Sun Valley Area Drainage Master Plan

Technical Appendices

Step 2

Proposed Alternatives
Analysis Report

Volume 3

WAGNER SUB-AREA

Flood Control District of Maricopa County

September 2006

Structure ID	Type	Flow Rate (cfs)	ROW Area (acres)	Exc. Vol. (ac. ft)	Fill Vol. (ac. ft)	Base Design Geometry: Length (stor-ft; chl-mi)	ROW Width (ft)	Depth (ft)	Base Costs (in $1000): Land Cost	Constr. Cost	Lndscp Cost	50 Yr Maint. Cost	Total Cost	Base Cost Percentages: Land Cost %	Constr. Cost %	Lndscp Cost %	50 Yr Maint. Cost %	% of Total Cost
C135L10-A	Leveed Chl.	726	36	0	19	0.8	216	4	$ 3,600	$ 1,526	$ 309	$ 739	$ 6,174	58%	25%	5%	12%	4%
S13010	Leveed Chl.	524	41	0	16	0.7	176	4	$ 4,100	$ 1,059	$ 268	$ 582	$ 6,009	68%	18%	4%	10%	4%
C135L30-A	Leveed Chl.	1001	60	0	43	1.4	342	5	$ 5,950	$ 2,916	$ 636	$ 1,543	$ 11,045	54%	26%	6%	14%	8%
C155L10	Leveed Chl.	1774	277	0	66	2.6	426	4	$27,730	$ 6,230	$ 1,078	$ 2,839	$ 37,877	73%	16%	3%	7%	27%
S17010	Excavated Chl.	1510	83	35	5	0.4	170	4	$ 8,270	$ 1,168	$ 261	$ 469	$ 10,167	81%	11%	3%	5%	7%
S17020	Leveed Chl.	1792	66	0	43	1.4	382	5	$ 6,550	$ 3,253	$ 628	$ 1,545	$ 11,975	55%	27%	5%	13%	9%
170R10	Leveed Chl.	1973	27	0	21	0.8	295	8	$ 2,700	$ 2,039	$ 427	$ 1,792	$ 6,957	39%	29%	6%	26%	5%
RR17510	Leveed Chl.	1397	25	0	17	0.6	362	5	$ 2,520	$ 1,412	$ 255	$ 668	$ 4,855	52%	29%	5%	14%	3%
S18010	Leveed Chl.	1039	31	0	29	1	262	5	$ 3,100	$ 2,107	$ 434	$ 1,107	$ 6,747	46%	31%	6%	16%	5%
RR18010	Leveed Chl.	1124	17	0	16	0.5	262	5	$ 1,700	$ 1,167	$ 237	$ 595	$ 3,699	46%	32%	6%	16%	3%
C180R10	Leveed Chl.	1859	38	0	21	0.7	442	5	$ 3,780	$ 1,892	$ 313	$ 987	$ 6,972	54%	27%	4%	14%	5%
C155L20	Leveed Chl.	1774	129	0	63	2.5	426	4	$12,850	$ 5,882	$ 1,025	$ 2,716	$ 22,473	57%	26%	5%	12%	16%
C17510B-A	Leveed Chl.	1278	27	0	14	0.5	480	5	$ 2,690	$ 1,409	$ 205	$ 1,413	$ 5,717	47%	25%	4%	25%	4%
	TOTAL	857	35	373					$85,540	$ 32,059	$ 6,074	$ 16,995	**$ 140,668**	61%	23%	4%	12%	100%
All Channels		857	35	373		13.9			$85,540	$ 32,059	$ 6,074	$ 16,995	$ 140,668	61%	23%	4%	12%	100%
All Online Basins		0	0	0					$ -	$ -	$ -	$ -	$ -	0%	0%	0%	0%	0%
All Offline Basins		0	0	0					$ -	$ -	$ -	$ -	$ -	0%	0%	0%	0%	0%

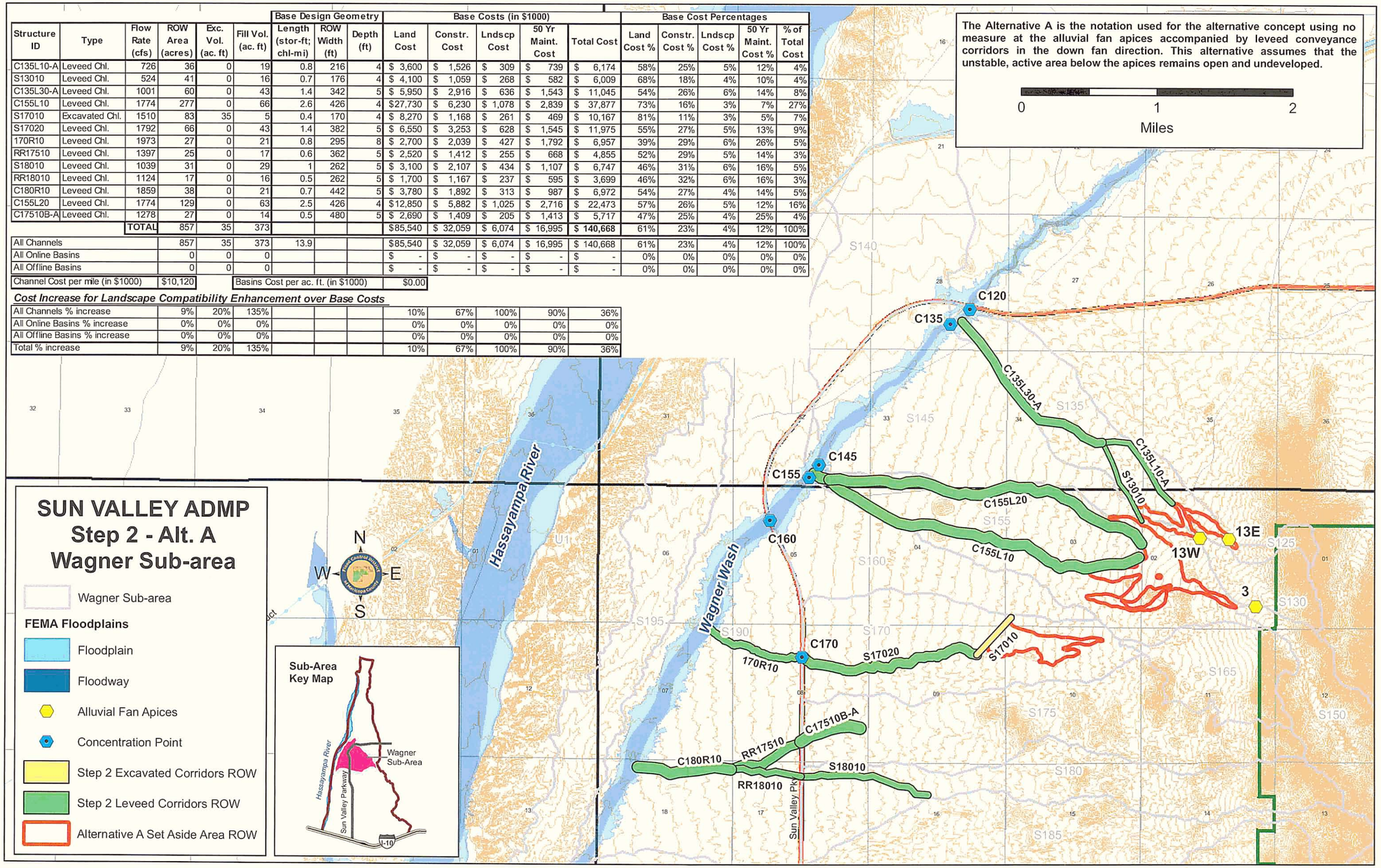
Channel Cost per mile (in $1000)	$10,120	Basins Cost per ac. ft. (in $1000)	$0.00

Cost Increase for Landscape Compatibility Enhancement over Base Costs

All Channels % increase	9%	20%	135%				10%	67%	100%	90%	36%
All Online Basins % increase	0%	0%	0%				0%	0%	0%	0%	0%
All Offline Basins % increase	0%	0%	0%				0%	0%	0%	0%	0%
Total % increase	9%	20%	135%				10%	67%	100%	90%	36%

The Alternative A is the notation used for the alternative concept using no measure at the alluvial fan apices accompanied by leveed conveyance corridors in the down fan direction. This alternative assumes that the unstable, active area below the apices remains open and undeveloped.

0 1 2
Miles

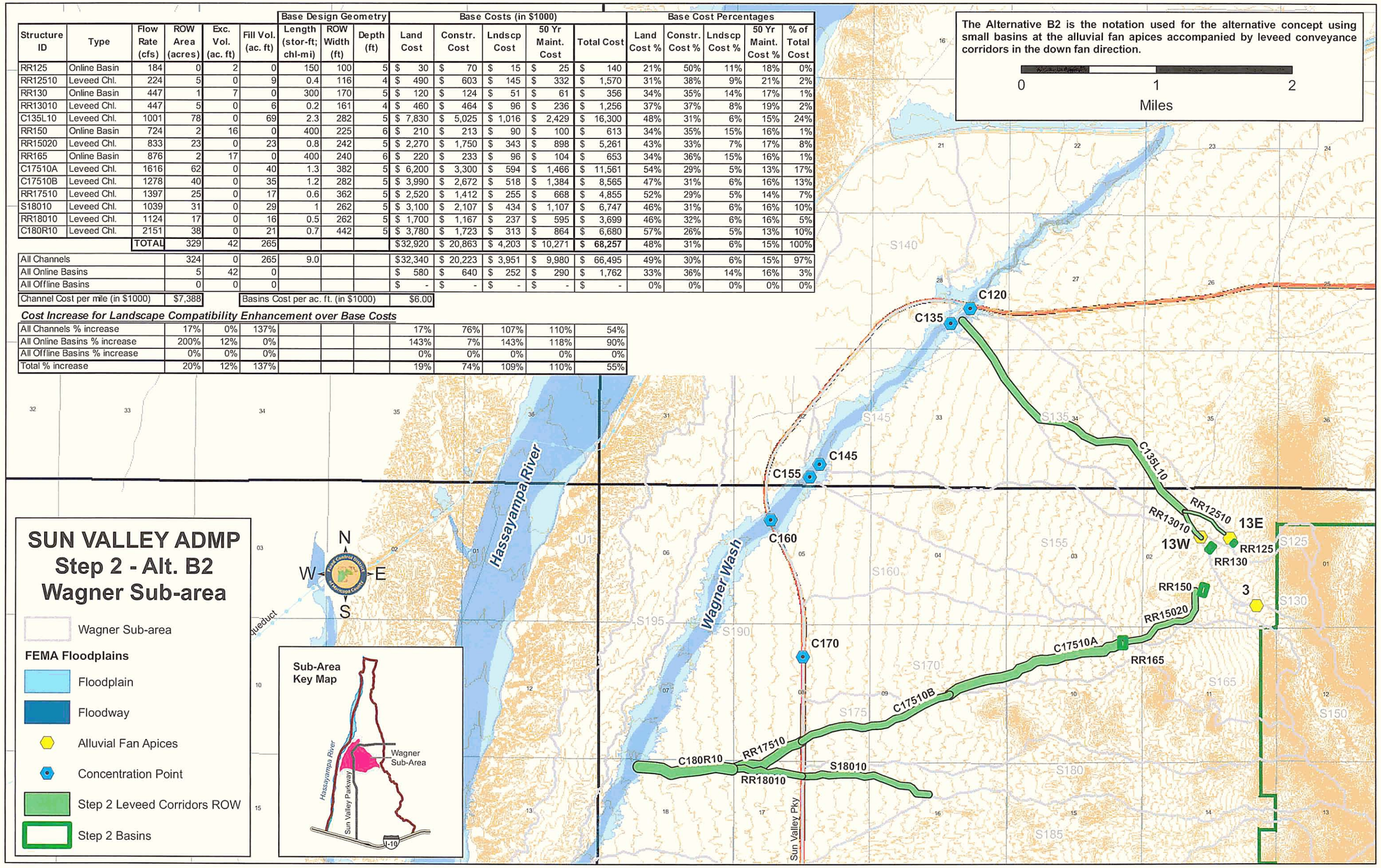


Structure ID	Type	Flow Rate (cfs)	ROW Area (acres)	Exc. Vol. (ac. ft)	Fill Vol. (ac. ft)	Base Design Geometry: Length (stor-ft; chl-mi)	ROW Width (ft)	Depth (ft)	Base Costs (in $1000): Land Cost	Constr. Cost	Lndscp Cost	50 Yr Maint. Cost	Total Cost	Base Cost Percentages: Land Cost %	Constr. Cost %	Lndscp Cost %	50 Yr Maint. Cost %	% of Total Cost
RR125	Online Basin	184	0	2	0	150	100	5	$ 30	$ 70	$ 15	$ 25	$ 140	21%	50%	11%	18%	0%
RR12510	Leveed Chl.	224	5	0	9	0.4	116	4	$ 490	$ 603	$ 145	$ 332	$ 1,570	31%	38%	9%	21%	2%
RR130	Online Basin	447	1	7	0	300	170	5	$ 120	$ 124	$ 51	$ 61	$ 356	34%	35%	14%	17%	1%
RR13010	Leveed Chl.	447	5	0	6	0.2	161	4	$ 460	$ 464	$ 96	$ 236	$ 1,256	37%	37%	8%	19%	2%
C135L10	Leveed Chl.	1001	78	0	69	2.3	282	5	$ 7,830	$ 5,025	$ 1,016	$ 2,429	$ 16,300	48%	31%	6%	15%	24%
RR150	Online Basin	724	2	16	0	400	225	6	$ 210	$ 213	$ 90	$ 100	$ 613	34%	35%	15%	16%	1%
RR15020	Leveed Chl.	833	23	0	23	0.8	242	5	$ 2,270	$ 1,750	$ 343	$ 898	$ 5,261	43%	33%	7%	17%	8%
RR165	Online Basin	876	2	17	0	400	240	6	$ 220	$ 233	$ 96	$ 104	$ 653	34%	36%	15%	16%	1%
C17510A	Leveed Chl.	1616	62	0	40	1.3	382	5	$ 6,200	$ 3,300	$ 594	$ 1,466	$ 11,561	54%	29%	5%	13%	17%
C17510B	Leveed Chl.	1278	40	0	35	1.2	282	5	$ 3,990	$ 2,672	$ 518	$ 1,384	$ 8,565	47%	31%	6%	16%	13%
RR17510	Leveed Chl.	1397	25	0	17	0.6	362	5	$ 2,520	$ 1,412	$ 255	$ 668	$ 4,855	52%	29%	5%	14%	7%
S18010	Leveed Chl.	1039	31	0	29	1	262	5	$ 3,100	$ 2,107	$ 434	$ 1,107	$ 6,747	46%	31%	6%	16%	10%
RR18010	Leveed Chl.	1124	17	0	16	0.5	262	5	$ 1,700	$ 1,167	$ 237	$ 595	$ 3,699	46%	32%	6%	16%	5%
C180R10	Leveed Chl.	2151	38	0	21	0.7	442	5	$ 3,780	$ 1,723	$ 313	$ 864	$ 6,680	57%	26%	5%	13%	10%
	TOTAL	329	42	265					$32,920	$ 20,863	$ 4,203	$ 10,271	**$ 68,257**	48%	31%	6%	15%	100%
All Channels		324	0	265	9.0				$32,340	$ 20,223	$ 3,951	$ 9,980	$ 66,495	49%	30%	6%	15%	97%
All Online Basins		5	42	0					$ 580	$ 640	$ 252	$ 290	$ 1,762	33%	36%	14%	16%	3%
All Offline Basins		0	0	0					$ -	$ -	$ -	$ -	$ -	0%	0%	0%	0%	0%

Channel Cost per mile (in $1000)	$7,388	Basins Cost per ac. ft. (in $1000)	$6.00

Cost Increase for Landscape Compatibility Enhancement over Base Costs

All Channels % increase	17%	0%	137%				17%	76%	107%	110%	54%
All Online Basins % increase	200%	12%	0%				143%	7%	143%	118%	90%
All Offline Basins % increase	0%	0%	0%				0%	0%	0%	0%	0%
Total % increase	20%	12%	137%				19%	74%	109%	110%	55%



Structure ID	Type	Flow Rate (cfs)	ROW Area (acres)	Exc. Vol. (ac. ft)	Fill Vol. (ac. ft)	Base Design Geometry: Length (stor-ft; chl-mi)	ROW Width (ft)	Depth (ft)	Base Costs (in $1000): Land Cost	Constr. Cost	Lndscp Cost	50 Yr Maint. Cost	Total Cost	Base Cost Percentages: Land Cost %	Constr. Cost %	Lndscp Cost %	50 Yr Maint. Cost %	% of Total Cost
RR125	Online Basin	33	1	11	0	300	200	6	$ 140	$ 159	$ 60	$ 72	$ 430	33%	37%	14%	17%	0%
RR12510	Excavated Chl.	73	7	24	0	0.4	83	3	$ 710	$ 578	$ 61	$ 74	$ 1,423	50%	41%	4%	5%	1%
RR130	Online Basin	57	4	39	0	600	290	7	$ 400	$ 417	$ 174	$ 181	$ 1,172	34%	36%	15%	15%	1%
RR13010	Excavated Chl.	57	5	7	0	0.2	77	3	$ 460	$ 203	$ 33	$ 43	$ 740	62%	27%	5%	6%	1%
C135L10	Excavated Chl.	1001	68	2047	0	2.3	160	5	$ 6,770	$ 44,039	$ 1,331	$ 1,421	$ 53,560	13%	82%	2%	3%	40%
RR150	Online Basin	97	7	97	0	800	400	10	$ 730	$ 938	$ 320	$ 322	$ 2,310	32%	41%	14%	14%	2%
RR15020	Excavated Chl.	206	18	125	0	0.8	102	3	$ 1,750	$ 2,867	$ 212	$ 321	$ 5,151	34%	56%	4%	6%	4%
RR165	Online Basin	93	6	70	0	800	340	9	$ 620	$ 725	$ 272	$ 273	$ 1,890	33%	38%	14%	14%	1%
C17510A	Excavated Chl.	833	38	703	0	1.3	152	5	$ 3,840	$ 15,381	$ 722	$ 803	$ 20,745	19%	74%	3%	4%	15%
C17510B	Excavated Chl.	1271	35	480	0	1.2	163	6	$ 3,500	$ 10,683	$ 697	$ 873	$ 15,753	22%	68%	4%	6%	12%
RR17510	Excavated Chl.	1390	18	158	0	0.6	168	6	$ 1,750	$ 3,646	$ 358	$ 389	$ 6,143	28%	59%	6%	6%	5%
S18010	Excavated Chl.	1039	28	301	0	1	150	5	$ 2,780	$ 6,804	$ 517	$ 676	$ 10,776	26%	63%	5%	6%	8%
RR18010	Excavated Chl.	1124	15	106	0	0.5	150	5	$ 1,520	$ 2,473	$ 283	$ 312	$ 4,588	33%	54%	6%	7%	3%
C180R10	Excavated Chl.	2262	24	245	0	0.7	202	7	$ 2,440	$ 5,557	$ 566	$ 608	$ 9,171	27%	61%	6%	7%	7%
	TOTAL		274	4413	0				$27,410	$ 94,468	$ 5,605	$ 6,368	$ 133,851	20%	71%	4%	5%	100%
All Channels			256	4196	0	9.0			$25,520	$ 92,230	$ 4,779	$ 5,520	$ 128,049	20%	72%	4%	4%	96%
All Online Basins			18	217	0				$ 1,890	$ 2,238	$ 826	$ 849	$ 5,803	33%	39%	14%	15%	4%
All Offline Basins			0	0	0				$ -	$ -	$ -	$ -	$ -	0%	0%	0%	0%	0%

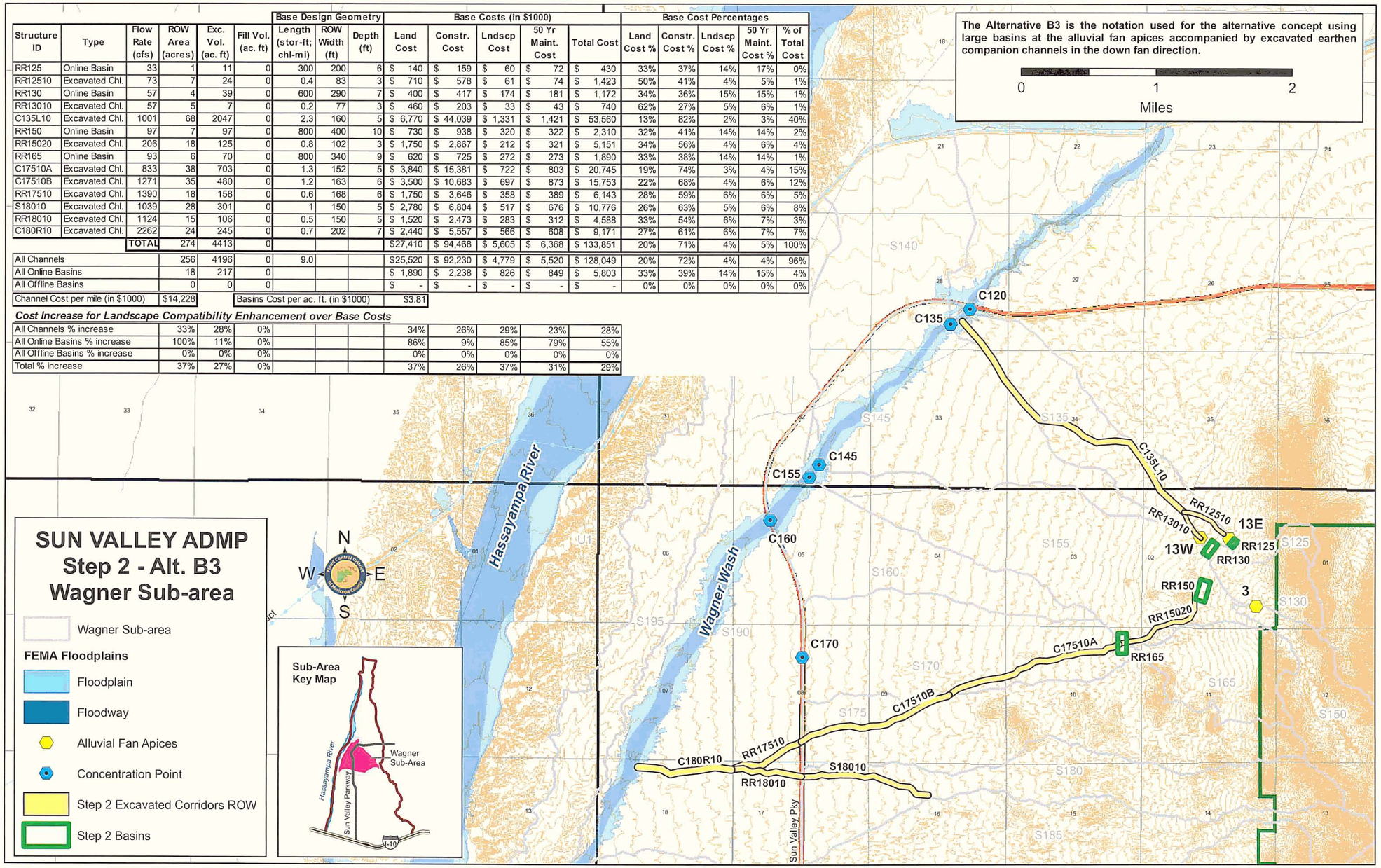
Channel Cost per mile (in $1000)	$14,228	Basins Cost per ac. ft. (in $1000)	$3.81

Cost Increase for Landscape Compatibility Enhancement over Base Costs

All Channels % increase	33%	28%	0%				34%	26%	29%	23%	28%
All Online Basins % increase	100%	11%	0%				86%	9%	85%	79%	55%
All Offline Basins % increase	0%	0%	0%				0%	0%	0%	0%	0%
Total % increase	37%	27%	0%				37%	26%	37%	31%	29%

The Alternative B3 is the notation used for the alternative concept using large basins at the alluvial fan apices accompanied by excavated earthen companion channels in the down fan direction.

0 1 2
Miles



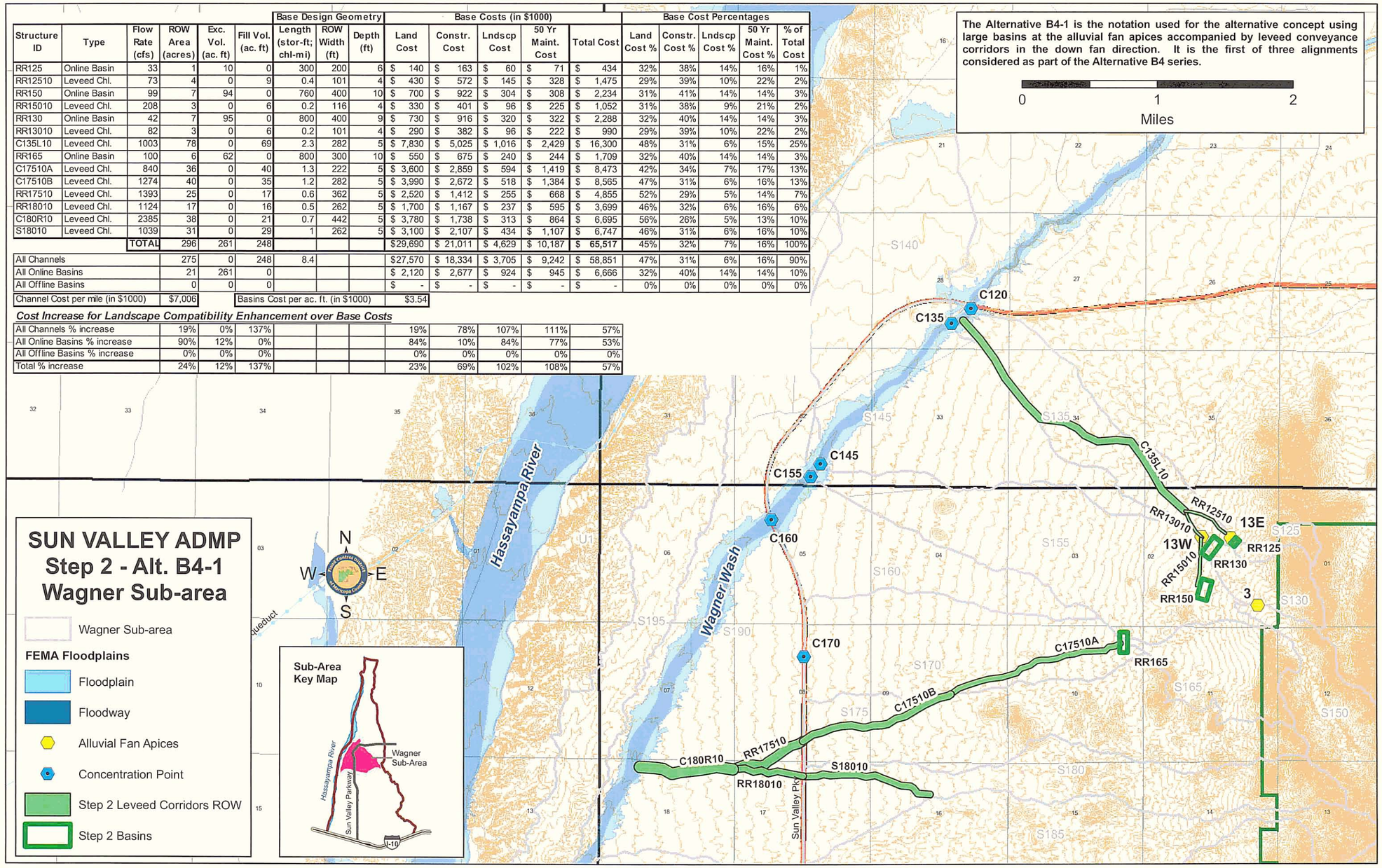
Structure ID	Type	Flow Rate (cfs)	ROW Area (acres)	Exc. Vol. (ac. ft)	Fill Vol. (ac. ft)	Base Design Geometry: Length (stor-ft; chl-mi)	ROW Width (ft)	Depth (ft)	Base Costs (in $1000): Land Cost	Constr. Cost	Lndscp Cost	50 Yr Maint. Cost	Total Cost	Base Cost Percentages: Land Cost %	Constr. Cost %	Lndscp Cost %	50 Yr Maint. Cost %	% of Total Cost
RR125	Online Basin	33	1	10	0	300	200	6	$ 140	$ 163	$ 60	$ 71	$ 434	32%	38%	14%	16%	1%
RR12510	Leveed Chl.	73	4	0	9	0.4	101	4	$ 430	$ 572	$ 145	$ 328	$ 1,475	29%	39%	10%	22%	2%
RR150	Online Basin	99	7	94	0	760	400	10	$ 700	$ 922	$ 304	$ 308	$ 2,234	31%	41%	14%	14%	3%
RR15010	Leveed Chl.	208	3	0	6	0.2	116	4	$ 330	$ 401	$ 96	$ 225	$ 1,052	31%	38%	9%	21%	2%
RR130	Online Basin	42	7	95	0	800	400	9	$ 730	$ 916	$ 320	$ 322	$ 2,288	32%	40%	14%	14%	3%
RR13010	Leveed Chl.	82	3	0	6	0.2	101	4	$ 290	$ 382	$ 96	$ 222	$ 990	29%	39%	10%	22%	2%
C135L10	Leveed Chl.	1003	78	0	69	2.3	282	5	$ 7,830	$ 5,025	$ 1,016	$ 2,429	$ 16,300	48%	31%	6%	15%	25%
RR165	Online Basin	100	6	62	0	800	300	10	$ 550	$ 675	$ 240	$ 244	$ 1,709	32%	40%	14%	14%	3%
C17510A	Leveed Chl.	840	36	0	40	1.3	222	5	$ 3,600	$ 2,859	$ 594	$ 1,419	$ 8,473	42%	34%	7%	17%	13%
C17510B	Leveed Chl.	1274	40	0	35	1.2	282	5	$ 3,990	$ 2,672	$ 518	$ 1,384	$ 8,565	47%	31%	6%	16%	13%
RR17510	Leveed Chl.	1393	25	0	17	0.6	362	5	$ 2,520	$ 1,412	$ 255	$ 668	$ 4,855	52%	29%	5%	14%	7%
RR18010	Leveed Chl.	1124	17	0	16	0.5	262	5	$ 1,700	$ 1,167	$ 237	$ 595	$ 3,699	46%	32%	6%	16%	6%
C180R10	Leveed Chl.	2385	38	0	21	0.7	442	5	$ 3,780	$ 1,738	$ 313	$ 864	$ 6,695	56%	26%	5%	13%	10%
S18010	Leveed Chl.	1039	31	0	29	1	262	5	$ 3,100	$ 2,107	$ 434	$ 1,107	$ 6,747	46%	31%	6%	16%	10%
		TOTAL	296	261	248				$29,690	$ 21,011	$ 4,629	$ 10,187	$ 65,517	45%	32%	7%	16%	100%
All Channels			275	0	248	8.4			$27,570	$ 18,334	$ 3,705	$ 9,242	$ 58,851	47%	31%	6%	16%	90%
All Online Basins			21	261	0				$ 2,120	$ 2,677	$ 924	$ 945	$ 6,666	32%	40%	14%	14%	10%
All Offline Basins			0	0	0				$ -	$ -	$ -	$ -	$ -	0%	0%	0%	0%	0%
Channel Cost per mile (in $1000)			$7,006		Basins Cost per ac. ft. (in $1000)				$3.54									

Cost Increase for Landscape Compatibility Enhancement over Base Costs

All Channels % increase	19%	0%	137%				19%	78%	107%	111%	57%
All Online Basins % increase	90%	12%	0%				84%	10%	84%	77%	53%
All Offline Basins % increase	0%	0%	0%				0%	0%	0%	0%	0%
Total % increase	24%	12%	137%				23%	69%	102%	108%	57%

The Alternative B4-1 is the notation used for the alternative concept using large basins at the alluvial fan apices accompanied by leveed conveyance corridors in the down fan direction. It is the first of three alignments considered as part of the Alternative B4 series.

0 1 2
Miles



Structure ID	Type	Flow Rate (cfs)	ROW Area (acres)	Exc. Vol. (ac. ft)	Fill Vol. (ac. ft)	Base Design Geometry: Length (stor-ft; chl-mi)	ROW Width (ft)	Depth (ft)	Base Costs (in $1000): Land Cost	Constr. Cost	Lndscp Cost	50 Yr Maint. Cost	Total Cost	Base Cost Percentages: Land Cost %	Constr. Cost %	Lndscp Cost %	50 Yr Maint. Cost %	% of Total Cost
RR125	Online Basin	33	1	10	0	300	200	6	$ 140	$ 163	$ 60	$ 71	$ 434	32%	38%	14%	16%	1%
RR12510	Leveed Chl.	73	4	0	9	0.4	101	4	$ 430	$ 575	$ 145	$ 328	$ 1,477	29%	39%	10%	22%	2%
RR130	Online Basin	57	4	39	0	600	290	7	$ 400	$ 417	$ 174	$ 181	$ 1,172	34%	36%	15%	15%	2%
RR13010	Leveed Chl.	57	3	0	6	0.2	88	4	$ 250	$ 375	$ 96	$ 219	$ 940	27%	40%	10%	23%	1%
C135L10	Leveed Chl.	1001	78	0	69	2.3	282	5	$ 7,830	$ 5,025	$ 1,016	$ 2,429	$ 16,300	48%	31%	6%	15%	24%
RR150	Online Basin	97	7	97	0	800	400	10	$ 730	$ 938	$ 320	$ 322	$ 2,310	32%	41%	14%	14%	3%
RR15020	Leveed Chl.	206	11	0	23	0.8	118	5	$ 1,110	$ 1,413	$ 343	$ 844	$ 3,709	30%	38%	9%	23%	6%
RR165	Online Basin	94	6	67	0	800	330	9	$ 610	$ 700	$ 264	$ 266	$ 1,840	33%	38%	14%	14%	3%
C17510A	Leveed Chl.	834	36	0	40	1.3	222	5	$ 3,600	$ 2,859	$ 594	$ 1,419	$ 8,473	42%	34%	7%	17%	13%
C17510B	Leveed Chl.	1270	40	0	35	1.2	282	5	$ 3,990	$ 2,672	$ 518	$ 1,384	$ 8,565	47%	31%	6%	16%	13%
RR17510	Leveed Chl.	1389	25	0	17	0.6	362	5	$ 2,520	$ 1,411	$ 255	$ 668	$ 4,854	52%	29%	5%	14%	7%
S18010	Leveed Chl.	1039	31	0	29	1	262	5	$ 3,100	$ 2,107	$ 434	$ 1,107	$ 6,747	46%	31%	6%	16%	10%
RR18010	Leveed Chl.	1124	17	0	16	0.5	262	5	$ 1,700	$ 1,167	$ 237	$ 595	$ 3,699	46%	32%	6%	16%	6%
C180R10	Leveed Chl.	2053	38	0	21	0.7	442	5	$ 3,780	$ 1,717	$ 313	$ 864	$ 6,674	57%	26%	5%	13%	10%
	TOTAL	301	213	265					$30,190	$ 21,538	$ 4,769	$ 10,697	$ 67,194	45%	32%	7%	16%	100%
All Channels		283	0	265		9.0			$28,310	$ 19,320	$ 3,951	$ 9,857	$ 61,438	46%	31%	6%	16%	91%
All Online Basins		18	213	0					$ 1,880	$ 2,218	$ 818	$ 840	$ 5,756	33%	39%	14%	15%	9%
All Offline Basins		0	0	0					$ -	$ -	$ -	$ -	$ -	0%	0%	0%	0%	0%

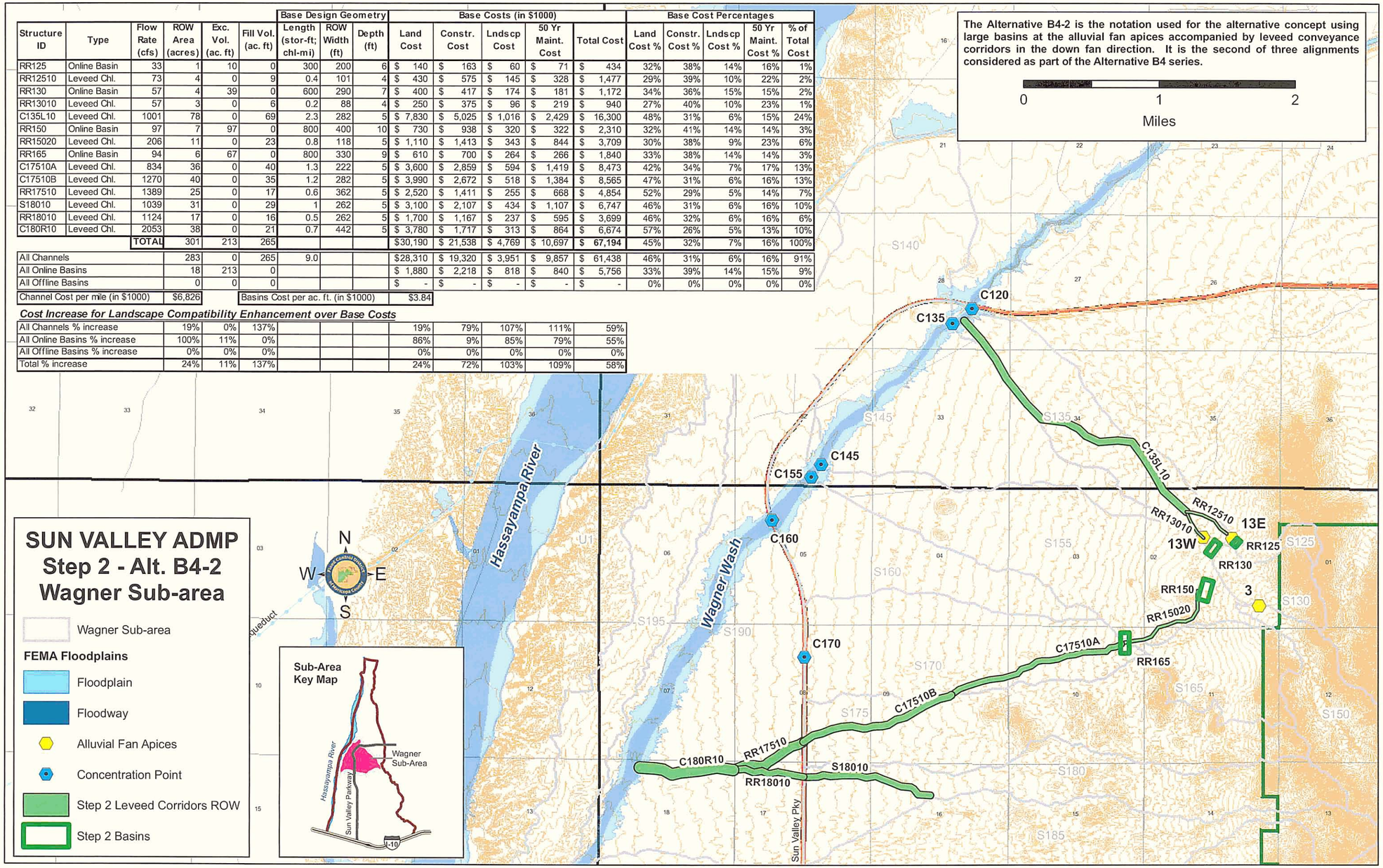
Channel Cost per mile (in $1000)	$6,826	Basins Cost per ac. ft. (in $1000)	$3.84

Cost Increase for Landscape Compatibility Enhancement over Base Costs

All Channels % increase	19%	0%	137%				19%	79%	107%	111%	59%
All Online Basins % increase	100%	11%	0%				86%	9%	85%	79%	55%
All Offline Basins % increase	0%	0%	0%				0%	0%	0%	0%	0%
Total % increase	24%	11%	137%				24%	72%	103%	109%	58%

The Alternative B4-2 is the notation used for the alternative concept using large basins at the alluvial fan apices accompanied by leveed conveyance corridors in the down fan direction. It is the second of three alignments considered as part of the Alternative B4 series.

0 1 2
Miles



Structure ID	Type	Flow Rate (cfs)	ROW Area (acres)	Exc. Vol. (ac. ft)	Fill Vol. (ac. ft)	Base Design Geometry: Length (stor-ft; chl-mi)	ROW Width (ft)	Depth (ft)	Base Costs (in $1000): Land Cost	Constr. Cost	Lndscp Cost	50 Yr Maint. Cost	Total Cost	Base Cost Percentages: Land Cost %	Constr. Cost %	Lndscp Cost %	50 Yr Maint. Cost %	% of Total Cost
RR125	Online Basin	33	1	10	0	300	200	6	$ 140	$ 163	$ 60	$ 71	$ 434	32%	38%	14%	16%	0%
RR12510	Leveed Chl.	73	4	0	9	0.4	101	4	$ 430	$ 575	$ 145	$ 328	$ 1,477	29%	39%	10%	22%	2%
RR130	Online Basin	57	4	39	0	600	290	7	$ 400	$ 417	$ 174	$ 181	$ 1,172	34%	36%	15%	15%	1%
RR13010	Leveed Chl.	57	3	0	6	0.2	88	4	$ 250	$ 375	$ 96	$ 219	$ 940	27%	40%	10%	23%	1%
C135L10	Leveed Chl.	1001	78	0	69	2.3	282	5	$ 7,830	$ 5,025	$ 1,016	$ 2,429	$ 16,300	48%	31%	6%	15%	18%
RR150	Online Basin	97	7	97	0	800	400	10	$ 730	$ 938	$ 320	$ 322	$ 2,310	32%	41%	14%	14%	3%
C155L10	Leveed Chl.	1774	149	0	90	3	412	5	$14,890	$ 7,816	$ 1,322	$ 3,284	$ 27,313	55%	29%	5%	12%	30%
RR165	Online Basin	100	6	62	0	800	300	10	$ 550	$ 675	$ 240	$ 244	$ 1,709	32%	40%	14%	14%	2%
C17510A	Leveed Chl.	840	36	0	40	1.3	222	5	$ 3,600	$ 2,859	$ 594	$ 1,419	$ 8,473	42%	34%	7%	17%	9%
C17510B	Leveed Chl.	1274	40	0	35	1.2	282	5	$ 3,990	$ 2,672	$ 518	$ 1,384	$ 8,565	47%	31%	6%	16%	9%
RR17510	Leveed Chl.	1393	25	0	17	0.6	362	5	$ 2,520	$ 1,412	$ 255	$ 668	$ 4,855	52%	29%	5%	14%	5%
S18010	Leveed Chl.	1039	31	0	29	1	262	5	$ 3,100	$ 2,107	$ 434	$ 1,107	$ 6,747	46%	31%	6%	16%	7%
RR18010	Leveed Chl.	1124	17	0	16	0.5	262	5	$ 1,700	$ 1,167	$ 237	$ 595	$ 3,699	46%	32%	6%	16%	4%
C180R10	Leveed Chl.	2058	38	0	21	0.7	442	5	$ 3,780	$ 1,718	$ 313	$ 864	$ 6,675	57%	26%	5%	13%	7%
	TOTAL	439	208	332					$43,910	$ 27,918	$ 5,724	$ 13,116	**$ 90,669**	48%	31%	6%	14%	100%
All Channels		421	0	332	11.2				$42,090	$ 25,725	$ 4,930	$ 12,298	$ 85,043	49%	30%	6%	14%	94%
All Online Basins		18	208	0					$ 1,820	$ 2,193	$ 794	$ 818	$ 5,625	32%	39%	14%	15%	6%
All Offline Basins		0	0	0					$ -	$ -	$ -	$ -	$ -	0%	0%	0%	0%	0%

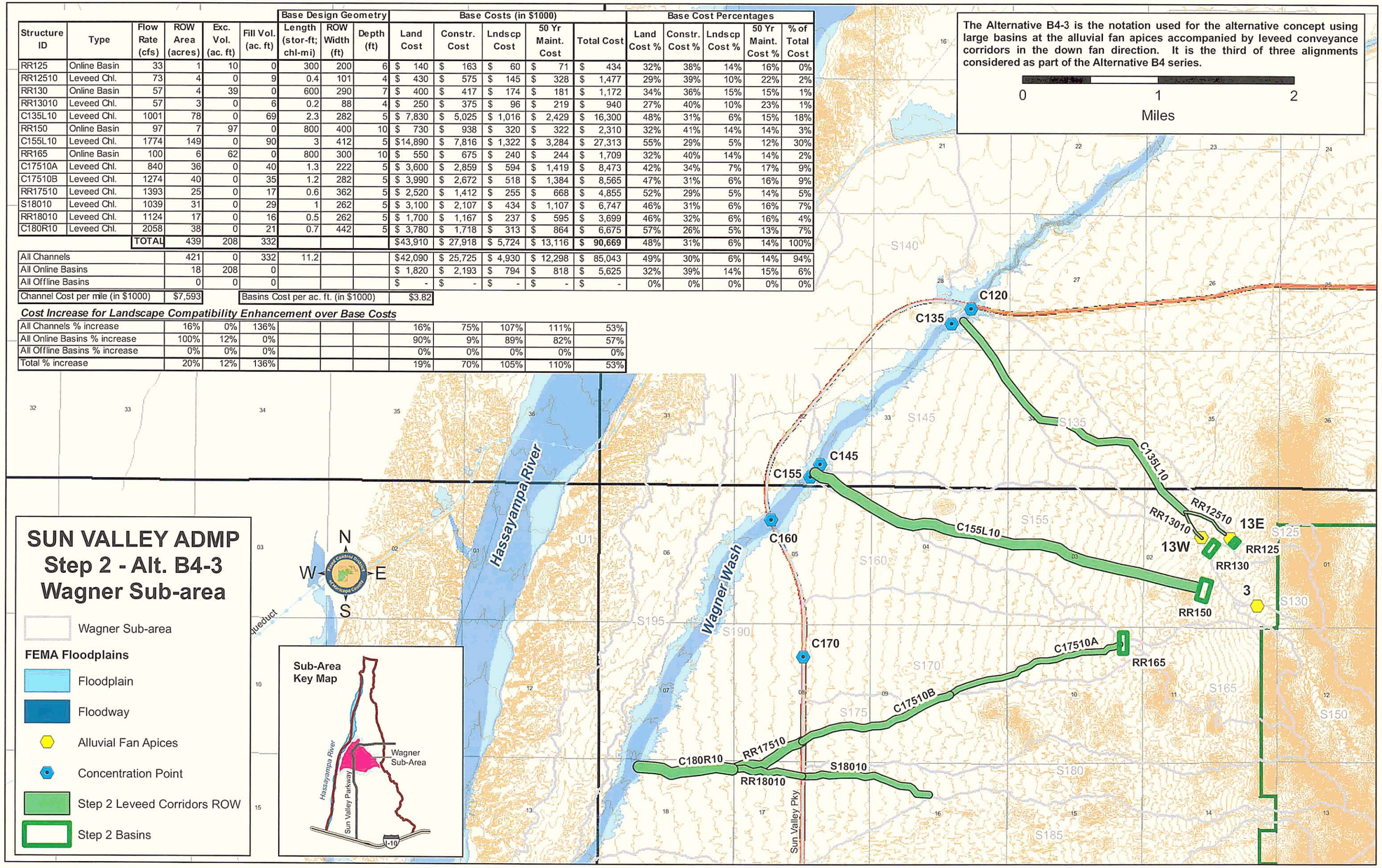
Channel Cost per mile (in $1000)	$7,593	Basins Cost per ac. ft. (in $1000)	$3.82

Cost Increase for Landscape Compatibility Enhancement over Base Costs

All Channels % increase	16%	0%	136%				16%	75%	107%	111%	53%
All Online Basins % increase	100%	12%	0%				90%	9%	89%	82%	57%
All Offline Basins % increase	0%	0%	0%				0%	0%	0%	0%	0%
Total % increase	20%	12%	136%				19%	70%	105%	110%	53%

The Alternative B4-3 is the notation used for the alternative concept using large basins at the alluvial fan apices accompanied by leveed conveyance corridors in the down fan direction. It is the third of three alignments considered as part of the Alternative B4 series.

0 1 2
Miles



Structure ID	Type	Flow Rate (cfs)	ROW Area (acres)	Exc. Vol. (ac. ft)	Fill Vol. (ac. ft)	Base Design Geometry: Length (stor-ft; chl-mi)	ROW Width (ft)	Depth (ft)	Base Costs (in $1000): Land Cost	Constr. Cost	Lndscp Cost	50 Yr Maint. Cost	Total Cost	Base Cost Percentages: Land Cost %	Constr. Cost %	Lndscp Cost %	50 Yr Maint. Cost %	% of Total Cost
RR12510	Excavated Chl.	242	7	27	0	0.4	77	4	$ 680	$ 830	$ 50	$ 276	$ 1,836	37%	45%	3%	15%	1%
RR13010	Excavated Chl.	524	5	20	0	0.2	94	4	$ 500	$ 612	$ 54	$ 205	$ 1,371	36%	45%	4%	15%	1%
C135L10	Excavated Chl.	1380	59	1852	0	2.3	128	6	$ 5,890	$ 40,666	$ 944	$ 2,261	$ 49,761	12%	82%	2%	5%	35%
RR15020	Excavated Chl.	945	19	239	0	0.8	115	5	$ 1,870	$ 5,608	$ 265	$ 717	$ 8,461	22%	66%	3%	8%	6%
C17510A	Excavated Chl.	1748	36	806	0	1.3	136	6	$ 3,580	$ 18,138	$ 609	$ 1,482	$ 23,808	15%	76%	3%	6%	17%
C17510B	Excavated Chl.	2452	39	714	0	1.2	190	5	$ 3,880	$ 15,952	$ 864	$ 1,557	$ 22,253	17%	72%	4%	7%	16%
D175	Offline Basin	2236	1	7	0	280	200	4	$ 129	$ 143	$ 56	$ 63	$ 390	33%	37%	14%	16%	0%
RR17510	Excavated Chl.	2355	19	225	0	0.6	185	5	$ 1,870	$ 5,183	$ 410	$ 690	$ 8,153	23%	64%	5%	8%	6%
S18010	Excavated Chl.	1039	23	249	0	1	113	6	$ 2,340	$ 6,021	$ 325	$ 1,002	$ 9,689	24%	62%	3%	10%	7%
RR18010	Excavated Chl.	1124	13	85	0	0.5	113	6	$ 1,280	$ 2,188	$ 178	$ 480	$ 4,126	31%	53%	4%	12%	3%
C180R10	Excavated Chl.	3439	29	360	0	0.7	255	5	$ 2,890	$ 8,140	$ 763	$ 1,114	$ 12,906	22%	63%	6%	9%	9%
	TOTAL	250	4584	0					$24,909	$103,481	$ 4,517	$ 9,847	**$ 142,753**	17%	72%	3%	7%	100%
All Channels		249	4577	0		9.0			$24,780	$103,338	$ 4,461	$ 9,784	$ 142,364	17%	73%	3%	7%	100%
All Online Basins		0	0	0					$ -	$ -	$ -	$ -	$ -	0%	0%	0%	0%	0%
All Offline Basins		1	7	0					$ 129	$ 143	$ 56	$ 63	$ 390	33%	37%	14%	16%	0%

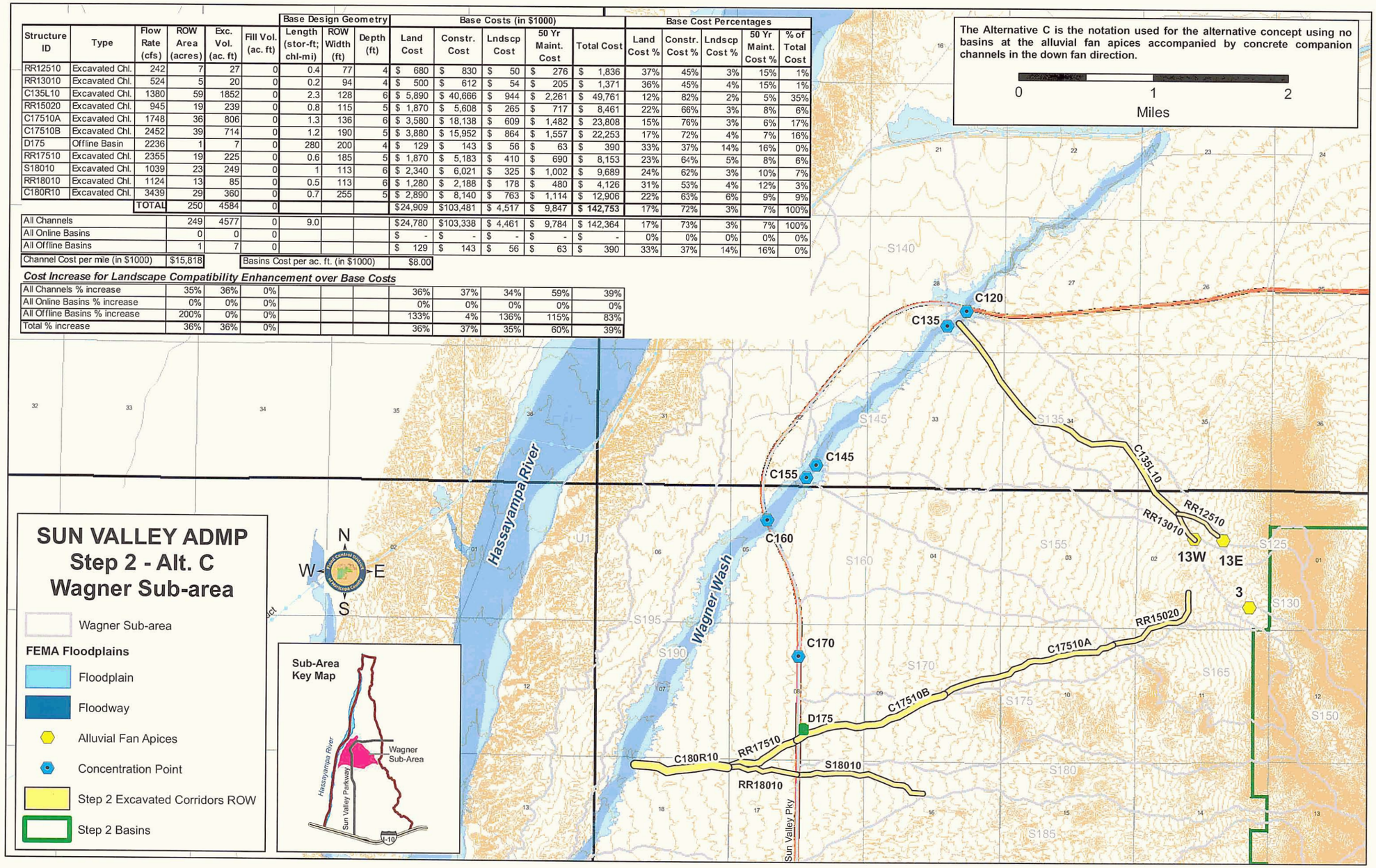
Channel Cost per mile (in $1000)	$15,818	Basins Cost per ac. ft. (in $1000)	$8.00

Cost Increase for Landscape Compatibility Enhancement over Base Costs

All Channels % increase	35%	36%	0%				36%	37%	34%	59%	39%
All Online Basins % increase	0%	0%	0%				0%	0%	0%	0%	0%
All Offline Basins % increase	200%	0%	0%				133%	4%	136%	115%	83%
Total % increase	36%	36%	0%				36%	37%	35%	60%	39%

The Alternative C is the notation used for the alternative concept using no basins at the alluvial fan apices accompanied by concrete companion channels in the down fan direction.

0 1 2
Miles



```
1****************************************                    ****************************************
*                                      *                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *   U.S. ARMY CORPS OF ENGINEERS       *
*              JUN  1998               *                    *   HYDROLOGIC ENGINEERING CENTER      *
*            VERSION 4.1               *                    *         609 SECOND STREET            *
*                                      *                    *      DAVIS, CALIFORNIA 95616         *
*  RUN DATE   19APR06  TIME  16:21:24  *                    *          (916) 756-1104              *
*                                      *                    *                                      *
****************************************                    ****************************************

                                    X     X  XXXXXXX   XXXXX           X
                                    X     X  X        X     X         XX
                                    X     X  X        X                X
                                    XXXXXXX  XXXX     X        XXXXX   X
                                    X     X  X        X                X
                                    X     X  X        X     X          X
                                    X     X  XXXXXXX   XXXXX          XXX

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                                HEC-1 INPUT                                                PAGE  1

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

        1           ID    HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
        2           ID     - WAGNER SUB-AREA
        3           ID     - ALTERNATIVE A
        4           ID
        5           ID  Alternative Description
        6           ID  The main design objective of the A Alternative is to allow the
        7           ID  natural geomorphic processes to occur within a designated active
        8           ID  area downstream of the apex.  The objective then is to control
        9           ID  the flow path downstream of the region of uncertainty.  The flows
       10           ID  will be captured in the up-fan area by excavated collector channels
       11           ID  and/or diversion levees.  Once collected, the flows are routed
       12           ID  downstream using leveed corridors similar to the B alternatives.
       13           ID
       14           ID
       15           ID   SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
       16           ID   JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
       17           ID   MODELER: TED LEHMAN
       18           ID   FILENAME: A4_EX6.DAT
       19           ID
       20           ID   100-YEAR 6-HOUR MODEL
       21           ID   EXISTING CONDITIONS
       22           ID   AREA 4 WATERSHED AREA = 90.5 SQ. MILES
       23           ID            MODELED AREA = 76.8 SQ. MILES
       24           ID
       25           ID   GREEN-AMPT LOSS METHOD
       26           ID   S-GRAPH UNIT HYDROGRAPHS
       27           ID     - MOUNTAIN
       28           ID     - DESERT/RANGELAND
       29           ID   NORMAL-DEPTH CHANNEL ROUTING
       30           ID   LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
       31           ID     - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
       32           ID     - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
       33           ID     - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
       34           ID   SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)
       35           IT       5  1JAN99    1200    2000
       36           IN      15
       37           IO       5
                    *DIAGRAM
                    *
       38           JD   3.196  0.1000
       39           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
       40           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
       41           PC   0.962   0.972   0.983   0.991   1.000
       42           JD   3.181  0.5000
       43           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
       44           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
       45           PC   0.962   0.972   0.983   0.991   1.000
       46           JD   3.120     2.8
       47           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
       48           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
       49           PC   0.950   0.963   0.975   0.988   1.000
       50           JD   2.950    16.0
       51           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
       52           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
       53           PC   0.946   0.960   0.973   0.987   1.000
1                                                HEC-1 INPUT                                                PAGE  2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  54          JD   2.592    90.0
  55          PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
  56          PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
  57          PC   0.927   0.945   0.964   0.982   1.000
              *

  58          KK    S100   BASIN
  59          KM         Compute runoff from subbasin 100
  60          BA   6.994
  61          LG    0.35    0.38    6.40    0.16       0
  62          UI     449     455     964    1717    2422    3046    3616    4050    4275    4281
  63          UI    4178    3867    3211    2766    2319    1968    1698    1387    1198     990
  64          UI     848     715     635     476     471     313     309     309     204     110
  65          UI     109     111     110     109     111     109     110     111       0       0
              *

  66          KK    S102   BASIN
  67          KM         Compute runoff from subbasin 102
  68          BA   3.234
  69          LG    0.35    0.38    5.60    0.22       0
  70          UI     333     657    1539    2292    2943    3178    3083    2643    1985    1523
  71          UI    1179     890     674     542     377     300     232     193      81      82
  72          UI      81      81      83       0       0       0       0       0       0       0
              *

  73          KK    C102 COMBINE
  74          KM         Combine total inflow to detention area behind (north) of CAP Canal
  75          HC        2
              *

  76          KK   RR102 STORAGE
  77          KM         Route flows through storage area behind CAP Canal
  78          KM         Stage-storage-discharge data from Wagner Wash FDS Hydrology (1991)
  79          KO
  80          RS        1    STOR      -1
  81          SV             553.00 1148.00 2316.00 2705.00
  82          SQ                    128.00  587.00  600.00
  83          SE  1543.0 1550.00 1552.00 1555.00 1556.00
  84          ST  1556.0  1320.0     3.2     1.5
              *

  85          KK    D102  DIVERT
  86          KM         Divide flow evenly over the two 18-foot wide CAP overchutes
  87          KM         although the inverts are 0.5 feet different in elevation
  88          DT    CF02     0.0     0.0
  89          DI     0.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0     0.0
  90          DQ     0.0    50.0   500.0  5000.0     0.0     0.0     0.0     0.0     0.0     0.0
              *

  91          KK  100105   ROUTE
  92          KM         Route outflows from east CAP overchute to Sun Valley Parkway.
  93          RS        9    FLOW      -1
  94          RC   0.035   0.055   0.035   11235  0.0045  105.00
  95          RX    0.00  120.00  240.00  250.00  590.00  600.00  720.00  840.00
  96          RY  105.00  102.50  100.00  100.00  100.00  100.00  102.50  105.00
              *
```

1 HEC-1 INPUT PAGE 3

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  97          KK    S105   BASIN
  98          KM         Compute runoff from subbasin 105
  99          BA   4.370
 100          LG    0.35    0.35    4.80    0.30       0
 101          UI     345     380    1112    1723    2334    2867    3143    3344    3176    2865
 102          UI    2374    1903    1555    1291    1018     832     685     564     458     369
 103          UI     288     235     238     126      83      85      84      84      84      84
 104          UI      84       0       0       0       0       0       0       0       0       0
              *

 105          KK    CF02RETRIEVE
 106          KM         Retrieve flow from west CAP overchute.
 107          DR    CF02
              *

 108          KK  102105   ROUTE
 109          KM         Route retrieved flow from west overchute to C105.
 110          RS        6    FLOW      -1
 111          RC   0.045   0.050   0.045    7656  0.0065  104.00
 112          RX    0.00   40.00  120.00  130.00  250.00  260.00  340.00  380.00
 113          RY  104.00  102.00  101.00  100.00  100.00  101.00  102.00  104.00
              *

 114          KK   C105U COMBINE
 115          KM         Combine runoff from S105 with routed flow from 100105 and 102105
 116          KM         (CAP overchute flows). This is the total flow in Wagner Wash upstream
 117          KM         of Sun Valley Parkway.
 118          HC        3  14.598
              *

 119          KK    S110   BASIN
 120          KM         Compute runoff from subbasin 110
```

```
121          BA   0.430
122          LG    0.25    0.37    5.20    0.25       6
123          UI      56     166     335     449     587     358     291     241     188     140
124          UI     121      86      68      56      43      32      27      22      11      11
125          UI      10      11      11       0       0       0       0       0       0       0
             *

126          KK  11015I   ROUTE
127          KM        Route flow from C105 through subbasin 110 to C115.
128          RS       2    FLOW      -1
129          RC   0.045   0.035   0.045    3783  0.0267  102.00
130          RX    0.00   50.00  100.00  110.00  120.00  130.00  180.00  230.00
131          RY  102.00  101.50  101.00  100.00  100.00  101.00  101.50  102.00
             *

132          KK  15I15R   ROUTE
133          KM        Route flows from split through S115 to C115.
134          RS       8    FLOW      -1
135          RC   0.035   0.030   0.035   14128  0.0151  105.00
136          RX    0.00   25.00   58.00   65.00   85.00   92.00  125.00  150.00
137          RY  105.00  102.50  102.00  100.00  100.00  102.00  102.50  105.00
             *
1                                          HEC-1 INPUT                                          PAGE  4

        LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

138          KK    S115   BASIN
139          KM        Compute runoff from subbasin 115
140          BA   2.247
141          LG    0.32    0.35    4.80    0.30       2
142          UI     160     163     434     709     984    1212    1401    1530    1539    1465
143          UI    1351    1100     918     773     632     528     444     351     304     252
144          UI     203     170     140     110     110      85      39      39      40      39
145          UI      39      39      40      39       0       0       0       0       0       0
             *

146          KK    C115 COMBINE
147          KM        Combine runoff from S115 with routed flow.
148          HC       2   2.677
             *

149          KK  115120   ROUTE
150          KM        Route total flows from C115 to C120. Slope =(1532-1494) / 4077
151          RS       2    FLOW      -1
152          RC   0.030   0.025   0.030    4077  0.0093  105.00
153          RX    0.00   30.00   75.00   80.00  105.00  110.00  155.00  190.00
154          RY  105.00  101.50  101.00  100.00  100.00  101.00  101.50  105.00
             *

155          KK    S120   BASIN
156          KM        Compute runoff from subbasin 120
157          BA   2.004
158          LG    0.33    0.35    4.65    0.32       1
159          UI     206     408     954    1419    1824    1969    1911    1637    1230     944
160          UI     731     551     418     336     234     186     143     120      50      51
161          UI      50      51      51       0       0       0       0       0       0       0
             *

162          KK    C120 COMBINE
163          KM        Combine flows at Wagner Wash at outlet of channel along SVP
164          HC       2   4.681
             *

165          KK   C105D COMBINE
166          KM        Combine flows from C105 and C120 just D/S of Sun Valley Parkway
167          HC       2  19.279
             *

168          KK  120135   ROUTE
169          KM        Route flows in Wagner Wash from Sun Valley Parkway to C135.
170          RS       1    FLOW      -1
171          RC   0.045   0.035   0.045     951  0.0074  110.00
172          RX    0.00  225.00  450.00  455.00  485.00  490.00  615.00  840.00
173          RY  110.00  105.00  102.00  100.00  100.00  102.00  102.00  110.00
             *
1                                          HEC-1 INPUT                                          PAGE  5

        LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

174          KK    S125   BASIN
175          KM        Compute runoff from subbasin 125
176          BA   0.093
177          LG    0.25    0.35    4.15    0.44       5
178          UI      46     164     204     116      73      46      28      17      12       4
179          UI       5       4       0       0       0       0       0       0       0       0
             *

180          KK   R125A   ROUTE
181          KM    ROUTE FLOW FROM APEX 13E ACROSS ACTIVE AREA TO PROPOSED CHANNEL
182          KM    SLOPE = (1754-1684) / 2620
183          RS       2    FLOW      -1
184          RC   0.045   0.045   0.045    2620   0.027
185          RX       0     100     200     300     400     500     600     700
```

```
186          RY     104     103     102     100     100     102     103     104
             *

187          KK  12535I   ROUTE
188          KM   PROPOSED CHANNEL
189          KM        Route flows from S125 to intermediate combination point in S135.
190          KM    STRUCTURE ID(s): C135L10-A
191          KM    Slope=(1684.0 - 1601.3) / 3964.3
192          RS       3    FLOW      -1
193          RC   0.045   0.045   0.045  3964.30.020881   104.0
194          RX     0.0    12.0    12.0    12.0   152.0   152.0   152.0   164.0
195          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

196          KK    S130   BASIN
197          KM        Compute runoff from subbasin 130
198          BA   0.310
199          LG    0.21    0.35    4.20    0.43       4
200          UI      61     239     399     514     313     240     176     128      94      64
201          UI      49      36      26      19      10      10      10      10       0       0
             *

202          KK   R130A   ROUTE
203          KM    ROUTE FLOW FROM APEX 13W ACROSS ACTIVE AREA TO PROPOSED CHANNEL
204          KM    SLOPE = (1728-1660) / 2600
205          RS       2    FLOW      -1
206          RC   0.045   0.045   0.045    2600   0.026
207          RX       0     100     200     300     400     500     600     700
208          RY     104     103     102     100     100     102     103     104
             *

209          KK  13035I   ROUTE
210          KM   PROPOSED CHANNEL
211          KM        Route flow to intermediate point in S135.
212          KM    STRUCTURE ID(s): S13010
213          KM    Slope=(1664.8 - 1601.4) / 3433.0
214          RS       2    FLOW      -1
215          RC   0.045   0.045   0.045  3433.00.018465   104.0
216          RX     0.0    12.0    12.0    12.0   112.0   112.0   112.0   124.0
217          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

218          KK   C135I COMBINE
219          KM        Combine routed flow from RR130 and RR125
220          HC       2    1.18
             *

221          KK  35I135   ROUTE
222          KM   PROPOSED CHANNEL
223          KM        Route combined flows to C135 at Wagner Wash.
224          KM    STRUCTURE ID(s): C135L30-A
225          KM    Slope=(1601.3 - 1496.9) / 7571.7
226          RS       5    FLOW      -1
227          RC   0.045   0.045   0.045  7571.70.013786   104.5
228          RX     0.0    13.5    13.5    13.5   273.5   273.5   273.5   287.0
229          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

230          KK    S135   BASIN
231          KM        Compute runoff from subbasin 135
232          BA   0.879
233          LG    0.35    0.35    4.25    0.42       0
234          UI     115     362     709     992    1126     989     736     527     370     260
235          UI     194     128      89      76      28      28      29      28       0       0
             *

236          KK   C135L COMBINE
237          KM        Combine all piedmont runoff inflow to Wagner Wash at C135
238          HC       2    2.06
             *

239          KK    C135 COMBINE
240          KM        Combine all flows in Wagner Wash at C135
241          HC       2
             *

242          KK  135145   ROUTE
243          KM        Route flow in Wagner Wash to C145.  Slope = (1487-1454) / 7938
244          RS       4    FLOW      -1
245          RC   0.045   0.035   0.045    7938  0.0042  110.00
246          RX     0.00  300.00  400.00  406.00  506.00  512.00  612.00  912.00
247          RY   110.00  102.50  102.00  100.00  100.00  102.00  102.50  110.00
             *

248          KK    S140   BASIN
249          KM        Compute runoff from subbasin 140
250          BA   1.373
251          LG    0.35    0.36    5.00    0.28       0
252          UI     260    1034    1801    2168    1890    1235     809     517     339     211
253          UI     157      56      55      57       0       0       0       0       0       0
             *
```

```
1                                          HEC-1 INPUT                                                    PAGE  7

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   254          KK  140145   ROUTE
   255          KM        Route runoff from S140 to C145 at Wagner Wash.
   256          RS       3    FLOW      -1
   257          RC   0.040   0.050   0.040    3656  0.0074  103.00
   258          RX    0.00   70.00  140.00  150.00  250.00  260.00  330.00  400.00
   259          RY  102.00  101.00  100.00  100.00  100.00  100.00  101.00  102.00
                *

   260          KK    S145   BASIN
   261          KM        Compute runoff from subbasin 145
   262          BA   1.756
   263          LG    0.35    0.35    4.15    0.44       0
   264          UI     226     672    1369    1903    2167    2003    1508    1085     777     544
   265          UI     399     279     198     157      80      55      56      54      55       0
                *

   266          KK    C145 COMBINE
   267          KM        Combine all flows in Wagner Wash at C145
   268          HC       3
                *

   269          KK  145155   ROUTE
   270          KM        Route flows in Wagner Wash form C145 to C155. Slope = (1454-1452)/631
   271          RS       1    FLOW      -1
   272          RC   0.045   0.035   0.055     631  0.0032  110.00
   273          RX    0.00  150.00  300.00  309.00  379.00  388.00  538.00  838.00
   274          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
                *

   275          KK    S150   BASIN
   276          KM        Compute runoff from subbasin 150
   277          BA   0.774
   278          LG    0.25    0.35    4.65    0.32       7
   279          UI      71     115     270     425     531     672     746     480     406     356
   280          UI     312     262     212     181     159     132     106      89      77      65
   281          UI      54      47      35      35      35      14      14      13      14      14
   282          UI      13      14      14       0       0       0       0       0       0       0
                *

   283          KK   R150A   ROUTE
   284          KM    ROUTE FLOW FROM APEX 3 ACROSS ACTIVE AREA TO PROPOSED CHANNELS
   285          KM    SLOPE = (1812-1680) / 4100
   286          RS       3    FLOW      -1
   287          RC   0.045   0.045   0.045    4100   0.032
   288          RX       0     100     200     300     400     500     600     700
   289          RY     104     103     102     100     100     102     103     104
                *

   290          KK  150155   ROUTE
   291          KM   PROPOSED CHANNEL
   292          KM    ROUTE OUTFLOW FROM S150 THRU S155
   293          KM    STRUCTURE ID(s): C155L10
   294          KM    Slope=(1682.1 - 1451.9) / 13819.3
   295          RS       9    FLOW      -1
1                                          HEC-1 INPUT                                                    PAGE  8

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   296          RC   0.045   0.045   0.045 13819.30.016662   104.0
   297          RX     0.0    12.0    12.0    12.0   362.0   362.0   362.0   374.0
   298          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
                *

   299          KK    S155   BASIN
   300          KM        Compute runoff from subbasin 155
   301          BA   1.832
   302          LG    0.35    0.35    4.50    0.36       1
   303          UI     187     361     846    1266    1637    1771    1735    1497    1161     879
   304          UI     681     519     385     314     228     181     130     126      46      46
   305          UI      45      46      46      45       0       0       0       0       0       0
                *

   306          KK   C155L COMBINE
   307          KM        Combine flows from Fan 3 with runoff from S155 at Wagner Wash
   308          HC       2
                *

   309          KK    C155 COMBINE
   310          KM        Combine all flows at Wagner Wash at C155
   311          HC       2
                *

   312          KK  155160   ROUTE
   313          KM        Route flow in Wagner Wash to C160 (Sun Valley Parkway).
   314          RS       5    FLOW      -1
   315          RC   0.035   0.035   0.035    2291  0.0052  110.00
   316          RX    0.00  200.00  400.00  406.00  506.00  512.00  712.00  912.00
   317          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
                *
```

```
318          KK    S160   BASIN
319          KM        Compute runoff from subbasin 160
320          BA   1.144
321          LG    0.35    0.35    4.00    0.47       0
322          UI     165     599    1121    1501    1557    1233     844     593     394     281
323          UI     190     122      93      40      40      40      41       0       0       0
             *

324          KK    C160 COMBINE
325          KM        Combine flows at Sun Valley Parkway
326          HC       2   27.44
             *

327          KK  160170   ROUTE
328          KM        Route flows from Sun Valley Parkway to C170R. Slope = (1440-1410)/5248
329          RS       3    FLOW      -1
330          RC   0.040   0.030   0.040    5248  0.0057  108.00
331          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
332          RY  108.00  103.00  102.00  100.00  100.00  102.00  103.00  108.00
             *
1                                          HEC-1 INPUT                                          PAGE  9

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

333          KK    S165   BASIN
334          KM        Compute runoff from subbasin 165
335          BA   0.616
336          LG    0.30    0.35    4.55    0.35       3
337          UI     121     477     809    1022     617     474     347     254     185     127
338          UI      96      69      52      36      20      20      20      20       0       0
             *

339          KK   R165A   ROUTE
340          KM    ROUTE FLOW FROM APEX at OUTLET of S165 ACROSS ACTIVE AREA TO PROPOSED CHANNE
341          KM    SLOPE = (1676-1580) / 4700
342          RS       3    FLOW      -1
343          RC   0.045   0.045   0.045    4700    0.02
344          RX       0     100     200     300     400     500     600     700
345          RY     104     103     102     100     100     102     103     104
             *

346          KK  165170   ROUTE
347          KM   PROPOSED CHANNEL
348          KM    ROUTE OUTFLOW FROM ACTIVE AREA BELOW S165
349          KM    TO SUN VALLEY PARKWAY IN NEW CHANNEL THRU S175
350          KM    STRUCTURE ID(s): S17010, S17020
351          KM    Slope=(1580.6 - 1462.8) / 9433.0
352          RS       6    FLOW      -1
353          RC   0.045   0.045   0.045  9433.00.012489   104.5
354          RX     0.0    13.5    13.5    13.5   313.5   313.5   313.5   327.0
355          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

356          KK    S170   BASIN
357          KM        Compute runoff from subbasin 170
358          BA   1.464
359          LG    0.35    0.35    4.40    0.38       0
360          UI     209     755    1427    1917    1973    1590    1086     762     513     360
361          UI     246     160     123      52      51      51      52       0       0       0
             *

362          KK    C170
363          KM    COMBINE RUNOFF FROM S170 WITH ROUTED FLOW FROM S165 AT SUN VALLEY PARKWAY
364          HC       2
             *

365          KK    170R   ROUTE
366          KM   PROPOSED CHANNEL
367          KM    STRUCTURE ID(s): 170R10
368          KM    Slope=(1462.8 - 1408.0) / 3986.4
369          RS       3    FLOW      -1
370          RC   0.045   0.045   0.045  3986.40.013735   103.5
371          RX     0.0    21.0    46.0    66.0   166.0   186.0   211.0   228.5
372          RY   103.5   100.0   100.0    96.0    96.0   100.0   100.0   103.5
             *
1                                          HEC-1 INPUT                                          PAGE 10

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

373          KK   C170R COMBINE
374          KM        Combine routed flows from S170 and C160 in Wagner Wash
375          HC       2
             *

376          KK  170180   ROUTE
377          KM        Route flows in Wagner Wash to C180R.  Slope = (1410-1366) / 6770
378          RS       4    FLOW      -1
379          RC   0.045   0.035   0.045    6770  0.0065  110.00
380          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
381          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *

382          KK    S175   BASIN
```

```
383          KM        Compute runoff from subbasin 175
384          BA   1.802
385          LG    0.29    0.35    4.50    0.36       1
386          UI     126     127     317     525     763     877    1013    1295    1376     895
387          UI     771     703     622     572     507     439     372     318     296     274
388          UI     227     192     163     148     138     116      96      97      73      62
389          UI      62      63      55      24      25      24      24      24      24      25
390          UI      24      24      24      25       0       0       0       0       0       0
             *

391          KK    175R   ROUTE
392          KM   PROPOSED CHANNEL
393          KM        Route runoff from S175 to intermediate point in S190 (C180RI).
394          KM    STRUCTURE ID(s): RR17510
395          KM    Slope=(1462.9 - 1413.1) / 3035.2
396          RS       2    FLOW      -1
397          RC   0.045   0.045   0.045  3035.20.016393   104.5
398          RX     0.0    13.5    13.5    13.5   293.5   293.5   293.5   307.0
399          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

400          KK    S180   BASIN
401          KM        Compute runoff from subbasin 180
402          BA   1.443
403          LG    0.25    0.35    4.25    0.42       2
404          UI     107     108     311     490     677     785     927    1258     896     684
405          UI     622     547     497     440     379     315     275     250     228     185
406          UI     154     138     120     115      82      83      73      52      53      52
407          UI      50      21      20      21      20      21      21      20      21      21
408          UI      20       0       0       0       0       0       0       0       0       0
             *

409          KK    180R   ROUTE
410          KM   PROPOSED CHANNEL
411          KM        Route runoff from S180 to intermediate point in S190 (C180RI).
412          KM    STRUCTURE ID(s): S18010, RR18010
413          KM    Slope=(1531.6 - 1413.1) / 7990.1
414          RS       2    FLOW      -1
415          RC   0.045   0.045   0.045  7990.1 0.01483   104.5
416          RX     0.0    13.5    13.5    13.5   193.5   193.5   193.5   207.0
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

417          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

418          KK  C180RI COMBINE
419          KM        Combine routed flows from S175 and S180
420          HC       2
             *

421          KK  RI180R   ROUTE
422          KM   PROPOSED CHANNEL
423          KM    STRUCTURE ID(s): C180R10
424          KM    Slope=(1413.1 - 1367.6) / 3720.6
425          RS       3    FLOW      -1
426          RC   0.045   0.045   0.045  3720.60.012229   104.5
427          RX     0.0    13.5    13.5    13.5   373.5   373.5   373.5   387.0
428          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

429          KK   C180R COMBINE
430          KM        Combine flows in Wagner Wash
431          HC       2
             *

432          KK  180185   ROUTE
433          KM        Route flows in Wagner Wash from C180R to C185R.
434          RS       3    FLOW      -1
435          RC   0.045   0.035   0.045  3450.0  0.0075   106.0
436          RX     0.0   100.0   200.0   206.0   406.0   412.0   512.0   612.0
437          RY   106.0   104.0   102.0   100.0   100.0   102.0   104.0   106.0
             *

438          KK    S185   BASIN
439          KM        Compute runoff from subbasin 185
440          BA   2.421
441          LG    0.16    0.35    4.35    0.40       1
442          UI     165     166     391     668     960    1130    1281    1613    1908    1239
443          UI    1060     936     847     785     677     614     534     438     399     375
444          UI     338     271     230     210     183     183     133     126     127      85
445          UI      80      82      81      67      32      31      32      32      31      32
446          UI      32      31      32      32      32       0       0       0       0       0
             *

447          KK    185R   ROUTE
448          KM        Route runoff from S185 to Wagner Wash.  Slope = (1442-1340) / 8534
449          RS       5    FLOW      -1
450          RC   0.045   0.035   0.045    8534  0.0120  104.00
451          RX    0.00   30.00  100.00  106.00  156.00  162.00  232.00  262.00
452          RY  104.00  102.00  102.00  100.00  100.00  102.00  102.00  104.00
             *
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 453          KK   C185R COMBINE
 454          KM        Combine flows in Wagner Wash
 455          HC       2
              *

 456          KK  185190   ROUTE
 457          KM        Route flow in Wagner Wash to C190.  Slope = (1340-1308) / 2700
 458          RS       2    FLOW      -1
 459          RC   0.045   0.040   0.045    2700  0.0119  106.00
 460          RX    0.00   80.00  160.00  166.00  416.00  422.00  502.00  582.00
 461          RY  106.00  103.00  102.00  100.00  100.00  102.00  103.00  106.00
              *

 462          KK    S190   BASIN
 463          KM        Compute runoff from subbasin 190
 464          BA   4.054
 465          LG    0.35    0.35    3.81    0.44       0
 466          UI     274     278     647    1125    1573    1918    2319    2540    2637    2574
 467          UI    2467    2112    1787    1506    1256    1044     891     745     605     522
 468          UI     432     370     293     266     188     191     188      78      68      66
 469          UI      67      67      67      67      67      67       0       0       0       0
              *

 470          KK    C190 COMBINE
 471          KM        Combine all flow in Wagner Wash at C190
 472          HC       2   39.24
              *

 473          KK  190195   ROUTE
 474          KM        Route flow from C190 to the Hassayampa River. Slope = (1308-1255)/4941
 475          RS       2    FLOW      -1
 476          RC   0.045   0.035   0.045    4941  0.0107  110.00
 477          RX    0.00   50.00  200.00  206.00  356.00  366.00  516.00  566.00
 478          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
              *

 479          KK    S195   BASIN
 480          KM        Compute runoff from subbasin 195
 481          BA   1.808
 482          LG    0.33    0.35    4.25    0.42       0
 483          UI     107     108     188     366     523     660     786     925     975    1026
 484          UI    1044     975     915     778     674     571     496     419     359     313
 485          UI     260     223     202     165     146     115     114      76      74      74
 486          UI      67      27      26      26      26      26      26      27      26      26
 487          UI      27       0       0       0       0       0       0       0       0       0
              *

 488          KK    C195 COMBINE
 489          KM        Combine all flows in Wagner Wash at the Hassayampa River
 490          HC       2   41.05
 491          ZZ
1
              SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    58       S100
                .
                .
    66          .        S102
                .           .
                .           .
    73       C102...........
                V
                V
    76      RR102
                .
                .
    88          .-------->    CF02
    85       D102
                V
                V
    91      100105
                .
                .
    97          .        S105
                .           .
                .           .
   107          .           .          .<-------    CF02
   105          .           .       CF02
                .           .          V
                .           .          V
   108          .           .      102105
                .           .          .
                .           .          .
   114      C105U.......................
                .
                .
   119          .        S110
                .           V
```

```
                .          V
126             .     11015I
                .          V
                .          V
132             .     15I15R
                .          .
                .          .
138             .          .        S115
                .          .           .
                .          .           .
146             .      C115............
                .          V
                .          V
149             .     115120
                .          .
                .          .
155             .          .        S120
                .          .           .
                .          .           .
162             .      C120............
                .          .
                .          .
165        C105D............
               V
               V
168       120135
                .
                .
174             .      S125
                .          V
                .          V
180             .     R125A
                .          V
                .          V
187             .     12535I
                .          .
                .          .
196             .          .        S130
                .          .           V
                .          .           V
202             .          .       R130A
                .          .           V
                .          .           V
209             .          .      13035I
                .          .           .
                .          .           .
218             .     C135I............
                .          V
                .          V
221             .     35I135
                .          .
                .          .
230             .          .        S135
                .          .           .
                .          .           .
236             .     C135L............
                .          .
                .          .
239         C135............
               V
               V
242       135145
                .
                .
248             .      S140
                .          V
                .          V
254             .     140145
                .          .
                .          .
260             .          .        S145
                .          .           .
                .          .           .
266         C145......................
               V
               V
269       145155
                .
                .
275             .      S150
                .          V
                .          V
283             .     R150A
                .          V
                .          V
290             .     150155
                .          .
                .          .
299             .          .        S155
                .          .           .
                .          .           .
306             .     C155L............
                .          .
                .          .
309         C155............
```

```
                V
                V
  312       155160
                .
                .
  318           .        S160
                .           .
                .           .
  324         C160............
                V
                V
  327       160170
                .
                .
  333           .        S165
                .           V
                .           V
  339           .       R165A
                .           V
                .           V
  346           .      165170
                .           .
                .           .
  356           .           .        S170
                .           .           .
                .           .           .
  362           .        C170............
                .           V
                .           V
  365           .        170R
                .           .
                .           .
  373        C170R...........
                V
                V
  376       170180
                .
                .
  382           .        S175
                .           V
                .           V
  391           .        175R
                .           .
                .           .
  400           .           .        S180
                .           .           V
                .           .           V
  409           .           .        180R
                .           .           .
                .           .           .
  418           .      C180RI...........
                .           V
                .           V
  421           .      RI180R
                .           .
                .           .
  429        C180R...........
                V
                V
  432       180185
                .
                .
  438           .        S185
                .           V
                .           V
  447           .        185R
                .           .
                .           .
  453        C185R...........
                V
                V
  456       185190
                .
                .
  462           .        S190
                .           .
                .           .
  470         C190............
                V
                V
  473       190195
                .
                .
  479           .        S195
                .           .
                .           .
  488         C195............
```

```
 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *           VERSION 4.1                *
 *                                      *
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
```

```
* RUN DATE   19APR06  TIME  16:21:24   *                                    *          (916) 756-1104          *
*                                      *                                    *                                  *
****************************************                                    ************************************
```

```
                    HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
                      - WAGNER SUB-AREA
                      - ALTERNATIVE A

                  Alternative Description
                  The main design objective of the A Alternative is to allow the
                  natural geomorphic processes to occur within a designated active
                  area downstream of the apex.  The objective then is to control
                  the flow path downstream of the region of uncertainty.  The flows
                  will be captured in the up-fan area by excavated collector channels
                  and/or diversion levees.  Once collected, the flows are routed
                  downstream using leveed corridors similar to the B alternatives.


