

SECTION	DISTANCES		DRAINAGE		'N' VALUE BY SEGMENTS						
	CHANNEL	VALLEY	CHANNEL	VALLEY	AREA, SQ MI	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-1	1.	1.	2125.	2125.	99.30	0.050	0.050	0.050			

ELEVATION	KD VALUES			TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY	VALLEY		
295.00	543585.6	11372556.0	11916140.0	60240.43	
294.00	512222.9	10399842.0	10912064.0	56814.65	
293.00	481122.6	9441042.0	9922164.0	53403.64	
292.00	451072.4	8537912.0	8988984.0	50051.77	
291.00	421779.4	7674398.0	8096177.0	46741.62	
290.00	392991.4	6837300.0	7230291.0	43459.30	
289.00	365493.8	6066979.0	6432472.0	40246.53	
288.00	338524.9	5323773.0	5662297.0	37061.57	
287.00	312349.0	4621246.0	4933594.0	33918.35	
286.00	287188.8	3968986.0	4256175.0	30826.96	
285.00	262768.6	3352197.5	3614966.0	27769.78	
284.00	239077.6	2769767.5	3008845.0	24744.47	
283.00	216634.0	2251782.0	2468415.5	21769.66	
282.00	194960.1	1774264.2	1969224.2	18825.14	
281.00	174044.8	1336980.2	1511025.0	15910.18	
280.00	154110.9	952721.2	1106832.2	13032.74	
279.00	135344.3	634261.0	769605.2	10198.57	
278.00	117541.5	373983.7	491525.3	7399.01	
277.00	101338.5	183628.7	284967.2	4726.69	
276.00	86543.2	63919.1	150462.4	2499.29	
275.00	72888.4	15414.2	88302.7	1215.08	
274.00	60466.2	3332.5	63798.8	702.75	
273.00	49518.9	630.5	50149.5	511.99	
272.00	39667.9	10.3	39678.3	415.76	
271.00	30810.3	0.0	30810.3	349.60	
270.00	22898.8	0.0	22898.8	287.12	
269.00	16097.2	0.0	16097.2	227.41	
268.00	10259.0	0.0	10259.0	170.02	
267.00	5623.6	0.0	5623.6	115.35	
266.00	2145.5	0.0	2145.5	63.13	
265.00	206.4	0.0	206.4	14.90	
264.40	10.6	0.0	10.6	1.67	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
496.50	2.21	268.94	993.00	2.80	271.07	2482.50	2.49	274.68
4965.00	1.88	276.08	7447.50	1.87	276.71	9930.00	1.91	277.17
12412.50	1.95	277.62	14895.00	2.07	277.92	17377.50	2.16	278.22
19860.00	2.24	278.52	24825.00	2.40	279.05	29790.00	2.55	279.51
34755.00	2.68	279.98						

-----DISTANCES-----						'N' VALUE BY SEGMENTS					
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-2	CHANNEL	VALLEY	CHANNEL	VALLEY	AREA, SQ. MI.						
	2125.	2125.	2300.	2300.	98.02	0.080	0.050	0.080			

-----KD VALUES-----				END AREA
ELEVATION	CHANNEL	VALLEY	TOTAL	SQ. FT.
300.00	953661.5	540734.1	1494395.5	8557.09
299.00	908522.8	486186.7	1394709.5	8064.29
298.00	864338.6	435266.4	1299605.0	7586.56
297.00	820959.0	387246.6	1208205.5	7121.35
296.00	778384.0	342127.2	1120511.2	6668.63
295.00	736957.1	300900.8	1037857.8	6233.43
294.00	696022.5	261343.3	957365.7	5805.73
293.00	656594.3	226940.8	883535.1	5400.72
292.00	617494.8	193746.6	811241.5	5001.13
291.00	579847.8	166271.5	746119.3	4627.59
290.00	542976.7	141010.4	683987.1	4268.85
289.00	506881.5	117963.4	624844.8	3924.91
288.00	472213.3	98599.7	570813.1	3607.60
287.00	438190.6	80655.0	518845.6	3301.90
286.00	405304.0	65066.1	470370.1	3016.38
285.00	373508.3	51431.7	424940.0	2747.40
284.00	342627.3	39417.9	382045.2	2491.99
283.00	312789.8	29230.7	342020.5	2251.72
282.00	284328.2	21202.4	305530.6	2030.90
281.00	256805.4	14550.6	271356.0	1823.54
280.00	230218.4	9206.2	239424.6	1629.61
279.00	204982.5	5400.2	210382.7	1454.86
278.00	181030.7	2775.8	183806.6	1296.50
277.00	158251.5	1085.7	159337.2	1152.46
276.00	136714.7	244.0	136958.7	1025.90
275.00	116794.0	5.4	116799.4	917.66
274.00	99196.9	0.0	99196.9	824.61
273.00	82918.2	0.0	82918.2	733.53
272.00	67769.6	0.0	67769.6	643.58
271.00	53771.9	0.0	53771.9	554.72
270.00	41070.6	0.0	41070.6	467.01
269.00	29663.0	0.0	29663.0	380.39
268.00	19843.7	0.0	19843.7	295.08
267.00	12209.0	0.0	12209.0	213.68
266.00	6371.5	0.0	6371.5	138.62
265.00	2370.3	0.0	2370.3	71.97
264.00	311.2	0.0	311.2	18.30
263.30	11.6	0.0	11.6	1.83

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
492.91	1.18	269.43	985.82	1.60	271.67	2464.55	2.54	275.49
4929.11	3.98	277.60	7393.66	5.08	278.99	9858.22	5.95	280.15
12322.78	6.62	281.19	14787.33	7.22	282.07	17251.89	7.74	282.90
19716.45	8.18	283.65	24645.56	8.95	285.02	29574.67	9.60	286.22
34503.78	10.15	287.33						

SECTION LR-3	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI 97.75	'N' VALUE BY SEGMENTS				
	CHANNEL 2300.	VALLEY 2300.	CHANNEL 2800.	VALLEY 2800.		NO. 1 0.080	NO. 2 0.050	NO. 3 0.080	NO. 4	NO. 5

ELEVATION	KD VALUES			TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY	VALLEY		
306.00	743585.5	424496.5	1168082.0	6423.21	
305.00	701553.1	387969.0	1089522.2	6099.48	
304.00	659779.6	351900.3	1011679.8	5777.18	
303.00	619726.1	318785.2	938511.2	5464.27	
302.00	580334.3	286762.8	867097.1	5154.90	
301.00	541934.8	256379.6	798314.5	4850.83	
300.00	504887.9	228148.3	733036.2	4553.84	
299.00	468525.0	200985.4	669510.5	4250.38	
298.00	433546.3	175944.5	609490.7	3973.99	
297.00	399564.3	152378.7	551943.1	3692.58	
296.00	366564.8	130251.6	496816.4	3416.02	
295.00	334836.7	109946.0	444782.7	3145.66	
294.00	304413.0	91454.9	395867.8	2881.48	
293.00	274985.6	74326.3	349312.0	2621.94	
292.00	246563.6	58561.3	305125.0	2367.05	
291.00	219742.5	44925.5	264668.0	2119.33	
290.00	194139.0	33064.4	227203.3	1877.29	
289.00	169781.3	22951.3	192732.7	1642.11	
288.00	146700.6	14533.2	161233.8	1414.29	
287.00	124901.8	7867.6	132769.5	1194.68	
286.00	104626.7	3691.1	108317.8	991.99	
285.00	85816.7	1509.8	87326.6	821.83	
284.00	68683.7	535.2	69219.0	684.41	
283.00	53712.9	110.3	53823.2	570.38	
282.00	40490.7	5.6	40496.3	470.64	
281.00	29114.1	0.0	29114.1	379.83	
280.00	19407.5	0.0	19407.5	292.94	
279.00	11537.0	0.0	11537.0	209.81	
278.00	5431.1	0.0	5431.1	130.05	
277.00	1468.4	0.0	1468.4	55.84	
276.00	80.0	0.0	80.0	6.29	
275.20	2.1	0.0	2.1	0.34	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
492.15	3.00	278.43	984.30	3.73	279.65	2460.75	4.92	282.31
4921.51	6.09	284.90	7382.26	6.51	286.71	9843.02	6.81	288.14
12303.78	7.11	289.37	14764.53	7.43	290.45	17225.29	7.72	291.45
19686.05	8.01	292.35	24607.56	8.53	294.01	29529.07	9.01	295.48
34450.58	9.45	296.83						

*KD to CFS = KD x S<sup>1/2</sup>*  
*KD = A <sup>1.486</sup> / 21 R<sup>2/3</sup>*  
*Q = A <sup>1.486</sup> / 21 R<sup>2/3</sup> S<sup>1/2</sup>*

561.40

SECTION LK-4 CHANNEL 2800. VALLEY 2800. CHANNEL 1850. VALLEY 1850. DRAINAGE AREA, SQ MI 96.59 NO. 1 0.080 NO. 2 0.050 NO. 3 0.080 NO. 4 0.080 NO. 5 0.080 NO. 6 0.080

DISTANCES		UPSTREAM		DOWNSTREAM		VALLEY		DRAINAGE AREA, SQ MI		'N' VALUE BY SEGMENTS		END AREA		
CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	AREA	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
2800.	2800.	1850.	1850.	1850.	1850.	1850.	1850.	96.59	0.080	0.050	0.080	0.080	0.080	0.080
ELEVATION	CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	TOTAL	SQ. FT.				
308.00	695310.0	315920.6	1011230.5	315920.6	1011230.5	315920.6	1011230.5	315920.6	5926.40					
307.00	654438.1	280659.0	935097.0	280659.0	935097.0	280659.0	935097.0	280659.0	5576.59					
306.00	614587.6	247499.3	862086.8	247499.3	862086.8	247499.3	862086.8	247499.3	5233.37					
305.00	575418.0	215741.1	791159.0	215741.1	791159.0	215741.1	791159.0	215741.1	4894.55					
304.00	537085.0	187251.5	725136.5	187251.5	725136.5	187251.5	725136.5	187251.5	4566.08					
303.00	501021.3	160064.2	661085.5	160064.2	661085.5	160064.2	661085.5	160064.2	4241.74					
302.00	465161.5	134830.5	599992.1	134830.5	599992.1	134830.5	599992.1	134830.5	3923.61					
301.00	430672.3	112208.6	542881.0	112208.6	542881.0	112208.6	542881.0	112208.6	3613.76					
300.00	396854.8	90859.2	487714.0	90859.2	487714.0	90859.2	487714.0	90859.2	3307.92					
299.00	364354.0	71988.3	436342.3	71988.3	436342.3	71988.3	436342.3	71988.3	3009.84					
298.00	333112.9	55491.3	388604.2	55491.3	388604.2	55491.3	388604.2	55491.3	2719.01					
297.00	302833.3	40832.8	343666.1	40832.8	343666.1	40832.8	343666.1	40832.8	2433.60					
296.00	273523.3	28042.2	301565.5	28042.2	301565.5	28042.2	301565.5	28042.2	2153.63					
295.00	245075.3	19127.7	265003.0	19127.7	265003.0	19127.7	265003.0	19127.7	1888.28					
294.00	219180.5	12537.8	231718.3	12537.8	231718.3	12537.8	231718.3	12537.8	1655.80					
293.00	193725.8	8132.7	201258.5	8132.7	201258.5	8132.7	201258.5	8132.7	1463.35					
292.00	169489.6	4881.1	174370.8	4881.1	174370.8	4881.1	174370.8	4881.1	1301.10					
291.00	146501.1	2432.6	148933.7	2432.6	148933.7	2432.6	148933.7	2432.6	1150.90					
290.00	125790.7	923.8	126714.5	923.8	126714.5	923.8	126714.5	923.8	1013.79					
289.00	106753.0	158.3	106911.3	158.3	106911.3	158.3	106911.3	158.3	885.80					
288.00	89361.7	8.4	89390.2	8.4	89390.2	8.4	89390.2	8.4	781.15					
287.00	73638.3	0.0	73638.3	0.0	73638.3	0.0	73638.3	0.0	687.24					
286.00	59225.5	0.0	59225.5	0.0	59225.5	0.0	59225.5	0.0	596.15					
285.00	45996.7	0.0	45996.7	0.0	45996.7	0.0	45996.7	0.0	506.73					
284.00	34305.6	0.0	34305.6	0.0	34305.6	0.0	34305.6	0.0	419.39					
283.00	23991.9	0.0	23991.9	0.0	23991.9	0.0	23991.9	0.0	333.79					
282.00	15015.0	0.0	15015.0	0.0	15015.0	0.0	15015.0	0.0	249.68					
281.00	7913.3	0.0	7913.3	0.0	7913.3	0.0	7913.3	0.0	166.87					
280.00	3212.3	0.0	3212.3	0.0	3212.3	0.0	3212.3	0.0	90.15					
279.00	755.1	0.0	755.1	0.0	755.1	0.0	755.1	0.0	32.60					
278.00	6.8	0.0	6.8	0.0	6.8	0.0	6.8	0.0	1.07					
277.80	6.7	0.0	6.7	0.0	6.7	0.0	6.7	0.0	1.07					

