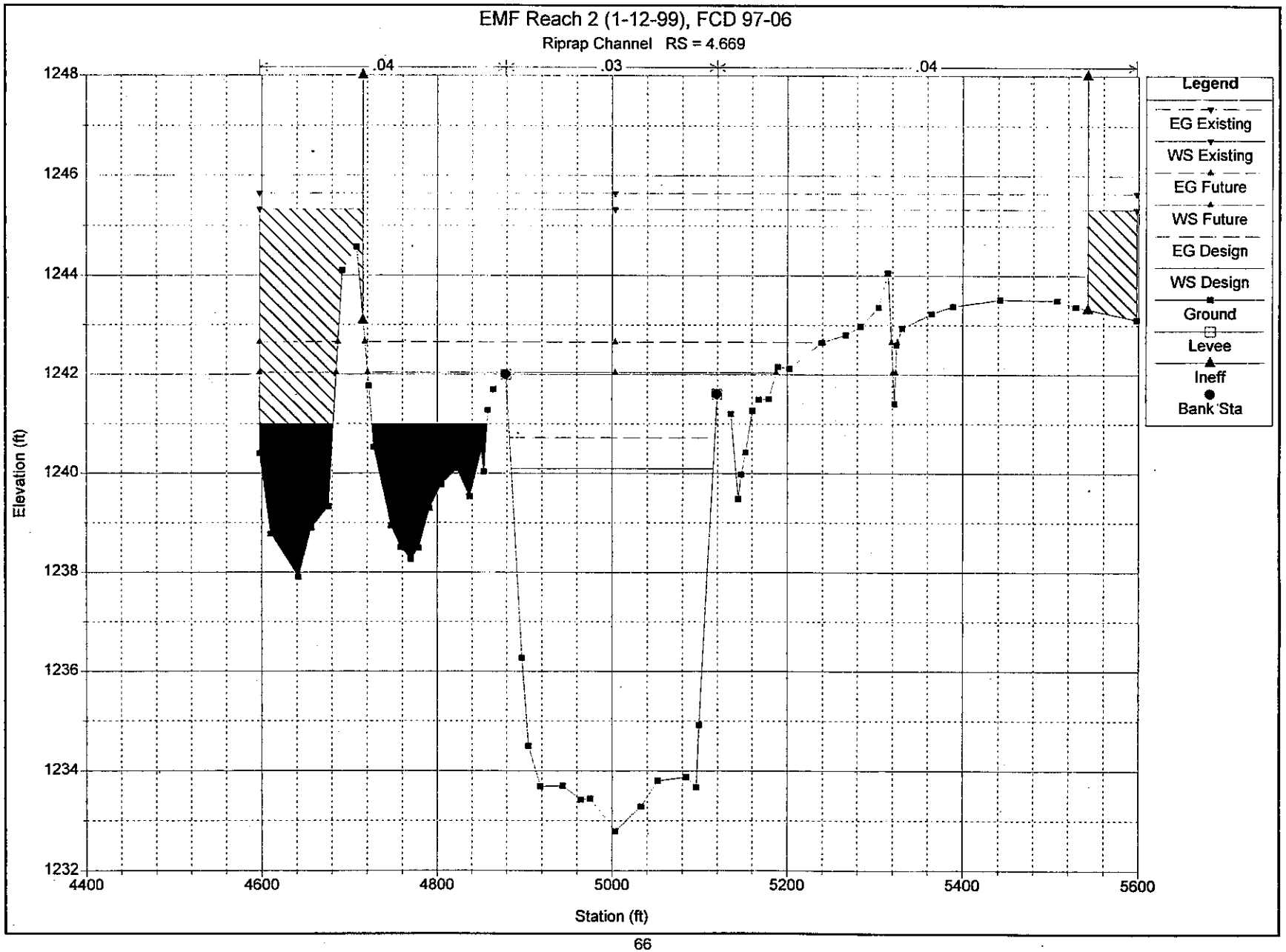

EMF Reach 2 (1-12-99), FCD 97-06
RS = 4.914
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1248
1246
1244
1242
1240
1238
1236
1234
1232
4400
4600
4800
5000
5200
5400
5600
Station (ft)

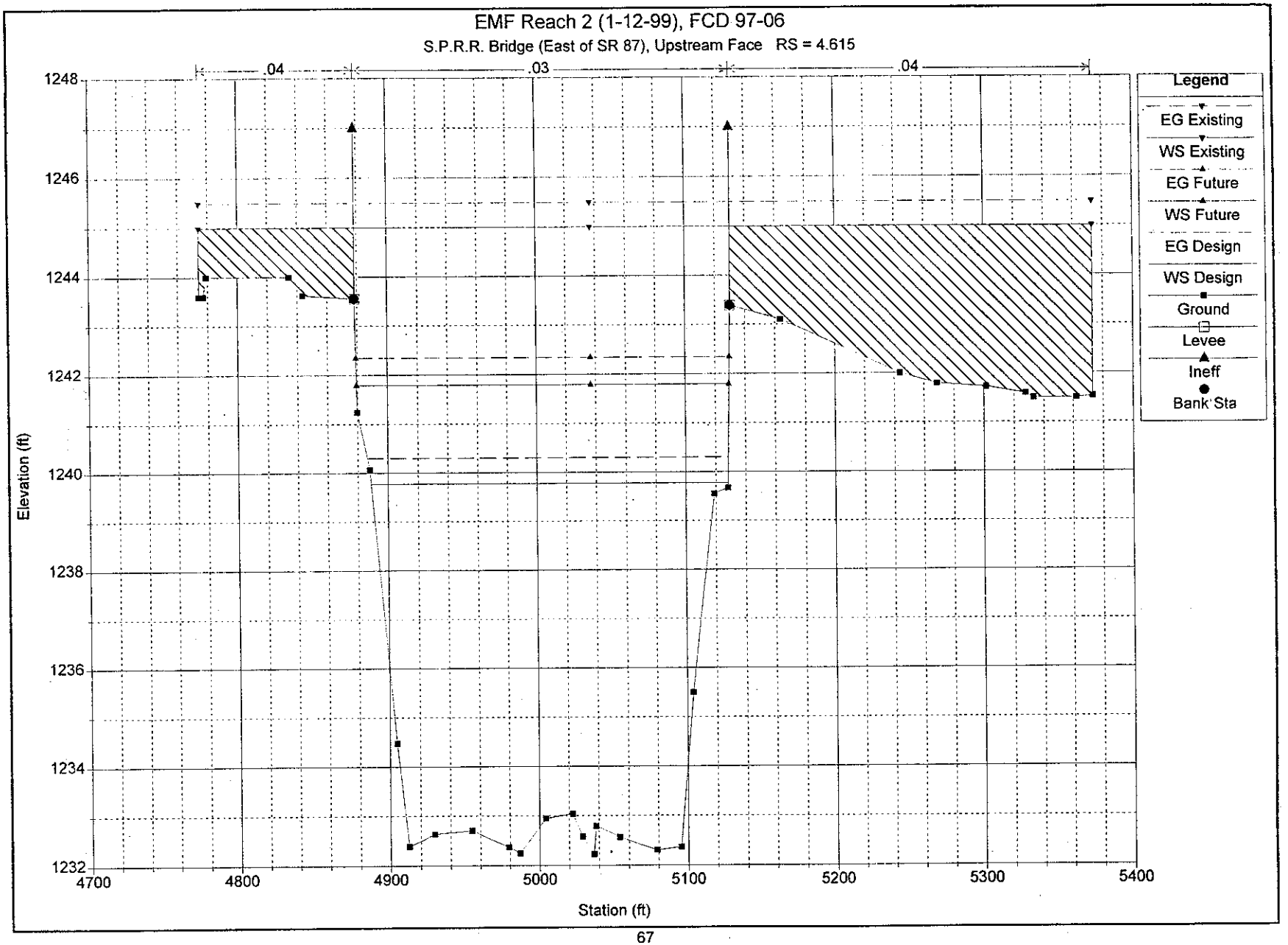

EMF Reach 2 (1-12-99), FCD 97-06
RS = 4.82
.04
.025
.04
Elevation (ft)
1248
1246
1244
1242
1240
1238
1236
1234
1232
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

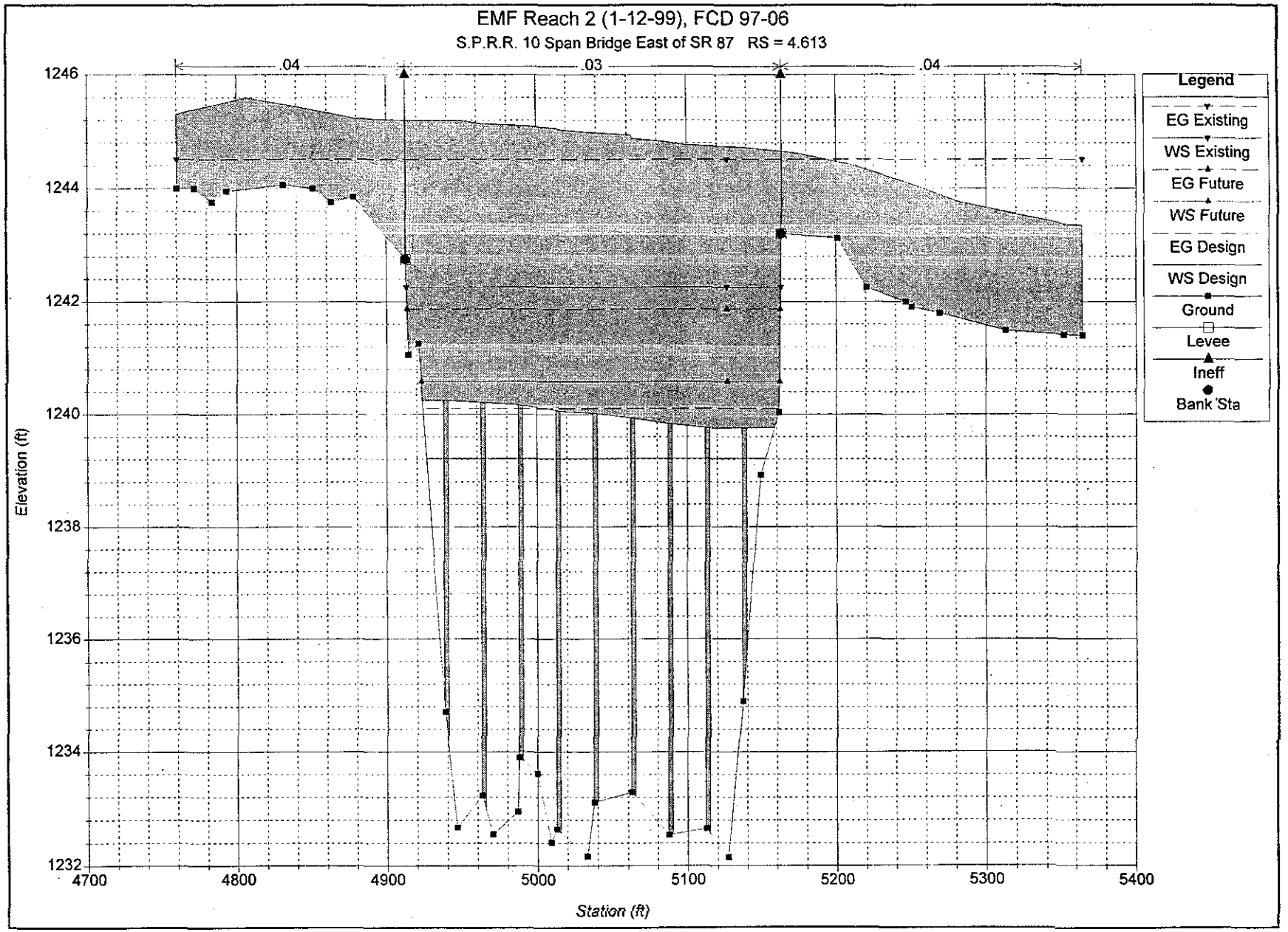

EMF Reach 2 (1-12-99), FCD 97-06
RS = 4.746
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1248
1246
1244
1242
1240
1238
1236
1234
1232
4400
4600
4800
5000
5200
5400
5600
Station (ft)

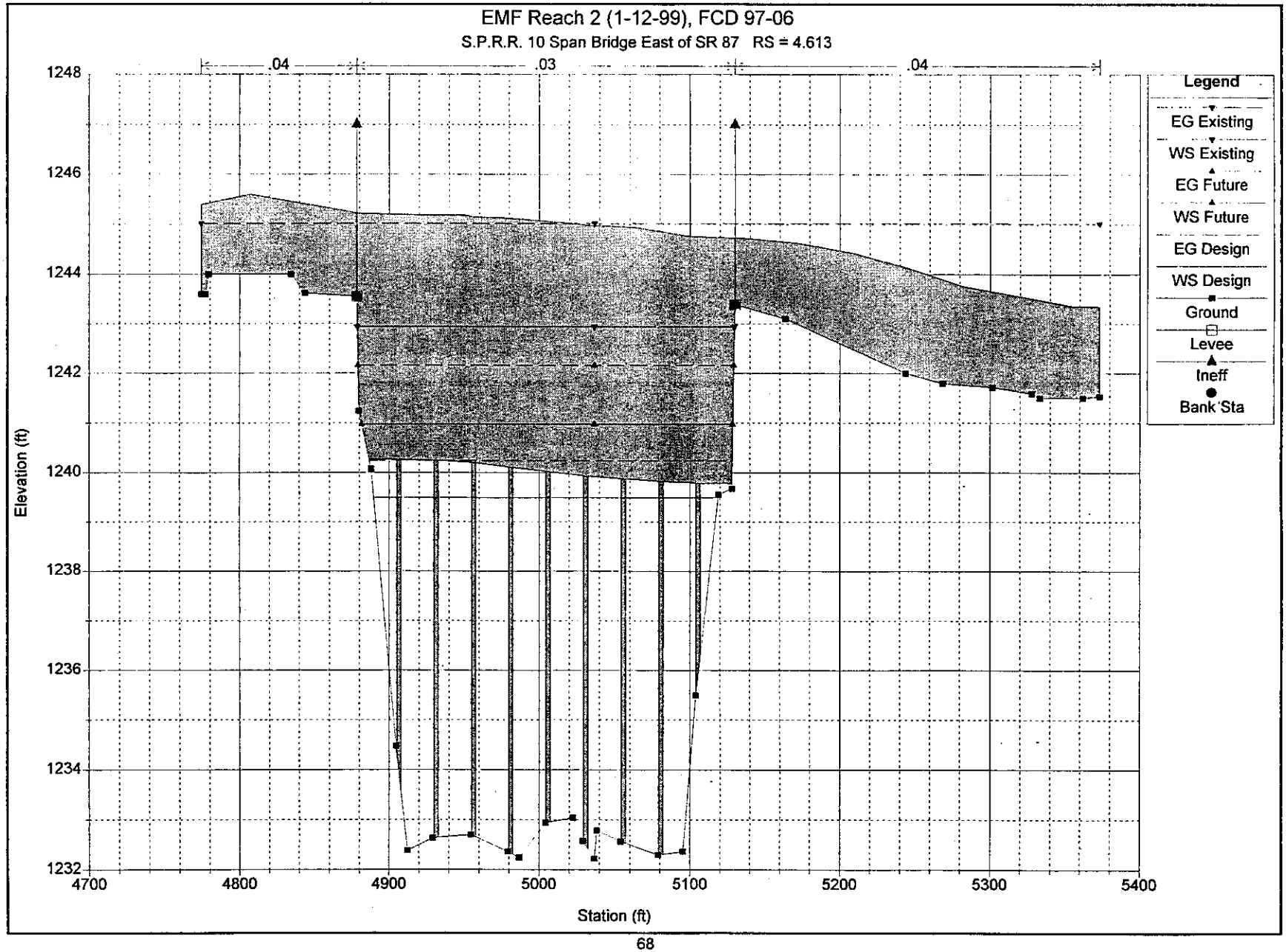

EMF Reach 2 (1-12-99), FCD 97-06
RS = 4.727
.04
.025
.04
Elevation (ft)
1248
1246
1244
1242
1240
1238
1236
1234
1232
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

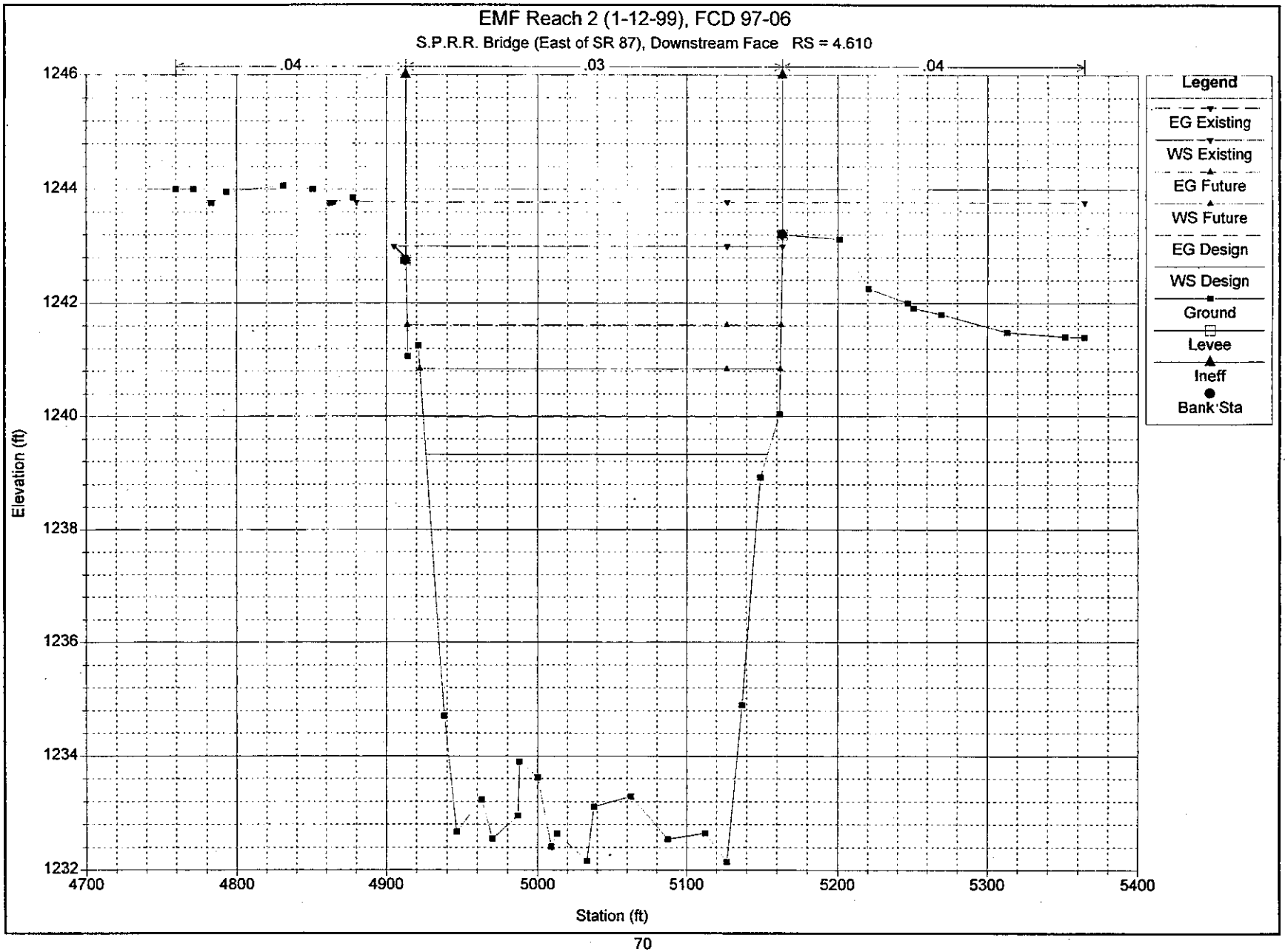

EMF Reach 2 (1-12-99), FCD 97-06
RS = 4.715
.04
.025
.04
Elevation (ft)
1248
1246
1244
1242
1240
1238
1236
1234
1232
4600
4800
5000
5200
5400
5600
5800
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

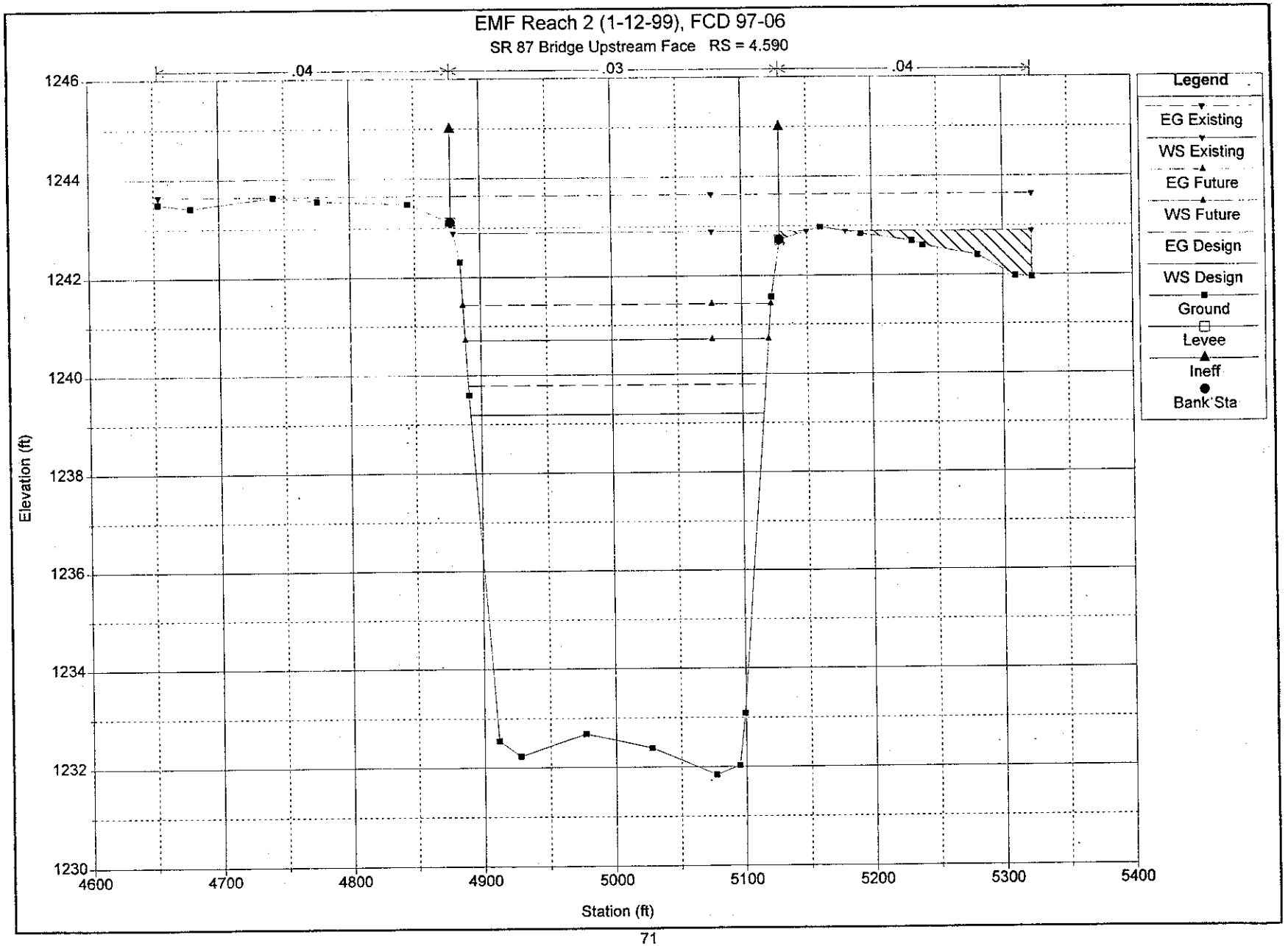

EMF Reach 2 (1-12-99), FCD 97-06
Riprap Channel RS = 4.669
.04
.03
.04
Elevation (ft)
1248
1246
1244
1242
1240
1238
1236
1234
1232
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

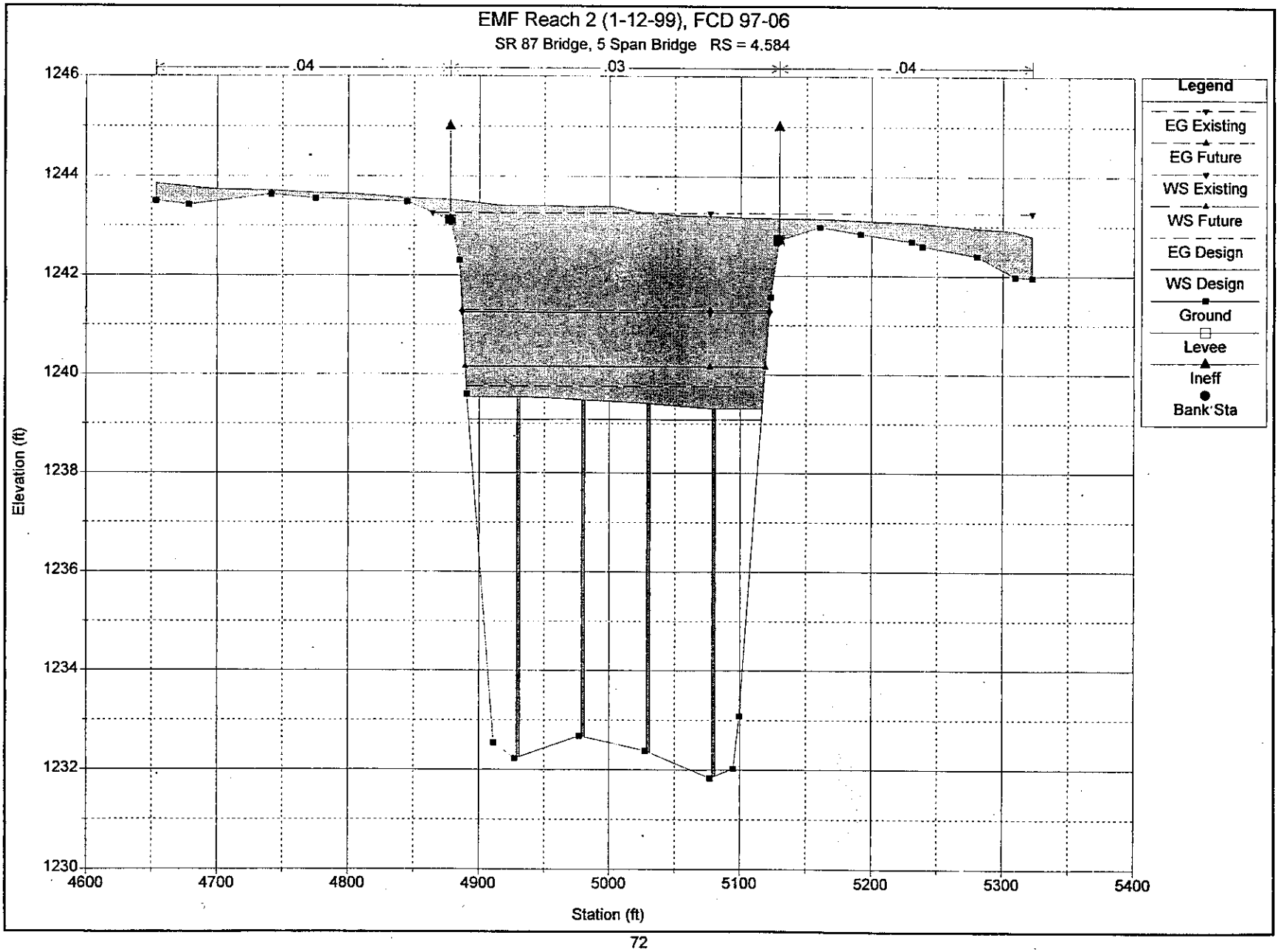

EMF Reach 2 (1-12-99), FCD 97-06
S.P.R.R. Bridge (East of SR 87), Upstream Face RS = 4.615
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1248
1246
1244
1242
1240
1238
1236
1234
1232
4700
4800
4900
5000
5100
5200
5300
5400
Station (ft)

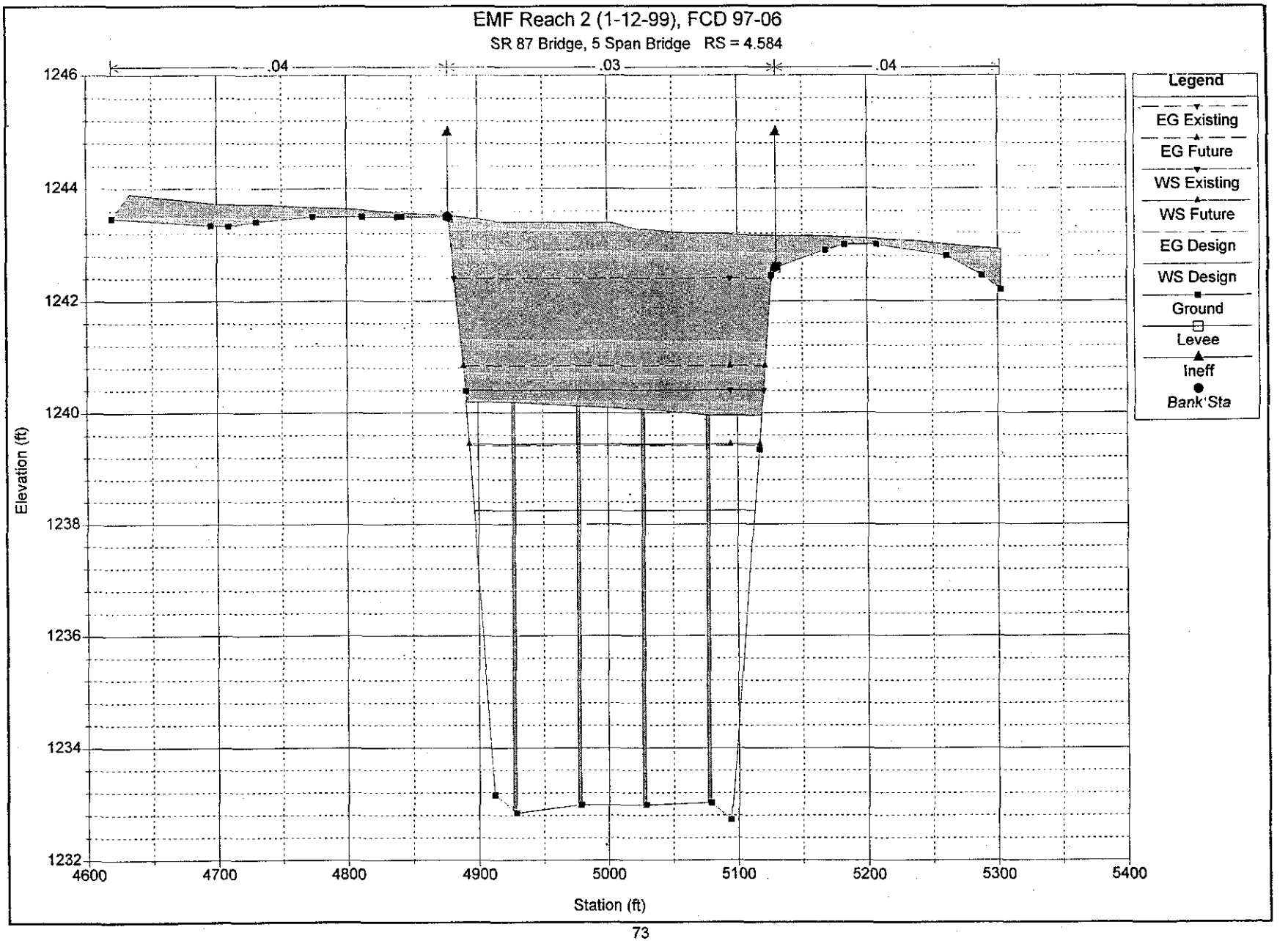

EMF Reach 2 (1-12-99), FCD 97-06
S.P.R.R. 10 Span Bridge East of SR 87 RS = 4.613
.04
.03
.04
1246
1244
1242
1240
1238
1236
1234
1232
Elevation (ft)
4700
4800
4900
5000
5100
5200
5300
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

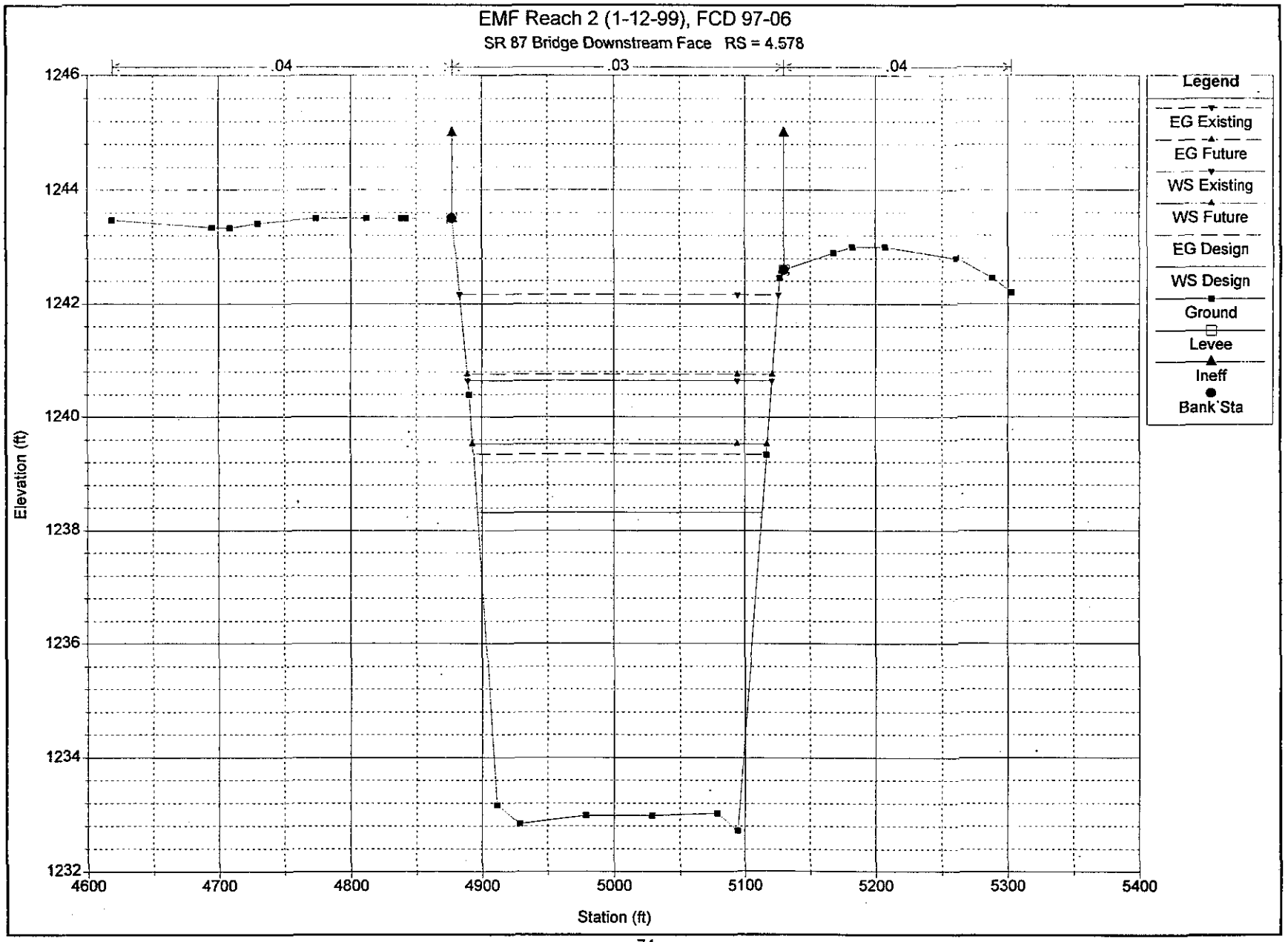

EMF Reach 2 (1-12-99), FCD 97-06
S.P.R.R. 10 Span Bridge East of SR 87 RS = 4.613
.04
.03
.04
Elevation (ft)
1248
1246
1244
1242
1240
1238
1236
1234
1232
4700
4800
4900
5000
5100
5200
5300
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

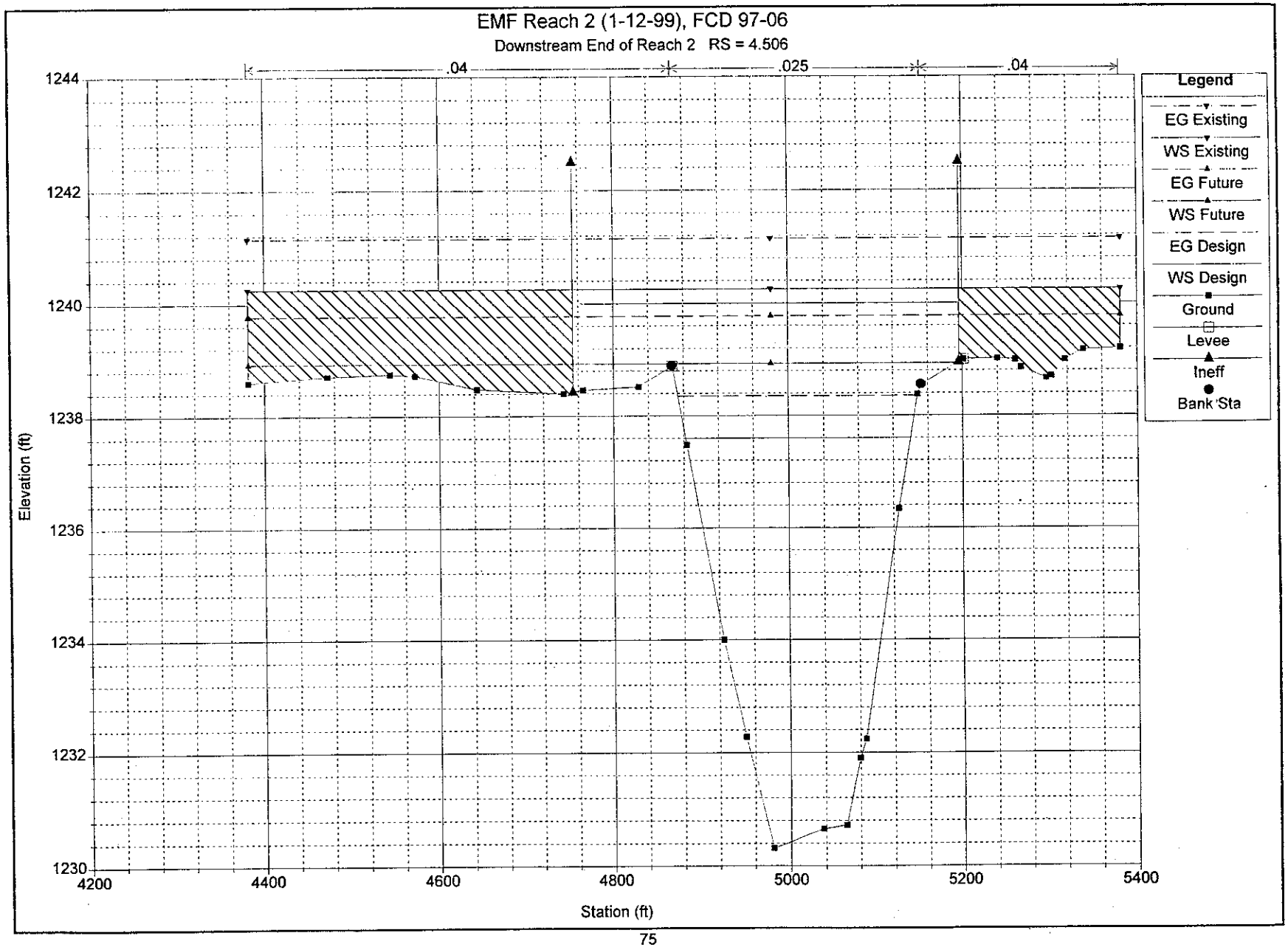

EMF Reach 2 (1-12-99), FCD 97-06
S.P.R.R. Bridge (East of SR 87), Downstream Face RS = 4.610
.04
.03
.04
Elevation (ft)
1246
1244
1242
1240
1238
1236
1234
1232
4700
4800
4900
5000
5100
5200
5300
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

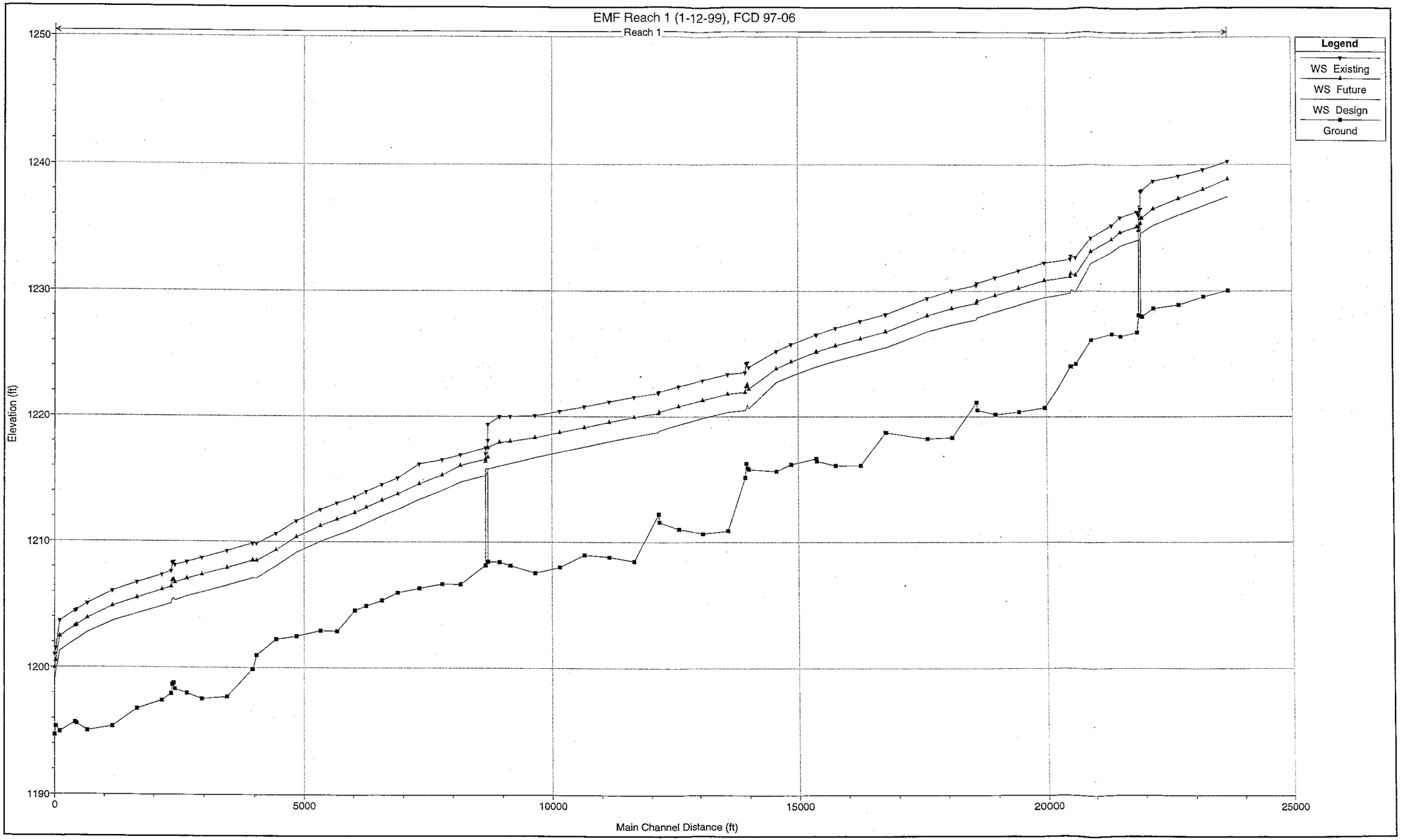

EMF Reach 2 (1-12-99), FCD 97-06
SR 87 Bridge Upstream Face RS = 4.590
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1246
1244
1242
1240
1238
1236
1234
1232
1230
4600
4700
4800
4900
5000
5100
5200
5300
5400
Station (ft)

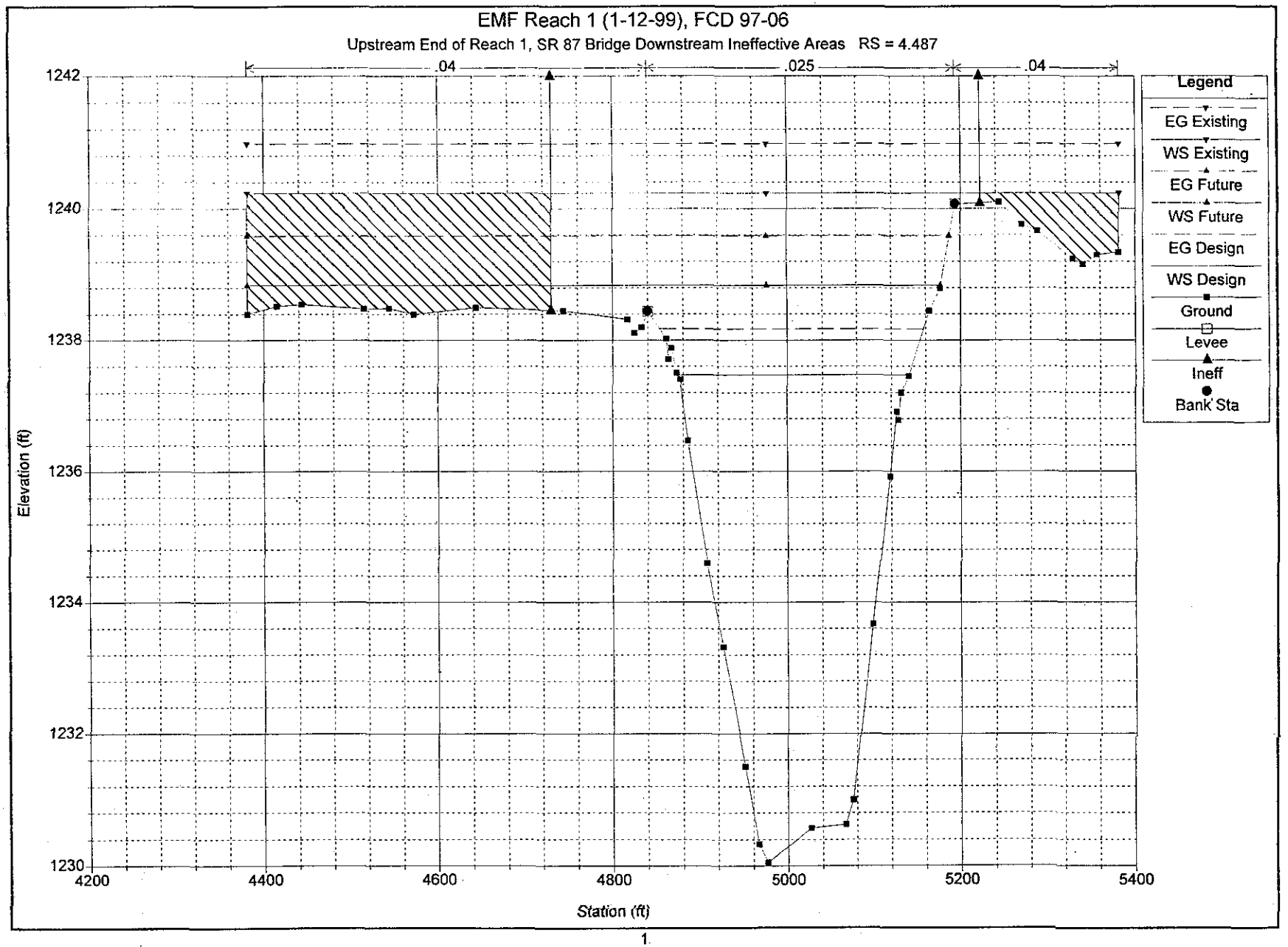

EMF Reach 2 (1-12-99), FCD 97-06
SR 87 Bridge, 5 Span Bridge RS = 4.584
.04
.03
.04
Elevation (ft)
1246
1244
1242
1240
1238
1236
1234
1232
1230
4600
4700
4800
4900
5000
5100
5200
5300
5400
Station (ft)
Legend
EG Existing
EG Future
WS Existing
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

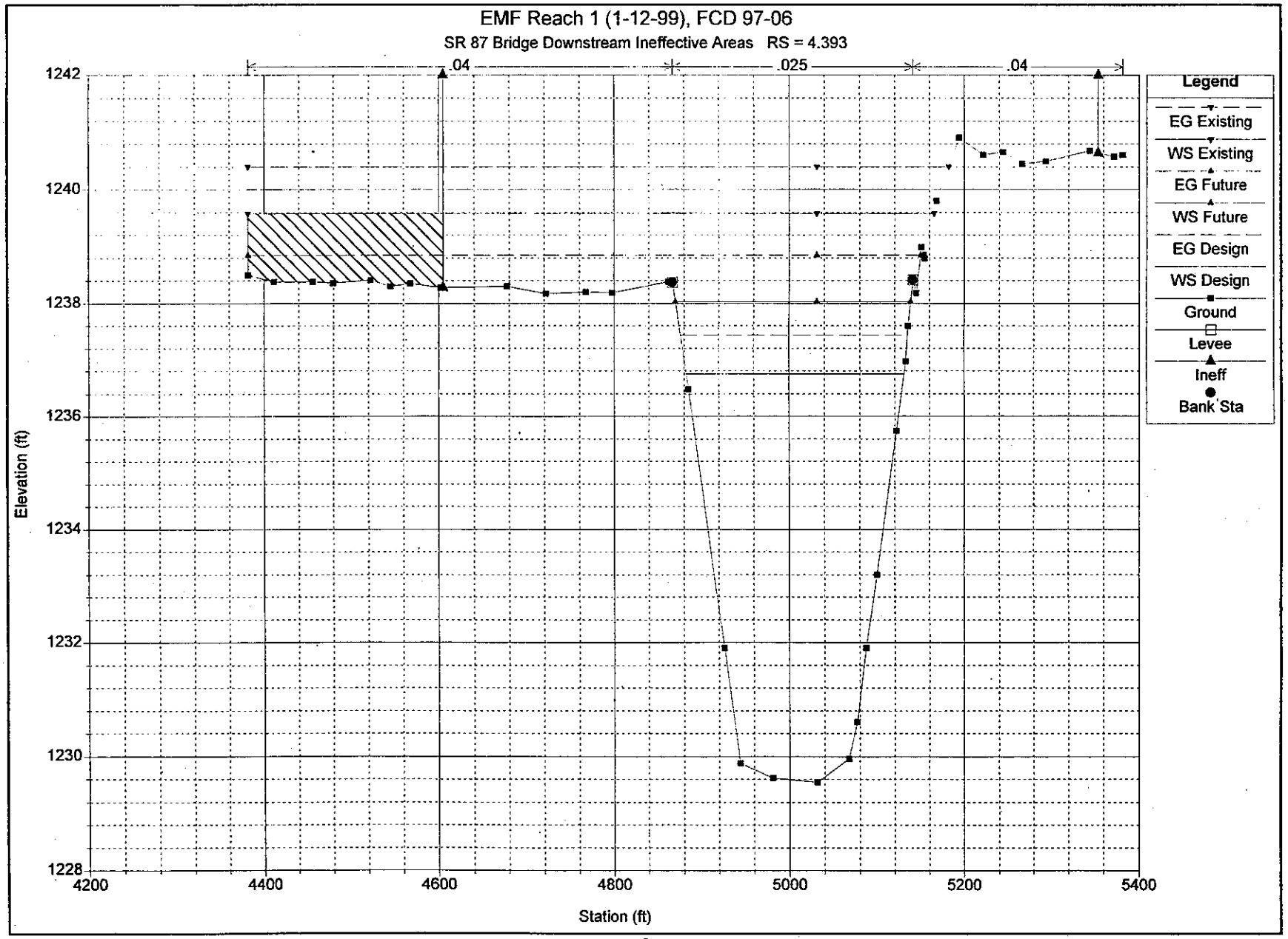

EMF Reach 2 (1-12-99), FCD 97-06
SR 87 Bridge, 5 Span Bridge RS = 4.584
.04
.03
.04
Legend
EG Existing
EG Future
WS Existing
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1246
1244
1242
1240
1238
1236
1234
1232
4600
4700
4800
4900
5000
5100
5200
5300
5400
Station (ft)

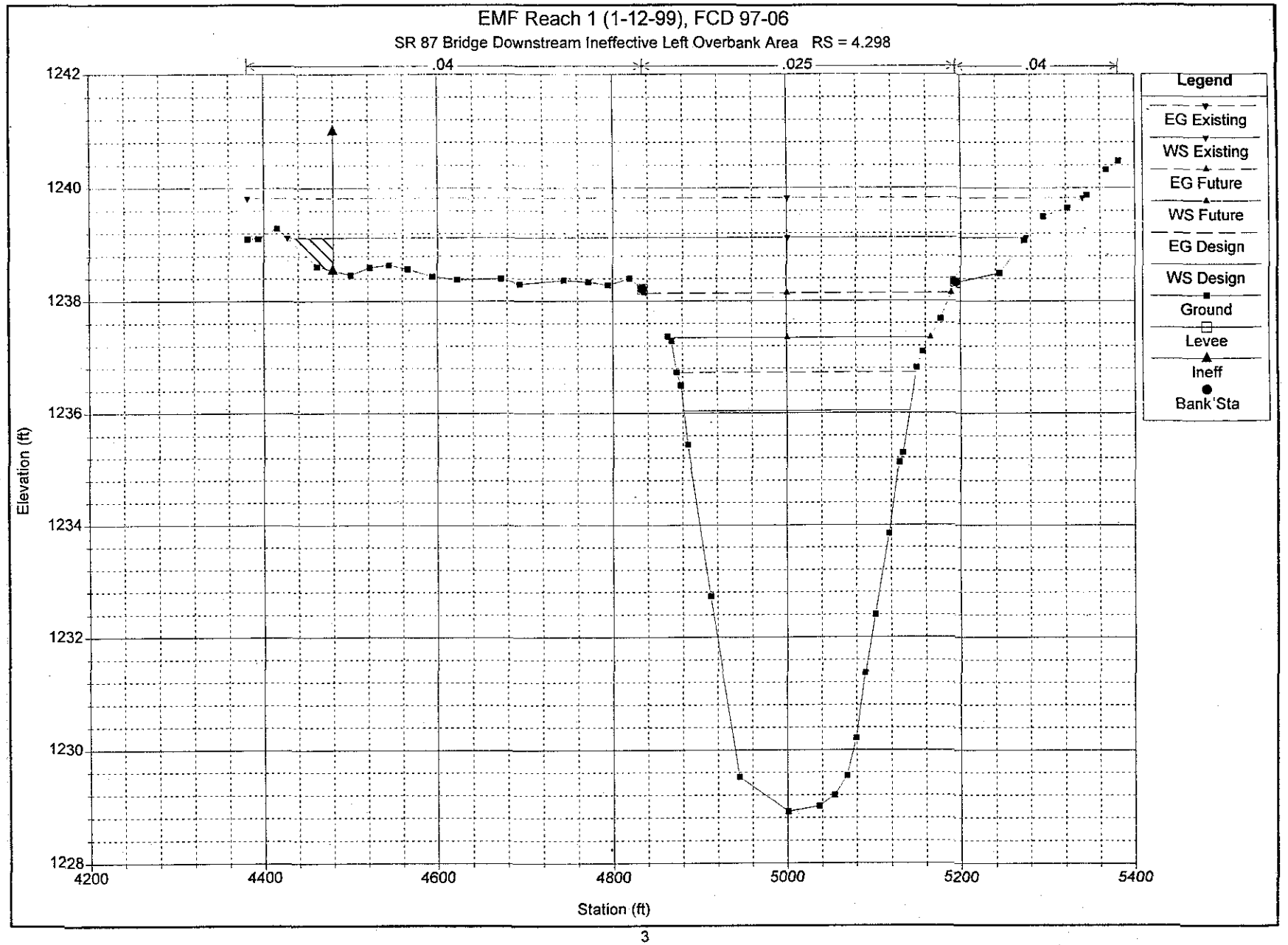

EMF Reach 2 (1-12-99), FCD 97-06
SR 87 Bridge Downstream Face RS = 4.578
.04
.03
.04
1246
1244
1242
1240
1238
1236
1234
1232
Elevation (ft)
4600
4700
4800
4900
5000
5100
5200
5300
5400
Station (ft)
Legend
EG Existing
EG Future
WS Existing
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

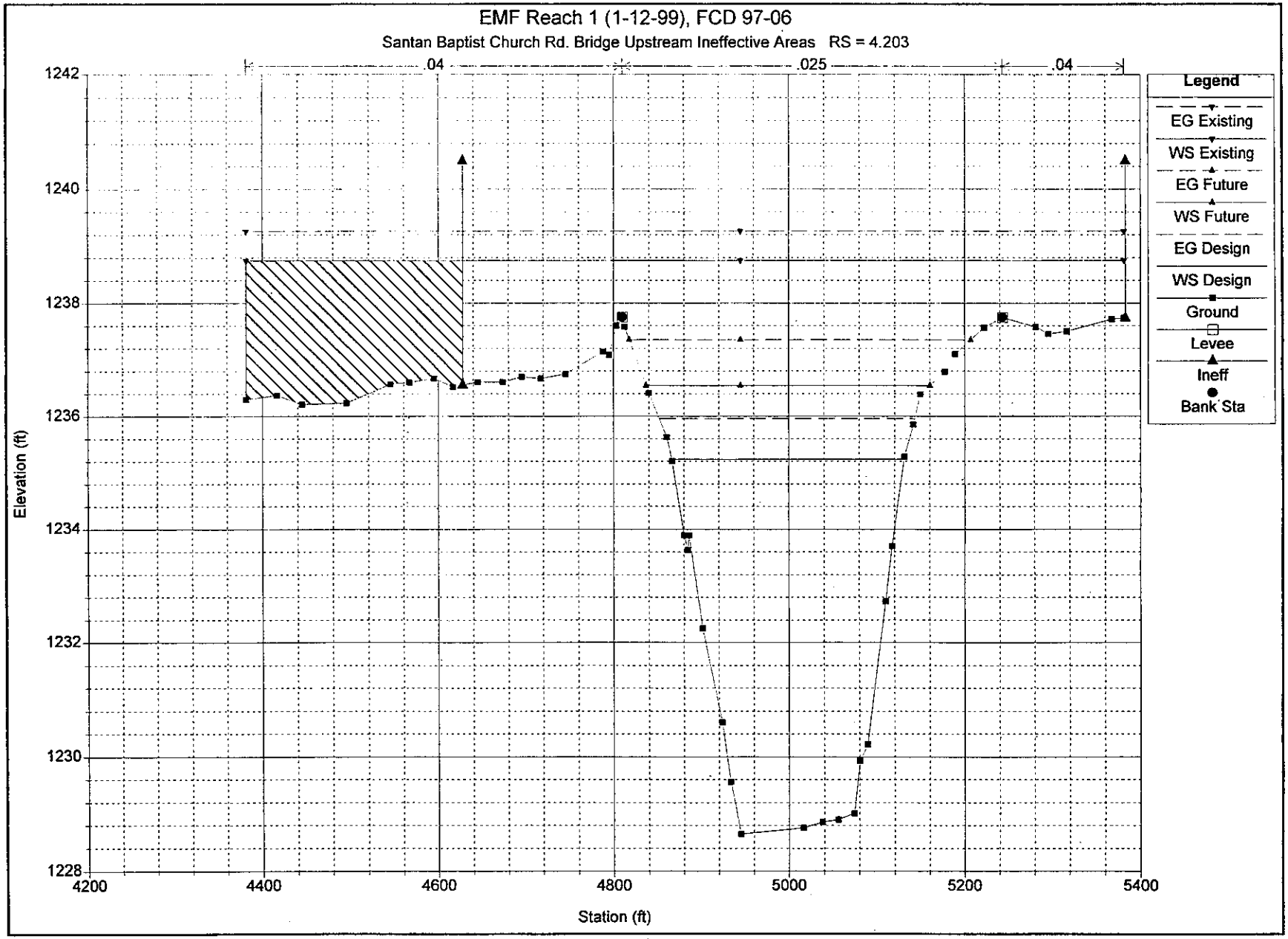

EMF Reach 2 (1-12-99), FCD 97-06
Downstream End of Reach 2 RS = 4.506
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1244
1242
1240
1238
1236
1234
1232
1230
4200
4400
4600
4800
5000
5200
5400
Station (ft)

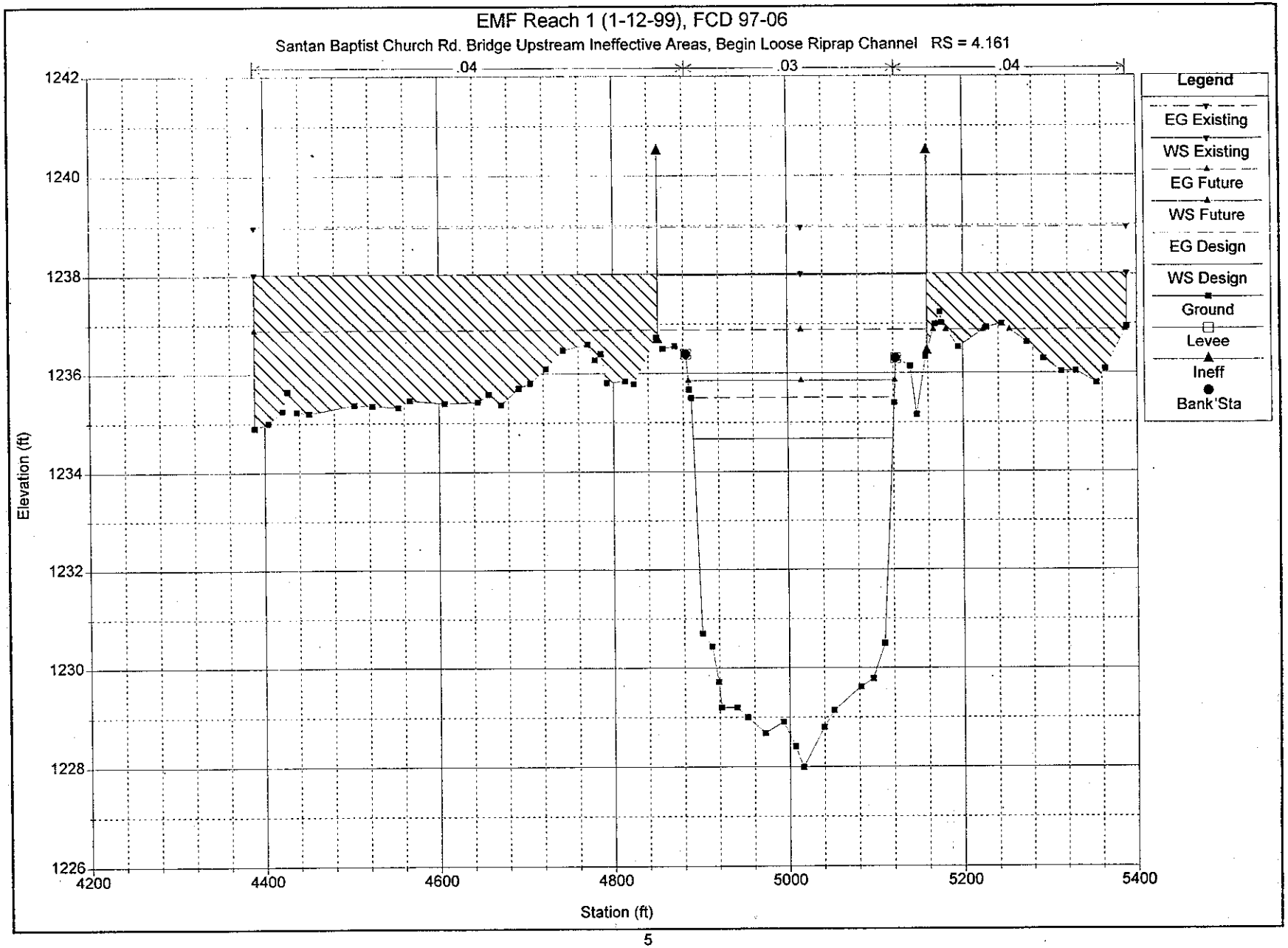

EMF Reach 1 (1-12-99), FCD 97-06
Reach 1
Legend
WS Existing
WS Future
WS Design
Ground
Elevation (ft)
1250
1240
1230
1220
1210
1200
1190
0
5000
10000
15000
20000
25000
Main Channel Distance (ft)

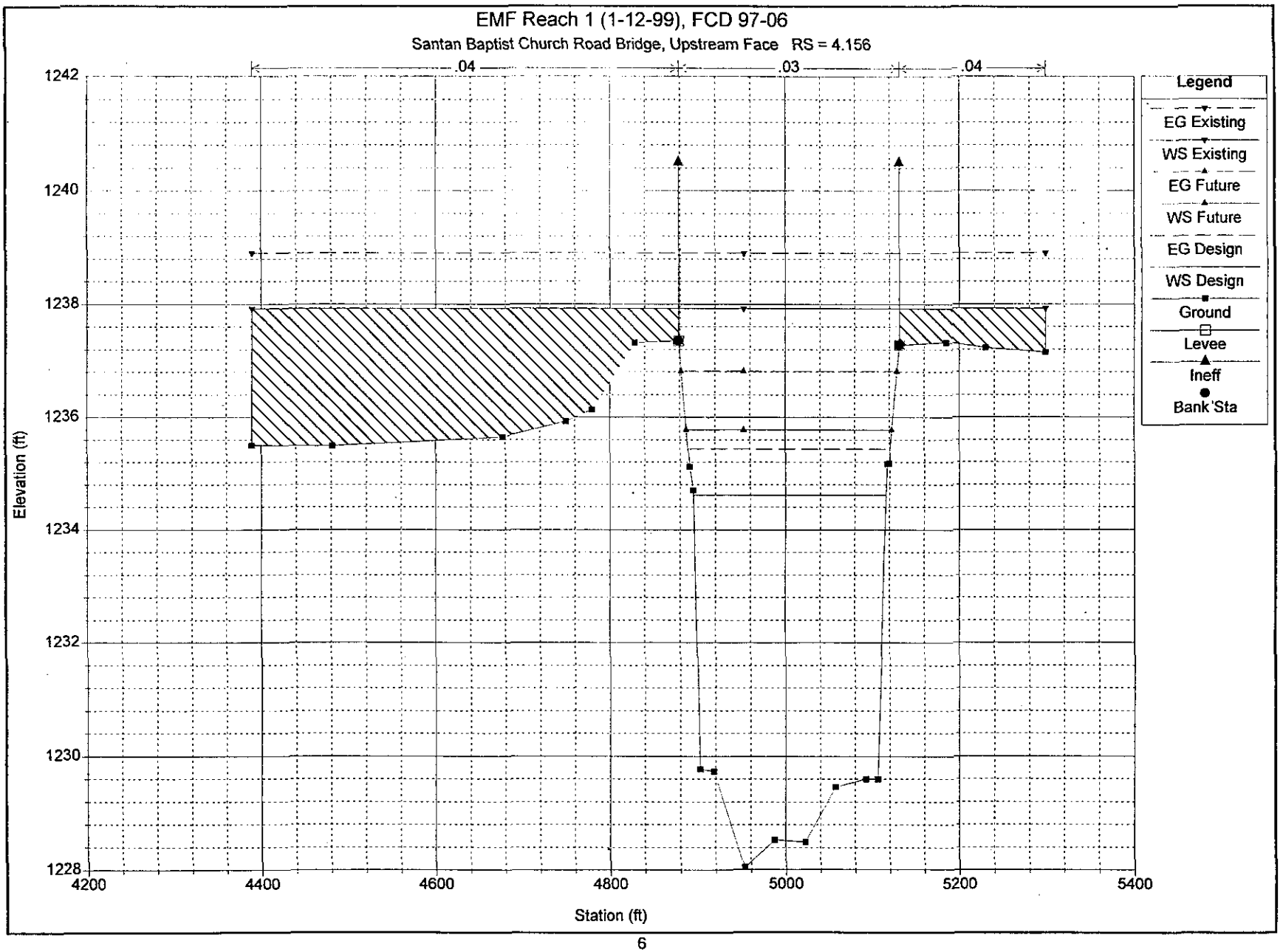

EMF Reach 1 (1-12-99), FCD 97-06
Upstream End of Reach 1, SR 87 Bridge Downstream Ineffective Areas RS = 4.487
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1242
1240
1238
1236
1234
1232
1230
4200
4400
4600
4800
5000
5200
5400
Station (ft)

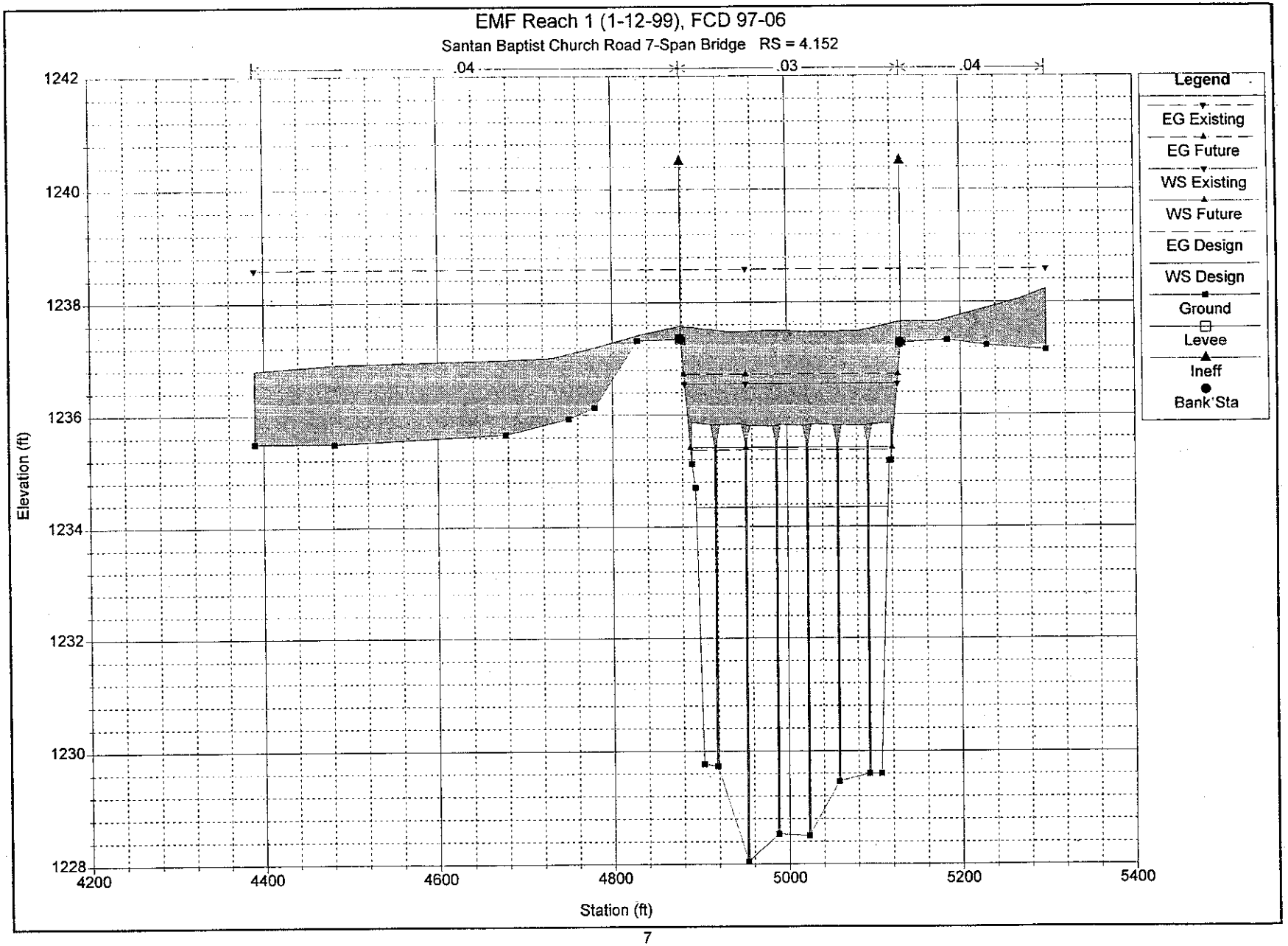

EMF Reach 1 (1-12-99), FCD 97-06
SR 87 Bridge Downstream Ineffective Areas RS = 4.393
.04
.025
.04
Elevation (ft)
1242
1240
1238
1236
1234
1232
1230
1228
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

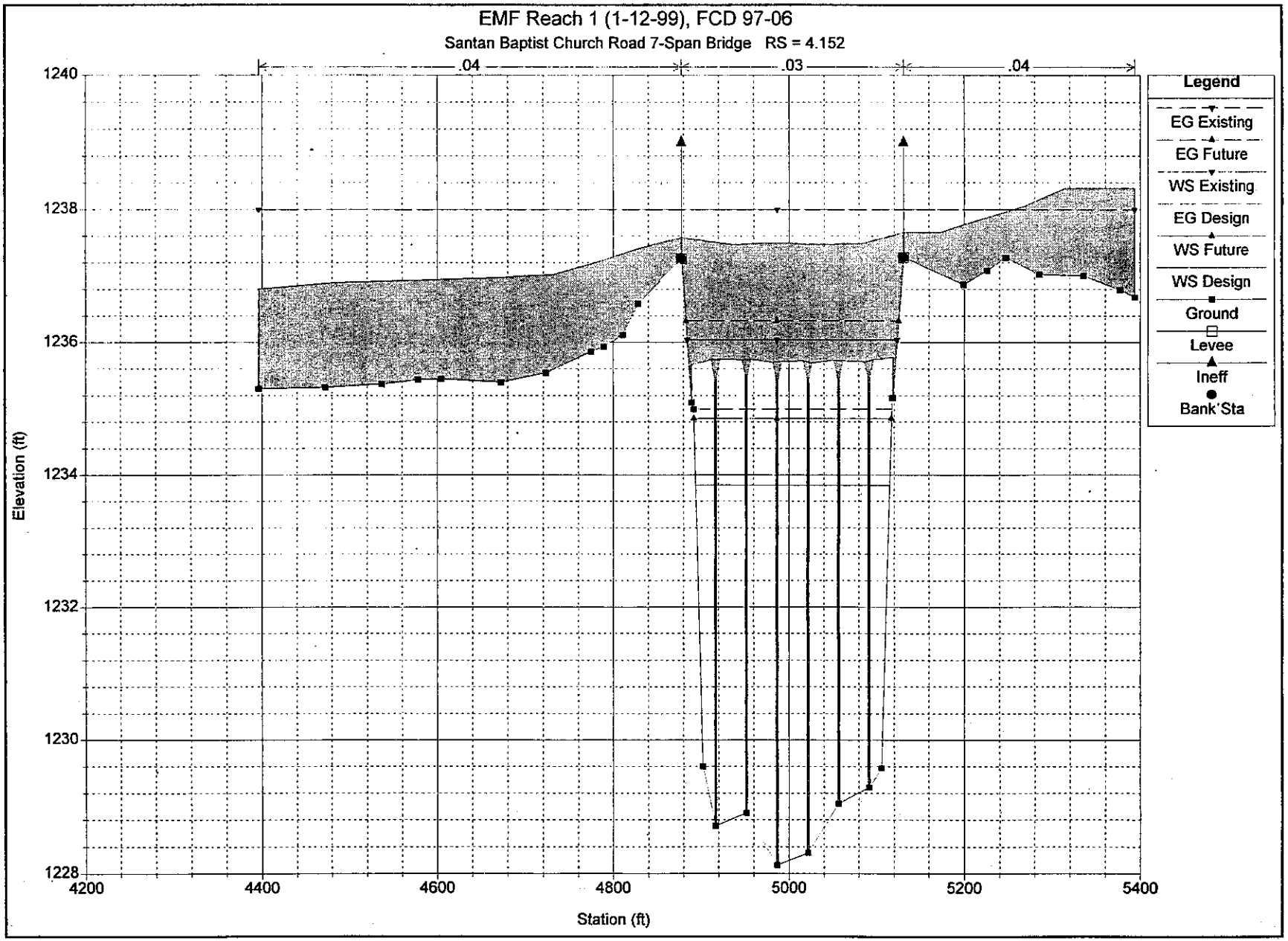

EMF Reach 1 (1-12-99), FCD 97-06
SR 87 Bridge Downstream Ineffective Left Overbank Area RS = 4.298
.04
.025
.04
Elevation (ft)
1242
1240
1238
1236
1234
1232
1230
1228
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

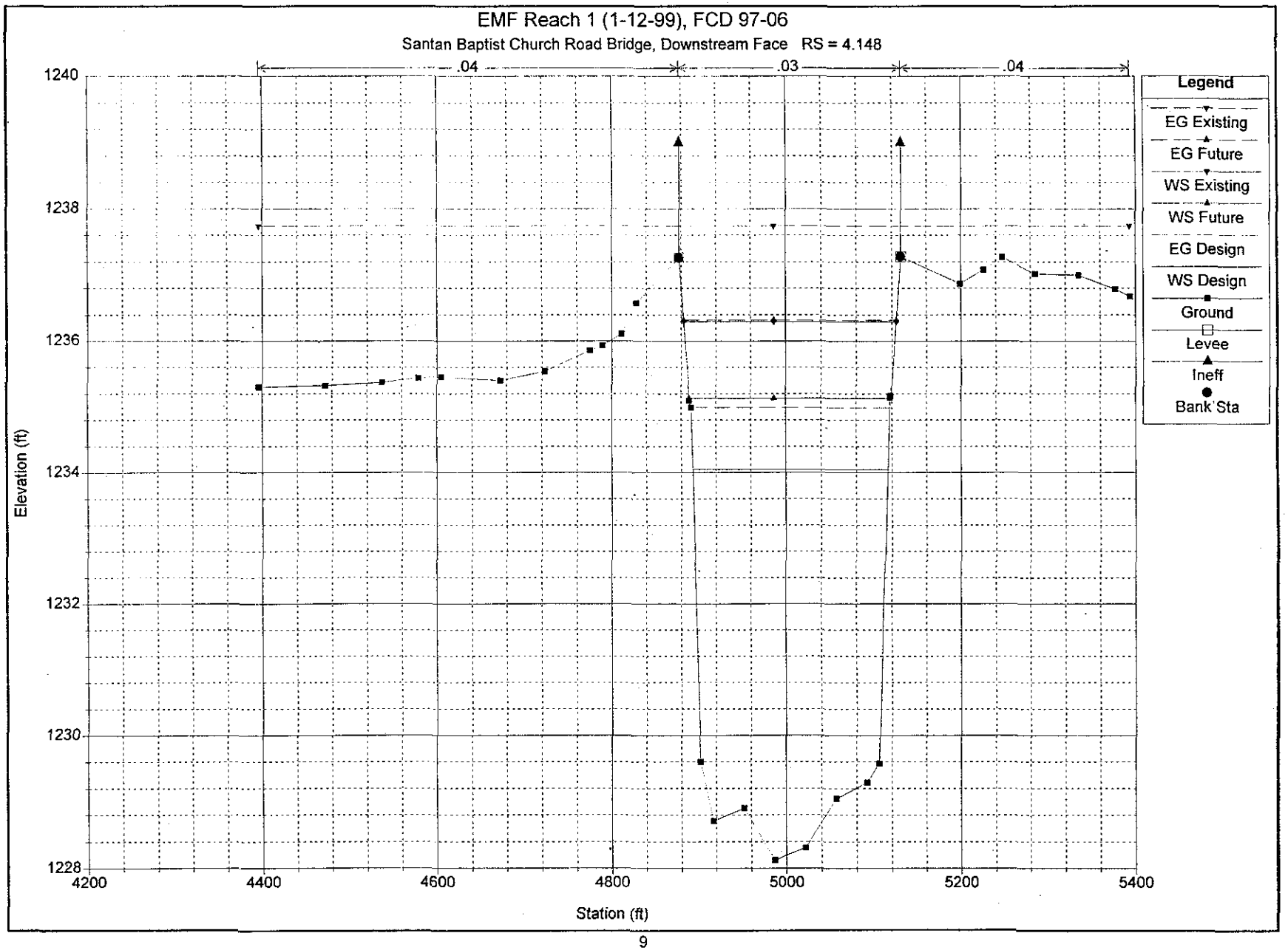

EMF Reach 1 (1-12-99), FCD 97-06
Santan Baptist Church Rd. Bridge Upstream Ineffective Areas RS = 4.203
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1242
1240
1238
1236
1234
1232
1230
1228
4200
4400
4600
4800
5000
5200
5400
Station (ft)

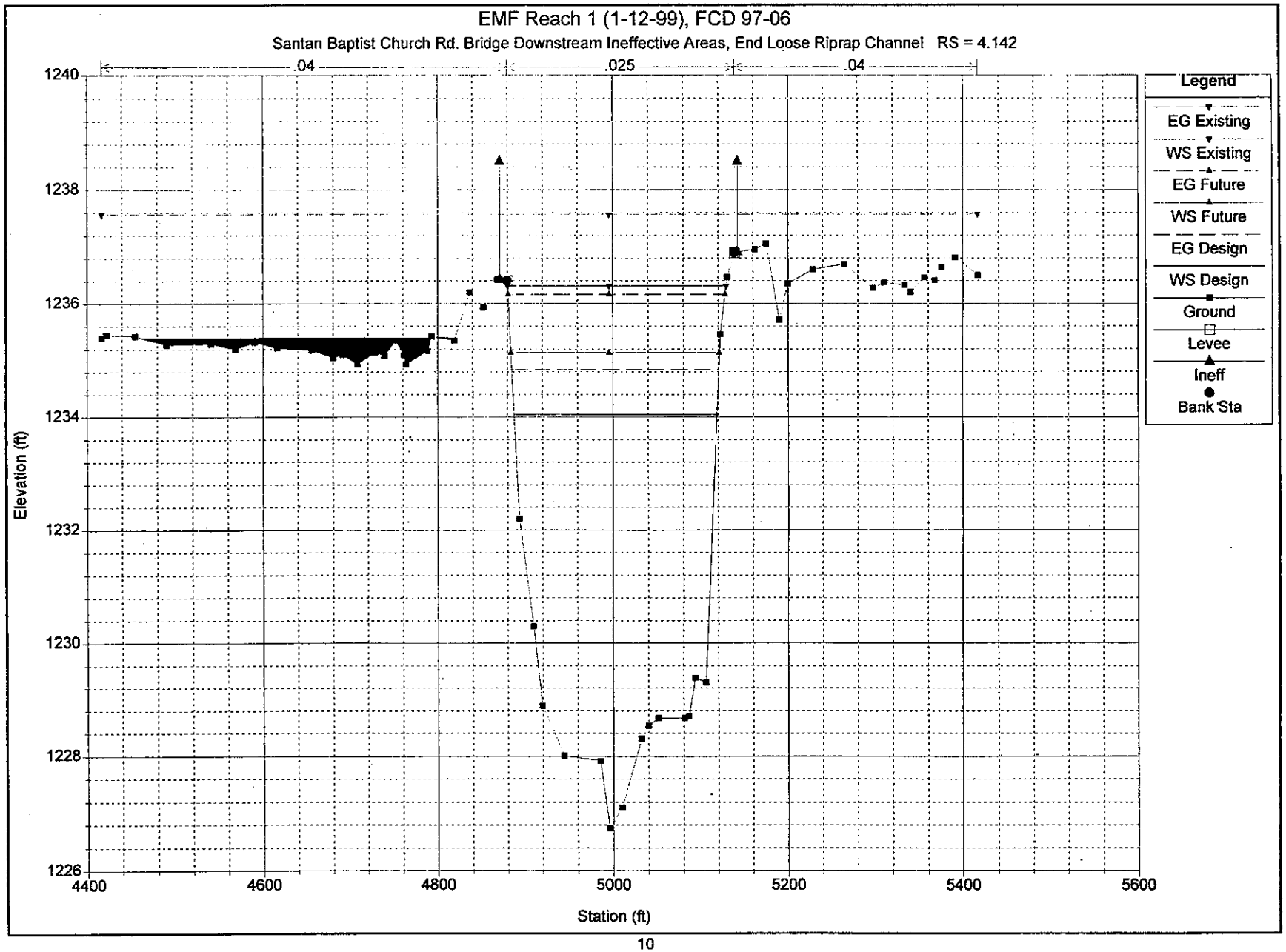

EMF Reach 1 (1-12-99), FCD 97-06
Santan Baptist Church Rd. Bridge Upstream Ineffective Areas, Begin Loose Riprap Channel RS = 4.161
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank'Sta
Elevation (ft)
1242
1240
1238
1236
1234
1232
1230
1228
1226
4200
4400
4600
4800
5000
5200
5400
Station (ft)

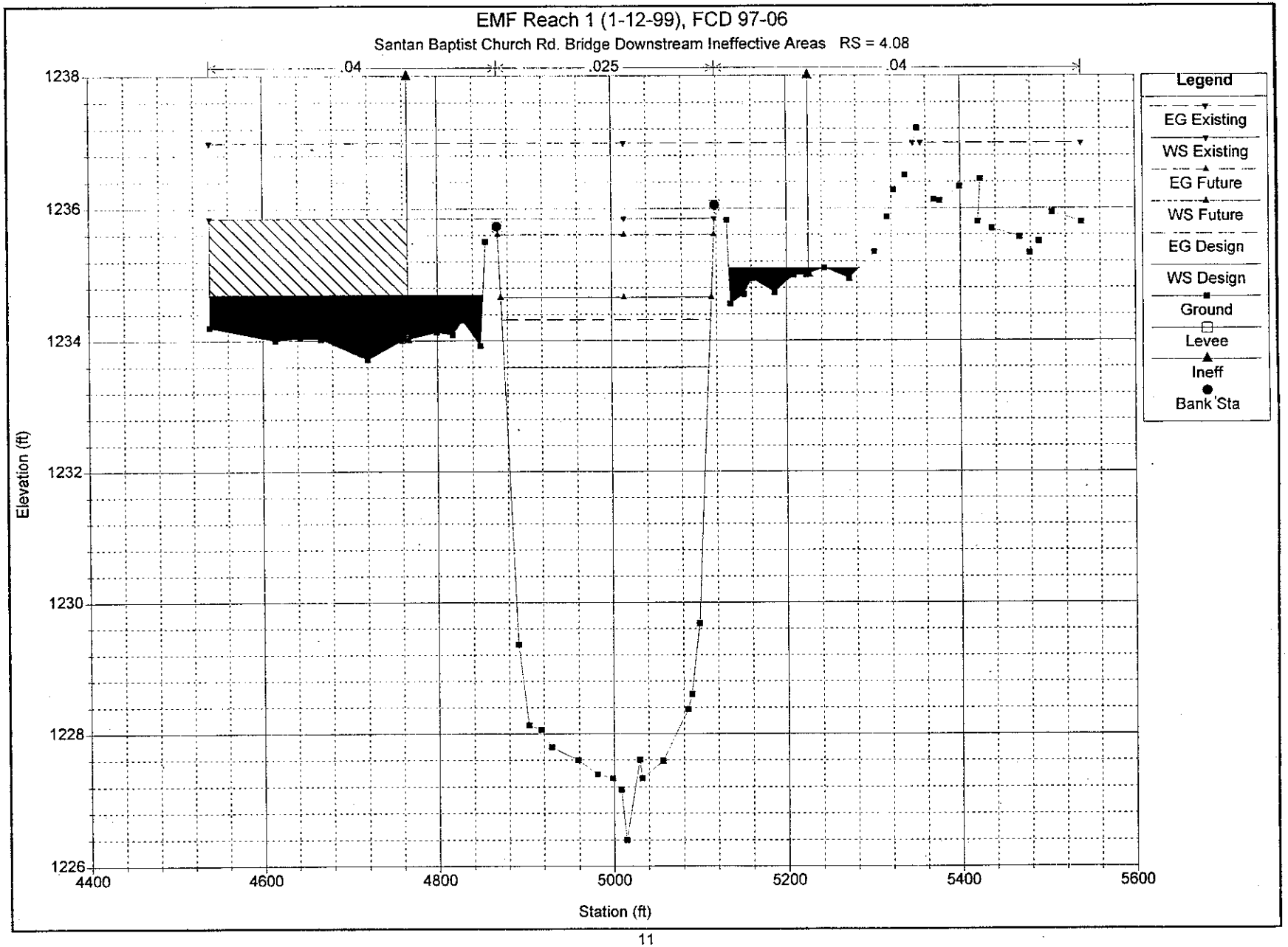

EMF Reach 1 (1-12-99), FCD 97-06
Santan Baptist Church Road Bridge, Upstream Face RS = 4.156
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1242
1240
1238
1236
1234
1232
1230
1228
4200
4400
4600
4800
5000
5200
5400
Station (ft)