                   SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
                   JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
                   MODELER: TED LEHMAN
                   FILENAME: A4_EX6.DAT

                   100-YEAR 6-HOUR MODEL
                   EXISTING CONDITIONS
                   AREA 4 WATERSHED AREA = 90.5 SQ. MILES
                            MODELED AREA = 76.8 SQ. MILES

                   GREEN-AMPT LOSS METHOD
                   S-GRAPH UNIT HYDROGRAPHS
                     - MOUNTAIN
                     - DESERT/RANGELAND
                   NORMAL-DEPTH CHANNEL ROUTING
                   LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
                     - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
                     - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
                     - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
                   SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)

 37 IO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN           5  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1JAN99  STARTING DATE
                      ITIME        1200  STARTING TIME
                         NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      8JAN99  ENDING DATE
                     NDTIME        1035  ENDING TIME
                      ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE  166.58 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT

 38 JD          INDEX STORM NO. 1
                       STRM        3.20  PRECIPITATION DEPTH
                       TRDA         .10  TRANSPOSITION DRAINAGE AREA

 39 PI            PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                      .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                      .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00

 42 JD          INDEX STORM NO. 2
                       STRM        3.18  PRECIPITATION DEPTH
                       TRDA         .50  TRANSPOSITION DRAINAGE AREA

 43 PI            PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                      .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                      .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
```

```
                    .00       .00

46 JD          INDEX STORM NO. 3
                    STRM        3.12  PRECIPITATION DEPTH
                    TRDA        2.80  TRANSPOSITION DRAINAGE AREA

47 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                    .03       .03       .07       .07       .07       .08       .08       .08       .05       .05
                    .05       .02       .02       .02       .01       .01       .01       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00

50 JD          INDEX STORM NO. 4
                    STRM        2.95  PRECIPITATION DEPTH
                    TRDA       16.00  TRANSPOSITION DRAINAGE AREA

51 PI            PRECIPITATION PATTERN
                    .01       .01       .00       .00       .00       .00       .00       .00       .00       .01
                    .01       .01       .00       .01       .00       .00       .00       .00       .00       .00
                    .00       .00       .01       .00       .00       .00       .00       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                    .03       .03       .06       .06       .06       .07       .07       .07       .04       .04
                    .04       .02       .02       .02       .01       .01       .01       .01       .01       .01
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00

54 JD          INDEX STORM NO. 5
                    STRM        2.59  PRECIPITATION DEPTH
                    TRDA       90.00  TRANSPOSITION DRAINAGE AREA

55 PI            PRECIPITATION PATTERN
                    .01       .01       .01       .00       .00       .00       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                    .03       .03       .05       .05       .05       .05       .05       .05       .04       .04
                    .04       .02       .02       .02       .02       .02       .02       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                    .01       .01

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
76 KK       *     RR102  *      STORAGE
            *            *
            **************

79 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
1
                                          RUNOFF SUMMARY
                                   FLOW IN CUBIC FEET PER SECOND
                                 TIME IN HOURS,  AREA IN SQUARE MILES

                                     PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
          OPERATION        STATION   FLOW    PEAK                                           AREA      STAGE     MAX STAGE
+                                                        6-HOUR     24-HOUR     72-HOUR

          HYDROGRAPH AT
+                           S100    4347.    4.67        899.        225.         75.      6.99

          HYDROGRAPH AT
+                           S102    2790.    4.33        417.        104.         35.      3.23

          2 COMBINED AT
+                           C102    5993.    4.50       1198.        300.        100.     10.23

          ROUTED TO
+                          RR102     127.    6.75        122.        104.         72.     10.23

          DIVERSION TO
+                           CF02      63.    6.75         61.         52.         36.     10.23

          HYDROGRAPH AT
+                           D102      63.    6.75         61.         52.         36.     10.23

          ROUTED TO
+                         100105      59.   12.58         58.         51.         36.     10.23

          HYDROGRAPH AT
+                           S105    2863.    4.50        495.        124.         41.      4.37

          HYDROGRAPH AT
+                           CF02      63.    6.75         61.         52.         36.     10.23
```

+	ROUTED TO 102105	63.	8.00	60.	51.	36.	10.23
+	3 COMBINED AT C105U	2863.	4.50	549.	226.	120.	14.60
+	HYDROGRAPH AT S110	662.	4.25	76.	19.	6.	.43
+	ROUTED TO 11015I	570.	4.42	76.	19.	6.	.43
+	ROUTED TO 15I15R	506.	4.83	76.	19.	6.	.43
+	HYDROGRAPH AT S115	1605.	4.58	296.	74.	25.	2.25
+	2 COMBINED AT C115	1813.	4.67	350.	88.	29.	2.68
+	ROUTED TO 115120	1781.	4.75	350.	88.	29.	2.68
+	HYDROGRAPH AT S120	1838.	4.33	256.	64.	21.	2.00
+	2 COMBINED AT C120	2678.	4.58	545.	137.	46.	4.68
+	2 COMBINED AT C105D	4029.	4.50	821.	275.	127.	19.28
+	ROUTED TO 120135	4027.	4.58	821.	275.	127.	19.28
+	HYDROGRAPH AT S125	202.	4.08	14.	4.	1.	.09
+	ROUTED TO R125A	146.	4.25	14.	4.	1.	.09
+	ROUTED TO 12535I	94.	4.67	14.	4.	1.	.09
+	HYDROGRAPH AT S130	524.	4.17	48.	12.	4.	.31
+	ROUTED TO R130A	455.	4.25	47.	12.	4.	.31
+	ROUTED TO 13035I	387.	4.42	47.	12.	4.	.31
+	2 COMBINED AT C135I	364.	4.50	54.	14.	5.	1.18
+	ROUTED TO 35I135	217.	5.33	54.	14.	5.	1.18
+	HYDROGRAPH AT S135	1102.	4.25	111.	28.	9.	.88
+	2 COMBINED AT C135L	830.	4.25	145.	36.	12.	2.06
+	2 COMBINED AT C135	4171.	4.50	881.	288.	131.	21.34
+	ROUTED TO 135145	3749.	5.00	870.	286.	131.	21.34
+	HYDROGRAPH AT S140	1913.	4.17	188.	47.	16.	1.37
+	ROUTED TO 140145	1623.	4.42	188.	47.	16.	1.37
+	HYDROGRAPH AT S145	1702.	4.25	193.	48.	16.	1.76
+	3 COMBINED AT C145	4073.	4.92	1037.	325.	143.	24.47
+	ROUTED TO 145155	4072.	4.92	1036.	325.	143.	24.47
+	HYDROGRAPH AT S150	836.	4.33	126.	31.	10.	.77
+	ROUTED TO R150A	779.	4.50	126.	31.	10.	.77
+	ROUTED TO 150155	449.	5.67	125.	31.	10.	.77

+	HYDROGRAPH AT	S155	1626.	4.33	223.	56.	19.	1.83
+	2 COMBINED AT	C155L	1457.	4.33	313.	79.	26.	2.61
+	2 COMBINED AT	C155	4266.	4.83	1193.	363.	155.	27.07
+	ROUTED TO	155160	4256.	4.92	1191.	363.	155.	27.07
+	HYDROGRAPH AT	S160	1347.	4.25	133.	33.	11.	1.14
+	2 COMBINED AT	C160	4292.	4.92	1241.	375.	159.	27.44
+	ROUTED TO	160170	4202.	5.17	1234.	374.	159.	27.44
+	HYDROGRAPH AT	S165	1008.	4.17	94.	23.	8.	.62
+	ROUTED TO	R165A	802.	4.42	94.	23.	8.	.62
+	ROUTED TO	165170	444.	5.17	94.	23.	8.	.62
+	HYDROGRAPH AT	S170	1686.	4.25	178.	44.	15.	1.46
+	2 COMBINED AT	C170	1488.	4.25	245.	61.	20.	2.08
+	ROUTED TO	170R	1438.	4.33	245.	61.	20.	2.08
+	2 COMBINED AT	C170R	4256.	5.08	1334.	398.	166.	29.52
+	ROUTED TO	170180	4166.	5.42	1322.	397.	166.	29.52
+	HYDROGRAPH AT	S175	1203.	4.50	226.	56.	19.	1.80
+	ROUTED TO	175R	1153.	4.67	226.	56.	19.	1.80
+	HYDROGRAPH AT	S180	1032.	4.50	181.	45.	15.	1.44
+	ROUTED TO	180R	775.	4.83	180.	45.	15.	1.44
+	2 COMBINED AT	C180RI	1561.	4.75	360.	90.	30.	3.24
+	ROUTED TO	RI180R	1512.	4.92	359.	90.	30.	3.24
+	2 COMBINED AT	C180R	4686.	5.33	1477.	434.	177.	32.76
+	ROUTED TO	180185	4678.	5.42	1470.	433.	177.	32.76
+	HYDROGRAPH AT	S185	1450.	4.50	288.	72.	24.	2.42
+	ROUTED TO	185R	1302.	4.92	288.	72.	24.	2.42
+	2 COMBINED AT	C185R	5005.	5.25	1576.	459.	185.	35.19
+	ROUTED TO	185190	4989.	5.33	1571.	459.	185.	35.19
+	HYDROGRAPH AT	S190	2084.	4.58	391.	98.	33.	4.05
+	2 COMBINED AT	C190	5156.	5.25	1682.	488.	194.	39.24
+	ROUTED TO	190195	5055.	5.50	1674.	487.	194.	39.24
+	HYDROGRAPH AT	S195	1001.	4.67	203.	51.	17.	1.81
	2 COMBINED AT							

```
+                    C195      5107.    5.50        1722.        500.        198.      41.05
1                        SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    RR102
                   (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

PLAN  1 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION        1550.00           1556.00          1556.00
                              STORAGE              553.              2705.            2705.
                              OUTFLOW                0.               600.             600.

                RATIO     MAXIMUM      MAXIMUM     MAXIMUM     MAXIMUM     DURATION     TIME OF      TIME OF
                  OF     RESERVOIR     DEPTH       STORAGE     OUTFLOW     OVER TOP    MAX OUTFLOW   FAILURE
                 PMF      W.S.ELEV    OVER DAM      AC-FT        CFS        HOURS         HOURS       HOURS

                1.00      1552.61        .00        1386.       222.        .00          6.33         .00

PLAN  2 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION        1550.00           1556.00          1556.00
                              STORAGE              553.              2705.            2705.
                              OUTFLOW                0.               600.             600.

                RATIO     MAXIMUM      MAXIMUM     MAXIMUM     MAXIMUM     DURATION     TIME OF      TIME OF
                  OF     RESERVOIR     DEPTH       STORAGE     OUTFLOW     OVER TOP    MAX OUTFLOW   FAILURE
                 PMF      W.S.ELEV    OVER DAM      AC-FT        CFS        HOURS         HOURS       HOURS

                1.00      1552.59        .00        1380.       219.        .00          6.33         .00

PLAN  3 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION        1550.00           1556.00          1556.00
                              STORAGE              553.              2705.            2705.
                              OUTFLOW                0.               600.             600.

                RATIO     MAXIMUM      MAXIMUM     MAXIMUM     MAXIMUM     DURATION     TIME OF      TIME OF
                  OF     RESERVOIR     DEPTH       STORAGE     OUTFLOW     OVER TOP    MAX OUTFLOW   FAILURE
                 PMF      W.S.ELEV    OVER DAM      AC-FT        CFS        HOURS         HOURS       HOURS

                1.00      1552.23        .00        1236.       163.        .00          6.58         .00

PLAN  4 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION        1550.00           1556.00          1556.00
                              STORAGE              553.              2705.            2705.
                              OUTFLOW                0.               600.             600.

                RATIO     MAXIMUM      MAXIMUM     MAXIMUM     MAXIMUM     DURATION     TIME OF      TIME OF
                  OF     RESERVOIR     DEPTH       STORAGE     OUTFLOW     OVER TOP    MAX OUTFLOW   FAILURE
                 PMF      W.S.ELEV    OVER DAM      AC-FT        CFS        HOURS         HOURS       HOURS

                1.00      1551.78        .00        1083.       114.        .00          6.75         .00

PLAN  5 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION        1550.00           1556.00          1556.00
                              STORAGE              553.              2705.            2705.
                              OUTFLOW                0.               600.             600.

                RATIO     MAXIMUM      MAXIMUM     MAXIMUM     MAXIMUM     DURATION     TIME OF      TIME OF
                  OF     RESERVOIR     DEPTH       STORAGE     OUTFLOW     OVER TOP    MAX OUTFLOW   FAILURE
                 PMF      W.S.ELEV    OVER DAM      AC-FT        CFS        HOURS         HOURS       HOURS

                1.00      1551.06        .00         868.        68.        .00          6.75         .00

*** NORMAL END OF HEC-1 ***
```

```
1****************************************                    ****************************************
*                                      *                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *   U.S. ARMY CORPS OF ENGINEERS       *
*              JUN   1998              *                    *   HYDROLOGIC ENGINEERING CENTER      *
*            VERSION 4.1               *                    *         609 SECOND STREET            *
*                                      *                    *      DAVIS, CALIFORNIA 95616         *
*  RUN DATE   19APR06  TIME  16:21:25  *                    *          (916) 756-1104              *
*                                      *                    *                                      *
****************************************                    ****************************************

                                    X     X  XXXXXXX   XXXXX          X
                                    X     X  X        X     X        XX
                                    X     X  X        X              X
                                    XXXXXXX  XXXX     X        XXXXX  X
                                    X     X  X        X              X
                                    X     X  X        X     X        X
                                    X     X  XXXXXXX   XXXXX        XXX

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                          HEC-1 INPUT                                          PAGE  1

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

        1           ID      HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
        2           ID     - WAGNER SUB-AREA
        3           ID     - ALTERNATIVE A
        4           ID
        5           ID  Alternative Description
        6           ID  The main design objective of the A Alternative is to allow the
        7           ID  natural geomorphic processes to occur within a designated active
        8           ID  area downstream of the apex.  The objective then is to control
        9           ID  the flow path downstream of the region of uncertainty.  The flows
       10           ID  will be captured in the up-fan area by excavated collector channels
       11           ID  and/or diversion levees.  Once collected, the flows are routed
       12           ID  downstream using leveed corridors similar to the B alternatives.
       13           ID
       14           ID
       15           ID   SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
       16           ID   JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
       17           ID   MODELER: TED LEHMAN
       18           ID   FILENAME: A4_EX24.DAT
       19           ID
       20           ID   100-YEAR 24-HOUR MODEL
       21           ID   EXISTING CONDITIONS
       22           ID   AREA 4 WATERSHED AREA = 90.5 SQ. MILES
       23           ID            MODELED AREA = 76.8 SQ. MILES
       24           ID
       25           ID   GREEN-AMPT LOSS METHOD
       26           ID   S-GRAPH UNIT HYDROGRAPHS
       27           ID     - MOUNTAIN
       28           ID     - DESERT/RANGELAND
       29           ID   NORMAL-DEPTH CHANNEL ROUTING
       30           ID   LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
       31           ID     - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
       32           ID     - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
       33           ID     - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
       34           ID   SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)
       35           IT       5  1JAN99    1200    2000
       36           IN      15
       37           IO       5
                    *DIAGRAM
                    *
       38           JD   4.198  0.1000
       39           PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
       40           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
       41           PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
       42           PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.172
       43           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
       44           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
       45           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
       46           PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
       47           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
       48           PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
       49           JD   3.990    10.0
       50           JD   3.780    30.0
       51           JD   3.654    60.0
       52           JD   3.578    90.0
                    *
1                                          HEC-1 INPUT                                          PAGE  2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  53          KK    S100   BASIN
  54          KM        Compute runoff from subbasin 100
  55          BA   6.994
  56          LG    0.35     0.38     6.40     0.16        0
  57          UI     449      455      964     1717     2422     3046     3616     4050     4275     4281
  58          UI    4178     3867     3211     2766     2319     1968     1698     1387     1198      990
  59          UI     848      715      635      476      471      313      309      309      204      110
  60          UI     109      111      110      109      111      109      110      111        0        0
              *

  61          KK    S102   BASIN
  62          KM        Compute runoff from subbasin 102
  63          BA   3.234
  64          LG    0.35     0.38     5.60     0.22        0
  65          UI     333      657     1539     2292     2943     3178     3083     2643     1985     1523
  66          UI    1179      890      674      542      377      300      232      193       81       82
  67          UI      81       81       83        0        0        0        0        0        0        0
              *

  68          KK    C102 COMBINE
  69          KM        Combine total inflow to detention area behind (north) of CAP Canal
  70          HC       2
              *

  71          KK   RR102 STORAGE
  72          KM        Route flows through storage area behind CAP Canal
  73          KM        Stage-storage-discharge data from Wagner Wash FDS Hydrology (1991)
  74          KO
  75          RS       1     STOR       -1
  76          SV           553.00 1148.00 2316.00 2705.00
  77          SQ                  128.00  587.00  600.00
  78          SE  1543.0 1550.00 1552.00 1555.00 1556.00
  79          ST  1556.0  1320.0      3.2      1.5
              *

  80          KK    D102  DIVERT
  81          KM        Divide flow evenly over the two 18-foot wide CAP overchutes
  82          KM        although the inverts are 0.5 feet different in elevation
  83          DT    CF02      0.0      0.0
  84          DI     0.0    100.0   1000.0 10000.0      0.0      0.0      0.0      0.0      0.0      0.0
  85          DQ     0.0     50.0    500.0  5000.0      0.0      0.0      0.0      0.0      0.0      0.0
              *

  86          KK  100105   ROUTE
  87          KM        Route outflows from east CAP overchute to Sun Valley Parkway.
  88          RS       9     FLOW      -1
  89          RC   0.035    0.055    0.035    11235   0.0045   105.00
  90          RX    0.00   120.00   240.00   250.00   590.00   600.00   720.00   840.00
  91          RY  105.00   102.50   100.00   100.00   100.00   100.00   102.50   105.00
              *
1                                          HEC-1 INPUT                                          PAGE  3

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  92          KK    S105   BASIN
  93          KM        Compute runoff from subbasin 105
  94          BA   4.370
  95          LG    0.35     0.35     4.80     0.30        0
  96          UI     345      380     1112     1723     2334     2867     3143     3344     3176     2865
  97          UI    2374     1903     1555     1291     1018      832      685      564      458      369
  98          UI     288      235      238      126       83       85       84       84       84       84
  99          UI      84        0        0        0        0        0        0        0        0        0
              *

 100          KK    CF02RETRIEVE
 101          KM        Retrieve flow from west CAP overchute.
 102          DR    CF02
              *

 103          KK  102105   ROUTE
 104          KM        Route retrieved flow from west overchute to C105.
 105          RS       6     FLOW      -1
 106          RC   0.045    0.050    0.045     7656   0.0065   104.00
 107          RX    0.00    40.00   120.00   130.00   250.00   260.00   340.00   380.00
 108          RY  104.00   102.00   101.00   100.00   100.00   101.00   102.00   104.00
              *

 109          KK   C105U COMBINE
 110          KM        Combine runoff from S105 with routed flow from 100105 and 102105
 111          KM        (CAP overchute flows). This is the total flow in Wagner Wash upstream
 112          KM        of Sun Valley Parkway.
 113          HC       3  14.598
              *

 114          KK    S110   BASIN
 115          KM        Compute runoff from subbasin 110
 116          BA   0.430
 117          LG    0.25     0.37     5.20     0.25        6
 118          UI      56      166      335      449      587      358      291      241      188      140
 119          UI     121       86       68       56       43       32       27       22       11       11
 120          UI      10       11       11        0        0        0        0        0        0        0
```

```
                *
121             KK  11015I   ROUTE
122             KM        Route flow from C105 through subbasin 110 to C115.
123             RS       2    FLOW      -1
124             RC   0.045   0.035   0.045    3783  0.0267  102.00
125             RX    0.00   50.00  100.00  110.00  120.00  130.00  180.00  230.00
126             RY  102.00  101.50  101.00  100.00  100.00  101.00  101.50  102.00
                *

127             KK  15I15R   ROUTE
128             KM        Route flows from split through S115 to C115.
129             RS       8    FLOW      -1
130             RC   0.035   0.030   0.035   14128  0.0151  105.00
131             RX    0.00   25.00   58.00   65.00   85.00   92.00  125.00  150.00
132             RY  105.00  102.50  102.00  100.00  100.00  102.00  102.50  105.00
                *
1                                          HEC-1 INPUT                                                    PAGE  4

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

133             KK    S115   BASIN
134             KM        Compute runoff from subbasin 115
135             BA   2.247
136             LG    0.32    0.35    4.80    0.30       2
137             UI     160     163     434     709     984    1212    1401    1530    1539    1465
138             UI    1351    1100     918     773     632     528     444     351     304     252
139             UI     203     170     140     110     110      85      39      39      40      39
140             UI      39      39      40      39       0       0       0       0       0       0
                *

141             KK    C115 COMBINE
142             KM        Combine runoff from S115 with routed flow.
143             HC       2   2.677
                *

144             KK  115120   ROUTE
145             KM        Route total flows from C115 to C120. Slope =(1532-1494) / 4077
146             RS       2    FLOW      -1
147             RC   0.030   0.025   0.030    4077  0.0093  105.00
148             RX    0.00   30.00   75.00   80.00  105.00  110.00  155.00  190.00
149             RY  105.00  101.50  101.00  100.00  100.00  101.00  101.50  105.00
                *

150             KK    S120   BASIN
151             KM        Compute runoff from subbasin 120
152             BA   2.004
153             LG    0.33    0.35    4.65    0.32       1
154             UI     206     408     954    1419    1824    1969    1911    1637    1230     944
155             UI     731     551     418     336     234     186     143     120      50      51
156             UI      50      51      51       0       0       0       0       0       0       0
                *

157             KK    C120 COMBINE
158             KM        Combine flows at Wagner Wash at outlet of channel along SVP
159             HC       2   4.681
                *

160             KK   C105D COMBINE
161             KM        Combine flows from C105 and C120 just D/S of Sun Valley Parkway
162             HC       2  19.279
                *

163             KK  120135   ROUTE
164             KM        Route flows in Wagner Wash from Sun Valley Parkway to C135.
165             RS       1    FLOW      -1
166             RC   0.045   0.035   0.045     951  0.0074  110.00
167             RX    0.00  225.00  450.00  455.00  485.00  490.00  615.00  840.00
168             RY  110.00  105.00  102.00  100.00  100.00  102.00  102.00  110.00
                *
1                                          HEC-1 INPUT                                                    PAGE  5

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

169             KK    S125   BASIN
170             KM        Compute runoff from subbasin 125
171             BA   0.093
172             LG    0.25    0.35    4.15    0.44       5
173             UI      46     164     204     116      73      46      28      17      12       4
174             UI       5       4       0       0       0       0       0       0       0       0
                *

175             KK   R125A   ROUTE
176             KM    ROUTE FLOW FROM APEX 13E ACROSS ACTIVE AREA TO PROPOSED CHANNEL
177             KM    SLOPE = (1754-1684) / 2620
178             RS       2    FLOW      -1
179             RC   0.045   0.045   0.045    2620  0.027
180             RX       0     100     200     300     400     500     600     700
181             RY     104     103     102     100     100     102     103     104
                *

182             KK  12535I   ROUTE
183             KM   PROPOSED CHANNEL
```

```
184          KM        Route flows from S125 to intermediate combination point in S135.
185          KM     STRUCTURE ID(s): C135L10-A
186          KM     Slope=(1684.0 - 1601.3) / 3964.3
187          RS       3    FLOW      -1
188          RC   0.045   0.045   0.045  3964.30.020881   104.0
189          RX     0.0    12.0    12.0    12.0   152.0   152.0   152.0   164.0
190          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

191          KK    S130   BASIN
192          KM        Compute runoff from subbasin 130
193          BA   0.310
194          LG    0.21    0.35    4.20    0.43       4
195          UI      61     239     399     514     313     240     176     128      94      64
196          UI      49      36      26      19      10      10      10      10       0       0
             *

197          KK   R130A   ROUTE
198          KM    ROUTE FLOW FROM APEX 13W ACROSS ACTIVE AREA TO PROPOSED CHANNEL
199          KM    SLOPE = (1728-1660) / 2600
200          RS       2    FLOW      -1
201          RC   0.045   0.045   0.045    2600   0.026
202          RX       0     100     200     300     400     500     600     700
203          RY     104     103     102     100     100     102     103     104
             *

204          KK  13035I   ROUTE
205          KM   PROPOSED CHANNEL
206          KM        Route flow to intermediate point in S135.
207          KM    STRUCTURE ID(s): S13010
208          KM    Slope=(1664.8 - 1601.4) / 3433.0
209          RS       2    FLOW      -1
210          RC   0.045   0.045   0.045  3433.00.018465   104.0
211          RX     0.0    12.0    12.0    12.0   112.0   112.0   112.0   124.0
212          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

213          KK   C135I COMBINE
214          KM        Combine routed flow from RR130 and RR125
215          HC       2    1.18
             *

216          KK  35I135   ROUTE
217          KM   PROPOSED CHANNEL
218          KM        Route combined flows to C135 at Wagner Wash.
219          KM    STRUCTURE ID(s): C135L30-A
220          KM    Slope=(1601.3 - 1496.9) / 7571.7
221          RS       5    FLOW      -1
222          RC   0.045   0.045   0.045  7571.70.013786   104.5
223          RX     0.0    13.5    13.5    13.5   273.5   273.5   273.5   287.0
224          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

225          KK    S135   BASIN
226          KM        Compute runoff from subbasin 135
227          BA   0.879
228          LG    0.35    0.35    4.25    0.42       0
229          UI     115     362     709     992    1126     989     736     527     370     260
230          UI     194     128      89      76      28      28      29      28       0       0
             *

231          KK   C135L COMBINE
232          KM        Combine all piedmont runoff inflow to Wagner Wash at C135
233          HC       2    2.06
             *

234          KK    C135 COMBINE
235          KM        Combine all flows in Wagner Wash at C135
236          HC       2
             *

237          KK  135145   ROUTE
238          KM        Route flow in Wagner Wash to C145.  Slope = (1487-1454) / 7938
239          RS       4    FLOW      -1
240          RC   0.045   0.035   0.045    7938  0.0042  110.00
241          RX    0.00  300.00  400.00  406.00  506.00  512.00  612.00  912.00
242          RY  110.00  102.50  102.00  100.00  100.00  102.00  102.50  110.00
             *

243          KK    S140   BASIN
244          KM        Compute runoff from subbasin 140
245          BA   1.373
246          LG    0.35    0.36    5.00    0.28       0
247          UI     260    1034    1801    2168    1890    1235     809     517     339     211
248          UI     157      56      55      57       0       0       0       0       0       0
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
249          KK  140145   ROUTE
250          KM        Route runoff from S140 to C145 at Wagner Wash.
251          RS       3    FLOW      -1
252          RC   0.040   0.050   0.040    3656  0.0074  103.00
253          RX    0.00   70.00  140.00  150.00  250.00  260.00  330.00  400.00
254          RY  102.00  101.00  100.00  100.00  100.00  100.00  101.00  102.00
             *

255          KK    S145   BASIN
256          KM        Compute runoff from subbasin 145
257          BA   1.756
258          LG    0.35    0.35    4.15    0.44       0
259          UI     226     672    1369    1903    2167    2003    1508    1085     777     544
260          UI     399     279     198     157      80      55      56      54      55       0
             *

261          KK    C145 COMBINE
262          KM        Combine all flows in Wagner Wash at C145
263          HC       3
             *

264          KK  145155   ROUTE
265          KM        Route flows in Wagner Wash form C145 to C155. Slope = (1454-1452)/631
266          RS       1    FLOW      -1
267          RC   0.045   0.035   0.055     631  0.0032  110.00
268          RX    0.00  150.00  300.00  309.00  379.00  388.00  538.00  838.00
269          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

270          KK    S150   BASIN
271          KM        Compute runoff from subbasin 150
272          BA   0.774
273          LG    0.25    0.35    4.65    0.32       7
274          UI      71     115     270     425     531     672     746     480     406     356
275          UI     312     262     212     181     159     132     106      89      77      65
276          UI      54      47      35      35      35      14      14      13      14      14
277          UI      13      14      14       0       0       0       0       0       0       0
             *

278          KK   R150A   ROUTE
279          KM    ROUTE FLOW FROM APEX 3 ACROSS ACTIVE AREA TO PROPOSED CHANNELS
280          KM    SLOPE = (1812-1680) / 4100
281          RS       3    FLOW      -1
282          RC   0.045   0.045   0.045    4100   0.032
283          RX       0     100     200     300     400     500     600     700
284          RY     104     103     102     100     100     102     103     104
             *

285          KK  150155   ROUTE
286          KM   PROPOSED CHANNEL
287          KM    ROUTE OUTFLOW FROM S150 THRU S155
288          KM    STRUCTURE ID(s): C155L10
289          KM    Slope=(1682.1 - 1451.9) / 13819.3
290          RS       9    FLOW      -1
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

291          RC   0.045   0.045   0.045 13819.30.016662   104.0
292          RX     0.0    12.0    12.0    12.0   362.0   362.0   362.0   374.0
293          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

294          KK    S155   BASIN
295          KM        Compute runoff from subbasin 155
296          BA   1.832
297          LG    0.35    0.35    4.50    0.36       1
298          UI     187     361     846    1266    1637    1771    1735    1497    1161     879
299          UI     681     519     385     314     228     181     130     126      46      46
300          UI      45      46      46      45       0       0       0       0       0       0
             *

301          KK   C155L COMBINE
302          KM        Combine flows from Fan 3 with runoff from S155 at Wagner Wash
303          HC       2
             *

304          KK    C155 COMBINE
305          KM        Combine all flows at Wagner Wash at C155
306          HC       2
             *

307          KK  155160   ROUTE
308          KM        Route flow in Wagner Wash to C160 (Sun Valley Parkway).
309          RS       5    FLOW      -1
310          RC   0.035   0.035   0.035    2291  0.0052  110.00
311          RX    0.00  200.00  400.00  406.00  506.00  512.00  712.00  912.00
312          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

313          KK    S160   BASIN
314          KM        Compute runoff from subbasin 160
315          BA   1.144
316          LG    0.35    0.35    4.00    0.47       0
317          UI     165     599    1121    1501    1557    1233     844     593     394     281
```

```
318          UI     190     122      93      40      40      40      41       0       0       0
             *

319          KK    C160 COMBINE
320          KM        Combine flows at Sun Valley Parkway
321          HC       2   27.44
             *

322          KK  160170   ROUTE
323          KM        Route flows from Sun Valley Parkway to C170R. Slope = (1440-1410)/5248
324          RS       3    FLOW      -1
325          RC   0.040   0.030   0.040    5248  0.0057  108.00
326          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
327          RY  108.00  103.00  102.00  100.00  100.00  102.00  103.00  108.00
             *
1                                          HEC-1 INPUT                                          PAGE  9

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

328          KK    S165   BASIN
329          KM        Compute runoff from subbasin 165
330          BA   0.616
331          LG    0.30    0.35    4.55    0.35       3
332          UI     121     477     809    1022     617     474     347     254     185     127
333          UI      96      69      52      36      20      20      20      20       0       0
             *

334          KK   R165A   ROUTE
335          KM    ROUTE FLOW FROM APEX at OUTLET of S165 ACROSS ACTIVE AREA TO PROPOSED CHANNE
336          KM    SLOPE = (1676-1580) / 4700
337          RS       3    FLOW      -1
338          RC   0.045   0.045   0.045    4700    0.02
339          RX       0     100     200     300     400     500     600     700
340          RY     104     103     102     100     100     102     103     104
             *

341          KK  165170   ROUTE
342          KM   PROPOSED CHANNEL
343          KM    ROUTE OUTFLOW FROM ACTIVE AREA BELOW S165
344          KM    TO SUN VALLEY PARKWAY IN NEW CHANNEL THRU S175
345          KM    STRUCTURE ID(s): S17010, S17020
346          KM    Slope=(1580.6 - 1462.8) / 9433.0
347          RS       6    FLOW      -1
348          RC   0.045   0.045   0.045  9433.00.012489   104.5
349          RX     0.0    13.5    13.5    13.5   313.5   313.5   313.5   327.0
350          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

351          KK    S170   BASIN
352          KM        Compute runoff from subbasin 170
353          BA   1.464
354          LG    0.35    0.35    4.40    0.38       0
355          UI     209     755    1427    1917    1973    1590    1086     762     513     360
356          UI     246     160     123      52      51      51      52       0       0       0
             *

357          KK    C170
358          KM    COMBINE RUNOFF FROM S170 WITH ROUTED FLOW FROM S165 AT SUN VALLEY PARKWAY
359          HC       2
             *

360          KK    170R   ROUTE
361          KM   PROPOSED CHANNEL
362          KM    STRUCTURE ID(s): 170R10
363          KM    Slope=(1462.8 - 1408.0) / 3986.4
364          RS       3    FLOW      -1
365          RC   0.045   0.045   0.045  3986.40.013735   103.5
366          RX     0.0    21.0    46.0    66.0   166.0   186.0   211.0   228.5
367          RY   103.5   100.0   100.0    96.0    96.0   100.0   100.0   103.5
             *
1                                          HEC-1 INPUT                                          PAGE 10

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

368          KK   C170R COMBINE
369          KM        Combine routed flows from S170 and C160 in Wagner Wash
370          HC       2
             *

371          KK  170180   ROUTE
372          KM        Route flows in Wagner Wash to C180R.  Slope = (1410-1366) / 6770
373          RS       4    FLOW      -1
374          RC   0.045   0.035   0.045    6770  0.0065  110.00
375          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
376          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *

377          KK    S175   BASIN
378          KM        Compute runoff from subbasin 175
379          BA   1.802
380          LG    0.29    0.35    4.50    0.36       1
381          UI     126     127     317     525     763     877    1013    1295    1376     895
382          UI     771     703     622     572     507     439     372     318     296     274
```

```
383     UI    227    192    163    148    138    116     96     97     73     62
384     UI     62     63     55     24     25     24     24     24     24     25
385     UI     24     24     24     25      0      0      0      0      0      0
        *

386     KK   175R   ROUTE
387     KM   PROPOSED CHANNEL
388     KM        Route runoff from S175 to intermediate point in S190 (C180RI).
389     KM    STRUCTURE ID(s): RR17510
390     KM    Slope=(1462.9 - 1413.1) / 3035.2
391     RS       2    FLOW      -1
392     RC   0.045   0.045   0.045  3035.20.016393   104.5
393     RX     0.0    13.5    13.5    13.5   293.5   293.5   293.5   307.0
394     RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
        *

395     KK    S180   BASIN
396     KM        Compute runoff from subbasin 180
397     BA   1.443
398     LG    0.25    0.35    4.25    0.42       2
399     UI     107     108     311     490     677     785     927    1258     896     684
400     UI     622     547     497     440     379     315     275     250     228     185
401     UI     154     138     120     115      82      83      73      52      53      52
402     UI      50      21      20      21      20      21      21      20      21      21
403     UI      20       0       0       0       0       0       0       0       0       0
        *

404     KK    180R   ROUTE
405     KM   PROPOSED CHANNEL
406     KM        Route runoff from S180 to intermediate point in S190 (C180RI).
407     KM    STRUCTURE ID(s): S18010, RR18010
408     KM    Slope=(1531.6 - 1413.1) / 7990.1
409     RS       2    FLOW      -1
410     RC   0.045   0.045   0.045  7990.1 0.01483   104.5
411     RX     0.0    13.5    13.5    13.5   193.5   193.5   193.5   207.0
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

412     RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
        *

413     KK  C180RI COMBINE
414     KM        Combine routed flows from S175 and S180
415     HC       2
        *

416     KK  RI180R   ROUTE
417     KM   PROPOSED CHANNEL
418     KM    STRUCTURE ID(s): C180R10
419     KM    Slope=(1413.1 - 1367.6) / 3720.6
420     RS       3    FLOW      -1
421     RC   0.045   0.045   0.045  3720.60.012229   104.5
422     RX     0.0    13.5    13.5    13.5   373.5   373.5   373.5   387.0
423     RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
        *

424     KK   C180R COMBINE
425     KM        Combine flows in Wagner Wash
426     HC       2
        *

427     KK  180185   ROUTE
428     KM        Route flows in Wagner Wash from C180R to C185R.
429     RS       3    FLOW      -1
430     RC   0.045   0.035   0.045  3450.0  0.0075   106.0
431     RX     0.0   100.0   200.0   206.0   406.0   412.0   512.0   612.0
432     RY   106.0   104.0   102.0   100.0   100.0   102.0   104.0   106.0
        *

433     KK    S185   BASIN
434     KM        Compute runoff from subbasin 185
435     BA   2.421
436     LG    0.16    0.35    4.35    0.40       1
437     UI     165     166     391     668     960    1130    1281    1613    1908    1239
438     UI    1060     936     847     785     677     614     534     438     399     375
439     UI     338     271     230     210     183     183     133     126     127      85
440     UI      80      82      81      67      32      31      32      32      31      32
441     UI      32      31      32      32      32       0       0       0       0       0
        *

442     KK    185R   ROUTE
443     KM        Route runoff from S185 to Wagner Wash.  Slope = (1442-1340) / 8534
444     RS       5    FLOW      -1
445     RC   0.045   0.035   0.045    8534  0.0120   104.00
446     RX    0.00   30.00  100.00  106.00  156.00  162.00  232.00  262.00
447     RY  104.00  102.00  102.00  100.00  100.00  102.00  102.00  104.00
        *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

448     KK   C185R COMBINE
449     KM        Combine flows in Wagner Wash
```

```
450          HC       2
             *

451          KK  185190   ROUTE
452          KM        Route flow in Wagner Wash to C190.  Slope = (1340-1308) / 2700
453          RS       2    FLOW      -1
454          RC   0.045   0.040   0.045    2700  0.0119  106.00
455          RX    0.00   80.00  160.00  166.00  416.00  422.00  502.00  582.00
456          RY  106.00  103.00  102.00  100.00  100.00  102.00  103.00  106.00
             *

457          KK    S190   BASIN
458          KM        Compute runoff from subbasin 190
459          BA   4.054
460          LG    0.35    0.35    3.81    0.44       0
461          UI     274     278     647    1125    1573    1918    2319    2540    2637    2574
462          UI    2467    2112    1787    1506    1256    1044     891     745     605     522
463          UI     432     370     293     266     188     191     188      78      68      66
464          UI      67      67      67      67      67      67       0       0       0       0
             *

465          KK    C190 COMBINE
466          KM        Combine all flow in Wagner Wash at C190
467          HC       2   39.24
             *

468          KK  190195   ROUTE
469          KM        Route flow from C190 to the Hassayampa River. Slope = (1308-1255)/4941
470          RS       2    FLOW      -1
471          RC   0.045   0.035   0.045    4941  0.0107  110.00
472          RX    0.00   50.00  200.00  206.00  356.00  366.00  516.00  566.00
473          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *

474          KK    S195   BASIN
475          KM        Compute runoff from subbasin 195
476          BA   1.808
477          LG    0.33    0.35    4.25    0.42       0
478          UI     107     108     188     366     523     660     786     925     975    1026
479          UI    1044     975     915     778     674     571     496     419     359     313
480          UI     260     223     202     165     146     115     114      76      74      74
481          UI      67      27      26      26      26      26      26      27      26      26
482          UI      27       0       0       0       0       0       0       0       0       0
             *

483          KK    C195 COMBINE
484          KM        Combine all flows in Wagner Wash at the Hassayampa River
485          HC       2   41.05
486          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    53        S100
                .
                .
    61          .        S102
                .           .
                .           .
    68        C102............
                V
                V
    71       RR102
                .
                .
    83          .------->    CF02
    80        D102
                V
                V
    86      100105
                .
                .
    92          .        S105
                .           .
                .           .
   102          .           .          .<-------    CF02
   100          .           .       CF02
                .           .          V
                .           .          V
   103          .           .     102105
                .           .          .
                .           .          .
   109       C105U......................
                .
                .
   114          .        S110
                .           V
                .           V
   121          .      11015I
                .           V
                .           V
   127          .      15I15R
```

```
                .           .
                .           .
133             .           .        S115
                .           .           .
                .           .           .
141             .       C115.............
                .           V
                .           V
144             .     115120
                .           .
                .           .
150             .           .        S120
                .           .           .
                .           .           .
157             .       C120.............
                .           .
                .           .
160         C105D............
                V
                V
163         120135
                .
                .
169             .        S125
                .           V
                .           V
175             .       R125A
                .           V
                .           V
182             .     12535I
                .           .
                .           .
191             .           .        S130
                .           .           V
                .           .           V
197             .           .       R130A
                .           .           V
                .           .           V
204             .           .     13035I
                .           .           .
                .           .           .
213             .       C135I............
                .           V
                .           V
216             .     35I135
                .           .
                .           .
225             .           .        S135
                .           .           .
                .           .           .
231             .       C135L............
                .           .
                .           .
234         C135............
                V
                V
237         135145
                .
                .
243             .        S140
                .           V
                .           V
249             .     140145
                .           .
                .           .
255             .           .        S145
                .           .           .
                .           .           .
261         C145........................
                V
                V
264         145155
                .
                .
270             .        S150
                .           V
                .           V
278             .       R150A
                .           V
                .           V
285             .     150155
                .           .
                .           .
294             .           .        S155
                .           .           .
                .           .           .
301             .       C155L............
                .           .
                .           .
304         C155............
                V
                V
307         155160
                .
                .
```

```
  313          .        S160
               .           .
               .           .
  319       C160............
               V
               V
  322     160170
               .
               .
  328          .        S165
               .           V
               .           V
  334          .       R165A
               .           V
               .           V
  341          .      165170
               .           .
               .           .
  351          .           .        S170
               .           .           .
               .           .           .
  357          .        C170............
               .           V
               .           V
  360          .        170R
               .           .
               .           .
  368      C170R............
               V
               V
  371     170180
               .
               .
  377          .        S175
               .           V
               .           V
  386          .        175R
               .           .
               .           .
  395          .           .        S180
               .           .           V
               .           .           V
  404          .           .        180R
               .           .           .
               .           .           .
  413          .      C180RI............
               .           V
               .           V
  416          .      RI180R
               .           .
               .           .
  424      C180R............
               V
               V
  427     180185
               .
               .
  433          .        S185
               .           V
               .           V
  442          .        185R
               .           .
               .           .
  448      C185R............
               V
               V
  451     185190
               .
               .
  457          .        S190
               .           .
               .           .
  465       C190............
               V
               V
  468     190195
               .
               .
  474          .        S195
               .           .
               .           .
  483       C195............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *           VERSION 4.1                *
 *                                      *
 *  RUN DATE   19APR06  TIME  16:21:25  *
 *                                      *
 ****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
- WAGNER SUB-AREA
- ALTERNATIVE A

Alternative Description
The main design objective of the A Alternative is to allow the
natural geomorphic processes to occur within a designated active
area downstream of the apex.  The objective then is to control
the flow path downstream of the region of uncertainty.  The flows
will be captured in the up-fan area by excavated collector channels
and/or diversion levees.  Once collected, the flows are routed
downstream using leveed corridors similar to the B alternatives.

SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
MODELER: TED LEHMAN
FILENAME: A4_EX24.DAT

100-YEAR 24-HOUR MODEL
EXISTING CONDITIONS
AREA 4 WATERSHED AREA = 90.5 SQ. MILES
       MODELED AREA = 76.8 SQ. MILES

GREEN-AMPT LOSS METHOD
S-GRAPH UNIT HYDROGRAPHS
  - MOUNTAIN
  - DESERT/RANGELAND
NORMAL-DEPTH CHANNEL ROUTING
LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
  - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
  - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
  - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)

37 IO        OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT        HYDROGRAPH TIME DATA
                 NMIN          5  MINUTES IN COMPUTATION INTERVAL
                IDATE     1JAN99  STARTING DATE
                ITIME       1200  STARTING TIME
                   NQ       2000  NUMBER OF HYDROGRAPH ORDINATES
               NDDATE     8JAN99  ENDING DATE
               NDTIME       1035  ENDING TIME
                ICENT         19  CENTURY MARK

            COMPUTATION INTERVAL     .08 HOURS
                 TOTAL TIME BASE  166.58 HOURS

      ENGLISH UNITS
           DRAINAGE AREA          SQUARE MILES
           PRECIPITATION DEPTH    INCHES
           LENGTH, ELEVATION      FEET
           FLOW                   CUBIC FEET PER SECOND
           STORAGE VOLUME         ACRE-FEET
           SURFACE AREA           ACRES
           TEMPERATURE            DEGREES FAHRENHEIT

38 JD        INDEX STORM NO. 1
                STRM        4.20  PRECIPITATION DEPTH
                TRDA         .10  TRANSPOSITION DRAINAGE AREA

39 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
```

```
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

49 JD         INDEX STORM NO. 2
                STRM        3.99  PRECIPITATION DEPTH
                TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

50 JD         INDEX STORM NO. 3
                STRM        3.78  PRECIPITATION DEPTH
                TRDA       30.00  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

51 JD         INDEX STORM NO. 4
                STRM        3.65  PRECIPITATION DEPTH
                TRDA       60.00  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
```

```
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

 52 JD        INDEX STORM NO. 5
                STRM        3.58  PRECIPITATION DEPTH
                TRDA       90.00  TRANSPOSITION DRAINAGE AREA

  0 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
  71 KK     *     RR102  *      STORAGE
            *            *
            **************

  74 KO          OUTPUT CONTROL VARIABLES
                 IPRNT          5  PRINT CONTROL
                 IPLOT          0  PLOT CONTROL
                 QSCAL         0.  HYDROGRAPH PLOT SCALE
1
                                        RUNOFF SUMMARY
                                   FLOW IN CUBIC FEET PER SECOND
                                TIME IN HOURS,  AREA IN SQUARE MILES

                                          PEAK   TIME OF    AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN    MAXIMUM    TIME OF
          OPERATION        STATION        FLOW    PEAK                                          AREA     STAGE    MAX STAGE
+                                                          6-HOUR     24-HOUR     72-HOUR

          HYDROGRAPH AT
+                           S100         5214.   12.58       965.        241.         80.      6.99
          HYDROGRAPH AT
+                           S102         3434.   12.33       420.        105.         35.      3.23
          2 COMBINED AT
+                           C102         7803.   12.42      1367.        342.        114.     10.23
          ROUTED TO
+                          RR102          149.   14.42       141.        119.         82.     10.23
          DIVERSION TO
+                           CF02           75.   14.42        71.         59.         41.     10.23
          HYDROGRAPH AT
+                           D102           75.   14.42        71.         59.         41.     10.23
          ROUTED TO
+                         100105           70.   20.33        67.         58.         41.     10.23
          HYDROGRAPH AT
```

+		S105	3466.	12.50	531.	133.	44.	4.37
+	HYDROGRAPH AT	CF02	75.	14.42	71.	59.	41.	10.23
+	ROUTED TO	102105	74.	15.67	70.	59.	41.	10.23
+	3 COMBINED AT	C105U	3466.	12.50	587.	238.	125.	14.60
+	HYDROGRAPH AT	S110	532.	12.17	62.	16.	5.	.43
+	ROUTED TO	11015I	456.	12.42	62.	16.	5.	.43
+	ROUTED TO	15I15R	412.	12.75	62.	16.	5.	.43
+	HYDROGRAPH AT	S115	1693.	12.50	287.	73.	24.	2.25
+	2 COMBINED AT	C115	1937.	12.67	346.	89.	30.	2.68
+	ROUTED TO	115120	1900.	12.75	346.	89.	30.	2.68
+	HYDROGRAPH AT	S120	2032.	12.33	247.	62.	21.	2.00
+	2 COMBINED AT	C120	3202.	12.42	585.	149.	50.	4.68
+	2 COMBINED AT	C105D	6217.	12.42	1091.	359.	163.	19.28
+	ROUTED TO	120135	6220.	12.50	1091.	359.	163.	19.28
+	HYDROGRAPH AT	S125	161.	12.08	12.	3.	1.	.09
+	ROUTED TO	R125A	115.	12.25	12.	3.	1.	.09
+	ROUTED TO	12535I	70.	12.67	12.	3.	1.	.09
+	HYDROGRAPH AT	S130	415.	12.17	39.	10.	3.	.31
+	ROUTED TO	R130A	359.	12.25	39.	10.	3.	.31
+	ROUTED TO	13035I	302.	12.50	39.	10.	3.	.31
+	2 COMBINED AT	C135I	337.	12.50	50.	13.	4.	1.18
+	ROUTED TO	35I135	196.	13.33	49.	13.	4.	1.18
+	HYDROGRAPH AT	S135	1015.	12.25	99.	25.	8.	.88
+	2 COMBINED AT	C135L	1001.	12.25	146.	37.	12.	2.06
+	2 COMBINED AT	C135	6650.	12.42	1214.	389.	173.	21.34
+	ROUTED TO	135145	5883.	12.83	1202.	386.	172.	21.34
+	HYDROGRAPH AT	S140	2029.	12.17	172.	43.	14.	1.37
+	ROUTED TO	140145	1632.	12.42	172.	43.	14.	1.37
+	HYDROGRAPH AT	S145	1945.	12.25	193.	48.	16.	1.76
+	3 COMBINED AT	C145	6533.	12.75	1505.	461.	197.	24.47
+	ROUTED TO	145155	6539.	12.83	1505.	461.	197.	24.47
+	HYDROGRAPH AT	S150	729.	12.33	107.	29.	10.	.77

+	ROUTED TO	R150A	670.	12.50	107.	29.	10.	.77
+	ROUTED TO	150155	357.	13.75	107.	29.	10.	.77
+	HYDROGRAPH AT	S155	1781.	12.33	218.	55.	18.	1.83
+	2 COMBINED AT	C155L	1774.	12.33	318.	83.	28.	2.61
+	2 COMBINED AT	C155	7006.	12.75	1777.	530.	220.	27.07
+	ROUTED TO	155160	6982.	12.83	1775.	530.	220.	27.07
+	HYDROGRAPH AT	S160	1342.	12.17	124.	31.	10.	1.14
+	2 COMBINED AT	C160	7083.	12.83	1878.	555.	228.	27.44
+	ROUTED TO	160170	6945.	13.00	1868.	554.	228.	27.44
+	HYDROGRAPH AT	S165	842.	12.17	78.	20.	7.	.62
+	ROUTED TO	R165A	658.	12.42	78.	20.	7.	.62
+	ROUTED TO	165170	337.	13.25	78.	20.	7.	.62
+	HYDROGRAPH AT	S170	1802.	12.17	169.	42.	14.	1.46
+	2 COMBINED AT	C170	1792.	12.17	245.	62.	21.	2.08
+	ROUTED TO	170R	1729.	12.33	244.	62.	21.	2.08
+	2 COMBINED AT	C170R	7135.	13.00	2070.	605.	245.	29.52
+	ROUTED TO	170180	7015.	13.25	2055.	603.	245.	29.52
+	HYDROGRAPH AT	S175	1278.	12.50	217.	55.	18.	1.80
+	ROUTED TO	175R	1198.	12.67	217.	55.	18.	1.80
+	HYDROGRAPH AT	S180	1039.	12.50	171.	44.	15.	1.44
+	ROUTED TO	180R	744.	12.83	170.	44.	15.	1.44
+	2 COMBINED AT	C180RI	1835.	12.67	382.	97.	32.	3.24
+	ROUTED TO	RI180R	1740.	12.83	381.	97.	32.	3.24
+	2 COMBINED AT	C180R	8167.	13.17	2374.	683.	271.	32.76
+	ROUTED TO	180185	8155.	13.25	2367.	681.	271.	32.76
+	HYDROGRAPH AT	S185	1655.	12.50	288.	73.	24.	2.42
+	ROUTED TO	185R	1411.	12.92	287.	73.	24.	2.42
+	2 COMBINED AT	C185R	9110.	13.17	2598.	740.	290.	35.19
+	ROUTED TO	185190	9090.	13.25	2593.	739.	290.	35.19
+	HYDROGRAPH AT	S190	2590.	12.58	448.	112.	37.	4.05
+	2 COMBINED AT	C190	9871.	13.17	2935.	827.	320.	39.24
+	ROUTED TO	190195	9742.	13.33	2927.	827.	320.	39.24

```
        HYDROGRAPH AT
+                       S195      1039.   12.67        202.        51.        17.       1.81

        2 COMBINED AT
+                       C195     10103.   13.25       3081.       866.       333.      41.05
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    RR102
                        (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)
```

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.28	.00	1258.	171.	.00	14.42	.00

PLAN 2 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.14	.00	1204.	150.	.00	14.42	.00

PLAN 3 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.00	.00	1149.	128.	.00	14.50	.00

PLAN 4 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1551.89	.00	1115.	121.	.00	14.50	.00

PLAN 5 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1551.82	.00	1095.	117.	.00	14.50	.00

*** NORMAL END OF HEC-1 ***

```
1****************************************                                    ****************************************
 *                                      *                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *   U.S. ARMY CORPS OF ENGINEERS       *
 *              JUN   1998              *                                    *   HYDROLOGIC ENGINEERING CENTER      *
 *            VERSION 4.1               *                                    *         609 SECOND STREET            *
 *                                      *                                    *      DAVIS, CALIFORNIA 95616         *
 *  RUN DATE   19APR06  TIME  16:26:36  *                                    *          (916) 756-1104              *
 *                                      *                                    *                                      *
 ****************************************                                    ****************************************

                                                X     X  XXXXXXX   XXXXX           X
                                                X     X  X        X     X         XX
                                                X     X  X        X                X
                                                XXXXXXX  XXXX     X        XXXXX   X
                                                X     X  X        X                X
                                                X     X  X        X     X          X
                                                X     X  XXXXXXX   XXXXX         XXX

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                                HEC-1 INPUT                                                    PAGE  1

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

        1           ID    HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
        2           ID     - WAGNER SUB-AREA
        3           ID     - ALTERNATIVE B2
        4           ID
        5           ID   Alternative Description
        6           ID   The purpose of Alternative B is to capture the upstream flow at the
        7           ID   apex using online detention basins.  The presence of the detention
        8           ID   basins eliminates the downstream alluvial fan uncertainties by
        9           ID   controlling the flow from the apices to the outfall.  Alternative B2
       10           ID   is based on using a relatively smaller on-line detention basin at the
       11           ID   apex accompanied by larger leveed channel sections in the down fan
       12           ID   direction.
       13           ID
       14           ID
       15           ID   SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
       16           ID   JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
       17           ID   MODELER: TED LEHMAN
       18           ID   FILENAME: A4_EX6.DAT
       19           ID
       20           ID   100-YEAR 6-HOUR MODEL
       21           ID   EXISTING CONDITIONS
       22           ID   AREA 4 WATERSHED AREA = 90.5 SQ. MILES
       23           ID           MODELED AREA = 76.8 SQ. MILES
       24           ID
       25           ID   GREEN-AMPT LOSS METHOD
       26           ID   S-GRAPH UNIT HYDROGRAPHS
       27           ID     - MOUNTAIN
       28           ID     - DESERT/RANGELAND
       29           ID   NORMAL-DEPTH CHANNEL ROUTING
       30           ID   LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
       31           ID     - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
       32           ID     - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
       33           ID     - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
       34           ID   SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)
       35           IT       5  1JAN99    1200    2000
       36           IN      15
       37           IO       5
                    *DIAGRAM
                    *
       38           JD   3.196  0.1000
       39           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
       40           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
       41           PC   0.962   0.972   0.983   0.991   1.000
       42           JD   3.181  0.5000
       43           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
       44           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
       45           PC   0.962   0.972   0.983   0.991   1.000
       46           JD   3.120     2.8
       47           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
       48           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
       49           PC   0.950   0.963   0.975   0.988   1.000
       50           JD   2.950    16.0
       51           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
       52           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
       53           PC   0.946   0.960   0.973   0.987   1.000
1                                                HEC-1 INPUT                                                    PAGE  2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  54          JD   2.592    90.0
  55          PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
  56          PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
  57          PC   0.927   0.945   0.964   0.982   1.000
              *

  58          KK    S100   BASIN
  59          KM        Compute runoff from subbasin 100
  60          BA   6.994
  61          LG    0.35    0.38    6.40    0.16       0
  62          UI     449     455     964    1717    2422    3046    3616    4050    4275    4281
  63          UI    4178    3867    3211    2766    2319    1968    1698    1387    1198     990
  64          UI     848     715     635     476     471     313     309     309     204     110
  65          UI     109     111     110     109     111     109     110     111       0       0
              *

  66          KK    S102   BASIN
  67          KM        Compute runoff from subbasin 102
  68          BA   3.234
  69          LG    0.35    0.38    5.60    0.22       0
  70          UI     333     657    1539    2292    2943    3178    3083    2643    1985    1523
  71          UI    1179     890     674     542     377     300     232     193      81      82
  72          UI      81      81      83       0       0       0       0       0       0       0
              *

  73          KK    C102 COMBINE
  74          KM        Combine total inflow to detention area behind (north) of CAP Canal
  75          HC       2
              *

  76          KK   RR102 STORAGE
  77          KM        Route flows through storage area behind CAP Canal
  78          KM        Stage-storage-discharge data from Wagner Wash FDS Hydrology (1991)
  79          KO
  80          RS       1    STOR      -1
  81          SV          553.00 1148.00 2316.00 2705.00
  82          SQ                  128.00  587.00  600.00
  83          SE  1543.0 1550.00 1552.00 1555.00 1556.00
  84          ST  1556.0  1320.0     3.2     1.5
              *

  85          KK    D102  DIVERT
  86          KM        Divide flow evenly over the two 18-foot wide CAP overchutes
  87          KM        although the inverts are 0.5 feet different in elevation
  88          DT    CF02     0.0     0.0
  89          DI     0.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0     0.0
  90          DQ     0.0    50.0   500.0  5000.0     0.0     0.0     0.0     0.0     0.0     0.0
              *

  91          KK  100105   ROUTE
  92          KM        Route outflows from east CAP overchute to Sun Valley Parkway.
  93          RS       9    FLOW      -1
  94          RC   0.035   0.055   0.035   11235  0.0045  105.00
  95          RX    0.00  120.00  240.00  250.00  590.00  600.00  720.00  840.00
  96          RY  105.00  102.50  100.00  100.00  100.00  100.00  102.50  105.00
              *
```

1 HEC-1 INPUT PAGE 3

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  97          KK    S105   BASIN
  98          KM        Compute runoff from subbasin 105
  99          BA   4.370
 100          LG    0.35    0.35    4.80    0.30       0
 101          UI     345     380    1112    1723    2334    2867    3143    3344    3176    2865
 102          UI    2374    1903    1555    1291    1018     832     685     564     458     369
 103          UI     288     235     238     126      83      85      84      84      84      84
 104          UI      84       0       0       0       0       0       0       0       0       0
              *

 105          KK    CF02RETRIEVE
 106          KM        Retrieve flow from west CAP overchute.
 107          DR    CF02
              *

 108          KK  102105   ROUTE
 109          KM        Route retrieved flow from west overchute to C105.
 110          RS       6    FLOW      -1
 111          RC   0.045   0.050   0.045    7656  0.0065  104.00
 112          RX    0.00   40.00  120.00  130.00  250.00  260.00  340.00  380.00
 113          RY  104.00  102.00  101.00  100.00  100.00  101.00  102.00  104.00
              *

 114          KK   C105U COMBINE
 115          KM        Combine runoff from S105 with routed flow from 100105 and 102105
 116          KM        (CAP overchute flows). This is the total flow in Wagner Wash upstream
 117          KM        of Sun Valley Parkway.
 118          HC       3  14.598
              *

 119          KK    S110   BASIN
 120          KM        Compute runoff from subbasin 110
```

```
121          BA   0.430
122          LG   0.25    0.37    5.20    0.25       6
123          UI     56     166     335     449     587     358     291     241     188     140
124          UI    121      86      68      56      43      32      27      22      11      11
125          UI     10      11      11       0       0       0       0       0       0       0
             *

126          KK  11015I   ROUTE
127          KM        Route flow from C105 through subbasin 110 to C115.
128          RS       2    FLOW      -1
129          RC   0.045   0.035   0.045    3783  0.0267  102.00
130          RX    0.00   50.00  100.00  110.00  120.00  130.00  180.00  230.00
131          RY  102.00  101.50  101.00  100.00  100.00  101.00  101.50  102.00
             *

132          KK  15I15R   ROUTE
133          KM        Route flows from split through S115 to C115.
134          RS       8    FLOW      -1
135          RC   0.035   0.030   0.035   14128  0.0151  105.00
136          RX    0.00   25.00   58.00   65.00   85.00   92.00  125.00  150.00
137          RY  105.00  102.50  102.00  100.00  100.00  102.00  102.50  105.00
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

138          KK    S115   BASIN
139          KM        Compute runoff from subbasin 115
140          BA   2.247
141          LG   0.32    0.35    4.80    0.30       2
142          UI    160     163     434     709     984    1212    1401    1530    1539    1465
143          UI   1351    1100     918     773     632     528     444     351     304     252
144          UI    203     170     140     110     110      85      39      39      40      39
145          UI     39      39      40      39       0       0       0       0       0       0
             *

146          KK    C115 COMBINE
147          KM        Combine runoff from S115 with routed flow.
148          HC       2   2.677
             *

149          KK  115120   ROUTE
150          KM        Route total flows from C115 to C120. Slope =(1532-1494) / 4077
151          RS       2    FLOW      -1
152          RC   0.030   0.025   0.030    4077  0.0093  105.00
153          RX    0.00   30.00   75.00   80.00  105.00  110.00  155.00  190.00
154          RY  105.00  101.50  101.00  100.00  100.00  101.00  101.50  105.00
             *

155          KK    S120   BASIN
156          KM        Compute runoff from subbasin 120
157          BA   2.004
158          LG   0.33    0.35    4.65    0.32       1
159          UI    206     408     954    1419    1824    1969    1911    1637    1230     944
160          UI    731     551     418     336     234     186     143     120      50      51
161          UI     50      51      51       0       0       0       0       0       0       0
             *

162          KK    C120 COMBINE
163          KM        Combine flows at Wagner Wash at outlet of channel along SVP
164          HC       2   4.681
             *

165          KK   C105D COMBINE
166          KM        Combine flows from C105 and C120 just D/S of Sun Valley Parkway
167          HC       2  19.279
             *

168          KK  120135   ROUTE
169          KM        Route flows in Wagner Wash from Sun Valley Parkway to C135.
170          RS       1    FLOW      -1
171          RC   0.045   0.035   0.045     951  0.0074  110.00
172          RX    0.00  225.00  450.00  455.00  485.00  490.00  615.00  840.00
173          RY  110.00  105.00  102.00  100.00  100.00  102.00  102.00  110.00
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

174          KK    S125   BASIN
175          KM        Compute runoff from subbasin 125
176          BA   0.093
177          LG   0.25    0.35    4.15    0.44       5
178          UI     46     164     204     116      73      46      28      17      12       4
179          UI      5       4       0       0       0       0       0       0       0       0
             *

180          KK   RR125 STORAGE
181          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13W
182          KM   PROPOSED DETENTION BASIN
183          KM    STRUCTURE ID:RR125
184          KM    DIMENSIONS: L=150ft, W=100ft, D=5ft, Sideslope (?H:1V)= 3,  Vol.= .9 ac-ft
185          RS       1    STOR       0
```

```
186          SV     0.0     0.1     0.2     0.3     0.4     0.5     0.6     0.9     1.2     1.5
187          SE     0.0     0.5     1.0     1.5     2.0     2.5     3.0     4.0     5.0     6.0
188          SQ     0.0    85.6   121.0   148.2   171.1   191.3   209.6   242.0   270.6   296.4
             *

189          KK  12535I   ROUTE
190          KM        Route flows from S125 to intermediate combination point in S135.
191          KM   PROPOSED CHANNEL
192          KM    STRUCTURE ID(s): RR12510
193          KM    Slope=(1746.1 - 1697.0) / 1852.5
194          RS       1    FLOW      -1
195          RC   0.045   0.045   0.045  1852.50.026481   104.0
196          RX     0.0    12.0    12.0    12.0    52.0    52.0    52.0    64.0
197          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

198          KK    S130   BASIN
199          KM        Compute runoff from subbasin 130
200          BA   0.310
201          LG    0.21    0.35    4.20    0.43       4
202          UI      61     239     399     514     313     240     176     128      94      64
203          UI      49      36      26      19      10      10      10      10       0       0
             *

204          KK   RR130 STORAGE
205          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13E
206          KM   PROPOSED DETENTION BASIN
207          KM    STRUCTURE ID:RR130
208          KM    DIMENSIONS: L=300ft, W=170ft, D=5ft, Sideslope (?H:1V)= 3,  Vol.= 3.6 ac-ft
209          RS       1    STOR       0
210          SV     0.0     0.8     1.7     2.6     3.6     4.6     5.7     6.9     9.4    12.3
211          SE     0.0     1.0     2.0     3.0     4.0     5.0     6.0     7.0     9.0    11.0
212          SQ     0.0   242.0   342.3   419.2   484.1   541.2   592.8   640.3   726.1   802.7
             *
1                                          HEC-1 INPUT                                          PAGE  6

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

213          KK  13035I   ROUTE
214          KM        Route flow to intermediate point in S135.
215          KM   PROPOSED CHANNEL
216          KM    STRUCTURE ID(s): RR13010
217          KM    Slope=(1728.2 - 1697.0) / 1235.4
218          RS       1    FLOW      -1
219          RC   0.045   0.045   0.045  1235.4 0.02524   104.0
220          RX     0.0    12.0    12.0    12.0    97.0    97.0    97.0   109.0
221          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

222          KK   C135I COMBINE
223          KM        Combine routed flow from RR130 and RR125
224          HC       2    1.18
             *

225          KK  35I135   ROUTE
226          KM        Route combined flows to C135 at Wagner Wash.
227          KM   PROPOSED CHANNEL
228          KM    STRUCTURE ID(s): C135L10
229          KM    Slope=(1697.0 - 1496.9) / 12096.9
230          RS       8    FLOW      -1
231          RC   0.045   0.045   0.045 12096.90.016546   104.5
232          RX     0.0    13.5    13.5    13.5   213.5   213.5   213.5   227.0
233          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

234          KK    S135   BASIN
235          KM        Compute runoff from subbasin 135
236          BA   0.879
237          LG    0.35    0.35    4.25    0.42       0
238          UI     115     362     709     992    1126     989     736     527     370     260
239          UI     194     128      89      76      28      28      29      28       0       0
             *

240          KK   C135L COMBINE
241          KM        Combine all piedmont runoff inflow to Wagner Wash at C135
242          HC       2    2.06
             *

243          KK    C135 COMBINE
244          KM        Combine all flows in Wagner Wash at C135
245          HC       2
             *

246          KK  135145   ROUTE
247          KM        Route flow in Wagner Wash to C145.  Slope = (1487-1454) / 7938
248          RS       4    FLOW      -1
249          RC   0.045   0.035   0.045    7938  0.0042  110.00
250          RX    0.00  300.00  400.00  406.00  506.00  512.00  612.00  912.00
251          RY  110.00  102.50  102.00  100.00  100.00  102.00  102.50  110.00
             *
1                                          HEC-1 INPUT                                          PAGE  7

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
252          KK    S140   BASIN
253          KM        Compute runoff from subbasin 140
254          BA   1.373
255          LG    0.35    0.36    5.00    0.28       0
256          UI     260    1034    1801    2168    1890    1235     809     517     339     211
257          UI     157      56      55      57       0       0       0       0       0       0
             *

258          KK  140145   ROUTE
259          KM        Route runoff from S140 to C145 at Wagner Wash.
260          RS       3    FLOW      -1
261          RC   0.040   0.050   0.040    3656  0.0074  103.00
262          RX    0.00   70.00  140.00  150.00  250.00  260.00  330.00  400.00
263          RY  102.00  101.00  100.00  100.00  100.00  100.00  101.00  102.00
             *

264          KK    S145   BASIN
265          KM        Compute runoff from subbasin 145
266          BA   1.756
267          LG    0.35    0.35    4.15    0.44       0
268          UI     226     672    1369    1903    2167    2003    1508    1085     777     544
269          UI     399     279     198     157      80      55      56      54      55       0
             *

270          KK    C145 COMBINE
271          KM        Combine all flows in Wagner Wash at C145
272          HC       3
             *

273          KK  145155   ROUTE
274          KM        Route flows in Wagner Wash form C145 to C155. Slope = (1454-1452)/631
275          RS       1    FLOW      -1
276          RC   0.045   0.035   0.055     631  0.0032  110.00
277          RX    0.00  150.00  300.00  309.00  379.00  388.00  538.00  838.00
278          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

279          KK    S155   BASIN
280          KM        Compute runoff from subbasin 155
281          BA   1.832
282          LG    0.35    0.35    4.50    0.36       1
283          UI     187     361     846    1266    1637    1771    1735    1497    1161     879
284          UI     681     519     385     314     228     181     130     126      46      46
285          UI      45      46      46      45       0       0       0       0       0       0
             *

286          KK    C155 COMBINE
287          KM        Combine all flows at Wagner Wash at C155
288          HC       2
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

289          KK  155160   ROUTE
290          KM        Route flow in Wagner Wash to C160 (Sun Valley Parkway).
291          RS       5    FLOW      -1
292          RC   0.035   0.035   0.035    2291  0.0052  110.00
293          RX    0.00  200.00  400.00  406.00  506.00  512.00  712.00  912.00
294          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

295          KK    S160   BASIN
296          KM        Compute runoff from subbasin 160
297          BA   1.144
298          LG    0.35    0.35    4.00    0.47       0
299          UI     165     599    1121    1501    1557    1233     844     593     394     281
300          UI     190     122      93      40      40      40      41       0       0       0
             *

301          KK    C160 COMBINE
302          KM        Combine flows at Sun Valley Parkway
303          HC       2   27.44
             *

304          KK  160170   ROUTE
305          KM        Route flows from Sun Valley Parkway to C170R. Slope = (1440-1410)/5248
306          RS       3    FLOW      -1
307          RC   0.040   0.030   0.040    5248  0.0057  108.00
308          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
309          RY  108.00  103.00  102.00  100.00  100.00  102.00  103.00  108.00
             *

310          KK    S170   BASIN
311          KM        Compute runoff from subbasin 170
312          BA   1.464
313          LG    0.35    0.35    4.40    0.38       0
314          UI     209     755    1427    1917    1973    1590    1086     762     513     360
315          UI     246     160     123      52      51      51      52       0       0       0
             *

316          KK    170R   ROUTE
317          KM        Route flow from S170 to Wagner Wash.  Slope = (1456-1410) / 3986
```

```
 318          RS       3    FLOW      -1
 319          RC   0.045   0.045   0.045    3986  0.0115  104.00
 320          RX    0.00   50.00  100.00  103.00  113.00  116.00  166.00  216.00
 321          RY  103.00  102.00  101.00  100.00  100.00  101.00  102.00  103.00
              *

 322          KK   C170R COMBINE
 323          KM        Combine routed flows from S170 and C160 in Wagner Wash
 324          HC       2
              *
1                                          HEC-1 INPUT                                                    PAGE  9

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 325          KK  170180   ROUTE
 326          KM        Route flows in Wagner Wash to C180R.  Slope = (1410-1366) / 6770
 327          RS       4    FLOW      -1
 328          RC   0.045   0.035   0.045    6770  0.0065  110.00
 329          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
 330          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
              *

 331          KK    S150   BASIN
 332          KM        Compute runoff from subbasin 150
 333          BA   0.774
 334          LG    0.25    0.35    4.65    0.32       7
 335          UI      71     115     270     425     531     672     746     480     406     356
 336          UI     312     262     212     181     159     132     106      89      77      65
 337          UI      54      47      35      35      35      14      14      13      14      14
 338          UI      13      14      14       0       0       0       0       0       0       0
              *

 339          KK   RR150 STORAGE
 340          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 3
 341          KM    outlet based on assumed 2 ft pipe
 342          KM   PROPOSED DETENTION BASIN
 343          KM    STRUCTURE ID:RR150
 344          KM    DIMENSIONS: L=400ft, W=225ft, D=6ft, Sideslope (?H:1V)= 3,  Vol.= 8.1 ac-ft
 345          RS       1    STOR       0
 346          SV     0.0     1.5     3.0     6.3     8.1    10.0    13.9    16.0    18.2    20.5
 347          SE     0.0     1.0     2.0     4.0     5.0     6.0     8.0     9.0    10.0    11.0
 348          SQ     0.0   363.0   513.4   726.1   811.8   889.3  1026.8  1089.1  1148.0  1204.1
              *

 349          KK  150165   ROUTE
 350          KM    ROUTE OUTFLOW FROM RR150 TO S165
 351          KM   PROPOSED CHANNEL
 352          KM    STRUCTURE ID(s): RR15020
 353          KM    Slope=(1760.1 - 1675.9) / 4081.6
 354          RS       1    FLOW      -1
 355          RC   0.045   0.045   0.045  4081.60.020625   104.5
 356          RX     0.0    13.5    13.5    13.5   173.5   173.5   173.5   187.0
 357          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
              *

 358          KK    S165   BASIN
 359          KM        Compute runoff from subbasin 165
 360          BA   0.616
 361          LG    0.30    0.35    4.55    0.35       3
 362          UI     121     477     809    1022     617     474     347     254     185     127
 363          UI      96      69      52      36      20      20      20      20       0       0
              *
1                                          HEC-1 INPUT                                                    PAGE 10

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 364          KK    C165 COMBINE
 365          KM    COMBINE ROUTED FLOW FROM RR150 WITH RUNOFF FROM S165 AT PROPOSED BASIN SITE
 366          HC       2
              *

 367          KK   RR165 STORAGE
 368          KM    ROUTE RUNOFF FROM S165 THROUGH PROPOSED DETENTION BASIN
 369          KM    outlet based on assumed 2 ft pipe
 370          KM   PROPOSED DETENTION BASIN
 371          KM    STRUCTURE ID:RR165
 372          KM    DIMENSIONS: L=400ft, W=240ft, D=6ft, Sideslope (?H:1V)= 3,  Vol.= 8.8 ac-ft
 373          RS       1    STOR       0
 374          SV     0.0     1.6     3.3     5.1     6.9     8.8    10.9    15.1    19.8    24.8
 375          SE     0.0     1.0     2.0     3.0     4.0     5.0     6.0     8.0    10.0    12.0
 376          SQ     0.0   423.5   599.0   733.6   847.1   947.1  1037.5  1198.0  1339.4  1467.2
              *

 377          KK  165175   ROUTE
 378          KM    ROUTE OUTFLOW FROM RR165 TO SUN VALLEY PARKWAY IN NEW CHANNEL THRU S175
 379          KM   PROPOSED CHANNEL
 380          KM    STRUCTURE ID(s): C17510A, C17510B
 381          KM    Slope=(1674.9 - 1462.9) / 13245.4
 382          RS       8    FLOW      -1
 383          RC   0.045   0.045   0.045 13245.40.016012   104.5
 384          RX     0.0    13.5    13.5    13.5   213.5   213.5   213.5   227.0
 385          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
              *
```

```
386          KK    S175   BASIN
387          KM        Compute runoff from subbasin 175
388          BA   1.802
389          LG    0.29    0.35    4.50    0.36       1
390          UI     126     127     317     525     763     877    1013    1295    1376     895
391          UI     771     703     622     572     507     439     372     318     296     274
392          UI     227     192     163     148     138     116      96      97      73      62
393          UI      62      63      55      24      25      24      24      24      24      25
394          UI      24      24      24      25       0       0       0       0       0       0
             *

395          KK    C175 COMBINE
396          KM    COMBINE RUNOFF FROM S175 WITH ROUTED FLOW FROM C165
397          HC       2
             *

398          KK    175R   ROUTE
399          KM        Route runoff from S175 to intermediate point in S190 (C180RI).
400          KM   PROPOSED CHANNEL
401          KM    STRUCTURE ID(s): RR17510
402          KM    Slope=(1462.9 - 1413.1) / 3035.2
403          RS       2    FLOW      -1
404          RC   0.045   0.045   0.045  3035.20.016393   104.5
405          RX     0.0    13.5    13.5    13.5   293.5   293.5   293.5   307.0
406          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

407          KK    S180   BASIN
408          KM        Compute runoff from subbasin 180
409          BA   1.443
410          LG    0.25    0.35    4.25    0.42       2
411          UI     107     108     311     490     677     785     927    1258     896     684
412          UI     622     547     497     440     379     315     275     250     228     185
413          UI     154     138     120     115      82      83      73      52      53      52
414          UI      50      21      20      21      20      21      21      20      21      21
415          UI      20       0       0       0       0       0       0       0       0       0
             *

416          KK    180R   ROUTE
417          KM        Route runoff from S180 to intermediate point in S190 (C180RI).
418          KM   PROPOSED CHANNEL
419          KM    STRUCTURE ID(s): S18010, RR18010
420          KM    Slope=(1531.6 - 1413.1) / 7990.1
421          RS       2    FLOW      -1
422          RC   0.045   0.045   0.045  7990.1 0.01483   104.5
423          RX     0.0    13.5    13.5    13.5   193.5   193.5   193.5   207.0
424          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

425          KK  C180RI COMBINE
426          KM        Combine routed flows from S175 and S180
427          HC       2
             *

428          KK  RI180R   ROUTE
429          KM   PROPOSED CHANNEL
430          KM    STRUCTURE ID(s): C180R10
431          KM    Slope=(1413.1 - 1367.6) / 3720.6
432          RS       3    FLOW      -1
433          RC   0.045   0.045   0.045  3720.60.012229   104.5
434          RX     0.0    13.5    13.5    13.5   373.5   373.5   373.5   387.0
435          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

436          KK   C180R COMBINE
437          KM        Combine flows in Wagner Wash
438          HC       2
             *

439          KK  180185   ROUTE
440          KM        Route flows in Wagner Wash from C180R to C185R.
441          RS       3    FLOW      -1
442          RC   0.045   0.035   0.045  3450.0  0.0075   106.0
443          RX     0.0   100.0   200.0   206.0   406.0   412.0   512.0   612.0
444          RY   106.0   104.0   102.0   100.0   100.0   102.0   104.0   106.0
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

445          KK    S185   BASIN
446          KM        Compute runoff from subbasin 185
447          BA   2.421
448          LG    0.16    0.35    4.35    0.40       1
449          UI     165     166     391     668     960    1130    1281    1613    1908    1239
450          UI    1060     936     847     785     677     614     534     438     399     375
451          UI     338     271     230     210     183     183     133     126     127      85
452          UI      80      82      81      67      32      31      32      32      31      32
453          UI      32      31      32      32      32       0       0       0       0       0
```

```
                    *
454                 KK    185R   ROUTE
455                 KM        Route runoff from S185 to Wagner Wash.  Slope = (1442-1340) / 8534
456                 RS       5    FLOW      -1
457                 RC   0.045   0.035   0.045    8534  0.0120  104.00
458                 RX    0.00   30.00  100.00  106.00  156.00  162.00  232.00  262.00
459                 RY  104.00  102.00  102.00  100.00  100.00  102.00  102.00  104.00
                    *

460                 KK   C185R COMBINE
461                 KM        Combine flows in Wagner Wash
462                 HC       2
                    *

463                 KK  185190   ROUTE
464                 KM        Route flow in Wagner Wash to C190.  Slope = (1340-1308) / 2700
465                 RS       2    FLOW      -1
466                 RC   0.045   0.040   0.045    2700  0.0119  106.00
467                 RX    0.00   80.00  160.00  166.00  416.00  422.00  502.00  582.00
468                 RY  106.00  103.00  102.00  100.00  100.00  102.00  103.00  106.00
                    *

469                 KK    S190   BASIN
470                 KM        Compute runoff from subbasin 190
471                 BA   4.054
472                 LG    0.35    0.35    3.81    0.44       0
473                 UI     274     278     647    1125    1573    1918    2319    2540    2637    2574
474                 UI    2467    2112    1787    1506    1256    1044     891     745     605     522
475                 UI     432     370     293     266     188     191     188      78      68      66
476                 UI      67      67      67      67      67      67       0       0       0       0
                    *

477                 KK    C190 COMBINE
478                 KM        Combine all flow in Wagner Wash at C190
479                 HC       2   39.24
                    *

480                 KK  190195   ROUTE
481                 KM        Route flow from C190 to the Hassayampa River. Slope = (1308-1255)/4941
482                 RS       2    FLOW      -1
483                 RC   0.045   0.035   0.045    4941  0.0107  110.00
484                 RX    0.00   50.00  200.00  206.00  356.00  366.00  516.00  566.00
485                 RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
                    *
1                                                HEC-1 INPUT                                                PAGE 13

          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

486                 KK    S195   BASIN
487                 KM        Compute runoff from subbasin 195
488                 BA   1.808
489                 LG    0.33    0.35    4.25    0.42       0
490                 UI     107     108     188     366     523     660     786     925     975    1026
491                 UI    1044     975     915     778     674     571     496     419     359     313
492                 UI     260     223     202     165     146     115     114      76      74      74
493                 UI      67      27      26      26      26      26      26      27      26      26
494                 UI      27       0       0       0       0       0       0       0       0       0
                    *

495                 KK    C195 COMBINE
496                 KM        Combine all flows in Wagner Wash at the Hassayampa River
497                 HC       2   41.05
498                 ZZ
1
              SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    58        S100
                .
                .
    66          .        S102
                .           .
                .           .
    73        C102............
                V
                V
    76       RR102
                .
                .
    88          .-------->    CF02
    85        D102
                V
                V
    91      100105
                .
                .
    97          .        S105
                .           .
                .           .
   107          .           .           .<-------    CF02
```

```
105          .            .        CF02
             .            .           V
             .            .           V
108          .            .      102105
             .            .            .
             .            .            .
114      C105U.......................
             .
             .
119          .        S110
             .           V
             .           V
126          .      11015I
             .           V
             .           V
132          .      15I15R
             .            .
             .            .
138          .            .        S115
             .            .            .
             .            .            .
146          .        C115............
             .           V
             .           V
149          .      115120
             .            .
             .            .
155          .            .        S120
             .            .            .
             .            .            .
162          .        C120............
             .            .
             .            .
165      C105D............
             V
             V
168     120135
             .
             .
174          .        S125
             .           V
             .           V
180          .       RR125
             .           V
             .           V
189          .      12535I
             .            .
             .            .
198          .            .        S130
             .            .           V
             .            .           V
204          .            .       RR130
             .            .           V
             .            .           V
213          .            .      13035I
             .            .            .
             .            .            .
222          .       C135I............
             .           V
             .           V
225          .      35I135
             .            .
             .            .
234          .            .        S135
             .            .            .
             .            .            .
240          .       C135L............
             .            .
             .            .
243        C135............
             V
             V
246     135145
             .
             .
252          .        S140
             .           V
             .           V
258          .      140145
             .            .
             .            .
264          .            .        S145
             .            .            .
             .            .            .
270        C145........................
             V
             V
273     145155
             .
             .
279          .        S155
             .            .
             .            .
286        C155............
             V
```

```
                V
289       155160
                .
                .
295             .        S160
                .           .
                .           .
301         C160............
                V
                V
304       160170
                .
                .
310             .        S170
                .           V
                .           V
316             .        170R
                .           .
                .           .
322        C170R...........
                V
                V
325       170180
                .
                .
331             .        S150
                .           V
                .           V
339             .       RR150
                .           V
                .           V
349             .      150165
                .           .
                .           .
358             .           .        S165
                .           .           .
                .           .           .
364             .        C165...........
                .           V
                .           V
367             .       RR165
                .           V
                .           V
377             .      165175
                .           .
                .           .
386             .           .        S175
                .           .           .
                .           .           .
395             .        C175...........
                .           V
                .           V
398             .        175R
                .           .
                .           .
407             .           .        S180
                .           .           V
                .           .           V
416             .           .        180R
                .           .           .
                .           .           .
425             .      C180RI...........
                .           V
                .           V
428             .      RI180R
                .           .
                .           .
436        C180R...........
                V
                V
439       180185
                .
                .
445             .        S185
                .           V
                .           V
454             .        185R
                .           .
                .           .
460        C185R...........
                V
                V
463       185190
                .
                .
469             .        S190
                .           .
                .           .
477         C190............
                V
                V
480       190195
                .
                .
486             .        S195
```

```
                .          .
                .          .
  495         C195............

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *            VERSION 4.1               *
 *                                      *
 *  RUN DATE   19APR06  TIME  16:26:36  *
 *                                      *
 ****************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 756-1104          *
*                                   *
*************************************
```

HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
- WAGNER SUB-AREA
- ALTERNATIVE B2

Alternative Description
The purpose of Alternative B is to capture the upstream flow at the apex using online detention basins. The presence of the detention basins eliminates the downstream alluvial fan uncertainties by controlling the flow from the apices to the outfall. Alternative B2 is based on using a relatively smaller on-line detention basin at the apex accompanied by larger leveed channel sections in the down fan direction.

SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
MODELER: TED LEHMAN
FILENAME: A4_EX6.DAT

100-YEAR 6-HOUR MODEL
EXISTING CONDITIONS
AREA 4 WATERSHED AREA = 90.5 SQ. MILES
MODELED AREA = 76.8 SQ. MILES

GREEN-AMPT LOSS METHOD
S-GRAPH UNIT HYDROGRAPHS
- MOUNTAIN
- DESERT/RANGELAND
NORMAL-DEPTH CHANNEL ROUTING
LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
- UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
- HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
- MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)

```
 37 IO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN          5  MINUTES IN COMPUTATION INTERVAL
                      IDATE     1JAN99  STARTING DATE
                      ITIME       1200  STARTING TIME
                         NQ       2000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     8JAN99  ENDING DATE
                     NDTIME       1035  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE  166.58 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT

 38 JD          INDEX STORM NO. 1
                      STRM        3.20  PRECIPITATION DEPTH
                      TRDA         .10  TRANSPOSITION DRAINAGE AREA

 39 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                     .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                     .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00

 42 JD          INDEX STORM NO. 2
```

```
                    STRM        3.18  PRECIPITATION DEPTH
                    TRDA         .50  TRANSPOSITION DRAINAGE AREA

43 PI            PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

46 JD          INDEX STORM NO. 3
                    STRM        3.12  PRECIPITATION DEPTH
                    TRDA        2.80  TRANSPOSITION DRAINAGE AREA

47 PI            PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .07       .07       .07       .08       .08       .08       .05       .05
                  .05       .02       .02       .02       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

50 JD          INDEX STORM NO. 4
                    STRM        2.95  PRECIPITATION DEPTH
                    TRDA       16.00  TRANSPOSITION DRAINAGE AREA

51 PI            PRECIPITATION PATTERN
                  .01       .01       .00       .00       .00       .00       .00       .00       .00       .01
                  .01       .01       .00       .01       .00       .00       .00       .00       .00       .00
                  .00       .00       .01       .00       .00       .00       .00       .01       .01       .01
                  .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                  .03       .03       .06       .06       .06       .07       .07       .07       .04       .04
                  .04       .02       .02       .02       .01       .01       .01       .01       .01       .01
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

54 JD          INDEX STORM NO. 5
                    STRM        2.59  PRECIPITATION DEPTH
                    TRDA       90.00  TRANSPOSITION DRAINAGE AREA

55 PI            PRECIPITATION PATTERN
                  .01       .01       .01       .00       .00       .00       .01       .01       .01       .01
                  .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                  .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                  .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                  .03       .03       .05       .05       .05       .05       .05       .05       .04       .04
                  .04       .02       .02       .02       .02       .02       .02       .01       .01       .01
                  .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                  .01       .01

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
76 KK       *    RR102   *      STORAGE
            *            *
            **************

79 KO          OUTPUT CONTROL VARIABLES
                  IPRNT           5  PRINT CONTROL
                  IPLOT           0  PLOT CONTROL
                  QSCAL          0.  HYDROGRAPH PLOT SCALE
1
                                          RUNOFF SUMMARY
                                   FLOW IN CUBIC FEET PER SECOND
                                TIME IN HOURS,  AREA IN SQUARE MILES

                                   PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
        OPERATION       STATION    FLOW    PEAK                                           AREA      STAGE     MAX STAGE
+                                                       6-HOUR      24-HOUR      72-HOUR

        HYDROGRAPH AT
+                         S100     4347.   4.67         899.        225.         75.       6.99

        HYDROGRAPH AT
+                         S102     2790.   4.33         417.        104.         35.       3.23

        2 COMBINED AT
+                         C102     5993.   4.50        1198.        300.        100.      10.23

        ROUTED TO
+                        RR102      127.   6.75         122.        104.         72.      10.23

        DIVERSION TO
+                         CF02       63.   6.75          61.         52.         36.      10.23

        HYDROGRAPH AT
```

+		D102	63.	6.75	61.	52.	36.	10.23
+	ROUTED TO	100105	59.	12.58	58.	51.	36.	10.23
+	HYDROGRAPH AT	S105	2863.	4.50	495.	124.	41.	4.37
+	HYDROGRAPH AT	CF02	63.	6.75	61.	52.	36.	10.23
+	ROUTED TO	102105	63.	8.00	60.	51.	36.	10.23
+	3 COMBINED AT	C105U	2863.	4.50	549.	226.	120.	14.60
+	HYDROGRAPH AT	S110	662.	4.25	76.	19.	6.	.43
+	ROUTED TO	11015I	570.	4.42	76.	19.	6.	.43
+	ROUTED TO	15I15R	506.	4.83	76.	19.	6.	.43
+	HYDROGRAPH AT	S115	1605.	4.58	296.	74.	25.	2.25
+	2 COMBINED AT	C115	1813.	4.67	350.	88.	29.	2.68
+	ROUTED TO	115120	1781.	4.75	350.	88.	29.	2.68
+	HYDROGRAPH AT	S120	1838.	4.33	256.	64.	21.	2.00
+	2 COMBINED AT	C120	2678.	4.58	545.	137.	46.	4.68
+	2 COMBINED AT	C105D	4029.	4.50	821.	275.	127.	19.28
+	ROUTED TO	120135	4027.	4.58	821.	275.	127.	19.28
+	HYDROGRAPH AT	S125	202.	4.08	14.	4.	1.	.09
+	ROUTED TO	RR125	184.	4.08	14.	4.	1.	.09
+	ROUTED TO	12535I	171.	4.17	14.	4.	1.	.09
+	HYDROGRAPH AT	S130	524.	4.17	48.	12.	4.	.31
+	ROUTED TO	RR130	447.	4.25	48.	12.	4.	.31
+	ROUTED TO	13035I	436.	4.33	48.	12.	4.	.31
+	2 COMBINED AT	C135I	478.	4.25	54.	14.	5.	1.18
+	ROUTED TO	35I135	248.	5.17	54.	14.	5.	1.18
+	HYDROGRAPH AT	S135	1102.	4.25	111.	28.	9.	.88
+	2 COMBINED AT	C135L	830.	4.25	145.	36.	12.	2.06
+	2 COMBINED AT	C135	4171.	4.50	881.	288.	131.	21.34
+	ROUTED TO	135145	3750.	5.00	870.	286.	131.	21.34
+	HYDROGRAPH AT	S140	1913.	4.17	188.	47.	16.	1.37
+	ROUTED TO	140145	1623.	4.42	188.	47.	16.	1.37
+	HYDROGRAPH AT	S145	1702.	4.25	193.	48.	16.	1.76
+	3 COMBINED AT	C145	4074.	4.92	1037.	325.	143.	24.47

+	ROUTED TO	145155	4073.	4.92	1036.	325.	143.	24.47
+	HYDROGRAPH AT	S155	1626.	4.33	223.	56.	19.	1.83
+	2 COMBINED AT	C155	4306.	4.83	1135.	349.	150.	26.30
+	ROUTED TO	155160	4296.	4.92	1134.	348.	150.	26.30
+	HYDROGRAPH AT	S160	1347.	4.25	133.	33.	11.	1.14
+	2 COMBINED AT	C160	4293.	4.92	1174.	358.	153.	27.44
+	ROUTED TO	160170	4197.	5.17	1168.	356.	153.	27.44
+	HYDROGRAPH AT	S170	1686.	4.25	178.	44.	15.	1.46
+	ROUTED TO	170R	1544.	4.42	178.	44.	15.	1.46
+	2 COMBINED AT	C170R	4314.	5.08	1234.	372.	157.	28.90
+	ROUTED TO	170180	4224.	5.33	1227.	371.	157.	28.90
+	HYDROGRAPH AT	S150	836.	4.33	126.	31.	10.	.77
+	ROUTED TO	RR150	724.	4.50	126.	31.	10.	.77
+	ROUTED TO	150165	653.	4.67	125.	31.	10.	.77
+	HYDROGRAPH AT	S165	1008.	4.17	94.	23.	8.	.62
+	2 COMBINED AT	C165	968.	4.25	200.	50.	17.	1.39
+	ROUTED TO	RR165	876.	4.50	200.	50.	17.	1.39
+	ROUTED TO	165175	810.	5.17	199.	50.	17.	1.39
+	HYDROGRAPH AT	S175	1203.	4.50	226.	56.	19.	1.80
+	2 COMBINED AT	C175	1204.	5.00	379.	96.	32.	3.19
+	ROUTED TO	175R	1190.	5.17	378.	96.	32.	3.19
+	HYDROGRAPH AT	S180	1032.	4.50	181.	45.	15.	1.44
+	ROUTED TO	180R	775.	4.83	180.	45.	15.	1.44
+	2 COMBINED AT	C180RI	1631.	5.08	501.	127.	42.	4.63
+	ROUTED TO	RI180R	1609.	5.25	499.	127.	42.	4.63
+	2 COMBINED AT	C180R	4858.	5.33	1469.	430.	176.	33.54
+	ROUTED TO	180185	4840.	5.50	1462.	430.	176.	33.54
+	HYDROGRAPH AT	S185	1450.	4.50	288.	72.	24.	2.42
+	ROUTED TO	185R	1302.	4.92	288.	72.	24.	2.42
+	2 COMBINED AT	C185R	5091.	5.33	1569.	456.	184.	35.96
+	ROUTED TO	185190	5090.	5.42	1564.	455.	184.	35.96
+	HYDROGRAPH AT	S190	2084.	4.58	391.	98.	33.	4.05

```
        2 COMBINED AT
+                       C190      5262.    5.33        1690.        488.        194.       39.24

        ROUTED TO
+                     190195      5178.    5.50        1683.        487.        194.       39.24

        HYDROGRAPH AT
+                       S195      1001.    4.67         203.         51.         17.        1.81

        2 COMBINED AT
+                       C195      5225.    5.50        1732.        500.        198.       41.05
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    RR102
                        (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)
```

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.61	.00	1386.	222.	.00	6.33	.00

PLAN 2 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.59	.00	1380.	219.	.00	6.33	.00

PLAN 3 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.23	.00	1236.	163.	.00	6.58	.00

PLAN 4 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1551.78	.00	1083.	114.	.00	6.75	.00

PLAN 5 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1551.06	.00	868.	68.	.00	6.75	.00

*** NORMAL END OF HEC-1 ***

```
1****************************************                    ****************************************
 *                                      *                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *   U.S. ARMY CORPS OF ENGINEERS       *
 *              JUN   1998              *                    *   HYDROLOGIC ENGINEERING CENTER      *
 *            VERSION 4.1               *                    *         609 SECOND STREET            *
 *                                      *                    *      DAVIS, CALIFORNIA 95616         *
 *  RUN DATE   19APR06  TIME  16:26:37  *                    *          (916) 756-1104              *
 *                                      *                    *                                      *
 ****************************************                    ****************************************

                                        X     X  XXXXXXX   XXXXX           X
                                        X     X  X        X     X         XX
                                        X     X  X        X               X
                                        XXXXXXX  XXXX     X        XXXXX  X
                                        X     X  X        X               X
                                        X     X  X        X     X         X
                                        X     X  XXXXXXX   XXXXX         XXX

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                          HEC-1 INPUT                                                PAGE  1

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

        1           ID      HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
        2           ID     - WAGNER SUB-AREA
        3           ID     - ALTERNATIVE B2
        4           ID
        5           ID   Alternative Description
        6           ID   The purpose of Alternative B is to capture the upstream flow at the
        7           ID   apex using online detention basins.  The presence of the detention
        8           ID   basins eliminates the downstream alluvial fan uncertainties by
        9           ID   controlling the flow from the apices to the outfall.  Alternative B2
       10           ID   is based on using a relatively smaller on-line detention basin at the
       11           ID   apex accompanied by larger leveed channel sections in the down fan
       12           ID   direction.
       13           ID
       14           ID
       15           ID   SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
       16           ID   JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
       17           ID   MODELER: TED LEHMAN
       18           ID   FILENAME: A4_EX24.DAT
       19           ID
       20           ID   100-YEAR 24-HOUR MODEL
       21           ID   EXISTING CONDITIONS
       22           ID   AREA 4 WATERSHED AREA = 90.5 SQ. MILES
       23           ID            MODELED AREA = 76.8 SQ. MILES
       24           ID
       25           ID   GREEN-AMPT LOSS METHOD
       26           ID   S-GRAPH UNIT HYDROGRAPHS
       27           ID     - MOUNTAIN
       28           ID     - DESERT/RANGELAND
       29           ID   NORMAL-DEPTH CHANNEL ROUTING
       30           ID   LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
       31           ID     - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
       32           ID     - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
       33           ID     - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
       34           ID   SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)
       35           IT       5  1JAN99    1200    2000
       36           IN      15
       37           IO       5
                    *DIAGRAM
                    *
       38           JD   4.198  0.1000
       39           PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
       40           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
       41           PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
       42           PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.172
       43           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
       44           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
       45           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
       46           PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
       47           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
       48           PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
       49           JD   3.990    10.0
       50           JD   3.780    30.0
       51           JD   3.654    60.0
       52           JD   3.578    90.0
                    *
1                                          HEC-1 INPUT                                                PAGE  2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  53          KK    S100   BASIN
  54          KM        Compute runoff from subbasin 100
  55          BA   6.994
  56          LG    0.35    0.38    6.40    0.16       0
  57          UI     449     455     964    1717    2422    3046    3616    4050    4275    4281
  58          UI    4178    3867    3211    2766    2319    1968    1698    1387    1198     990
  59          UI     848     715     635     476     471     313     309     309     204     110
  60          UI     109     111     110     109     111     109     110     111       0       0
              *

  61          KK    S102   BASIN
  62          KM        Compute runoff from subbasin 102
  63          BA   3.234
  64          LG    0.35    0.38    5.60    0.22       0
  65          UI     333     657    1539    2292    2943    3178    3083    2643    1985    1523
  66          UI    1179     890     674     542     377     300     232     193      81      82
  67          UI      81      81      83       0       0       0       0       0       0       0
              *

  68          KK    C102 COMBINE
  69          KM        Combine total inflow to detention area behind (north) of CAP Canal
  70          HC       2
              *

  71          KK   RR102 STORAGE
  72          KM        Route flows through storage area behind CAP Canal
  73          KM        Stage-storage-discharge data from Wagner Wash FDS Hydrology (1991)
  74          KO
  75          RS       1    STOR      -1
  76          SV          553.00 1148.00 2316.00 2705.00
  77          SQ                  128.00  587.00  600.00
  78          SE  1543.0 1550.00 1552.00 1555.00 1556.00
  79          ST  1556.0  1320.0     3.2     1.5
              *

  80          KK    D102  DIVERT
  81          KM        Divide flow evenly over the two 18-foot wide CAP overchutes
  82          KM        although the inverts are 0.5 feet different in elevation
  83          DT    CF02     0.0     0.0
  84          DI     0.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0     0.0
  85          DQ     0.0    50.0   500.0  5000.0     0.0     0.0     0.0     0.0     0.0     0.0
              *

  86          KK  100105   ROUTE
  87          KM        Route outflows from east CAP overchute to Sun Valley Parkway.
  88          RS       9    FLOW      -1
  89          RC   0.035   0.055   0.035   11235  0.0045  105.00
  90          RX    0.00  120.00  240.00  250.00  590.00  600.00  720.00  840.00
  91          RY  105.00  102.50  100.00  100.00  100.00  100.00  102.50  105.00
              *
1                                          HEC-1 INPUT                                          PAGE  3

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  92          KK    S105   BASIN
  93          KM        Compute runoff from subbasin 105
  94          BA   4.370
  95          LG    0.35    0.35    4.80    0.30       0
  96          UI     345     380    1112    1723    2334    2867    3143    3344    3176    2865
  97          UI    2374    1903    1555    1291    1018     832     685     564     458     369
  98          UI     288     235     238     126      83      85      84      84      84      84
  99          UI      84       0       0       0       0       0       0       0       0       0
              *

 100          KK    CF02RETRIEVE
 101          KM        Retrieve flow from west CAP overchute.
 102          DR    CF02
              *

 103          KK  102105   ROUTE
 104          KM        Route retrieved flow from west overchute to C105.
 105          RS       6    FLOW      -1
 106          RC   0.045   0.050   0.045    7656  0.0065  104.00
 107          RX    0.00   40.00  120.00  130.00  250.00  260.00  340.00  380.00
 108          RY  104.00  102.00  101.00  100.00  100.00  101.00  102.00  104.00
              *

 109          KK   C105U COMBINE
 110          KM        Combine runoff from S105 with routed flow from 100105 and 102105
 111          KM        (CAP overchute flows). This is the total flow in Wagner Wash upstream
 112          KM        of Sun Valley Parkway.
 113          HC       3  14.598
              *

 114          KK    S110   BASIN
 115          KM        Compute runoff from subbasin 110
 116          BA   0.430
 117          LG    0.25    0.37    5.20    0.25       6
 118          UI      56     166     335     449     587     358     291     241     188     140
 119          UI     121      86      68      56      43      32      27      22      11      11
 120          UI      10      11      11       0       0       0       0       0       0       0
```

```
                *

 121            KK  110151   ROUTE
 122            KM        Route flow from C105 through subbasin 110 to C115.
 123            RS       2    FLOW      -1
 124            RC   0.045   0.035   0.045    3783  0.0267  102.00
 125            RX    0.00   50.00  100.00  110.00  120.00  130.00  180.00  230.00
 126            RY  102.00  101.50  101.00  100.00  100.00  101.00  101.50  102.00
                *

 127            KK  15I15R   ROUTE
 128            KM        Route flows from split through S115 to C115.
 129            RS       8    FLOW      -1
 130            RC   0.035   0.030   0.035   14128  0.0151  105.00
 131            RX    0.00   25.00   58.00   65.00   85.00   92.00  125.00  150.00
 132            RY  105.00  102.50  102.00  100.00  100.00  102.00  102.50  105.00
                *
1                                          HEC-1 INPUT                                                    PAGE  4

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 133            KK    S115   BASIN
 134            KM        Compute runoff from subbasin 115
 135            BA   2.247
 136            LG    0.32    0.35    4.80    0.30       2
 137            UI     160     163     434     709     984    1212    1401    1530    1539    1465
 138            UI    1351    1100     918     773     632     528     444     351     304     252
 139            UI     203     170     140     110     110      85      39      39      40      39
 140            UI      39      39      40      39       0       0       0       0       0       0
                *

 141            KK    C115 COMBINE
 142            KM        Combine runoff from S115 with routed flow.
 143            HC       2   2.677
                *

 144            KK  115120   ROUTE
 145            KM        Route total flows from C115 to C120. Slope =(1532-1494) / 4077
 146            RS       2    FLOW      -1
 147            RC   0.030   0.025   0.030    4077  0.0093  105.00
 148            RX    0.00   30.00   75.00   80.00  105.00  110.00  155.00  190.00
 149            RY  105.00  101.50  101.00  100.00  100.00  101.00  101.50  105.00
                *

 150            KK    S120   BASIN
 151            KM        Compute runoff from subbasin 120
 152            BA   2.004
 153            LG    0.33    0.35    4.65    0.32       1
 154            UI     206     408     954    1419    1824    1969    1911    1637    1230     944
 155            UI     731     551     418     336     234     186     143     120      50      51
 156            UI      50      51      51       0       0       0       0       0       0       0
                *

 157            KK    C120 COMBINE
 158            KM        Combine flows at Wagner Wash at outlet of channel along SVP
 159            HC       2   4.681
                *

 160            KK   C105D COMBINE
 161            KM        Combine flows from C105 and C120 just D/S of Sun Valley Parkway
 162            HC       2  19.279
                *

 163            KK  120135   ROUTE
 164            KM        Route flows in Wagner Wash from Sun Valley Parkway to C135.
 165            RS       1    FLOW      -1
 166            RC   0.045   0.035   0.045     951  0.0074  110.00
 167            RX    0.00  225.00  450.00  455.00  485.00  490.00  615.00  840.00
 168            RY  110.00  105.00  102.00  100.00  100.00  102.00  102.00  110.00
                *
1                                          HEC-1 INPUT                                                    PAGE  5

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 169            KK    S125   BASIN
 170            KM        Compute runoff from subbasin 125
 171            BA   0.093
 172            LG    0.25    0.35    4.15    0.44       5
 173            UI      46     164     204     116      73      46      28      17      12       4
 174            UI       5       4       0       0       0       0       0       0       0       0
                *

 175            KK   RR125 STORAGE
 176            KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13W
 177            KM   PROPOSED DETENTION BASIN
 178            KM    STRUCTURE ID:RR125
 179            KM    DIMENSIONS: L=150ft, W=100ft, D=5ft, Sideslope (?H:1V)= 3,  Vol.= .9 ac-ft
 180            RS       1    STOR       0
 181            SV     0.0     0.1     0.2     0.3     0.4     0.5     0.6     0.9     1.2     1.5
 182            SE     0.0     0.5     1.0     1.5     2.0     2.5     3.0     4.0     5.0     6.0
 183            SQ     0.0    85.6   121.0   148.2   171.1   191.3   209.6   242.0   270.6   296.4
                *
```

```
184          KK  12535I   ROUTE
185          KM        Route flows from S125 to intermediate combination point in S135.
186          KM   PROPOSED CHANNEL
187          KM    STRUCTURE ID(s): RR12510
188          KM    Slope=(1746.1 - 1697.0) / 1852.5
189          RS       1    FLOW      -1
190          RC   0.045   0.045   0.045  1852.50.026481   104.0
191          RX     0.0    12.0    12.0    12.0    52.0    52.0    52.0    64.0
192          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

193          KK    S130   BASIN
194          KM        Compute runoff from subbasin 130
195          BA   0.310
196          LG    0.21    0.35    4.20    0.43       4
197          UI      61     239     399     514     313     240     176     128      94      64
198          UI      49      36      26      19      10      10      10      10       0       0
             *

199          KK   RR130 STORAGE
200          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13E
201          KM   PROPOSED DETENTION BASIN
202          KM    STRUCTURE ID;RR130
203          KM    DIMENSIONS; L=300ft, W=170ft, D=5ft, Sideslope (?H:1V)= 3,  Vol.= 3.6 ac-ft
204          RS       1    STOR       0
205          SV     0.0     0.8     1.7     2.6     3.6     4.6     5.7     6.9     9.4    12.3
206          SE     0.0     1.0     2.0     3.0     4.0     5.0     6.0     7.0     9.0    11.0
207          SQ     0.0   242.0   342.3   419.2   484.1   541.2   592.8   640.3   726.1   802.7
             *
1                                          HEC-1 INPUT                                          PAGE  6

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

208          KK  13035I   ROUTE
209          KM        Route flow to intermediate point in S135.
210          KM   PROPOSED CHANNEL
211          KM    STRUCTURE ID(s): RR13010
212          KM    Slope=(1728.2 - 1697.0) / 1235.4
213          RS       1    FLOW      -1
214          RC   0.045   0.045   0.045  1235.4 0.02524   104.0
215          RX     0.0    12.0    12.0    12.0    97.0    97.0    97.0   109.0
216          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

217          KK   C135I COMBINE
218          KM        Combine routed flow from RR130 and RR125
219          HC       2    1.18
             *

220          KK  35I135   ROUTE
221          KM        Route combined flows to C135 at Wagner Wash.
222          KM   PROPOSED CHANNEL
223          KM    STRUCTURE ID(s): C135L10
224          KM    Slope=(1697.0 - 1496.9) / 12096.9
225          RS       8    FLOW      -1
226          RC   0.045   0.045   0.045 12096.90.016546   104.5
227          RX     0.0    13.5    13.5    13.5   213.5   213.5   213.5   227.0
228          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

229          KK    S135   BASIN
230          KM        Compute runoff from subbasin 135
231          BA   0.879
232          LG    0.35    0.35    4.25    0.42       0
233          UI     115     362     709     992    1126     989     736     527     370     260
234          UI     194     128      89      76      28      28      29      28       0       0
             *

235          KK   C135L COMBINE
236          KM        Combine all piedmont runoff inflow to Wagner Wash at C135
237          HC       2    2.06
             *

238          KK    C135 COMBINE
239          KM        Combine all flows in Wagner Wash at C135
240          HC       2
             *

241          KK  135145   ROUTE
242          KM        Route flow in Wagner Wash to C145.  Slope = (1487-1454) / 7938
243          RS       4    FLOW      -1
244          RC   0.045   0.035   0.045    7938  0.0042  110.00
245          RX    0.00  300.00  400.00  406.00  506.00  512.00  612.00  912.00
246          RY  110.00  102.50  102.00  100.00  100.00  102.00  102.50  110.00
             *
1                                          HEC-1 INPUT                                          PAGE  7

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

247          KK    S140   BASIN
248          KM        Compute runoff from subbasin 140
249          BA   1.373
250          LG    0.35    0.36    5.00    0.28       0
```

```
251          UI     260    1034    1801    2168    1890    1235     809     517     339     211
252          UI     157      56      55      57       0       0       0       0       0       0
             *

253          KK  140145   ROUTE
254          KM        Route runoff from S140 to C145 at Wagner Wash.
255          RS       3    FLOW      -1
256          RC   0.040   0.050   0.040    3656  0.0074  103.00
257          RX    0.00   70.00  140.00  150.00  250.00  260.00  330.00  400.00
258          RY  102.00  101.00  100.00  100.00  100.00  100.00  101.00  102.00
             *

259          KK    S145   BASIN
260          KM        Compute runoff from subbasin 145
261          BA   1.756
262          LG    0.35    0.35    4.15    0.44       0
263          UI     226     672    1369    1903    2167    2003    1508    1085     777     544
264          UI     399     279     198     157      80      55      56      54      55       0
             *

265          KK    C145 COMBINE
266          KM        Combine all flows in Wagner Wash at C145
267          HC       3
             *

268          KK  145155   ROUTE
269          KM        Route flows in Wagner Wash form C145 to C155. Slope = (1454-1452)/631
270          RS       1    FLOW      -1
271          RC   0.045   0.035   0.055     631  0.0032  110.00
272          RX    0.00  150.00  300.00  309.00  379.00  388.00  538.00  838.00
273          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

274          KK    S155   BASIN
275          KM        Compute runoff from subbasin 155
276          BA   1.832
277          LG    0.35    0.35    4.50    0.36       1
278          UI     187     361     846    1266    1637    1771    1735    1497    1161     879
279          UI     681     519     385     314     228     181     130     126      46      46
280          UI      45      46      46      45       0       0       0       0       0       0
             *

281          KK    C155 COMBINE
282          KM        Combine all flows at Wagner Wash at C155
283          HC       2
             *
1                                          HEC-1 INPUT                                          PAGE  8

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

284          KK  155160   ROUTE
285          KM        Route flow in Wagner Wash to C160 (Sun Valley Parkway).
286          RS       5    FLOW      -1
287          RC   0.035   0.035   0.035    2291  0.0052  110.00
288          RX    0.00  200.00  400.00  406.00  506.00  512.00  712.00  912.00
289          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

290          KK    S160   BASIN
291          KM        Compute runoff from subbasin 160
292          BA   1.144
293          LG    0.35    0.35    4.00    0.47       0
294          UI     165     599    1121    1501    1557    1233     844     593     394     281
295          UI     190     122      93      40      40      40      41       0       0       0
             *

296          KK    C160 COMBINE
297          KM        Combine flows at Sun Valley Parkway
298          HC       2   27.44
             *

299          KK  160170   ROUTE
300          KM        Route flows from Sun Valley Parkway to C170R. Slope = (1440-1410)/5248
301          RS       3    FLOW      -1
302          RC   0.040   0.030   0.040    5248  0.0057  108.00
303          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
304          RY  108.00  103.00  102.00  100.00  100.00  102.00  103.00  108.00
             *

305          KK    S170   BASIN
306          KM        Compute runoff from subbasin 170
307          BA   1.464
308          LG    0.35    0.35    4.40    0.38       0
309          UI     209     755    1427    1917    1973    1590    1086     762     513     360
310          UI     246     160     123      52      51      51      52       0       0       0
             *

311          KK    170R   ROUTE
312          KM        Route flow from S170 to Wagner Wash.  Slope = (1456-1410) / 3986
313          RS       3    FLOW      -1
314          RC   0.045   0.045   0.045    3986  0.0115  104.00
315          RX    0.00   50.00  100.00  103.00  113.00  116.00  166.00  216.00
316          RY  103.00  102.00  101.00  100.00  100.00  101.00  102.00  103.00
             *
```

```
317          KK   C170R COMBINE
318          KM        Combine routed flows from S170 and C160 in Wagner Wash
319          HC       2
             *
1                                          HEC-1 INPUT                                                    PAGE  9

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

320          KK  170180   ROUTE
321          KM        Route flows in Wagner Wash to C180R.  Slope = (1410-1366) / 6770
322          RS       4    FLOW      -1
323          RC   0.045   0.035   0.045    6770  0.0065  110.00
324          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
325          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *

326          KK    S150   BASIN
327          KM        Compute runoff from subbasin 150
328          BA   0.774
329          LG    0.25    0.35    4.65    0.32       7
330          UI      71     115     270     425     531     672     746     480     406     356
331          UI     312     262     212     181     159     132     106      89      77      65
332          UI      54      47      35      35      35      14      14      13      14      14
333          UI      13      14      14       0       0       0       0       0       0       0
             *

334          KK   RR150 STORAGE
335          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 3
336          KM    outlet based on assumed 2 ft pipe
337          KM   PROPOSED DETENTION BASIN
338          KM    STRUCTURE ID:RR150
339          KM    DIMENSIONS: L=400ft, W=225ft, D=6ft, Sideslope (?H:1V)= 3,  Vol.= 8.1 ac-ft
340          RS       1    STOR       0
341          SV     0.0     1.5     3.0     6.3     8.1    10.0    13.9    16.0    18.2    20.5
342          SE     0.0     1.0     2.0     4.0     5.0     6.0     8.0     9.0    10.0    11.0
343          SQ     0.0   363.0   513.4   726.1   811.8   889.3  1026.8  1089.1  1148.0  1204.1
             *

344          KK  150165   ROUTE
345          KM    ROUTE OUTFLOW FROM RR150 TO S165
346          KM   PROPOSED CHANNEL
347          KM    STRUCTURE ID(s): RR15020
348          KM    Slope=(1760.1 - 1675.9) / 4081.6
349          RS       1    FLOW      -1
350          RC   0.045   0.045   0.045  4081.60.020625   104.5
351          RX     0.0    13.5    13.5    13.5   173.5   173.5   173.5   187.0
352          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

353          KK    S165   BASIN
354          KM        Compute runoff from subbasin 165
355          BA   0.616
356          LG    0.30    0.35    4.55    0.35       3
357          UI     121     477     809    1022     617     474     347     254     185     127
358          UI      96      69      52      36      20      20      20      20       0       0
             *
1                                          HEC-1 INPUT                                                    PAGE 10

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

359          KK    C165 COMBINE
360          KM    COMBINE ROUTED FLOW FROM RR150 WITH RUNOFF FROM S165 AT PROPOSED BASIN SITE
361          HC       2
             *

362          KK   RR165 STORAGE
363          KM    ROUTE RUNOFF FROM S165 THROUGH PROPOSED DETENTION BASIN
364          KM    outlet based on assumed 2 ft pipe
365          KM   PROPOSED DETENTION BASIN
366          KM    STRUCTURE ID:RR165
367          KM    DIMENSIONS: L=400ft, W=240ft, D=6ft, Sideslope (?H:1V)= 3,  Vol.= 8.8 ac-ft
368          RS       1    STOR       0
369          SV     0.0     1.6     3.3     5.1     6.9     8.8    10.9    15.1    19.8    24.8
370          SE     0.0     1.0     2.0     3.0     4.0     5.0     6.0     8.0    10.0    12.0
371          SQ     0.0   423.5   599.0   733.6   847.1   947.1  1037.5  1198.0  1339.4  1467.2
             *

372          KK  165175   ROUTE
373          KM    ROUTE OUTFLOW FROM RR165 TO SUN VALLEY PARKWAY IN NEW CHANNEL THRU S175
374          KM   PROPOSED CHANNEL
375          KM    STRUCTURE ID(s): C17510A, C17510B
376          KM    Slope=(1674.9 - 1462.9) / 13245.4
377          RS       8    FLOW      -1
378          RC   0.045   0.045   0.045 13245.40.016012   104.5
379          RX     0.0    13.5    13.5    13.5   213.5   213.5   213.5   227.0
380          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

381          KK    S175   BASIN
382          KM        Compute runoff from subbasin 175
383          BA   1.802
384          LG    0.29    0.35    4.50    0.36       1
```

```
385          UI     126     127     317     525     763     877    1013    1295    1376     895
386          UI     771     703     622     572     507     439     372     318     296     274
387          UI     227     192     163     148     138     116      96      97      73      62
388          UI      62      63      55      24      25      24      24      24      24      25
389          UI      24      24      24      25       0       0       0       0       0       0
             *

390          KK    C175 COMBINE
391          KM    COMBINE RUNOFF FROM S175 WITH ROUTED FLOW FROM C165
392          HC       2
             *

393          KK    175R   ROUTE
394          KM        Route runoff from S175 to intermediate point in S190 (C180RI).
395          KM   PROPOSED CHANNEL
396          KM    STRUCTURE ID(s): RR17510
397          KM    Slope=(1462.9 - 1413.1) / 3035.2
398          RS       2    FLOW      -1
399          RC   0.045   0.045   0.045  3035.20.016393   104.5
400          RX     0.0    13.5    13.5    13.5   293.5   293.5   293.5   307.0
401          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *
1                                          HEC-1 INPUT                                          PAGE 11

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

402          KK    S180   BASIN
403          KM        Compute runoff from subbasin 180
404          BA   1.443
405          LG    0.25    0.35    4.25    0.42       2
406          UI     107     108     311     490     677     785     927    1258     896     684
407          UI     622     547     497     440     379     315     275     250     228     185
408          UI     154     138     120     115      82      83      73      52      53      52
409          UI      50      21      20      21      20      21      21      20      21      21
410          UI      20       0       0       0       0       0       0       0       0       0
             *

411          KK    180R   ROUTE
412          KM        Route runoff from S180 to intermediate point in S190 (C180RI).
413          KM   PROPOSED CHANNEL
414          KM    STRUCTURE ID(s): S18010, RR18010
415          KM    Slope=(1531.6 - 1413.1) / 7990.1
416          RS       2    FLOW      -1
417          RC   0.045   0.045   0.045  7990.1 0.01483   104.5
418          RX     0.0    13.5    13.5    13.5   193.5   193.5   193.5   207.0
419          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

420          KK  C180RI COMBINE
421          KM        Combine routed flows from S175 and S180
422          HC       2
             *

423          KK  RI180R   ROUTE
424          KM   PROPOSED CHANNEL
425          KM    STRUCTURE ID(s): C180R10
426          KM    Slope=(1413.1 - 1367.6) / 3720.6
427          RS       3    FLOW      -1
428          RC   0.045   0.045   0.045  3720.60.012229   104.5
429          RX     0.0    13.5    13.5    13.5   373.5   373.5   373.5   387.0
430          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

431          KK   C180R COMBINE
432          KM        Combine flows in Wagner Wash
433          HC       2
             *

434          KK  180185   ROUTE
435          KM        Route flows in Wagner Wash from C180R to C185R.
436          RS       3    FLOW      -1
437          RC   0.045   0.035   0.045  3450.0  0.0075   106.0
438          RX     0.0   100.0   200.0   206.0   406.0   412.0   512.0   612.0
439          RY   106.0   104.0   102.0   100.0   100.0   102.0   104.0   106.0
             *
1                                          HEC-1 INPUT                                          PAGE 12

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

440          KK    S185   BASIN
441          KM        Compute runoff from subbasin 185
442          BA   2.421
443          LG    0.16    0.35    4.35    0.40       1
444          UI     165     166     391     668     960    1130    1281    1613    1908    1239
445          UI    1060     936     847     785     677     614     534     438     399     375
446          UI     338     271     230     210     183     183     133     126     127      85
447          UI      80      82      81      67      32      31      32      32      31      32
448          UI      32      31      32      32      32       0       0       0       0       0
             *

449          KK    185R   ROUTE
450          KM        Route runoff from S185 to Wagner Wash.  Slope = (1442-1340) / 8534
451          RS       5    FLOW      -1
```

```
452          RC   0.045   0.035   0.045    8534  0.0120  104.00
453          RX    0.00   30.00  100.00  106.00  156.00  162.00  232.00  262.00
454          RY  104.00  102.00  102.00  100.00  100.00  102.00  102.00  104.00
             *

455          KK   C185R COMBINE
456          KM        Combine flows in Wagner Wash
457          HC       2
             *

458          KK  185190   ROUTE
459          KM        Route flow in Wagner Wash to C190.  Slope = (1340-1308) / 2700
460          RS       2    FLOW      -1
461          RC   0.045   0.040   0.045    2700  0.0119  106.00
462          RX    0.00   80.00  160.00  166.00  416.00  422.00  502.00  582.00
463          RY  106.00  103.00  102.00  100.00  100.00  102.00  103.00  106.00
             *

464          KK    S190   BASIN
465          KM        Compute runoff from subbasin 190
466          BA   4.054
467          LG    0.35    0.35    3.81    0.44       0
468          UI     274     278     647    1125    1573    1918    2319    2540    2637    2574
469          UI    2467    2112    1787    1506    1256    1044     891     745     605     522
470          UI     432     370     293     266     188     191     188      78      68      66
471          UI      67      67      67      67      67      67       0       0       0       0
             *

472          KK    C190 COMBINE
473          KM        Combine all flow in Wagner Wash at C190
474          HC       2   39.24
             *

475          KK  190195   ROUTE
476          KM        Route flow from C190 to the Hassayampa River. Slope = (1308-1255)/4941
477          RS       2    FLOW      -1
478          RC   0.045   0.035   0.045    4941  0.0107  110.00
479          RX    0.00   50.00  200.00  206.00  356.00  366.00  516.00  566.00
480          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *
1                                          HEC-1 INPUT                                          PAGE 13

        LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

481          KK    S195   BASIN
482          KM        Compute runoff from subbasin 195
483          BA   1.808
484          LG    0.33    0.35    4.25    0.42       0
485          UI     107     108     188     366     523     660     786     925     975    1026
486          UI    1044     975     915     778     674     571     496     419     359     313
487          UI     260     223     202     165     146     115     114      76      74      74
488          UI      67      27      26      26      26      26      26      27      26      26
489          UI      27       0       0       0       0       0       0       0       0       0
             *

490          KK    C195 COMBINE
491          KM        Combine all flows in Wagner Wash at the Hassayampa River
492          HC       2   41.05
493          ZZ
1
             SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   53        S100
                .
                .
   61           .        S102
                .           .
                .           .
   68        C102............
                V
                V
   71       RR102
                .
                .
   83           .-------->    CF02
   80        D102
                V
                V
   86      100105
                .
                .
   92           .        S105
                .           .
                .           .
  102           .           .          .<-------    CF02
  100           .           .       CF02
                .           .          V
                .           .          V
  103           .           .     102105
                .           .          .
```

```
                .          .          .
109       C105U.......................
                .
                .
114             .        S110
                .           V
                .           V
121             .      11015I
                .           V
                .           V
127             .      15I15R
                .           .
                .           .
133             .           .        S115
                .           .           .
                .           .           .
141             .        C115............
                .           V
                .           V
144             .      115120
                .           .
                .           .
150             .           .        S120
                .           .           .
                .           .           .
157             .        C120............
                .           .
                .           .
160       C105D............
             V
             V
163      120135
                .
                .
169             .        S125
                .           V
                .           V
175             .       RR125
                .           V
                .           V
184             .      12535I
                .           .
                .           .
193             .           .        S130
                .           .           V
                .           .           V
199             .           .       RR130
                .           .           V
                .           .           V
208             .           .      13035I
                .           .           .
                .           .           .
217             .       C135I............
                .           V
                .           V
220             .      35I135
                .           .
                .           .
229             .           .        S135
                .           .           .
                .           .           .
235             .       C135L............
                .           .
                .           .
238        C135............
              V
              V
241      135145
                .
                .
247             .        S140
                .           V
                .           V
253             .      140145
                .           .
                .           .
259             .           .        S145
                .           .           .
                .           .           .
265        C145........................
              V
              V
268      145155
                .
                .
274             .        S155
                .           .
                .           .
281        C155............
              V
              V
284      155160
                .
                .
290             .        S160
```

```
                .           .
                .           .
296           C160...........
                V
                V
299         160170
                .
                .
305             .       S170
                .          V
                .          V
311             .       170R
                .           .
                .           .
317         C170R...........
                V
                V
320         170180
                .
                .
326             .       S150
                .          V
                .          V
334             .      RR150
                .          V
                .          V
344             .     150165
                .           .
                .           .
353             .           .       S165
                .           .          .
                .           .          .
359             .       C165...........
                .          V
                .          V
362             .      RR165
                .          V
                .          V
372             .     165175
                .           .
                .           .
381             .           .       S175
                .           .          .
                .           .          .
390             .       C175...........
                .          V
                .          V
393             .       175R
                .           .
                .           .
402             .           .       S180
                .           .          V
                .           .          V
411             .           .       180R
                .           .          .
                .           .          .
420             .     C180RI...........
                .          V
                .          V
423             .     RI180R
                .           .
                .           .
431         C180R...........
                V
                V
434         180185
                .
                .
440             .       S185
                .          V
                .          V
449             .       185R
                .           .
                .           .
455         C185R...........
                V
                V
458         185190
                .
                .
464             .       S190
                .           .
                .           .
472           C190...........
                V
                V
475         190195
                .
                .
481             .       S195
                .           .
                .           .
490           C195...........
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************                    ****************************************
*                                      *                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *   U.S. ARMY CORPS OF ENGINEERS       *
*              JUN  1998               *                    *   HYDROLOGIC ENGINEERING CENTER      *
*           VERSION 4.1                *                    *         609 SECOND STREET            *
*                                      *                    *      DAVIS, CALIFORNIA 95616         *
*  RUN DATE   19APR06  TIME  16:26:37  *                    *          (916) 756-1104              *
*                                      *                    *                                      *
****************************************                    ****************************************
```

```
                    HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
                   - WAGNER SUB-AREA
                   - ALTERNATIVE B2

                  Alternative Description
                  The purpose of Alternative B is to capture the upstream flow at the
                  apex using online detention basins.  The presence of the detention
                  basins eliminates the downstream alluvial fan uncertainties by
                  controlling the flow from the apices to the outfall.  Alternative B2
                  is based on using a relatively smaller on-line detention basin at the
                  apex accompanied by larger leveed channel sections in the down fan
                  direction.


                  SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
                  JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
                  MODELER: TED LEHMAN
                  FILENAME: A4_EX24.DAT

                  100-YEAR 24-HOUR MODEL
                  EXISTING CONDITIONS
                  AREA 4 WATERSHED AREA = 90.5 SQ. MILES
                          MODELED AREA = 76.8 SQ. MILES

                  GREEN-AMPT LOSS METHOD
                  S-GRAPH UNIT HYDROGRAPHS
                    - MOUNTAIN
                    - DESERT/RANGELAND
                  NORMAL-DEPTH CHANNEL ROUTING
                  LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
                    - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
                    - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
                    - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
                  SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)

 37 IO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN          5  MINUTES IN COMPUTATION INTERVAL
                      IDATE     1JAN99  STARTING DATE
                      ITIME       1200  STARTING TIME
                         NQ       2000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     8JAN99  ENDING DATE
                     NDTIME       1035  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE  166.58 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT

 38 JD          INDEX STORM NO. 1
                       STRM       4.20  PRECIPITATION DEPTH
                       TRDA        .10  TRANSPOSITION DRAINAGE AREA

 39 PI            PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                      .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                      .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
```

```
                   .01     .01     .01     .01     .01     .01     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00

 49 JD         INDEX STORM NO. 2
                    STRM      3.99  PRECIPITATION DEPTH
                    TRDA     10.00  TRANSPOSITION DRAINAGE AREA

  0 PI           PRECIPITATION PATTERN
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .01     .00     .01
                   .01     .01     .01     .01     .01     .01     .01     .01     .03     .03
                   .03     .09     .09     .09     .01     .01     .01     .01     .01     .01
                   .01     .01     .01     .01     .01     .01     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00

 50 JD         INDEX STORM NO. 3
                    STRM      3.78  PRECIPITATION DEPTH
                    TRDA     30.00  TRANSPOSITION DRAINAGE AREA

  0 PI           PRECIPITATION PATTERN
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .01     .00     .01
                   .01     .01     .01     .01     .01     .01     .01     .01     .03     .03
                   .03     .09     .09     .09     .01     .01     .01     .01     .01     .01
                   .01     .01     .01     .01     .01     .01     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00

 51 JD         INDEX STORM NO. 4
                    STRM      3.65  PRECIPITATION DEPTH
                    TRDA     60.00  TRANSPOSITION DRAINAGE AREA

  0 PI           PRECIPITATION PATTERN
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
```

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

52 JD INDEX STORM NO. 5
STRM 3.58 PRECIPITATION DEPTH
TRDA 90.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

*** ***

```
          **************
          *            *
  71 KK   *   RR102    *     STORAGE
          *            *
          **************
```

74 KO OUTPUT CONTROL VARIABLES
IPRNT 5 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	S100	5214.	12.58	965.	241.	80.	6.99		
+	HYDROGRAPH AT	S102	3434.	12.33	420.	105.	35.	3.23		
+	2 COMBINED AT	C102	7803.	12.42	1367.	342.	114.	10.23		
+	ROUTED TO	RR102	149.	14.42	141.	119.	82.	10.23		

```
                DIVERSION TO
+                       CF02      75.  14.42      71.      59.      41.   10.23
                HYDROGRAPH AT
+                       D102      75.  14.42      71.      59.      41.   10.23
                ROUTED TO
+                     100105      70.  20.33      67.      58.      41.   10.23
                HYDROGRAPH AT
+                       S105    3466.  12.50     531.     133.      44.    4.37
                HYDROGRAPH AT
+                       CF02      75.  14.42      71.      59.      41.   10.23
                ROUTED TO
+                     102105      74.  15.67      70.      59.      41.   10.23
                3 COMBINED AT
+                      C105U    3466.  12.50     587.     238.     125.   14.60
                HYDROGRAPH AT
+                       S110     532.  12.17      62.      16.       5.     .43
                ROUTED TO
+                    11015I     456.  12.42      62.      16.       5.     .43
                ROUTED TO
+                    15I15R     412.  12.75      62.      16.       5.     .43
                HYDROGRAPH AT
+                       S115    1693.  12.50     287.      73.      24.    2.25
                2 COMBINED AT
+                       C115    1937.  12.67     346.      89.      30.    2.68
                ROUTED TO
+                     115120    1900.  12.75     346.      89.      30.    2.68
                HYDROGRAPH AT
+                       S120    2032.  12.33     247.      62.      21.    2.00
                2 COMBINED AT
+                       C120    3202.  12.42     585.     149.      50.    4.68
                2 COMBINED AT
+                      C105D    6217.  12.42    1091.     359.     163.   19.28
                ROUTED TO
+                     120135    6220.  12.50    1091.     359.     163.   19.28
                HYDROGRAPH AT
+                       S125     161.  12.08      12.       3.       1.     .09
                ROUTED TO
+                      RR125     152.  12.08      12.       3.       1.     .09
                ROUTED TO
+                    12535I     139.  12.17      12.       3.       1.     .09
                HYDROGRAPH AT
+                       S130     415.  12.17      39.      10.       3.     .31
                ROUTED TO
+                      RR130     370.  12.25      39.      10.       3.     .31
                ROUTED TO
+                    13035I     361.  12.25      39.      10.       3.     .31
                2 COMBINED AT
+                      C135I     478.  12.25      50.      13.       4.    1.18
                ROUTED TO
+                    35I135     222.  13.25      49.      13.       4.    1.18
                HYDROGRAPH AT
+                       S135    1015.  12.25      99.      25.       8.     .88
                2 COMBINED AT
+                      C135L    1001.  12.25     146.      37.      12.    2.06
                2 COMBINED AT
+                       C135    6650.  12.42    1214.     389.     173.   21.34
                ROUTED TO
+                     135145    5884.  12.83    1202.     386.     172.   21.34
                HYDROGRAPH AT
+                       S140    2029.  12.17     172.      43.      14.    1.37
                ROUTED TO
+                     140145    1632.  12.42     172.      43.      14.    1.37
                HYDROGRAPH AT
```

+		S145	1945.	12.25	193.	48.	16.	1.76
+	3 COMBINED AT	C145	6533.	12.75	1505.	461.	197.	24.47
+	ROUTED TO	145155	6539.	12.83	1505.	461.	197.	24.47
+	HYDROGRAPH AT	S155	1781.	12.33	218.	55.	18.	1.83
+	2 COMBINED AT	C155	7021.	12.75	1688.	507.	212.	26.30
+	ROUTED TO	155160	6997.	12.83	1686.	506.	212.	26.30
+	HYDROGRAPH AT	S160	1342.	12.17	124.	31.	10.	1.14
+	2 COMBINED AT	C160	7078.	12.83	1785.	531.	220.	27.44
+	ROUTED TO	160170	6941.	13.00	1778.	529.	220.	27.44
+	HYDROGRAPH AT	S170	1802.	12.17	169.	42.	14.	1.46
+	ROUTED TO	170R	1638.	12.33	169.	42.	14.	1.46
+	2 COMBINED AT	C170R	7196.	13.00	1916.	563.	231.	28.90
+	ROUTED TO	170180	7085.	13.17	1907.	562.	231.	28.90
+	HYDROGRAPH AT	S150	729.	12.33	107.	29.	10.	.77
+	ROUTED TO	RR150	639.	12.50	107.	29.	10.	.77
+	ROUTED TO	150165	563.	12.67	107.	29.	10.	.77
+	HYDROGRAPH AT	S165	842.	12.17	78.	20.	7.	.62
+	2 COMBINED AT	C165	981.	12.17	183.	48.	16.	1.39
+	ROUTED TO	RR165	841.	12.33	183.	48.	16.	1.39
+	ROUTED TO	165175	747.	13.17	182.	48.	16.	1.39
+	HYDROGRAPH AT	S175	1278.	12.50	217.	55.	18.	1.80
+	2 COMBINED AT	C175	1278.	12.50	392.	102.	34.	3.19
+	ROUTED TO	175R	1245.	13.17	391.	102.	34.	3.19
+	HYDROGRAPH AT	S180	1039.	12.50	171.	44.	15.	1.44
+	ROUTED TO	180R	744.	12.83	170.	44.	15.	1.44
+	2 COMBINED AT	C180RI	1849.	13.08	555.	144.	48.	4.63
+	ROUTED TO	RI180R	1828.	13.17	552.	144.	48.	4.63
+	2 COMBINED AT	C180R	8564.	13.25	2375.	681.	271.	33.54
+	ROUTED TO	180185	8544.	13.33	2368.	680.	270.	33.54
+	HYDROGRAPH AT	S185	1655.	12.50	288.	73.	24.	2.42
+	ROUTED TO	185R	1411.	12.92	287.	73.	24.	2.42
+	2 COMBINED AT	C185R	9412.	13.25	2599.	739.	290.	35.96

```
          ROUTED TO
+                        185190      9393.   13.25        2594.        738.        290.       35.96

          HYDROGRAPH AT
+                         S190      2590.   12.58         448.        112.         37.        4.05

          2 COMBINED AT
+                         C190     10112.   13.17        2943.        827.        320.       39.24

          ROUTED TO
+                        190195     10024.   13.33        2934.        826.        320.       39.24

          HYDROGRAPH AT
+                         S195      1039.   12.67         202.         51.         17.        1.81

          2 COMBINED AT
+                         C195     10340.   13.33        3089.        866.        333.       41.05
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    RR102
                         (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                   ELEVATION        1550.00           1556.00          1556.00
                                   STORAGE              553.              2705.            2705.
                                   OUTFLOW                0.               600.             600.

                   RATIO     MAXIMUM      MAXIMUM     MAXIMUM     MAXIMUM     DURATION     TIME OF     TIME OF
                     OF     RESERVOIR      DEPTH      STORAGE     OUTFLOW     OVER TOP    MAX OUTFLOW  FAILURE
                    PMF      W.S.ELEV    OVER DAM      AC-FT        CFS        HOURS        HOURS       HOURS

                   1.00      1552.28         .00       1258.        171.         .00        14.42         .00

     PLAN  2 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                   ELEVATION        1550.00           1556.00          1556.00
                                   STORAGE              553.              2705.            2705.
                                   OUTFLOW                0.               600.             600.

                   RATIO     MAXIMUM      MAXIMUM     MAXIMUM     MAXIMUM     DURATION     TIME OF     TIME OF
                     OF     RESERVOIR      DEPTH      STORAGE     OUTFLOW     OVER TOP    MAX OUTFLOW  FAILURE
                    PMF      W.S.ELEV    OVER DAM      AC-FT        CFS        HOURS        HOURS       HOURS

                   1.00      1552.14         .00       1204.        150.         .00        14.42         .00

     PLAN  3 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                   ELEVATION        1550.00           1556.00          1556.00
                                   STORAGE              553.              2705.            2705.
                                   OUTFLOW                0.               600.             600.

                   RATIO     MAXIMUM      MAXIMUM     MAXIMUM     MAXIMUM     DURATION     TIME OF     TIME OF
                     OF     RESERVOIR      DEPTH      STORAGE     OUTFLOW     OVER TOP    MAX OUTFLOW  FAILURE
                    PMF      W.S.ELEV    OVER DAM      AC-FT        CFS        HOURS        HOURS       HOURS

                   1.00      1552.00         .00       1149.        128.         .00        14.50         .00

     PLAN  4 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                   ELEVATION        1550.00           1556.00          1556.00
                                   STORAGE              553.              2705.            2705.
                                   OUTFLOW                0.               600.             600.

                   RATIO     MAXIMUM      MAXIMUM     MAXIMUM     MAXIMUM     DURATION     TIME OF     TIME OF
                     OF     RESERVOIR      DEPTH      STORAGE     OUTFLOW     OVER TOP    MAX OUTFLOW  FAILURE
                    PMF      W.S.ELEV    OVER DAM      AC-FT        CFS        HOURS        HOURS       HOURS

                   1.00      1551.89         .00       1115.        121.         .00        14.50         .00

     PLAN  5 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                   ELEVATION        1550.00           1556.00          1556.00
                                   STORAGE              553.              2705.            2705.
                                   OUTFLOW                0.               600.             600.

                   RATIO     MAXIMUM      MAXIMUM     MAXIMUM     MAXIMUM     DURATION     TIME OF     TIME OF
                     OF     RESERVOIR      DEPTH      STORAGE     OUTFLOW     OVER TOP    MAX OUTFLOW  FAILURE
                    PMF      W.S.ELEV    OVER DAM      AC-FT        CFS        HOURS        HOURS       HOURS

                   1.00      1551.82         .00       1095.        117.         .00        14.50         .00

*** NORMAL END OF HEC-1 ***
```

```
1*************************************
 *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *              JUN   1998           *
 *            VERSION 4.1            *
 *                                   *
 *  RUN DATE   19APR06  TIME  16:32:02   *
 *                                   *
 *************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 756-1104          *
*                                   *
*************************************
```

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

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

```
1                                    HEC-1 INPUT                                    PAGE  1

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

    1           ID    HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
    2           ID     - WAGNER SUB-AREA
    3           ID     - ALTERNATIVE B3
    4           ID
    5           ID   Alternative Description
    6           ID   The purpose of Alternative B is to capture the upstream flow at the
    7           ID   apex using online detention basins.  The presence of the detention
    8           ID   basins eliminates the downstream alluvial fan uncertainties by
    9           ID   controlling the flow from the apices to the outfall.  Alternative B3
   10           ID   is based on using a relatively larger on-line detention basin at the
   11           ID   apex accompanied by smaller excavated channel sections in the down fan
   12           ID   direction.  The excavated earthen channels are complemented with a
   13           ID   120-foot wide adjacent riparian preservation corridor.
   14           ID
   15           ID
   16           ID   SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
   17           ID   JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
   18           ID   MODELER: TED LEHMAN
   19           ID   FILENAME: A4_EX6.DAT
   20           ID
   21           ID   100-YEAR 6-HOUR MODEL
   22           ID   EXISTING CONDITIONS
   23           ID   AREA 4 WATERSHED AREA = 90.5 SQ. MILES
   24           ID            MODELED AREA = 76.8 SQ. MILES
   25           ID
   26           ID   GREEN-AMPT LOSS METHOD
   27           ID   S-GRAPH UNIT HYDROGRAPHS
   28           ID     - MOUNTAIN
   29           ID     - DESERT/RANGELAND
   30           ID   NORMAL-DEPTH CHANNEL ROUTING
   31           ID   LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
   32           ID     - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
   33           ID     - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
   34           ID     - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
   35           ID   SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)
   36           IT       5  1JAN99    1200    2000
   37           IN      15
   38           IO       5
                *DIAGRAM
                *
   39           JD   3.196  0.1000
   40           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
   41           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
   42           PC   0.962   0.972   0.983   0.991   1.000
   43           JD   3.181  0.5000
   44           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
   45           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
   46           PC   0.962   0.972   0.983   0.991   1.000
   47           JD   3.120     2.8
   48           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
   49           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
   50           PC   0.950   0.963   0.975   0.988   1.000
   51           JD   2.950    16.0
   52           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
   53           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
1                                    HEC-1 INPUT                                    PAGE  2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  54          PC   0.946   0.960   0.973   0.987   1.000
  55          JD   2.592    90.0
  56          PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
  57          PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
  58          PC   0.927   0.945   0.964   0.982   1.000
              *

  59          KK    S100   BASIN
  60          KM        Compute runoff from subbasin 100
  61          BA   6.994
  62          LG    0.35    0.38    6.40    0.16       0
  63          UI     449     455     964    1717    2422    3046    3616    4050    4275    4281
  64          UI    4178    3867    3211    2766    2319    1968    1698    1387    1198     990
  65          UI     848     715     635     476     471     313     309     309     204     110
  66          UI     109     111     110     109     111     109     110     111       0       0
              *

  67          KK    S102   BASIN
  68          KM        Compute runoff from subbasin 102
  69          BA   3.234
  70          LG    0.35    0.38    5.60    0.22       0
  71          UI     333     657    1539    2292    2943    3178    3083    2643    1985    1523
  72          UI    1179     890     674     542     377     300     232     193      81      82
  73          UI      81      81      83       0       0       0       0       0       0       0
              *

  74          KK    C102 COMBINE
  75          KM        Combine total inflow to detention area behind (north) of CAP Canal
  76          HC       2
              *

  77          KK   RR102 STORAGE
  78          KM        Route flows through storage area behind CAP Canal
  79          KM        Stage-storage-discharge data from Wagner Wash FDS Hydrology (1991)
  80          KO
  81          RS       1    STOR      -1
  82          SV          553.00 1148.00 2316.00 2705.00
  83          SQ                  128.00  587.00  600.00
  84          SE  1543.0 1550.00 1552.00 1555.00 1556.00
  85          ST  1556.0  1320.0     3.2     1.5
              *

  86          KK    D102  DIVERT
  87          KM        Divide flow evenly over the two 18-foot wide CAP overchutes
  88          KM        although the inverts are 0.5 feet different in elevation
  89          DT    CF02     0.0     0.0
  90          DI     0.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0     0.0
  91          DQ     0.0    50.0   500.0  5000.0     0.0     0.0     0.0     0.0     0.0     0.0
              *
1                                          HEC-1 INPUT                                          PAGE  3
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  92          KK  100105   ROUTE
  93          KM        Route outflows from east CAP overchute to Sun Valley Parkway.
  94          RS       9    FLOW      -1
  95          RC   0.035   0.055   0.035   11235  0.0045  105.00
  96          RX    0.00  120.00  240.00  250.00  590.00  600.00  720.00  840.00
  97          RY  105.00  102.50  100.00  100.00  100.00  100.00  102.50  105.00
              *

  98          KK    S105   BASIN
  99          KM        Compute runoff from subbasin 105
 100          BA   4.370
 101          LG    0.35    0.35    4.80    0.30       0
 102          UI     345     380    1112    1723    2334    2867    3143    3344    3176    2865
 103          UI    2374    1903    1555    1291    1018     832     685     564     458     369
 104          UI     288     235     238     126      83      85      84      84      84      84
 105          UI      84       0       0       0       0       0       0       0       0       0
              *

 106          KK    CF02RETRIEVE
 107          KM        Retrieve flow from west CAP overchute.
 108          DR    CF02
              *

 109          KK  102105   ROUTE
 110          KM        Route retrieved flow from west overchute to C105.
 111          RS       6    FLOW      -1
 112          RC   0.045   0.050   0.045    7656  0.0065  104.00
 113          RX    0.00   40.00  120.00  130.00  250.00  260.00  340.00  380.00
 114          RY  104.00  102.00  101.00  100.00  100.00  101.00  102.00  104.00
              *

 115          KK   C105U COMBINE
 116          KM        Combine runoff from S105 with routed flow from 100105 and 102105
 117          KM        (CAP overchute flows). This is the total flow in Wagner Wash upstream
 118          KM        of Sun Valley Parkway.
 119          HC       3  14.598
              *

 120          KK    S110   BASIN
```

```
 121          KM        Compute runoff from subbasin 110
 122          BA   0.430
 123          LG    0.25    0.37    5.20    0.25       6
 124          UI      56     166     335     449     587     358     291     241     188     140
 125          UI     121      86      68      56      43      32      27      22      11      11
 126          UI      10      11      11       0       0       0       0       0       0       0
              *

 127          KK  11015I   ROUTE
 128          KM        Route flow from C105 through subbasin 110 to C115.
 129          RS       2    FLOW      -1
 130          RC   0.045   0.035   0.045    3783  0.0267  102.00
 131          RX    0.00   50.00  100.00  110.00  120.00  130.00  180.00  230.00
 132          RY  102.00  101.50  101.00  100.00  100.00  101.00  101.50  102.00
              *
1                                          HEC-1 INPUT                                          PAGE  4

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 133          KK  15I15R   ROUTE
 134          KM        Route flows from split through S115 to C115.
 135          RS       8    FLOW      -1
 136          RC   0.035   0.030   0.035   14128  0.0151  105.00
 137          RX    0.00   25.00   58.00   65.00   85.00   92.00  125.00  150.00
 138          RY  105.00  102.50  102.00  100.00  100.00  102.00  102.50  105.00
              *

 139          KK    S115   BASIN
 140          KM        Compute runoff from subbasin 115
 141          BA   2.247
 142          LG    0.32    0.35    4.80    0.30       2
 143          UI     160     163     434     709     984    1212    1401    1530    1539    1465
 144          UI    1351    1100     918     773     632     528     444     351     304     252
 145          UI     203     170     140     110     110      85      39      39      40      39
 146          UI      39      39      40      39       0       0       0       0       0       0
              *

 147          KK    C115 COMBINE
 148          KM        Combine runoff from S115 with routed flow.
 149          HC       2   2.677
              *

 150          KK  115120   ROUTE
 151          KM        Route total flows from C115 to C120. Slope =(1532-1494) / 4077
 152          RS       2    FLOW      -1
 153          RC   0.030   0.025   0.030    4077  0.0093  105.00
 154          RX    0.00   30.00   75.00   80.00  105.00  110.00  155.00  190.00
 155          RY  105.00  101.50  101.00  100.00  100.00  101.00  101.50  105.00
              *

 156          KK    S120   BASIN
 157          KM        Compute runoff from subbasin 120
 158          BA   2.004
 159          LG    0.33    0.35    4.65    0.32       1
 160          UI     206     408     954    1419    1824    1969    1911    1637    1230     944
 161          UI     731     551     418     336     234     186     143     120      50      51
 162          UI      50      51      51       0       0       0       0       0       0       0
              *

 163          KK    C120 COMBINE
 164          KM        Combine flows at Wagner Wash at outlet of channel along SVP
 165          HC       2   4.681
              *

 166          KK   C105D COMBINE
 167          KM        Combine flows from C105 and C120 just D/S of Sun Valley Parkway
 168          HC       2  19.279
              *
1                                          HEC-1 INPUT                                          PAGE  5

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 169          KK  120135   ROUTE
 170          KM        Route flows in Wagner Wash from Sun Valley Parkway to C135.
 171          RS       1    FLOW      -1
 172          RC   0.045   0.035   0.045     951  0.0074  110.00
 173          RX    0.00  225.00  450.00  455.00  485.00  490.00  615.00  840.00
 174          RY  110.00  105.00  102.00  100.00  100.00  102.00  102.00  110.00
              *

 175          KK    S125   BASIN
 176          KM        Compute runoff from subbasin 125
 177          BA   0.093
 178          LG    0.25    0.35    4.15    0.44       5
 179          UI      46     164     204     116      73      46      28      17      12       4
 180          UI       5       4       0       0       0       0       0       0       0       0
              *

 181          KK   RR125 STORAGE
 182          KM   PROPOSED DETENTION BASIN
 183          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13E
 184          KM    STRUCTURE ID:RR125
 185          KM    DIMENSIONS: L=300ft, W=200ft, D=6ft, Sideslope (?H:1V)= 3,  Vol.= 5.2 ac-ft
```

```
186          RS       1    STOR       0
187          SV     0.0     0.4     0.9     1.9     2.9     4.0     5.2     6.4     7.7     9.0
188          SE     0.0     0.5     1.0     2.0     3.0     4.0     5.0     6.0     7.0     8.0
189          SQ     0.0    10.7    15.1    21.4    26.2    30.3    33.8    37.1    40.0    42.8
             *

190          KK  12535I   ROUTE
191          KM   PROPOSED CHANNEL
192          KM        Route flows from S125 to intermediate combination point in S135.
193          KM    STRUCTURE ID(s): RR12510
194          KM    Slope=(1746.1 - 1697.0) / 1852.5
195          RS       1    FLOW      -1
196          RC   0.045   0.045   0.045  1852.50.026481   101.5
197          RX     0.0     4.5     9.5    12.5    20.5    23.5    28.5    33.0
198          RY   101.5   100.0   100.0    99.0    99.0   100.0   100.0   101.5
             *

199          KK    S130   BASIN
200          KM        Compute runoff from subbasin 130
201          BA   0.310
202          LG    0.21    0.35    4.20    0.43       4
203          UI      61     239     399     514     313     240     176     128      94      64
204          UI      49      36      26      19      10      10      10      10       0       0
             *

205          KK   RR130 STORAGE
206          KM   PROPOSED DETENTION BASIN
207          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13W
208          KM    STRUCTURE ID:RR130
209          KM    DIMENSIONS: L=600ft, W=290ft, D=7ft, Sideslope (?H:1V)= 3,  Vol.= 19.2 ac-ft
210          RS       1    STOR       0
211          SV     0.0     2.9     6.0     9.1    12.4    15.7    19.2    22.8    26.5    30.4
212          SE     0.0     1.0     2.0     3.0     4.0     5.0     6.0     7.0     8.0     9.0
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

213          SQ     0.0    23.6    33.4    40.9    47.3    52.9    57.9    62.5    66.9    70.9
             *

214          KK  13035I   ROUTE
215          KM   PROPOSED CHANNEL
216          KM        Route flow to intermediate point in S135.
217          KM    STRUCTURE ID(s): RR13010
218          KM    Slope=(1728.2 - 1697.0) / 1235.4
219          RS       1    FLOW      -1
220          RC   0.045   0.045   0.045  1235.4 0.02524   101.5
221          RX     0.0     4.5     8.5    11.5    15.5    18.5    22.5    27.0
222          RY   101.5   100.0   100.0    99.0    99.0   100.0   100.0   101.5
             *

223          KK   C135I COMBINE
224          KM        Combine routed flow from RR130 and RR125
225          HC       2    1.18
             *

226          KK  35I135   ROUTE
227          KM   PROPOSED CHANNEL
228          KM        Route combined flows to C135 at Wagner Wash.
229          KM    STRUCTURE ID(s): C135L10
230          KM    Slope=(1697.0 - 1496.9) / 12096.9
231          RS       8    FLOW      -1
232          RC   0.045   0.045   0.045 12096.90.016546   103.0
233          RX     0.0     9.0    39.0    45.0    65.0    71.0   101.0   110.0
234          RY   103.0   100.0   100.0    98.0    98.0   100.0   100.0   103.0
             *

235          KK    S135   BASIN
236          KM        Compute runoff from subbasin 135
237          BA   0.879
238          LG    0.35    0.35    4.25    0.42       0
239          UI     115     362     709     992    1126     989     736     527     370     260
240          UI     194     128      89      76      28      28      29      28       0       0
             *

241          KK   C135L COMBINE
242          KM        Combine all piedmont runoff inflow to Wagner Wash at C135
243          HC       2    2.06
             *

244          KK    C135 COMBINE
245          KM        Combine all flows in Wagner Wash at C135
246          HC       2
             *

247          KK  135145   ROUTE
248          KM        Route flow in Wagner Wash to C145.  Slope = (1487-1454) / 7938
249          RS       4    FLOW      -1
250          RC   0.045   0.035   0.045    7938  0.0042  110.00
251          RX    0.00  300.00  400.00  406.00  506.00  512.00  612.00  912.00
252          RY  110.00  102.50  102.00  100.00  100.00  102.00  102.50  110.00
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
253          KK    S140   BASIN
254          KM        Compute runoff from subbasin 140
255          BA   1.373
256          LG    0.35    0.36    5.00    0.28       0
257          UI     260    1034    1801    2168    1890    1235     809     517     339     211
258          UI     157      56      55      57       0       0       0       0       0       0
             *

259          KK  140145   ROUTE
260          KM        Route runoff from S140 to C145 at Wagner Wash.
261          RS       3    FLOW      -1
262          RC   0.040   0.050   0.040    3656  0.0074  103.00
263          RX    0.00   70.00  140.00  150.00  250.00  260.00  330.00  400.00
264          RY  102.00  101.00  100.00  100.00  100.00  100.00  101.00  102.00
             *

265          KK    S145   BASIN
266          KM        Compute runoff from subbasin 145
267          BA   1.756
268          LG    0.35    0.35    4.15    0.44       0
269          UI     226     672    1369    1903    2167    2003    1508    1085     777     544
270          UI     399     279     198     157      80      55      56      54      55       0
             *

271          KK    C145 COMBINE
272          KM        Combine all flows in Wagner Wash at C145
273          HC       3
             *

274          KK  145155   ROUTE
275          KM        Route flows in Wagner Wash form C145 to C155. Slope = (1454-1452)/631
276          RS       1    FLOW      -1
277          RC   0.045   0.035   0.055     631  0.0032  110.00
278          RX    0.00  150.00  300.00  309.00  379.00  388.00  538.00  838.00
279          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

280          KK    S155   BASIN
281          KM        Compute runoff from subbasin 155
282          BA   1.832
283          LG    0.35    0.35    4.50    0.36       1
284          UI     187     361     846    1266    1637    1771    1735    1497    1161     879
285          UI     681     519     385     314     228     181     130     126      46      46
286          UI      45      46      46      45       0       0       0       0       0       0
             *

287          KK    C155 COMBINE
288          KM        Combine all flows at Wagner Wash at C155
289          HC       2
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

290          KK  155160   ROUTE
291          KM        Route flow in Wagner Wash to C160 (Sun Valley Parkway).
292          RS       5    FLOW      -1
293          RC   0.035   0.035   0.035    2291  0.0052  110.00
294          RX    0.00  200.00  400.00  406.00  506.00  512.00  712.00  912.00
295          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

296          KK    S160   BASIN
297          KM        Compute runoff from subbasin 160
298          BA   1.144
299          LG    0.35    0.35    4.00    0.47       0
300          UI     165     599    1121    1501    1557    1233     844     593     394     281
301          UI     190     122      93      40      40      40      41       0       0       0
             *

302          KK    C160 COMBINE
303          KM        Combine flows at Sun Valley Parkway
304          HC       2   27.44
             *

305          KK  160170   ROUTE
306          KM        Route flows from Sun Valley Parkway to C170R. Slope = (1440-1410)/5248
307          RS       3    FLOW      -1
308          RC   0.040   0.030   0.040    5248  0.0057  108.00
309          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
310          RY  108.00  103.00  102.00  100.00  100.00  102.00  103.00  108.00
             *

311          KK    S170   BASIN
312          KM        Compute runoff from subbasin 170
313          BA   1.464
314          LG    0.35    0.35    4.40    0.38       0
315          UI     209     755    1427    1917    1973    1590    1086     762     513     360
316          UI     246     160     123      52      51      51      52       0       0       0
             *

317          KK    170R   ROUTE
```

```
318          KM        Route flow from S170 to Wagner Wash.  Slope = (1456-1410) / 3986
319          RS       3    FLOW      -1
320          RC   0.045   0.045   0.045    3986  0.0115  104.00
321          RX    0.00   50.00  100.00  103.00  113.00  116.00  166.00  216.00
322          RY  103.00  102.00  101.00  100.00  100.00  101.00  102.00  103.00
             *

323          KK   C170R COMBINE
324          KM        Combine routed flows from S170 and C160 in Wagner Wash
325          HC       2
             *
1                                        HEC-1 INPUT                                                    PAGE  9

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


326          KK  170180   ROUTE
327          KM        Route flows in Wagner Wash to C180R.  Slope = (1410-1366) / 6770
328          RS       4    FLOW      -1
329          RC   0.045   0.035   0.045    6770  0.0065  110.00
330          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
331          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *

332          KK    S150   BASIN
333          KM        Compute runoff from subbasin 150
334          BA   0.774
335          LG    0.25    0.35    4.65    0.32       7
336          UI      71     115     270     425     531     672     746     480     406     356
337          UI     312     262     212     181     159     132     106      89      77      65
338          UI      54      47      35      35      35      14      14      13      14      14
339          UI      13      14      14       0       0       0       0       0       0       0
             *

340          KK   RR150 STORAGE
341          KM   PROPOSED DETENTION BASIN
342          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 3
343          KM    outlet based on assumed 2 ft pipe
344          KM    STRUCTURE ID:RR150
345          KM    DIMENSIONS: L=800ft, W=400ft, D=10ft, Sideslope (?H:1V)= 3,  Vol.= 50.5 ac-f
346          RS       1    STOR       0
347          SV     0.0     5.4    10.9    22.4    34.5    40.8    47.2    53.8    60.6    67.5
348          SE     0.0     1.0     2.0     4.0     6.0     7.0     8.0     9.0    10.0    11.0
349          SQ     0.0    34.0    48.1    68.1    83.4    90.0    96.3   102.1   107.6   112.9
             *

350          KK  150165   ROUTE
351          KM   PROPOSED CHANNEL
352          KM    ROUTE OUTFLOW FROM RR150 TO S165
353          KM    STRUCTURE ID(s): RR15020
354          KM    Slope=(1760.1 - 1675.9) / 4081.6
355          RS       1    FLOW      -1
356          RC   0.045   0.045   0.045  4081.60.020625   102.0
357          RX     0.0     6.0    18.0    21.0    31.0    34.0    46.0    52.0
358          RY   102.0   100.0   100.0    99.0    99.0   100.0   100.0   102.0
             *

359          KK    S165   BASIN
360          KM        Compute runoff from subbasin 165
361          BA   0.616
362          LG    0.30    0.35    4.55    0.35       3
363          UI     121     477     809    1022     617     474     347     254     185     127
364          UI      96      69      52      36      20      20      20      20       0       0
             *
1                                        HEC-1 INPUT                                                    PAGE 10

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


365          KK    C165 COMBINE
366          KM    COMBINE ROUTED FLOW FROM RR150 WITH RUNOFF FROM S165 AT PROPOSED BASIN SITE
367          HC       2
             *

368          KK   RR165 STORAGE
369          KM   PROPOSED DETENTION BASIN
370          KM    ROUTE RUNOFF FROM S165 THROUGH PROPOSED DETENTION BASIN
371          KM    outlet based on assumed 2 ft pipe
372          KM    STRUCTURE ID:RR165
373          KM    DIMENSIONS: L=800ft, W=340ft, D=9ft, Sideslope (?H:1V)= 3,  Vol.= 40.8 ac-ft
374          RS       1    STOR       0
375          SV     0.0     4.6    14.2    24.4    29.7    35.2    40.8    46.5    52.4    58.5
376          SE     0.0     1.0     3.0     5.0     6.0     7.0     8.0     9.0    10.0    11.0
377          SQ     0.0    34.0    59.0    76.1    83.4    90.0    96.3   102.1   107.6   112.9
             *

378          KK  165175   ROUTE
379          KM   PROPOSED CHANNEL
380          KM    ROUTE OUTFLOW FROM RR165 TO SUN VALLEY PARKWAY IN NEW CHANNEL THRU S175
381          KM    STRUCTURE ID(s): C17510A, C17510B
382          KM    Slope=(1674.9 - 1462.9) / 13245.4
383          RS       8    FLOW      -1
384          RC   0.045   0.045   0.045 13245.40.016012   103.5
385          RX     0.0    10.5    40.5    46.5    66.5    72.5   102.5   113.0
386          RY   103.5   100.0   100.0    98.0    98.0   100.0   100.0   103.5
```

```
                *
387             KK    S175   BASIN
388             KM        Compute runoff from subbasin 175
389             BA   1.802
390             LG    0.29    0.35    4.50    0.36       1
391             UI     126     127     317     525     763     877    1013    1295    1376     895
392             UI     771     703     622     572     507     439     372     318     296     274
393             UI     227     192     163     148     138     116      96      97      73      62
394             UI      62      63      55      24      25      24      24      24      24      25
395             UI      24      24      24      25       0       0       0       0       0       0
                *

396             KK    C175 COMBINE
397             KM    COMBINE RUNOFF FROM S175 WITH ROUTED FLOW FROM C165
398             HC       2
                *

399             KK    175R   ROUTE
400             KM   PROPOSED CHANNEL
401             KM        Route runoff from S175 to intermediate point in S190 (C180RI).
402             KM    STRUCTURE ID(s): RR17510
403             KM    Slope=(1462.9 - 1413.1) / 3035.2
404             RS       2    FLOW      -1
405             RC   0.045   0.045   0.045  3035.20.016393   103.0
406             RX     0.0     9.0    39.0    46.5    71.5    79.0   109.0   118.0
407             RY   103.0   100.0   100.0    97.5    97.5   100.0   100.0   103.0
                *
1                                          HEC-1 INPUT                                                PAGE 11

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


408             KK    S180   BASIN
409             KM        Compute runoff from subbasin 180
410             BA   1.443
411             LG    0.25    0.35    4.25    0.42       2
412             UI     107     108     311     490     677     785     927    1258     896     684
413             UI     622     547     497     440     379     315     275     250     228     185
414             UI     154     138     120     115      82      83      73      52      53      52
415             UI      50      21      20      21      20      21      21      20      21      21
416             UI      20       0       0       0       0       0       0       0       0       0
                *

417             KK    180R   ROUTE
418             KM   PROPOSED CHANNEL
419             KM        Route runoff from S180 to intermediate point in S190 (C180RI).
420             KM    STRUCTURE ID(s): S18010, RR18010
421             KM    Slope=(1531.6 - 1413.1) / 7990.1
422             RS       2    FLOW      -1
423             RC   0.045   0.045   0.045  7990.1 0.01483   103.0
424             RX     0.0     9.0    34.0    40.0    60.0    66.0    91.0   100.0
425             RY   103.0   100.0   100.0    98.0    98.0   100.0   100.0   103.0
                *

426             KK  C180RI COMBINE
427             KM        Combine routed flows from S175 and S180
428             HC       2
                *

429             KK  RI180R   ROUTE
430             KM   PROPOSED CHANNEL
431             KM    STRUCTURE ID(s): C180R10
432             KM    Slope=(1413.1 - 1367.6) / 3720.6
433             RS       3    FLOW      -1
434             RC   0.045   0.045   0.045  3720.60.012229   104.0
435             RX     0.0    12.0    52.0    61.0    91.0   100.0   140.0   152.0
436             RY   104.0   100.0   100.0    97.0    97.0   100.0   100.0   104.0
                *

437             KK   C180R COMBINE
438             KM        Combine flows in Wagner Wash
439             HC       2
                *

440             KK  180185   ROUTE
441             KM        Route flows in Wagner Wash from C180R to C185R.
442             RS       3    FLOW      -1
443             RC   0.045   0.035   0.045  3450.0  0.0075   106.0
444             RX     0.0   100.0   200.0   206.0   406.0   412.0   512.0   612.0
445             RY   106.0   104.0   102.0   100.0   100.0   102.0   104.0   106.0
                *
1                                          HEC-1 INPUT                                                PAGE 12

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


446             KK    S185   BASIN
447             KM        Compute runoff from subbasin 185
448             BA   2.421
449             LG    0.16    0.35    4.35    0.40       1
450             UI     165     166     391     668     960    1130    1281    1613    1908    1239
451             UI    1060     936     847     785     677     614     534     438     399     375
452             UI     338     271     230     210     183     183     133     126     127      85
453             UI      80      82      81      67      32      31      32      32      31      32
```

```
454          UI      32      31      32      32      32       0       0       0       0       0
             *

455          KK    185R   ROUTE
456          KM        Route runoff from S185 to Wagner Wash.  Slope = (1442-1340) / 8534
457          RS       5    FLOW      -1
458          RC   0.045   0.035   0.045    8534  0.0120  104.00
459          RX    0.00   30.00  100.00  106.00  156.00  162.00  232.00  262.00
460          RY  104.00  102.00  102.00  100.00  100.00  102.00  102.00  104.00
             *

461          KK   C185R COMBINE
462          KM        Combine flows in Wagner Wash
463          HC       2
             *

464          KK  185190   ROUTE
465          KM        Route flow in Wagner Wash to C190.  Slope = (1340-1308) / 2700
466          RS       2    FLOW      -1
467          RC   0.045   0.040   0.045    2700  0.0119  106.00
468          RX    0.00   80.00  160.00  166.00  416.00  422.00  502.00  582.00
469          RY  106.00  103.00  102.00  100.00  100.00  102.00  103.00  106.00
             *

470          KK    S190   BASIN
471          KM        Compute runoff from subbasin 190
472          BA   4.054
473          LG    0.35    0.35    3.81    0.44       0
474          UI     274     278     647    1125    1573    1918    2319    2540    2637    2574
475          UI    2467    2112    1787    1506    1256    1044     891     745     605     522
476          UI     432     370     293     266     188     191     188      78      68      66
477          UI      67      67      67      67      67      67       0       0       0       0
             *

478          KK    C190 COMBINE
479          KM        Combine all flow in Wagner Wash at C190
480          HC       2   39.24
             *

481          KK  190195   ROUTE
482          KM        Route flow from C190 to the Hassayampa River. Slope = (1308-1255)/4941
483          RS       2    FLOW      -1
484          RC   0.045   0.035   0.045    4941  0.0107  110.00
485          RX    0.00   50.00  200.00  206.00  356.00  366.00  516.00  566.00
486          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *
1                                          HEC-1 INPUT                                          PAGE 13

        LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

487          KK    S195   BASIN
488          KM        Compute runoff from subbasin 195
489          BA   1.808
490          LG    0.33    0.35    4.25    0.42       0
491          UI     107     108     188     366     523     660     786     925     975    1026
492          UI    1044     975     915     778     674     571     496     419     359     313
493          UI     260     223     202     165     146     115     114      76      74      74
494          UI      67      27      26      26      26      26      26      27      26      26
495          UI      27       0       0       0       0       0       0       0       0       0
             *

496          KK    C195 COMBINE
497          KM        Combine all flows in Wagner Wash at the Hassayampa River
498          HC       2   41.05
499          ZZ
1
             SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    59       S100
                .
                .
    67          .        S102
                .           .
                .           .
    74       C102...........
                V
                V
    77      RR102
                .
                .
    89          .------->    CF02
    86       D102
                V
                V
    92      100105
                .
                .
    98          .        S105
                .           .
                .           .
```

```
108          .           .           .<-------    CF02
106          .           .        CF02
             .           .           V
             .           .           V
109          .           .      102105
             .           .           .
             .           .           .
115      C105U.......................
             .
             .
120          .        S110
             .           V
             .           V
127          .      11015I
             .           V
             .           V
133          .      15I15R
             .           .
             .           .
139          .           .        S115
             .           .           .
             .           .           .
147          .        C115............
             .           V
             .           V
150          .      115120
             .           .
             .           .
156          .           .        S120
             .           .           .
             .           .           .
163          .        C120............
             .           .
             .           .
166      C105D............
             V
             V
169     120135
             .
             .
175          .        S125
             .           V
             .           V
181          .       RR125
             .           V
             .           V
190          .      12535I
             .           .
             .           .
199          .           .        S130
             .           .           V
             .           .           V
205          .           .       RR130
             .           .           V
             .           .           V
214          .           .      13035I
             .           .           .
             .           .           .
223          .       C135I............
             .           V
             .           V
226          .      35I135
             .           .
             .           .
235          .           .        S135
             .           .           .
             .           .           .
241          .       C135L............
             .           .
             .           .
244       C135............
             V
             V
247     135145
             .
             .
253          .        S140
             .           V
             .           V
259          .      140145
             .           .
             .           .
265          .           .        S145
             .           .           .
             .           .           .
271       C145........................
             V
             V
274     145155
             .
             .
280          .        S155
             .           .
             .           .
287       C155............
```

```
                V
                V
290       155160
                .
                .
296             .        S160
                .           .
                .           .
302         C160............
                V
                V
305       160170
                .
                .
311             .        S170
                .           V
                .           V
317             .        170R
                .           .
                .           .
323        C170R............
                V
                V
326       170180
                .
                .
332             .        S150
                .           V
                .           V
340             .       RR150
                .           V
                .           V
350             .      150165
                .           .
                .           .
359             .           .        S165
                .           .           .
                .           .           .
365             .        C165............
                .           V
                .           V
368             .       RR165
                .           V
                .           V
378             .      165175
                .           .
                .           .
387             .           .        S175
                .           .           .
                .           .           .
396             .        C175............
                .           V
                .           V
399             .        175R
                .           .
                .           .
408             .           .        S180
                .           .           V
                .           .           V
417             .           .        180R
                .           .           .
                .           .           .
426             .      C180RI............
                .           V
                .           V
429             .      RI180R
                .           .
                .           .
437        C180R............
                V
                V
440       180185
                .
                .
446             .        S185
                .           V
                .           V
455             .        185R
                .           .
                .           .
461        C185R............
                V
                V
464       185190
                .
                .
470             .        S190
                .           .
                .           .
478         C190............
                V
                V
481       190195
                .
                .
```

```
 487          .        S195
              .          .
              .          .
 496       C195...........

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN  1998               *
*           VERSION 4.1                *
*                                      *
*  RUN DATE   19APR06  TIME  16:32:02  *
*                                      *
****************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*          (916) 756-1104           *
*                                   *
*************************************
```

HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
- WAGNER SUB-AREA
- ALTERNATIVE B3

Alternative Description
The purpose of Alternative B is to capture the upstream flow at the apex using online detention basins. The presence of the detention basins eliminates the downstream alluvial fan uncertainties by controlling the flow from the apices to the outfall. Alternative B3 is based on using a relatively larger on-line detention basin at the apex accompanied by smaller excavated channel sections in the down fan direction. The excavated earthen channels are complemented with a 120-foot wide adjacent riparian preservation corridor.

SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
MODELER: TED LEHMAN
FILENAME: A4_EX6.DAT

100-YEAR 6-HOUR MODEL
EXISTING CONDITIONS
AREA 4 WATERSHED AREA = 90.5 SQ. MILES
MODELED AREA = 76.8 SQ. MILES

GREEN-AMPT LOSS METHOD
S-GRAPH UNIT HYDROGRAPHS
- MOUNTAIN
- DESERT/RANGELAND
NORMAL-DEPTH CHANNEL ROUTING
LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
- UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
- HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
- MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)

```
 38 IO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN           5  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1JAN99  STARTING DATE
                      ITIME        1200  STARTING TIME
                         NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      8JAN99  ENDING DATE
                     NDTIME        1035  ENDING TIME
                      ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE  166.58 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT

 39 JD          INDEX STORM NO. 1
                       STRM        3.20  PRECIPITATION DEPTH
                       TRDA         .10  TRANSPOSITION DRAINAGE AREA

 40 PI            PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                      .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                      .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00
```

```
 43 JD          INDEX STORM NO. 2
                      STRM        3.18  PRECIPITATION DEPTH
                      TRDA         .50  TRANSPOSITION DRAINAGE AREA

 44 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                     .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                     .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00

 47 JD          INDEX STORM NO. 3
                      STRM        3.12  PRECIPITATION DEPTH
                      TRDA        2.80  TRANSPOSITION DRAINAGE AREA

 48 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                     .03       .03       .07       .07       .07       .08       .08       .08       .05       .05
                     .05       .02       .02       .02       .01       .01       .01       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00

 51 JD          INDEX STORM NO. 4
                      STRM        2.95  PRECIPITATION DEPTH
                      TRDA       16.00  TRANSPOSITION DRAINAGE AREA

 52 PI            PRECIPITATION PATTERN
                     .01       .01       .00       .00       .00       .00       .00       .00       .00       .01
                     .01       .01       .00       .01       .00       .00       .00       .00       .00       .00
                     .00       .00       .01       .00       .00       .00       .00       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                     .03       .03       .06       .06       .06       .07       .07       .07       .04       .04
                     .04       .02       .02       .02       .01       .01       .01       .01       .01       .01
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00

 55 JD          INDEX STORM NO. 5
                      STRM        2.59  PRECIPITATION DEPTH
                      TRDA       90.00  TRANSPOSITION DRAINAGE AREA

 56 PI            PRECIPITATION PATTERN
                     .01       .01       .01       .00       .00       .00       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                     .03       .03       .05       .05       .05       .05       .05       .05       .04       .04
                     .04       .02       .02       .02       .02       .02       .02       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 77 KK      *     RR102  *      STORAGE
            *            *
            **************

 80 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           5  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
1
                                          RUNOFF SUMMARY
                                     FLOW IN CUBIC FEET PER SECOND
                                  TIME IN HOURS,  AREA IN SQUARE MILES

                                   PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
          OPERATION       STATION  FLOW    PEAK                                           AREA      STAGE     MAX STAGE
+                                                      6-HOUR     24-HOUR     72-HOUR

          HYDROGRAPH AT
+                          S100    4347.   4.67         899.        225.         75.      6.99

          HYDROGRAPH AT
+                          S102    2790.   4.33         417.        104.         35.      3.23

          2 COMBINED AT
+                          C102    5993.   4.50        1198.        300.        100.     10.23

          ROUTED TO
+                         RR102     127.   6.75         122.        104.         72.     10.23

          DIVERSION TO
+                          CF02      63.   6.75          61.         52.         36.     10.23
```

+	HYDROGRAPH AT	D102	63.	6.75	61.	52.	36.	10.23
+	ROUTED TO	100105	59.	12.58	58.	51.	36.	10.23
+	HYDROGRAPH AT	S105	2863.	4.50	495.	124.	41.	4.37
+	HYDROGRAPH AT	CF02	63.	6.75	61.	52.	36.	10.23
+	ROUTED TO	102105	63.	8.00	60.	51.	36.	10.23
+	3 COMBINED AT	C105U	2863.	4.50	549.	226.	120.	14.60
+	HYDROGRAPH AT	S110	662.	4.25	76.	19.	6.	.43
+	ROUTED TO	11015I	570.	4.42	76.	19.	6.	.43
+	ROUTED TO	15I15R	506.	4.83	76.	19.	6.	.43
+	HYDROGRAPH AT	S115	1605.	4.58	296.	74.	25.	2.25
+	2 COMBINED AT	C115	1813.	4.67	350.	88.	29.	2.68
+	ROUTED TO	115120	1781.	4.75	350.	88.	29.	2.68
+	HYDROGRAPH AT	S120	1838.	4.33	256.	64.	21.	2.00
+	2 COMBINED AT	C120	2678.	4.58	545.	137.	46.	4.68
+	2 COMBINED AT	C105D	4029.	4.50	821.	275.	127.	19.28
+	ROUTED TO	120135	4027.	4.58	821.	275.	127.	19.28
+	HYDROGRAPH AT	S125	202.	4.08	14.	4.	1.	.09
+	ROUTED TO	RR125	33.	4.42	14.	4.	1.	.09
+	ROUTED TO	12535I	33.	4.58	14.	4.	1.	.09
+	HYDROGRAPH AT	S130	524.	4.17	48.	12.	4.	.31
+	ROUTED TO	RR130	57.	4.83	42.	12.	4.	.31
+	ROUTED TO	13035I	57.	4.83	42.	12.	4.	.31
+	2 COMBINED AT	C135I	83.	4.75	49.	14.	5.	1.18
+	ROUTED TO	35I135	81.	5.50	48.	14.	5.	1.18
+	HYDROGRAPH AT	S135	1102.	4.25	111.	28.	9.	.88
+	2 COMBINED AT	C135L	829.	4.25	136.	36.	12.	2.06
+	2 COMBINED AT	C135	4170.	4.50	877.	288.	131.	21.34
+	ROUTED TO	135145	3747.	5.00	866.	286.	131.	21.34
+	HYDROGRAPH AT	S140	1913.	4.17	188.	47.	16.	1.37
+	ROUTED TO	140145	1623.	4.42	188.	47.	16.	1.37
+	HYDROGRAPH AT	S145	1702.	4.25	193.	48.	16.	1.76
	3 COMBINED AT							

+		C145	4072.	4.92	1032.	325.	143.	24.47
	ROUTED TO							
+		145155	4071.	4.92	1032.	325.	143.	24.47
	HYDROGRAPH AT							
+		S155	1626.	4.33	223.	56.	19.	1.83
	2 COMBINED AT							
+		C155	4305.	4.83	1130.	349.	150.	26.30
	ROUTED TO							
+		155160	4295.	4.92	1129.	348.	150.	26.30
	HYDROGRAPH AT							
+		S160	1347.	4.25	133.	33.	11.	1.14
	2 COMBINED AT							
+		C160	4291.	4.92	1169.	358.	153.	27.44
	ROUTED TO							
+		160170	4195.	5.17	1162.	356.	153.	27.44
	HYDROGRAPH AT							
+		S170	1686.	4.25	178.	44.	15.	1.46
	ROUTED TO							
+		170R	1544.	4.42	178.	44.	15.	1.46
	2 COMBINED AT							
+		C170R	4313.	5.08	1228.	372.	157.	28.90
	ROUTED TO							
+		170180	4223.	5.33	1221.	371.	157.	28.90
	HYDROGRAPH AT							
+		S150	836.	4.33	126.	31.	10.	.77
	ROUTED TO							
+		RR150	97.	5.50	83.	31.	10.	.77
	ROUTED TO							
+		150165	96.	5.83	82.	31.	10.	.77
	HYDROGRAPH AT							
+		S165	1008.	4.17	94.	23.	8.	.62
	2 COMBINED AT							
+		C165	808.	4.17	155.	50.	17.	1.39
	ROUTED TO							
+		RR165	93.	6.17	91.	50.	17.	1.39
	ROUTED TO							
+		165175	93.	6.75	91.	50.	17.	1.39
	HYDROGRAPH AT							
+		S175	1203.	4.50	226.	56.	19.	1.80
	2 COMBINED AT							
+		C175	1032.	4.50	272.	96.	32.	3.19
	ROUTED TO							
+		175R	1010.	4.67	272.	96.	32.	3.19
	HYDROGRAPH AT							
+		S180	1032.	4.50	181.	45.	15.	1.44
	ROUTED TO							
+		180R	860.	4.75	181.	45.	15.	1.44
	2 COMBINED AT							
+		C180RI	1553.	4.67	403.	127.	42.	4.63
	ROUTED TO							
+		RI180R	1529.	4.83	402.	127.	42.	4.63
	2 COMBINED AT							
+		C180R	4687.	5.25	1406.	430.	176.	33.54
	ROUTED TO							
+		180185	4675.	5.33	1401.	429.	176.	33.54
	HYDROGRAPH AT							
+		S185	1450.	4.50	288.	72.	24.	2.42
	ROUTED TO							
+		185R	1302.	4.92	288.	72.	24.	2.42
	2 COMBINED AT							
+		C185R	5050.	5.25	1511.	456.	184.	35.96
	ROUTED TO							
+		185190	5031.	5.33	1506.	455.	184.	35.96

```
          HYDROGRAPH AT
+                        S190      2084.    4.58         391.         98.         33.       4.05

          2 COMBINED AT
+                        C190      5292.    5.25        1634.        488.        194.      39.24

          ROUTED TO
+                      190195      5177.    5.42        1628.        487.        194.      39.24

          HYDROGRAPH AT
+                        S195      1001.    4.67         203.         51.         17.       1.81

          2 COMBINED AT
+                        C195      5251.    5.42        1678.        500.        198.      41.05
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    RR102
                     (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)
```

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.61	.00	1386.	222.	.00	6.33	.00

PLAN 2 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.59	.00	1380.	219.	.00	6.33	.00

PLAN 3 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.23	.00	1236.	163.	.00	6.58	.00

PLAN 4 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1551.78	.00	1083.	114.	.00	6.75	.00

PLAN 5 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1551.06	.00	868.	68.	.00	6.75	.00

*** NORMAL END OF HEC-1 ***

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN  1998               *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   19APR06  TIME  16:32:03  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*   HYDROLOGIC ENGINEERING CENTER      *
*         609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616        *
*          (916) 756-1104              *
*                                      *
****************************************
```

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

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

```
1                                    HEC-1 INPUT                                    PAGE  1

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID    HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
  2           ID      - WAGNER SUB-AREA
  3           ID      - ALTERNATIVE B3
  4           ID
  5           ID   Alternative Description
  6           ID   The purpose of Alternative B is to capture the upstream flow at the
  7           ID   apex using online detention basins.  The presence of the detention
  8           ID   basins eliminates the downstream alluvial fan uncertainties by
  9           ID   controlling the flow from the apices to the outfall.  Alternative B3
 10           ID   is based on using a relatively larger on-line detention basin at the
 11           ID   apex accompanied by smaller excavated channel sections in the down fan
 12           ID   direction.  The excavated earthen channels are complemented with a
 13           ID   120-foot wide adjacent riparian preservation corridor.
 14           ID
 15           ID
 16           ID   SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
 17           ID   JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
 18           ID   MODELER: TED LEHMAN
 19           ID   FILENAME: A4_EX24.DAT
 20           ID
 21           ID   100-YEAR 24-HOUR MODEL
 22           ID   EXISTING CONDITIONS
 23           ID   AREA 4 WATERSHED AREA = 90.5 SQ. MILES
 24           ID            MODELED AREA = 76.8 SQ. MILES
 25           ID
 26           ID   GREEN-AMPT LOSS METHOD
 27           ID   S-GRAPH UNIT HYDROGRAPHS
 28           ID     - MOUNTAIN
 29           ID     - DESERT/RANGELAND
 30           ID   NORMAL-DEPTH CHANNEL ROUTING
 31           ID   LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
 32           ID     - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
 33           ID     - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
 34           ID     - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
 35           ID   SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)
 36           IT       5  1JAN99    1200    2000
 37           IN      15
 38           IO       5
              *DIAGRAM
              *
 39           JD   4.198  0.1000
 40           PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
 41           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
 42           PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
 43           PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.172
 44           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 45           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 46           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 47           PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
 48           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
 49           PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
 50           JD   3.990    10.0
 51           JD   3.780    30.0
 52           JD   3.654    60.0
 53           JD   3.578    90.0
              *
1                                    HEC-1 INPUT                                    PAGE  2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  54          KK    S100   BASIN
  55          KM         Compute runoff from subbasin 100
  56          BA   6.994
  57          LG    0.35    0.38    6.40    0.16       0
  58          UI     449     455     964    1717    2422    3046    3616    4050    4275    4281
  59          UI    4178    3867    3211    2766    2319    1968    1698    1387    1198     990
  60          UI     848     715     635     476     471     313     309     309     204     110
  61          UI     109     111     110     109     111     109     110     111       0       0
              *

  62          KK    S102   BASIN
  63          KM         Compute runoff from subbasin 102
  64          BA   3.234
  65          LG    0.35    0.38    5.60    0.22       0
  66          UI     333     657    1539    2292    2943    3178    3083    2643    1985    1523
  67          UI    1179     890     674     542     377     300     232     193      81      82
  68          UI      81      81      83       0       0       0       0       0       0       0
              *

  69          KK    C102 COMBINE
  70          KM         Combine total inflow to detention area behind (north) of CAP Canal
  71          HC       2
              *

  72          KK   RR102 STORAGE
  73          KM         Route flows through storage area behind CAP Canal
  74          KM         Stage-storage-discharge data from Wagner Wash FDS Hydrology (1991)
  75          KO
  76          RS       1    STOR      -1
  77          SV          553.00 1148.00 2316.00 2705.00
  78          SQ                  128.00  587.00  600.00
  79          SE  1543.0 1550.00 1552.00 1555.00 1556.00
  80          ST  1556.0  1320.0     3.2     1.5
              *

  81          KK    D102  DIVERT
  82          KM         Divide flow evenly over the two 18-foot wide CAP overchutes
  83          KM         although the inverts are 0.5 feet different in elevation
  84          DT    CF02     0.0     0.0
  85          DI     0.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0     0.0
  86          DQ     0.0    50.0   500.0  5000.0     0.0     0.0     0.0     0.0     0.0     0.0
              *

  87          KK  100105   ROUTE
  88          KM         Route outflows from east CAP overchute to Sun Valley Parkway.
  89          RS       9    FLOW      -1
  90          RC   0.035   0.055   0.035   11235  0.0045  105.00
  91          RX    0.00  120.00  240.00  250.00  590.00  600.00  720.00  840.00
  92          RY  105.00  102.50  100.00  100.00  100.00  100.00  102.50  105.00
              *
1                                          HEC-1 INPUT                                          PAGE  3

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  93          KK    S105   BASIN
  94          KM         Compute runoff from subbasin 105
  95          BA   4.370
  96          LG    0.35    0.35    4.80    0.30       0
  97          UI     345     380    1112    1723    2334    2867    3143    3344    3176    2865
  98          UI    2374    1903    1555    1291    1018     832     685     564     458     369
  99          UI     288     235     238     126      83      85      84      84      84      84
 100          UI      84       0       0       0       0       0       0       0       0       0
              *

 101          KK    CF02RETRIEVE
 102          KM         Retrieve flow from west CAP overchute.
 103          DR    CF02
              *

 104          KK  102105   ROUTE
 105          KM         Route retrieved flow from west overchute to C105.
 106          RS       6    FLOW      -1
 107          RC   0.045   0.050   0.045    7656  0.0065  104.00
 108          RX    0.00   40.00  120.00  130.00  250.00  260.00  340.00  380.00
 109          RY  104.00  102.00  101.00  100.00  100.00  101.00  102.00  104.00
              *

 110          KK   C105U COMBINE
 111          KM         Combine runoff from S105 with routed flow from 100105 and 102105
 112          KM         (CAP overchute flows). This is the total flow in Wagner Wash upstream
 113          KM         of Sun Valley Parkway.
 114          HC       3  14.598
              *

 115          KK    S110   BASIN
 116          KM         Compute runoff from subbasin 110
 117          BA   0.430
 118          LG    0.25    0.37    5.20    0.25       6
 119          UI      56     166     335     449     587     358     291     241     188     140
 120          UI     121      86      68      56      43      32      27      22      11      11
```

```
121   UI      10      11      11       0       0       0       0       0       0       0
      *

122   KK  11015I   ROUTE
123   KM        Route flow from C105 through subbasin 110 to C115.
124   RS       2    FLOW      -1
125   RC   0.045   0.035   0.045    3783  0.0267  102.00
126   RX    0.00   50.00  100.00  110.00  120.00  130.00  180.00  230.00
127   RY  102.00  101.50  101.00  100.00  100.00  101.00  101.50  102.00
      *

128   KK  15I15R   ROUTE
129   KM        Route flows from split through S115 to C115.
130   RS       8    FLOW      -1
131   RC   0.035   0.030   0.035   14128  0.0151  105.00
132   RX    0.00   25.00   58.00   65.00   85.00   92.00  125.00  150.00
133   RY  105.00  102.50  102.00  100.00  100.00  102.00  102.50  105.00
      *
```



```
LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

134   KK    S115   BASIN
135   KM        Compute runoff from subbasin 115
136   BA   2.247
137   LG    0.32    0.35    4.80    0.30       2
138   UI     160     163     434     709     984    1212    1401    1530    1539    1465
139   UI    1351    1100     918     773     632     528     444     351     304     252
140   UI     203     170     140     110     110      85      39      39      40      39
141   UI      39      39      40      39       0       0       0       0       0       0
      *

142   KK    C115 COMBINE
143   KM        Combine runoff from S115 with routed flow.
144   HC       2   2.677
      *

145   KK  115120   ROUTE
146   KM        Route total flows from C115 to C120. Slope =(1532-1494) / 4077
147   RS       2    FLOW      -1
148   RC   0.030   0.025   0.030    4077  0.0093  105.00
149   RX    0.00   30.00   75.00   80.00  105.00  110.00  155.00  190.00
150   RY  105.00  101.50  101.00  100.00  100.00  101.00  101.50  105.00
      *

151   KK    S120   BASIN
152   KM        Compute runoff from subbasin 120
153   BA   2.004
154   LG    0.33    0.35    4.65    0.32       1
155   UI     206     408     954    1419    1824    1969    1911    1637    1230     944
156   UI     731     551     418     336     234     186     143     120      50      51
157   UI      50      51      51       0       0       0       0       0       0       0
      *

158   KK    C120 COMBINE
159   KM        Combine flows at Wagner Wash at outlet of channel along SVP
160   HC       2   4.681
      *

161   KK   C105D COMBINE
162   KM        Combine flows from C105 and C120 just D/S of Sun Valley Parkway
163   HC       2  19.279
      *

164   KK  120135   ROUTE
165   KM        Route flows in Wagner Wash from Sun Valley Parkway to C135.
166   RS       1    FLOW      -1
167   RC   0.045   0.035   0.045     951  0.0074  110.00
168   RX    0.00  225.00  450.00  455.00  485.00  490.00  615.00  840.00
169   RY  110.00  105.00  102.00  100.00  100.00  102.00  102.00  110.00
      *
```



```
LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

170   KK    S125   BASIN
171   KM        Compute runoff from subbasin 125
172   BA   0.093
173   LG    0.25    0.35    4.15    0.44       5
174   UI      46     164     204     116      73      46      28      17      12       4
175   UI       5       4       0       0       0       0       0       0       0       0
      *

176   KK   RR125 STORAGE
177   KM   PROPOSED DETENTION BASIN
178   KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13E
179   KM    STRUCTURE ID:RR125
180   KM    DIMENSIONS: L=300ft, W=200ft, D=6ft, Sideslope (?H:1V)= 3,  Vol.= 5.2 ac-ft
181   RS       1    STOR       0
182   SV     0.0     0.4     0.9     1.9     2.9     4.0     5.2     6.4     7.7     9.0
183   SE     0.0     0.5     1.0     2.0     3.0     4.0     5.0     6.0     7.0     8.0
184   SQ     0.0    10.7    15.1    21.4    26.2    30.3    33.8    37.1    40.0    42.8
      *
```

```
185          KK  12535I   ROUTE
186          KM   PROPOSED CHANNEL
187          KM       Route flows from S125 to intermediate combination point in S135.
188          KM    STRUCTURE ID(s): RR12510
189          KM    Slope=(1746.1 - 1697.0) / 1852.5
190          RS       1    FLOW      -1
191          RC   0.045   0.045   0.045  1852.50.026481   101.5
192          RX     0.0     4.5     9.5    12.5    20.5    23.5    28.5    33.0
193          RY   101.5   100.0   100.0    99.0    99.0   100.0   100.0   101.5
             *

194          KK    S130   BASIN
195          KM       Compute runoff from subbasin 130
196          BA   0.310
197          LG    0.21    0.35    4.20    0.43       4
198          UI      61     239     399     514     313     240     176     128      94      64
199          UI      49      36      26      19      10      10      10      10       0       0
             *

200          KK   RR130 STORAGE
201          KM   PROPOSED DETENTION BASIN
202          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13W
203          KM    STRUCTURE ID:RR130
204          KM    DIMENSIONS: L=600ft, W=290ft, D=7ft, Sideslope (?H:1V)= 3,  Vol.= 19.2 ac-ft
205          RS       1    STOR       0
206          SV     0.0     2.9     6.0     9.1    12.4    15.7    19.2    22.8    26.5    30.4
207          SE     0.0     1.0     2.0     3.0     4.0     5.0     6.0     7.0     8.0     9.0
208          SQ     0.0    23.6    33.4    40.9    47.3    52.9    57.9    62.5    66.9    70.9
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

209          KK  13035I   ROUTE
210          KM   PROPOSED CHANNEL
211          KM       Route flow to intermediate point in S135.
212          KM    STRUCTURE ID(s): RR13010
213          KM    Slope=(1728.2 - 1697.0) / 1235.4
214          RS       1    FLOW      -1
215          RC   0.045   0.045   0.045  1235.4 0.02524   101.5
216          RX     0.0     4.5     8.5    11.5    15.5    18.5    22.5    27.0
217          RY   101.5   100.0   100.0    99.0    99.0   100.0   100.0   101.5
             *

218          KK   C135I COMBINE
219          KM       Combine routed flow from RR130 and RR125
220          HC       2    1.18
             *

221          KK  35I135   ROUTE
222          KM   PROPOSED CHANNEL
223          KM       Route combined flows to C135 at Wagner Wash.
224          KM    STRUCTURE ID(s): C135L10
225          KM    Slope=(1697.0 - 1496.9) / 12096.9
226          RS       8    FLOW      -1
227          RC   0.045   0.045   0.045 12096.90.016546   103.0
228          RX     0.0     9.0    39.0    45.0    65.0    71.0   101.0   110.0
229          RY   103.0   100.0   100.0    98.0    98.0   100.0   100.0   103.0
             *

230          KK    S135   BASIN
231          KM       Compute runoff from subbasin 135
232          BA   0.879
233          LG    0.35    0.35    4.25    0.42       0
234          UI     115     362     709     992    1126     989     736     527     370     260
235          UI     194     128      89      76      28      28      29      28       0       0
             *

236          KK   C135L COMBINE
237          KM       Combine all piedmont runoff inflow to Wagner Wash at C135
238          HC       2    2.06
             *

239          KK    C135 COMBINE
240          KM       Combine all flows in Wagner Wash at C135
241          HC       2
             *

242          KK  135145   ROUTE
243          KM       Route flow in Wagner Wash to C145.  Slope = (1487-1454) / 7938
244          RS       4    FLOW      -1
245          RC   0.045   0.035   0.045    7938  0.0042  110.00
246          RX    0.00  300.00  400.00  406.00  506.00  512.00  612.00  912.00
247          RY  110.00  102.50  102.00  100.00  100.00  102.00  102.50  110.00
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

248          KK    S140   BASIN
249          KM       Compute runoff from subbasin 140
250          BA   1.373
```

```
251          LG    0.35    0.36    5.00    0.28       0
252          UI     260    1034    1801    2168    1890    1235     809     517     339     211
253          UI     157      56      55      57       0       0       0       0       0       0
             *

254          KK  140145   ROUTE
255          KM        Route runoff from S140 to C145 at Wagner Wash.
256          RS       3    FLOW      -1
257          RC   0.040   0.050   0.040    3656  0.0074  103.00
258          RX    0.00   70.00  140.00  150.00  250.00  260.00  330.00  400.00
259          RY  102.00  101.00  100.00  100.00  100.00  100.00  101.00  102.00
             *

260          KK    S145   BASIN
261          KM        Compute runoff from subbasin 145
262          BA   1.756
263          LG    0.35    0.35    4.15    0.44       0
264          UI     226     672    1369    1903    2167    2003    1508    1085     777     544
265          UI     399     279     198     157      80      55      56      54      55       0
             *

266          KK    C145 COMBINE
267          KM        Combine all flows in Wagner Wash at C145
268          HC       3
             *

269          KK  145155   ROUTE
270          KM        Route flows in Wagner Wash form C145 to C155. Slope = (1454-1452)/631
271          RS       1    FLOW      -1
272          RC   0.045   0.035   0.055     631  0.0032  110.00
273          RX    0.00  150.00  300.00  309.00  379.00  388.00  538.00  838.00
274          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

275          KK    S155   BASIN
276          KM        Compute runoff from subbasin 155
277          BA   1.832
278          LG    0.35    0.35    4.50    0.36       1
279          UI     187     361     846    1266    1637    1771    1735    1497    1161     879
280          UI     681     519     385     314     228     181     130     126      46      46
281          UI      45      46      46      45       0       0       0       0       0       0
             *

282          KK    C155 COMBINE
283          KM        Combine all flows at Wagner Wash at C155
284          HC       2
             *
1                                          HEC-1 INPUT                                          PAGE  8

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

285          KK  155160   ROUTE
286          KM        Route flow in Wagner Wash to C160 (Sun Valley Parkway).
287          RS       5    FLOW      -1
288          RC   0.035   0.035   0.035    2291  0.0052  110.00
289          RX    0.00  200.00  400.00  406.00  506.00  512.00  712.00  912.00
290          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

291          KK    S160   BASIN
292          KM        Compute runoff from subbasin 160
293          BA   1.144
294          LG    0.35    0.35    4.00    0.47       0
295          UI     165     599    1121    1501    1557    1233     844     593     394     281
296          UI     190     122      93      40      40      40      41       0       0       0
             *

297          KK    C160 COMBINE
298          KM        Combine flows at Sun Valley Parkway
299          HC       2   27.44
             *

300          KK  160170   ROUTE
301          KM        Route flows from Sun Valley Parkway to C170R. Slope = (1440-1410)/5248
302          RS       3    FLOW      -1
303          RC   0.040   0.030   0.040    5248  0.0057  108.00
304          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
305          RY  108.00  103.00  102.00  100.00  100.00  102.00  103.00  108.00
             *

306          KK    S170   BASIN
307          KM        Compute runoff from subbasin 170
308          BA   1.464
309          LG    0.35    0.35    4.40    0.38       0
310          UI     209     755    1427    1917    1973    1590    1086     762     513     360
311          UI     246     160     123      52      51      51      52       0       0       0
             *

312          KK    170R   ROUTE
313          KM        Route flow from S170 to Wagner Wash.  Slope = (1456-1410) / 3986
314          RS       3    FLOW      -1
315          RC   0.045   0.045   0.045    3986  0.0115  104.00
316          RX    0.00   50.00  100.00  103.00  113.00  116.00  166.00  216.00
317          RY  103.00  102.00  101.00  100.00  100.00  101.00  102.00  103.00
```

```
                *
318             KK   C170R COMBINE
319             KM        Combine routed flows from S170 and C160 in Wagner Wash
320             HC       2
                *
1                                          HEC-1 INPUT                                                    PAGE  9

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


321             KK  170180   ROUTE
322             KM        Route flows in Wagner Wash to C180R.  Slope = (1410-1366) / 6770
323             RS       4    FLOW      -1
324             RC   0.045   0.035   0.045    6770  0.0065  110.00
325             RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
326             RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
                *

327             KK    S150   BASIN
328             KM        Compute runoff from subbasin 150
329             BA   0.774
330             LG    0.25    0.35    4.65    0.32       7
331             UI      71     115     270     425     531     672     746     480     406     356
332             UI     312     262     212     181     159     132     106      89      77      65
333             UI      54      47      35      35      35      14      14      13      14      14
334             UI      13      14      14       0       0       0       0       0       0       0
                *

335             KK   RR150 STORAGE
336             KM   PROPOSED DETENTION BASIN
337             KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 3
338             KM    outlet based on assumed 2 ft pipe
339             KM    STRUCTURE ID:RR150
340             KM    DIMENSIONS: L=800ft, W=400ft, D=10ft, Sideslope (?H:1V)= 3,  Vol.= 50.5 ac-f
341             RS       1    STOR       0
342             SV     0.0     5.4    10.9    22.4    34.5    40.8    47.2    53.8    60.6    67.5
343             SE     0.0     1.0     2.0     4.0     6.0     7.0     8.0     9.0    10.0    11.0
344             SQ     0.0    34.0    48.1    68.1    83.4    90.0    96.3   102.1   107.6   112.9
                *

345             KK  150165   ROUTE
346             KM   PROPOSED CHANNEL
347             KM    ROUTE OUTFLOW FROM RR150 TO S165
348             KM    STRUCTURE ID(s): RR15020
349             KM    Slope=(1760.1 - 1675.9) / 4081.6
350             RS       1    FLOW      -1
351             RC   0.045   0.045   0.045  4081.60.020625   102.0
352             RX     0.0     6.0    18.0    21.0    31.0    34.0    46.0    52.0
353             RY   102.0   100.0   100.0    99.0    99.0   100.0   100.0   102.0
                *

354             KK    S165   BASIN
355             KM        Compute runoff from subbasin 165
356             BA   0.616
357             LG    0.30    0.35    4.55    0.35       3
358             UI     121     477     809    1022     617     474     347     254     185     127
359             UI      96      69      52      36      20      20      20      20       0       0
                *
1                                          HEC-1 INPUT                                                    PAGE 10

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


360             KK    C165 COMBINE
361             KM    COMBINE ROUTED FLOW FROM RR150 WITH RUNOFF FROM S165 AT PROPOSED BASIN SITE
362             HC       2
                *

363             KK   RR165 STORAGE
364             KM   PROPOSED DETENTION BASIN
365             KM    ROUTE RUNOFF FROM S165 THROUGH PROPOSED DETENTION BASIN
366             KM    outlet based on assumed 2 ft pipe
367             KM    STRUCTURE ID:RR165
368             KM    DIMENSIONS: L=800ft, W=340ft, D=9ft, Sideslope (?H:1V)= 3,  Vol.= 40.8 ac-ft
369             RS       1    STOR       0
370             SV     0.0     4.6    14.2    24.4    29.7    35.2    40.8    46.5    52.4    58.5
371             SE     0.0     1.0     3.0     5.0     6.0     7.0     8.0     9.0    10.0    11.0
372             SQ     0.0    34.0    59.0    76.1    83.4    90.0    96.3   102.1   107.6   112.9
                *

373             KK  165175   ROUTE
374             KM   PROPOSED CHANNEL
375             KM    ROUTE OUTFLOW FROM RR165 TO SUN VALLEY PARKWAY IN NEW CHANNEL THRU S175
376             KM    STRUCTURE ID(s): C17510A, C17510B
377             KM    Slope=(1674.9 - 1462.9) / 13245.4
378             RS       8    FLOW      -1
379             RC   0.045   0.045   0.045 13245.40.016012   103.5
380             RX     0.0    10.5    40.5    46.5    66.5    72.5   102.5   113.0
381             RY   103.5   100.0   100.0    98.0    98.0   100.0   100.0   103.5
                *

382             KK    S175   BASIN
383             KM        Compute runoff from subbasin 175
384             BA   1.802
```

```
385          LG    0.29    0.35    4.50    0.36       1
386          UI     126     127     317     525     763     877    1013    1295    1376     895
387          UI     771     703     622     572     507     439     372     318     296     274
388          UI     227     192     163     148     138     116      96      97      73      62
389          UI      62      63      55      24      25      24      24      24      24      25
390          UI      24      24      24      25       0       0       0       0       0       0
             *

391          KK    C175 COMBINE
392          KM    COMBINE RUNOFF FROM S175 WITH ROUTED FLOW FROM C165
393          HC       2
             *

394          KK    175R   ROUTE
395          KM   PROPOSED CHANNEL
396          KM        Route runoff from S175 to intermediate point in S190 (C180RI).
397          KM    STRUCTURE ID(s): RR17510
398          KM    Slope=(1462.9 - 1413.1) / 3035.2
399          RS       2    FLOW      -1
400          RC   0.045   0.045   0.045  3035.20.016393   103.0
401          RX     0.0     9.0    39.0    46.5    71.5    79.0   109.0   118.0
402          RY   103.0   100.0   100.0    97.5    97.5   100.0   100.0   103.0
             *
1                                          HEC-1 INPUT                                          PAGE 11

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

403          KK    S180   BASIN
404          KM        Compute runoff from subbasin 180
405          BA   1.443
406          LG    0.25    0.35    4.25    0.42       2
407          UI     107     108     311     490     677     785     927    1258     896     684
408          UI     622     547     497     440     379     315     275     250     228     185
409          UI     154     138     120     115      82      83      73      52      53      52
410          UI      50      21      20      21      20      21      21      20      21      21
411          UI      20       0       0       0       0       0       0       0       0       0
             *

412          KK    180R   ROUTE
413          KM   PROPOSED CHANNEL
414          KM        Route runoff from S180 to intermediate point in S190 (C180RI).
415          KM    STRUCTURE ID(s): S18010, RR18010
416          KM    Slope=(1531.6 - 1413.1) / 7990.1
417          RS       2    FLOW      -1
418          RC   0.045   0.045   0.045  7990.1 0.01483   103.0
419          RX     0.0     9.0    34.0    40.0    60.0    66.0    91.0   100.0
420          RY   103.0   100.0   100.0    98.0    98.0   100.0   100.0   103.0
             *

421          KK  C180RI COMBINE
422          KM        Combine routed flows from S175 and S180
423          HC       2
             *

424          KK  RI180R   ROUTE
425          KM   PROPOSED CHANNEL
426          KM    STRUCTURE ID(s): C180R10
427          KM    Slope=(1413.1 - 1367.6) / 3720.6
428          RS       3    FLOW      -1
429          RC   0.045   0.045   0.045  3720.60.012229   104.0
430          RX     0.0    12.0    52.0    61.0    91.0   100.0   140.0   152.0
431          RY   104.0   100.0   100.0    97.0    97.0   100.0   100.0   104.0
             *

432          KK   C180R COMBINE
433          KM        Combine flows in Wagner Wash
434          HC       2
             *

435          KK  180185   ROUTE
436          KM        Route flows in Wagner Wash from C180R to C185R.
437          RS       3    FLOW      -1
438          RC   0.045   0.035   0.045    3450  0.0075  106.00
439          RX    0.00  100.00  200.00  206.00  406.00  412.00  512.00  612.00
440          RY  106.00  104.00  102.00  100.00  100.00  102.00  104.00  106.00
             *
1                                          HEC-1 INPUT                                          PAGE 12

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

441          KK    S185   BASIN
442          KM        Compute runoff from subbasin 185
443          BA   2.421
444          LG    0.16    0.35    4.35    0.40       1
445          UI     165     166     391     668     960    1130    1281    1613    1908    1239
446          UI    1060     936     847     785     677     614     534     438     399     375
447          UI     338     271     230     210     183     183     133     126     127      85
448          UI      80      82      81      67      32      31      32      32      31      32
449          UI      32      31      32      32      32       0       0       0       0       0
             *

450          KK    185R   ROUTE
451          KM        Route runoff from S185 to Wagner Wash.  Slope = (1442-1340) / 8534
```

```
452          RS       5    FLOW      -1
453          RC   0.045   0.035   0.045    8534  0.0120  104.00
454          RX    0.00   30.00  100.00  106.00  156.00  162.00  232.00  262.00
455          RY  104.00  102.00  102.00  100.00  100.00  102.00  102.00  104.00
             *

456          KK   C185R COMBINE
457          KM        Combine flows in Wagner Wash
458          HC       2
             *

459          KK  185190   ROUTE
460          KM        Route flow in Wagner Wash to C190.  Slope = (1340-1308) / 2700
461          RS       2    FLOW      -1
462          RC   0.045   0.040   0.045    2700  0.0119  106.00
463          RX    0.00   80.00  160.00  166.00  416.00  422.00  502.00  582.00
464          RY  106.00  103.00  102.00  100.00  100.00  102.00  103.00  106.00
             *

465          KK    S190   BASIN
466          KM        Compute runoff from subbasin 190
467          BA   4.054
468          LG    0.35    0.35    3.81    0.44       0
469          UI     274     278     647    1125    1573    1918    2319    2540    2637    2574
470          UI    2467    2112    1787    1506    1256    1044     891     745     605     522
471          UI     432     370     293     266     188     191     188      78      68      66
472          UI      67      67      67      67      67      67       0       0       0       0
             *

473          KK    C190 COMBINE
474          KM        Combine all flow in Wagner Wash at C190
475          HC       2   39.24
             *

476          KK  190195   ROUTE
477          KM        Route flow from C190 to the Hassayampa River. Slope = (1308-1255)/4941
478          RS       2    FLOW      -1
479          RC   0.045   0.035   0.045    4941  0.0107  110.00
480          RX    0.00   50.00  200.00  206.00  356.00  366.00  516.00  566.00
481          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

482          KK    S195   BASIN
483          KM        Compute runoff from subbasin 195
484          BA   1.808
485          LG    0.33    0.35    4.25    0.42       0
486          UI     107     108     188     366     523     660     786     925     975    1026
487          UI    1044     975     915     778     674     571     496     419     359     313
488          UI     260     223     202     165     146     115     114      76      74      74
489          UI      67      27      26      26      26      26      26      27      26      26
490          UI      27       0       0       0       0       0       0       0       0       0
             *

491          KK    C195 COMBINE
492          KM        Combine all flows in Wagner Wash at the Hassayampa River
493          HC       2   41.05
494          ZZ
```

1

```
          SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   54        S100
                .
                .
   62           .        S102
                .           .
                .           .
   69        C102............
                V
                V
   72       RR102
                .
                .
   84           .------->    CF02
   81        D102
                V
                V
   87      100105
                .
                .
   93           .        S105
                .           .
                .           .
  103           .           .          .<-------    CF02
  101           .           .        CF02
                .           .          V
                .           .          V
  104           .           .      102105
```

```
                .          .          .
                .          .          .
110       C105U.......................
                .
                .
115             .        S110
                .           V
                .           V
122             .      11015I
                .           V
                .           V
128             .      15I15R
                .           .
                .           .
134             .           .        S115
                .           .           .
                .           .           .
142             .        C115............
                .           V
                .           V
145             .      115120
                .           .
                .           .
151             .           .        S120
                .           .           .
                .           .           .
158             .        C120............
                .           .
                .           .
161       C105D............
              V
              V
164      120135
                .
                .
170             .        S125
                .           V
                .           V
176             .       RR125
                .           V
                .           V
185             .      12535I
                .           .
                .           .
194             .           .        S130
                .           .           V
                .           .           V
200             .           .       RR130
                .           .           V
                .           .           V
209             .           .      13035I
                .           .           .
                .           .           .
218             .       C135I............
                .           V
                .           V
221             .      35I135
                .           .
                .           .
230             .           .        S135
                .           .           .
                .           .           .
236             .       C135L............
                .           .
                .           .
239         C135............
              V
              V
242      135145
                .
                .
248             .        S140
                .           V
                .           V
254             .      140145
                .           .
                .           .
260             .           .        S145
                .           .           .
                .           .           .
266         C145........................
              V
              V
269      145155
                .
                .
275             .        S155
                .           .
                .           .
282         C155............
              V
              V
285      155160
                .
                .
```

```
291          ..        S160
             .           .
             .           .
297       C160...........
             V
             V
300     160170
             .
             .
306          .        S170
             .           V
             .           V
312          .        170R
             .           .
             .           .
318      C170R...........
             V
             V
321     170180
             .
             .
327          .        S150
             .           V
             .           V
335          .       RR150
             .           V
             .           V
345          .      150165
             .           .
             .           .
354          .           .        S165
             .           .           .
             .           .           .
360          .        C165...........
             .           V
             .           V
363          .       RR165
             .           V
             .           V
373          .      165175
             .           .
             .           .
382          .           .        S175
             .           .           .
             .           .           .
391          .        C175...........
             .           V
             .           V
394          .        175R
             .           .
             .           .
403          .           .        S180
             .           .           V
             .           .           V
412          .           .        180R
             .           .           .
             .           .           .
421          .      C180RI...........
             .           V
             .           V
424          .      RI180R
             .           .
             .           .
432      C180R...........
             V
             V
435     180185
             .
             .
441          .        S185
             .           V
             .           V
450          .        185R
             .           .
             .           .
456      C185R...........
             V
             V
459     185190
             .
             .
465          .        S190
             .           .
             .           .
473       C190...........
             V
             V
476     190195
             .
             .
482          .        S195
             .           .
             .           .
491       C195...........
```

```
(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN  1998               *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   19APR06  TIME  16:32:03  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
- WAGNER SUB-AREA
- ALTERNATIVE B3

Alternative Description
The purpose of Alternative B is to capture the upstream flow at the apex using online detention basins. The presence of the detention basins eliminates the downstream alluvial fan uncertainties by controlling the flow from the apices to the outfall. Alternative B3 is based on using a relatively larger on-line detention basin at the apex accompanied by smaller excavated channel sections in the down fan direction. The excavated earthen channels are complemented with a 120-foot wide adjacent riparian preservation corridor.

SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
MODELER: TED LEHMAN
FILENAME: A4_EX24.DAT

100-YEAR 24-HOUR MODEL
EXISTING CONDITIONS
AREA 4 WATERSHED AREA = 90.5 SQ. MILES
MODELED AREA = 76.8 SQ. MILES

GREEN-AMPT LOSS METHOD
S-GRAPH UNIT HYDROGRAPHS
- MOUNTAIN
- DESERT/RANGELAND
NORMAL-DEPTH CHANNEL ROUTING
LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
- UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
- HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
- MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)

```
38 IO        OUTPUT CONTROL VARIABLES
                 IPRNT          5  PRINT CONTROL
                 IPLOT          0  PLOT CONTROL
                 QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT        HYDROGRAPH TIME DATA
                  NMIN          5  MINUTES IN COMPUTATION INTERVAL
                 IDATE     1JAN99  STARTING DATE
                 ITIME       1200  STARTING TIME
                    NQ       2000  NUMBER OF HYDROGRAPH ORDINATES
                NDDATE     8JAN99  ENDING DATE
                NDTIME       1035  ENDING TIME
                 ICENT         19  CENTURY MARK

             COMPUTATION INTERVAL     .08 HOURS
                  TOTAL TIME BASE  166.58 HOURS

       ENGLISH UNITS
            DRAINAGE AREA          SQUARE MILES
            PRECIPITATION DEPTH    INCHES
            LENGTH, ELEVATION      FEET
            FLOW                   CUBIC FEET PER SECOND
            STORAGE VOLUME         ACRE-FEET
            SURFACE AREA           ACRES
            TEMPERATURE            DEGREES FAHRENHEIT

39 JD         INDEX STORM NO. 1
                  STRM        4.20  PRECIPITATION DEPTH
                  TRDA         .10  TRANSPOSITION DRAINAGE AREA

40 PI           PRECIPITATION PATTERN
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
```

```
                .01      .01      .01      .01      .01      .01      .01      .01      .03      .03
                .03      .09      .09      .09      .01      .01      .01      .01      .01      .01
                .01      .01      .01      .01      .01      .01      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00

50 JD         INDEX STORM NO. 2
                 STRM        3.99  PRECIPITATION DEPTH
                 TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 0 PI           PRECIPITATION PATTERN
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .01      .00      .01
                .01      .01      .01      .01      .01      .01      .01      .01      .03      .03
                .03      .09      .09      .09      .01      .01      .01      .01      .01      .01
                .01      .01      .01      .01      .01      .01      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00

51 JD         INDEX STORM NO. 3
                 STRM        3.78  PRECIPITATION DEPTH
                 TRDA       30.00  TRANSPOSITION DRAINAGE AREA

 0 PI           PRECIPITATION PATTERN
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .01      .00      .01
                .01      .01      .01      .01      .01      .01      .01      .01      .03      .03
                .03      .09      .09      .09      .01      .01      .01      .01      .01      .01
                .01      .01      .01      .01      .01      .01      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00

52 JD         INDEX STORM NO. 4
                 STRM        3.65  PRECIPITATION DEPTH
                 TRDA       60.00  TRANSPOSITION DRAINAGE AREA

 0 PI           PRECIPITATION PATTERN
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
```

```
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

 53 JD          INDEX STORM NO. 5
                      STRM        3.58  PRECIPITATION DEPTH
                      TRDA       90.00  TRANSPOSITION DRAINAGE AREA

  0 PI           PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 72 KK      *     RR102  *      STORAGE
            *            *
            **************

 75 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           5  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
1
                                          RUNOFF SUMMARY
                                     FLOW IN CUBIC FEET PER SECOND
                                   TIME IN HOURS,  AREA IN SQUARE MILES

                                 PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
        OPERATION        STATION  FLOW    PEAK                                          AREA      STAGE     MAX STAGE
+                                                        6-HOUR     24-HOUR     72-HOUR

        HYDROGRAPH AT
+                         S100    5214.   12.58         965.        241.         80.      6.99

        HYDROGRAPH AT
+                         S102    3434.   12.33         420.        105.         35.      3.23

        2 COMBINED AT
+                         C102    7803.   12.42        1367.        342.        114.     10.23
```

+	ROUTED TO	RR102	149.	14.42	141.	119.	82.	10.23
+	DIVERSION TO	CF02	75.	14.42	71.	59.	41.	10.23
+	HYDROGRAPH AT	D102	75.	14.42	71.	59.	41.	10.23
+	ROUTED TO	100105	70.	20.33	67.	58.	41.	10.23
+	HYDROGRAPH AT	S105	3466.	12.50	531.	133.	44.	4.37
+	HYDROGRAPH AT	CF02	75.	14.42	71.	59.	41.	10.23
+	ROUTED TO	102105	74.	15.67	70.	59.	41.	10.23
+	3 COMBINED AT	C105U	3466.	12.50	587.	238.	125.	14.60
+	HYDROGRAPH AT	S110	532.	12.17	62.	16.	5.	.43
+	ROUTED TO	11015I	456.	12.42	62.	16.	5.	.43
+	ROUTED TO	15I15R	412.	12.75	62.	16.	5.	.43
+	HYDROGRAPH AT	S115	1693.	12.50	287.	73.	24.	2.25
+	2 COMBINED AT	C115	1937.	12.67	346.	89.	30.	2.68
+	ROUTED TO	115120	1900.	12.75	346.	89.	30.	2.68
+	HYDROGRAPH AT	S120	2032.	12.33	247.	62.	21.	2.00
+	2 COMBINED AT	C120	3202.	12.42	585.	149.	50.	4.68
+	2 COMBINED AT	C105D	6217.	12.42	1091.	359.	163.	19.28
+	ROUTED TO	120135	6220.	12.50	1091.	359.	163.	19.28
+	HYDROGRAPH AT	S125	161.	12.08	12.	3.	1.	.09
+	ROUTED TO	RR125	30.	12.42	12.	3.	1.	.09
+	ROUTED TO	12535I	30.	12.58	12.	3.	1.	.09
+	HYDROGRAPH AT	S130	415.	12.17	39.	10.	3.	.31
+	ROUTED TO	RR130	51.	12.75	36.	10.	3.	.31
+	ROUTED TO	13035I	51.	12.83	36.	10.	3.	.31
+	2 COMBINED AT	C135I	79.	12.67	46.	13.	4.	1.18
+	ROUTED TO	35I135	77.	13.42	45.	13.	4.	1.18
+	HYDROGRAPH AT	S135	1015.	12.25	99.	25.	8.	.88
+	2 COMBINED AT	C135L	1001.	12.25	138.	37.	12.	2.06
+	2 COMBINED AT	C135	6649.	12.42	1208.	389.	173.	21.34
+	ROUTED TO	135145	5881.	12.83	1194.	386.	172.	21.34
+	HYDROGRAPH AT	S140	2029.	12.17	172.	43.	14.	1.37
+	ROUTED TO	140145	1632.	12.42	172.	43.	14.	1.37

```
          HYDROGRAPH AT
+                          S145     1945.  12.25        193.        48.        16.      1.76
          3 COMBINED AT
+                          C145     6532.  12.75       1497.       461.       197.     24.47
          ROUTED TO
+                        145155     6537.  12.83       1497.       461.       197.     24.47
          HYDROGRAPH AT
+                          S155     1781.  12.33        218.        55.        18.      1.83
          2 COMBINED AT
+                          C155     7020.  12.75       1680.       507.       212.     26.30
          ROUTED TO
+                        155160     6996.  12.83       1678.       506.       212.     26.30
          HYDROGRAPH AT
+                          S160     1342.  12.17        124.        31.        10.      1.14
          2 COMBINED AT
+                          C160     7077.  12.83       1776.       531.       220.     27.44
          ROUTED TO
+                        160170     6939.  13.00       1767.       529.       220.     27.44
          HYDROGRAPH AT
+                          S170     1802.  12.17        169.        42.        14.      1.46
          ROUTED TO
+                          170R     1638.  12.33        169.        42.        14.      1.46
          2 COMBINED AT
+                         C170R     7194.  13.00       1905.       563.       231.     28.90
          ROUTED TO
+                        170180     7084.  13.17       1894.       562.       231.     28.90
          HYDROGRAPH AT
+                          S150      729.  12.33        107.        29.        10.       .77
          ROUTED TO
+                         RR150       89.  13.50         75.        28.        10.       .77
          ROUTED TO
+                        150165       88.  13.83         75.        28.        10.       .77
          HYDROGRAPH AT
+                          S165      842.  12.17         78.        20.         7.       .62
          2 COMBINED AT
+                          C165      852.  12.17        146.        48.        16.      1.39
          ROUTED TO
+                         RR165       90.  13.92         88.        48.        16.      1.39
          ROUTED TO
+                        165175       90.  14.58         88.        48.        16.      1.39
          HYDROGRAPH AT
+                          S175     1278.  12.50        217.        55.        18.      1.80
          2 COMBINED AT
+                          C175     1271.  12.50        286.       101.        34.      3.19
          ROUTED TO
+                          175R     1220.  12.58        285.       101.        34.      3.19
          HYDROGRAPH AT
+                          S180     1039.  12.50        171.        44.        15.      1.44
          ROUTED TO
+                          180R      838.  12.75        170.        44.        15.      1.44
          2 COMBINED AT
+                        C180RI     1993.  12.67        450.       143.        48.      4.63
          ROUTED TO
+                        RI180R     1939.  12.75        448.       143.        48.      4.63
          2 COMBINED AT
+                         C180R     8226.  13.08       2271.       681.       271.     33.54
          ROUTED TO
+                        180185     8206.  13.17       2265.       680.       270.     33.54
          HYDROGRAPH AT
+                          S185     1655.  12.50        288.        73.        24.      2.42
          ROUTED TO
+                          185R     1411.  12.92        287.        73.        24.      2.42
          2 COMBINED AT
```

```
+                    C185R      9188.   13.17       2498.       739.       290.      35.96

        ROUTED TO
+                   185190      9177.   13.17       2493.       738.       290.      35.96

        HYDROGRAPH AT
+                     S190      2590.   12.58        448.       112.        37.       4.05

        2 COMBINED AT
+                     C190     10027.   13.08       2841.       827.       320.      39.24

        ROUTED TO
+                   190195      9915.   13.25       2832.       827.       320.      39.24

        HYDROGRAPH AT
+                     S195      1039.   12.67        202.        51.        17.       1.81

        2 COMBINED AT
+                     C195     10293.   13.25       2987.       866.       333.      41.05
1                 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    RR102
                 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

PLAN  1 ..............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION        1550.00           1556.00          1556.00
                          STORAGE              553.             2705.            2705.
                          OUTFLOW                0.              600.             600.

              RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
               OF      RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
              PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS      HOURS

              1.00     1552.28        .00       1258.      171.        .00        14.42        .00

PLAN  2 ..............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION        1550.00           1556.00          1556.00
                          STORAGE              553.             2705.            2705.
                          OUTFLOW                0.              600.             600.

              RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
               OF      RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
              PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS      HOURS

              1.00     1552.14        .00       1204.      150.        .00        14.42        .00

PLAN  3 ..............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION        1550.00           1556.00          1556.00
                          STORAGE              553.             2705.            2705.
                          OUTFLOW                0.              600.             600.

              RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
               OF      RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
              PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS      HOURS

              1.00     1552.00        .00       1149.      128.        .00        14.50        .00

PLAN  4 ..............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION        1550.00           1556.00          1556.00
                          STORAGE              553.             2705.            2705.
                          OUTFLOW                0.              600.             600.

              RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
               OF      RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
              PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS      HOURS

              1.00     1551.89        .00       1115.      121.        .00        14.50        .00

PLAN  5 ..............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION        1550.00           1556.00          1556.00
                          STORAGE              553.             2705.            2705.
                          OUTFLOW                0.              600.             600.

              RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
               OF      RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
              PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS      HOURS

              1.00     1551.82        .00       1095.      117.        .00        14.50        .00

*** NORMAL END OF HEC-1 ***
```

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   19APR06  TIME  16:37:02  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

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

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID    HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
  2           ID     - WAGNER SUB-AREA
  3           ID     - ALTERNATIVE B41
  4           ID
  5           ID   Alternative Description
  6           ID   The purpose of Alternative B is to capture the upstream flow at the
  7           ID   apex using online detention basins.  The presence of the detention basins
  8           ID   eliminates the downstream alluvial fan uncertainties by controlling the
  9           ID   flow from the apices to the outfall.  Alternative B4-1 is based on using a
 10           ID   relatively larger on-line detention basin at the apex accompanied by smaller
 11           ID   leveed channel sections in the down fan direction.  It is the first of three
 12           ID   corridor alignments considered as part of the Alternative B4 series.
 13           ID
 14           ID
 15           ID
 16           ID   SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
 17           ID   JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
 18           ID   MODELER: TED LEHMAN
 19           ID   FILENAME: A4_EX6.DAT
 20           ID
 21           ID   100-YEAR 6-HOUR MODEL
 22           ID   EXISTING CONDITIONS
 23           ID   AREA 4 WATERSHED AREA = 90.5 SQ. MILES
 24           ID            MODELED AREA = 76.8 SQ. MILES
 25           ID
 26           ID   GREEN-AMPT LOSS METHOD
 27           ID   S-GRAPH UNIT HYDROGRAPHS
 28           ID     - MOUNTAIN
 29           ID     - DESERT/RANGELAND
 30           ID   NORMAL-DEPTH CHANNEL ROUTING
 31           ID   LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
 32           ID     - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
 33           ID     - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
 34           ID     - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
 35           ID   SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)
 36           IT       5  1JAN99    1200    2000
 37           IN      15
 38           IO       5
              *DIAGRAM
              *
 39           JD   3.196  0.1000
 40           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
 41           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
 42           PC   0.962   0.972   0.983   0.991   1.000
 43           JD   3.181  0.5000
 44           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
 45           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
 46           PC   0.962   0.972   0.983   0.991   1.000
 47           JD   3.120     2.8
 48           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
 49           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
 50           PC   0.950   0.963   0.975   0.988   1.000
 51           JD   2.950    16.0
 52           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
 53           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  54          PC   0.946   0.960   0.973   0.987   1.000
  55          JD   2.592    90.0
  56          PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
  57          PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
  58          PC   0.927   0.945   0.964   0.982   1.000
              *

  59          KK    S100   BASIN
  60          KM        Compute runoff from subbasin 100
  61          BA   6.994
  62          LG    0.35    0.38    6.40    0.16       0
  63          UI     449     455     964    1717    2422    3046    3616    4050    4275    4281
  64          UI    4178    3867    3211    2766    2319    1968    1698    1387    1198     990
  65          UI     848     715     635     476     471     313     309     309     204     110
  66          UI     109     111     110     109     111     109     110     111       0       0
              *

  67          KK    S102   BASIN
  68          KM        Compute runoff from subbasin 102
  69          BA   3.234
  70          LG    0.35    0.38    5.60    0.22       0
  71          UI     333     657    1539    2292    2943    3178    3083    2643    1985    1523
  72          UI    1179     890     674     542     377     300     232     193      81      82
  73          UI      81      81      83       0       0       0       0       0       0       0
              *

  74          KK    C102 COMBINE
  75          KM        Combine total inflow to detention area behind (north) of CAP Canal
  76          HC       2
              *

  77          KK   RR102 STORAGE
  78          KM        Route flows through storage area behind CAP Canal
  79          KM        Stage-storage-discharge data from Wagner Wash FDS Hydrology (1991)
  80          KO
  81          RS       1    STOR      -1
  82          SV           553.00 1148.00 2316.00 2705.00
  83          SQ                  128.00  587.00  600.00
  84          SE  1543.0 1550.00 1552.00 1555.00 1556.00
  85          ST  1556.0  1320.0     3.2     1.5
              *

  86          KK    D102  DIVERT
  87          KM        Divide flow evenly over the two 18-foot wide CAP overchutes
  88          KM        although the inverts are 0.5 feet different in elevation
  89          DT    CF02     0.0     0.0
  90          DI     0.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0     0.0
  91          DQ     0.0    50.0   500.0  5000.0     0.0     0.0     0.0     0.0     0.0     0.0
              *
1                                          HEC-1 INPUT                                          PAGE  3

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  92          KK  100105   ROUTE
  93          KM        Route outflows from east CAP overchute to Sun Valley Parkway.
  94          RS       9    FLOW      -1
  95          RC   0.035   0.055   0.035   11235  0.0045  105.00
  96          RX    0.00  120.00  240.00  250.00  590.00  600.00  720.00  840.00
  97          RY  105.00  102.50  100.00  100.00  100.00  100.00  102.50  105.00
              *

  98          KK    S105   BASIN
  99          KM        Compute runoff from subbasin 105
 100          BA   4.370
 101          LG    0.35    0.35    4.80    0.30       0
 102          UI     345     380    1112    1723    2334    2867    3143    3344    3176    2865
 103          UI    2374    1903    1555    1291    1018     832     685     564     458     369
 104          UI     288     235     238     126      83      85      84      84      84      84
 105          UI      84       0       0       0       0       0       0       0       0       0
              *

 106          KK    CF02RETRIEVE
 107          KM        Retrieve flow from west CAP overchute.
 108          DR    CF02
              *

 109          KK  102105   ROUTE
 110          KM        Route retrieved flow from west overchute to C105.
 111          RS       6    FLOW      -1
 112          RC   0.045   0.050   0.045    7656  0.0065  104.00
 113          RX    0.00   40.00  120.00  130.00  250.00  260.00  340.00  380.00
 114          RY  104.00  102.00  101.00  100.00  100.00  101.00  102.00  104.00
              *

 115          KK   C105U COMBINE
 116          KM        Combine runoff from S105 with routed flow from 100105 and 102105
 117          KM        (CAP overchute flows). This is the total flow in Wagner Wash upstream
 118          KM        of Sun Valley Parkway.
 119          HC       3  14.598
              *

 120          KK    S110   BASIN
```

```
121          KM        Compute runoff from subbasin 110
122          BA   0.430
123          LG    0.25    0.37    5.20    0.25       6
124          UI      56     166     335     449     587     358     291     241     188     140
125          UI     121      86      68      56      43      32      27      22      11      11
126          UI      10      11      11       0       0       0       0       0       0       0
             *

127          KK  11015I   ROUTE
128          KM        Route flow from C105 through subbasin 110 to C115.
129          RS       2    FLOW      -1
130          RC   0.045   0.035   0.045    3783  0.0267  102.00
131          RX    0.00   50.00  100.00  110.00  120.00  130.00  180.00  230.00
132          RY  102.00  101.50  101.00  100.00  100.00  101.00  101.50  102.00
             *
1                                          HEC-1 INPUT                                                PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

133          KK  15I15R   ROUTE
134          KM        Route flows from split through S115 to C115.
135          RS       8    FLOW      -1
136          RC   0.035   0.030   0.035   14128  0.0151  105.00
137          RX    0.00   25.00   58.00   65.00   85.00   92.00  125.00  150.00
138          RY  105.00  102.50  102.00  100.00  100.00  102.00  102.50  105.00
             *

139          KK    S115   BASIN
140          KM        Compute runoff from subbasin 115
141          BA   2.247
142          LG    0.32    0.35    4.80    0.30       2
143          UI     160     163     434     709     984    1212    1401    1530    1539    1465
144          UI    1351    1100     918     773     632     528     444     351     304     252
145          UI     203     170     140     110     110      85      39      39      40      39
146          UI      39      39      40      39       0       0       0       0       0       0
             *

147          KK    C115 COMBINE
148          KM        Combine runoff from S115 with routed flow.
149          HC       2   2.677
             *

150          KK  115120   ROUTE
151          KM        Route total flows from C115 to C120. Slope =(1532-1494) / 4077
152          RS       2    FLOW      -1
153          RC   0.030   0.025   0.030    4077  0.0093  105.00
154          RX    0.00   30.00   75.00   80.00  105.00  110.00  155.00  190.00
155          RY  105.00  101.50  101.00  100.00  100.00  101.00  101.50  105.00
             *

156          KK    S120   BASIN
157          KM        Compute runoff from subbasin 120
158          BA   2.004
159          LG    0.33    0.35    4.65    0.32       1
160          UI     206     408     954    1419    1824    1969    1911    1637    1230     944
161          UI     731     551     418     336     234     186     143     120      50      51
162          UI      50      51      51       0       0       0       0       0       0       0
             *

163          KK    C120 COMBINE
164          KM        Combine flows at Wagner Wash at outlet of channel along SVP
165          HC       2   4.681
             *

166          KK   C105D COMBINE
167          KM        Combine flows from C105 and C120 just D/S of Sun Valley Parkway
168          HC       2  19.279
             *
1                                          HEC-1 INPUT                                                PAGE  5

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

169          KK  120135   ROUTE
170          KM        Route flows in Wagner Wash from Sun Valley Parkway to C135.
171          RS       1    FLOW      -1
172          RC   0.045   0.035   0.045     951  0.0074  110.00
173          RX    0.00  225.00  450.00  455.00  485.00  490.00  615.00  840.00
174          RY  110.00  105.00  102.00  100.00  100.00  102.00  102.00  110.00
             *

175          KK    S125   BASIN
176          KM        Compute runoff from subbasin 125
177          BA   0.093
178          LG    0.25    0.35    4.15    0.44       5
179          UI      46     164     204     116      73      46      28      17      12       4
180          UI       5       4       0       0       0       0       0       0       0       0
             *

181          KK   RR125 STORAGE
182          KM   PROPOSED DETENTION BASIN
183          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13E
184          KM    STRUCTURE ID:RR125
185          KM    DIMENSIONS: L=300ft, W=200ft, D=6ft, Sideslope (?H:1V)= 3,  Vol.= 5.2 ac-ft
```

```
186        RS      1    STOR       0
187        SV    0.0     0.5     0.9     1.4     1.9     3.0     4.1     5.2     6.5     7.8
188        SE    0.0     0.5     1.0     1.5     2.0     3.0     4.0     5.0     6.0     7.0
189        SQ    0.0    10.7    15.1    18.5    21.4    26.2    30.3    33.8    37.1    40.0
           *

190        KK  12535I   ROUTE
191        KM   PROPOSED CHANNEL
192        KM        Route flows from S125 to intermediate combination point in S135.
193        KM    STRUCTURE ID(s): RR12510
194        KM    Slope=(1746.1 - 1697.0) / 1852.5
195        RS      1    FLOW      -1
196        RC  0.045   0.045   0.045  1852.50.026481   104.0
197        RX    0.0    12.0    12.0    12.0    37.0    37.0    37.0    49.0
198        RY  104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
           *

199        KK    S150   BASIN
200        KM        Compute runoff from subbasin 150
201        BA   0.774
202        LG   0.25    0.35    4.65    0.32       7
203        UI     71     115     270     425     531     672     746     480     406     356
204        UI    312     262     212     181     159     132     106      89      77      65
205        UI     54      47      35      35      35      14      14      13      14      14
206        UI     13      14      14       0       0       0       0       0       0       0
           *

207        KK   RR150 STORAGE
208        KM   PROPOSED DETENTION BASIN
209        KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 3
210        KM    STRUCTURE ID:RR150
211        KM    DIMENSIONS: L=760ft, W=400ft, D=10ft, Sideslope (?H:1V)= 3,  Vol.= 50.4 ac-f
212        RS      1    STOR       0
```



```
LINE       ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

213        SV    0.0     5.0    10.2    20.9    32.3    38.1    44.2    50.4    56.7    63.2
214        SE    0.0     1.0     2.0     4.0     6.0     7.0     8.0     9.0    10.0    11.0
215        SQ    0.0    34.0    48.1    68.1    83.4    90.0    96.3   102.1   107.6   112.9
           *

216        KK  150130   ROUTE
217        KM   PROPOSED CHANNEL
218        KM    ROUTE OUTFLOW FROM RR150 TO S125
219        KM    STRUCTURE ID(s): RR15010
220        KM    Slope=(1728.2 - 1697.0) / 1235.4
221        RS      1    FLOW      -1
222        RC  0.045   0.045   0.045  1235.4 0.02524   104.0
223        RX    0.0    12.0    12.0    12.0    52.0    52.0    52.0    64.0
224        RY  104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
           *

225        KK    S130   BASIN
226        KM        Compute runoff from subbasin 130
227        BA   0.310
228        LG   0.21    0.35    4.20    0.43       4
229        UI     61     239     399     514     313     240     176     128      94      64
230        UI     49      36      26      19      10      10      10      10       0       0
           *

231        KK    C130 COMBINE
232        KM    COMBINE RUNOFF FROM S130 WITH ROUTED OUTFLOWS FROM RR150
233        HC      2
           *

234        KK   RR130 STORAGE
235        KM   PROPOSED DETENTION BASIN
236        KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13W
237        KM    STRUCTURE ID:RR130
238        KM    DIMENSIONS: L=800ft, W=400ft, D=9ft, Sideslope (?H:1V)= 3,  Vol.= 47.6 ac-ft
239        RS      1    STOR       0
240        SV    0.0     5.4    11.0    22.6    34.7    41.1    47.6    54.2    61.0    68.0
241        SE    0.0     1.0     2.0     4.0     6.0     7.0     8.0     9.0    10.0    11.0
242        SQ    0.0    15.1    21.4    30.3    37.1    40.0    42.8    45.4    47.8    50.2
           *

243        KK  13035I   ROUTE
244        KM   PROPOSED CHANNEL
245        KM        Route flow to intermediate point in S135.
246        KM    STRUCTURE ID(s): RR13010
247        KM    Slope=(1728.2 - 1697.0) / 1235.4
248        RS      1    FLOW      -1
249        RC  0.045   0.045   0.045  1235.4 0.02524   104.0
250        RX    0.0    12.0    12.0    12.0    37.0    37.0    37.0    49.0
251        RY  104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
           *
```



```
LINE       ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

252        KK   C135I COMBINE
253        KM        Combine routed flow from RR130 and RR125
254        HC      2    1.18
```

```
                *

255             KK  35I135   ROUTE
256             KM   PROPOSED CHANNEL
257             KM        Route combined flows to C135 at Wagner Wash.
258             KM    STRUCTURE ID(s): C135L10
259             KM    Slope=(1697.0 - 1496.9) / 12096.9
260             RS       8    FLOW      -1
261             RC   0.045   0.045   0.045 12096.90.016546   104.5
262             RX     0.0    13.5    13.5    13.5   213.5   213.5   213.5   227.0
263             RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
                *

264             KK    S135   BASIN
265             KM        Compute runoff from subbasin 135
266             BA   0.879
267             LG    0.35    0.35    4.25    0.42       0
268             UI     115     362     709     992    1126     989     736     527     370     260
269             UI     194     128      89      76      28      28      29      28       0       0
                *

270             KK   C135L COMBINE
271             KM        Combine all piedmont runoff inflow to Wagner Wash at C135
272             HC       2    2.06
                *

273             KK    C135 COMBINE
274             KM        Combine all flows in Wagner Wash at C135
275             HC       2
                *

276             KK  135145   ROUTE
277             KM        Route flow in Wagner Wash to C145.  Slope = (1487-1454) / 7938
278             RS       4    FLOW      -1
279             RC   0.045   0.035   0.045    7938  0.0042  110.00
280             RX    0.00  300.00  400.00  406.00  506.00  512.00  612.00  912.00
281             RY  110.00  102.50  102.00  100.00  100.00  102.00  102.50  110.00
                *

282             KK    S140   BASIN
283             KM        Compute runoff from subbasin 140
284             BA   1.373
285             LG    0.35    0.36    5.00    0.28       0
286             UI     260    1034    1801    2168    1890    1235     809     517     339     211
287             UI     157      56      55      57       0       0       0       0       0       0
                *
```



```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

288             KK  140145   ROUTE
289             KM        Route runoff from S140 to C145 at Wagner Wash.
290             RS       3    FLOW      -1
291             RC   0.040   0.050   0.040    3656  0.0074  103.00
292             RX    0.00   70.00  140.00  150.00  250.00  260.00  330.00  400.00
293             RY  102.00  101.00  100.00  100.00  100.00  100.00  101.00  102.00
                *

294             KK    S145   BASIN
295             KM        Compute runoff from subbasin 145
296             BA   1.756
297             LG    0.35    0.35    4.15    0.44       0
298             UI     226     672    1369    1903    2167    2003    1508    1085     777     544
299             UI     399     279     198     157      80      55      56      54      55       0
                *

300             KK    C145 COMBINE
301             KM        Combine all flows in Wagner Wash at C145
302             HC       3
                *

303             KK  145155   ROUTE
304             KM        Route flows in Wagner Wash form C145 to C155. Slope = (1454-1452)/631
305             RS       1    FLOW      -1
306             RC   0.045   0.035   0.055     631  0.0032  110.00
307             RX    0.00  150.00  300.00  309.00  379.00  388.00  538.00  838.00
308             RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
                *

309             KK    S155   BASIN
310             KM        Compute runoff from subbasin 155
311             BA   1.832
312             LG    0.35    0.35    4.50    0.36       1
313             UI     187     361     846    1266    1637    1771    1735    1497    1161     879
314             UI     681     519     385     314     228     181     130     126      46      46
315             UI      45      46      46      45       0       0       0       0       0       0
                *

316             KK    C155 COMBINE
317             KM        Combine all flows at Wagner Wash at C155
318             HC       2
                *

319             KK  155160   ROUTE
```

```
320          KM        Route flow in Wagner Wash to C160 (Sun Valley Parkway).
321          RS        5    FLOW      -1
322          RC    0.035    0.035    0.035     2291  0.0052  110.00
323          RX     0.00   200.00   400.00   406.00  506.00  512.00  712.00  912.00
324          RY   110.00   106.50   103.00   100.00  100.00  103.00  106.50  110.00
             *
1                                          HEC-1 INPUT                                                    PAGE  9

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


325          KK    S160   BASIN
326          KM        Compute runoff from subbasin 160
327          BA    1.144
328          LG     0.35     0.35     4.00     0.47        0
329          UI      165      599     1121     1501     1557     1233      844      593      394      281
330          UI      190      122       93       40       40       40       41        0        0        0
             *

331          KK    C160 COMBINE
332          KM        Combine flows at Sun Valley Parkway
333          HC        2   27.44
             *

334          KK  160170   ROUTE
335          KM        Route flows from Sun Valley Parkway to C170R, Slope = (1440-1410)/5248
336          RS        3    FLOW      -1
337          RC    0.040    0.030    0.040     5248  0.0057  108.00
338          RX     0.00   200.00   400.00   406.00  606.00  612.00  812.00 1012.00
339          RY   108.00   103.00   102.00   100.00  100.00  102.00  103.00  108.00
             *

340          KK    S170   BASIN
341          KM        Compute runoff from subbasin 170
342          BA    1.464
343          LG     0.35     0.35     4.40     0.38        0
344          UI      209      755     1427     1917     1973     1590     1086      762      513      360
345          UI      246      160      123       52       51       51       52        0        0        0
             *

346          KK    170R   ROUTE
347          KM        Route flow from S170 to Wagner Wash.  Slope = (1456-1410) / 3986
348          RS        3    FLOW      -1
349          RC    0.045    0.045    0.045     3986  0.0115  104.00
350          RX     0.00    50.00   100.00   103.00  113.00  116.00  166.00  216.00
351          RY   103.00   102.00   101.00   100.00  100.00  101.00  102.00  103.00
             *

352          KK   C170R COMBINE
353          KM        Combine routed flows from S170 and C160 in Wagner Wash
354          HC        2
             *

355          KK  170180   ROUTE
356          KM        Route flows in Wagner Wash to C180R.  Slope = (1410-1366) / 6770
357          RS        4    FLOW      -1
358          RC    0.045    0.035    0.045     6770  0.0065  110.00
359          RX     0.00   200.00   400.00   406.00  606.00  612.00  812.00 1012.00
360          RY   110.00   103.00   102.00   100.00  100.00  102.00  103.00  110.00
             *
1                                          HEC-1 INPUT                                                    PAGE 10

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


361          KK    S165   BASIN
362          KM        Compute runoff from subbasin 165
363          BA    0.616
364          LG     0.30     0.35     4.55     0.35        3
365          UI      121      477      809     1022      617      474      347      254      185      127
366          UI       96       69       52       36       20       20       20       20        0        0
             *

367          KK   RR165 STORAGE
368          KM   PROPOSED DETENTION BASIN
369          KM    ROUTE RUNOFF FROM S165 THROUGH PROPOSED DETENTION BASIN
370          KM    STRUCTURE ID:RR165
371          KM    DIMENSIONS: L=800ft, W=300ft, D=10ft, Sideslope (?H:1V)= 3,  Vol.= 39.2 ac-f
372          RS        1    STOR       0
373          SV      0.0      3.8     11.8     20.4     24.9     29.5     34.3     39.2     44.3     54.8
374          SE      0.0      1.0      3.0      5.0      6.0      7.0      8.0      9.0     10.0     12.0
375          SQ      0.0     34.0     59.0     76.1     83.4     90.0     96.3    102.1    107.6    117.9
             *

376          KK  165175   ROUTE
377          KM   PROPOSED CHANNEL
378          KM    ROUTE OUTFLOW FROM RR165 TO SUN VALLEY PARKWAY IN NEW CHANNEL THRU S175
379          KM    STRUCTURE ID(s): C17510A, C17510B
380          KM    Slope=(1674.9 - 1462.9) / 13245.4
381          RS        8    FLOW      -1
382          RC    0.045    0.045    0.045 13245.40.016012   104.5
383          RX      0.0     13.5     13.5     13.5    213.5    213.5    213.5    227.0
384          RY    104.5    100.0    100.0    100.0    100.0    100.0    100.0    104.5
             *
```

```
 385          KK    S175   BASIN
 386          KM        Compute runoff from subbasin 175
 387          BA   1.802
 388          LG    0.29    0.35    4.50    0.36       1
 389          UI     126     127     317     525     763     877    1013    1295    1376     895
 390          UI     771     703     622     572     507     439     372     318     296     274
 391          UI     227     192     163     148     138     116      96      97      73      62
 392          UI      62      63      55      24      25      24      24      24      24      25
 393          UI      24      24      24      25       0       0       0       0       0       0
              *

 394          KK    C175 COMBINE
 395          KM    COMBINE RUNOFF FROM S175 WITH ROUTED FLOW FROM C165
 396          HC       2
              *

 397          KK    175R   ROUTE
 398          KM   PROPOSED CHANNEL
 399          KM        Route runoff from S175 to intermediate point in S190 (C180RI).
 400          KM    STRUCTURE ID(s): RR17510
 401          KM    Slope=(1462.9 - 1413.1) / 3035.2
 402          RS       2    FLOW      -1
 403          RC   0.045   0.045   0.045  3035.20.016393   104.5
 404          RX     0.0    13.5    13.5    13.5   293.5   293.5   293.5   307.0
1                                          HEC-1 INPUT                                          PAGE 11

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 405          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
              *

 406          KK    S180   BASIN
 407          KM        Compute runoff from subbasin 180
 408          BA   1.443
 409          LG    0.25    0.35    4.25    0.42       2
 410          UI     107     108     311     490     677     785     927    1258     896     684
 411          UI     622     547     497     440     379     315     275     250     228     185
 412          UI     154     138     120     115      82      83      73      52      53      52
 413          UI      50      21      20      21      20      21      21      20      21      21
 414          UI      20       0       0       0       0       0       0       0       0       0
              *

 415          KK    180R   ROUTE
 416          KM   PROPOSED CHANNEL
 417          KM        Route runoff from S180 to intermediate point in S190 (C180RI).
 418          KM    STRUCTURE ID(s): RR18010
 419          KM    Slope=(1456.3 - 1413.1) / 2824.7
 420          RS       2    FLOW      -1
 421          RC   0.045   0.045   0.045  2824.70.015285   104.5
 422          RX     0.0    13.5    13.5    13.5   193.5   193.5   193.5   207.0
 423          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
              *

 424          KK  C180RI COMBINE
 425          KM        Combine routed flows from S175 and S180
 426          HC       2
              *

 427          KK  RI180R   ROUTE
 428          KM   PROPOSED CHANNEL
 429          KM    STRUCTURE ID(s): C180R10
 430          KM    Slope=(1413.1 - 1367.6) / 3720.6
 431          RS       3    FLOW      -1
 432          RC   0.045   0.045   0.045  3720.60.012229   104.5
 433          RX     0.0    13.5    13.5    13.5   373.5   373.5   373.5   387.0
 434          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
              *

 435          KK   C180R COMBINE
 436          KM        Combine flows in Wagner Wash
 437          HC       2
              *

 438          KK  180185   ROUTE
 439          KM        Route flows in Wagner Wash from C180R to C185R.
 440          RS       3    FLOW      -1
 441          RC   0.045   0.035   0.045    3450  0.0075  106.00
 442          RX    0.00  100.00  200.00  206.00  406.00  412.00  512.00  612.00
 443          RY  106.00  104.00  102.00  100.00  100.00  102.00  104.00  106.00
              *
1                                          HEC-1 INPUT                                          PAGE 12

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 444          KK    S185   BASIN
 445          KM        Compute runoff from subbasin 185
 446          BA   2.421
 447          LG    0.16    0.35    4.35    0.40       1
 448          UI     165     166     391     668     960    1130    1281    1613    1908    1239
 449          UI    1060     936     847     785     677     614     534     438     399     375
 450          UI     338     271     230     210     183     183     133     126     127      85
 451          UI      80      82      81      67      32      31      32      32      31      32
 452          UI      32      31      32      32      32       0       0       0       0       0
              *
```

```
453          KK    185R   ROUTE
454          KM        Route runoff from S185 to Wagner Wash.  Slope = (1442-1340) / 8534
455          RS        5     FLOW      -1
456          RC   0.045   0.035   0.045    8534  0.0120  104.00
457          RX    0.00   30.00  100.00  106.00  156.00  162.00  232.00  262.00
458          RY  104.00  102.00  102.00  100.00  100.00  102.00  102.00  104.00
             *

459          KK   C185R COMBINE
460          KM        Combine flows in Wagner Wash
461          HC        2
             *

462          KK  185190   ROUTE
463          KM        Route flow in Wagner Wash to C190.  Slope = (1340-1308) / 2700
464          RS        2     FLOW      -1
465          RC   0.045   0.040   0.045    2700  0.0119  106.00
466          RX    0.00   80.00  160.00  166.00  416.00  422.00  502.00  582.00
467          RY  106.00  103.00  102.00  100.00  100.00  102.00  103.00  106.00
             *

468          KK    S190   BASIN
469          KM        Compute runoff from subbasin 190
470          BA   4.054
471          LG    0.35    0.35    3.81    0.44       0
472          UI     274     278     647    1125    1573    1918    2319    2540    2637    2574
473          UI    2467    2112    1787    1506    1256    1044     891     745     605     522
474          UI     432     370     293     266     188     191     188      78      68      66
475          UI      67      67      67      67      67      67       0       0       0       0
             *

476          KK    C190 COMBINE
477          KM        Combine all flow in Wagner Wash at C190
478          HC        2   39.24
             *

479          KK  190195   ROUTE
480          KM        Route flow from C190 to the Hassayampa River. Slope = (1308-1255)/4941
481          RS        2     FLOW      -1
482          RC   0.045   0.035   0.045    4941  0.0107  110.00
483          RX    0.00   50.00  200.00  206.00  356.00  366.00  516.00  566.00
484          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *
```

1 HEC-1 INPUT PAGE 13

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

485          KK    S195   BASIN
486          KM        Compute runoff from subbasin 195
487          BA   1.808
488          LG    0.33    0.35    4.25    0.42       0
489          UI     107     108     188     366     523     660     786     925     975    1026
490          UI    1044     975     915     778     674     571     496     419     359     313
491          UI     260     223     202     165     146     115     114      76      74      74
492          UI      67      27      26      26      26      26      26      27      26      26
493          UI      27       0       0       0       0       0       0       0       0       0
             *

494          KK    C195 COMBINE
495          KM        Combine all flows in Wagner Wash at the Hassayampa River
496          HC        2   41.05
497          ZZ
```

1

```
          SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   59       S100
              .
              .
   67         .        S102
              .           .
              .           .
   74       C102............
              V
              V
   77      RR102
              .
              .
   89         .-------->    CF02
   86       D102
              V
              V
   92     100105
              .
              .
   98         .        S105
              .           .
              .           .
  108         .           .          .<-------    CF02
  106         .           .        CF02
```

```
                .           .           V
                .           .           V
109             .           .      102105
                .           .           .
                .           .           .
115         C105U.......................
                .
                .
120             .        S110
                .           V
                .           V
127             .      11015I
                .           V
                .           V
133             .      15I15R
                .           .
                .           .
139             .           .        S115
                .           .           .
                .           .           .
147             .        C115............
                .           V
                .           V
150             .      115120
                .           .
                .           .
156             .           .        S120
                .           .           .
                .           .           .
163             .        C120............
                .           .
                .           .
166         C105D............
                V
                V
169        120135
                .
                .
175             .        S125
                .           V
                .           V
181             .       RR125
                .           V
                .           V
190             .      12535I
                .           .
                .           .
199             .           .        S150
                .           .           V
                .           .           V
207             .           .       RR150
                .           .           V
                .           .           V
216             .           .      150130
                .           .           .
                .           .           .
225             .           .           .        S130
                .           .           .           .
                .           .           .           .
231             .           .        C130............
                .           .           V
                .           .           V
234             .           .       RR130
                .           .           V
                .           .           V
243             .           .      13035I
                .           .           .
                .           .           .
252             .       C135I............
                .           V
                .           V
255             .      35I135
                .           .
                .           .
264             .           .        S135
                .           .           .
                .           .           .
270             .       C135L............
                .           .
                .           .
273         C135............
                V
                V
276        135145
                .
                .
282             .        S140
                .           V
                .           V
288             .      140145
                .           .
                .           .
294             .           .        S145
                .           .           .
                .           .           .
```

```
300        C145.......................
              V
              V
303      145155
              .
              .
309           .        S155
              .           .
              .           .
316        C155............
              V
              V
319      155160
              .
              .
325           .        S160
              .           .
              .           .
331        C160............
              V
              V
334      160170
              .
              .
340           .        S170
              .           V
              .           V
346           .        170R
              .           .
              .           .
352       C170R............
              V
              V
355      170180
              .
              .
361           .        S165
              .           V
              .           V
367           .       RR165
              .           V
              .           V
376           .      165175
              .           .
              .           .
385           .           .        S175
              .           .           .
              .           .           .
394           .        C175............
              .           V
              .           V
397           .        175R
              .           .
              .           .
406           .           .        S180
              .           .           V
              .           .           V
415           .           .        180R
              .           .           .
              .           .           .
424           .      C180RI............
              .           V
              .           V
427           .      RI180R
              .           .
              .           .
435       C180R............
              V
              V
438      180185
              .
              .
444           .        S185
              .           V
              .           V
453           .        185R
              .           .
              .           .
459       C185R............
              V
              V
462      185190
              .
              .
468           .        S190
              .           .
              .           .
476        C190............
              V
              V
479      190195
              .
              .
485           .        S195
              .           .
```

```
494        C195............

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                    ****************************************
*                                      *                                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *   U.S. ARMY CORPS OF ENGINEERS       *
*              JUN   1998              *                                    *   HYDROLOGIC ENGINEERING CENTER      *
*           VERSION 4.1                *                                    *          609 SECOND STREET           *
*                                      *                                    *      DAVIS, CALIFORNIA 95616         *
*  RUN DATE   19APR06  TIME  16:37:02  *                                    *          (916) 756-1104              *
*                                      *                                    *                                      *
****************************************                                    ****************************************
```

HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
- WAGNER SUB-AREA
- ALTERNATIVE B41

Alternative Description
The purpose of Alternative B is to capture the upstream flow at the apex using online detention basins. The presence of the detention basins eliminates the downstream alluvial fan uncertainties by controlling the flow from the apices to the outfall. Alternative B4-1 is based on using a relatively larger on-line detention basin at the apex accompanied by smaller leveed channel sections in the down fan direction. It is the first of three corridor alignments considered as part of the Alternative B4 series.

SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
MODELER: TED LEHMAN
FILENAME: A4_EX6.DAT

100-YEAR 6-HOUR MODEL
EXISTING CONDITIONS
AREA 4 WATERSHED AREA = 90.5 SQ. MILES
MODELED AREA = 76.8 SQ. MILES

GREEN-AMPT LOSS METHOD
S-GRAPH UNIT HYDROGRAPHS
- MOUNTAIN
- DESERT/RANGELAND
NORMAL-DEPTH CHANNEL ROUTING
LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
- UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
- HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
- MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)

```
38 IO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT          HYDROGRAPH TIME DATA
                      NMIN          5  MINUTES IN COMPUTATION INTERVAL
                     IDATE     1JAN99  STARTING DATE
                     ITIME       1200  STARTING TIME
                        NQ       2000  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE     8JAN99  ENDING DATE
                    NDTIME       1035  ENDING TIME
                     ICENT         19  CENTURY MARK

               COMPUTATION INTERVAL     .08 HOURS
                    TOTAL TIME BASE  166.58 HOURS

         ENGLISH UNITS
              DRAINAGE AREA          SQUARE MILES
              PRECIPITATION DEPTH    INCHES
              LENGTH, ELEVATION      FEET
              FLOW                   CUBIC FEET PER SECOND
              STORAGE VOLUME         ACRE-FEET
              SURFACE AREA           ACRES
              TEMPERATURE            DEGREES FAHRENHEIT

39 JD          INDEX STORM NO. 1
                     STRM        3.20  PRECIPITATION DEPTH
                     TRDA         .10  TRANSPOSITION DRAINAGE AREA

40 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                     .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                     .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00

43 JD          INDEX STORM NO. 2
```

```
                    STRM        3.18  PRECIPITATION DEPTH
                    TRDA         .50  TRANSPOSITION DRAINAGE AREA

 44 PI          PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

 47 JD         INDEX STORM NO. 3
                    STRM        3.12  PRECIPITATION DEPTH
                    TRDA        2.80  TRANSPOSITION DRAINAGE AREA

 48 PI          PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .07       .07       .07       .08       .08       .08       .05       .05
                  .05       .02       .02       .02       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

 51 JD         INDEX STORM NO. 4
                    STRM        2.95  PRECIPITATION DEPTH
                    TRDA       16.00  TRANSPOSITION DRAINAGE AREA

 52 PI          PRECIPITATION PATTERN
                  .01       .01       .00       .00       .00       .00       .00       .00       .00       .01
                  .01       .01       .00       .01       .00       .00       .00       .00       .00       .00
                  .00       .00       .01       .00       .00       .00       .00       .01       .01       .01
                  .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                  .03       .03       .06       .06       .06       .07       .07       .07       .04       .04
                  .04       .02       .02       .02       .01       .01       .01       .01       .01       .01
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

 55 JD         INDEX STORM NO. 5
                    STRM        2.59  PRECIPITATION DEPTH
                    TRDA       90.00  TRANSPOSITION DRAINAGE AREA

 56 PI          PRECIPITATION PATTERN
                  .01       .01       .01       .00       .00       .00       .01       .01       .01       .01
                  .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                  .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                  .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                  .03       .03       .05       .05       .05       .05       .05       .05       .04       .04
                  .04       .02       .02       .02       .02       .02       .02       .01       .01       .01
                  .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                  .01       .01

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 77 KK    *     RR102  *      STORAGE
          *            *
          **************

 80 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           5  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
1
                                          RUNOFF SUMMARY
                                   FLOW IN CUBIC FEET PER SECOND
                                TIME IN HOURS,  AREA IN SQUARE MILES

                                     PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
          OPERATION       STATION    FLOW    PEAK                                           AREA      STAGE     MAX STAGE
+                                                          6-HOUR     24-HOUR     72-HOUR

          HYDROGRAPH AT
+                           S100     4347.    4.67         899.        225.         75.      6.99

          HYDROGRAPH AT
+                           S102     2790.    4.33         417.        104.         35.      3.23

          2 COMBINED AT
+                           C102     5993.    4.50        1198.        300.        100.     10.23

          ROUTED TO
+                          RR102      127.    6.75         122.        104.         72.     10.23

          DIVERSION TO
+                           CF02       63.    6.75          61.         52.         36.     10.23

          HYDROGRAPH AT
```

+		D102	63.	6.75	61.	52.	36.	10.23
	ROUTED TO							
+		100105	59.	12.58	58.	51.	36.	10.23
	HYDROGRAPH AT							
+		S105	2863.	4.50	495.	124.	41.	4.37
	HYDROGRAPH AT							
+		CF02	63.	6.75	61.	52.	36.	10.23
	ROUTED TO							
+		102105	63.	8.00	60.	51.	36.	10.23
	3 COMBINED AT							
+		C105U	2863.	4.50	549.	226.	120.	14.60
	HYDROGRAPH AT							
+		S110	662.	4.25	76.	19.	6.	.43
	ROUTED TO							
+		11015I	570.	4.42	76.	19.	6.	.43
	ROUTED TO							
+		15I15R	506.	4.83	76.	19.	6.	.43
	HYDROGRAPH AT							
+		S115	1605.	4.58	296.	74.	25.	2.25
	2 COMBINED AT							
+		C115	1813.	4.67	350.	88.	29.	2.68
	ROUTED TO							
+		115120	1781.	4.75	350.	88.	29.	2.68
	HYDROGRAPH AT							
+		S120	1838.	4.33	256.	64.	21.	2.00
	2 COMBINED AT							
+		C120	2678.	4.58	545.	137.	46.	4.68
	2 COMBINED AT							
+		C105D	4029.	4.50	821.	275.	127.	19.28
	ROUTED TO							
+		120135	4027.	4.58	821.	275.	127.	19.28
	HYDROGRAPH AT							
+		S125	202.	4.08	14.	4.	1.	.09
	ROUTED TO							
+		RR125	33.	4.42	14.	4.	1.	.09
	ROUTED TO							
+		12535I	33.	4.67	14.	4.	1.	.09
	HYDROGRAPH AT							
+		S150	836.	4.33	126.	31.	10.	.77
	ROUTED TO							
+		RR150	99.	5.50	85.	31.	10.	.77
	ROUTED TO							
+		150130	99.	5.58	85.	31.	10.	.77
	HYDROGRAPH AT							
+		S130	524.	4.17	48.	12.	4.	.31
	2 COMBINED AT							
+		C130	453.	4.17	120.	41.	14.	1.08
	ROUTED TO							
+		RR130	42.	12.42	42.	35.	14.	1.08
	ROUTED TO							
+		13035I	42.	12.50	42.	35.	14.	1.08
	2 COMBINED AT							
+		C135I	59.	4.92	47.	37.	15.	1.18
	ROUTED TO							
+		35I135	53.	7.67	45.	37.	15.	1.18
	HYDROGRAPH AT							
+		S135	1102.	4.25	111.	28.	9.	.88
	2 COMBINED AT							
+		C135L	829.	4.25	124.	57.	21.	2.06
	2 COMBINED AT							
+		C135	4170.	4.50	873.	305.	137.	21.34
	ROUTED TO							
+		135145	3745.	5.00	861.	302.	137.	21.34

+	HYDROGRAPH AT	S140	1913.	4.17	188.	47.	16.	1.37
+	ROUTED TO	140145	1623.	4.42	188.	47.	16.	1.37
+	HYDROGRAPH AT	S145	1702.	4.25	193.	48.	16.	1.76
+	3 COMBINED AT	C145	4071.	4.92	1026.	341.	149.	24.47
+	ROUTED TO	145155	4070.	4.92	1026.	341.	149.	24.47
+	HYDROGRAPH AT	S155	1626.	4.33	223.	56.	19.	1.83
+	2 COMBINED AT	C155	4304.	4.83	1124.	364.	156.	26.30
+	ROUTED TO	155160	4294.	4.92	1123.	364.	156.	26.30
+	HYDROGRAPH AT	S160	1347.	4.25	133.	33.	11.	1.14
+	2 COMBINED AT	C160	4291.	4.92	1163.	373.	159.	27.44
+	ROUTED TO	160170	4194.	5.17	1155.	372.	159.	27.44
+	HYDROGRAPH AT	S170	1686.	4.25	178.	44.	15.	1.46
+	ROUTED TO	170R	1544.	4.42	178.	44.	15.	1.46
+	2 COMBINED AT	C170R	4312.	5.08	1221.	387.	163.	28.90
+	ROUTED TO	170180	4223.	5.33	1213.	385.	163.	28.90
+	HYDROGRAPH AT	S165	1008.	4.17	94.	23.	8.	.62
+	ROUTED TO	RR165	100.	4.83	77.	23.	8.	.62
+	ROUTED TO	165175	90.	6.92	72.	23.	8.	.62
+	HYDROGRAPH AT	S175	1203.	4.50	226.	56.	19.	1.80
+	2 COMBINED AT	C175	1104.	4.50	260.	73.	24.	2.42
+	ROUTED TO	175R	1065.	4.67	257.	73.	24.	2.42
+	HYDROGRAPH AT	S180	1032.	4.50	181.	45.	15.	1.44
+	ROUTED TO	180R	1001.	4.58	181.	45.	15.	1.44
+	2 COMBINED AT	C180RI	1725.	4.67	389.	106.	35.	3.86
+	ROUTED TO	RI180R	1665.	4.83	385.	106.	35.	3.86
+	2 COMBINED AT	C180R	4732.	5.25	1389.	431.	177.	32.76
+	ROUTED TO	180185	4723.	5.33	1383.	430.	177.	32.76
+	HYDROGRAPH AT	S185	1450.	4.50	288.	72.	24.	2.42
+	ROUTED TO	185R	1302.	4.92	288.	72.	24.	2.42
+	2 COMBINED AT	C185R	5111.	5.25	1492.	456.	185.	35.19
+	ROUTED TO	185190	5091.	5.33	1487.	456.	185.	35.19
+	HYDROGRAPH AT	S190	2084.	4.58	391.	98.	33.	4.05

```
        2 COMBINED AT
+                       C190      5311.    5.25        1605.        485.        194.      39.24

        ROUTED TO
+                     190195      5167.    5.42        1598.        484.        194.      39.24

        HYDROGRAPH AT
+                       S195      1001.    4.67         203.         51.         17.       1.81

        2 COMBINED AT
+                       C195      5240.    5.42        1649.        496.        198.      41.05
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    RR102
                     (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

PLAN  1 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION          1550.00           1556.00          1556.00
                          STORAGE               553.              2705.            2705.
                          OUTFLOW                 0.               600.             600.

                RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                  OF     RESERVOIR      DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                 PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                1.00      1552.61         .00       1386.      222.        .00         6.33         .00

PLAN  2 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION          1550.00           1556.00          1556.00
                          STORAGE               553.              2705.            2705.
                          OUTFLOW                 0.               600.             600.

                RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                  OF     RESERVOIR      DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                 PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                1.00      1552.59         .00       1380.      219.        .00         6.33         .00

PLAN  3 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION          1550.00           1556.00          1556.00
                          STORAGE               553.              2705.            2705.
                          OUTFLOW                 0.               600.             600.

                RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                  OF     RESERVOIR      DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                 PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                1.00      1552.23         .00       1236.      163.        .00         6.58         .00

PLAN  4 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION          1550.00           1556.00          1556.00
                          STORAGE               553.              2705.            2705.
                          OUTFLOW                 0.               600.             600.

                RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                  OF     RESERVOIR      DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                 PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                1.00      1551.78         .00       1083.      114.        .00         6.75         .00

PLAN  5 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION          1550.00           1556.00          1556.00
                          STORAGE               553.              2705.            2705.
                          OUTFLOW                 0.               600.             600.

                RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                  OF     RESERVOIR      DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                 PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                1.00      1551.06         .00        868.       68.        .00         6.75         .00

*** NORMAL END OF HEC-1 ***
```

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *            VERSION 4.1               *
 *                                      *
 *  RUN DATE   19APR06  TIME  16:37:03  *
 *                                      *
 ****************************************
```

