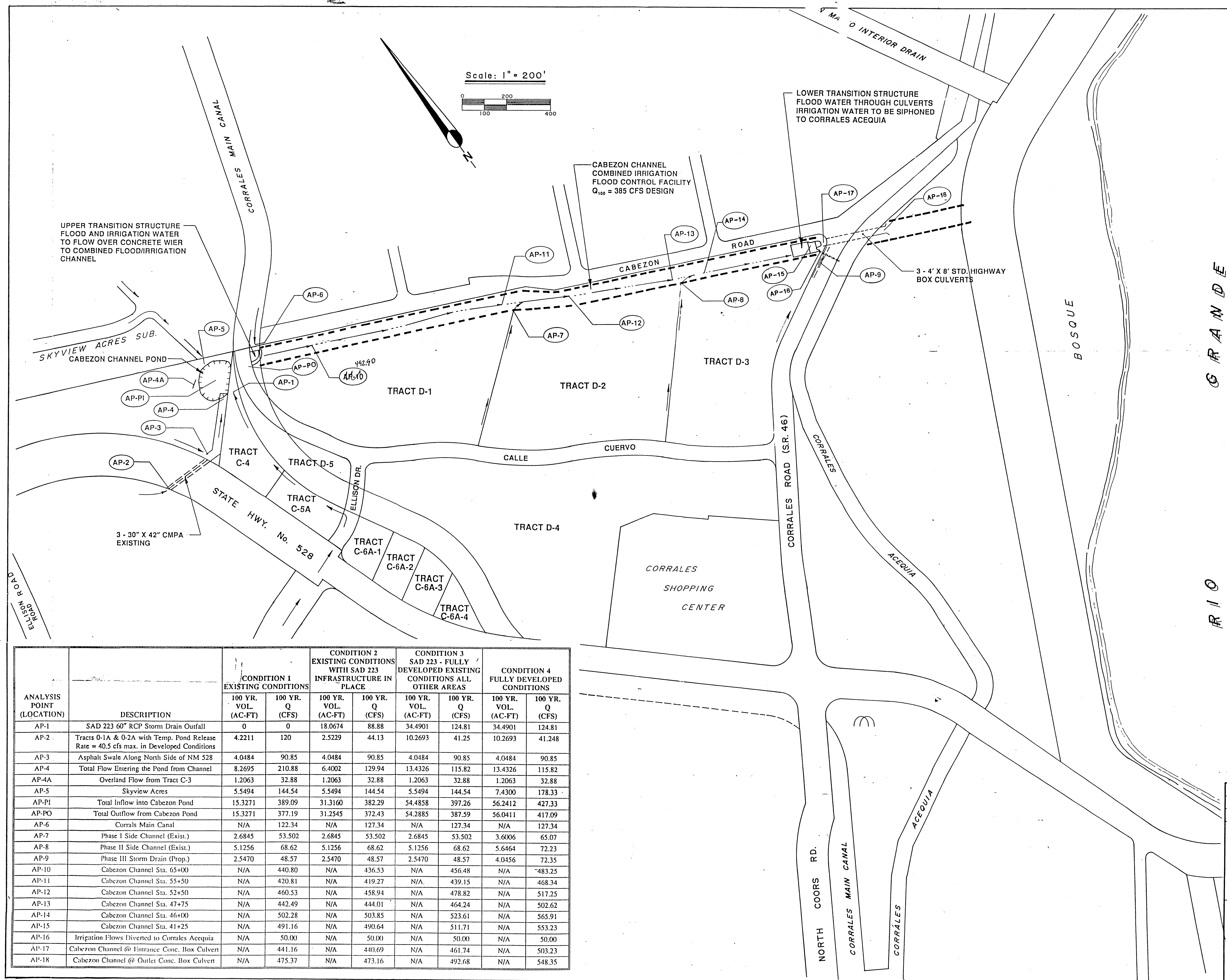
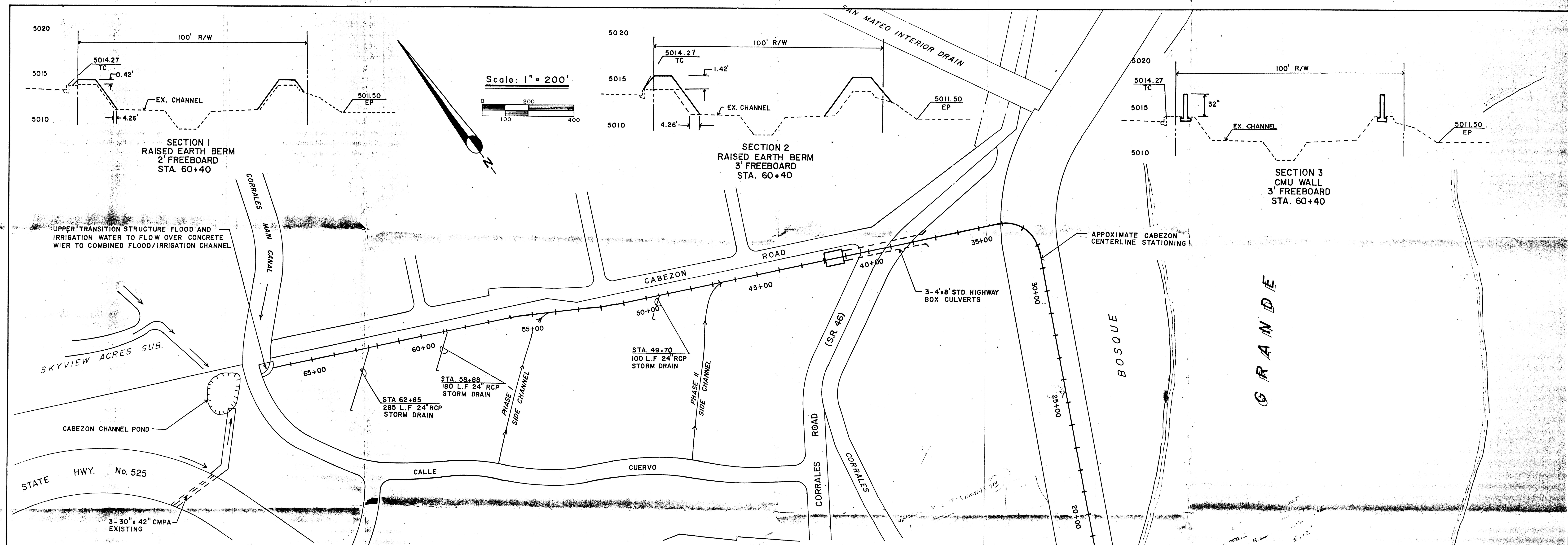




ANALYSIS POINT (LOCATION)	DESCRIPTION	CONDITION 1 EXISTING CONDITIONS		CONDITION 2 EXISTING CONDITIONS WITH SAD 223 INFRASTRUCTURE IN PLACE		CONDITION 3 SAD 223 - FULLY DEVELOPED EXISTING CONDITIONS ALL OTHER AREAS		CONDITION 4 FULLY DEVELOPED CONDITIONS	
		100 YR. VOL. (AC-FT)	100 YR. Q (CFS)	100 YR. VOL. (AC-FT)	100 YR. Q (CFS)	100 YR. VOL. (AC-FT)	100 YR. Q (CFS)	100 YR. VOL. (AC-FT)	100 YR. Q (CFS)
AP-1	SAD 223 60" RCP Storm Drain Outfall	0	0	18.0674	88.88	34.4901	124.81	34.4901	124.81
AP-2	Tracts 0-1A & 0-2A with Temp. Pond Release Rate = 40.5 cfs max. in Developed Conditions	4.2211	120	2.5229	44.13	10.2693	41.25	10.2693	41.248
AP-3	Asphalt Swale Along North Side of NM 528	4.0484	90.85	4.0484	90.85	4.0484	90.85	4.0484	90.85
AP-4	Total Flow Entering the Pond from Channel	8.2695	210.88	6.4002	129.94	13.4326	115.82	13.4326	115.82
AP-4A	Overland Flow from Tract C-3	1.2063	32.88	1.2063	32.88	1.2063	32.88	1.2063	32.88
AP-5	Skyview Acres	5.5494	144.54	5.5494	144.54	5.5494	144.54	7.4300	178.33
AP-PI	Total Inflow into Cabezon Pond	15.3271	389.09	31.3160	382.29	54.4858	397.26	56.2412	427.33
AP-PO	Total Outflow from Cabezon Pond	15.3271	377.19	31.2545	372.43	54.2885	387.59	56.0411	417.09