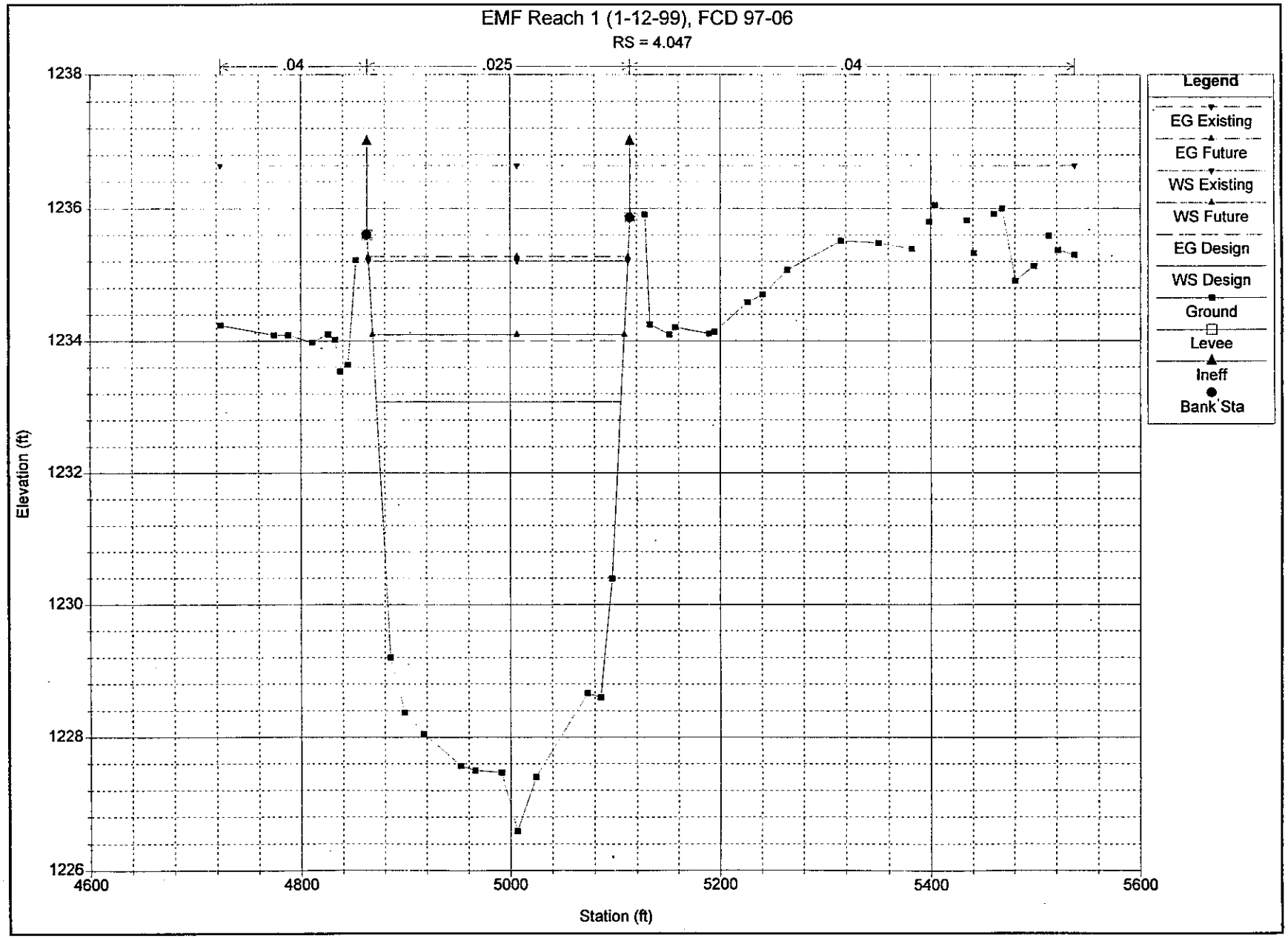

EMF Reach 1 (1-12-99), FCD 97-06
Santan Baptist Church Road 7-Span Bridge RS = 4.152
.04
.03
.04
Legend
EG Existing
EG Future
WS Existing
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1242
1240
1238
1236
1234
1232
1230
1228
4200
4400
4600
4800
5000
5200
5400
Station (ft)

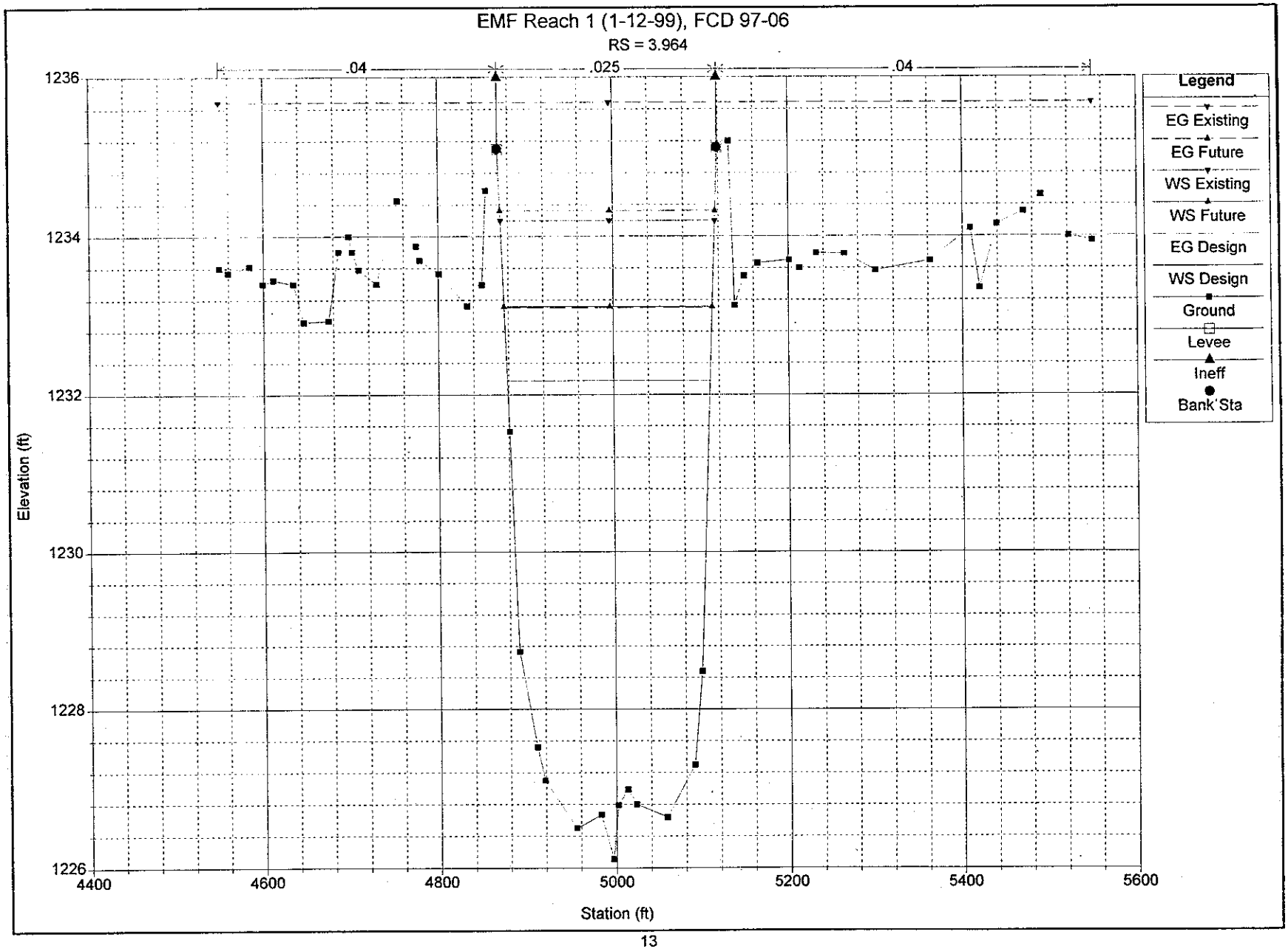

EMF Reach 1 (1-12-99), FCD 97-06
Santan Baptist Church Road 7-Span Bridge RS = 4.152
.04
.03
.04
1240
1238
1236
1234
1232
1230
1228
Elevation (ft)
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Ineff
Bank Sta

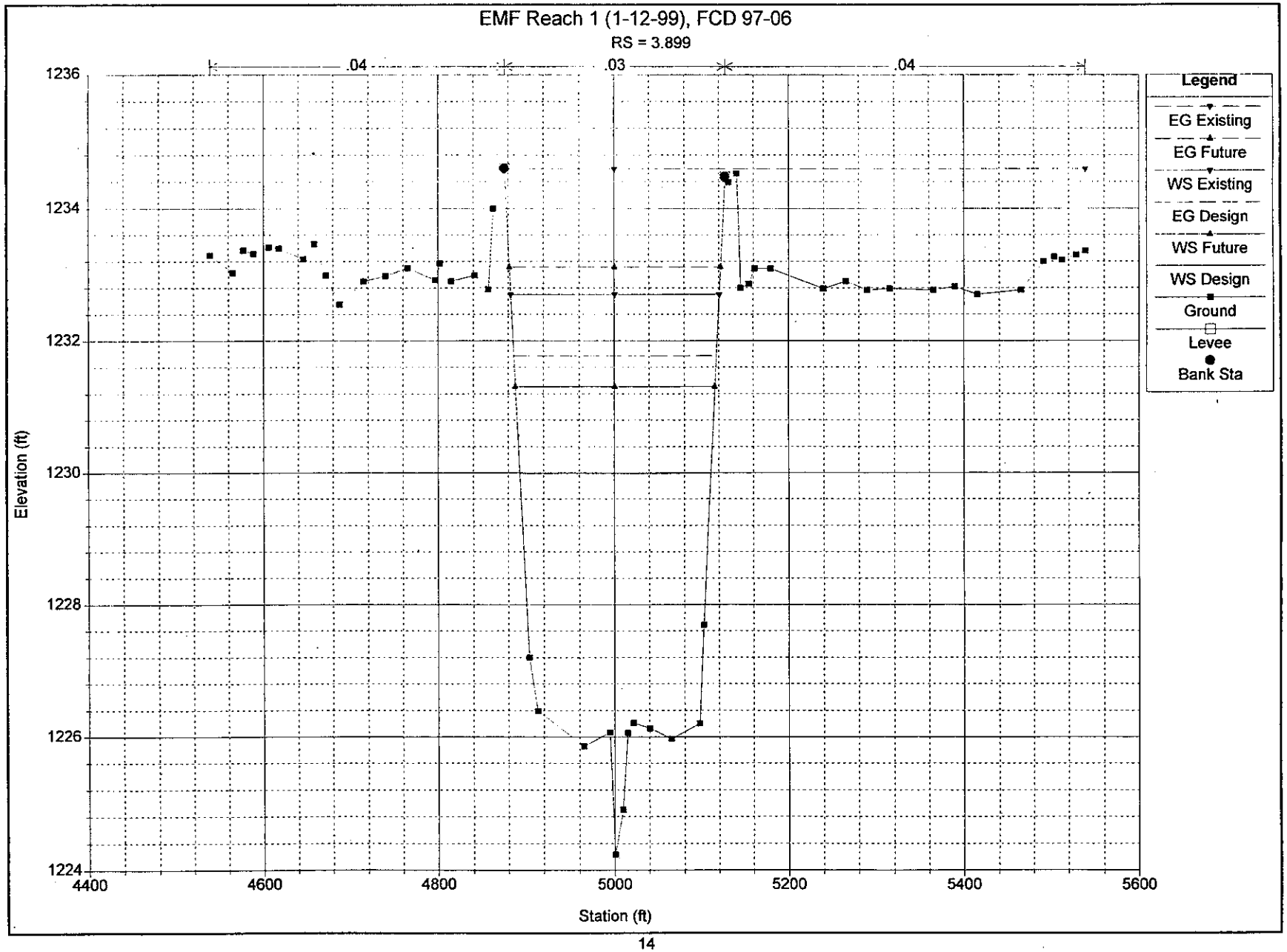

EMF Reach 1 (1-12-99), FCD 97-06
Santan Baptist Church Road Bridge, Downstream Face RS = 4.148
.04
.03
.04
Legend
EG Existing
EG Future
WS Existing
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1240
1238
1236
1234
1232
1230
1228
4200
4400
4600
4800
5000
5200
5400
Station (ft)

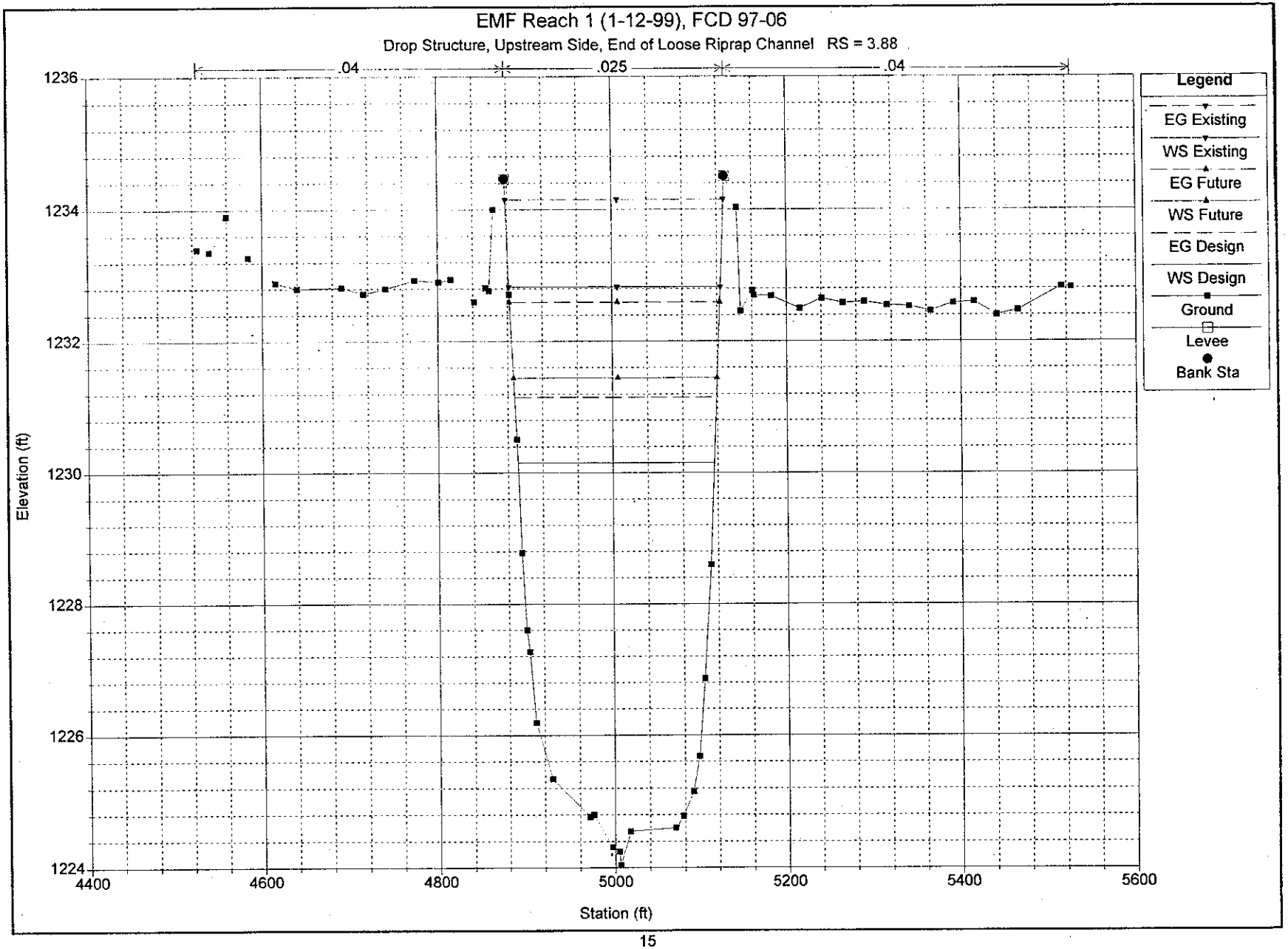

EMF Reach 1 (1-12-99), FCD 97-06
Santan Baptist Church Rd. Bridge Downstream Ineffective Areas, End Loose Riprap Channel RS = 4.142
.04
.025
.04
Elevation (ft)
1240
1238
1236
1234
1232
1230
1228
1226
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

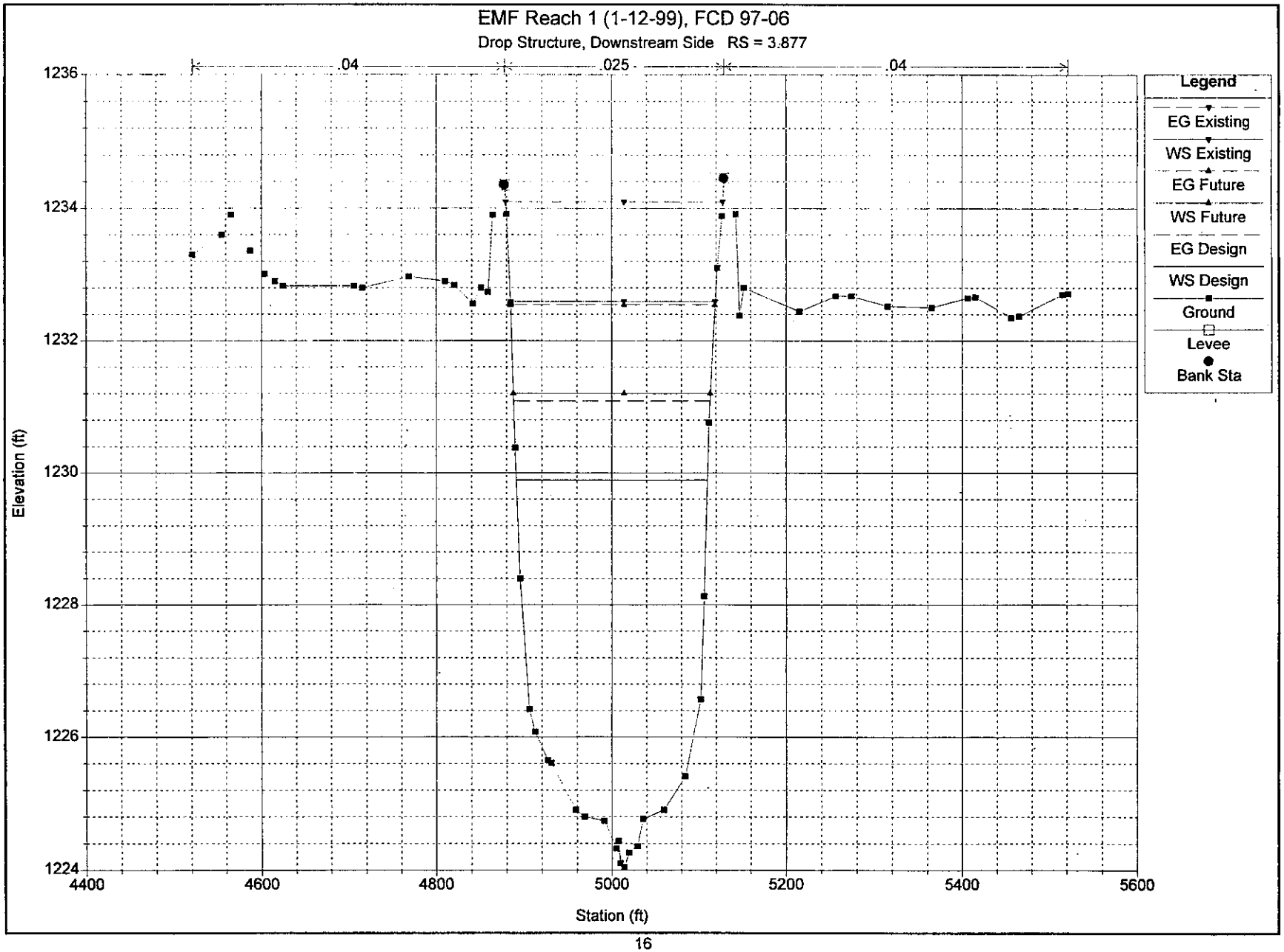

EMF Reach 1 (1-12-99), FCD 97-06
Santan Baptist Church Rd. Bridge Downstream Ineffective Areas RS = 4.08
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1238
1236
1234
1232
1230
1228
1226
4400
4600
4800
5000
5200
5400
5600
Station (ft)

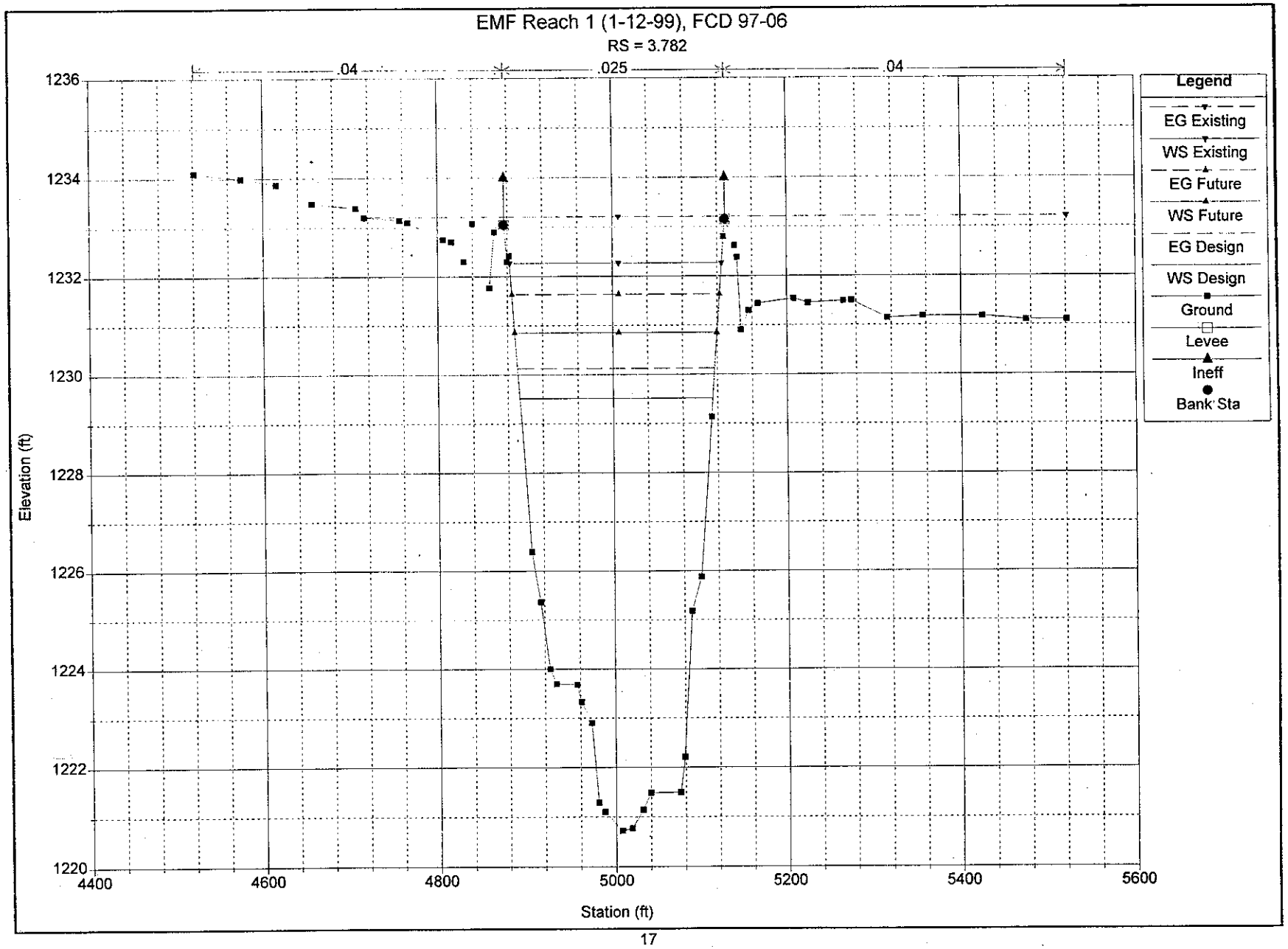

EMF Reach 1 (1-12-99), FCD 97-06
RS = 4.047
.04
.025
.04
1238
1236
1234
1232
1230
1228
1226
Elevation (ft)
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
EG Future
WS Existing
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

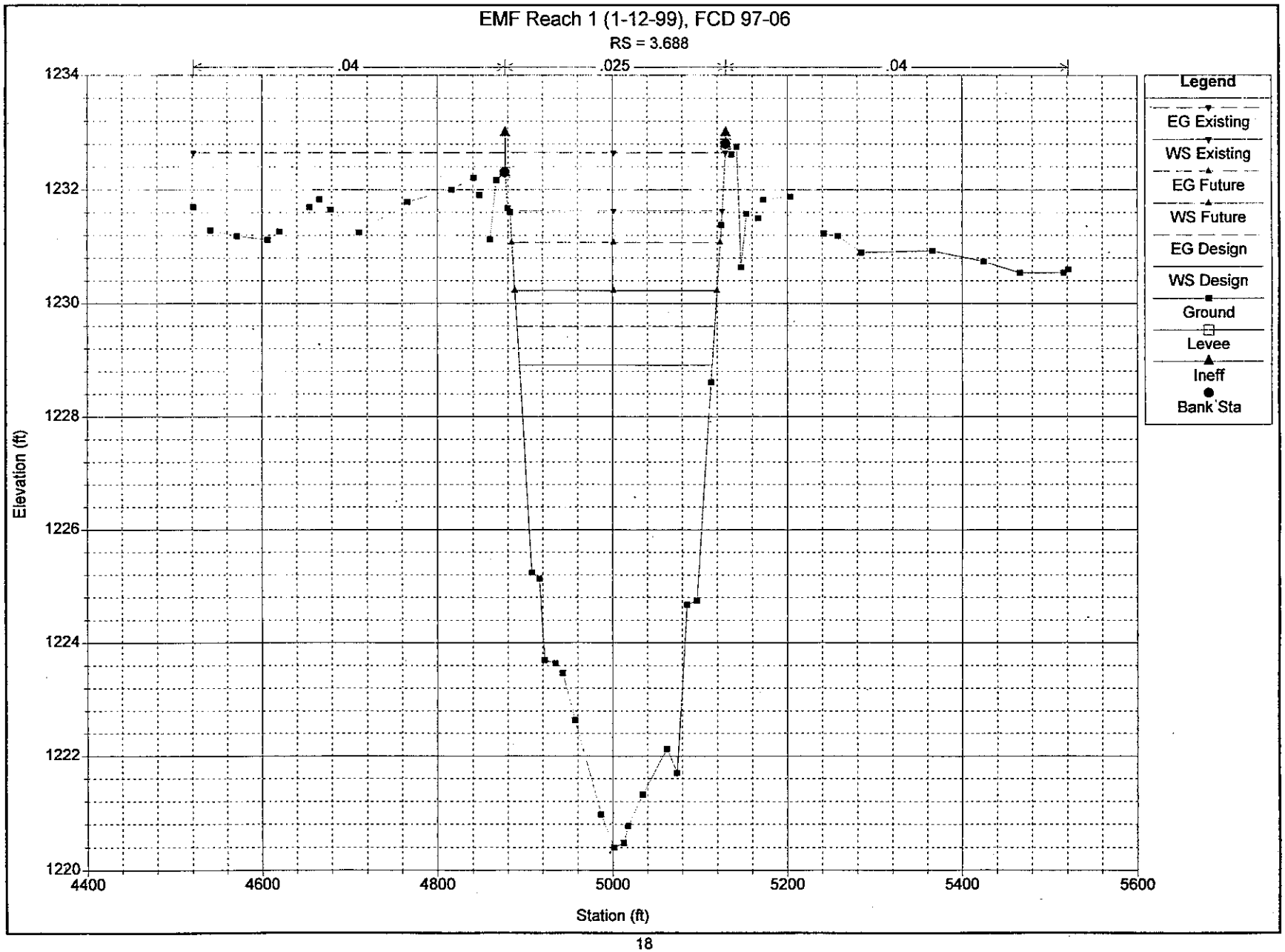

EMF Reach 1 (1-12-99), FCD 97-06
RS = 3.964
.04
.025
.04
1236
1234
1232
1230
1228
1226
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
EG Future
WS Existing
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

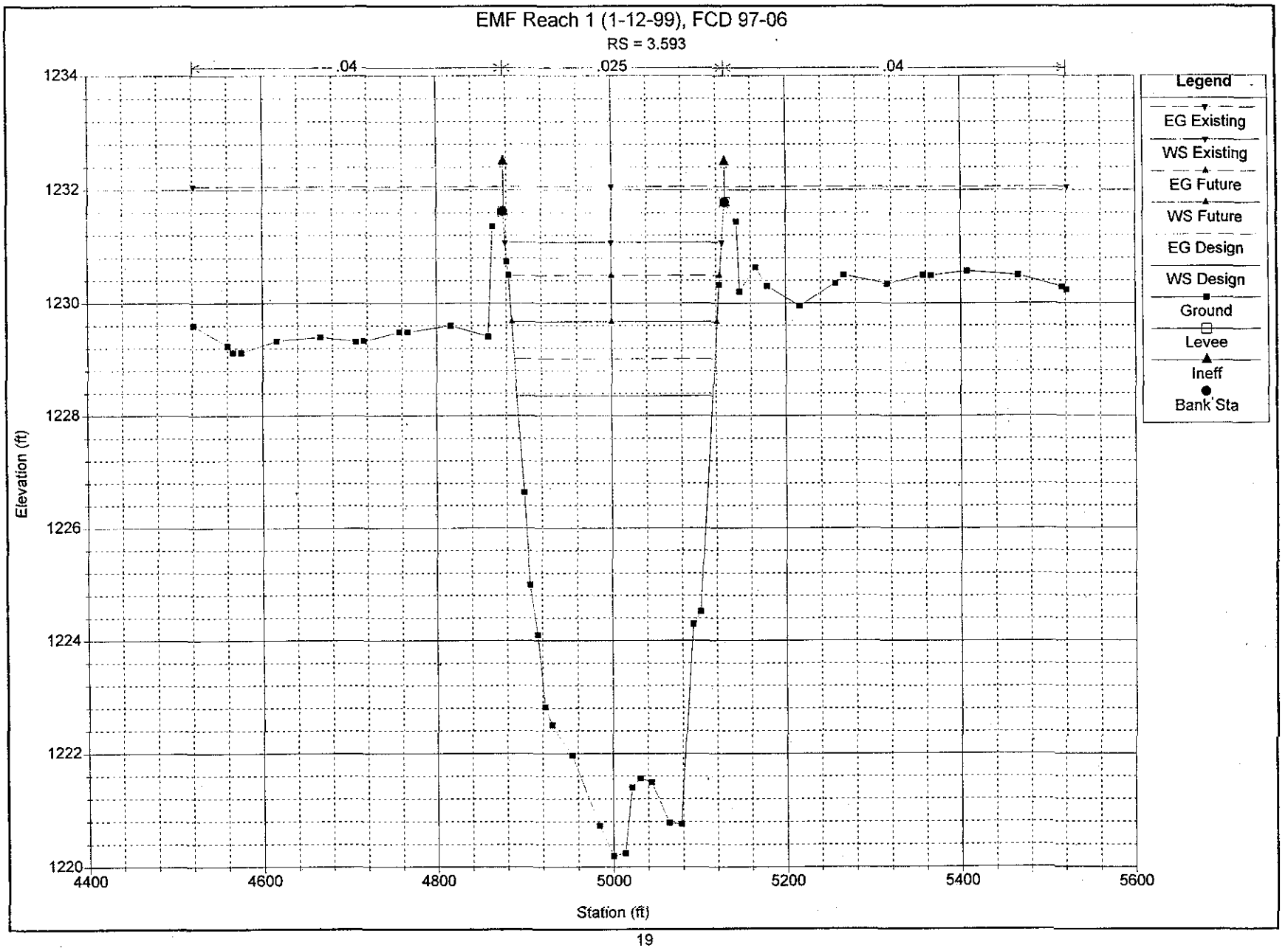

EMF Reach 1 (1-12-99), FCD 97-06
RS = 3.899
.04
.03
.04
1236
1234
1232
1230
1228
1226
1224
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Bank Sta

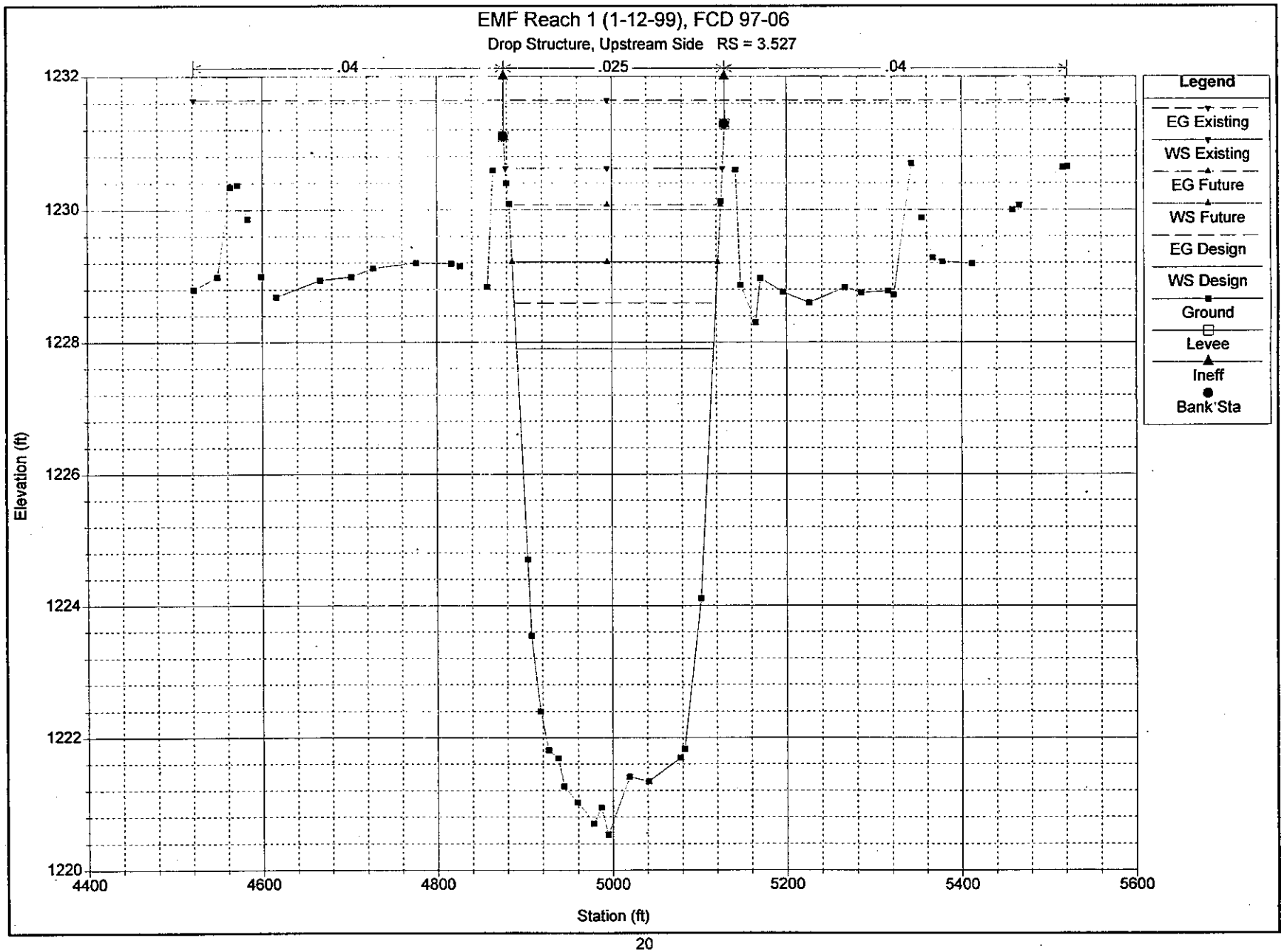

EMF Reach 1 (1-12-99), FCD 97-06
Drop Structure, Upstream Side, End of Loose Riprap Channel RS = 3.88
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta
Elevation (ft)
1236
1234
1232
1230
1228
1226
1224
4400
4600
4800
5000
5200
5400
5600
Station (ft)

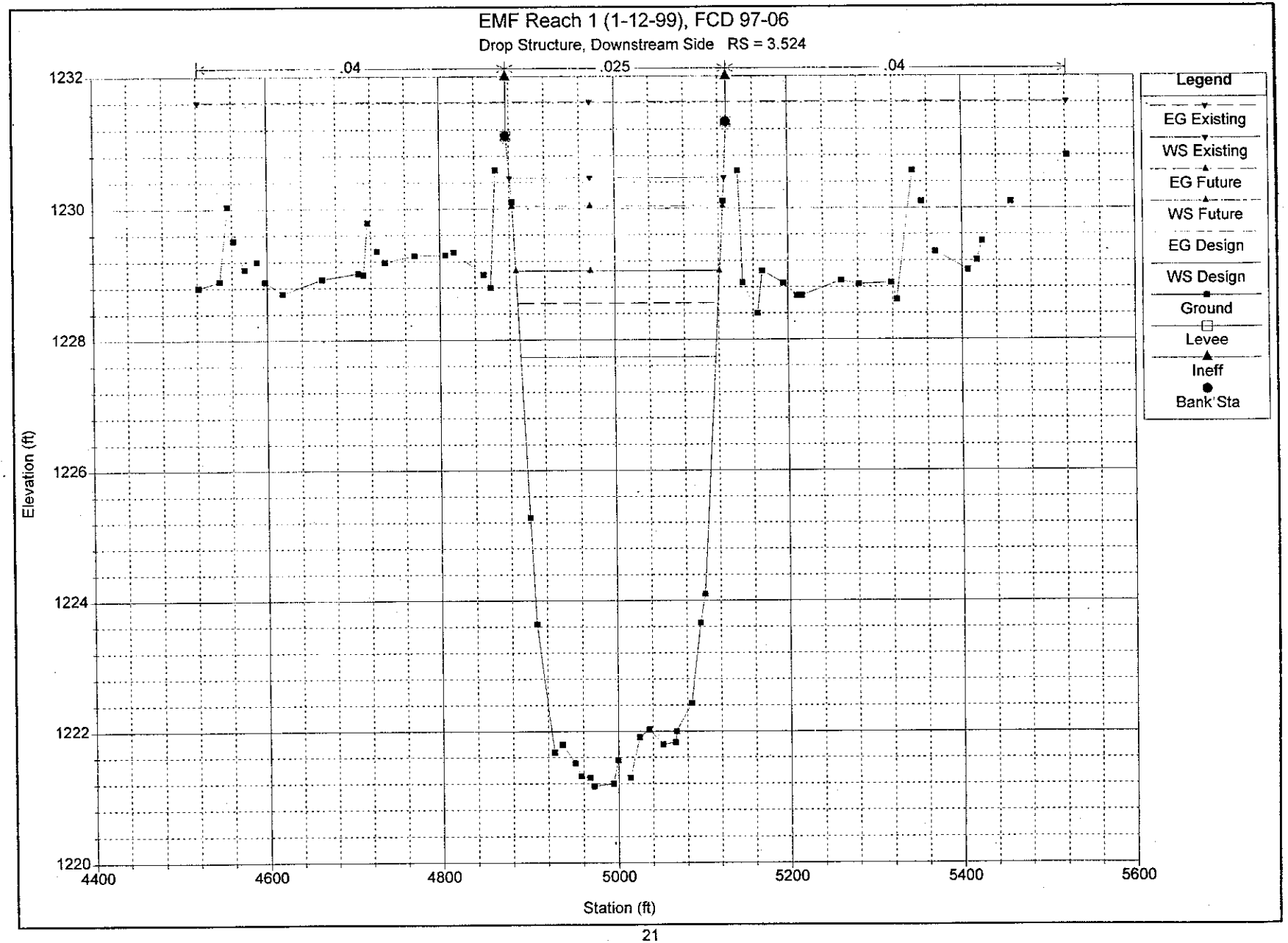

EMF Reach 1 (1-12-99), FCD 97-06
Drop Structure, Downstream Side RS = 3.877
.04
.025
.04
Elevation (ft)
1236
1234
1232
1230
1228
1226
1224
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Bank Sta

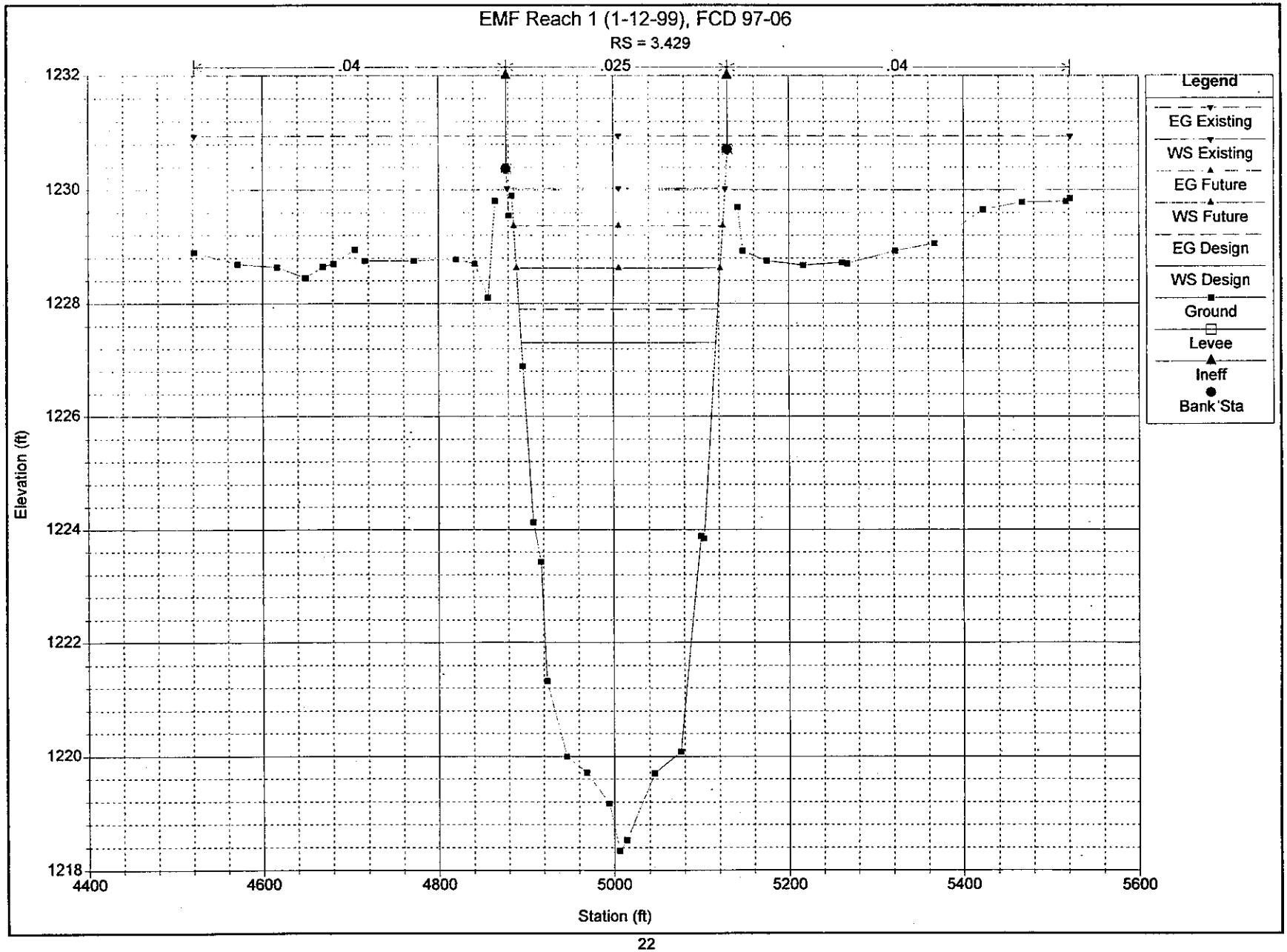

EMF Reach 1 (1-12-99), FCD 97-06
RS = 3.782
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1236
1234
1232
1230
1228
1226
1224
1222
1220
4400
4600
4800
5000
5200
5400
5600
Station (ft)

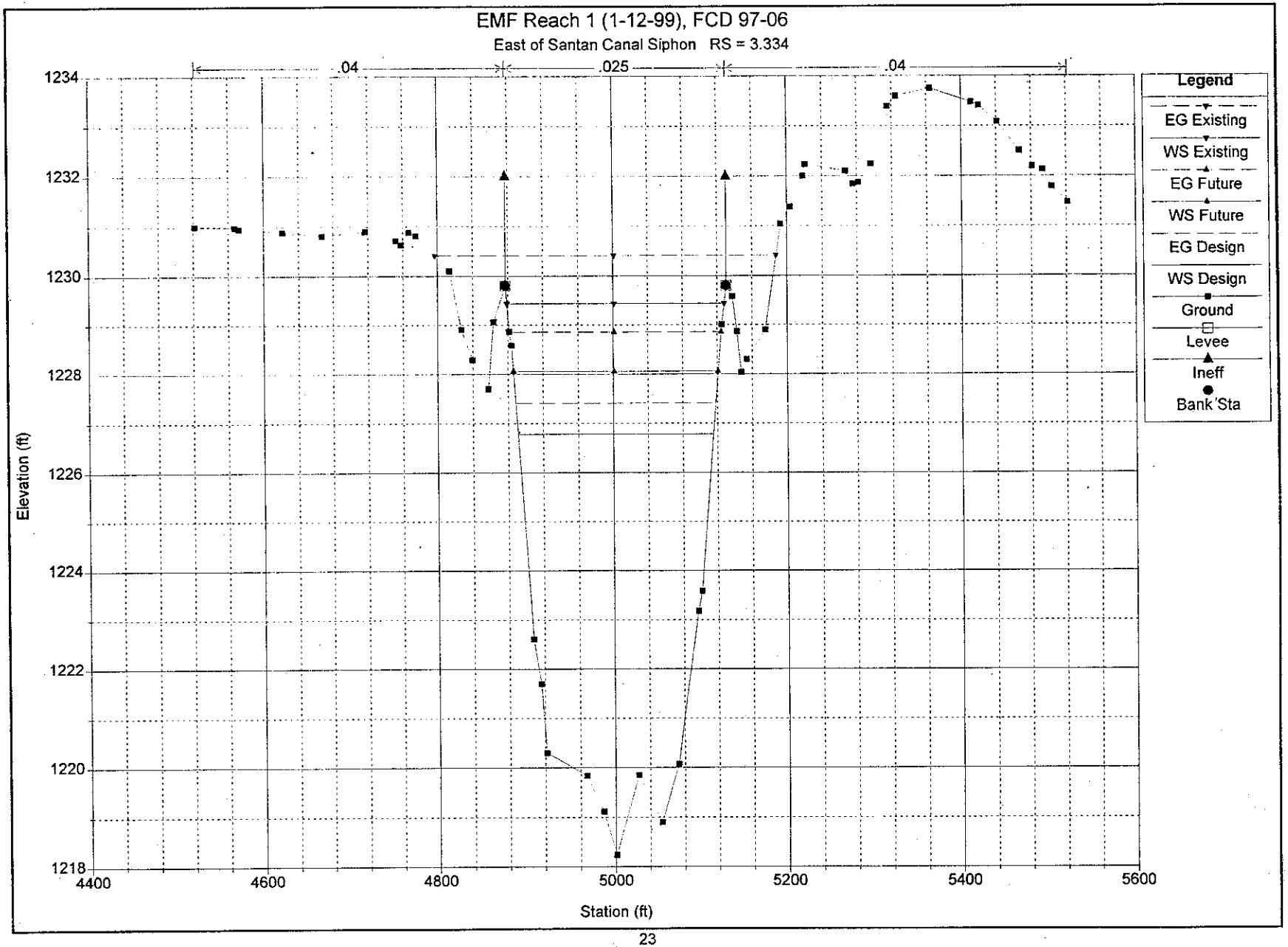

EMF Reach 1 (1-12-99), FCD 97-06
RS = 3.688
.04
.025
.04
Elevation (ft)
1234
1232
1230
1228
1226
1224
1222
1220
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

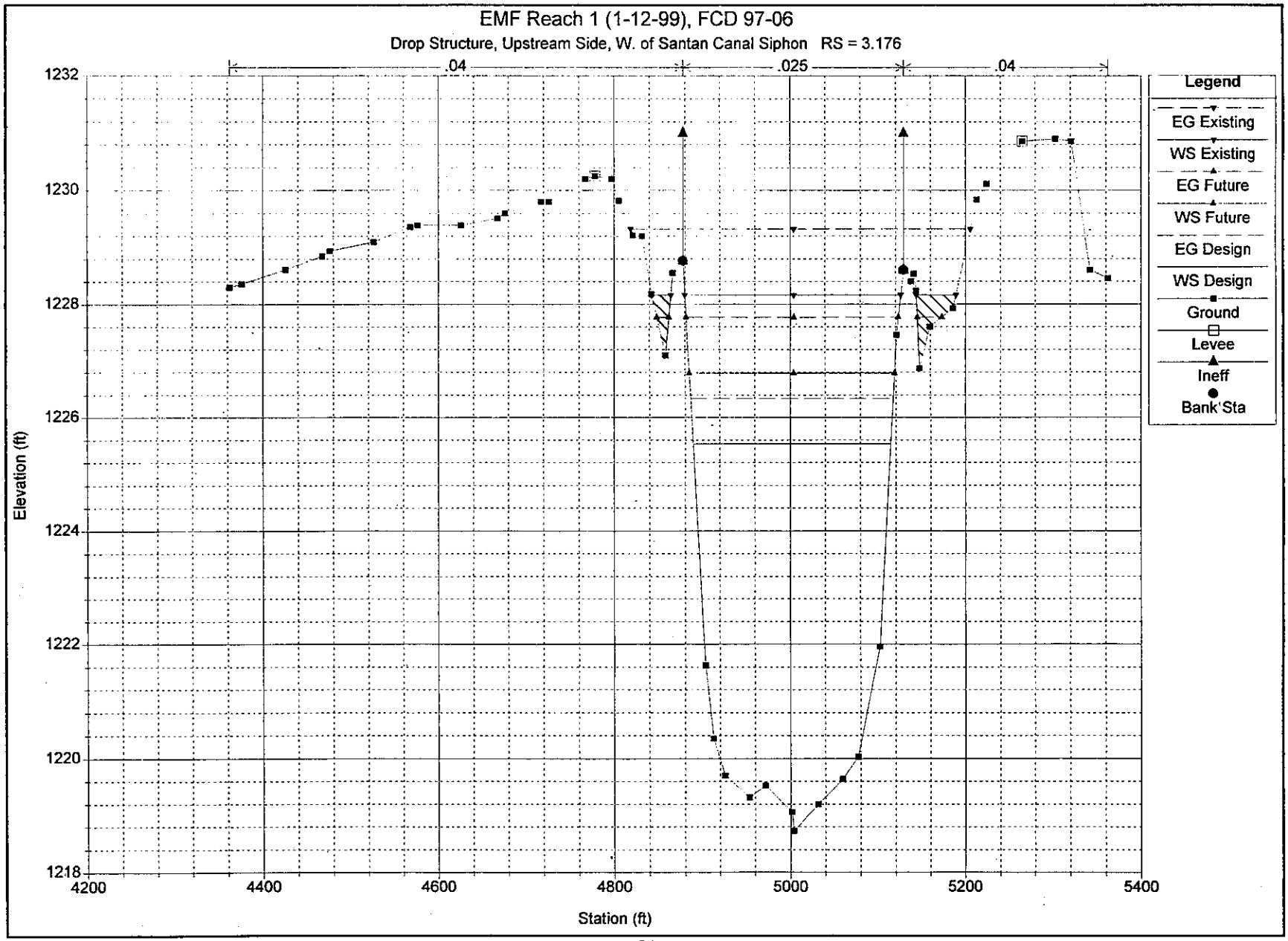

EMF Reach 1 (1-12-99), FCD 97-06
RS = 3.593
.04
.025
.04
Elevation (ft)
1234
1232
1230
1228
1226
1224
1222
1220
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

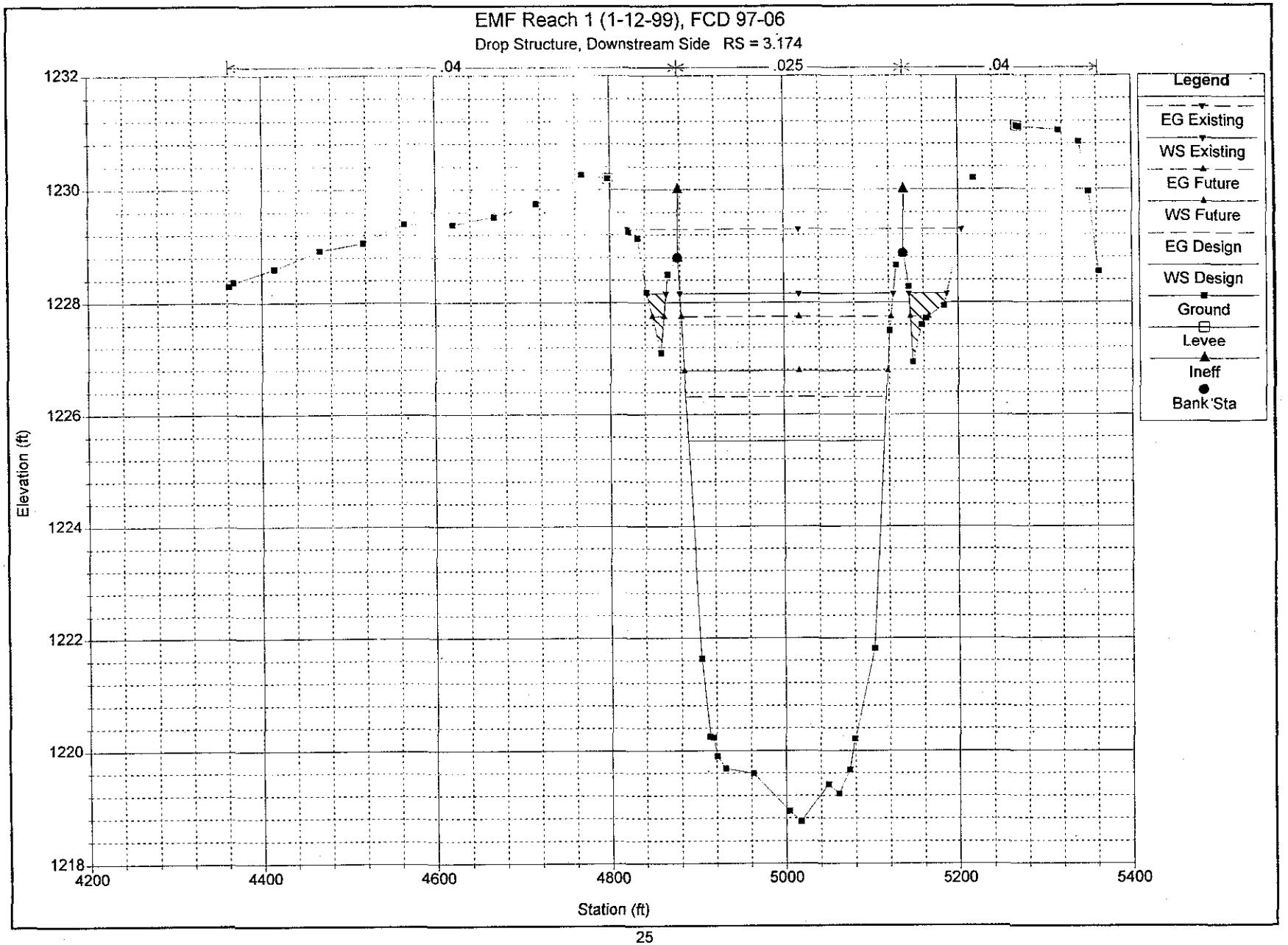

EMF Reach 1 (1-12-99), FCD 97-06
Drop Structure, Upstream Side RS = 3.527
.04
.025
.04
1232
1230
1228
1226
1224
1222
1220
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

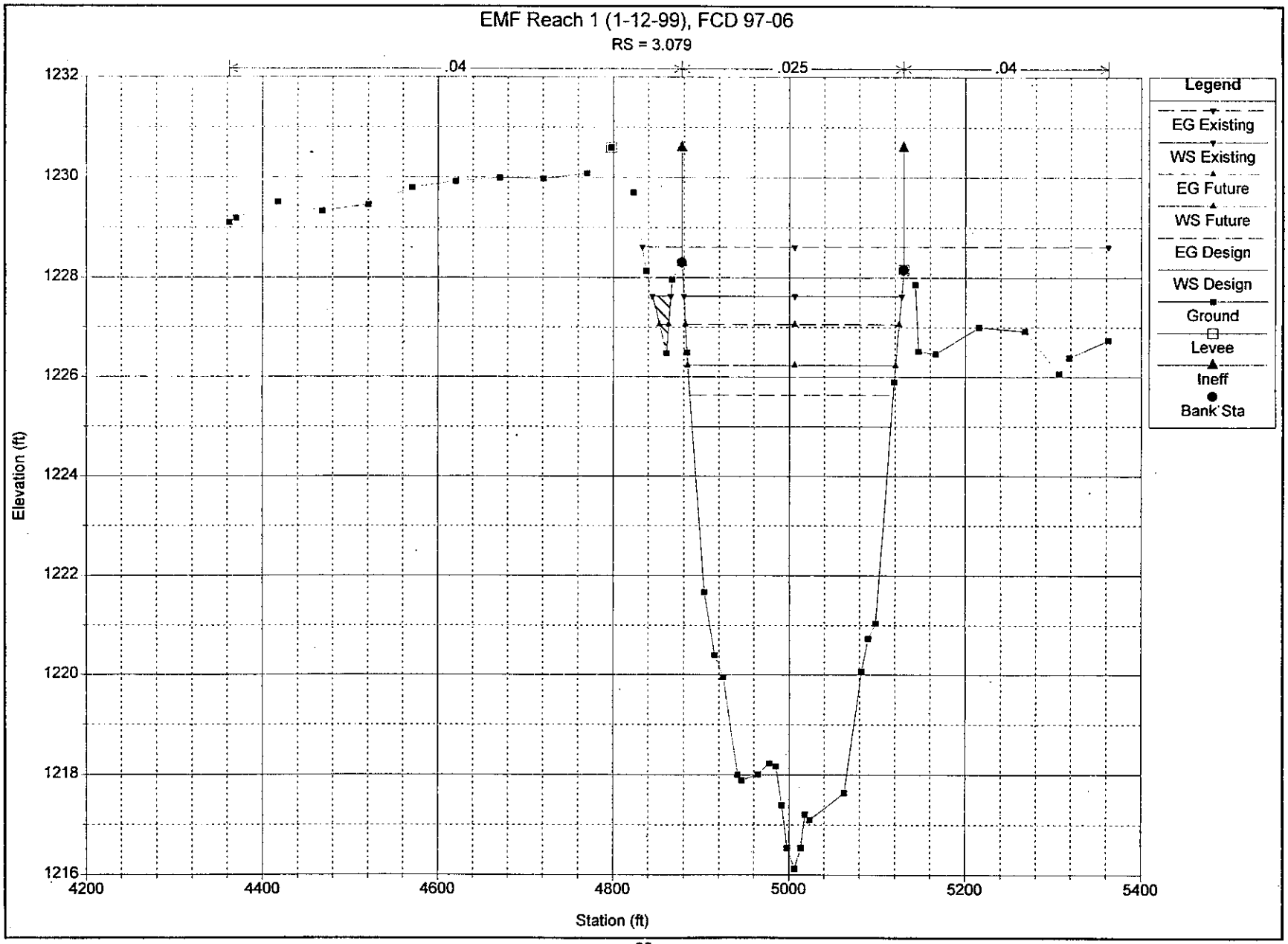

EMF Reach 1 (1-12-99), FCD 97-06
Drop Structure, Downstream Side RS = 3.524
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1232
1230
1228
1226
1224
1222
1220
4400
4600
4800
5000
5200
5400
5600
Station (ft)

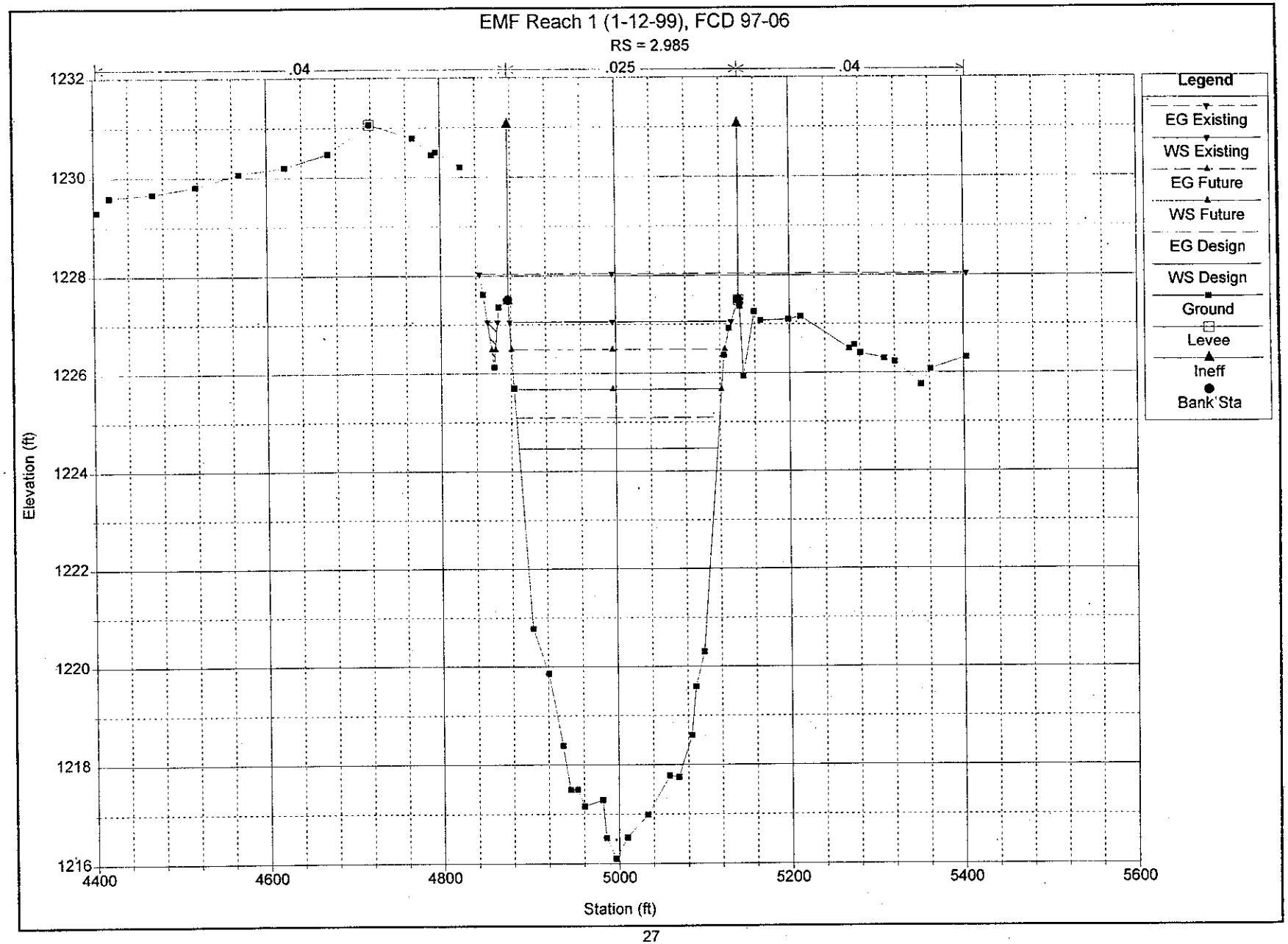

EMF Reach 1 (1-12-99), FCD 97-06
RS = 3.429
.04
.025
.04
1232
1230
1228
1226
1224
1222
1220
1218
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

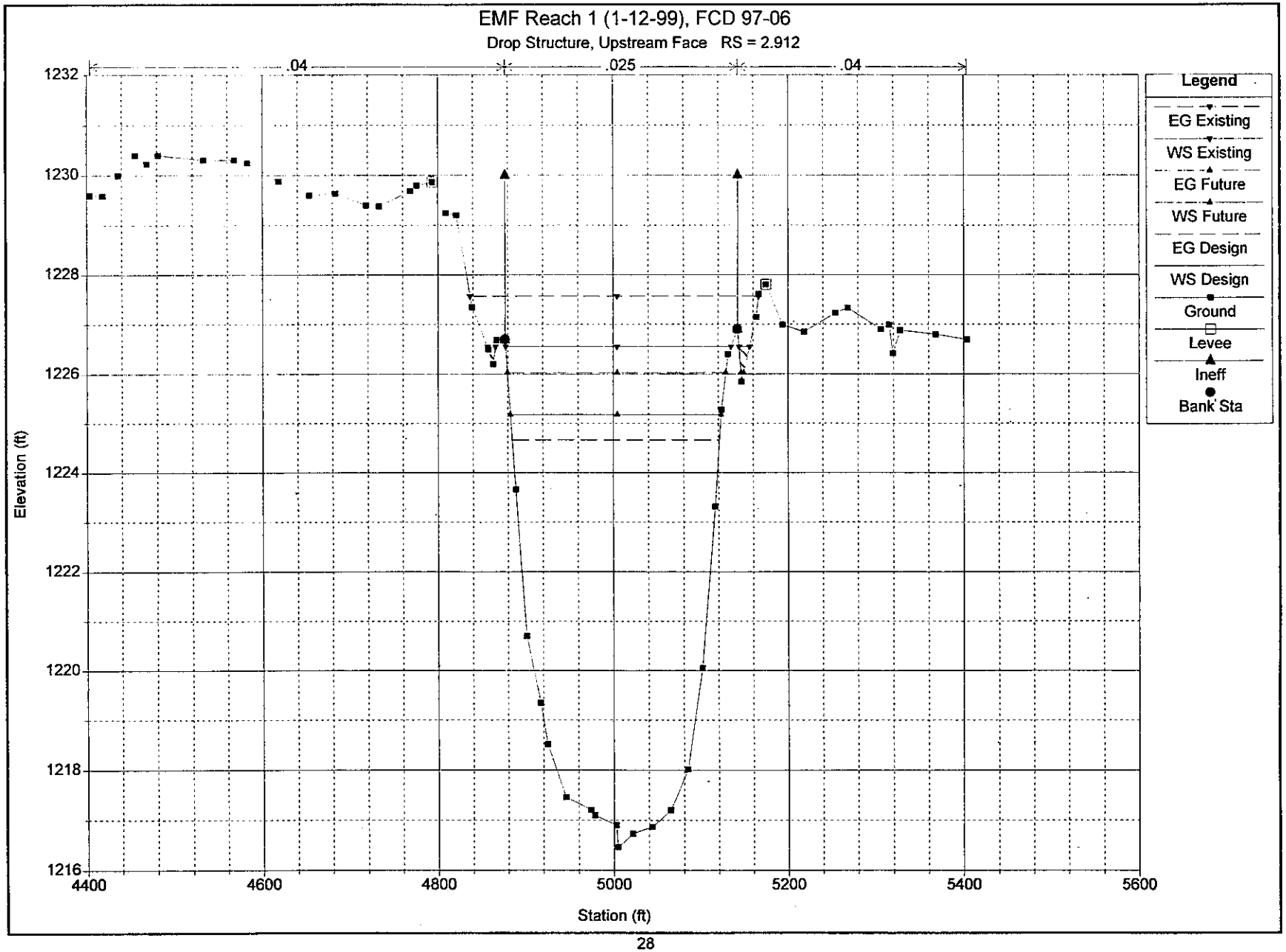

EMF Reach 1 (1-12-99), FCD 97-06
East of Santan Canal Siphon RS = 3.334
.04
.025
.04
Elevation (ft)
1234
1232
1230
1228
1226
1224
1222
1220
1218
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

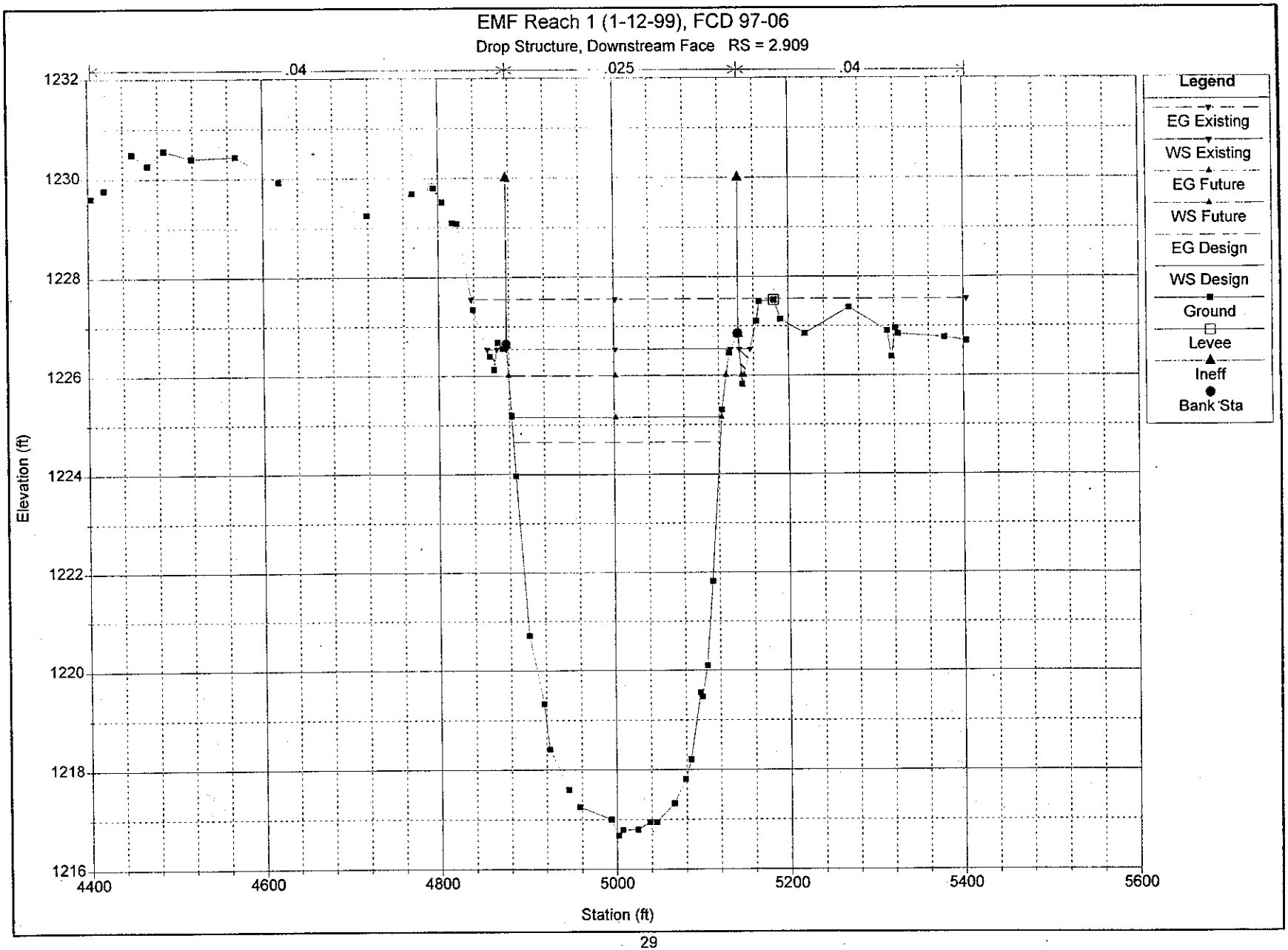

EMF Reach 1 (1-12-99), FCD 97-06
Drop Structure, Upstream Side, W. of Santan Canal Siphon RS = 3.176
.04
.025
.04
1232
1230
1228
1226
1224
1222
1220
1218
Elevation (ft)
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

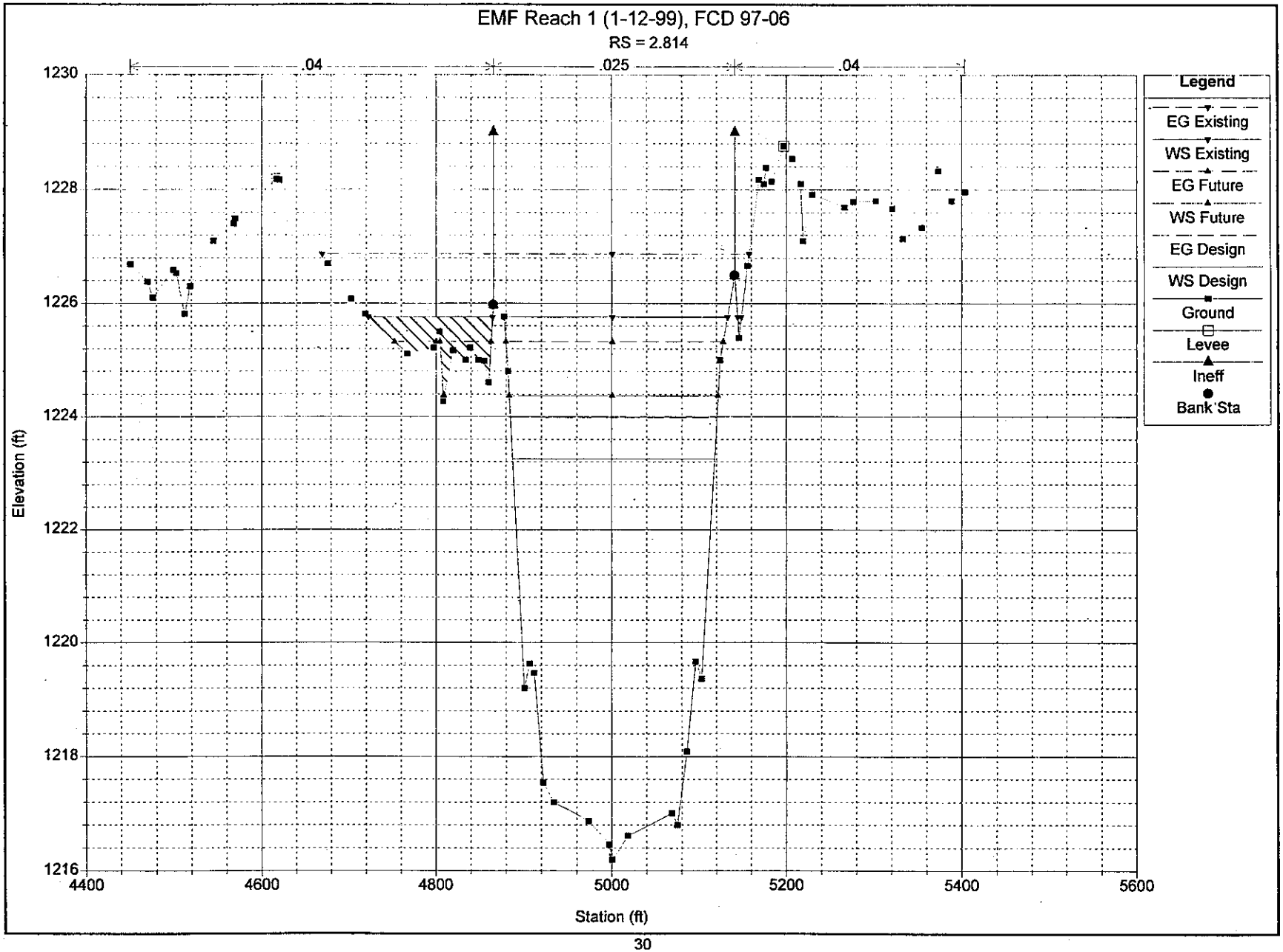

EMF Reach 1 (1-12-99), FCD 97-06
Drop Structure, Downstream Side RS = 3.174
.04
.025
.04
Elevation (ft)
1232
1230
1228
1226
1224
1222
1220
1218
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

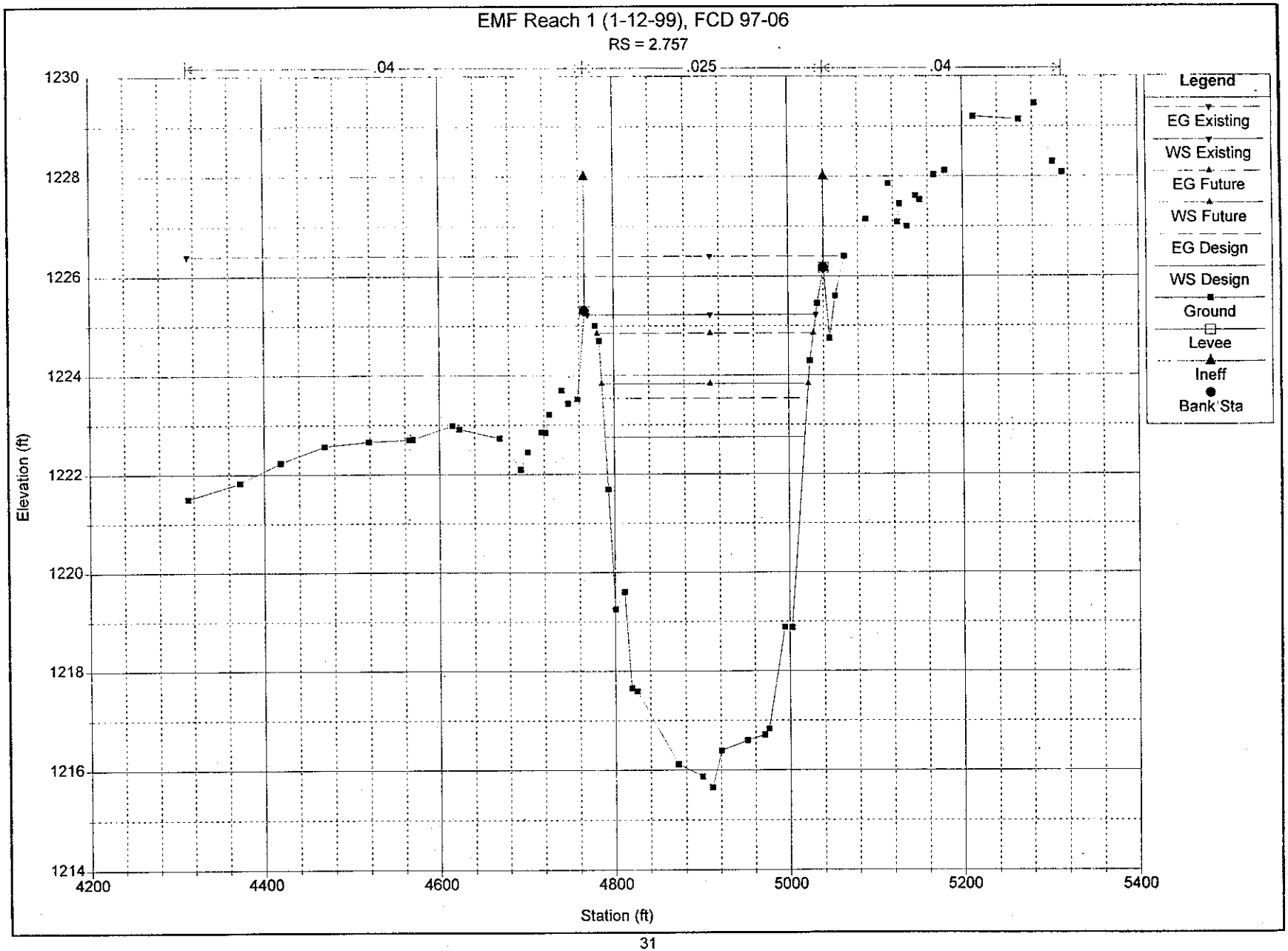

EMF Reach 1 (1-12-99), FCD 97-06
RS = 3.079
.04
.025
.04
Elevation (ft)
1232
1230
1228
1226
1224
1222
1220
1218
1216
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta


EMF Reach 1 (1-12-99), FCD 97-06
RS = 2.985
.04
.025
.04
Elevation (ft)
1232
1230
1228
1226
1224
1222
1220
1218
1216
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta


EMF Reach 1 (1-12-99), FCD 97-06
Drop Structure, Upstream Face RS = 2.912
.04
.025
.04
Elevation (ft)
1232
1230
1228
1226
1224
1222
1220
1218
1216
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta


EMF Reach 1 (1-12-99), FCD 97-06
Drop Structure, Downstream Face RS = 2.909
.04
.025
.04
Elevation (ft)
1232
1230
1228
1226
1224
1222
1220
1218
1216
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta


EMF Reach 1 (1-12-99), FCD 97-06
RS = 2.814
.04
.025
.04
Elevation (ft)
1230
1228
1226
1224
1222
1220
1218
1216
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta


EMF Reach 1 (1-12-99), FCD 97-06
RS = 2.757
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1230
1228
1226
1224
1222
1220
1218
1216
1214
4200
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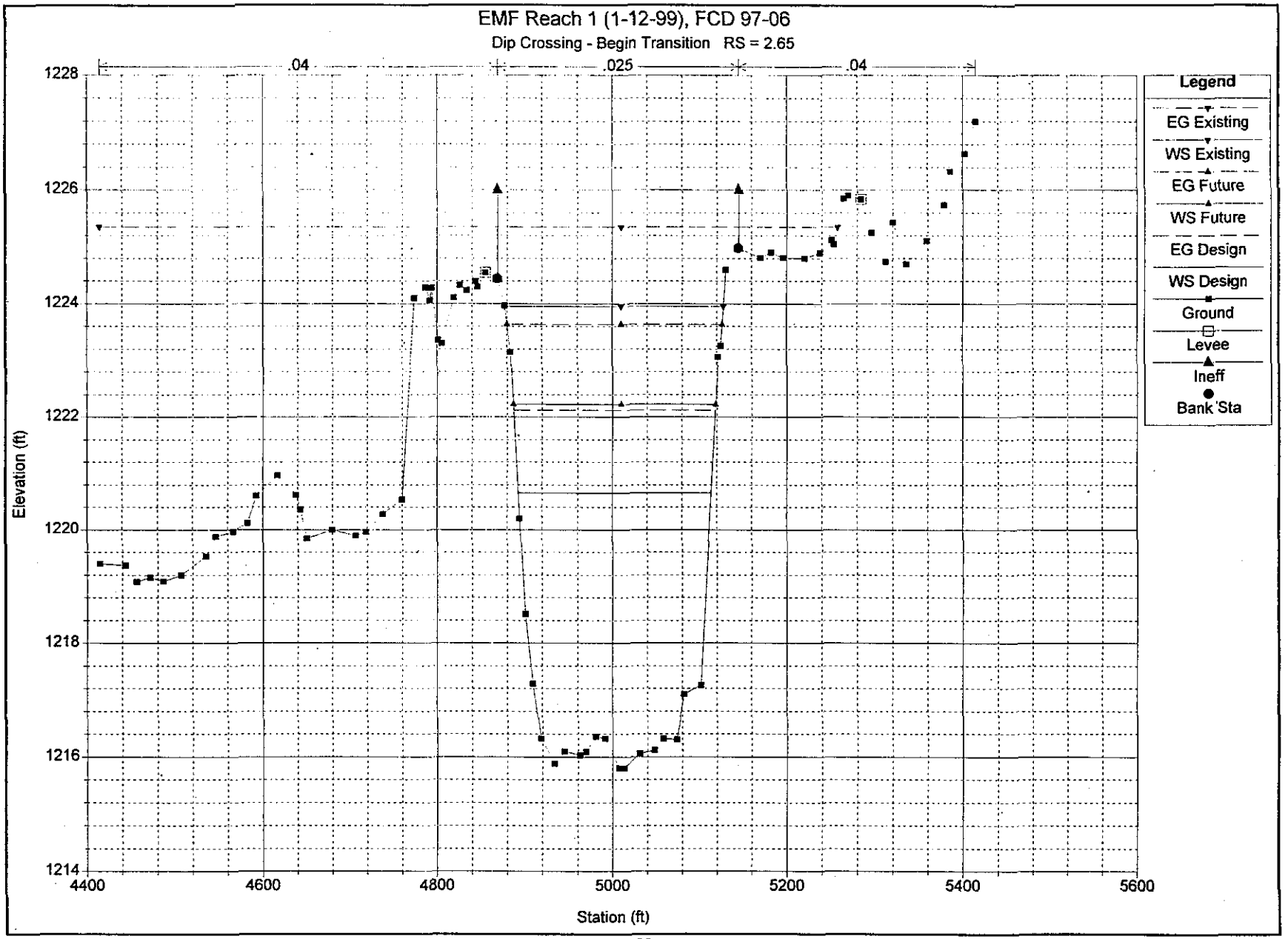
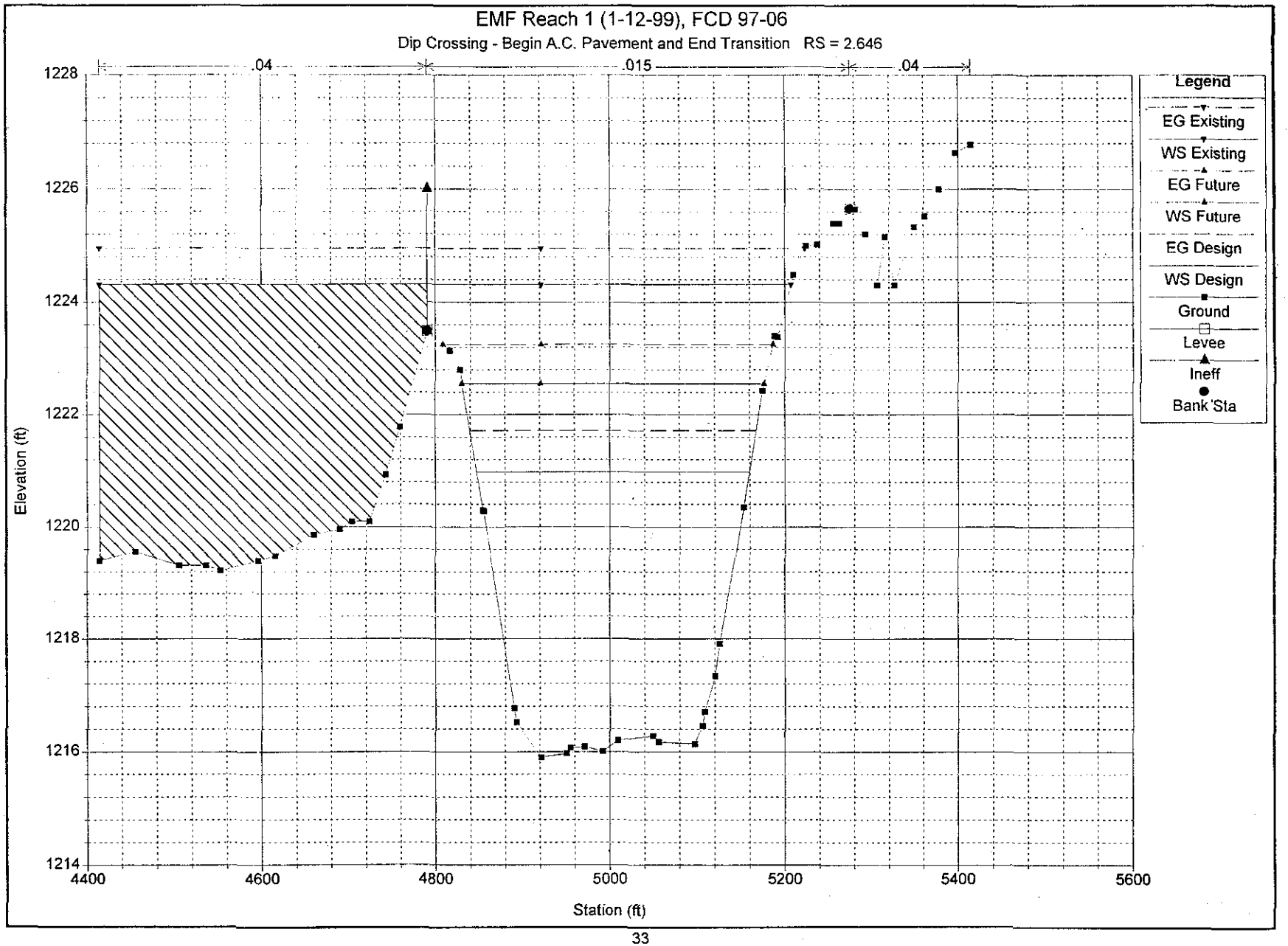
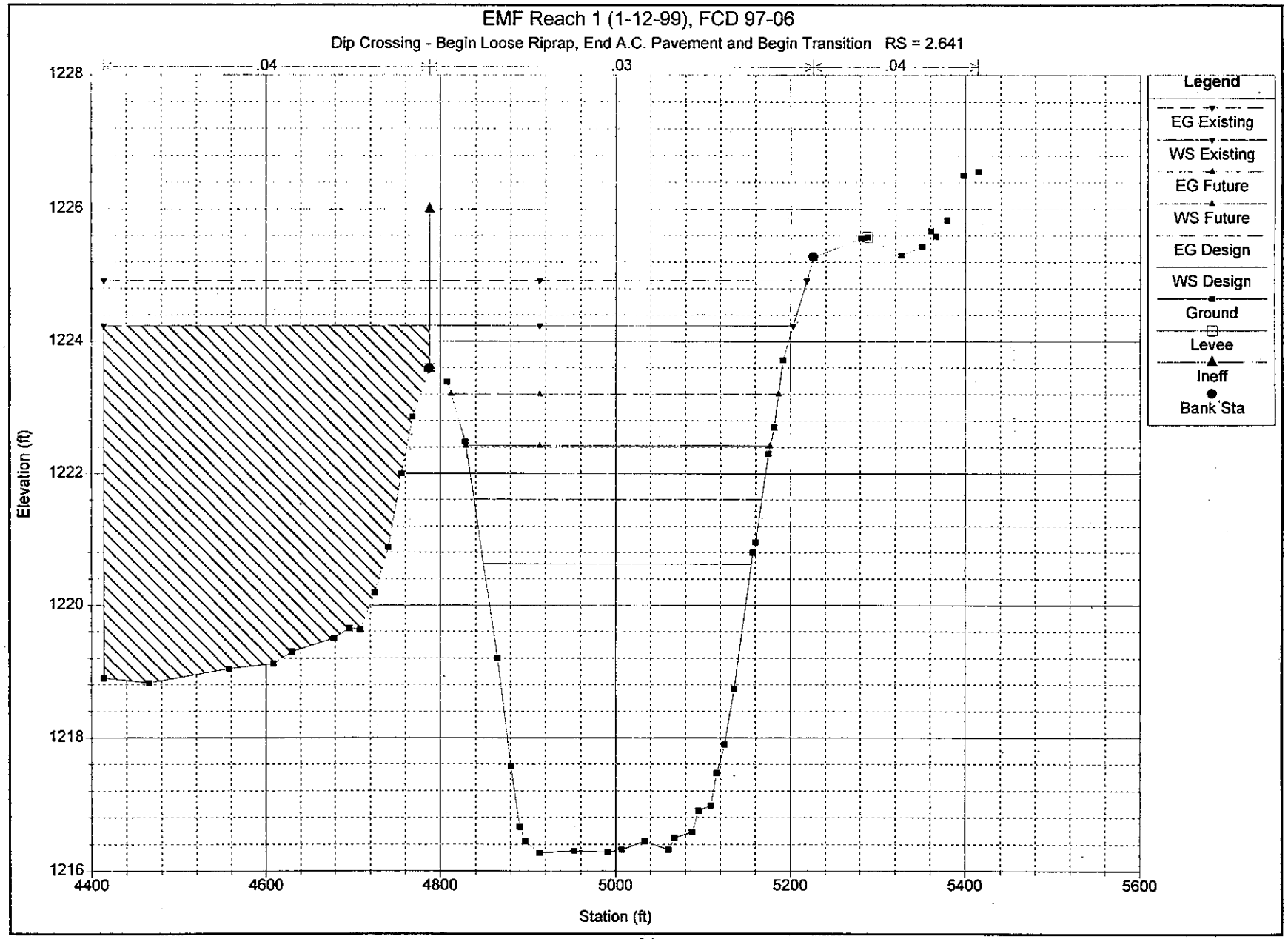
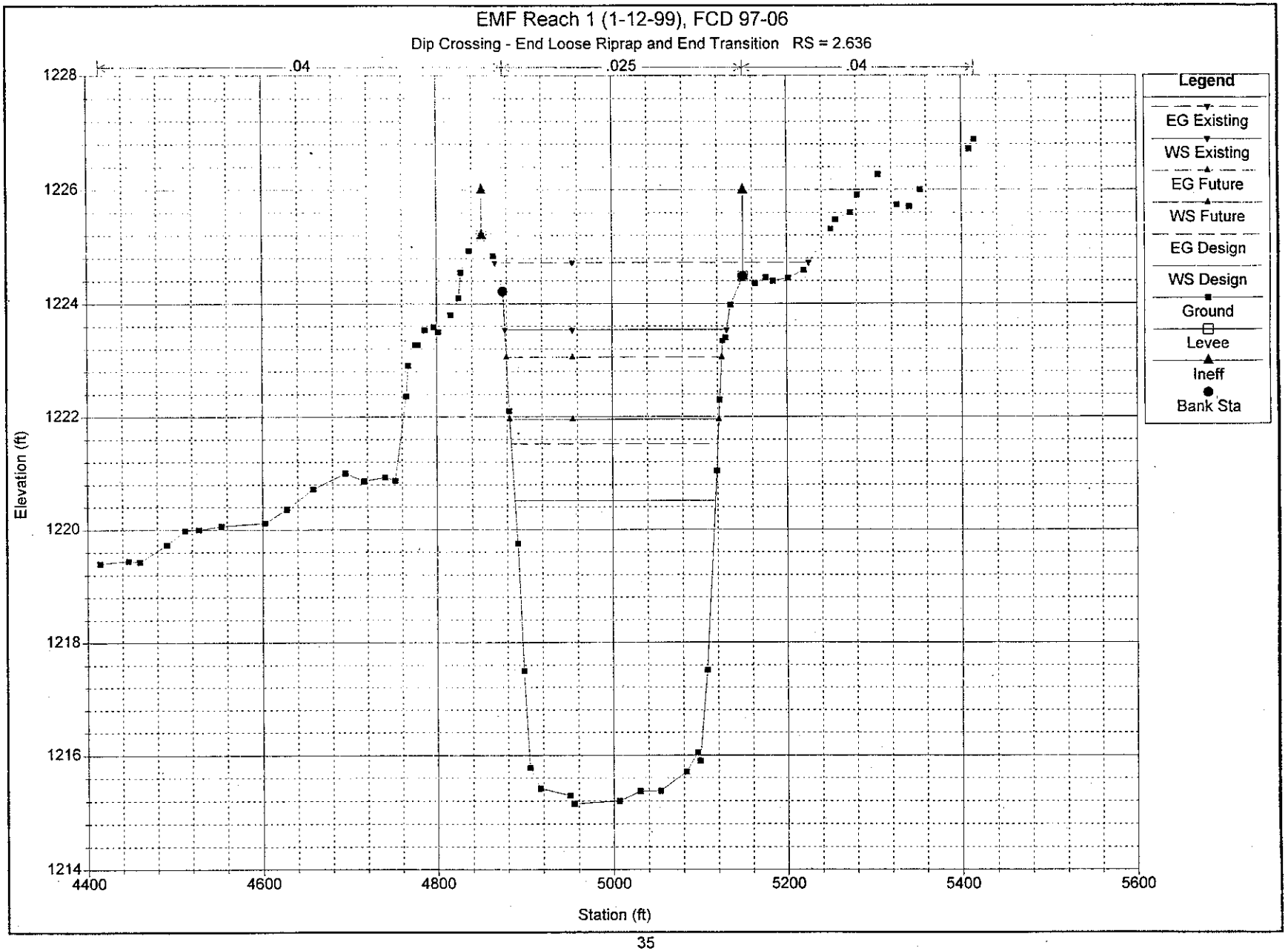
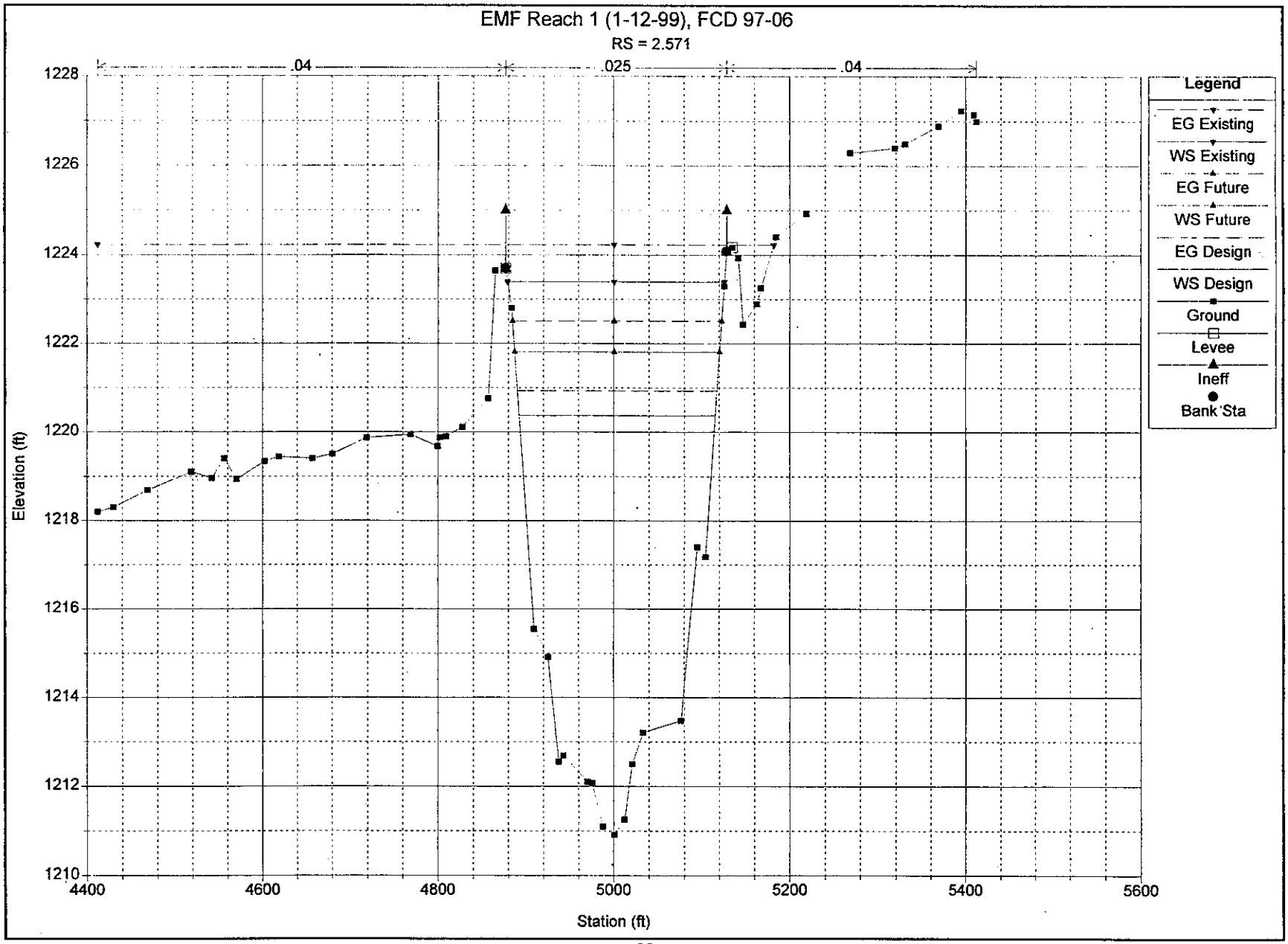
4600
4800
5000
5200
5400
Station (ft)

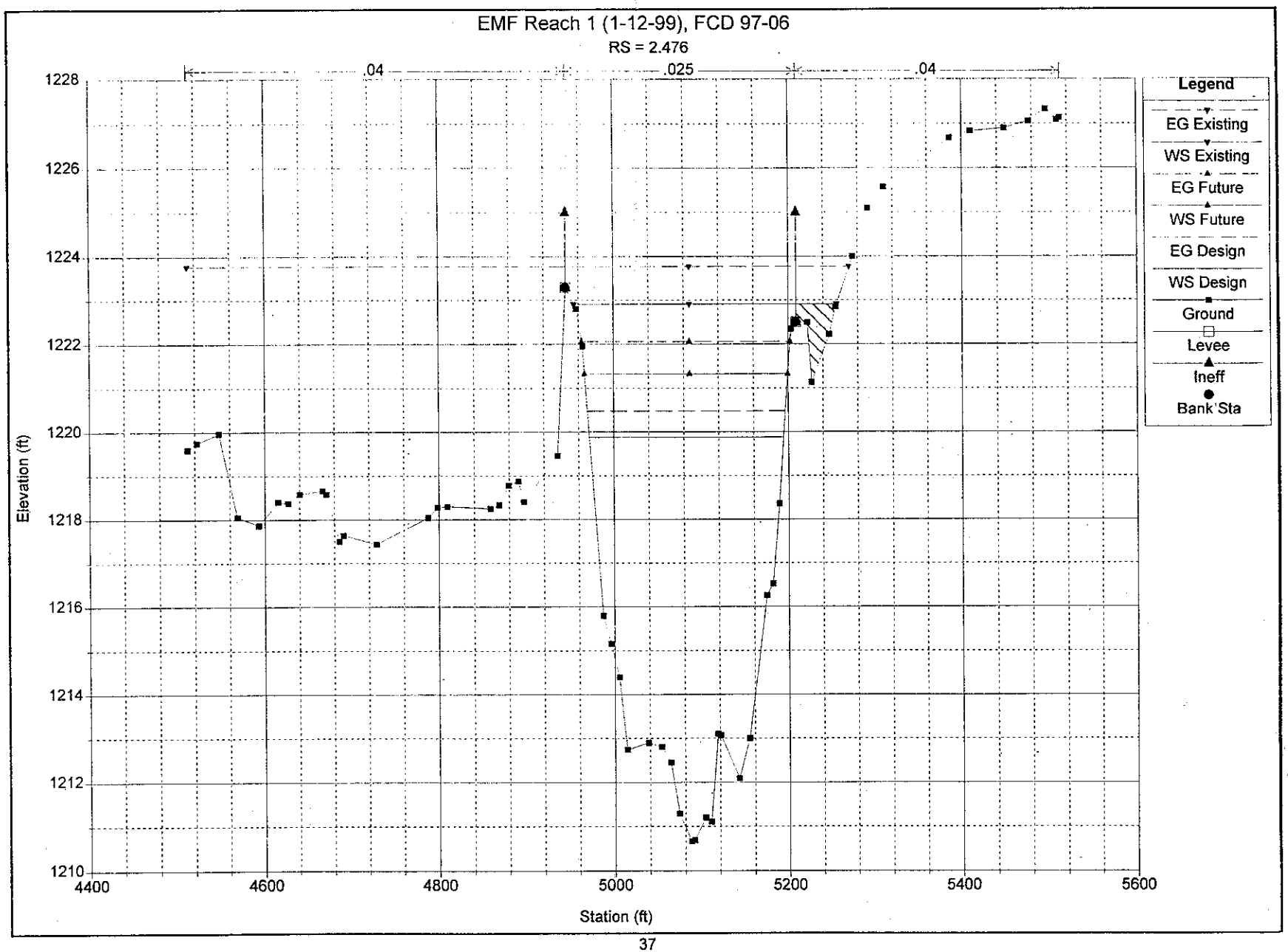

EMF Reach 1 (1-12-99), FCD 97-06
Dip Crossing - Begin Transition RS = 2.65
.04
.025
.04
1228
1226
1224
1222
1220
1218
1216
1214
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

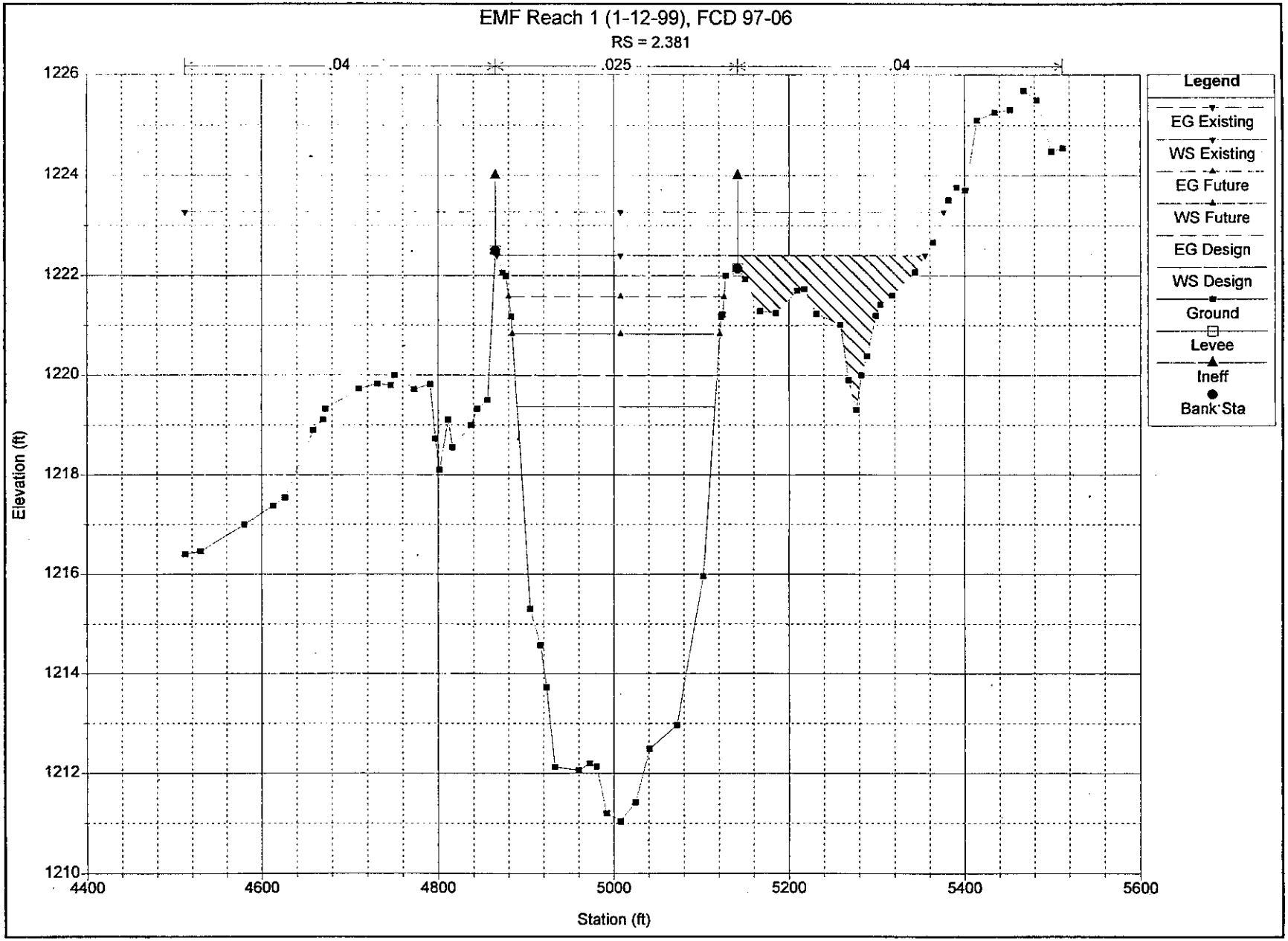

EMF Reach 1 (1-12-99), FCD 97-06
Dip Crossing - Begin A.C. Pavement and End Transition RS = 2.646
.04
.015
.04
Elevation (ft)
1228
1226
1224
1222
1220
1218
1216
1214
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

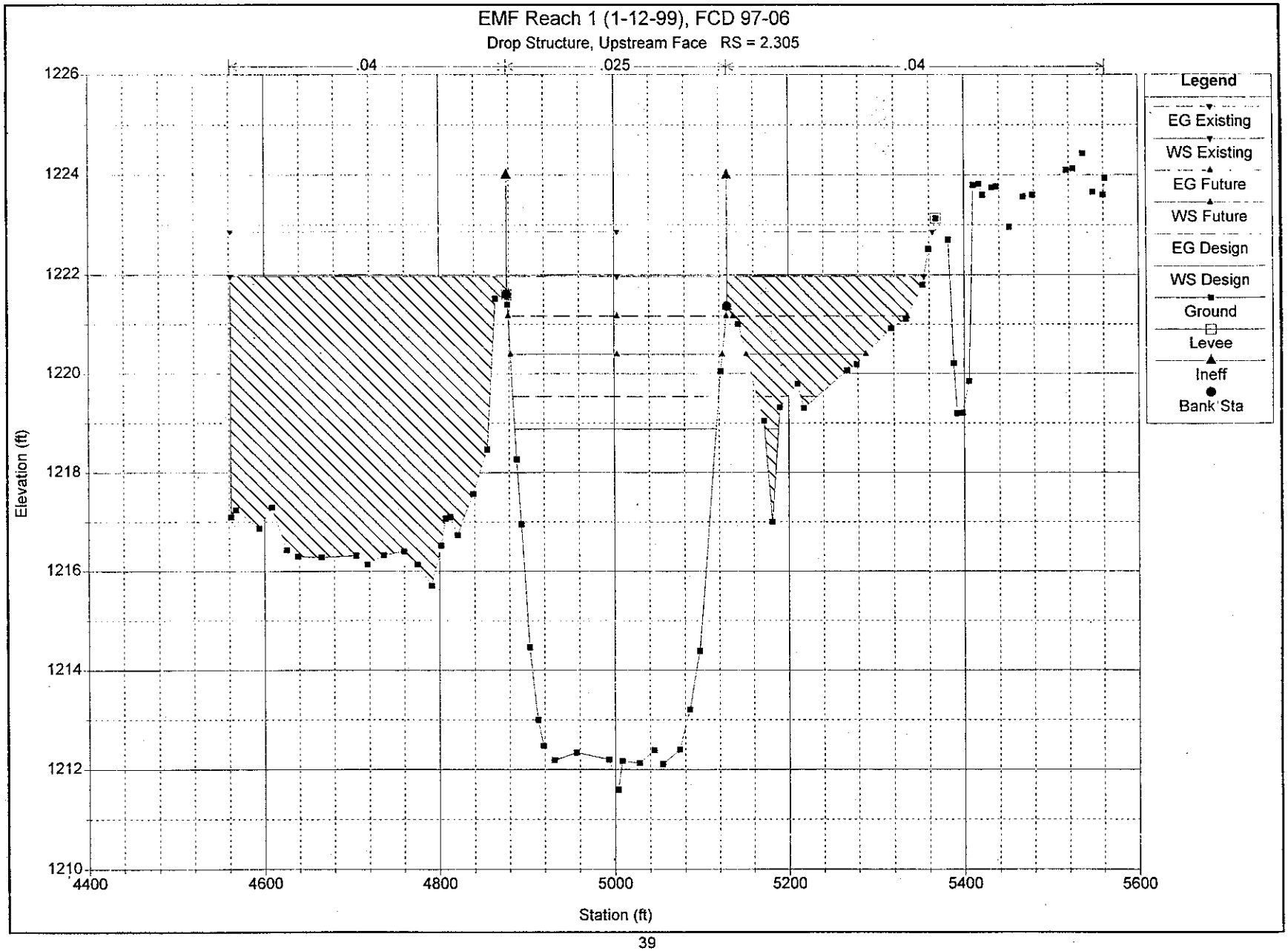

EMF Reach 1 (1-12-99), FCD 97-06
Dip Crossing - Begin Loose Riprap, End A.C. Pavement and Begin Transition RS = 2.641
.04
.03
.04
1228
1226
1224
1222
1220
1218
1216
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

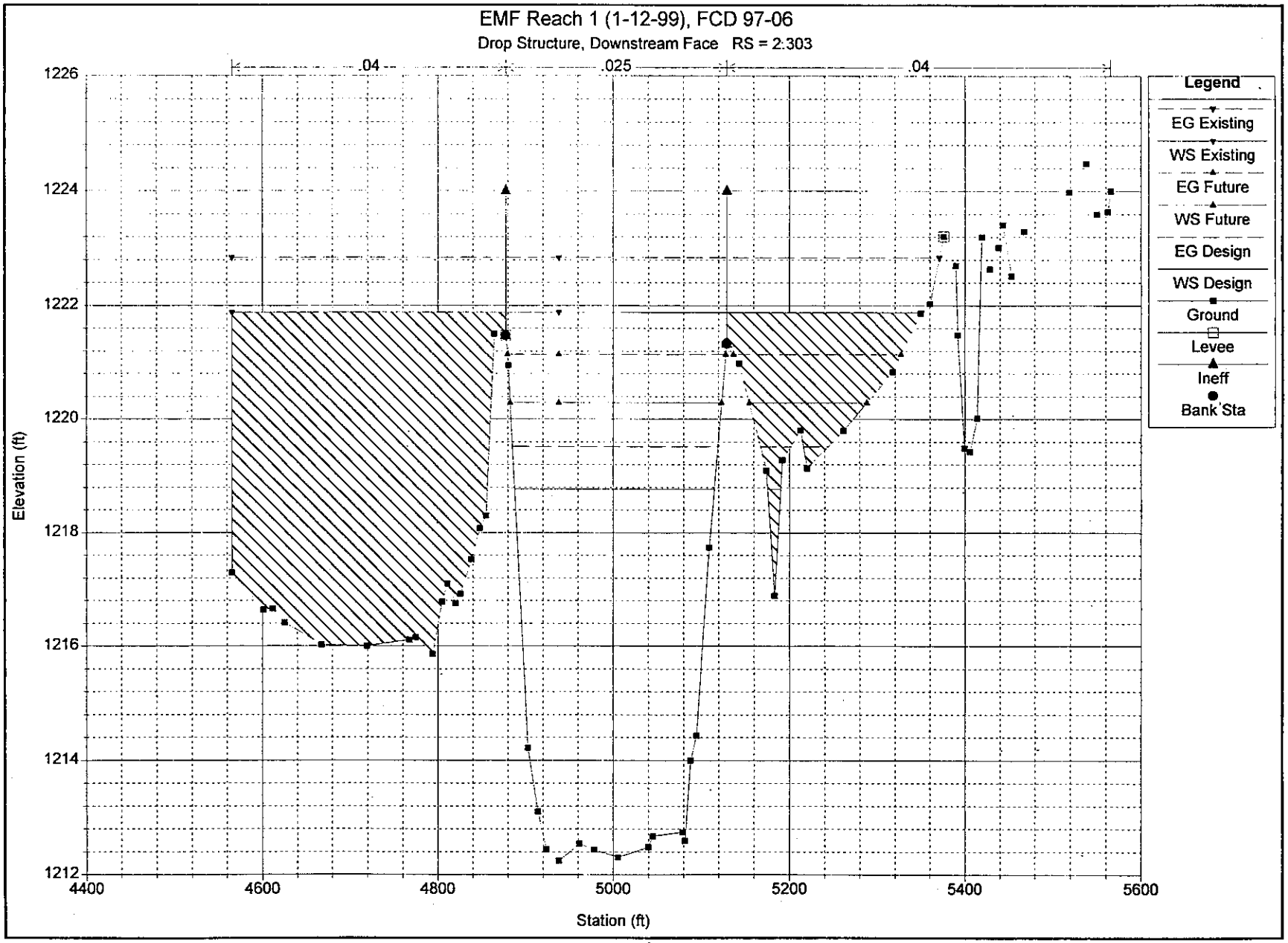

EMF Reach 1 (1-12-99), FCD 97-06
Dip Crossing - End Loose Riprap and End Transition RS = 2.636
.04
.025
.04
1228
1226
1224
1222
1220
1218
1216
1214
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

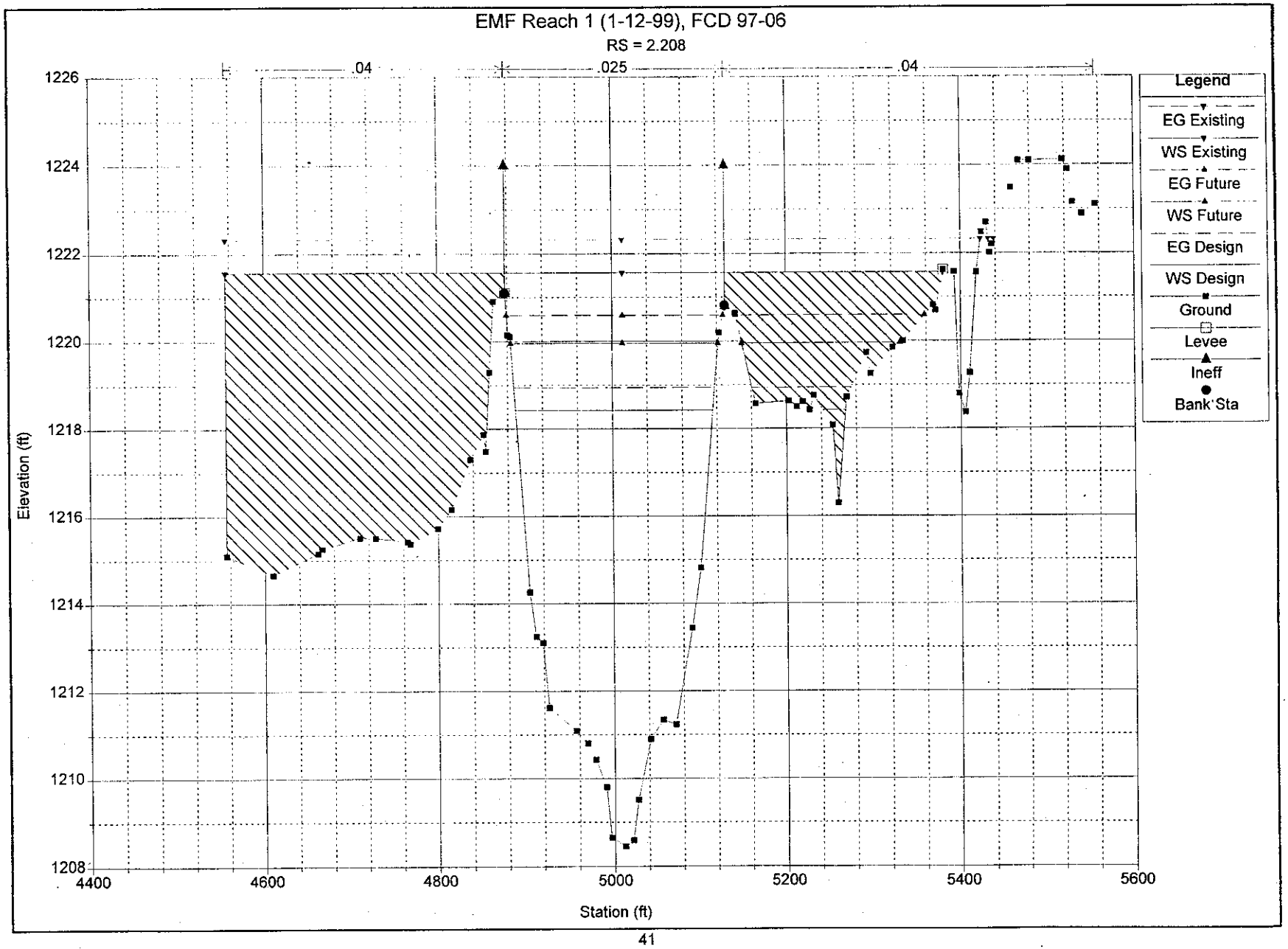

EMF Reach 1 (1-12-99), FCD 97-06
RS = 2.571
.04
.025
.04
Elevation (ft)
1228
1226
1224
1222
1220
1218
1216
1214
1212
1210
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

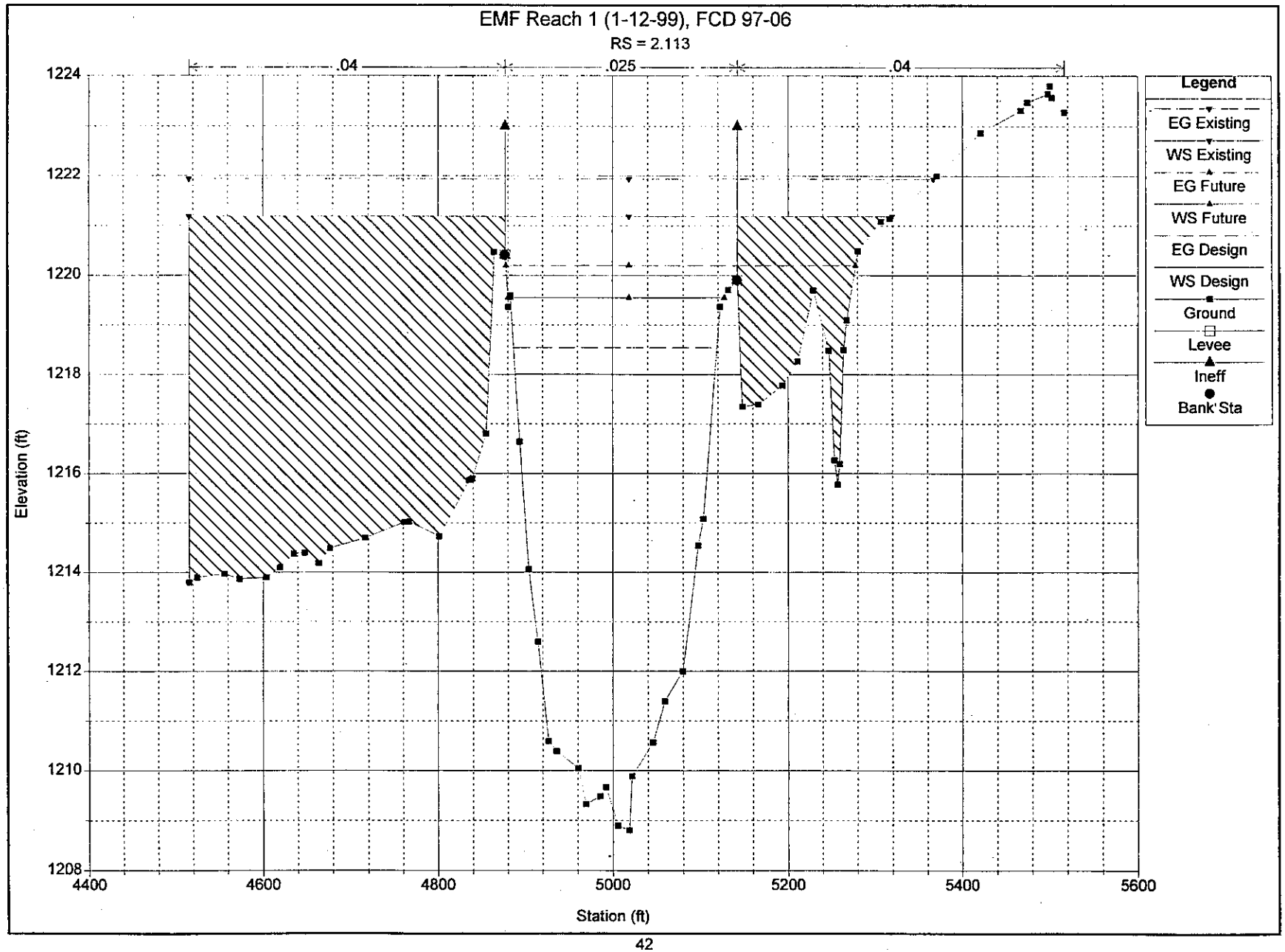

EMF Reach 1 (1-12-99), FCD 97-06
RS = 2.476
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1228
1226
1224
1222
1220
1218
1216
1214
1212
1210
4400
4600
4800
5000
5200
5400
5600
Station (ft)

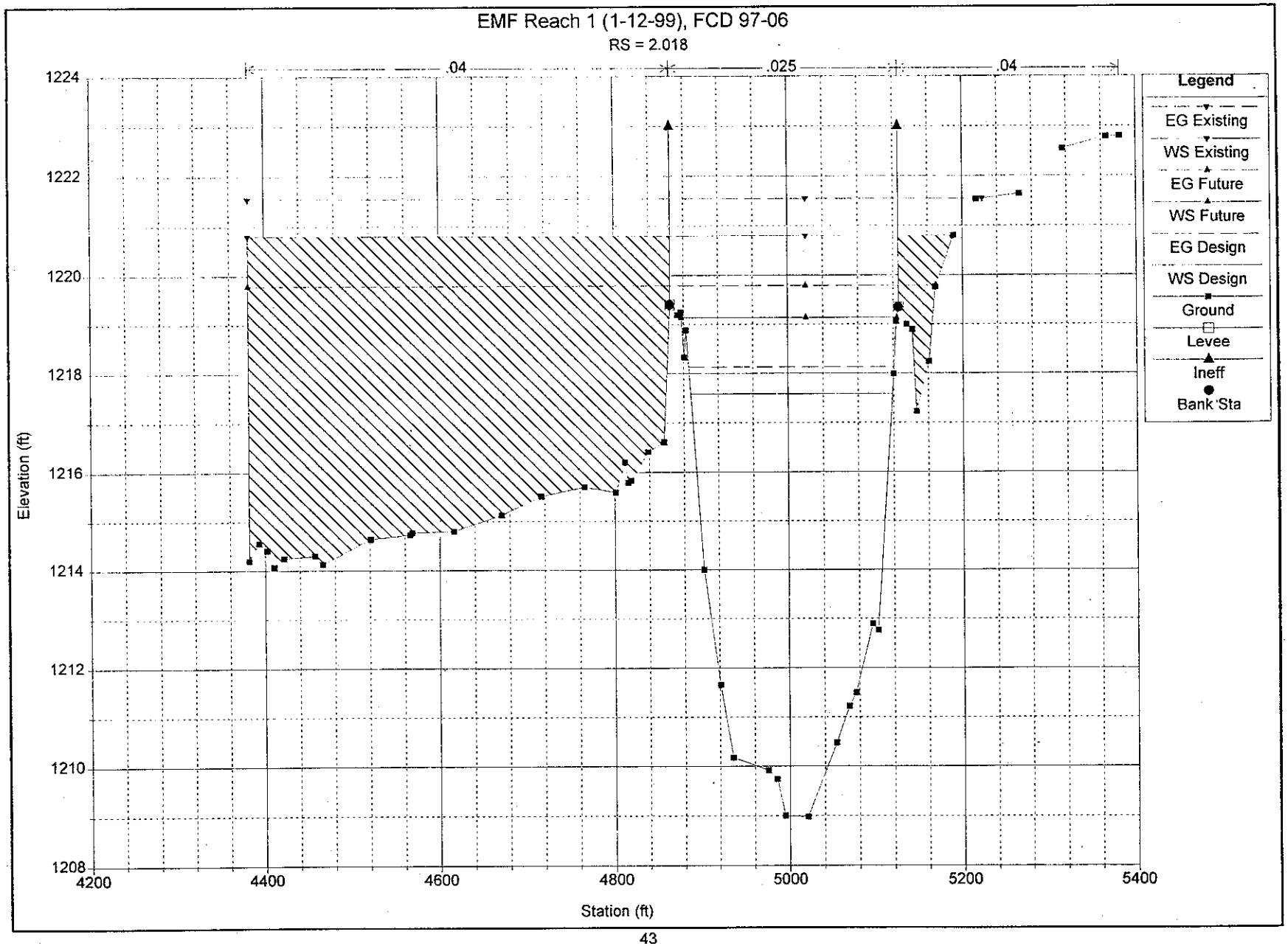

EMF Reach 1 (1-12-99), FCD 97-06
RS = 2.381
.04
.025
.04
Elevation (ft)
1226
1224
1222
1220
1218
1216
1214
1212
1210
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

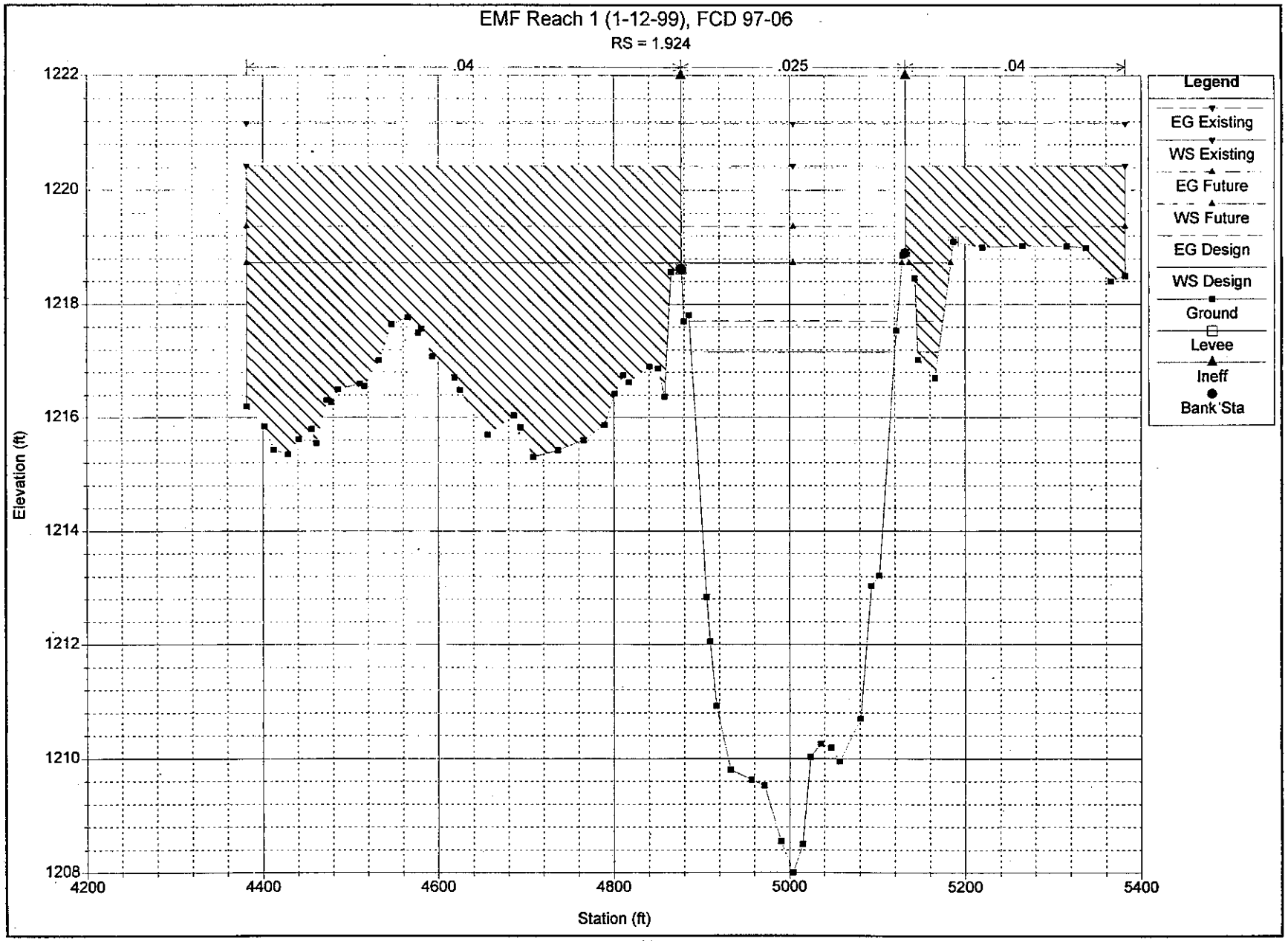

EMF Reach 1 (1-12-99), FCD 97-06
Drop Structure, Upstream Face RS = 2.305
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1226
1224
1222
1220
1218
1216
1214
1212
1210
4400
4600
4800
5000
5200
5400
5600
Station (ft)

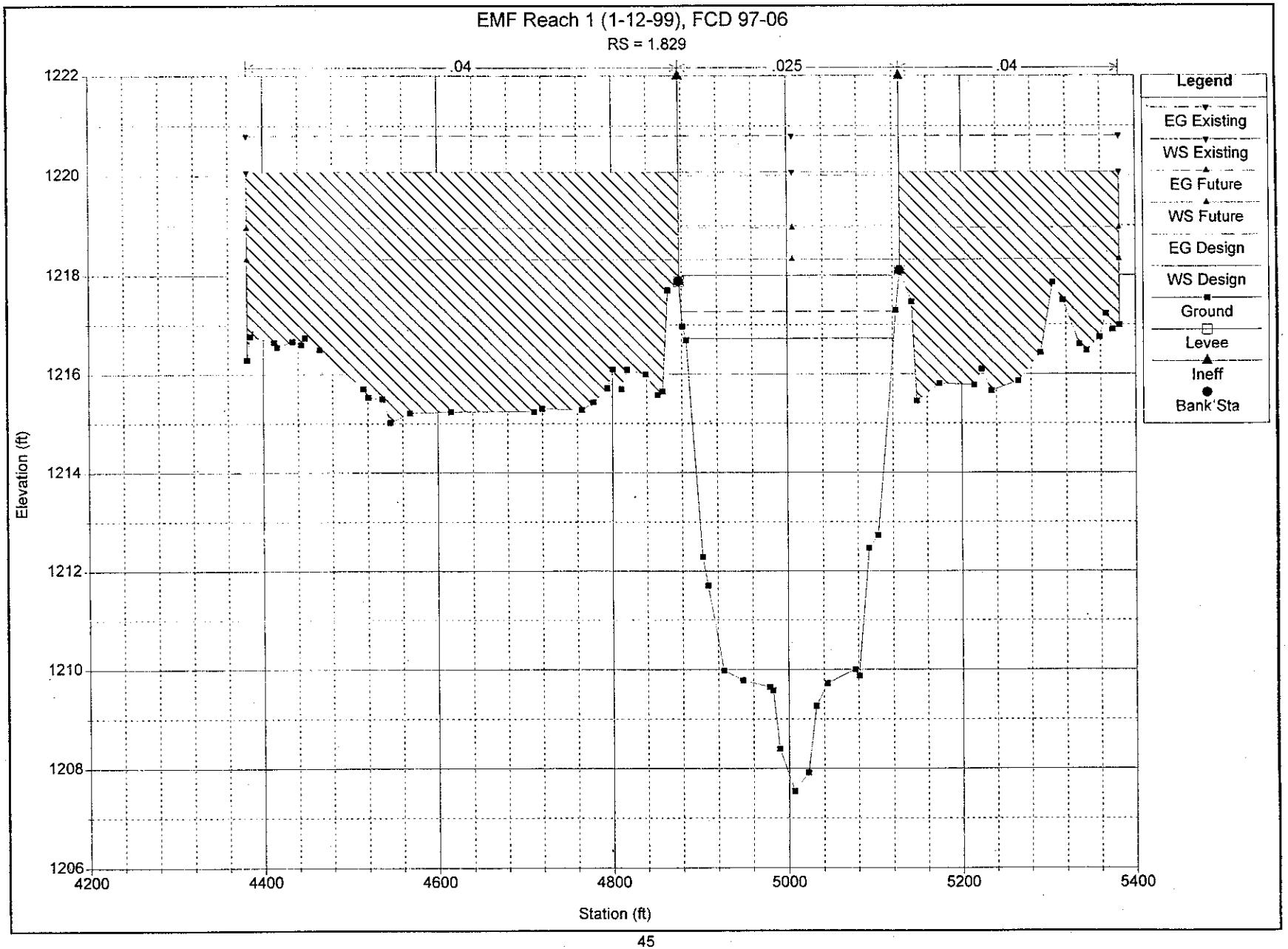

EMF Reach 1 (1-12-99), FCD 97-06
Drop Structure, Downstream Face RS = 2:303
.04
.025
.04
Elevation (ft)
1226
1224
1222
1220
1218
1216
1214
1212
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

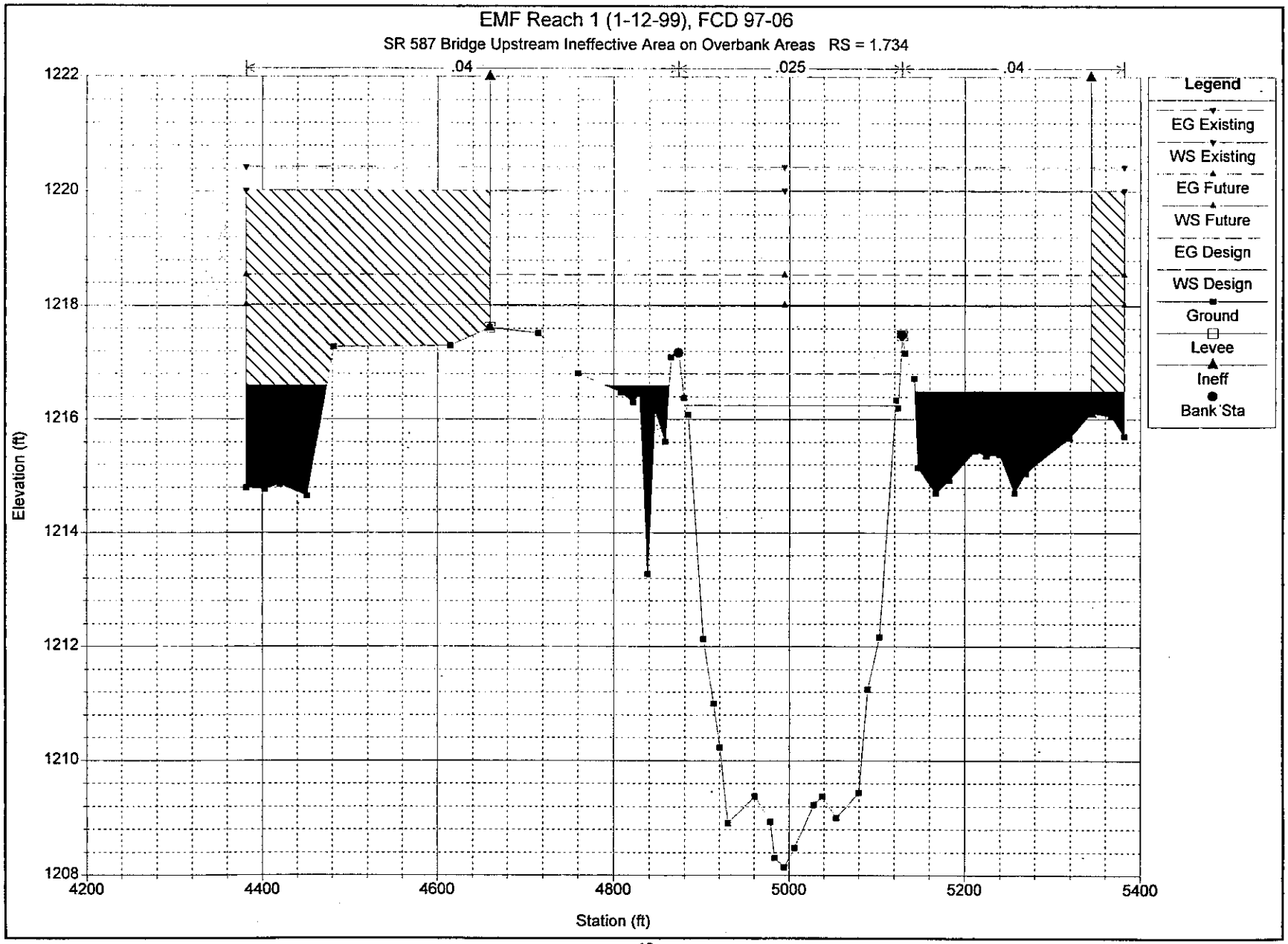

EMF Reach 1 (1-12-99), FCD 97-06
RS = 2.208
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1226
1224
1222
1220
1218
1216
1214
1212
1210
1208
4400
4600
4800
5000
5200
5400
5600
Station (ft)

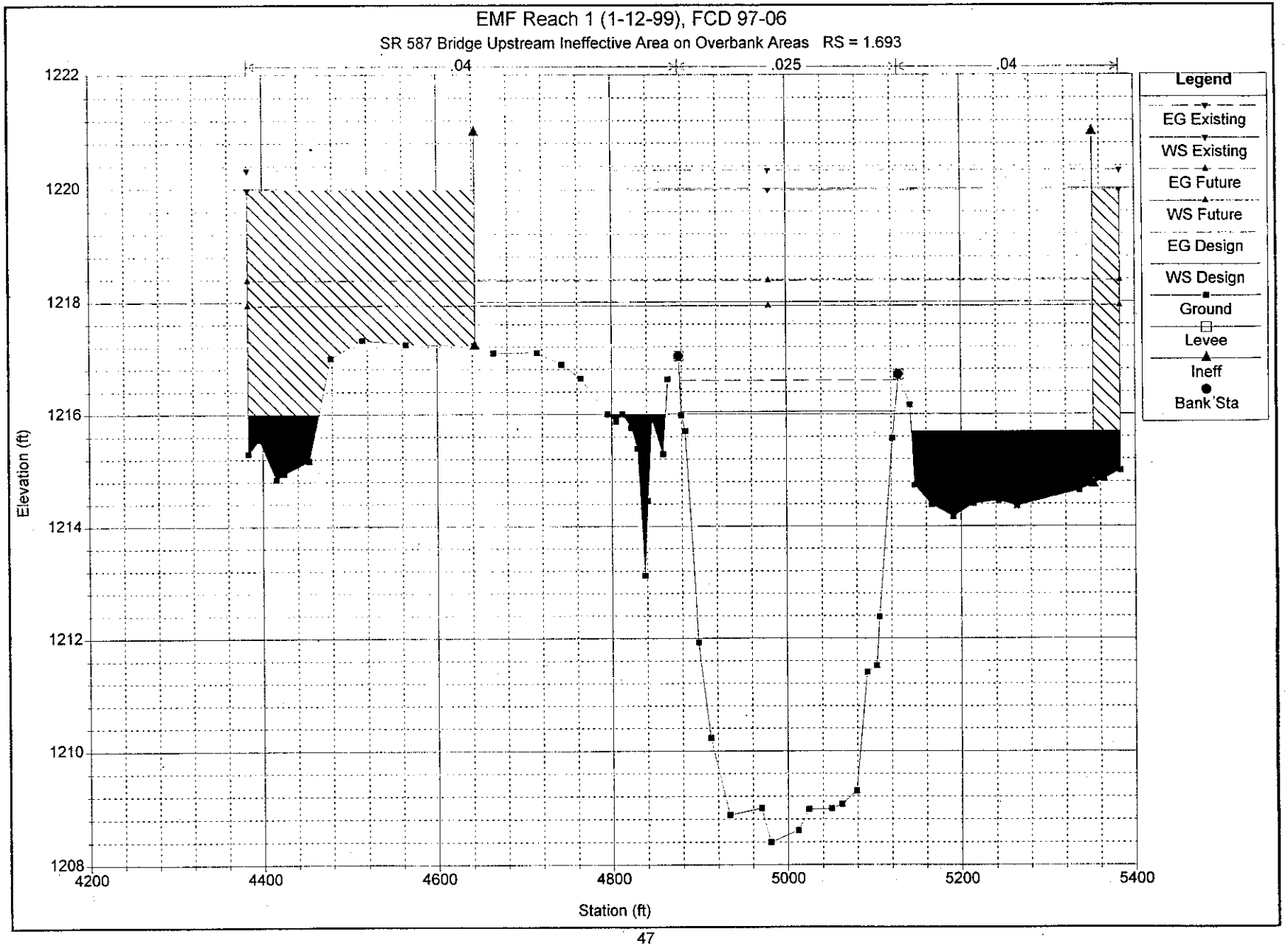

EMF Reach 1 (1-12-99), FCD 97-06
RS = 2.113
.04
.025
.04
Elevation (ft)
1224
1222
1220
1218
1216
1214
1212
1210
1208
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

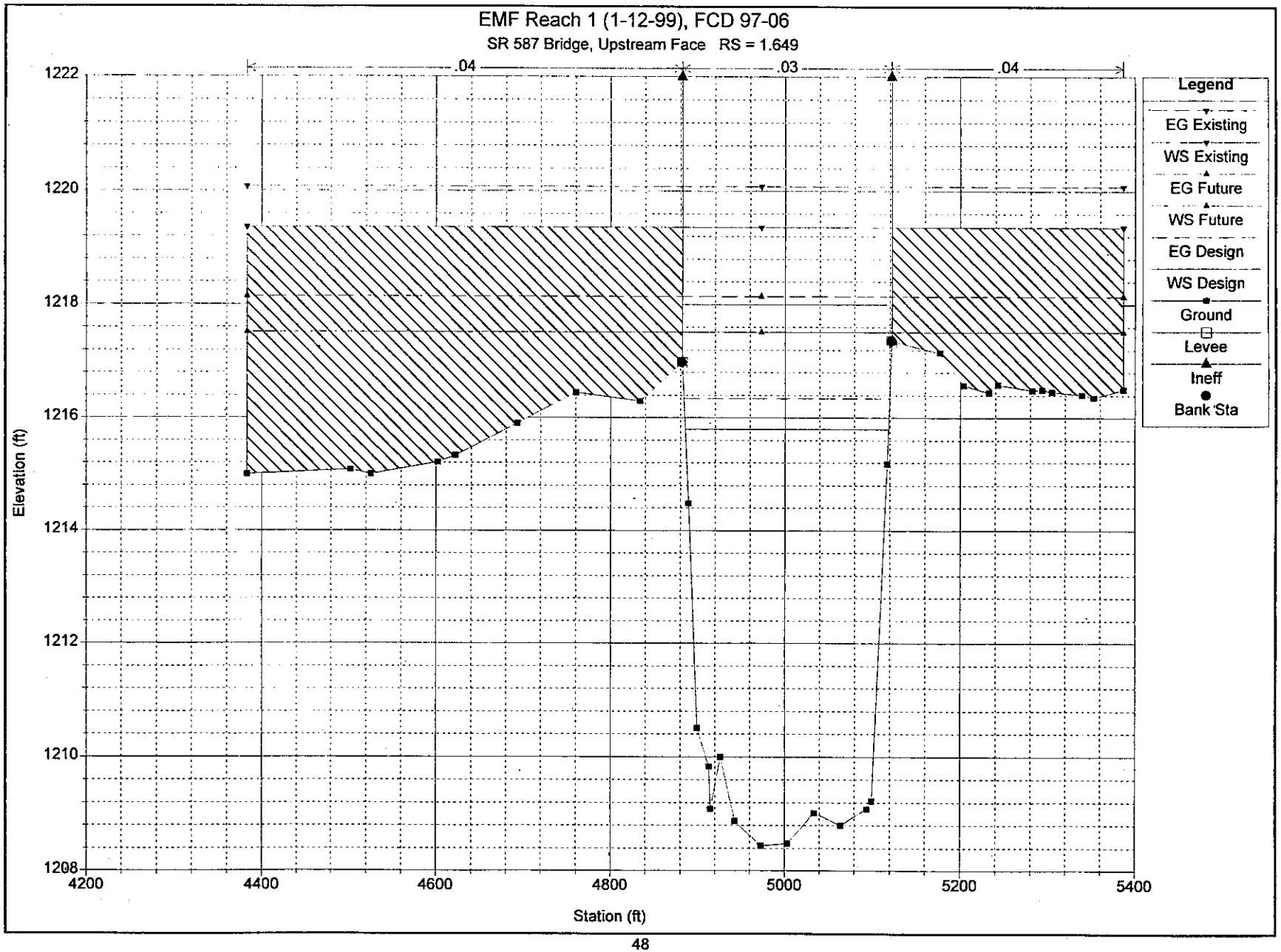

EMF Reach 1 (1-12-99), FCD 97-06
RS = 2.018
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1224
1222
1220
1218
1216
1214
1212
1210
1208
4200
4400
4600
4800
5000
5200
5400
Station (ft)

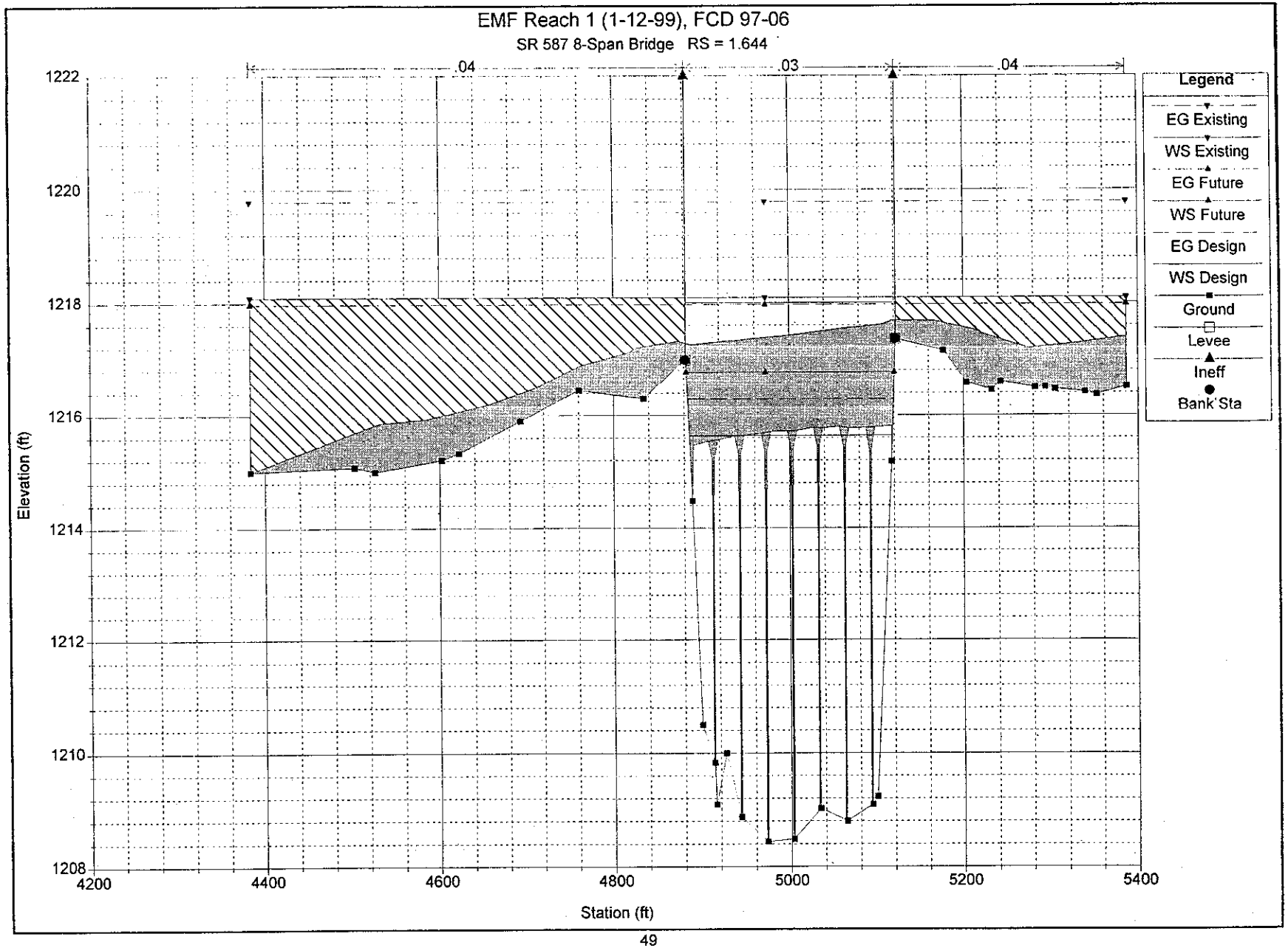

EMF Reach 1 (1-12-99), FCD 97-06
RS = 1.924
.04
.025
.04
1222
1220
1218
1216
1214
1212
1210
1208
Elevation (ft)
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

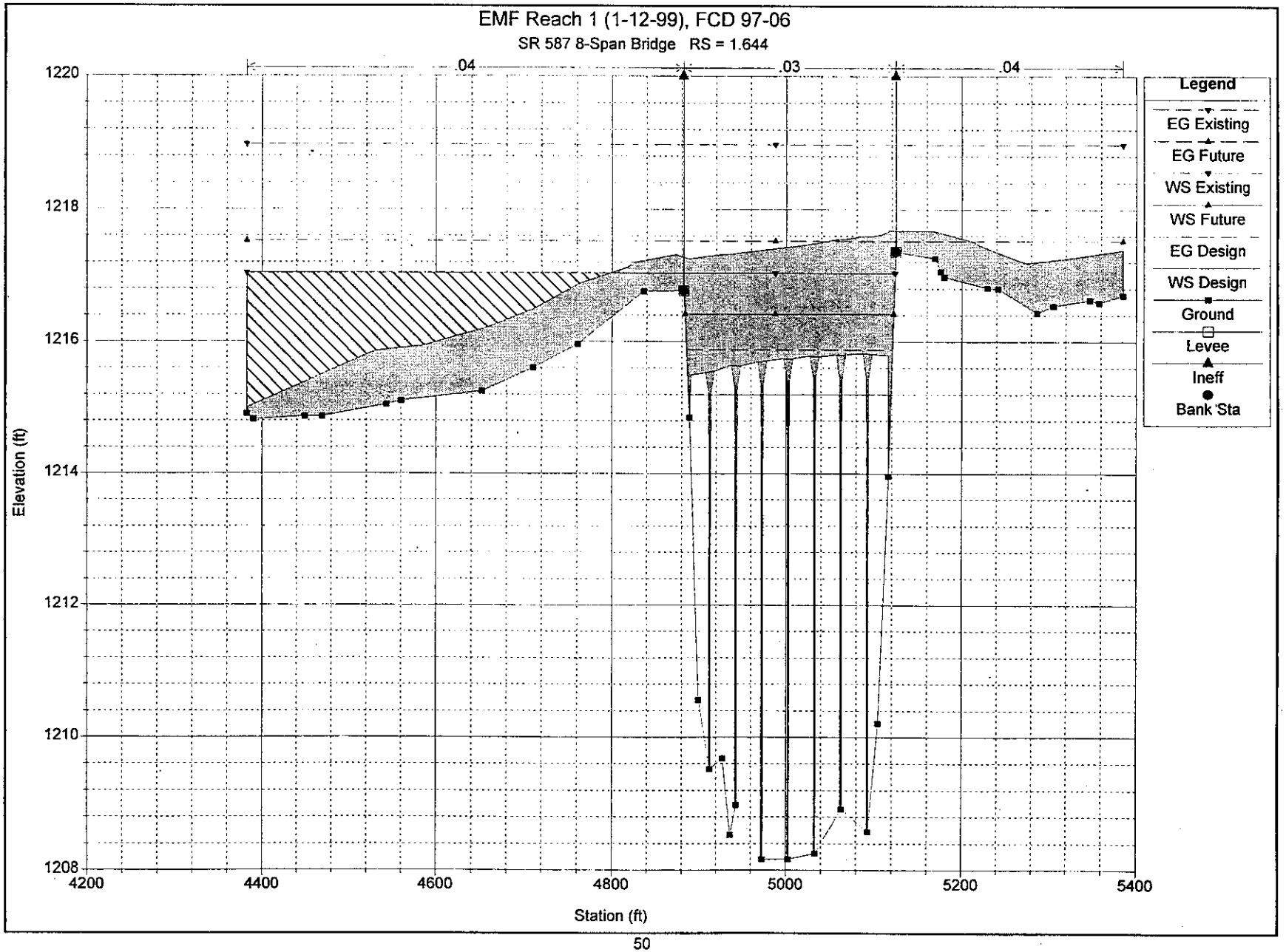

EMF Reach 1 (1-12-99), FCD 97-06
RS = 1.829
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1222
1220
1218
1216
1214
1212
1210
1208
1206
4200
4400
4600
4800
5000
5200
5400
Station (ft)

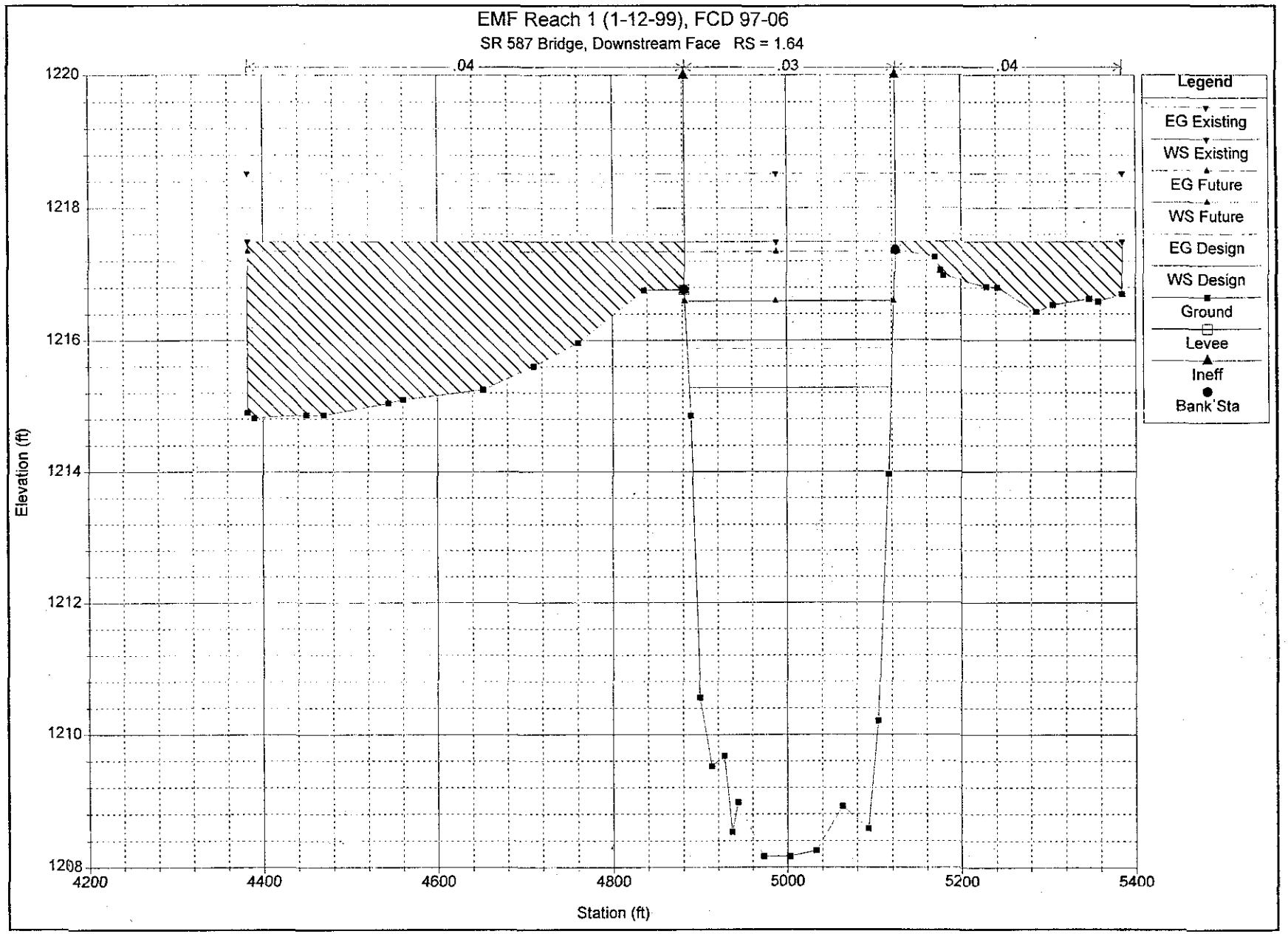

EMF Reach 1 (1-12-99), FCD 97-06
SR 587 Bridge Upstream Ineffective Area on Overbank Areas RS = 1.734
.04
.025
.04
1222
1220
1218
1216
1214
1212
1210
1208
Elevation (ft)
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

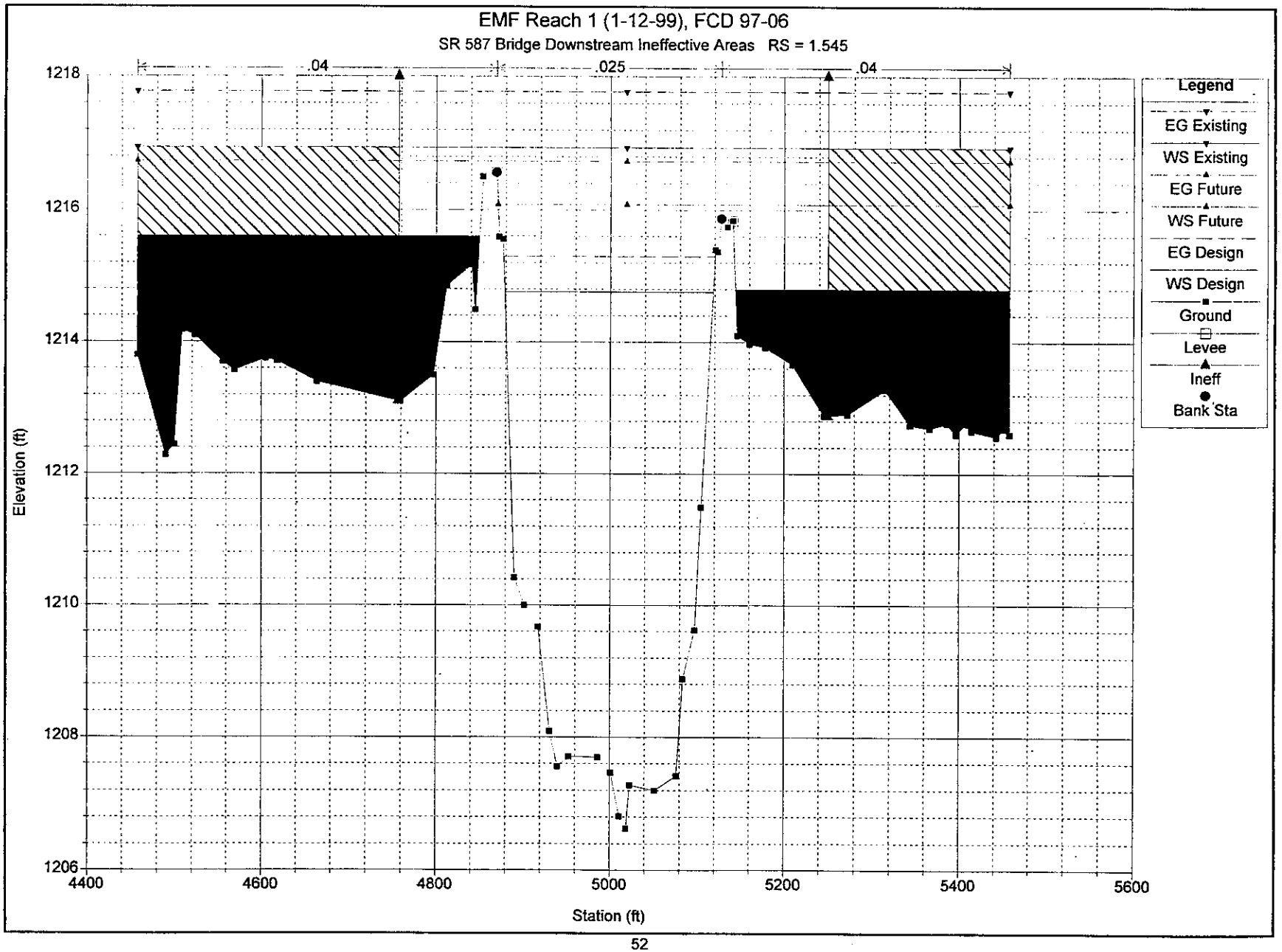

EMF Reach 1 (1-12-99), FCD 97-06
SR 587 Bridge Upstream Ineffective Area on Overbank Areas RS = 1.693
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1222
1220
1218
1216
1214
1212
1210
1208
4200
4400
4600
4800
5000
5200
5400
Station (ft)

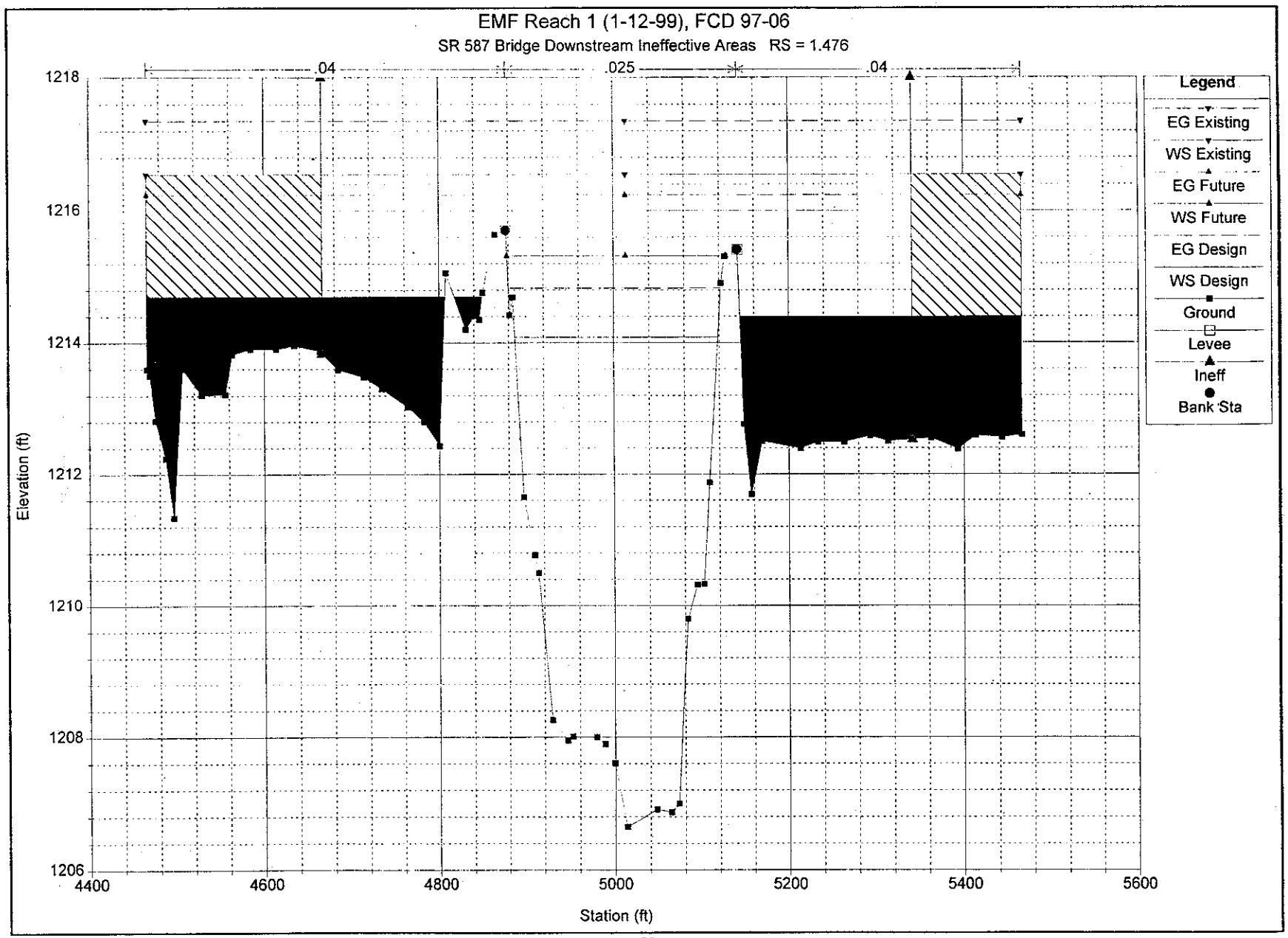

EMF Reach 1 (1-12-99), FCD 97-06
SR 587 Bridge, Upstream Face RS = 1.649
.04
.03
.04
Elevation (ft)
1222
1220
1218
1216
1214
1212
1210
1208
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

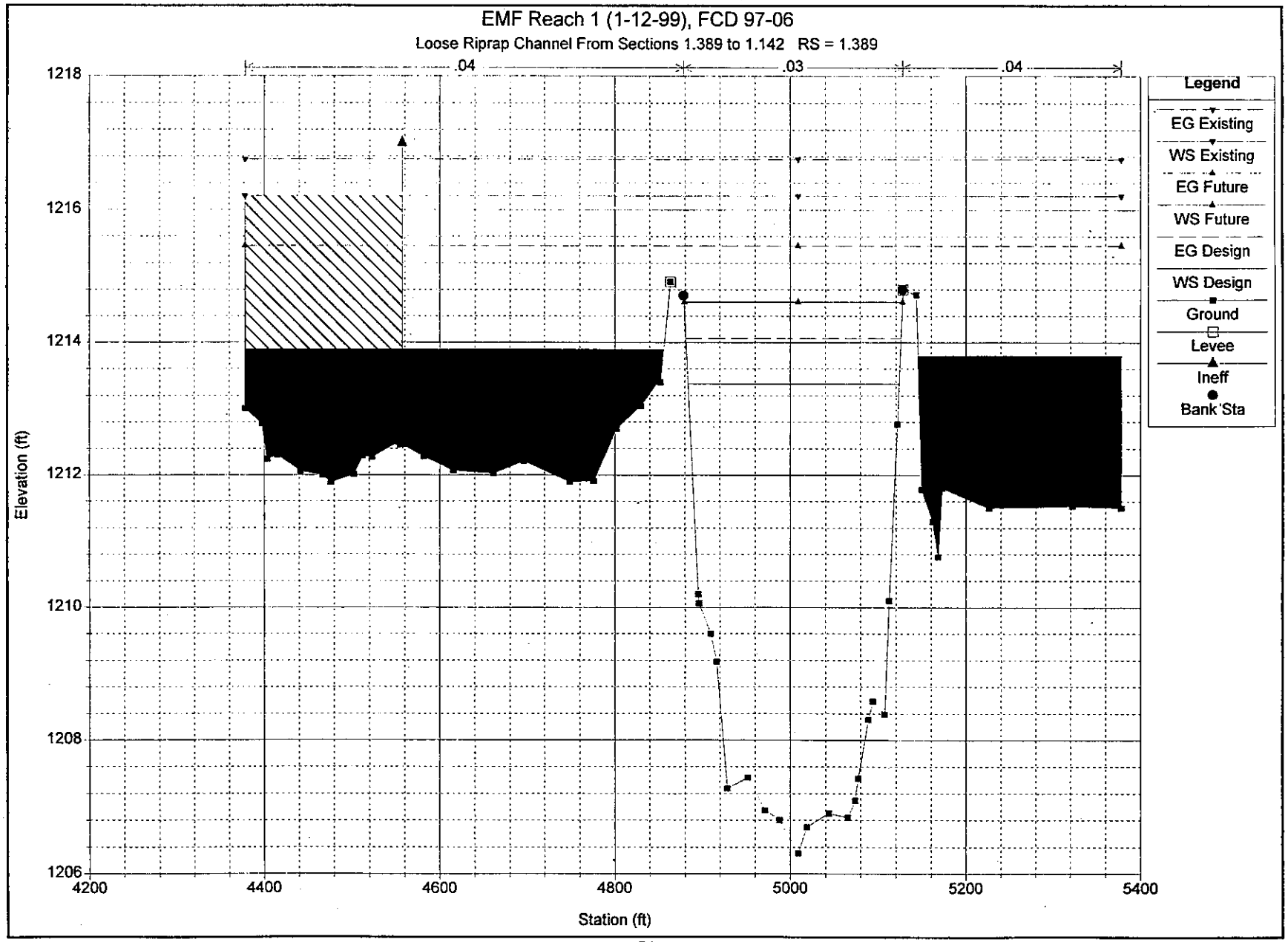

EMF Reach 1 (1-12-99), FCD 97-06
SR 587 8-Span Bridge RS = 1.644
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1222
1220
1218
1216
1214
1212
1210
1208
4200
4400
4600
4800
5000
5200
5400
Station (ft)

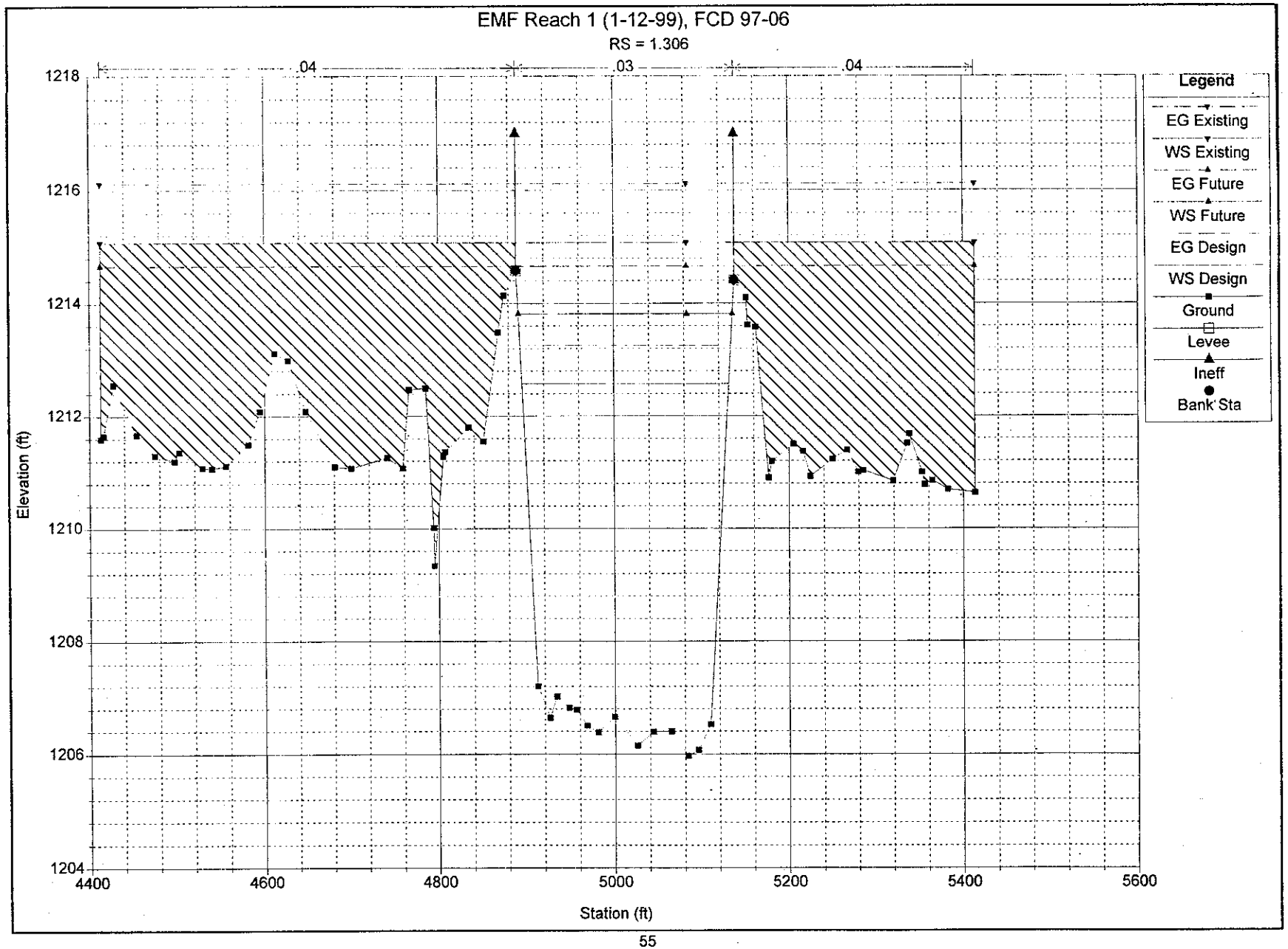

EMF Reach 1 (1-12-99), FCD 97-06
SR 587 8-Span Bridge RS = 1.644
.04
.03
.04
Elevation (ft)
1220
1218
1216
1214
1212
1210
1208
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
EG Future
WS Existing
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

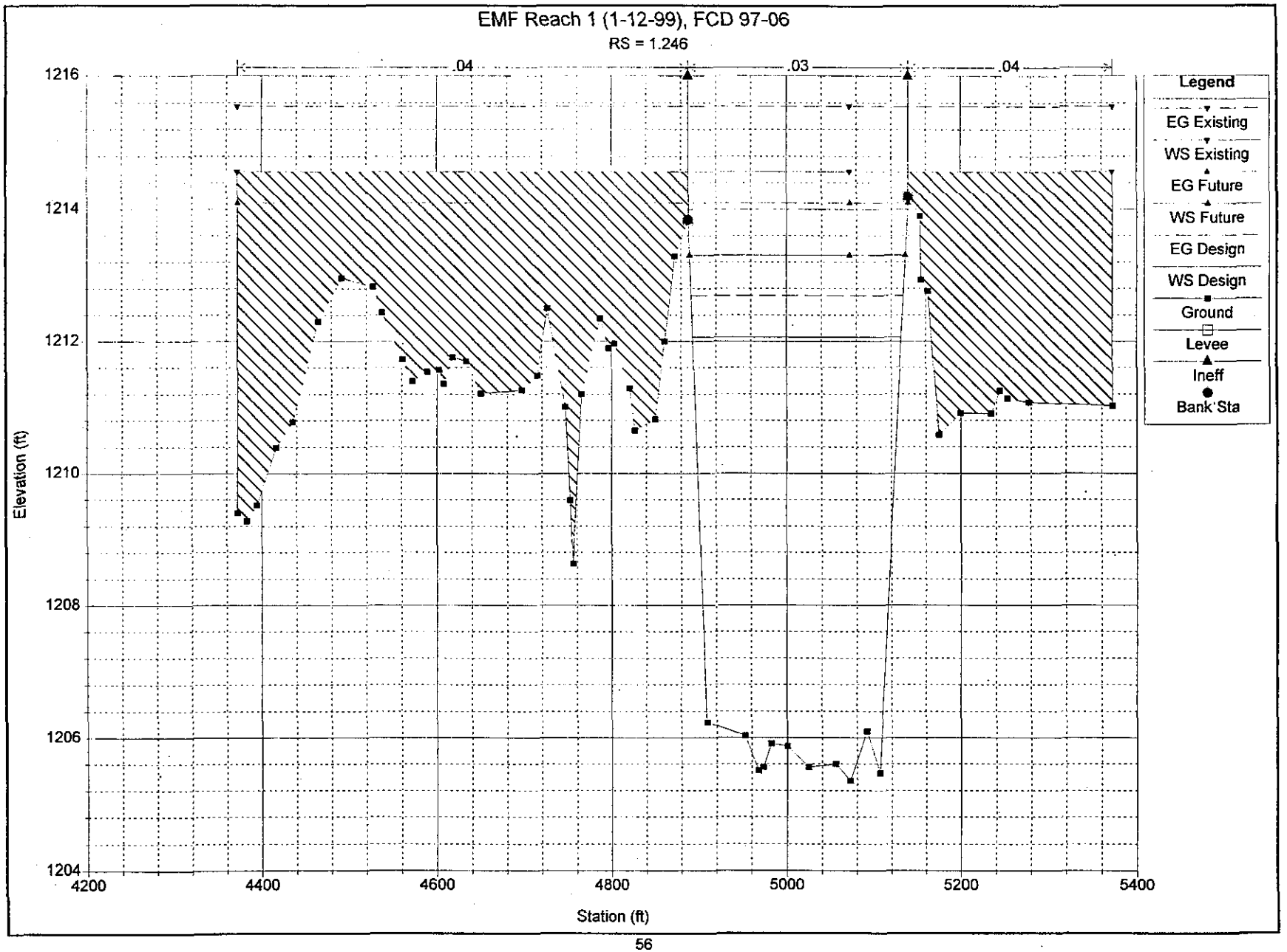

EMF Reach 1 (1-12-99), FCD 97-06
SR 587 Bridge, Downstream Face RS = 1.64
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1220
1218
1216
1214
1212
1210
1208
4200
4400
4600
4800
5000
5200
5400
Station (ft)