```
*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 756-1104           *
*                                   *
*************************************
```

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

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID    HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
  2           ID     - WAGNER SUB-AREA
  3           ID     - ALTERNATIVE B41
  4           ID
  5           ID   Alternative Description
  6           ID   The purpose of Alternative B is to capture the upstream flow at the
  7           ID   apex using online detention basins.  The presence of the detention basins
  8           ID   eliminates the downstream alluvial fan uncertainties by controlling the
  9           ID   flow from the apices to the outfall.  Alternative B4-1 is based on using a
 10           ID   relatively larger on-line detention basin at the apex accompanied by smaller
 11           ID   leveed channel sections in the down fan direction.  It is the first of three
 12           ID   corridor alignments considered as part of the Alternative B4 series.
 13           ID
 14           ID
 15           ID
 16           ID   SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
 17           ID   JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
 18           ID   MODELER: TED LEHMAN
 19           ID   FILENAME: A4_EX24.DAT
 20           ID
 21           ID   100-YEAR 24-HOUR MODEL
 22           ID   EXISTING CONDITIONS
 23           ID   AREA 4 WATERSHED AREA = 90.5 SQ. MILES
 24           ID            MODELED AREA = 76.8 SQ. MILES
 25           ID
 26           ID   GREEN-AMPT LOSS METHOD
 27           ID   S-GRAPH UNIT HYDROGRAPHS
 28           ID     - MOUNTAIN
 29           ID     - DESERT/RANGELAND
 30           ID   NORMAL-DEPTH CHANNEL ROUTING
 31           ID   LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
 32           ID     - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
 33           ID     - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
 34           ID     - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
 35           ID   SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)
 36           IT       5  1JAN99    1200    2000
 37           IN      15
 38           IO       5
              *DIAGRAM
              *
 39           JD   4.198  0.1000
 40           PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
 41           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
 42           PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
 43           PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.172
 44           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 45           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 46           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 47           PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
 48           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
 49           PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
 50           JD   3.990    10.0
 51           JD   3.780    30.0
 52           JD   3.654    60.0
 53           JD   3.578    90.0
              *
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 54           KK    S100   BASIN
 55           KM        Compute runoff from subbasin 100
 56           BA   6.994
 57           LG    0.35    0.38    6.40    0.16       0
 58           UI     449     455     964    1717    2422    3046    3616    4050    4275    4281
 59           UI    4178    3867    3211    2766    2319    1968    1698    1387    1198     990
 60           UI     848     715     635     476     471     313     309     309     204     110
 61           UI     109     111     110     109     111     109     110     111       0       0
              *

 62           KK    S102   BASIN
 63           KM        Compute runoff from subbasin 102
 64           BA   3.234
 65           LG    0.35    0.38    5.60    0.22       0
 66           UI     333     657    1539    2292    2943    3178    3083    2643    1985    1523
 67           UI    1179     890     674     542     377     300     232     193      81      82
 68           UI      81      81      83       0       0       0       0       0       0       0
              *

 69           KK    C102 COMBINE
 70           KM        Combine total inflow to detention area behind (north) of CAP Canal
 71           HC       2
              *

 72           KK   RR102 STORAGE
 73           KM        Route flows through storage area behind CAP Canal
 74           KM        Stage-storage-discharge data from Wagner Wash FDS Hydrology (1991)
 75           KO
 76           RS       1    STOR      -1
 77           SV          553.00 1148.00 2316.00 2705.00
 78           SQ                  128.00  587.00  600.00
 79           SE  1543.0 1550.00 1552.00 1555.00 1556.00
 80           ST  1556.0  1320.0     3.2     1.5
              *

 81           KK    D102  DIVERT
 82           KM        Divide flow evenly over the two 18-foot wide CAP overchutes
 83           KM        although the inverts are 0.5 feet different in elevation
 84           DT    CF02     0.0     0.0
 85           DI     0.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0     0.0
 86           DQ     0.0    50.0   500.0  5000.0     0.0     0.0     0.0     0.0     0.0     0.0
              *

 87           KK  100105   ROUTE
 88           KM        Route outflows from east CAP overchute to Sun Valley Parkway.
 89           RS       9    FLOW      -1
 90           RC   0.035   0.055   0.035   11235  0.0045  105.00
 91           RX    0.00  120.00  240.00  250.00  590.00  600.00  720.00  840.00
 92           RY  105.00  102.50  100.00  100.00  100.00  100.00  102.50  105.00
              *
```

1 HEC-1 INPUT PAGE 3

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 93           KK    S105   BASIN
 94           KM        Compute runoff from subbasin 105
 95           BA   4.370
 96           LG    0.35    0.35    4.80    0.30       0
 97           UI     345     380    1112    1723    2334    2867    3143    3344    3176    2865
 98           UI    2374    1903    1555    1291    1018     832     685     564     458     369
 99           UI     288     235     238     126      83      85      84      84      84      84
100           UI      84       0       0       0       0       0       0       0       0       0
              *

101           KK    CF02RETRIEVE
102           KM        Retrieve flow from west CAP overchute.
103           DR    CF02
              *

104           KK  102105   ROUTE
105           KM        Route retrieved flow from west overchute to C105.
106           RS       6    FLOW      -1
107           RC   0.045   0.050   0.045    7656  0.0065  104.00
108           RX    0.00   40.00  120.00  130.00  250.00  260.00  340.00  380.00
109           RY  104.00  102.00  101.00  100.00  100.00  101.00  102.00  104.00
              *

110           KK   C105U COMBINE
111           KM        Combine runoff from S105 with routed flow from 100105 and 102105
112           KM        (CAP overchute flows). This is the total flow in Wagner Wash upstream
113           KM        of Sun Valley Parkway.
114           HC       3  14.598
              *

115           KK    S110   BASIN
116           KM        Compute runoff from subbasin 110
117           BA   0.430
118           LG    0.25    0.37    5.20    0.25       6
119           UI      56     166     335     449     587     358     291     241     188     140
120           UI     121      86      68      56      43      32      27      22      11      11
```

```
121          UI      10      11      11       0       0       0       0       0       0       0
             *

122          KK  11015I   ROUTE
123          KM        Route flow from C105 through subbasin 110 to C115.
124          RS       2    FLOW      -1
125          RC   0.045   0.035   0.045    3783  0.0267  102.00
126          RX    0.00   50.00  100.00  110.00  120.00  130.00  180.00  230.00
127          RY  102.00  101.50  101.00  100.00  100.00  101.00  101.50  102.00
             *

128          KK  15I15R   ROUTE
129          KM        Route flows from split through S115 to C115.
130          RS       8    FLOW      -1
131          RC   0.035   0.030   0.035   14128  0.0151  105.00
132          RX    0.00   25.00   58.00   65.00   85.00   92.00  125.00  150.00
133          RY  105.00  102.50  102.00  100.00  100.00  102.00  102.50  105.00
             *
1                                          HEC-1 INPUT                                          PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

134          KK    S115   BASIN
135          KM        Compute runoff from subbasin 115
136          BA   2.247
137          LG    0.32    0.35    4.80    0.30       2
138          UI     160     163     434     709     984    1212    1401    1530    1539    1465
139          UI    1351    1100     918     773     632     528     444     351     304     252
140          UI     203     170     140     110     110      85      39      39      40      39
141          UI      39      39      40      39       0       0       0       0       0       0
             *

142          KK    C115 COMBINE
143          KM        Combine runoff from S115 with routed flow.
144          HC       2   2.677
             *

145          KK  115120   ROUTE
146          KM        Route total flows from C115 to C120. Slope =(1532-1494) / 4077
147          RS       2    FLOW      -1
148          RC   0.030   0.025   0.030    4077  0.0093  105.00
149          RX    0.00   30.00   75.00   80.00  105.00  110.00  155.00  190.00
150          RY  105.00  101.50  101.00  100.00  100.00  101.00  101.50  105.00
             *

151          KK    S120   BASIN
152          KM        Compute runoff from subbasin 120
153          BA   2.004
154          LG    0.33    0.35    4.65    0.32       1
155          UI     206     408     954    1419    1824    1969    1911    1637    1230     944
156          UI     731     551     418     336     234     186     143     120      50      51
157          UI      50      51      51       0       0       0       0       0       0       0
             *

158          KK    C120 COMBINE
159          KM        Combine flows at Wagner Wash at outlet of channel along SVP
160          HC       2   4.681
             *

161          KK   C105D COMBINE
162          KM        Combine flows from C105 and C120 just D/S of Sun Valley Parkway
163          HC       2  19.279
             *

164          KK  120135   ROUTE
165          KM        Route flows in Wagner Wash from Sun Valley Parkway to C135.
166          RS       1    FLOW      -1
167          RC   0.045   0.035   0.045     951  0.0074  110.00
168          RX    0.00  225.00  450.00  455.00  485.00  490.00  615.00  840.00
169          RY  110.00  105.00  102.00  100.00  100.00  102.00  102.00  110.00
             *
1                                          HEC-1 INPUT                                          PAGE  5

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

170          KK    S125   BASIN
171          KM        Compute runoff from subbasin 125
172          BA   0.093
173          LG    0.25    0.35    4.15    0.44       5
174          UI      46     164     204     116      73      46      28      17      12       4
175          UI       5       4       0       0       0       0       0       0       0       0
             *

176          KK   RR125 STORAGE
177          KM   PROPOSED DETENTION BASIN
178          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13E
179          KM    STRUCTURE ID:RR125
180          KM    DIMENSIONS: L=300ft, W=200ft, D=6ft, Sideslope (?H:1V)= 3,  Vol.= 5.2 ac-ft
181          RS       1    STOR       0
182          SV     0.0     0.5     0.9     1.4     1.9     3.0     4.1     5.2     6.5     7.8
183          SE     0.0     0.5     1.0     1.5     2.0     3.0     4.0     5.0     6.0     7.0
184          SQ     0.0    10.7    15.1    18.5    21.4    26.2    30.3    33.8    37.1    40.0
             *
```

```
KK  12535I   ROUTE
KM   PROPOSED CHANNEL
KM        Route flows from S125 to intermediate combination point in S135.
KM    STRUCTURE ID(s): RR12510
KM    Slope=(1746.1 - 1697.0) / 1852.5
RS       1    FLOW      -1
RC   0.045   0.045   0.045  1852.50.026481   104.0
RX     0.0    12.0    12.0    12.0    37.0    37.0    37.0    49.0
RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
*

KK    S150   BASIN
KM        Compute runoff from subbasin 150
BA   0.774
LG    0.25    0.35    4.65    0.32       7
UI      71     115     270     425     531     672     746     480     406     356
UI     312     262     212     181     159     132     106      89      77      65
UI      54      47      35      35      35      14      14      13      14      14
UI      13      14      14       0       0       0       0       0       0       0
*

KK   RR150
KM   PROPOSED DETENTION BASIN
KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 3
KM    STRUCTURE ID:RR150
KM    DIMENSIONS: L=760ft, W=400ft, D=10ft, Sideslope (?H:1V)= 3,  Vol.= 50.4 ac-f
RS       1    STOR       0
SV     0.0     5.0    10.2    20.9    32.3    38.1    44.2    50.4    56.7    63.2
SE     0.0     1.0     2.0     4.0     6.0     7.0     8.0     9.0    10.0    11.0
SQ     0.0    34.0    48.1    68.1    83.4    90.0    96.3   102.1   107.6   112.9
*
```

1 HEC-1 INPUT PAGE 6

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK  150130   ROUTE
KM   PROPOSED CHANNEL
KM    ROUTE OUTFLOW FROM RR150 TO S125
KM    STRUCTURE ID(s): RR15010
KM    Slope=(1728.2 - 1697.0) / 1235.4
RS       1    FLOW      -1
RC   0.045   0.045   0.045  1235.4 0.02524   104.0
RX     0.0    12.0    12.0    12.0    52.0    52.0    52.0    64.0
RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
*

KK    S130   BASIN
KM        Compute runoff from subbasin 130
BA   0.310
LG    0.21    0.35    4.20    0.43       4
UI      61     239     399     514     313     240     176     128      94      64
UI      49      36      26      19      10      10      10      10       0       0
*

KK    C130 COMBINE
KM    COMBINE RUNOFF FROM S130 WITH ROUTED OUTFLOWS FROM RR150
HC       2
*

KK   RR130 STORAGE
KM   PROPOSED DETENTION BASIN
KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13W
KM    STRUCTURE ID:RR130
KM    DIMENSIONS: L=800ft, W=400ft, D=9ft, Sideslope (?H:1V)= 3,  Vol.= 47.6 ac-ft
RS       1    STOR       0
SV     0.0     5.4    11.0    22.6    34.7    41.1    47.6    54.2    61.0    68.0
SE     0.0     1.0     2.0     4.0     6.0     7.0     8.0     9.0    10.0    11.0
SQ     0.0    15.1    21.4    30.3    37.1    40.0    42.8    45.4    47.8    50.2
*

KK  13035I   ROUTE
KM   PROPOSED CHANNEL
KM        Route flow to intermediate point in S135.
KM    STRUCTURE ID(s): RR13010
KM    Slope=(1728.2 - 1697.0) / 1235.4
RS       1    FLOW      -1
RC   0.045   0.045   0.045  1235.4 0.02524   104.0
RX     0.0    12.0    12.0    12.0    37.0    37.0    37.0    49.0
RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
*

KK   C135I COMBINE
KM        Combine routed flow from RR130 and RR125
HC       2    1.18
*
```

1 HEC-1 INPUT PAGE 7

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK  35I135   ROUTE
KM   PROPOSED CHANNEL
KM        Route combined flows to C135 at Wagner Wash.
```

```
253          KM    STRUCTURE ID(s): C135L10
254          KM    Slope=(1697.0 - 1496.9) / 12096.9
255          RS       8    FLOW      -1
256          RC   0.045   0.045   0.045 12096.90.016546   104.5
257          RX     0.0    13.5    13.5    13.5   213.5   213.5   213.5   227.0
258          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

259          KK    S135   BASIN
260          KM        Compute runoff from subbasin 135
261          BA   0.879
262          LG    0.35    0.35    4.25    0.42       0
263          UI     115     362     709     992    1126     989     736     527     370     260
264          UI     194     128      89      76      28      28      29      28       0       0
             *

265          KK   C135L COMBINE
266          KM        Combine all piedmont runoff inflow to Wagner Wash at C135
267          HC       2    2.06
             *

268          KK    C135 COMBINE
269          KM        Combine all flows in Wagner Wash at C135
270          HC       2
             *

271          KK  135145   ROUTE
272          KM        Route flow in Wagner Wash to C145.  Slope = (1487-1454) / 7938
273          RS       4    FLOW      -1
274          RC   0.045   0.035   0.045    7938  0.0042  110.00
275          RX    0.00  300.00  400.00  406.00  506.00  512.00  612.00  912.00
276          RY  110.00  102.50  102.00  100.00  100.00  102.00  102.50  110.00
             *

277          KK    S140   BASIN
278          KM        Compute runoff from subbasin 140
279          BA   1.373
280          LG    0.35    0.36    5.00    0.28       0
281          UI     260    1034    1801    2168    1890    1235     809     617     339     211
282          UI     157      56      55      57       0       0       0       0       0       0
             *

283          KK  140145   ROUTE
284          KM        Route runoff from S140 to C145 at Wagner Wash.
285          RS       3    FLOW      -1
286          RC   0.040   0.050   0.040    3656  0.0074  103.00
287          RX    0.00   70.00  140.00  150.00  250.00  260.00  330.00  400.00
288          RY  102.00  101.00  100.00  100.00  100.00  100.00  101.00  102.00
             *
1                                          HEC-1 INPUT                                          PAGE  8

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

289          KK    S145   BASIN
290          KM        Compute runoff from subbasin 145
291          BA   1.756
292          LG    0.35    0.35    4.15    0.44       0
293          UI     226     672    1369    1903    2167    2003    1508    1085     777     544
294          UI     399     279     198     157      80      55      56      54      55       0
             *

295          KK    C145 COMBINE
296          KM        Combine all flows in Wagner Wash at C145
297          HC       3
             *

298          KK  145155   ROUTE
299          KM        Route flows in Wagner Wash form C145 to C155. Slope = (1454-1452)/631
300          RS       1    FLOW      -1
301          RC   0.045   0.035   0.055     631  0.0032  110.00
302          RX    0.00  150.00  300.00  309.00  379.00  388.00  538.00  838.00
303          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

304          KK    S155   BASIN
305          KM        Compute runoff from subbasin 155
306          BA   1.832
307          LG    0.35    0.35    4.50    0.36       1
308          UI     187     361     846    1266    1637    1771    1735    1497    1161     879
309          UI     681     519     385     314     228     181     130     126      46      46
310          UI      45      46      46      45       0       0       0       0       0       0
             *

311          KK    C155 COMBINE
312          KM        Combine all flows at Wagner Wash at C155
313          HC       2
             *

314          KK  155160   ROUTE
315          KM        Route flow in Wagner Wash to C160 (Sun Valley Parkway).
316          RS       5    FLOW      -1
317          RC   0.035   0.035   0.035    2291  0.0052  110.00
318          RX    0.00  200.00  400.00  406.00  506.00  512.00  712.00  912.00
319          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
```

```
                 *
320              KK    S160   BASIN
321              KM        Compute runoff from subbasin 160
322              BA   1.144
323              LG    0.35    0.35    4.00    0.47       0
324              UI     165     599    1121    1501    1557    1233     844     593     394     281
325              UI     190     122      93      40      40      40      41       0       0       0
                 *
1                                                HEC-1 INPUT                                                PAGE  9

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

326              KK    C160 COMBINE
327              KM        Combine flows at Sun Valley Parkway
328              HC       2   27.44
                 *

329              KK  160170   ROUTE
330              KM        Route flows from Sun Valley Parkway to C170R. Slope = (1440-1410)/5248
331              RS       3    FLOW      -1
332              RC   0.040   0.030   0.040    5248  0.0057  108.00
333              RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
334              RY  108.00  103.00  102.00  100.00  100.00  102.00  103.00  108.00
                 *

335              KK    S170   BASIN
336              KM        Compute runoff from subbasin 170
337              BA   1.464
338              LG    0.35    0.35    4.40    0.38       0
339              UI     209     755    1427    1917    1973    1590    1086     762     513     360
340              UI     246     160     123      52      51      51      52       0       0       0
                 *

341              KK    170R   ROUTE
342              KM        Route flow from S170 to Wagner Wash.  Slope = (1456-1410) / 3986
343              RS       3    FLOW      -1
344              RC   0.045   0.045   0.045    3986  0.0115  104.00
345              RX    0.00   50.00  100.00  103.00  113.00  116.00  166.00  216.00
346              RY  103.00  102.00  101.00  100.00  100.00  101.00  102.00  103.00
                 *

347              KK   C170R COMBINE
348              KM        Combine routed flows from S170 and C160 in Wagner Wash
349              HC       2
                 *

350              KK  170180   ROUTE
351              KM        Route flows in Wagner Wash to C180R.  Slope = (1410-1366) / 6770
352              RS       4    FLOW      -1
353              RC   0.045   0.035   0.045    6770  0.0065  110.00
354              RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
355              RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
                 *

356              KK    S165   BASIN
357              KM        Compute runoff from subbasin 165
358              BA   0.616
359              LG    0.30    0.35    4.55    0.35       3
360              UI     121     477     809    1022     617     474     347     254     185     127
361              UI      96      69      52      36      20      20      20      20       0       0
                 *
1                                                HEC-1 INPUT                                                PAGE 10

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

362              KK   RR165 STORAGE
363              KM   PROPOSED DETENTION BASIN
364              KM    ROUTE RUNOFF FROM S165 THROUGH PROPOSED DETENTION BASIN
365              KM    STRUCTURE ID:RR165
366              KM    DIMENSIONS: L=800ft, W=300ft, D=10ft, Sideslope (?H:1V)= 3,  Vol.= 39.2 ac-f
367              RS       1    STOR       0
368              SV     0.0     3.8    11.8    20.4    24.9    29.5    34.3    39.2    44.3    54.8
369              SE     0.0     1.0     3.0     5.0     6.0     7.0     8.0     9.0    10.0    12.0
370              SQ     0.0    34.0    59.0    76.1    83.4    90.0    96.3   102.1   107.6   117.9
                 *

371              KK  165175   ROUTE
372              KM   PROPOSED CHANNEL
373              KM    ROUTE OUTFLOW FROM RR165 TO SUN VALLEY PARKWAY IN NEW CHANNEL THRU S175
374              KM    STRUCTURE ID(s): C17510A, C17510B
375              KM    Slope=(1674.9 - 1462.9) / 13245.4
376              RS       8    FLOW      -1
377              RC   0.045   0.045   0.045 13245.40.016012   104.5
378              RX     0.0    13.5    13.5    13.5   213.5   213.5   213.5   227.0
379              RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
                 *

380              KK    S175   BASIN
381              KM        Compute runoff from subbasin 175
382              BA   1.802
383              LG    0.29    0.35    4.50    0.36       1
384              UI     126     127     317     525     763     877    1013    1295    1376     895
```

```
385          UI     771     703     622     572     507     439     372     318     296     274
386          UI     227     192     163     148     138     116      96      97      73      62
387          UI      62      63      55      24      25      24      24      24      24      25
388          UI      24      24      24      25       0       0       0       0       0       0
             *

389          KK    C175 COMBINE
390          KM    COMBINE RUNOFF FROM S175 WITH ROUTED FLOW FROM C165
391          HC       2
             *

392          KK    175R   ROUTE
393          KM   PROPOSED CHANNEL
394          KM        Route runoff from S175 to intermediate point in S190 (C180RI).
395          KM    STRUCTURE ID(s): RR17510
396          KM    Slope=(1462.9 - 1413.1) / 3035.2
397          RS       2    FLOW      -1
398          RC   0.045   0.045   0.045  3035.20.016393   104.5
399          RX     0.0    13.5    13.5    13.5   293.5   293.5   293.5   307.0
400          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *
1                                          HEC-1 INPUT                                          PAGE 11

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

401          KK    S180   BASIN
402          KM        Compute runoff from subbasin 180
403          BA   1.443
404          LG    0.25    0.35    4.25    0.42       2
405          UI     107     108     311     490     677     785     927    1258     896     684
406          UI     622     547     497     440     379     315     275     250     228     185
407          UI     154     138     120     115      82      83      73      52      53      52
408          UI      50      21      20      21      20      21      21      20      21      21
409          UI      20       0       0       0       0       0       0       0       0       0
             *

410          KK    180R   ROUTE
411          KM   PROPOSED CHANNEL
412          KM        Route runoff from S180 to intermediate point in S190 (C180RI).
413          KM    STRUCTURE ID(s): RR18010
414          KM    Slope=(1456.3 - 1413.1) / 2824.7
415          RS       2    FLOW      -1
416          RC   0.045   0.045   0.045  2824.70.015285   104.5
417          RX     0.0    13.5    13.5    13.5   193.5   193.5   193.5   207.0
418          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

419          KK  C180RI COMBINE
420          KM        Combine routed flows from S175 and S180
421          HC       2
             *

422          KK  RI180R   ROUTE
423          KM   PROPOSED CHANNEL
424          KM    STRUCTURE ID(s): C180R10
425          KM    Slope=(1413.1 - 1367.6) / 3720.6
426          RS       3    FLOW      -1
427          RC   0.045   0.045   0.045  3720.60.012229   104.5
428          RX     0.0    13.5    13.5    13.5   373.5   373.5   373.5   387.0
429          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

430          KK   C180R COMBINE
431          KM        Combine flows in Wagner Wash
432          HC       2
             *

433          KK  180185   ROUTE
434          KM        Route flows in Wagner Wash from C180R to C185R.
435          RS       3    FLOW      -1
436          RC   0.045   0.035   0.045    3450  0.0075  106.00
437          RX    0.00  100.00  200.00  206.00  406.00  412.00  512.00  612.00
438          RY  106.00  104.00  102.00  100.00  100.00  102.00  104.00  106.00
             *
1                                          HEC-1 INPUT                                          PAGE 12

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

439          KK    S185   BASIN
440          KM        Compute runoff from subbasin 185
441          BA   2.421
442          LG    0.16    0.35    4.35    0.40       1
443          UI     165     166     391     668     960    1130    1281    1613    1908    1239
444          UI    1060     936     847     785     677     614     534     438     399     375
445          UI     338     271     230     210     183     183     133     126     127      85
446          UI      80      82      81      67      32      31      32      32      31      32
447          UI      32      31      32      32      32       0       0       0       0       0
             *

448          KK    185R   ROUTE
449          KM        Route runoff from S185 to Wagner Wash.  Slope = (1442-1340) / 8534
450          RS       5    FLOW      -1
451          RC   0.045   0.035   0.045    8534  0.0120  104.00
```

```
452          RX    0.00   30.00  100.00  106.00  156.00  162.00  232.00  262.00
453          RY  104.00  102.00  102.00  100.00  100.00  102.00  102.00  104.00
             *

454          KK   C185R COMBINE
455          KM        Combine flows in Wagner Wash
456          HC       2
             *

457          KK  185190   ROUTE
458          KM        Route flow in Wagner Wash to C190.  Slope = (1340-1308) / 2700
459          RS       2    FLOW      -1
460          RC   0.045   0.040   0.045    2700  0.0119  106.00
461          RX    0.00   80.00  160.00  166.00  416.00  422.00  502.00  582.00
462          RY  106.00  103.00  102.00  100.00  100.00  102.00  103.00  106.00
             *

463          KK    S190   BASIN
464          KM        Compute runoff from subbasin 190
465          BA   4.054
466          LG    0.35    0.35    3.81    0.44       0
467          UI     274     278     647    1125    1573    1918    2319    2540    2637    2574
468          UI    2467    2112    1787    1506    1256    1044     891     745     605     522
469          UI     432     370     293     266     188     191     188      78      68      66
470          UI      67      67      67      67      67      67       0       0       0       0
             *

471          KK    C190 COMBINE
472          KM        Combine all flow in Wagner Wash at C190
473          HC       2   39.24
             *

474          KK  190195   ROUTE
475          KM        Route flow from C190 to the Hassayampa River. Slope = (1308-1255)/4941
476          RS       2    FLOW      -1
477          RC   0.045   0.035   0.045    4941  0.0107  110.00
478          RX    0.00   50.00  200.00  206.00  356.00  366.00  516.00  566.00
479          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *
1                                          HEC-1 INPUT                                          PAGE 13

        LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

480          KK    S195   BASIN
481          KM        Compute runoff from subbasin 195
482          BA   1.808
483          LG    0.33    0.35    4.25    0.42       0
484          UI     107     108     188     366     523     660     786     925     975    1026
485          UI    1044     975     915     778     674     571     496     419     359     313
486          UI     260     223     202     165     146     115     114      76      74      74
487          UI      67      27      26      26      26      26      26      27      26      26
488          UI      27       0       0       0       0       0       0       0       0       0
             *

489          KK    C195 COMBINE
490          KM        Combine all flows in Wagner Wash at the Hassayampa River
491          HC       2   41.05
492          ZZ
1
             SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    54       S100
                .
                .
    62          .        S102
                .           .
                .           .
    69       C102............
                V
                V
    72      RR102
                .
                .
    84          .-------->    CF02
    81       D102
                V
                V
    87     100105
                .
                .
    93          .        S105
                .           .
                .           .
   103          .           .          .<--------    CF02
   101          .           .       CF02
                .           .          V
                .           .          V
   104          .           .     102105
                .           .          .
                .           .          .
```

```
110      C105U.......................
             .
             .
115          .        S110
             .           V
             .           V
122          .      11015I
             .           V
             .           V
128          .      15I15R
             .           .
             .           .
134          .           .        S115
             .           .           .
             .           .           .
142          .        C115............
             .           V
             .           V
145          .      115120
             .           .
             .           .
151          .           .        S120
             .           .           .
             .           .           .
158          .        C120............
             .           .
             .           .
161      C105D............
             V
             V
164     120135
             .
             .
170          .        S125
             .           V
             .           V
176          .       RR125
             .           V
             .           V
185          .      12535I
             .           .
             .           .
194          .           .        S150
             .           .           V
             .           .           V
202          .           .       RR150
             .           .           V
             .           .           V
211          .           .      150130
             .           .           .
             .           .           .
220          .           .           .        S130
             .           .           .           .
             .           .           .           .
226          .           .        C130............
             .           .           V
             .           .           V
229          .           .       RR130
             .           .           V
             .           .           V
238          .           .      13035I
             .           .           .
             .           .           .
247          .       C135I............
             .           V
             .           V
250          .      35I135
             .           .
             .           .
259          .           .        S135
             .           .           .
             .           .           .
265          .       C135L............
             .           .
             .           .
268       C135............
             V
             V
271     135145
             .
             .
277          .        S140
             .           V
             .           V
283          .      140145
             .           .
             .           .
289          .           .        S145
             .           .           .
             .           .           .
295       C145........................
             V
             V
298     145155
             .
```

```
                .
304             .        S155
                .           .
                .           .
311        C155.............
                V
                V
314       155160
                .
                .
320             .        S160
                .           .
                .           .
326        C160.............
                V
                V
329       160170
                .
                .
335             .        S170
                .           V
                .           V
341             .        170R
                .           .
                .           .
347       C170R.............
                V
                V
350       170180
                .
                .
356             .        S165
                .           V
                .           V
362             .       RR165
                .           V
                .           V
371             .      165175
                .           .
                .           .
380             .           .        S175
                .           .           .
                .           .           .
389             .        C175.............
                .           V
                .           V
392             .        175R
                .           .
                .           .
401             .           .        S180
                .           .           V
                .           .           V
410             .           .        180R
                .           .           .
                .           .           .
419             .      C180RI.............
                .           V
                .           V
422             .      RI180R
                .           .
                .           .
430       C180R.............
                V
                V
433       180185
                .
                .
439             .        S185
                .           V
                .           V
448             .        185R
                .           .
                .           .
454       C185R.............
                V
                V
457       185190
                .
                .
463             .        S190
                .           .
                .           .
471        C190.............
                V
                V
474       190195
                .
                .
480             .        S195
                .           .
                .           .
489        C195.............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1**********

****

```
*                                        *                                        *                                        *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *                                        *   U.S. ARMY CORPS OF ENGINEERS         *
*              JUN   1998                *                                        *   HYDROLOGIC ENGINEERING CENTER        *
*           VERSION 4.1                  *                                        *         609 SECOND STREET              *
*                                        *                                        *      DAVIS, CALIFORNIA 95616           *
*  RUN DATE   19APR06  TIME  16:37:03    *                                        *          (916) 756-1104               *
*                                        *                                        *                                        *
******************************************                                        ******************************************
```

HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
- WAGNER SUB-AREA
- ALTERNATIVE B41

Alternative Description
The purpose of Alternative B is to capture the upstream flow at the apex using online detention basins. The presence of the detention basins eliminates the downstream alluvial fan uncertainties by controlling the flow from the apices to the outfall. Alternative B4-1 is based on using a relatively larger on-line detention basin at the apex accompanied by smaller leveed channel sections in the down fan direction. It is the first of three corridor alignments considered as part of the Alternative B4 series.

SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
MODELER: TED LEHMAN
FILENAME: A4_EX24.DAT

100-YEAR 24-HOUR MODEL
EXISTING CONDITIONS
AREA 4 WATERSHED AREA = 90.5 SQ. MILES
MODELED AREA = 76.8 SQ. MILES

GREEN-AMPT LOSS METHOD
S-GRAPH UNIT HYDROGRAPHS
- MOUNTAIN
- DESERT/RANGELAND
NORMAL-DEPTH CHANNEL ROUTING
LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
- UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
- HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
- MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)

```
38 IO          OUTPUT CONTROL VARIABLES
                     IPRNT           5  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

   IT          HYDROGRAPH TIME DATA
                      NMIN           5  MINUTES IN COMPUTATION INTERVAL
                     IDATE      1JAN99  STARTING DATE
                     ITIME        1200  STARTING TIME
                        NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE      8JAN99  ENDING DATE
                    NDTIME        1035  ENDING TIME
                     ICENT          19  CENTURY MARK

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE  166.58 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
             SURFACE AREA           ACRES
             TEMPERATURE            DEGREES FAHRENHEIT

39 JD          INDEX STORM NO. 1
                      STRM        4.20  PRECIPITATION DEPTH
                      TRDA         .10  TRANSPOSITION DRAINAGE AREA

40 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                    .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
```

```
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00
50 JD         INDEX STORM NO. 2
                STRM        3.99  PRECIPITATION DEPTH
                TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00
51 JD         INDEX STORM NO. 3
                STRM        3.78  PRECIPITATION DEPTH
                TRDA       30.00  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00
52 JD         INDEX STORM NO. 4
                STRM        3.65  PRECIPITATION DEPTH
                TRDA       60.00  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
```

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

53 JD INDEX STORM NO. 5
STRM 3.58 PRECIPITATION DEPTH
TRDA 90.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

*** ***

```
          **************
          *            *
72 KK     *   RR102    *     STORAGE
          *            *
          **************
```

75 KO OUTPUT CONTROL VARIABLES
IPRNT 5 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	S100	5214.	12.58	965.	241.	80.	6.99		
+	HYDROGRAPH AT	S102	3434.	12.33	420.	105.	35.	3.23		
+	2 COMBINED AT	C102	7803.	12.42	1367.	342.	114.	10.23		
+	ROUTED TO	RR102	149.	14.42	141.	119.	82.	10.23		

+	DIVERSION TO	CF02	75.	14.42	71.	59.	41.	10.23
+	HYDROGRAPH AT	D102	75.	14.42	71.	59.	41.	10.23
+	ROUTED TO	100105	70.	20.33	67.	58.	41.	10.23
+	HYDROGRAPH AT	S105	3466.	12.50	531.	133.	44.	4.37
+	HYDROGRAPH AT	CF02	75.	14.42	71.	59.	41.	10.23
+	ROUTED TO	102105	74.	15.67	70.	59.	41.	10.23
+	3 COMBINED AT	C105U	3466.	12.50	587.	238.	125.	14.60
+	HYDROGRAPH AT	S110	532.	12.17	62.	16.	5.	.43
+	ROUTED TO	11015I	456.	12.42	62.	16.	5.	.43
+	ROUTED TO	15I15R	412.	12.75	62.	16.	5.	.43
+	HYDROGRAPH AT	S115	1693.	12.50	287.	73.	24.	2.25
+	2 COMBINED AT	C115	1937.	12.67	346.	89.	30.	2.68
+	ROUTED TO	115120	1900.	12.75	346.	89.	30.	2.68
+	HYDROGRAPH AT	S120	2032.	12.33	247.	62.	21.	2.00
+	2 COMBINED AT	C120	3202.	12.42	585.	149.	50.	4.68
+	2 COMBINED AT	C105D	6217.	12.42	1091.	359.	163.	19.28
+	ROUTED TO	120135	6220.	12.50	1091.	359.	163.	19.28
+	HYDROGRAPH AT	S125	161.	12.08	12.	3.	1.	.09
+	ROUTED TO	RR125	30.	12.42	12.	3.	1.	.09
+	ROUTED TO	12535I	30.	12.58	12.	3.	1.	.09
+	HYDROGRAPH AT	S150	729.	12.33	107.	29.	10.	.77
+	ROUTED TO	RR150	91.	13.42	77.	28.	10.	.77
+	ROUTED TO	150130	91.	13.50	77.	28.	10.	.77
+	HYDROGRAPH AT	S130	415.	12.17	39.	10.	3.	.31
+	2 COMBINED AT	C130	441.	12.17	111.	38.	13.	1.08
+	ROUTED TO	RR130	40.	20.17	40.	33.	13.	1.08
+	ROUTED TO	13035I	40.	20.25	40.	33.	13.	1.08
+	2 COMBINED AT	C135I	57.	12.92	45.	36.	14.	1.18
+	ROUTED TO	35I135	51.	15.67	44.	35.	14.	1.18
+	HYDROGRAPH AT	S135	1015.	12.25	99.	25.	8.	.88
+	2 COMBINED AT	C135L	1003.	12.25	128.	58.	22.	2.06
	2 COMBINED AT							

```
+                    C135     6650.  12.42     1198.     409.     181.    21.34
     ROUTED TO
+                 135145     5882.  12.83     1185.     406.     181.    21.34
     HYDROGRAPH AT
+                    S140     2029.  12.17      172.      43.      14.     1.37
     ROUTED TO
+                 140145     1632.  12.42      172.      43.      14.     1.37
     HYDROGRAPH AT
+                    S145     1945.  12.25      193.      48.      16.     1.76
     3 COMBINED AT
+                    C145     6533.  12.75     1487.     481.     206.    24.47
     ROUTED TO
+                 145155     6538.  12.83     1487.     481.     206.    24.47
     HYDROGRAPH AT
+                    S155     1781.  12.33      218.      55.      18.     1.83
     2 COMBINED AT
+                    C155     7022.  12.75     1669.     526.     221.    26.30
     ROUTED TO
+                 155160     6998.  12.83     1667.     526.     221.    26.30
     HYDROGRAPH AT
+                    S160     1342.  12.17      124.      31.      10.     1.14
     2 COMBINED AT
+                    C160     7079.  12.83     1766.     550.     229.    27.44
     ROUTED TO
+                 160170     6941.  13.00     1756.     548.     228.    27.44
     HYDROGRAPH AT
+                    S170     1802.  12.17      169.      42.      14.     1.46
     ROUTED TO
+                    170R     1638.  12.33      169.      42.      14.     1.46
     2 COMBINED AT
+                   C170R     7196.  13.00     1894.     582.     240.    28.90
     ROUTED TO
+                 170180     7086.  13.17     1882.     580.     240.    28.90
     HYDROGRAPH AT
+                    S165      842.  12.17       78.      20.       7.      .62
     ROUTED TO
+                   RR165       91.  12.75       68.      20.       7.      .62
     ROUTED TO
+                 165175       79.  15.17       64.      20.       7.      .62
     HYDROGRAPH AT
+                    S175     1278.  12.50      217.      55.      18.     1.80
     2 COMBINED AT
+                    C175     1274.  12.50      261.      74.      25.     2.42
     ROUTED TO
+                    175R     1194.  12.67      259.      74.      25.     2.42
     HYDROGRAPH AT
+                    S180     1039.  12.50      171.      44.      15.     1.44
     ROUTED TO
+                    180R     1003.  12.58      171.      44.      15.     1.44
     2 COMBINED AT
+                  C180RI     2157.  12.58      423.     116.      39.     3.86
     ROUTED TO
+                  RI180R     2062.  12.75      419.     116.      39.     3.86
     2 COMBINED AT
+                   C180R     8221.  13.08     2236.     677.     271.    32.76
     ROUTED TO
+                 180185     8212.  13.17     2228.     675.     271.    32.76
     HYDROGRAPH AT
+                    S185     1655.  12.50      288.      73.      24.     2.42
     ROUTED TO
+                    185R     1411.  12.92      287.      73.      24.     2.42
     2 COMBINED AT
+                   C185R     9237.  13.08     2460.     734.     291.    35.19
```

```
        ROUTED TO
+                    185190     9218.  13.17      2455.      733.      290.     35.19

        HYDROGRAPH AT
+                     S190     2590.  12.58       448.      112.       37.      4.05

        2 COMBINED AT
+                     C190    10091.  13.08      2799.      820.      320.     39.24

        ROUTED TO
+                    190195     9953.  13.25      2790.      819.      320.     39.24

        HYDROGRAPH AT
+                     S195     1039.  12.67       202.       51.       17.      1.81

        2 COMBINED AT
+                     C195    10330.  13.25      2945.      858.      333.     41.05
1                 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    RR102
                 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

PLAN  1 ..............                  INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION        1550.00           1556.00          1556.00
                          STORAGE           553.              2705.            2705.
                          OUTFLOW             0.               600.             600.

              RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
               OF      RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP    MAX OUTFLOW   FAILURE
              PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS         HOURS       HOURS

              1.00     1552.28        .00       1258.      171.        .00         14.42        .00

PLAN  2 ..............                  INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION        1550.00           1556.00          1556.00
                          STORAGE           553.              2705.            2705.
                          OUTFLOW             0.               600.             600.

              RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
               OF      RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP    MAX OUTFLOW   FAILURE
              PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS         HOURS       HOURS

              1.00     1552.14        .00       1204.      150.        .00         14.42        .00

PLAN  3 ..............                  INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION        1550.00           1556.00          1556.00
                          STORAGE           553.              2705.            2705.
                          OUTFLOW             0.               600.             600.

              RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
               OF      RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP    MAX OUTFLOW   FAILURE
              PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS         HOURS       HOURS

              1.00     1552.00        .00       1149.      128.        .00         14.50        .00

PLAN  4 ..............                  INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION        1550.00           1556.00          1556.00
                          STORAGE           553.              2705.            2705.
                          OUTFLOW             0.               600.             600.

              RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
               OF      RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP    MAX OUTFLOW   FAILURE
              PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS         HOURS       HOURS

              1.00     1551.89        .00       1115.      121.        .00         14.50        .00

PLAN  5 ..............                  INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION        1550.00           1556.00          1556.00
                          STORAGE           553.              2705.            2705.
                          OUTFLOW             0.               600.             600.

              RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
               OF      RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP    MAX OUTFLOW   FAILURE
              PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS         HOURS       HOURS

              1.00     1551.82        .00       1095.      117.        .00         14.50        .00

*** NORMAL END OF HEC-1 ***
```

```
1****************************************                    ****************************************
*                                      *                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *   U.S. ARMY CORPS OF ENGINEERS       *
*              JUN   1998              *                    *   HYDROLOGIC ENGINEERING CENTER      *
*            VERSION 4.1               *                    *         609 SECOND STREET            *
*                                      *                    *      DAVIS, CALIFORNIA 95616         *
*  RUN DATE   19APR06  TIME  16:42:05  *                    *          (916) 756-1104              *
*                                      *                    *                                      *
****************************************                    ****************************************

X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                          HEC-1 INPUT                                          PAGE  1

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID    HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
  2           ID      - WAGNER SUB-AREA
  3           ID      - ALTERNATIVE B42
  4           ID
  5           ID   Alternative Description
  6           ID   The purpose of Alternative B is to capture the upstream flow at the
  7           ID   apex using online detention basins.  The presence of the detention
  8           ID   basins eliminates the downstream alluvial fan uncertainties by controlling
  9           ID   the flow from the apices to the outfall.  Alternative B4-2 is based on
 10           ID   using a relatively larger on-line detention basin at the apex accompanied
 11           ID   by smaller leveed channel sections in the down fan direction.  It is the
 12           ID   second of three corridor alignments considered as part of the Alternative B4
 13           ID   series.
 14           ID
 15           ID
 16           ID   SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
 17           ID   JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
 18           ID   MODELER: TED LEHMAN
 19           ID   FILENAME: A4_EX6.DAT
 20           ID
 21           ID   100-YEAR 6-HOUR MODEL
 22           ID   EXISTING CONDITIONS
 23           ID   AREA 4 WATERSHED AREA = 90.5 SQ. MILES
 24           ID            MODELED AREA = 76.8 SQ. MILES
 25           ID
 26           ID   GREEN-AMPT LOSS METHOD
 27           ID   S-GRAPH UNIT HYDROGRAPHS
 28           ID     - MOUNTAIN
 29           ID     - DESERT/RANGELAND
 30           ID   NORMAL-DEPTH CHANNEL ROUTING
 31           ID   LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
 32           ID     - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
 33           ID     - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
 34           ID     - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
 35           ID   SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)
 36           IT       5  1JAN99    1200    2000
 37           IN      15
 38           IO       5
              *DIAGRAM
              *
 39           JD   3.196  0.1000
 40           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
 41           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
 42           PC   0.962   0.972   0.983   0.991   1.000
 43           JD   3.181  0.5000
 44           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
 45           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
 46           PC   0.962   0.972   0.983   0.991   1.000
 47           JD   3.120     2.8
 48           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
 49           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
 50           PC   0.950   0.963   0.975   0.988   1.000
 51           JD   2.950    16.0
 52           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
 53           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
1                                          HEC-1 INPUT                                          PAGE  2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 54           PC   0.946   0.960   0.973   0.987   1.000
 55           JD   2.592    90.0
 56           PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
 57           PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
 58           PC   0.927   0.945   0.964   0.982   1.000
              *

 59           KK    S100   BASIN
 60           KM        Compute runoff from subbasin 100
 61           BA   6.994
 62           LG    0.35    0.38    6.40    0.16       0
 63           UI     449     455     964    1717    2422    3046    3616    4050    4275    4281
 64           UI    4178    3867    3211    2766    2319    1968    1698    1387    1198     990
 65           UI     848     715     635     476     471     313     309     309     204     110
 66           UI     109     111     110     109     111     109     110     111       0       0
              *

 67           KK    S102   BASIN
 68           KM        Compute runoff from subbasin 102
 69           BA   3.234
 70           LG    0.35    0.38    5.60    0.22       0
 71           UI     333     657    1539    2292    2943    3178    3083    2643    1985    1523
 72           UI    1179     890     674     542     377     300     232     193      81      82
 73           UI      81      81      83       0       0       0       0       0       0       0
              *

 74           KK    C102 COMBINE
 75           KM        Combine total inflow to detention area behind (north) of CAP Canal
 76           HC       2
              *

 77           KK   RR102 STORAGE
 78           KM        Route flows through storage area behind CAP Canal
 79           KM        Stage-storage-discharge data from Wagner Wash FDS Hydrology (1991)
 80           KO
 81           RS       1    STOR      -1
 82           SV          553.00 1148.00 2316.00 2705.00
 83           SQ                  128.00  587.00  600.00
 84           SE  1543.0 1550.00 1552.00 1555.00 1556.00
 85           ST  1556.0  1320.0     3.2     1.5
              *

 86           KK    D102  DIVERT
 87           KM        Divide flow evenly over the two 18-foot wide CAP overchutes
 88           KM        although the inverts are 0.5 feet different in elevation
 89           DT    CF02     0.0     0.0
 90           DI     0.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0     0.0
 91           DQ     0.0    50.0   500.0  5000.0     0.0     0.0     0.0     0.0     0.0     0.0
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 92           KK  100105   ROUTE
 93           KM        Route outflows from east CAP overchute to Sun Valley Parkway.
 94           RS       9    FLOW      -1
 95           RC   0.035   0.055   0.035   11235  0.0045  105.00
 96           RX    0.00  120.00  240.00  250.00  590.00  600.00  720.00  840.00
 97           RY  105.00  102.50  100.00  100.00  100.00  100.00  102.50  105.00
              *

 98           KK    S105   BASIN
 99           KM        Compute runoff from subbasin 105
100           BA   4.370
101           LG    0.35    0.35    4.80    0.30       0
102           UI     345     380    1112    1723    2334    2867    3143    3344    3176    2865
103           UI    2374    1903    1565    1291    1018     832     685     564     458     369
104           UI     288     235     238     126      83      85      84      84      84      84
105           UI      84       0       0       0       0       0       0       0       0       0
              *

106           KK    CF02RETRIEVE
107           KM        Retrieve flow from west CAP overchute.
108           DR    CF02
              *

109           KK  102105   ROUTE
110           KM        Route retrieved flow from west overchute to C105.
111           RS       6    FLOW      -1
112           RC   0.045   0.050   0.045    7656  0.0065  104.00
113           RX    0.00   40.00  120.00  130.00  250.00  260.00  340.00  380.00
114           RY  104.00  102.00  101.00  100.00  100.00  101.00  102.00  104.00
              *

115           KK   C105U COMBINE
116           KM        Combine runoff from S105 with routed flow from 100105 and 102105
117           KM        (CAP overchute flows). This is the total flow in Wagner Wash upstream
118           KM        of Sun Valley Parkway.
119           HC       3  14.598
              *

120           KK    S110   BASIN
```

```
121          KM        Compute runoff from subbasin 110
122          BA   0.430
123          LG    0.25    0.37    5.20    0.25       6
124          UI      56     166     335     449     587     358     291     241     188     140
125          UI     121      86      68      56      43      32      27      22      11      11
126          UI      10      11      11       0       0       0       0       0       0       0
             *

127          KK  11015I   ROUTE
128          KM        Route flow from C105 through subbasin 110 to C115.
129          RS       2    FLOW      -1
130          RC   0.045   0.035   0.045    3783  0.0267  102.00
131          RX    0.00   50.00  100.00  110.00  120.00  130.00  180.00  230.00
132          RY  102.00  101.50  101.00  100.00  100.00  101.00  101.50  102.00
             *
1                                          HEC-1 INPUT                                          PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

133          KK  15I15R   ROUTE
134          KM        Route flows from split through S115 to C115.
135          RS       8    FLOW      -1
136          RC   0.035   0.030   0.035   14128  0.0151  105.00
137          RX    0.00   25.00   58.00   65.00   85.00   92.00  125.00  150.00
138          RY  105.00  102.50  102.00  100.00  100.00  102.00  102.50  105.00
             *

139          KK    S115   BASIN
140          KM        Compute runoff from subbasin 115
141          BA   2.247
142          LG    0.32    0.35    4.80    0.30       2
143          UI     160     163     434     709     984    1212    1401    1530    1539    1465
144          UI    1351    1100     918     773     632     528     444     351     304     252
145          UI     203     170     140     110     110      85      39      39      40      39
146          UI      39      39      40      39       0       0       0       0       0       0
             *

147          KK    C115 COMBINE
148          KM        Combine runoff from S115 with routed flow.
149          HC       2   2.677
             *

150          KK  115120   ROUTE
151          KM        Route total flows from C115 to C120. Slope =(1532-1494) / 4077
152          RS       2    FLOW      -1
153          RC   0.030   0.025   0.030    4077  0.0093  105.00
154          RX    0.00   30.00   75.00   80.00  105.00  110.00  155.00  190.00
155          RY  105.00  101.50  101.00  100.00  100.00  101.00  101.50  105.00
             *

156          KK    S120   BASIN
157          KM        Compute runoff from subbasin 120
158          BA   2.004
159          LG    0.33    0.35    4.65    0.32       1
160          UI     206     408     954    1419    1824    1969    1911    1637    1230     944
161          UI     731     551     418     336     234     186     143     120      50      51
162          UI      50      51      51       0       0       0       0       0       0       0
             *

163          KK    C120 COMBINE
164          KM        Combine flows at Wagner Wash at outlet of channel along SVP
165          HC       2   4.681
             *

166          KK   C105D COMBINE
167          KM        Combine flows from C105 and C120 just D/S of Sun Valley Parkway
168          HC       2  19.279
             *
1                                          HEC-1 INPUT                                          PAGE  5

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

169          KK  120135   ROUTE
170          KM        Route flows in Wagner Wash from Sun Valley Parkway to C135.
171          RS       1    FLOW      -1
172          RC   0.045   0.035   0.045     951  0.0074  110.00
173          RX    0.00  225.00  450.00  455.00  485.00  490.00  615.00  840.00
174          RY  110.00  105.00  102.00  100.00  100.00  102.00  102.00  110.00
             *

175          KK    S125   BASIN
176          KM        Compute runoff from subbasin 125
177          BA   0.093
178          LG    0.25    0.35    4.15    0.44       5
179          UI      46     164     204     116      73      46      28      17      12       4
180          UI       5       4       0       0       0       0       0       0       0       0
             *

181          KK   RR125 STORAGE
182          KM   PROPOSED DETENTION BASIN
183          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13E
184          KM    STRUCTURE ID:RR125
185          KM    DIMENSIONS: L=300ft, W=200ft, D=6ft, Sideslope (?H:1V)= 3,  Vol.= 5.2 ac-ft
```

```
186          RS      1    STOR       0
187          SV    0.0     0.5     0.9     1.9     3.0     4.1     5.2     6.5     7.8     9.1
188          SE    0.0     0.5     1.0     2.0     3.0     4.0     5.0     6.0     7.0     8.0
189          SQ    0.0    10.7    15.1    21.4    26.2    30.3    33.8    37.1    40.0    42.8
             *

190          KK  12535I   ROUTE
191          KM   PROPOSED CHANNEL
192          KM        Route flows from S125 to intermediate combination point in S135.
193          KM    STRUCTURE ID(s): RR12510
194          KM    Slope=(1746.1 - 1697.0) / 1852.5
195          RS      1    FLOW      -1
196          RC  0.045   0.045   0.045  1852.50.026481   104.0
197          RX    0.0    12.0    12.0    12.0    37.0    37.0    37.0    49.0
198          RY  104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

199          KK   S130   BASIN
200          KM        Compute runoff from subbasin 130
201          BA  0.310
202          LG   0.21    0.35    4.20    0.43       4
203          UI     61     239     399     514     313     240     176     128      94      64
204          UI     49      36      26      19      10      10      10      10       0       0
             *

205          KK   RR130 STORAGE
206          KM   PROPOSED DETENTION BASIN
207          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13W
208          KM    STRUCTURE ID:RR130
209          KM    DIMENSIONS: L=600ft, W=290ft, D=7ft, Sideslope (?H:1V)= 3,  Vol.= 19.2 ac-ft
210          RS      1    STOR       0
211          SV    0.0     2.9     6.0     9.1    12.4    15.7    19.2    22.8    26.5    30.4
212          SE    0.0     1.0     2.0     3.0     4.0     5.0     6.0     7.0     8.0     9.0
```

1 HEC-1 INPUT PAGE 6

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

213          SQ    0.0    23.6    33.4    40.9    47.3    52.9    57.9    62.5    66.9    70.9
             *

214          KK  13035I   ROUTE
215          KM   PROPOSED CHANNEL
216          KM        Route flow to intermediate point in S135.
217          KM    STRUCTURE ID(s): RR13010
218          KM    Slope=(1728.2 - 1697.0) / 1235.4
219          RS      1    FLOW      -1
220          RC  0.045   0.045   0.045  1235.4 0.02524   104.0
221          RX    0.0    12.0    12.0    12.0    24.0    24.0    24.0    36.0
222          RY  104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

223          KK   C135I COMBINE
224          KM        Combine routed flow from RR130 and RR125
225          HC      2    1.18
             *

226          KK  35I135   ROUTE
227          KM   PROPOSED CHANNEL
228          KM        Route combined flows to C135 at Wagner Wash.
229          KM    STRUCTURE ID(s): C135L10
230          KM    Slope=(1697.0 - 1496.9) / 12096.9
231          RS      8    FLOW      -1
232          RC  0.045   0.045   0.045 12096.90.016546   104.5
233          RX    0.0    13.5    13.5    13.5   213.5   213.5   213.5   227.0
234          RY  104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

235          KK   S135   BASIN
236          KM        Compute runoff from subbasin 135
237          BA  0.879
238          LG   0.35    0.35    4.25    0.42       0
239          UI    115     362     709     992    1126     989     736     527     370     260
240          UI    194     128      89      76      28      28      29      28       0       0
             *

241          KK   C135L COMBINE
242          KM        Combine all piedmont runoff inflow to Wagner Wash at C135
243          HC      2    2.06
             *

244          KK   C135 COMBINE
245          KM        Combine all flows in Wagner Wash at C135
246          HC      2
             *

247          KK  135145   ROUTE
248          KM        Route flow in Wagner Wash to C145.  Slope = (1487-1454) / 7938
249          RS      4    FLOW      -1
250          RC  0.045   0.035   0.045    7938  0.0042  110.00
251          RX   0.00  300.00  400.00  406.00  506.00  512.00  612.00  912.00
252          RY 110.00  102.50  102.00  100.00  100.00  102.00  102.50  110.00
             *
```

1 HEC-1 INPUT PAGE 7

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
253          KK    S140   BASIN
254          KM        Compute runoff from subbasin 140
255          BA   1.373
256          LG    0.35    0.36    5.00    0.28       0
257          UI     260    1034    1801    2168    1890    1235     809     517     339     211
258          UI     157      56      55      57       0       0       0       0       0       0
             *

259          KK  140145   ROUTE
260          KM        Route runoff from S140 to C145 at Wagner Wash.
261          RS       3    FLOW      -1
262          RC   0.040   0.050   0.040    3656  0.0074  103.00
263          RX    0.00   70.00  140.00  150.00  250.00  260.00  330.00  400.00
264          RY  102.00  101.00  100.00  100.00  100.00  100.00  101.00  102.00
             *

265          KK    S145   BASIN
266          KM        Compute runoff from subbasin 145
267          BA   1.756
268          LG    0.35    0.35    4.15    0.44       0
269          UI     226     672    1369    1903    2167    2003    1508    1085     777     544
270          UI     399     279     198     157      80      55      56      54      55       0
             *

271          KK    C145 COMBINE
272          KM        Combine all flows in Wagner Wash at C145
273          HC       3
             *

274          KK  145155   ROUTE
275          KM        Route flows in Wagner Wash form C145 to C155. Slope = (1454-1452)/631
276          RS       1    FLOW      -1
277          RC   0.045   0.035   0.055     631  0.0032  110.00
278          RX    0.00  150.00  300.00  309.00  379.00  388.00  538.00  838.00
279          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

280          KK    S155   BASIN
281          KM        Compute runoff from subbasin 155
282          BA   1.832
283          LG    0.35    0.35    4.50    0.36       1
284          UI     187     361     846    1266    1637    1771    1735    1497    1161     879
285          UI     681     519     385     314     228     181     130     126      46      46
286          UI      45      46      46      45       0       0       0       0       0       0
             *

287          KK    C155 COMBINE
288          KM        Combine all flows at Wagner Wash at C155
289          HC       2
             *
```

1 HEC-1 INPUT PAGE 8

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

290          KK  155160   ROUTE
291          KM        Route flow in Wagner Wash to C160 (Sun Valley Parkway).
292          RS       5    FLOW      -1
293          RC   0.035   0.035   0.035    2291  0.0052  110.00
294          RX    0.00  200.00  400.00  406.00  506.00  512.00  712.00  912.00
295          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

296          KK    S160   BASIN
297          KM        Compute runoff from subbasin 160
298          BA   1.144
299          LG    0.35    0.35    4.00    0.47       0
300          UI     165     599    1121    1501    1557    1233     844     593     394     281
301          UI     190     122      93      40      40      40      41       0       0       0
             *

302          KK    C160 COMBINE
303          KM        Combine flows at Sun Valley Parkway
304          HC       2   27.44
             *

305          KK  160170   ROUTE
306          KM        Route flows from Sun Valley Parkway to C170R. Slope = (1440-1410)/5248
307          RS       3    FLOW      -1
308          RC   0.040   0.030   0.040    5248  0.0057  108.00
309          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
310          RY  108.00  103.00  102.00  100.00  100.00  102.00  103.00  108.00
             *

311          KK    S170   BASIN
312          KM        Compute runoff from subbasin 170
313          BA   1.464
314          LG    0.35    0.35    4.40    0.38       0
315          UI     209     755    1427    1917    1973    1590    1086     762     513     360
316          UI     246     160     123      52      51      51      52       0       0       0
             *

317          KK    170R   ROUTE
```

```
318          KM        Route flow from S170 to Wagner Wash.  Slope = (1456-1410) / 3986
319          RS       3    FLOW      -1
320          RC   0.045   0.045   0.045    3986  0.0115  104.00
321          RX    0.00   50.00  100.00  103.00  113.00  116.00  166.00  216.00
322          RY  103.00  102.00  101.00  100.00  100.00  101.00  102.00  103.00
             *

323          KK   C170R COMBINE
324          KM        Combine routed flows from S170 and C160 in Wagner Wash
325          HC       2
             *
1                                          HEC-1 INPUT                                                    PAGE  9

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

326          KK  170180   ROUTE
327          KM        Route flows in Wagner Wash to C180R.  Slope = (1410-1366) / 6770
328          RS       4    FLOW      -1
329          RC   0.045   0.035   0.045    6770  0.0065  110.00
330          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
331          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *

332          KK    S150   BASIN
333          KM        Compute runoff from subbasin 150
334          BA   0.774
335          LG    0.25    0.35    4.65    0.32       7
336          UI      71     115     270     425     531     672     746     480     406     356
337          UI     312     262     212     181     159     132     106      89      77      65
338          UI      54      47      35      35      35      14      14      13      14      14
339          UI      13      14      14       0       0       0       0       0       0       0
             *

340          KK   RR150 STORAGE
341          KM   PROPOSED DETENTION BASIN
342          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 3
343          KM    outlet based on assumed 2 ft pipe
344          KM    STRUCTURE ID:RR150
345          KM    DIMENSIONS: L=800ft, W=400ft, D=10ft, Sideslope (?H:1V)= 3,  Vol.= 50.5 ac-f
346          RS       1    STOR       0
347          SV     0.0     5.4    10.9    22.4    34.5    40.8    47.2    53.8    60.6    67.5
348          SE     0.0     1.0     2.0     4.0     6.0     7.0     8.0     9.0    10.0    11.0
349          SQ     0.0    34.0    48.1    68.1    83.4    90.0    96.3   102.1   107.6   112.9
             *

350          KK  150165   ROUTE
351          KM   PROPOSED CHANNEL
352          KM    ROUTE OUTFLOW FROM RR150 TO S165
353          KM    STRUCTURE ID(s): RR15020
354          KM    Slope=(1760.1 - 1675.9) / 4081.6
355          RS       1    FLOW      -1
356          RC   0.045   0.045   0.045  4081.60.020625   104.5
357          RX     0.0    13.5    13.5    13.5    49.5    49.5    49.5    63.0
358          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

359          KK    S165   BASIN
360          KM        Compute runoff from subbasin 165
361          BA   0.616
362          LG    0.30    0.35    4.55    0.35       3
363          UI     121     477     809    1022     617     474     347     254     185     127
364          UI      96      69      52      36      20      20      20      20       0       0
             *
1                                          HEC-1 INPUT                                                    PAGE 10

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

365          KK    C165 COMBINE
366          KM    COMBINE ROUTED FLOW FROM RR150 WITH RUNOFF FROM S165 AT PROPOSED BASIN SITE
367          HC       2
             *

368          KK   RR165 STORAGE
369          KM   PROPOSED DETENTION BASIN
370          KM    ROUTE RUNOFF FROM S165 THROUGH PROPOSED DETENTION BASIN
371          KM    outlet based on assumed 2 ft pipe
372          KM    STRUCTURE ID:RR165
373          KM    DIMENSIONS: L=800ft, W=330ft, D=9ft, Sideslope (?H:1V)= 3,  Vol.= 39.3 ac-ft
374          RS       1    STOR       0
375          SV     0.0     4.4    13.7    23.5    28.6    33.9    39.3    44.9    50.7    56.5
376          SE     0.0     1.0     3.0     5.0     6.0     7.0     8.0     9.0    10.0    11.0
377          SQ     0.0    34.0    59.0    76.1    83.4    90.0    96.3   102.1   107.6   112.9
             *

378          KK  165175   ROUTE
379          KM   PROPOSED CHANNEL
380          KM    ROUTE OUTFLOW FROM RR165 TO SUN VALLEY PARKWAY IN NEW CHANNEL THRU S175
381          KM    STRUCTURE ID(s): C17510A, C17510B
382          KM    Slope=(1674.9 - 1462.9) / 13245.4
383          RS       8    FLOW      -1
384          RC   0.045   0.045   0.045 13245.40.016012   104.5
385          RX     0.0    13.5    13.5    13.5   213.5   213.5   213.5   227.0
386          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
```

```
                *
387             KK    S175   BASIN
388             KM        Compute runoff from subbasin 175
389             BA   1.802
390             LG    0.29    0.35    4.50    0.36       1
391             UI     126     127     317     525     763     877    1013    1295    1376     895
392             UI     771     703     622     572     507     439     372     318     296     274
393             UI     227     192     163     148     138     116      96      97      73      62
394             UI      62      63      55      24      25      24      24      24      24      25
395             UI      24      24      24      25       0       0       0       0       0       0
                *

396             KK    C175 COMBINE
397             KM    COMBINE RUNOFF FROM S175 WITH ROUTED FLOW FROM C165
398             HC       2
                *

399             KK    175R   ROUTE
400             KM   PROPOSED CHANNEL
401             KM        Route runoff from S175 to intermediate point in S190 (C180RI).
402             KM    STRUCTURE ID(s): RR17510
403             KM    Slope=(1462.9 - 1413.1) / 3035.2
404             RS       2    FLOW      -1
405             RC   0.045   0.045   0.045  3035.20.016393   104.5
406             RX     0.0    13.5    13.5    13.5   293.5   293.5   293.5   307.0
407             RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
                *
1                                          HEC-1 INPUT                                          PAGE 11

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

408             KK    S180   BASIN
409             KM        Compute runoff from subbasin 180
410             BA   1.443
411             LG    0.25    0.35    4.25    0.42       2
412             UI     107     108     311     490     677     785     927    1258     896     684
413             UI     622     547     497     440     379     315     275     250     228     185
414             UI     154     138     120     115      82      83      73      52      53      52
415             UI      50      21      20      21      20      21      21      20      21      21
416             UI      20       0       0       0       0       0       0       0       0       0
                *

417             KK    180R   ROUTE
418             KM   PROPOSED CHANNEL
419             KM        Route runoff from S180 to intermediate point in S190 (C180RI).
420             KM    STRUCTURE ID(s): S18010, RR18010
421             KM    Slope=(1531.6 - 1413.1) / 7990.1
422             RS       2    FLOW      -1
423             RC   0.045   0.045   0.045  7990.1 0.01483   104.5
424             RX     0.0    13.5    13.5    13.5   193.5   193.5   193.5   207.0
425             RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
                *

426             KK  C180RI COMBINE
427             KM        Combine routed flows from S175 and S180
428             HC       2
                *

429             KK  RI180R   ROUTE
430             KM   PROPOSED CHANNEL
431             KM    STRUCTURE ID(s): C180R10
432             KM    Slope=(1413.1 - 1367.6) / 3720.6
433             RS       3    FLOW      -1
434             RC   0.045   0.045   0.045  3720.60.012229   104.5
435             RX     0.0    13.5    13.5    13.5   373.5   373.5   373.5   387.0
436             RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
                *

437             KK   C180R COMBINE
438             KM        Combine flows in Wagner Wash
439             HC       2
                *

440             KK  180185   ROUTE
441             KM        Route flows in Wagner Wash from C180R to C185R.
442             RS       3    FLOW      -1
443             RC   0.045   0.035   0.045  3450.0  0.0075   106.0
444             RX     0.0   100.0   200.0   206.0   406.0   412.0   512.0   612.0
445             RY   106.0   104.0   102.0   100.0   100.0   102.0   104.0   106.0
                *
1                                          HEC-1 INPUT                                          PAGE 12

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

446             KK    S185   BASIN
447             KM        Compute runoff from subbasin 185
448             BA   2.421
449             LG    0.16    0.35    4.35    0.40       1
450             UI     165     166     391     668     960    1130    1281    1613    1908    1239
451             UI    1060     936     847     785     677     614     534     438     399     375
452             UI     338     271     230     210     183     183     133     126     127      85
453             UI      80      82      81      67      32      31      32      32      31      32
```

```
454          UI      32      31      32      32      32       0       0       0       0       0
             *

455          KK    185R   ROUTE
456          KM        Route runoff from S185 to Wagner Wash.  Slope = (1442-1340) / 8534
457          RS       5    FLOW      -1
458          RC   0.045   0.035   0.045    8534  0.0120  104.00
459          RX    0.00   30.00  100.00  106.00  156.00  162.00  232.00  262.00
460          RY  104.00  102.00  102.00  100.00  100.00  102.00  102.00  104.00
             *

461          KK   C185R COMBINE
462          KM        Combine flows in Wagner Wash
463          HC       2
             *

464          KK  185190   ROUTE
465          KM        Route flow in Wagner Wash to C190.  Slope = (1340-1308) / 2700
466          RS       2    FLOW      -1
467          RC   0.045   0.040   0.045    2700  0.0119  106.00
468          RX    0.00   80.00  160.00  166.00  416.00  422.00  502.00  582.00
469          RY  106.00  103.00  102.00  100.00  100.00  102.00  103.00  106.00
             *

470          KK    S190   BASIN
471          KM        Compute runoff from subbasin 190
472          BA   4.054
473          LG    0.35    0.35    3.81    0.44       0
474          UI     274     278     647    1125    1573    1918    2319    2540    2637    2574
475          UI    2467    2112    1787    1506    1256    1044     891     745     605     522
476          UI     432     370     293     266     188     191     188      78      68      66
477          UI      67      67      67      67      67      67       0       0       0       0
             *

478          KK    C190 COMBINE
479          KM        Combine all flow in Wagner Wash at C190
480          HC       2   39.24
             *

481          KK  190195   ROUTE
482          KM        Route flow from C190 to the Hassayampa River. Slope = (1308-1255)/4941
483          RS       2    FLOW      -1
484          RC   0.045   0.035   0.045    4941  0.0107  110.00
485          RX    0.00   50.00  200.00  206.00  356.00  366.00  516.00  566.00
486          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *
```

1 HEC-1 INPUT PAGE 13

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

487          KK    S195   BASIN
488          KM        Compute runoff from subbasin 195
489          BA   1.808
490          LG    0.33    0.35    4.25    0.42       0
491          UI     107     108     188     366     523     660     786     925     975    1026
492          UI    1044     975     915     778     674     571     496     419     359     313
493          UI     260     223     202     165     146     115     114      76      74      74
494          UI      67      27      26      26      26      26      26      27      26      26
495          UI      27       0       0       0       0       0       0       0       0       0
             *

496          KK    C195 COMBINE
497          KM        Combine all flows in Wagner Wash at the Hassayampa River
498          HC       2   41.05
499          ZZ
```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   59        S100
                .
                .
   67           .        S102
                .           .
                .           .
   74        C102...........
                V
                V
   77       RR102
                .
                .
   89           .-------->    CF02
   86        D102
                V
                V
   92      100105
                .
                .
   98           .        S105
                .           .
                .           .
```

```
108          .           .           .<-------    CF02
106          .           .        CF02
             .           .           V
             .           .           V
109          .           .      102105
             .           .           .
             .           .           .
115      C105U.......................
             .
             .
120          .        S110
             .           V
             .           V
127          .      11015I
             .           V
             .           V
133          .      15I15R
             .           .
             .           .
139          .           .        S115
             .           .           .
             .           .           .
147          .        C115............
             .           V
             .           V
150          .      115120
             .           .
             .           .
156          .           .        S120
             .           .           .
             .           .           .
163          .        C120............
             .           .
             .           .
166      C105D............
             V
             V
169     120135
             .
             .
175          .        S125
             .           V
             .           V
181          .       RR125
             .           V
             .           V
190          .      12535I
             .           .
             .           .
199          .           .        S130
             .           .           V
             .           .           V
205          .           .       RR130
             .           .           V
             .           .           V
214          .           .      13035I
             .           .           .
             .           .           .
223          .       C135I............
             .           V
             .           V
226          .      35I135
             .           .
             .           .
235          .           .        S135
             .           .           .
             .           .           .
241          .       C135L............
             .           .
             .           .
244        C135............
             V
             V
247     135145
             .
             .
253          .        S140
             .           V
             .           V
259          .      140145
             .           .
             .           .
265          .           .        S145
             .           .           .
             .           .           .
271        C145........................
             V
             V
274     145155
             .
             .
280          .        S155
             .           .
             .           .
287        C155............
```

```
                V
                V
290       155160
                .
                .
296             .        S160
                .           .
                .           .
302         C160............
                V
                V
305       160170
                .
                .
311             .        S170
                .           V
                .           V
317             .        170R
                .           .
                .           .
323        C170R............
                V
                V
326       170180
                .
                .
332             .        S150
                .           V
                .           V
340             .       RR150
                .           V
                .           V
350             .      150165
                .           .
                .           .
359             .           .        S165
                .           .           .
                .           .           .
365             .        C165............
                .           V
                .           V
368             .       RR165
                .           V
                .           V
378             .      165175
                .           .
                .           .
387             .           .        S175
                .           .           .
                .           .           .
396             .        C175............
                .           V
                .           V
399             .        175R
                .           .
                .           .
408             .           .        S180
                .           .           V
                .           .           V
417             .           .        180R
                .           .           .
                .           .           .
426             .      C180RI............
                .           V
                .           V
429             .      RI180R
                .           .
                .           .
437        C180R............
                V
                V
440       180185
                .
                .
446             .        S185
                .           V
                .           V
455             .        185R
                .           .
                .           .
461        C185R............
                V
                V
464       185190
                .
                .
470             .        S190
                .           .
                .           .
478         C190............
                V
                V
481       190195
                .
                .
```

```
  487            .        S195
                 .          .
                 .          .
  496        C195............

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *           VERSION 4.1                *
 *                                      *
 *  RUN DATE   19APR06  TIME  16:42:05  *
 *                                      *
 ****************************************

                                                                    ************************************
                                                                    *                                  *
                                                                    *   U.S. ARMY CORPS OF ENGINEERS   *
                                                                    *   HYDROLOGIC ENGINEERING CENTER  *
                                                                    *         609 SECOND STREET        *
                                                                    *      DAVIS, CALIFORNIA 95616     *
                                                                    *          (916) 756-1104          *
                                                                    *                                  *
                                                                    ************************************

                          HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
                            - WAGNER SUB-AREA
                            - ALTERNATIVE B42

                         Alternative Description
                         The purpose of Alternative B is to capture the upstream flow at the
                         apex using online detention basins.  The presence of the detention
                         basins eliminates the downstream alluvial fan uncertainties by controlling
                         the flow from the apices to the outfall.  Alternative B4-2 is based on
                         using a relatively larger on-line detention basin at the apex accompanied
                         by smaller leveed channel sections in the down fan direction.  It is the
                         second of three corridor alignments considered as part of the Alternative B4
                         series.


                         SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
                         JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
                         MODELER: TED LEHMAN
                         FILENAME: A4_EX6.DAT

                         100-YEAR 6-HOUR MODEL
                         EXISTING CONDITIONS
                         AREA 4 WATERSHED AREA = 90.5 SQ. MILES
                                  MODELED AREA = 76.8 SQ. MILES

                         GREEN-AMPT LOSS METHOD
                         S-GRAPH UNIT HYDROGRAPHS
                           - MOUNTAIN
                           - DESERT/RANGELAND
                         NORMAL-DEPTH CHANNEL ROUTING
                         LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
                           - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
                           - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
                           - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
                         SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)

  38 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                        NMIN           5  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1JAN99  STARTING DATE
                       ITIME        1200  STARTING TIME
                          NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      8JAN99  ENDING DATE
                      NDTIME        1035  ENDING TIME
                       ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE  166.58 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT

  39 JD          INDEX STORM NO. 1
                        STRM        3.20  PRECIPITATION DEPTH
                        TRDA         .10  TRANSPOSITION DRAINAGE AREA

  40 PI            PRECIPITATION PATTERN
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                       .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                       .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00
```

```
43 JD          INDEX STORM NO. 2
                     STRM        3.18  PRECIPITATION DEPTH
                     TRDA         .50  TRANSPOSITION DRAINAGE AREA

44 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                    .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                    .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00

47 JD          INDEX STORM NO. 3
                     STRM        3.12  PRECIPITATION DEPTH
                     TRDA        2.80  TRANSPOSITION DRAINAGE AREA

48 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                    .03       .03       .07       .07       .07       .08       .08       .08       .05       .05
                    .05       .02       .02       .02       .01       .01       .01       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00

51 JD          INDEX STORM NO. 4
                     STRM        2.95  PRECIPITATION DEPTH
                     TRDA       16.00  TRANSPOSITION DRAINAGE AREA

52 PI            PRECIPITATION PATTERN
                    .01       .01       .00       .00       .00       .00       .00       .00       .00       .01
                    .01       .01       .00       .01       .00       .00       .00       .00       .00       .00
                    .00       .00       .01       .00       .00       .00       .00       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                    .03       .03       .06       .06       .06       .07       .07       .07       .04       .04
                    .04       .02       .02       .02       .01       .01       .01       .01       .01       .01
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00

55 JD          INDEX STORM NO. 5
                     STRM        2.59  PRECIPITATION DEPTH
                     TRDA       90.00  TRANSPOSITION DRAINAGE AREA

56 PI            PRECIPITATION PATTERN
                    .01       .01       .01       .00       .00       .00       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                    .03       .03       .05       .05       .05       .05       .05       .05       .04       .04
                    .04       .02       .02       .02       .02       .02       .02       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                    .01       .01

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
77 KK       *     RR102  *      STORAGE
            *            *
            **************

80 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           5  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
1
                                                RUNOFF SUMMARY
                                          FLOW IN CUBIC FEET PER SECOND
                                       TIME IN HOURS,  AREA IN SQUARE MILES

                                   PEAK   TIME OF    AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM    TIME OF
          OPERATION        STATION  FLOW   PEAK                                          AREA      STAGE     MAX STAGE
+                                                     6-HOUR     24-HOUR     72-HOUR

          HYDROGRAPH AT
+                           S100    4347.   4.67       899.        225.         75.      6.99

          HYDROGRAPH AT
+                           S102    2790.   4.33       417.        104.         35.      3.23

          2 COMBINED AT
+                           C102    5993.   4.50      1198.        300.        100.     10.23

          ROUTED TO
+                          RR102     127.   6.75       122.        104.         72.     10.23

          DIVERSION TO
+                           CF02      63.   6.75        61.         52.         36.     10.23
```

+	HYDROGRAPH AT	D102	63.	6.75	61.	52.	36.	10.23
+	ROUTED TO	100105	59.	12.58	58.	51.	36.	10.23
+	HYDROGRAPH AT	S105	2863.	4.50	495.	124.	41.	4.37
+	HYDROGRAPH AT	CF02	63.	6.75	61.	52.	36.	10.23
+	ROUTED TO	102105	63.	8.00	60.	51.	36.	10.23
+	3 COMBINED AT	C105U	2863.	4.50	549.	226.	120.	14.60
+	HYDROGRAPH AT	S110	662.	4.25	76.	19.	6.	.43
+	ROUTED TO	11015I	570.	4.42	76.	19.	6.	.43
+	ROUTED TO	15I15R	506.	4.83	76.	19.	6.	.43
+	HYDROGRAPH AT	S115	1605.	4.58	296.	74.	25.	2.25
+	2 COMBINED AT	C115	1813.	4.67	350.	88.	29.	2.68
+	ROUTED TO	115120	1781.	4.75	350.	88.	29.	2.68
+	HYDROGRAPH AT	S120	1838.	4.33	256.	64.	21.	2.00
+	2 COMBINED AT	C120	2678.	4.58	545.	137.	46.	4.68
+	2 COMBINED AT	C105D	4029.	4.50	821.	275.	127.	19.28
+	ROUTED TO	120135	4027.	4.58	821.	275.	127.	19.28
+	HYDROGRAPH AT	S125	202.	4.08	14.	4.	1.	.09
+	ROUTED TO	RR125	33.	4.42	14.	4.	1.	.09
+	ROUTED TO	12535I	33.	4.67	14.	4.	1.	.09
+	HYDROGRAPH AT	S130	524.	4.17	48.	12.	4.	.31
+	ROUTED TO	RR130	57.	4.83	42.	12.	4.	.31
+	ROUTED TO	13035I	57.	4.83	42.	12.	4.	.31
+	2 COMBINED AT	C135I	83.	4.75	49.	14.	5.	1.18
+	ROUTED TO	35I135	69.	7.33	47.	14.	5.	1.18
+	HYDROGRAPH AT	S135	1102.	4.25	111.	28.	9.	.88
+	2 COMBINED AT	C135L	829.	4.25	131.	36.	12.	2.06
+	2 COMBINED AT	C135	4170.	4.50	875.	288.	131.	21.34
+	ROUTED TO	135145	3745.	5.00	864.	286.	131.	21.34
+	HYDROGRAPH AT	S140	1913.	4.17	188.	47.	16.	1.37
+	ROUTED TO	140145	1623.	4.42	188.	47.	16.	1.37
+	HYDROGRAPH AT	S145	1702.	4.25	193.	48.	16.	1.76
	3 COMBINED AT							

```
+                          C145     4071.   4.92      1029.     325.     143.    24.47
        ROUTED TO
+                       145155     4070.   4.92      1029.     325.     143.    24.47
        HYDROGRAPH AT
+                          S155     1626.   4.33       223.      56.      19.     1.83
        2 COMBINED AT
+                          C155     4304.   4.83      1128.     349.     150.    26.30
        ROUTED TO
+                       155160     4294.   4.92      1126.     348.     150.    26.30
        HYDROGRAPH AT
+                          S160     1347.   4.25       133.      33.      11.     1.14
        2 COMBINED AT
+                          C160     4291.   4.92      1166.     358.     153.    27.44
        ROUTED TO
+                       160170     4194.   5.17      1158.     356.     153.    27.44
        HYDROGRAPH AT
+                          S170     1686.   4.25       178.      44.      15.     1.46
        ROUTED TO
+                          170R     1544.   4.42       178.      44.      15.     1.46
        2 COMBINED AT
+                         C170R     4312.   5.08      1224.     372.     157.    28.90
        ROUTED TO
+                       170180     4223.   5.33      1216.     371.     157.    28.90
        HYDROGRAPH AT
+                          S150      836.   4.33       126.      31.      10.      .77
        ROUTED TO
+                         RR150       97.   5.50        83.      31.      10.      .77
        ROUTED TO
+                       150165       96.   5.83        82.      31.      10.      .77
        HYDROGRAPH AT
+                          S165     1008.   4.17        94.      23.       8.      .62
        2 COMBINED AT
+                          C165      800.   4.17       154.      50.      17.     1.39
        ROUTED TO
+                         RR165       94.   5.83        92.      50.      17.     1.39
        ROUTED TO
+                       165175       94.   7.67        90.      50.      17.     1.39
        HYDROGRAPH AT
+                          S175     1203.   4.50       226.      56.      19.     1.80
        2 COMBINED AT
+                          C175     1031.   4.50       256.      96.      32.     3.19
        ROUTED TO
+                          175R      997.   4.67       253.      96.      32.     3.19
        HYDROGRAPH AT
+                          S180     1032.   4.50       181.      45.      15.     1.44
        ROUTED TO
+                          180R      775.   4.83       180.      45.      15.     1.44
        2 COMBINED AT
+                        C180RI     1450.   4.75       384.     127.      42.     4.63
        ROUTED TO
+                        RI180R     1398.   5.00       379.     127.      42.     4.63
        2 COMBINED AT
+                         C180R     4686.   5.25      1385.     430.     176.    33.54
        ROUTED TO
+                       180185     4673.   5.42      1378.     430.     176.    33.54
        HYDROGRAPH AT
+                          S185     1450.   4.50       288.      72.      24.     2.42
        ROUTED TO
+                          185R     1302.   4.92       288.      72.      24.     2.42
        2 COMBINED AT
+                         C185R     5008.   5.25      1485.     456.     184.    35.96
        ROUTED TO
+                       185190     4992.   5.33      1480.     455.     184.    35.96
```

```
          HYDROGRAPH AT
+                        S190      2084.    4.58        391.        98.        33.       4.05

          2 COMBINED AT
+                        C190      5197.    5.25       1607.       488.       194.      39.24

          ROUTED TO
+                      190195      5092.    5.50       1600.       487.       194.      39.24

          HYDROGRAPH AT
+                        S195      1001.    4.67        203.        51.        17.       1.81

          2 COMBINED AT
+                        C195      5142.    5.50       1650.       500.       198.      41.05
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    RR102
                     (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)
```

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.61	.00	1386.	222.	.00	6.33	.00

PLAN 2 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.59	.00	1380.	219.	.00	6.33	.00

PLAN 3 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.23	.00	1236.	163.	.00	6.58	.00

PLAN 4 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1551.78	.00	1083.	114.	.00	6.75	.00

PLAN 5 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1551.06	.00	868.	68.	.00	6.75	.00

*** NORMAL END OF HEC-1 ***

```
1****************************************                    ****************************************
 *                                      *                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *   U.S. ARMY CORPS OF ENGINEERS       *
 *              JUN  1998               *                    *   HYDROLOGIC ENGINEERING CENTER      *
 *            VERSION 4.1               *                    *         609 SECOND STREET            *
 *                                      *                    *      DAVIS, CALIFORNIA 95616         *
 *  RUN DATE   19APR06  TIME  16:42:06  *                    *          (916) 756-1104              *
 *                                      *                    *                                      *
 ****************************************                    ****************************************

                                        X     X  XXXXXXX   XXXXX           X
                                        X     X  X        X     X         XX
                                        X     X  X        X                X
                                        XXXXXXX  XXXX     X        XXXXX   X
                                        X     X  X        X                X
                                        X     X  X        X     X          X
                                        X     X  XXXXXXX   XXXXX          XXX

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                          HEC-1 INPUT                                          PAGE  1

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

        1           ID    HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
        2           ID      - WAGNER SUB-AREA
        3           ID      - ALTERNATIVE B42
        4           ID
        5           ID   Alternative Description
        6           ID   The purpose of Alternative B is to capture the upstream flow at the
        7           ID   apex using online detention basins.  The presence of the detention
        8           ID   basins eliminates the downstream alluvial fan uncertainties by controlling
        9           ID   the flow from the apices to the outfall.  Alternative B4-2 is based on
       10           ID   using a relatively larger on-line detention basin at the apex accompanied
       11           ID   by smaller leveed channel sections in the down fan direction.  It is the
       12           ID   second of three corridor alignments considered as part of the Alternative B4
       13           ID   series.
       14           ID
       15           ID
       16           ID   SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
       17           ID   JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
       18           ID   MODELER: TED LEHMAN
       19           ID   FILENAME: A4_EX24.DAT
       20           ID
       21           ID   100-YEAR 24-HOUR MODEL
       22           ID   EXISTING CONDITIONS
       23           ID   AREA 4 WATERSHED AREA = 90.5 SQ. MILES
       24           ID            MODELED AREA = 76.8 SQ. MILES
       25           ID
       26           ID   GREEN-AMPT LOSS METHOD
       27           ID   S-GRAPH UNIT HYDROGRAPHS
       28           ID     - MOUNTAIN
       29           ID     - DESERT/RANGELAND
       30           ID   NORMAL-DEPTH CHANNEL ROUTING
       31           ID   LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
       32           ID     - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
       33           ID     - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
       34           ID     - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
       35           ID   SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)
       36           IT       5  1JAN99    1200    2000
       37           IN      15
       38           IO       5
                    *DIAGRAM
                    *
       39           JD   4.198  0.1000
       40           PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
       41           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
       42           PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
       43           PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.172
       44           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
       45           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
       46           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
       47           PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
       48           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
       49           PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
       50           JD   3.990    10.0
       51           JD   3.780    30.0
       52           JD   3.654    60.0
       53           JD   3.578    90.0
                    *
1                                          HEC-1 INPUT                                          PAGE  2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  54          KK    S100   BASIN
  55          KM        Compute runoff from subbasin 100
  56          BA   6.994
  57          LG    0.35    0.38    6.40    0.16       0
  58          UI     449     455     964    1717    2422    3046    3616    4050    4275    4281
  59          UI    4178    3867    3211    2766    2319    1968    1698    1387    1198     990
  60          UI     848     715     635     476     471     313     309     309     204     110
  61          UI     109     111     110     109     111     109     110     111       0       0
              *

  62          KK    S102   BASIN
  63          KM        Compute runoff from subbasin 102
  64          BA   3.234
  65          LG    0.35    0.38    5.60    0.22       0
  66          UI     333     657    1539    2292    2943    3178    3083    2643    1985    1523
  67          UI    1179     890     674     542     377     300     232     193      81      82
  68          UI      81      81      83       0       0       0       0       0       0       0
              *

  69          KK    C102 COMBINE
  70          KM        Combine total inflow to detention area behind (north) of CAP Canal
  71          HC       2
              *

  72          KK   RR102 STORAGE
  73          KM        Route flows through storage area behind CAP Canal
  74          KM        Stage-storage-discharge data from Wagner Wash FDS Hydrology (1991)
  75          KO
  76          RS       1    STOR      -1
  77          SV          553.00 1148.00 2316.00 2705.00
  78          SQ                 128.00  587.00  600.00
  79          SE  1543.0 1550.00 1552.00 1555.00 1556.00
  80          ST  1556.0  1320.0     3.2     1.5
              *

  81          KK    D102  DIVERT
  82          KM        Divide flow evenly over the two 18-foot wide CAP overchutes
  83          KM        although the inverts are 0.5 feet different in elevation
  84          DT    CF02     0.0     0.0
  85          DI     0.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0     0.0
  86          DQ     0.0    50.0   500.0  5000.0     0.0     0.0     0.0     0.0     0.0     0.0
              *

  87          KK  100105   ROUTE
  88          KM        Route outflows from east CAP overchute to Sun Valley Parkway.
  89          RS       9    FLOW      -1
  90          RC   0.035   0.055   0.035   11235  0.0045  105.00
  91          RX    0.00  120.00  240.00  250.00  590.00  600.00  720.00  840.00
  92          RY  105.00  102.50  100.00  100.00  100.00  100.00  102.50  105.00
              *
1                                    HEC-1 INPUT                                          PAGE  3

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  93          KK    S105   BASIN
  94          KM        Compute runoff from subbasin 105
  95          BA   4.370
  96          LG    0.35    0.35    4.80    0.30       0
  97          UI     345     380    1112    1723    2334    2867    3143    3344    3176    2865
  98          UI    2374    1903    1555    1291    1018     832     685     564     458     369
  99          UI     288     235     238     126      83      85      84      84      84      84
 100          UI      84       0       0       0       0       0       0       0       0       0
              *

 101          KK    CF02RETRIEVE
 102          KM        Retrieve flow from west CAP overchute.
 103          DR    CF02
              *

 104          KK  102105   ROUTE
 105          KM        Route retrieved flow from west overchute to C105.
 106          RS       6    FLOW      -1
 107          RC   0.045   0.050   0.045    7656  0.0065  104.00
 108          RX    0.00   40.00  120.00  130.00  250.00  260.00  340.00  380.00
 109          RY  104.00  102.00  101.00  100.00  100.00  101.00  102.00  104.00
              *

 110          KK   C105U COMBINE
 111          KM        Combine runoff from S105 with routed flow from 100105 and 102105
 112          KM        (CAP overchute flows). This is the total flow in Wagner Wash upstream
 113          KM        of Sun Valley Parkway.
 114          HC       3  14.598
              *

 115          KK    S110   BASIN
 116          KM        Compute runoff from subbasin 110
 117          BA   0.430
 118          LG    0.25    0.37    5.20    0.25       6
 119          UI      56     166     335     449     587     358     291     241     188     140
 120          UI     121      86      68      56      43      32      27      22      11      11
```

```
 121          UI      10      11      11       0       0       0       0       0       0       0
              *

 122          KK  11015I   ROUTE
 123          KM        Route flow from C105 through subbasin 110 to C115.
 124          RS       2    FLOW      -1
 125          RC   0.045   0.035   0.045    3783  0.0267  102.00
 126          RX    0.00   50.00  100.00  110.00  120.00  130.00  180.00  230.00
 127          RY  102.00  101.50  101.00  100.00  100.00  101.00  101.50  102.00
              *

 128          KK  15I15R   ROUTE
 129          KM        Route flows from split through S115 to C115.
 130          RS       8    FLOW      -1
 131          RC   0.035   0.030   0.035   14128  0.0151  105.00
 132          RX    0.00   25.00   58.00   65.00   85.00   92.00  125.00  150.00
 133          RY  105.00  102.50  102.00  100.00  100.00  102.00  102.50  105.00
              *
1                                          HEC-1 INPUT                                          PAGE  4