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
488.67	2.04	281.88	977.74	2.69	283.34	2444.35	3.85	286.41
4888.71	5.01	289.70	1333.07	5.68	291.93	9777.43	6.14	293.69
12221.79	6.30	295.19	14666.15	6.40	296.48	17110.51	6.54	297.64
19554.87	6.69	298.69	24443.59	7.01	300.58	29332.31	7.32	302.26
34221.03	7.60	303.79						

SECTION LR-5  
 DISTANCES  
 DOWNSTREAM CHANNEL VALLEY 1850.  
 UPSTREAM CHANNEL VALLEY 1450.  
 DRAINAGE AREA, SQ MI 96.35  
 'N' VALUE BY SEGMENTS NO. 1 NO. 2 NO. 3 NO. 4 NO. 5 NO. 6  
 0.080 0.050 0.080 0.080 0.080

ELEVATION		CHANNEL		VALLEY		TOTAL		END AREA	
DOWNSTREAM	UPSTREAM	CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	SQ. FT.	SQ. FT.
308.00	372715.6	372715.6	272985.4	645701.1	645701.1	5013.59	5013.59	5013.59	5013.59
307.00	349988.5	349988.5	235950.3	585938.8	585938.8	4578.08	4578.08	4578.08	4578.08
306.00	327947.8	327947.8	203585.0	531532.8	531532.8	4174.38	4174.38	4174.38	4174.38
305.00	306467.4	306467.4	174698.8	481166.1	481166.1	3796.13	3796.13	3796.13	3796.13
304.00	285360.6	285360.6	148132.2	433492.8	433492.8	3434.84	3434.84	3434.84	3434.84
303.00	265208.6	265208.6	126932.0	392140.6	392140.6	3116.05	3116.05	3116.05	3116.05
302.00	245423.2	245423.2	107592.6	353015.8	353015.8	2813.21	2813.21	2813.21	2813.21
301.00	226187.5	226187.5	91045.0	317232.5	317232.5	2534.30	2534.30	2534.30	2534.30
300.00	207827.1	207827.1	75433.7	283260.8	283260.8	2287.42	2287.42	2287.42	2287.42
299.00	190004.8	190004.8	60779.6	250784.4	250784.4	2051.19	2051.19	2051.19	2051.19
298.00	172725.2	172725.2	47271.8	219997.0	219997.0	1825.43	1825.43	1825.43	1825.43
297.00	156182.0	156182.0	35796.8	191978.8	191978.8	1613.21	1613.21	1613.21	1613.21
296.00	140341.2	140341.2	26113.6	166454.8	166454.8	1413.55	1413.55	1413.55	1413.55
295.00	125175.8	125175.8	18064.4	143240.2	143240.2	1225.73	1225.73	1225.73	1225.73
294.00	110686.5	110686.5	11575.2	122261.7	122261.7	1049.51	1049.51	1049.51	1049.51
293.00	96888.4	96888.4	6652.6	103541.1	103541.1	885.38	885.38	885.38	885.38
292.00	83797.9	83797.9	3380.1	87178.0	87178.0	734.78	734.78	734.78	734.78
291.00	71544.6	71544.6	2081.9	73626.6	73626.6	626.77	626.77	626.77	626.77
290.00	60078.7	60078.7	1423.2	61501.9	61501.9	554.14	554.14	554.14	554.14
289.00	49630.1	49630.1	934.2	50564.4	50564.4	486.42	486.42	486.42	486.42
288.00	40199.8	40199.8	569.3	40769.1	40769.1	420.88	420.88	420.88	420.88
287.00	31529.6	31529.6	315.0	31844.6	31844.6	357.02	357.02	357.02	357.02
286.00	23616.1	23616.1	146.5	23762.6	23762.6	294.67	294.67	294.67	294.67
285.00	16536.4	16536.4	49.0	16585.5	16585.5	233.85	233.85	233.85	233.85
284.00	10432.3	10432.3	7.4	10439.8	10439.8	174.60	174.60	174.60	174.60
283.00	5465.4	5465.4	0.0	5465.4	5465.4	116.93	116.93	116.93	116.93
282.00	2223.9	2223.9	0.0	2223.9	2223.9	54.19	54.19	54.19	54.19
281.00	381.3	381.3	0.0	381.3	381.3	19.44	19.44	19.44	19.44
280.00	4.0	4.0	0.0	4.0	4.0	0.64	0.64	0.64	0.64

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
488.19	2.43	284.45	976.38	5.21	286.14	2440.95	4.60	289.64
4881.90	5.19	293.34	7322.85	5.33	295.80	9763.81	5.52	297.72
12204.76	5.73	299.33	14645.71	5.92	300.74	17086.67	6.05	302.04
19527.62	6.14	303.20	24409.53	6.27	305.26	29291.43	6.37	307.05
34173.34	6.34	308.83						

CFS NO. 13 OVER EHI. ANSWER WAS EXTRAPOLATED.

DISTANCES

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-6	1450.	1450.	1250.	1250.	96.11	0.085	0.045	0.085			

(K) VALUES

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA SQ. FT.
309.00	625308.5	197239.7	822548.1	4750.11
308.00	585244.6	170747.0	755991.5	4432.01
307.00	545774.6	145288.0	691062.5	4117.47
306.00	507881.0	122526.6	630407.7	3812.27
305.00	470883.7	101264.3	572148.1	3512.26
304.00	434782.7	81501.1	516283.8	3217.44
303.00	400231.3	65482.5	465713.9	2933.75
302.00	366675.8	51455.2	418131.0	2660.80
301.00	334112.7	39248.2	373360.9	2399.30
300.00	303070.5	29248.4	332318.8	2155.30
299.00	273244.1	20861.2	294085.4	1924.90
298.00	244437.0	13705.0	258142.0	1705.75
297.00	216949.5	8110.9	225060.5	1500.90
296.00	190882.5	4042.7	194925.2	1311.05
295.00	166280.2	1669.0	167949.3	1141.24
294.00	143019.4	473.6	143493.0	997.86
293.00	121287.6	44.0	121331.6	880.71
292.00	102163.7	0.0	102163.7	784.82
291.00	85278.8	0.0	85278.8	695.49
290.00	69714.8	0.0	69714.8	608.38
289.00	55428.8	0.0	55428.8	523.38
288.00	42535.7	0.0	42535.7	440.62
287.00	31130.4	0.0	31130.4	360.18
286.00	21240.1	0.0	21240.1	281.98
285.00	12832.6	0.0	12832.6	205.68
284.00	6144.7	0.0	6144.7	130.24
283.00	1641.4	0.0	1641.4	56.97
282.00	85.4	0.0	85.4	5.92
281.50	6.6	0.0	6.6	0.94

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
487.50	1.94	285.59	975.01	2.51	287.34	2437.54	3.51	290.97
4875.08	4.42	294.77	7312.67	4.68	297.31	9750.17	4.89	299.50
12187.71	5.08	300.99	14625.25	5.25	302.47	17062.80	5.39	303.81
19500.34	5.55	304.99	24375.42	5.87	307.11	29250.51	6.18	308.94
34125.60	6.40	310.77						

CSM NO. 13 OVER EHI. ANSWER WAS EXTRAPOLATED.

SECTION LR-7	DISTANCES				DRAINAGE AREA, SQ MI 96.00	'N' VALUE BY SEGMENTS					
	DOWNSTREAM CHANNEL 1250.	VALLEY 1250.	UPSTREAM CHANNEL 100.	VALLEY 100.		NO. 1 0.085	NO. 2 0.045	NO. 3 0.085	NO. 4	NO. 5	NO. 6

ELEVATION		KD VALUES		END AREA	
CHANNEL	VALLEY	CHANNEL	VALLEY	TOTAL	SQ. FT.
313.00	514773.4	529698.1	1044471.5	7227.52	
312.00	485069.1	475906.1	960975.2	6759.67	
311.00	456117.8	425412.1	881530.0	6304.88	
310.00	427606.4	376821.5	804427.8	5857.69	
309.00	400148.0	332640.5	732788.5	5428.40	
308.00	373287.5	290846.1	664133.6	5009.07	
307.00	347024.7	251438.2	598463.0	4599.69	
306.00	321863.0	216219.9	538083.0	4208.23	
305.00	297176.1	182748.2	479924.3	3824.36	
304.00	273311.1	152265.4	425576.5	3453.55	
303.00	250457.1	125623.9	376081.0	3098.70	
302.00	228291.3	101785.8	330077.1	2757.25	
301.00	206819.5	80696.0	287515.6	2429.93	
300.00	186412.7	62152.2	249364.9	2125.33	
299.00	166796.7	47510.6	214307.3	1837.12	
298.00	148056.5	34513.7	182570.2	1566.76	
297.00	130184.9	23876.1	154061.0	1313.98	
296.00	113202.0	15663.7	128865.7	1081.26	
295.00	97248.1	10345.5	107593.6	887.12	
294.00	82270.3	6828.3	89098.6	735.18	
293.00	68320.9	4561.2	72882.1	627.90	
292.00	55429.0	2803.7	58232.7	534.07	
291.00	43640.0	1445.4	45085.5	443.74	
290.00	32997.6	496.7	33494.3	356.15	
289.00	23733.9	57.6	23791.5	274.86	
288.00	16160.9	1.2	16162.1	209.97	
287.00	10037.0	0.1	10037.2	153.94	
286.00	5311.3	0.0	5311.3	101.62	
285.00	2132.5	0.0	2132.5	55.08	
284.00	433.9	0.0	433.9	18.14	
283.00	4.2	0.0	4.2	0.60	
282.90	4.2	0.0	4.2	0.60	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
487.19	2.74	287.43	974.39	3.41	289.15	2435.97	4.14	292.57
4871.99	4.18	296.36	7307.93	4.04	298.90	9743.91	4.06	300.89
12179.69	4.12	302.59	14615.86	4.19	304.07	17051.84	4.28	305.41
19487.82	4.38	306.61	24359.78	4.57	308.77	29231.73	4.75	310.65
34103.68	4.88	312.49						

BRIDGE SECTION LR-8

COEFFICIENTS  
OPENING=0.800, ORIFICE=0.600, ROADWAY=0.800

-----DISTANCES-----

DOWNSTREAM		UPSTREAM	
CHANNEL	VALLEY	CHANNEL	VALLEY
100.0	100.0	100.0	100.0

ELEVATION	OPENING END AREA	Q CRIT.	ELEVATION	ROADWAY Q IN CFS
283.50	0.00	0.00	311.40	0.00
284.50	10.30	41.98	312.40	876.56
285.50	40.58	258.46	313.40	2938.42
286.50	89.76	687.00	314.40	5914.86
287.50	162.01	1456.84	315.40	9776.13
288.50	239.58	2478.74	316.40	14599.35
289.50	322.46	3725.66	317.00	17878.72
290.50	410.65	5187.13		
291.50	504.96	6872.10		
292.50	615.25	8857.40		
293.50	733.65	11127.21		
294.50	861.27	13676.18		
295.50	998.11	16511.45		
296.50	1141.28	19666.67		
297.50	1287.88	22083.55		
298.50	1437.93	26751.75		
299.50	1591.42	30664.33		
300.50	1748.35	34816.45		
301.50	1908.72	39204.53		
302.50	2072.53	43825.93		
303.50	2239.79	48678.75		
304.50	2410.48	53761.51		
305.50	2584.62	59073.25		
306.50	2762.20	64613.26		
307.50	2946.98	70509.34		
308.50	3137.97	76785.34		

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTIONS. A-RATING  
CURVE IS NOT DEVELOPED SEPARATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED  
WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.