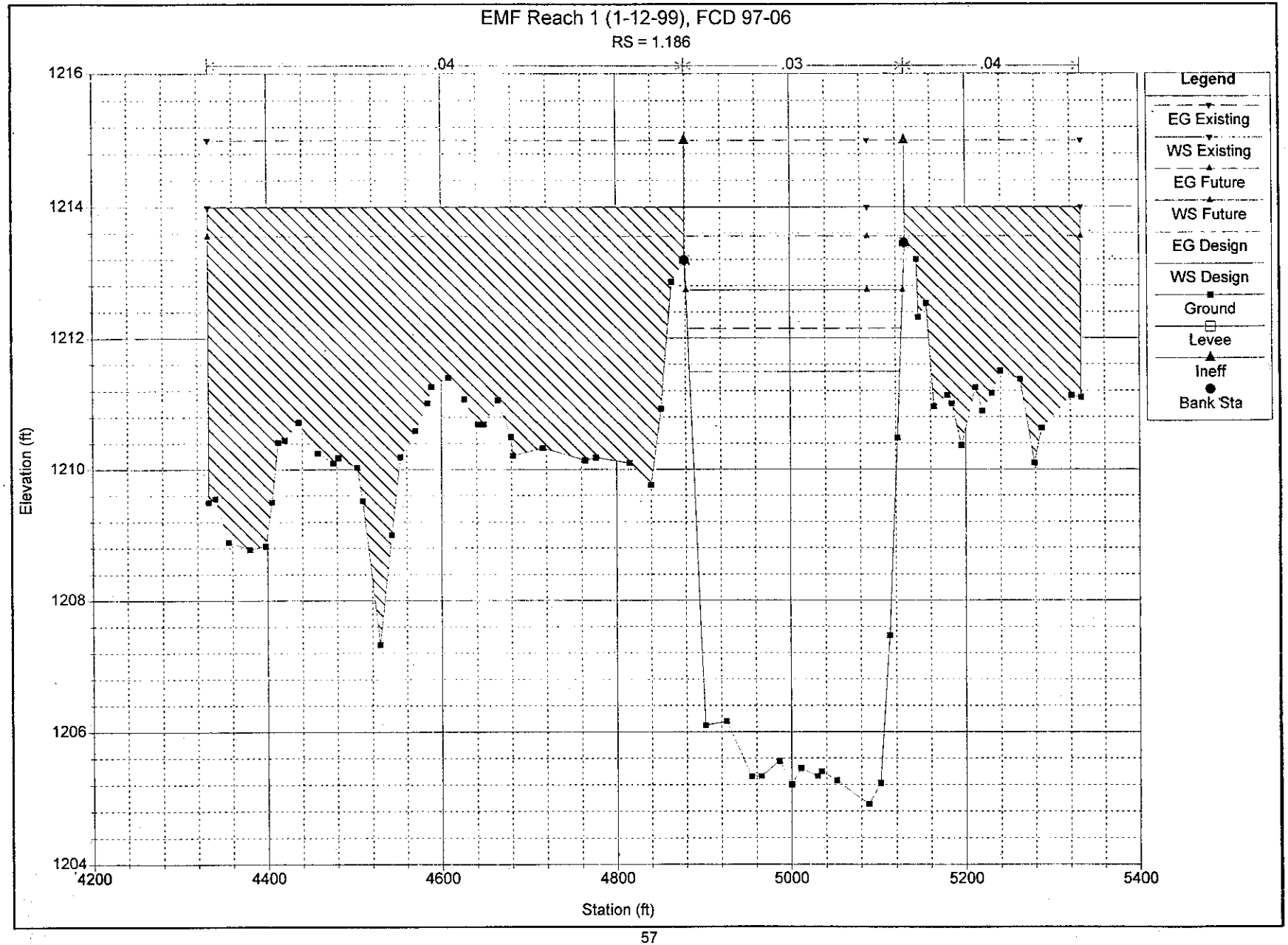

EMF Reach 1 (1-12-99), FCD 97-06
SR 587 Bridge Downstream Ineffective Areas RS = 1.545
.04
.025
.04
Elevation (ft)
1218
1216
1214
1212
1210
1208
1206
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

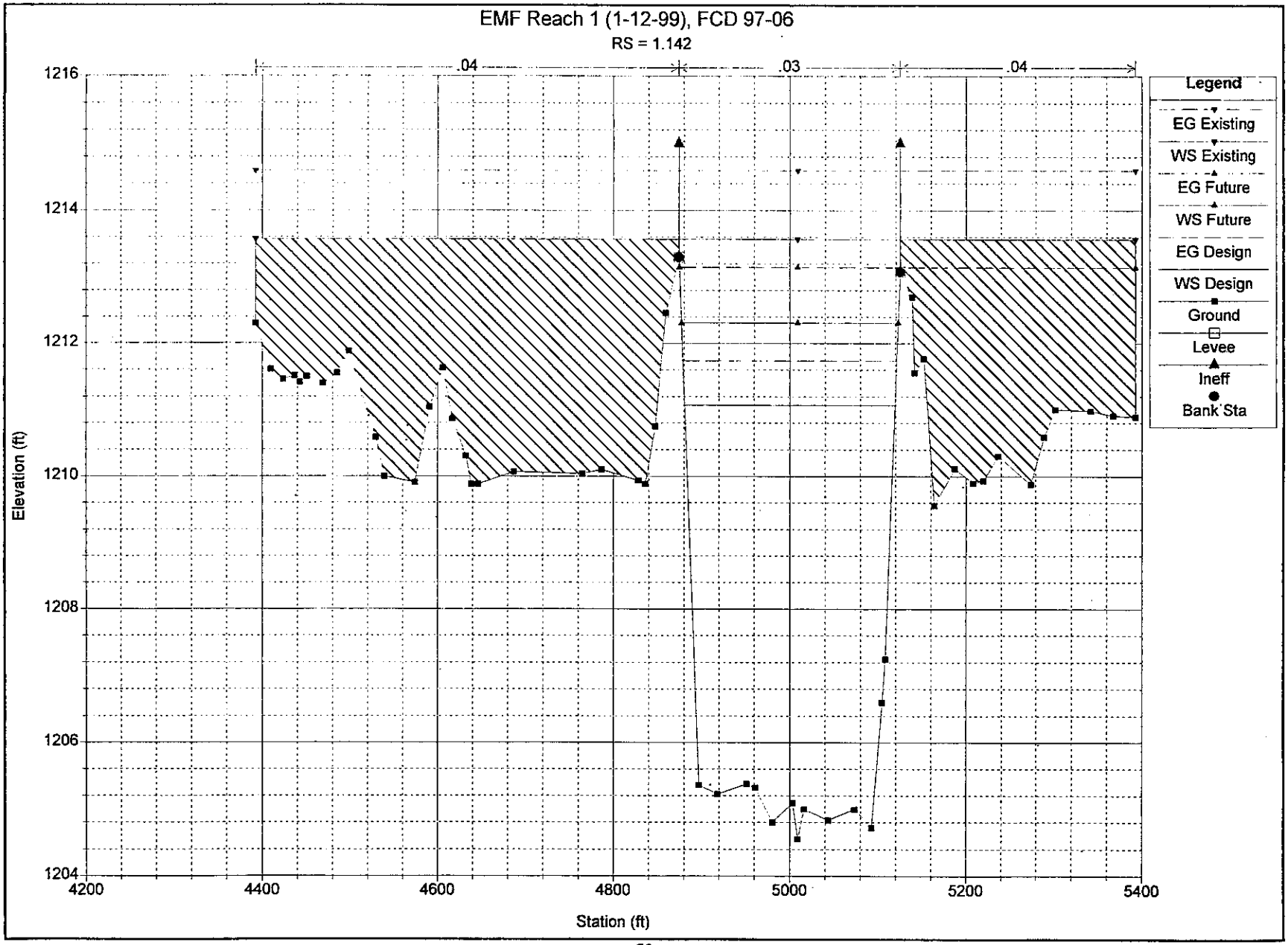

EMF Reach 1 (1-12-99), FCD 97-06
SR 587 Bridge Downstream Ineffective Areas RS = 1.476
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1218
1216
1214
1212
1210
1208
1206
4400
4600
4800
5000
5200
5400
5600
Station (ft)

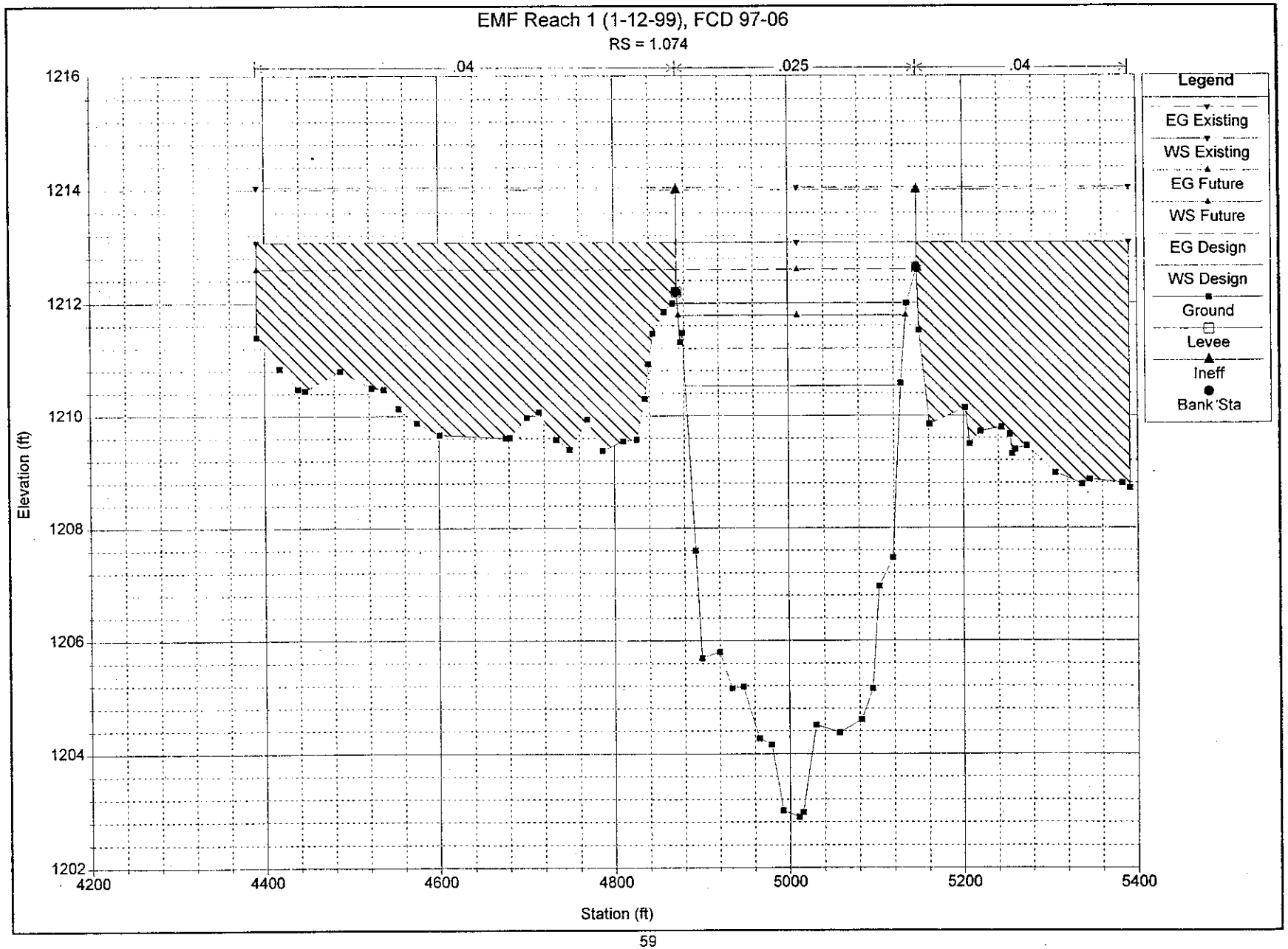

EMF Reach 1 (1-12-99), FCD 97-06
Loose Riprap Channel From Sections 1.389 to 1.142 RS = 1.389
.04
.03
.04
Elevation (ft)
1218
1216
1214
1212
1210
1208
1206
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

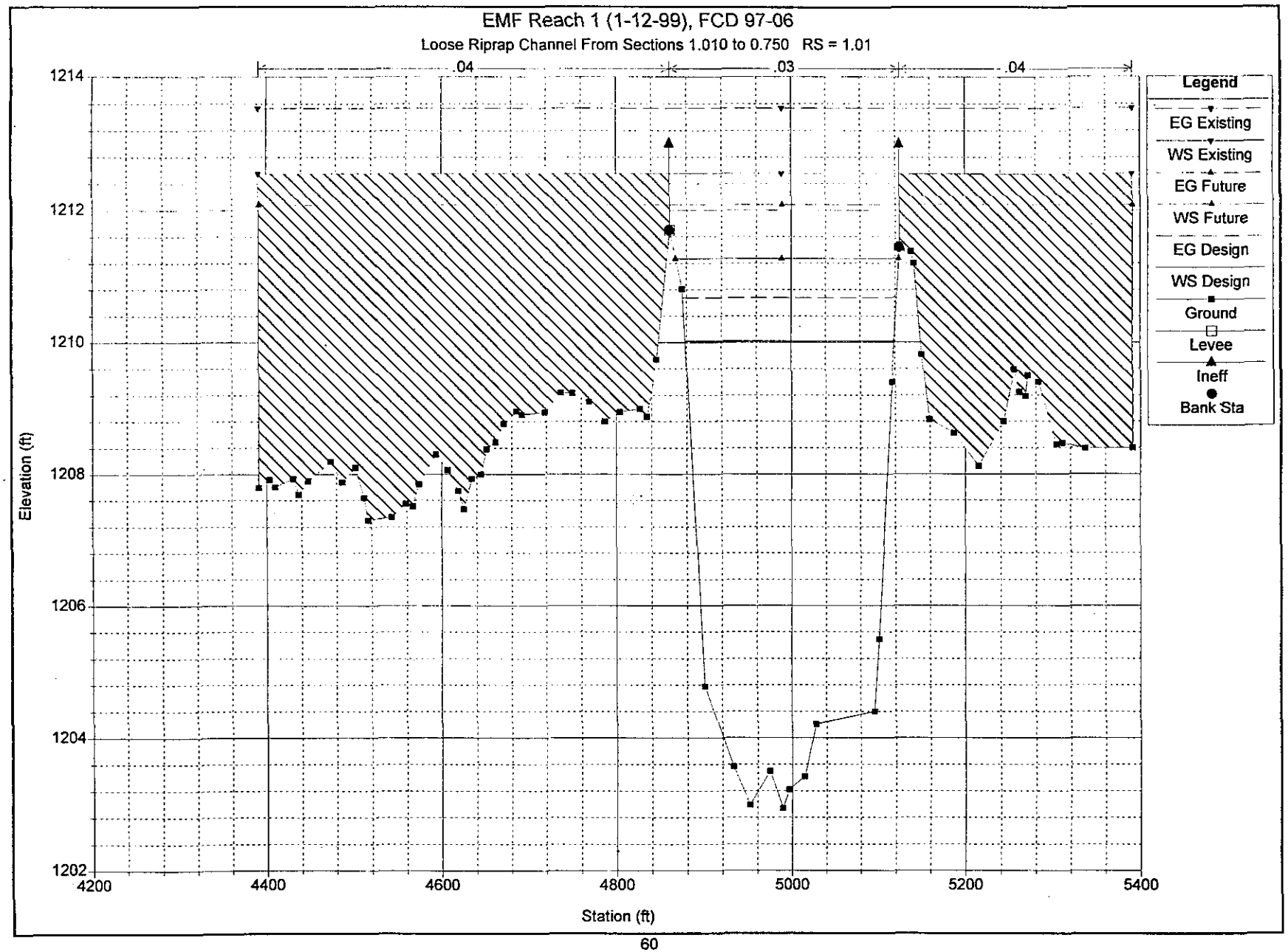

EMF Reach 1 (1-12-99), FCD 97-06
RS = 1.306
.04
.03
.04
1218
1216
1214
1212
1210
1208
1206
1204
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

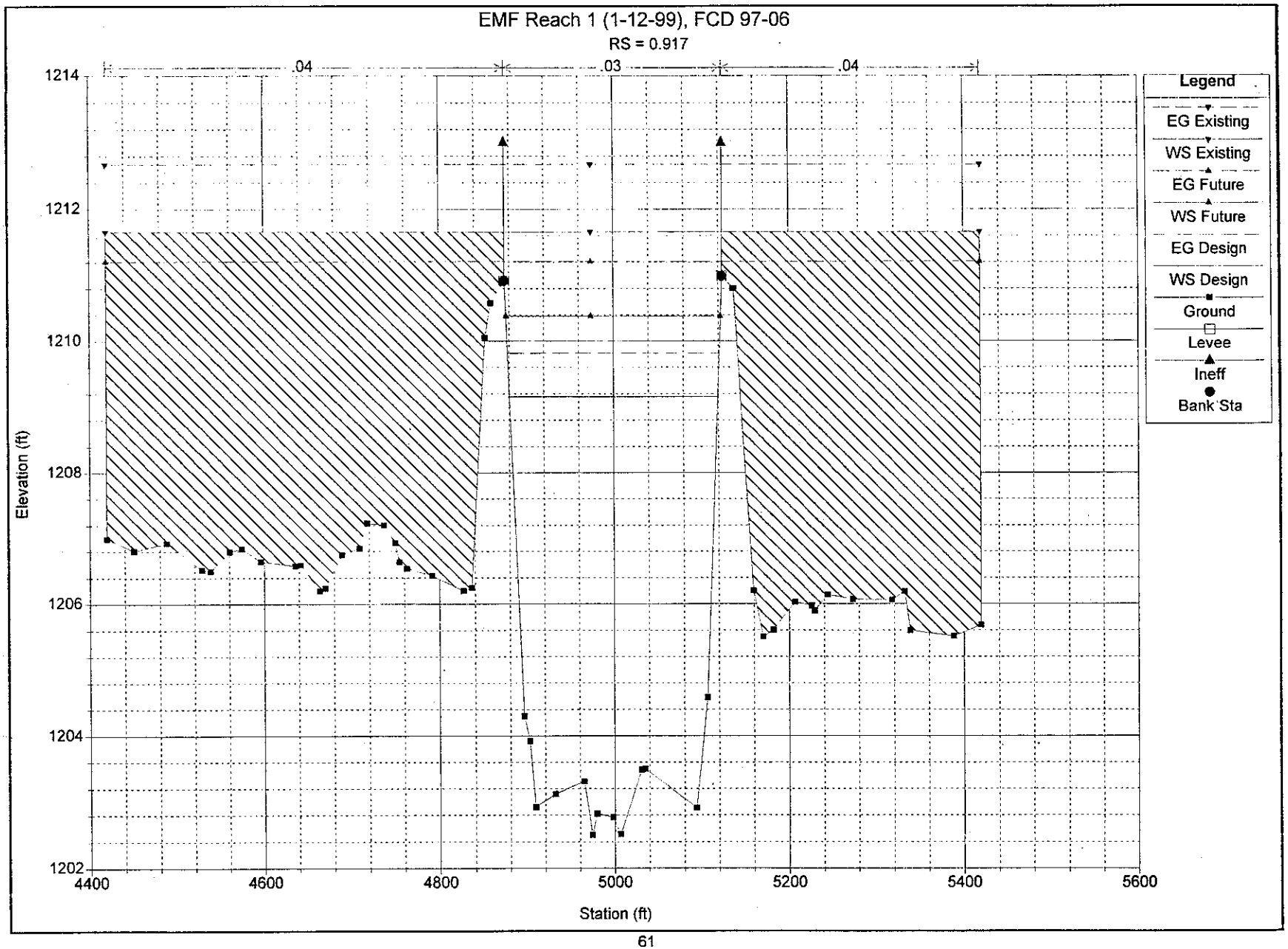

EMF Reach 1 (1-12-99), FCD 97-06
RS = 1.246
.04
.03
.04
1216
1214
1212
1210
1208
1206
1204
Elevation (ft)
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

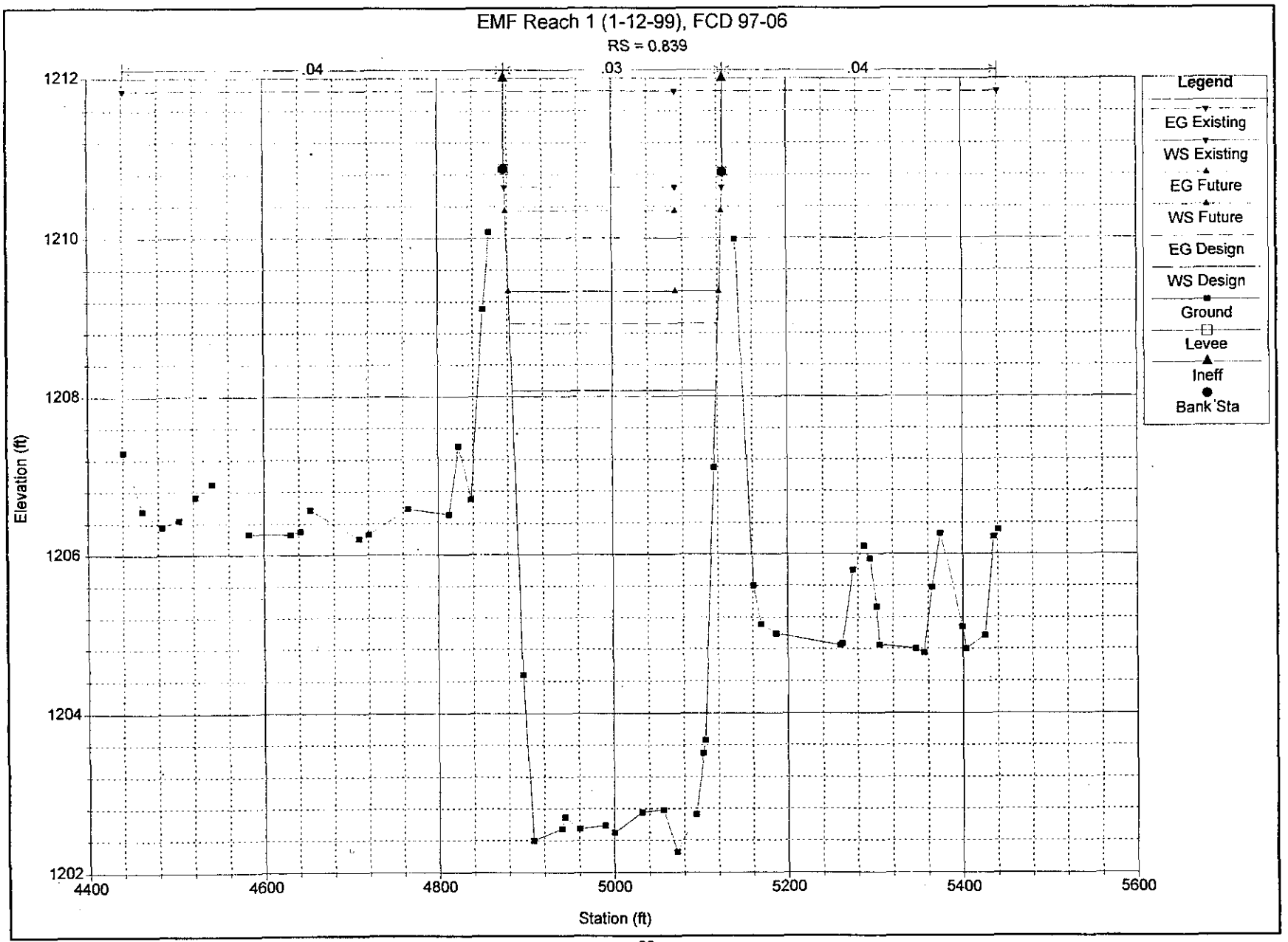

EMF Reach 1 (1-12-99), FCD 97-06
RS = 1.186
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1216
1214
1212
1210
1208
1206
1204
4200
4400
4600
4800
5000
5200
5400
Station (ft)

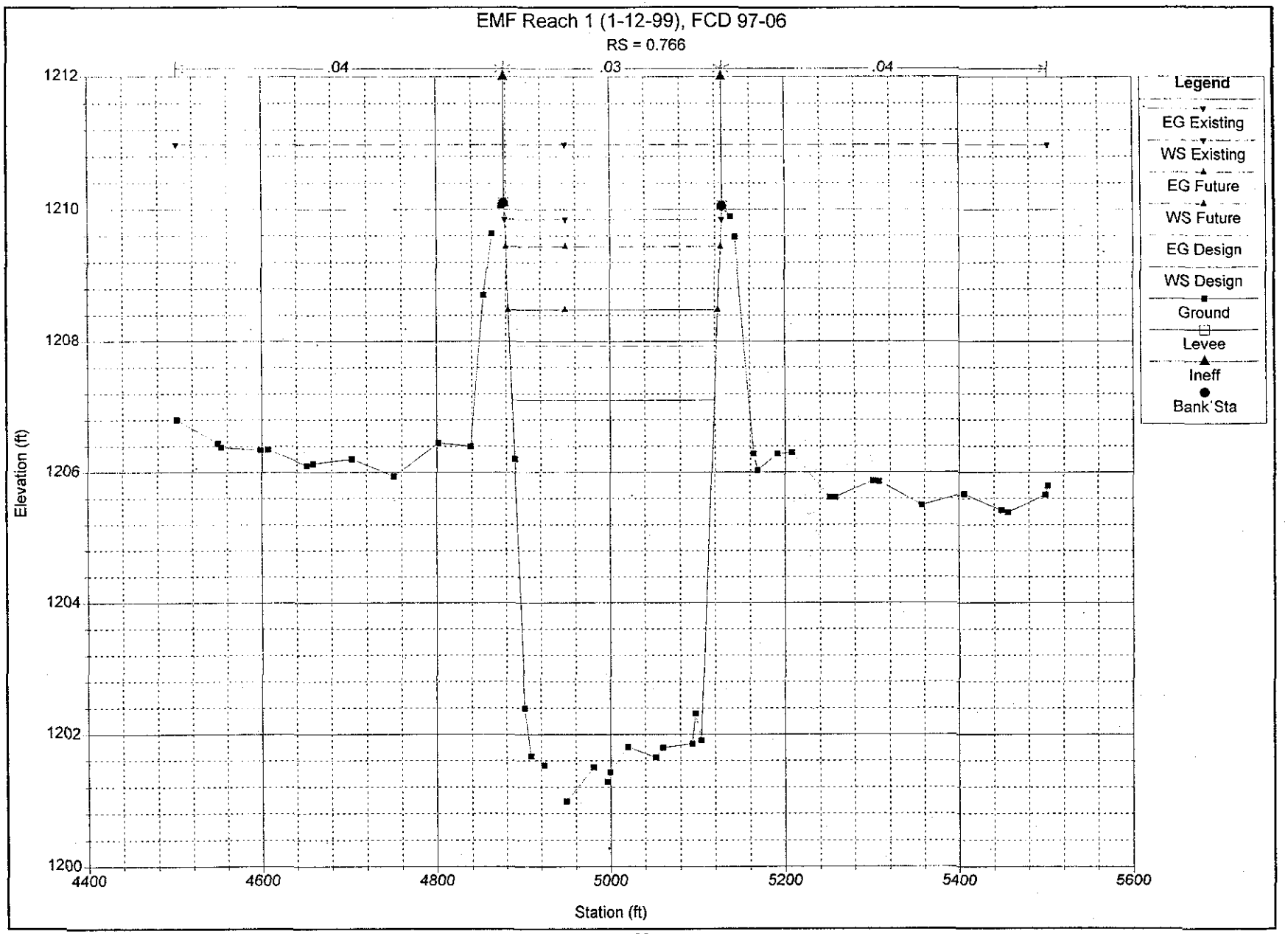

EMF Reach 1 (1-12-99), FCD 97-06
RS = 1.142
.04
.03
.04
Elevation (ft)
1216
1214
1212
1210
1208
1206
1204
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

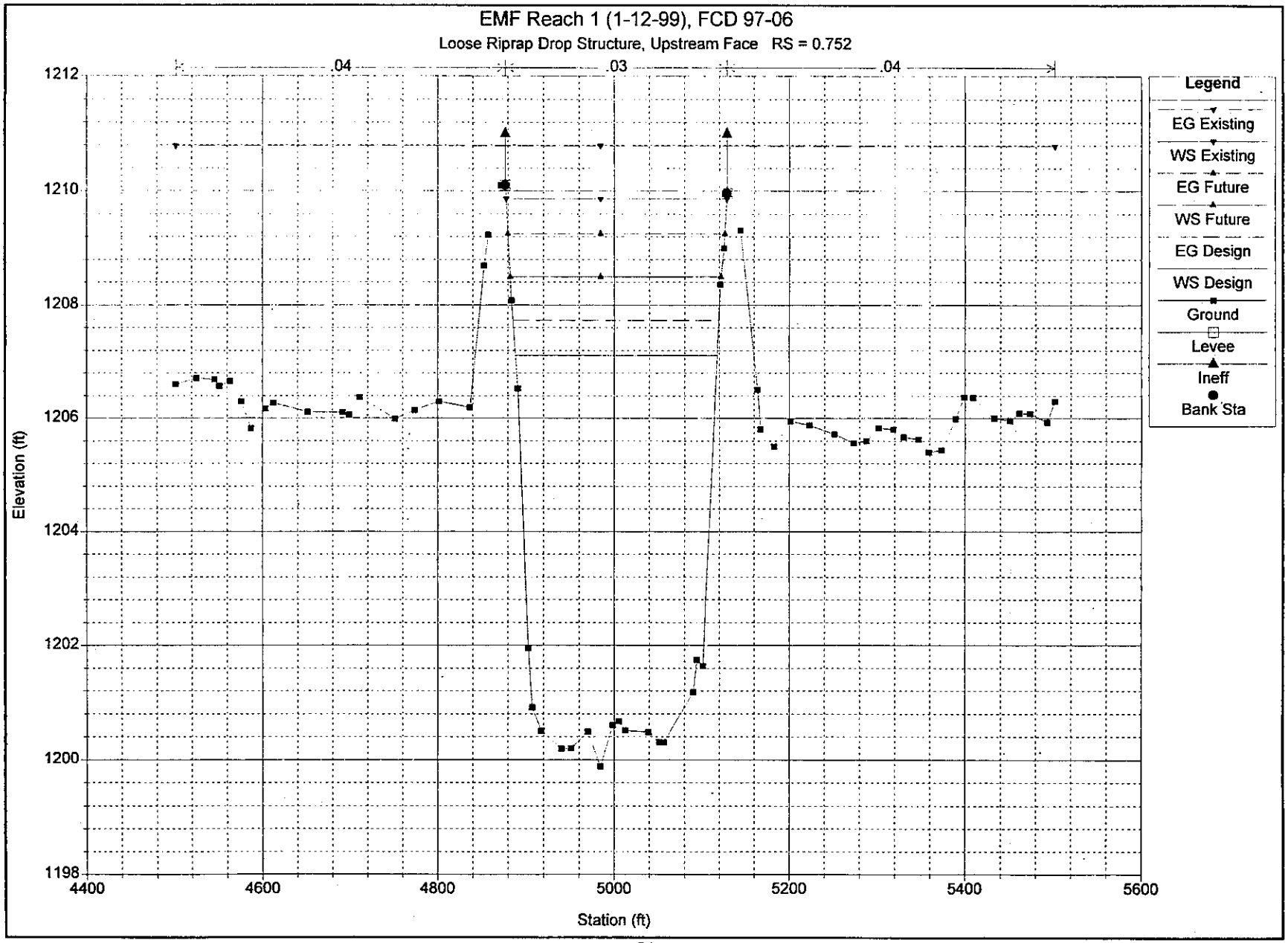

EMF Reach 1 (1-12-99), FCD 97-06
RS = 1.074
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1216
1214
1212
1210
1208
1206
1204
1202
4200
4400
4600
4800
5000
5200
5400
Station (ft)

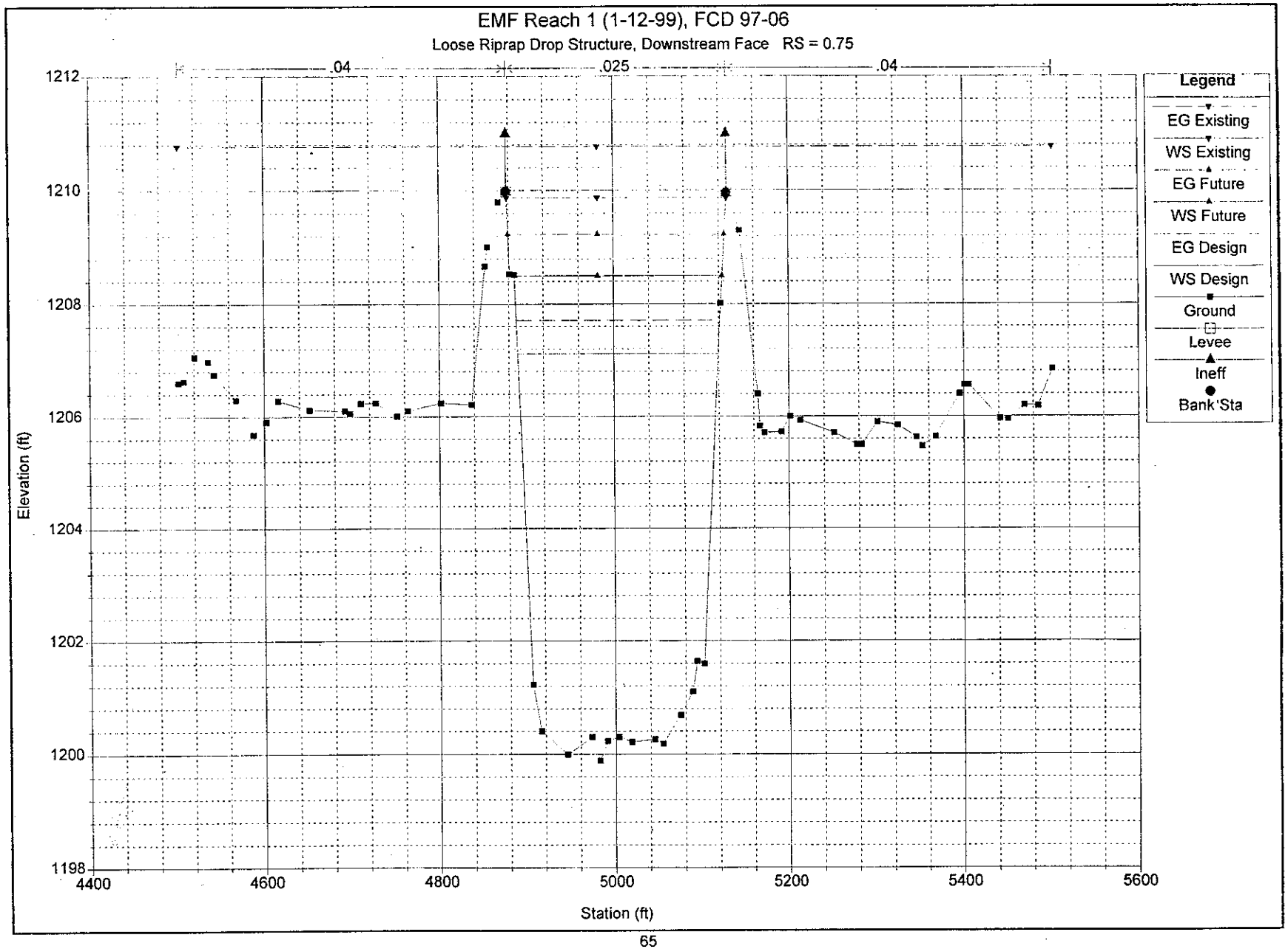

EMF Reach 1 (1-12-99), FCD 97-06
Loose Riprap Channel From Sections 1.010 to 0.750 RS = 1.01
.04
.03
.04
1214
1212
1210
1208
1206
1204
1202
Elevation (ft)
4200
4400
4600
4800
5000
5200
5400
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

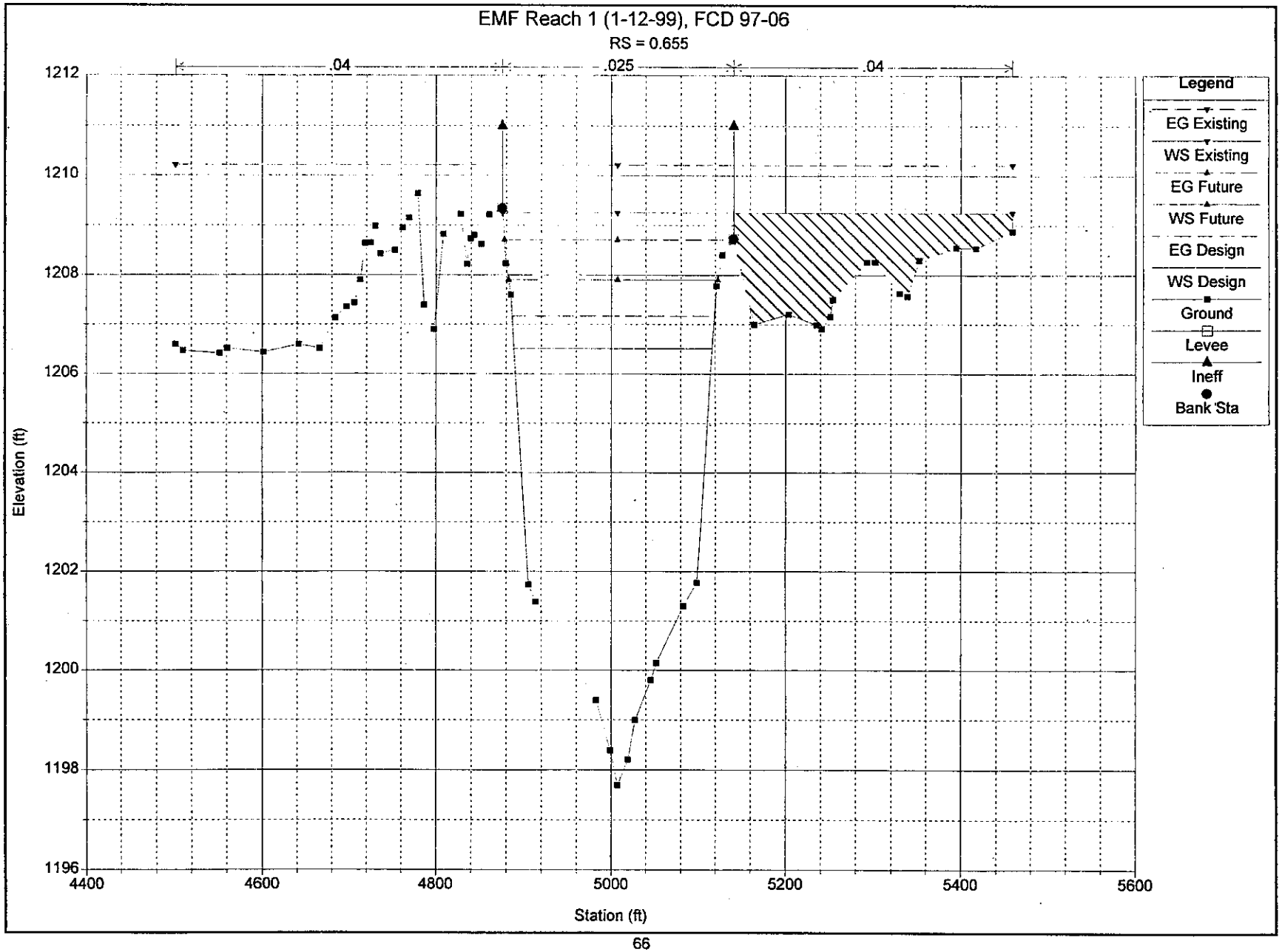

EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.917
.04
.03
.04
1214
1212
1210
1208
1206
1204
1202
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

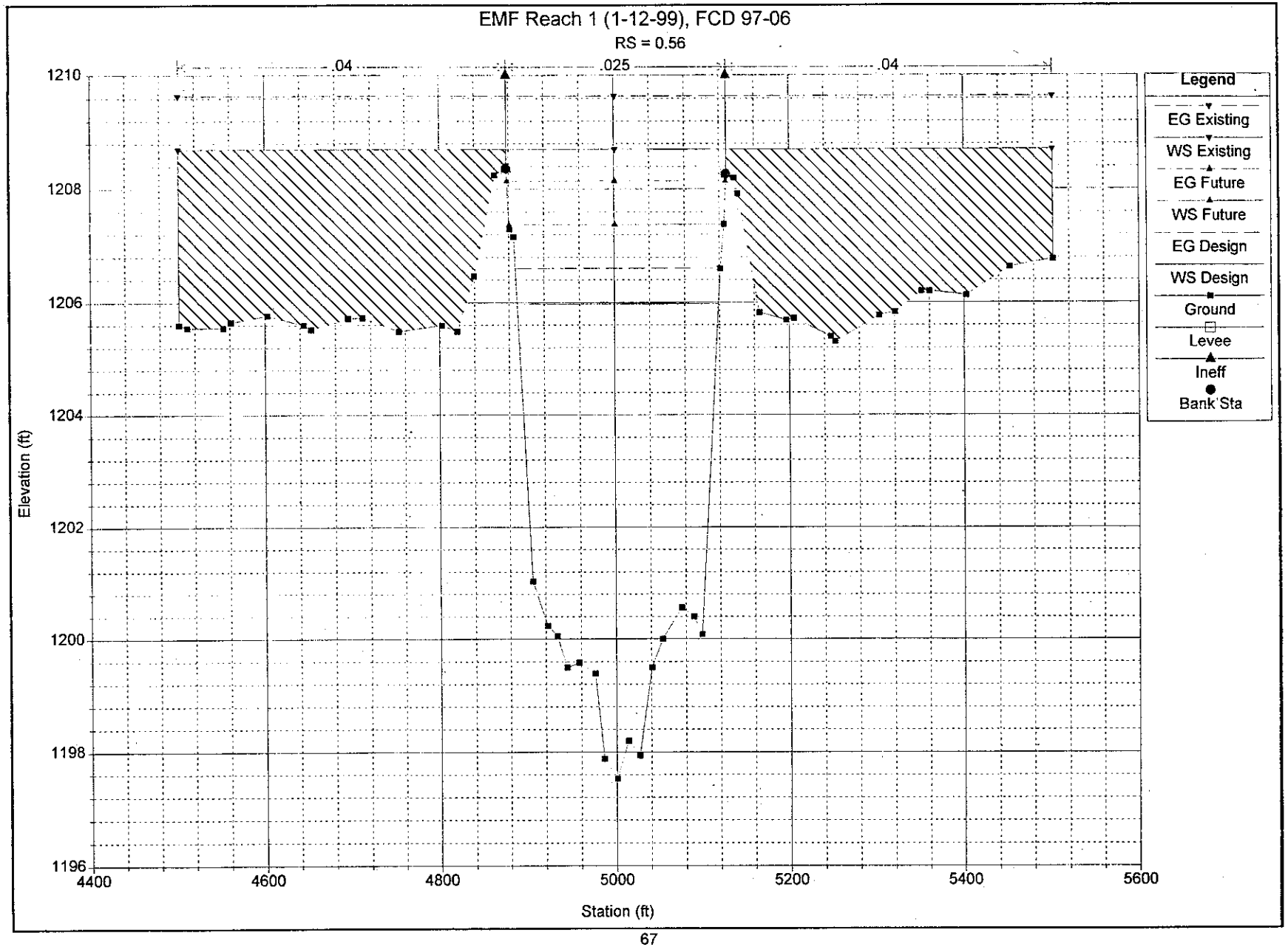

EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.839
.04
.03
.04
1212
1210
1208
1206
1204
1202
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

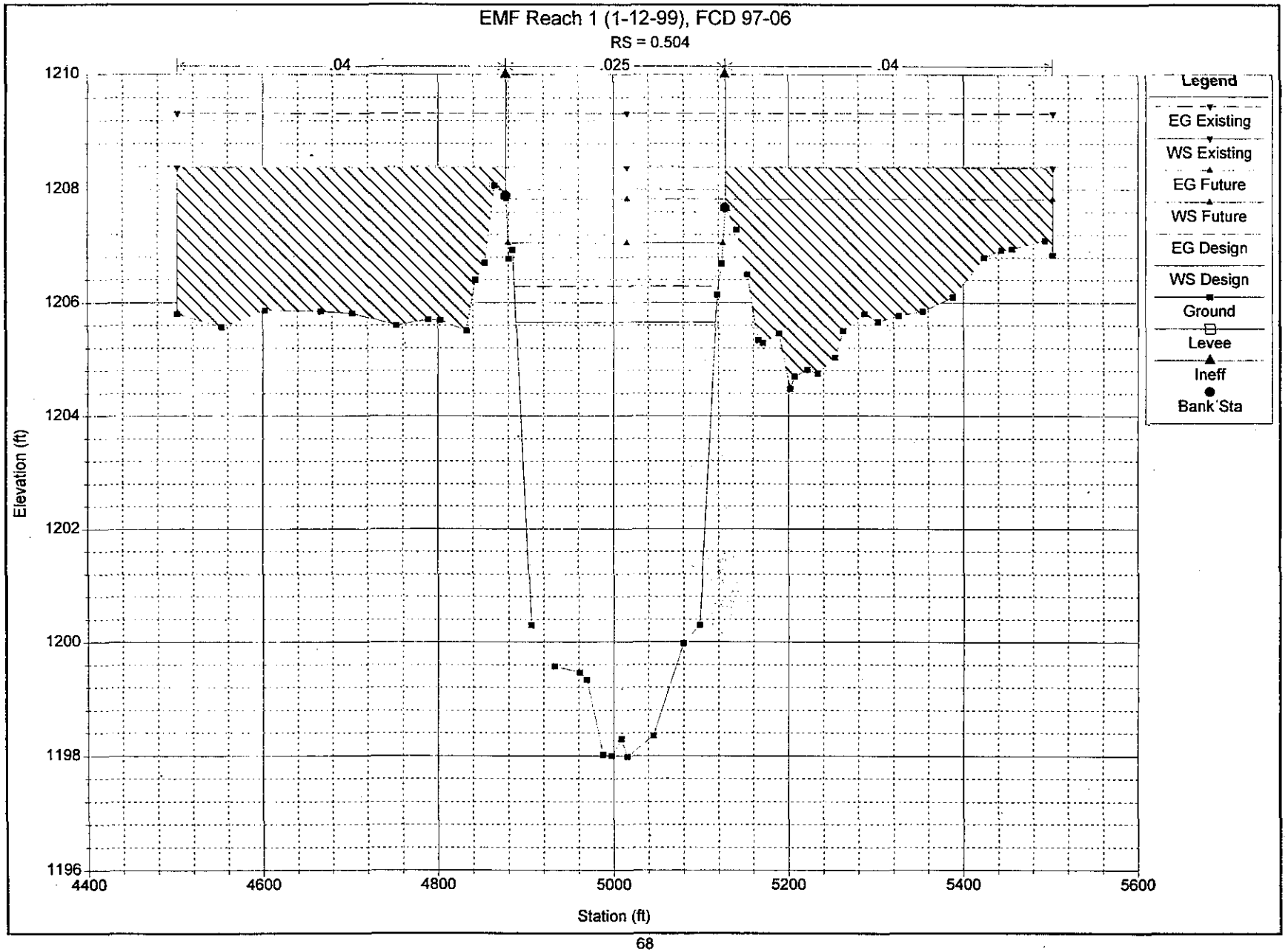

EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.766
.04
.03
.04
1212
1210
1208
1206
1204
1202
1200
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

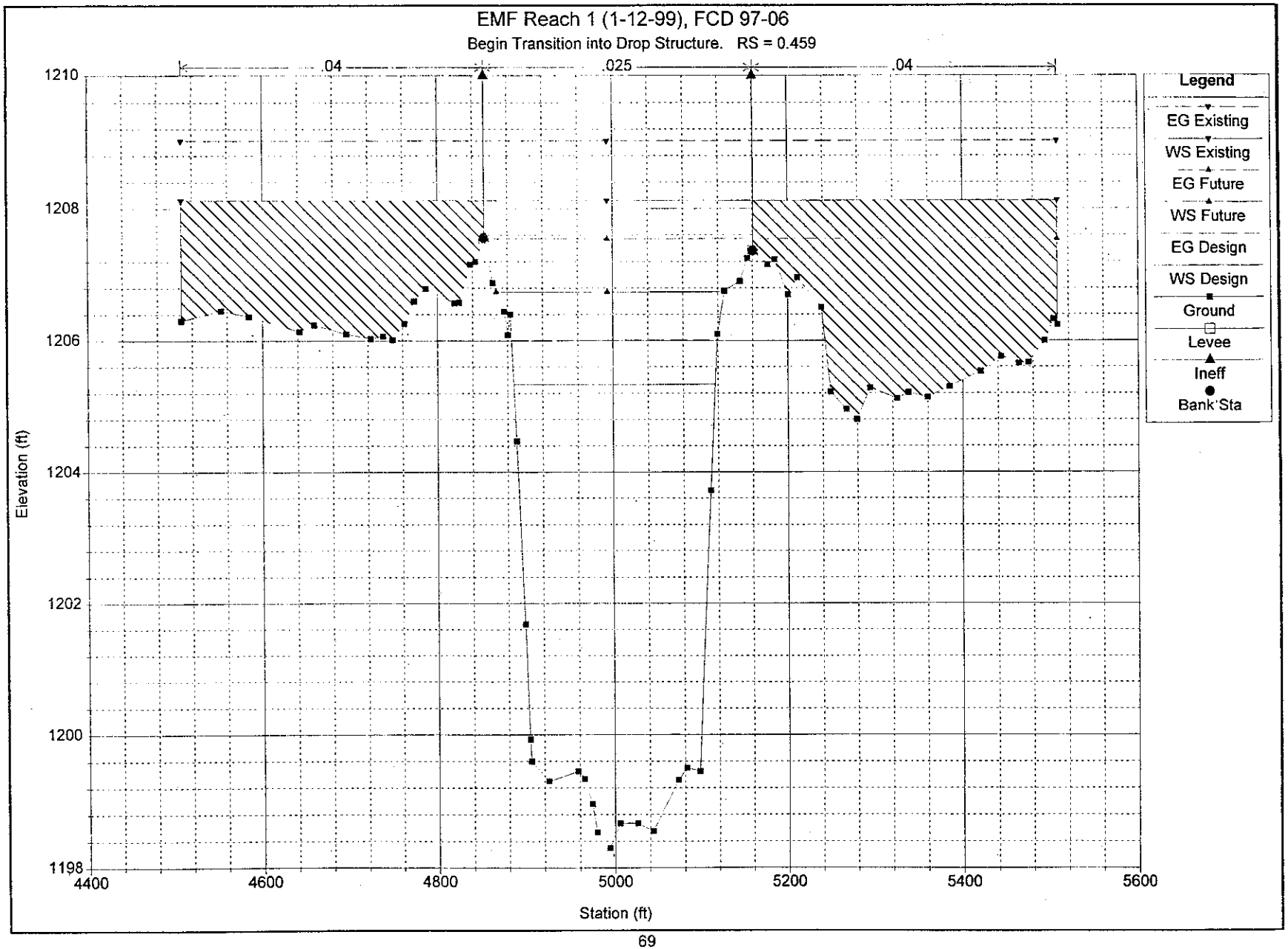

EMF Reach 1 (1-12-99), FCD 97-06
Loose Riprap Drop Structure, Upstream Face RS = 0.752
.04
.03
.04
1212
1210
1208
1206
1204
1202
1200
1198
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

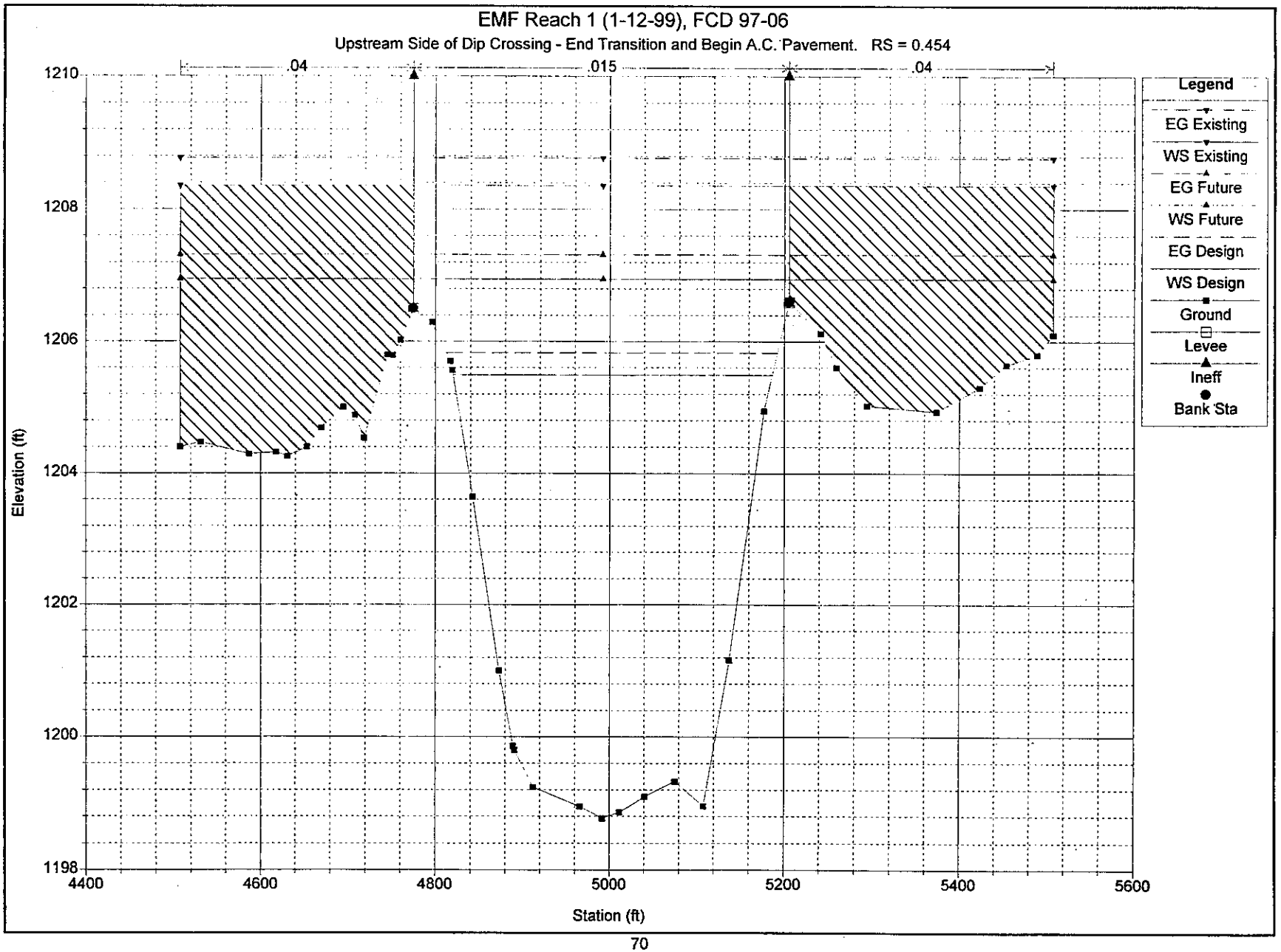

EMF Reach 1 (1-12-99), FCD 97-06
Loose Riprap Drop Structure, Downstream Face RS = 0.75
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1212
1210
1208
1206
1204
1202
1200
1198
4400
4600
4800
5000
5200
5400
5600
Station (ft)

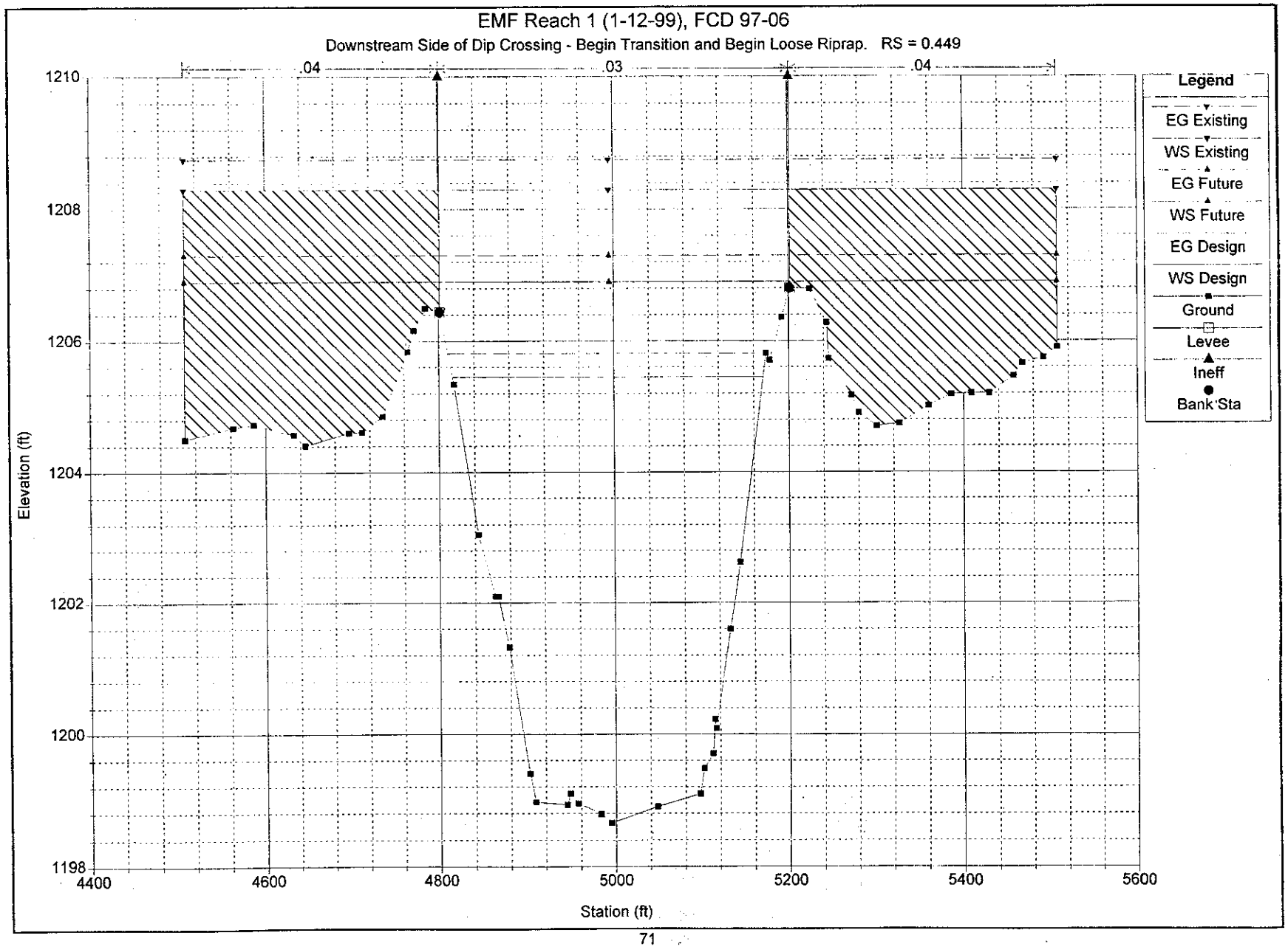

EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.655
.04
.025
.04
1212
1210
1208
1206
1204
1202
1200
1198
1196
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

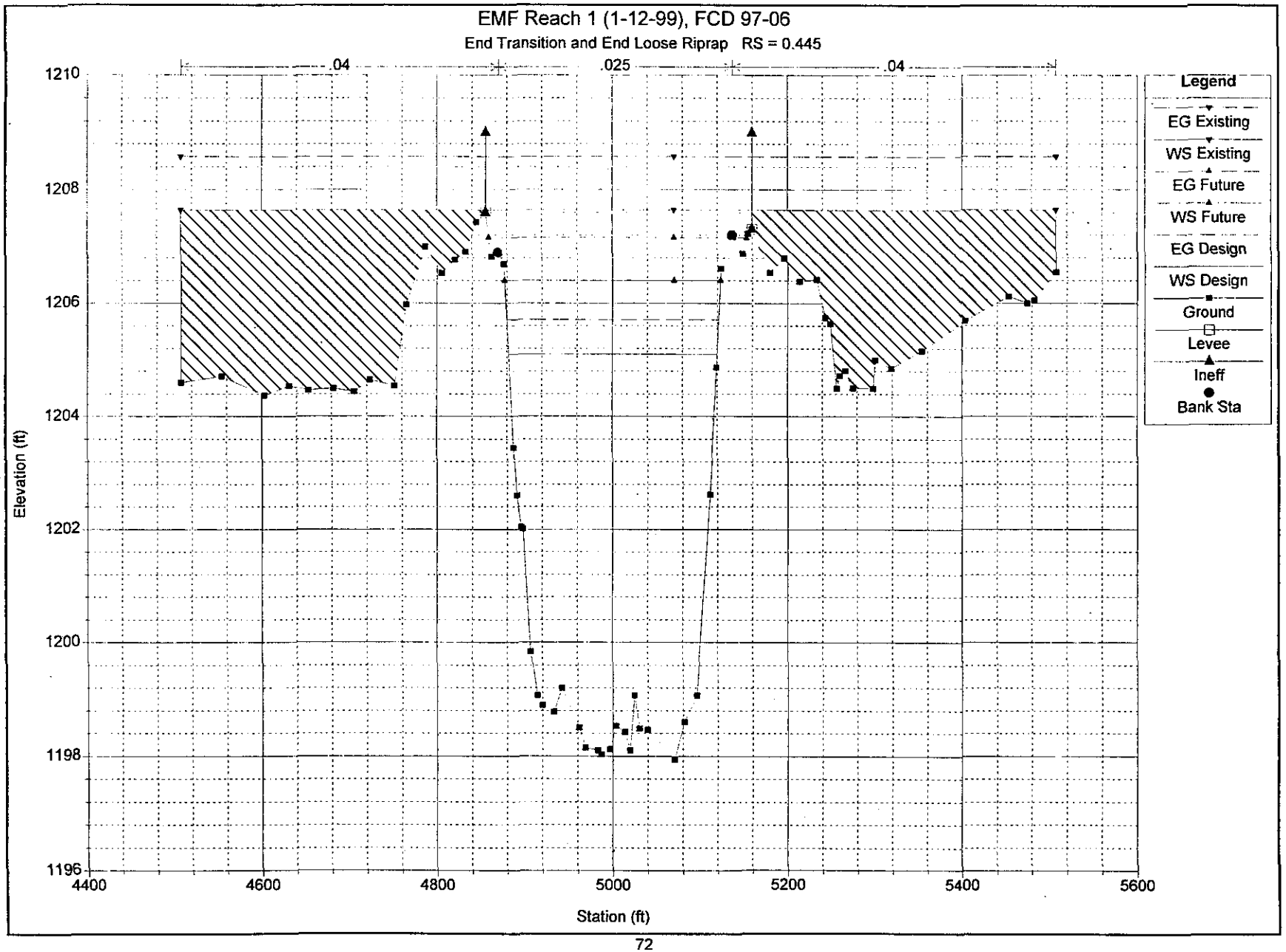

EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.56
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1210
1208
1206
1204
1202
1200
1198
1196
4400
4600
4800
5000
5200
5400
5600
Station (ft)

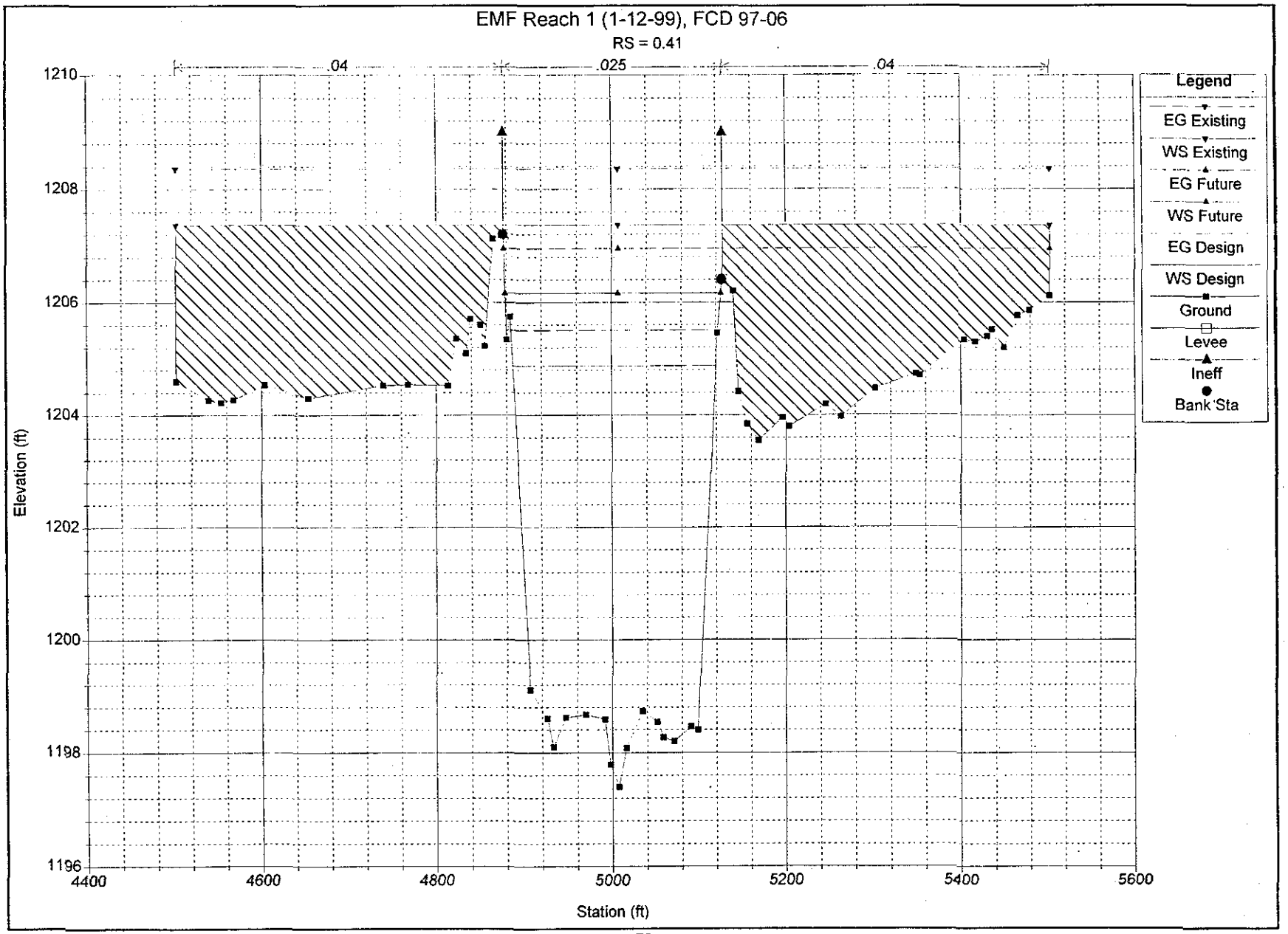

EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.504
.04
.025
.04
1210
1208
1206
1204
1202
1200
1198
1196
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

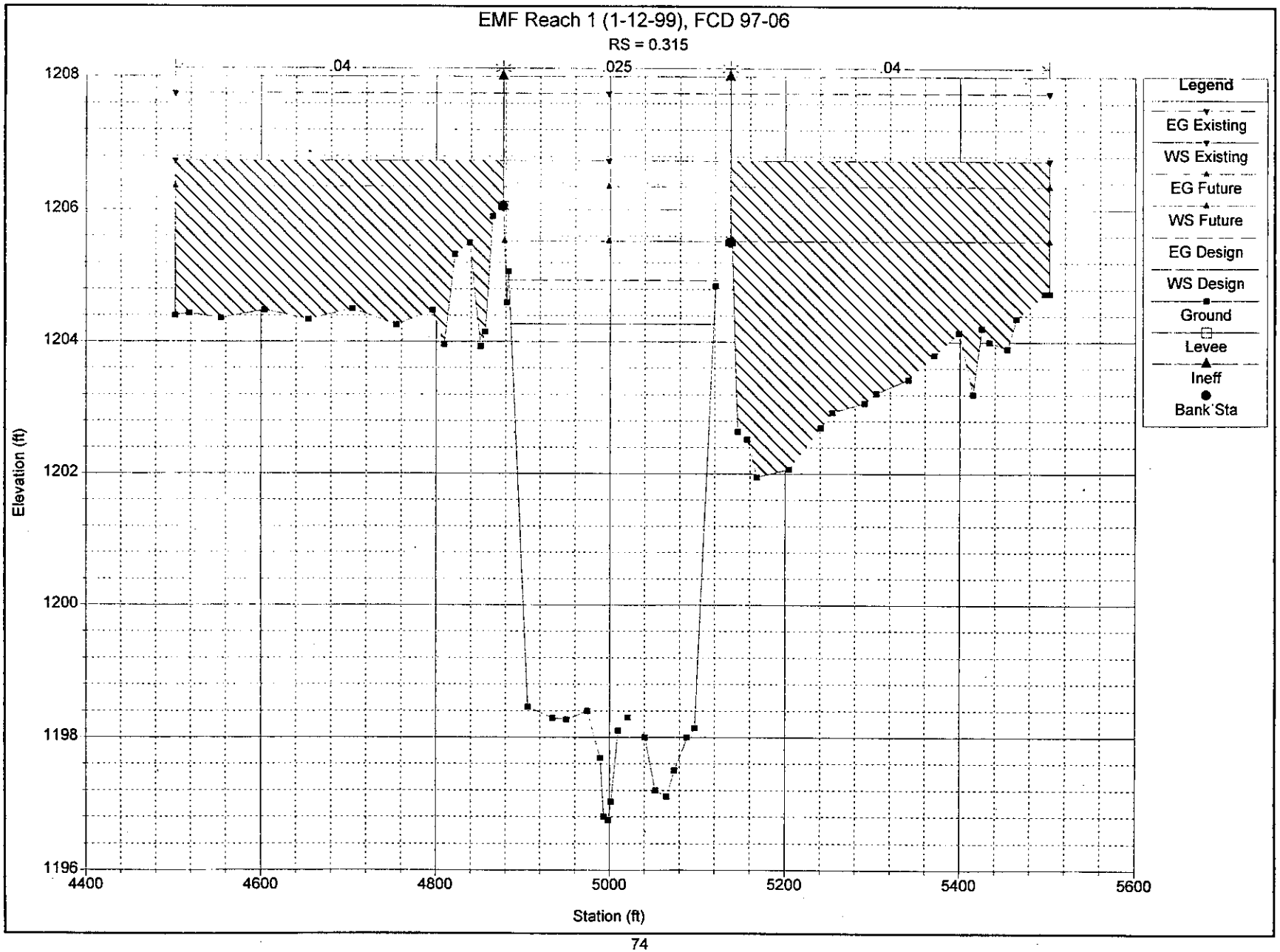

EMF Reach 1 (1-12-99), FCD 97-06
Begin Transition into Drop Structure. RS = 0.459
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1210
1208
1206
1204
1202
1200
1198
4400
4600
4800
5000
5200
5400
5600
Station (ft)

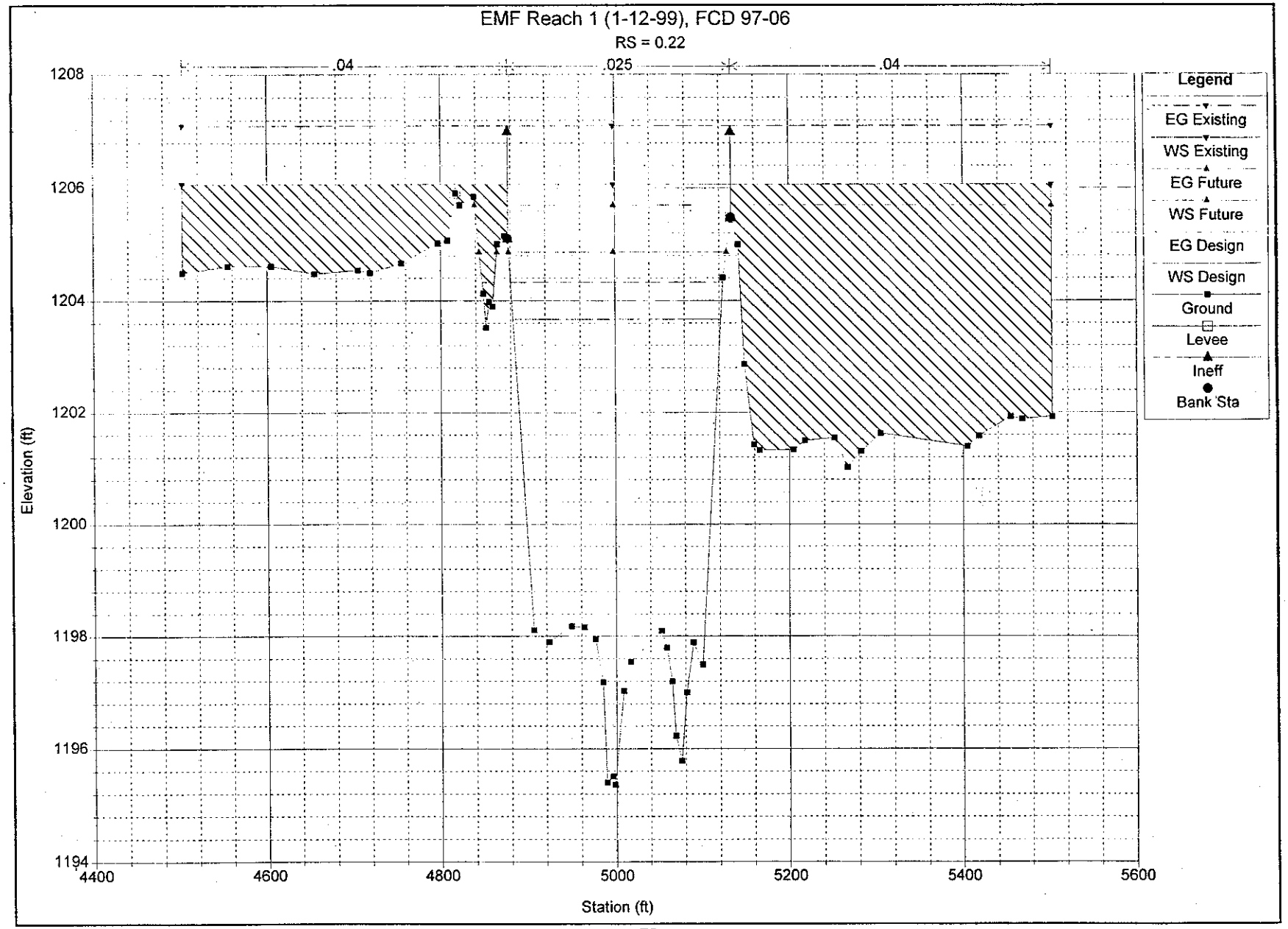

EMF Reach 1 (1-12-99), FCD 97-06
Upstream Side of Dip Crossing - End Transition and Begin A.C. Pavement. RS = 0.454
.04
.015
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1210
1208
1206
1204
1202
1200
1198
4400
4600
4800
5000
5200
5400
5600
Station (ft)

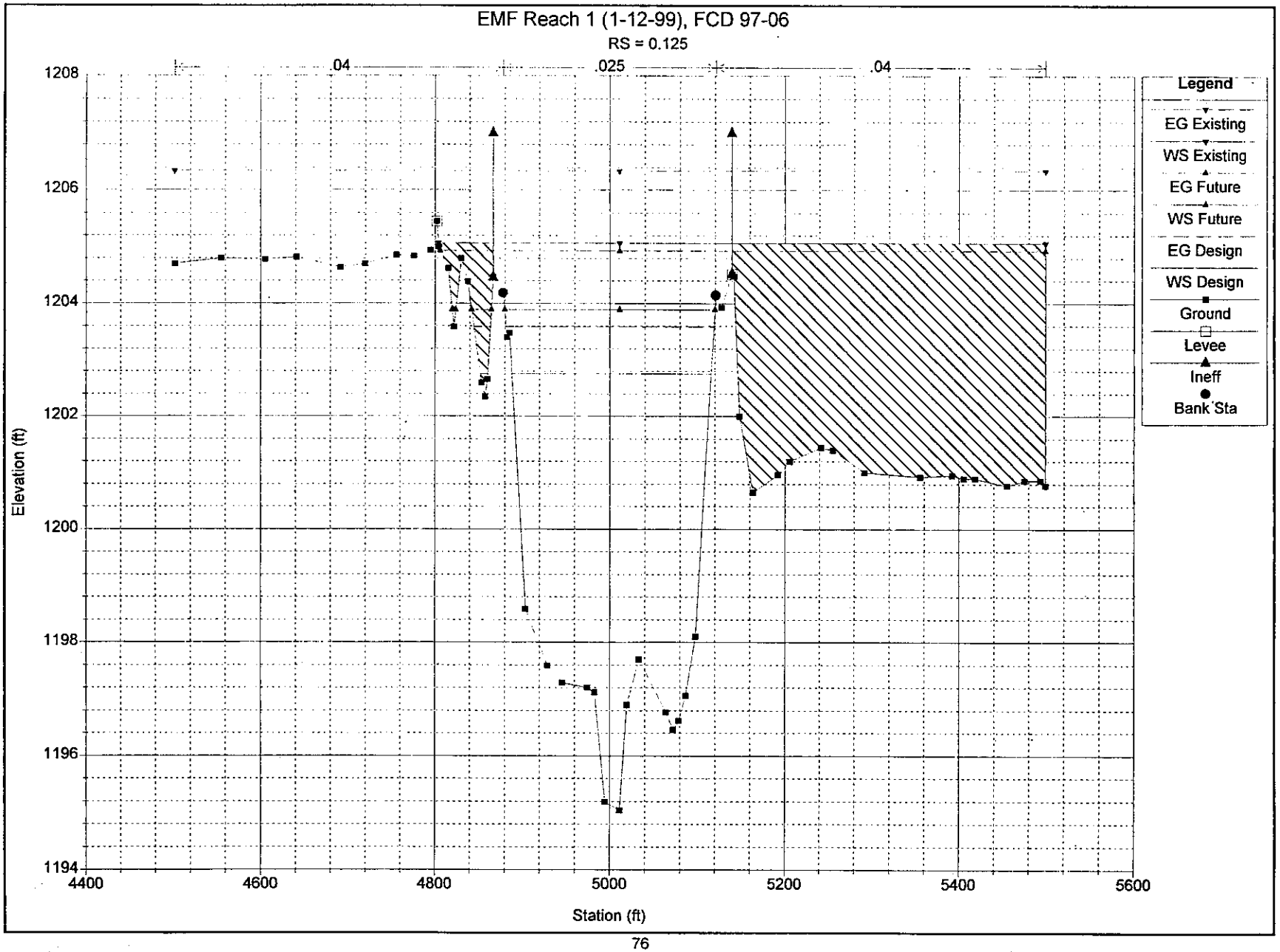

EMF Reach 1 (1-12-99), FCD 97-06
Downstream Side of Dip Crossing - Begin Transition and Begin Loose Riprap. RS = 0.449
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1210
1208
1206
1204
1202
1200
1198
4400
4600
4800
5000
5200
5400
5600
Station (ft)

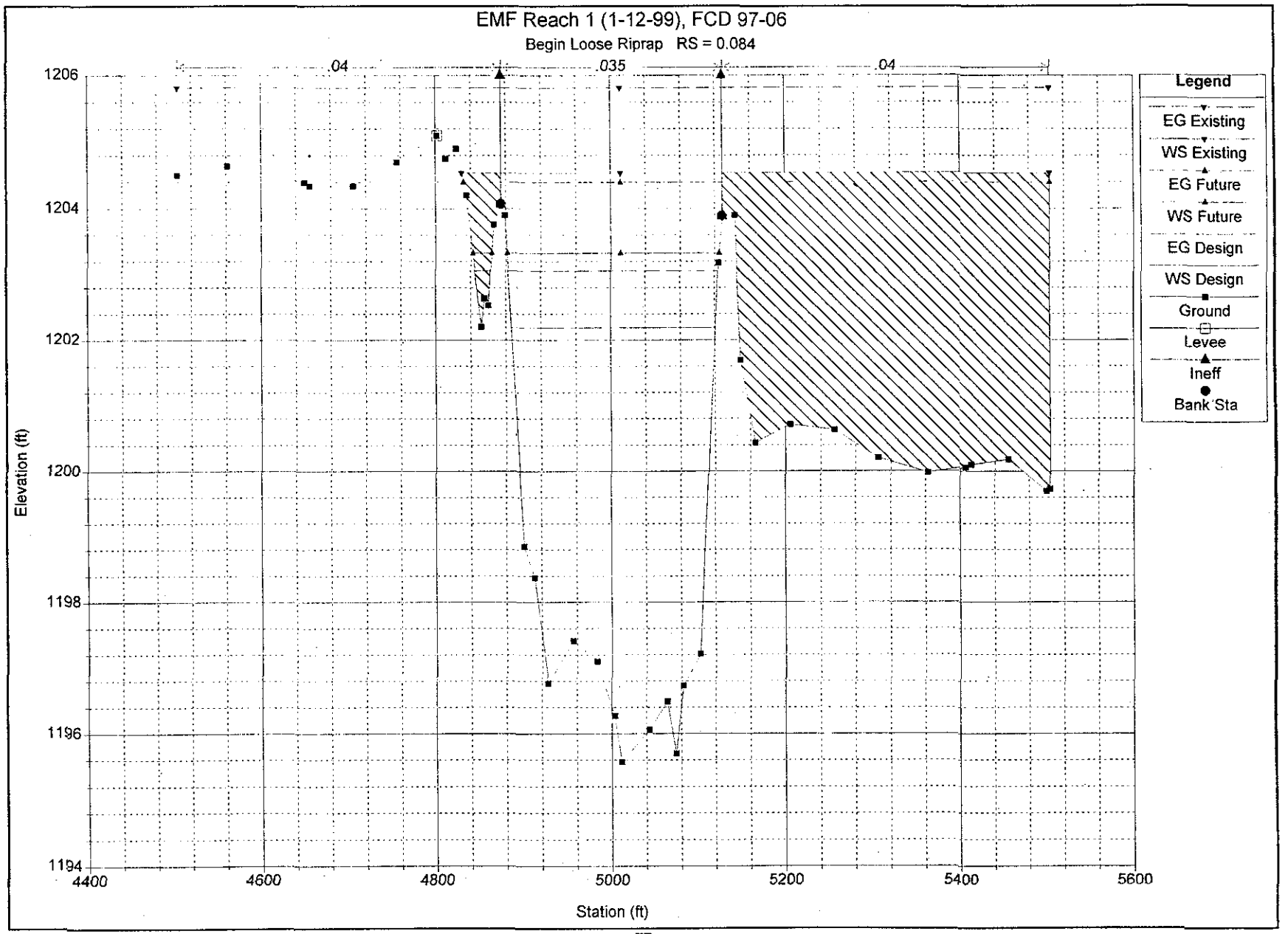

EMF Reach 1 (1-12-99), FCD 97-06
End Transition and End Loose Riprap RS = 0.445
.04
.025
.04
Elevation (ft)
1210
1208
1206
1204
1202
1200
1198
1196
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

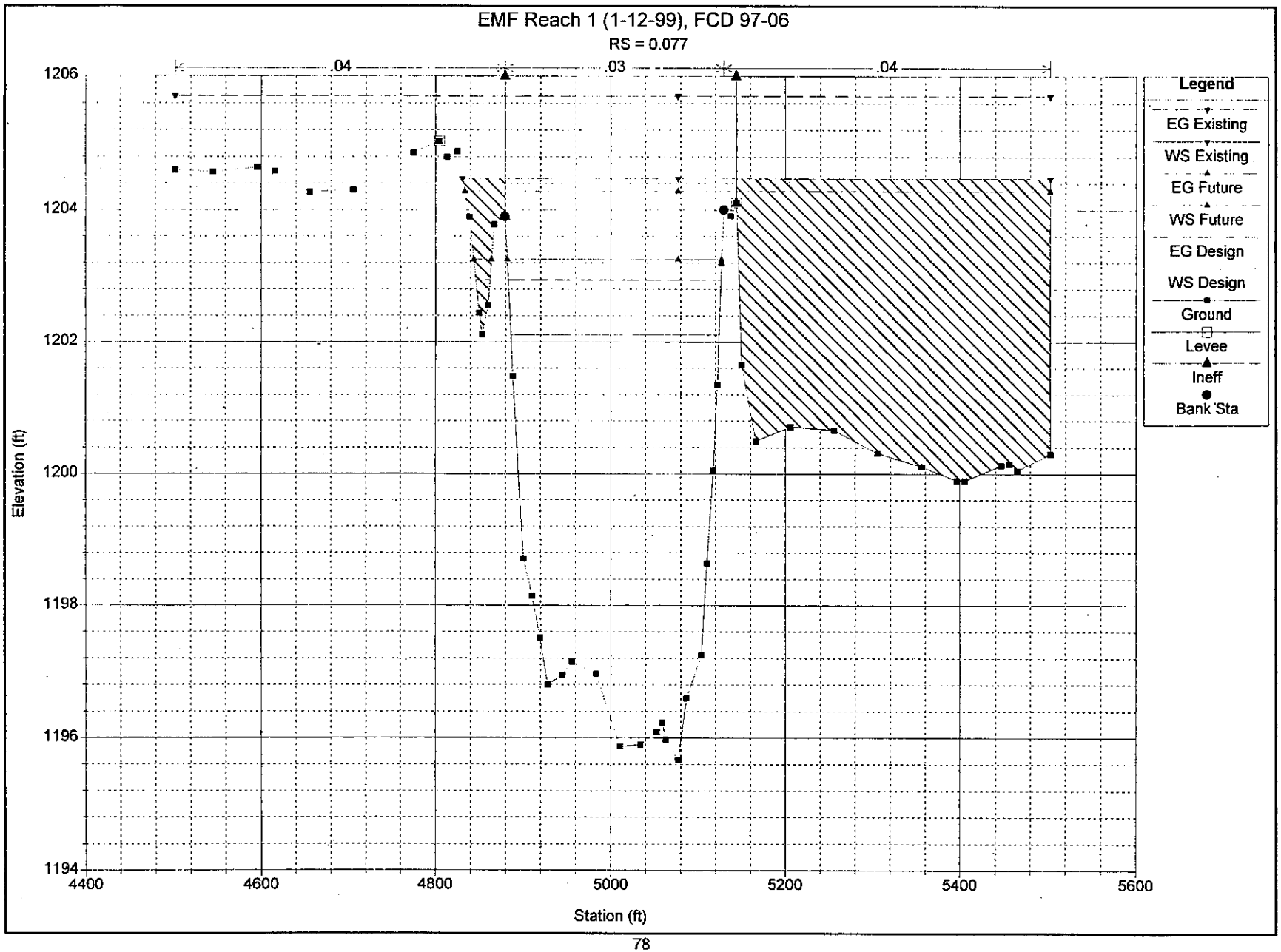

EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.41
.04
.025
.04
Elevation (ft)
1210
1208
1206
1204
1202
1200
1198
1196
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

