AMENDMENT 2 TO PINE CREEK DRAINAGE BASIN PLANNING STUDY FULLY DEVELOPED CONDITION BASIN MAP AND MASTER PLAN

LEGEND

- CURRENT MAJOR DRAINAGE BASIN BOUNDARY
- CURRENT SUB-BASIN BOUNDARY
- PREVIOUS MAJOR DRAINAGE BASIN BOUNDARY (1988 DBPS)
- LIMIT OF CURRENT STUDY
- EXISTING STORM DRAIN
- EXISTING STORM DRAIN INLET
- EXISTING STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN
- DF'X' — PROPOSED DETENTION FACILITY / DETENTION FACILITY IDENTIFICATION
- 35% — SIGNIFIES ON SITE DETENTION REQUIREMENT OF 35% OF Q_{100} DEVELOPED – Q_{100} UNDEVELOPED FOR ALL NON-RESIDENTIAL PROPERTY EXCLUSIVE OF STREET RIGHT-OF-WAY WITHIN THE SUB-BASIN.
- X — ANALYSIS POINT (AP XX)
- XX / XX — BASIN IDENTIFICATION / BASIN ACRES
- 6000 — EXISTING 10 FOOT CONTOUR
- EXISTING 2 FOOT CONTOUR
- PC 1 — PINE CREEK STUDY REACH IDENTIFICATION
- ① — KEYED NOTE REFERENCE
- GENERAL PROPOSED DIRECTION OF DRAINAGE FLOW

GENERAL NOTES:

1. FUTURE STORM DRAINS SHOWN ON THIS PLAN ARE ONLY INTENDED TO INDICATE GENERAL LOCATIONS AND APPROXIMATE SIZES OF FUTURE FACILITIES. ACTUAL STORM DRAIN SIZES AND LOCATIONS SHALL BE DETERMINED WITH MORE DETAILED ANALYSIS AT THE TIME OF DETAILED DESIGN OF THE FACILITIES. IT IS LIKELY THAT ADDITIONAL FACILITIES NOT SHOWN ON THIS PLAN WILL BE REQUIRED.
2. PROPOSED DETENTION FACILITIES SHOWN ON THIS PLAN ARE ONLY INTENDED TO INDICATE GENERAL LOCATIONS AND LAND AREA REQUIRED FOR THESE FACILITIES. ACTUAL LOCATION AND LAND AREA REQUIRED SHALL BE DETERMINED AT THE TIME OF DETAILED DESIGN OF THE FACILITIES.
3. EXCEPT AS OTHERWISE NOTED, THIS PLAN SHALL NOT MODIFY THE REQUIREMENTS OF PREVIOUSLY APPROVED MASTER DEVELOPMENT DRAINAGE PLANS AND FINAL DRAINAGE REPORTS.
4. THE AREA ABOVE POWERS BOULEVARD SHOULD BE RE-EXAMINED AS MORE DETAIL ABOUT LAND PLANNING IS KNOWN. ADDITIONAL DETENTION FACILITIES LOCATED HIGHER IN THE WATERSHED SHOULD BE CONSIDERED.

KEYED NOTES:

① SUB-BASIN PM6 WAS ANALYZED ASSUMING FREE DISCHARGE FROM THE SUB-BASIN. FREE DISCHARGE FROM THE SUB-BASIN MAY BE ALLOWED PROVIDED THE OUTFALL SYSTEM TO PINE CREEK IS SIZED ACCORDINGLY.

② SECTION OF PINE CREEK TO BE ELIMINATED.

PROPOSED TREATMENT FOR PINE CREEK CHANNEL:

REACH ID	PROPOSED TREATMENT **
PC 1	LEAVE NATURAL WITH MINOR BANK AND BED STABILIZATION.
PC 2	LEAVE NATURAL.
PC 3	LEAVE NATURAL WITH MINOR BANK AND BED STABILIZATION.
PC 4	REGRADE TO PROVIDE WIDE DEPRESSED AREA TO SERVE AS EMERGENCY RELIEF CHANNEL. CONSTRUCT 54" STORM DRAIN TO CONVEY 100 YEAR DESIGN FLOW.
PC 5	LEAVE NATURAL WITH BED AND BANK STABILIZATION.
PC 6	LEAVE NATURAL WITH BED AND BANK STABILIZATION.
PC 7	LEAVE NATURAL WITH BED AND BANK STABILIZATION.