-----DISTANCES-----

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-9	100.	100.	1.	1.	96.00	0.080	0.045	0.080			

-----KD VALUES-----

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA SQ. FT.
316.00	715656.5	296266.3	1011922.7	6027.83
315.00	675217.2	255968.7	931185.8	5543.89
314.00	635513.3	218900.2	854413.5	5081.64
313.00	596960.0	186669.1	783629.0	4652.82
312.00	559057.8	157351.0	716408.7	4244.10
311.00	522578.5	135539.0	658167.6	3887.18
310.00	486906.9	117086.5	603993.5	3561.75
309.00	452043.0	101843.5	553866.5	3267.81
308.00	418667.7	86155.0	504822.8	3003.03
307.00	385934.4	71256.7	457191.1	2747.77
306.00	354313.0	58317.4	412630.4	2507.14
305.00	324059.5	47537.0	371596.5	2284.08
304.00	294737.7	37870.5	332608.2	2072.17
303.00	266355.7	29253.6	295609.3	1871.08
302.00	239416.6	22220.0	261636.6	1684.45
301.00	213549.9	16286.3	229836.2	1508.20
300.00	188871.1	11433.7	200304.8	1343.05
299.00	165371.5	7529.5	172901.0	1188.39
298.00	143079.4	4516.1	147595.6	1043.93
297.00	122186.5	2403.4	124589.9	910.96
296.00	102622.9	1008.6	103631.6	788.52
295.00	84461.7	292.8	84754.5	678.47
294.00	67745.1	45.2	67790.4	582.51
293.00	53215.8	2.7	53218.5	497.77
292.00	40949.9	0.0	40949.9	418.02
291.00	30477.1	0.0	30477.1	342.29
290.00	21373.7	0.0	21373.7	270.16
289.00	13648.2	0.0	13648.2	201.59
288.00	7500.6	0.0	7500.6	136.97
287.00	2976.6	0.0	2976.6	76.08
286.00	545.7	0.0	545.7	23.95
285.00	5.4	0.0	5.4	0.77
284.90	5.4	0.0	5.4	0.77

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
487.19	3.41	288.09	974.39	3.97	289.64	2435.97	4.98	292.89
4871.95	5.75	296.48	7307.93	6.21	298.92	9743.91	6.57	300.85
12179.89	6.85	302.50	14615.86	7.08	303.95	17051.84	7.27	305.27
19487.82	7.45	306.45	24359.78	7.72	308.58	29231.73	7.90	310.46
34103.69	7.78	312.34						

SECTION	DISTANCES				DRAINAGE AREA, SQ MI	IN VALUE BY SEGMENTS					
	DOWNSTREAM CHANNEL	DOWNSTREAM VALLEY	UPSTREAM CHANNEL	UPSTREAM VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-10	1.	1.	3810.	3810.	94.23	0.025					

ELEVATION	KD VALUES			TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY	VALLEY		
320.00	486788.0	0.0	0.0	486788.0	2255.75
319.00	393031.9	0.0	0.0	393031.9	1956.90
318.00	306803.8	0.0	0.0	306803.8	1665.29
317.00	233114.0	0.0	0.0	233114.0	1383.26
316.00	185753.4	0.0	0.0	185753.4	1126.40
315.00	150208.0	0.0	0.0	150208.0	925.21
314.00	108137.4	0.0	0.0	108137.4	741.29
313.00	69904.5	0.0	0.0	69904.5	564.48
312.00	38548.1	0.0	0.0	38548.1	389.80
311.00	26704.0	0.0	0.0	26704.0	239.84
310.00	17931.0	0.0	0.0	17931.0	164.44
309.00	9637.2	0.0	0.0	9637.2	107.85
308.00	5284.3	0.0	0.0	5284.3	64.14
307.00	1642.0	0.0	0.0	1642.0	29.91
306.00	178.9	0.0	0.0	178.9	5.86
305.20	4.4	0.0	0.0	4.4	0.36

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
1731.45	5005.41	288.09	3462.91	9957.25	289.64	6657.28	24616.91	292.89
17314.56	48637.65	296.48	25971.84	72360.95	298.92	34629.13	95862.34	300.85
43286.41	119174.29	302.50	51943.68	142326.93	303.95	60600.96	165330.09	305.27
69258.26	4782.06	306.45	86572.82	988.51	308.58	103887.37	540.02	310.46
121201.93	270.00	312.34						

SECTION	DISTANCES				DRAINAGE AREA, SQ MI	NO. 1	'N' VALUE BY SEGMENTS				
	DOWNSTREAM CHANNEL	VALLEY	UPSTREAM CHANNEL	VALLEY			NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-11	3810.	3810.	2250.	2250.	93.84	0.090	0.045	0.090			

ELEVATION	-KD VALUES-			TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY	VALLEY		
328.00	525059.5	171491.4	696550.8	4220.75	
327.00	488007.8	150151.8	638159.7	3942.11	
326.00	452284.2	130547.2	582831.5	3670.86	
325.00	417397.9	111995.4	529393.3	3404.17	
324.00	383509.2	94689.8	478199.0	3142.90	
323.00	351062.0	79124.9	430186.9	2889.28	
322.00	319764.1	64898.3	384662.5	2641.63	
321.00	289465.3	51815.4	341280.7	2399.09	
320.00	260347.3	40063.0	300410.3	2162.50	
319.00	232679.3	29903.4	262582.8	1933.04	
318.00	206244.0	21082.3	227326.3	1709.47	
317.00	181056.6	13617.9	194674.5	1491.74	
316.00	157146.9	7566.3	164713.2	1279.85	
315.00	134532.8	3003.4	137536.2	1073.74	
314.00	113618.1	438.9	114057.0	879.80	
313.00	95627.9	0.0	95627.9	746.37	
312.00	79166.6	0.0	79166.6	658.82	
311.00	63965.7	0.0	63965.7	572.97	
310.00	50153.9	0.0	50153.9	488.92	
309.00	37671.1	0.0	37671.1	406.52	
308.00	26680.4	0.0	26680.4	325.81	
307.00	17718.1	0.0	17718.1	248.54	
306.00	10375.4	0.0	10375.4	175.46	
305.00	4768.4	0.0	4768.4	106.80	
304.00	1111.5	0.0	1111.5	42.56	
303.10	31.7	0.0	31.7	3.99	

DISTANCES

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	% VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-11	1.	1.	2250.	2250.	93.84	0.090	0.045	0.090			

KD VALUES

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA SQ. FT.
328.00	525059.5	171491.4	696550.8	4220.75
327.00	488007.8	150151.8	638159.7	3942.11
326.00	452284.2	130547.2	582831.5	3670.86
325.00	417397.9	111995.4	529393.3	3404.17
324.00	383509.2	94689.8	478199.0	3142.90
323.00	351062.0	79124.9	430186.9	2889.28
322.00	319764.1	64898.3	384662.5	2641.63
321.00	289465.3	51815.4	341280.7	2399.09
320.00	260347.3	40063.0	300410.3	2162.50
319.00	232679.3	29903.4	262582.8	1933.04
318.00	206244.0	21082.3	227326.3	1709.47
317.00	181056.6	13617.9	194674.5	1491.74
316.00	157146.9	7566.3	164713.2	1279.85
315.00	134532.8	3003.4	137536.2	1073.74
314.00	113618.1	438.9	114057.0	879.80
313.00	95627.9	0.0	95627.9	746.37
312.00	79166.6	0.0	79166.6	658.82
311.00	63965.7	0.0	63965.7	572.97
310.00	50153.9	0.0	50153.9	488.92
309.00	37671.1	0.0	37671.1	406.52
308.00	26680.4	0.0	26680.4	325.81
307.00	17718.1	0.0	17718.1	248.54
306.00	10375.4	0.0	10375.4	175.46
305.00	4768.4	0.0	4768.4	106.80
304.00	1111.5	0.0	1111.5	42.56
303.10	31.7	0.0	31.7	3.99

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
89.14	0.18	310.00	384.74	0.72	310.50	795.76	1.38	311.00
1295.93	2.10	311.50	1871.16	2.84	312.00	2513.97	3.57	312.50
3215.89	4.30	313.00	3975.06	4.90	313.50	4783.96	5.43	314.00
5642.59	5.79	314.50	6546.27	6.09	315.00	8485.01	6.62	316.00
10584.21	7.09	317.00	12830.74	7.50	318.00			

SECTION LR-12  
 CHANNEL 2250. VALLEY 2250. UPSTREAM CHANNEL 1290. VALLEY 1290. DRAINAGE AREA, SQ MI 92.84  
 'N' VALUE BY SEGMENTS NO. 1 NO. 2 NO. 3 NO. 4 NO. 5 NO. 6  
 C.090 0.045 0.090 0.090 0.090 0.090

DISTANCES		DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI		'N' VALUE BY SEGMENTS					
CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	AREA	SQ MI	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
2250.	2250.	1290.	1290.	1290.	1290.	92.84		C.090	0.045	0.090	0.090	0.090	0.090
-----KD VALUES-----													
ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA	SQ. FT.								
342.00	697578.1	336878.3	1034456.3	5782.98									
341.00	659759.7	307736.5	967496.1	5483.17									
340.00	622113.8	278908.8	901022.6	5184.69									
339.00	585952.3	252692.0	838644.3	4897.58									
338.00	550361.2	227426.8	777788.0	4614.74									
337.00	515625.7	203589.0	719214.7	4338.31									
336.00	482054.8	181594.0	663648.8	4070.45									
335.00	449072.8	160505.2	609578.1	3806.85									
334.00	417281.5	141199.1	558480.6	3551.81									
333.00	386346.5	123106.1	509452.6	3302.79									
332.00	356255.1	106187.3	462442.5	3059.64									
331.00	327254.6	90731.0	417985.6	2823.98									
330.00	299371.2	76693.2	376064.5	2595.81									
329.00	272340.0	63698.7	336038.7	2373.24									
328.00	246168.5	51737.1	297905.6	2156.29									
327.00	221362.8	41331.9	252694.7	1948.03									
326.00	197593.4	32051.1	229644.5	1746.18									
325.00	174882.5	23881.8	198764.3	1550.75									
324.00	153253.9	16816.9	170070.8	1361.73									
323.00	132709.3	10833.4	143542.7	1178.99									
322.00	113448.4	6191.7	119640.1	1004.36									
321.00	95416.8	3089.8	98506.6	842.18									
320.00	78658.0	1227.3	79885.3	698.92									
319.00	63194.2	303.9	63498.2	578.17									
318.00	49219.7	30.1	49249.8	481.20									
317.00	36970.2	0.0	36970.2	399.98									
316.00	26225.9	0.0	26225.9	322.53									
315.00	17032.4	0.0	17032.4	245.77									
314.00	9395.6	0.0	9395.6	169.63									
313.00	3694.1	0.0	3694.1	94.86									
312.00	483.1	0.0	483.1	26.47									
311.20	10.3	0.0	10.3	1.46									

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
88.61	1.18	312.72	382.43	2.22	314.03	790.98	3.08	315.13
1288.14	3.85	316.15	1859.92	4.55	317.11	2498.86	5.17	318.02
3196.57	5.66	318.87	3951.17	6.00	319.67	4755.21	6.25	320.44
5608.69	6.45	321.18	6506.94	6.61	321.87	8434.02	6.94	323.20
10520.61	7.28	324.45	12753.64	7.60	325.65			

-----DISTANCES-----											
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	*N* VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-13	1290.	1290.	2520.	2520.	83.62	0.090	0.050	0.090			

-----KD VALUES-----					END AREA
ELEVATION	CHANNEL	VALLEY	TOTAL	SQ. FT.	
340.00	738426.7	327015.2	1065442.0	6559.96	
339.00	695064.6	291028.6	986093.1	6160.95	
338.00	653124.3	258029.5	911153.7	5774.94	
337.00	611857.8	226397.0	838254.8	5395.01	
336.00	571794.6	197178.7	768973.3	5025.86	
335.00	532961.0	170310.6	703271.6	4667.50	
334.00	494834.0	144851.2	639685.2	4315.41	
333.00	458324.8	123004.3	581329.2	3978.23	
332.00	422678.7	102894.4	525573.2	3650.81	
331.00	388060.7	84790.7	472851.4	3335.01	
330.00	354928.6	69110.5	424039.0	3035.96	
329.00	322981.6	55210.3	378192.0	2749.94	
328.00	292064.8	42842.1	334907.0	2475.26	
327.00	262366.1	32268.1	294634.1	2214.03	
326.00	234163.1	23650.0	257813.2	1970.20	
325.00	207232.3	16509.4	223741.8	1740.86	
324.00	171589.9	10738.1	192328.0	1525.88	
323.00	157266.8	6253.1	163519.9	1325.26	
322.00	134282.3	2978.7	137261.1	1139.09	
321.00	112887.1	1110.5	113997.6	972.45	
320.00	93004.9	254.8	93259.7	830.52	
319.00	74776.7	12.3	74789.0	712.47	
318.00	58950.7	0.0	58950.7	611.28	
317.00	45325.9	0.0	45325.9	514.65	
316.00	33195.8	0.0	33195.8	420.72	
315.00	22617.6	0.0	22617.6	329.49	
314.00	13872.0	0.0	13872.0	241.32	
313.00	6931.7	0.0	6931.7	156.03	
312.00	2500.5	0.0	2500.5	78.12	
311.00	446.8	0.0	446.8	22.36	
310.10	19.4	0.0	19.4	2.48	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
83.51	0.55	312.94	360.44	1.23	314.57	745.50	1.80	315.92
1214.08	2.29	317.15	1753.00	2.73	318.30	2355.21	3.12	319.37
3012.80	3.42	320.35	3724.02	3.66	321.27	4481.84	3.85	322.13
5286.25	4.01	322.95	6132.86	4.18	323.71	7949.16	4.46	325.18
9915.80	4.70	326.57	12020.45	4.91	327.88			

SECTION	DISTANCES		DRAINAGE		'N' VALUE BY SEGMENTS						
	CHANNEL	VALLEY	CHANNEL	VALLEY	AREA, SQ MI	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-14	2520.	2520.	2025.	2025.	81.91	0.070	0.050	0.080			