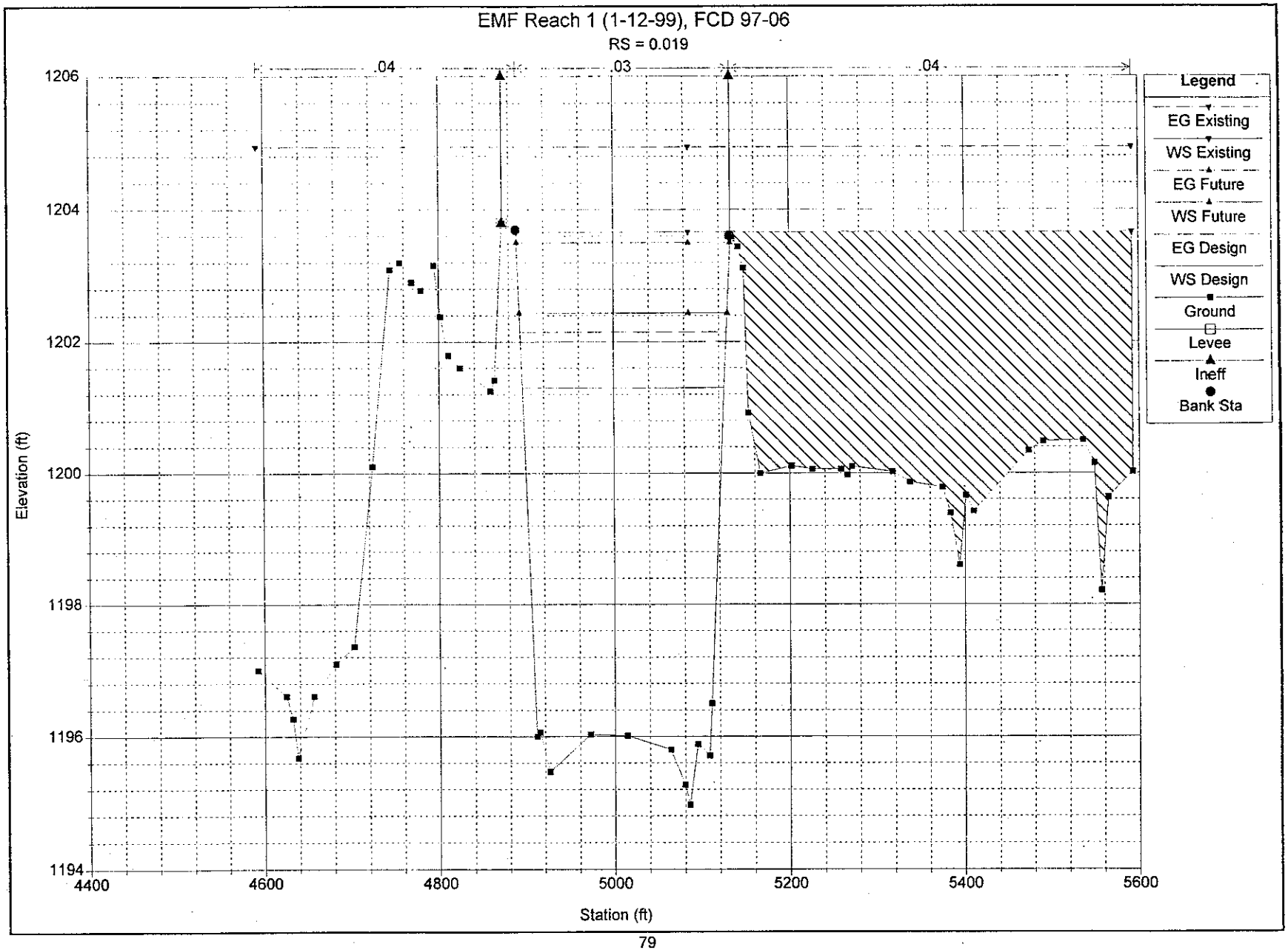

EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.315
.04
.025
.04
1208
1206
1204
1202
1200
1198
1196
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta

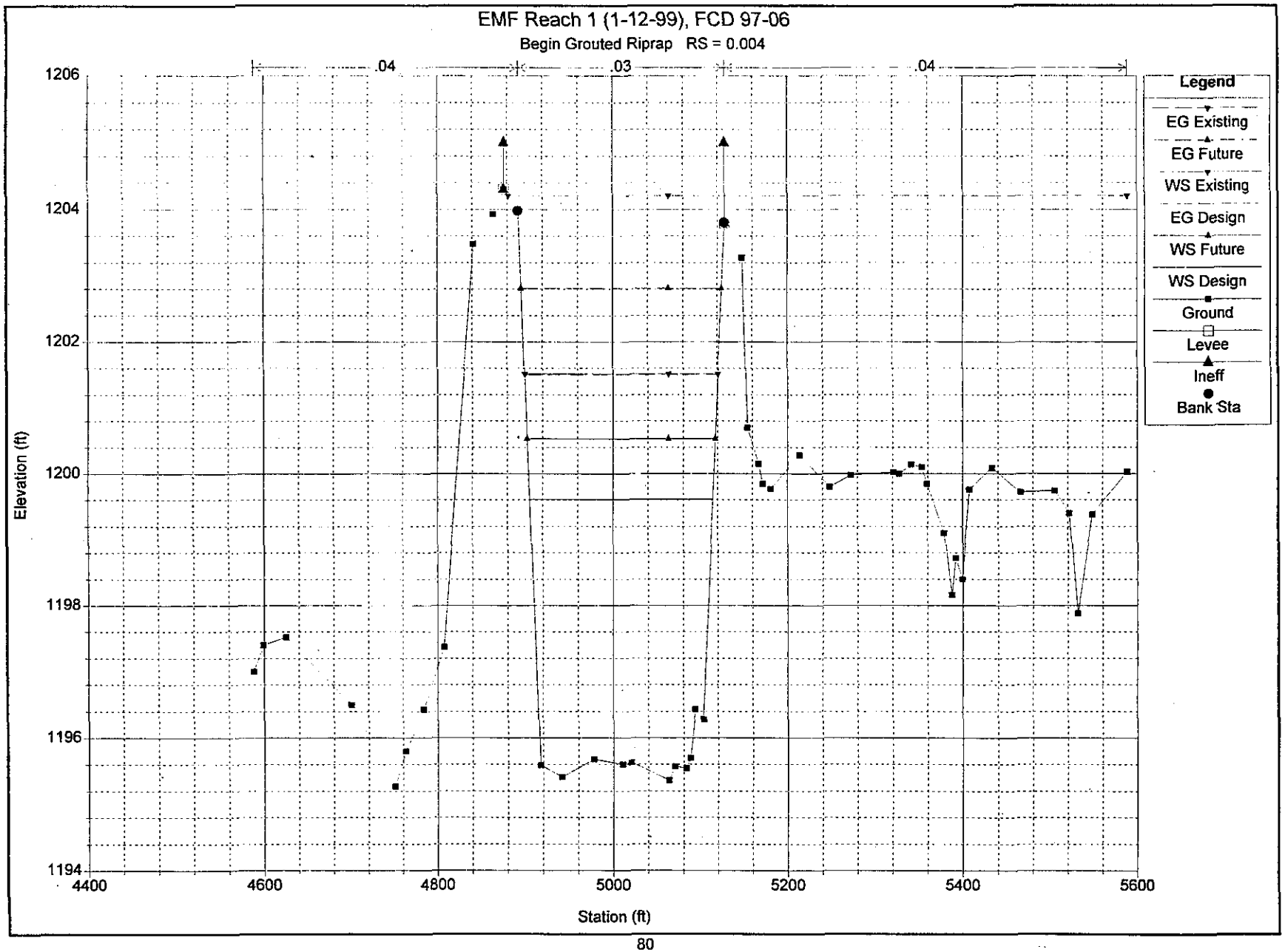

EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.22
.04
.025
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1208
1206
1204
1202
1200
1198
1196
1194
4400
4600
4800
5000
5200
5400
5600
Station (ft)

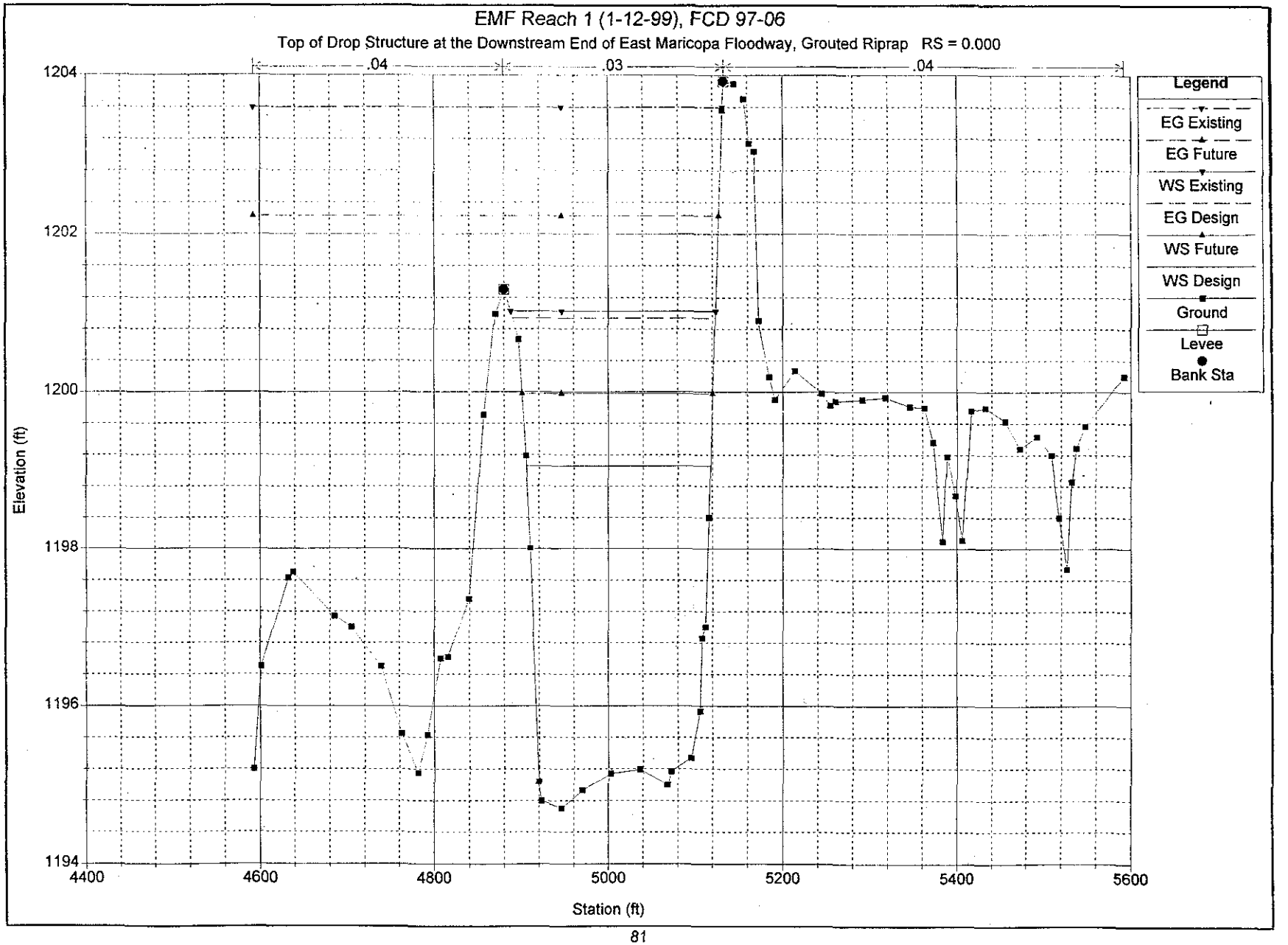

EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.125
.04
.025
.04
Elevation (ft)
1208
1206
1204
1202
1200
1198
1196
1194
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta


EMF Reach 1 (1-12-99), FCD 97-06
Begin Loose Riprap RS = 0.084
.04
.035
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1206
1204
1202
1200
1198
1196
1194
4400
4600
4800
5000
5200
5400
5600
Station (ft)


EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.077
.04
.03
.04
1206
1204
1202
1200
1198
1196
1194
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta


EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.019
.04
.03
.04
Legend
EG Existing
WS Existing
EG Future
WS Future
EG Design
WS Design
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1206
1204
1202
1200
1198
1196
1194
4400
4600
4800
5000
5200
5400
5600
Station (ft)

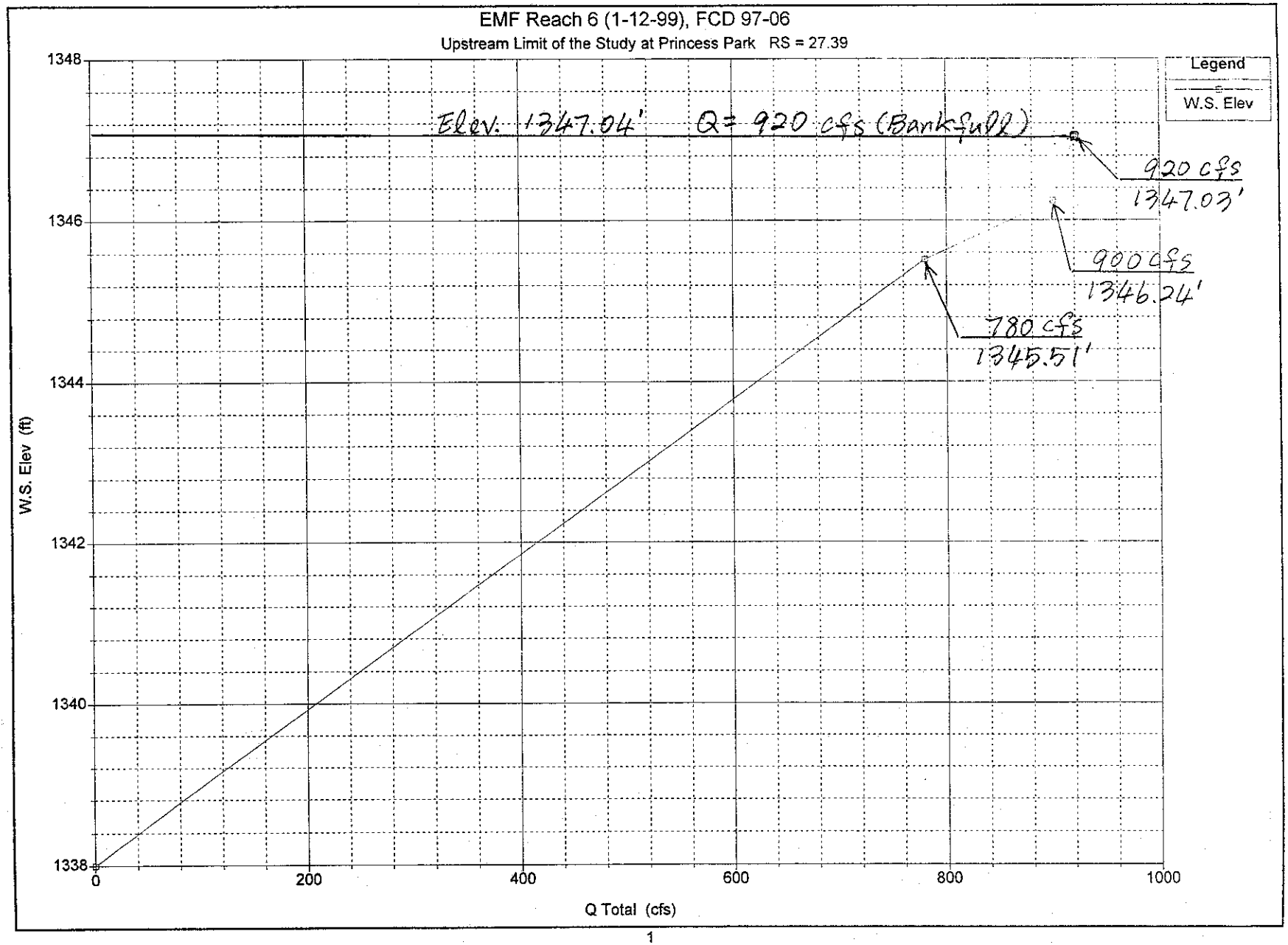

EMF Reach 1 (1-12-99), FCD 97-06
Begin Grouted Riprap RS = 0.004
.04
.03
.04
1206
1204
1202
1200
1198
1196
1194
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Ineff
Bank Sta

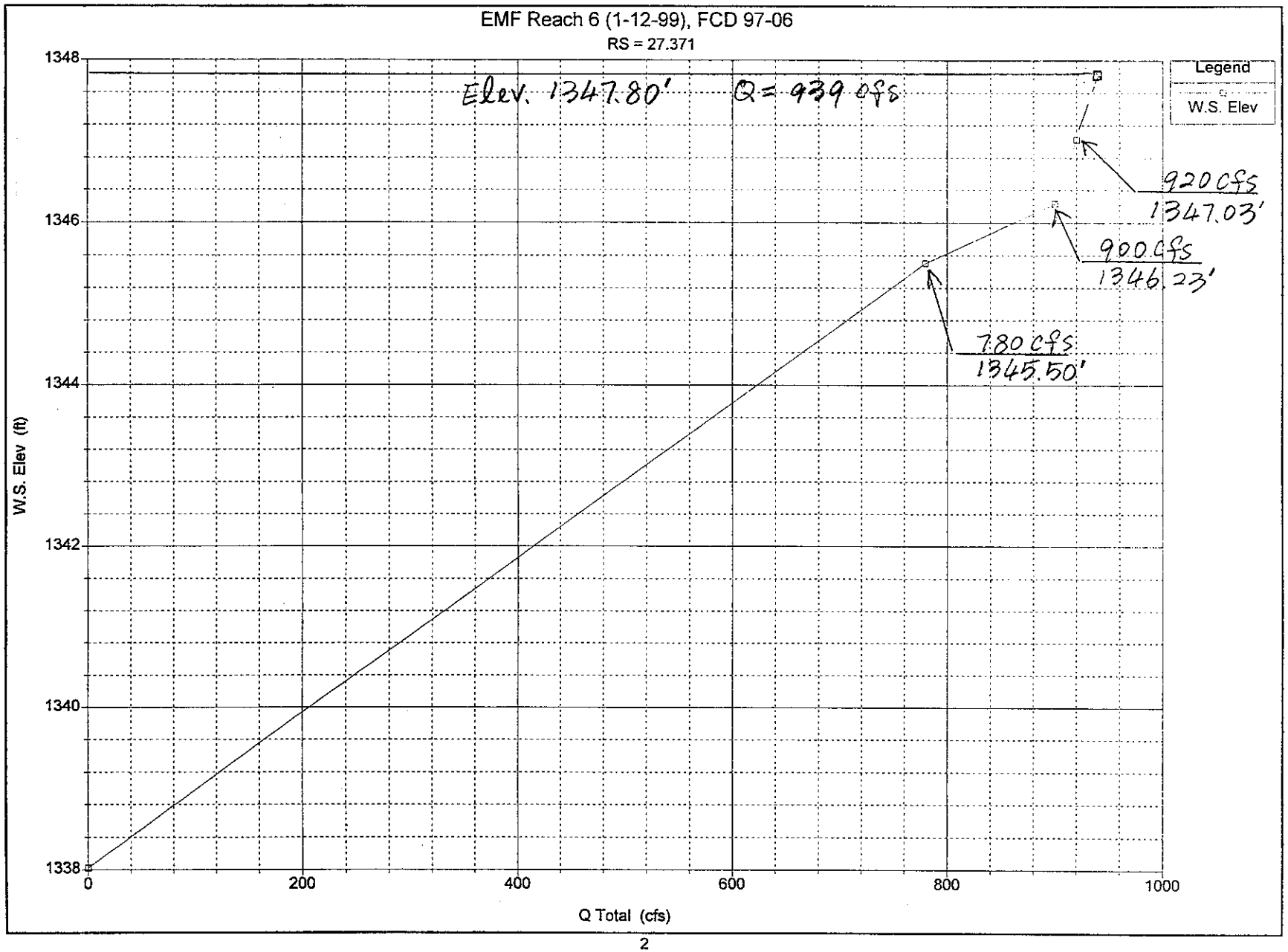

EMF Reach 1 (1-12-99), FCD 97-06
Top of Drop Structure at the Downstream End of East Maricopa Floodway, Grouted Riprap RS = 0.000
.04
.03
.04
1204
1202
1200
1198
1196
1194
Elevation (ft)
4400
4600
4800
5000
5200
5400
5600
Station (ft)
Legend
EG Existing
EG Future
WS Existing
EG Design
WS Future
WS Design
Ground
Levee
Bank Sta

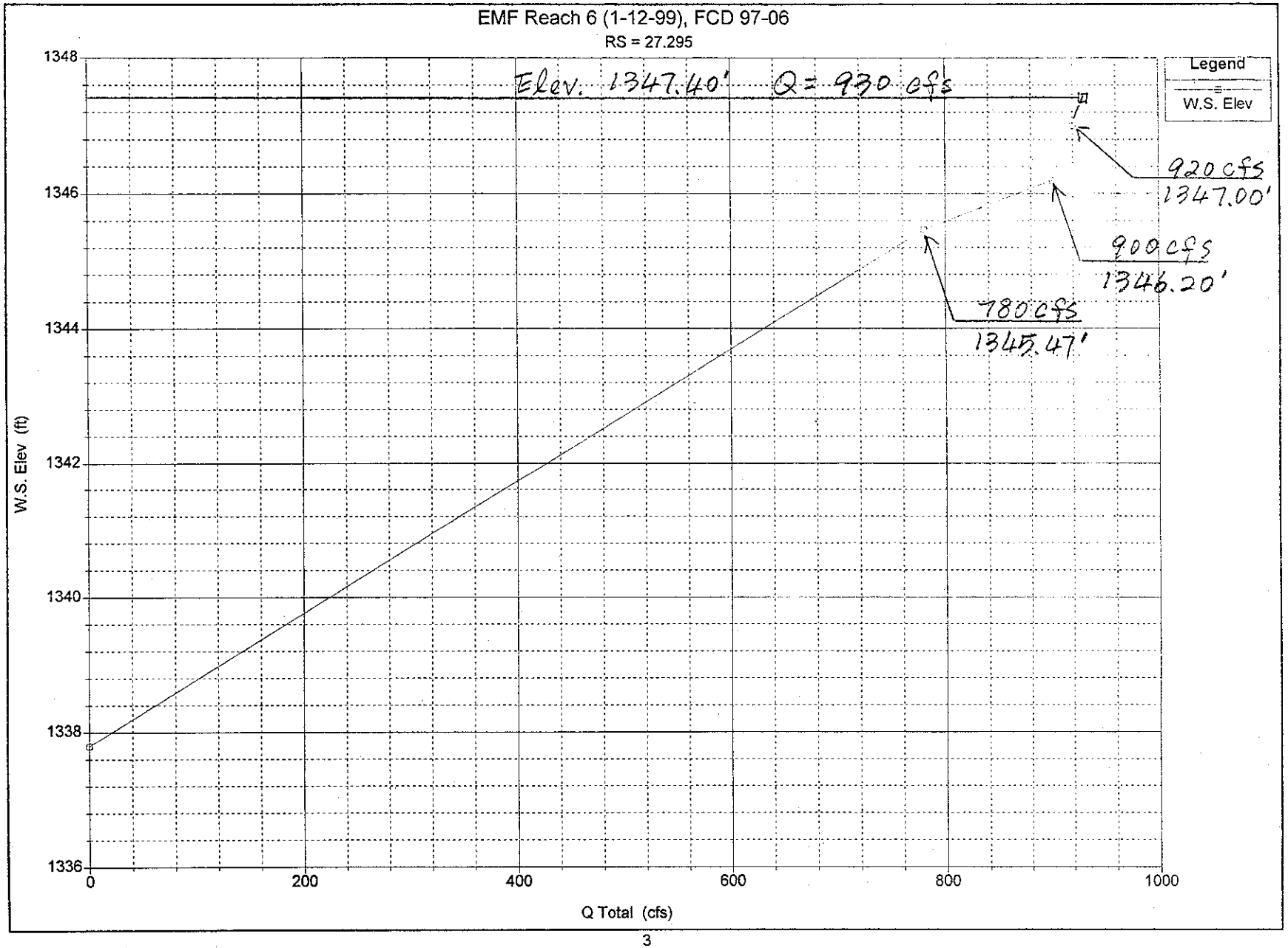
APPENDIX C

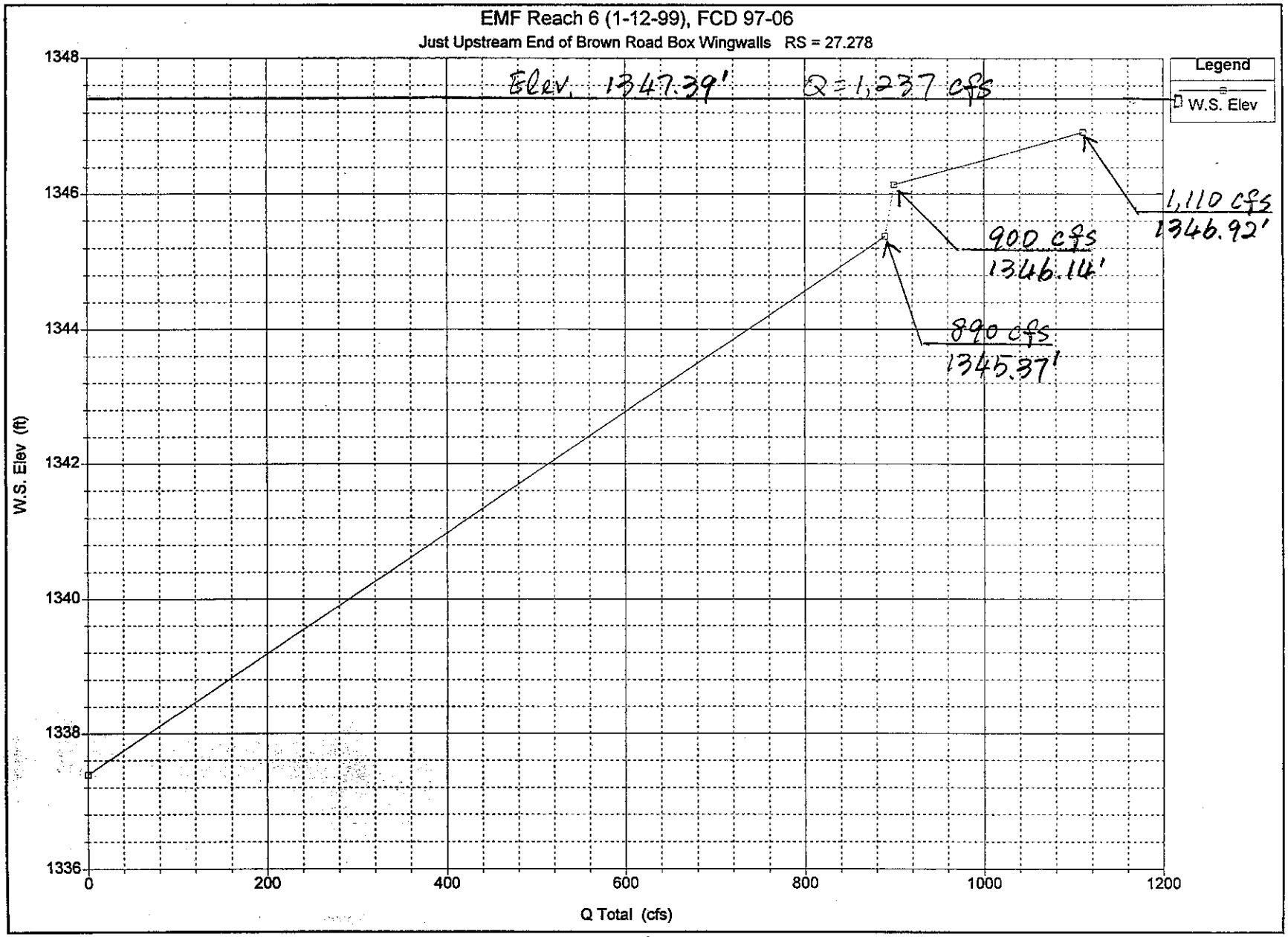
HYDRAULIC ASSESSMENT REULTS

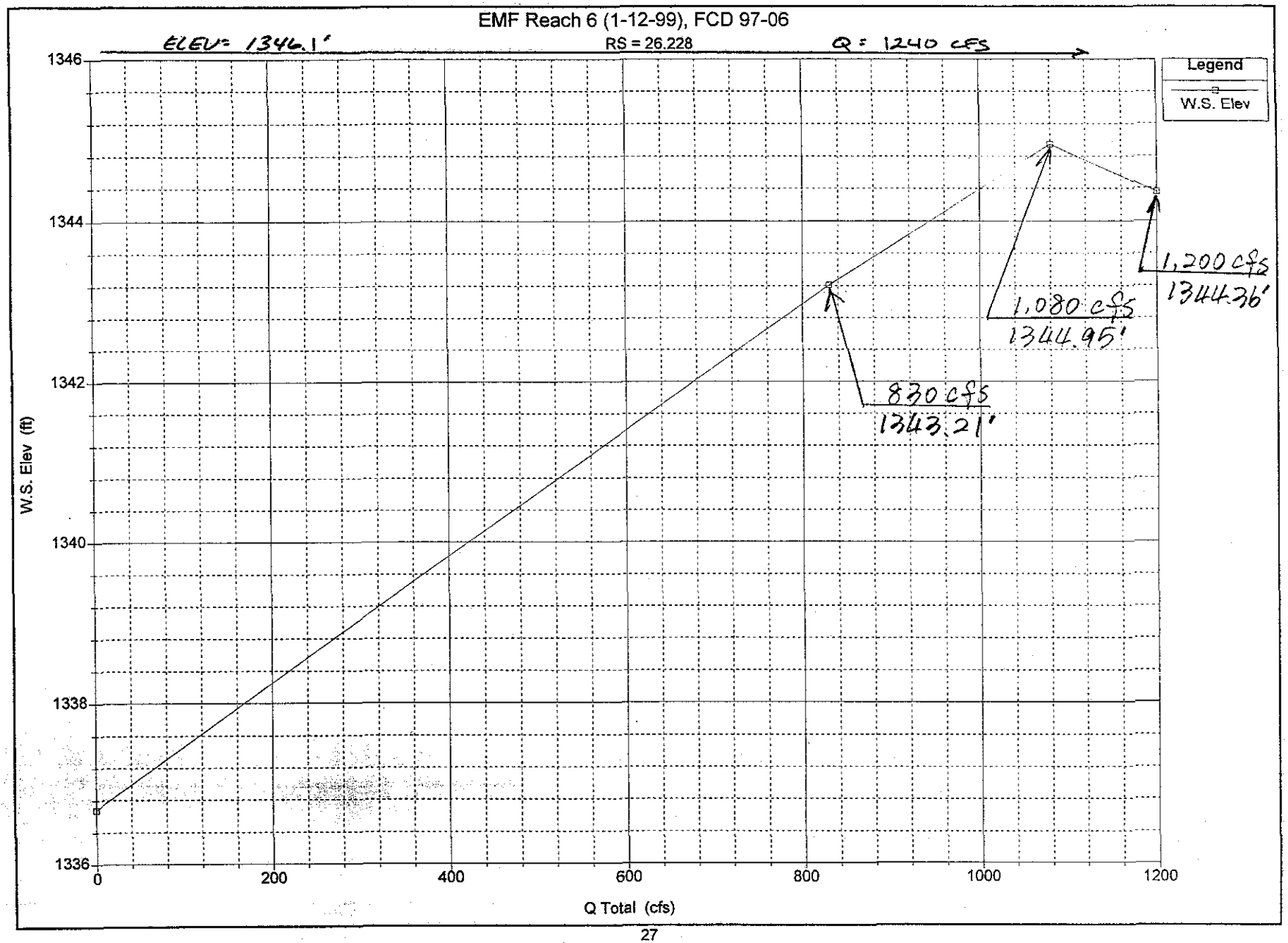
3. Rating Curve Plots

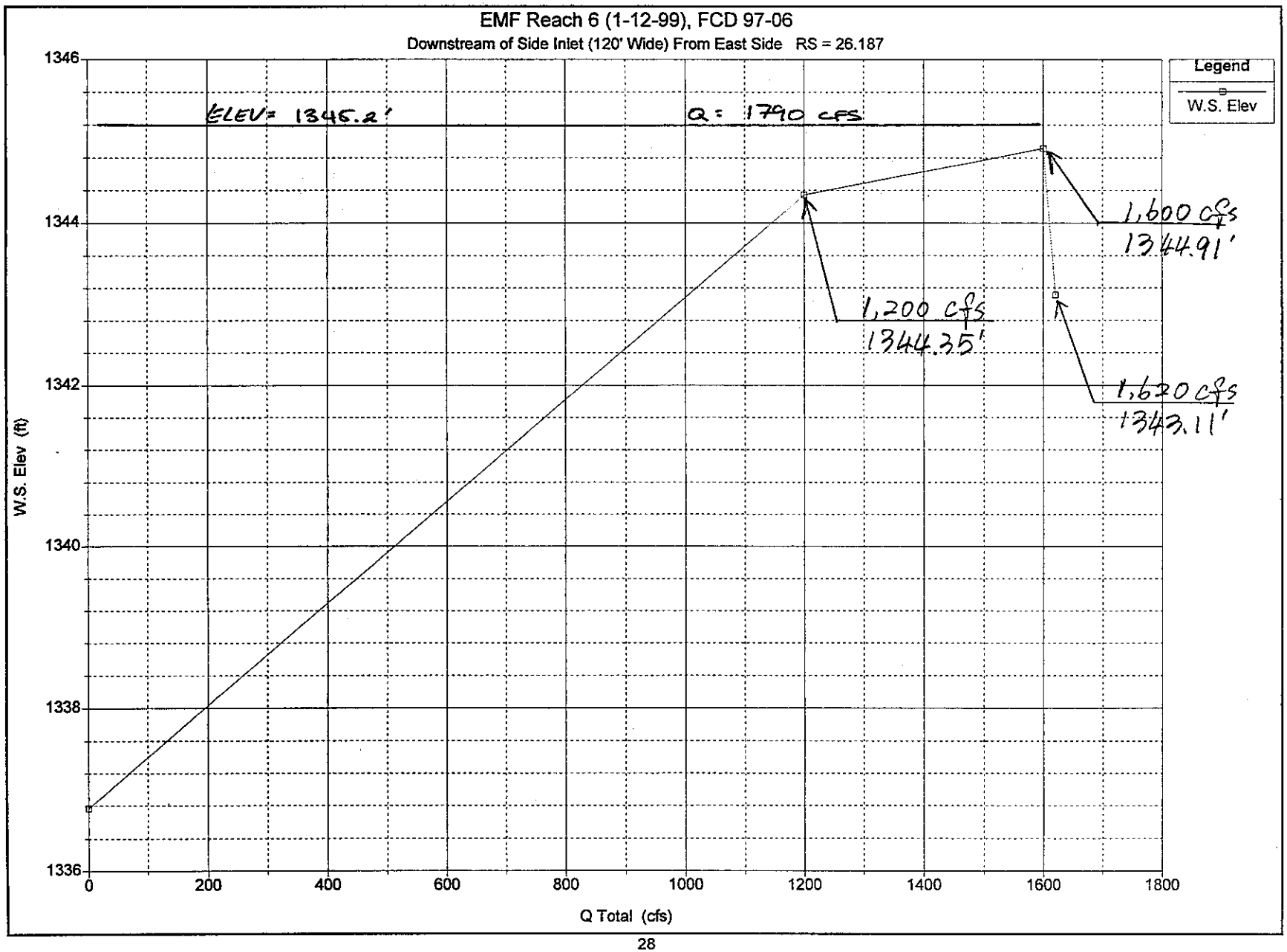

EMF Reach 6 (1-12-99), FCD 97-06
Upstream Limit of the Study at Princess Park RS = 27.39
Legend
W.S. Elev
Elev. 1347.04' Q= 920 cfs (Bankfull)
920 cfs
1347.03'
900 cfs
1346.24'
780 cfs
1345.51'
W.S. Elev (ft)
1348
1346
1344
1342
1340
1338
0
200
400
600
800
1000
Q Total (cfs)

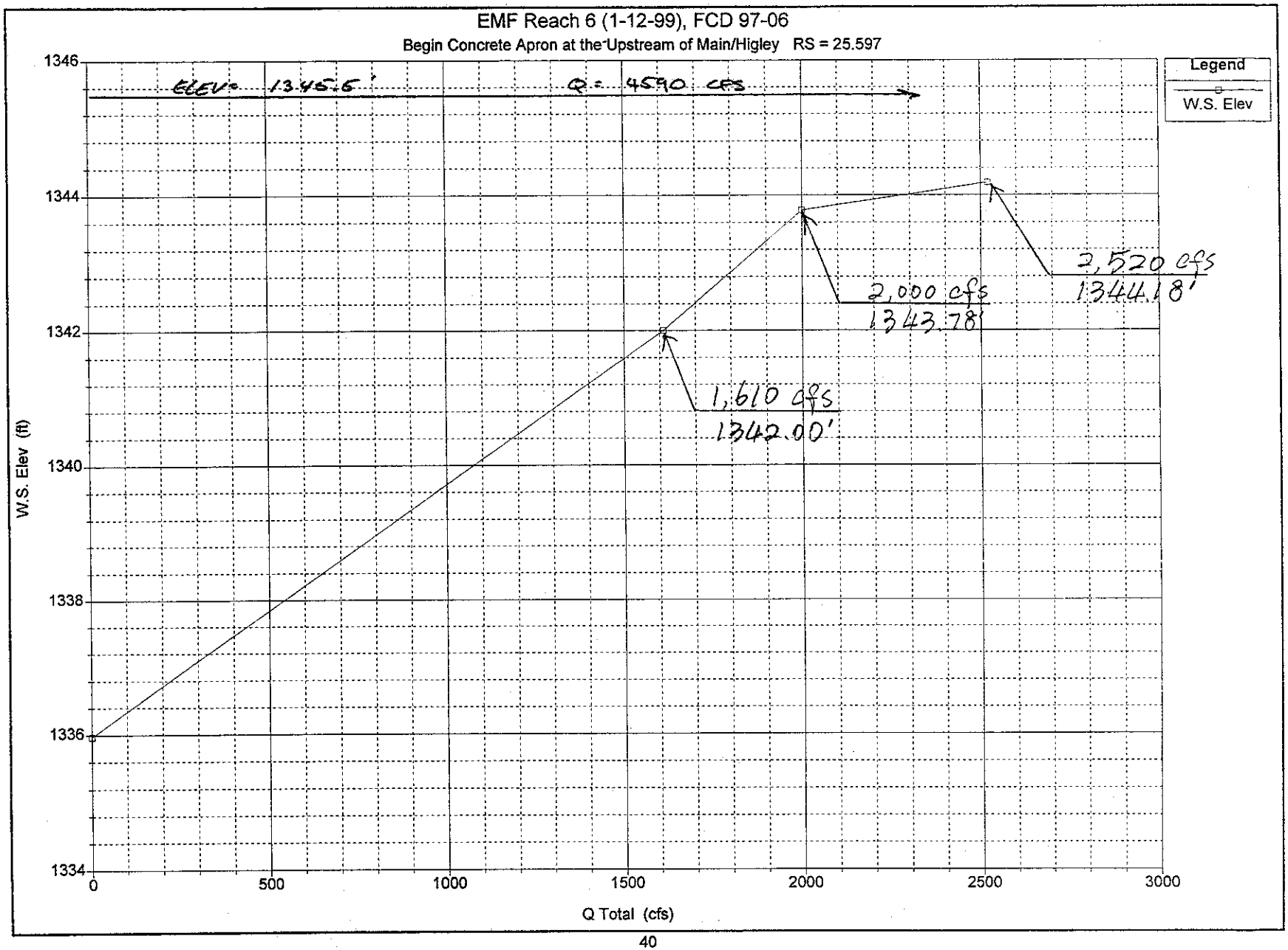

EMF Reach 6 (1-12-99), FCD 97-06
RS = 27.371
Elev. 1347.80'
Q = 939 cfs
Legend
W.S. Elev
920 cfs
1347.03'
900 cfs
1346.23'
780 cfs
1345.50'
W.S. Elev (ft)
1348
1346
1344
1342
1340
1338
0
200
400
600
800
1000
Q Total (cfs)

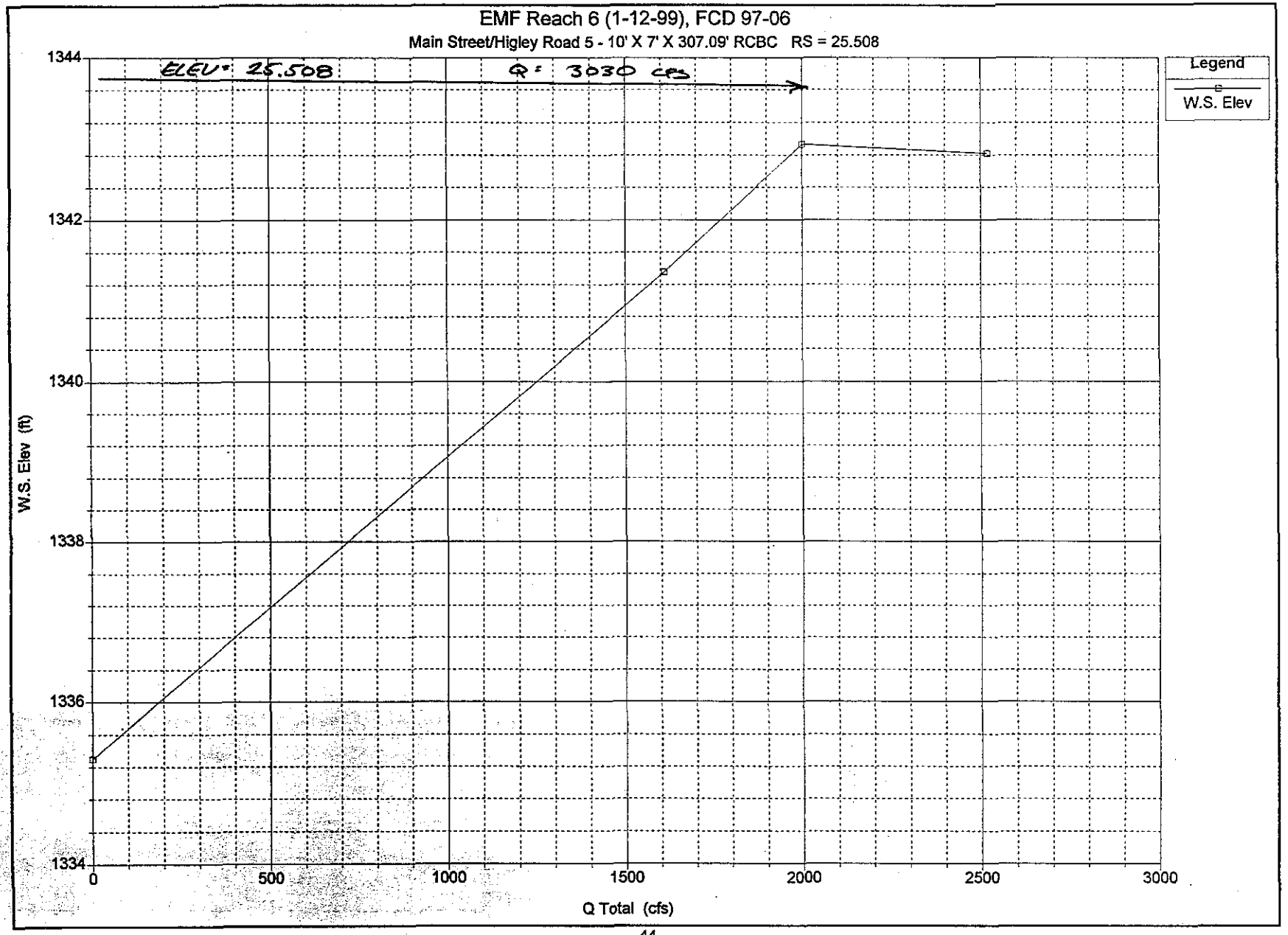

EMF Reach 6 (1-12-99), FCD 97-06
RS = 27.295
Elev. 1347.40' Q= 930 cfs
Legend
W.S. Elev
920 cfs
1347.00'
900 cfs
1346.20'
780 cfs
1345.47'
W.S. Elev (ft)
1348
1346
1344
1342
1340
1338
1336
0
200
400
600
800
1000
Q Total (cfs)

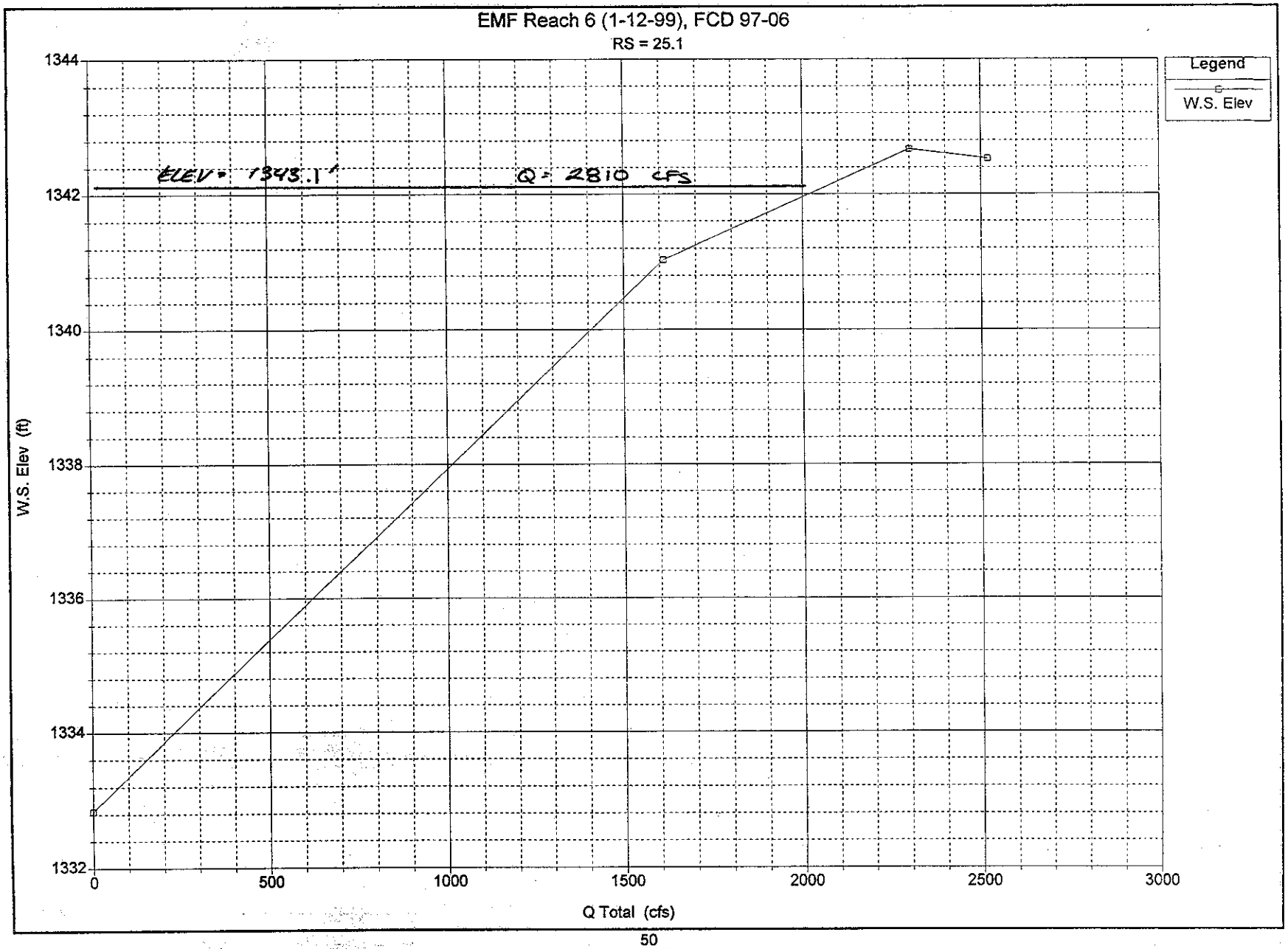

EMF Reach 6 (1-12-99), FCD 97-06
Just Upstream End of Brown Road Box Wingwalls RS = 27.278
Legend
W.S. Elev
Elev. 1347.39'
Q = 1,237 cfs
1,110 cfs
1346.92'
900 cfs
1346.14'
890 cfs
1345.37'
W.S. Elev (ft)
1348
1346
1344
1342
1340
1338
1336
0
200
400
600
800
1000
1200
Q Total (cfs)


EMF Reach 6 (1-12-99), FCD 97-06
ELEV= 1346.1'
RS = 26.228
Q = 1240 cfs
Legend
W.S. Elev
1,200 cfs
1344.36'
1,080 cfs
1344.95'
830 cfs
1343.21'
W.S. Elev (ft)
1346
1344
1342
1340
1338
1336
0
200
400
600
800
1000
1200
Q Total (cfs)


EMF Reach 6 (1-12-99), FCD 97-06
Downstream of Side Inlet (120' Wide) From East Side RS = 26.187
Legend
W.S. Elev
ELEV= 1345.2'
Q= 1790 cfs
1,600 cfs
1344.91'
1,200 cfs
1344.35'
1,620 cfs
1343.11'
W.S. Elev (ft)
1346
1344
1342
1340
1338
1336
0
200
400
600
800
1000
1200
1400
1600
1800
Q Total (cfs)

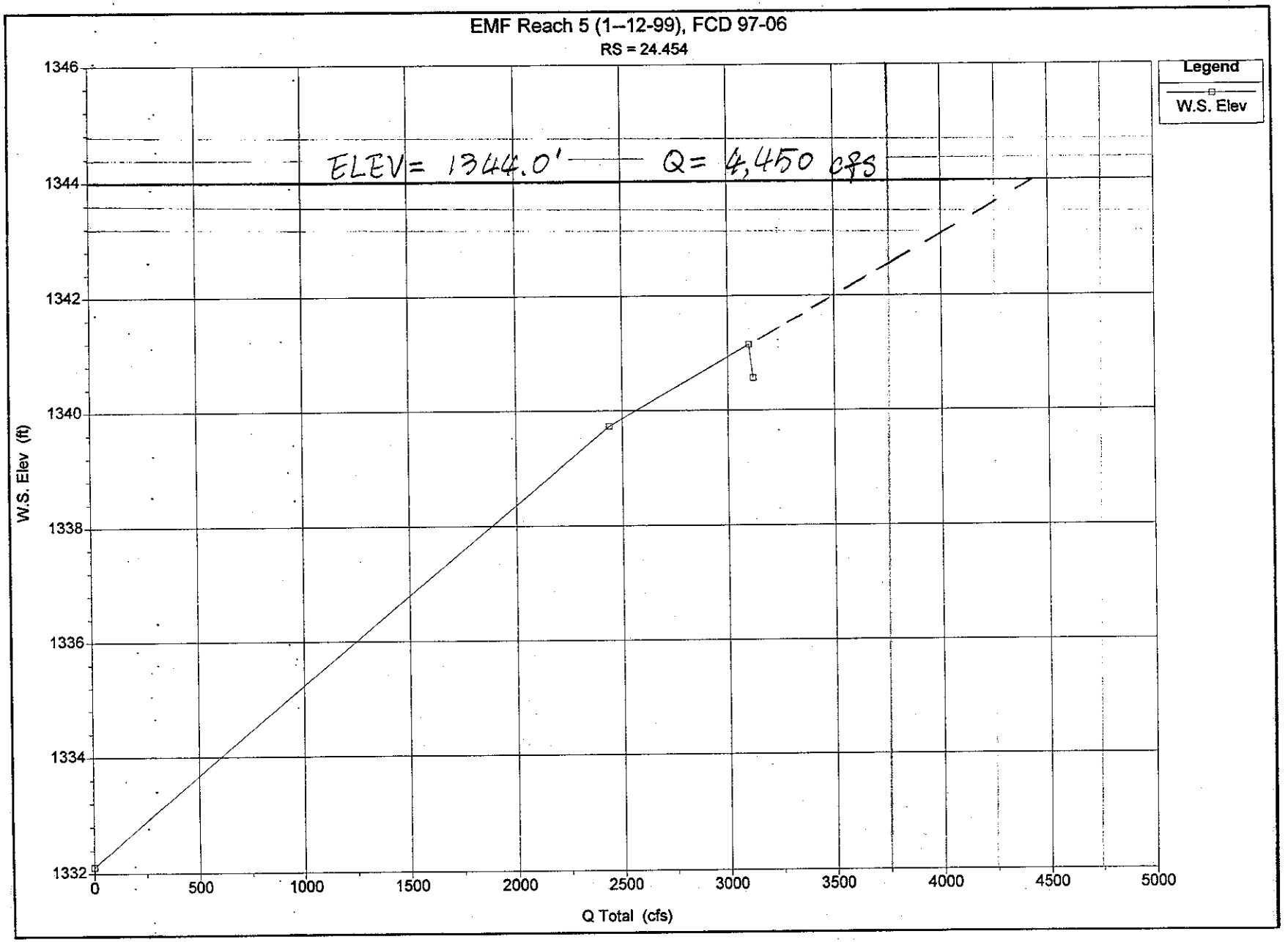

EMF Reach 6 (1-12-99), FCD 97-06
Begin Concrete Apron at the Upstream of Main/Higley RS = 25.597
Legend
W.S. Elev
ELEV= 1345.6'
Q= 4590 cfs
2,520 cfs
1344.18'
2,000 cfs
1343.78'
1,610 cfs
1342.00'
W.S. Elev (ft)
1346
1344
1342
1340
1338
1336
1334
0
500
1000
1500
2000
2500
3000
Q Total (cfs)

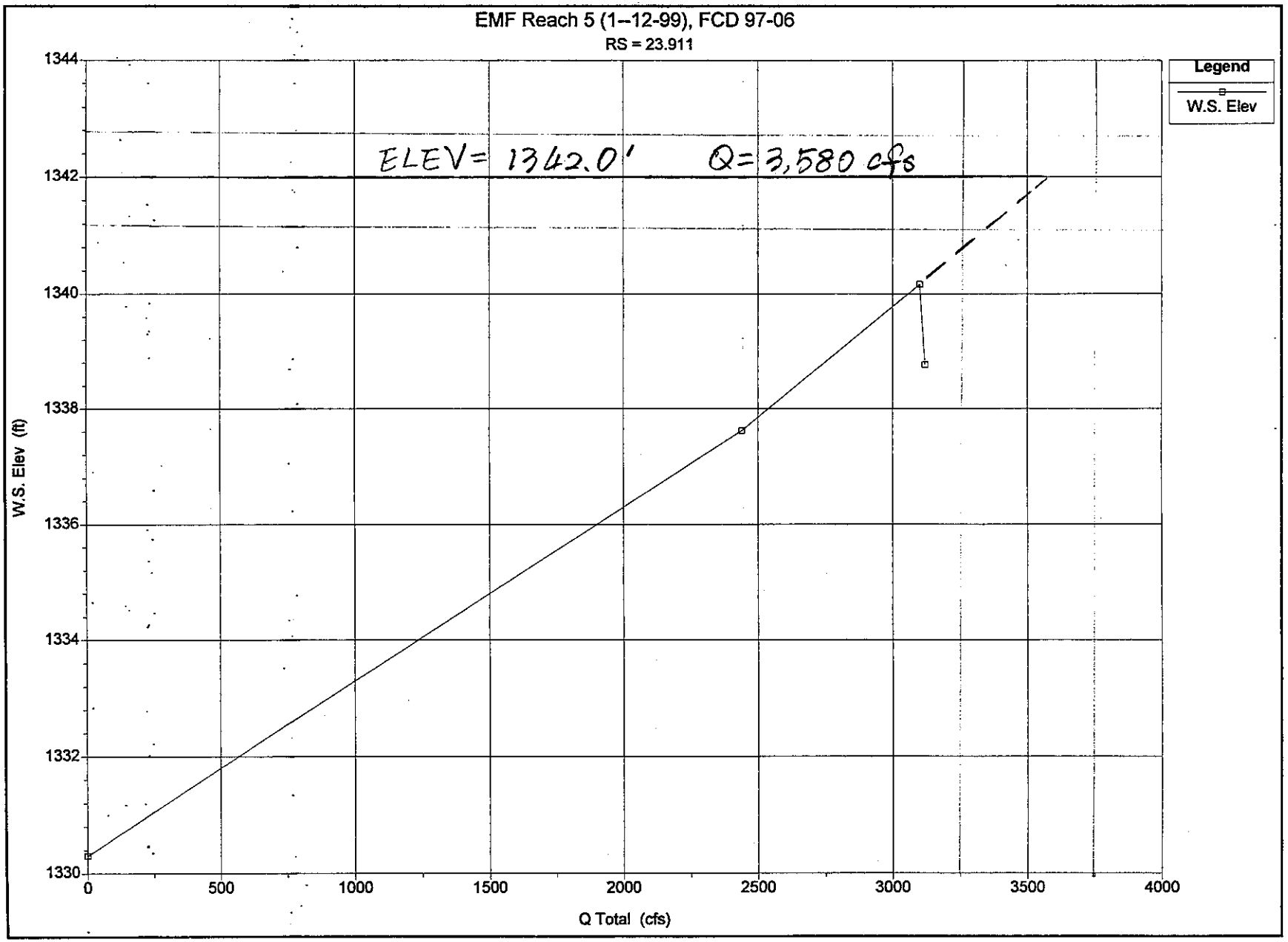

EMF Reach 6 (1-12-99), FCD 97-06
Main Street/Higley Road 5 - 10' X 7' X 307.09' RCBC RS = 25.508
ELEV = 25.508
Q = 3030 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1344
1342
1340
1338
1336
1334
0
500
1000
1500
2000
2500
3000
Q Total (cfs)

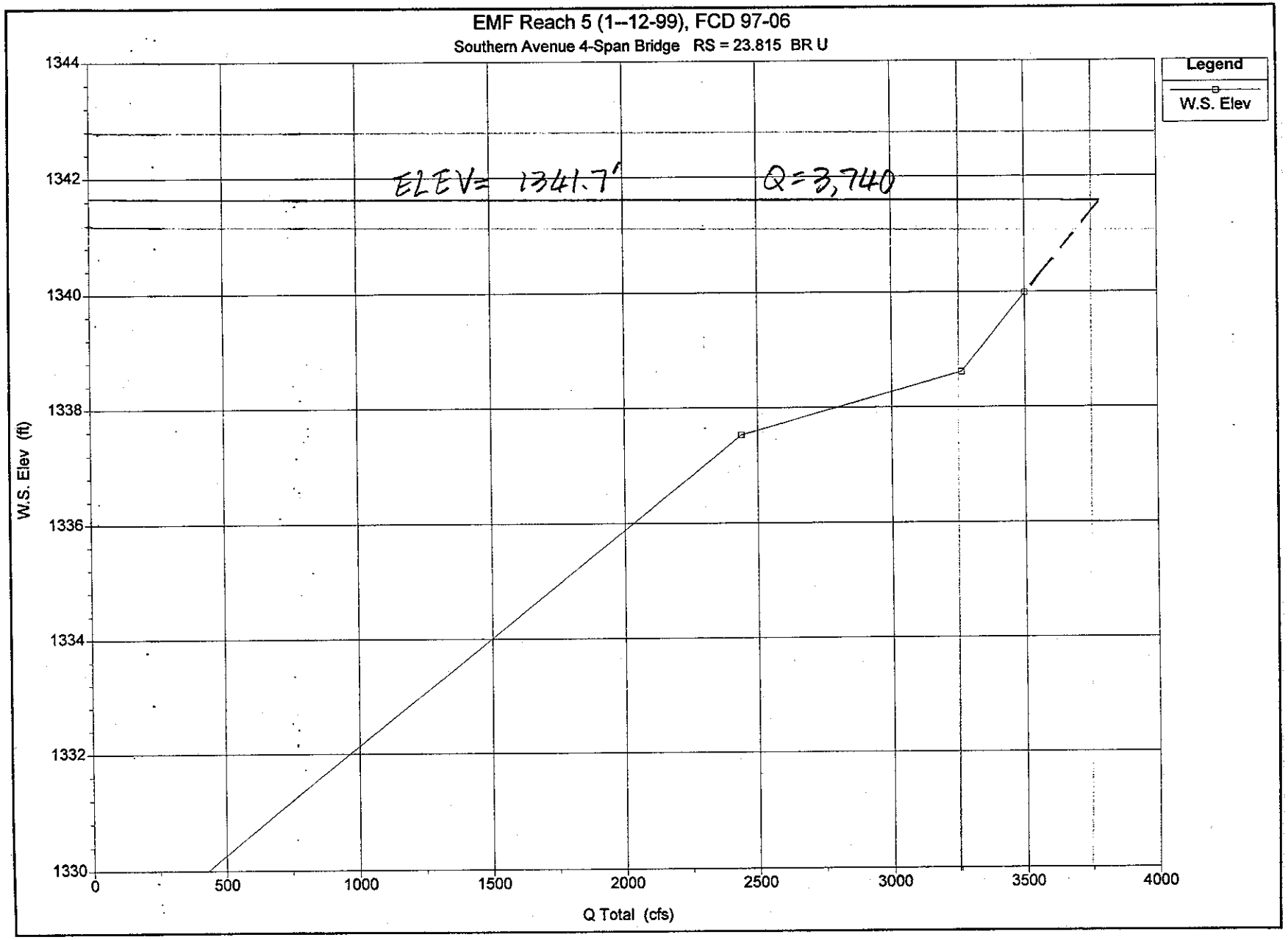

EMF Reach 6 (1-12-99), FCD 97-06
RS = 25.1
Legend
W.S. Elev
ELEV = 1343.1'
Q = 2810 CFS
W.S. Elev (ft)
1344
1342
1340
1338
1336
1334
1332
0
500
1000
1500
2000
2500
3000
Q Total (cfs)

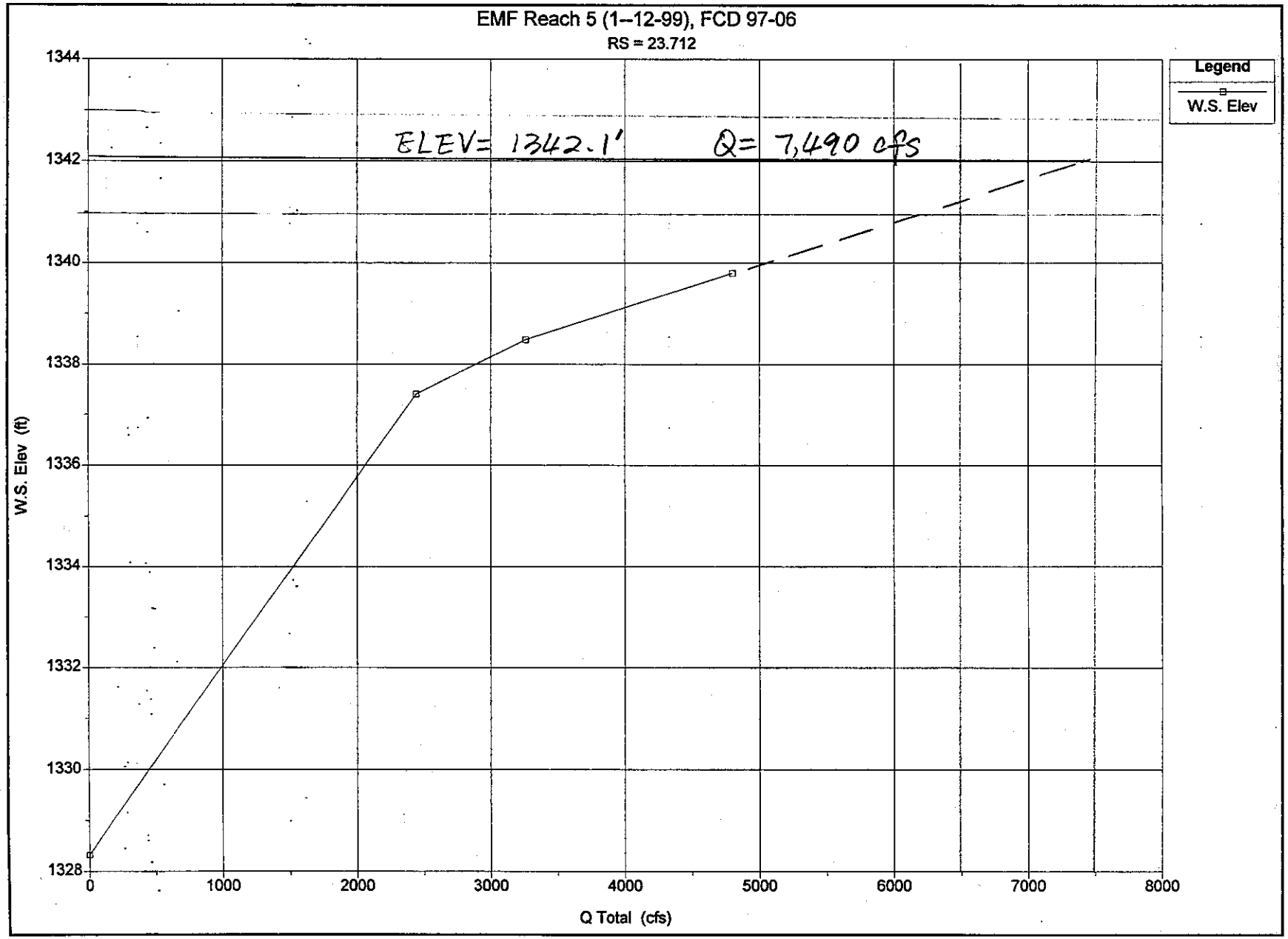
EMF Reach 6 (1-12-99), FCD 97-06
RS = 25.028
Legend
W.S. Elev
ELEV = 1342.1'
Q = 2120 cfs
W.S. Elev (ft)
1344
1342
1340
1338
1336
1334
1332
0
500
1000
1500
2000
2500
3000
Q Total (cfs)

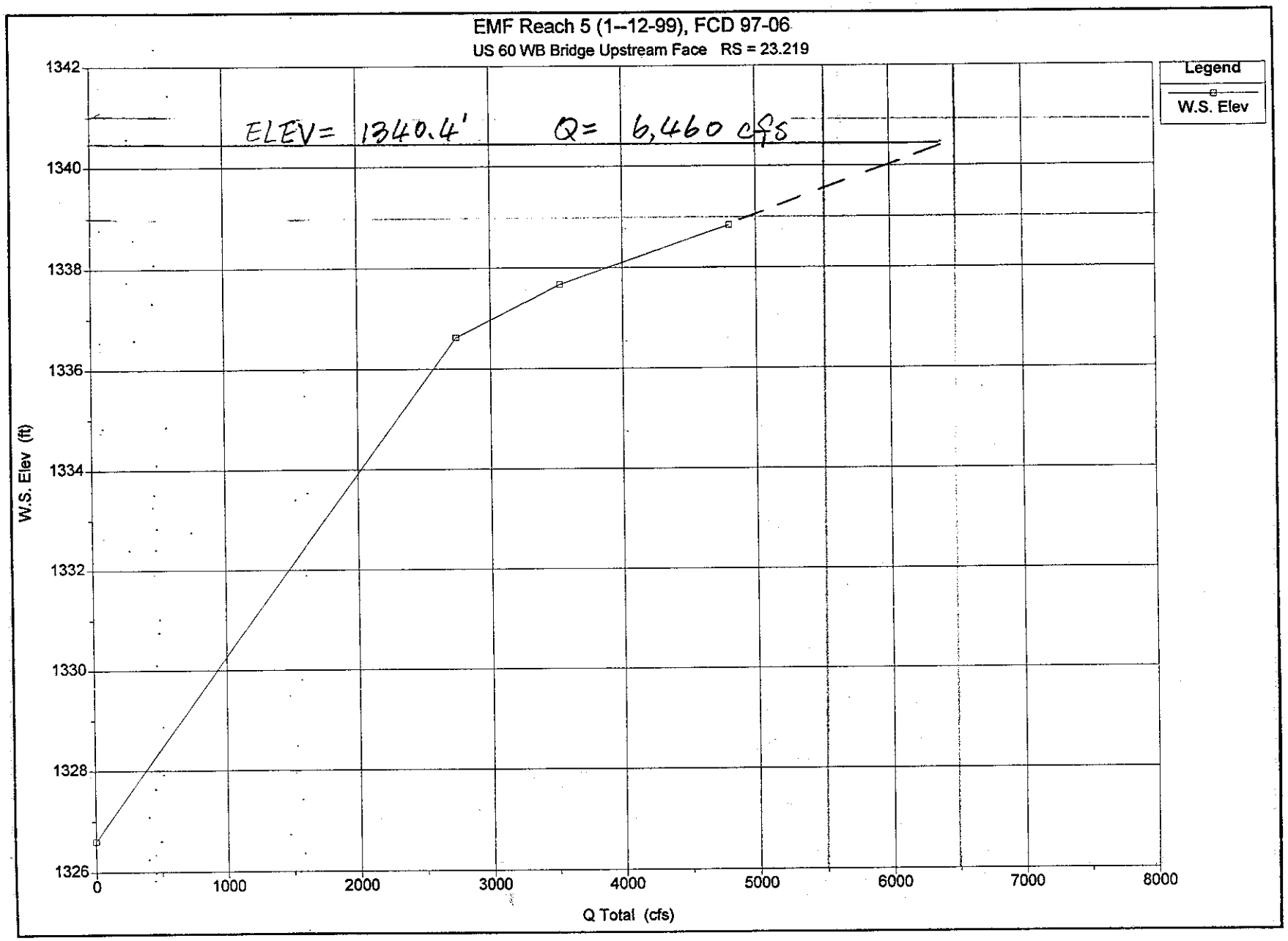
EMF Reach 6 (1-12-99), FCD 97-06
No Ineffective Flow Area From Broadway Road Bridge RS = 24.9
ELEV = 1341.2'
Q = 2170 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1342
1340
1338
1336
1334
1332
1330
0
500
1000
1500
2000
2500
3000
Q Total (cfs)

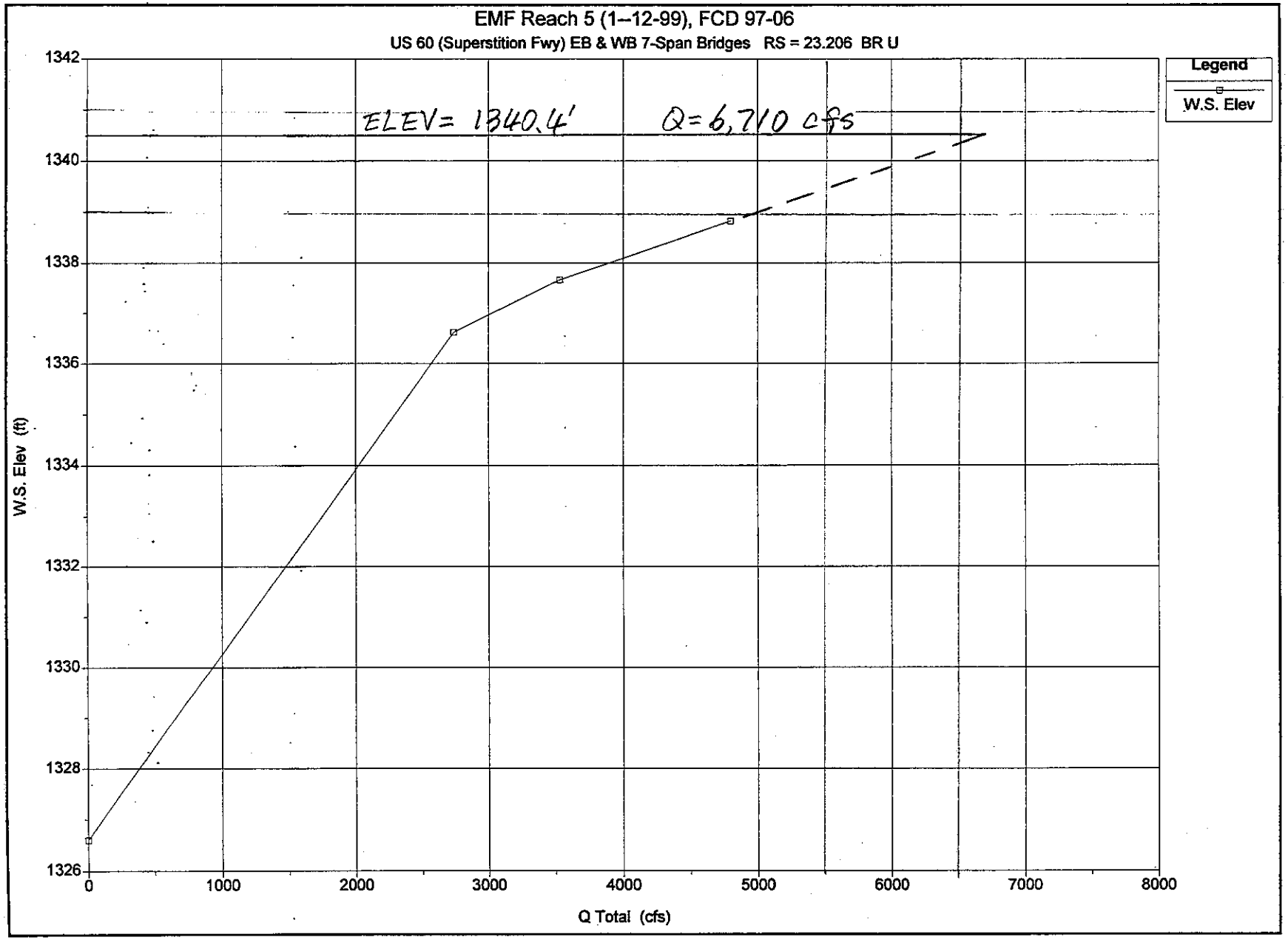

EMF Reach 5 (1--12-99), FCD 97-06
RS = 24.454
Legend
W.S. Elev
ELEV= 1344.0'
Q= 4,450 cfs
W.S. Elev (ft)
1346
1344
1342
1340
1338
1336
1334
1332
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
Q Total (cfs)

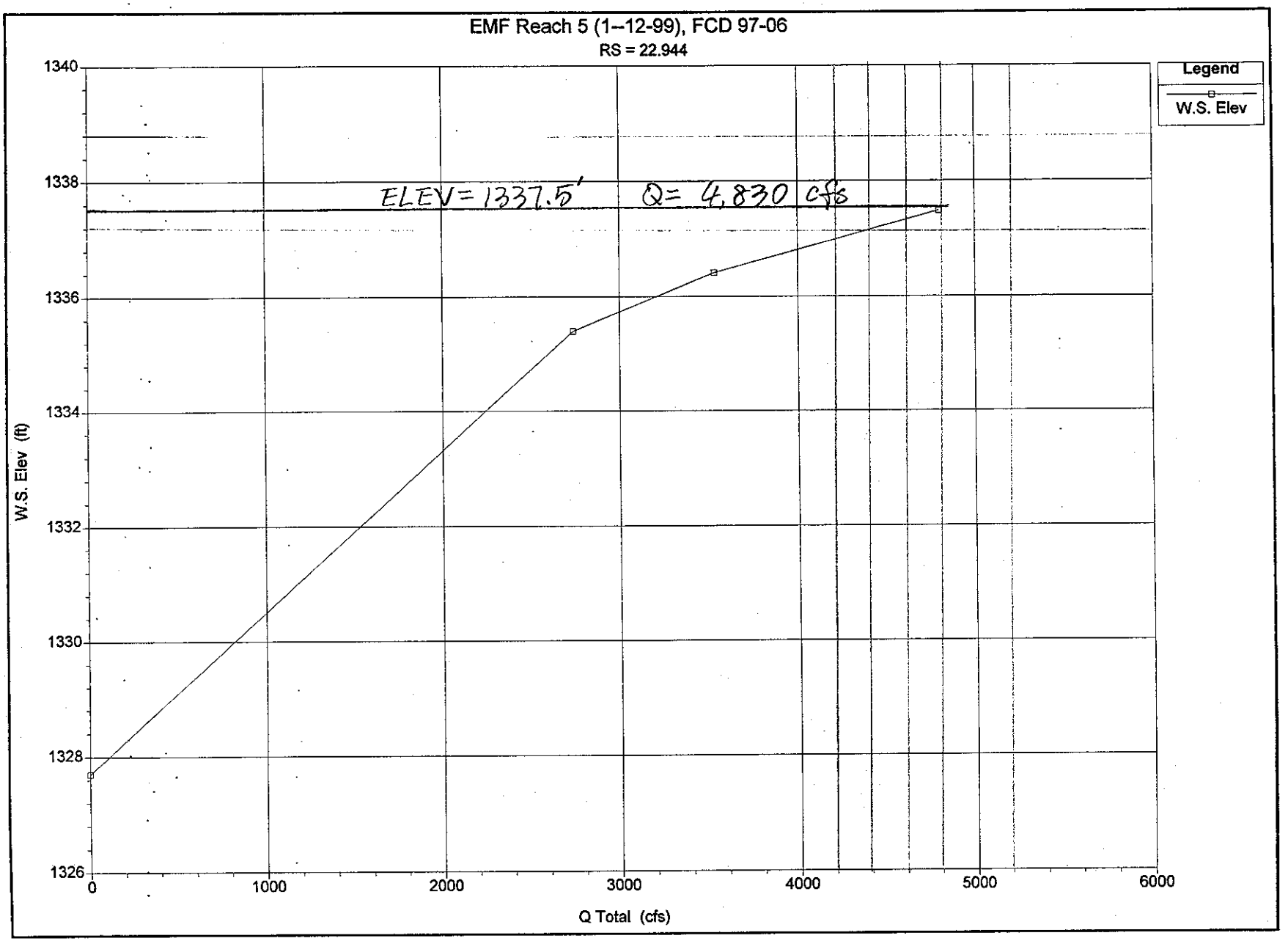

EMF Reach 5 (1--12-99), FCD 97-06
RS = 23.911
ELEV= 1342.0'
Q= 3,580 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1344
1342
1340
1338
1336
1334
1332
1330
0
500
1000
1500
2000
2500
3000
3500
4000
Q Total (cfs)

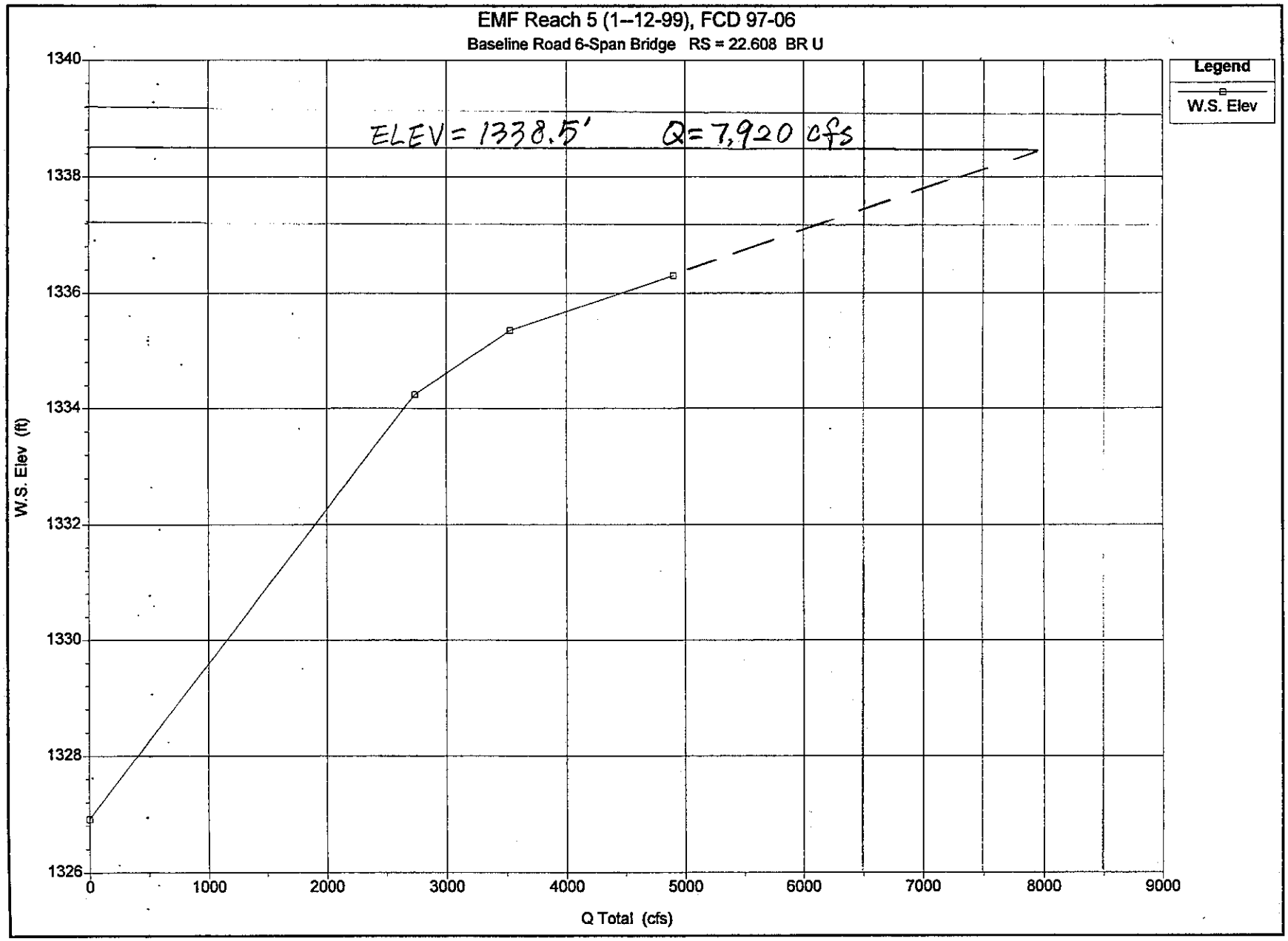

EMF Reach 5 (1--12-99), FCD 97-06
Southern Avenue 4-Span Bridge RS = 23.815 BR U
Legend
W.S. Elev
ELEV= 1341.7'
Q=3,740
W.S. Elev (ft)
1344
1342
1340
1338
1336
1334
1332
1330
0
500
1000
1500
2000
2500
3000
3500
4000
Q Total (cfs)

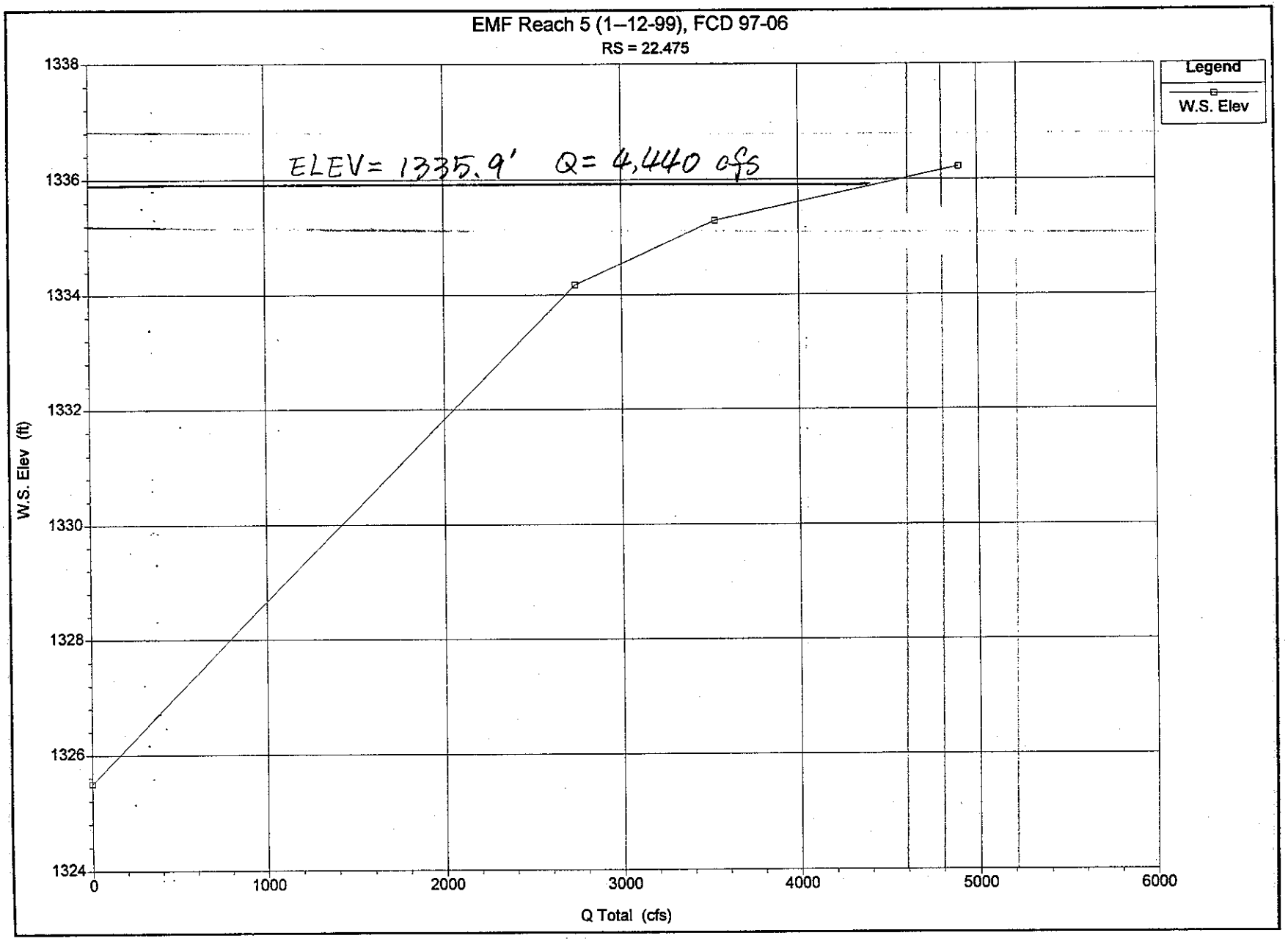

EMF Reach 5 (1--12-99), FCD 97-06
RS = 23.712
ELEV= 1342.1'
Q= 7,490 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1344
1342
1340
1338
1336
1334
1332
1330
1328
0
1000
2000
3000
4000
5000
6000
7000
8000
Q Total (cfs)

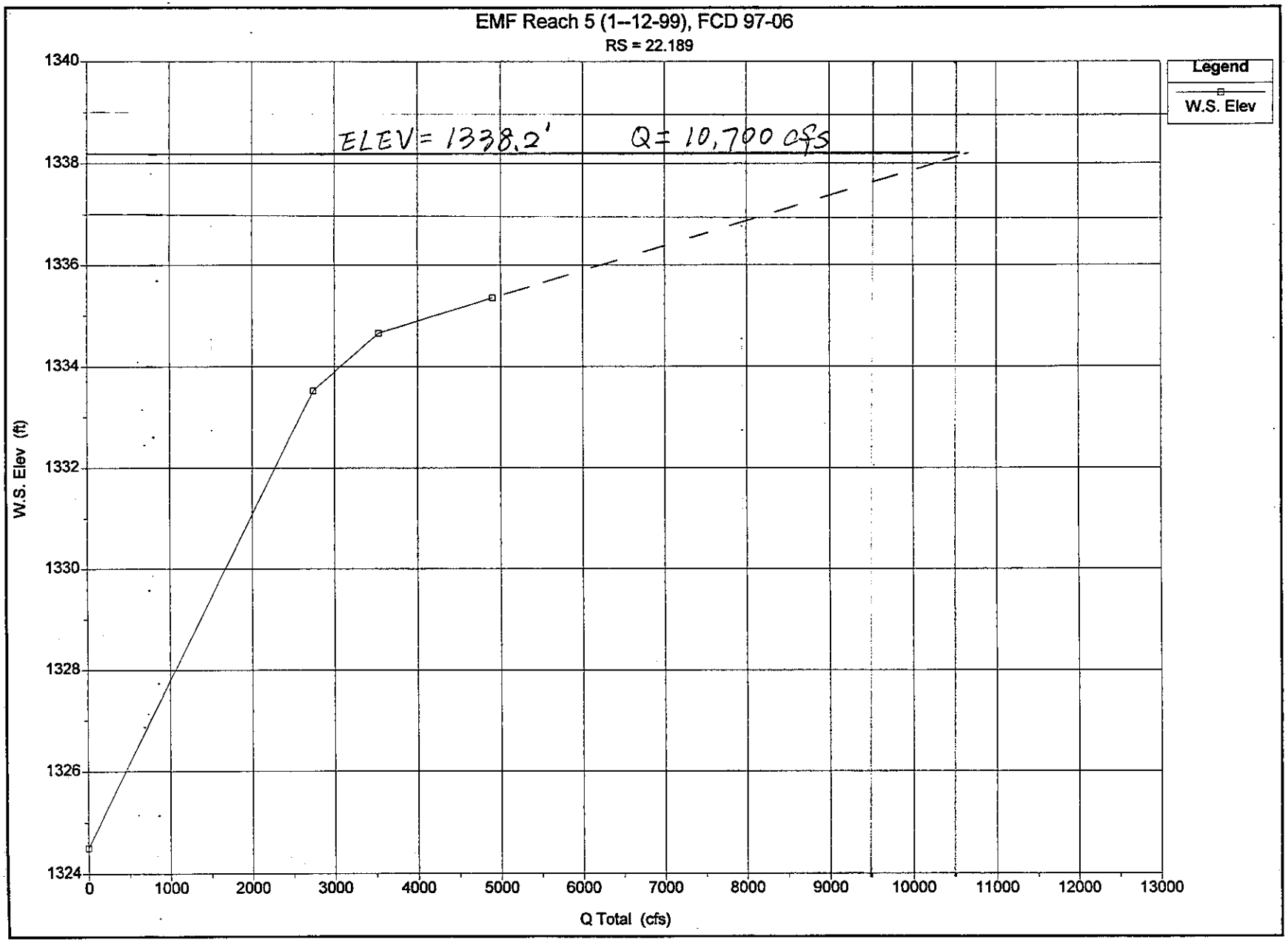

EMF Reach 5 (1--12-99), FCD 97-06
US 60 WB Bridge Upstream Face RS = 23.219
ELEV= 1340.4'
Q= 6,460 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1342
1340
1338
1336
1334
1332
1330
1328
1326
0
1000
2000
3000
4000
5000
6000
7000
8000
Q Total (cfs)