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 134          KK    S115   BASIN
 135          KM        Compute runoff from subbasin 115
 136          BA   2.247
 137          LG    0.32    0.35    4.80    0.30       2
 138          UI     160     163     434     709     984    1212    1401    1530    1539    1465
 139          UI    1351    1100     918     773     632     528     444     351     304     252
 140          UI     203     170     140     110     110      85      39      39      40      39
 141          UI      39      39      40      39       0       0       0       0       0       0
              *

 142          KK    C115 COMBINE
 143          KM        Combine runoff from S115 with routed flow.
 144          HC       2   2.677
              *

 145          KK  115120   ROUTE
 146          KM        Route total flows from C115 to C120. Slope =(1532-1494) / 4077
 147          RS       2    FLOW      -1
 148          RC   0.030   0.025   0.030    4077  0.0093  105.00
 149          RX    0.00   30.00   75.00   80.00  105.00  110.00  155.00  190.00
 150          RY  105.00  101.50  101.00  100.00  100.00  101.00  101.50  105.00
              *

 151          KK    S120   BASIN
 152          KM        Compute runoff from subbasin 120
 153          BA   2.004
 154          LG    0.33    0.35    4.65    0.32       1
 155          UI     206     408     954    1419    1824    1969    1911    1637    1230     944
 156          UI     731     551     418     336     234     186     143     120      50      51
 157          UI      50      51      51       0       0       0       0       0       0       0
              *

 158          KK    C120 COMBINE
 159          KM        Combine flows at Wagner Wash at outlet of channel along SVP
 160          HC       2   4.681
              *

 161          KK   C105D COMBINE
 162          KM        Combine flows from C105 and C120 just D/S of Sun Valley Parkway
 163          HC       2  19.279
              *

 164          KK  120135   ROUTE
 165          KM        Route flows in Wagner Wash from Sun Valley Parkway to C135.
 166          RS       1    FLOW      -1
 167          RC   0.045   0.035   0.045     951  0.0074  110.00
 168          RX    0.00  225.00  450.00  455.00  485.00  490.00  615.00  840.00
 169          RY  110.00  105.00  102.00  100.00  100.00  102.00  102.00  110.00
              *
1                                          HEC-1 INPUT                                          PAGE  5

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 170          KK    S125   BASIN
 171          KM        Compute runoff from subbasin 125
 172          BA   0.093
 173          LG    0.25    0.35    4.15    0.44       5
 174          UI      46     164     204     116      73      46      28      17      12       4
 175          UI       5       4       0       0       0       0       0       0       0       0
              *

 176          KK   RR125 STORAGE
 177          KM   PROPOSED DETENTION BASIN
 178          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13E
 179          KM    STRUCTURE ID:RR125
 180          KM    DIMENSIONS: L=300ft, W=200ft, D=6ft, Sideslope (?H:1V)= 3,  Vol.= 5.2 ac-ft
 181          RS       1    STOR       0
 182          SV     0.0     0.5     0.9     1.9     3.0     4.1     5.2     6.5     7.8     9.1
 183          SE     0.0     0.5     1.0     2.0     3.0     4.0     5.0     6.0     7.0     8.0
 184          SQ     0.0    10.7    15.1    21.4    26.2    30.3    33.8    37.1    40.0    42.8
              *
```

```
185          KK  12535I   ROUTE
186          KM   PROPOSED CHANNEL
187          KM        Route flows from S125 to intermediate combination point in S135.
188          KM    STRUCTURE ID(s): RR12510
189          KM    Slope=(1746.1 - 1697.0) / 1852.5
190          RS       1    FLOW      -1
191          RC   0.045   0.045   0.045  1852.50.026481   104.0
192          RX     0.0    12.0    12.0    12.0    37.0    37.0    37.0    49.0
193          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

194          KK    S130   BASIN
195          KM        Compute runoff from subbasin 130
196          BA   0.310
197          LG    0.21    0.35    4.20    0.43       4
198          UI      61     239     399     514     313     240     176     128      94      64
199          UI      49      36      26      19      10      10      10      10       0       0
             *

200          KK   RR130 STORAGE
201          KM   PROPOSED DETENTION BASIN
202          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13W
203          KM    STRUCTURE ID:RR130
204          KM    DIMENSIONS: L=600ft, W=290ft, D=7ft, Sideslope (?H:1V)= 3,  Vol.= 19.2 ac-ft
205          RS       1    STOR       0
206          SV     0.0     2.9     6.0     9.1    12.4    15.7    19.2    22.8    26.5    30.4
207          SE     0.0     1.0     2.0     3.0     4.0     5.0     6.0     7.0     8.0     9.0
208          SQ     0.0    23.6    33.4    40.9    47.3    52.9    57.9    62.5    66.9    70.9
             *
1                                          HEC-1 INPUT                                          PAGE  6

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

209          KK  13035I   ROUTE
210          KM   PROPOSED CHANNEL
211          KM        Route flow to intermediate point in S135.
212          KM    STRUCTURE ID(s): RR13010
213          KM    Slope=(1728.2 - 1697.0) / 1235.4
214          RS       1    FLOW      -1
215          RC   0.045   0.045   0.045  1235.4 0.02524   104.0
216          RX     0.0    12.0    12.0    12.0    24.0    24.0    24.0    36.0
217          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

218          KK   C135I COMBINE
219          KM        Combine routed flow from RR130 and RR125
220          HC       2    1.18
             *

221          KK  35I135   ROUTE
222          KM   PROPOSED CHANNEL
223          KM        Route combined flows to C135 at Wagner Wash.
224          KM    STRUCTURE ID(s): C135L10
225          KM    Slope=(1697.0 - 1496.9) / 12096.9
226          RS       8    FLOW      -1
227          RC   0.045   0.045   0.045 12096.90.016546   104.5
228          RX     0.0    13.5    13.5    13.5   213.5   213.5   213.5   227.0
229          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

230          KK    S135   BASIN
231          KM        Compute runoff from subbasin 135
232          BA   0.879
233          LG    0.35    0.35    4.25    0.42       0
234          UI     115     362     709     992    1126     989     736     527     370     260
235          UI     194     128      89      76      28      28      29      28       0       0
             *

236          KK   C135L COMBINE
237          KM        Combine all piedmont runoff inflow to Wagner Wash at C135
238          HC       2    2.06
             *

239          KK    C135 COMBINE
240          KM        Combine all flows in Wagner Wash at C135
241          HC       2
             *

242          KK  135145   ROUTE
243          KM        Route flow in Wagner Wash to C145.  Slope = (1487-1454) / 7938
244          RS       4    FLOW      -1
245          RC   0.045   0.035   0.045    7938  0.0042  110.00
246          RX    0.00  300.00  400.00  406.00  506.00  512.00  612.00  912.00
247          RY  110.00  102.50  102.00  100.00  100.00  102.00  102.50  110.00
             *
1                                          HEC-1 INPUT                                          PAGE  7

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

248          KK    S140   BASIN
249          KM        Compute runoff from subbasin 140
250          BA   1.373
```

```
251          LG    0.35    0.36    5.00    0.28       0
252          UI     260    1034    1801    2168    1890    1235     809     517     339     211
253          UI     157      56      55      57       0       0       0       0       0       0
             *

254          KK  140145   ROUTE
255          KM        Route runoff from S140 to C145 at Wagner Wash.
256          RS       3    FLOW      -1
257          RC   0.040   0.050   0.040    3656  0.0074  103.00
258          RX    0.00   70.00  140.00  150.00  250.00  260.00  330.00  400.00
259          RY  102.00  101.00  100.00  100.00  100.00  100.00  101.00  102.00
             *

260          KK    S145   BASIN
261          KM        Compute runoff from subbasin 145
262          BA   1.756
263          LG    0.35    0.35    4.15    0.44       0
264          UI     226     672    1369    1903    2167    2003    1508    1085     777     544
265          UI     399     279     198     157      80      55      56      54      55       0
             *

266          KK    C145 COMBINE
267          KM        Combine all flows in Wagner Wash at C145
268          HC       3
             *

269          KK  145155   ROUTE
270          KM        Route flows in Wagner Wash form C145 to C155. Slope = (1454-1452)/631
271          RS       1    FLOW      -1
272          RC   0.045   0.035   0.055     631  0.0032  110.00
273          RX    0.00  150.00  300.00  309.00  379.00  388.00  538.00  838.00
274          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

275          KK    S155   BASIN
276          KM        Compute runoff from subbasin 155
277          BA   1.832
278          LG    0.35    0.35    4.50    0.36       1
279          UI     187     361     846    1266    1637    1771    1735    1497    1161     879
280          UI     681     519     385     314     228     181     130     126      46      46
281          UI      45      46      46      45       0       0       0       0       0       0
             *

282          KK    C155 COMBINE
283          KM        Combine all flows at Wagner Wash at C155
284          HC       2
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

285          KK  155160   ROUTE
286          KM        Route flow in Wagner Wash to C160 (Sun Valley Parkway).
287          RS       5    FLOW      -1
288          RC   0.035   0.035   0.035    2291  0.0052  110.00
289          RX    0.00  200.00  400.00  406.00  506.00  512.00  712.00  912.00
290          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

291          KK    S160   BASIN
292          KM        Compute runoff from subbasin 160
293          BA   1.144
294          LG    0.35    0.35    4.00    0.47       0
295          UI     165     599    1121    1501    1557    1233     844     593     394     281
296          UI     190     122      93      40      40      40      41       0       0       0
             *

297          KK    C160 COMBINE
298          KM        Combine flows at Sun Valley Parkway
299          HC       2   27.44
             *

300          KK  160170   ROUTE
301          KM        Route flows from Sun Valley Parkway to C170R. Slope = (1440-1410)/5248
302          RS       3    FLOW      -1
303          RC   0.040   0.030   0.040    5248  0.0057  108.00
304          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
305          RY  108.00  103.00  102.00  100.00  100.00  102.00  103.00  108.00
             *

306          KK    S170   BASIN
307          KM        Compute runoff from subbasin 170
308          BA   1.464
309          LG    0.35    0.35    4.40    0.38       0
310          UI     209     755    1427    1917    1973    1590    1086     762     513     360
311          UI     246     160     123      52      51      51      52       0       0       0
             *

312          KK    170R   ROUTE
313          KM        Route flow from S170 to Wagner Wash.  Slope = (1456-1410) / 3986
314          RS       3    FLOW      -1
315          RC   0.045   0.045   0.045    3986  0.0115  104.00
316          RX    0.00   50.00  100.00  103.00  113.00  116.00  166.00  216.00
317          RY  103.00  102.00  101.00  100.00  100.00  101.00  102.00  103.00
```

```
                 *
318              KK   C170R COMBINE
319              KM        Combine routed flows from S170 and C160 in Wagner Wash
320              HC       2
                 *
1                                          HEC-1 INPUT                                                    PAGE  9

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


321              KK  170180   ROUTE
322              KM        Route flows in Wagner Wash to C180R.  Slope = (1410-1366) / 6770
323              RS       4    FLOW      -1
324              RC   0.045   0.035   0.045    6770  0.0065  110.00
325              RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
326              RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
                 *

327              KK    S150   BASIN
328              KM        Compute runoff from subbasin 150
329              BA   0.774
330              LG    0.25    0.35    4.65    0.32       7
331              UI      71     115     270     425     531     672     746     480     406     356
332              UI     312     262     212     181     159     132     106      89      77      65
333              UI      54      47      35      35      35      14      14      13      14      14
334              UI      13      14      14       0       0       0       0       0       0       0
                 *

335              KK   RR150 STORAGE
336              KM   PROPOSED DETENTION BASIN
337              KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 3
338              KM    outlet based on assumed 2 ft pipe
339              KM    STRUCTURE ID:RR150
340              KM    DIMENSIONS: L=800ft, W=400ft, D=10ft, Sideslope (?H:1V)= 3,  Vol.= 50.5 ac-f
341              RS       1    STOR       0
342              SV     0.0     5.4    10.9    22.4    34.5    40.8    47.2    53.8    60.6    67.5
343              SE     0.0     1.0     2.0     4.0     6.0     7.0     8.0     9.0    10.0    11.0
344              SQ     0.0    34.0    48.1    68.1    83.4    90.0    96.3   102.1   107.6   112.9
                 *

345              KK  150165   ROUTE
346              KM   PROPOSED CHANNEL
347              KM    ROUTE OUTFLOW FROM RR150 TO S165
348              KM    STRUCTURE ID(s): RR15020
349              KM    Slope=(1760.1 - 1675.9) / 4081.6
350              RS       1    FLOW      -1
351              RC   0.045   0.045   0.045  4081.60.020625   104.5
352              RX     0.0    13.5    13.5    13.5    49.5    49.5    49.5    63.0
353              RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
                 *

354              KK    S165   BASIN
355              KM        Compute runoff from subbasin 165
356              BA   0.616
357              LG    0.30    0.35    4.55    0.35       3
358              UI     121     477     809    1022     617     474     347     254     185     127
359              UI      96      69      52      36      20      20      20      20       0       0
                 *
1                                          HEC-1 INPUT                                                    PAGE 10

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


360              KK    C165 COMBINE
361              KM    COMBINE ROUTED FLOW FROM RR150 WITH RUNOFF FROM S165 AT PROPOSED BASIN SITE
362              HC       2
                 *

363              KK   RR165 STORAGE
364              KM   PROPOSED DETENTION BASIN
365              KM    ROUTE RUNOFF FROM S165 THROUGH PROPOSED DETENTION BASIN
366              KM    outlet based on assumed 2 ft pipe
367              KM    STRUCTURE ID:RR165
368              KM    DIMENSIONS: L=800ft, W=330ft, D=9ft, Sideslope (?H:1V)= 3,  Vol.= 39.3 ac-ft
369              RS       1    STOR       0
370              SV     0.0     4.4    13.7    23.5    28.6    33.9    39.3    44.9    50.7    56.5
371              SE     0.0     1.0     3.0     5.0     6.0     7.0     8.0     9.0    10.0    11.0
372              SQ     0.0    34.0    59.0    76.1    83.4    90.0    96.3   102.1   107.6   112.9
                 *

373              KK  165175   ROUTE
374              KM   PROPOSED CHANNEL
375              KM    ROUTE OUTFLOW FROM RR165 TO SUN VALLEY PARKWAY IN NEW CHANNEL THRU S175
376              KM    STRUCTURE ID(s): C17510A, C17510B
377              KM    Slope=(1674.9 - 1462.9) / 13245.4
378              RS       8    FLOW      -1
379              RC   0.045   0.045   0.045 13245.40.016012   104.5
380              RX     0.0    13.5    13.5    13.5   213.5   213.5   213.5   227.0
381              RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
                 *

382              KK    S175   BASIN
383              KM        Compute runoff from subbasin 175
384              BA   1.802
```

```
385     LG   0.29   0.35   4.50   0.36      1
386     UI    126    127    317    525    763    877   1013   1295   1376    895
387     UI    771    703    622    572    507    439    372    318    296    274
388     UI    227    192    163    148    138    116     96     97     73     62
389     UI     62     63     55     24     25     24     24     24     24     25
390     UI     24     24     24     25      0      0      0      0      0      0
        *

391     KK   C175 COMBINE
392     KM   COMBINE RUNOFF FROM S175 WITH ROUTED FLOW FROM C165
393     HC      2
        *

394     KK   175R   ROUTE
395     KM  PROPOSED CHANNEL
396     KM       Route runoff from S175 to intermediate point in S190 (C180RI).
397     KM   STRUCTURE ID(s): RR17510
398     KM   Slope=(1462.9 - 1413.1) / 3035.2
399     RS      2    FLOW      -1
400     RC  0.045  0.045  0.045 3035.20.016393   104.5
401     RX    0.0   13.5   13.5   13.5  293.5  293.5  293.5  307.0
402     RY  104.5  100.0  100.0  100.0  100.0  100.0  100.0  104.5
        *
1                                   HEC-1 INPUT                                    PAGE 11

LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

403     KK   S180   BASIN
404     KM       Compute runoff from subbasin 180
405     BA  1.443
406     LG   0.25   0.35   4.25   0.42      2
407     UI    107    108    311    490    677    785    927   1258    896    684
408     UI    622    547    497    440    379    315    275    250    228    185
409     UI    154    138    120    115     82     83     73     52     53     52
410     UI     50     21     20     21     20     21     21     20     21     21
411     UI     20      0      0      0      0      0      0      0      0      0
        *

412     KK   180R   ROUTE
413     KM  PROPOSED CHANNEL
414     KM       Route runoff from S180 to intermediate point in S190 (C180RI).
415     KM   STRUCTURE ID(s): S18010, RR18010
416     KM   Slope=(1531.6 - 1413.1) / 7990.1
417     RS      2    FLOW      -1
418     RC  0.045  0.045  0.045 7990.1 0.01483   104.5
419     RX    0.0   13.5   13.5   13.5  193.5  193.5  193.5  207.0
420     RY  104.5  100.0  100.0  100.0  100.0  100.0  100.0  104.5
        *

421     KK  C180RI COMBINE
422     KM       Combine routed flows from S175 and S180
423     HC      2
        *

424     KK  RI180R   ROUTE
425     KM  PROPOSED CHANNEL
426     KM   STRUCTURE ID(s): C180R10
427     KM   Slope=(1413.1 - 1367.6) / 3720.6
428     RS      3    FLOW      -1
429     RC  0.045  0.045  0.045 3720.60.012229   104.5
430     RX    0.0   13.5   13.5   13.5  373.5  373.5  373.5  387.0
431     RY  104.5  100.0  100.0  100.0  100.0  100.0  100.0  104.5
        *

432     KK  C180R COMBINE
433     KM       Combine flows in Wagner Wash
434     HC      2
        *

435     KK  180185   ROUTE
436     KM       Route flows in Wagner Wash from C180R to C185R.
437     RS      3    FLOW      -1
438     RC  0.045  0.035  0.045   3450 0.0075  106.00
439     RX   0.00 100.00 200.00 206.00 406.00 412.00 512.00 612.00
440     RY 106.00 104.00 102.00 100.00 100.00 102.00 104.00 106.00
        *
1                                   HEC-1 INPUT                                    PAGE 12

LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

441     KK   S185   BASIN
442     KM       Compute runoff from subbasin 185
443     BA  2.421
444     LG   0.16   0.35   4.35   0.40      1
445     UI    165    166    391    668    960   1130   1281   1613   1908   1239
446     UI   1060    936    847    785    677    614    534    438    399    375
447     UI    338    271    230    210    183    183    133    126    127     85
448     UI     80     82     81     67     32     31     32     32     31     32
449     UI     32     31     32     32     32      0      0      0      0      0
        *

450     KK   185R   ROUTE
451     KM       Route runoff from S185 to Wagner Wash.  Slope = (1442-1340) / 8534
```

```
452          RS       5    FLOW      -1
453          RC   0.045   0.035   0.045    8534  0.0120  104.00
454          RX    0.00   30.00  100.00  106.00  156.00  162.00  232.00  262.00
455          RY  104.00  102.00  102.00  100.00  100.00  102.00  102.00  104.00
             *

456          KK   C185R COMBINE
457          KM        Combine flows in Wagner Wash
458          HC       2
             *

459          KK  185190   ROUTE
460          KM        Route flow in Wagner Wash to C190.  Slope = (1340-1308) / 2700
461          RS       2    FLOW      -1
462          RC   0.045   0.040   0.045    2700  0.0119  106.00
463          RX    0.00   80.00  160.00  166.00  416.00  422.00  502.00  582.00
464          RY  106.00  103.00  102.00  100.00  100.00  102.00  103.00  106.00
             *

465          KK    S190   BASIN
466          KM        Compute runoff from subbasin 190
467          BA   4.054
468          LG    0.35    0.35    3.81    0.44       0
469          UI     274     278     647    1125    1573    1918    2319    2540    2637    2574
470          UI    2467    2112    1787    1506    1256    1044     891     745     605     522
471          UI     432     370     293     266     188     191     188      78      68      66
472          UI      67      67      67      67      67      67       0       0       0       0
             *

473          KK    C190 COMBINE
474          KM        Combine all flow in Wagner Wash at C190
475          HC       2   39.24
             *

476          KK  190195   ROUTE
477          KM        Route flow from C190 to the Hassayampa River, Slope = (1308-1255)/4941
478          RS       2    FLOW      -1
479          RC   0.045   0.035   0.045    4941  0.0107  110.00
480          RX    0.00   50.00  200.00  206.00  356.00  366.00  516.00  566.00
481          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *
1                                          HEC-1 INPUT                                          PAGE 13

        LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


482          KK    S195   BASIN
483          KM        Compute runoff from subbasin 195
484          BA   1.808
485          LG    0.33    0.35    4.25    0.42       0
486          UI     107     108     188     366     523     660     786     925     975    1026
487          UI    1044     975     915     778     674     571     496     419     359     313
488          UI     260     223     202     165     146     115     114      76      74      74
489          UI      67      27      26      26      26      26      26      27      26      26
490          UI      27       0       0       0       0       0       0       0       0       0
             *

491          KK    C195 COMBINE
492          KM        Combine all flows in Wagner Wash at the Hassayampa River
493          HC       2   41.05
494          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    54        S100
                .
                .
    62          .        S102
                .           .
                .           .
    69        C102............
                V
                V
    72       RR102
                .
                .
    84          .-------->    CF02
    81        D102
                V
                V
    87      100105
                .
                .
    93          .        S105
                .           .
                .           .
   103          .           .          .<-------    CF02
   101          .           .        CF02
                .           .          V
                .           .          V
   104          .           .      102105
```

```
                .           .           .
                .           .           .
110         C105U.......................
                .
                .
115             .        S110
                .           V
                .           V
122             .      11015I
                .           V
                .           V
128             .      15I15R
                .           .
                .           .
134             .           .        S115
                .           .           .
                .           .           .
142             .        C115............
                .           V
                .           V
145             .      115120
                .           .
                .           .
151             .           .        S120
                .           .           .
                .           .           .
158             .        C120............
                .           .
                .           .
161         C105D............
                V
                V
164        120135
                .
                .
170             .        S125
                .           V
                .           V
176             .       RR125
                .           V
                .           V
185             .      12535I
                .           .
                .           .
194             .           .        S130
                .           .           V
                .           .           V
200             .           .       RR130
                .           .           V
                .           .           V
209             .           .      13035I
                .           .           .
                .           .           .
218             .       C135I............
                .           V
                .           V
221             .      35I135
                .           .
                .           .
230             .           .        S135
                .           .           .
                .           .           .
236             .       C135L............
                .           .
                .           .
239           C135............
                V
                V
242        135145
                .
                .
248             .        S140
                .           V
                .           V
254             .      140145
                .           .
                .           .
260             .           .        S145
                .           .           .
                .           .           .
266           C145.......................
                V
                V
269        145155
                .
                .
275             .        S155
                .           .
                .           .
282           C155............
                V
                V
285        155160
                .
                .
```

```
291          .        S160
             .           .
             .           .
297       C160............
             V
             V
300     160170
             .
             .
306          .        S170
             .           V
             .           V
312          .        170R
             .           .
             .           .
318      C170R............
             V
             V
321     170180
             .
             .
327          .        S150
             .           V
             .           V
335          .       RR150
             .           V
             .           V
345          .      150165
             .           .
             .           .
354          .           .        S165
             .           .           .
             .           .           .
360          .        C165............
             .           V
             .           V
363          .       RR165
             .           V
             .           V
373          .      165175
             .           .
             .           .
382          .           .        S175
             .           .           .
             .           .           .
391          .        C175............
             .           V
             .           V
394          .        175R
             .           .
             .           .
403          .           .        S180
             .           .           V
             .           .           V
412          .           .        180R
             .           .           .
             .           .           .
421          .      C180RI............
             .           V
             .           V
424          .      RI180R
             .           .
             .           .
432      C180R............
             V
             V
435     180185
             .
             .
441          .        S185
             .           V
             .           V
450          .        185R
             .           .
             .           .
456      C185R............
             V
             V
459     185190
             .
             .
465          .        S190
             .           .
             .           .
473       C190............
             V
             V
476     190195
             .
             .
482          .        S195
             .           .
             .           .
491       C195............
```

```
 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *            VERSION 4.1               *
 *                                      *
 *  RUN DATE   19APR06  TIME  16:42:06  *
 *                                      *
 ****************************************
```

```
****************************************
*                                      *
*   U.S. ARMY CORPS OF ENGINEERS       *
*   HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
  - WAGNER SUB-AREA
  - ALTERNATIVE B42

Alternative Description
The purpose of Alternative B is to capture the upstream flow at the
apex using online detention basins.  The presence of the detention
basins eliminates the downstream alluvial fan uncertainties by controlling
the flow from the apices to the outfall.  Alternative B4-2 is based on
using a relatively larger on-line detention basin at the apex accompanied
by smaller leveed channel sections in the down fan direction.  It is the
second of three corridor alignments considered as part of the Alternative B4
series.


SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
MODELER: TED LEHMAN
FILENAME: A4_EX24.DAT

100-YEAR 24-HOUR MODEL
EXISTING CONDITIONS
AREA 4 WATERSHED AREA = 90.5 SQ. MILES
          MODELED AREA = 76.8 SQ. MILES

GREEN-AMPT LOSS METHOD
S-GRAPH UNIT HYDROGRAPHS
  - MOUNTAIN
  - DESERT/RANGELAND
NORMAL-DEPTH CHANNEL ROUTING
LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
  - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
  - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
  - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)

38 IO        OUTPUT CONTROL VARIABLES
                 IPRNT          5  PRINT CONTROL
                 IPLOT          0  PLOT CONTROL
                 QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT        HYDROGRAPH TIME DATA
                  NMIN          5  MINUTES IN COMPUTATION INTERVAL
                 IDATE     1JAN99  STARTING DATE
                 ITIME       1200  STARTING TIME
                    NQ       2000  NUMBER OF HYDROGRAPH ORDINATES
                NDDATE     8JAN99  ENDING DATE
                NDTIME       1035  ENDING TIME
                 ICENT         19  CENTURY MARK

             COMPUTATION INTERVAL     .08 HOURS
                  TOTAL TIME BASE  166.58 HOURS

       ENGLISH UNITS
            DRAINAGE AREA          SQUARE MILES
            PRECIPITATION DEPTH    INCHES
            LENGTH, ELEVATION      FEET
            FLOW                   CUBIC FEET PER SECOND
            STORAGE VOLUME         ACRE-FEET
            SURFACE AREA           ACRES
            TEMPERATURE            DEGREES FAHRENHEIT

39 JD        INDEX STORM NO. 1
                 STRM        4.20  PRECIPITATION DEPTH
                 TRDA         .10  TRANSPOSITION DRAINAGE AREA

40 PI          PRECIPITATION PATTERN
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
```

```
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00
50 JD         INDEX STORM NO. 2
                STRM        3.99  PRECIPITATION DEPTH
                TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 0 PI           PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00
51 JD         INDEX STORM NO. 3
                STRM        3.78  PRECIPITATION DEPTH
                TRDA       30.00  TRANSPOSITION DRAINAGE AREA

 0 PI           PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00
52 JD         INDEX STORM NO. 4
                STRM        3.65  PRECIPITATION DEPTH
                TRDA       60.00  TRANSPOSITION DRAINAGE AREA

 0 PI           PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
```

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

53 JD INDEX STORM NO. 5
STRM 3.58 PRECIPITATION DEPTH
TRDA 90.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

*** ***

```
              **************
              *            *
  72 KK       *   RR102    *      STORAGE
              *            *
              **************
```

75 KO OUTPUT CONTROL VARIABLES
IPRNT 5 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	S100	5214.	12.58	965.	241.	80.	6.99		
+	HYDROGRAPH AT	S102	3434.	12.33	420.	105.	35.	3.23		
+	2 COMBINED AT	C102	7803.	12.42	1367.	342.	114.	10.23		

+	ROUTED TO	RR102	149.	14.42	141.	119.	82.	10.23
+	DIVERSION TO	CF02	75.	14.42	71.	59.	41.	10.23
+	HYDROGRAPH AT	D102	75.	14.42	71.	59.	41.	10.23
+	ROUTED TO	100105	70.	20.33	67.	58.	41.	10.23
+	HYDROGRAPH AT	S105	3466.	12.50	531.	133.	44.	4.37
+	HYDROGRAPH AT	CF02	75.	14.42	71.	59.	41.	10.23
+	ROUTED TO	102105	74.	15.67	70.	59.	41.	10.23
+	3 COMBINED AT	C105U	3466.	12.50	587.	238.	125.	14.60
+	HYDROGRAPH AT	S110	532.	12.17	62.	16.	5.	.43
+	ROUTED TO	11015I	456.	12.42	62.	16.	5.	.43
+	ROUTED TO	15I15R	412.	12.75	62.	16.	5.	.43
+	HYDROGRAPH AT	S115	1693.	12.50	287.	73.	24.	2.25
+	2 COMBINED AT	C115	1937.	12.67	346.	89.	30.	2.68
+	ROUTED TO	115120	1900.	12.75	346.	89.	30.	2.68
+	HYDROGRAPH AT	S120	2032.	12.33	247.	62.	21.	2.00
+	2 COMBINED AT	C120	3202.	12.42	585.	149.	50.	4.68
+	2 COMBINED AT	C105D	6217.	12.42	1091.	359.	163.	19.28
+	ROUTED TO	120135	6220.	12.50	1091.	359.	163.	19.28
+	HYDROGRAPH AT	S125	161.	12.08	12.	3.	1.	.09
+	ROUTED TO	RR125	30.	12.42	12.	3.	1.	.09
+	ROUTED TO	12535I	30.	12.58	12.	3.	1.	.09
+	HYDROGRAPH AT	S130	415.	12.17	39.	10.	3.	.31
+	ROUTED TO	RR130	51.	12.75	36.	10.	3.	.31
+	ROUTED TO	13035I	51.	12.83	36.	10.	3.	.31
+	2 COMBINED AT	C135I	79.	12.75	46.	13.	4.	1.18
+	ROUTED TO	35I135	66.	15.33	44.	13.	4.	1.18
+	HYDROGRAPH AT	S135	1015.	12.25	99.	25.	8.	.88
+	2 COMBINED AT	C135L	1001.	12.25	134.	37.	12.	2.06
+	2 COMBINED AT	C135	6649.	12.42	1204.	389.	173.	21.34
+	ROUTED TO	135145	5881.	12.83	1190.	386.	172.	21.34
+	HYDROGRAPH AT	S140	2029.	12.17	172.	43.	14.	1.37
+	ROUTED TO	140145	1632.	12.42	172.	43.	14.	1.37

```
          HYDROGRAPH AT
+                          S145     1945.  12.25      193.      48.      16.     1.76
          3 COMBINED AT
+                          C145     6531.  12.75     1492.     461.     197.    24.47
          ROUTED TO
+                        145155     6537.  12.83     1492.     461.     197.    24.47
          HYDROGRAPH AT
+                          S155     1781.  12.33      218.      55.      18.     1.83
          2 COMBINED AT
+                          C155     7020.  12.75     1674.     507.     212.    26.30
          ROUTED TO
+                        155160     6996.  12.83     1672.     506.     212.    26.30
          HYDROGRAPH AT
+                          S160     1342.  12.17      124.      31.      10.     1.14
          2 COMBINED AT
+                          C160     7077.  12.83     1771.     531.     220.    27.44
          ROUTED TO
+                        160170     6939.  13.00     1761.     529.     220.    27.44
          HYDROGRAPH AT
+                          S170     1802.  12.17      169.      42.      14.     1.46
          ROUTED TO
+                          170R     1638.  12.33      169.      42.      14.     1.46
          2 COMBINED AT
+                         C170R     7194.  13.00     1898.     563.     231.    28.90
          ROUTED TO
+                        170180     7084.  13.17     1886.     562.     231.    28.90
          HYDROGRAPH AT
+                          S150      729.  12.33      107.      29.      10.      .77
          ROUTED TO
+                         RR150       89.  13.50       75.      28.      10.      .77
          ROUTED TO
+                        150165       88.  13.75       75.      28.      10.      .77
          HYDROGRAPH AT
+                          S165      842.  12.17       78.      20.       7.      .62
          2 COMBINED AT
+                          C165      845.  12.17      145.      48.      16.     1.39
          ROUTED TO
+                         RR165       91.  13.50       89.      48.      16.     1.39
          ROUTED TO
+                        165175       91.  15.58       87.      48.      16.     1.39
          HYDROGRAPH AT
+                          S175     1278.  12.50      217.      55.      18.     1.80
          2 COMBINED AT
+                          C175     1270.  12.50      269.     101.      34.     3.19
          ROUTED TO
+                          175R     1191.  12.67      266.     101.      34.     3.19
          HYDROGRAPH AT
+                          S180     1039.  12.50      171.      44.      15.     1.44
          ROUTED TO
+                          180R      744.  12.83      170.      44.      15.     1.44
          2 COMBINED AT
+                        C180RI     1826.  12.67      430.     143.      48.     4.63
          ROUTED TO
+                        RI180R     1730.  12.83      424.     143.      48.     4.63
          2 COMBINED AT
+                         C180R     8253.  13.08     2241.     682.     271.    33.54
          ROUTED TO
+                        180185     8228.  13.25     2233.     680.     271.    33.54
          HYDROGRAPH AT
+                          S185     1655.  12.50      288.      73.      24.     2.42
          ROUTED TO
+                          185R     1411.  12.92      287.      73.      24.     2.42
          2 COMBINED AT
```

```
+                    C185R     9205.   13.17      2462.      739.      290.     35.96

     ROUTED TO
+                   185190     9180.   13.25      2457.      738.      290.     35.96

     HYDROGRAPH AT
+                     S190     2590.   12.58       448.      112.       37.      4.05

     2 COMBINED AT
+                     C190     9989.   13.17      2802.      828.      320.     39.24

     ROUTED TO
+                   190195     9846.   13.33      2794.      827.      320.     39.24

     HYDROGRAPH AT
+                     S195     1039.   12.67       202.       51.       17.      1.81

     2 COMBINED AT
+                     C195    10203.   13.25      2948.      866.      333.     41.05
1                 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    RR102
                (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

PLAN  1 ..............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION        1550.00           1556.00          1556.00
                          STORAGE              553.             2705.            2705.
                          OUTFLOW                0.              600.             600.

                RATIO    MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                  OF     RESERVOIR   DEPTH      STORAGE    OUTFLOW    OVER TOP    MAX OUTFLOW FAILURE
                 PMF     W.S.ELEV    OVER DAM   AC-FT      CFS        HOURS       HOURS       HOURS

                1.00     1552.28       .00      1258.      171.        .00        14.42        .00

PLAN  2 ..............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION        1550.00           1556.00          1556.00
                          STORAGE              553.             2705.            2705.
                          OUTFLOW                0.              600.             600.

                RATIO    MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                  OF     RESERVOIR   DEPTH      STORAGE    OUTFLOW    OVER TOP    MAX OUTFLOW FAILURE
                 PMF     W.S.ELEV    OVER DAM   AC-FT      CFS        HOURS       HOURS       HOURS

                1.00     1552.14       .00      1204.      150.        .00        14.42        .00

PLAN  3 ..............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION        1550.00           1556.00          1556.00
                          STORAGE              553.             2705.            2705.
                          OUTFLOW                0.              600.             600.

                RATIO    MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                  OF     RESERVOIR   DEPTH      STORAGE    OUTFLOW    OVER TOP    MAX OUTFLOW FAILURE
                 PMF     W.S.ELEV    OVER DAM   AC-FT      CFS        HOURS       HOURS       HOURS

                1.00     1552.00       .00      1149.      128.        .00        14.50        .00

PLAN  4 ..............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION        1550.00           1556.00          1556.00
                          STORAGE              553.             2705.            2705.
                          OUTFLOW                0.              600.             600.

                RATIO    MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                  OF     RESERVOIR   DEPTH      STORAGE    OUTFLOW    OVER TOP    MAX OUTFLOW FAILURE
                 PMF     W.S.ELEV    OVER DAM   AC-FT      CFS        HOURS       HOURS       HOURS

                1.00     1551.89       .00      1115.      121.        .00        14.50        .00

PLAN  5 ..............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                          ELEVATION        1550.00           1556.00          1556.00
                          STORAGE              553.             2705.            2705.
                          OUTFLOW                0.              600.             600.

                RATIO    MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                  OF     RESERVOIR   DEPTH      STORAGE    OUTFLOW    OVER TOP    MAX OUTFLOW FAILURE
                 PMF     W.S.ELEV    OVER DAM   AC-FT      CFS        HOURS       HOURS       HOURS

                1.00     1551.82       .00      1095.      117.        .00        14.50        .00

*** NORMAL END OF HEC-1 ***
```

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN  1998               *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   19APR06  TIME  16:47:07  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

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

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID    HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
  2           ID      - WAGNER SUB-AREA
  3           ID      - ALTERNATIVE B43
  4           ID
  5           ID   Alternative Description
  6           ID   The purpose of Alternative B is to capture the upstream flow at the
  7           ID   apex using online detention basins.  The presence of the detention basins
  8           ID   eliminates the downstream alluvial fan uncertainties by controlling the
  9           ID   flow from the apices to the outfall.  Alternative B4-3 is based on using a
 10           ID   relatively larger on-line detention basin at the apex accompanied by smaller
 11           ID   leveed channel sections in the down fan direction.  It is the third of three
 12           ID   corridor alignments considered as part of the Alternative B4 series.
 13           ID
 14           ID
 15           ID   SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
 16           ID   JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
 17           ID   MODELER: TED LEHMAN
 18           ID   FILENAME: A4_EX6.DAT
 19           ID
 20           ID   100-YEAR 6-HOUR MODEL
 21           ID   EXISTING CONDITIONS
 22           ID   AREA 4 WATERSHED AREA = 90.5 SQ. MILES
 23           ID            MODELED AREA = 76.8 SQ. MILES
 24           ID
 25           ID   GREEN-AMPT LOSS METHOD
 26           ID   S-GRAPH UNIT HYDROGRAPHS
 27           ID     - MOUNTAIN
 28           ID     - DESERT/RANGELAND
 29           ID   NORMAL-DEPTH CHANNEL ROUTING
 30           ID   LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
 31           ID     - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
 32           ID     - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
 33           ID     - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
 34           ID   SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)
 35           IT       5  1JAN99    1200    2000
 36           IN      15
 37           IO       5
              *DIAGRAM
              *
 38           JD   3.196  0.1000
 39           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
 40           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
 41           PC   0.962   0.972   0.983   0.991   1.000
 42           JD   3.181  0.5000
 43           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
 44           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
 45           PC   0.962   0.972   0.983   0.991   1.000
 46           JD   3.120     2.8
 47           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
 48           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
 49           PC   0.950   0.963   0.975   0.988   1.000
 50           JD   2.950    16.0
 51           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
 52           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
 53           PC   0.946   0.960   0.973   0.987   1.000
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  54          JD   2.592    90.0
  55          PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
  56          PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
  57          PC   0.927   0.945   0.964   0.982   1.000
              *

  58          KK    S100   BASIN
  59          KM        Compute runoff from subbasin 100
  60          BA   6.994
  61          LG    0.35    0.38    6.40    0.16       0
  62          UI     449     455     964    1717    2422    3046    3616    4050    4275    4281
  63          UI    4178    3867    3211    2766    2319    1968    1698    1387    1198     990
  64          UI     848     715     635     476     471     313     309     309     204     110
  65          UI     109     111     110     109     111     109     110     111       0       0
              *

  66          KK    S102   BASIN
  67          KM        Compute runoff from subbasin 102
  68          BA   3.234
  69          LG    0.35    0.38    5.60    0.22       0
  70          UI     333     657    1539    2292    2943    3178    3083    2643    1985    1523
  71          UI    1179     890     674     542     377     300     232     193      81      82
  72          UI      81      81      83       0       0       0       0       0       0       0
              *

  73          KK    C102 COMBINE
  74          KM        Combine total inflow to detention area behind (north) of CAP Canal
  75          HC       2
              *

  76          KK   RR102 STORAGE
  77          KM        Route flows through storage area behind CAP Canal
  78          KM        Stage-storage-discharge data from Wagner Wash FDS Hydrology (1991)
  79          KO
  80          RS       1    STOR      -1
  81          SV           553.00 1148.00 2316.00 2705.00
  82          SQ                  128.00  587.00  600.00
  83          SE  1543.0 1550.00 1552.00 1555.00 1556.00
  84          ST  1556.0  1320.0     3.2     1.5
              *

  85          KK    D102  DIVERT
  86          KM        Divide flow evenly over the two 18-foot wide CAP overchutes
  87          KM        although the inverts are 0.5 feet different in elevation
  88          DT    CF02     0.0     0.0
  89          DI     0.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0     0.0
  90          DQ     0.0    50.0   500.0  5000.0     0.0     0.0     0.0     0.0     0.0     0.0
              *

  91          KK  100105   ROUTE
  92          KM        Route outflows from east CAP overchute to Sun Valley Parkway.
  93          RS       9    FLOW      -1
  94          RC   0.035   0.055   0.035   11235  0.0045  105.00
  95          RX    0.00  120.00  240.00  250.00  590.00  600.00  720.00  840.00
  96          RY  105.00  102.50  100.00  100.00  100.00  100.00  102.50  105.00
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  97          KK    S105   BASIN
  98          KM        Compute runoff from subbasin 105
  99          BA   4.370
 100          LG    0.35    0.35    4.80    0.30       0
 101          UI     345     380    1112    1723    2334    2867    3143    3344    3176    2865
 102          UI    2374    1903    1555    1291    1018     832     685     564     458     369
 103          UI     288     235     238     126      83      85      84      84      84      84
 104          UI      84       0       0       0       0       0       0       0       0       0
              *

 105          KK    CF02RETRIEVE
 106          KM        Retrieve flow from west CAP overchute.
 107          DR    CF02
              *

 108          KK  102105   ROUTE
 109          KM        Route retrieved flow from west overchute to C105.
 110          RS       6    FLOW      -1
 111          RC   0.045   0.050   0.045    7656  0.0065  104.00
 112          RX    0.00   40.00  120.00  130.00  250.00  260.00  340.00  380.00
 113          RY  104.00  102.00  101.00  100.00  100.00  101.00  102.00  104.00
              *

 114          KK   C105U COMBINE
 115          KM        Combine runoff from S105 with routed flow from 100105 and 102105
 116          KM        (CAP overchute flows). This is the total flow in Wagner Wash upstream
 117          KM        of Sun Valley Parkway.
 118          HC       3  14.598
              *

 119          KK    S110   BASIN
 120          KM        Compute runoff from subbasin 110
```

```
121          BA   0.430
122          LG    0.25    0.37    5.20    0.25       6
123          UI      56     166     335     449     587     358     291     241     188     140
124          UI     121      86      68      56      43      32      27      22      11      11
125          UI      10      11      11       0       0       0       0       0       0       0
             *

126          KK  11015I   ROUTE
127          KM        Route flow from C105 through subbasin 110 to C115.
128          RS       2    FLOW      -1
129          RC   0.045   0.035   0.045    3783  0.0267  102.00
130          RX    0.00   50.00  100.00  110.00  120.00  130.00  180.00  230.00
131          RY  102.00  101.50  101.00  100.00  100.00  101.00  101.50  102.00
             *

132          KK  15I15R   ROUTE
133          KM        Route flows from split through S115 to C115.
134          RS       8    FLOW      -1
135          RC   0.035   0.030   0.035   14128  0.0151  105.00
136          RX    0.00   25.00   58.00   65.00   85.00   92.00  125.00  150.00
137          RY  105.00  102.50  102.00  100.00  100.00  102.00  102.50  105.00
             *
1                                        HEC-1 INPUT                                          PAGE  4

        LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

138          KK    S115   BASIN
139          KM        Compute runoff from subbasin 115
140          BA   2.247
141          LG    0.32    0.35    4.80    0.30       2
142          UI     160     163     434     709     984    1212    1401    1530    1539    1465
143          UI    1351    1100     918     773     632     528     444     351     304     252
144          UI     203     170     140     110     110      85      39      39      40      39
145          UI      39      39      40      39       0       0       0       0       0       0
             *

146          KK    C115 COMBINE
147          KM        Combine runoff from S115 with routed flow.
148          HC       2   2.677
             *

149          KK  115120   ROUTE
150          KM        Route total flows from C115 to C120. Slope =(1532-1494) / 4077
151          RS       2    FLOW      -1
152          RC   0.030   0.025   0.030    4077  0.0093  105.00
153          RX    0.00   30.00   75.00   80.00  105.00  110.00  155.00  190.00
154          RY  105.00  101.50  101.00  100.00  100.00  101.00  101.50  105.00
             *

155          KK    S120   BASIN
156          KM        Compute runoff from subbasin 120
157          BA   2.004
158          LG    0.33    0.35    4.65    0.32       1
159          UI     206     408     954    1419    1824    1969    1911    1637    1230     944
160          UI     731     551     418     336     234     186     143     120      50      51
161          UI      50      51      51       0       0       0       0       0       0       0
             *

162          KK    C120 COMBINE
163          KM        Combine flows at Wagner Wash at outlet of channel along SVP
164          HC       2   4.681
             *

165          KK   C105D COMBINE
166          KM        Combine flows from C105 and C120 just D/S of Sun Valley Parkway
167          HC       2  19.279
             *

168          KK  120135   ROUTE
169          KM        Route flows in Wagner Wash from Sun Valley Parkway to C135.
170          RS       1    FLOW      -1
171          RC   0.045   0.035   0.045     951  0.0074  110.00
172          RX    0.00  225.00  450.00  455.00  485.00  490.00  615.00  840.00
173          RY  110.00  105.00  102.00  100.00  100.00  102.00  102.00  110.00
             *
1                                        HEC-1 INPUT                                          PAGE  5

        LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

174          KK    S125   BASIN
175          KM        Compute runoff from subbasin 125
176          BA   0.093
177          LG    0.25    0.35    4.15    0.44       5
178          UI      46     164     204     116      73      46      28      17      12       4
179          UI       5       4       0       0       0       0       0       0       0       0
             *

180          KK   RR125 STORAGE
181          KM   PROPOSED DETENTION BASIN
182          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13E
183          KM    STRUCTURE ID:RR125
184          KM    DIMENSIONS: L=300ft, W=200ft, D=6ft, Sideslope (?H:1V)= 3,  Vol.= 5.2 ac-ft
185          RS       1    STOR       0
```

```
186          SV     0.0     0.5     0.9     1.9     3.0     4.1     5.2     6.5     7.8     9.1
187          SE     0.0     0.5     1.0     2.0     3.0     4.0     5.0     6.0     7.0     8.0
188          SQ     0.0    10.7    15.1    21.4    26.2    30.3    33.8    37.1    40.0    42.8
             *

189          KK  12535I   ROUTE
190          KM   PROPOSED CHANNEL
191          KM        Route flows from S125 to intermediate combination point in S135.
192          KM    STRUCTURE ID(s): RR12510
193          KM    Slope=(1746.1 - 1697.0) / 1852.5
194          RS       1    FLOW      -1
195          RC   0.045   0.045   0.045  1852.50.026481   104.0
196          RX     0.0    12.0    12.0    12.0    37.0    37.0    37.0    49.0
197          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

198          KK    S130   BASIN
199          KM        Compute runoff from subbasin 130
200          BA   0.310
201          LG    0.21    0.35    4.20    0.43       4
202          UI      61     239     399     514     313     240     176     128      94      64
203          UI      49      36      26      19      10      10      10      10       0       0
             *

204          KK   RR130 STORAGE
205          KM   PROPOSED DETENTION BASIN
206          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13W
207          KM    STRUCTURE ID:RR130
208          KM    DIMENSIONS: L=600ft, W=290ft, D=7ft, Sideslope (?H:1V)= 3,  Vol.= 19.2 ac-ft
209          RS       1    STOR       0
210          SV     0.0     1.4     2.9     6.0     9.1    12.4    15.7    19.2    22.8    26.5
211          SE     0.0     0.5     1.0     2.0     3.0     4.0     5.0     6.0     7.0     8.0
212          SQ     0.0    16.7    23.6    33.4    40.9    47.3    52.9    57.9    62.5    66.9
             *
```

1 HEC-1 INPUT PAGE 6

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

213          KK  13035I   ROUTE
214          KM   PROPOSED CHANNEL
215          KM        Route flow to intermediate point in S135.
216          KM    STRUCTURE ID(s): RR13010
217          KM    Slope=(1728.2 - 1697.0) / 1235.4
218          RS       1    FLOW      -1
219          RC   0.045   0.045   0.045  1235.4 0.02524   104.0
220          RX     0.0    12.0    12.0    12.0    24.0    24.0    24.0    36.0
221          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

222          KK   C135I COMBINE
223          KM        Combine routed flow from RR130 and RR125
224          HC       2    1.18
             *

225          KK  35I135   ROUTE
226          KM   PROPOSED CHANNEL
227          KM        Route combined flows to C135 at Wagner Wash.
228          KM    STRUCTURE ID(s): C135L10
229          KM    Slope=(1697.0 - 1496.9) / 12096.9
230          RS       8    FLOW      -1
231          RC   0.045   0.045   0.045 12096.90.016546   104.5
232          RX     0.0    13.5    13.5    13.5   213.5   213.5   213.5   227.0
233          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

234          KK    S135   BASIN
235          KM        Compute runoff from subbasin 135
236          BA   0.879
237          LG    0.35    0.35    4.25    0.42       0
238          UI     115     362     709     992    1126     989     736     527     370     260
239          UI     194     128      89      76      28      28      29      28       0       0
             *

240          KK   C135L COMBINE
241          KM        Combine all piedmont runoff inflow to Wagner Wash at C135
242          HC       2    2.06
             *

243          KK    C135 COMBINE
244          KM        Combine all flows in Wagner Wash at C135
245          HC       2
             *

246          KK  135145   ROUTE
247          KM        Route flow in Wagner Wash to C145.  Slope = (1487-1454) / 7938
248          RS       4    FLOW      -1
249          RC   0.045   0.035   0.045    7938  0.0042  110.00
250          RX    0.00  300.00  400.00  406.00  506.00  512.00  612.00  912.00
251          RY  110.00  102.50  102.00  100.00  100.00  102.00  102.50  110.00
             *
```

1 HEC-1 INPUT PAGE 7

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
252          KK    S140   BASIN
253          KM        Compute runoff from subbasin 140
254          BA   1.373
255          LG    0.35    0.36    5.00    0.28       0
256          UI     260    1034    1801    2168    1890    1235     809     517     339     211
257          UI     157      56      55      57       0       0       0       0       0       0
             *

258          KK  140145   ROUTE
259          KM        Route runoff from S140 to C145 at Wagner Wash.
260          RS       3    FLOW      -1
261          RC   0.040   0.050   0.040    3656  0.0074  103.00
262          RX    0.00   70.00  140.00  150.00  250.00  260.00  330.00  400.00
263          RY  102.00  101.00  100.00  100.00  100.00  100.00  101.00  102.00
             *

264          KK    S145   BASIN
265          KM        Compute runoff from subbasin 145
266          BA   1.756
267          LG    0.35    0.35    4.15    0.44       0
268          UI     226     672    1369    1903    2167    2003    1508    1085     777     544
269          UI     399     279     198     157      80      55      56      54      55       0
             *

270          KK    C145 COMBINE
271          KM        Combine all flows in Wagner Wash at C145
272          HC       3
             *

273          KK  145155   ROUTE
274          KM        Route flows in Wagner Wash form C145 to C155. Slope = (1454-1452)/631
275          RS       1    FLOW      -1
276          RC   0.045   0.035   0.055     631  0.0032  110.00
277          RX    0.00  150.00  300.00  309.00  379.00  388.00  538.00  838.00
278          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

279          KK    S150   BASIN
280          KM        Compute runoff from subbasin 150
281          BA   0.774
282          LG    0.25    0.35    4.65    0.32       7
283          UI      71     115     270     425     531     672     746     480     406     356
284          UI     312     262     212     181     159     132     106      89      77      65
285          UI      54      47      35      35      35      14      14      13      14      14
286          UI      13      14      14       0       0       0       0       0       0       0
             *

287          KK   RR150 STORAGE
288          KM   PROPOSED DETENTION BASIN
289          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 3
290          KM    outlet based on assumed 2 ft pipe
291          KM    STRUCTURE ID:RR150
292          KM    DIMENSIONS: L=800ft, W=400ft, D=10ft, Sideslope (?H:1V)= 3,  Vol.= 50.5 ac-f
293          RS       1    STOR       0
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

294          SV     0.0     5.4    16.6    28.4    34.5    40.8    47.2    53.8    60.6    74.6
295          SE     0.0     1.0     3.0     5.0     6.0     7.0     8.0     9.0    10.0    12.0
296          SQ     0.0    34.0    59.0    76.1    83.4    90.0    96.3   102.1   107.6   117.9
             *

297          KK  150155   ROUTE
298          KM   PROPOSED CHANNEL
299          KM    ROUTE OUTFLOW FROM RR150 TO C155
300          KM    STRUCTURE ID(s): C155L10
301          KM    Slope=(1757.2 - 1451.9) / 15737.6
302          RS       3    FLOW      -1
303          RC   0.045   0.045   0.045 15737.60.019403   104.5
304          RX     0.0    13.5    13.5    13.5   343.5   343.5   343.5   357.0
305          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

306          KK    S155   BASIN
307          KM        Compute runoff from subbasin 155
308          BA   1.832
309          LG    0.35    0.35    4.50    0.36       1
310          UI     187     361     846    1266    1637    1771    1735    1497    1161     879
311          UI     681     519     385     314     228     181     130     126      46      46
312          UI      45      46      46      45       0       0       0       0       0       0
             *

313          KK   C155L COMBINE
314          KM    COMBINE RUNOFF FROM S155 WITH ROUTED FLOWS FROM APEX 3
315          HC       2
             *

316          KK    C155 COMBINE
317          KM        Combine all flows at Wagner Wash at C155
318          HC       2
             *

319          KK  155160   ROUTE
```

```
 320          KM        Route flow in Wagner Wash to C160 (Sun Valley Parkway).
 321          RS        5    FLOW      -1
 322          RC    0.035   0.035   0.035    2291  0.0052  110.00
 323          RX     0.00  200.00  400.00  406.00  506.00  512.00  712.00  912.00
 324          RY   110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
              *

 325          KK    S160   BASIN
 326          KM        Compute runoff from subbasin 160
 327          BA    1.144
 328          LG     0.35    0.35    4.00    0.47       0
 329          UI      165     599    1121    1501    1557    1233     844     593     394     281
 330          UI      190     122      93      40      40      40      41       0       0       0
              *
1                                          HEC-1 INPUT                                          PAGE  9

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 331          KK    C160 COMBINE
 332          KM        Combine flows at Sun Valley Parkway
 333          HC        2   27.44
              *

 334          KK   160170   ROUTE
 335          KM        Route flows from Sun Valley Parkway to C170R. Slope = (1440-1410)/5248
 336          RS        3    FLOW      -1
 337          RC    0.040   0.030   0.040    5248  0.0057  108.00
 338          RX     0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
 339          RY   108.00  103.00  102.00  100.00  100.00  102.00  103.00  108.00
              *

 340          KK    S170   BASIN
 341          KM        Compute runoff from subbasin 170
 342          BA    1.464
 343          LG     0.35    0.35    4.40    0.38       0
 344          UI      209     755    1427    1917    1973    1590    1086     762     513     360
 345          UI      246     160     123      52      51      51      52       0       0       0
              *

 346          KK    170R   ROUTE
 347          KM        Route flow from S170 to Wagner Wash.  Slope = (1456-1410) / 3986
 348          RS        3    FLOW      -1
 349          RC    0.045   0.045   0.045    3986  0.0115  104.00
 350          RX     0.00   50.00  100.00  103.00  113.00  116.00  166.00  216.00
 351          RY   103.00  102.00  101.00  100.00  100.00  101.00  102.00  103.00
              *

 352          KK   C170R COMBINE
 353          KM        Combine routed flows from S170 and C160 in Wagner Wash
 354          HC        2
              *

 355          KK   170180   ROUTE
 356          KM        Route flows in Wagner Wash to C180R.  Slope = (1410-1366) / 6770
 357          RS        4    FLOW      -1
 358          RC    0.045   0.035   0.045    6770  0.0065  110.00
 359          RX     0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
 360          RY   110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
              *

 361          KK    S165   BASIN
 362          KM        Compute runoff from subbasin 165
 363          BA    0.616
 364          LG     0.30    0.35    4.55    0.35       3
 365          UI      121     477     809    1022     617     474     347     254     185     127
 366          UI       96      69      52      36      20      20      20      20       0       0
              *
1                                          HEC-1 INPUT                                          PAGE 10

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 367          KK   RR165 STORAGE
 368          KM   PROPOSED DETENTION BASIN
 369          KM    ROUTE RUNOFF FROM S165 THROUGH PROPOSED DETENTION BASIN
 370          KM    outlet based on assumed 2 ft pipe
 371          KM    STRUCTURE ID:RR165
 372          KM    DIMENSIONS: L=800ft, W=300ft, D=10ft, Sideslope (?H:1V)= 3,  Vol.= 39.2 ac-f
 373          RS        1    STOR       0
 374          SV      0.0     3.8    11.8    20.4    24.9    29.5    34.3    39.2    49.5    60.4
 375          SE      0.0     1.0     3.0     5.0     6.0     7.0     8.0     9.0    11.0    13.0
 376          SQ      0.0    34.0    59.0    76.1    83.4    90.0    96.3   102.1   112.9   122.7
              *

 377          KK  165175   ROUTE
 378          KM   PROPOSED CHANNEL
 379          KM    ROUTE OUTFLOW FROM RR165 TO SUN VALLEY PARKWAY IN NEW CHANNEL THRU S175
 380          KM    STRUCTURE ID(s): C17510A, C17510B
 381          KM    Slope=(1674.9 - 1462.9) / 13245.4
 382          RS        8    FLOW      -1
 383          RC    0.045   0.045   0.045 13245.40.016012   104.5
 384          RX      0.0    13.5    13.5    13.5   213.5   213.5   213.5   227.0
 385          RY    104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
              *
```

```
386          KK   S175   BASIN
387          KM        Compute runoff from subbasin 175
388          BA   1.802
389          LG    0.29    0.35    4.50    0.36       1
390          UI     126     127     317     525     763     877    1013    1295    1376     895
391          UI     771     703     622     572     507     439     372     318     296     274
392          UI     227     192     163     148     138     116      96      97      73      62
393          UI      62      63      55      24      25      24      24      24      24      25
394          UI      24      24      24      25       0       0       0       0       0       0
             *

395          KK    C175 COMBINE
396          KM    COMBINE RUNOFF FROM S175 WITH ROUTED FLOW FROM C165
397          HC       2
             *

398          KK    175R   ROUTE
399          KM   PROPOSED CHANNEL
400          KM        Route runoff from S175 to intermediate point in S190 (C180RI).
401          KM    STRUCTURE ID(s): RR17510
402          KM    Slope=(1462.9 - 1413.1) / 3035.2
403          RS       2    FLOW      -1
404          RC   0.045   0.045   0.045  3035.20.016393   104.5
405          RX     0.0    13.5    13.5    13.5   293.5   293.5   293.5   307.0
406          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *
1                                          HEC-1 INPUT                                          PAGE 11

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

407          KK    S180   BASIN
408          KM        Compute runoff from subbasin 180
409          BA   1.443
410          LG    0.25    0.35    4.25    0.42       2
411          UI     107     108     311     490     677     785     927    1258     896     684
412          UI     622     547     497     440     379     315     275     250     228     185
413          UI     154     138     120     115      82      83      73      52      53      52
414          UI      50      21      20      21      20      21      21      20      21      21
415          UI      20       0       0       0       0       0       0       0       0       0
             *

416          KK    180R   ROUTE
417          KM   PROPOSED CHANNEL
418          KM        Route runoff from S180 to intermediate point in S190 (C180RI).
419          KM    STRUCTURE ID(s): S18010, RR18010
420          KM    Slope=(1531.6 - 1413.1) / 7990.1
421          RS       2    FLOW      -1
422          RC   0.045   0.045   0.045  7990.1 0.01483   104.5
423          RX     0.0    13.5    13.5    13.5   193.5   193.5   193.5   207.0
424          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

425          KK  C180RI COMBINE
426          KM        Combine routed flows from S175 and S180
427          HC       2
             *

428          KK  RI180R   ROUTE
429          KM   PROPOSED CHANNEL
430          KM    STRUCTURE ID(s): C180R10
431          KM    Slope=(1413.1 - 1367.6) / 3720.6
432          RS       3    FLOW      -1
433          RC   0.045   0.045   0.045  3720.60.012229   104.5
434          RX     0.0    13.5    13.5    13.5   373.5   373.5   373.5   387.0
435          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

436          KK   C180R COMBINE
437          KM        Combine flows in Wagner Wash
438          HC       2
             *

439          KK  180185   ROUTE
440          KM        Route flows in Wagner Wash from C180R to C185R.
441          RS       3    FLOW      -1
442          RC   0.045   0.035   0.045    3450  0.0075  106.00
443          RX    0.00  100.00  200.00  206.00  406.00  412.00  512.00  612.00
444          RY  106.00  104.00  102.00  100.00  100.00  102.00  104.00  106.00
             *
1                                          HEC-1 INPUT                                          PAGE 12

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

445          KK    S185   BASIN
446          KM        Compute runoff from subbasin 185
447          BA   2.421
448          LG    0.16    0.35    4.35    0.40       1
449          UI     165     166     391     668     960    1130    1281    1613    1908    1239
450          UI    1060     936     847     785     677     614     534     438     399     375
451          UI     338     271     230     210     183     183     133     126     127      85
452          UI      80      82      81      67      32      31      32      32      31      32
453          UI      32      31      32      32      32       0       0       0       0       0
```

```
                *
454             KK    185R   ROUTE
455             KM        Route runoff from S185 to Wagner Wash.  Slope = (1442-1340) / 8534
456             RS       5    FLOW      -1
457             RC   0.045   0.035   0.045    8534  0.0120  104.00
458             RX    0.00   30.00  100.00  106.00  156.00  162.00  232.00  262.00
459             RY  104.00  102.00  102.00  100.00  100.00  102.00  102.00  104.00
                *

460             KK   C185R COMBINE
461             KM        Combine flows in Wagner Wash
462             HC       2
                *

463             KK  185190   ROUTE
464             KM        Route flow in Wagner Wash to C190.  Slope = (1340-1308) / 2700
465             RS       2    FLOW      -1
466             RC   0.045   0.040   0.045    2700  0.0119  106.00
467             RX    0.00   80.00  160.00  166.00  416.00  422.00  502.00  582.00
468             RY  106.00  103.00  102.00  100.00  100.00  102.00  103.00  106.00
                *

469             KK    S190   BASIN
470             KM        Compute runoff from subbasin 190
471             BA   4.054
472             LG    0.35    0.35    3.81    0.44       0
473             UI     274     278     647    1125    1573    1918    2319    2540    2637    2574
474             UI    2467    2112    1787    1506    1256    1044     891     745     605     522
475             UI     432     370     293     266     188     191     188      78      68      66
476             UI      67      67      67      67      67      67       0       0       0       0
                *

477             KK    C190 COMBINE
478             KM        Combine all flow in Wagner Wash at C190
479             HC       2   39.24
                *

480             KK  190195   ROUTE
481             KM        Route flow from C190 to the Hassayampa River. Slope = (1308-1255)/4941
482             RS       2    FLOW      -1
483             RC   0.045   0.035   0.045    4941  0.0107  110.00
484             RX    0.00   50.00  200.00  206.00  356.00  366.00  516.00  566.00
485             RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
                *
1                                                HEC-1 INPUT                                                PAGE 13

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

486             KK    S195   BASIN
487             KM        Compute runoff from subbasin 195
488             BA   1.808
489             LG    0.33    0.35    4.25    0.42       0
490             UI     107     108     188     366     523     660     786     925     975    1026
491             UI    1044     975     915     778     674     571     496     419     359     313
492             UI     260     223     202     165     146     115     114      76      74      74
493             UI      67      27      26      26      26      26      26      27      26      26
494             UI      27       0       0       0       0       0       0       0       0       0
                *

495             KK    C195 COMBINE
496             KM        Combine all flows in Wagner Wash at the Hassayampa River
497             HC       2   41.05
498             ZZ
1
          SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

  58        S100
              .
              .
  66          .        S102
              .           .
              .           .
  73      C102............
             V
             V
  76     RR102
              .
              .
  88          .-------->    CF02
  85      D102
             V
             V
  91    100105
              .
              .
  97          .        S105
              .           .
              .           .
 107          .           .          .<-------    CF02
```

```
105          .           .        CF02
             .           .           V
             .           .           V
108          .           .      102105
             .           .           .
             .           .           .
114      C105U.......................
             .
             .
119          .        S110
             .           V
             .           V
126          .      11015I
             .           V
             .           V
132          .      15I15R
             .           .
             .           .
138          .           .        S115
             .           .           .
             .           .           .
146          .        C115............
             .           V
             .           V
149          .      115120
             .           .
             .           .
155          .           .        S120
             .           .           .
             .           .           .
162          .        C120............
             .           .
             .           .
165      C105D............
             V
             V
168     120135
             .
             .
174          .        S125
             .           V
             .           V
180          .       RR125
             .           V
             .           V
189          .      12535I
             .           .
             .           .
198          .           .        S130
             .           .           V
             .           .           V
204          .           .       RR130
             .           .           V
             .           .           V
213          .           .      13035I
             .           .           .
             .           .           .
222          .       C135I............
             .           V
             .           V
225          .      35I135
             .           .
             .           .
234          .           .        S135
             .           .           .
             .           .           .
240          .       C135L............
             .           .
             .           .
243       C135............
             V
             V
246     135145
             .
             .
252          .        S140
             .           V
             .           V
258          .      140145
             .           .
             .           .
264          .           .        S145
             .           .           .
             .           .           .
270       C145.......................
             V
             V
273     145155
             .
             .
279          .        S150
             .           V
             .           V
287          .       RR150
             .           V
```

```
                .          V
297             .     150155
                .          .
                .          .
306             .          .       S155
                .          .          .
                .          .          .
313             .      C155L............
                .          .
                .          .
316         C155............
                V
                V
319       155160
                .
                .
325             .       S160
                .          .
                .          .
331         C160............
                V
                V
334       160170
                .
                .
340             .       S170
                .          V
                .          V
346             .       170R
                .          .
                .          .
352        C170R............
                V
                V
355       170180
                .
                .
361             .       S165
                .          V
                .          V
367             .      RR165
                .          V
                .          V
377             .     165175
                .          .
                .          .
386             .          .       S175
                .          .          .
                .          .          .
395             .       C175............
                .          V
                .          V
398             .       175R
                .          .
                .          .
407             .          .       S180
                .          .          V
                .          .          V
416             .          .       180R
                .          .          .
                .          .          .
425             .     C180RI............
                .          V
                .          V
428             .     RI180R
                .          .
                .          .
436        C180R............
                V
                V
439       180185
                .
                .
445             .       S185
                .          V
                .          V
454             .       185R
                .          .
                .          .
460        C185R............
                V
                V
463       185190
                .
                .
469             .       S190
                .          .
                .          .
477         C190............
                V
                V
480       190195
                .
                .
486             .       S195
```

```
                .          .
                .          .
  495        C195...........

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                    ****************************************
 *                                      *                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                    *          609 SECOND STREET           *
 *                                      *                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   19APR06  TIME  16:47:07  *                                    *           (916) 756-1104             *
 *                                      *                                    *                                      *
 ****************************************                                    ****************************************
```

HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
- WAGNER SUB-AREA
- ALTERNATIVE B43

Alternative Description
The purpose of Alternative B is to capture the upstream flow at the apex using online detention basins. The presence of the detention basins eliminates the downstream alluvial fan uncertainties by controlling the flow from the apices to the outfall. Alternative B4-3 is based on using a relatively larger on-line detention basin at the apex accompanied by smaller leveed channel sections in the down fan direction. It is the third of three corridor alignments considered as part of the Alternative B4 series.

SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
MODELER: TED LEHMAN
FILENAME: A4_EX6.DAT

100-YEAR 6-HOUR MODEL
EXISTING CONDITIONS
AREA 4 WATERSHED AREA = 90.5 SQ. MILES
MODELED AREA = 76.8 SQ. MILES

GREEN-AMPT LOSS METHOD
S-GRAPH UNIT HYDROGRAPHS
- MOUNTAIN
- DESERT/RANGELAND
NORMAL-DEPTH CHANNEL ROUTING
LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
- UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
- HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
- MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)

```
 37 IO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN           5  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1JAN99  STARTING DATE
                      ITIME        1200  STARTING TIME
                         NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      8JAN99  ENDING DATE
                     NDTIME        1035  ENDING TIME
                      ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE  166.58 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT

 38 JD          INDEX STORM NO. 1
                       STRM        3.20  PRECIPITATION DEPTH
                       TRDA         .10  TRANSPOSITION DRAINAGE AREA

 39 PI            PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                      .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                      .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00

 42 JD          INDEX STORM NO. 2
```

```
                    STRM        3.18  PRECIPITATION DEPTH
                    TRDA         .50  TRANSPOSITION DRAINAGE AREA

43 PI          PRECIPITATION PATTERN
                 .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                 .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                 .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                 .00     .00     .00     .01     .01     .01     .01     .01     .01     .03
                 .03     .03     .05     .05     .05     .15     .15     .15     .03     .03
                 .03     .01     .01     .01     .01     .01     .01     .00     .00     .00
                 .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                 .00     .00

46 JD         INDEX STORM NO. 3
                    STRM        3.12  PRECIPITATION DEPTH
                    TRDA        2.80  TRANSPOSITION DRAINAGE AREA

47 PI          PRECIPITATION PATTERN
                 .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                 .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                 .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                 .00     .00     .00     .01     .01     .01     .01     .01     .01     .03
                 .03     .03     .07     .07     .07     .08     .08     .08     .05     .05
                 .05     .02     .02     .02     .01     .01     .01     .00     .00     .00
                 .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                 .00     .00

50 JD         INDEX STORM NO. 4
                    STRM        2.95  PRECIPITATION DEPTH
                    TRDA       16.00  TRANSPOSITION DRAINAGE AREA

51 PI          PRECIPITATION PATTERN
                 .01     .01     .00     .00     .00     .00     .00     .00     .00     .01
                 .01     .01     .00     .01     .00     .00     .00     .00     .00     .00
                 .00     .00     .01     .00     .00     .00     .00     .01     .01     .01
                 .01     .01     .01     .01     .01     .01     .02     .02     .02     .03
                 .03     .03     .06     .06     .06     .07     .07     .07     .04     .04
                 .04     .02     .02     .02     .01     .01     .01     .01     .01     .01
                 .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                 .00     .00

54 JD         INDEX STORM NO. 5
                    STRM        2.59  PRECIPITATION DEPTH
                    TRDA       90.00  TRANSPOSITION DRAINAGE AREA

55 PI          PRECIPITATION PATTERN
                 .01     .01     .01     .00     .00     .00     .01     .01     .01     .01
                 .01     .01     .01     .01     .01     .01     .01     .01     .01     .01
                 .01     .01     .01     .01     .01     .01     .01     .01     .01     .01
                 .01     .01     .01     .01     .01     .01     .02     .02     .02     .03
                 .03     .03     .05     .05     .05     .05     .05     .05     .04     .04
                 .04     .02     .02     .02     .02     .02     .02     .01     .01     .01
                 .01     .01     .01     .01     .01     .01     .01     .01     .01     .01
                 .01     .01

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
76 KK     *     RR102  *      STORAGE
          *            *
          **************

79 KO         OUTPUT CONTROL VARIABLES
                    IPRNT           5  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
1
                                   RUNOFF SUMMARY
                              FLOW IN CUBIC FEET PER SECOND
                           TIME IN HOURS,  AREA IN SQUARE MILES

                                  PEAK   TIME OF    AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN    MAXIMUM    TIME OF
        OPERATION        STATION  FLOW    PEAK                                          AREA     STAGE    MAX STAGE
+                                                     6-HOUR     24-HOUR     72-HOUR

        HYDROGRAPH AT
+                          S100   4347.   4.67         899.        225.         75.     6.99

        HYDROGRAPH AT
+                          S102   2790.   4.33         417.        104.         35.     3.23

        2 COMBINED AT
+                          C102   5993.   4.50        1198.        300.        100.    10.23

        ROUTED TO
+                         RR102    127.   6.75         122.        104.         72.    10.23

        DIVERSION TO
+                          CF02     63.   6.75          61.         52.         36.    10.23

        HYDROGRAPH AT
```

+		D102	63.	6.75	61.	52.	36.	10.23
+	ROUTED TO	100105	59.	12.58	58.	51.	36.	10.23
+	HYDROGRAPH AT	S105	2863.	4.50	495.	124.	41.	4.37
+	HYDROGRAPH AT	CF02	63.	6.75	61.	52.	36.	10.23
+	ROUTED TO	102105	63.	8.00	60.	51.	36.	10.23
+	3 COMBINED AT	C105U	2863.	4.50	549.	226.	120.	14.60
+	HYDROGRAPH AT	S110	662.	4.25	76.	19.	6.	.43
+	ROUTED TO	11015I	570.	4.42	76.	19.	6.	.43
+	ROUTED TO	15I15R	506.	4.83	76.	19.	6.	.43
+	HYDROGRAPH AT	S115	1605.	4.58	296.	74.	25.	2.25
+	2 COMBINED AT	C115	1813.	4.67	350.	88.	29.	2.68
+	ROUTED TO	115120	1781.	4.75	350.	88.	29.	2.68
+	HYDROGRAPH AT	S120	1838.	4.33	256.	64.	21.	2.00
+	2 COMBINED AT	C120	2678.	4.58	545.	137.	46.	4.68
+	2 COMBINED AT	C105D	4029.	4.50	821.	275.	127.	19.28
+	ROUTED TO	120135	4027.	4.58	821.	275.	127.	19.28
+	HYDROGRAPH AT	S125	202.	4.08	14.	4.	1.	.09
+	ROUTED TO	RR125	33.	4.42	14.	4.	1.	.09
+	ROUTED TO	12535I	33.	4.67	14.	4.	1.	.09
+	HYDROGRAPH AT	S130	524.	4.17	48.	12.	4.	.31
+	ROUTED TO	RR130	57.	4.83	42.	12.	4.	.31
+	ROUTED TO	13035I	57.	4.83	42.	12.	4.	.31
+	2 COMBINED AT	C135I	83.	4.75	50.	14.	5.	1.18
+	ROUTED TO	35I135	69.	7.33	47.	14.	5.	1.18
+	HYDROGRAPH AT	S135	1102.	4.25	111.	28.	9.	.88
+	2 COMBINED AT	C135L	829.	4.25	132.	36.	12.	2.06
+	2 COMBINED AT	C135	4170.	4.50	876.	288.	131.	21.34
+	ROUTED TO	135145	3746.	5.00	864.	286.	131.	21.34
+	HYDROGRAPH AT	S140	1913.	4.17	188.	47.	16.	1.37
+	ROUTED TO	140145	1623.	4.42	188.	47.	16.	1.37
+	HYDROGRAPH AT	S145	1702.	4.25	193.	48.	16.	1.76
+	3 COMBINED AT	C145	4071.	4.92	1030.	325.	143.	24.47

+	ROUTED TO	145155	4071.	4.92	1029.	325.	143.	24.47
+	HYDROGRAPH AT	S150	836.	4.33	126.	31.	10.	.77
+	ROUTED TO	RR150	97.	5.50	83.	31.	10.	.77
+	ROUTED TO	150155	83.	9.17	75.	31.	10.	.77
+	HYDROGRAPH AT	S155	1626.	4.33	223.	56.	19.	1.83
+	2 COMBINED AT	C155L	1457.	4.33	252.	79.	26.	2.61
+	2 COMBINED AT	C155	4266.	4.83	1152.	363.	155.	27.07
+	ROUTED TO	155160	4256.	4.92	1150.	363.	155.	27.07
+	HYDROGRAPH AT	S160	1347.	4.25	133.	33.	11.	1.14
+	2 COMBINED AT	C160	4292.	4.92	1199.	375.	159.	27.44
+	ROUTED TO	160170	4202.	5.17	1189.	374.	159.	27.44
+	HYDROGRAPH AT	S170	1686.	4.25	178.	44.	15.	1.46
+	ROUTED TO	170R	1544.	4.42	178.	44.	15.	1.46
+	2 COMBINED AT	C170R	4319.	5.08	1253.	390.	163.	28.90
+	ROUTED TO	170180	4229.	5.33	1241.	388.	163.	28.90
+	HYDROGRAPH AT	S165	1008.	4.17	94.	23.	8.	.62
+	ROUTED TO	RR165	100.	4.83	77.	23.	8.	.62
+	ROUTED TO	165175	90.	6.92	72.	23.	8.	.62
+	HYDROGRAPH AT	S175	1203.	4.50	226.	56.	19.	1.80
+	2 COMBINED AT	C175	1104.	4.50	260.	73.	24.	2.42
+	ROUTED TO	175R	1065.	4.67	257.	73.	24.	2.42
+	HYDROGRAPH AT	S180	1032.	4.50	181.	45.	15.	1.44
+	ROUTED TO	180R	775.	4.83	180.	45.	15.	1.44
+	2 COMBINED AT	C180RI	1507.	4.75	389.	106.	35.	3.86
+	ROUTED TO	RI180R	1456.	4.92	385.	106.	35.	3.86
+	2 COMBINED AT	C180R	4731.	5.25	1417.	434.	177.	32.76
+	ROUTED TO	180185	4720.	5.42	1410.	433.	177.	32.76
+	HYDROGRAPH AT	S185	1450.	4.50	288.	72.	24.	2.42
+	ROUTED TO	185R	1302.	4.92	288.	72.	24.	2.42
+	2 COMBINED AT	C185R	5055.	5.25	1515.	459.	185.	35.19
+	ROUTED TO	185190	5038.	5.33	1511.	459.	185.	35.19
+	HYDROGRAPH AT	S190	2084.	4.58	391.	98.	33.	4.05

```
        2 COMBINED AT
+                       C190      5200.    5.25        1622.        488.        194.      39.24

        ROUTED TO
+                      190195     5096.    5.50        1615.        487.        194.      39.24

        HYDROGRAPH AT
+                       S195      1001.    4.67         203.         51.         17.       1.81

        2 COMBINED AT
+                       C195      5147.    5.50        1664.        500.        198.      41.05
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    RR102
                        (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)
```

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.61	.00	1386.	222.	.00	6.33	.00

PLAN 2 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.59	.00	1380.	219.	.00	6.33	.00

PLAN 3 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.23	.00	1236.	163.	.00	6.58	.00

PLAN 4 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1551.78	.00	1083.	114.	.00	6.75	.00

PLAN 5 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1551.06	.00	868.	68.	.00	6.75	.00

*** NORMAL END OF HEC-1 ***

```
1*************************************
 *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *              JUN   1998           *
 *            VERSION 4.1            *
 *                                   *
 *  RUN DATE   19APR06  TIME  16:47:08   *
 *                                   *
 *************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 756-1104          *
*                                   *
*************************************
```

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

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID    HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
  2           ID     - WAGNER SUB-AREA
  3           ID     - ALTERNATIVE B43
  4           ID
  5           ID   Alternative Description
  6           ID   The purpose of Alternative B is to capture the upstream flow at the
  7           ID   apex using online detention basins.  The presence of the detention basins
  8           ID   eliminates the downstream alluvial fan uncertainties by controlling the
  9           ID   flow from the apices to the outfall.  Alternative B4-3 is based on using a
 10           ID   relatively larger on-line detention basin at the apex accompanied by smaller
 11           ID   leveed channel sections in the down fan direction.  It is the third of three
 12           ID   corridor alignments considered as part of the Alternative B4 series.
 13           ID
 14           ID
 15           ID   SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
 16           ID   JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
 17           ID   MODELER: TED LEHMAN
 18           ID   FILENAME: A4_EX24.DAT
 19           ID
 20           ID   100-YEAR 24-HOUR MODEL
 21           ID   EXISTING CONDITIONS
 22           ID   AREA 4 WATERSHED AREA = 90.5 SQ. MILES
 23           ID           MODELED AREA = 76.8 SQ. MILES
 24           ID
 25           ID   GREEN-AMPT LOSS METHOD
 26           ID   S-GRAPH UNIT HYDROGRAPHS
 27           ID     - MOUNTAIN
 28           ID     - DESERT/RANGELAND
 29           ID   NORMAL-DEPTH CHANNEL ROUTING
 30           ID   LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
 31           ID     - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
 32           ID     - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
 33           ID     - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
 34           ID   SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)
 35           IT       5  1JAN99    1200    2000
 36           IN      15
 37           IO       5
              *DIAGRAM
              *
 38           JD   4.198  0.1000
 39           PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
 40           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
 41           PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
 42           PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.172
 43           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 44           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 45           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 46           PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
 47           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
 48           PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
 49           JD   3.990    10.0
 50           JD   3.780    30.0
 51           JD   3.654    60.0
 52           JD   3.578    90.0
              *
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  53          KK    S100   BASIN
  54          KM        Compute runoff from subbasin 100
  55          BA   6.994
  56          LG    0.35    0.38    6.40    0.16       0
  57          UI     449     455     964    1717    2422    3046    3616    4050    4275    4281
  58          UI    4178    3867    3211    2766    2319    1968    1698    1387    1198     990
  59          UI     848     715     635     476     471     313     309     309     204     110
  60          UI     109     111     110     109     111     109     110     111       0       0
              *

  61          KK    S102   BASIN
  62          KM        Compute runoff from subbasin 102
  63          BA   3.234
  64          LG    0.35    0.38    5.60    0.22       0
  65          UI     333     657    1539    2292    2943    3178    3083    2643    1985    1523
  66          UI    1179     890     674     542     377     300     232     193      81      82
  67          UI      81      81      83       0       0       0       0       0       0       0
              *

  68          KK    C102 COMBINE
  69          KM        Combine total inflow to detention area behind (north) of CAP Canal
  70          HC       2
              *

  71          KK   RR102 STORAGE
  72          KM        Route flows through storage area behind CAP Canal
  73          KM        Stage-storage-discharge data from Wagner Wash FDS Hydrology (1991)
  74          KO
  75          RS       1    STOR      -1
  76          SV          553.00 1148.00 2316.00 2705.00
  77          SQ                  128.00  587.00  600.00
  78          SE  1543.0 1550.00 1552.00 1555.00 1556.00
  79          ST  1556.0  1320.0     3.2     1.5
              *

  80          KK    D102  DIVERT
  81          KM        Divide flow evenly over the two 18-foot wide CAP overchutes
  82          KM        although the inverts are 0.5 feet different in elevation
  83          DT    CF02     0.0     0.0
  84          DI     0.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0     0.0
  85          DQ     0.0    50.0   500.0  5000.0     0.0     0.0     0.0     0.0     0.0     0.0
              *

  86          KK  100105   ROUTE
  87          KM        Route outflows from east CAP overchute to Sun Valley Parkway.
  88          RS       9    FLOW      -1
  89          RC   0.035   0.055   0.035   11235  0.0045  105.00
  90          RX    0.00  120.00  240.00  250.00  590.00  600.00  720.00  840.00
  91          RY  105.00  102.50  100.00  100.00  100.00  100.00  102.50  105.00
              *
1                                          HEC-1 INPUT                                          PAGE  3

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  92          KK    S105   BASIN
  93          KM        Compute runoff from subbasin 105
  94          BA   4.370
  95          LG    0.35    0.35    4.80    0.30       0
  96          UI     345     380    1112    1723    2334    2867    3143    3344    3176    2865
  97          UI    2374    1903    1555    1291    1018     832     685     564     458     369
  98          UI     288     235     238     126      83      85      84      84      84      84
  99          UI      84       0       0       0       0       0       0       0       0       0
              *

 100          KK    CF02RETRIEVE
 101          KM        Retrieve flow from west CAP overchute.
 102          DR    CF02
              *

 103          KK  102105   ROUTE
 104          KM        Route retrieved flow from west overchute to C105.
 105          RS       6    FLOW      -1
 106          RC   0.045   0.050   0.045    7656  0.0065  104.00
 107          RX    0.00   40.00  120.00  130.00  250.00  260.00  340.00  380.00
 108          RY  104.00  102.00  101.00  100.00  100.00  101.00  102.00  104.00
              *

 109          KK   C105U COMBINE
 110          KM        Combine runoff from S105 with routed flow from 100105 and 102105
 111          KM        (CAP overchute flows). This is the total flow in Wagner Wash upstream
 112          KM        of Sun Valley Parkway.
 113          HC       3  14.598
              *

 114          KK    S110   BASIN
 115          KM        Compute runoff from subbasin 110
 116          BA   0.430
 117          LG    0.25    0.37    5.20    0.25       6
 118          UI      56     166     335     449     587     358     291     241     188     140
 119          UI     121      86      68      56      43      32      27      22      11      11
 120          UI      10      11      11       0       0       0       0       0       0       0
```

```
                *

 121            KK  11015I   ROUTE
 122            KM        Route flow from C105 through subbasin 110 to C115.
 123            RS       2    FLOW      -1
 124            RC   0.045   0.035   0.045    3783  0.0267  102.00
 125            RX    0.00   50.00  100.00  110.00  120.00  130.00  180.00  230.00
 126            RY  102.00  101.50  101.00  100.00  100.00  101.00  101.50  102.00
                *

 127            KK  15I15R   ROUTE
 128            KM        Route flows from split through S115 to C115.
 129            RS       8    FLOW      -1
 130            RC   0.035   0.030   0.035   14128  0.0151  105.00
 131            RX    0.00   25.00   58.00   65.00   85.00   92.00  125.00  150.00
 132            RY  105.00  102.50  102.00  100.00  100.00  102.00  102.50  105.00
                *
1                                          HEC-1 INPUT                                                    PAGE  4

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 133            KK    S115   BASIN
 134            KM        Compute runoff from subbasin 115
 135            BA   2.247
 136            LG    0.32    0.35    4.80    0.30       2
 137            UI     160     163     434     709     984    1212    1401    1530    1539    1465
 138            UI    1351    1100     918     773     632     528     444     351     304     252
 139            UI     203     170     140     110     110      85      39      39      40      39
 140            UI      39      39      40      39       0       0       0       0       0       0
                *

 141            KK    C115 COMBINE
 142            KM        Combine runoff from S115 with routed flow.
 143            HC       2   2.677
                *

 144            KK  115120   ROUTE
 145            KM        Route total flows from C115 to C120. Slope =(1532-1494) / 4077
 146            RS       2    FLOW      -1
 147            RC   0.030   0.025   0.030    4077  0.0093  105.00
 148            RX    0.00   30.00   75.00   80.00  105.00  110.00  155.00  190.00
 149            RY  105.00  101.50  101.00  100.00  100.00  101.00  101.50  105.00
                *

 150            KK    S120   BASIN
 151            KM        Compute runoff from subbasin 120
 152            BA   2.004
 153            LG    0.33    0.35    4.65    0.32       1
 154            UI     206     408     954    1419    1824    1969    1911    1637    1230     944
 155            UI     731     551     418     336     234     186     143     120      50      51
 156            UI      50      51      51       0       0       0       0       0       0       0
                *

 157            KK    C120 COMBINE
 158            KM        Combine flows at Wagner Wash at outlet of channel along SVP
 159            HC       2   4.681
                *

 160            KK   C105D COMBINE
 161            KM        Combine flows from C105 and C120 just D/S of Sun Valley Parkway
 162            HC       2  19.279
                *

 163            KK  120135   ROUTE
 164            KM        Route flows in Wagner Wash from Sun Valley Parkway to C135.
 165            RS       1    FLOW      -1
 166            RC   0.045   0.035   0.045     951  0.0074  110.00
 167            RX    0.00  225.00  450.00  455.00  485.00  490.00  615.00  840.00
 168            RY  110.00  105.00  102.00  100.00  100.00  102.00  102.00  110.00
                *
1                                          HEC-1 INPUT                                                    PAGE  5

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 169            KK    S125   BASIN
 170            KM        Compute runoff from subbasin 125
 171            BA   0.093
 172            LG    0.25    0.35    4.15    0.44       5
 173            UI      46     164     204     116      73      46      28      17      12       4
 174            UI       5       4       0       0       0       0       0       0       0       0
                *

 175            KK   RR125 STORAGE
 176            KM   PROPOSED DETENTION BASIN
 177            KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13E
 178            KM    STRUCTURE ID:RR125
 179            KM    DIMENSIONS: L=300ft, W=200ft, D=6ft, Sideslope (?H:1V)= 3,  Vol.= 5.2 ac-ft
 180            RS       1    STOR       0
 181            SV     0.0     0.5     0.9     1.9     3.0     4.1     5.2     6.5     7.8     9.1
 182            SE     0.0     0.5     1.0     2.0     3.0     4.0     5.0     6.0     7.0     8.0
 183            SQ     0.0    10.7    15.1    21.4    26.2    30.3    33.8    37.1    40.0    42.8
                *
```

```
KK  12535I   ROUTE
KM   PROPOSED CHANNEL
KM        Route flows from S125 to intermediate combination point in S135.
KM    STRUCTURE ID(s): RR12510
KM    Slope=(1746.1 - 1697.0) / 1852.5
RS       1    FLOW      -1
RC   0.045   0.045   0.045  1852.50.026481   104.0
RX     0.0    12.0    12.0    12.0    37.0    37.0    37.0    49.0
RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
*

KK    S130   BASIN
KM        Compute runoff from subbasin 130
BA   0.310
LG    0.21    0.35    4.20    0.43       4
UI      61     239     399     514     313     240     176     128      94      64
UI      49      36      26      19      10      10      10      10       0       0
*