-----KD VALUES-----

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA
347.00	513041.5	449788.3	962829.8	6510.37
346.00	481298.8	395207.8	876506.6	6050.72
345.00	450147.3	343233.7	793381.0	5599.13
344.00	420193.8	296361.8	716555.7	5163.58
343.00	390782.1	251737.0	642519.1	4735.14
342.00	362323.6	211032.1	573355.8	4319.17
341.00	334779.5	173975.8	508755.3	3914.89
340.00	308002.0	139943.3	447945.3	3520.29
339.00	282098.7	109317.1	391415.8	3136.59
338.00	257347.0	85014.0	342361.1	2772.74
337.00	233380.1	64506.2	297886.3	2433.30
336.00	210195.5	47498.9	257694.4	2119.69
335.00	188139.0	34166.2	222305.3	1838.66
334.00	167153.7	23982.7	191136.4	1588.88
333.00	147144.7	15814.4	162959.1	1364.73
332.00	128135.5	9564.1	137699.6	1164.38
331.00	110117.9	5077.0	115194.9	986.15
330.00	93277.0	2270.5	95547.6	832.58
329.00	77575.6	688.7	78264.3	701.34
328.00	63169.5	103.9	63273.4	595.33
327.00	50423.5	0.7	50424.2	510.50
326.00	39486.9	0.0	39486.9	434.49
325.00	29726.6	0.0	29726.6	360.85
324.00	21172.1	0.0	21172.1	289.60
323.00	13793.6	0.0	13793.6	220.52
322.00	7704.0	0.0	7704.0	152.85
321.00	3045.6	0.0	3045.6	86.35
320.00	411.9	0.0	411.9	23.86
319.30	14.7	0.0	14.7	2.33

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
82.54	1.48	320.53	356.22	2.55	321.80	736.78	3.34	323.00
1199.87	3.98	324.16	1732.47	4.53	325.29	2327.63	5.03	326.38
2977.53	5.49	327.40	3680.43	5.87	328.34	4429.37	6.10	329.21
5224.37	6.23	330.03	6061.07	6.33	330.81	7856.10	6.44	332.29
9799.71	6.50	333.66	11879.73	6.52	334.94			

DISTANCES

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	IN. VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-15	2025.	2025.	150.	150.	81.60	0.080	0.050	0.080			

KD VALUES

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA SQ. FT.
362.00	461281.6	800864.7	1262146.5	8479.17
361.00	434366.3	730914.2	1165280.5	8011.43
360.00	408010.3	663569.6	1071580.0	7549.81
359.00	382214.0	598830.8	981044.7	7094.32
358.00	357386.0	538495.8	895881.8	6649.21
357.00	332995.7	480118.5	813114.2	6208.71
356.00	309375.5	425167.0	734542.5	5776.28
355.00	286543.5	373652.3	660195.8	5351.93
354.00	264157.6	324074.1	588231.7	4932.11
353.00	242745.5	278668.1	521413.5	4522.03
352.00	222057.8	236324.6	458382.5	4119.00
351.00	201999.5	196628.7	398628.3	3722.03
350.00	182684.8	160047.0	342731.8	3332.13
349.00	164353.1	127568.3	291921.5	2951.30
348.00	146652.6	97935.2	244587.9	2576.52
347.00	129772.1	72018.6	201790.8	2210.47
346.00	113689.2	49628.1	163317.4	1854.33
345.00	98528.5	31105.7	129634.2	1509.63
344.00	84322.3	18472.1	102794.4	1186.46
343.00	70927.6	10352.1	81279.7	918.01
342.00	58501.4	5796.4	64297.9	714.57
341.00	47054.2	2772.8	49827.0	557.68
340.00	36630.0	960.3	37590.3	431.69
339.00	27202.8	139.0	27341.9	330.62
338.00	19183.5	0.0	19183.5	257.36
337.00	13234.2	0.0	13234.2	198.79
336.00	8275.1	0.0	8275.1	144.60
335.00	4573.1	0.0	4573.1	96.09
334.00	1802.4	0.0	1802.4	52.64
333.00	348.7	0.0	348.7	16.77
332.00	3.3	0.0	3.3	0.37
331.70	0.9	0.0	0.9	0.14

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
82.36	2.26	333.59	355.45	3.80	334.94	735.18	4.79	336.17
1197.28	5.57	337.28	1728.73	6.24	338.29	2322.60	6.72	339.16
2971.10	6.93	339.97	3672.47	7.02	340.76	4419.80	7.06	341.47
5213.08	6.99	342.16	6047.97	6.88	342.84	7839.12	6.59	344.00
9778.53	6.43	345.03	11854.05	6.47	345.93			



BRIDGE SECTION LR-16

COEFFICIENTS  
OPENING=0.800, ORIFICE=0.600, ROADWAY=0.800

-----DISTANCES-----

ELEVATION	OPENING END AREA	Q CRIT.	DOWNSTREAM		UPSTREAM	
			CHANNEL 150.0	VALLEY 150.0	CHANNEL 100.0	VALLEY 100.0
			ROADWAY			
			ELEVATION		Q IN CFS	
334.30	0.00	0.00	357.90		0.00	
334.80	12.91	42.35	358.40		173.90	
335.30	37.40	183.63	358.90		747.37	
335.80	64.73	423.76	359.40		1776.01	
336.30	92.95	684.86	359.90		3282.75	
336.80	121.57	1015.23	360.40		5424.34	
337.30	150.60	1390.36	360.90		7852.91	
337.80	180.13	1806.16	361.40		10737.77	
338.30	211.08	2264.13	361.90		14092.05	
338.80	244.59	2770.13	362.40		17976.26	
339.30	282.86	3335.96	362.90		22331.53	
339.80	326.36	3973.20	363.40		27057.03	
340.30	373.28	4688.11	363.90		32269.58	
340.80	422.41	5481.31	364.40		38010.25	
341.30	472.50	6343.56	364.90		44294.35	
341.80	523.42	7264.67	365.30		49723.34	
342.30	575.15	8242.28				
342.80	627.69	9274.65				
343.30	681.06	10360.42				
343.80	735.25	11498.51				
344.30	790.25	12688.05				
344.80	846.07	13928.33				
345.30	902.72	15218.76				
345.80	960.18	16558.86				
346.30	1018.46	17948.21				
346.80	1077.55	19386.46				
347.30	1137.47	20873.36				
347.80	1198.21	22408.65				
348.30	1259.76	23992.14				
348.80	1322.13	25623.68				
349.30	1385.32	27303.14				
349.80	1449.33	29030.41				
350.30	1514.16	30805.42				
350.80	1579.81	32628.13				
351.30	1646.28	34498.48				
351.80	1713.85	36433.85				
352.30	1783.51	38434.02				
352.80	1854.44	40488.58				
353.30	1922.77	42629.94				
353.80	1953.65	44994.80				
354.00	1953.99	46051.74				

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTIONS. A RATING CURVE IS NOT DEVELOPED SEPERATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

SECTION	DISTANCES				DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	DOWNSTREAM CHANNEL	VALLEY	UPSTREAM CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-17	100.	100.	900.	700.	81.60	0.080	0.050	0.080			

ELEVATION	KD VALUES			TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY	VALLEY		
363.00	384424.9	485449.9	869874.8	8279.55	
362.00	362224.6	413864.1	776088.7	7369.55	
361.00	340331.8	349642.8	689974.6	6507.91	
360.00	319134.6	301458.5	620593.1	5763.06	
359.00	298470.1	267731.1	566201.2	5112.47	
358.00	278160.8	243642.6	521803.4	4524.73	
357.00	258759.0	223342.4	482101.4	4084.71	
356.00	239705.3	205958.4	445663.8	3685.61	
355.00	221173.9	192949.7	414123.6	3347.89	
354.00	203473.9	176225.1	379699.0	3075.00	
353.00	186284.6	160924.9	347209.5	2824.51	
352.00	169610.6	145617.8	315228.5	2592.31	
351.00	153635.5	126483.9	280119.5	2373.54	
350.00	138326.6	108263.6	246590.2	2152.14	
349.00	123658.1	91200.1	214858.2	1956.57	
348.00	109630.5	75435.2	185065.8	1756.30	
347.00	96257.6	61028.4	157286.0	1561.33	
346.00	83554.7	47975.2	131530.0	1371.64	
345.00	71644.0	36475.7	108119.8	1188.01	
344.00	60477.4	26401.6	86879.1	1009.89	
343.00	50080.7	17779.6	67860.3	837.28	
342.00	40483.5	10659.6	51143.2	670.17	
341.00	31773.6	5596.2	37369.9	511.96	
340.00	23908.4	2826.1	26734.5	378.29	
339.00	16935.0	1215.2	18150.2	272.70	
338.00	10956.6	345.2	11301.8	188.32	
337.00	6037.4	23.6	6061.1	120.12	
336.00	2464.8	0.0	2464.8	67.55	
335.00	442.4	0.0	442.4	21.74	
334.00	4.9	0.0	4.9	0.78	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
82.36	2.22	335.35	355.45	3.66	336.58	735.18	4.42	337.70
1197.28	4.79	338.76	1728.73	4.94	339.76	2322.60	5.01	340.66
2971.10	5.08	341.47	3672.47	5.19	342.22	4419.80	5.38	342.90
5213.08	5.60	343.54	6047.97	5.81	344.17	7839.12	6.37	345.23
9778.53	6.93	346.20	11854.05	7.51	347.08			

SECTION	DISTANCES				DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	DOWNSTREAM CHANNEL	VALLEY	UPSTREAM CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-18	900.	900.	1210.	1210.	80.95	0.080	0.050	0.080	0.050	0.080	

ELEVATION	--KD VALUES--			TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY			
368.00	700532.1	383627.6		1084159.7	5762.76
367.00	660563.3	353805.3		1014368.6	5494.93
366.00	621406.3	325064.8		946471.1	5230.41
365.00	583061.2	297405.9		880467.1	4969.21
364.00	546120.5	271547.7		817668.1	4713.62
363.00	509814.0	246482.6		756296.6	4460.52
362.00	474623.4	222801.4		697424.8	4211.79
361.00	440574.6	200577.5		641152.2	3967.63
360.00	407172.0	179159.5		586331.5	3726.06
359.00	375178.5	159371.3		534549.7	3490.19
358.00	344232.9	140745.5		484978.4	3258.46
357.00	314197.0	123108.7		437305.6	3030.28
356.00	285235.5	106616.5		391852.0	2806.25
355.00	257693.0	91575.4		349268.4	2587.53
354.00	231060.9	77436.0		308497.0	2372.15
353.00	205610.5	64443.9		270054.5	2161.04
352.00	181308.6	52536.7		233845.3	1953.99
351.00	158332.7	41846.9		200179.6	1751.50
350.00	136726.7	32378.2		169105.0	1553.57
349.00	116283.6	23925.9		140209.5	1359.40
348.00	97225.7	16669.7		113895.5	1169.58
347.00	79564.2	10626.8		90191.0	984.06
346.00	63356.9	6087.7		69444.7	805.74
345.00	48561.6	2916.5		51478.1	640.21
344.00	35505.6	1015.0		36520.7	492.44
343.00	24529.5	164.8		24694.4	363.71
342.00	15406.2	1.7		15408.0	260.72
341.00	8447.2	0.0		8447.2	174.50
340.00	3530.6	0.0		3530.6	95.92
339.00	869.3	0.0		869.3	35.85
338.00	15.5	0.0		15.5	1.67
337.70	4.2	0.0		4.2	0.66

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
81.98	1.77	339.20	353.83	2.72	340.45	731.83	3.41	341.47
1191.82	3.97	342.42	1720.85	4.31	343.30	2312.02	4.57	344.10
2957.56	4.81	344.83	3655.74	5.04	345.53	4399.66	5.25	346.18
5189.32	5.45	346.83	6020.41	5.65	347.44	7803.40	6.09	348.58
9733.98	6.54	349.66	11800.04	6.99	350.67			

-----DISTANCES-----											
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-19	1210.	1210.	1990.	1990.	80.85	0.080	0.050	0.080			

-----KD VALUES-----				END AREA
ELEVATION	CHANNEL	VALLEY	TOTAL	SQ. FT.
385.00	865460.8	524471.0	1389931.7	7532.10
384.00	823718.3	481548.0	1305266.5	7162.72
383.00	782771.8	440768.9	1223540.7	6801.72
382.00	742736.1	402318.5	1145054.7	6450.21
381.00	703307.6	365420.9	1068728.5	6104.99
380.00	665117.0	331507.1	996624.1	5772.37
379.00	627235.8	298339.5	925575.2	5442.91
378.00	590846.0	268424.3	859270.2	5128.27
377.00	555028.8	239657.6	794686.5	4819.04
376.00	520070.9	212613.9	732684.8	4517.92
375.00	486282.5	187901.1	674183.6	4227.54
374.00	453085.4	164330.1	617415.5	3942.53
373.00	421084.1	142995.9	564080.1	3668.27
372.00	389942.6	123170.4	513113.0	3401.56
371.00	359648.3	104800.7	464449.1	3142.24
370.00	330449.3	88232.1	418681.5	2892.31
369.00	302371.8	73391.6	375763.5	2651.79
368.00	275150.0	59811.3	334961.4	2418.31
367.00	248791.3	47473.5	296264.8	2191.89
366.00	223803.5	36981.6	260785.1	1976.37
365.00	199856.1	27805.1	227661.2	1768.92
364.00	176971.0	19916.6	196887.6	1569.56
363.00	155172.0	13288.7	168460.8	1378.31
362.00	134461.0	7908.4	142369.4	1195.14
361.00	115037.9	4122.7	119160.7	1023.52
360.00	96848.0	1879.3	98727.3	870.75
359.00	79934.6	658.2	80592.9	739.34
358.00	64319.9	157.2	64477.2	628.46
357.00	50146.7	29.6	50176.3	534.04
356.00	37685.0	2.8	37687.8	446.20
355.00	26847.4	0.0	26847.4	361.35
354.00	17625.5	0.0	17625.5	277.59
353.00	9903.6	0.0	9903.6	194.12
352.00	3993.9	0.0	3993.9	111.01
351.00	585.2	0.0	585.2	31.55
350.20	20.2	0.0	20.2	2.89