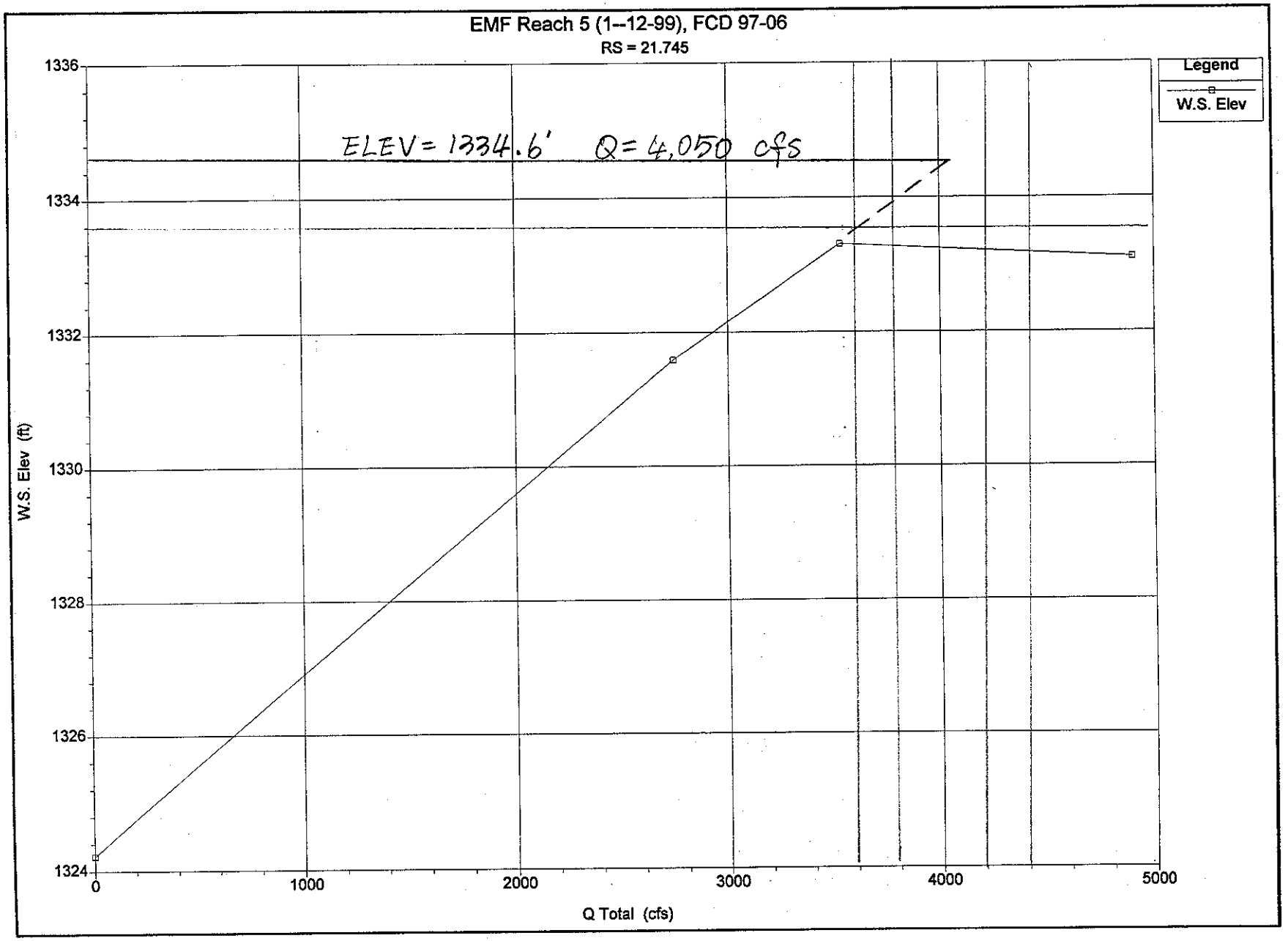

EMF Reach 5 (1--12-99), FCD 97-06
US 60 (Superstition Fwy) EB & WB 7-Span Bridges RS = 23.206 BR U
ELEV= 1340.4'
Q=6,710 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1342
1340
1338
1336
1334
1332
1330
1328
1326
0
1000
2000
3000
4000
5000
6000
7000
8000
Q Total (cfs)

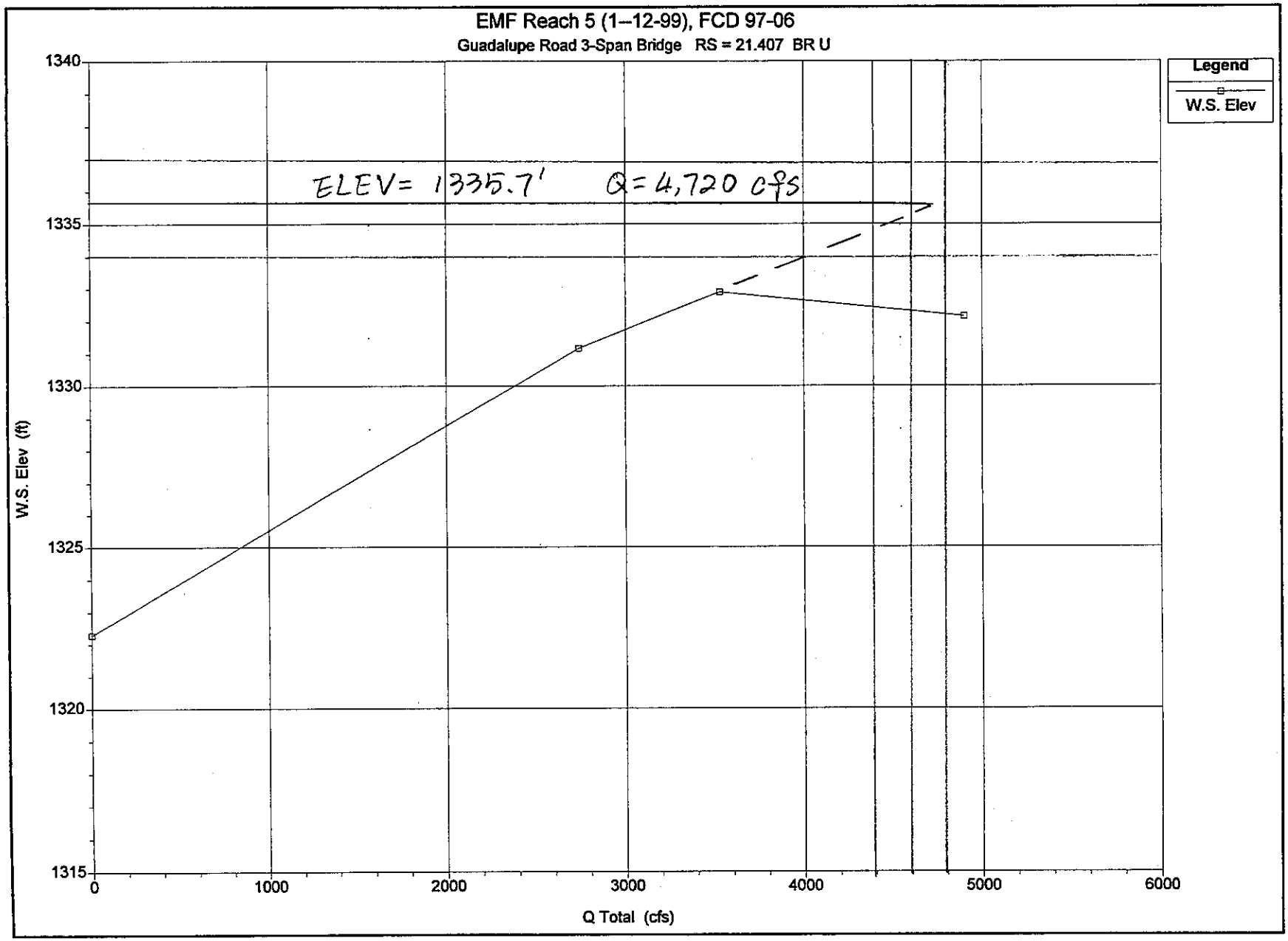

EMF Reach 5 (1--12-99), FCD 97-06
RS = 22.944
Legend
W.S. Elev
ELEV= 1337.5'
Q= 4,830 cfs
W.S. Elev (ft)
1340
1338
1336
1334
1332
1330
1328
1326
0
1000
2000
3000
4000
5000
6000
Q Total (cfs)

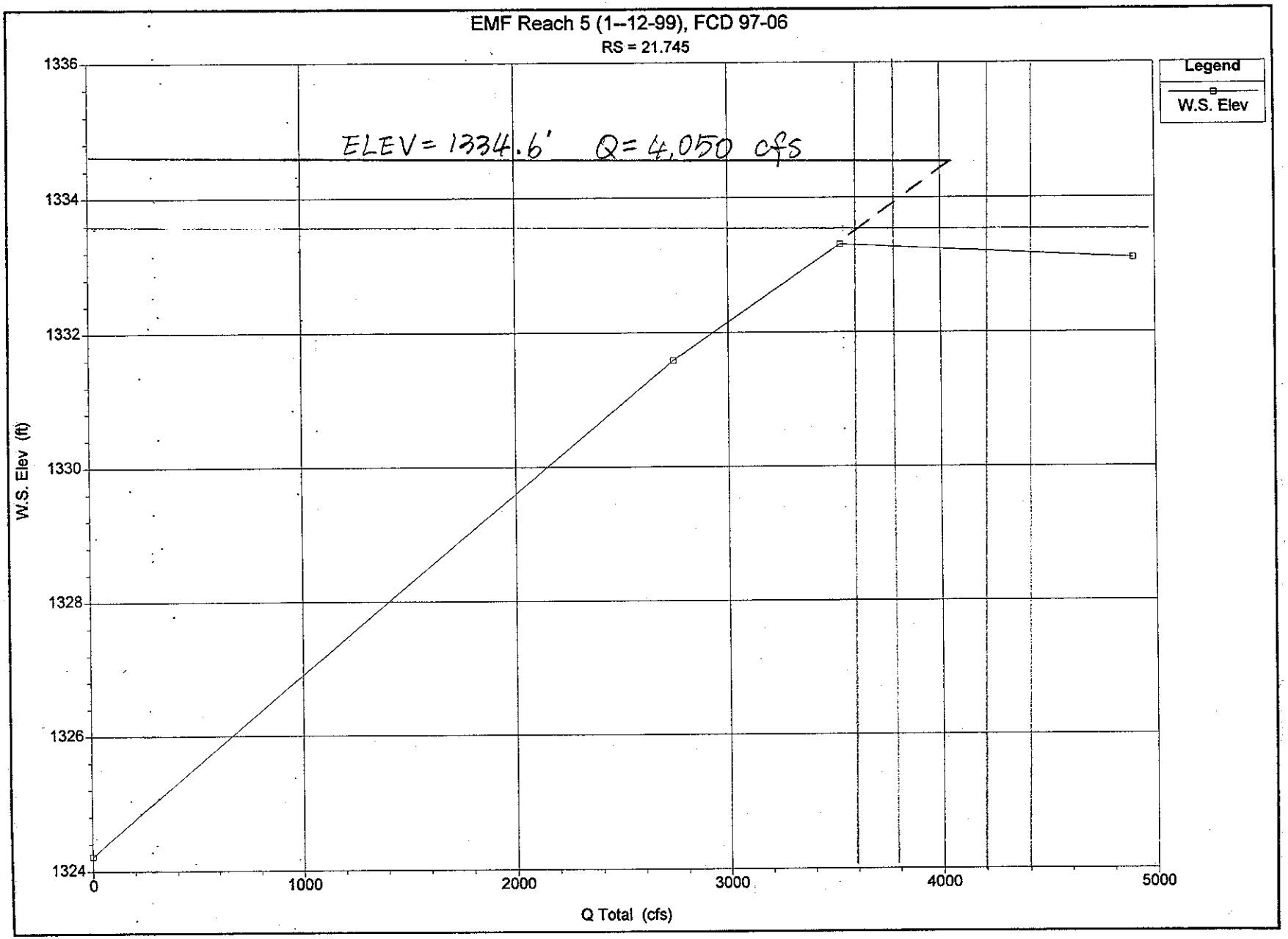

EMF Reach 5 (1--12-99), FCD 97-06
Baseline Road 6-Span Bridge RS = 22.608 BR U
ELEV = 1338.5'
Q = 7,920 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1340
1338
1336
1334
1332
1330
1328
1326
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
Q Total (cfs)

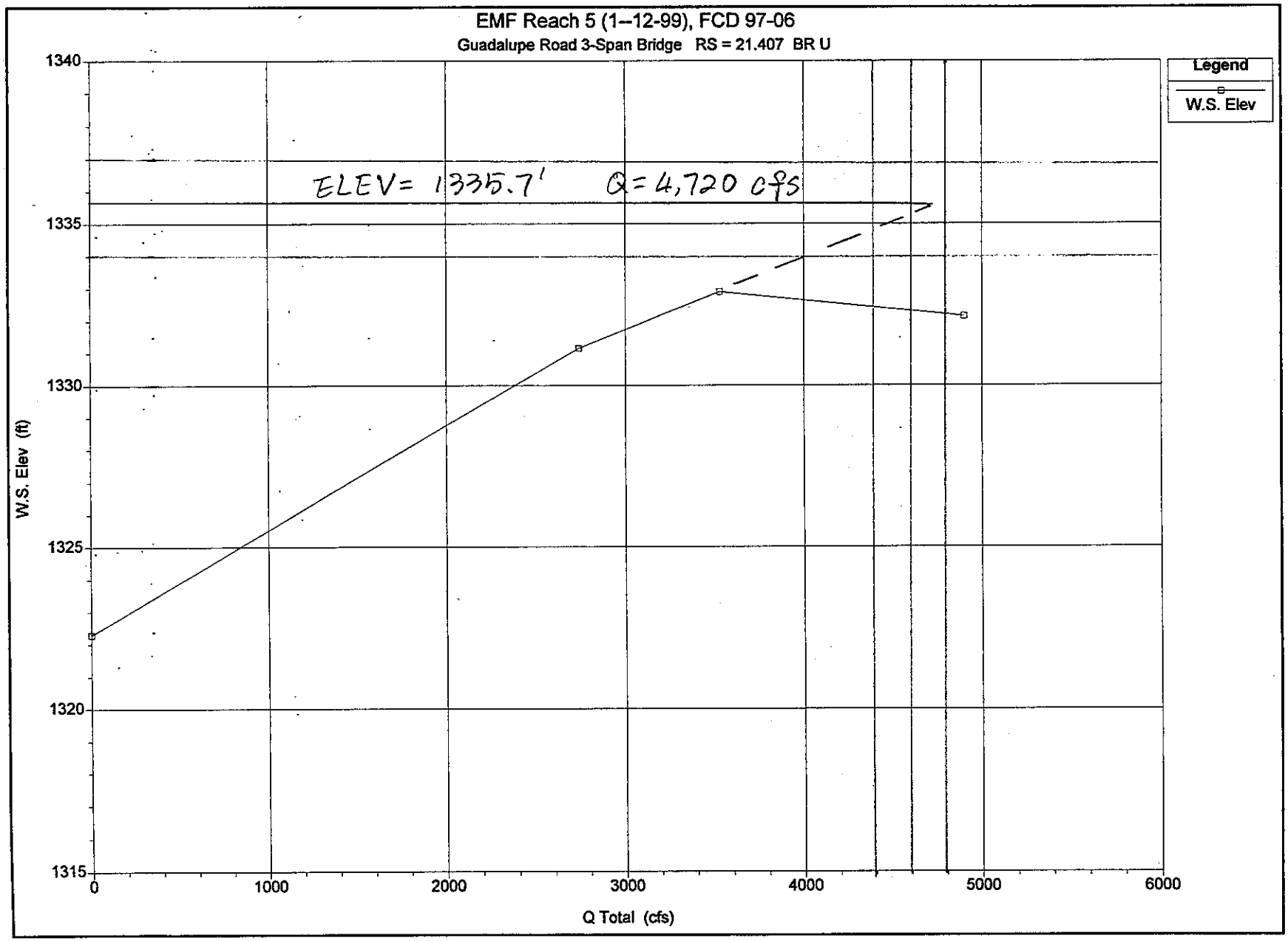

EMF Reach 5 (1–12-99), FCD 97-06
RS = 22.475
Legend
W.S. Elev
ELEV= 1335.9' Q= 4,440 cfs
W.S. Elev (ft)
1338
1336
1334
1332
1330
1328
1326
1324
0
1000
2000
3000
4000
5000
6000
Q Total (cfs)

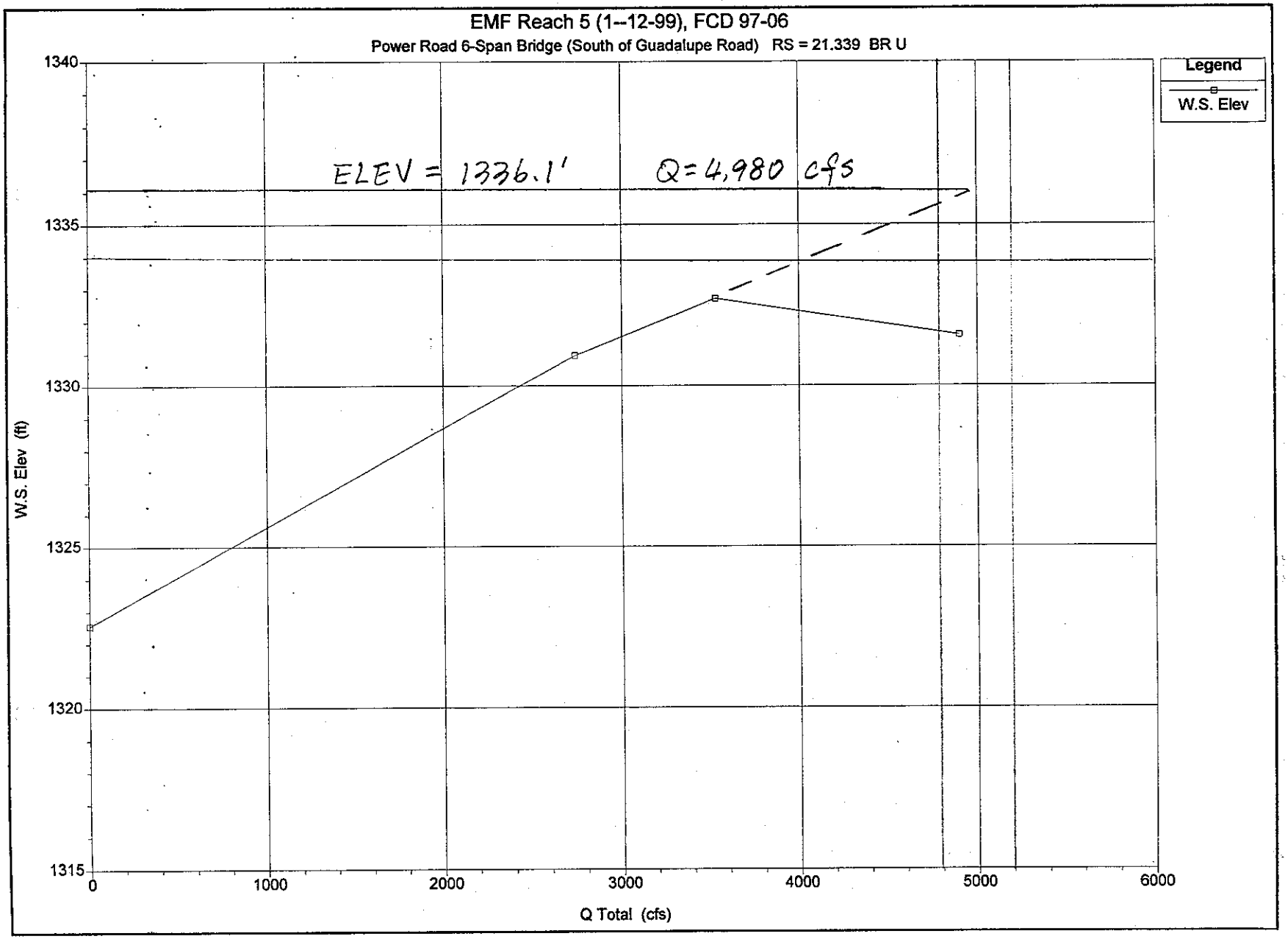

EMF Reach 5 (1--12-99), FCD 97-06
RS = 22.189
ELEV= 1338.2'
Q= 10,700 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1340
1338
1336
1334
1332
1330
1328
1326
1324
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
Q Total (cfs)

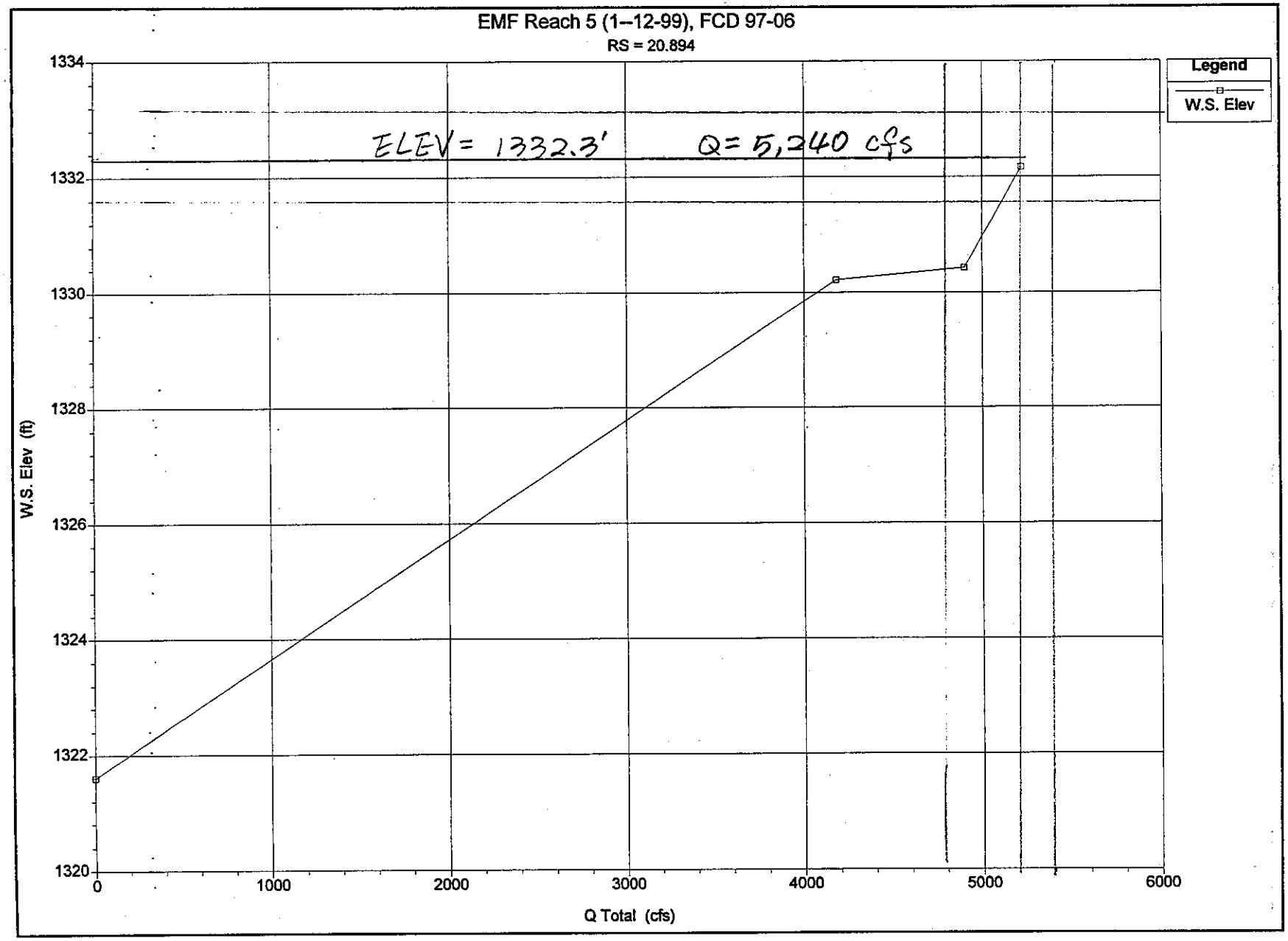

EMF Reach 5 (1--12-99), FCD 97-06
RS = 21.745
ELEV = 1334.6' Q = 4,050 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1336
1334
1332
1330
1328
1326
1324
0
1000
2000
3000
4000
5000
Q Total (cfs)

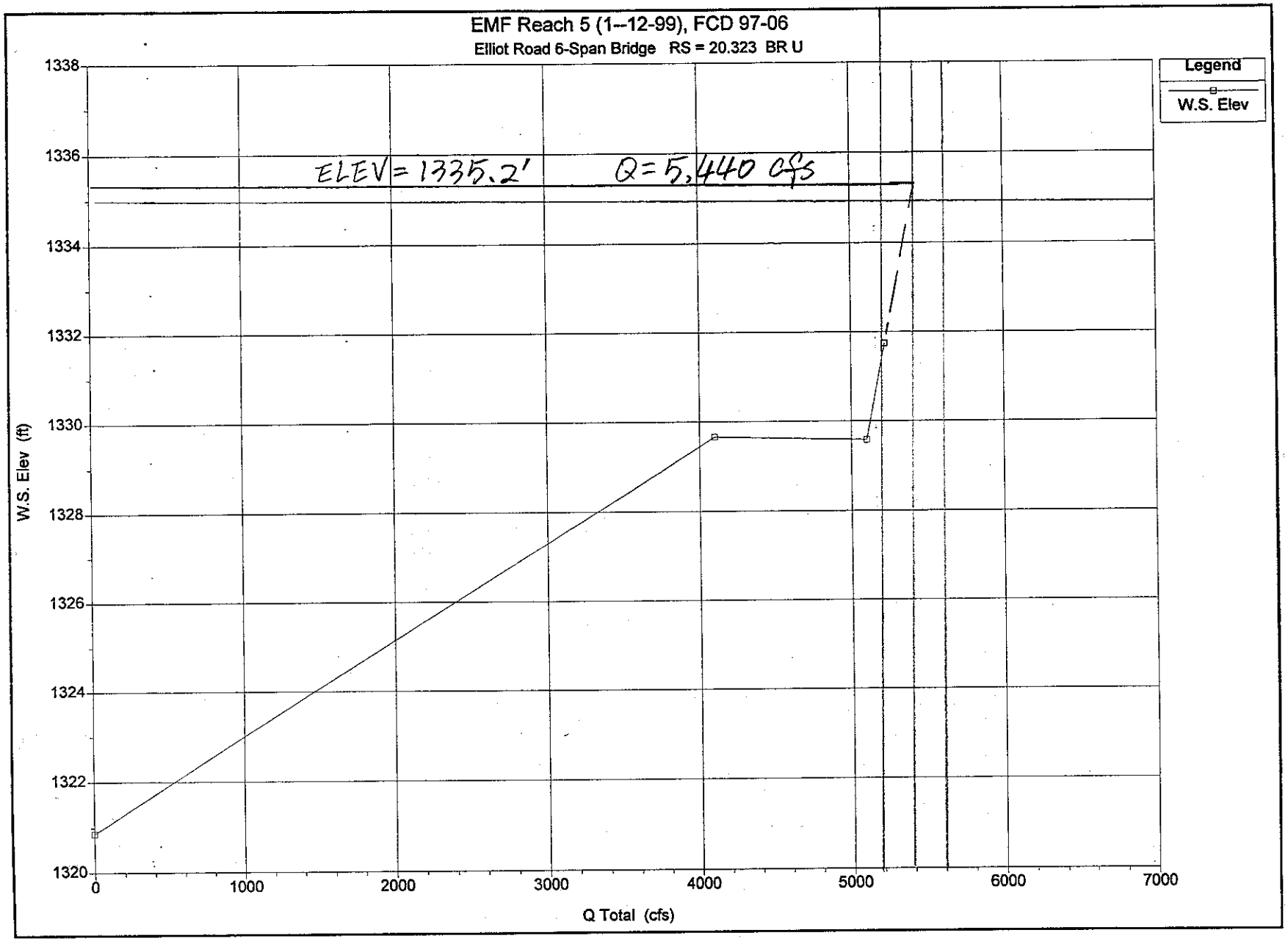

EMF Reach 5 (1--12-99), FCD 97-06
Guadalupe Road 3-Span Bridge RS = 21.407 BR U
Legend
W.S. Elev
ELEV= 1335.7'
Q= 4,720 cfs
W.S. Elev (ft)
1340
1335
1330
1325
1320
1315
0
1000
2000
3000
4000
5000
6000
Q Total (cfs)

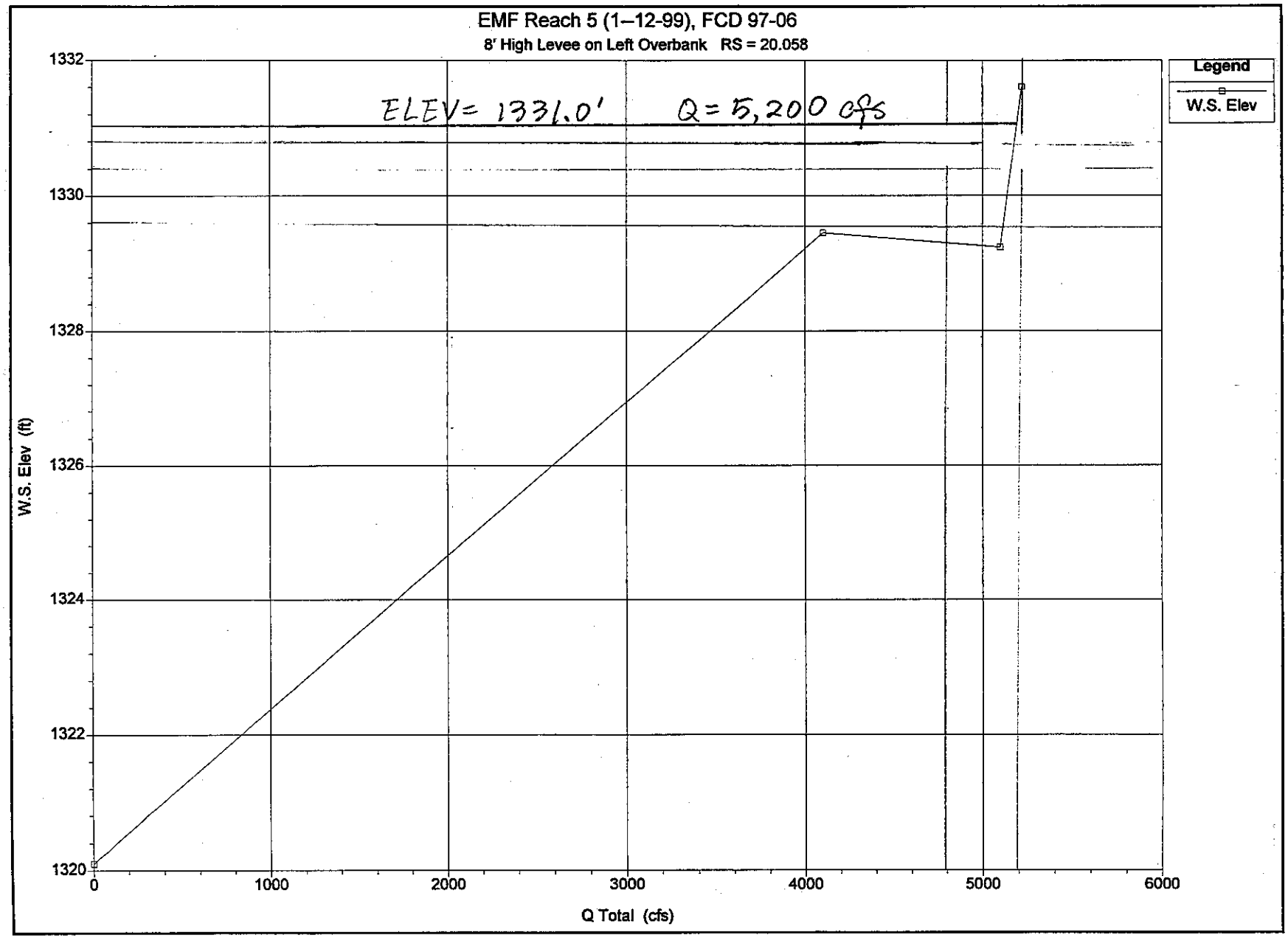

EMF Reach 5 (1--12-99), FCD 97-06
RS = 21.745
ELEV= 1334.6' Q= 4,050 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1336
1334
1332
1330
1328
1326
1324
0
1000
2000
3000
4000
5000
Q Total (cfs)

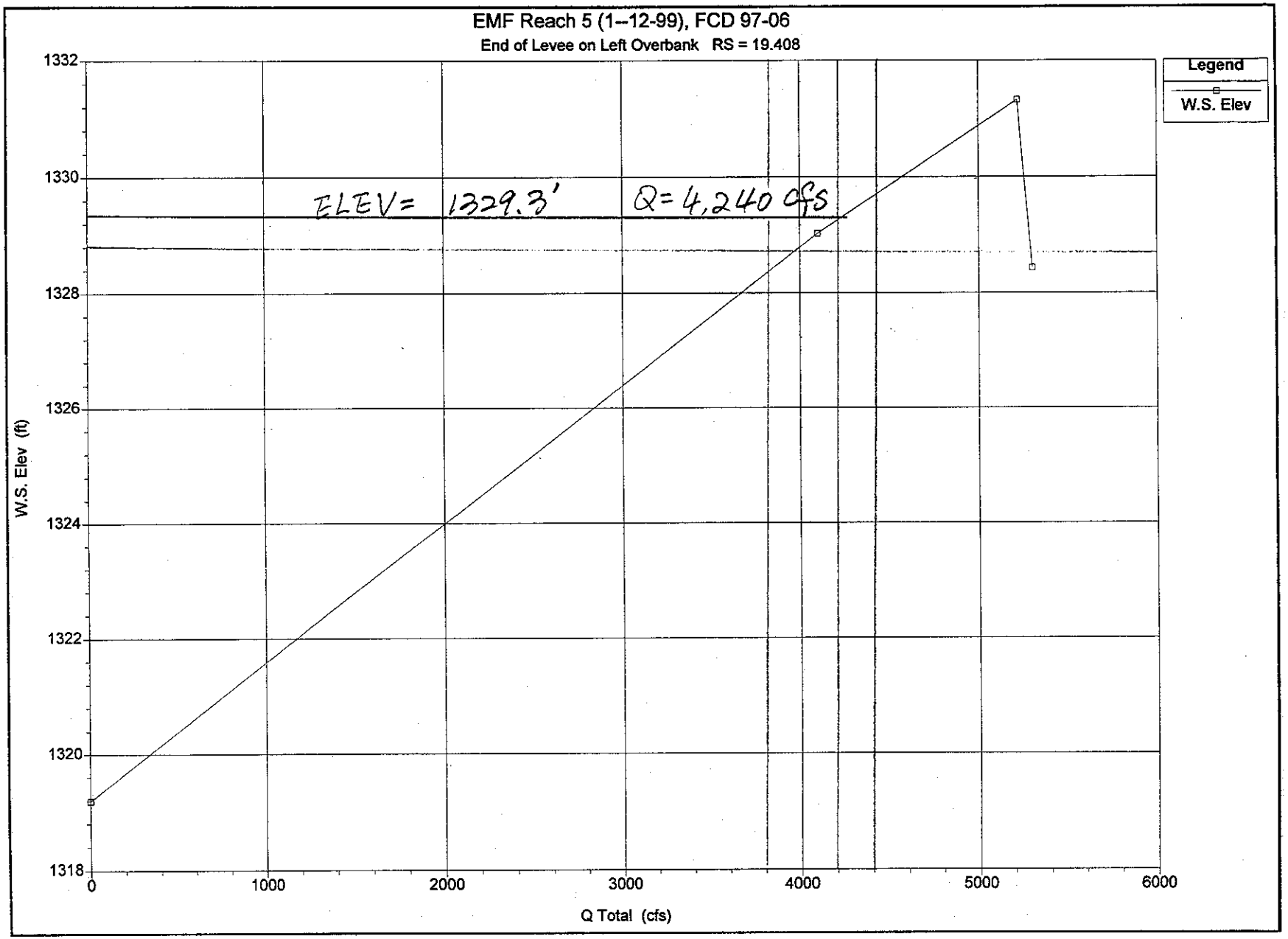

EMF Reach 5 (1--12-99), FCD 97-06
Guadalupe Road 3-Span Bridge RS = 21.407 BR U
Legend
W.S. Elev
ELEV= 1335.7' Q=4,720 cfs
W.S. Elev (ft)
1340
1335
1330
1325
1320
1315
0
1000
2000
3000
4000
5000
6000
Q Total (cfs)

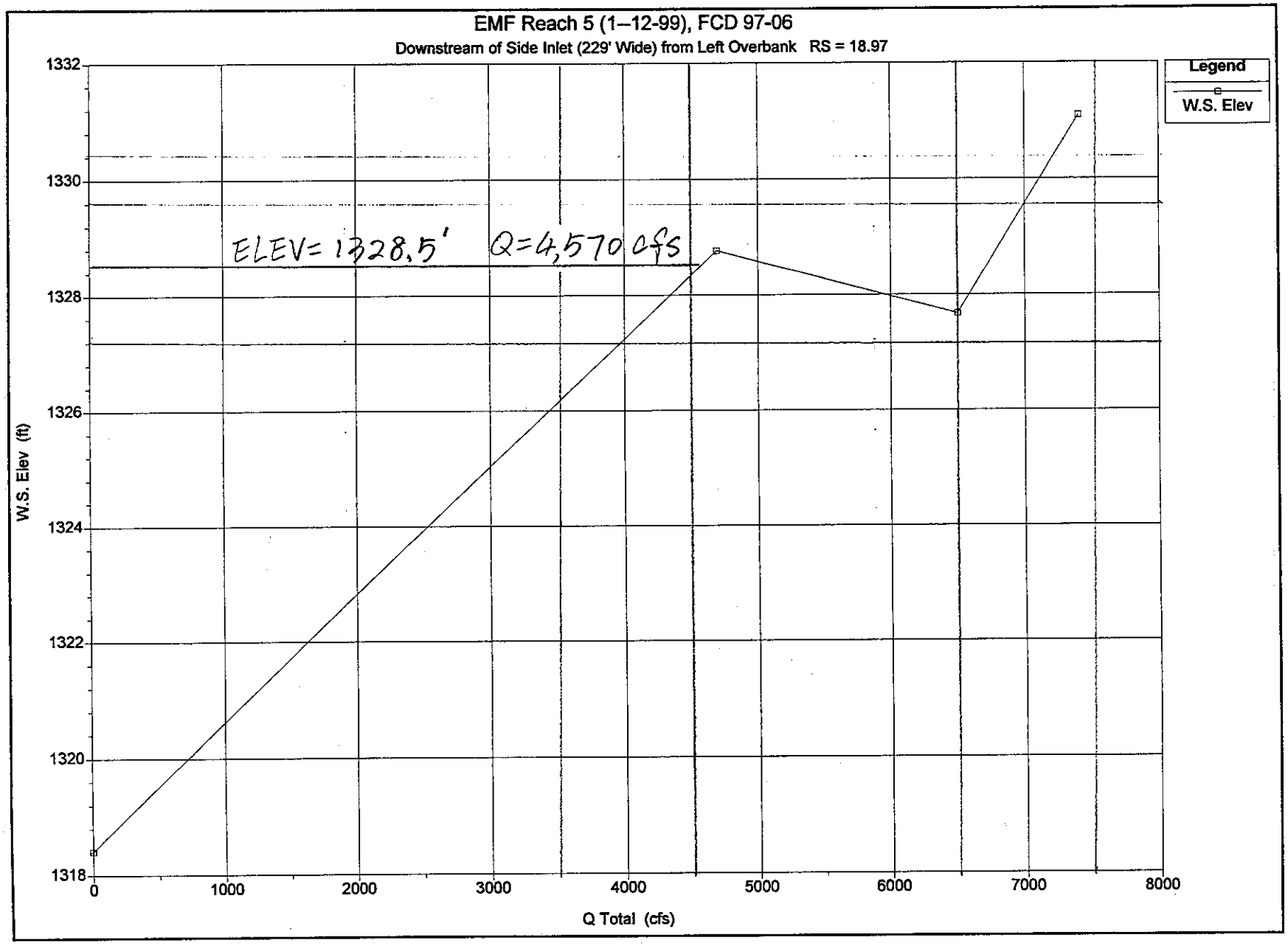

EMF Reach 5 (1--12-99), FCD 97-06
Power Road 6-Span Bridge (South of Guadalupe Road) RS = 21.339 BR U
Legend
W.S. Elev
ELEV = 1336.1'
Q = 4,980 cfs
W.S. Elev (ft)
1340
1335
1330
1325
1320
1315
0
1000
2000
3000
4000
5000
6000
Q Total (cfs)

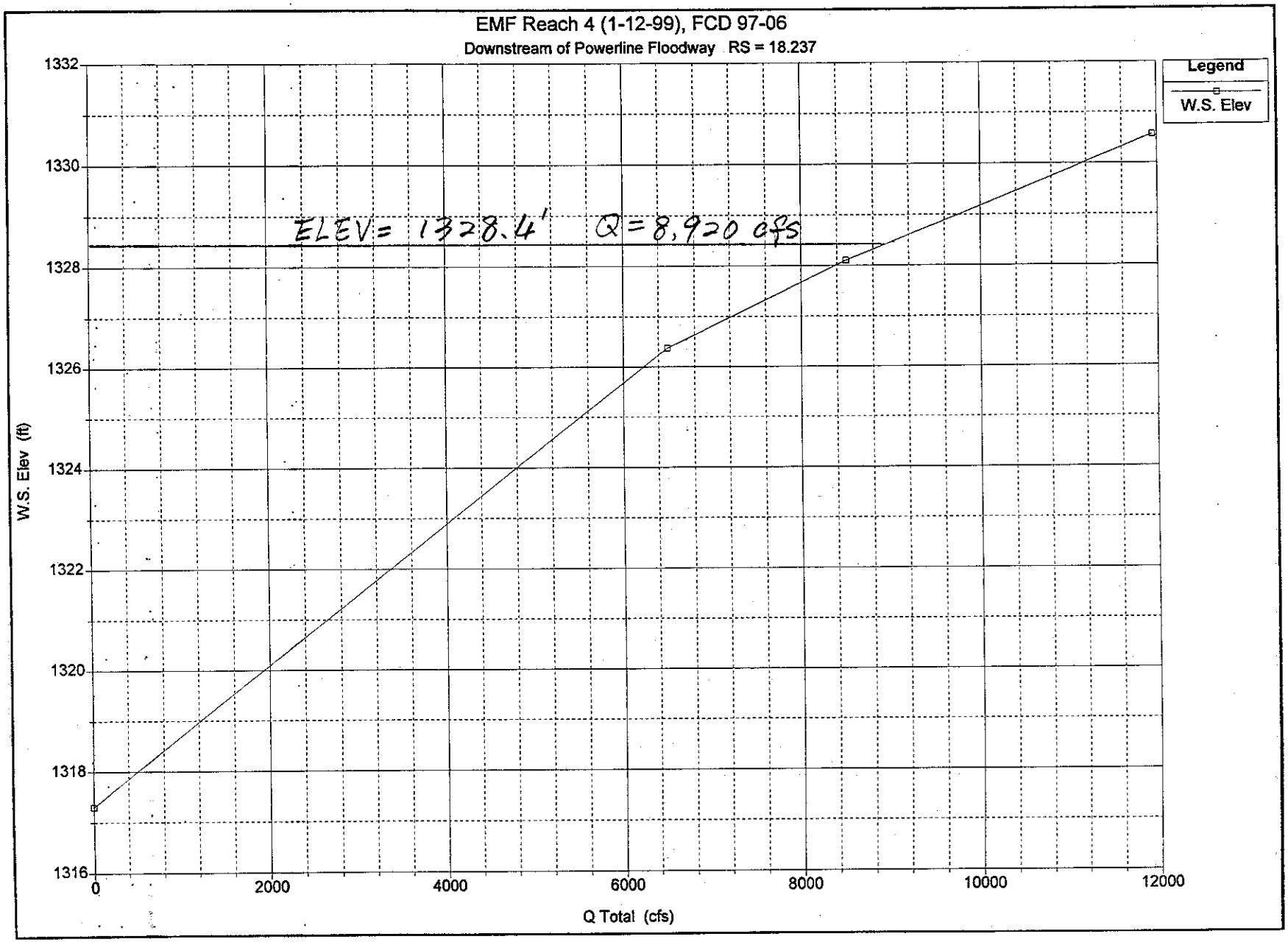

EMF Reach 5 (1--12-99), FCD 97-06
RS = 20.894
ELEV = 1332.3'
Q = 5,240 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1334
1332
1330
1328
1326
1324
1322
1320
0
1000
2000
3000
4000
5000
6000
Q Total (cfs)

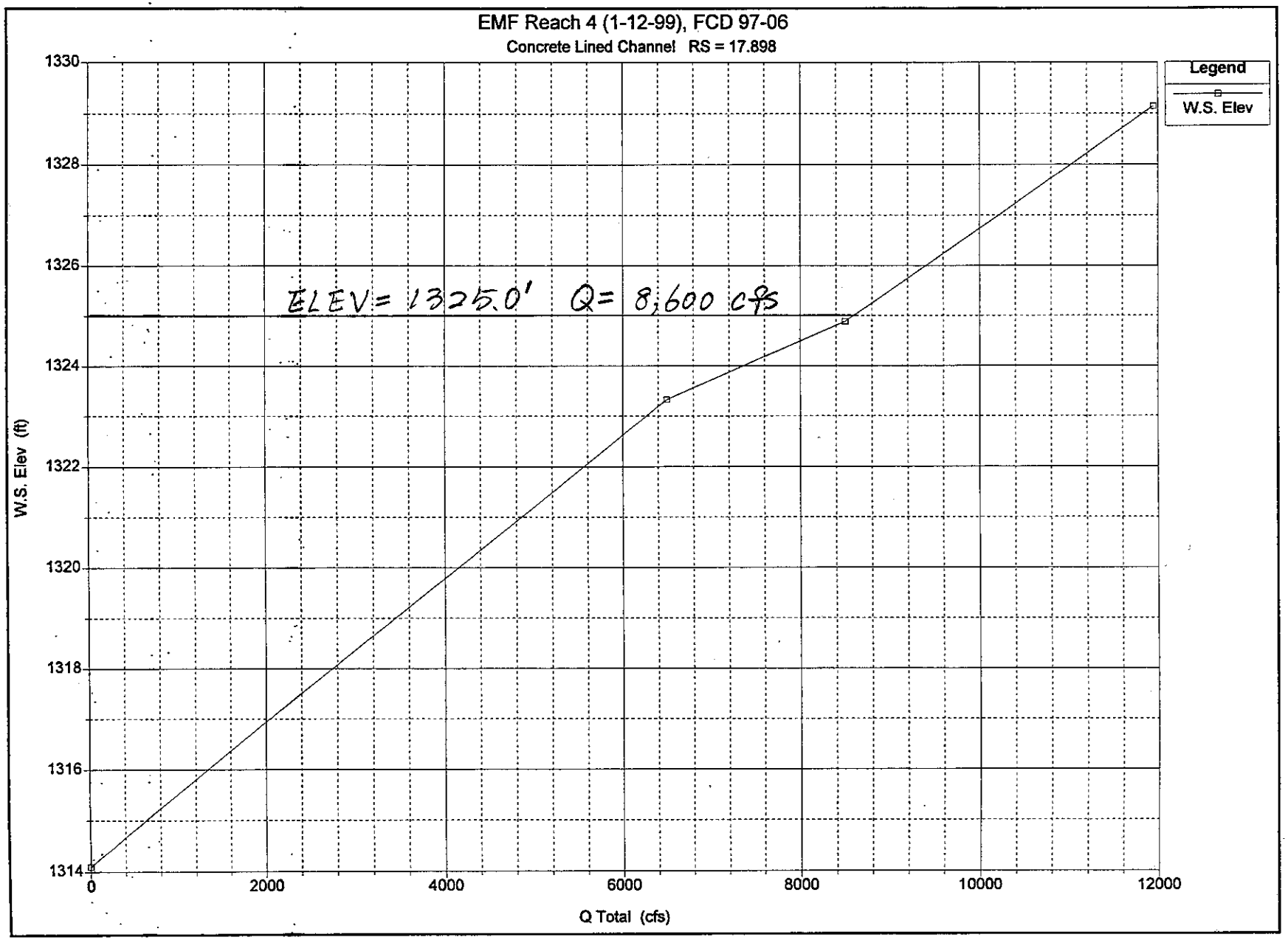

EMF Reach 5 (1--12-99), FCD 97-06
Elliot Road 6-Span Bridge RS = 20.323 BR U
Legend
W.S. Elev
ELEV = 1335.2'
Q = 5,440 cfs
W.S. Elev (ft)
1338
1336
1334
1332
1330
1328
1326
1324
1322
1320
0
1000
2000
3000
4000
5000
6000
7000
Q Total (cfs)

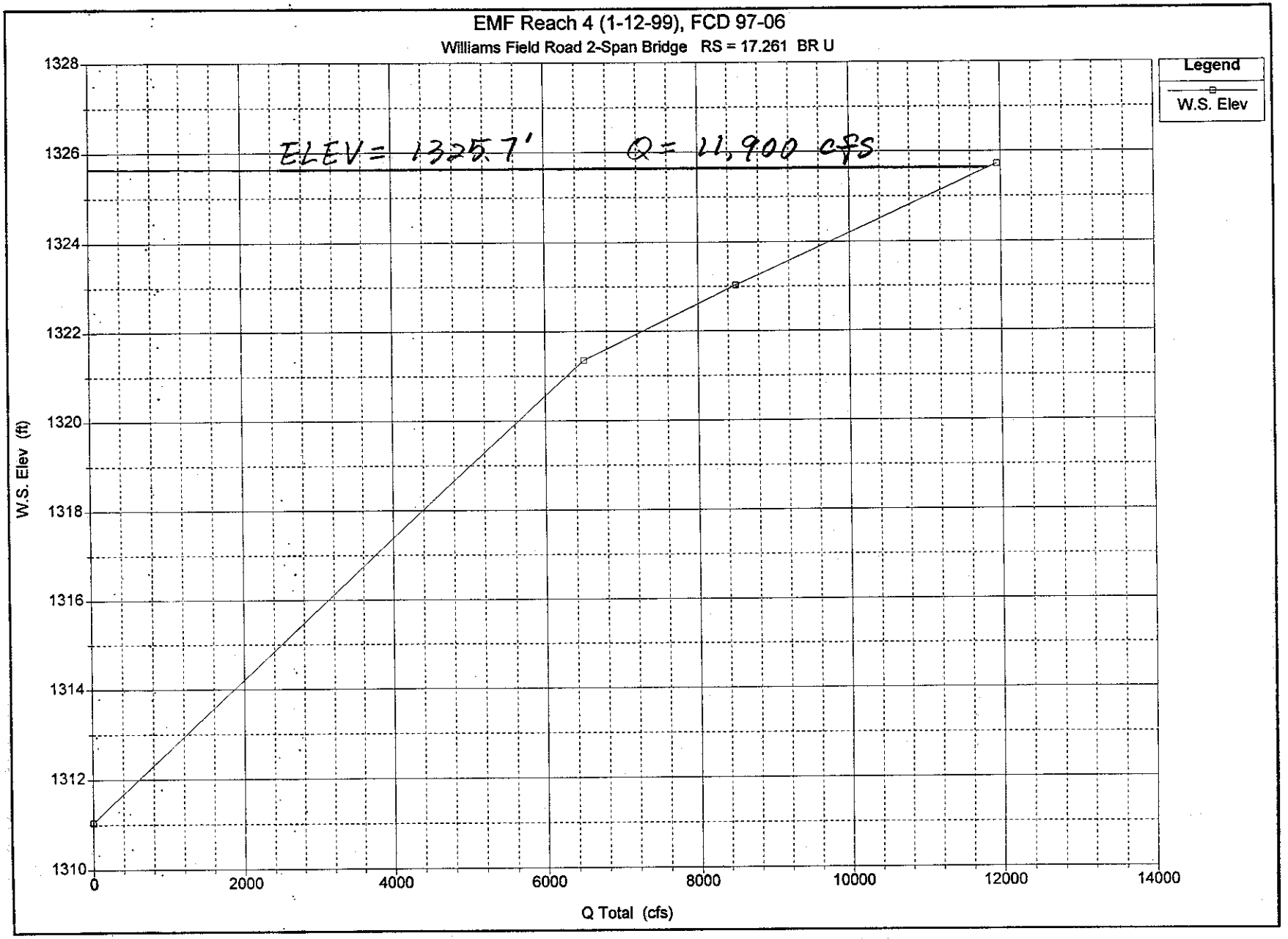

EMF Reach 5 (1–12-99), FCD 97-06
8' High Levee on Left Overbank RS = 20.058
ELEV= 1331.0'
Q= 5,200 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1332
1330
1328
1326
1324
1322
1320
0
1000
2000
3000
4000
5000
6000
Q Total (cfs)

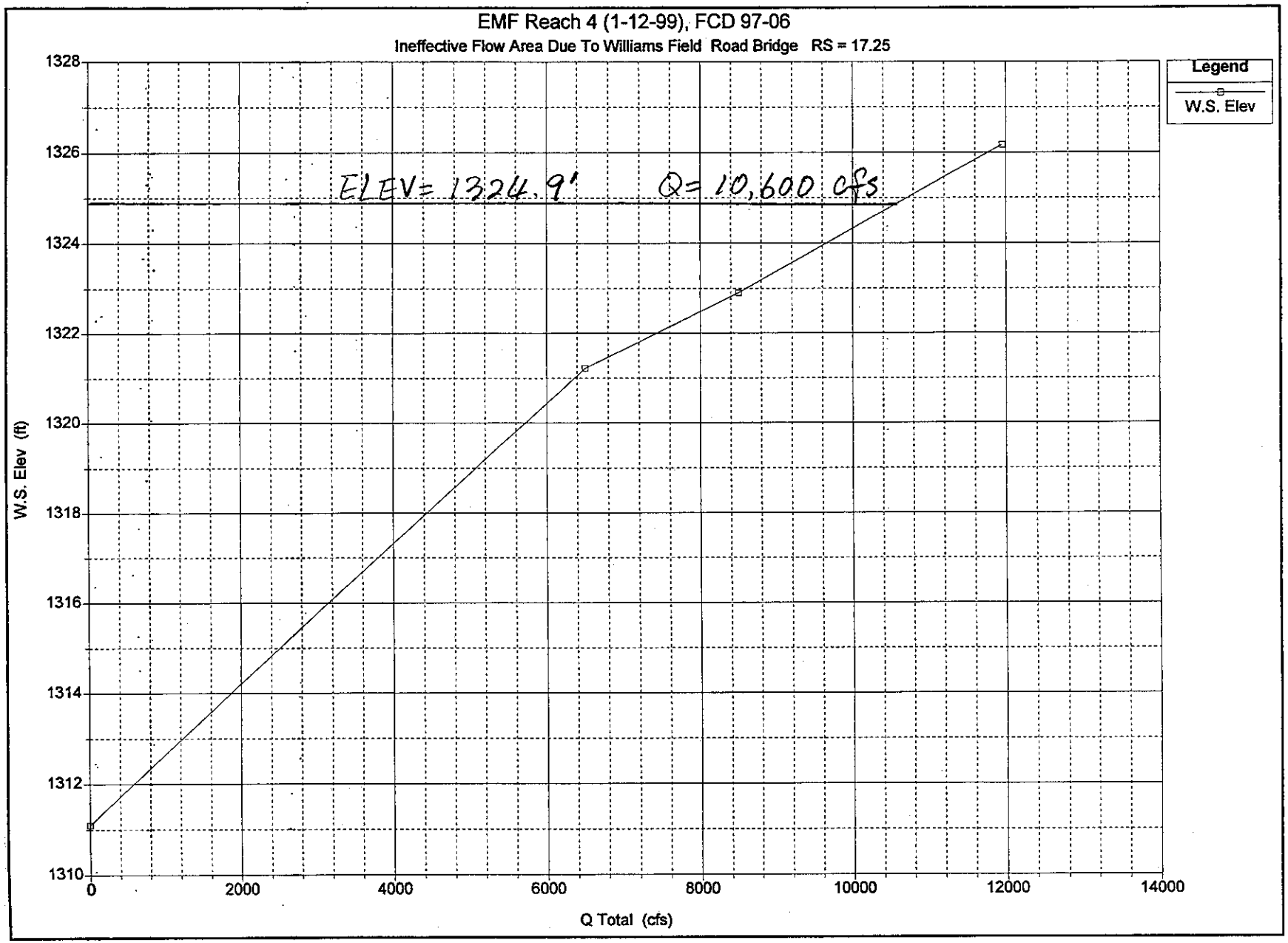

EMF Reach 5 (1--12-99), FCD 97-06
End of Levee on Left Overbank RS = 19.408
Legend
W.S. Elev
ELEV= 1329.3'
Q= 4,240 cfs
W.S. Elev (ft)
1332
1330
1328
1326
1324
1322
1320
1318
0
1000
2000
3000
4000
5000
6000
Q Total (cfs)

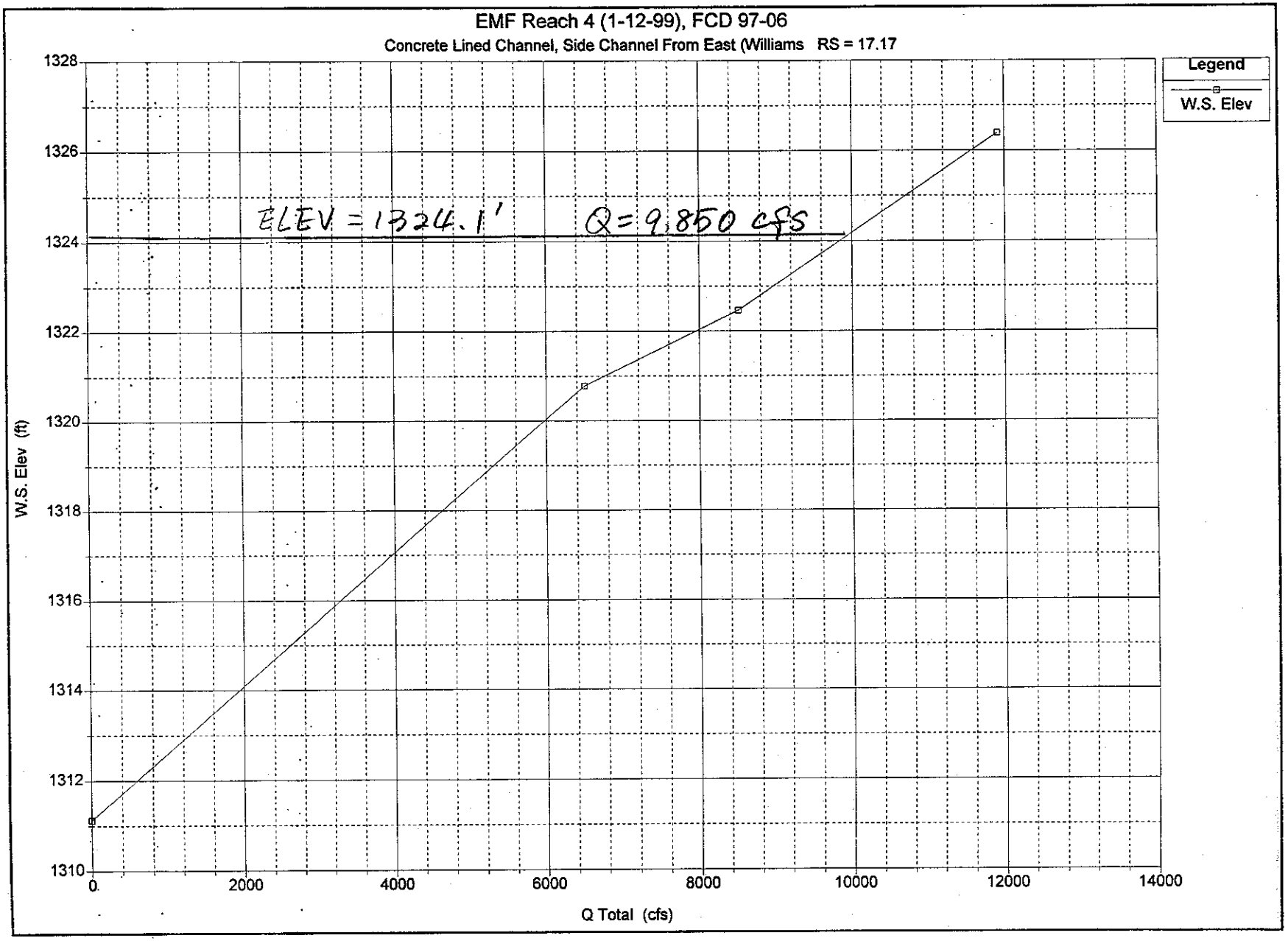

EMF Reach 5 (1–12-99), FCD 97-06
Downstream of Side Inlet (229' Wide) from Left Overbank RS = 18.97
Legend
W.S. Elev
ELEV= 1328.5' Q=4,570 cfs
W.S. Elev (ft)
1332
1330
1328
1326
1324
1322
1320
1318
0
1000
2000
3000
4000
5000
6000
7000
8000
Q Total (cfs)


EMF Reach 4 (1-12-99), FCD 97-06
Downstream of Powerline Floodway RS = 18.237
Legend
W.S. Elev
ELEV= 1328.4' Q=8,920 cfs
W.S. Elev (ft)
1332
1330
1328
1326
1324
1322
1320
1318
1316
0
2000
4000
6000
8000
10000
12000
Q Total (cfs)

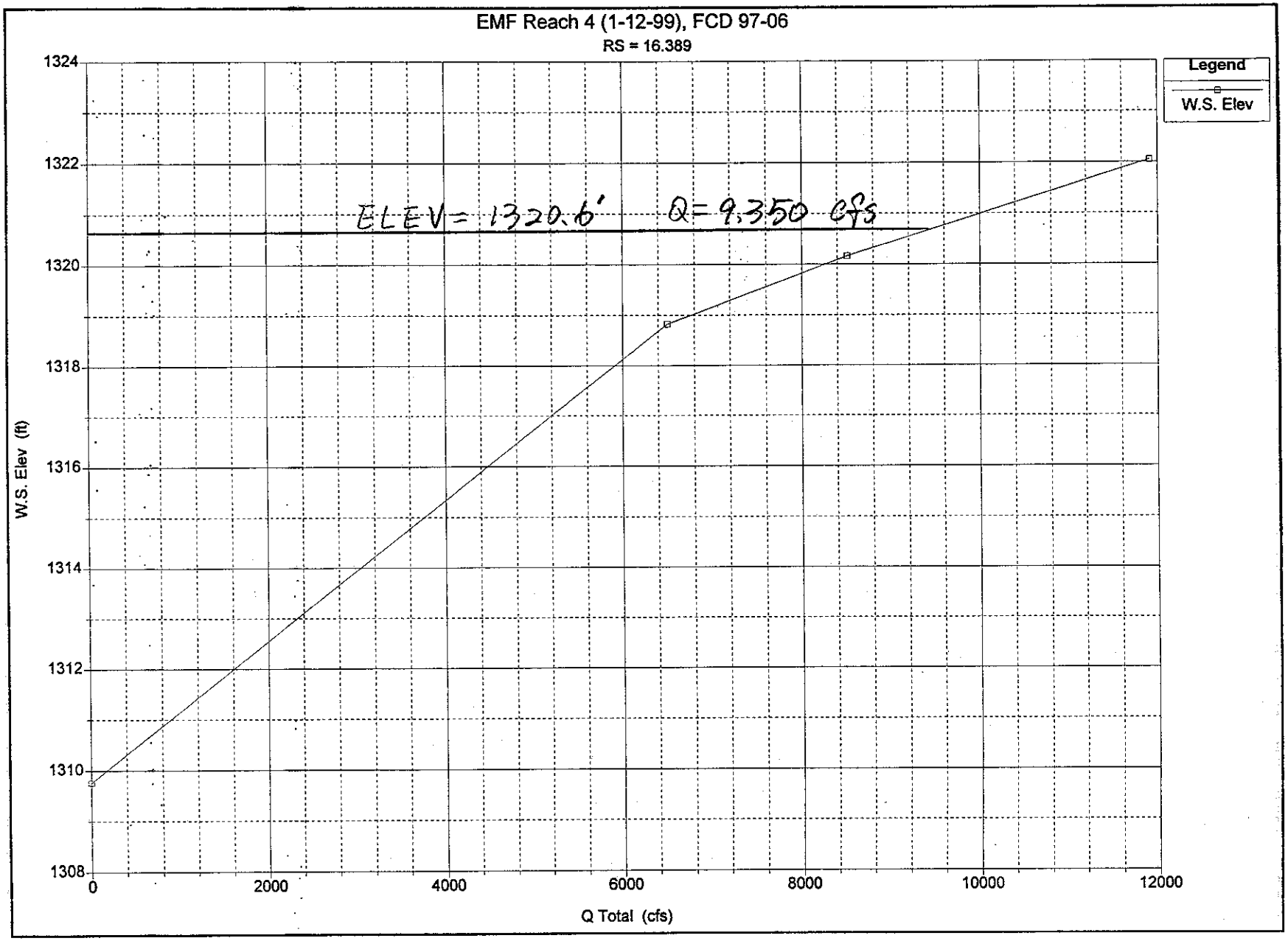

EMF Reach 4 (1-12-99), FCD 97-06
Concrete Lined Channel RS = 17.898
Legend
W.S. Elev
ELEV= 1325.0' Q= 8,600 cfs
W.S. Elev (ft)
1330
1328
1326
1324
1322
1320
1318
1316
1314
0
2000
4000
6000
8000
10000
12000
Q Total (cfs)

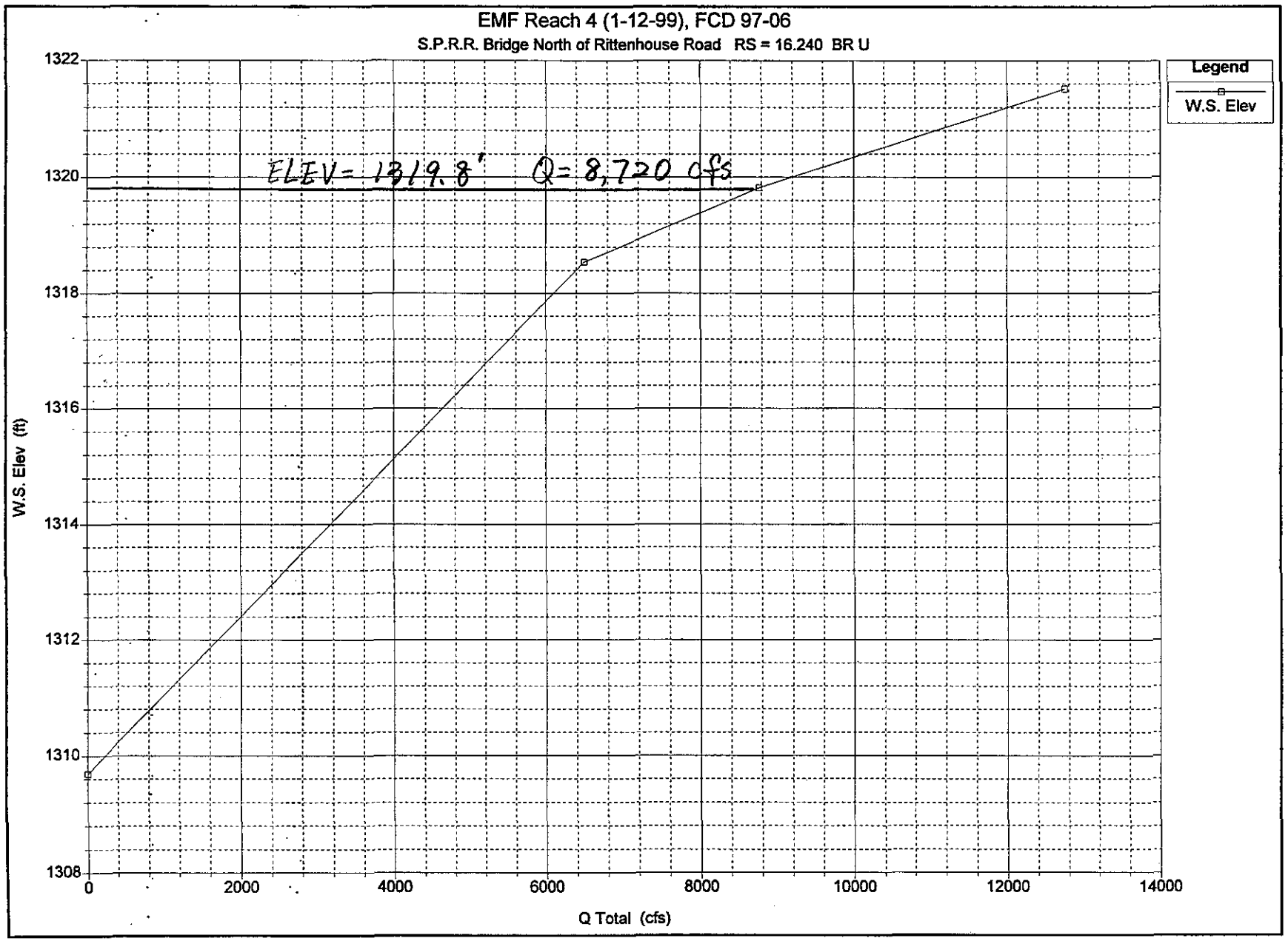

EMF Reach 4 (1-12-99), FCD 97-06
Williams Field Road 2-Span Bridge RS = 17.261 BR U
ELEV = 1325.7'
Q = 11,900 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1328
1326
1324
1322
1320
1318
1316
1314
1312
1310
0
2000
4000
6000
8000
10000
12000
14000
Q Total (cfs)

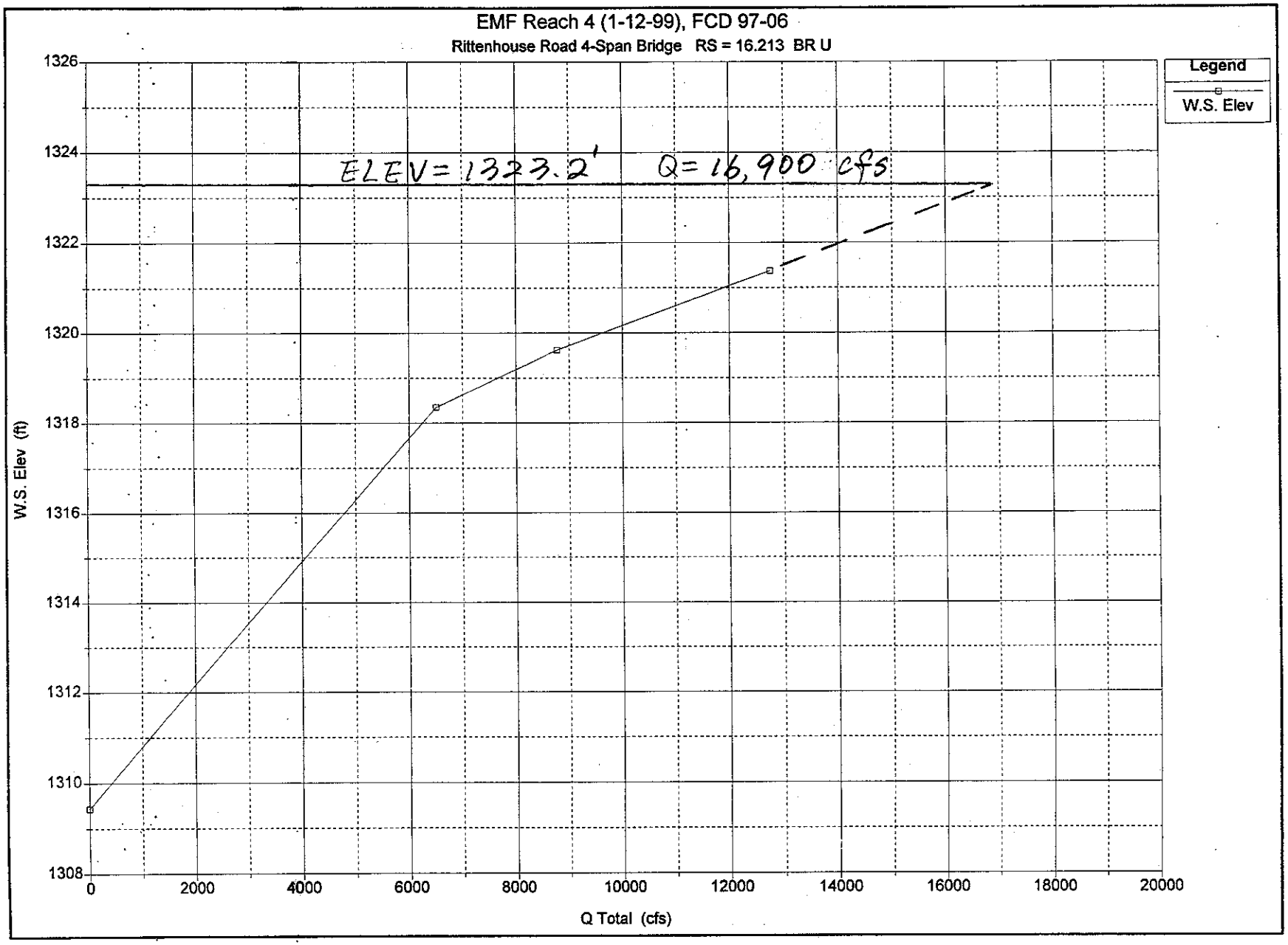

EMF Reach 4 (1-12-99), FCD 97-06
Ineffective Flow Area Due To Williams Field Road Bridge RS = 17.25
Legend
W.S. Elev
ELEV= 1324.9'
Q= 10,600 cfs
W.S. Elev (ft)
1328
1326
1324
1322
1320
1318
1316
1314
1312
1310
0
2000
4000
6000
8000
10000
12000
14000
Q Total (cfs)

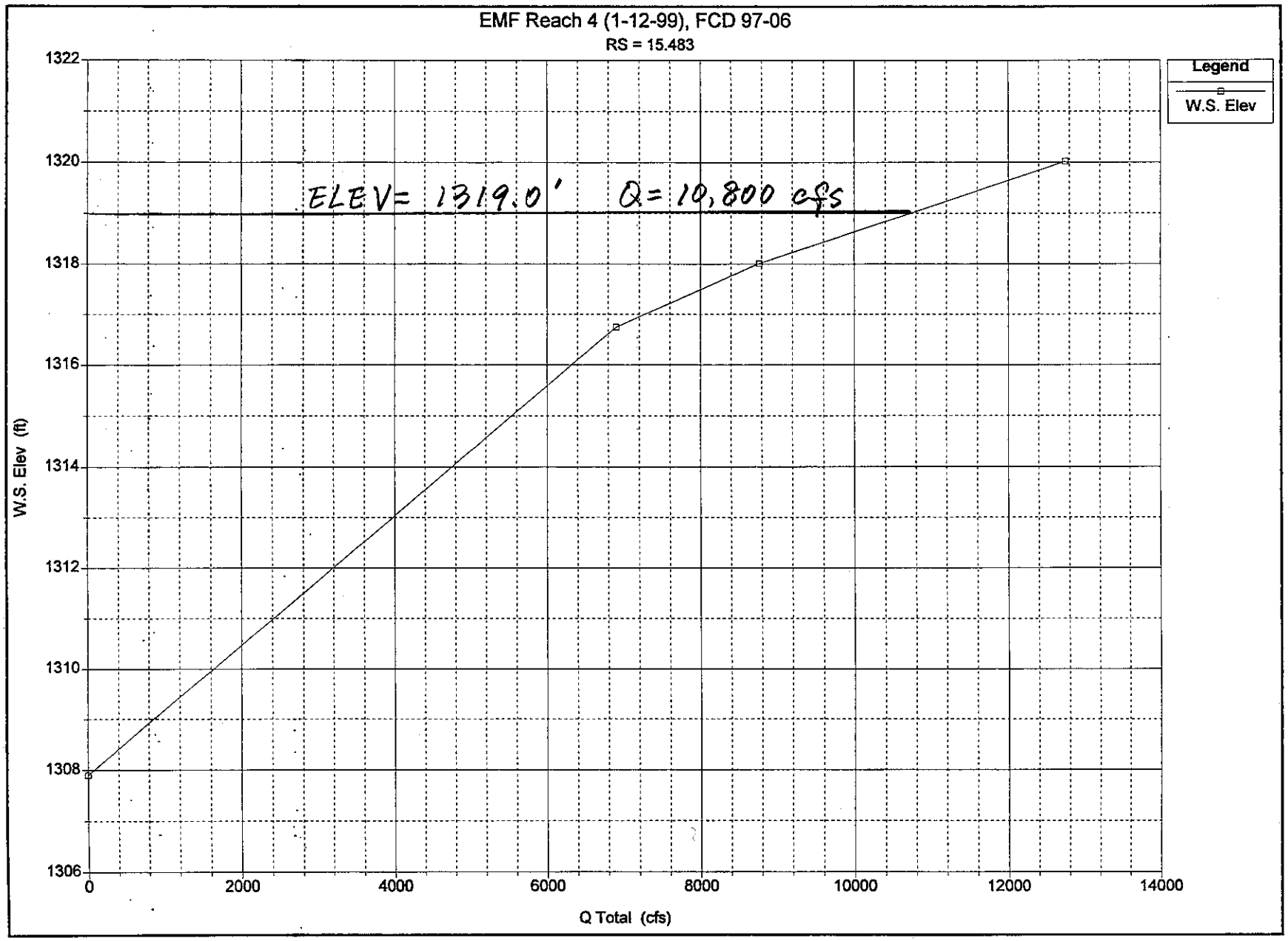

EMF Reach 4 (1-12-99), FCD 97-06
Concrete Lined Channel, Side Channel From East (Williams RS = 17.17
Legend
W.S. Elev
ELEV = 1324.1'
Q = 9,850 cfs
W.S. Elev (ft)
1328
1326
1324
1322
1320
1318
1316
1314
1312
1310
0
2000
4000
6000
8000
10000
12000
14000
Q Total (cfs)

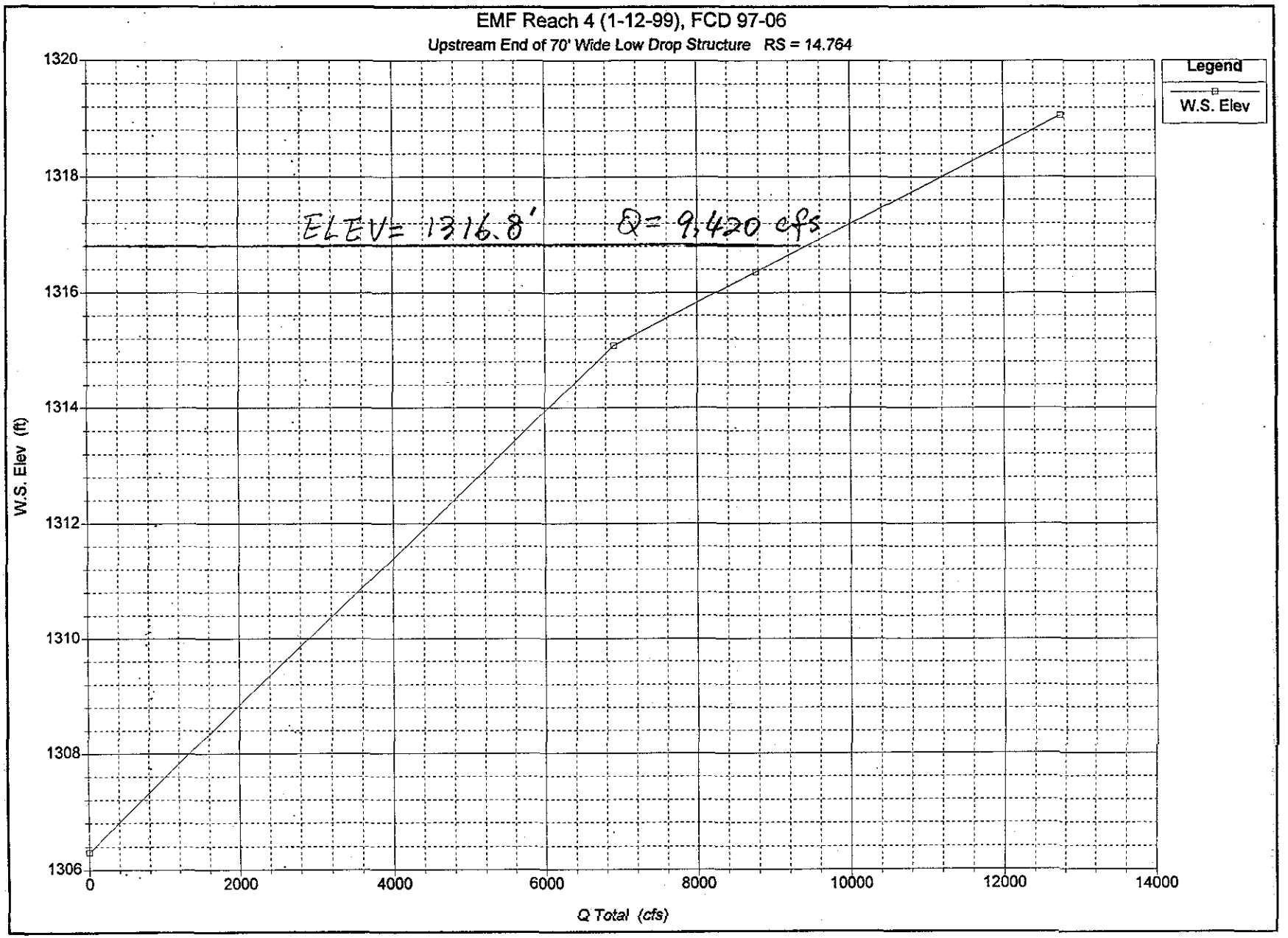
EMF Reach 4 (1-12-99), FCD 97-06
Power Road 2-Span Bridge just South of Williams Field Road RS = 17.086 BR U
ELEV= 1324.3' Q=16,700 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1326
1324
1322
1320
1318
1316
1314
1312
1310
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
Q Total (cfs)

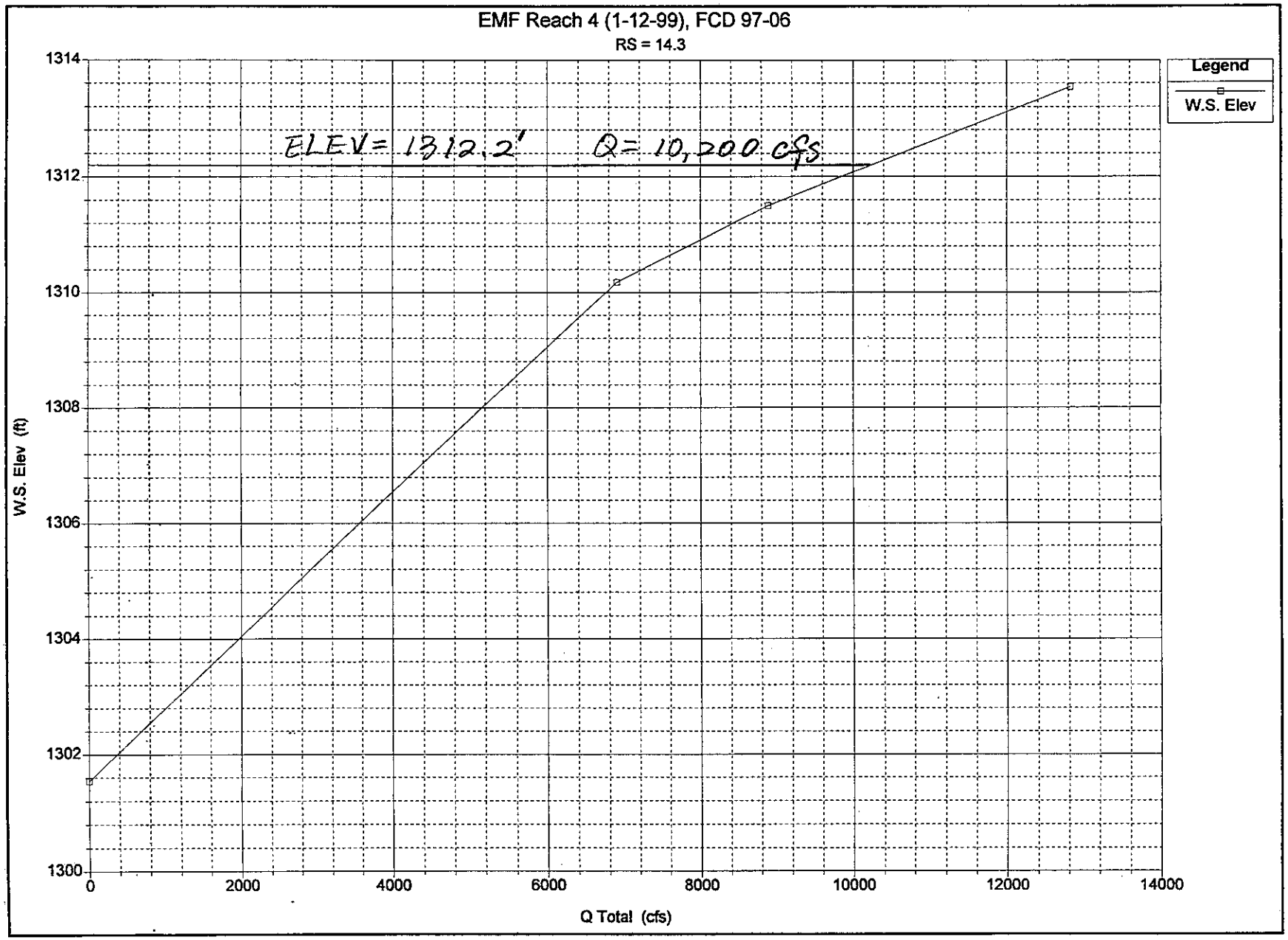

EMF Reach 4 (1-12-99), FCD 97-06
RS = 16.389
Legend
W.S. Elev
ELEV = 1320.6'
Q = 9,350 cfs
W.S. Elev (ft)
1324
1322
1320
1318
1316
1314
1312
1310
1308
0
2000
4000
6000
8000
10000
12000
Q Total (cfs)

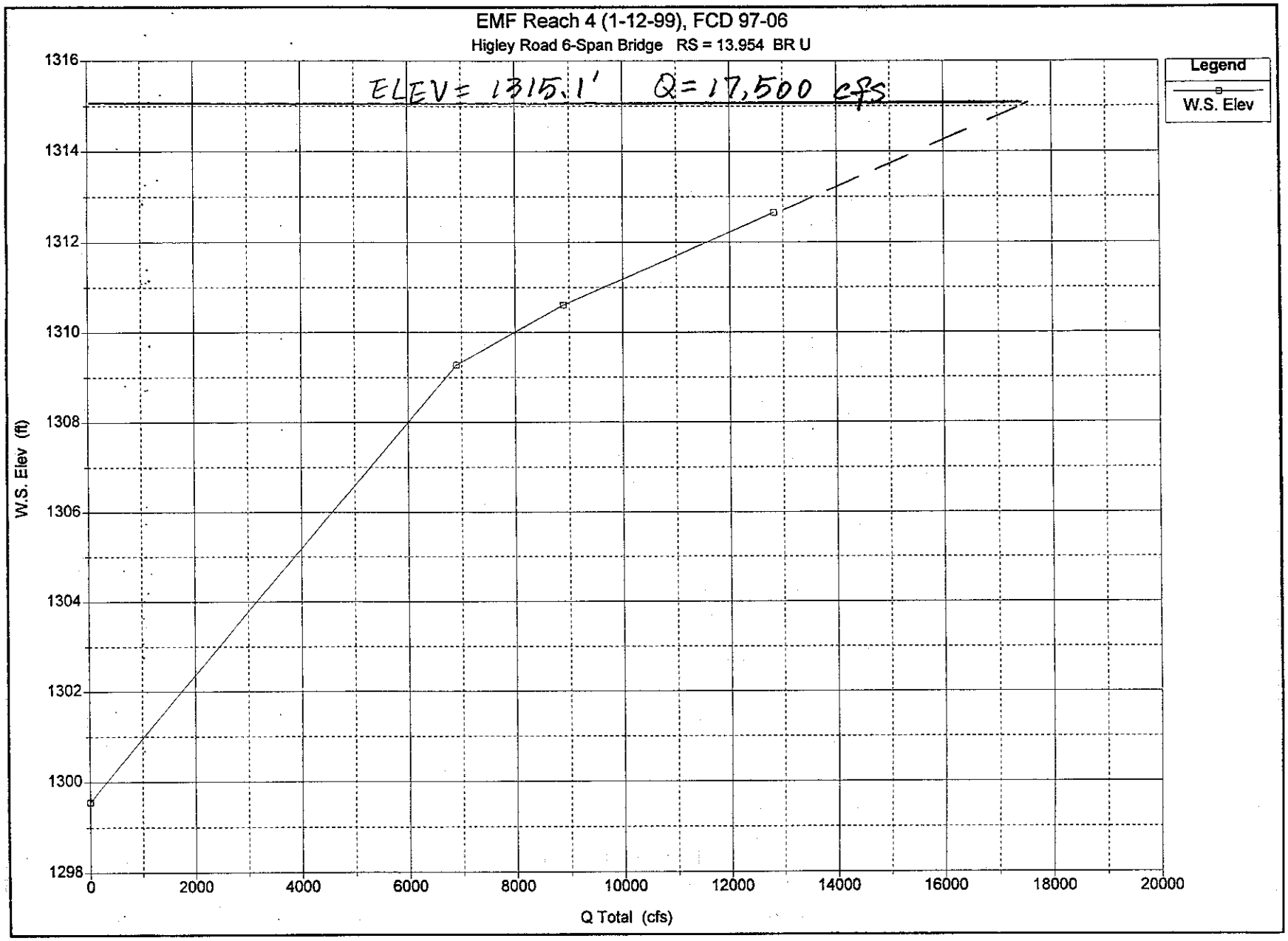

EMF Reach 4 (1-12-99), FCD 97-06
S.P.R.R. Bridge North of Rittenhouse Road RS = 16.240 BR U
Legend
W.S. Elev
ELEV= 1319.8' Q= 8,720 cfs
W.S. Elev (ft)
1322
1320
1318
1316
1314
1312
1310
1308
0
2000
4000
6000
8000
10000
12000
14000
Q Total (cfs)