KK   RR130 STORAGE
KM   PROPOSED DETENTION BASIN
KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 13W
KM    STRUCTURE ID:RR130
KM    DIMENSIONS: L=600ft, W=290ft, D=7ft, Sideslope (?H:1V)= 3,  Vol.= 19.2 ac-ft
RS       1    STOR       0
SV     0.0     1.4     2.9     6.0     9.1    12.4    15.7    19.2    22.8    26.5
SE     0.0     0.5     1.0     2.0     3.0     4.0     5.0     6.0     7.0     8.0
SQ     0.0    16.7    23.6    33.4    40.9    47.3    52.9    57.9    62.5    66.9
*
```

1 HEC-1 INPUT PAGE 6

```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK  13035I   ROUTE
KM   PROPOSED CHANNEL
KM        Route flow to intermediate point in S135.
KM    STRUCTURE ID(s): RR13010
KM    Slope=(1728.2 - 1697.0) / 1235.4
RS       1    FLOW      -1
RC   0.045   0.045   0.045  1235.4 0.02524   104.0
RX     0.0    12.0    12.0    12.0    24.0    24.0    24.0    36.0
RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
*

KK   C135I COMBINE
KM        Combine routed flow from RR130 and RR125
HC       2    1.18
*

KK  35I135   ROUTE
KM   PROPOSED CHANNEL
KM        Route combined flows to C135 at Wagner Wash.
KM    STRUCTURE ID(s): C135L10
KM    Slope=(1697.0 - 1496.9) / 12096.9
RS       8    FLOW      -1
RC   0.045   0.045   0.045 12096.90.016546   104.5
RX     0.0    13.5    13.5    13.5   213.5   213.5   213.5   227.0
RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
*

KK    S135   BASIN
KM        Compute runoff from subbasin 135
BA   0.879
LG    0.35    0.35    4.25    0.42       0
UI     115     362     709     992    1126     989     736     527     370     260
UI     194     128      89      76      28      28      29      28       0       0
*

KK   C135L COMBINE
KM        Combine all piedmont runoff inflow to Wagner Wash at C135
HC       2    2.06
*

KK    C135 COMBINE
KM        Combine all flows in Wagner Wash at C135
HC       2
*

KK  135145   ROUTE
KM        Route flow in Wagner Wash to C145.  Slope = (1487-1454) / 7938
RS       4    FLOW      -1
RC   0.045   0.035   0.045    7938  0.0042  110.00
RX    0.00  300.00  400.00  406.00  506.00  512.00  612.00  912.00
RY  110.00  102.50  102.00  100.00  100.00  102.00  102.50  110.00
*
```

1 HEC-1 INPUT PAGE 7

```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK    S140   BASIN
KM        Compute runoff from subbasin 140
BA   1.373
LG    0.35    0.36    5.00    0.28       0
```

```
251          UI     260    1034    1801    2168    1890    1235     809     517     339     211
252          UI     157      56      55      57       0       0       0       0       0       0
             *

253          KK  140145   ROUTE
254          KM        Route runoff from S140 to C145 at Wagner Wash.
255          RS       3    FLOW      -1
256          RC   0.040   0.050   0.040    3656  0.0074  103.00
257          RX    0.00   70.00  140.00  150.00  250.00  260.00  330.00  400.00
258          RY  102.00  101.00  100.00  100.00  100.00  100.00  101.00  102.00
             *

259          KK    S145   BASIN
260          KM        Compute runoff from subbasin 145
261          BA   1.756
262          LG    0.35    0.35    4.15    0.44       0
263          UI     226     672    1369    1903    2167    2003    1508    1085     777     544
264          UI     399     279     198     157      80      55      56      54      55       0
             *

265          KK    C145 COMBINE
266          KM        Combine all flows in Wagner Wash at C145
267          HC       3
             *

268          KK  145155   ROUTE
269          KM        Route flows in Wagner Wash form C145 to C155, Slope = (1454-1452)/631
270          RS       1    FLOW      -1
271          RC   0.045   0.035   0.055     631  0.0032  110.00
272          RX    0.00  150.00  300.00  309.00  379.00  388.00  538.00  838.00
273          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

274          KK    S150   BASIN
275          KM        Compute runoff from subbasin 150
276          BA   0.774
277          LG    0.25    0.35    4.65    0.32       7
278          UI      71     115     270     425     531     672     746     480     406     356
279          UI     312     262     212     181     159     132     106      89      77      65
280          UI      54      47      35      35      35      14      14      13      14      14
281          UI      13      14      14       0       0       0       0       0       0       0
             *

282          KK   RR150 STORAGE
283          KM   PROPOSED DETENTION BASIN
284          KM    ROUTE FLOWS THROUGH PROPOSED DETENTION BASIN AT APEX 3
285          KM    outlet based on assumed 2 ft pipe
286          KM    STRUCTURE ID:RR150
287          KM    DIMENSIONS: L=800ft, W=400ft, D=10ft, Sideslope (?H:1V)= 3,  Vol.= 50.5 ac-f
288          RS       1    STOR       0
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

289          SV     0.0     5.4    16.6    28.4    34.5    40.8    47.2    53.8    60.6    74.6
290          SE     0.0     1.0     3.0     5.0     6.0     7.0     8.0     9.0    10.0    12.0
291          SQ     0.0    34.0    59.0    76.1    83.4    90.0    96.3   102.1   107.6   117.9
             *

292          KK  150155   ROUTE
293          KM   PROPOSED CHANNEL
294          KM    ROUTE OUTFLOW FROM RR150 TO C155
295          KM    STRUCTURE ID(s): C155L10
296          KM    Slope=(1757.2 - 1451.9) / 15737.6
297          RS       3    FLOW      -1
298          RC   0.045   0.045   0.045 15737.60.019403   104.5
299          RX     0.0    13.5    13.5    13.5   343.5   343.5   343.5   357.0
300          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

301          KK    S155   BASIN
302          KM        Compute runoff from subbasin 155
303          BA   1.832
304          LG    0.35    0.35    4.50    0.36       1
305          UI     187     361     846    1266    1637    1771    1735    1497    1161     879
306          UI     681     519     385     314     228     181     130     126      46      46
307          UI      45      46      46      45       0       0       0       0       0       0
             *

308          KK   C155L COMBINE
309          KM    COMBINE RUNOFF FROM S155 WITH ROUTED FLOWS FROM APEX 3
310          HC       2
             *

311          KK    C155 COMBINE
312          KM        Combine all flows at Wagner Wash at C155
313          HC       2
             *

314          KK  155160   ROUTE
315          KM        Route flow in Wagner Wash to C160 (Sun Valley Parkway).
316          RS       5    FLOW      -1
317          RC   0.035   0.035   0.035    2291  0.0052  110.00
318          RX    0.00  200.00  400.00  406.00  506.00  512.00  712.00  912.00
319          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
```

```
                *
320             KK    S160   BASIN
321             KM        Compute runoff from subbasin 160
322             BA   1.144
323             LG    0.35    0.35    4.00    0.47       0
324             UI     165     599    1121    1501    1557    1233     844     593     394     281
325             UI     190     122      93      40      40      40      41       0       0       0
                *
1                                          HEC-1 INPUT                                          PAGE  9

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


326             KK    C160 COMBINE
327             KM        Combine flows at Sun Valley Parkway
328             HC       2   27.44
                *

329             KK  160170   ROUTE
330             KM        Route flows from Sun Valley Parkway to C170R. Slope = (1440-1410)/5248
331             RS       3    FLOW      -1
332             RC   0.040   0.030   0.040    5248  0.0057  108.00
333             RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
334             RY  108.00  103.00  102.00  100.00  100.00  102.00  103.00  108.00
                *

335             KK    S170   BASIN
336             KM        Compute runoff from subbasin 170
337             BA   1.464
338             LG    0.35    0.35    4.40    0.38       0
339             UI     209     755    1427    1917    1973    1590    1086     762     513     360
340             UI     246     160     123      52      51      51      52       0       0       0
                *

341             KK    170R   ROUTE
342             KM        Route flow from S170 to Wagner Wash.  Slope = (1456-1410) / 3986
343             RS       3    FLOW      -1
344             RC   0.045   0.045   0.045    3986  0.0115  104.00
345             RX    0.00   50.00  100.00  103.00  113.00  116.00  166.00  216.00
346             RY  103.00  102.00  101.00  100.00  100.00  101.00  102.00  103.00
                *

347             KK   C170R COMBINE
348             KM        Combine routed flows from S170 and C160 in Wagner Wash
349             HC       2
                *

350             KK  170180   ROUTE
351             KM        Route flows in Wagner Wash to C180R.  Slope = (1410-1366) / 6770
352             RS       4    FLOW      -1
353             RC   0.045   0.035   0.045    6770  0.0065  110.00
354             RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
355             RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
                *

356             KK    S165   BASIN
357             KM        Compute runoff from subbasin 165
358             BA   0.616
359             LG    0.30    0.35    4.55    0.35       3
360             UI     121     477     809    1022     617     474     347     254     185     127
361             UI      96      69      52      36      20      20      20      20       0       0
                *
1                                          HEC-1 INPUT                                          PAGE 10

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


362             KK   RR165 STORAGE
363             KM   PROPOSED DETENTION BASIN
364             KM    ROUTE RUNOFF FROM S165 THROUGH PROPOSED DETENTION BASIN
365             KM    outlet based on assumed 2 ft pipe
366             KM    STRUCTURE ID:RR165
367             KM    DIMENSIONS: L=800ft, W=300ft, D=10ft, Sideslope (?H:1V)= 3,  Vol.= 39.2 ac-f
368             RS       1    STOR       0
369             SV     0.0     3.8    11.8    20.4    24.9    29.5    34.3    39.2    49.5    60.4
370             SE     0.0     1.0     3.0     5.0     6.0     7.0     8.0     9.0    11.0    13.0
371             SQ     0.0    34.0    59.0    76.1    83.4    90.0    96.3   102.1   112.9   122.7
                *

372             KK  165175   ROUTE
373             KM   PROPOSED CHANNEL
374             KM    ROUTE OUTFLOW FROM RR165 TO SUN VALLEY PARKWAY IN NEW CHANNEL THRU S175
375             KM    STRUCTURE ID(s): C17510A, C17510B
376             KM    Slope=(1674.9 - 1462.9) / 13245.4
377             RS       8    FLOW      -1
378             RC   0.045   0.045   0.045 13245.40.016012   104.5
379             RX     0.0    13.5    13.5    13.5   213.5   213.5   213.5   227.0
380             RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
                *

381             KK    S175   BASIN
382             KM        Compute runoff from subbasin 175
383             BA   1.802
384             LG    0.29    0.35    4.50    0.36       1
```

```
385          UI     126     127     317     525     763     877    1013    1295    1376     895
386          UI     771     703     622     572     507     439     372     318     296     274
387          UI     227     192     163     148     138     116      96      97      73      62
388          UI      62      63      55      24      25      24      24      24      24      25
389          UI      24      24      24      25       0       0       0       0       0       0
             *

390          KK    C175 COMBINE
391          KM    COMBINE RUNOFF FROM S175 WITH ROUTED FLOW FROM C165
392          HC       2
             *

393          KK    175R   ROUTE
394          KM   PROPOSED CHANNEL
395          KM        Route runoff from S175 to intermediate point in S190 (C180RI).
396          KM    STRUCTURE ID(s): RR17510
397          KM    Slope=(1462.9 - 1413.1) / 3035.2
398          RS       2    FLOW      -1
399          RC   0.045   0.045   0.045  3035.20.016393   104.5
400          RX     0.0    13.5    13.5    13.5   293.5   293.5   293.5   307.0
401          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *
1                                          HEC-1 INPUT                                          PAGE 11

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

402          KK    S180   BASIN
403          KM        Compute runoff from subbasin 180
404          BA   1.443
405          LG    0.25    0.35    4.25    0.42       2
406          UI     107     108     311     490     677     785     927    1258     896     684
407          UI     622     547     497     440     379     315     275     250     228     185
408          UI     154     138     120     115      82      83      73      52      53      52
409          UI      50      21      20      21      20      21      21      20      21      21
410          UI      20       0       0       0       0       0       0       0       0       0
             *

411          KK    180R   ROUTE
412          KM   PROPOSED CHANNEL
413          KM        Route runoff from S180 to intermediate point in S190 (C180RI).
414          KM    STRUCTURE ID(s): S18010, RR18010
415          KM    Slope=(1531.6 - 1413.1) / 7990.1
416          RS       2    FLOW      -1
417          RC   0.045   0.045   0.045  7990.1 0.01483   104.5
418          RX     0.0    13.5    13.5    13.5   193.5   193.5   193.5   207.0
419          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

420          KK  C180RI COMBINE
421          KM        Combine routed flows from S175 and S180
422          HC       2
             *

423          KK  RI180R   ROUTE
424          KM   PROPOSED CHANNEL
425          KM    STRUCTURE ID(s): C180R10
426          KM    Slope=(1413.1 - 1367.6) / 3720.6
427          RS       3    FLOW      -1
428          RC   0.045   0.045   0.045  3720.60.012229   104.5
429          RX     0.0    13.5    13.5    13.5   373.5   373.5   373.5   387.0
430          RY   104.5   100.0   100.0   100.0   100.0   100.0   100.0   104.5
             *

431          KK   C180R COMBINE
432          KM        Combine flows in Wagner Wash
433          HC       2
             *

434          KK  180185   ROUTE
435          KM        Route flows in Wagner Wash from C180R to C185R.
436          RS       3    FLOW      -1
437          RC   0.045   0.035   0.045    3450  0.0075  106.00
438          RX    0.00  100.00  200.00  206.00  406.00  412.00  512.00  612.00
439          RY  106.00  104.00  102.00  100.00  100.00  102.00  104.00  106.00
             *
1                                          HEC-1 INPUT                                          PAGE 12

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

440          KK    S185   BASIN
441          KM        Compute runoff from subbasin 185
442          BA   2.421
443          LG    0.16    0.35    4.35    0.40       1
444          UI     165     166     391     668     960    1130    1281    1613    1908    1239
445          UI    1060     936     847     785     677     614     534     438     399     375
446          UI     338     271     230     210     183     183     133     126     127      85
447          UI      80      82      81      67      32      31      32      32      31      32
448          UI      32      31      32      32      32       0       0       0       0       0
             *

449          KK    185R   ROUTE
450          KM        Route runoff from S185 to Wagner Wash.  Slope = (1442-1340) / 8534
451          RS       5    FLOW      -1
```

```
452          RC   0.045   0.035   0.045    8534  0.0120  104.00
453          RX    0.00   30.00  100.00  106.00  156.00  162.00  232.00  262.00
454          RY  104.00  102.00  102.00  100.00  100.00  102.00  102.00  104.00
             *

455          KK   C185R COMBINE
456          KM        Combine flows in Wagner Wash
457          HC       2
             *

458          KK  185190   ROUTE
459          KM        Route flow in Wagner Wash to C190.  Slope = (1340-1308) / 2700
460          RS       2    FLOW      -1
461          RC   0.045   0.040   0.045    2700  0.0119  106.00
462          RX    0.00   80.00  160.00  166.00  416.00  422.00  502.00  582.00
463          RY  106.00  103.00  102.00  100.00  100.00  102.00  103.00  106.00
             *

464          KK    S190   BASIN
465          KM        Compute runoff from subbasin 190
466          BA   4.054
467          LG    0.35    0.35    3.81    0.44       0
468          UI     274     278     647    1125    1573    1918    2319    2540    2637    2574
469          UI    2467    2112    1787    1506    1256    1044     891     745     605     522
470          UI     432     370     293     266     188     191     188      78      68      66
471          UI      67      67      67      67      67      67       0       0       0       0
             *

472          KK    C190 COMBINE
473          KM        Combine all flow in Wagner Wash at C190
474          HC       2   39.24
             *

475          KK  190195   ROUTE
476          KM        Route flow from C190 to the Hassayampa River. Slope = (1308-1255)/4941
477          RS       2    FLOW      -1
478          RC   0.045   0.035   0.045    4941  0.0107  110.00
479          RX    0.00   50.00  200.00  206.00  356.00  366.00  516.00  566.00
480          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *
```



```
        LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

481          KK    S195   BASIN
482          KM        Compute runoff from subbasin 195
483          BA   1.808
484          LG    0.33    0.35    4.25    0.42       0
485          UI     107     108     188     366     523     660     786     925     975    1026
486          UI    1044     975     915     778     674     571     496     419     359     313
487          UI     260     223     202     165     146     115     114      76      74      74
488          UI      67      27      26      26      26      26      26      27      26      26
489          UI      27       0       0       0       0       0       0       0       0       0
             *

490          KK    C195 COMBINE
491          KM        Combine all flows in Wagner Wash at the Hassayampa River
492          HC       2   41.05
493          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    53        S100
                .
                .
    61          .        S102
                .           .
                .           .
    68        C102............
                V
                V
    71       RR102
                .
                .
    83          .-------->    CF02
    80        D102
                V
                V
    86      100105
                .
                .
    92          .        S105
                .           .
                .           .
   102          .           .          .<--------    CF02
   100          .           .        CF02
                .           .          V
                .           .          V
   103          .           .      102105
                .           .          .
```

```
                .           .           .
109       C105U.......................
                .
                .
114             .        S110
                .           V
                .           V
121             .      11015I
                .           V
                .           V
127             .      15I15R
                .           .
                .           .
133             .           .        S115
                .           .           .
                .           .           .
141             .        C115............
                .           V
                .           V
144             .      115120
                .           .
                .           .
150             .           .        S120
                .           .           .
                .           .           .
157             .        C120............
                .           .
                .           .
160       C105D............
             V
             V
163      120135
                .
                .
169             .        S125
                .           V
                .           V
175             .       RR125
                .           V
                .           V
184             .      12535I
                .           .
                .           .
193             .           .        S130
                .           .           V
                .           .           V
199             .           .       RR130
                .           .           V
                .           .           V
208             .           .      13035I
                .           .           .
                .           .           .
217             .       C135I............
                .           V
                .           V
220             .      35I135
                .           .
                .           .
229             .           .        S135
                .           .           .
                .           .           .
235             .       C135L............
                .           .
                .           .
238        C135............
              V
              V
241      135145
                .
                .
247             .        S140
                .           V
                .           V
253             .      140145
                .           .
                .           .
259             .           .        S145
                .           .           .
                .           .           .
265        C145.......................
              V
              V
268      145155
                .
                .
274             .        S150
                .           V
                .           V
282             .       RR150
                .           V
                .           V
292             .      150155
                .           .
                .           .
301             .           .        S155
```

```
                .           .           .
                .           .           .
  308           .       C155L............
                .           .
                .           .
  311        C155............
                V
                V
  314      155160
                .
                .
  320           .        S160
                .           .
                .           .
  326        C160............
                V
                V
  329      160170
                .
                .
  335           .        S170
                .           V
                .           V
  341           .        170R
                .           .
                .           .
  347       C170R............
                V
                V
  350      170180
                .
                .
  356           .        S165
                .           V
                .           V
  362           .       RR165
                .           V
                .           V
  372           .      165175
                .           .
                .           .
  381           .           .        S175
                .           .           .
                .           .           .
  390           .        C175............
                .           V
                .           V
  393           .        175R
                .           .
                .           .
  402           .           .        S180
                .           .           V
                .           .           V
  411           .           .        180R
                .           .           .
                .           .           .
  420           .      C180RI............
                .           V
                .           V
  423           .      RI180R
                .           .
                .           .
  431       C180R............
                V
                V
  434      180185
                .
                .
  440           .        S185
                .           V
                .           V
  449           .        185R
                .           .
                .           .
  455       C185R............
                V
                V
  458      185190
                .
                .
  464           .        S190
                .           .
                .           .
  472        C190............
                V
                V
  475      190195
                .
                .
  481           .        S195
                .           .
                .           .
  490        C195............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN  1998               *
 *            VERSION 4.1               *
 *                                      *
 *  RUN DATE   19APR06  TIME  16:47:08  *
 *                                      *
 ****************************************
```

```
****************************************
*                                      *
*   U.S. ARMY CORPS OF ENGINEERS       *
*   HYDROLOGIC ENGINEERING CENTER      *
*         609 SECOND STREET            *
*      DAVIS, CALIFORNIA 95616         *
*          (916) 756-1104              *
*                                      *
****************************************
```

```
HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
  - WAGNER SUB-AREA
  - ALTERNATIVE B43

Alternative Description
The purpose of Alternative B is to capture the upstream flow at the
apex using online detention basins.  The presence of the detention basins
eliminates the downstream alluvial fan uncertainties by controlling the
flow from the apices to the outfall.  Alternative B4-3 is based on using a
relatively larger on-line detention basin at the apex accompanied by smaller
leveed channel sections in the down fan direction.  It is the third of three
corridor alignments considered as part of the Alternative B4 series.


SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
MODELER: TED LEHMAN
FILENAME: A4_EX24.DAT

100-YEAR 24-HOUR MODEL
EXISTING CONDITIONS
AREA 4 WATERSHED AREA = 90.5 SQ. MILES
         MODELED AREA = 76.8 SQ. MILES

GREEN-AMPT LOSS METHOD
S-GRAPH UNIT HYDROGRAPHS
  - MOUNTAIN
  - DESERT/RANGELAND
NORMAL-DEPTH CHANNEL ROUTING
LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
  - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
  - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
  - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)

37 IO          OUTPUT CONTROL VARIABLES
                     IPRNT           5  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

   IT          HYDROGRAPH TIME DATA
                      NMIN           5  MINUTES IN COMPUTATION INTERVAL
                     IDATE      1JAN99  STARTING DATE
                     ITIME        1200  STARTING TIME
                        NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE      8JAN99  ENDING DATE
                    NDTIME        1035  ENDING TIME
                     ICENT          19  CENTURY MARK

                COMPUTATION INTERVAL     .08 HOURS
                     TOTAL TIME BASE  166.58 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
             SURFACE AREA           ACRES
             TEMPERATURE            DEGREES FAHRENHEIT

38 JD          INDEX STORM NO. 1
                      STRM       4.20  PRECIPITATION DEPTH
                      TRDA        .10  TRANSPOSITION DRAINAGE AREA

39 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                    .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
```

```
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

49 JD         INDEX STORM NO. 2
                STRM        3.99  PRECIPITATION DEPTH
                TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 0 PI           PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

50 JD         INDEX STORM NO. 3
                STRM        3.78  PRECIPITATION DEPTH
                TRDA       30.00  TRANSPOSITION DRAINAGE AREA

 0 PI           PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

51 JD         INDEX STORM NO. 4
                STRM        3.65  PRECIPITATION DEPTH
                TRDA       60.00  TRANSPOSITION DRAINAGE AREA

 0 PI           PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
```

```
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

 52 JD        INDEX STORM NO. 5
                STRM        3.58  PRECIPITATION DEPTH
                TRDA       90.00  TRANSPOSITION DRAINAGE AREA

  0 PI         PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 71 KK      *     RR102  *      STORAGE
            *            *
            **************

 74 KO        OUTPUT CONTROL VARIABLES
                IPRNT           5  PRINT CONTROL
                IPLOT           0  PLOT CONTROL
                QSCAL          0.  HYDROGRAPH PLOT SCALE
1
                                          RUNOFF SUMMARY
                                   FLOW IN CUBIC FEET PER SECOND
                                TIME IN HOURS,  AREA IN SQUARE MILES

                                   PEAK   TIME OF    AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN    MAXIMUM    TIME OF
        OPERATION        STATION   FLOW    PEAK                                          AREA     STAGE    MAX STAGE
+                                                     6-HOUR     24-HOUR     72-HOUR

        HYDROGRAPH AT
+                         S100     5214.   12.58       965.        241.         80.      6.99

        HYDROGRAPH AT
+                         S102     3434.   12.33       420.        105.         35.      3.23

        2 COMBINED AT
+                         C102     7803.   12.42      1367.        342.        114.     10.23

        ROUTED TO
+                        RR102      149.   14.42       141.        119.         82.     10.23
```

	DIVERSION TO							
+		CF02	75.	14.42	71.	59.	41.	10.23
	HYDROGRAPH AT							
+		D102	75.	14.42	71.	59.	41.	10.23
	ROUTED TO							
+		100105	70.	20.33	67.	58.	41.	10.23
	HYDROGRAPH AT							
+		S105	3466.	12.50	531.	133.	44.	4.37
	HYDROGRAPH AT							
+		CF02	75.	14.42	71.	59.	41.	10.23
	ROUTED TO							
+		102105	74.	15.67	70.	59.	41.	10.23
	3 COMBINED AT							
+		C105U	3466.	12.50	587.	238.	125.	14.60
	HYDROGRAPH AT							
+		S110	532.	12.17	62.	16.	5.	.43
	ROUTED TO							
+		11015I	456.	12.42	62.	16.	5.	.43
	ROUTED TO							
+		15I15R	412.	12.75	62.	16.	5.	.43
	HYDROGRAPH AT							
+		S115	1693.	12.50	287.	73.	24.	2.25
	2 COMBINED AT							
+		C115	1937.	12.67	346.	89.	30.	2.68
	ROUTED TO							
+		115120	1900.	12.75	346.	89.	30.	2.68
	HYDROGRAPH AT							
+		S120	2032.	12.33	247.	62.	21.	2.00
	2 COMBINED AT							
+		C120	3202.	12.42	585.	149.	50.	4.68
	2 COMBINED AT							
+		C105D	6217.	12.42	1091.	359.	163.	19.28
	ROUTED TO							
+		120135	6220.	12.50	1091.	359.	163.	19.28
	HYDROGRAPH AT							
+		S125	161.	12.08	12.	3.	1.	.09
	ROUTED TO							
+		RR125	30.	12.42	12.	3.	1.	.09
	ROUTED TO							
+		12535I	30.	12.58	12.	3.	1.	.09
	HYDROGRAPH AT							
+		S130	415.	12.17	39.	10.	3.	.31
	ROUTED TO							
+		RR130	51.	12.75	36.	10.	3.	.31
	ROUTED TO							
+		13035I	51.	12.83	36.	10.	3.	.31
	2 COMBINED AT							
+		C135I	79.	12.75	46.	13.	4.	1.18
	ROUTED TO							
+		35I135	66.	15.33	44.	13.	4.	1.18
	HYDROGRAPH AT							
+		S135	1015.	12.25	99.	25.	8.	.88
	2 COMBINED AT							
+		C135L	1001.	12.25	134.	37.	12.	2.06
	2 COMBINED AT							
+		C135	6649.	12.42	1204.	389.	173.	21.34
	ROUTED TO							
+		135145	5881.	12.83	1190.	386.	172.	21.34
	HYDROGRAPH AT							
+		S140	2029.	12.17	172.	43.	14.	1.37
	ROUTED TO							
+		140145	1632.	12.42	172.	43.	14.	1.37
	HYDROGRAPH AT							

+		S145	1945.	12.25	193.	48.	16.	1.76
+	3 COMBINED AT	C145	6532.	12.75	1492.	461.	197.	24.47
+	ROUTED TO	145155	6537.	12.83	1492.	461.	197.	24.47
+	HYDROGRAPH AT	S150	729.	12.33	107.	29.	10.	.77
+	ROUTED TO	RR150	89.	13.50	76.	28.	10.	.77
+	ROUTED TO	150155	76.	17.00	68.	28.	10.	.77
+	HYDROGRAPH AT	S155	1781.	12.33	218.	55.	18.	1.83
+	2 COMBINED AT	C155L	1774.	12.33	259.	82.	28.	2.61
+	2 COMBINED AT	C155	7006.	12.75	1713.	530.	220.	27.07
+	ROUTED TO	155160	6982.	12.83	1711.	530.	220.	27.07
+	HYDROGRAPH AT	S160	1342.	12.17	124.	31.	10.	1.14
+	2 COMBINED AT	C160	7083.	12.83	1812.	556.	229.	27.44
+	ROUTED TO	160170	6946.	13.00	1800.	554.	228.	27.44
+	HYDROGRAPH AT	S170	1802.	12.17	169.	42.	14.	1.46
+	ROUTED TO	170R	1638.	12.33	169.	42.	14.	1.46
+	2 COMBINED AT	C170R	7201.	13.00	1937.	588.	240.	28.90
+	ROUTED TO	170180	7090.	13.17	1919.	587.	239.	28.90
+	HYDROGRAPH AT	S165	842.	12.17	78.	20.	7.	.62
+	ROUTED TO	RR165	91.	12.75	68.	20.	7.	.62
+	ROUTED TO	165175	79.	15.17	64.	20.	7.	.62
+	HYDROGRAPH AT	S175	1278.	12.50	217.	55.	18.	1.80
+	2 COMBINED AT	C175	1274.	12.50	261.	74.	25.	2.42
+	ROUTED TO	175R	1194.	12.67	259.	74.	25.	2.42
+	HYDROGRAPH AT	S180	1039.	12.50	171.	44.	15.	1.44
+	ROUTED TO	180R	744.	12.83	170.	44.	15.	1.44
+	2 COMBINED AT	C180RI	1830.	12.67	423.	116.	39.	3.86
+	ROUTED TO	RI180R	1735.	12.83	418.	116.	39.	3.86
+	2 COMBINED AT	C180R	8275.	13.08	2272.	683.	271.	32.76
+	ROUTED TO	180185	8250.	13.25	2263.	682.	271.	32.76
+	HYDROGRAPH AT	S185	1655.	12.50	288.	73.	24.	2.42
+	ROUTED TO	185R	1411.	12.92	287.	73.	24.	2.42
+	2 COMBINED AT	C185R	9226.	13.17	2491.	740.	290.	35.19

```
          ROUTED TO
+                        185190      9201.   13.25        2486.        739.        290.      35.19

          HYDROGRAPH AT
+                         S190      2590.   12.58         448.        112.         37.       4.05

          2 COMBINED AT
+                         C190      9992.   13.17        2822.        828.        320.      39.24

          ROUTED TO
+                        190195      9849.   13.33        2814.        827.        320.      39.24

          HYDROGRAPH AT
+                         S195      1039.   12.67         202.         51.         17.       1.81

          2 COMBINED AT
+                         C195     10205.   13.25        2967.        866.        333.      41.05
1                              SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    RR102
                          (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ...............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                   ELEVATION        1550.00           1556.00          1556.00
                                   STORAGE              553.              2705.            2705.
                                   OUTFLOW                0.               600.             600.

                  RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                    OF     RESERVOIR      DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                   PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                  1.00      1552.28         .00      1258.       171.        .00        14.42         .00

     PLAN  2 ...............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                   ELEVATION        1550.00           1556.00          1556.00
                                   STORAGE              553.              2705.            2705.
                                   OUTFLOW                0.               600.             600.

                  RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                    OF     RESERVOIR      DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                   PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                  1.00      1552.14         .00      1204.       150.        .00        14.42         .00

     PLAN  3 ...............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                   ELEVATION        1550.00           1556.00          1556.00
                                   STORAGE              553.              2705.            2705.
                                   OUTFLOW                0.               600.             600.

                  RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                    OF     RESERVOIR      DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                   PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                  1.00      1552.00         .00      1149.       128.        .00        14.50         .00

     PLAN  4 ...............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                   ELEVATION        1550.00           1556.00          1556.00
                                   STORAGE              553.              2705.            2705.
                                   OUTFLOW                0.               600.             600.

                  RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                    OF     RESERVOIR      DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                   PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                  1.00      1551.89         .00      1115.       121.        .00        14.50         .00

     PLAN  5 ...............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                   ELEVATION        1550.00           1556.00          1556.00
                                   STORAGE              553.              2705.            2705.
                                   OUTFLOW                0.               600.             600.

                  RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                    OF     RESERVOIR      DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                   PMF      W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                  1.00      1551.82         .00      1095.       117.        .00        14.50         .00

*** NORMAL END OF HEC-1 ***
```

```
1****************************************                    ****************************************
*                                      *                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *   U.S. ARMY CORPS OF ENGINEERS       *
*              JUN  1998               *                    *   HYDROLOGIC ENGINEERING CENTER      *
*            VERSION 4.1               *                    *         609 SECOND STREET            *
*                                      *                    *      DAVIS, CALIFORNIA 95616         *
*  RUN DATE   19APR06  TIME  16:51:50  *                    *          (916) 756-1104              *
*                                      *                    *                                      *
****************************************                    ****************************************

                                    X     X  XXXXXXX   XXXXX           X
                                    X     X  X        X     X         XX
                                    X     X  X        X                X
                                    XXXXXXX  XXXX     X        XXXXX   X
                                    X     X  X        X                X
                                    X     X  X        X     X          X
                                    X     X  XXXXXXX   XXXXX          XXX

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                          HEC-1 INPUT                                          PAGE  1

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

    1           ID    HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
    2           ID     - WAGNER SUB-AREA
    3           ID     - ALTERNATIVE C
    4           ID
    5           ID   Alternative Description
    6           ID   Alternative C is based on the concept of an excavated concrete-lined
    7           ID   channel from the apex to the outfall, without providing any detention
    8           ID   basin is at the apex.  To address sedimentation associated with the
    9           ID   alluvial fan systems, sedimentation basins are provided throughout the
   10           ID   system.  The excavated concrete channels are complemented with a 120-foot
   11           ID   wide adjacent riparian preservation corridor.
   12           ID
   13           ID
   14           ID   SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
   15           ID   JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
   16           ID   MODELER: TED LEHMAN
   17           ID   FILENAME: A4_EX6.DAT
   18           ID
   19           ID   100-YEAR 6-HOUR MODEL
   20           ID   EXISTING CONDITIONS
   21           ID   AREA 4 WATERSHED AREA = 90.5 SQ. MILES
   22           ID           MODELED AREA = 76.8 SQ. MILES
   23           ID
   24           ID   GREEN-AMPT LOSS METHOD
   25           ID   S-GRAPH UNIT HYDROGRAPHS
   26           ID     - MOUNTAIN
   27           ID     - DESERT/RANGELAND
   28           ID   NORMAL-DEPTH CHANNEL ROUTING
   29           ID   LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
   30           ID     - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
   31           ID     - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
   32           ID     - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
   33           ID   SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)
   34           IT       5  1JAN99    1200    2000
   35           IN      15
   36           IO       5
                *DIAGRAM
                *
   37           JD   3.196  0.1000
   38           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
   39           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
   40           PC   0.962   0.972   0.983   0.991   1.000
   41           JD   3.181  0.5000
   42           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
   43           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
   44           PC   0.962   0.972   0.983   0.991   1.000
   45           JD   3.120     2.8
   46           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
   47           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
   48           PC   0.950   0.963   0.975   0.988   1.000
   49           JD   2.950    16.0
   50           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
   51           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
   52           PC   0.946   0.960   0.973   0.987   1.000
   53           JD   2.592    90.0
1                                          HEC-1 INPUT                                          PAGE  2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  54          PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
  55          PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
  56          PC   0.927   0.945   0.964   0.982   1.000
              *

  57          KK    S100   BASIN
  58          KM        Compute runoff from subbasin 100
  59          BA   6.994
  60          LG    0.35    0.38    6.40    0.16       0
  61          UI     449     455     964    1717    2422    3046    3616    4050    4275    4281
  62          UI    4178    3867    3211    2766    2319    1968    1698    1387    1198     990
  63          UI     848     715     635     476     471     313     309     309     204     110
  64          UI     109     111     110     109     111     109     110     111       0       0
              *

  65          KK    S102   BASIN
  66          KM        Compute runoff from subbasin 102
  67          BA   3.234
  68          LG    0.35    0.38    5.60    0.22       0
  69          UI     333     657    1539    2292    2943    3178    3083    2643    1985    1523
  70          UI    1179     890     674     542     377     300     232     193      81      82
  71          UI      81      81      83       0       0       0       0       0       0       0
              *

  72          KK    C102 COMBINE
  73          KM        Combine total inflow to detention area behind (north) of CAP Canal
  74          HC       2
              *

  75          KK   RR102 STORAGE
  76          KM        Route flows through storage area behind CAP Canal
  77          KM        Stage-storage-discharge data from Wagner Wash FDS Hydrology (1991)
  78          KO
  79          RS       1    STOR      -1
  80          SV          553.00 1148.00 2316.00 2705.00
  81          SQ                  128.00  587.00  600.00
  82          SE  1543.0 1550.00 1552.00 1555.00 1556.00
  83          ST  1556.0  1320.0     3.2     1.5
              *

  84          KK    D102  DIVERT
  85          KM        Divide flow evenly over the two 18-foot wide CAP overchutes
  86          KM        although the inverts are 0.5 feet different in elevation
  87          DT    CF02     0.0     0.0
  88          DI     0.0   100.0  1000.0 10000.0     0.0     0.0     0.0     0.0     0.0     0.0
  89          DQ     0.0    50.0   500.0  5000.0     0.0     0.0     0.0     0.0     0.0     0.0
              *

  90          KK  100105   ROUTE
  91          KM        Route outflows from east CAP overchute to Sun Valley Parkway.
  92          RS       9    FLOW      -1
  93          RC   0.035   0.055   0.035   11235  0.0045  105.00
  94          RX    0.00  120.00  240.00  250.00  590.00  600.00  720.00  840.00
  95          RY  105.00  102.50  100.00  100.00  100.00  100.00  102.50  105.00
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  96          KK    S105   BASIN
  97          KM        Compute runoff from subbasin 105
  98          BA   4.370
  99          LG    0.35    0.35    4.80    0.30       0
 100          UI     345     380    1112    1723    2334    2867    3143    3344    3176    2865
 101          UI    2374    1903    1555    1291    1018     832     685     564     458     369
 102          UI     288     235     238     126      83      85      84      84      84      84
 103          UI      84       0       0       0       0       0       0       0       0       0
              *

 104          KK    CF02RETRIEVE
 105          KM        Retrieve flow from west CAP overchute.
 106          DR    CF02
              *

 107          KK  102105   ROUTE
 108          KM        Route retrieved flow from west overchute to C105.
 109          RS       6    FLOW      -1
 110          RC   0.045   0.050   0.045    7656  0.0065  104.00
 111          RX    0.00   40.00  120.00  130.00  250.00  260.00  340.00  380.00
 112          RY  104.00  102.00  101.00  100.00  100.00  101.00  102.00  104.00
              *

 113          KK   C105U COMBINE
 114          KM        Combine runoff from S105 with routed flow from 100105 and 102105
 115          KM        (CAP overchute flows). This is the total flow in Wagner Wash upstream
 116          KM        of Sun Valley Parkway.
 117          HC       3  14.598
              *

 118          KK    S110   BASIN
 119          KM        Compute runoff from subbasin 110
 120          BA   0.430
```

```
121          LG    0.25    0.37    5.20    0.25       6
122          UI      56     166     335     449     587     358     291     241     188     140
123          UI     121      86      68      56      43      32      27      22      11      11
124          UI      10      11      11       0       0       0       0       0       0       0
             *

125          KK  11015I   ROUTE
126          KM        Route flow from C105 through subbasin 110 to C115.
127          RS       2    FLOW      -1
128          RC   0.045   0.035   0.045    3783  0.0267  102.00
129          RX    0.00   50.00  100.00  110.00  120.00  130.00  180.00  230.00
130          RY  102.00  101.50  101.00  100.00  100.00  101.00  101.50  102.00
             *

131          KK  15I15R   ROUTE
132          KM        Route flows from split through S115 to C115.
133          RS       8    FLOW      -1
134          RC   0.035   0.030   0.035   14128  0.0151  105.00
135          RX    0.00   25.00   58.00   65.00   85.00   92.00  125.00  150.00
136          RY  105.00  102.50  102.00  100.00  100.00  102.00  102.50  105.00
             *
1                                          HEC-1 INPUT                                                    PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

137          KK    S115   BASIN
138          KM        Compute runoff from subbasin 115
139          BA   2.247
140          LG    0.32    0.35    4.80    0.30       2
141          UI     160     163     434     709     984    1212    1401    1530    1539    1465
142          UI    1351    1100     918     773     632     528     444     351     304     252
143          UI     203     170     140     110     110      85      39      39      40      39
144          UI      39      39      40      39       0       0       0       0       0       0
             *

145          KK    C115 COMBINE
146          KM        Combine runoff from S115 with routed flow.
147          HC       2   2.677
             *

148          KK  115120   ROUTE
149          KM        Route total flows from C115 to C120. Slope =(1532-1494) / 4077
150          RS       2    FLOW      -1
151          RC   0.030   0.025   0.030    4077  0.0093  105.00
152          RX    0.00   30.00   75.00   80.00  105.00  110.00  155.00  190.00
153          RY  105.00  101.50  101.00  100.00  100.00  101.00  101.50  105.00
             *

154          KK    S120   BASIN
155          KM        Compute runoff from subbasin 120
156          BA   2.004
157          LG    0.33    0.35    4.65    0.32       1
158          UI     206     408     954    1419    1824    1969    1911    1637    1230     944
159          UI     731     551     418     336     234     186     143     120      50      51
160          UI      50      51      51       0       0       0       0       0       0       0
             *

161          KK    C120 COMBINE
162          KM        Combine flows at Wagner Wash at outlet of channel along SVP
163          HC       2   4.681
             *

164          KK   C105D COMBINE
165          KM        Combine flows from C105 and C120 just D/S of Sun Valley Parkway
166          HC       2  19.279
             *

167          KK  120135   ROUTE
168          KM        Route flows in Wagner Wash from Sun Valley Parkway to C135.
169          RS       1    FLOW      -1
170          RC   0.045   0.035   0.045     951  0.0074  110.00
171          RX    0.00  225.00  450.00  455.00  485.00  490.00  615.00  840.00
172          RY  110.00  105.00  102.00  100.00  100.00  102.00  102.00  110.00
             *
1                                          HEC-1 INPUT                                                    PAGE  5

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

173          KK    S125   BASIN
174          KM        Compute runoff from subbasin 125
175          BA   0.093
176          LG    0.25    0.35    4.15    0.44       5
177          UI      46     164     204     116      73      46      28      17      12       4
178          UI       5       4       0       0       0       0       0       0       0       0
             *

179          KK  12535I   ROUTE
180          KM   PROPOSED CHANNEL
181          KM        Route flows from S125 to intermediate combination point in S135.
182          KM    STRUCTURE ID(s): RR12510
183          KM    Slope=(1746.1 - 1697.0) / 1852.5
184          RS       1    FLOW      -1
185          RC    0.02    0.02    0.02  1852.50.026481   104.0
```

```
186          RX     0.0    12.0    12.0    12.0    15.0    15.0    15.0    27.0
187          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

188          KK    S130   BASIN
189          KM        Compute runoff from subbasin 130
190          BA   0.310
191          LG    0.21    0.35    4.20    0.43       4
192          UI      61     239     399     514     313     240     176     128      94      64
193          UI      49      36      26      19      10      10      10      10       0       0
             *

194          KK  13035I   ROUTE
195          KM   PROPOSED CHANNEL
196          KM        Route flow to intermediate point in S135.
197          KM    STRUCTURE ID(s): RR13010
198          KM    Slope=(1728.2 - 1697.0) / 1235.4
199          RS       1    FLOW      -1
200          RC    0.02    0.02    0.02  1235.4 0.02524   104.0
201          RX     0.0    12.0    12.0    12.0    32.0    32.0    32.0    44.0
202          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

203          KK   C135I COMBINE
204          KM        Combine routed flow from RR130 and RR125
205          HC       2    1.18
             *

206          KK  35I135   ROUTE
207          KM   PROPOSED CHANNEL
208          KM        Route combined flows to C135 at Wagner Wash.
209          KM    STRUCTURE ID(s): C135L10
210          KM    Slope=(1697.0 - 1496.9) / 12096.9
211          RS       5    FLOW      -1
212          RC    0.02    0.02    0.02 12096.90.016546   103.5
213          RX     0.0    10.5    25.5    31.5    46.5    52.5    67.5    78.0
214          RY   103.5   100.0   100.0    98.0    98.0   100.0   100.0   103.5
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

215          KK    S135   BASIN
216          KM        Compute runoff from subbasin 135
217          BA   0.879
218          LG    0.35    0.35    4.25    0.42       0
219          UI     115     362     709     992    1126     989     736     527     370     260
220          UI     194     128      89      76      28      28      29      28       0       0
             *

221          KK   C135L COMBINE
222          KM        Combine all piedmont runoff inflow to Wagner Wash at C135
223          HC       2    2.06
             *

224          KK    C135 COMBINE
225          KM        Combine all flows in Wagner Wash at C135
226          HC       2
             *

227          KK  135145   ROUTE
228          KM        Route flow in Wagner Wash to C145.  Slope = (1487-1454) / 7938
229          RS       4    FLOW      -1
230          RC   0.045   0.035   0.045    7938  0.0042  110.00
231          RX    0.00  300.00  400.00  406.00  506.00  512.00  612.00  912.00
232          RY  110.00  102.50  102.00  100.00  100.00  102.00  102.50  110.00
             *

233          KK    S140   BASIN
234          KM        Compute runoff from subbasin 140
235          BA   1.373
236          LG    0.35    0.36    5.00    0.28       0
237          UI     260    1034    1801    2168    1890    1235     809     517     339     211
238          UI     157      56      55      57       0       0       0       0       0       0
             *

239          KK  140145   ROUTE
240          KM        Route runoff from S140 to C145 at Wagner Wash.
241          RS       3    FLOW      -1
242          RC   0.040   0.050   0.040    3656  0.0074  103.00
243          RX    0.00   70.00  140.00  150.00  250.00  260.00  330.00  400.00
244          RY  102.00  101.00  100.00  100.00  100.00  100.00  101.00  102.00
             *

245          KK    S145   BASIN
246          KM        Compute runoff from subbasin 145
247          BA   1.756
248          LG    0.35    0.35    4.15    0.44       0
249          UI     226     672    1369    1903    2167    2003    1508    1085     777     544
250          UI     399     279     198     157      80      55      56      54      55       0
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
251          KK    C145 COMBINE
252          KM        Combine all flows in Wagner Wash at C145
253          HC       3
             *

254          KK  145155   ROUTE
255          KM        Route flows in Wagner Wash form C145 to C155. Slope = (1454-1452)/631
256          RS       1    FLOW      -1
257          RC   0.045   0.035   0.055     631  0.0032  110.00
258          RX    0.00  150.00  300.00  309.00  379.00  388.00  538.00  838.00
259          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

260          KK    S155   BASIN
261          KM        Compute runoff from subbasin 155
262          BA   1.832
263          LG    0.35    0.35    4.50    0.36       1
264          UI     187     361     846    1266    1637    1771    1735    1497    1161     879
265          UI     681     519     385     314     228     181     130     126      46      46
266          UI      45      46      46      45       0       0       0       0       0       0
             *

267          KK    C155 COMBINE
268          KM        Combine all flows at Wagner Wash at C155
269          HC       2
             *

270          KK  155160   ROUTE
271          KM        Route flow in Wagner Wash to C160 (Sun Valley Parkway).
272          RS       5    FLOW      -1
273          RC   0.035   0.035   0.035    2291  0.0052  110.00
274          RX    0.00  200.00  400.00  406.00  506.00  512.00  712.00  912.00
275          RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
             *

276          KK    S160   BASIN
277          KM        Compute runoff from subbasin 160
278          BA   1.144
279          LG    0.35    0.35    4.00    0.47       0
280          UI     165     599    1121    1501    1557    1233     844     593     394     281
281          UI     190     122      93      40      40      40      41       0       0       0
             *

282          KK    C160 COMBINE
283          KM        Combine flows at Sun Valley Parkway
284          HC       2   27.44
             *

285          KK  160170   ROUTE
286          KM        Route flows from Sun Valley Parkway to C170R. Slope = (1440-1410)/5248
287          RS       3    FLOW      -1
288          RC   0.040   0.030   0.040    5248  0.0057  108.00
289          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
290          RY  108.00  103.00  102.00  100.00  100.00  102.00  103.00  108.00
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

291          KK    S170   BASIN
292          KM        Compute runoff from subbasin 170
293          BA   1.464
294          LG    0.35    0.35    4.40    0.38       0
295          UI     209     755    1427    1917    1973    1590    1086     762     513     360
296          UI     246     160     123      52      51      51      52       0       0       0
             *

297          KK    170R   ROUTE
298          KM        Route flow from S170 to Wagner Wash.  Slope = (1456-1410) / 3986
299          RS       3    FLOW      -1
300          RC   0.045   0.045   0.045    3986  0.0115  104.00
301          RX    0.00   50.00  100.00  103.00  113.00  116.00  166.00  216.00
302          RY  103.00  102.00  101.00  100.00  100.00  101.00  102.00  103.00
             *

303          KK   C170R COMBINE
304          KM        Combine routed flows from S170 and C160 in Wagner Wash
305          HC       2
             *

306          KK  170180   ROUTE
307          KM        Route flows in Wagner Wash to C180R.  Slope = (1410-1366) / 6770
308          RS       4    FLOW      -1
309          RC   0.045   0.035   0.045    6770  0.0065  110.00
310          RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
311          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *

312          KK    S150   BASIN
313          KM        Compute runoff from subbasin 150
314          BA   0.774
315          LG    0.25    0.35    4.65    0.32       7
```

```
316        UI      71     115     270     425     531     672     746     480     406     356
317        UI     312     262     212     181     159     132     106      89      77      65
318        UI      54      47      35      35      35      14      14      13      14      14
319        UI      13      14      14       0       0       0       0       0       0       0
           *

320        KK  150165   ROUTE
321        KM   PROPOSED CHANNEL
322        KM    ROUTE OUTFLOW FROM RR150 TO S165
323        KM    STRUCTURE ID(s): RR15020
324        KM    Slope=(1760.1 - 1675.9) / 4081.6
325        RS       2    FLOW      -1
326        RC    0.02    0.02    0.02  4081.60.020625   103.0
327        RX     0.0     9.0    19.0    25.0    40.0    46.0    56.0    65.0
328        RY   103.0   100.0   100.0    98.0    98.0   100.0   100.0   103.0
           *
1                                          HEC-1 INPUT                                                PAGE  9

LINE       ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

329        KK    S165   BASIN
330        KM         Compute runoff from subbasin 165
331        BA   0.616
332        LG    0.30    0.35    4.55    0.35       3
333        UI     121     477     809    1022     617     474     347     254     185     127
334        UI      96      69      52      36      20      20      20      20       0       0
           *

335        KK    C165 COMBINE
336        KM    COMBINE ROUTED FLOW FROM RR150 WITH RUNOFF FROM S165 AT PROPOSED BASIN SITE
337        HC       2
           *

338        KK  165175   ROUTE
339        KM   PROPOSED CHANNEL
340        KM    ROUTE OUTFLOW FROM RR165 TO SUN VALLEY PARKWAY IN NEW CHANNEL THRU S175
341        KM    STRUCTURE ID(s): C17510A, C17510B
342        KM    Slope=(1674.9 - 1462.9) / 13245.4
343        RS       6    FLOW      -1
344        RC    0.02    0.02    0.02 13245.40.016012   103.0
345        RX     0.0     9.0    44.0    50.0    90.0    96.0   131.0   140.0
346        RY   103.0   100.0   100.0    98.0    98.0   100.0   100.0   103.0
           *

347        KK    S175   BASIN
348        KM         Compute runoff from subbasin 175
349        BA   1.802
350        LG    0.29    0.35    4.50    0.36       1
351        UI     126     127     317     525     763     877    1013    1295    1376     895
352        UI     771     703     622     572     507     439     372     318     296     274
353        UI     227     192     163     148     138     116      96      97      73      62
354        UI      62      63      55      24      25      24      24      24      24      25
355        UI      24      24      24      25       0       0       0       0       0       0
           *

356        KK    C175 COMBINE
357        KM    COMBINE RUNOFF FROM S175 WITH ROUTED FLOW FROM C165
358        HC       2
           *

359        KK    D175  DIVERT
360        KM   PROPOSED OFFLINE DETENTION BASIN
361        KM    LIMIT FLOW TO CAPACITY OF CULVERTS AT SUN VALLEY PARKWAY
362        KM    STA. 630+89 = 856 CFS + STA. 632+08 = 1380 CFS = TOTAL = 2236 CFS
363        KM    STRUCTURE ID:D175
364        KM    DIMENSIONS: L=280ft, W=200ft, D=4ft, Sideslope (?H:1V)= 3,  Vol.= 3.2 ac-ft
365        DT   D175O
366        DI     0.0   600.0   800.0  1000.0  1200.0  1400.0  1600.0  1800.0  2000.0  2236.0
367        DI  4000.0  5000.0
368        DQ     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
369        DQ  1764.0  2764.0
           *
1                                          HEC-1 INPUT                                                PAGE 10

LINE       ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

370        KK    175R   ROUTE
371        KM   PROPOSED CHANNEL
372        KM         Route runoff from S175 to intermediate point in S190 (C180RI).
373        KM    STRUCTURE ID(s): RR17510
374        KM    Slope=(1462.9 - 1413.1) / 3035.2
375        RS       1    FLOW      -1
376        RC    0.02    0.02    0.02  3035.20.016393   103.0
377        RX     0.0     9.0    39.0    45.0    90.0    96.0   126.0   135.0
378        RY   103.0   100.0   100.0    98.0    98.0   100.0   100.0   103.0
           *

379        KK    S180   BASIN
380        KM         Compute runoff from subbasin 180
381        BA   1.443
382        LG    0.25    0.35    4.25    0.42       2
383        UI     107     108     311     490     677     785     927    1258     896     684
384        UI     622     547     497     440     379     315     275     250     228     185
```

```
385          UI     154     138     120     115      82      83      73      52      53      52
386          UI      50      21      20      21      20      21      21      20      21      21
387          UI      20       0       0       0       0       0       0       0       0       0
             *

388          KK    180R   ROUTE
389          KM   PROPOSED CHANNEL
390          KM        Route runoff from S180 to intermediate point in S190 (C180RI).
391          KM    STRUCTURE ID(s): S18010, RR18010
392          KM    Slope=(1531.6 - 1413.1) / 7990.1
393          RS       1    FLOW      -1
394          RC    0.02    0.02    0.02  7990.1 0.01483   103.5
395          RX     0.0    10.5    20.5    26.5    36.5    42.5    52.5    63.0
396          RY   103.5   100.0   100.0    98.0    98.0   100.0   100.0   103.5
             *

397          KK  C180RI COMBINE
398          KM        Combine routed flows from S175 and S180
399          HC       2
             *

400          KK  RI180R   ROUTE
401          KM   PROPOSED CHANNEL
402          KM    STRUCTURE ID(s): C180R10
403          KM    Slope=(1413.1 - 1367.6) / 3720.6
404          RS       2    FLOW      -1
405          RC    0.02    0.02    0.02  3720.60.012229   103.0
406          RX     0.0     9.0    74.0    80.0   125.0   131.0   196.0   205.0
407          RY   103.0   100.0   100.0    98.0    98.0   100.0   100.0   103.0
             *

408          KK   C180R COMBINE
409          KM        Combine flows in Wagner Wash
410          HC       2
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

411          KK  180185   ROUTE
412          KM        Route flows in Wagner Wash from C180R to C185R.
413          RS       3    FLOW      -1
414          RC   0.045   0.035   0.045  3450.0  0.0075   106.0
415          RX     0.0   100.0   200.0   206.0   406.0   412.0   512.0   612.0
416          RY   106.0   104.0   102.0   100.0   100.0   102.0   104.0   106.0
             *

417          KK    S185   BASIN
418          KM        Compute runoff from subbasin 185
419          BA   2.421
420          LG    0.16    0.35    4.35    0.40       1
421          UI     165     166     391     668     960    1130    1281    1613    1908    1239
422          UI    1060     936     847     785     677     614     534     438     399     375
423          UI     338     271     230     210     183     183     133     126     127      85
424          UI      80      82      81      67      32      31      32      32      31      32
425          UI      32      31      32      32      32       0       0       0       0       0
             *

426          KK    185R   ROUTE
427          KM        Route runoff from S185 to Wagner Wash.  Slope = (1442-1340) / 8534
428          RS       5    FLOW      -1
429          RC   0.045   0.035   0.045    8534  0.0120  104.00
430          RX    0.00   30.00  100.00  106.00  156.00  162.00  232.00  262.00
431          RY  104.00  102.00  102.00  100.00  100.00  102.00  102.00  104.00
             *

432          KK   C185R COMBINE
433          KM        Combine flows in Wagner Wash
434          HC       2
             *

435          KK  185190   ROUTE
436          KM        Route flow in Wagner Wash to C190.  Slope = (1340-1308) / 2700
437          RS       2    FLOW      -1
438          RC   0.045   0.040   0.045    2700  0.0119  106.00
439          RX    0.00   80.00  160.00  166.00  416.00  422.00  502.00  582.00
440          RY  106.00  103.00  102.00  100.00  100.00  102.00  103.00  106.00
             *

441          KK    S190   BASIN
442          KM        Compute runoff from subbasin 190
443          BA   4.054
444          LG    0.35    0.35    3.81    0.44       0
445          UI     274     278     647    1125    1573    1918    2319    2540    2637    2574
446          UI    2467    2112    1787    1506    1256    1044     891     745     605     522
447          UI     432     370     293     266     188     191     188      78      68      66
448          UI      67      67      67      67      67      67       0       0       0       0
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

449          KK    C190 COMBINE
```

```
450          KM        Combine all flow in Wagner Wash at C190
451          HC       2   39.24
             *

452          KK  190195   ROUTE
453          KM        Route flow from C190 to the Hassayampa River. Slope = (1308-1255)/4941
454          RS       2    FLOW      -1
455          RC   0.045   0.035   0.045    4941  0.0107  110.00
456          RX    0.00   50.00  200.00  206.00  356.00  366.00  516.00  566.00
457          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *

458          KK    S195   BASIN
459          KM        Compute runoff from subbasin 195
460          BA   1.808
461          LG    0.33    0.35    4.25    0.42       0
462          UI     107     108     188     366     523     660     786     925     975    1026
463          UI    1044     975     915     778     674     571     496     419     359     313
464          UI     260     223     202     165     146     115     114      76      74      74
465          UI      67      27      26      26      26      26      26      27      26      26
466          UI      27       0       0       0       0       0       0       0       0       0
             *

467          KK    C195 COMBINE
468          KM        Combine all flows in Wagner Wash at the Hassayampa River
469          HC       2   41.05
470          ZZ
```

```
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    57        S100
                .
                .
    65          .        S102
                .           .
                .           .
    72        C102...........
                V
                V
    75       RR102
                .
                .
    87          .-------->    CF02
    84        D102
                V
                V
    90      100105
                .
                .
    96          .        S105
                .           .
                .           .
   106          .           .          .<--------    CF02
   104          .           .       CF02
                .           .          V
                .           .          V
   107          .           .     102105
                .           .          .
                .           .          .
   113       C105U......................
                .
                .
   118          .        S110
                .           V
                .           V
   125          .      11015I
                .           V
                .           V
   131          .      15I15R
                .           .
                .           .
   137          .           .       S115
                .           .          .
                .           .          .
   145          .        C115...........
                .           V
                .           V
   148          .      115120
                .           .
                .           .
   154          .           .       S120
                .           .          .
                .           .          .
   161          .        C120...........
                .           .
                .           .
   164       C105D...........
                V
                V
   167      120135
                .
```

```
173          .        S125
             .           V
             .           V
179          .      12535I
             .           .
             .           .
188          .           .        S130
             .           .           V
             .           .           V
194          .           .      13035I
             .           .           .
             .           .           .
203          .       C135I............
             .           V
             .           V
206          .      35I135
             .           .
             .           .
215          .           .        S135
             .           .           .
             .           .           .
221          .       C135L............
             .           .
             .           .
224       C135............
             V
             V
227     135145
             .
             .
233          .        S140
             .           V
             .           V
239          .      140145
             .           .
             .           .
245          .           .        S145
             .           .           .
             .           .           .
251       C145........................
             V
             V
254     145155
             .
             .
260          .        S155
             .           .
             .           .
267       C155............
             V
             V
270     155160
             .
             .
276          .        S160
             .           .
             .           .
282       C160............
             V
             V
285     160170
             .
             .
291          .        S170
             .           V
             .           V
297          .        170R
             .           .
             .           .
303      C170R............
             V
             V
306     170180
             .
             .
312          .        S150
             .           V
             .           V
320          .      150165
             .           .
             .           .
329          .           .        S165
             .           .           .
             .           .           .
335          .        C165............
             .           V
             .           V
338          .      165175
             .           .
             .           .
347          .           .        S175
             .           .           .
             .           .           .
356          .        C175............
```

```
                .          .
                .          .
  365           .          .-------> D1750
  359           .      D175
                .          V
                .          V
  370           .      175R
                .          .
                .          .
  379           .          .      S180
                .          .         V
                .          .         V
  388           .          .      180R
                .          .         .
                .          .         .
  397           .    C180RI............
                .          V
                .          V
  400           .    RI180R
                .          .
                .          .
  408       C180R............
                V
                V
  411      180185
                .
                .
  417           .      S185
                .          V
                .          V
  426           .      185R
                .          .
                .          .
  432       C185R............
                V
                V
  435      185190
                .
                .
  441           .      S190
                .          .
                .          .
  449        C190............
                V
                V
  452      190195
                .
                .
  458           .      S195
                .          .
                .          .
  467        C195............
```

```
 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *            VERSION 4.1               *
 *                                      *
 *  RUN DATE   19APR06  TIME  16:51:50  *
 *                                      *
 ****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
- WAGNER SUB-AREA
- ALTERNATIVE C

Alternative Description
Alternative C is based on the concept of an excavated concrete-lined channel from the apex to the outfall, without providing any detention basin is at the apex. To address sedimentation associated with the alluvial fan systems, sedimentation basins are provided throughout the system. The excavated concrete channels are complemented with a 120-foot wide adjacent riparian preservation corridor.

SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
MODELER: TED LEHMAN
FILENAME: A4_EX6.DAT

100-YEAR 6-HOUR MODEL
EXISTING CONDITIONS
AREA 4 WATERSHED AREA = 90.5 SQ. MILES
MODELED AREA = 76.8 SQ. MILES

GREEN-AMPT LOSS METHOD
S-GRAPH UNIT HYDROGRAPHS
- MOUNTAIN
- DESERT/RANGELAND

```
                    NORMAL-DEPTH CHANNEL ROUTING
                    LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
                      - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
                      - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
                      - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
                    SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)

36 IO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT          HYDROGRAPH TIME DATA
                      NMIN          5  MINUTES IN COMPUTATION INTERVAL
                     IDATE     1JAN99  STARTING DATE
                     ITIME       1200  STARTING TIME
                        NQ       2000  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE     8JAN99  ENDING DATE
                    NDTIME       1035  ENDING TIME
                     ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE  166.58 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
             SURFACE AREA           ACRES
             TEMPERATURE            DEGREES FAHRENHEIT

37 JD          INDEX STORM NO. 1
                      STRM      3.20  PRECIPITATION DEPTH
                      TRDA       .10  TRANSPOSITION DRAINAGE AREA

38 PI            PRECIPITATION PATTERN
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                   .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                   .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00

41 JD          INDEX STORM NO. 2
                      STRM      3.18  PRECIPITATION DEPTH
                      TRDA       .50  TRANSPOSITION DRAINAGE AREA

42 PI            PRECIPITATION PATTERN
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                   .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                   .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00

45 JD          INDEX STORM NO. 3
                      STRM      3.12  PRECIPITATION DEPTH
                      TRDA      2.80  TRANSPOSITION DRAINAGE AREA

46 PI            PRECIPITATION PATTERN
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                   .03       .03       .07       .07       .07       .08       .08       .08       .05       .05
                   .05       .02       .02       .02       .01       .01       .01       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00

49 JD          INDEX STORM NO. 4
                      STRM      2.95  PRECIPITATION DEPTH
                      TRDA     16.00  TRANSPOSITION DRAINAGE AREA

50 PI            PRECIPITATION PATTERN
                   .01       .01       .00       .00       .00       .00       .00       .00       .00       .01
                   .01       .01       .00       .01       .00       .00       .00       .00       .00       .00
                   .00       .00       .01       .00       .00       .00       .00       .01       .01       .01
                   .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                   .03       .03       .06       .06       .06       .07       .07       .07       .04       .04
                   .04       .02       .02       .02       .01       .01       .01       .01       .01       .01
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00

53 JD          INDEX STORM NO. 5
                      STRM      2.59  PRECIPITATION DEPTH
                      TRDA     90.00  TRANSPOSITION DRAINAGE AREA

54 PI            PRECIPITATION PATTERN
                   .01       .01       .01       .00       .00       .00       .01       .01       .01       .01
```

```
.01    .01    .01    .01    .01    .01    .01    .01    .01    .01
.01    .01    .01    .01    .01    .01    .01    .01    .01    .01
.01    .01    .01    .01    .01    .01    .02    .02    .02    .03
.03    .03    .05    .05    .05    .05    .05    .05    .04    .04
.04    .02    .02    .02    .02    .02    .02    .01    .01    .01
.01    .01    .01    .01    .01    .01    .01    .01    .01    .01
.01    .01

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
  75 KK     *     RR102  *      STORAGE
            *            *
            **************

  78 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
1
                                          RUNOFF SUMMARY
                                   FLOW IN CUBIC FEET PER SECOND
                                 TIME IN HOURS,  AREA IN SQUARE MILES

                                     PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
          OPERATION       STATION    FLOW    PEAK                                           AREA      STAGE     MAX STAGE
+                                                        6-HOUR     24-HOUR     72-HOUR

          HYDROGRAPH AT
+                          S100     4347.    4.67        899.        225.         75.      6.99

          HYDROGRAPH AT
+                          S102     2790.    4.33        417.        104.         35.      3.23

          2 COMBINED AT
+                          C102     5993.    4.50       1198.        300.        100.     10.23

          ROUTED TO
+                         RR102      127.    6.75        122.        104.         72.     10.23

          DIVERSION TO
+                          CF02       63.    6.75         61.         52.         36.     10.23

          HYDROGRAPH AT
+                          D102       63.    6.75         61.         52.         36.     10.23

          ROUTED TO
+                        100105       59.   12.58         58.         51.         36.     10.23

          HYDROGRAPH AT
+                          S105     2863.    4.50        495.        124.         41.      4.37

          HYDROGRAPH AT
+                          CF02       63.    6.75         61.         52.         36.     10.23

          ROUTED TO
+                        102105       63.    8.00         60.         51.         36.     10.23

          3 COMBINED AT
+                         C105U     2863.    4.50        549.        226.        120.     14.60

          HYDROGRAPH AT
+                          S110      662.    4.25         76.         19.          6.       .43

          ROUTED TO
+                        11015I      570.    4.42         76.         19.          6.       .43

          ROUTED TO
+                        15I15R      506.    4.83         76.         19.          6.       .43

          HYDROGRAPH AT
+                          S115     1605.    4.58        296.         74.         25.      2.25

          2 COMBINED AT
+                          C115     1813.    4.67        350.         88.         29.      2.68

          ROUTED TO
+                        115120     1781.    4.75        350.         88.         29.      2.68

          HYDROGRAPH AT
+                          S120     1838.    4.33        256.         64.         21.      2.00

          2 COMBINED AT
+                          C120     2678.    4.58        545.        137.         46.      4.68

          2 COMBINED AT
+                         C105D     4029.    4.50        821.        275.        127.     19.28

          ROUTED TO
+                        120135     4027.    4.58        821.        275.        127.     19.28
```

+	HYDROGRAPH AT	S125	202.	4.08	14.	4.	1.	.09
+	ROUTED TO	12535I	197.	4.08	14.	4.	1.	.09
+	HYDROGRAPH AT	S130	524.	4.17	48.	12.	4.	.31
+	ROUTED TO	13035I	532.	4.17	48.	12.	4.	.31
+	2 COMBINED AT	C135I	547.	4.17	54.	14.	5.	1.18
+	ROUTED TO	35I135	479.	4.42	54.	14.	5.	1.18
+	HYDROGRAPH AT	S135	1102.	4.25	111.	28.	9.	.88
+	2 COMBINED AT	C135L	1184.	4.33	145.	36.	12.	2.06
+	2 COMBINED AT	C135	4379.	4.50	880.	288.	131.	21.34
+	ROUTED TO	135145	3909.	5.00	870.	286.	131.	21.34
+	HYDROGRAPH AT	S140	1913.	4.17	188.	47.	16.	1.37
+	ROUTED TO	140145	1623.	4.42	188.	47.	16.	1.37
+	HYDROGRAPH AT	S145	1702.	4.25	193.	48.	16.	1.76
+	3 COMBINED AT	C145	4238.	4.92	1037.	325.	143.	24.47
+	ROUTED TO	145155	4239.	4.92	1037.	325.	143.	24.47
+	HYDROGRAPH AT	S155	1626.	4.33	223.	56.	19.	1.83
+	2 COMBINED AT	C155	4471.	4.83	1136.	348.	150.	26.30
+	ROUTED TO	155160	4459.	4.92	1134.	348.	150.	26.30
+	HYDROGRAPH AT	S160	1347.	4.25	133.	33.	11.	1.14
+	2 COMBINED AT	C160	4453.	4.92	1175.	358.	153.	27.44
+	ROUTED TO	160170	4348.	5.17	1170.	356.	153.	27.44
+	HYDROGRAPH AT	S170	1686.	4.25	178.	44.	15.	1.46
+	ROUTED TO	170R	1544.	4.42	178.	44.	15.	1.46
+	2 COMBINED AT	C170R	4458.	5.08	1236.	372.	157.	28.90
+	ROUTED TO	170180	4346.	5.42	1230.	371.	157.	28.90
+	HYDROGRAPH AT	S150	836.	4.33	126.	31.	10.	.77
+	ROUTED TO	150165	825.	4.42	126.	31.	10.	.77
+	HYDROGRAPH AT	S165	1008.	4.17	94.	23.	8.	.62
+	2 COMBINED AT	C165	1292.	4.25	201.	50.	17.	1.39
+	ROUTED TO	165175	1237.	4.50	200.	50.	17.	1.39
+	HYDROGRAPH AT	S175	1203.	4.50	226.	56.	19.	1.80
+	2 COMBINED AT	C175	2054.	4.50	383.	96.	32.	3.19

```
          DIVERSION TO
+                         D175O        0.     .00          0.          0.          0.       3.19

          HYDROGRAPH AT
+                          D175     2054.    4.50        383.         96.         32.       3.19

          ROUTED TO
+                          175R     2032.    4.58        383.         96.         32.       3.19

          HYDROGRAPH AT
+                          S180     1032.    4.50        181.         45.         15.       1.44

          ROUTED TO
+                          180R      954.    4.58        181.         45.         15.       1.44

          2 COMBINED AT
+                         C180RI    2608.    4.58        507.        127.         42.       4.63

          ROUTED TO
+                         RI180R    2579.    4.67        507.        127.         42.       4.63

          2 COMBINED AT
+                          C180R    4939.    5.17       1472.        429.        176.      33.54

          ROUTED TO
+                         180185    4934.    5.25       1468.        428.        175.      33.54

          HYDROGRAPH AT
+                          S185     1450.    4.50        288.         72.         24.       2.42

          ROUTED TO
+                          185R     1302.    4.92        288.         72.         24.       2.42

          2 COMBINED AT
+                          C185R    5376.    5.17       1579.        455.        184.      35.96

          ROUTED TO
+                         185190    5360.    5.25       1576.        454.        184.      35.96

          HYDROGRAPH AT
+                          S190     2084.    4.58        391.         98.         33.       4.05

          2 COMBINED AT
+                          C190     5657.    5.17       1710.        488.        194.      39.24

          ROUTED TO
+                         190195    5521.    5.33       1705.        487.        194.      39.24

          HYDROGRAPH AT
+                          S195     1001.    4.67        203.         51.         17.       1.81

          2 COMBINED AT
+                          C195     5616.    5.33       1756.        499.        198.      41.05
1                     SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    RR102
                     (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

PLAN  1 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION       1550.00           1556.00          1556.00
                              STORAGE            553.              2705.            2705.
                              OUTFLOW              0.               600.             600.

                RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                  OF     RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
                 PMF     W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS      HOURS

                1.00      1552.61       .00       1386.      222.        .00         6.33        .00

PLAN  2 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION       1550.00           1556.00          1556.00
                              STORAGE            553.              2705.            2705.
                              OUTFLOW              0.               600.             600.

                RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                  OF     RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
                 PMF     W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS      HOURS

                1.00      1552.59       .00       1380.      219.        .00         6.33        .00

PLAN  3 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION       1550.00           1556.00          1556.00
                              STORAGE            553.              2705.            2705.
                              OUTFLOW              0.               600.             600.

                RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                  OF     RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
                 PMF     W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS      HOURS

                1.00      1552.23       .00       1236.      163.        .00         6.58        .00
```

PLAN 4 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1551.78	.00	1083.	114.	.00	6.75	.00

PLAN 5 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1551.06	.00	868.	68.	.00	6.75	.00

*** NORMAL END OF HEC-1 ***

```
1****************************************                    ****************************************
 *                                      *                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *              JUN   1998              *                    *   HYDROLOGIC ENGINEERING CENTER      *
 *            VERSION 4.1               *                    *         609 SECOND STREET            *
 *                                      *                    *      DAVIS, CALIFORNIA 95616         *
 *  RUN DATE   19APR06  TIME  16:51:51  *                    *          (916) 756-1104              *
 *                                      *                    *                                      *
 ****************************************                    ****************************************

                                        X     X  XXXXXXX   XXXXX           X
                                        X     X  X        X     X         XX
                                        X     X  X        X                X
                                        XXXXXXX  XXXX     X        XXXXX   X
                                        X     X  X        X                X
                                        X     X  X        X     X          X
                                        X     X  XXXXXXX   XXXXX         XXX

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                          HEC-1 INPUT                                          PAGE  1

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

        1           ID    HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
        2           ID     - WAGNER SUB-AREA
        3           ID     - ALTERNATIVE C
        4           ID
        5           ID   Alternative Description
        6           ID   Alternative C is based on the concept of an excavated concrete-lined
        7           ID   channel from the apex to the outfall, without providing any detention
        8           ID   basin is at the apex.  To address sedimentation associated with the
        9           ID   alluvial fan systems, sedimentation basins are provided throughout the
       10           ID   system.  The excavated concrete channels are complemented with a 120-foot
       11           ID   wide adjacent riparian preservation corridor.
       12           ID
       13           ID
       14           ID   SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
       15           ID   JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
       16           ID   MODELER: TED LEHMAN
       17           ID   FILENAME: A4_EX24.DAT
       18           ID
       19           ID   100-YEAR 24-HOUR MODEL
       20           ID   EXISTING CONDITIONS
       21           ID   AREA 4 WATERSHED AREA = 90.5 SQ. MILES
       22           ID            MODELED AREA = 76.8 SQ. MILES
       23           ID
       24           ID   GREEN-AMPT LOSS METHOD
       25           ID   S-GRAPH UNIT HYDROGRAPHS
       26           ID     - MOUNTAIN
       27           ID     - DESERT/RANGELAND
       28           ID   NORMAL-DEPTH CHANNEL ROUTING
       29           ID   LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
       30           ID     - UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
       31           ID     - HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
       32           ID     - MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %
       33           ID   SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)
       34           IT       5  1JAN99    1200    2000
       35           IN      15
       36           IO       5
                    *DIAGRAM
                    *
       37           JD   4.198  0.1000
       38           PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
       39           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
       40           PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
       41           PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.172
       42           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
       43           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
       44           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
       45           PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
       46           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
       47           PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
       48           JD   3.990    10.0
       49           JD   3.780    30.0
       50           JD   3.654    60.0
       51           JD   3.578    90.0
                    *

1                                          HEC-1 INPUT                                          PAGE  2

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
 52          KK    S100   BASIN
 53          KM        Compute runoff from subbasin 100
 54          BA   6.994
 55          LG    0.35     0.38     6.40     0.16        0
 56          UI     449      455      964     1717     2422     3046     3616     4050     4275     4281
 57          UI    4178     3867     3211     2766     2319     1968     1698     1387     1198      990
 58          UI     848      715      635      476      471      313      309      309      204      110
 59          UI     109      111      110      109      111      109      110      111        0        0
             *

 60          KK    S102   BASIN
 61          KM        Compute runoff from subbasin 102
 62          BA   3.234
 63          LG    0.35     0.38     5.60     0.22        0
 64          UI     333      657     1539     2292     2943     3178     3083     2643     1985     1523
 65          UI    1179      890      674      542      377      300      232      193       81       82
 66          UI      81       81       83        0        0        0        0        0        0        0
             *

 67          KK    C102 COMBINE
 68          KM        Combine total inflow to detention area behind (north) of CAP Canal
 69          HC        2
             *

 70          KK   RR102 STORAGE
 71          KM        Route flows through storage area behind CAP Canal
 72          KM        Stage-storage-discharge data from Wagner Wash FDS Hydrology (1991)
 73          KO
 74          RS        1    STOR      -1
 75          SV            553.00 1148.00 2316.00 2705.00
 76          SQ                   128.00  587.00  600.00
 77          SE  1543.0 1550.00 1552.00 1555.00 1556.00
 78          ST  1556.0  1320.0     3.2     1.5
             *

 79          KK    D102  DIVERT
 80          KM        Divide flow evenly over the two 18-foot wide CAP overchutes
 81          KM        although the inverts are 0.5 feet different in elevation
 82          DT    CF02      0.0      0.0
 83          DI     0.0    100.0   1000.0 10000.0      0.0      0.0      0.0      0.0      0.0      0.0
 84          DQ     0.0     50.0    500.0  5000.0      0.0      0.0      0.0      0.0      0.0      0.0
             *

 85          KK  100105   ROUTE
 86          KM        Route outflows from east CAP overchute to Sun Valley Parkway.
 87          RS        9    FLOW      -1
 88          RC   0.035    0.055    0.035    11235   0.0045   105.00
 89          RX    0.00   120.00   240.00   250.00   590.00   600.00   720.00   840.00
 90          RY  105.00   102.50   100.00   100.00   100.00   100.00   102.50   105.00
             *
1                                          HEC-1 INPUT                                          PAGE  3

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 91          KK    S105   BASIN
 92          KM        Compute runoff from subbasin 105
 93          BA   4.370
 94          LG    0.35     0.35     4.80     0.30        0
 95          UI     345      380     1112     1723     2334     2867     3143     3344     3176     2865
 96          UI    2374     1903     1555     1291     1018      832      685      564      458      369
 97          UI     288      235      238      126       83       85       84       84       84       84
 98          UI      84        0        0        0        0        0        0        0        0        0
             *

 99          KK    CF02RETRIEVE
100          KM        Retrieve flow from west CAP overchute.
101          DR    CF02
             *

102          KK  102105   ROUTE
103          KM        Route retrieved flow from west overchute to C105.
104          RS        6    FLOW      -1
105          RC   0.045    0.050    0.045     7656   0.0065   104.00
106          RX    0.00    40.00   120.00   130.00   250.00   260.00   340.00   380.00
107          RY  104.00   102.00   101.00   100.00   100.00   101.00   102.00   104.00
             *

108          KK   C105U COMBINE
109          KM        Combine runoff from S105 with routed flow from 100105 and 102105
110          KM        (CAP overchute flows). This is the total flow in Wagner Wash upstream
111          KM        of Sun Valley Parkway.
112          HC        3  14.598
             *

113          KK    S110   BASIN
114          KM        Compute runoff from subbasin 110
115          BA   0.430
116          LG    0.25     0.37     5.20     0.25        6
117          UI      56      166      335      449      587      358      291      241      188      140
118          UI     121       86       68       56       43       32       27       22       11       11
119          UI      10       11       11        0        0        0        0        0        0        0
             *
```

```
120          KK  11015I   ROUTE
121          KM        Route flow from C105 through subbasin 110 to C115.
122          RS       2    FLOW      -1
123          RC   0.045   0.035   0.045    3783  0.0267  102.00
124          RX    0.00   50.00  100.00  110.00  120.00  130.00  180.00  230.00
125          RY  102.00  101.50  101.00  100.00  100.00  101.00  101.50  102.00
             *

126          KK  15I15R   ROUTE
127          KM        Route flows from split through S115 to C115.
128          RS       8    FLOW      -1
129          RC   0.035   0.030   0.035   14128  0.0151  105.00
130          RX    0.00   25.00   58.00   65.00   85.00   92.00  125.00  150.00
131          RY  105.00  102.50  102.00  100.00  100.00  102.00  102.50  105.00
             *
1                                          HEC-1 INPUT                                                    PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

132          KK    S115   BASIN
133          KM        Compute runoff from subbasin 115
134          BA   2.247
135          LG    0.32    0.35    4.80    0.30       2
136          UI     160     163     434     709     984    1212    1401    1530    1539    1465
137          UI    1351    1100     918     773     632     528     444     351     304     252
138          UI     203     170     140     110     110      85      39      39      40      39
139          UI      39      39      40      39       0       0       0       0       0       0
             *

140          KK    C115 COMBINE
141          KM        Combine runoff from S115 with routed flow.
142          HC       2   2.677
             *

143          KK  115120   ROUTE
144          KM        Route total flows from C115 to C120. Slope =(1532-1494) / 4077
145          RS       2    FLOW      -1
146          RC   0.030   0.025   0.030    4077  0.0093  105.00
147          RX    0.00   30.00   75.00   80.00  105.00  110.00  155.00  190.00
148          RY  105.00  101.50  101.00  100.00  100.00  101.00  101.50  105.00
             *

149          KK    S120   BASIN
150          KM        Compute runoff from subbasin 120
151          BA   2.004
152          LG    0.33    0.35    4.65    0.32       1
153          UI     206     408     954    1419    1824    1969    1911    1637    1230     944
154          UI     731     551     418     336     234     186     143     120      50      51
155          UI      50      51      51       0       0       0       0       0       0       0
             *

156          KK    C120 COMBINE
157          KM        Combine flows at Wagner Wash at outlet of channel along SVP
158          HC       2   4.681
             *

159          KK   C105D COMBINE
160          KM        Combine flows from C105 and C120 just D/S of Sun Valley Parkway
161          HC       2  19.279
             *

162          KK  120135   ROUTE
163          KM        Route flows in Wagner Wash from Sun Valley Parkway to C135.
164          RS       1    FLOW      -1
165          RC   0.045   0.035   0.045     951  0.0074  110.00
166          RX    0.00  225.00  450.00  455.00  485.00  490.00  615.00  840.00
167          RY  110.00  105.00  102.00  100.00  100.00  102.00  102.00  110.00
             *
1                                          HEC-1 INPUT                                                    PAGE  5

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

168          KK    S125   BASIN
169          KM        Compute runoff from subbasin 125
170          BA   0.093
171          LG    0.25    0.35    4.15    0.44       5
172          UI      46     164     204     116      73      46      28      17      12       4
173          UI       5       4       0       0       0       0       0       0       0       0
             *

174          KK  12535I   ROUTE
175          KM   PROPOSED CHANNEL
176          KM        Route flows from S125 to intermediate combination point in S135.
177          KM    STRUCTURE ID(s): RR12510
178          KM    Slope=(1746.1 - 1697.0) / 1852.5
179          RS       1    FLOW      -1
180          RC    0.02    0.02    0.02  1852.50.026481   104.0
181          RX     0.0    12.0    12.0    12.0    15.0    15.0    15.0    27.0
182          RY   104.0   100.0   100.0   100.0   100.0   100.0   100.0   104.0
             *

183          KK    S130   BASIN
```

```
184          KM        Compute runoff from subbasin 130
185          BA   0.310
186          LG    0.21     0.35     4.20     0.43        4
187          UI      61      239      399      514      313      240      176      128       94       64
188          UI      49       36       26       19       10       10       10       10        0        0
             *

189          KK  13035I   ROUTE
190          KM   PROPOSED CHANNEL
191          KM        Route flow to intermediate point in S135.
192          KM    STRUCTURE ID(s): RR13010
193          KM    Slope=(1728.2 - 1697.0) / 1235.4
194          RS       1     FLOW       -1
195          RC    0.02     0.02     0.02   1235.4 0.02524    104.0
196          RX     0.0     12.0     12.0     12.0     32.0     32.0     32.0     44.0
197          RY   104.0    100.0    100.0    100.0    100.0    100.0    100.0    104.0
             *

198          KK   C135I COMBINE
199          KM        Combine routed flow from RR130 and RR125
200          HC       2     1.18
             *

201          KK  35I135   ROUTE
202          KM   PROPOSED CHANNEL
203          KM        Route combined flows to C135 at Wagner Wash.
204          KM    STRUCTURE ID(s): C135L10
205          KM    Slope=(1697.0 - 1496.9) / 12096.9
206          RS       5     FLOW       -1
207          RC    0.02     0.02     0.02 12096.90.016546    103.5
208          RX     0.0     10.5     25.5     31.5     46.5     52.5     67.5     78.0
209          RY   103.5    100.0    100.0     98.0     98.0    100.0    100.0    103.5
             *
1                                          HEC-1 INPUT                                          PAGE  6

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

210          KK    S135   BASIN
211          KM        Compute runoff from subbasin 135
212          BA   0.879
213          LG    0.35     0.35     4.25     0.42        0
214          UI     115      362      709      992     1126      989      736      527      370      260
215          UI     194      128       89       76       28       28       29       28        0        0
             *

216          KK   C135L COMBINE
217          KM        Combine all piedmont runoff inflow to Wagner Wash at C135
218          HC       2     2.06
             *

219          KK    C135 COMBINE
220          KM        Combine all flows in Wagner Wash at C135
221          HC       2
             *

222          KK  135145   ROUTE
223          KM        Route flow in Wagner Wash to C145.  Slope = (1487-1454) / 7938
224          RS       4     FLOW       -1
225          RC   0.045    0.035    0.045     7938   0.0042   110.00
226          RX    0.00   300.00   400.00   406.00   506.00   512.00   612.00   912.00
227          RY  110.00   102.50   102.00   100.00   100.00   102.00   102.50   110.00
             *

228          KK    S140   BASIN
229          KM        Compute runoff from subbasin 140
230          BA   1.373
231          LG    0.35     0.36     5.00     0.28        0
232          UI     260     1034     1801     2168     1890     1235      809      517      339      211
233          UI     157       56       55       57        0        0        0        0        0        0
             *

234          KK  140145   ROUTE
235          KM        Route runoff from S140 to C145 at Wagner Wash.
236          RS       3     FLOW       -1
237          RC   0.040    0.050    0.040     3656   0.0074   103.00
238          RX    0.00    70.00   140.00   150.00   250.00   260.00   330.00   400.00
239          RY  102.00   101.00   100.00   100.00   100.00   100.00   101.00   102.00
             *

240          KK    S145   BASIN
241          KM        Compute runoff from subbasin 145
242          BA   1.756
243          LG    0.35     0.35     4.15     0.44        0
244          UI     226      672     1369     1903     2167     2003     1508     1085      777      544
245          UI     399      279      198      157       80       55       56       54       55        0
             *
1                                          HEC-1 INPUT                                          PAGE  7

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

246          KK    C145 COMBINE
247          KM        Combine all flows in Wagner Wash at C145
248          HC       3
```

```
                *
249             KK  145155   ROUTE
250             KM        Route flows in Wagner Wash form C145 to C155. Slope = (1454-1452)/631
251             RS       1    FLOW      -1
252             RC   0.045   0.035   0.055     631  0.0032  110.00
253             RX    0.00  150.00  300.00  309.00  379.00  388.00  538.00  838.00
254             RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
                *

255             KK    S155   BASIN
256             KM        Compute runoff from subbasin 155
257             BA   1.832
258             LG    0.35    0.35    4.50    0.36       1
259             UI     187     361     846    1266    1637    1771    1735    1497    1161     879
260             UI     681     519     385     314     228     181     130     126      46      46
261             UI      45      46      46      45       0       0       0       0       0       0
                *

262             KK    C155 COMBINE
263             KM        Combine all flows at Wagner Wash at C155
264             HC       2
                *

265             KK  155160   ROUTE
266             KM        Route flow in Wagner Wash to C160 (Sun Valley Parkway).
267             RS       5    FLOW      -1
268             RC   0.035   0.035   0.035    2291  0.0052  110.00
269             RX    0.00  200.00  400.00  406.00  506.00  512.00  712.00  912.00
270             RY  110.00  106.50  103.00  100.00  100.00  103.00  106.50  110.00
                *

271             KK    S160   BASIN
272             KM        Compute runoff from subbasin 160
273             BA   1.144
274             LG    0.35    0.35    4.00    0.47       0
275             UI     165     599    1121    1501    1557    1233     844     593     394     281
276             UI     190     122      93      40      40      40      41       0       0       0
                *

277             KK    C160 COMBINE
278             KM        Combine flows at Sun Valley Parkway
279             HC       2   27.44
                *

280             KK  160170   ROUTE
281             KM        Route flows from Sun Valley Parkway to C170R. Slope = (1440-1410)/5248
282             RS       3    FLOW      -1
283             RC   0.040   0.030   0.040    5248  0.0057  108.00
284             RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
285             RY  108.00  103.00  102.00  100.00  100.00  102.00  103.00  108.00
                *
1                                          HEC-1 INPUT                                          PAGE  8

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

286             KK    S170   BASIN
287             KM        Compute runoff from subbasin 170
288             BA   1.464
289             LG    0.35    0.35    4.40    0.38       0
290             UI     209     755    1427    1917    1973    1590    1086     762     513     360
291             UI     246     160     123      52      51      51      52       0       0       0
                *

292             KK    170R   ROUTE
293             KM        Route flow from S170 to Wagner Wash.  Slope = (1456-1410) / 3986
294             RS       3    FLOW      -1
295             RC   0.045   0.045   0.045    3986  0.0115  104.00
296             RX    0.00   50.00  100.00  103.00  113.00  116.00  166.00  216.00
297             RY  103.00  102.00  101.00  100.00  100.00  101.00  102.00  103.00
                *

298             KK   C170R COMBINE
299             KM        Combine routed flows from S170 and C160 in Wagner Wash
300             HC       2
                *

301             KK  170180   ROUTE
302             KM        Route flows in Wagner Wash to C180R.  Slope = (1410-1366) / 6770
303             RS       4    FLOW      -1
304             RC   0.045   0.035   0.045    6770  0.0065  110.00
305             RX    0.00  200.00  400.00  406.00  606.00  612.00  812.00 1012.00
306             RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
                *

307             KK    S150   BASIN
308             KM        Compute runoff from subbasin 150
309             BA   0.774
310             LG    0.25    0.35    4.65    0.32       7
311             UI      71     115     270     425     531     672     746     480     406     356
312             UI     312     262     212     181     159     132     106      89      77      65
313             UI      54      47      35      35      35      14      14      13      14      14
314             UI      13      14      14       0       0       0       0       0       0       0
                *
```

```
315          KK  150165   ROUTE
316          KM   PROPOSED CHANNEL
317          KM    ROUTE OUTFLOW FROM RR150 TO S165
318          KM    STRUCTURE ID(s): RR15020
319          KM    Slope=(1760.1 - 1675.9) / 4081.6
320          RS       2    FLOW      -1
321          RC    0.02     0.02    0.02  4081.60.020625   103.0
322          RX     0.0      9.0    19.0    25.0    40.0    46.0    56.0    65.0
323          RY   103.0    100.0   100.0    98.0    98.0   100.0   100.0   103.0
             *
1                                          HEC-1 INPUT                                                    PAGE  9

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


324          KK    S165   BASIN
325          KM         Compute runoff from subbasin 165
326          BA   0.616
327          LG    0.30     0.35    4.55    0.35       3
328          UI     121      477     809    1022     617     474     347     254     185     127
329          UI      96       69      52      36      20      20      20      20       0       0
             *

330          KK    C165 COMBINE
331          KM    COMBINE ROUTED FLOW FROM RR150 WITH RUNOFF FROM S165 AT PROPOSED BASIN SITE
332          HC       2
             *

333          KK  165175   ROUTE
334          KM   PROPOSED CHANNEL
335          KM    ROUTE OUTFLOW FROM RR165 TO SUN VALLEY PARKWAY IN NEW CHANNEL THRU S175
336          KM    STRUCTURE ID(s): C17510A, C17510B
337          KM    Slope=(1674.9 - 1462.9) / 13245.4
338          RS       6    FLOW      -1
339          RC    0.02     0.02    0.02 13245.40.016012   103.0
340          RX     0.0      9.0    44.0    50.0    90.0    96.0   131.0   140.0
341          RY   103.0    100.0   100.0    98.0    98.0   100.0   100.0   103.0
             *

342          KK    S175   BASIN
343          KM         Compute runoff from subbasin 175
344          BA   1.802
345          LG    0.29     0.35    4.50    0.36       1
346          UI     126      127     317     525     763     877    1013    1295    1376     895
347          UI     771      703     622     572     507     439     372     318     296     274
348          UI     227      192     163     148     138     116      96      97      73      62
349          UI      62       63      55      24      25      24      24      24      24      25
350          UI      24       24      24      25       0       0       0       0       0       0
             *

351          KK    C175 COMBINE
352          KM    COMBINE RUNOFF FROM S175 WITH ROUTED FLOW FROM C165
353          HC       2
             *

354          KK    D175  DIVERT
355          KM   PROPOSED OFFLINE DETENTION BASIN
356          KM    LIMIT FLOW TO CAPACITY OF CULVERTS AT SUN VALLEY PARKWAY
357          KM    STA. 630+89 = 856 CFS + STA. 632+08 = 1380 CFS = TOTAL = 2236 CFS
358          KM    STRUCTURE ID:D175
359          KM    DIMENSIONS: L=280ft, W=200ft, D=4ft, Sideslope (?H:1V)= 3,  Vol.= 3.2 ac-ft
360          DT   D1750
361          DI     0.0    600.0   800.0  1000.0  1200.0  1400.0  1600.0  1800.0  2000.0  2236.0
362          DI  4000.0   5000.0
363          DQ     0.0      0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
364          DQ  1764.0   2764.0
             *
1                                          HEC-1 INPUT                                                    PAGE 10

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


365          KK    175R   ROUTE
366          KM   PROPOSED CHANNEL
367          KM         Route runoff from S175 to intermediate point in S190 (C180RI).
368          KM    STRUCTURE ID(s): RR17510
369          KM    Slope=(1462.9 - 1413.1) / 3035.2
370          RS       1    FLOW      -1
371          RC    0.02     0.02    0.02  3035.20.016393   103.0
372          RX     0.0      9.0    39.0    45.0    90.0    96.0   126.0   135.0
373          RY   103.0    100.0   100.0    98.0    98.0   100.0   100.0   103.0
             *

374          KK    S180   BASIN
375          KM         Compute runoff from subbasin 180
376          BA   1.443
377          LG    0.25     0.35    4.25    0.42       2
378          UI     107      108     311     490     677     785     927    1258     896     684
379          UI     622      547     497     440     379     315     275     250     228     185
380          UI     154      138     120     115      82      83      73      52      53      52
381          UI      50       21      20      21      20      21      21      20      21      21
382          UI      20        0       0       0       0       0       0       0       0       0
             *
```

```
383          KK   180R   ROUTE
384          KM   PROPOSED CHANNEL
385          KM        Route runoff from S180 to intermediate point in S190 (C180RI).
386          KM    STRUCTURE ID(s): S18010, RR18010
387          KM    Slope=(1531.6 - 1413.1) / 7990.1
388          RS       1    FLOW      -1
389          RC    0.02    0.02    0.02  7990.1 0.01483   103.5
390          RX     0.0    10.5    20.5    26.5    36.5    42.5    52.5    63.0
391          RY   103.5   100.0   100.0    98.0    98.0   100.0   100.0   103.5
             *

392          KK  C180RI COMBINE
393          KM        Combine routed flows from S175 and S180
394          HC       2
             *

395          KK  RI180R   ROUTE
396          KM   PROPOSED CHANNEL
397          KM    STRUCTURE ID(s): C180R10
398          KM    Slope=(1413.1 - 1367.6) / 3720.6
399          RS       2    FLOW      -1
400          RC    0.02    0.02    0.02  3720.60.012229   103.0
401          RX     0.0     9.0    74.0    80.0   125.0   131.0   196.0   205.0
402          RY   103.0   100.0   100.0    98.0    98.0   100.0   100.0   103.0
             *

403          KK   C180R COMBINE
404          KM        Combine flows in Wagner Wash
405          HC       2
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

406          KK  180185   ROUTE
407          KM        Route flows in Wagner Wash from C180R to C185R.
408          RS       3    FLOW      -1
409          RC   0.045   0.035   0.045    3450  0.0075  106.00
410          RX    0.00  100.00  200.00  206.00  406.00  412.00  512.00  612.00
411          RY  106.00  104.00  102.00  100.00  100.00  102.00  104.00  106.00
             *

412          KK    S185   BASIN
413          KM        Compute runoff from subbasin 185
414          BA   2.421
415          LG    0.16    0.35    4.35    0.40       1
416          UI     165     166     391     668     960    1130    1281    1613    1908    1239
417          UI    1060     936     847     785     677     614     534     438     399     375
418          UI     338     271     230     210     183     183     133     126     127      85
419          UI      80      82      81      67      32      31      32      32      31      32
420          UI      32      31      32      32      32       0       0       0       0       0
             *

421          KK    185R   ROUTE
422          KM        Route runoff from S185 to Wagner Wash.  Slope = (1442-1340) / 8534
423          RS       5    FLOW      -1
424          RC   0.045   0.035   0.045    8534  0.0120  104.00
425          RX    0.00   30.00  100.00  106.00  156.00  162.00  232.00  262.00
426          RY  104.00  102.00  102.00  100.00  100.00  102.00  102.00  104.00
             *

427          KK   C185R COMBINE
428          KM        Combine flows in Wagner Wash
429          HC       2
             *

430          KK  185190   ROUTE
431          KM        Route flow in Wagner Wash to C190.  Slope = (1340-1308) / 2700
432          RS       2    FLOW      -1
433          RC   0.045   0.040   0.045    2700  0.0119  106.00
434          RX    0.00   80.00  160.00  166.00  416.00  422.00  502.00  582.00
435          RY  106.00  103.00  102.00  100.00  100.00  102.00  103.00  106.00
             *

436          KK    S190   BASIN
437          KM        Compute runoff from subbasin 190
438          BA   4.054
439          LG    0.35    0.35    3.81    0.44       0
440          UI     274     278     647    1125    1573    1918    2319    2540    2637    2574
441          UI    2467    2112    1787    1506    1256    1044     891     745     605     522
442          UI     432     370     293     266     188     191     188      78      68      66
443          UI      67      67      67      67      67      67       0       0       0       0
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

444          KK    C190 COMBINE
445          KM        Combine all flow in Wagner Wash at C190
446          HC       2   39.24
             *

447          KK  190195   ROUTE
```

```
448          KM        Route flow from C190 to the Hassayampa River. Slope = (1308-1255)/4941
449          RS       2    FLOW      -1
450          RC   0.045   0.035   0.045    4941  0.0107  110.00
451          RX    0.00   50.00  200.00  206.00  356.00  366.00  516.00  566.00
452          RY  110.00  103.00  102.00  100.00  100.00  102.00  103.00  110.00
             *

453          KK    S195   BASIN
454          KM        Compute runoff from subbasin 195
455          BA   1.808
456          LG    0.33    0.35    4.25    0.42       0
457          UI     107     108     188     366     523     660     786     925     975    1026
458          UI    1044     975     915     778     674     571     496     419     359     313
459          UI     260     223     202     165     146     115     114      76      74      74
460          UI      67      27      26      26      26      26      26      27      26      26
461          UI      27       0       0       0       0       0       0       0       0       0
             *

462          KK    C195 COMBINE
463          KM        Combine all flows in Wagner Wash at the Hassayampa River
464          HC       2   41.05
465          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    52        S100
                .
                .
    60          .        S102
                .           .
                .           .
    67        C102...........
                V
                V
    70       RR102                      .
                .
                .
    82          .-------->    CF02
    79        D102
                V
                V
    85      100105
                .
                .
    91          .        S105
                .           .
                .           .
   101          .           .           .<-------    CF02
    99          .           .        CF02
                .           .           V
                .           .           V
   102          .           .      102105
                .           .           .
                .           .           .
   108       C105U......................
                .
                .
   113          .        S110
                .           V
                .           V
   120          .      11015I
                .           V
                .           V
   126          .      15I15R
                .           .
                .           .
   132          .           .        S115
                .           .           .
                .           .           .
   140          .        C115...........
                .           V
                .           V
   143          .      115120
                .           .
                .           .
   149          .           .        S120
                .           .           .
                .           .           .
   156          .        C120...........
                .           .
                .           .
   159       C105D...........
                V
                V
   162      120135
                .
                .
   168          .        S125
                .           V
                .           V
   174          .      12535I
```

```
                .           .
                .           .
183             .           .        S130
                .           .           V
                .           .           V
189             .           .      13035I
                .           .           .
                .           .           .
198             .      C135I............
                .           V
                .           V
201             .     35I135
                .           .
                .           .
210             .           .        S135
                .           .           .
                .           .           .
216             .      C135L............
                .           .
                .           .
219          C135............
                V
                V
222        135145
                .
                .
228             .       S140
                .           V
                .           V
234             .     140145
                .           .
                .           .
240             .           .        S145
                .           .           .
                .           .           .
246          C145........................
                V
                V
249        145155
                .
                .
255             .       S155
                .           .
                .           .
262          C155............
                V
                V
265        155160
                .
                .
271             .       S160
                .           .
                .           .
277          C160............
                V
                V
280        160170
                .
                .
286             .       S170
                .           V
                .           V
292             .       170R
                .           .
                .           .
298         C170R............
                V
                V
301        170180
                .
                .
307             .       S150
                .           V
                .           V
315             .     150165
                .           .
                .           .
324             .           .        S165
                .           .           .
                .           .           .
330             .       C165............
                .           V
                .           V
333             .     165175
                .           .
                .           .
342             .           .        S175
                .           .           .
                .           .           .
351             .       C175............
                .           .
                .           .
360             .           .-------->   D1750
354             .       D175
                .           V
```

```
                .          V
  365           .       175R
                .          .
                .          .
  374           .          .       S180
                .          .          V
                .          .          V
  383           .          .       180R
                .          .          .
                .          .          .
  392           .     C180RI............
                .          V
                .          V
  395           .     RI180R
                .          .
                .          .
  403      C180R............
               V
               V
  406     180185
               .
               .
  412           .       S185
                .          V
                .          V
  421           .       185R
                .          .
                .          .
  427      C185R............
               V
               V
  430     185190
               .
               .
  436           .       S190
                .          .
                .          .
  444       C190............
               V
               V
  447     190195
               .
               .
  453           .       S195
                .          .
                .          .
  462       C195............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *            VERSION 4.1               *
 *                                      *
 *  RUN DATE   19APR06  TIME  16:51:51  *
 *                                      *
 ****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

HYDROLOGY FOR STEP 2 ALTERNATIVES FOR SUN VALLEY ADMP
- WAGNER SUB-AREA
- ALTERNATIVE C

Alternative Description
Alternative C is based on the concept of an excavated concrete-lined channel from the apex to the outfall, without providing any detention basin is at the apex. To address sedimentation associated with the alluvial fan systems, sedimentation basins are provided throughout the system. The excavated concrete channels are complemented with a 120-foot wide adjacent riparian preservation corridor.

SUN VALLEY AREA DRAINAGE MASTER PLAN (SVADMP) - FCD 2004C049
JE FULLER / HYDROLOGY & GEOMORPHOLOGY, INC.
MODELER: TED LEHMAN
FILENAME: A4_EX24.DAT

100-YEAR 24-HOUR MODEL
EXISTING CONDITIONS
AREA 4 WATERSHED AREA = 90.5 SQ. MILES
MODELED AREA = 76.8 SQ. MILES

GREEN-AMPT LOSS METHOD
S-GRAPH UNIT HYDROGRAPHS
- MOUNTAIN
- DESERT/RANGELAND
NORMAL-DEPTH CHANNEL ROUTING
LAND USE DATA FROM EXAMINATION OF SLOPE FROM 10-FT DTM TO DISTINGUISH
- UNDEVELOPED DESERT RANGELAND (NDR) - SLOPES < 5 %
- HILLSLOPES, SONORAN DESERT (NHS) - SLOPES 5 - 10 %
- MOUNTAIN TERRAIN (NMT) - SLOPES > 10 %