** ACTUAL TREATMENT REQUIREMENT TO BE DETERMINED WITH FUTURE DETAILED HYDRAULIC ANALYSIS.
– NATURAL CHANNEL WILL REQUIRE MONITORING TO VERIFY PERFORMANCE AFTER DEVELOPMENT OCCURS.
– EXCEPT FOR THE REACHES NOTED ABOVE, PINE CREEK CHANNEL WILL BE BY-PASSED WITH STORM DRAIN CONVEYANCES AND ELIMINATED WITHIN THE STUDY AREA.

REGIONAL DETENTION FACILITY DATA SUMMARY

FULLY DEVELOPED CONDITION

DETENTION FACILITY I.D.	PEAK INFLOW (cfs)		PEAK OUTFLOW (cfs)		ESTIMATED PEAK STORAGE (ac-ft)	
	Q5	Q100	Q5	Q100	V5	V100
A	102	275	5	9	4	11
B	233	506	159	247	5	14
C	956	1840	153	227	33	69
D	464	1073	57	99	16	41
E	307	724	177	265	7	19
F	269	578	170	239	4	18
G	770	1747	165	250	23	60
No. 1	1297	2809	488	1147	47	96

ANALYSIS POINT DATA SUMMARY

FULLY DEVELOPED CONDITION

ANALYSIS POINT Δ	WATERSHED AREA (acres)	WATERSHED AREA (sq-miles)	Q5 (cfs)	Q100 (cfs)	POINT DESCRIPTION
AP1	198	0.31	262	657	TOTAL FLOW
AP2	256	0.40	356	866	TOTAL FLOW
AP3	371	0.58	532	1285	TOTAL FLOW
APDFG	467	0.73	770	1747	TOTAL POND INFLOW
APDFF	589	0.92	269	578	TOTAL POND INFLOW
AP4	640	1.00	180	309	TOTAL FLOW
APDFE	800	1.25	307	724	TOTAL POND INFLOW
AP5	864	1.35	181	368	TOTAL FLOW
AP5A	1702	2.66	342	654	TOTAL FLOW
APDFD	301	0.47	464	1073	TOTAL FLOW
AP6	378	0.59	247	470	TOTAL FLOW
AP7	422	0.66	349	681	TOTAL FLOW
AP7A	480	0.75	532	998	TOTAL FLOW
AP8	557	0.87	692	1332	TOTAL FLOW
AP9	640	1.00	935	1778	TOTAL FLOW
APDFC	666	1.04	956	1840	TOTAL POND INFLOW
AP10	698	1.09	181	317	TOTAL FLOW
APDFB	806	1.26	233	506	TOTAL POND INFLOW
AP11	838	1.31	162	289	TOTAL FLOW
AP12	1875	2.93	408	985	TOTAL FLOW
AP13	1952	3.04	437	1115	TOTAL FLOW
AP14	77	0.12	167	284	TOTAL FLOW
AP15	115	0.18	223	407	TOTAL FLOW
AP16	147	0.23	239	427	TOTAL FLOW
AP17	141	0.22	51	142	TOTAL FLOW
AP18	173	0.27	88	232	TOTAL FLOW
AP19	2266	3.54	656	1753	TOTAL FLOW
AP20	2381	3.72	712	1978	TOTAL FLOW
AP21	2438	3.81	797	2149	TOTAL FLOW
APDFSF	102	0.16	110	296	TOTAL POND INFLOW
AP22	173	0.27	161	337	TOTAL FLOW
AP22S			NA	77	SURFACE FLOW
AP22P			NA	260	PIPE FLOW
AP23	198	0.31	194	331	TOTAL FLOW
AP23P			NA	298	PIPE FLOW
AP23S			NA	33	SURFACE FLOW
AP24	237	0.37	298	509	TOTAL FLOW
AP24S			NA	159	SURFACE FLOW
AP24P			NA	350	PIPE FLOW
AP25	294	0.46	461	586	TOTAL FLOW
AP25P			NA	461	PIPE FLOW
AP25S			NA	125	SURFACE FLOW
APDF#1	2835	4.43	1297	2809	TOTAL POND FLOW
AP26	2835	4.43	488	1147	TOTAL FLOW
AP27	2873	4.49	492	1162	TOTAL FLOW
AP28	2931	4.58	633	1207	TOTAL FLOW

ANALYSIS POINTS NOTE:
ANALYSIS POINTS CONTAINED IN THE HEC-1 MODEL AND IN THE ABOVE TABLE ARE SHOWN ON THE MAP WITHOUT THE PREFIX "AP."