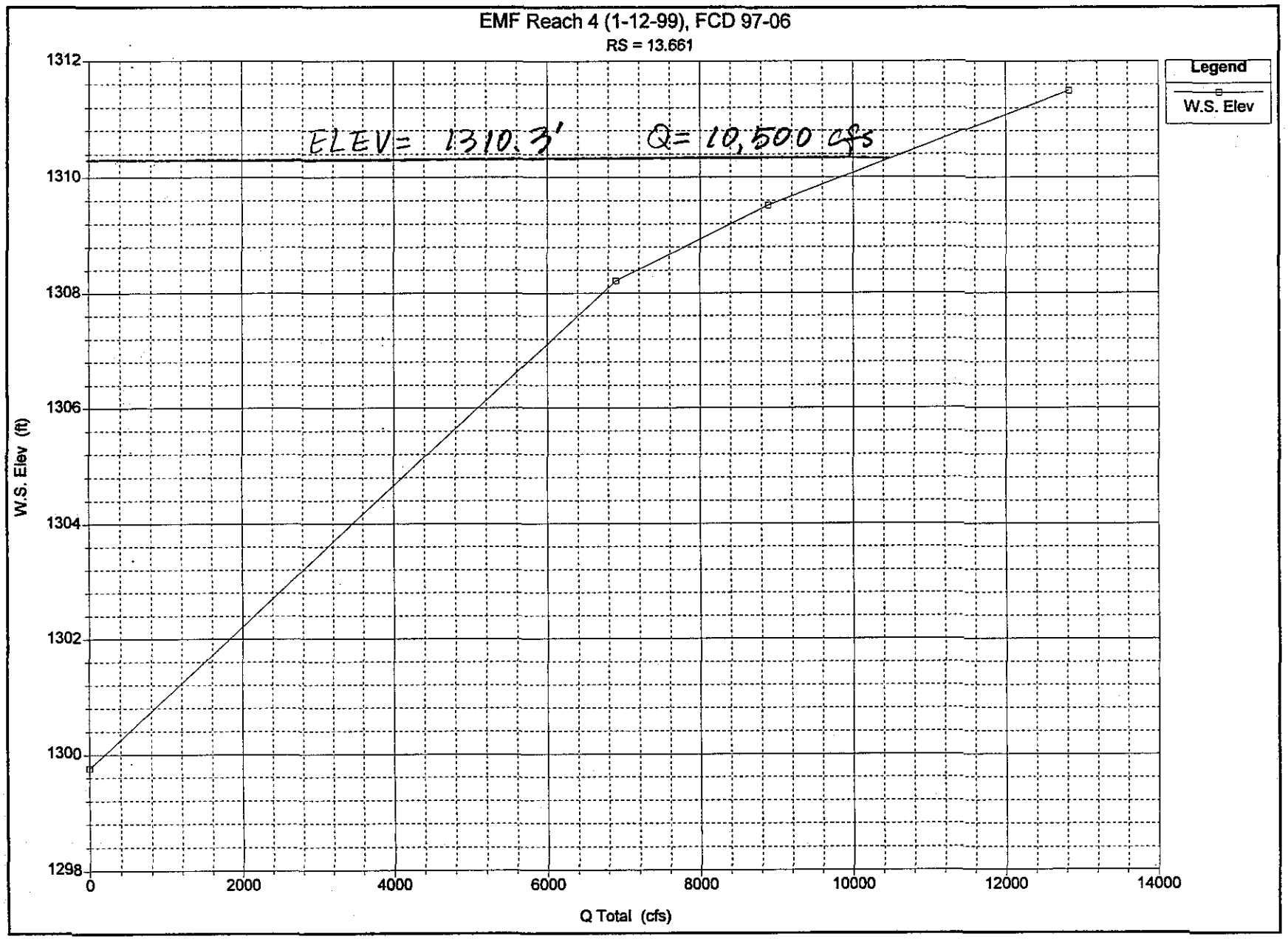

EMF Reach 4 (1-12-99), FCD 97-06
Rittenhouse Road 4-Span Bridge RS = 16.213 BR U
Legend
W.S. Elev
ELEV = 1323.2'
Q = 16,900 cfs
W.S. Elev (ft)
1326
1324
1322
1320
1318
1316
1314
1312
1310
1308
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
Q Total (cfs)

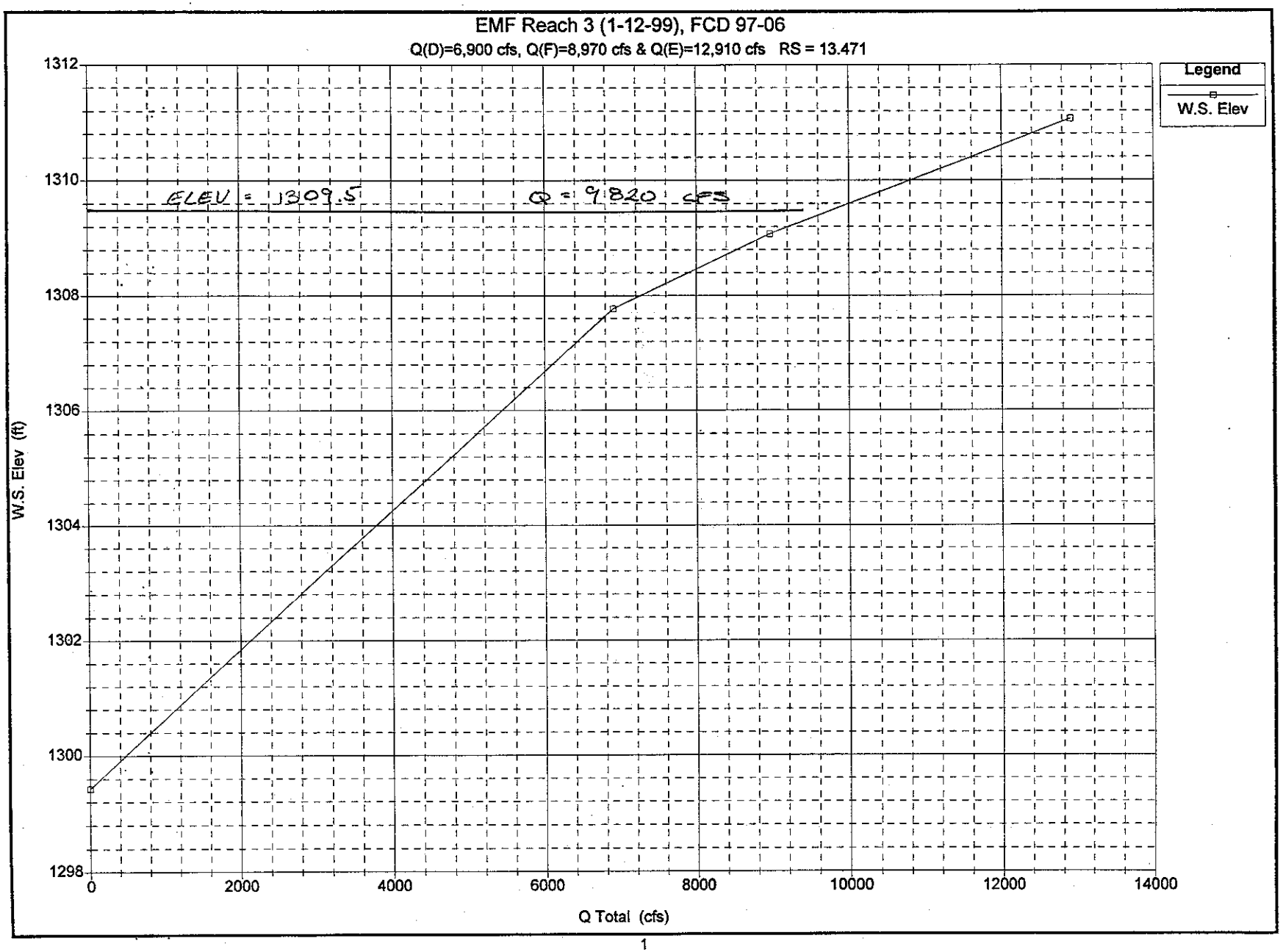

EMF Reach 4 (1-12-99), FCD 97-06
RS = 15.483
Legend
W.S. Elev
ELEV= 1319.0'
Q= 10,800 cfs
W.S. Elev (ft)
1322
1320
1318
1316
1314
1312
1310
1308
1306
0
2000
4000
6000
8000
10000
12000
14000
Q Total (cfs)

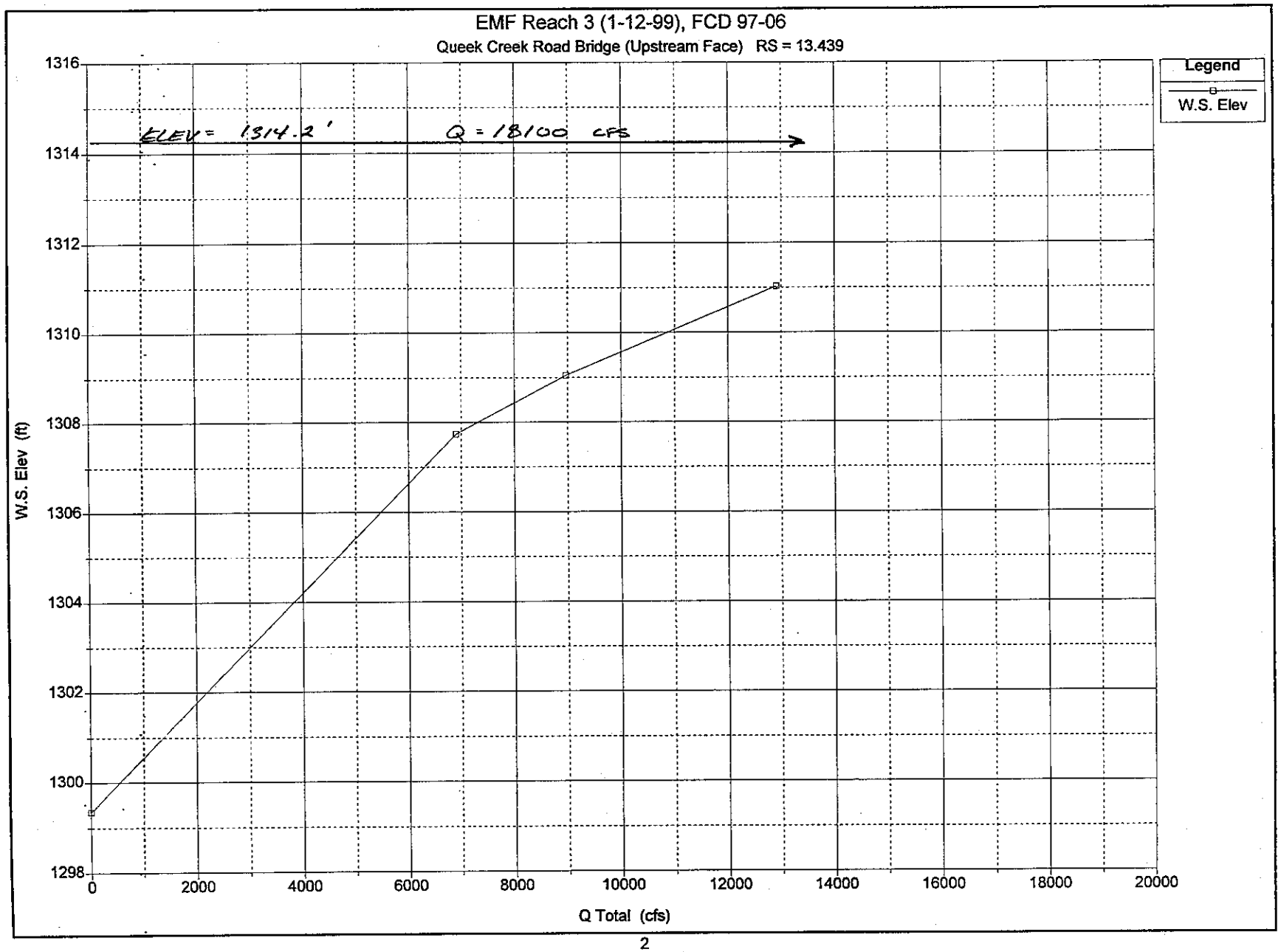

EMF Reach 4 (1-12-99), FCD 97-06
Upstream End of 70' Wide Low Drop Structure RS = 14.764
Legend
W.S. Elev
ELEV= 1316.8'
Q= 9,420 cfs
W.S. Elev (ft)
1320
1318
1316
1314
1312
1310
1308
1306
0
2000
4000
6000
8000
10000
12000
14000
Q Total (cfs)

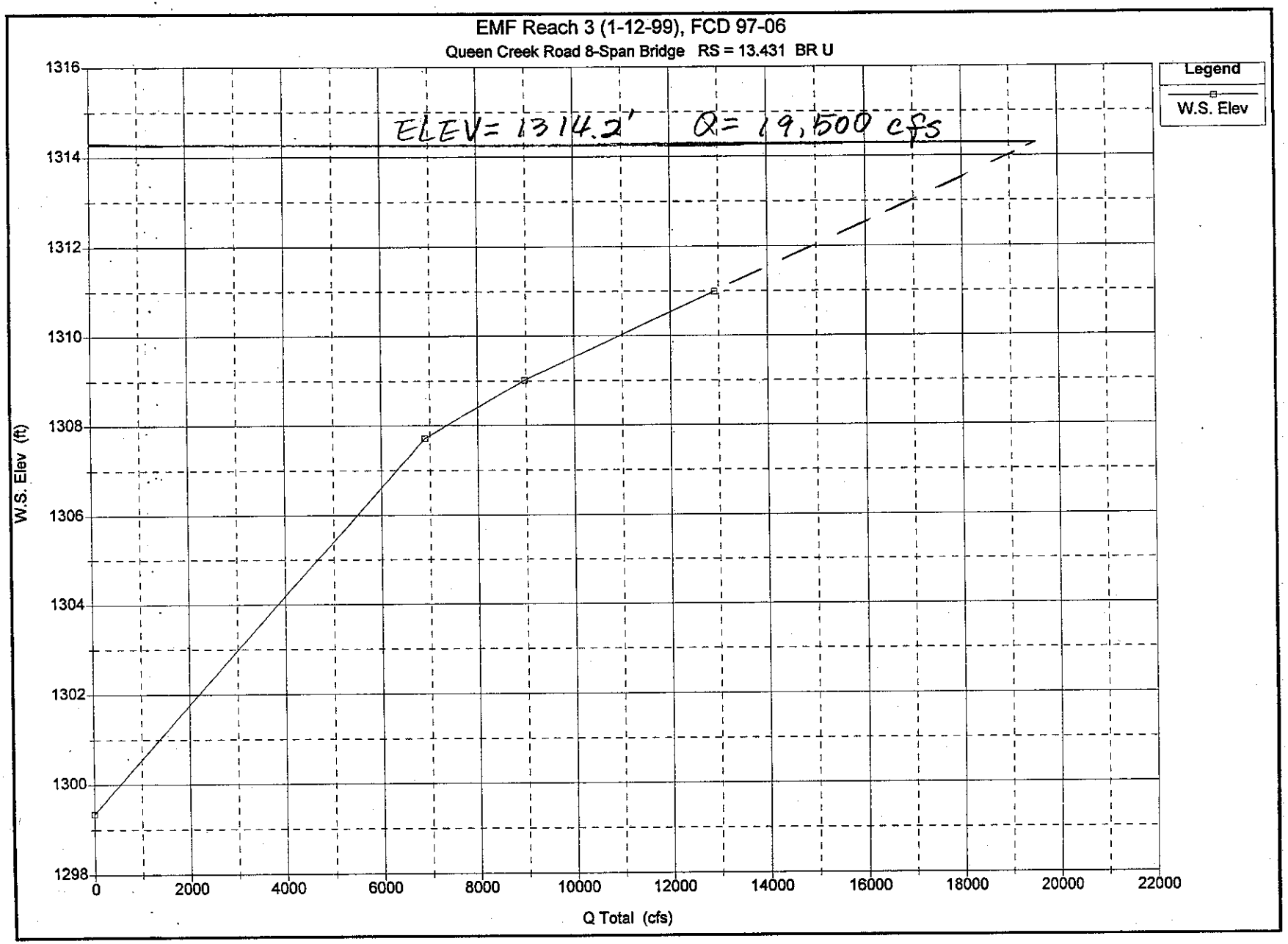

EMF Reach 4 (1-12-99), FCD 97-06
RS = 14.3
ELEV= 1312.2'
Q= 10,200 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1314
1312
1310
1308
1306
1304
1302
1300
0
2000
4000
6000
8000
10000
12000
14000
Q Total (cfs)

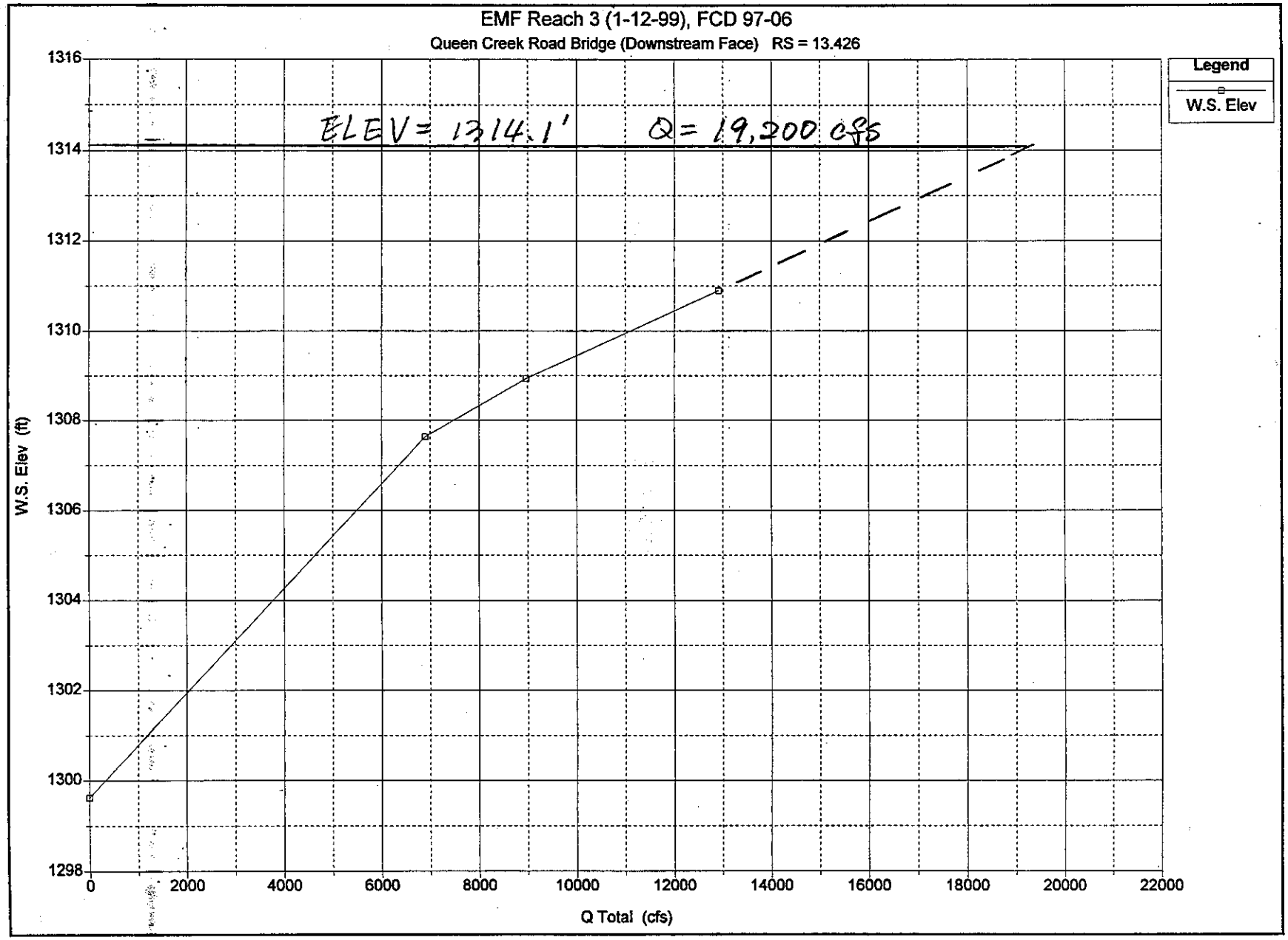

EMF Reach 4 (1-12-99), FCD 97-06
Higley Road 6-Span Bridge RS = 13.954 BR U
ELEV = 1315.1' Q = 17,500 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
Q Total (cfs)


EMF Reach 4 (1-12-99), FCD 97-06
RS = 13.661
ELEV= 1310.3'
Q= 10,500 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1312
1310
1308
1306
1304
1302
1300
1298
0
2000
4000
6000
8000
10000
12000
14000
Q Total (cfs)


EMF Reach 3 (1-12-99), FCD 97-06
Q(D)=6,900 cfs, Q(F)=8,970 cfs & Q(E)=12,910 cfs RS = 13.471
Legend
W.S. Elev
ELEV = 1309.5
Q = 9820 cfs
W.S. Elev (ft)
1312
1310
1308
1306
1304
1302
1300
1298
0
2000
4000
6000
8000
10000
12000
14000
Q Total (cfs)


EMF Reach 3 (1-12-99), FCD 97-06
Queek Creek Road Bridge (Upstream Face) RS = 13.439
ELEV = 1314.2'
Q = 18100 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
Q Total (cfs)


EMF Reach 3 (1-12-99), FCD 97-06
Queen Creek Road 8-Span Bridge RS = 13.431 BR U
ELEV= 1314.2'
Q= 19,500 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
Q Total (cfs)

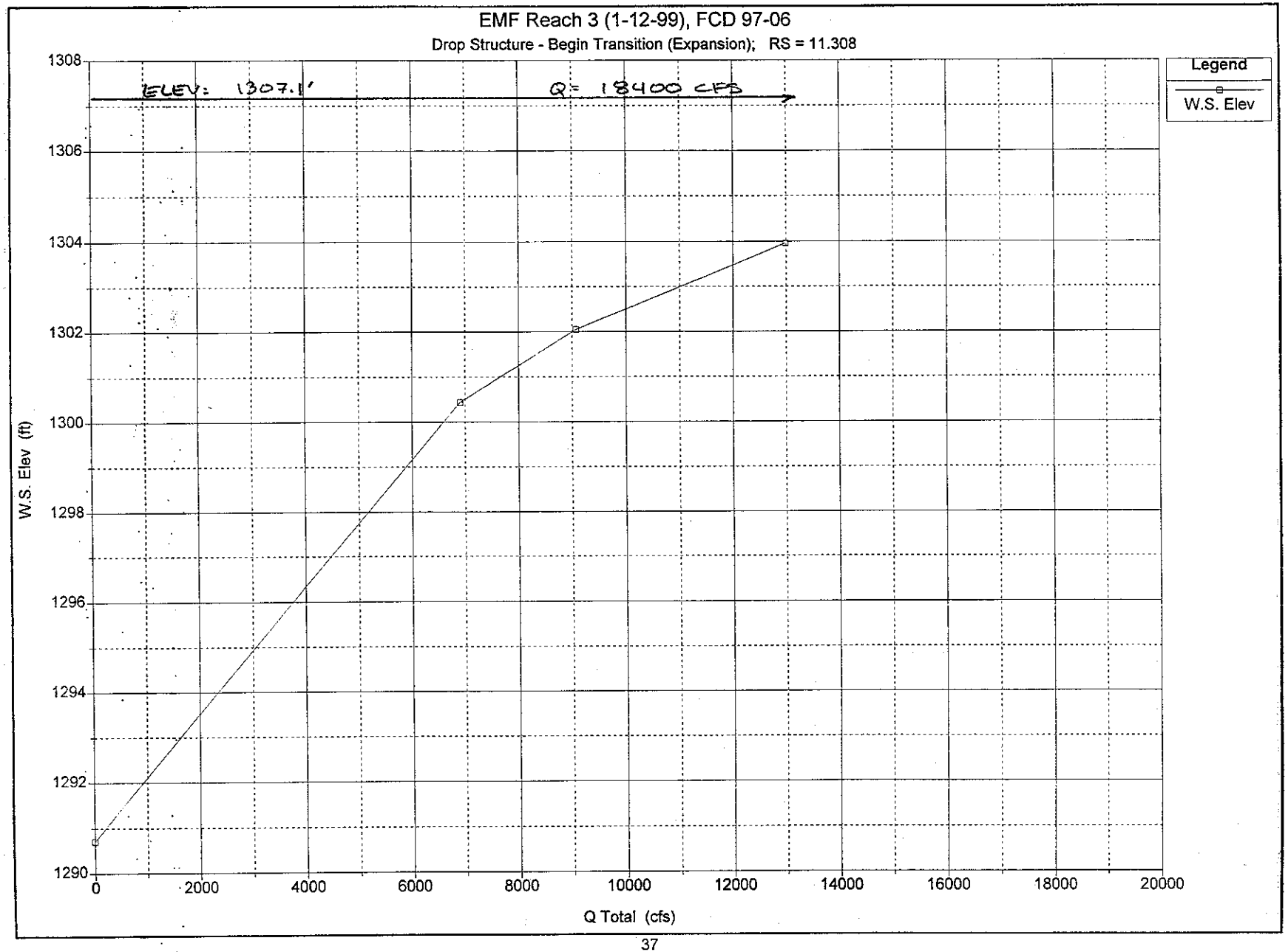

EMF Reach 3 (1-12-99), FCD 97-06
Queen Creek Road Bridge (Downstream Face) RS = 13.426
ELEV= 1314.1'
Q= 19,200 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1316
1314
1312
1310
1308
1306
1304
1302
1300
1298
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
Q Total (cfs)

EMF Reach 3 (1-12-99), FCD 97-06
Concrete Drop Structure - Begin Transition (Contraction) RS = 11.328
ELEV = 1307.0'
Q = 15000 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1308
1306
1304
1302
1300
1298
1296
1294
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

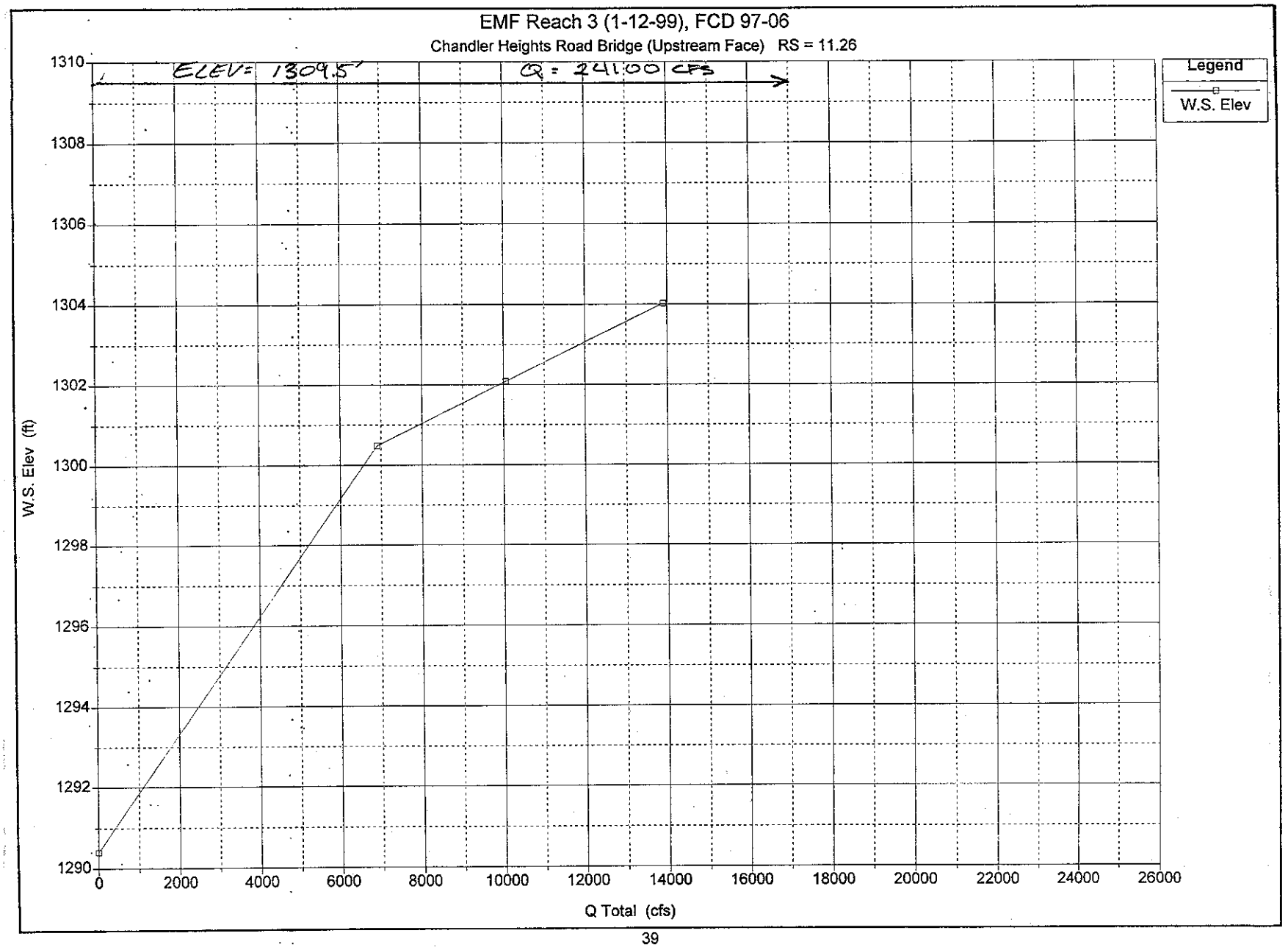
EMF Reach 3 (1-12-99), FCD 97-06
Drop Structure - End Transition (Contraction) RS = 11.321
ELEV = 1307.4'
Q = 20600 CFS
Legend
W.S. Elev
W.S. Elev (ft)
1308
1307
1306
1305
1304
1303
1302
1301
1300
1299
1298
1297
1296
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
Q Total (cfs)

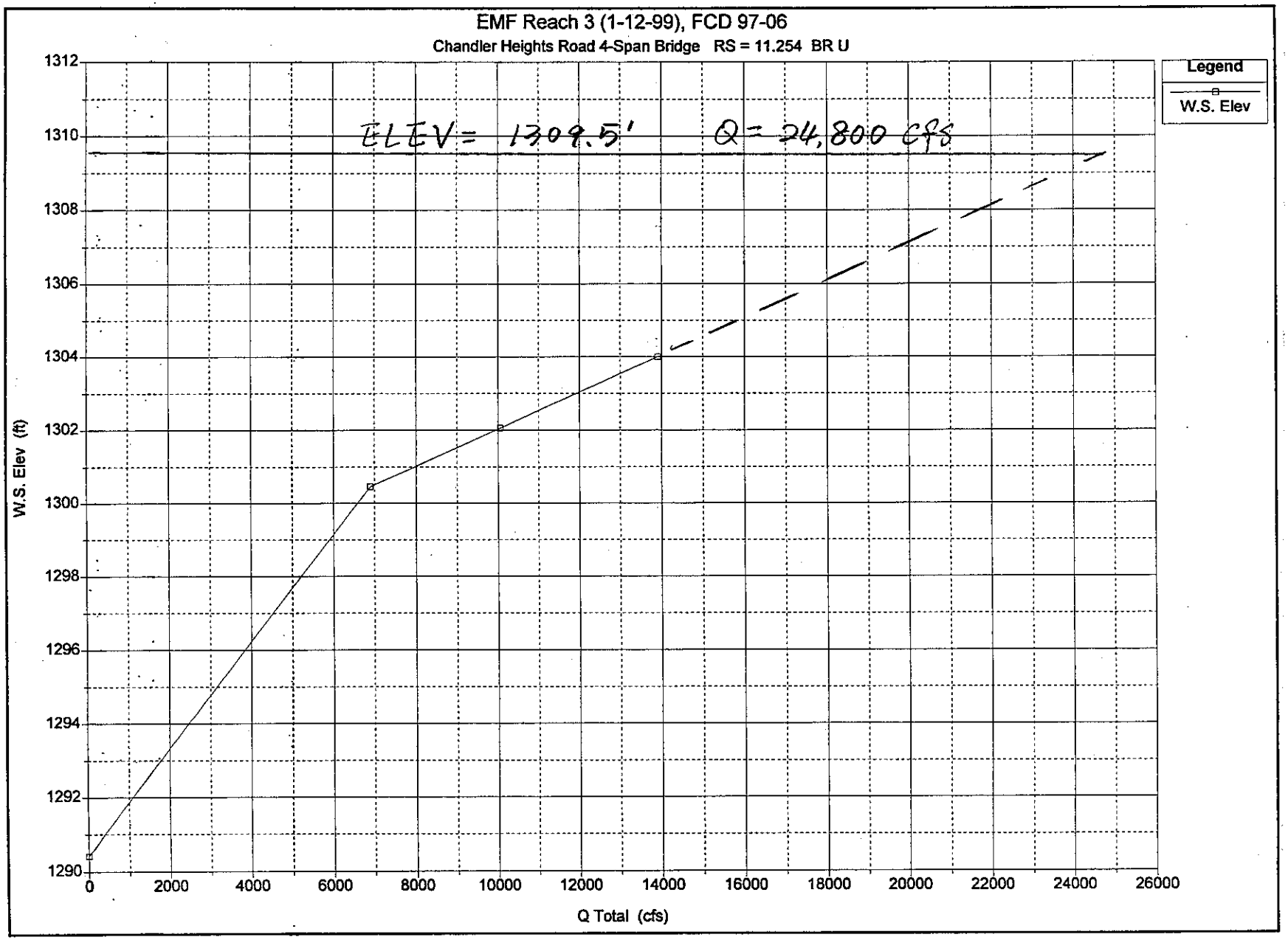
EMF Reach 3 (1-12-99), FCD 97-06
Drop Structure - Begin Transition (Expansion); RS = 11.308
ELEV: 1307.1'
Q = 18400 CFS
Legend
W.S. Elev
W.S. Elev (ft)
1308
1306
1304
1302
1300
1298
1296
1294
1292
1290
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
Q Total (cfs)

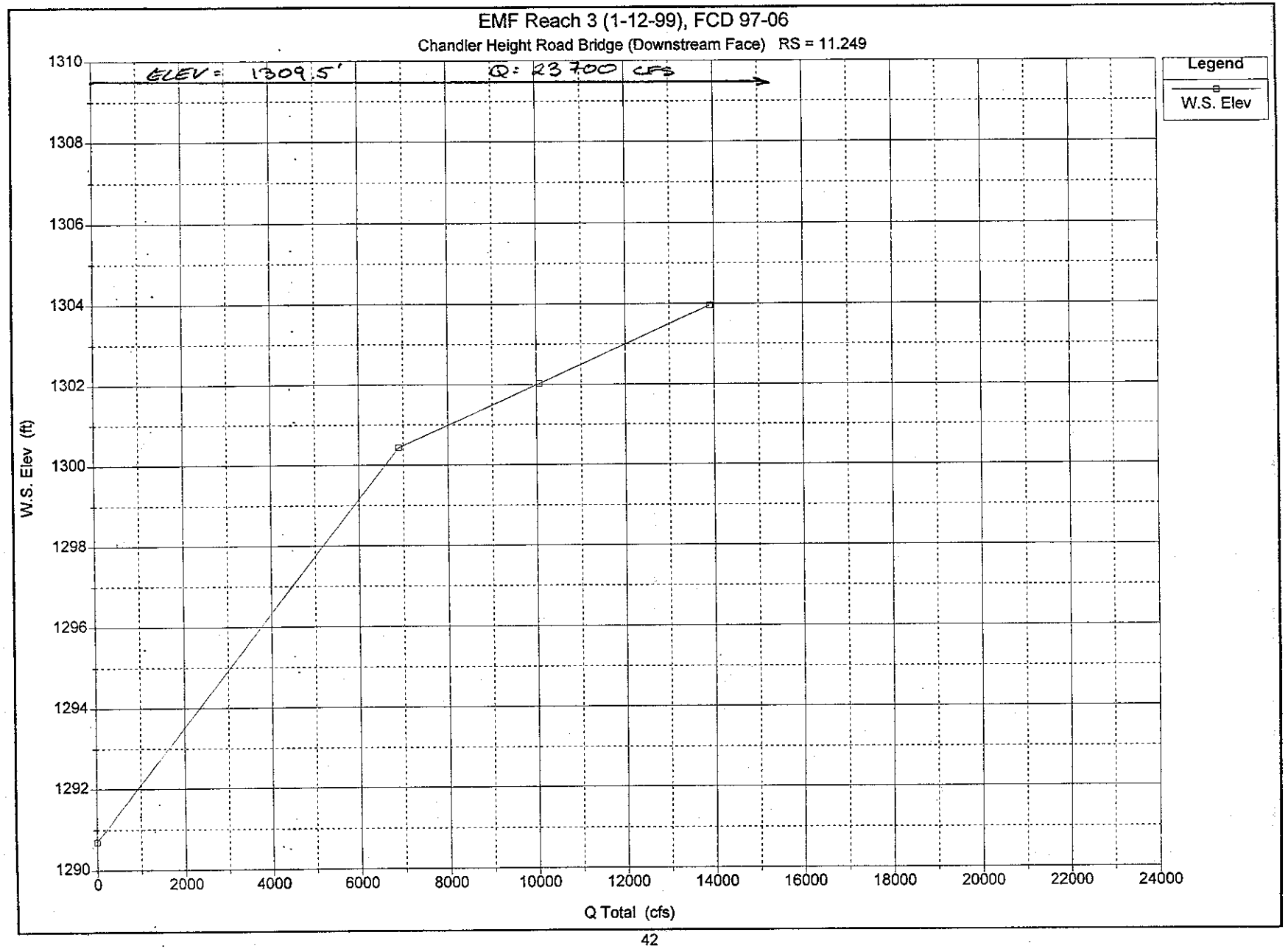
EMF Reach 3 (1-12-99), FCD 97-06
Drop Structure - End Transition (Expansion): RS = 11.297
ELEV = 1306.10'
Q = 16400 CFS
Legend
W.S. Elev
W.S. Elev (ft)
1306
1304
1302
1300
1298
1296
1294
1292
1290
0
2000
4000
6000
8000
10000
12000
14000
Q Total (cfs)

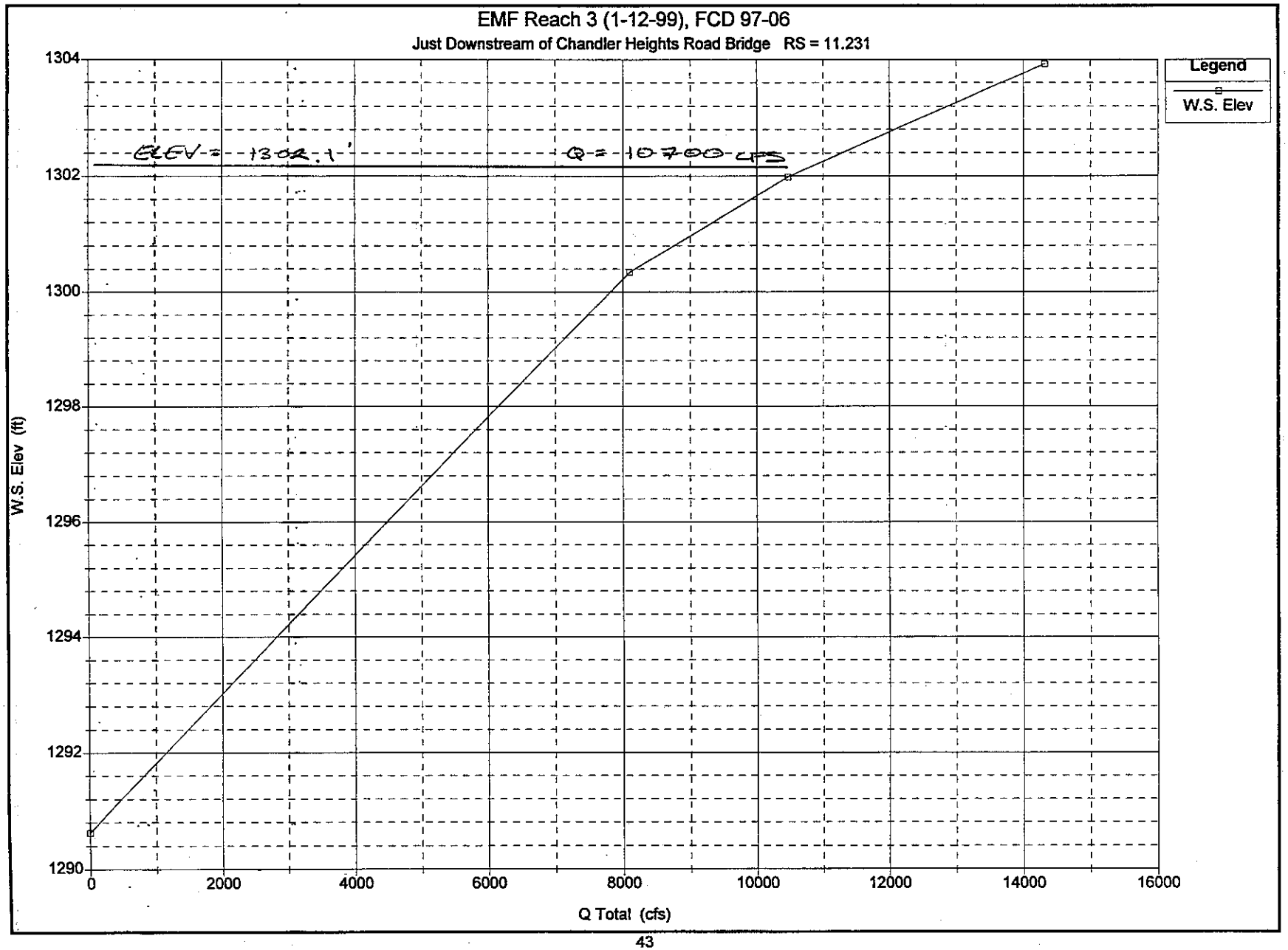

EMF Reach 3 (1-12-99), FCD 97-06
Drop Structure - Begin Transition (Expansion); RS = 11.308
ELEV: 1307.1'
Q = 18400 CFS
Legend
W.S. Elev
W.S. Elev (ft)
1308
1306
1304
1302
1300
1298
1296
1294
1292
1290
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
Q Total (cfs)

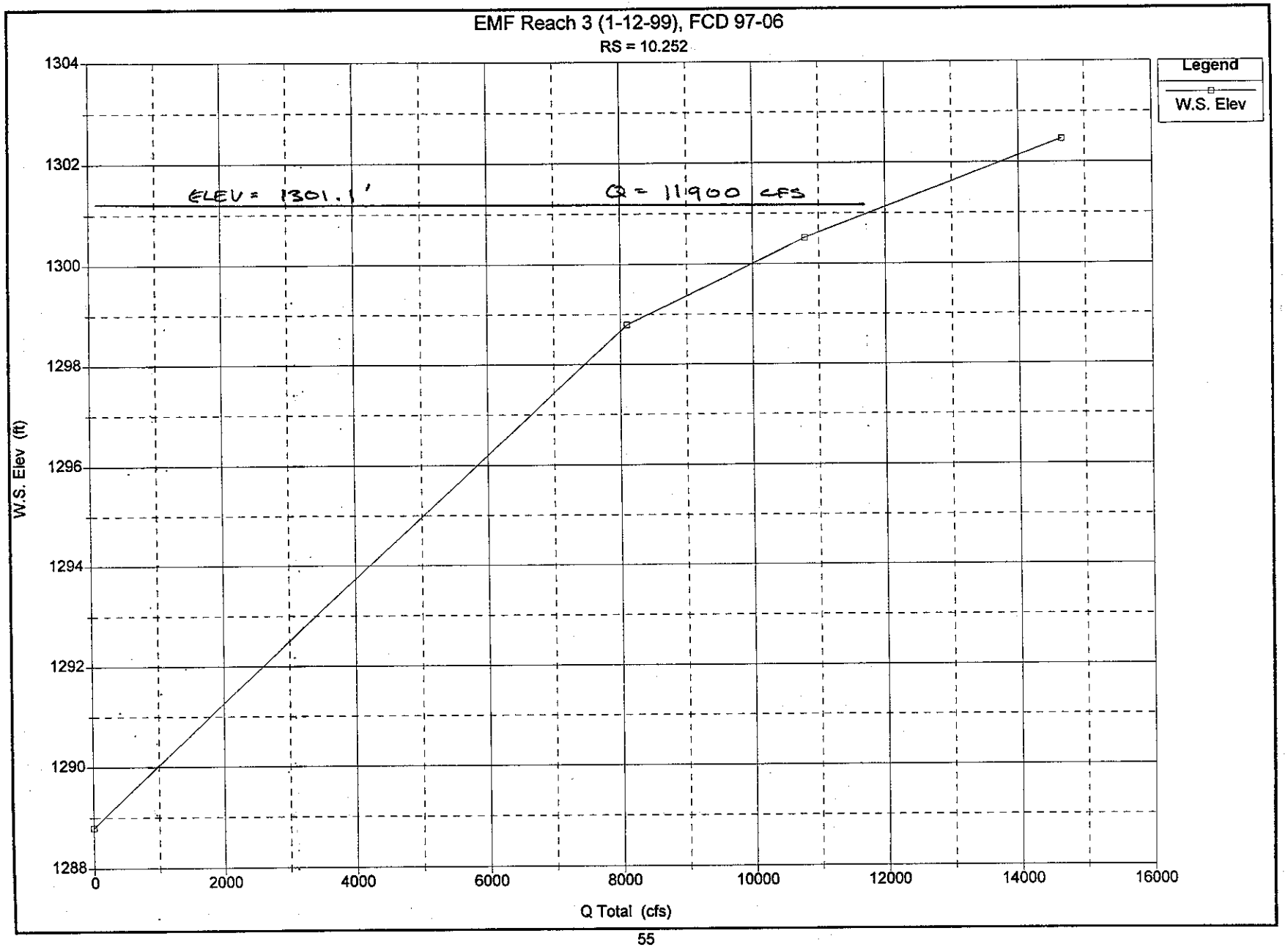
EMF Reach 3 (1-12-99), FCD 97-06
Drop Structure - End Transition (Expansion): RS = 11.297
ELEV = 1306.10'
Q = 16400 CFS
Legend
W.S. Elev
W.S. Elev (ft)
1306
1304
1302
1300
1298
1296
1294
1292
1290
0
2000
4000
6000
8000
10000
12000
14000
Q Total (cfs)


EMF Reach 3 (1-12-99), FCD 97-06
Chandler Heights Road Bridge (Upstream Face) RS = 11.26
ELEV= 1309.5'
Q = 24100 CFS
Legend
W.S. Elev
W.S. Elev (ft)
1310
1308
1306
1304
1302
1300
1298
1296
1294
1292
1290
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
24000
26000
Q Total (cfs)

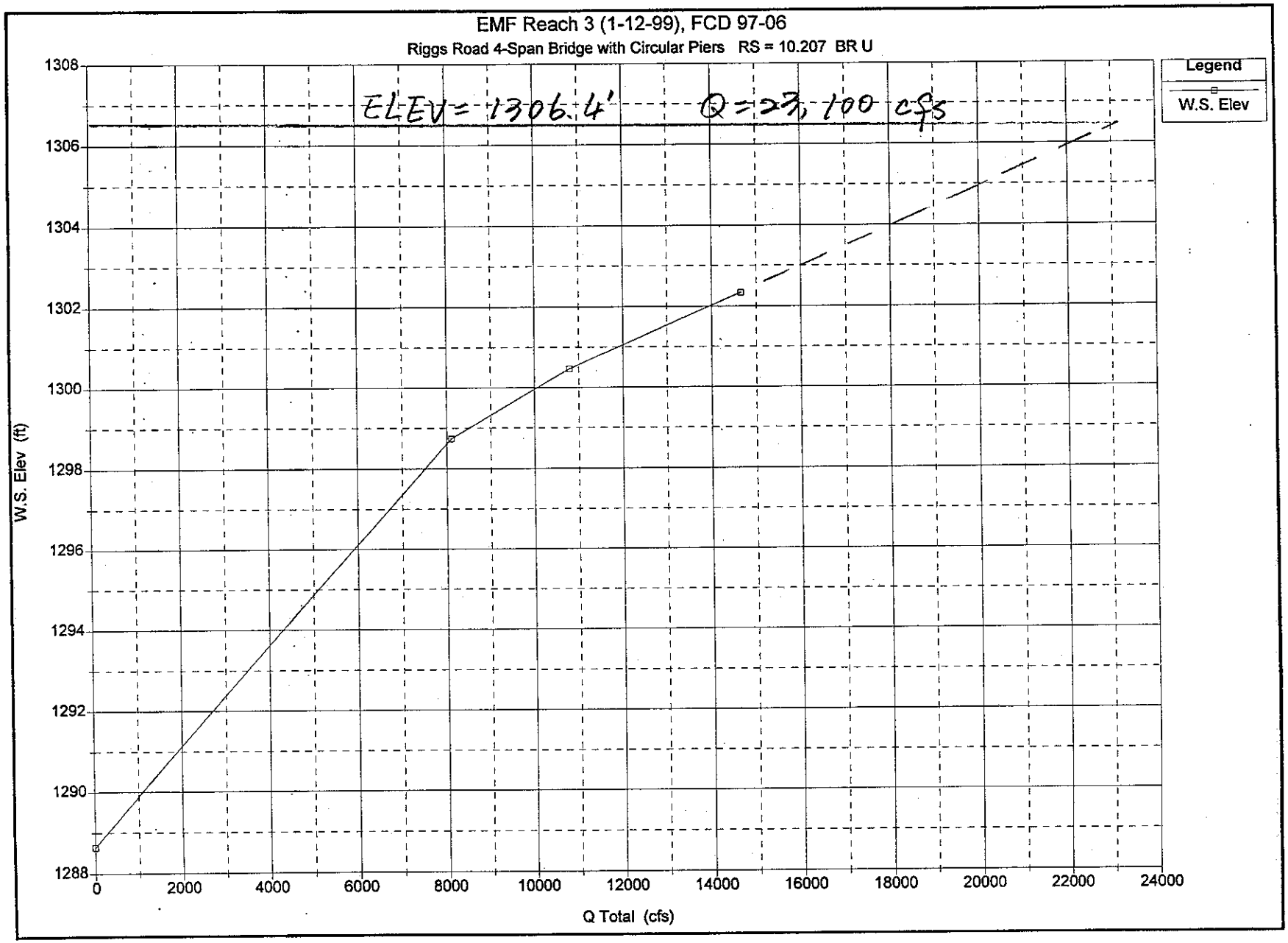

EMF Reach 3 (1-12-99), FCD 97-06
Chandler Heights Road 4-Span Bridge RS = 11.254 BR U
ELEV = 1309.5' Q = 24,800 CFS
Legend
W.S. Elev
W.S. Elev (ft)
1312
1310
1308
1306
1304
1302
1300
1298
1296
1294
1292
1290
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
24000
26000
Q Total (cfs)


EMF Reach 3 (1-12-99), FCD 97-06
Chandler Height Road Bridge (Downstream Face) RS = 11.249
ELEV = 1309.5'
Q = 23700 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1310
1308
1306
1304
1302
1300
1298
1296
1294
1292
1290
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
24000
Q Total (cfs)

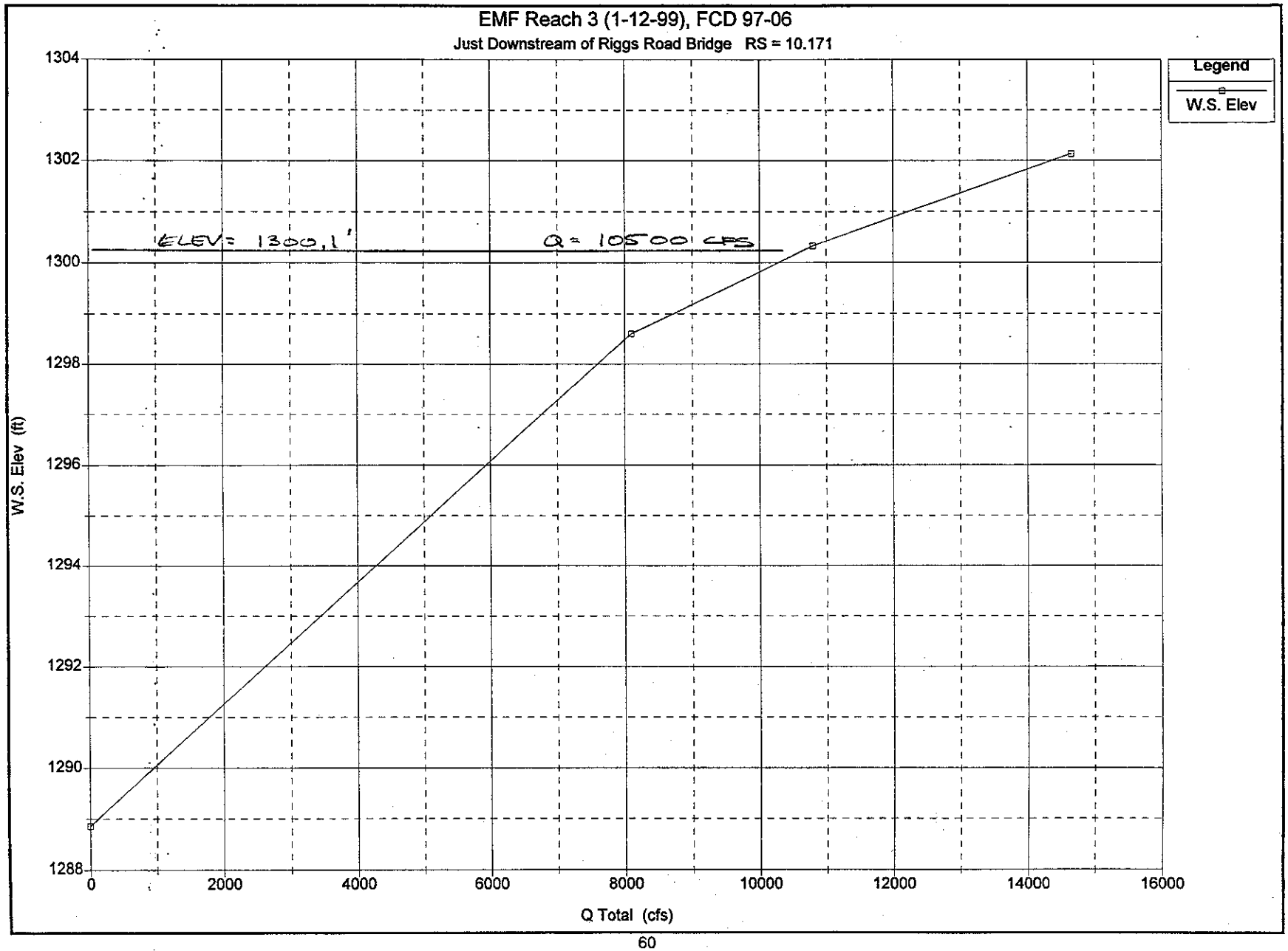

EMF Reach 3 (1-12-99), FCD 97-06
Just Downstream of Chandler Heights Road Bridge RS = 11.231
Legend
W.S. Elev
ELEV = 1302.1'
Q = 10700 cfs
W.S. Elev (ft)
1304
1302
1300
1298
1296
1294
1292
1290
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

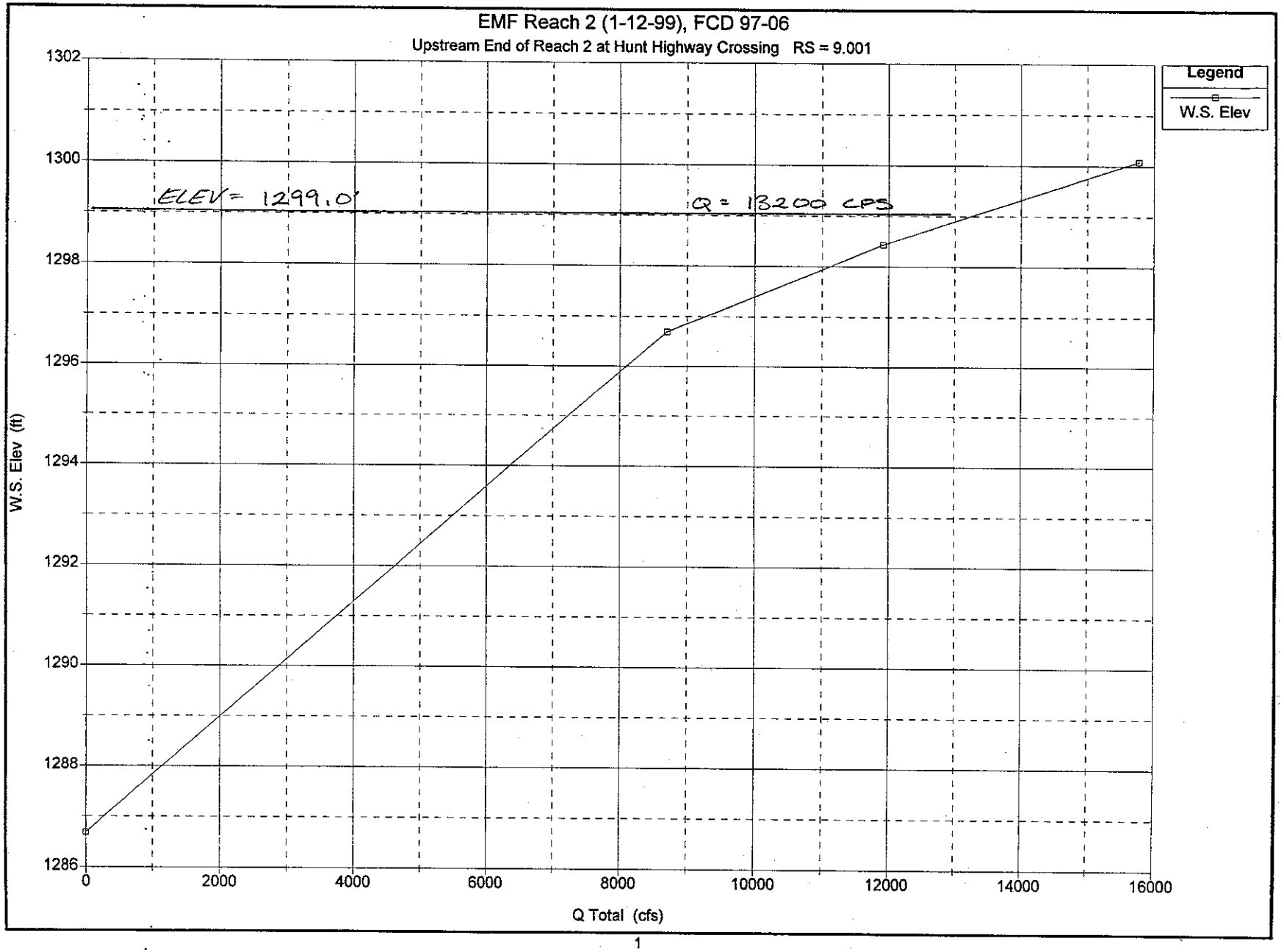

EMF Reach 3 (1-12-99), FCD 97-06
RS = 10.252
Legend
W.S. Elev
ELEV = 1301.1'
Q = 11900 cfs
W.S. Elev (ft)
1304
1302
1300
1298
1296
1294
1292
1290
1288
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

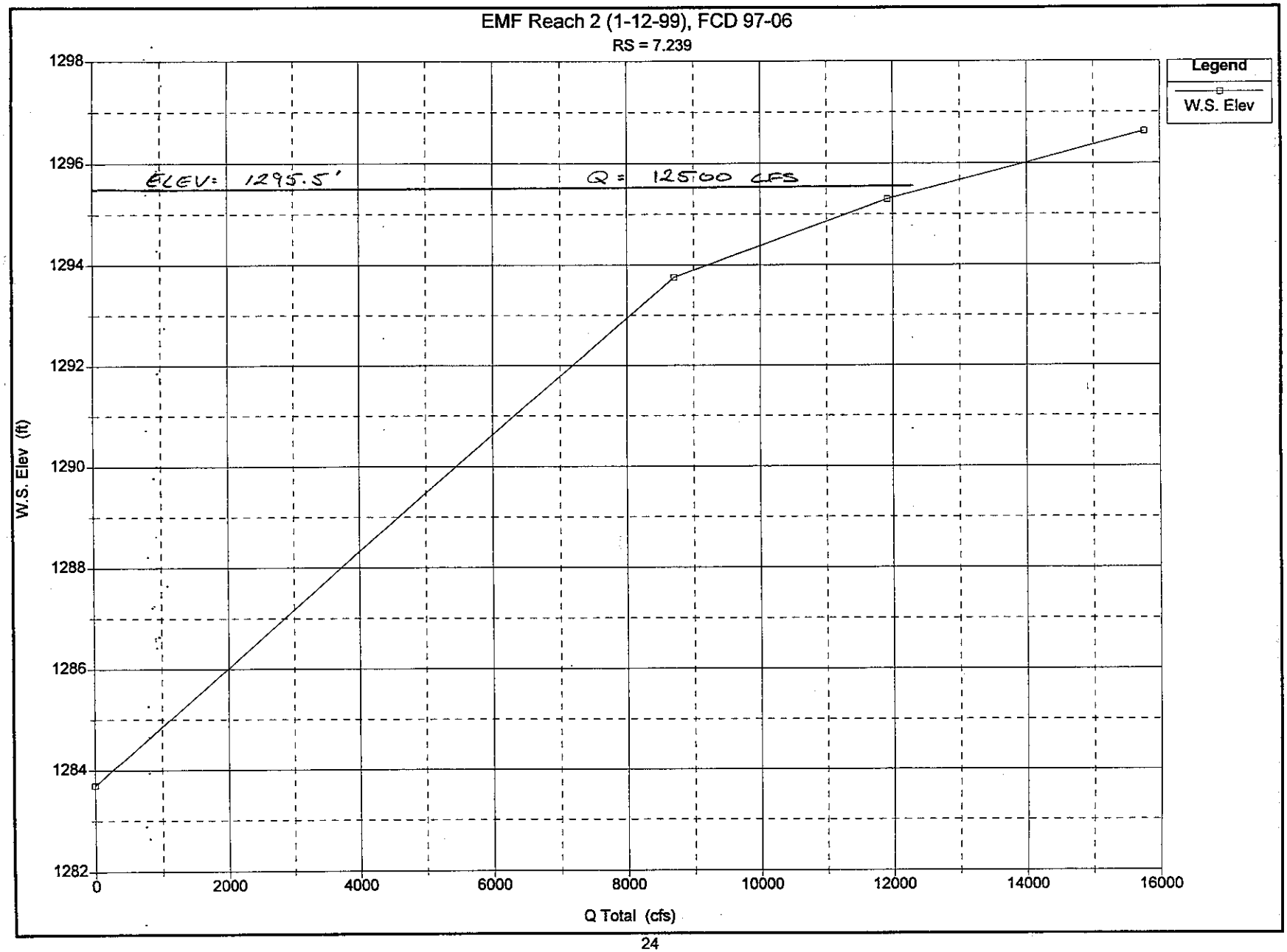
EMF Reach 3 (1-12-99), FCD 97-06
Riggs Road Bridge (Upstream Face) RS = 10.218
ELEV = 1306.4'
Q = 20300 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1308
1306
1304
1302
1300
1298
1296
1294
1292
1290
1288
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
Q Total (cfs)

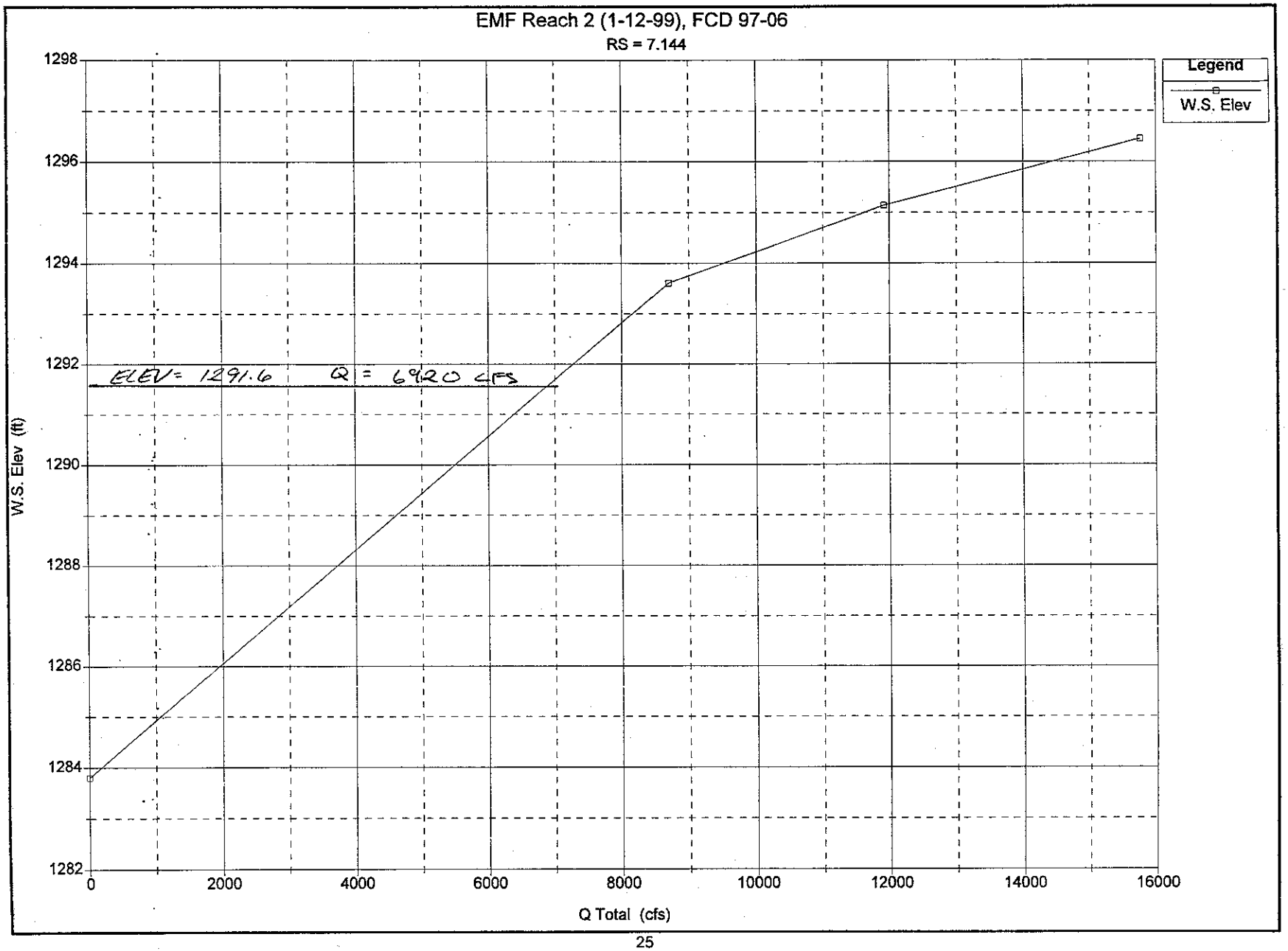

EMF Reach 3 (1-12-99), FCD 97-06
Riggs Road 4-Span Bridge with Circular Piers RS = 10.207 BR U
ELEV = 1306.4'
Q = 23,100 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1308
1306
1304
1302
1300
1298
1296
1294
1292
1290
1288
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
24000
Q Total (cfs)

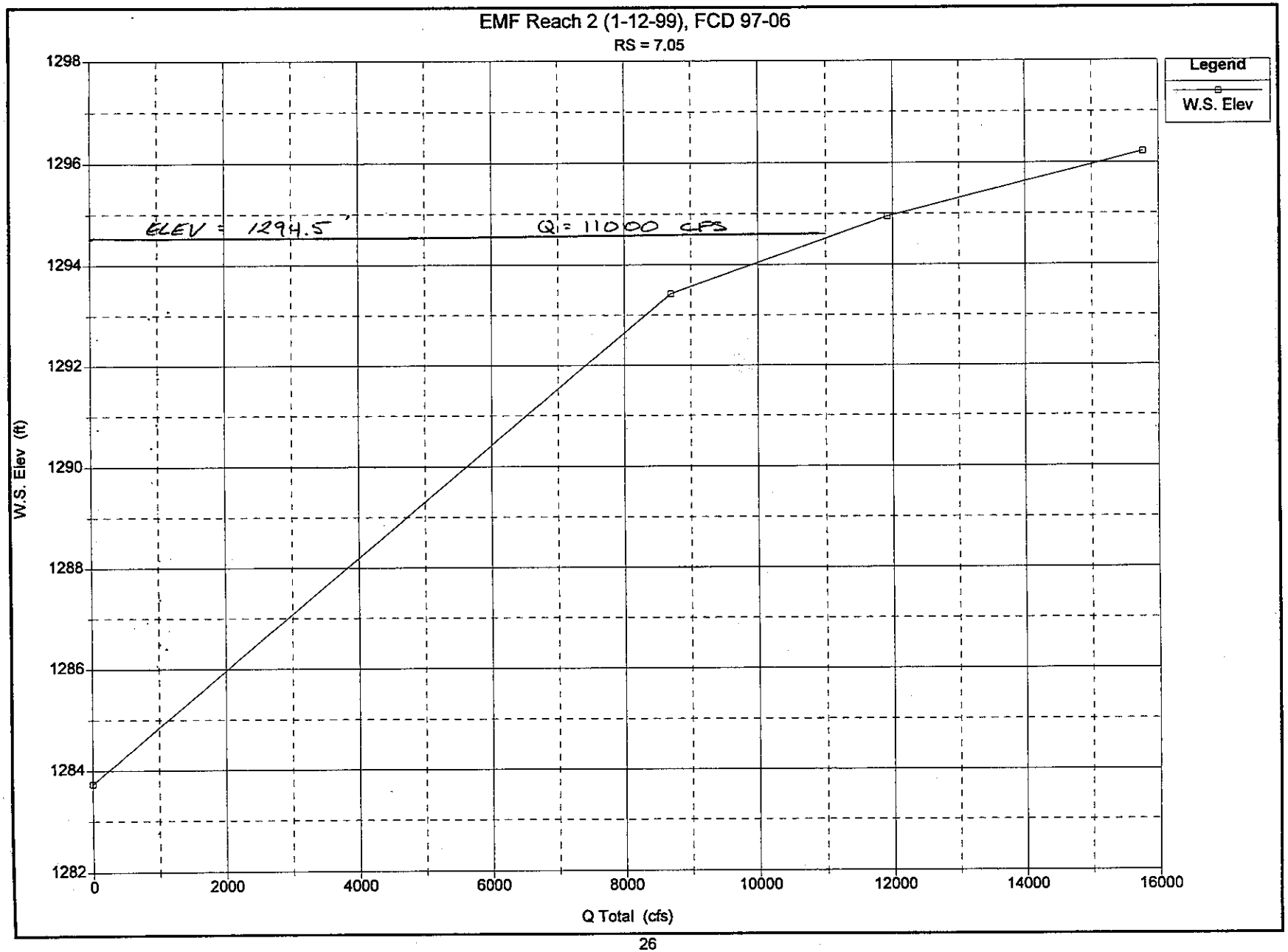
EMF Reach 3 (1-12-99), FCD 97-06
Riggs Road Bridge (Downstream Face) RS = 10.195
ELEV= 1306.4'
Q = 21900 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1308
1306
1304
1302
1300
1298
1296
1294
1292
1290
1288
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
Q Total (cfs)

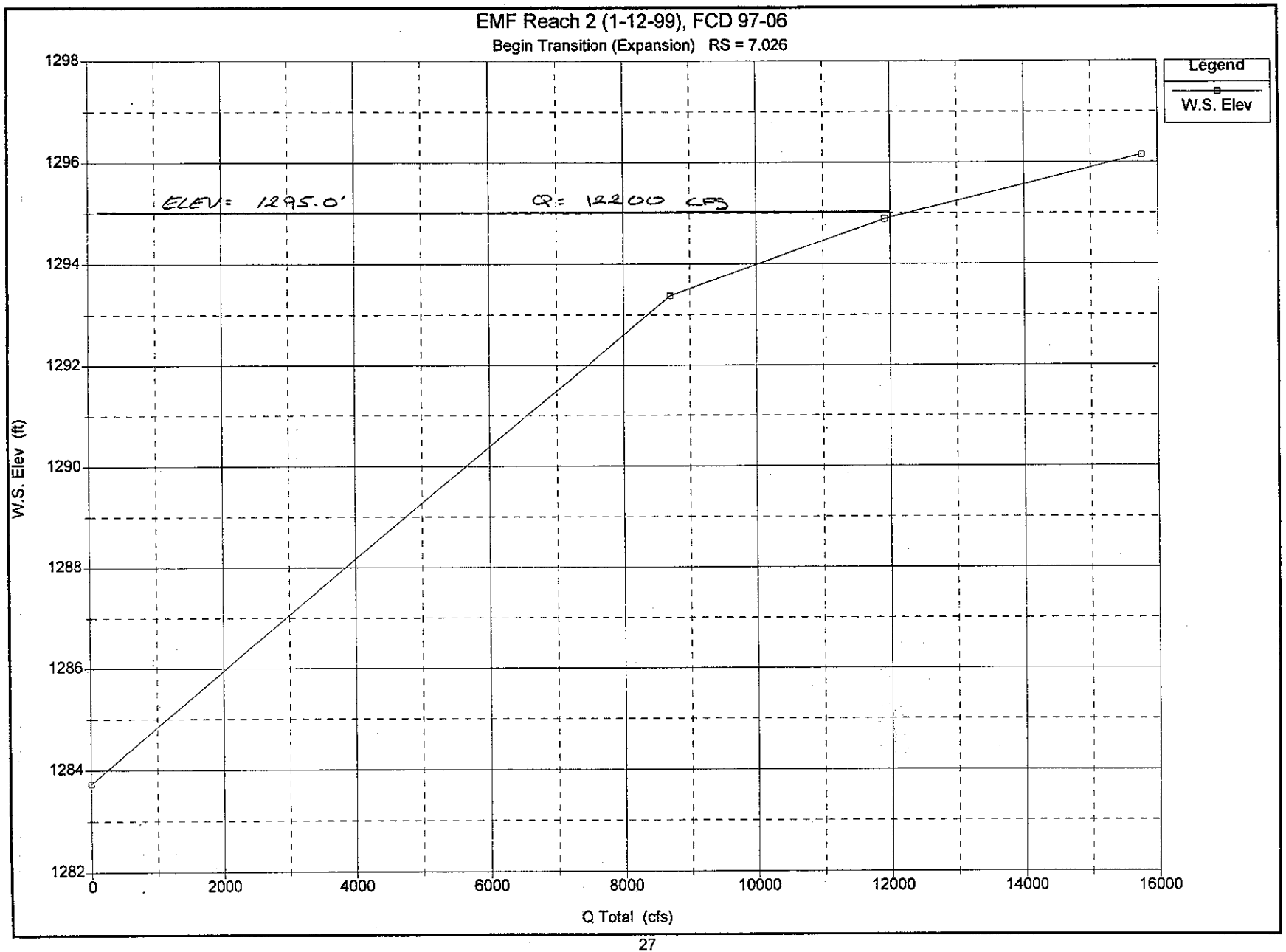

EMF Reach 3 (1-12-99), FCD 97-06
Just Downstream of Riggs Road Bridge RS = 10.171
Legend
W.S. Elev
ELEV= 1300.1'
Q= 10500 CFS
W.S. Elev (ft)
1304
1302
1300
1298
1296
1294
1292
1290
1288
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

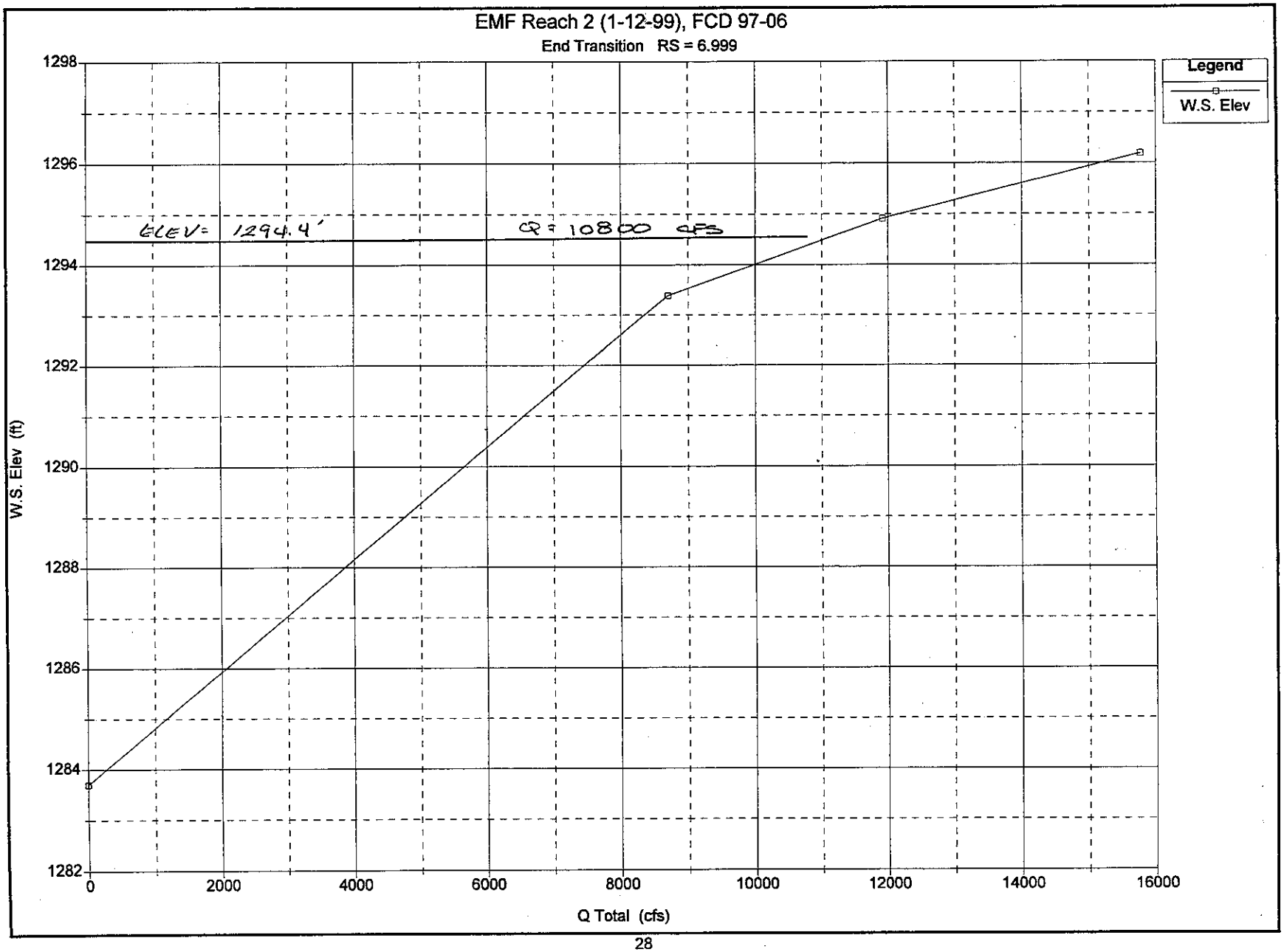

EMF Reach 2 (1-12-99), FCD 97-06
Upstream End of Reach 2 at Hunt Highway Crossing RS = 9.001
Legend
W.S. Elev
ELEV = 1299.0'
Q = 13200 CFS
W.S. Elev (ft)
1302
1300
1298
1296
1294
1292
1290
1288
1286
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

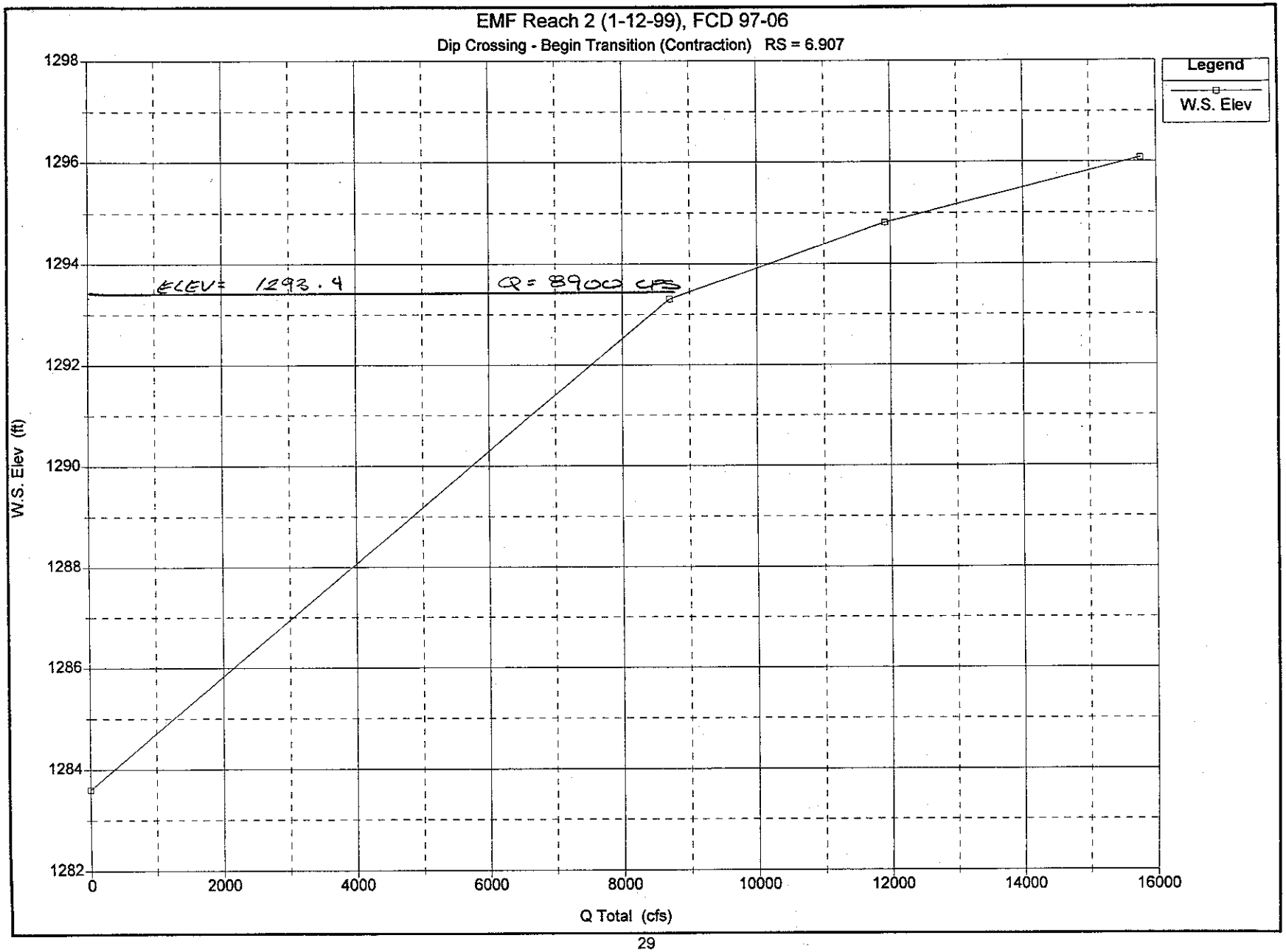

EMF Reach 2 (1-12-99), FCD 97-06
RS = 7.239
Legend
W.S. Elev
ELEV: 1295.5'
Q = 12500 CFS
W.S. Elev (ft)
1298
1296
1294
1292
1290
1288
1286
1284
1282
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)


EMF Reach 2 (1-12-99), FCD 97-06
RS = 7.144
Legend
W.S. Elev
ELEV= 1291.6 Q = 6920 cfs
W.S. Elev (ft)
1298
1296
1294
1292
1290
1288
1286
1284
1282
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

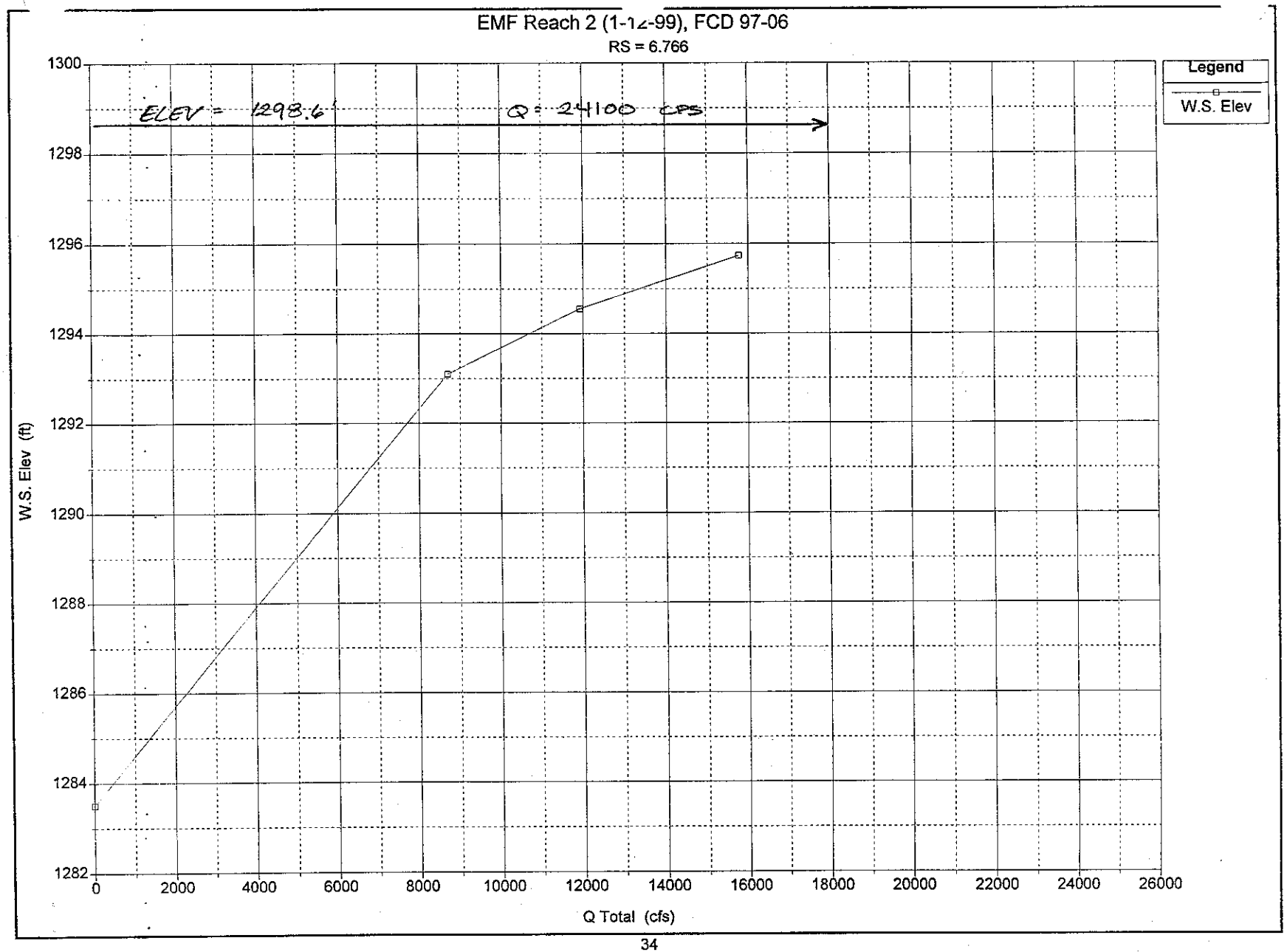

EMF Reach 2 (1-12-99), FCD 97-06
RS = 7.05
Legend
W.S. Elev
ELEV = 1294.5'
Q = 11000 CFS
W.S. Elev (ft)
1298
1296
1294
1292
1290
1288
1286
1284
1282
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