AP-6	Corrales Main Canal	N/A	122.34	N/A	127.34	N/A	127.34	N/A	127.34
AP-7	Phase I Side Channel (Exist.)	2.6845	53.502	2.6845	53.502	2.6845	53.502	3.6006	65.07
AP-8	Phase II Side Channel (Exist.)	5.1256	68.62	5.1256	68.62	5.1256	68.62	5.6464	72.23
AP-9	Phase III Storm Drain (Prop.)	2.5470	48.57	2.5470	48.57	2.5470	48.57	4.0456	72.35
AP-10	Cabezon Channel Sta. 65+00	N/A	440.80	N/A	436.53	N/A	456.48	N/A	483.25
AP-11	Cabezon Channel Sta. 55+50	N/A	420.81	N/A	419.27	N/A	439.15	N/A	468.34
AP-12	Cabezon Channel Sta. 52+50	N/A	460.53	N/A	458.94	N/A	478.82	N/A	517.25
AP-13	Cabezon Channel Sta. 47+75	N/A	442.49	N/A	444.01	N/A	464.24	N/A	502.62
AP-14	Cabezon Channel Sta. 46+00	N/A	502.28	N/A	503.85	N/A	523.61	N/A	565.91
AP-15	Cabezon Channel Sta. 41+25	N/A	491.16	N/A	490.64	N/A	511.71	N/A	553.23
AP-16	Irrigation Flows Diverted to Corrales Acequia	N/A	50.00	N/A	50.00	N/A	50.00	N/A	50.00
AP-17	Cabezon Channel @ Entrance Conc. Box Culvert	N/A	441.16	N/A	440.69	N/A	461.74	N/A	503.23
AP-18	Cabezon Channel @ Outlet Conc. Box Culvert	N/A	475.37	N/A	473.16	N/A	492.68	N/A	548.35

NO.		REVISIONS		BY DATE	
CABEZON SYSTEM HYDROLOGIC SUMMARY					