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
81.92	2.09	351.10	353.58	3.38	351.92	731.32	4.43	352.65
1190.98	5.32	353.35	1719.64	6.11	354.04	2310.39	6.83	354.72
2955.47	7.50	355.38	3653.16	8.13	356.03	4396.55	8.72	356.66
5185.66	9.30	357.26	6016.16	9.82	357.83	7797.89	10.62	358.95
9727.10	11.12	360.03	11791.71	11.43	361.05			

SECTION LR-20  
 CHANNEL 1990. VALLEY 1990. 1580. CHANNEL 1580. UPSTREAM VALLEY AREA, SQ MI 79.98 DRAINAGE AREA, SQ MI 79.98  
 DISTANCES  
 DOWNSTREAM CHANNEL 1990. VALLEY 1990. 1580. CHANNEL 1580. UPSTREAM VALLEY AREA, SQ MI 79.98 DRAINAGE AREA, SQ MI 79.98  
 'N' VALUE BY SEGMENTS NO. 1 NO. 2 NO. 3 NO. 4 NO. 5 NO. 6  
 0.080 0.050 0.080 0.080 0.080

ELEVATION	CHANNEL		UPSTREAM		DRAINAGE		TOTAL		END AREA		
	VALLEY	CHANNEL	VALLEY	CHANNEL	AREA, SQ MI	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
395.00	874204.0	874204.0	465225.3	1339429.2	6907.18	6907.18	6907.18	6907.18	6907.18	6907.18	6907.18
394.00	831106.5	831106.5	429982.5	1261089.0	6585.32	6585.32	6585.32	6585.32	6585.32	6585.32	6585.32
393.00	788583.7	788583.7	395956.2	1184540.0	6258.51	6258.51	6258.51	6258.51	6258.51	6258.51	6258.51
392.00	747191.6	747191.6	364211.7	1111403.2	5961.46	5961.46	5961.46	5961.46	5961.46	5961.46	5961.46
391.00	706284.2	706284.2	333445.4	1039729.6	5658.60	5658.60	5658.60	5658.60	5658.60	5658.60	5658.60
390.00	666860.3	666860.3	305490.6	972350.8	5368.29	5368.29	5368.29	5368.29	5368.29	5368.29	5368.29
389.00	627760.0	627760.0	278021.6	905781.5	5080.63	5080.63	5080.63	5080.63	5080.63	5080.63	5080.63
388.00	590089.5	590089.5	252112.8	842202.2	4804.13	4804.13	4804.13	4804.13	4804.13	4804.13	4804.13
387.00	553182.5	553182.5	227287.1	780469.6	4532.67	4532.67	4532.67	4532.67	4532.67	4532.67	4532.67
386.00	517038.9	517038.9	203544.6	720583.6	4266.25	4266.25	4266.25	4266.25	4266.25	4266.25	4266.25
385.00	482299.0	482299.0	181890.6	664189.6	4008.88	4008.88	4008.88	4008.88	4008.88	4008.88	4008.88
384.00	448193.6	448193.6	161139.7	609333.3	3755.52	3755.52	3755.52	3755.52	3755.52	3755.52	3755.52
383.00	415205.5	415205.5	141954.7	557160.2	3509.20	3509.20	3509.20	3509.20	3509.20	3509.20	3509.20
382.00	383289.1	383289.1	124184.8	507473.9	3269.47	3269.47	3269.47	3269.47	3269.47	3269.47	3269.47
381.00	352271.5	352271.5	107567.2	459838.7	3035.20	3035.20	3035.20	3035.20	3035.20	3035.20	3035.20
380.00	322278.8	322278.8	92223.2	414502.1	2807.08	2807.08	2807.08	2807.08	2807.08	2807.08	2807.08
379.00	293637.0	293637.0	78459.1	372096.1	2586.87	2586.87	2586.87	2586.87	2586.87	2586.87	2586.87
378.00	265916.0	265916.0	65716.8	331632.8	2371.94	2371.94	2371.94	2371.94	2371.94	2371.94	2371.94
377.00	239112.8	239112.8	53972.5	293085.3	2162.22	2162.22	2162.22	2162.22	2162.22	2162.22	2162.22
376.00	213634.0	213634.0	43594.3	257228.3	1959.84	1959.84	1959.84	1959.84	1959.84	1959.84	1959.84
375.00	189412.8	189412.8	34548.5	223961.3	1766.39	1766.39	1766.39	1766.39	1766.39	1766.39	1766.39
374.00	166338.9	166338.9	26670.4	193009.4	1575.79	1575.79	1575.79	1575.79	1575.79	1575.79	1575.79
373.00	144440.2	144440.2	19869.8	164310.0	1394.23	1394.23	1394.23	1394.23	1394.23	1394.23	1394.23
372.00	123707.5	123707.5	14094.8	137802.4	1219.62	1219.62	1219.62	1219.62	1219.62	1219.62	1219.62
371.00	104359.7	104359.7	9593.4	113953.1	1054.25	1054.25	1054.25	1054.25	1054.25	1054.25	1054.25
370.00	86354.0	86354.0	6237.2	92591.2	900.08	900.08	900.08	900.08	900.08	900.08	900.08
369.00	69742.6	69742.6	3716.3	73459.0	757.15	757.15	757.15	757.15	757.15	757.15	757.15
368.00	54540.5	54540.5	1857.7	56398.3	623.74	623.74	623.74	623.74	623.74	623.74	623.74
367.00	40911.2	40911.2	687.5	41598.8	499.83	499.83	499.83	499.83	499.83	499.83	499.83
366.00	28834.6	28834.6	121.4	28956.0	386.41	386.41	386.41	386.41	386.41	386.41	386.41
365.00	18712.7	18712.7	4.9	18717.6	290.81	290.81	290.81	290.81	290.81	290.81	290.81
364.00	10645.6	10645.6	0.0	10645.6	203.99	203.99	203.99	203.99	203.99	203.99	203.99
363.00	4646.4	4646.4	0.0	4646.4	120.78	120.78	120.78	120.78	120.78	120.78	120.78
362.00	1020.6	1020.6	0.0	1020.6	43.76	43.76	43.76	43.76	43.76	43.76	43.76
361.00	134.8	134.8	0.0	134.8	8.22	8.22	8.22	8.22	8.22	8.22	8.22
360.30	5.6	5.6	0.0	5.6	0.88	0.88	0.88	0.88	0.88	0.88	0.88

K-D VALUES		CFS		VELOCITY		ELEV.	
CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY
874204.0	465225.3	874204.0	465225.3	874204.0	465225.3	874204.0	465225.3
831106.5	429982.5	831106.5	429982.5	831106.5	429982.5	831106.5	429982.5
788583.7	395956.2	788583.7	395956.2	788583.7	395956.2	788583.7	395956.2
747191.6	364211.7	747191.6	364211.7	747191.6	364211.7	747191.6	364211.7
706284.2	333445.4	706284.2	333445.4	706284.2	333445.4	706284.2	333445.4
666860.3	305490.6	666860.3	305490.6	666860.3	305490.6	666860.3	305490.6
627760.0	278021.6	627760.0	278021.6	627760.0	278021.6	627760.0	278021.6
590089.5	252112.8	590089.5	252112.8	590089.5	252112.8	590089.5	252112.8
553182.5	227287.1	553182.5	227287.1	553182.5	227287.1	553182.5	227287.1
517038.9	203544.6	517038.9	203544.6	517038.9	203544.6	517038.9	203544.6
482299.0	181890.6	482299.0	181890.6	482299.0	181890.6	482299.0	181890.6
448193.6	161139.7	448193.6	161139.7	448193.6	161139.7	448193.6	161139.7
415205.5	141954.7	415205.5	141954.7	415205.5	141954.7	415205.5	141954.7
383289.1	124184.8	383289.1	124184.8	383289.1	124184.8	383289.1	124184.8
352271.5	107567.2	352271.5	107567.2	352271.5	107567.2	352271.5	107567.2
322278.8	92223.2	322278.8	92223.2	322278.8	92223.2	322278.8	92223.2
293637.0	78459.1	293637.0	78459.1	293637.0	78459.1	293637.0	78459.1
265916.0	65716.8	265916.0	65716.8	265916.0	65716.8	265916.0	65716.8
239112.8	53972.5	239112.8	53972.5	239112.8	53972.5	239112.8	53972.5
213634.0	43594.3	213634.0	43594.3	213634.0	43594.3	213634.0	43594.3
189412.8	34548.5	189412.8	34548.5	189412.8	34548.5	189412.8	34548.5
166338.9	26670.4	166338.9	26670.4	166338.9	26670.4	166338.9	26670.4
144440.2	19869.8	144440.2	19869.8	144440.2	19869.8	144440.2	19869.8
123707.5	14094.8	123707.5	14094.8	123707.5	14094.8	123707.5	14094.8
104359.7	9593.4	104359.7	9593.4	104359.7	9593.4	104359.7	9593.4
86354.0	6237.2	86354.0	6237.2	86354.0	6237.2	86354.0	6237.2
69742.6	3716.3	69742.6	3716.3	69742.6	3716.3	69742.6	3716.3
54540.5	1857.7	54540.5	1857.7	54540.5	1857.7	54540.5	1857.7
40911.2	687.5	40911.2	687.5	40911.2	687.5	40911.2	687.5
28834.6	121.4	28834.6	121.4	28834.6	121.4	28834.6	121.4
18712.7	4.9	18712.7	4.9	18712.7	4.9	18712.7	4.9
10645.6	0.0	10645.6	0.0	10645.6	0.0	10645.6	0.0
4646.4	0.0	4646.4	0.0	4646.4	0.0	4646.4	0.0
1020.6	0.0	1020.6	0.0	1020.6	0.0	1020.6	0.0
134.8	0.0	134.8	0.0	134.8	0.0	134.8	0.0
5.6	0.0	5.6	0.0	5.6	0.0	5.6	0.0

CFS		VELOCITY		ELEV.		CFS		VELOCITY		ELEV.	
CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY	CHANNEL	VALLEY
874204.0	465225.3	874204.0	465225.3	874204.0	465225.3	874204.0	465225.3	874204.0	465225.3	874204.0	465225.3
831106.5	429982.5	831106.5	429982.5	831106.5	429982.5	831106.5	429982.5	831106.5	429982.5	831106.5	429982.5
788583.7	395956.2	788583.7	395956.2	788583.7	395956.2	788583.7	395956.2	788583.7	395956.2	788583.7	395956.2
747191.6	364211.7	747191.6	364211.7	747191.6	364211.7	747191.6	364211.7	747191.6	364211.7	747191.6	364211.7
706284.2	333445.4	706284.2	333445.4	706284.2	333445.4	706284.2	333445.4	706284.2	333445.4	706284.2	333445.4
666860.3	305490.6	666860.3	305490.6	666860.3	305490.6	666860.3	305490.6	666860.3	305490.6	666860.3	305490.6
627760.0	278021.6	627760.0	278021.6	627760.0	278021.6	627760.0	278021.6	627760.0	278021.6	627760.0	278021.6
590089.5	252112.8	590089.5	252112.8	590089.5	252112.8	590089.5	252112.8	590089.5	252112.8	590089.5	252112.8
553182.5	227287.1	553182.5	227287.1	553182.5	227287.1	553182.5	227287.1	553182.5	227287.1	553182.5	227287.1
517038.9	203544.6	517038.9	203544.6	517038.9	203544.6	517038.9	203544.6	517038.9	203544.6	517038.9	203544.6
482299.0	181890.6	482299.0	181890.6	482299.0	181890.6	482299.0	181890.6	482299.0	181890.6	482299.0	181890.6
448193.6	161139.7	448193.6	161139.7	448193.6	161139.7	448193.6	161139.7	448193.6	161139.7	448193.6	161139.7
415205.5	141954.7	415205.5	141954.7	415205.5	141954.7	415205.5	141954.7	415205.5	141954.7	415205.5	141954.7
383289.1	124184.8	383289.1	124184.8	383289.1	124184.8	383289.1	124184.8	383289.1	124184.8	383289.1	124184.8
352271.5	107567.2	352271.5	107567.2	352271.5	107567.2	352271.5	107567.2	352271.5	107567.2	352271.5	107567.2
322278.8	92223.2	322278.8	92223.2								

-----DISTANCES-----

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-21	1580.	1580.	150.	150.	79.82	0.080	0.050	0.080			