```
                         SOILS DATA FROM FCDMC GIS DATABASE (RECEIVED FROM FCDMC JULY 2005)

36 IO           OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

   IT           HYDROGRAPH TIME DATA
                       NMIN           5  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1JAN99  STARTING DATE
                      ITIME        1200  STARTING TIME
                         NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      8JAN99  ENDING DATE
                     NDTIME        1035  ENDING TIME
                      ICENT          19  CENTURY MARK

                COMPUTATION INTERVAL      .08 HOURS
                     TOTAL TIME BASE  166.58 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
             SURFACE AREA           ACRES
             TEMPERATURE            DEGREES FAHRENHEIT

37 JD           INDEX STORM NO. 1
                       STRM        4.20  PRECIPITATION DEPTH
                       TRDA         .10  TRANSPOSITION DRAINAGE AREA

38 PI             PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                    .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00

48 JD           INDEX STORM NO. 2
                       STRM        3.99  PRECIPITATION DEPTH
                       TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 0 PI             PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                    .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
```

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

```
49 JD        INDEX STORM NO. 3
                 STRM        3.78  PRECIPITATION DEPTH
                 TRDA       30.00  TRANSPOSITION DRAINAGE AREA

 0 PI           PRECIPITATION PATTERN
```

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

```
50 JD        INDEX STORM NO. 4
                 STRM        3.65  PRECIPITATION DEPTH
                 TRDA       60.00  TRANSPOSITION DRAINAGE AREA

 0 PI           PRECIPITATION PATTERN
```

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

```
51 JD        INDEX STORM NO. 5
                 STRM        3.58  PRECIPITATION DEPTH
                 TRDA       90.00  TRANSPOSITION DRAINAGE AREA

 0 PI           PRECIPITATION PATTERN
```

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

```
.00    .00    .00    .00    .00    .00    .00    .00    .00    .00
.00    .00    .00    .00    .00    .00    .00    .00    .00    .00
.00    .00    .00    .00    .00    .00    .00    .00    .00    .00
.00    .00    .00    .00    .00    .00    .00    .00    .00    .00
.00    .00    .00    .00    .00    .00    .00    .00    .00    .00
.00    .00    .00    .00    .00    .00    .00    .00    .00    .00
.00    .00    .00    .00    .00    .00    .00    .00    .00    .00
.00    .00    .00    .00    .00    .00    .00    .00    .00    .00
.00    .00    .00    .00    .00    .00    .00    .00    .00    .00
.00    .00    .00    .00    .00    .00    .00    .00    .00    .00
.00    .00    .00    .00    .00    .00    .00    .00    .00    .00
.00    .00    .00    .00    .00    .00    .00    .00
```

*** ***

```
            **************
            *            *
  70 KK     *     RR102  *      STORAGE
            *            *
            **************

  73 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          5  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
1
                                                RUNOFF SUMMARY
                                        FLOW IN CUBIC FEET PER SECOND
                                      TIME IN HOURS,  AREA IN SQUARE MILES

                                   PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
          OPERATION       STATION  FLOW    PEAK                                            AREA      STAGE     MAX STAGE
+                                                     6-HOUR     24-HOUR     72-HOUR

          HYDROGRAPH AT
+                           S100   5214.   12.58       965.        241.         80.      6.99

          HYDROGRAPH AT
+                           S102   3434.   12.33       420.        105.         35.      3.23

          2 COMBINED AT
+                           C102   7803.   12.42      1367.        342.        114.     10.23

          ROUTED TO
+                          RR102    149.   14.42       141.        119.         82.     10.23

          DIVERSION TO
+                           CF02     75.   14.42        71.         59.         41.     10.23

          HYDROGRAPH AT
+                           D102     75.   14.42        71.         59.         41.     10.23

          ROUTED TO
+                         100105     70.   20.33        67.         58.         41.     10.23

          HYDROGRAPH AT
+                           S105   3466.   12.50       531.        133.         44.      4.37

          HYDROGRAPH AT
+                           CF02     75.   14.42        71.         59.         41.     10.23

          ROUTED TO
+                         102105     74.   15.67        70.         59.         41.     10.23

          3 COMBINED AT
+                          C105U   3466.   12.50       587.        238.        125.     14.60

          HYDROGRAPH AT
+                           S110    532.   12.17        62.         16.          5.       .43

          ROUTED TO
+                         11015I    456.   12.42        62.         16.          5.       .43

          ROUTED TO
+                         15I15R    412.   12.75        62.         16.          5.       .43

          HYDROGRAPH AT
+                           S115   1693.   12.50       287.         73.         24.      2.25

          2 COMBINED AT
+                           C115   1937.   12.67       346.         89.         30.      2.68

          ROUTED TO
+                         115120   1900.   12.75       346.         89.         30.      2.68

          HYDROGRAPH AT
+                           S120   2032.   12.33       247.         62.         21.      2.00

          2 COMBINED AT
+                           C120   3202.   12.42       585.        149.         50.      4.68

          2 COMBINED AT
```

+		C105D	6217.	12.42	1091.	359.	163.	19.28
+	ROUTED TO	120135	6220.	12.50	1091.	359.	163.	19.28
+	HYDROGRAPH AT	S125	161.	12.08	12.	3.	1.	.09
+	ROUTED TO	12535I	157.	12.08	12.	3.	1.	.09
+	HYDROGRAPH AT	S130	415.	12.17	39.	10.	3.	.31
+	ROUTED TO	13035I	422.	12.17	39.	10.	3.	.31
+	2 COMBINED AT	C135I	551.	12.17	50.	13.	4.	1.18
+	ROUTED TO	35I135	478.	12.33	50.	13.	4.	1.18
+	HYDROGRAPH AT	S135	1015.	12.25	99.	25.	8.	.88
+	2 COMBINED AT	C135L	1380.	12.25	147.	37.	12.	2.06
+	2 COMBINED AT	C135	7074.	12.42	1214.	389.	173.	21.34
+	ROUTED TO	135145	6197.	12.83	1202.	386.	172.	21.34
+	HYDROGRAPH AT	S140	2029.	12.17	172.	43.	14.	1.37
+	ROUTED TO	140145	1632.	12.42	172.	43.	14.	1.37
+	HYDROGRAPH AT	S145	1945.	12.25	193.	48.	16.	1.76
+	3 COMBINED AT	C145	6871.	12.75	1506.	461.	197.	24.47
+	ROUTED TO	145155	6860.	12.83	1505.	461.	197.	24.47
+	HYDROGRAPH AT	S155	1781.	12.33	218.	55.	18.	1.83
+	2 COMBINED AT	C155	7358.	12.75	1688.	507.	212.	26.30
+	ROUTED TO	155160	7332.	12.83	1686.	506.	212.	26.30
+	HYDROGRAPH AT	S160	1342.	12.17	124.	31.	10.	1.14
+	2 COMBINED AT	C160	7412.	12.83	1785.	531.	220.	27.44
+	ROUTED TO	160170	7240.	13.00	1779.	529.	220.	27.44
+	HYDROGRAPH AT	S170	1802.	12.17	169.	42.	14.	1.46
+	ROUTED TO	170R	1638.	12.33	169.	42.	14.	1.46
+	2 COMBINED AT	C170R	7493.	13.00	1917.	563.	231.	28.90
+	ROUTED TO	170180	7336.	13.25	1909.	562.	231.	28.90
+	HYDROGRAPH AT	S150	729.	12.33	107.	29.	10.	.77
+	ROUTED TO	150165	714.	12.42	107.	29.	10.	.77
+	HYDROGRAPH AT	S165	842.	12.17	78.	20.	7.	.62
+	2 COMBINED AT	C165	1275.	12.25	184.	48.	16.	1.39
+	ROUTED TO	165175	1203.	12.50	184.	48.	16.	1.39

```
          HYDROGRAPH AT
+                          S175      1278.   12.50        217.        55.        18.       1.80

          2 COMBINED AT
+                          C175      2452.   12.50        396.       102.        34.       3.19

          DIVERSION TO
+                         D175O       216.   12.50          6.         1.         0.       3.19

          HYDROGRAPH AT
+                          D175      2236.   12.42        390.       100.        33.       3.19

          ROUTED TO
+                          175R      2236.   12.58        390.       100.        33.       3.19

          HYDROGRAPH AT
+                          S180      1039.   12.50        171.        44.        15.       1.44

          ROUTED TO
+                          180R       950.   12.58        171.        44.        15.       1.44

          2 COMBINED AT
+                        C180RI      3165.   12.58        554.       142.        47.       4.63

          ROUTED TO
+                        RI180R      3116.   12.67        554.       142.        47.       4.63

          2 COMBINED AT
+                         C180R      8675.   13.08       2379.       680.       270.      33.54

          ROUTED TO
+                        180185      8654.   13.17       2374.       679.       270.      33.54

          HYDROGRAPH AT
+                          S185      1655.   12.50        288.        73.        24.       2.42

          ROUTED TO
+                          185R      1411.   12.92        287.        73.        24.       2.42

          2 COMBINED AT
+                         C185R      9673.   13.08       2612.       738.       290.      35.96

          ROUTED TO
+                        185190      9658.   13.17       2607.       737.       290.      35.96

          HYDROGRAPH AT
+                          S190      2590.   12.58        448.       112.        37.       4.05

          2 COMBINED AT
+                          C190     10604.   13.08       2965.       827.       320.      39.24

          ROUTED TO
+                        190195     10516.   13.17       2958.       826.       319.      39.24

          HYDROGRAPH AT
+                          S195      1039.   12.67        202.        51.        17.       1.81

          2 COMBINED AT
+                          C195     10961.   13.17       3114.       865.       333.      41.05
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    RR102
                        (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ...............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                   ELEVATION        1550.00           1556.00          1556.00
                                   STORAGE              553.              2705.            2705.
                                   OUTFLOW                0.               600.             600.

                   RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                     OF     RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP    MAX OUTFLOW   FAILURE
                    PMF      W.S.ELEV    OVER DAM    AC-FT       CFS        HOURS        HOURS       HOURS

                   1.00      1552.28        .00       1258.      171.        .00         14.42        .00

     PLAN  2 ...............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                   ELEVATION        1550.00           1556.00          1556.00
                                   STORAGE              553.              2705.            2705.
                                   OUTFLOW                0.               600.             600.

                   RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                     OF     RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP    MAX OUTFLOW   FAILURE
                    PMF      W.S.ELEV    OVER DAM    AC-FT       CFS        HOURS        HOURS       HOURS

                   1.00      1552.14        .00       1204.      150.        .00         14.42        .00

     PLAN  3 ...............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                   ELEVATION        1550.00           1556.00          1556.00
                                   STORAGE              553.              2705.            2705.
                                   OUTFLOW                0.               600.             600.
```

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1552.00	.00	1149.	128.	.00	14.50	.00

PLAN 4 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

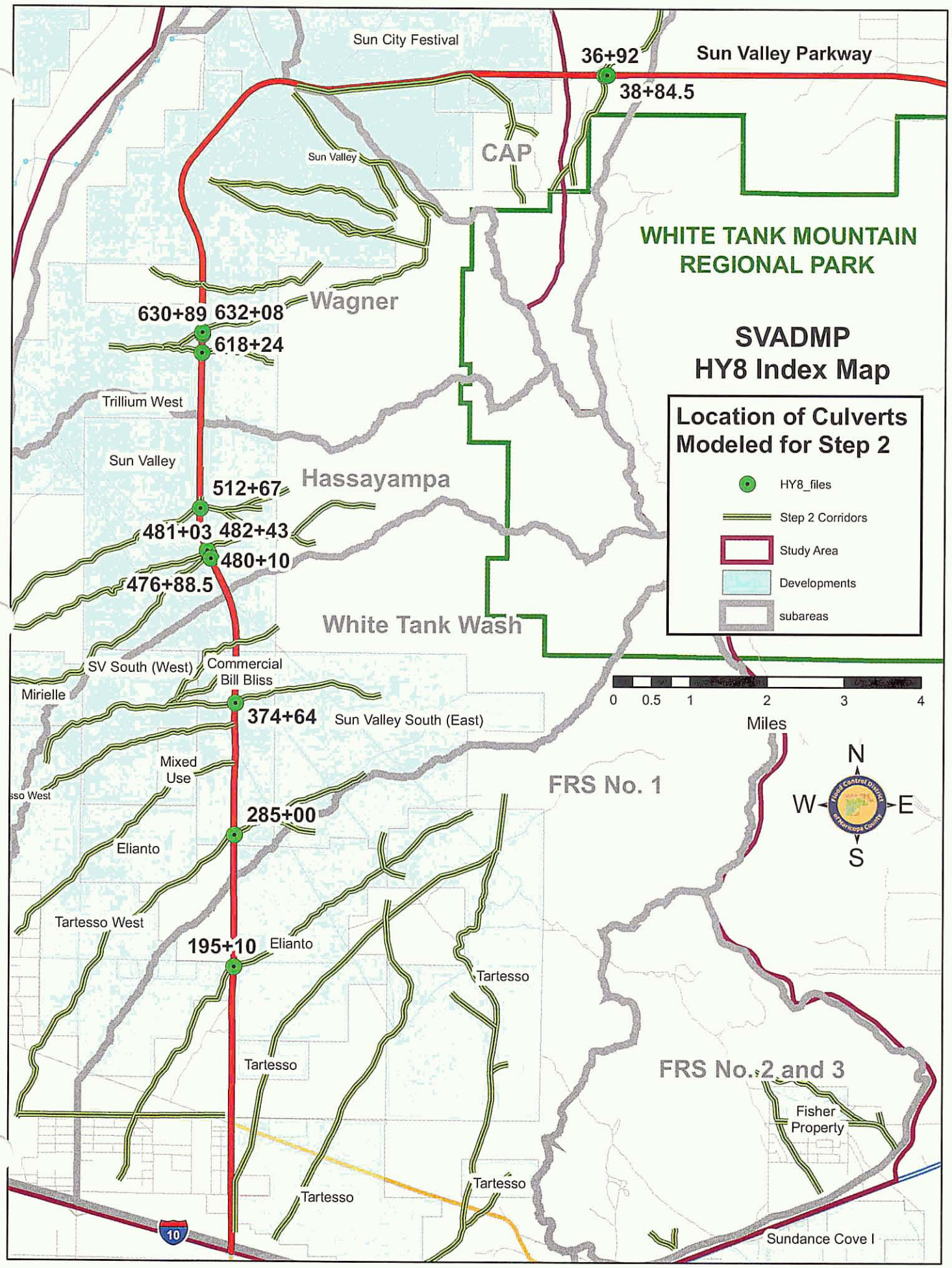
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1551.89	.00	1115.	121.	.00	14.50	.00

PLAN 5 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1550.00	1556.00	1556.00
STORAGE	553.	2705.	2705.
OUTFLOW	0.	600.	600.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1551.82	.00	1095.	117.	.00	14.50	.00

*** NORMAL END OF HEC-1 ***


SVADMP
HY8 Index Map
Location of Culverts Modeled for Step 2
HY8_files
Step 2 Corridors
Study Area
Developments
subareas
0 0.5 1 2 3 4
Miles
N
W
E
S
Sun City Festival
Sun Valley Parkway
36+92
38+84.5
Sun Valley
CAP
WHITE TANK MOUNTAIN REGIONAL PARK
Wagner
630+89
632+08
618+24
Trillium West
Sun Valley
Hassayampa
512+67
481+03
482+43
480+10
476+88.5
White Tank Wash
SV South (West)
Commercial
Bill Bliss
Mirielle
374+64
Sun Valley South (East)
Mixed Use
FRS No. 1
285+00
Elianto
Tartesso West
195+10
Elianto
Tartesso
Tartesso
FRS No. 2 and 3
Fisher Property
Tartesso
Tartesso
10
Sundance Cove I

CURRENT DATE: 10-20-2005
CURRENT TIME: 19:37:34

FILE DATE: 10-20-2005
FILE NAME: SVC37464

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULV NO.	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	62.80	62.17	100.00	4 RCB	10.00	3.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: SVC37464 DATE: 10-20-2005

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
62.80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
63.80	120.0	120.0	0.0	0.0	0.0	0.0	0.0	0.00	1
64.39	240.0	240.0	0.0	0.0	0.0	0.0	0.0	0.00	1
64.89	360.0	360.0	0.0	0.0	0.0	0.0	0.0	0.00	1
65.34	480.0	480.0	0.0	0.0	0.0	0.0	0.0	0.00	1
65.78	600.0	600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
65.81	610.0	610.0	0.0	0.0	0.0	0.0	0.0	0.00	1
66.72	840.0	840.0	0.0	0.0	0.0	0.0	0.0	0.00	1
67.28	960.0	960.0	0.0	0.0	0.0	0.0	0.0	0.00	1
67.90	1080.0	1080.0	0.0	0.0	0.0	0.0	0.0	0.00	1
68.57	1200.0	1192.7	0.0	0.0	0.0	0.0	0.0	6.20	5
68.49	1179.7	1179.7	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: SVC37464 DATE: 10-20-2005

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
62.80	0.000	0.00	0.00	0.00
63.80	0.000	120.00	0.00	0.00
64.39	0.000	240.00	0.00	0.00
64.89	0.000	360.00	0.00	0.00
65.34	0.000	480.00	0.00	0.00
65.78	0.000	600.00	0.00	0.00
65.81	0.000	610.00	0.00	0.00
66.72	0.000	840.00	0.00	0.00
67.28	0.000	960.00	0.00	0.00
67.90	0.000	1080.00	0.00	0.00
68.57	-0.003	1200.00	1.08	0.09

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 10-20-2005 FILE DATE: 10-20-2005
CURRENT TIME: 19:37:34 FILE NAME: SVC37464

PERFORMANCE CURVE FOR CULVERT 1 - 4(10.00 (ft) BY 3.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	62.80	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
120.00	63.80	1.00	1.00	1-S2n	0.50	0.66	0.51	0.87	5.87	3.74
240.00	64.39	1.59	1.59	1-S2n	0.78	1.04	0.80	1.32	7.50	4.83
360.00	64.89	2.09	2.09	1-S2n	1.02	1.36	0.96	1.68	9.35	5.60
480.00	65.34	2.54	2.54	1-S2n	1.23	1.65	1.29	1.99	9.32	6.20
600.00	65.78	2.98	2.98	1-S2n	1.42	1.92	1.50	2.26	9.97	6.70
610.00	65.81	3.01	3.01	5-S2n	1.44	1.94	1.52	2.29	10.05	6.74
840.00	66.72	3.92	3.92	5-S2n	1.78	2.40	1.91	2.76	11.01	7.52
960.00	67.28	4.48	4.48	5-S2n	1.94	2.62	2.10	2.98	11.42	7.87
1080.00	67.90	5.10	4.75	4-FFt	2.11	2.84	2.11	3.19	12.81	8.19
1192.72	68.56	5.76	5.44	4-S2n	2.25	3.00	2.46	3.39	12.12	8.48

El. inlet face invert 62.80 ft El. outlet invert 62.17 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	62.80 ft
OUTLET STATION	100.00 ft
OUTLET ELEVATION	62.17 ft
NUMBER OF BARRELS	4
SLOPE (V/H)	0.0063
CULVERT LENGTH ALONG SLOPE	100.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	10.00 ft
BARREL RISE	3.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION	NONE

CURRENT DATE: 10-20-2005
CURRENT TIME: 19:37:34

FILE DATE: 10-20-2005
FILE NAME: SVC37464

TAILWATER

******* REGULAR CHANNEL CROSS SECTION ****************

BOTTOM WIDTH	35.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.010
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	62.17 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	62.17 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	62.17	0.000	0.00	0.00	0.00
120.00	63.04	0.704	0.87	3.74	0.55
240.00	63.49	0.741	1.32	4.83	0.82
360.00	63.85	0.762	1.68	5.60	1.05
480.00	64.16	0.775	1.99	6.20	1.24
600.00	64.43	0.785	2.26	6.70	1.41
610.00	64.46	0.786	2.29	6.74	1.43
840.00	64.93	0.799	2.76	7.52	1.72
960.00	65.15	0.804	2.98	7.87	1.86
1080.00	65.36	0.808	3.19	8.19	1.99
1200.00	65.56	0.812	3.39	8.48	2.11

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	80.00 ft
CREST LENGTH	100.00 ft
OVERTOPPING CREST ELEVATION	68.49 ft

CURRENT DATE: 10-21-2005
CURRENT TIME: 08:11:53

FILE DATE: 10-21-2005
FILE NAME: SVP28500

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULV NO.	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	8.56	7.96	135.00	4 RCB	10.00	4.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: SVP28500 DATE: 10-21-2005

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
8.56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
9.67	140.0	140.0	0.0	0.0	0.0	0.0	0.0	0.00	1
10.32	280.0	280.0	0.0	0.0	0.0	0.0	0.0	0.00	1
10.88	420.0	420.0	0.0	0.0	0.0	0.0	0.0	0.00	1
11.37	560.0	560.0	0.0	0.0	0.0	0.0	0.0	0.00	1
11.79	688.0	688.0	0.0	0.0	0.0	0.0	0.0	0.00	1
12.27	840.0	840.0	0.0	0.0	0.0	0.0	0.0	0.00	1
12.71	980.0	980.0	0.0	0.0	0.0	0.0	0.0	0.00	1
13.17	1120.0	1120.0	0.0	0.0	0.0	0.0	0.0	0.00	1
13.67	1260.0	1260.0	0.0	0.0	0.0	0.0	0.0	0.00	1
14.23	1400.0	1389.7	0.0	0.0	0.0	0.0	0.0	8.65	3
14.08	1367.2	1367.2	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: SVP28500 DATE: 10-21-2005

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
8.56	0.000	0.00	0.00	0.00
9.67	0.000	140.00	0.00	0.00
10.32	0.000	280.00	0.00	0.00
10.88	0.000	420.00	0.00	0.00
11.37	0.000	560.00	0.00	0.00
11.79	0.000	688.00	0.00	0.00
12.27	0.000	840.00	0.00	0.00
12.71	0.000	980.00	0.00	0.00
13.17	0.000	1120.00	0.00	0.00
13.67	0.000	1260.00	0.00	0.00
14.23	-0.004	1400.00	1.66	0.12

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 10-21-2005 FILE DATE: 10-21-2005
CURRENT TIME: 08:11:53 FILE NAME: SVP28500

PERFORMANCE CURVE FOR CULVERT 1 - 4(10.00 (ft) BY 4.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	8.56	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
140.00	9.67	1.11	1.11	1-S2n	0.61	0.73	0.53	1.09	6.65	3.05
280.00	10.32	1.76	1.76	1-S2n	0.96	1.15	0.95	1.64	7.35	3.94
420.00	10.88	2.32	2.32	1-S2n	1.26	1.51	1.21	2.09	8.67	4.55
560.00	11.37	2.81	2.81	1-S2n	1.53	1.83	1.55	2.47	9.01	5.04
688.00	11.79	3.23	3.23	1-S2n	1.75	2.10	1.70	2.79	10.12	5.41
840.00	12.27	3.71	3.71	1-S2n	2.01	2.40	2.05	3.13	10.22	5.80
980.00	12.71	4.15	4.15	5-S2n	2.23	2.66	2.29	3.43	10.71	6.11
1120.00	13.17	4.61	4.61	5-S2n	2.44	2.90	2.50	3.70	11.18	6.38
1260.00	13.67	5.11	5.11	5-S2n	2.65	3.14	2.73	3.96	11.53	6.64
1389.69	14.23	5.61	5.67	4-FFt	2.84	3.35	4.00	4.21	8.69	6.87

El. inlet face invert 8.56 ft El. outlet invert 7.96 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION                          0.00 ft
      INLET ELEVATION                        8.56 ft
      OUTLET STATION                       135.00 ft
      OUTLET ELEVATION                       7.96 ft
      NUMBER OF BARRELS                      4
      SLOPE (V/H)                            0.0044
      CULVERT LENGTH ALONG SLOPE           135.00 ft

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          BOX
      BARREL SPAN            10.00 ft
      BARREL RISE             4.00 ft
      BARREL MATERIAL       CONCRETE
      BARREL MANNING'S n    0.012
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   SQUARE EDGE (30-75 DEG. FLARE)
      INLET DEPRESSION      NONE
```

CURRENT DATE: 10-21-2005
CURRENT TIME: 08:11:53

FILE DATE: 10-21-2005
FILE NAME: SVP28500

TAILWATER

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	40.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.005
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	7.96 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	7.96 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	7.96	0.000	0.00	0.00	0.00
140.00	9.05	0.515	1.09	3.05	0.34
280.00	9.60	0.541	1.64	3.94	0.51
420.00	10.05	0.556	2.09	4.55	0.65
560.00	10.43	0.565	2.47	5.04	0.77
688.00	10.75	0.571	2.79	5.41	0.87
840.00	11.09	0.577	3.13	5.80	0.98
980.00	11.39	0.581	3.43	6.11	1.07
1120.00	11.66	0.585	3.70	6.38	1.15
1260.00	11.92	0.588	3.96	6.64	1.24
1400.00	12.17	0.590	4.21	6.87	1.31

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	100.00 ft
CREST LENGTH	50.00 ft
OVERTOPPING CREST ELEVATION	14.08 ft

CURRENT DATE: 10-21-2005
CURRENT TIME: 09:48:42

FILE DATE: 10-21-2005
FILE NAME: SVP19510

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULV NO.	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	33.92	33.44	140.00	6 RCB	10.00	4.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: SVP19510 DATE: 10-21-2005

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
33.92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
35.51	360.0	360.0	0.0	0.0	0.0	0.0	0.0	0.00	1
36.46	720.0	720.0	0.0	0.0	0.0	0.0	0.0	0.00	1
37.25	1080.0	1080.0	0.0	0.0	0.0	0.0	0.0	0.00	1
38.47	1440.0	1440.0	0.0	0.0	0.0	0.0	0.0	0.00	1
39.59	1800.0	1800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
39.65	1820.0	1820.0	0.0	0.0	0.0	0.0	0.0	0.00	1
41.47	2520.0	2264.7	0.0	0.0	0.0	0.0	0.0	255.75	3
42.21	2880.0	2400.1	0.0	0.0	0.0	0.0	0.0	480.38	3
42.89	3240.0	2513.1	0.0	0.0	0.0	0.0	0.0	726.08	3
43.53	3600.0	2615.2	0.0	0.0	0.0	0.0	0.0	987.04	3
40.05	1924.3	1924.3	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: SVP19510 DATE: 10-21-2005

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
33.92	0.000	0.00	0.00	0.00
35.51	0.000	360.00	0.00	0.00
36.46	0.000	720.00	0.00	0.00
37.25	0.000	1080.00	0.00	0.00
38.47	0.000	1440.00	0.00	0.00
39.59	0.000	1800.00	0.00	0.00
39.65	0.000	1820.00	0.00	0.00
41.47	0.001	2520.00	-0.42	-0.02
42.21	0.001	2880.00	-0.45	-0.02
42.89	-0.001	3240.00	0.86	0.03
43.53	0.003	3600.00	-2.27	-0.06

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 10-21-2005 FILE DATE: 10-21-2005
CURRENT TIME: 09:48:42 FILE NAME: SVP19510

PERFORMANCE CURVE FOR CULVERT 1 - 6(10.00 (ft) BY 4.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	33.92	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
360.00	35.51	1.59	1.59	1-S2n	0.95	1.04	0.84	1.79	7.14	3.76
720.00	36.46	2.54	2.54	1-S2n	1.50	1.65	1.45	2.69	8.27	4.82
1080.00	37.25	3.33	3.33	1-S2n	1.97	2.16	1.96	3.42	9.17	5.56
1440.00	38.47	4.09	4.55	4-FFt	2.40	2.62	4.00	4.04	6.00	6.13
1800.00	39.59	4.89	5.67	4-FFt	2.81	3.04	4.00	4.60	7.50	6.61
1820.00	39.65	4.94	5.73	4-FFt	2.83	3.06	4.00	4.63	7.58	6.63
2264.67	41.46	6.11	7.54	4-FFt	3.30	3.54	4.00	5.58	9.44	7.38
2400.07	42.21	6.51	8.29	4-FFt	3.44	3.68	4.00	6.02	10.00	7.71
2513.07	42.89	6.87	8.97	4-FFt	3.55	3.80	4.00	6.44	10.47	8.00
2615.23	43.53	7.21	9.61	4-FFt	4.00	3.90	4.00	6.84	10.90	8.27

El. inlet face invert 33.92 ft El. outlet invert 33.44 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION                          0.00 ft
      INLET ELEVATION                       33.92 ft
      OUTLET STATION                       140.00 ft
      OUTLET ELEVATION                      33.44 ft
      NUMBER OF BARRELS                     6
      SLOPE (V/H)                           0.0034
      CULVERT LENGTH ALONG SLOPE           140.00 ft

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          BOX
      BARREL SPAN            10.00 ft
      BARREL RISE             4.00 ft
      BARREL MATERIAL       CONCRETE
      BARREL MANNING'S n    0.012
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   SQUARE EDGE (30-75 DEG. FLARE)
      INLET DEPRESSION      NONE
```

CURRENT DATE: 10-21-2005
CURRENT TIME: 09:48:42

FILE DATE: 10-21-2005
FILE NAME: SVP19510

TAILWATER

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	50.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.004
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	33.44 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	33.44 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	33.44	0.000	0.00	0.00	0.00
360.00	35.23	0.495	1.79	3.76	0.45
720.00	36.13	0.518	2.69	4.82	0.67
1080.00	36.86	0.530	3.42	5.56	0.85
1440.00	37.48	0.537	4.04	6.13	1.01
1800.00	38.04	0.543	4.60	6.61	1.15
1820.00	38.07	0.543	4.63	6.63	1.16
2520.00	39.02	0.551	5.58	7.38	1.39
2880.00	39.46	0.553	6.02	7.71	1.50
3240.00	39.88	0.556	6.44	8.00	1.61
3600.00	40.28	0.558	6.84	8.27	1.71

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	100.00 ft
CREST LENGTH	50.00 ft
OVERTOPPING CREST ELEVATION	40.05 ft

CURRENT DATE: 10-24-2005
CURRENT TIME: 16:06:55

FILE DATE: 10-24-2005
FILE NAME: SVP3692

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULV NO.	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	58.40	57.70	140.00	6 RCB	10.00	4.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: SVP3692 DATE: 10-24-2005

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
58.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
59.47	200.0	200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
60.10	400.0	400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
60.64	600.0	600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
61.12	800.0	800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
61.56	1000.0	1000.0	0.0	0.0	0.0	0.0	0.0	0.00	1
61.77	1100.0	1100.0	0.0	0.0	0.0	0.0	0.0	0.00	1
62.40	1400.0	1400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
62.83	1600.0	1600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
63.29	1800.0	1800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
63.78	2000.0	2000.0	0.0	0.0	0.0	0.0	0.0	0.00	1
64.55	2278.1	2278.1	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: SVP3692 DATE: 10-24-2005

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
58.40	0.000	0.00	0.00	0.00
59.47	0.000	200.00	0.00	0.00
60.10	0.000	400.00	0.00	0.00
60.64	0.000	600.00	0.00	0.00
61.12	0.000	800.00	0.00	0.00
61.56	0.000	1000.00	0.00	0.00
61.77	0.000	1100.00	0.00	0.00
62.40	0.000	1400.00	0.00	0.00
62.83	0.000	1600.00	0.00	0.00
63.29	0.000	1800.00	0.00	0.00
63.78	0.000	2000.00	0.00	0.00

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 10-24-2005 FILE DATE: 10-24-2005
CURRENT TIME: 16:06:55 FILE NAME: SVP3692

PERFORMANCE CURVE FOR CULVERT 1 - 6(10.00 (ft) BY 4.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	58.40	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
200.00	59.47	1.07	1.07	1-S2n	0.57	0.70	0.50	0.69	6.63	3.57
400.00	60.10	1.70	1.70	1-S2n	0.90	1.12	0.82	1.04	8.17	4.68
600.00	60.64	2.24	2.24	1-S2n	1.18	1.46	1.19	1.33	8.39	5.47
800.00	61.12	2.72	2.72	1-S2n	1.41	1.77	1.45	1.58	9.21	6.11
1000.00	61.56	3.16	3.16	1-S2n	1.64	2.06	1.69	1.80	9.89	6.65
1100.00	61.77	3.37	3.37	1-S2n	1.75	2.19	1.81	1.90	10.14	6.89
1400.00	62.40	4.00	4.00	1-S2n	2.06	2.57	2.13	2.20	10.94	7.55
1600.00	62.83	4.43	4.43	5-S2n	2.26	2.81	2.35	2.38	11.34	7.93
1800.00	63.29	4.89	4.89	5-S2n	2.45	3.04	2.55	2.55	11.76	8.28
2000.00	63.78	5.38	5.38	5-S2n	2.64	3.26	2.75	2.72	12.11	8.61

El. inlet face invert 58.40 ft El. outlet invert 57.70 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	58.40 ft
OUTLET STATION	140.00 ft
OUTLET ELEVATION	57.70 ft
NUMBER OF BARRELS	6
SLOPE (V/H)	0.0050
CULVERT LENGTH ALONG SLOPE	140.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	10.00 ft
BARREL RISE	4.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION	NONE

CURRENT DATE: 10-24-2005
CURRENT TIME: 16:06:55

FILE DATE: 10-24-2005
FILE NAME: SVP3692

TAILWATER

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	80.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.012
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	57.70 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	57.70 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	57.70	0.000	0.00	0.00	0.00
200.00	58.39	0.759	0.69	3.57	0.51
400.00	58.74	0.808	1.04	4.68	0.78
600.00	59.03	0.837	1.33	5.47	0.99
800.00	59.28	0.858	1.58	6.11	1.18
1000.00	59.50	0.873	1.80	6.65	1.35
1100.00	59.60	0.880	1.90	6.89	1.43
1400.00	59.90	0.897	2.20	7.55	1.65
1600.00	60.08	0.906	2.38	7.93	1.78
1800.00	60.25	0.914	2.55	8.28	1.91
2000.00	60.42	0.921	2.72	8.61	2.04

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	100.00 ft
CREST LENGTH	50.00 ft
OVERTOPPING CREST ELEVATION	64.55 ft

CURRENT DATE: 10-24-2005
CURRENT TIME: 16:28:28

FILE DATE: 10-24-2005
FILE NAME: SVP3884

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULV NO.	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	58.40	57.60	136.00	2 RCB	10.00	3.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: SVP3884 DATE: 10-24-2005

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
58.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
59.40	60.0	60.0	0.0	0.0	0.0	0.0	0.0	0.00	1
59.99	120.0	120.0	0.0	0.0	0.0	0.0	0.0	0.00	1
60.49	180.0	180.0	0.0	0.0	0.0	0.0	0.0	0.00	1
60.94	240.0	240.0	0.0	0.0	0.0	0.0	0.0	0.00	1
61.38	300.0	300.0	0.0	0.0	0.0	0.0	0.0	0.00	1
61.83	360.0	360.0	0.0	0.0	0.0	0.0	0.0	0.00	1
62.32	420.0	420.0	0.0	0.0	0.0	0.0	0.0	0.00	1
62.88	480.0	480.0	0.0	0.0	0.0	0.0	0.0	0.00	1
63.50	540.0	540.0	0.0	0.0	0.0	0.0	0.0	0.00	1
63.87	600.0	571.6	0.0	0.0	0.0	0.0	0.0	27.79	4
63.54	543.1	543.1	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: SVP3884 DATE: 10-24-2005

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
58.40	0.000	0.00	0.00	0.00
59.40	0.000	60.00	0.00	0.00
59.99	0.000	120.00	0.00	0.00
60.49	0.000	180.00	0.00	0.00
60.94	0.000	240.00	0.00	0.00
61.38	0.000	300.00	0.00	0.00
61.83	0.000	360.00	0.00	0.00
62.32	0.000	420.00	0.00	0.00
62.88	0.000	480.00	0.00	0.00
63.50	0.000	540.00	0.00	0.00
63.87	-0.002	600.00	0.62	0.10

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 10-24-2005 FILE DATE: 10-24-2005
CURRENT TIME: 16:28:28 FILE NAME: SVP3884

PERFORMANCE CURVE FOR CULVERT 1 - 2(10.00 (ft) BY 3.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	58.40	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
60.00	59.40	1.00	1.00	1-S2n	0.51	0.66	0.46	0.76	6.59	3.66
120.00	59.99	1.59	1.59	1-S2n	0.80	1.04	0.74	1.15	8.11	4.70
180.00	60.49	2.09	2.09	1-S2n	1.04	1.36	0.96	1.45	9.35	5.41
240.00	60.94	2.54	2.54	1-S2n	1.25	1.65	1.29	1.72	9.30	5.97
300.00	61.38	2.98	2.98	1-S2n	1.45	1.92	1.50	1.95	9.98	6.43
360.00	61.83	3.43	3.43	5-S2n	1.64	2.16	1.70	2.17	10.57	6.82
420.00	62.32	3.92	3.92	5-S2n	1.82	2.40	1.90	2.37	11.07	7.17
480.00	62.88	4.48	4.48	5-S2n	1.99	2.62	2.09	2.55	11.48	7.49
540.00	63.50	5.10	5.10	5-S2n	2.15	2.84	2.28	2.73	11.87	7.77
571.59	63.87	5.47	5.47	5-S2n	2.24	2.94	2.37	2.90	12.04	8.03

El. inlet face invert 58.40 ft El. outlet invert 57.60 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	58.40 ft
OUTLET STATION	136.00 ft
OUTLET ELEVATION	57.60 ft
NUMBER OF BARRELS	2
SLOPE (V/H)	0.0059
CULVERT LENGTH ALONG SLOPE	136.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	10.00 ft
BARREL RISE	3.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION	NONE

CURRENT DATE: 10-24-2005 FILE DATE: 10-24-2005
CURRENT TIME: 16:28:28 FILE NAME: SVP3884

TAILWATER

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	20.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.012
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	57.60 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	57.60 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	57.60	0.000	0.00	0.00	0.00
60.00	58.36	0.740	0.76	3.66	0.57
120.00	58.74	0.774	1.15	4.70	0.86
180.00	59.05	0.791	1.45	5.41	1.09
240.00	59.32	0.802	1.72	5.97	1.29
300.00	59.55	0.810	1.95	6.43	1.46
360.00	59.77	0.816	2.17	6.82	1.62
420.00	59.97	0.821	2.37	7.17	1.77
480.00	60.15	0.825	2.55	7.49	1.91
540.00	60.33	0.829	2.73	7.77	2.04
600.00	60.50	0.831	2.90	8.03	2.17

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	100.00 ft
CREST LENGTH	50.00 ft
OVERTOPPING CREST ELEVATION	63.54 ft

CURRENT DATE: 12-06-2005
CURRENT TIME: 12:14:19

FILE DATE: 12-06-2005
FILE NAME: SVP47688

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULV NO.	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	12.90	11.50	137.01	1 RCB	6.00	3.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: SVP47688 DATE: 12-06-2005

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
12.90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
14.14	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.00	1
14.88	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.00	1
15.51	75.0	75.0	0.0	0.0	0.0	0.0	0.0	0.00	1
16.12	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.00	1
16.79	125.0	125.0	0.0	0.0	0.0	0.0	0.0	0.00	1
16.82	126.0	126.0	0.0	0.0	0.0	0.0	0.0	0.00	1
18.07	175.0	163.8	0.0	0.0	0.0	0.0	0.0	10.03	6
18.25	200.0	168.6	0.0	0.0	0.0	0.0	0.0	30.65	4
18.39	225.0	172.2	0.0	0.0	0.0	0.0	0.0	51.17	3
18.52	250.0	175.4	0.0	0.0	0.0	0.0	0.0	73.19	3
17.90	159.3	159.3	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: SVP47688 DATE: 12-06-2005

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
12.90	0.000	0.00	0.00	0.00
14.14	0.000	25.00	0.00	0.00
14.88	0.000	50.00	0.00	0.00
15.51	0.000	75.00	0.00	0.00
16.12	0.000	100.00	0.00	0.00
16.79	0.000	125.00	0.00	0.00
16.82	0.000	126.00	0.00	0.00
18.07	-0.006	175.00	1.15	0.66
18.25	-0.003	200.00	0.76	0.38
18.39	-0.007	225.00	1.68	0.75
18.52	-0.006	250.00	1.42	0.57

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 12-06-2005 FILE DATE: 12-06-2005
CURRENT TIME: 12:14:19 FILE NAME: SVP47688

PERFORMANCE CURVE FOR CULVERT 1 - 1(6.00 (ft) BY 3.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	12.90	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
25.00	14.14	1.24	1.24	1-S2n	0.55	0.82	0.55	0.47	7.64	3.12
50.00	14.88	1.98	1.98	1-S2n	0.86	1.29	0.79	0.71	10.49	4.02
75.00	15.51	2.61	2.61	1-S2n	1.13	1.70	1.18	0.91	10.62	4.65
100.00	16.12	3.22	3.22	5-S2n	1.38	2.06	1.45	1.07	11.53	5.14
125.00	16.79	3.89	3.89	5-S2n	1.61	2.38	1.71	1.22	12.15	5.55
126.00	16.82	3.92	3.92	5-S2n	1.62	2.40	1.73	1.23	12.16	5.56
163.82	18.06	5.16	5.16	5-S2n	1.95	2.86	2.10	1.48	13.03	6.21
168.59	18.25	5.35	5.35	5-S2n	1.99	2.91	2.14	1.60	13.12	6.49
172.16	18.39	5.49	5.49	5-S2n	2.02	2.95	2.17	1.72	13.21	6.74
175.39	18.51	5.61	5.61	5-S2n	2.05	2.99	2.21	1.82	13.23	6.98

El. inlet face invert 12.90 ft El. outlet invert 11.50 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	12.90 ft
OUTLET STATION	137.00 ft
OUTLET ELEVATION	11.50 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0102
CULVERT LENGTH ALONG SLOPE	137.01 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	6.00 ft
BARREL RISE	3.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION	NONE

CURRENT DATE: 12-06-2005
CURRENT TIME: 12:14:19

FILE DATE: 12-06-2005
FILE NAME: SVP47688

TAILWATER

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	16.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.016
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	11.50 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	11.50 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	11.50	0.000	0.00	0.00	0.00
25.00	11.97	0.799	0.47	3.12	0.47
50.00	12.21	0.839	0.71	4.02	0.71
75.00	12.41	0.860	0.91	4.65	0.90
100.00	12.57	0.874	1.07	5.14	1.07
125.00	12.72	0.884	1.22	5.55	1.22
126.00	12.73	0.885	1.23	5.56	1.23
175.00	12.98	0.898	1.48	6.21	1.48
200.00	13.10	0.903	1.60	6.49	1.60
225.00	13.22	0.907	1.72	6.74	1.71
250.00	13.32	0.912	1.82	6.98	1.82

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	100.00 ft
CREST LENGTH	50.00 ft
OVERTOPPING CREST ELEVATION	17.90 ft

CURRENT DATE: 12-06-2005
CURRENT TIME: 13:02:20

FILE DATE: 12-06-2005
FILE NAME: SVP48010

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULV NO.	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	11.50	11.00	142.00	6 RCB	10.00	5.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: SVP48010 DATE: 12-06-2005

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
14.66	1000.0	1000.0	0.0	0.0	0.0	0.0	0.0	0.00	1
15.07	1200.0	1200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
15.46	1400.0	1400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
15.84	1600.0	1600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
16.21	1800.0	1800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
16.59	2000.0	2000.0	0.0	0.0	0.0	0.0	0.0	0.00	1
16.97	2200.0	2200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
17.37	2400.0	2400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
17.80	2600.0	2600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
18.24	2800.0	2800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
18.69	3000.0	2986.6	0.0	0.0	0.0	0.0	0.0	12.13	3
18.50	2907.3	2907.3	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: SVP48010 DATE: 12-06-2005

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
14.66	0.000	1000.00	0.00	0.00
15.07	0.000	1200.00	0.00	0.00
15.46	0.000	1400.00	0.00	0.00
15.84	0.000	1600.00	0.00	0.00
16.21	0.000	1800.00	0.00	0.00
16.59	0.000	2000.00	0.00	0.00
16.97	0.000	2200.00	0.00	0.00
17.37	0.000	2400.00	0.00	0.00
17.80	0.000	2600.00	0.00	0.00
18.24	0.000	2800.00	0.00	0.00
18.69	-0.002	3000.00	1.31	0.04

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 12-06-2005 FILE DATE: 12-06-2005
CURRENT TIME: 13:02:20 FILE NAME: SVP48010

PERFORMANCE CURVE FOR CULVERT 1 - 6(10.00 (ft) BY 5.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
1000.00	14.66	3.16	3.16	1-S2n	1.85	2.06	1.76	1.83	9.50	8.58
1200.00	15.07	3.57	3.57	1-S2n	2.10	2.32	2.02	2.04	9.90	9.18
1400.00	15.46	3.96	3.96	1-S2n	2.33	2.57	2.27	2.23	10.27	9.72
1600.00	15.84	4.34	4.34	1-S2n	2.56	2.81	2.58	2.42	10.35	10.20
1800.00	16.21	4.71	4.71	1-S2n	2.77	3.04	2.80	2.59	10.72	10.65
2000.00	16.59	5.09	5.09	5-S2n	2.99	3.26	3.01	2.76	11.06	11.06
2200.00	16.97	5.47	5.47	5-S2n	3.20	3.48	3.22	2.92	11.37	11.45
2400.00	17.37	5.87	5.87	5-S2n	3.40	3.68	3.43	3.07	11.66	11.81
2600.00	17.80	6.30	6.30	5-S2n	3.60	3.89	3.63	3.22	11.93	12.15
2800.00	18.24	6.74	6.74	5-S2n	3.80	4.08	3.83	3.36	12.18	12.47
2986.57	18.69	7.19	7.19	5-S2n	3.99	4.26	4.01	3.50	12.41	12.78

El. inlet face invert 11.50 ft El. outlet invert 11.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION                          0.00 ft
      INLET ELEVATION                       11.50 ft
      OUTLET STATION                       142.00 ft
      OUTLET ELEVATION                      11.00 ft
      NUMBER OF BARRELS                      6
      SLOPE (V/H)                            0.0035
      CULVERT LENGTH ALONG SLOPE           142.00 ft

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          BOX
      BARREL SPAN            10.00 ft
      BARREL RISE             5.00 ft
      BARREL MATERIAL       CONCRETE
      BARREL MANNING'S n    0.012
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   SQUARE EDGE (30-75 DEG. FLARE)
      INLET DEPRESSION      NONE
```

CURRENT DATE: 12-06-2005 FILE DATE: 12-06-2005
CURRENT TIME: 13:02:20 FILE NAME: SVP48010

TAILWATER

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	60.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.020
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	11.00 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	11.00 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
1000.00	12.83	1.118	1.83	8.58	2.28
1200.00	13.04	1.133	2.04	9.18	2.55
1400.00	13.23	1.146	2.23	9.72	2.79
1600.00	13.42	1.156	2.42	10.20	3.02
1800.00	13.59	1.165	2.59	10.65	3.24
2000.00	13.76	1.173	2.76	11.06	3.44
2200.00	13.92	1.181	2.92	11.45	3.64
2400.00	14.07	1.187	3.07	11.81	3.84
2600.00	14.22	1.193	3.22	12.15	4.02
2800.00	14.36	1.198	3.36	12.47	4.20
3000.00	14.50	1.203	3.50	12.78	4.37

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	100.00 ft
CREST LENGTH	50.00 ft
OVERTOPPING CREST ELEVATION	18.50 ft

CURRENT DATE: 12-06-2005
CURRENT TIME: 13:11:11

FILE DATE: 12-06-2005
FILE NAME: SVP48103

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULV NO.	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	11.50	11.00	143.00	6 RCB	10.00	5.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: SVP48103 DATE: 12-06-2005

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
14.66	1000.0	1000.0	0.0	0.0	0.0	0.0	0.0	0.00	1
15.07	1200.0	1200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
15.46	1400.0	1400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
15.84	1600.0	1600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
16.21	1800.0	1800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
16.59	2000.0	2000.0	0.0	0.0	0.0	0.0	0.0	0.00	1
16.97	2200.0	2200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
17.37	2400.0	2400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
17.80	2600.0	2600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
18.24	2800.0	2800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
18.69	3000.0	2988.0	0.0	0.0	0.0	0.0	0.0	9.46	3
18.55	2928.3	2928.3	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: SVP48103 DATE: 12-06-2005

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
14.66	0.000	1000.00	0.00	0.00
15.07	0.000	1200.00	0.00	0.00
15.46	0.000	1400.00	0.00	0.00
15.84	0.000	1600.00	0.00	0.00
16.21	0.000	1800.00	0.00	0.00
16.59	0.000	2000.00	0.00	0.00
16.97	0.000	2200.00	0.00	0.00
17.37	0.000	2400.00	0.00	0.00
17.80	0.000	2600.00	0.00	0.00
18.24	0.000	2800.00	0.00	0.00
18.69	-0.005	3000.00	2.58	0.09

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 12-06-2005 FILE DATE: 12-06-2005
CURRENT TIME: 13:11:11 FILE NAME: SVP48103

PERFORMANCE CURVE FOR CULVERT 1 - 6(10.00 (ft) BY 5.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
1000.00	14.66	3.16	3.16	1-S2n	1.85	2.06	1.76	1.83	9.50	8.58
1200.00	15.07	3.57	3.57	1-S2n	2.10	2.32	2.02	2.04	9.90	9.18
1400.00	15.46	3.96	3.96	1-S2n	2.33	2.57	2.27	2.23	10.27	9.72
1600.00	15.84	4.34	4.34	1-S2n	2.56	2.81	2.58	2.42	10.35	10.20
1800.00	16.21	4.71	4.71	1-S2n	2.77	3.04	2.80	2.59	10.72	10.65
2000.00	16.59	5.09	5.09	5-S2n	2.99	3.26	3.01	2.76	11.06	11.06
2200.00	16.97	5.47	5.47	5-S2n	3.20	3.48	3.22	2.92	11.37	11.45
2400.00	17.37	5.87	5.87	5-S2n	3.40	3.68	3.43	3.07	11.66	11.81
2600.00	17.80	6.30	6.30	5-S2n	3.60	3.89	3.63	3.22	11.93	12.15
2800.00	18.24	6.74	6.74	5-S2n	3.80	4.08	3.83	3.36	12.19	12.47
2987.96	18.69	7.19	7.19	5-S2n	3.99	4.26	4.01	3.50	12.41	12.78

El. inlet face invert 11.50 ft El. outlet invert 11.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION                          0.00 ft
      INLET ELEVATION                       11.50 ft
      OUTLET STATION                       143.00 ft
      OUTLET ELEVATION                      11.00 ft
      NUMBER OF BARRELS                      6
      SLOPE (V/H)                            0.0035
      CULVERT LENGTH ALONG SLOPE           143.00 ft

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          BOX
      BARREL SPAN            10.00 ft
      BARREL RISE             5.00 ft
      BARREL MATERIAL       CONCRETE
      BARREL MANNING'S n    0.012
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   SQUARE EDGE (30-75 DEG. FLARE)
      INLET DEPRESSION      NONE
```

CURRENT DATE: 12-06-2005
CURRENT TIME: 13:11:11

FILE DATE: 12-06-2005
FILE NAME: SVP48103

TAILWATER

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	60.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.020
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	11.00 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	11.00 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
1000.00	12.83	1.118	1.83	8.58	2.28
1200.00	13.04	1.133	2.04	9.18	2.55
1400.00	13.23	1.146	2.23	9.72	2.79
1600.00	13.42	1.156	2.42	10.20	3.02
1800.00	13.59	1.165	2.59	10.65	3.24
2000.00	13.76	1.173	2.76	11.06	3.44
2200.00	13.92	1.181	2.92	11.45	3.64
2400.00	14.07	1.187	3.07	11.81	3.84
2600.00	14.22	1.193	3.22	12.15	4.02
2800.00	14.36	1.198	3.36	12.47	4.20
3000.00	14.50	1.203	3.50	12.78	4.37

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	100.00 ft
CREST LENGTH	60.00 ft
OVERTOPPING CREST ELEVATION	18.55 ft

CURRENT DATE: 12-06-2005
CURRENT TIME: 13:22:12

FILE DATE: 12-06-2005
FILE NAME: SVP48243

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULV NO.	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	11.50	11.00	164.00	3 RCB	12.00	5.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: SVP48243 DATE: 12-06-2005

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
16.27	1100.0	1100.0	0.0	0.0	0.0	0.0	0.0	0.00	1
16.50	1172.0	1172.0	0.0	0.0	0.0	0.0	0.0	0.00	1
16.73	1244.0	1244.0	0.0	0.0	0.0	0.0	0.0	0.00	1
16.96	1316.0	1316.0	0.0	0.0	0.0	0.0	0.0	0.00	1
17.20	1388.0	1388.0	0.0	0.0	0.0	0.0	0.0	0.00	1
17.44	1460.0	1460.0	0.0	0.0	0.0	0.0	0.0	0.00	1
17.58	1500.0	1500.0	0.0	0.0	0.0	0.0	0.0	0.00	1
17.96	1604.0	1604.0	0.0	0.0	0.0	0.0	0.0	0.00	1
18.23	1676.0	1676.0	0.0	0.0	0.0	0.0	0.0	0.00	1
18.51	1748.0	1748.0	0.0	0.0	0.0	0.0	0.0	0.00	1
18.73	1820.0	1801.8	0.0	0.0	0.0	0.0	0.0	16.41	3
18.50	1817.1	1817.1	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: SVP48243 DATE: 12-06-2005

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
16.27	0.000	1100.00	0.00	0.00
16.50	0.000	1172.00	0.00	0.00
16.73	0.000	1244.00	0.00	0.00
16.96	0.000	1316.00	0.00	0.00
17.20	0.000	1388.00	0.00	0.00
17.44	0.000	1460.00	0.00	0.00
17.58	0.000	1500.00	0.00	0.00
17.96	0.000	1604.00	0.00	0.00
18.23	0.000	1676.00	0.00	0.00
18.51	0.000	1748.00	0.00	0.00
18.73	-0.004	1820.00	1.80	0.10

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 12-06-2005 FILE DATE: 12-06-2005
CURRENT TIME: 13:22:12 FILE NAME: SVP48243

PERFORMANCE CURVE FOR CULVERT 1 - 3(12.00 (ft) BY 5.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
1100.00	16.27	4.77	4.77	1-S2n	2.88	3.08	2.78	2.45	11.00	10.02
1172.00	16.50	5.00	5.00	1-S2n	3.01	3.21	2.91	2.54	11.18	10.24
1244.00	16.73	5.23	5.23	5-S2n	3.14	3.34	3.04	2.63	11.36	10.46
1316.00	16.96	5.46	5.46	5-S2n	3.26	3.47	3.17	2.72	11.53	10.66
1388.00	17.20	5.70	5.70	5-S2n	3.39	3.60	3.30	2.80	11.70	10.86
1460.00	17.44	5.94	5.94	5-S2n	3.51	3.72	3.42	2.89	11.86	11.05
1500.00	17.58	6.08	6.08	5-S2n	3.58	3.79	3.49	2.93	11.95	11.15
1604.00	17.96	6.46	6.46	5-S2n	3.75	3.96	3.66	3.05	12.18	11.41
1676.00	18.23	6.73	6.73	5-S2n	3.87	4.08	3.78	3.13	12.33	11.58
1748.00	18.51	7.01	7.01	5-S2n	3.99	4.19	3.89	3.20	12.47	11.75
1801.79	18.73	7.23	7.23	5-S2n	4.08	4.28	3.98	3.28	12.58	11.91

El. inlet face invert 11.50 ft El. outlet invert 11.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	11.50 ft
OUTLET STATION	164.00 ft
OUTLET ELEVATION	11.00 ft
NUMBER OF BARRELS	3
SLOPE (V/H)	0.0030
CULVERT LENGTH ALONG SLOPE	164.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	12.00 ft
BARREL RISE	5.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION	NONE

CURRENT DATE: 12-06-2005 FILE DATE: 12-06-2005
CURRENT TIME: 13:22:12 FILE NAME: SVP48243

TAILWATER

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	40.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.020
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	11.00 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	11.00 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
1100.00	13.45	1.129	2.45	10.02	3.05
1172.00	13.54	1.133	2.54	10.24	3.17
1244.00	13.63	1.137	2.63	10.46	3.28
1316.00	13.72	1.140	2.72	10.66	3.39
1388.00	13.80	1.143	2.80	10.86	3.50
1460.00	13.89	1.146	2.89	11.05	3.60
1500.00	13.93	1.148	2.93	11.15	3.66
1604.00	14.05	1.152	3.05	11.41	3.81
1676.00	14.13	1.154	3.13	11.58	3.90
1748.00	14.20	1.157	3.20	11.75	4.00
1820.00	14.28	1.159	3.28	11.91	4.09

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	120.00 ft
CREST LENGTH	50.00 ft
OVERTOPPING CREST ELEVATION	18.50 ft

CURRENT DATE: 11-21-2005
CURRENT TIME: 14:24:18

FILE DATE: 11-21-2005
FILE NAME: SVP51267

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULV NO.	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	23.11	22.00	133.00	4 RCB	10.00	4.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: SVP51267 DATE: 11-21-2005

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
23.11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
24.51	200.0	200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
25.34	400.0	400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
26.05	600.0	600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
26.69	800.0	800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
27.32	1000.0	1000.0	0.0	0.0	0.0	0.0	0.0	0.00	1
27.76	1132.0	1132.0	0.0	0.0	0.0	0.0	0.0	0.00	1
28.71	1400.0	1389.8	0.0	0.0	0.0	0.0	0.0	7.08	2
29.24	1600.0	1517.4	0.0	0.0	0.0	0.0	0.0	81.91	3
29.70	1800.0	1619.0	0.0	0.0	0.0	0.0	0.0	180.55	3
30.13	2000.0	1706.4	0.0	0.0	0.0	0.0	0.0	292.51	2
28.58	1357.2	1357.2	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: SVP51267 DATE: 11-21-2005

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
23.11	0.000	0.00	0.00	0.00
24.51	0.000	200.00	0.00	0.00
25.34	0.000	400.00	0.00	0.00
26.05	0.000	600.00	0.00	0.00
26.69	0.000	800.00	0.00	0.00
27.32	0.000	1000.00	0.00	0.00
27.76	0.000	1132.00	0.00	0.00
28.71	-0.009	1400.00	3.12	0.22
29.24	-0.002	1600.00	0.65	0.04
29.70	-0.001	1800.00	0.43	0.02
30.13	-0.002	2000.00	1.08	0.05

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 11-21-2005 FILE DATE: 11-21-2005
CURRENT TIME: 14:24:18 FILE NAME: SVP51267

PERFORMANCE CURVE FOR CULVERT 1 - 4(10.00 (ft) BY 4.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	23.11	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
200.00	24.51	1.40	1.40	1-S2n	0.63	0.92	0.65	1.08	7.70	6.79
400.00	25.34	2.23	2.23	1-S2n	0.99	1.46	1.03	1.63	9.69	8.68
600.00	26.05	2.94	2.94	1-S2n	1.29	1.92	1.38	2.07	10.90	9.97
800.00	26.69	3.58	3.58	1-S2n	1.57	2.32	1.69	2.44	11.83	10.97
1000.00	27.32	4.21	4.21	5-S2n	1.82	2.69	1.99	2.77	12.54	11.81
1132.00	27.76	4.65	4.65	5-S2n	1.98	2.93	2.18	2.98	13.01	12.29
1389.80	28.71	5.60	5.60	5-S2n	2.28	3.35	2.53	3.36	13.71	13.15
1517.44	29.24	6.13	6.13	5-S2n	2.42	3.56	2.71	3.62	14.02	13.71
1619.02	29.70	6.59	6.59	5-S2n	2.53	3.71	2.84	3.87	14.23	14.22
1706.40	30.12	7.01	6.08	4-FFt	2.62	3.85	2.62	4.10	16.26	14.69

El. inlet face invert 23.11 ft El. outlet invert 22.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	23.11 ft
OUTLET STATION	133.00 ft
OUTLET ELEVATION	22.00 ft
NUMBER OF BARRELS	4
SLOPE (V/H)	0.0083
CULVERT LENGTH ALONG SLOPE	133.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	10.00 ft
BARREL RISE	4.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION	NONE

CURRENT DATE: 11-21-2005
CURRENT TIME: 14:24:18

FILE DATE: 11-21-2005
FILE NAME: SVP51267

TAILWATER

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	25.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.026
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	22.00 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	22.00 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	22.00	0.000	0.00	0.00	0.00
200.00	23.08	1.148	1.08	6.79	1.76
400.00	23.63	1.197	1.63	8.68	2.65
600.00	24.07	1.222	2.07	9.97	3.35
800.00	24.44	1.238	2.44	10.97	3.96
1000.00	24.77	1.250	2.77	11.81	4.50
1132.00	24.98	1.256	2.98	12.29	4.83
1400.00	25.36	1.265	3.36	13.15	5.45
1600.00	25.62	1.270	3.62	13.71	5.87
1800.00	25.87	1.275	3.87	14.22	6.27
2000.00	26.10	1.278	4.10	14.69	6.65

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	100.00 ft
CREST LENGTH	50.00 ft
OVERTOPPING CREST ELEVATION	28.58 ft

CURRENT DATE: 10-24-2005
CURRENT TIME: 14:52:12

FILE DATE: 10-24-2005
FILE NAME: SVP61824

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULV NO.	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	44.20	42.86	135.01	4 RCB	10.00	5.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: SVP61824 DATE: 10-24-2005

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
44.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
45.60	200.0	200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
46.42	400.0	400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
47.13	600.0	600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
47.76	800.0	800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
48.33	1000.0	1000.0	0.0	0.0	0.0	0.0	0.0	0.00	1
48.89	1200.0	1200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
49.46	1400.0	1400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
49.95	1565.0	1565.0	0.0	0.0	0.0	0.0	0.0	0.00	1
50.70	1800.0	1800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
51.33	2000.0	1978.0	0.0	0.0	0.0	0.0	0.0	20.57	3
51.06	1902.0	1902.0	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: SVP61824 DATE: 10-24-2005

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
44.20	0.000	0.00	0.00	0.00
45.60	0.000	200.00	0.00	0.00
46.42	0.000	400.00	0.00	0.00
47.13	0.000	600.00	0.00	0.00
47.76	0.000	800.00	0.00	0.00
48.33	0.000	1000.00	0.00	0.00
48.89	0.000	1200.00	0.00	0.00
49.46	0.000	1400.00	0.00	0.00
49.95	0.000	1565.00	0.00	0.00
50.70	0.000	1800.00	0.00	0.00
51.33	-0.003	2000.00	1.45	0.07

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 10-24-2005 FILE DATE: 10-24-2005
CURRENT TIME: 14:52:12 FILE NAME: SVP61824

PERFORMANCE CURVE FOR CULVERT 1 - 4(10.00 (ft) BY 5.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	44.20	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
200.00	45.60	1.40	1.40	1-S2n	0.59	0.92	0.52	0.74	9.60	12.68
400.00	46.42	2.22	2.22	1-S2n	0.94	1.46	0.98	1.11	10.18	16.28
600.00	47.13	2.93	2.93	1-S2n	1.22	1.92	1.31	1.40	11.49	18.75
800.00	47.76	3.56	3.56	1-S2n	1.48	2.32	1.61	1.66	12.42	20.68
1000.00	48.33	4.13	4.13	1-S2n	1.71	2.69	1.89	1.89	13.21	22.28
1200.00	48.89	4.69	4.69	1-S2n	1.94	3.04	2.18	2.10	13.75	23.65
1400.00	49.46	5.26	5.26	5-S2n	2.15	3.37	2.44	2.29	14.34	24.88
1565.00	49.95	5.75	5.75	5-S2n	2.32	3.63	2.66	2.44	14.71	25.79
1800.00	50.70	6.50	6.50	5-S2n	2.56	3.99	2.96	2.64	15.23	26.96
1977.97	51.32	7.12	7.12	5-S2n	2.73	4.24	3.14	2.80	15.73	27.87

El. inlet face invert 44.20 ft El. outlet invert 42.86 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	44.20 ft
OUTLET STATION	135.00 ft
OUTLET ELEVATION	42.86 ft
NUMBER OF BARRELS	4
SLOPE (V/H)	0.0099
CULVERT LENGTH ALONG SLOPE	135.01 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	10.00 ft
BARREL RISE	5.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION	NONE

CURRENT DATE: 10-24-2005
CURRENT TIME: 14:52:12

FILE DATE: 10-24-2005
FILE NAME: SVP61824

TAILWATER

******* REGULAR CHANNEL CROSS SECTION ****************

BOTTOM WIDTH	20.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.150
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	42.86 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	42.86 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	42.86	0.000	0.00	0.00	0.00
200.00	43.60	2.607	0.74	12.68	6.88
400.00	43.97	2.727	1.11	16.28	10.35
600.00	44.26	2.789	1.40	18.75	13.13
800.00	44.52	2.829	1.66	20.68	15.53
1000.00	44.75	2.857	1.89	22.28	17.67
1200.00	44.96	2.878	2.10	23.65	19.63
1400.00	45.15	2.898	2.29	24.88	21.43
1565.00	45.30	2.910	2.44	25.79	22.83
1800.00	45.50	2.924	2.64	26.96	24.72
2000.00	45.66	2.934	2.80	27.87	26.23

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	100.00 ft
CREST LENGTH	50.00 ft
OVERTOPPING CREST ELEVATION	51.06 ft

CURRENT DATE: 10-24-2005
CURRENT TIME: 13:45:20

FILE DATE: 10-24-2005
FILE NAME: SVP63089

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULV NO.	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	50.40	49.50	155.00	4 RCB	10.00	3.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: SVP63089 DATE: 10-24-2005

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
50.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
51.81	200.0	200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
52.65	400.0	400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
53.38	600.0	600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
54.15	800.0	800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
54.64	910.0	910.0	0.0	0.0	0.0	0.0	0.0	0.00	1
56.03	1200.0	1171.0	0.0	0.0	0.0	0.0	0.0	26.07	4
56.64	1400.0	1266.2	0.0	0.0	0.0	0.0	0.0	133.12	3
57.15	1600.0	1340.9	0.0	0.0	0.0	0.0	0.0	258.65	3
57.61	1800.0	1404.8	0.0	0.0	0.0	0.0	0.0	394.71	3
58.04	2000.0	1462.0	0.0	0.0	0.0	0.0	0.0	537.73	3
55.72	1117.9	1117.9	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: SVP63089 DATE: 10-24-2005

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
50.40	0.000	0.00	0.00	0.00
51.81	0.000	200.00	0.00	0.00
52.65	0.000	400.00	0.00	0.00
53.38	0.000	600.00	0.00	0.00
54.15	0.000	800.00	0.00	0.00
54.64	0.000	910.00	0.00	0.00
56.03	-0.009	1200.00	2.96	0.25
56.64	-0.002	1400.00	0.70	0.05
57.15	-0.001	1600.00	0.40	0.03
57.61	-0.001	1800.00	0.52	0.03
58.04	-0.001	2000.00	0.28	0.01

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 10-24-2005 FILE DATE: 10-24-2005
CURRENT TIME: 13:45:20 FILE NAME: SVP63089

PERFORMANCE CURVE FOR CULVERT 1 - 4(10.00 (ft) BY 3.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	50.40	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
200.00	51.81	1.41	1.41	1-S2n	0.71	0.92	0.62	0.76	8.05	4.26
400.00	52.65	2.25	2.25	1-S2n	1.12	1.46	1.06	1.15	9.42	5.56
600.00	53.38	2.98	2.98	1-S2n	1.46	1.92	1.50	1.47	10.03	6.48
800.00	54.15	3.75	3.75	5-S2n	1.77	2.32	1.84	1.75	10.87	7.22
910.00	54.64	4.24	4.24	5-S2n	1.93	2.53	2.01	1.88	11.32	7.57
1170.97	56.03	5.63	5.63	5-S2n	2.29	2.99	2.41	2.22	12.14	8.38
1266.18	56.64	6.24	5.44	6-S2n	2.42	3.00	2.55	2.43	12.41	8.87
1340.95	57.15	6.75	5.85	6-S2n	2.51	3.00	2.67	2.63	12.56	9.31
1404.78	57.61	7.21	6.22	6-S2n	2.60	3.00	2.84	2.82	12.37	9.71
1461.99	58.04	7.64	6.56	4-S2n	2.67	3.00	2.90	3.00	12.60	10.09

El. inlet face invert 50.40 ft El. outlet invert 49.50 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

```
***** SITE DATA ***** CULVERT INVERT **************
      INLET STATION                          0.00 ft
      INLET ELEVATION                       50.40 ft
      OUTLET STATION                       155.00 ft
      OUTLET ELEVATION                      49.50 ft
      NUMBER OF BARRELS                     4
      SLOPE (V/H)                           0.0058
      CULVERT LENGTH ALONG SLOPE           155.00 ft

***** CULVERT DATA SUMMARY ************************
      BARREL SHAPE          BOX
      BARREL SPAN            10.00 ft
      BARREL RISE             3.00 ft
      BARREL MATERIAL       CONCRETE
      BARREL MANNING'S n    0.012
      INLET TYPE            CONVENTIONAL
      INLET EDGE AND WALL   SQUARE EDGE (30-75 DEG. FLARE)
      INLET DEPRESSION      NONE
```

CURRENT DATE: 10-24-2005
CURRENT TIME: 13:45:20

FILE DATE: 10-24-2005
FILE NAME: SVP63089

TAILWATER

******* REGULAR CHANNEL CROSS SECTION **********

BOTTOM WIDTH	60.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.015
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	49.50 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	49.50 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	49.50	0.000	0.00	0.00	0.00
200.00	50.26	0.859	0.76	4.26	0.71
400.00	50.65	0.911	1.15	5.56	1.08
600.00	50.97	0.941	1.47	6.48	1.38
800.00	51.25	0.963	1.75	7.22	1.63
910.00	51.38	0.972	1.88	7.57	1.76
1200.00	51.72	0.991	2.22	8.38	2.08
1400.00	51.93	1.002	2.43	8.87	2.28
1600.00	52.13	1.011	2.63	9.31	2.46
1800.00	52.32	1.019	2.82	9.71	2.64
2000.00	52.50	1.025	3.00	10.09	2.81

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	110.00 ft
CREST LENGTH	50.00 ft
OVERTOPPING CREST ELEVATION	55.72 ft

CURRENT DATE: 10-24-2005
CURRENT TIME: 14:21:03

FILE DATE: 10-24-2005
FILE NAME: SVP63208

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULV NO.	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	49.54	49.27	135.00	3 RCB	12.00	5.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: SVP63208 DATE: 10-24-2005

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
49.54	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
51.19	200.0	200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
52.17	400.0	400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
52.98	600.0	600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
53.71	800.0	800.0	0.0	0.0	0.0	0.0	0.0	0.00	1
54.08	910.0	910.0	0.0	0.0	0.0	0.0	0.0	0.00	1
55.01	1200.0	1200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
55.60	1400.0	1400.0	0.0	0.0	0.0	0.0	0.0	0.00	1
56.16	1600.0	1600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
56.64	1800.0	1770.2	0.0	0.0	0.0	0.0	0.0	30.22	2
57.12	2000.0	1885.9	0.0	0.0	0.0	0.0	0.0	113.51	3
56.30	1648.9	1648.9	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: SVP63208 DATE: 10-24-2005

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
49.54	0.000	0.00	0.00	0.00
51.19	0.000	200.00	0.00	0.00
52.17	0.000	400.00	0.00	0.00
52.98	0.000	600.00	0.00	0.00
53.71	0.000	800.00	0.00	0.00
54.08	0.000	910.00	0.00	0.00
55.01	0.000	1200.00	0.00	0.00
55.60	0.000	1400.00	0.00	0.00
56.16	0.000	1600.00	0.00	0.00
56.64	0.001	1800.00	-0.44	-0.02
57.12	-0.001	2000.00	0.55	0.03

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 10-24-2005
CURRENT TIME: 14:21:03

FILE DATE: 10-24-2005
FILE NAME: SVP63208

PERFORMANCE CURVE FOR CULVERT 1 - 3(12.00 (ft) BY 5.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	49.54	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
200.00	51.19	1.51	1.65	3-M1t	1.06	0.99	1.28	1.28	4.35	5.69
400.00	52.17	2.40	2.63	3-M1t	1.67	1.57	1.92	1.92	5.80	7.24
600.00	52.98	3.16	3.44	3-M1t	2.19	2.06	2.42	2.42	6.88	8.30
800.00	53.71	3.84	4.17	3-M1t	2.66	2.49	2.86	2.86	7.78	9.12
910.00	54.08	4.19	4.54	3-M1t	2.91	2.71	3.07	3.07	8.23	9.51
1200.00	55.01	5.09	5.47	3-M1t	3.53	3.26	3.59	3.59	9.27	10.37
1400.00	55.60	5.74	6.06	3-M2t	3.93	3.62	3.92	3.92	9.93	10.88
1600.00	56.16	6.45	6.62	3-M2t	4.33	3.95	4.22	4.22	10.53	11.34
1770.22	56.64	7.10	7.09	3-M2t	5.00	4.23	4.51	4.51	10.92	11.75
1885.94	57.12	7.58	7.39	3-M2t	5.00	4.41	4.77	4.77	10.97	12.13

El. inlet face invert 49.54 ft El. outlet invert 49.27 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	49.54 ft
OUTLET STATION	135.00 ft
OUTLET ELEVATION	49.27 ft
NUMBER OF BARRELS	3
SLOPE (V/H)	0.0020
CULVERT LENGTH ALONG SLOPE	135.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	12.00 ft
BARREL RISE	5.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION	NONE

CURRENT DATE: 10-24-2005
CURRENT TIME: 14:21:03

FILE DATE: 10-24-2005
FILE NAME: SVP63208

TAILWATER

******* REGULAR CHANNEL CROSS SECTION ****************

BOTTOM WIDTH	25.00 ft
SIDE SLOPE H/V (X:1)	2.0
CHANNEL SLOPE V/H (ft/ft)	0.015
MANNING'S n (.01-0.1)	0.035
CHANNEL INVERT ELEVATION	49.27 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	49.27 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	49.27	0.000	0.00	0.00	0.00
200.00	50.55	0.888	1.28	5.69	1.19
400.00	51.19	0.923	1.92	7.24	1.79
600.00	51.69	0.940	2.42	8.30	2.27
800.00	52.13	0.951	2.86	9.12	2.67
910.00	52.34	0.956	3.07	9.51	2.88
1200.00	52.86	0.964	3.59	10.37	3.36
1400.00	53.19	0.969	3.92	10.88	3.67
1600.00	53.49	0.972	4.22	11.34	3.95
1800.00	53.78	0.975	4.51	11.75	4.22
2000.00	54.04	0.978	4.77	12.13	4.47

ROADWAY OVERTOPPING DATA

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	100.00 ft
CREST LENGTH	50.00 ft
OVERTOPPING CREST ELEVATION	56.30 ft