SUB-BASIN DATA SUMMARY

FULLY DEVELOPED CONDITION

BASIN I.D.	AREA (acres)	AREA (sq-miles)	TC (minutes)	LAG (hours)	CN	PEAK RUNOFF (cfs) Q5	PEAK RUNOFF (cfs) Q100
CN1	93.0	0.145	19.0	0.190	76.8	102	275
CN2	50.0	0.078	21.4	0.214	75.6	47	136
CN3	27.5	0.043	15.7	0.157	80.0	40	98
CS1	33.9	0.053	18.1	0.181	73.6	30	90
CS2	45.0	0.070	10.1	0.101	98.0	149	254
CS3	34.0	0.053	17.7	0.177	84.8	61	137
CS4	34.2	0.053	10.1	0.101	95.5	107	188
F1	76.0	0.119	20.8	0.208	78.3	89	233
F2	25.0	0.039	17.1	0.171	74.0	24	69
F3	73.0	0.114	21.5	0.215	77.0	76	210
F4	24.5	0.038	19.7	0.197	83.0	38	89
F5	41.0	0.064	12.2	0.121	95.5	127	225
F6	24.5	0.036	10.6	0.106	98.0	81	138
F7	33.5	0.052	13.7	0.137	93.0	93	173
PM1	34.5	0.054	20.3	0.203	78.5	41	107
PM2	98.6	0.154	31.0	0.310	66.0	31	139
PM3	43.0	0.067	24.8	0.248	73.5	32	99
PM4	70.9	0.111	17.0	0.170	71.9	57	180
PM5	117.0	0.183	18.5	0.185	70.0	78	265
PM6	56.5	0.088	11.0	0.110	98.0	186	319
PM7	88.0	0.138	35.4	0.353	76.3	66	191
PM8	8.7	0.014	10.0	0.100	98.0	30	51
PM9	43.5	0.068	12.0	0.120	93.0	124	230
PM10	31.0	0.048	9.2	0.092	98.0	102	175
PM11	27.0	0.042	9.6	0.096	98.0	87	149
PN1	105.0	0.164	18.8	0.188	80.2	143	355
PN2	95.4	0.149	19.2	0.192	79.0	120	306
PN3	52.9	0.083	19.6	0.196	85.8	97	213
PN4	73.0	0.114	18.5	0.185	78.5	90	234
PN5	47.3	0.074	17.5	0.175	86.2	92	199
PN6	93.1	0.146	12.7	0.127	95.0	283	507
PN7	49.7	0.078	16.5	0.165	74.6	50	144
PN8	72.5	0.113	17.6	0.176	80.9	104	257
PN9	23.1	0.036	17.0	0.170	72.8	20	61
PN10	27.3	0.043	14.1	0.141	72.7	26	78
PN11	50.4	0.079	18.9	0.189	76.7	55	150
PN12	24.7	0.039	12.9	0.129	68.2	17	60
PN13	81.1	0.127	19.5	0.195	74.0	73	215
PN14	17.5	0.027	15.7	0.157	74.3	17	50
PN15	47.1	0.074	18.7	0.186	72.7	39	120
PS1	96.2	0.150	20.5	0.205	78.4	113	296
PS2	98.3	0.154	18.8	0.188	85.2	177	394
PS3	103.6	0.162	20.5	0.205	84.8	178	397
PS4	34.8	0.054	13.4	0.134	93.2	97	181
PS5	42.0	0.066	13.5	0.135	98.0	138	237
PS6	48.0	0.075	12.3	0.123	86.5	103	218
PS7	57.0	0.089	11.9	0.119	96.3	188	321
PS8	78.3	0.122	12.7	0.127	86.0	163	348
PS9	81.8	0.128	13.0	0.130	94.5	250	446
PS10	24.4	0.038	16.0	0.160	72.9	22	66
PS11	35.7	0.056	17.3	0.172	80.3	51	126
PS12	98.0	0.153	23.3	0.233	68.5	52	189
PS13	41.9	0.065	14.9	0.149	76.1	42	122
TOTAL	2834.0	4.584					

500 250 0 500 1000

SCALE: 1" = 500'

PINE CREEK DRAINAGE BASIN
FULLY DEVELOPED CONDITION BASIN MAP & MASTER PLAN 10/12/98

JR Engineering, Ltd.
4935 North 30th Street
Colorado Springs, Colorado 80919
(719) 593-2593 • FAX (719) 528-6613

SHEET 1 OF 1
JOB NO. 8716.11

PATH: X:\870000.ALL\871611\DRAWINGS\DRAINAGE\871611DBPS8-98.DWG PLOT DATE: 8/7/98