EASTERLING & ASSOCIATES, INC. CONSULTING ENGINEERS 10131 Coors Rd., NW, Suite H-718 ALBUQUERQUE, NEW MEXICO 87114 (505) 898-8021 FAX (505) 898-8501					
DESIGNED BY: DSH	DRAWN BY: DEC	CHECKED BY: CME	SHEET 2 OF 4		
JOB NO. 3302.2	DATE 3-93				



CABEZON CHANNEL HYDRAULIC SUMMARY

CABLEON CHANNEL HYDRAULIC SUMMARY																										
Station to Station	Description	Existing Conditions						Existing Conditions with SAD 223 Infrastructure in Place						SAD 223 Fully Developed Existing Conditions All Other Areas						Fully Developed/Worst Case Condition						
		Q ₁₀₀ (CFS)	HEC-2			Conjugate Depth (FT)	Available Freeboard (FT)	Q ₁₀₀ (CFS)	HEC-2			Conjugate Depth (FT)	Available Freeboard (FT)	Q ₁₀₀ (CFS)	HEC-2			Conjugate Depth (FT)	Available Freeboard (FT)	Q ₁₀₀ (CFS)	HEC-2			Conjugate Depth (FT)	Available Freeboard (FT)	
			Average Depth (FT)	Avg. Chnl. Velocity (FPS)	Average Froude NO.				Average Depth (FT)	Avg. Chnl. Velocity (FPS)	Average Froude NO.				Average Depth (FT)	Avg. Chnl. Velocity (FPS)	Average Froude NO.				Average Depth (FT)	Avg. Chnl. Velocity (FPS)	Average Froude NO.			
0+50 - 32+50	Upper Riverside Drain	475.37	5.71	3.38	0.30	N/A	5 (Min.)	473.16	5.71	3.36	0.30	N/A	5 (Min.)	492.68	5.75	3.46	0.31	N/A	5.06 (Min.)	544.06 548.35	5.92 5.88	3.78 3.71	0.33	N/A	4.81 4.93 (Min.)	