-----KD VALUES-----

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA SQ. FT.
416.00	922260.2	572875.7	1495136.0	8773.42
415.00	873343.7	523069.6	1396413.2	8271.94
414.00	825352.7	474207.0	1299559.7	7785.46
413.00	778287.5	426288.1	1204575.7	7314.01
412.00	732543.7	382156.8	1114700.5	6860.85
411.00	687547.6	340134.1	1027681.7	6417.99
410.00	644183.8	302478.5	946662.2	5997.26
409.00	601746.2	267132.8	868879.0	5588.84
408.00	560235.1	234097.1	794332.1	5192.71
407.00	520429.0	205011.5	725440.6	4818.72
406.00	481357.9	176976.7	658334.6	4453.43
405.00	443559.5	150369.1	593928.6	4102.70
404.00	407324.8	126183.8	533508.7	3764.92
403.00	372154.3	103809.4	475963.7	3435.70
402.00	338056.9	83331.0	421388.0	3115.11
401.00	305604.8	66044.4	371649.1	2808.36
400.00	274373.5	50845.3	325218.8	2513.64
399.00	244493.5	37771.1	282264.7	2232.08
398.00	215952.8	26638.3	242591.2	1963.35
397.00	188781.1	17418.0	206199.1	1707.53
396.00	163193.0	10470.5	173663.5	1466.93
395.00	139105.0	5724.0	144829.0	1249.24
394.00	116594.9	2615.3	119210.2	1056.37
393.00	95704.4	893.5	96597.9	889.13
392.00	76499.2	176.9	76676.1	748.47
391.00	59339.5	5.2	59344.7	631.08
390.00	44551.3	0.0	44551.3	525.50
389.00	31652.9	0.0	31652.9	422.79
388.00	20502.6	0.0	20502.6	322.23
387.00	11445.1	0.0	11445.1	224.04
386.00	4621.0	0.0	4621.0	128.08
385.00	931.4	0.0	931.4	42.84
384.00	14.4	0.0	14.4	1.96
383.90	14.4	0.0	14.4	1.96

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
81.33	2.41	384.86	351.00	3.69	385.65	725.98	4.77	386.25
1182.28	5.75	386.81	1707.08	6.61	387.35	2293.51	7.37	387.89
2933.88	8.07	388.41	3626.47	8.73	388.93	4364.44	9.32	389.44
5147.78	9.91	389.94	5972.21	10.45	390.44	7740.93	11.47	391.38
9656.05	12.27	392.28	11705.57	12.82	393.14			

WSP-REVISED 12/71

DURHAM COUNTY FLOOD INS. STUDY-LITTLE RIVER  
COEFFICIENTS

PAGE 12

BRIDGE SECTION LR-22

OPENING=0.800, ORIFICE=0.600, ROADWAY=0.800

DISTANCES

ELEVATION	DOWNSTREAM		UPSTREAM	
	CHANNEL	VALLEY	CHANNEL	VALLEY
	150.0	150.0	190.0	190.0
	OPENING		ROADWAY	
	END AREA	Q CRIT.	ELEVATION	Q IN CFS
289.20	0.00	0.00	398.90	0.00
293.20	0.81	6.52	402.90	6674.23
297.20	3.25	36.89	406.90	25426.37
301.20	7.31	101.66	410.90	56572.78
305.20	13.00	208.69	414.90	102125.93
309.20	20.32	364.57	417.70	140498.71
313.20	29.26	575.10		
317.20	39.83	845.49		
321.20	52.03	1180.56		
325.20	65.85	1584.79		
329.20	81.30	2062.36		
333.20	98.37	2617.26		
337.20	117.07	3253.26		
341.20	137.39	3973.96		
345.20	159.35	4782.84		
349.20	182.92	5683.21		
353.20	208.13	6678.29		
357.20	234.96	7771.20		
361.20	263.41	8964.93		
365.20	293.49	10262.42		
369.20	325.20	11666.50		
373.20	358.53	13179.95		
377.20	393.49	14805.48		
381.20	430.08	16545.71		
385.20	580.25	19245.38		
389.20	967.48	26647.48		
393.20	1393.68	37357.57		
396.50	1771.68	48404.52		

THE HEAD-LOSS IS REFLECTED BETWEEN THE EXIT AND APPROACH SECTIONS. A RATING CURVE IS NOT DEVELOPED SEPERATELY FOR THE BRIDGE. NORMAL PROFILES ARE COMPUTED WHEN THE BRIDGE DOES NOT CONTROL THE FLOW.

SECTION LR-23  
 DISTANCES  
 DOWNSTREAM CHANNEL VALLEY 190.  
 UPSTREAM CHANNEL VALLEY 1290.  
 DRAINAGE AREA, SQ MI 79.82  
 'N' VALUE BY SEGMENTS  
 NO. 1 NO. 2 NO. 3 NO. 4 NO. 5 NO. 6  
 0.080 0.050 0.080 0.080 0.080 0.080

ELEVATION	CHANNEL	VALLEY	VALLEY	VALLEY	VALLEY	TOTAL	END AREA
							SQ. FT.
417.00	867182.8	622442.5	1489625.2				8696.21
416.00	821409.6	574096.5	1395506.0				8228.70
415.00	775927.5	526578.5	1302506.0				7766.25
414.00	732108.6	483052.9	1215161.5				7332.44
413.00	688824.0	439483.3	1128307.2				6905.10
412.00	646786.5	395811.0	1042597.5				6492.91
411.00	605947.5	355047.2	960994.6				6092.71
410.00	565797.3	315931.0	881728.3				5699.37
409.00	527221.7	280423.0	807644.6				5321.46
408.00	489541.0	246845.9	736387.0				4952.13
407.00	452755.4	215199.9	667955.3				4591.37
406.00	417516.0	186276.9	603793.0				4244.77
405.00	383270.0	159043.3	542313.3				3906.29
404.00	350014.0	133500.6	483514.6				3575.64
403.00	318273.9	110697.6	428971.5				3256.60
402.00	287745.0	89986.2	377731.2				2946.59
401.00	258231.0	70993.2	329224.2				2644.03
400.00	230030.3	54169.3	284199.6				2350.97
399.00	203242.2	39610.0	242852.2				2067.85
398.00	177909.3	27330.3	205239.6				1794.68
397.00	153907.5	17677.2	171584.7				1533.60
396.00	131199.3	10533.6	141732.9				1291.36
395.00	110029.8	5816.9	115846.7				1077.67
394.00	90381.3	2769.0	93150.3				892.47
393.00	72315.7	1011.9	73327.6				733.66
392.00	55818.4	188.5	56007.0				598.19
391.00	41226.8	6.8	41233.6				487.14
390.00	29552.2	0.0	29552.2				390.94
389.00	19726.0	0.0	19726.0				299.93
388.00	11614.4	0.0	11614.4				213.32
387.00	5413.6	0.0	5413.6				131.33
386.00	1412.6	0.0	1412.6				55.17
385.00	51.2	0.0	51.2				4.69
384.50	4.1	0.0	4.1				0.65

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
81.33	1.47	386.00	351.00	2.59	387.05	725.98	3.54	387.90
1182.28	4.35	388.68	1707.08	5.07	389.41	2293.51	5.71	390.11
2933.88	6.30	390.78	3626.47	6.83	391.41	4364.44	7.28	392.01
5147.78	7.59	392.62	5972.21	7.79	393.22	7740.93	8.07	394.39
9656.05	8.20	395.50	11705.50	8.28	396.53			



SECTION	DISTANCES		DRAINAGE		*N* VALUE BY SEGMENTS						
	CHANNEL	VALLEY	CHANNEL	VALLEY	AREA, SQ MI	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-24	1290.	1290.	820.	820.	79.77	0.080	0.050	0.080			

ELEVATION	KD VALUES		TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY		
421.00	561379.6	403768.5	965148.1	5649.24
420.00	528146.8	368036.0	896182.7	5349.65
419.00	496201.4	335971.4	832172.8	5059.50
418.00	464781.5	305008.2	769789.7	4773.46
417.00	434150.1	275697.2	709847.3	4493.59
416.00	404593.0	248475.2	653068.2	4221.94
415.00	375579.3	222281.5	597860.8	3954.39
414.00	347665.3	198112.5	545777.8	3695.07
413.00	320542.8	175323.8	495866.6	3441.52
412.00	294200.6	153872.0	448072.6	3193.62
411.00	268868.2	134087.1	402955.3	2952.92
410.00	244571.4	115921.1	360492.5	2719.41
409.00	221065.6	98945.9	320011.6	2491.29
408.00	198358.1	83150.1	281508.3	2268.57
407.00	176921.2	69130.2	246051.4	2054.20
406.00	156450.6	56389.6	212840.3	1845.98
405.00	136968.6	44908.3	181877.0	1643.94
404.00	118499.5	34668.9	153168.4	1448.06
403.00	10047.1	25632.3	126679.4	1258.21
402.00	84802.8	17967.0	102769.9	1075.30
401.00	69719.8	11576.0	81295.9	898.81
400.00	55844.8	6487.6	62332.4	728.74
399.00	43205.9	2773.3	45979.3	565.52
398.00	31950.6	767.4	32718.0	419.13
397.00	22176.1	95.8	22271.9	308.59
396.00	14209.6	0.0	14209.6	227.17
395.00	8386.3	0.0	8386.3	158.91
394.00	3977.5	0.0	3977.5	96.81
393.00	1249.6	0.0	1249.6	43.47
392.00	135.5	0.0	135.5	8.54
391.20	3.3	0.0	3.3	0.53

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
81.30	2.03	392.92	350.87	3.22	394.20	725.72	4.17	395.23
1181.86	4.93	396.16	1706.46	5.55	396.99	2292.69	5.94	397.75
2932.83	6.11	398.45	3625.17	6.24	399.10	4362.87	6.43	399.70
5145.93	6.60	400.30	5970.07	6.81	400.87	7738.16	7.22	401.98
9652.59	7.63	403.03	11701.38	8.04	404.03			



-----DISTANCES-----											
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	*N* VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-26	1390.	1390.	2750.	2750.	78.91	0.080	0.050	0.080			

-----KD VALUES-----					END AREA
ELEVATION	CHANNEL	VALLEY	TOTAL	SQ. FT.	
427.00	416569.1	683420.2	1099989.5	7152.64	
426.00	392301.9	626001.6	1018303.5	6772.97	
425.00	368933.0	572297.1	941230.0	6402.53	
424.00	345942.3	520116.6	866059.0	6035.90	
423.00	323519.1	470222.5	793741.7	5675.00	
422.00	301868.9	423362.1	725231.0	5321.72	
421.00	280609.6	378025.8	658635.3	4972.25	
420.00	260141.0	335752.7	595893.7	4637.42	
419.00	240241.5	295689.5	535931.1	4294.10	
418.00	220902.9	257761.9	478664.8	3963.18	
417.00	202289.7	222483.8	424773.5	3639.20	
416.00	184420.2	189867.9	374288.1	3322.14	
415.00	167118.4	159261.4	326379.8	3010.29	
414.00	150389.4	130670.9	281060.3	2703.63	
413.00	134571.5	105247.3	239818.8	2405.02	
412.00	119445.9	82213.8	201659.7	2112.34	
411.00	105028.0	61625.6	166653.6	1825.61	
410.00	91334.8	43557.2	134892.1	1544.82	
409.00	78368.3	28049.1	106417.4	1269.85	
408.00	66264.1	15679.8	81943.9	1001.56	
407.00	54987.4	7104.6	62092.0	749.31	
406.00	44570.0	3879.8	48449.9	552.22	
405.00	35029.8	1605.9	36635.8	427.54	
404.00	26468.2	459.5	26927.8	326.78	
403.00	18862.6	48.1	18910.7	248.11	
402.00	12571.4	0.0	12571.4	187.10	
401.00	7767.4	0.0	7767.4	137.35	
400.00	3968.3	0.0	3968.3	88.73	
399.00	1298.6	0.0	1298.6	43.44	
398.00	127.2	0.0	127.2	8.74	
397.20	3.1	0.0	3.1	0.49	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
80.79	1.90	398.98	348.70	3.19	400.43	721.23	4.10	401.75
1174.55	4.83	402.93	1695.91	5.24	403.96	2278.50	5.43	404.93
2914.68	5.53	405.80	3602.74	5.35	406.64	4335.88	5.14	407.40
5114.10	5.07	408.02	5933.13	5.08	408.61	7690.28	5.21	409.75
9592.87	5.39	410.83	11628.98	5.59	411.88			

SECTION LR-27  
 DOWNSTREAM CHANNEL 2750. VALLEY 2750. UPSTREAM CHANNEL 1325. VALLEY 1325. DRAINAGE AREA, SQ MI 78.59  
 'N' VALUE BY SEGMENTS NO. 1 0.080 NO. 2 0.050 NO. 3 0.080 NO. 4 0.080 NO. 5 0.080 NO. 6 0.080