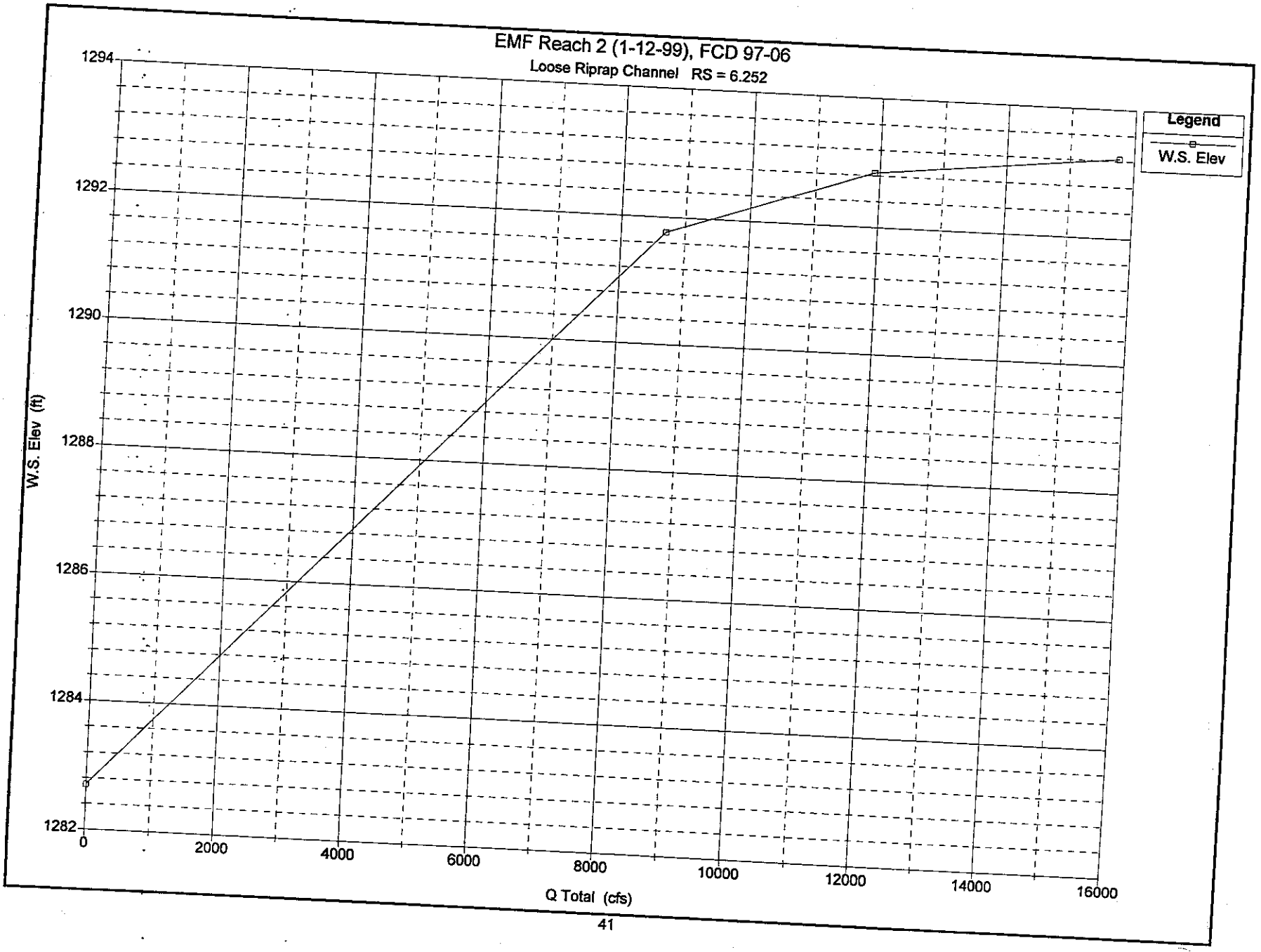

EMF Reach 2 (1-12-99), FCD 97-06
Begin Transition (Expansion) RS = 7.026
Legend
W.S. Elev
ELEV = 1295.0'
Q = 12200 CFS
W.S. Elev (ft)
1298
1296
1294
1292
1290
1288
1286
1284
1282
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

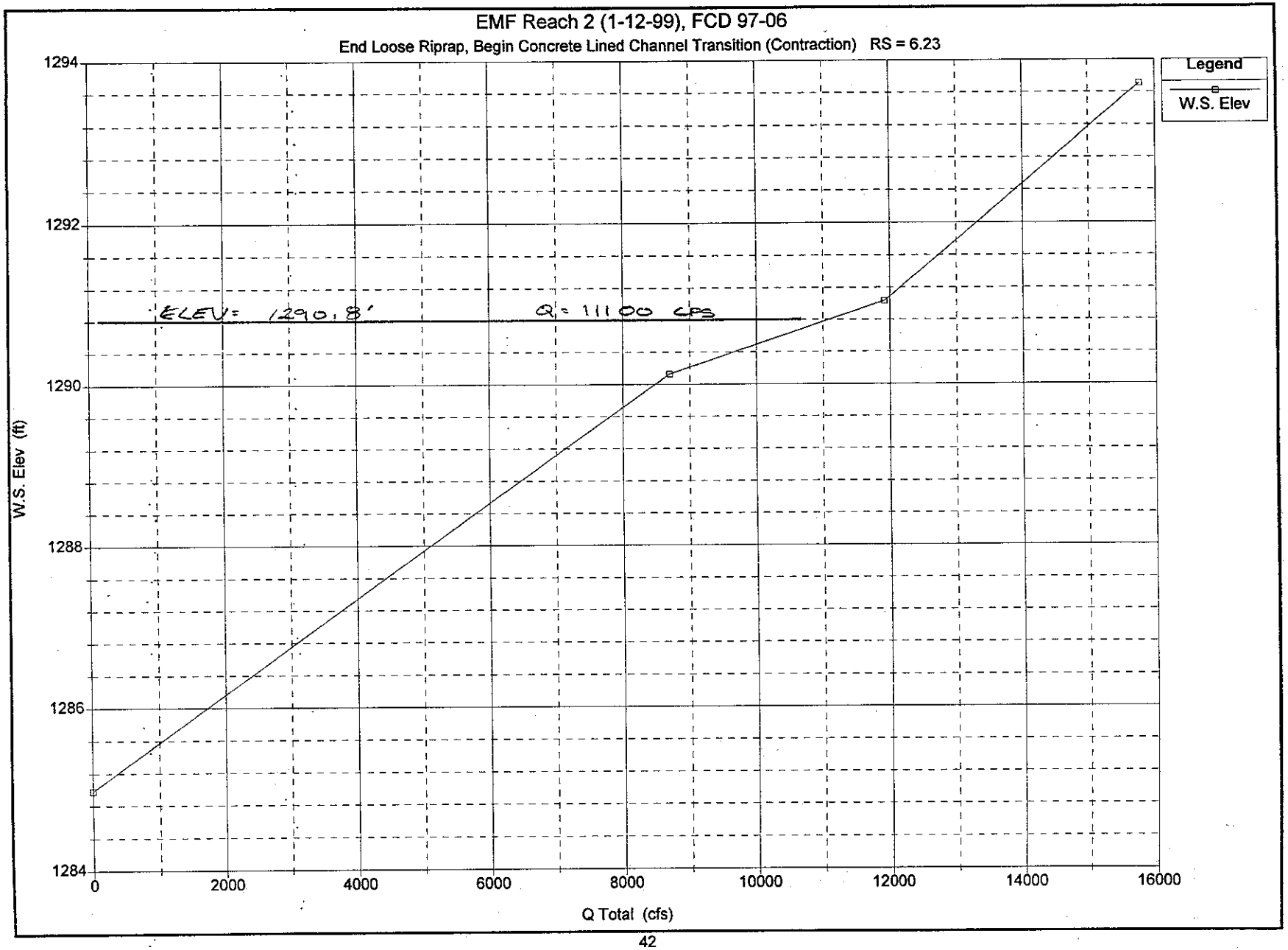

EMF Reach 2 (1-12-99), FCD 97-06
End Transition RS = 6.999
Legend
W.S. Elev
ELEV= 1294.4'
Q = 10800 cfs
W.S. Elev (ft)
1298
1296
1294
1292
1290
1288
1286
1284
1282
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)


EMF Reach 2 (1-12-99), FCD 97-06
Dip Crossing - Begin Transition (Contraction) RS = 6.907
Legend
W.S. Elev
ELEV= 1293.4
Q= 8900 cfs
W.S. Elev (ft)
1298
1296
1294
1292
1290
1288
1286
1284
1282
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

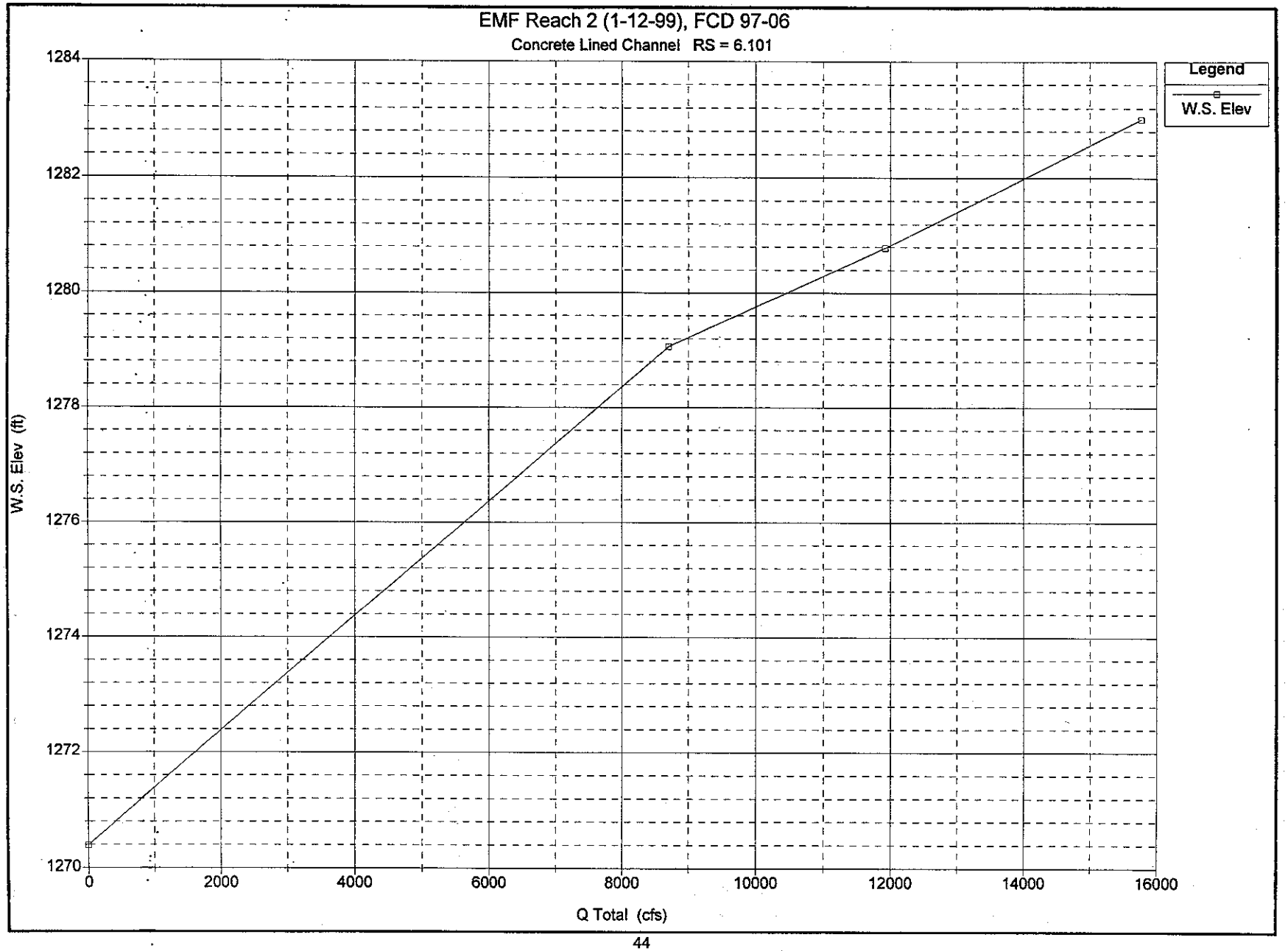
EMF Reach 2 (1-12-99), FCD 97-06
RS = 6.766
ELEV = 1298.6'
Q = 24100 CFS
Legend
W.S. Elev
W.S. Elev (ft)
1300
1298
1296
1294
1292
1290
1288
1286
1284
1282
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
24000
26000
Q Total (cfs)

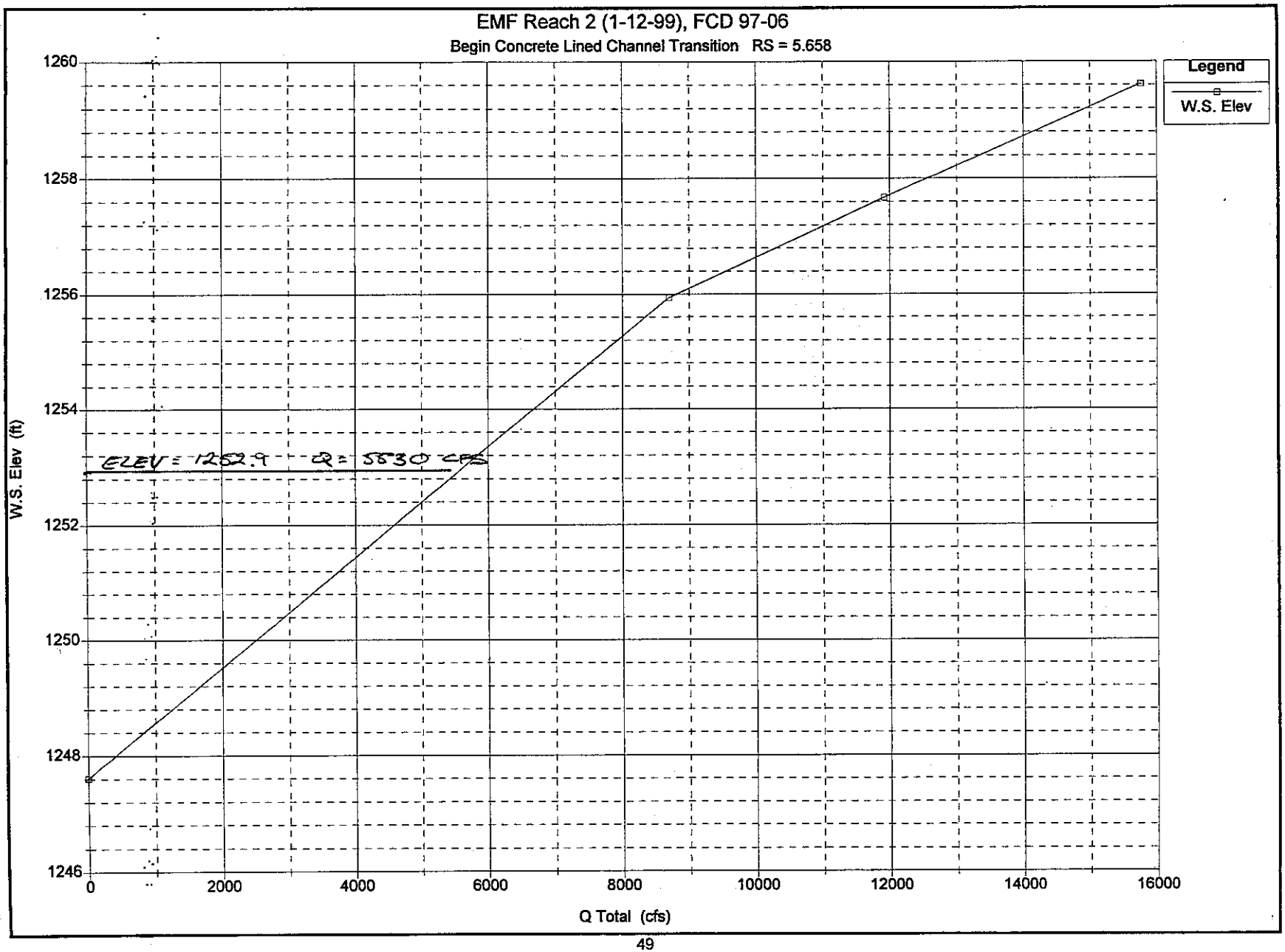

EMF Reach 2 (1-12-99), FCD 97-06
RS = 6.766
ELEV = 1298.6'
Q = 24100 CFS
Legend
W.S. Elev
W.S. Elev (ft)
1300
1298
1296
1294
1292
1290
1288
1286
1284
1282
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
24000
26000
Q Total (cfs)

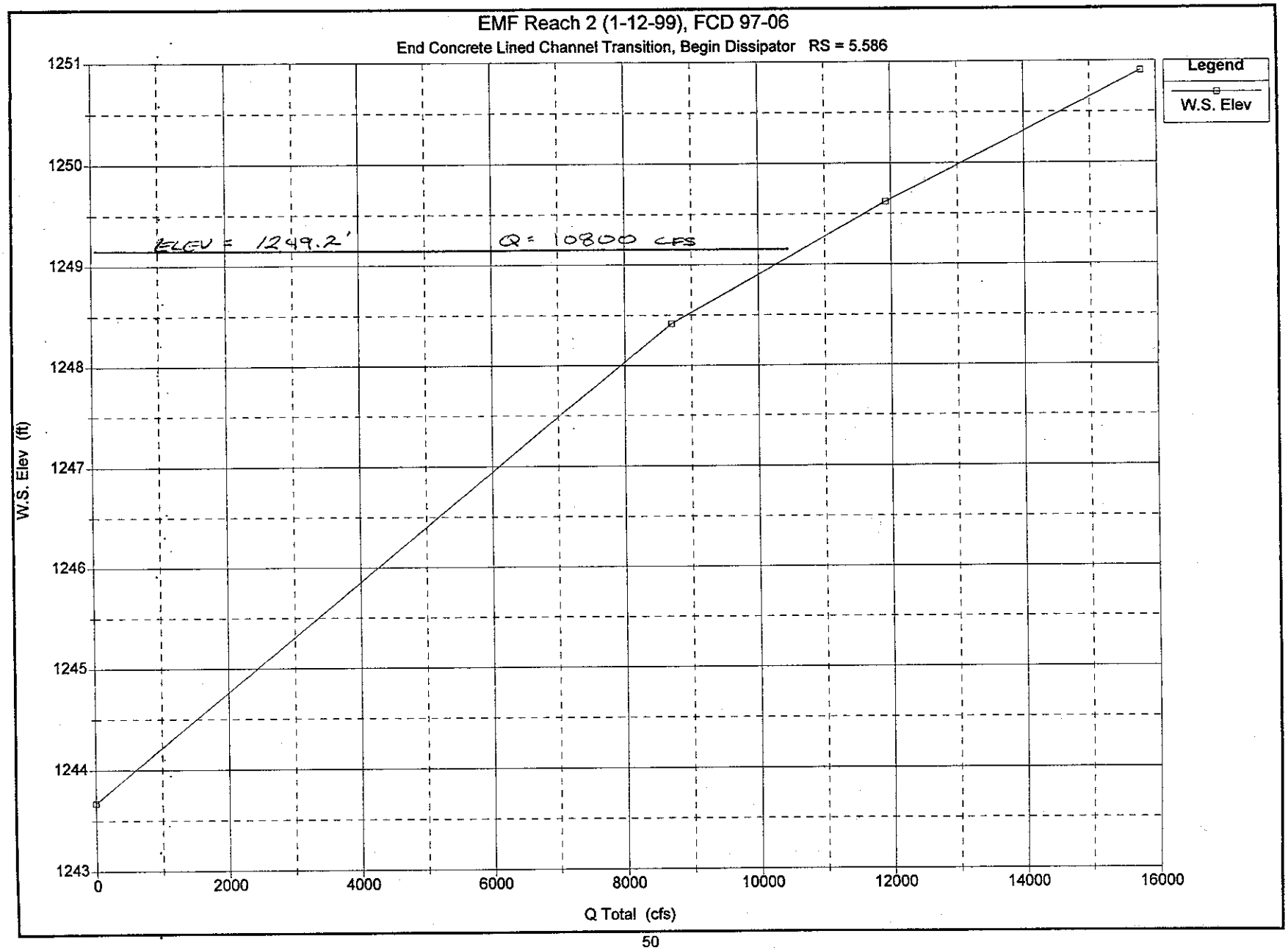

EMF Reach 2 (1-12-99), FCD 97-06
Loose Riprap Channel RS = 6.252
Legend
W.S. Elev
W.S. Elev (ft)
1294
1292
1290
1288
1286
1284
1282
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)


EMF Reach 2 (1-12-99), FCD 97-06
End Loose Riprap, Begin Concrete Lined Channel Transition (Contraction) RS = 6.23
Legend
W.S. Elev
ELEV= 1290.8'
Q= 11100 CFS
W.S. Elev (ft)
1294
1292
1290
1288
1286
1284
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

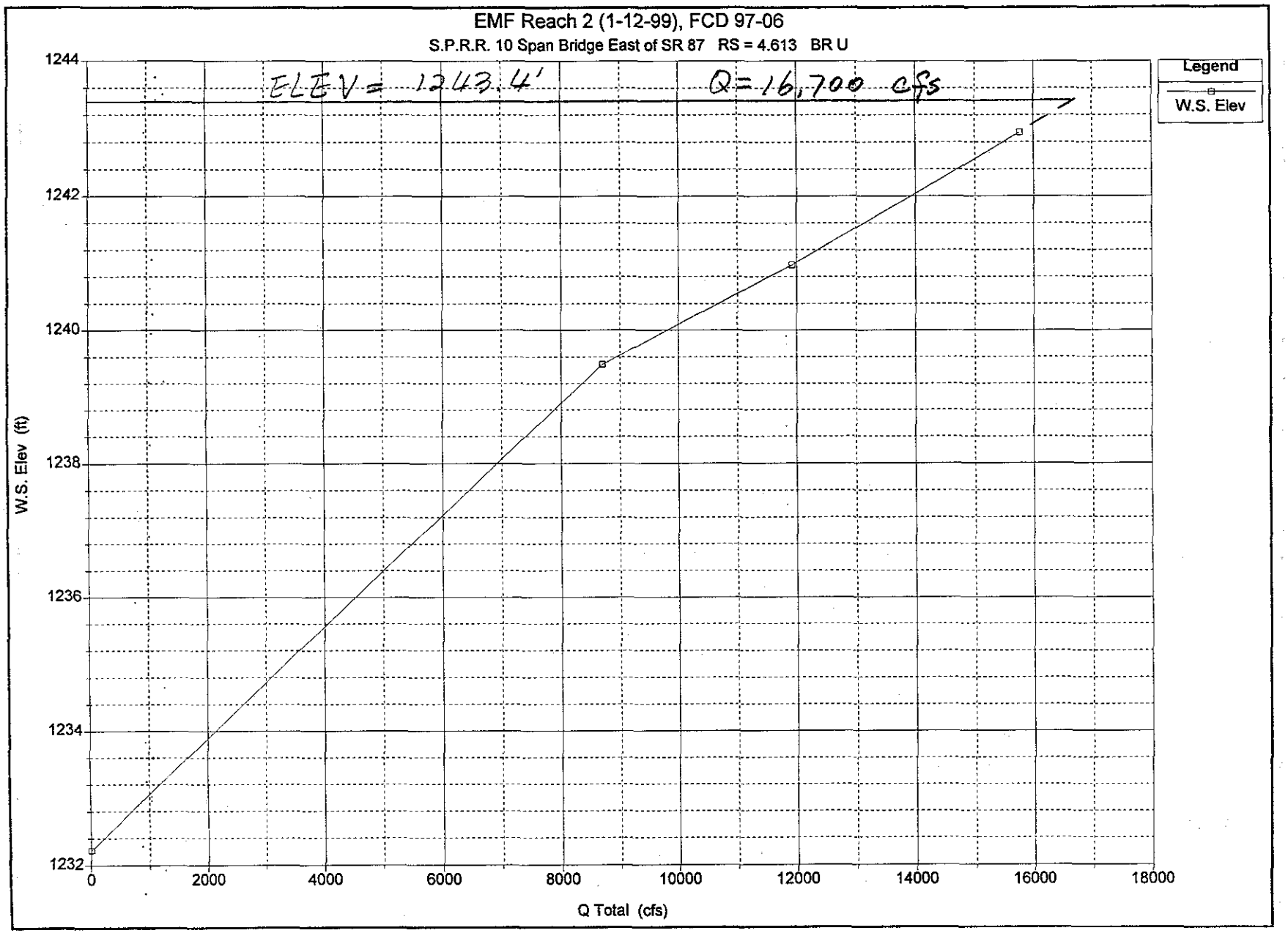
EMF Reach 2 (1-12-99), FCD 97-06
End Transition and Begin Concrete Lined Channel RS = 6.196
Legend
W.S. Elev
W.S. Elev (ft)
1288
1286
1284
1282
1280
1278
1276
1274
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)
ELEV= 1282.7' Q= 7140 cfs


EMF Reach 2 (1-12-99), FCD 97-06
Concrete Lined Channel RS = 6.101
Legend
W.S. Elev
W.S. Elev (ft)
1284
1282
1280
1278
1276
1274
1272
1270
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

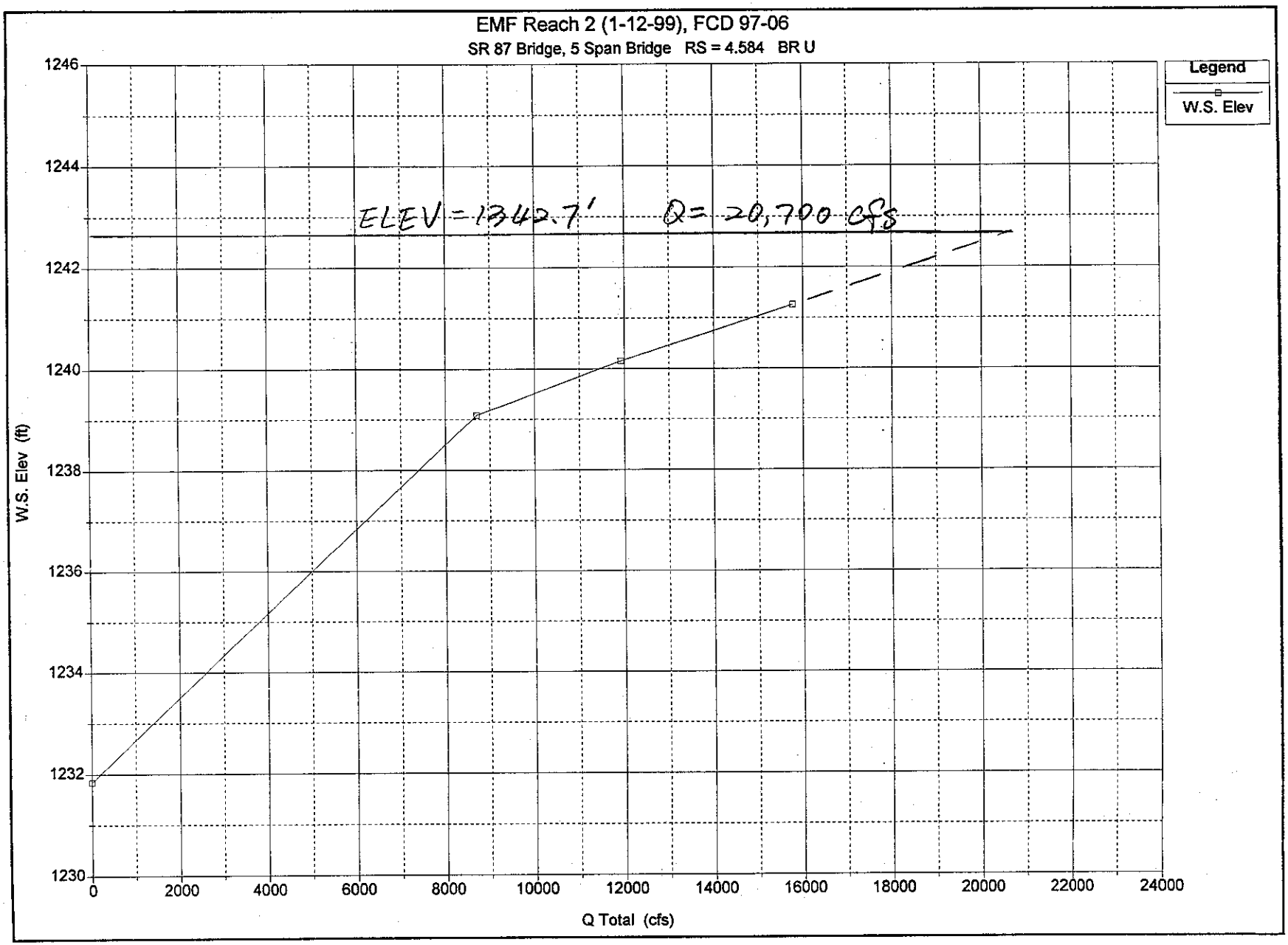

EMF Reach 2 (1-12-99), FCD 97-06
Begin Concrete Lined Channel Transition RS = 5.658
Legend
W.S. Elev
W.S. Elev (ft)
1260
1258
1256
1254
1252
1250
1248
1246
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)
ELEV = 1252.9 Q = 5530 cfs


EMF Reach 2 (1-12-99), FCD 97-06
End Concrete Lined Channel Transition, Begin Dissipator RS = 5.586
Legend
W.S. Elev
ELEV = 1249.2'
Q = 10800 CFS
W.S. Elev (ft)
1251
1250
1249
1248
1247
1246
1245
1244
1243
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

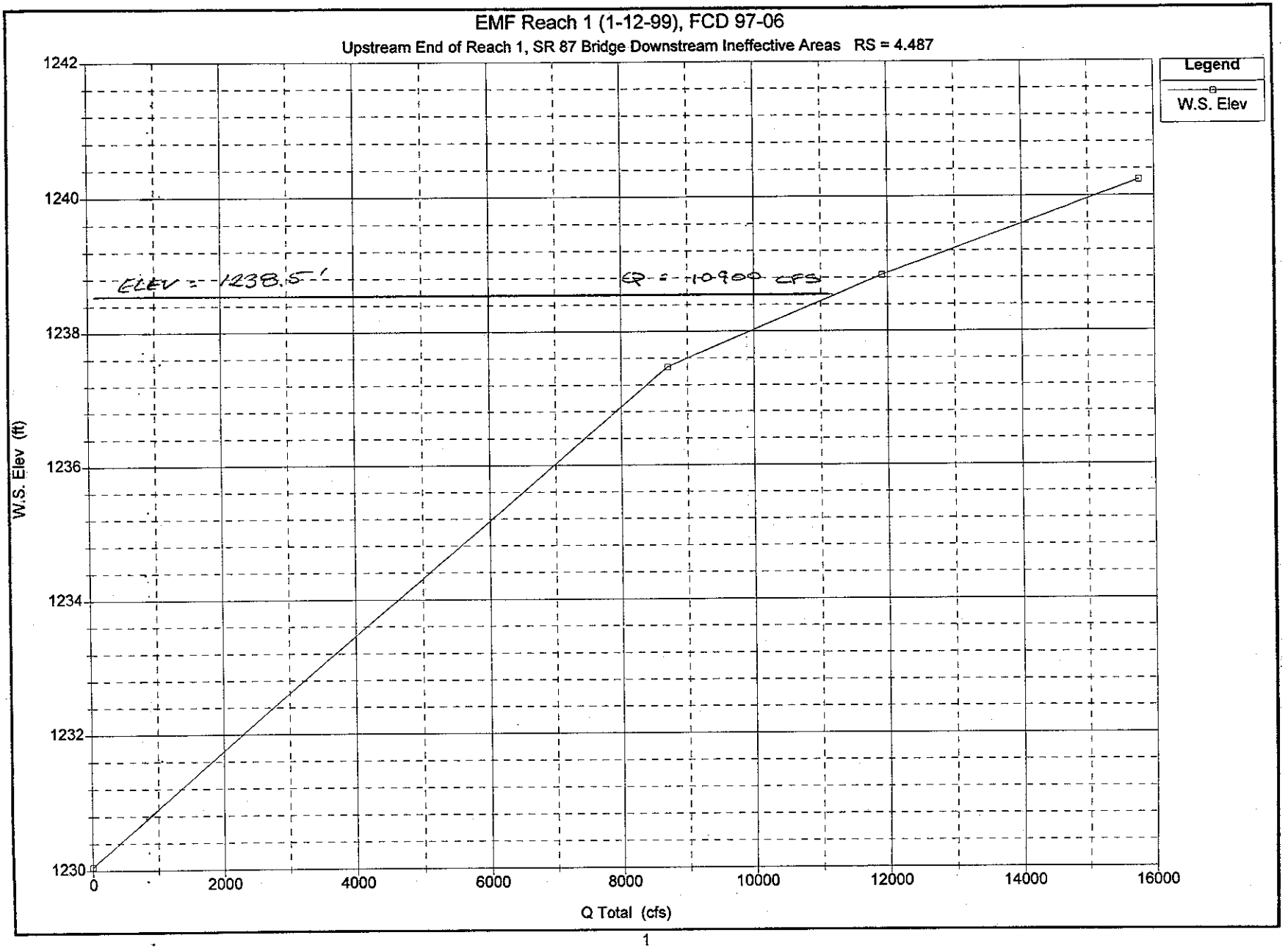
EMF Reach 2 (1-12-99), FCD 97-06
Concrete Lined Dissipator Basin RS = 5.582
ELEV = 1249.5'
Q = 20600 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1250
1248
1246
1244
1242
1240
1238
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)


EMF Reach 2 (1-12-99), FCD 97-06
S.P.R.R. 10 Span Bridge East of SR 87 RS = 4.613 BR U
ELEV = 1243.4'
Q = 16,700 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1244
1242
1240
1238
1236
1234
1232
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
Q Total (cfs)

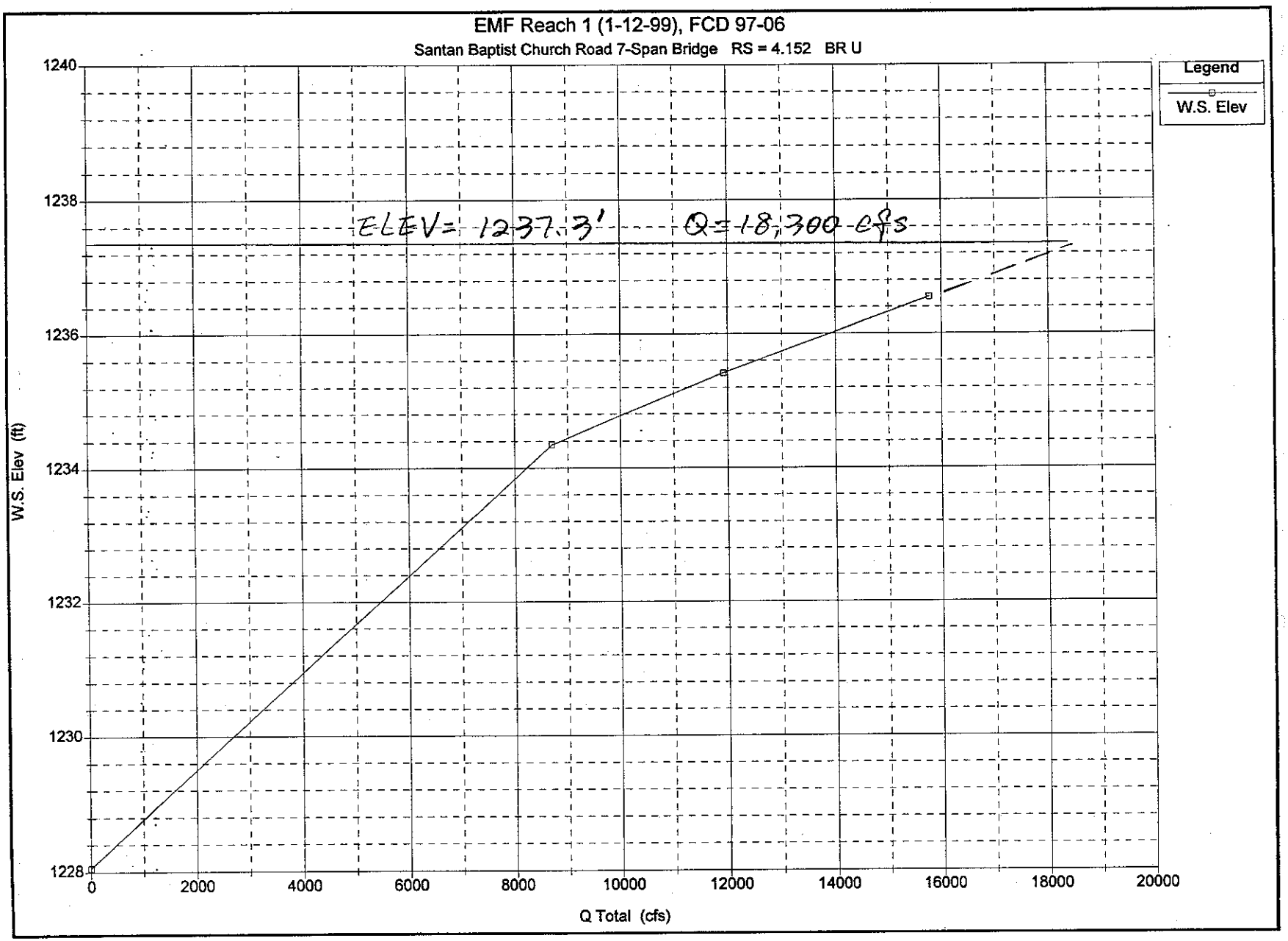
EMF Reach 2 (1-12-99), FCD 97-06
SR 87 Bridge Upstream Face RS = 4.590
ELEV = 1242.7'
Q = 15400 CFS
Legend
W.S. Elev
W.S. Elev (ft)
1244
1242
1240
1238
1236
1234
1232
1230
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)


EMF Reach 2 (1-12-99), FCD 97-06
SR 87 Bridge, 5 Span Bridge RS = 4.584 BR U
Legend
W.S. Elev
ELEV = 1242.7'
Q = 20,700 cfs
W.S. Elev (ft)
1246
1244
1242
1240
1238
1236
1234
1232
1230
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
24000
Q Total (cfs)

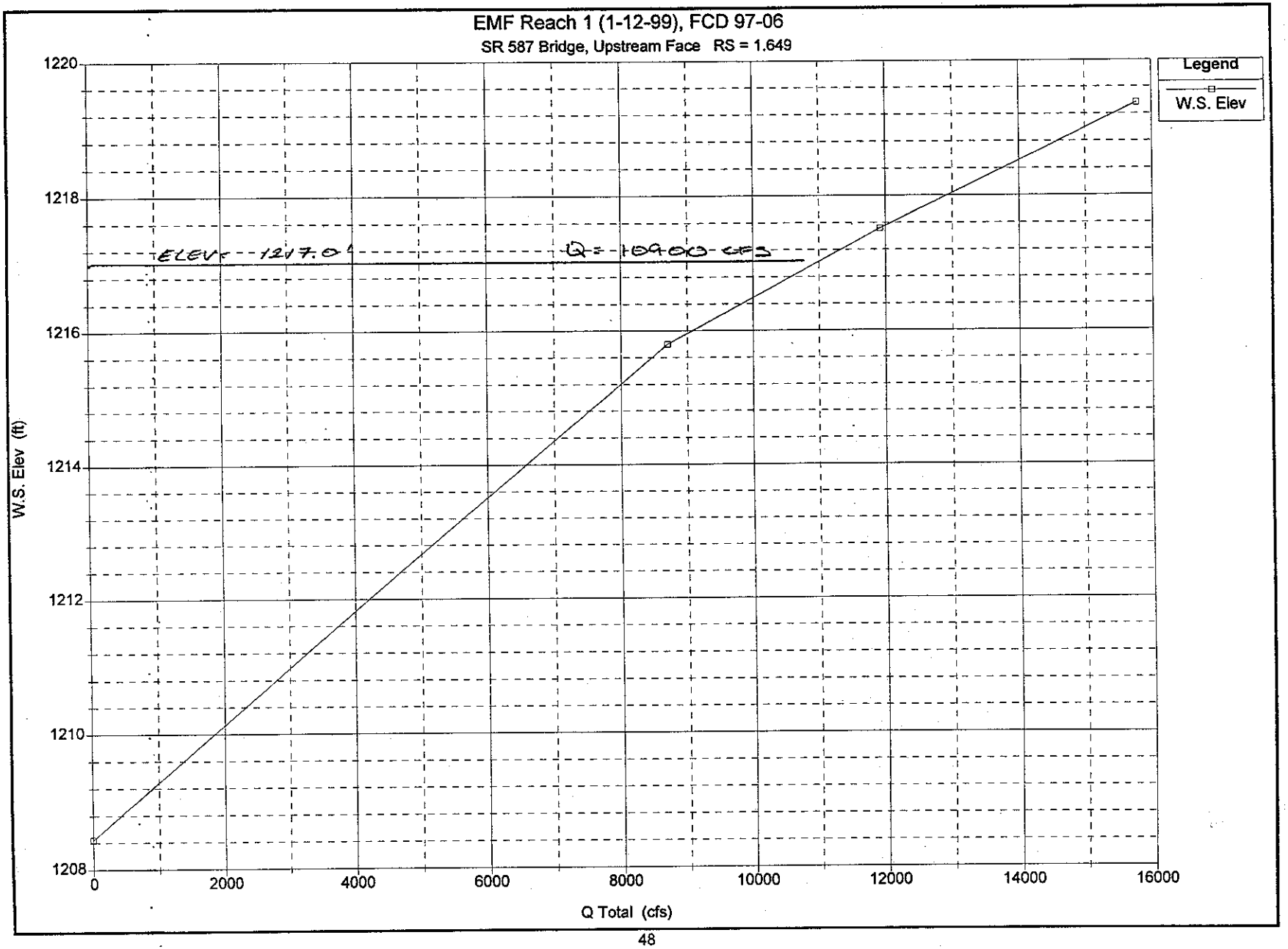
EMF Reach 2 (1-12-99), FCD 97-06
SR 87 Bridge Downstream Face RS = 4.578
Legend
W.S. Elev
ELEV = 1242.6'
Q = 21700 cfs
W.S. Elev (ft)
1244
1242
1240
1238
1236
1234
1232
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
Q Total (cfs)

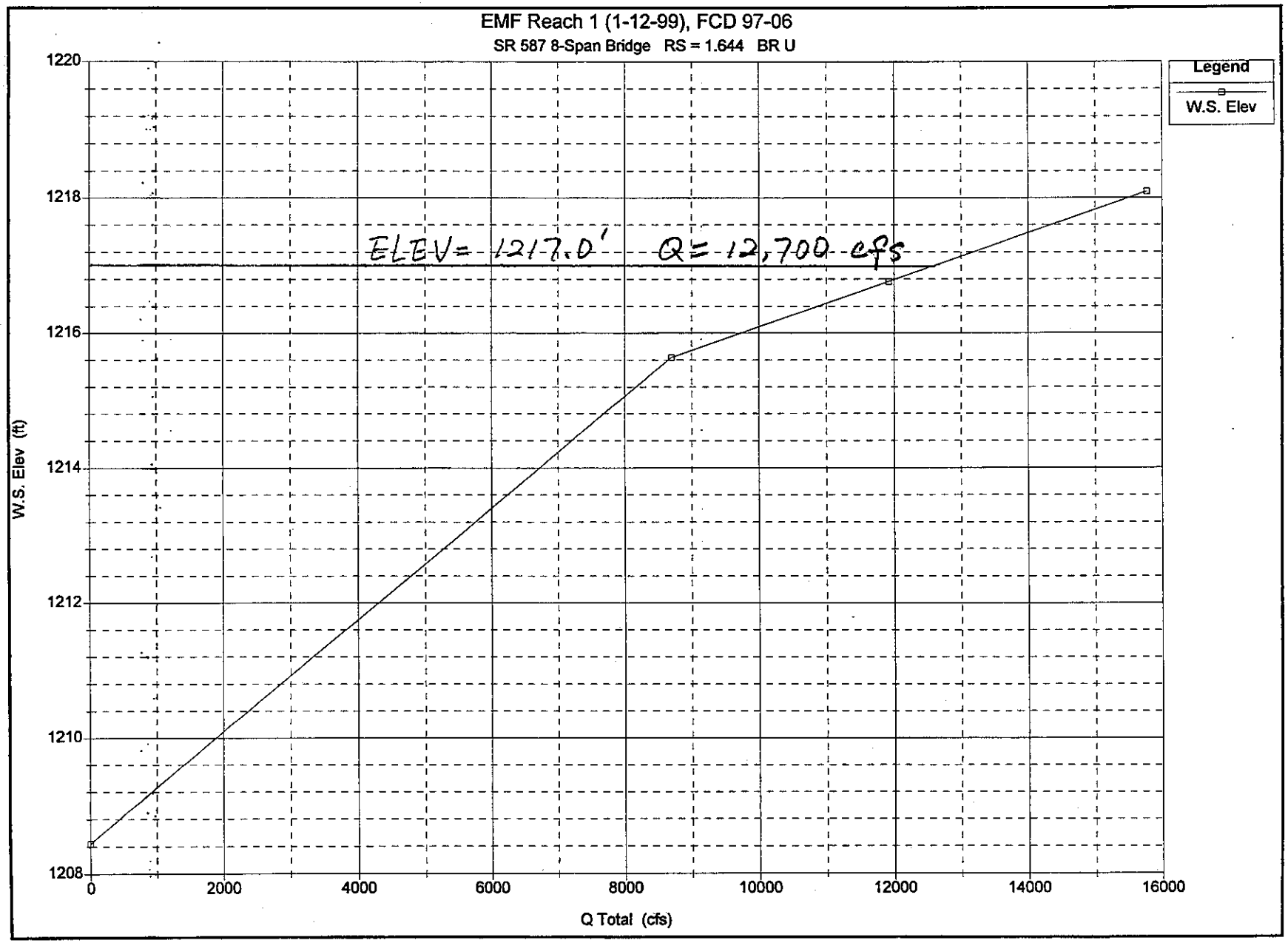

EMF Reach 1 (1-12-99), FCD 97-06
Upstream End of Reach 1, SR 87 Bridge Downstream Ineffective Areas RS = 4.487
Legend
W.S. Elev
ELEV = 1238.5'
Q = 10900 cfs
W.S. Elev (ft)
1242
1240
1238
1236
1234
1232
1230
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

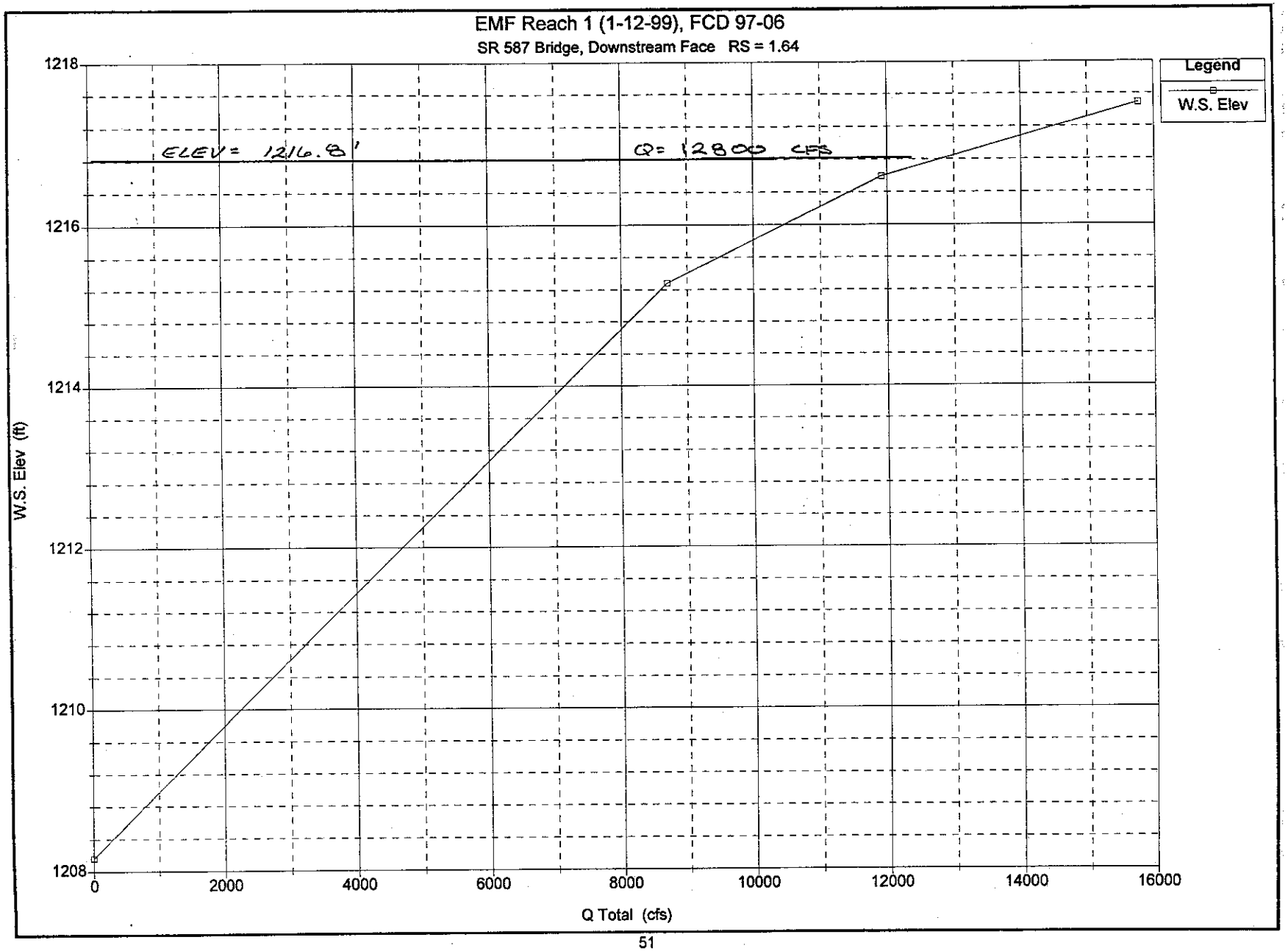
EMF Reach 1 (1-12-99), FCD 97-06
Santan Baptist Church Road Bridge, Upstream Face RS = 4.156
ELEV = 1237.8'
Q = 14600 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1238
1236
1234
1232
1230
1228
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)


EMF Reach 1 (1-12-99), FCD 97-06
Santan Baptist Church Road 7-Span Bridge RS = 4.152 BR U
Legend
W.S. Elev
ELEV= 1237.3' Q=18,300 cfs
W.S. Elev (ft)
1240
1238
1236
1234
1232
1230
1228
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
Q Total (cfs)

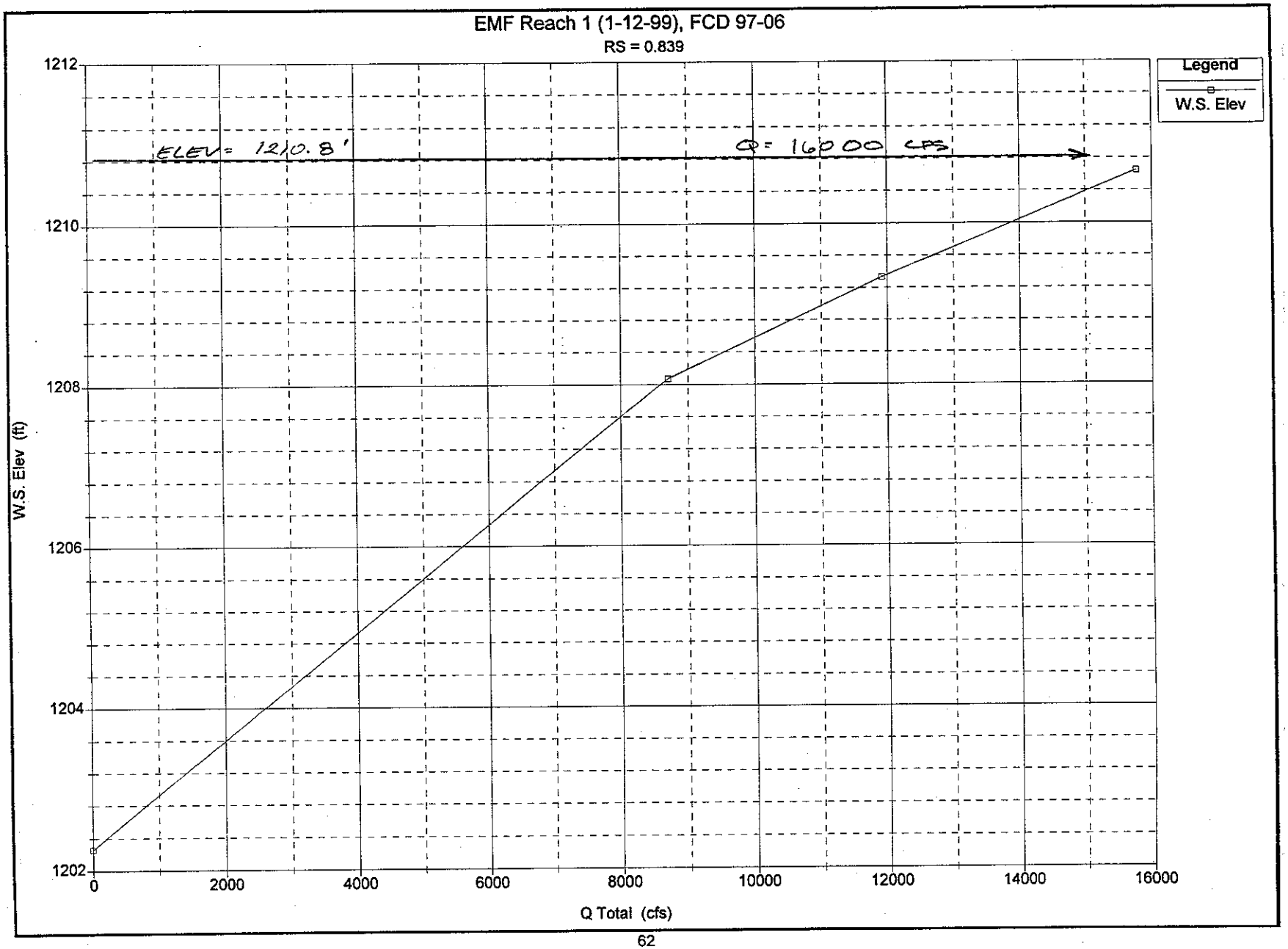
EMF Reach 1 (1-12-99), FCD 97-06
Santan Baptist Church Road Bridge, Downstream Face RS = 4.148
ELEV = 1237.3'
Q = 19300 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1238
1236
1234
1232
1230
1228
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

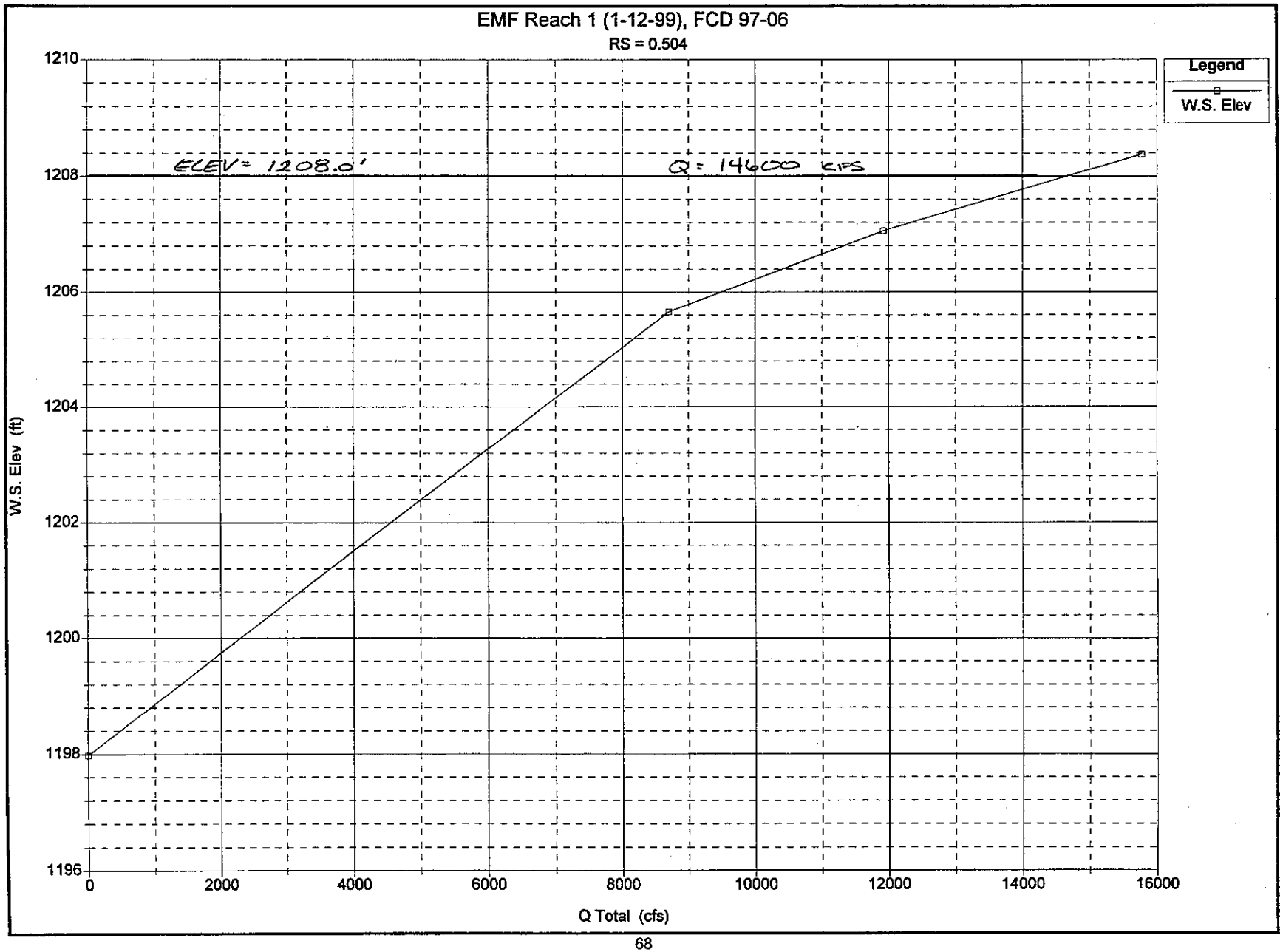

EMF Reach 1 (1-12-99), FCD 97-06
SR 587 Bridge, Upstream Face RS = 1.649
Legend
W.S. Elev
ELEV = 1217.0'
Q = 10900 cfs
W.S. Elev (ft)
1220
1218
1216
1214
1212
1210
1208
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

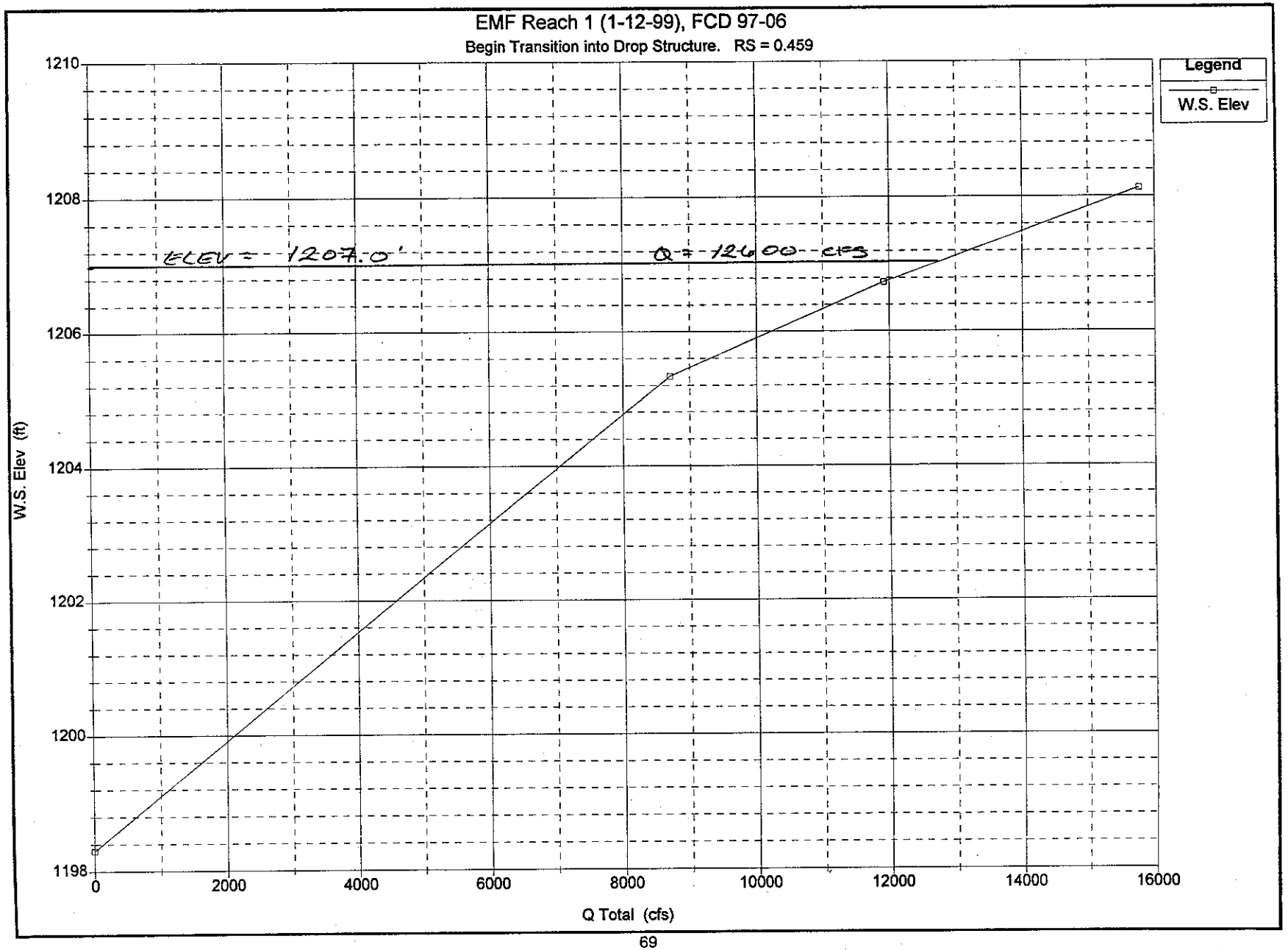

EMF Reach 1 (1-12-99), FCD 97-06
SR 587 8-Span Bridge RS = 1.644 BR U
Legend
W.S. Elev
ELEV= 1217.0' Q= 12,700 cfs
W.S. Elev (ft)
1220
1218
1216
1214
1212
1210
1208
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

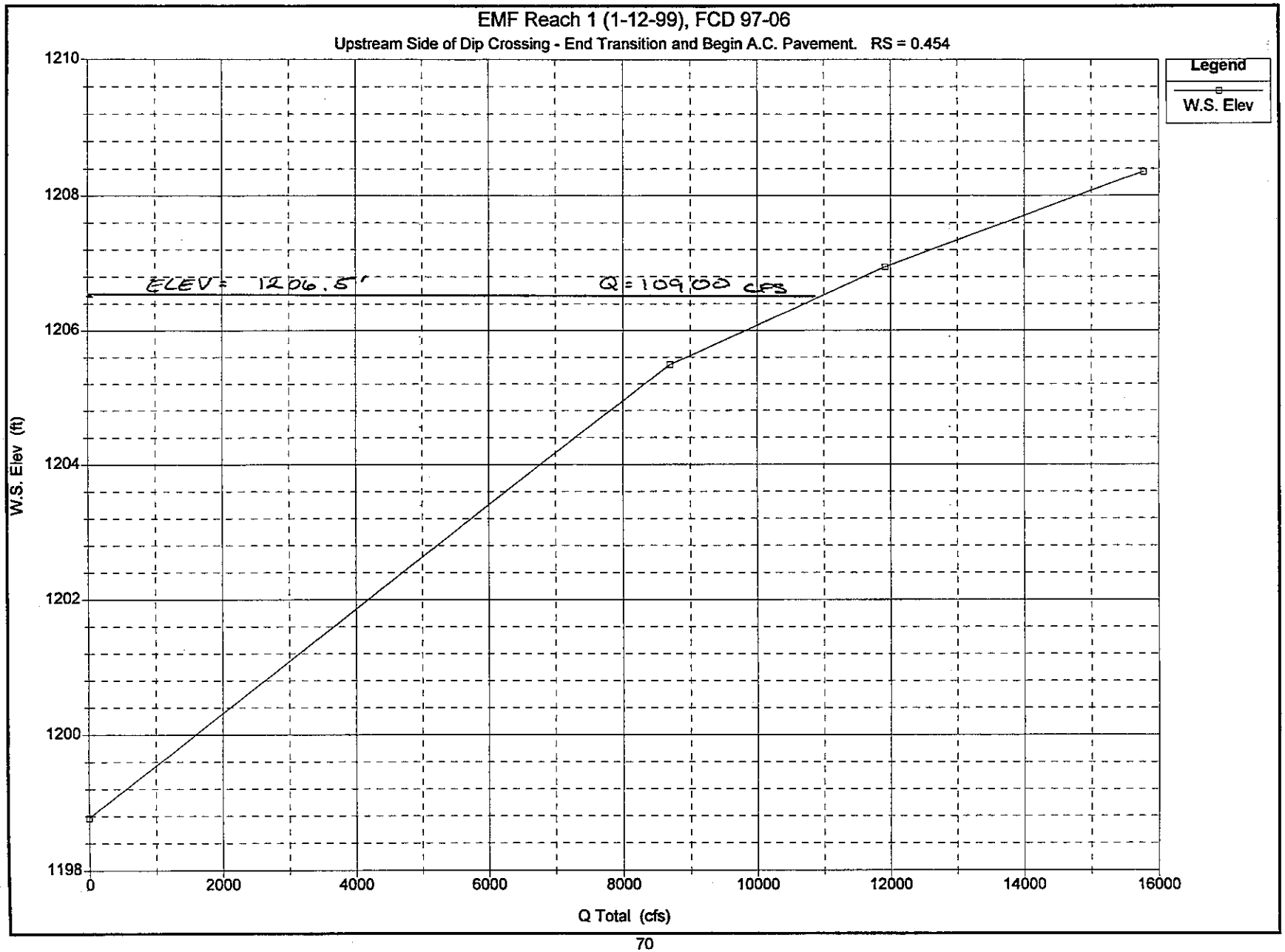

EMF Reach 1 (1-12-99), FCD 97-06
SR 587 Bridge, Downstream Face RS = 1.64
Legend
W.S. Elev
ELEV= 1216.8'
Q= 12800 CFS
W.S. Elev (ft)
1218
1216
1214
1212
1210
1208
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

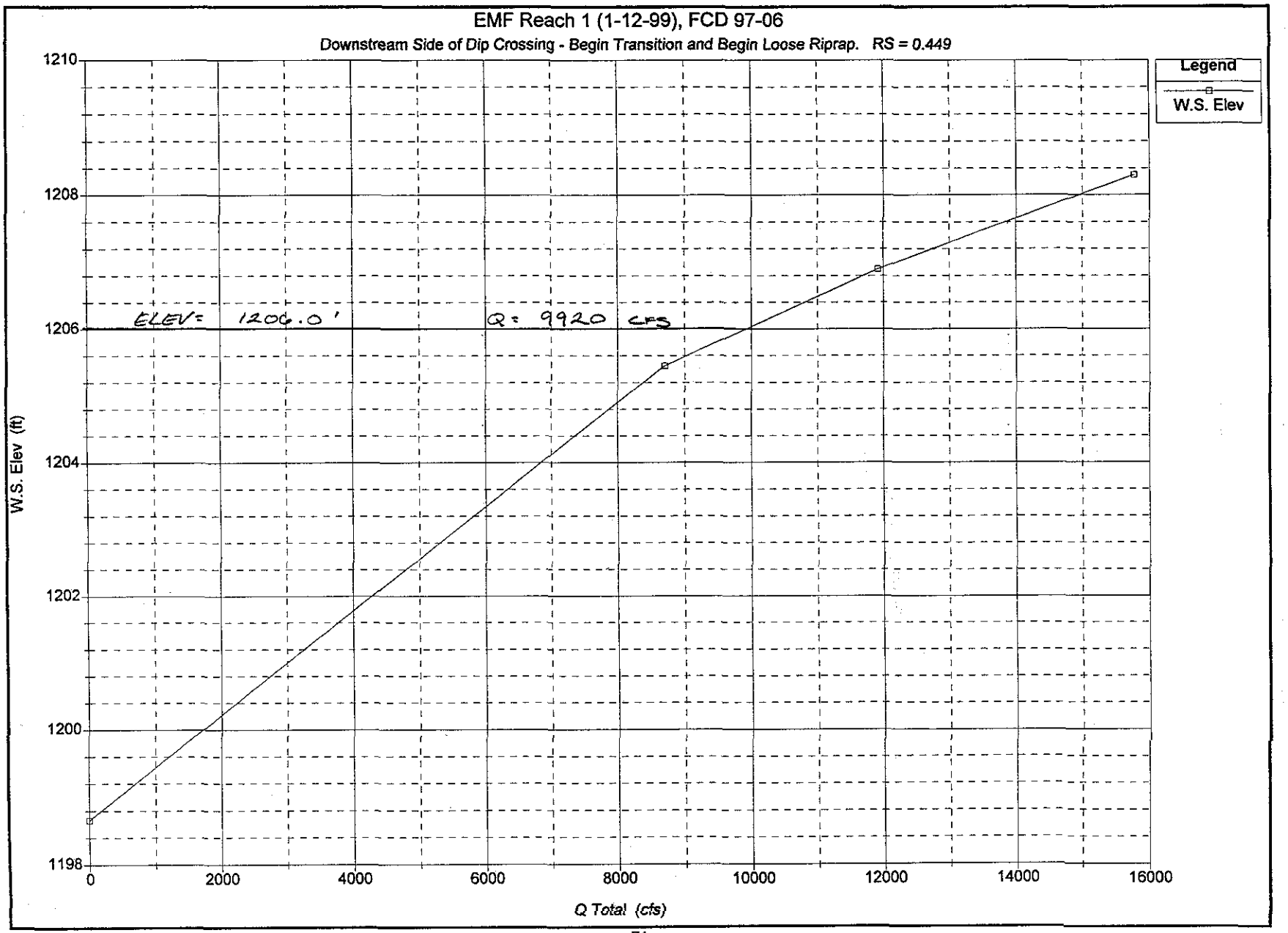
EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.917
ELEV= 1210.9'
Q= 13500 cfs
Legend
W.S. Elev
W.S. Elev (ft)
1212
1210
1208
1206
1204
1202
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

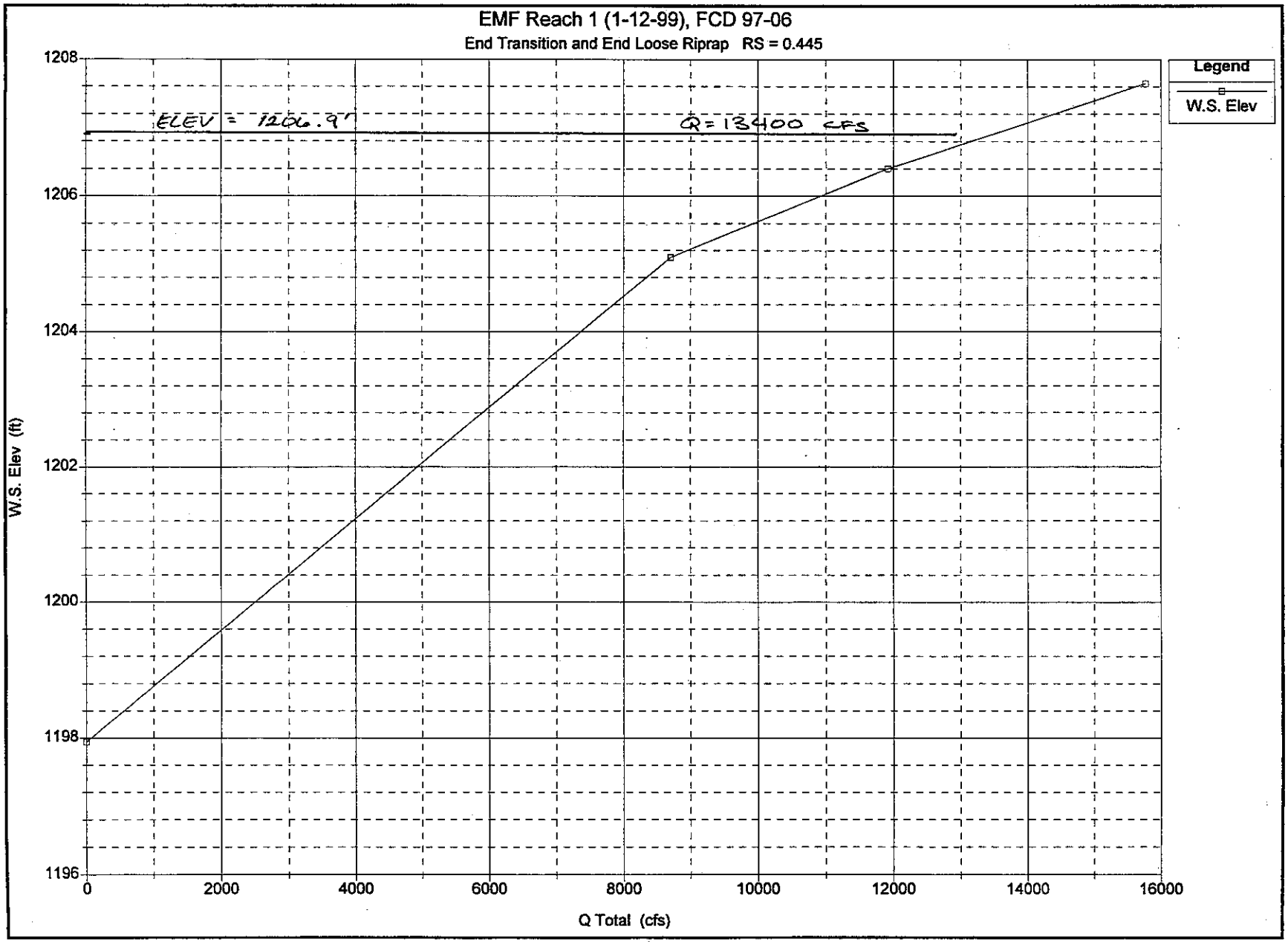

EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.839
Legend
W.S. Elev
ELEV = 1210.8'
Q = 16000 cfs
W.S. Elev (ft)
1212
1210
1208
1206
1204
1202
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

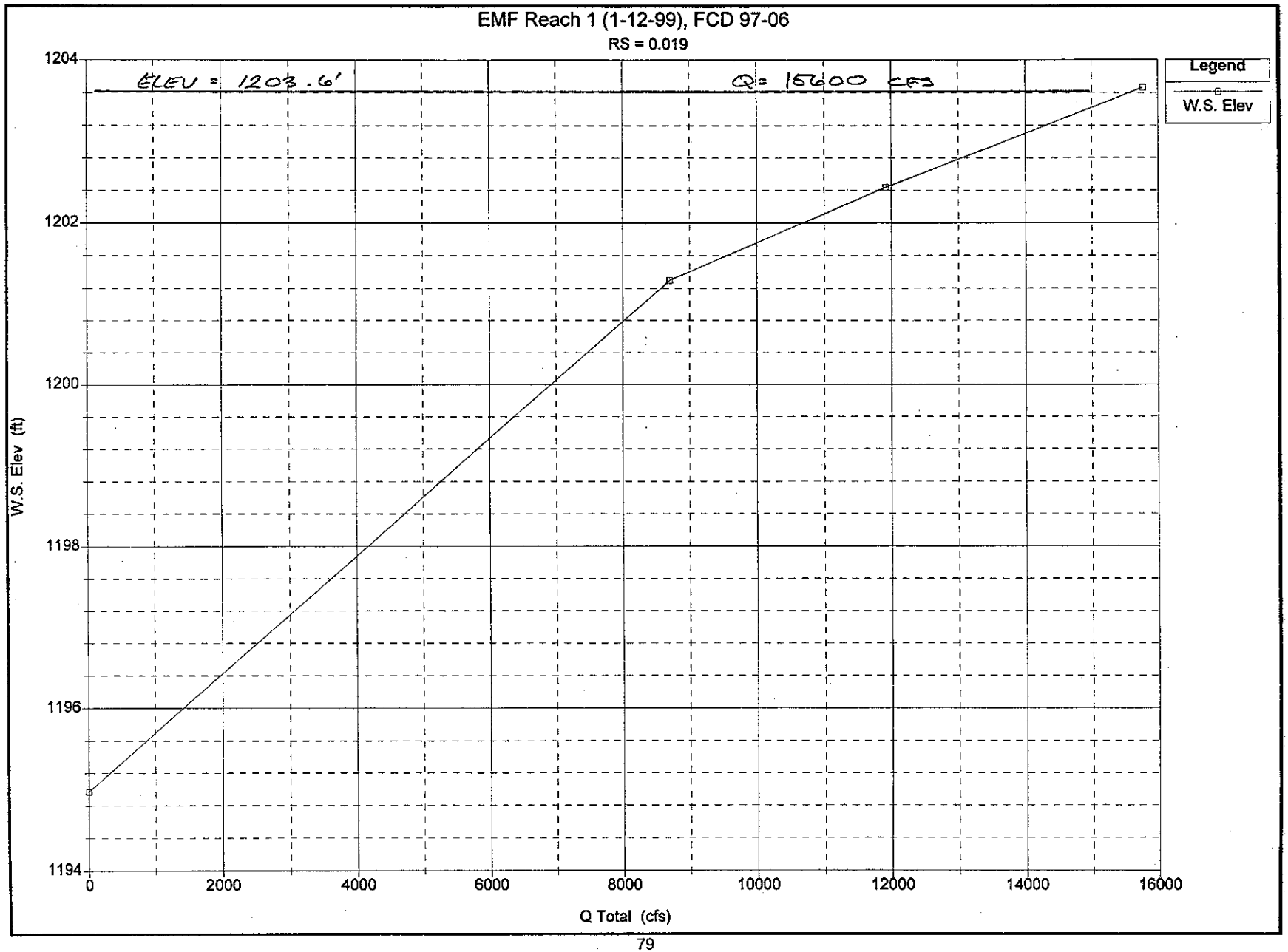

EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.504
Legend
W.S. Elev
ELEV = 1208.0'
Q = 14600 KFS
W.S. Elev (ft)
1210
1208
1206
1204
1202
1200
1198
1196
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

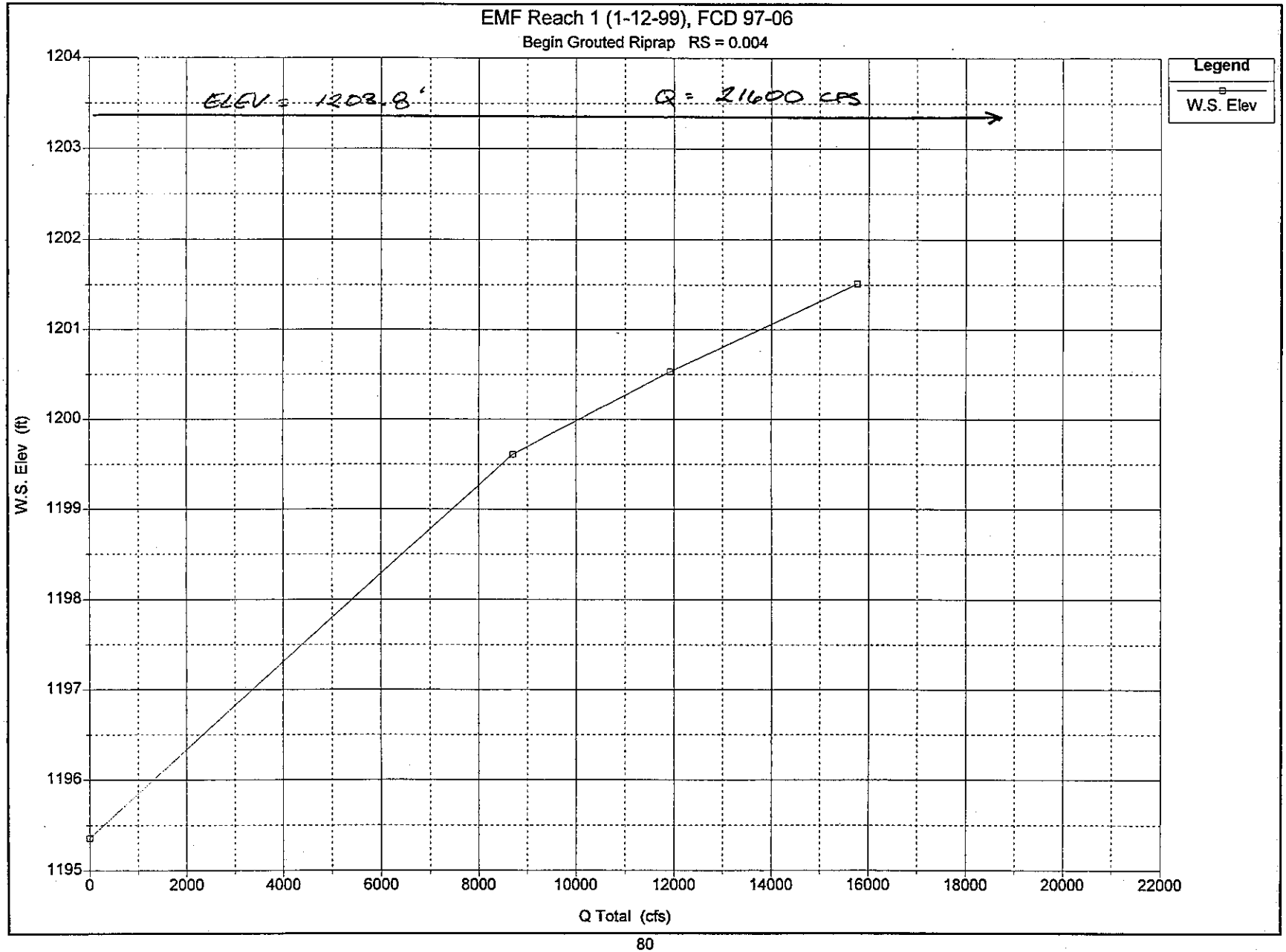

EMF Reach 1 (1-12-99), FCD 97-06
Begin Transition into Drop Structure. RS = 0.459
Legend
W.S. Elev
ELEV = 1207.0'
Q = 12600 cfs
W.S. Elev (ft)
1210
1208
1206
1204
1202
1200
1198
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)

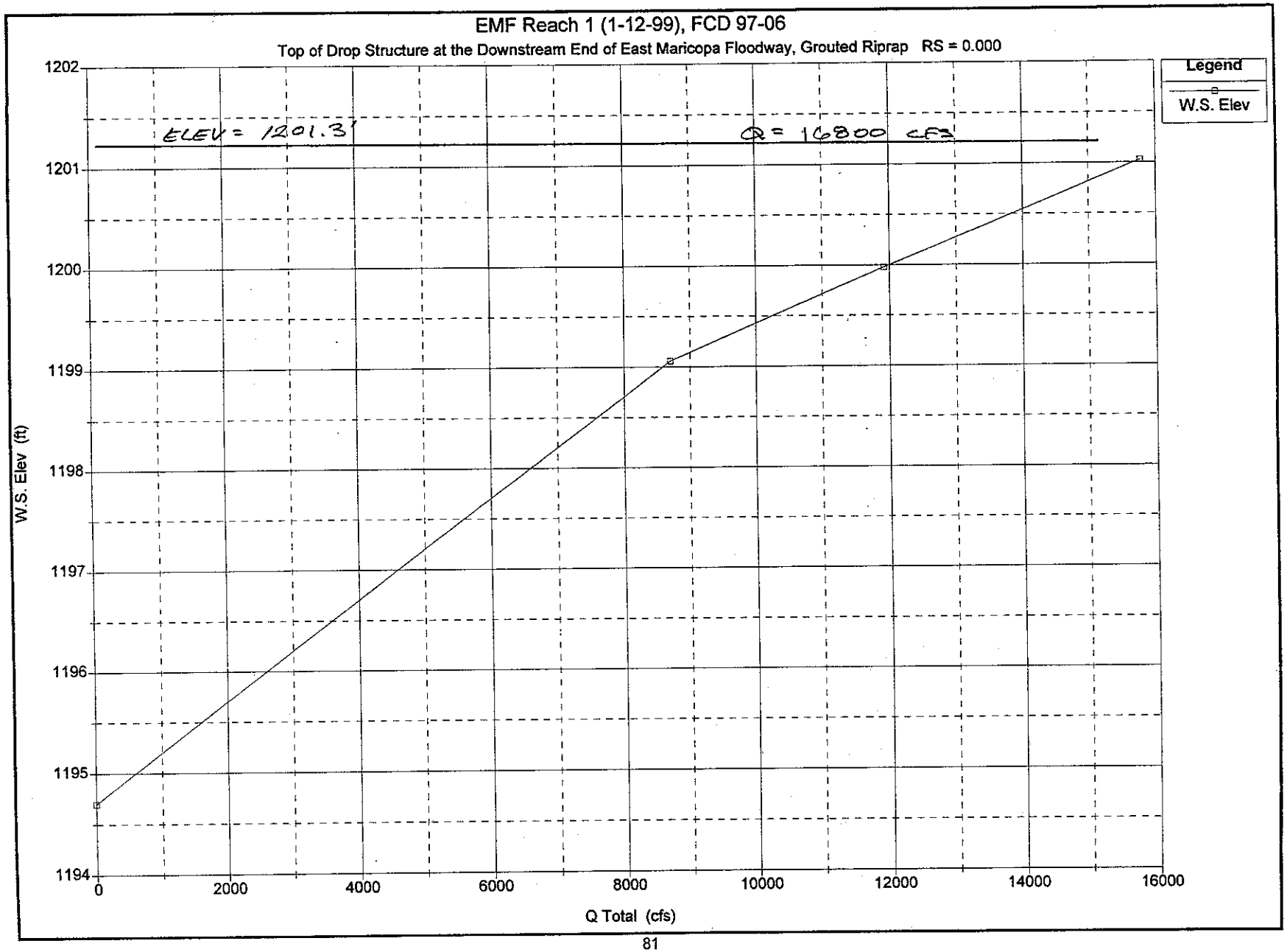

EMF Reach 1 (1-12-99), FCD 97-06
Upstream Side of Dip Crossing - End Transition and Begin A.C. Pavement. RS = 0.454
Legend
W.S. Elev
ELEV = 1206.5'
Q = 10900 cfs
W.S. Elev (ft)
1210
1208
1206
1204
1202
1200
1198
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)


EMF Reach 1 (1-12-99), FCD 97-06
Downstream Side of Dip Crossing - Begin Transition and Begin Loose Riprap. RS = 0.449
Legend
W.S. Elev
ELEV= 1206.0'
Q= 9920 cfs
W.S. Elev (ft)
1210
1208
1206
1204
1202
1200
1198
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)


EMF Reach 1 (1-12-99), FCD 97-06
End Transition and End Loose Riprap RS = 0.445
ELEV = 1206.97
Q = 13400 CFS
Legend
W.S. Elev
W.S. Elev (ft)
1208
1206
1204
1202
1200
1198
1196
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)


EMF Reach 1 (1-12-99), FCD 97-06
RS = 0.019
ELEV = 1203.6'
Q = 15600 CFS
Legend
W.S. Elev
W.S. Elev (ft)
1204
1202
1200
1198
1196
1194
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)


EMF Reach 1 (1-12-99), FCD 97-06
Begin Grouted Riprap RS = 0.004
ELEV = 1203.8'
Q = 21600 CFS
Legend
W.S. Elev
W.S. Elev (ft)
1204
1203
1202
1201
1200
1199
1198
1197
1196
1195
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
Q Total (cfs)


EMF Reach 1 (1-12-99), FCD 97-06
Top of Drop Structure at the Downstream End of East Maricopa Floodway, Grouted Riprap RS = 0.000
Legend
W.S. Elev
ELEV = 1201.3'
Q = 16800 CFS
W.S. Elev (ft)
1202
1201
1200
1199
1198
1197
1196
1195
1194
0
2000
4000
6000
8000
10000
12000
14000
16000
Q Total (cfs)