DISTANCES		KD VALUES		END AREA	
ELEVATION	CHANNEL	CHANNEL	VALLEY	SQ. FT.	TOTAL
439.00	656945.7	600338.1	1257283.7	7456.31	
438.00	620160.5	552135.8	1172296.2	7067.60	
437.00	584107.7	505978.7	1090086.5	6686.79	
436.00	548787.2	461866.8	1010654.0	6313.88	
435.00	514733.2	421104.3	935837.5	5954.34	
434.00	481251.1	381793.6	863044.7	5600.75	
433.00	448774.8	345001.7	793776.6	5257.56	
432.00	417327.2	310641.3	727968.5	4924.77	
431.00	386461.5	277637.5	664099.0	4597.84	
430.00	356864.4	247463.4	604327.8	4283.44	
429.00	328210.3	219273.0	547483.3	3978.15	
428.00	300374.3	192754.5	493128.8	3680.67	
427.00	273504.3	168153.1	441657.4	3392.28	
426.00	247908.9	145931.5	393840.4	3115.60	
425.00	223130.7	125161.5	348292.2	2846.26	
424.00	199412.6	106033.7	305446.3	2586.02	
423.00	176723.8	88159.7	264883.5	2333.82	
422.00	155222.2	72014.5	227236.8	2089.64	
421.00	134945.4	57613.1	192558.5	1853.48	
420.00	115706.7	44632.2	160338.9	1623.92	
419.00	97702.5	33283.7	130986.2	1402.02	
418.00	80940.1	23515.5	104455.7	1187.53	
417.00	65467.4	15338.9	80806.3	980.47	
416.00	51242.6	8673.0	59915.7	780.32	
415.00	38525.9	3862.5	42388.4	588.64	
414.00	27369.1	1222.8	28591.9	415.76	
413.00	17742.1	224.2	17966.3	285.54	
412.00	10127.7	23.9	10151.6	193.82	
411.00	4316.1	0.0	4316.1	113.32	
410.00	823.1	0.0	823.1	38.07	
409.00	27.0	0.0	27.0	2.56	
408.70	9.2	0.0	9.2	1.27	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
80.61	1.55	410.19	347.89	2.63	411.24	719.55	3.37	412.23
1171.81	3.89	413.15	1691.96	4.11	413.97	2273.21	4.21	414.73
2907.91	4.34	415.43	3594.37	4.50	416.09	4325.80	4.67	416.73
5102.20	4.88	417.31	5919.34	5.07	417.90	7672.40	5.44	419.03
9570.56	5.79	420.12	11601.94	6.12	421.17			

-----DISTANCES-----											
SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-28	1325.	1325.	1290.	1290.	77.91	0.080	0.050	0.080			

ELEVATION	-----KD VALUES-----			TOTAL	END. AREA SQ. FT.
	CHANNEL	VALLEY			
444.00	745270.2	2446021.0		3191291.0	19715.57
443.00	707113.6	2274206.0		2981319.5	18844.59
442.00	670249.1	2111298.0		2781547.0	17986.00
441.00	633674.6	1950377.2		2584052.0	17130.16
440.00	598417.8	1798432.2		2396850.0	16286.71
439.00	563584.3	1649339.5		2212924.0	15447.15
438.00	529738.8	1506903.0		2036641.7	14616.69
437.00	496842.0	1370801.7		1867643.5	13794.79
436.00	464490.3	1238333.5		1702823.7	12977.78
435.00	433384.7	1114121.2		1547505.7	12171.78
434.00	402987.2	994573.0		1397560.2	11371.90
433.00	373297.8	879688.7		1252986.5	10578.13
432.00	344831.1	772829.1		1117660.2	9794.67
431.00	317149.6	671118.2		988267.8	9017.72
430.00	290250.3	574538.3		864788.6	8247.19
429.00	264548.5	485828.1		750376.6	7486.29
428.00	239802.7	403440.8		643243.5	6732.88
427.00	215857.6	326379.1		542236.7	5985.66
426.00	192948.3	256262.6		449211.0	5246.32
425.00	171152.4	193729.7		364882.1	4515.23
424.00	150502.0	139215.2		289717.3	3792.40
423.00	130898.7	92307.2		223205.9	3076.91
422.00	112311.8	53124.9		165436.7	2368.38
421.00	94932.4	25733.6		120666.1	1694.09
420.00	78744.9	9895.8		88640.7	1129.90
419.00	63794.9	3045.9		66840.8	764.68
418.00	50341.2	881.1		51222.3	564.77
417.00	39001.6	40.4		39042.1	437.91
416.00	29365.6	0.0		29365.6	358.90
415.00	20986.4	0.0		20986.4	287.03
414.00	13673.2	0.0		13673.2	218.06
413.00	7610.7	0.0		7610.7	150.96
412.00	3050.7	0.0		3050.7	85.53
411.00	369.3	0.0		369.3	23.07
410.50	51.6	0.0		51.6	6.33

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
80.20	1.11	411.79	346.16	2.07	413.24	715.97	2.81	414.53
1165.99	3.45	415.70	1683.55	4.04	416.77	2261.91	4.31	417.73
2893.45	4.40	418.56	3576.50	4.21	419.34	4304.30	3.82	419.99
5076.84	3.56	420.58	5889.91	3.35	421.10	7634.26	3.16	422.06
9522.99	3.12	422.96	11544.27	3.12	423.86			

SECTION	DISTANCES				DRAINAGE AREA, SQ MI	% VALUE BY SEGMENTS					
	DOWNSTREAM		UPSTREAM			NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-29	CHANNEL 1290.	VALLEY 1290.	CHANNEL 1650.	VALLEY 1650.	77.77	0.080	0.050	0.080			

ELEVATION	--KD VALUES--			TOTAL	END AREA SQ. FT.
	CHANNEL	VALLEY	VALLEY		
439.00	505533.6	318451.7	823985.3	5468.61	
438.00	473616.5	280991.6	754608.2	5099.30	
437.00	442169.7	244931.8	687101.5	4735.28	
436.00	412093.1	212787.4	624880.5	4386.34	
435.00	382577.5	182175.5	564753.0	4043.45	
434.00	353903.3	153862.9	507766.1	3709.61	
433.00	326306.0	128373.3	454679.3	3387.09	
432.00	299493.0	104891.0	404384.0	3072.68	
431.00	273452.5	83360.9	356813.4	2766.19	
430.00	248732.0	65070.9	313803.0	2472.91	
429.00	224825.5	48741.7	273567.3	2187.56	
428.00	201720.5	34381.8	236102.3	1910.05	
427.00	179651.7	22670.5	202322.2	1642.85	
426.00	158813.8	15199.4	174013.2	1404.80	
425.00	138990.4	10079.5	149069.9	1205.79	
424.00	120207.1	6375.0	126582.1	1039.02	
423.00	102445.7	3654.2	106100.0	895.08	
422.00	85899.3	1904.4	87803.7	770.00	
421.00	70844.7	889.4	71734.1	662.18	
420.00	57567.9	365.6	57933.6	567.45	
419.00	45605.8	94.0	45699.9	480.15	
418.00	34855.5	8.4	34864.0	400.33	
417.00	25438.4	0.0	25438.4	326.62	
416.00	17456.3	0.0	17456.3	255.96	
415.00	10643.0	0.0	10643.0	187.24	
414.00	5343.4	0.0	5343.4	120.84	
413.00	1533.3	0.0	1533.3	56.42	
412.00	156.1	0.0	156.1	10.80	
411.40	7.7	0.0	7.7	1.22	

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
80.12	1.09	413.26	345.81	1.94	414.85	715.23	2.59	416.28
1164.79	3.15	417.58	1681.82	3.64	418.78	2259.57	4.07	419.86
2890.47	4.49	420.81	3572.81	4.87	421.68	4299.86	5.24	422.43
5071.60	5.56	423.12	5883.84	5.86	423.76	7626.38	6.34	424.98
9513.16	6.62	426.13	11532.36	6.78	427.21			

SECTION	DISTANCES				DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-30	1650.	1650.	1250.	1250.	73.85	0.080	0.050	0.080			



KD VALUES				END AREA
ELEVATION	CHANNEL	VALLEY	TOTAL	SQ. FT.
448.00	649018.3	419453.6	1068472.0	7606.89
447.00	614779.8	360246.5	975026.2	6944.54
446.00	581087.1	320538.6	901625.7	6311.52
445.00	548213.3	310084.4	858297.7	5722.50
444.00	516128.9	285888.7	802017.6	5266.99
443.00	484570.8	252531.1	737102.0	4900.48
442.00	454276.3	223497.0	677773.3	4558.47
441.00	424498.0	196093.0	620591.0	4226.26
440.00	395494.3	171134.5	566628.8	3908.75
439.00	367546.6	149238.6	516785.1	3610.83
438.00	340116.2	128782.7	468898.9	3322.41
437.00	313699.1	111025.0	424724.2	3052.36
436.00	288250.4	95642.8	383893.1	2799.46
435.00	263539.8	80991.6	344531.3	2557.39
434.00	239573.4	66546.1	306119.6	2326.89
433.00	216880.2	54063.3	270943.6	2108.46
432.00	194915.8	42714.4	237630.2	1897.03
431.00	173897.5	32788.3	206686.8	1694.57
430.00	153810.4	24182.4	177992.8	1500.71
429.00	134671.6	16856.0	151527.6	1315.47
428.00	116757.5	11070.8	127828.4	1140.99
427.00	99771.4	6285.3	106056.7	973.80
426.00	83890.2	2760.8	86651.0	814.14
425.00	69131.8	736.7	69868.5	667.20
424.00	55614.0	79.2	55693.2	553.55
423.00	43729.1	0.0	43729.1	470.83
422.00	33230.3	0.0	33230.3	394.81
421.00	23805.9	0.0	23805.9	319.45
420.00	15483.0	0.0	15483.0	244.69
419.00	8803.2	0.0	8803.2	171.05
418.00	3961.5	0.0	3961.5	101.21
417.00	1096.8	0.0	1096.8	42.67
416.00	12.6	0.0	12.6	2.01
415.80	12.6	0.0	12.6	2.01

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
77.77	1.44	417.21	335.67	2.28	418.67	694.26	2.92	419.90
1130.63	3.47	421.07	1632.50	3.96	422.23	2193.32	4.42	423.33
2805.71	4.75	424.34	3468.05	4.91	425.27	4173.77	5.01	426.11
4922.89	5.14	426.90	5711.31	5.29	427.63	7402.76	5.60	429.02
9234.22	5.92	430.31	11194.20	6.23	431.51			

-----DISTANCES-----

SECTION	DOWNSTREAM		UPSTREAM		DRAINAGE AREA, SQ MI	'N' VALUE BY SEGMENTS					
	CHANNEL	VALLEY	CHANNEL	VALLEY		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
LR-31	1250.	1250.	1.	1.	73.75	0.080	0.050	0.080			

-----KD VALUES-----

ELEVATION	CHANNEL	VALLEY	TOTAL	END AREA SQ. FT.
442.00	345925.4	345334.3	691259.7	6098.37
441.00	322358.0	292097.4	614455.3	5487.26
440.00	299755.3	253701.0	553456.5	4945.50
439.00	277560.6	216110.1	493670.6	4429.64
438.00	255977.7	179727.4	435705.1	3952.66
437.00	235369.0	149450.4	384819.4	3522.36
436.00	215358.8	121676.4	337035.3	3118.49
435.00	195952.5	96379.9	292332.5	2739.21
434.00	177365.3	74318.9	251684.2	2387.80
433.00	159559.1	55589.0	215148.2	2061.66
432.00	142503.9	39839.6	182343.5	1759.35
431.00	126200.1	26973.4	153173.6	1481.12
430.00	110664.4	16896.8	127561.2	1228.09
429.00	95914.7	9268.5	105183.2	1001.39
428.00	82094.7	4173.5	86268.2	804.84
427.00	69148.3	1283.3	70431.7	637.42
426.00	57106.2	377.3	57483.5	525.93
425.00	46528.2	127.7	46655.9	455.00
424.00	36918.9	24.9	36943.9	388.80
423.00	28237.0	0.8	28237.8	326.49
422.00	20625.8	0.0	20625.8	266.76
421.00	14015.0	0.0	14015.0	208.34
420.00	8400.8	0.0	8400.8	151.10
419.00	4086.3	0.0	4086.3	95.52
418.00	1235.1	0.0	1235.1	44.22
417.00	50.1	0.0	50.1	6.33

CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.	CFS	VELOCITY	ELEV.
77.71	1.13	418.48	335.40	2.05	420.22	693.72	2.79	421.69
1129.75	3.43	423.04	1631.22	3.98	424.32	2191.60	4.45	425.52
2803.52	4.70	426.63	3465.34	4.66	427.63	4170.51	4.59	428.52
4919.04	4.54	429.35	5706.85	4.53	430.13	7396.98	4.51	431.58
9227.00	4.54	432.91	11185.45	4.58	434.14			



WSPIN DURHAM CO. FLOOD INSURANCE STUDY 100 YEAR LITTLE RIVER

A SECTION LR-1

BANKS ARE AT 1545. 1620.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V. AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	451.	3231.	1094.	75.	1611.	2780.	277.9	7115.	2.09
0.5	783.	2527.	762.		907.	1744.	278.4	6035.	2.47
1.0	968.	2322.	577.		702.	1354.	278.9	5467.	2.72
2.0	1181.	2058.	364.		438.	877.	279.9	4642.	3.21

B SECTION LR-2

BANKS ARE AT 558. 651.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V. AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	520.	737.	38.	93.	86.	217.	282.1	2049.	7.21
0.5	549.	664.	9.		13.	115.	282.6	1777.	8.32
1.0	558.	651.	0.		0.	93.	283.1	1670.	8.85
2.0	558.	651.	0.		0.	93.	284.1	1763.	8.38

CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY

CHANNEL WILL CARRY THE FLOW

C SECTION LR-3

BANKS ARE AT 827. 922.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V. AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	700.	942.	127.	95.	20.	242.	290.4	1972.	7.47
0.5	773.	922.	54.		0.	149.	290.9	1696.	8.69
1.0	806.	922.	21.		0.	116.	291.4	1541.	9.56
2.0	827.	922.	0.		0.	95.	292.4	1454.	10.13

NO KD NEEDED IN RGHT FLOODPLAIN

NO KD NEEDED IN RGHT FLOODPLAIN

CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY

WSPIN DURHAM CO. FLOOD INSURANCE STUDY 100 YEAR LITTLE RIVER

D SECTION LR-4

BANKS ARE AT 828. 925.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	697.	976.	131.	97.	51.	279.	296.5	2292.	6.38
0.5	808.	951.	20.		26.	143.	297.0	1978.	7.39
NO KD NEEDED IN LEFT FLOODPLAIN									
1.0	828.	934.	0.		9.	106.	297.5	1780.	8.22
CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY									
2.0	828.	925.	0.		0.	97.	298.5	1795.	8.15

E SECTION LR-5

BANKS ARE AT 178. 235.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	150.	403.	28.	57.	168.	252.	300.7	2457.	5.94
0.5	165.	322.	13.		87.	157.	301.2	2169.	6.73
1.0	169.	308.	9.		73.	139.	301.7	2074.	7.04
NO KD NEEDED IN LEFT FLOODPLAIN									
2.0	178.	286.	0.		51.	108.	302.7	1826.	8.00

F SECTION LR-6

BANKS ARE AT 877. 969.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	717.	988.	160.	92.	19.	272.	302.4	2765.	5.27
NO KD NEEDED IN RIGHT FLOODPLAIN									
0.5	814.	969.	63.		0.	155.	302.9	2355.	6.19
NO KD NEEDED IN RIGHT FLOODPLAIN									
1.0	844.	969.	33.		0.	125.	303.4	2165.	6.73
CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY									
2.0	877.	969.	0.		0.	92.	304.4	1925.	7.57

WSPIN DURHAM CO. FLOOD INSURANCE STUDY 100 YEAR LITTLE RIVER

6 SECTION LR-7

BANKS ARE AT 330. 390.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	89.	453.	241.	60.	63.	363.	304.0	3453.	4.22
0.5	197.	426.	133.		36.	229.	304.5	3015.	4.83
1.0	218.	420.	112.		30.	202.	305.0	2872.	5.07
2.0	248.	411.	82.		21.	163.	306.0	2618.	5.57

7 SECTION LR-9

BANKS ARE AT 215. 297.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	193.	398.	22.	82.	101.	205.	304.0	2070.	7.04
0.5	213.	332.	2.		35.	119.	304.5	1787.	8.15
NO. KD. NEEDED IN LEFT FLOODPLAIN									
1.0	215.	310.	0.		13.	95.	305.0	1624.	8.97
CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY									
2.0	215.	297.	0.		0.	82.	306.0	1563.	9.32

8 SECTION LR10

BANKS ARE AT 30. 400.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	43.	315.	0.	370.	0.	273.	317.7	1507.	9.55
CHANNEL WILL CARRY THE FLOW									
ONLY ONE SEGMENT - THE CHANNEL. COMPUTATIONS DISCONTINUED.									

WSPIN DURHAM CO. FLOOD INSURANCE STUDY 100 YEAR LITTLE RIVER

*K* SECTION LR-11

BANKS ARE AT 70. 160.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	29.	280.	41.	90.	120.	251.	322.9	2863.	5.02
0.5	54.	239.	16.		79.	185.	323.4	2610.	5.50
NO KO NEEDED IN LEFT FLOODPLAIN									
1.0	70.	222.	0.		62.	152.	323.9	2367.	6.07
NO KO NEEDED IN LEFT FLOODPLAIN									
2.0	70.	178.	0.		18.	108.	324.9	2016.	7.12

*V* SECTION LR-12

BANKS ARE AT 163. 241.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	73.	286.	90.	78.	45.	213.	328.1	2178.	6.55
0.5	117.	262.	46.		21.	145.	328.6	1938.	7.36
1.0	131.	251.	32.		10.	120.	329.1	1783.	8.00
CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY									
2.0	163.	241.	0.		0.	78.	330.1	1422.	10.03

*M* SECTION LR-13

BANKS ARE AT 90. 190.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	30.	317.	60.	100.	127.	287.	329.5	2889.	4.62
0.5	61.	234.	29.		44.	173.	330.0	2515.	5.31
1.0	73.	217.	17.		27.	144.	330.5	2334.	5.72
CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY									
2.0	90.	190.	0.		0.	100.	331.5	1961.	6.81

WSPIN DURHAM CO. FLOOD INSURANCE STUDY 100 YEAR LITTLE RIVER

N SECTION LR-14

BANKS ARE AT 243. 321.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	104.	393.	139.	78.	72.	290.	335.8	2060.	6.40
0.5	199.	340.	44.		19.	141.	336.3	1713.	7.69
1.0	214.	328.	29.		7.	114.	336.8	1584.	8.32
CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY									
2.0	243.	321.	0.		0.	78.	337.8	1352.	9.75

O SECTION LR-15

BANKS ARE AT 45. 107.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	31.	387.	14.	62.	280.	355.	346.5	2030.	6.48
NO KD NEEDED IN LEFT FLOODPLAIN									
0.5	45.	236.	0.		129.	191.	347.0	1647.	7.98
NO KD NEEDED IN LEFT FLOODPLAIN									
1.0	45.	188.	0.		81.	143.	347.5	1477.	8.90
NO KD NEEDED IN LEFT FLOODPLAIN									
2.0	45.	145.	0.		38.	100.	348.5	1275.	10.32

R SECTION LR-17

BANKS ARE AT 633. 683.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	557.	765.	76.	50.	82.	208.	349.9	2140.	6.14
0.5	577.	735.	56.		52.	158.	350.4	1994.	6.59
1.0	586.	727.	47.		44.	141.	350.9	1904.	6.91
2.0	599.	715.	34.		32.	116.	351.9	1756.	7.49

WSPIN DURHAM CO. FLOOD INSURANCE STUDY 100 YEAR LITTLE RIVER

R SECTION LR-18

BANKS ARE AT 130. 247.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	62.	268.	68.	117.	21.	206.	352.3	2015.	6.49
NO KD NEEDED IN RIGHT FLOODPLAIN									
0.5	95.	247.	35.		0.	152.	352.8	1823.	7.18
NO KD NEEDED IN RIGHT FLOODPLAIN									
1.0	117.	247.	13.		0.	130.	353.3	1698.	7.71
CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY									
2.0	130.	247.	0.		0.	117.	354.3	1678.	7.80

S SECTION LR-19

BANKS ARE AT 309. 395.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	224.	400.	85.	86.	5.	177.	361.8	1159.	11.28
CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY									
0.5	309.	395.	0.		0.	86.	362.3	987.	13.24
CHANNEL WILL CARRY THE FLOW									
1.0	309.	395.	0.		0.	86.	362.8	1030.	12.69
CHANNEL WILL CARRY THE FLOW									
2.0	309.	395.	0.		0.	86.	363.8	1116.	11.71

T SECTION LR-20

BANKS ARE AT 432. 520.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	372.	553.	60.	88.	33.	181.	373.4	1465.	8.87
0.5	415.	530.	17.		10.	115.	373.9	1289.	10.07
CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY									
1.0	432.	520.	0.		0.	88.	374.4	1117.	11.62
CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY									
2.0	432.	520.	0.		0.	88.	375.4	1205.	10.78

WSPIN DURHAM CO. FLOOD INSURANCE STUDY 100 YEAR LITTLE RIVER

U SECTION LR-21

BANKS ARE AT 155. 261.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	125.	295.	30.	106.	34.	170.	393.6	985.	13.16
CHANNEL WILL CARRY THE FLOW									
0.5	155.	261.	0.		0.	105.	394.1	959.	13.53
CHANNEL WILL CARRY THE FLOW									
1.0	155.	261.	0.		0.	106.	394.6	1012.	12.82
CHANNEL WILL CARRY THE FLOW									
2.0	155.	261.	0.		0.	106.	395.6	1118.	11.60

W SECTION LR-23

BANKS ARE AT 161. 259.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	98.	355.	63.	98.	96.	257.	397.1	1555.	8.34
0.5	152.	272.	9.		13.	120.	397.6	1268.	10.23
CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY									
1.0	161.	259.	0.		0.	98.	398.1	1182.	10.97
CHANNEL WILL CARRY THE FLOW									
2.0	161.	259.	0.		0.	98.	399.1	1280.	10.13

X SECTION LR-24

BANKS ARE AT 100. 175.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	54.	250.	46.	75.	75.	196.	404.6	1564.	8.29
0.5	79.	219.	21.		44.	140.	405.1	1406.	9.22
1.0	88.	206.	12.		31.	118.	405.6	1305.	9.94
NO KD NEEDED IN LEFT FLOODPLAIN									
2.0	100.	179.	0.		4.	79.	406.6	1058.	12.25

WSPIN DURHAM CO. FLOOD INSURANCE STUDY 100 YEAR LITTLE RIVER

SECTION LR-25

BANKS ARE AT 144. 222.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	76.	305.	68.	78.	83.	229.	407.5	1889.	6.84
0.5	120.	264.	24.		42.	144.	408.0	1661.	7.78
1.0	134.	248.	10.		26.	114.	408.5	1518.	8.51
CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY									
2.0	144.	222.	0.		0.	78.	409.5	1311.	9.85

SECTION LR-26

BANKS ARE AT 880. 935.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	663.	954.	217.	55.	19.	292.	412.3	2199.	5.86
0.5	720.	938.	160.		3.	218.	412.8	1988.	6.45
NO KD NEEDED IN RIGHT FLOODPLAIN									
1.0	756.	935.	124.		0.	179.	413.3	1825.	7.05
NO KD NEEDED IN RIGHT FLOODPLAIN									
2.0	809.	935.	71.		0.	126.	414.3	1583.	8.13

SECTION LR-27

BANKS ARE AT 715. 856.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	712.	950.	63.	81.	96.	238.	421.7	2017.	8.37
0.5	748.	920.	27.		64.	172.	422.2	1820.	7.05
1.0	757.	907.	18.		51.	150.	422.7	1714.	7.49
2.0	772.	887.	3.		31.	115.	423.7	1494.	8.59



WSPIN DURHAM CO. FLOOD INSURANCE STUDY 100 YEAR LITTLE RIVER

AB SECTION LR-28

BANKS ARE 1426. 1506.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	1232.	1954.	197.	80.	448.	722.	424.3	4008.	3.19
0.5	1294.	1852.	137.		346.	558.	424.8	3627.	3.52
1.0	1325.	1792.	141.		286.	467.	425.3	3362.	3.80
2.0	1368.	1687.	58.		181.	319.	426.3	2867.	4.45

AC SECTION LR-29

BANKS ARE AT 854. 933.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	697.	967.	157.	79.	34.	270.	427.8	1855.	6.88
0.5	817.	947.	37.		14.	130.	428.3	1561.	8.17
1.0	837.	938.	17.		5.	101.	428.8	1420.	8.98
CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY									
2.0	854.	933.	0.		0.	79.	429.8	1323.	9.64

AD SECTION LR-30

BANKS ARE AT 433. 510.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	379.	586.	54.	77.	76.	207.	432.0	1895.	6.52
0.5	412.	551.	21.		41.	139.	432.5	1704.	7.25
1.0	422.	538.	11.		28.	116.	433.0	1581.	7.81
CHANNEL WILL CARRY FLOW WITHOUT FRICTION ONLY									
2.0	433.	510.	0.		0.	77.	434.0	1318.	9.37

WSPIN DURHAM CO. FLOOD INSURANCE STUDY 100 YEAR LITTLE RIVER

AE SECTION LR-31

BANKS ARE AT 1351. 1413.

STAGE	FLOODWAY STA		*-----WIDTHS-----*			TOTAL	ELEV	AREA	V AVE
	LEFT	RIGHT	LEFT	CHANNEL	RIGHT				
0.0	1313.	1677.	38.	62.	264.	364.	435.0	2736.	4.51
0.5	1337.	1536.	14.		123.	199.	435.5	2289.	5.39
1.0	1343.	1514.	8.		101.	171.	436.0	2160.	5.71
NO KD NEEDED IN LEFT FLOODPLAIN									
2.0	1351.	1480.	0.		67.	129.	437.0	1899.	6.50

NOCC	NOCC	NOCC	NOCC	END	JOB 310	5.53.25 AM	30 MAR 76	M65 RJ007	SCSF2791	NC-HUD15	NOCC_NOC
NOCC	NOCC	NOCC	NOCC	END	JOB 310	5.53.25 AM	30 MAR 76	M65 RJ007	SCSF2791	NC-HUD15	NOCC_NOC
NOCC	NOCC	NOCC	NOCC	END	JOB 310	5.53.25 AM	30 MAR 76	M65 RJ007	SCSF2791	NC-HUD15	NOCC_NOC
NOCC	NOCC	NOCC	NOCC	END	JOB 310	5.53.25 AM	30 MAR 76	M65 RJ007	SCSF2791	NC-HUD15	NOCC_NOC