32+50 - 38+36	Concrete Trap Channel	475.37	3.41	8.54	0.94	N/A	1.14-2.88	473.16	3.40	8.33	0.94	N/A	2.89-1.15	492.68	3.47	8.41	0.94	N/A	2.82-1.08	544.06 548.35	3.75 3.69	3.75 8.64	0.94	N/A	3.30+9.6 LT 3.10 RT 1.36 RT	
38+36 - 40+12	Transition & CBC to 30" RCP	475.37	4.13	4.86	0.46	N/A	1.16(-0.14)	473.16	4.12	4.85	0.46	N/A	0.38(-0.17)	492.68	4.21	4.93	0.46	N/A	(-0.00)-(-0.21)	544.06 548.35	4.50 4.44	5.21 5.14	0.47	N/A	2.0-1.0(-0.50) (-0.41)-(-0.40)*	
40+12 - 40+57	CBC from 30" RCP to Upstream Face	441.16	3.92	4.59	0.41	N/A	(-0.36)-(-0.50)	440.64	3.91	4.60	0.41	N/A	(-0.17)-(-0.77)	461.74	4.02	4.72	0.42	N/A	(-0.17)-(-0.02)	518.86 503.23	4.72 4.47	4.51 4.62	0.37	N/A	2 (-0.17)-(-0.47)	
40+57 - 41+45	Lower Transition Structure	491.16	—	—	—	—	—	490.64	—	—	—	—	—	511.71	—	—	—	—	—	544.86 553.23	—	—	—	—	—	—
41+45 - 42+00	Irrigation/Flood Channel	502.28	3.13	8.27	0.93	N/A	2.44	503.85	3.13	8.03	0.93	N/A	1.77	523.61	3.11	8.75	0.98	N/A	1.76	580.82 565.91	3.21 3.19	2.05 8.96	1.00 0.99	3.21 3.85	1.62 0.98	
42+00 - 47+82	Irrigation/Flood Channel	502.28	2.95	9.39	1.09	3.31	1.52	503.85	2.96	9.38	1.09	3.19	1.64	523.61	2.99	9.50	1.09	3.33	1.51	580.82 565.91	3.12 3.09	9.78 9.70	1.09	3.50 3.43	1.33 1.40	
47+82 - 48+56	Irrigation/Flood Channel to Phase II Channel	502.28	3.24	7.91	0.87	N/A	1.43	503.85	3.25	7.90	0.87	N/A	1.68	523.61	3.29	8.00	0.87	N/A	1.56	580.82 565.91	3.42 3.39	8.29 8.22	0.88	N/A	1.41 1.48	
48+56 - 49+43	Pond "A"	502.28	2.99	8.94	1.07	3.17	1.66	503.85	3.02	8.85	1.05	3.04	1.79	523.61	2.98	9.42	1.12	3.42	1.41	580.82 565.91	3.03 3.04	10.11 9.82	1.19 1.16	3.55 3.57	1.04 1.26	
49+43 - 55+25	Irrigation/Flood Channel to Phase I Channel	460.53	2.86	9.51	1.14	3.36	1.47	458.94	2.85	9.50	1.14	3.20	1.58	478.82	2.91	9.61	1.14	3.42	1.41	573.11 517.25	3.02 2.99	9.94 9.83	1.15	3.62 3.54	1.21 1.29	
55+25 - 60+30	Irrigation/Flood Channel	440.83	2.78	9.53	1.16	3.33	1.50	436.53	2.77	9.49	1.15	3.23	1.60	456.48	2.82	9.60	1.16	3.40	1.43	496.12 483.25	2.90 2.82	9.85 9.78	1.16	3.52 3.49	1.31 1.35	
60+30 - 62+14	Pond "B"	440.83	3.07	7.08	0.83	N/A	1.78	436.53	3.06	7.07	0.82	N/A	1.76	456.48	3.11	7.16	0.83	N/A	1.74	496.12 483.25	3.20 3.24	7.35 7.45	0.83	N/A	1.63 1.58	
62+14 - 65+16	Irrigation/Flood Channel	440.83	2.83	9.11	1.10	3.18	1.65	436.53	2.83	9.09	1.10	3.08	1.75	456.48	2.87	9.19	1.10	3.23	1.60	496.12 483.25	2.92 2.88	9.67 9.62	1.14	3.47 3.27	1.36 1.46	
65+16 - 66+62	Irrigation/Flood Channel	440.83	2.87	7.13	0.82	N/A	1.98	436.53	2.86	7.09	0.81	N/A	2.09	456.48	2.91	7.18	0.82	N/A	1.93	496.12 483.25	2.69 2.66	8.77 8.91	1.07 1.10	N/A	1.83 1.86	
66+62 - 66+80	Irrigation/Flood Channel	440.83	2.09	9.07	1.18	2.57	2.26	436.53	2.08	9.04	1.18	2.41	2.43	456.48	2.14	9.18	1.18	2.63	2.20	496.12 483.25	2.24 2.21	9.43 9.35	1.19	2.81 2.76	2.02 2.07	

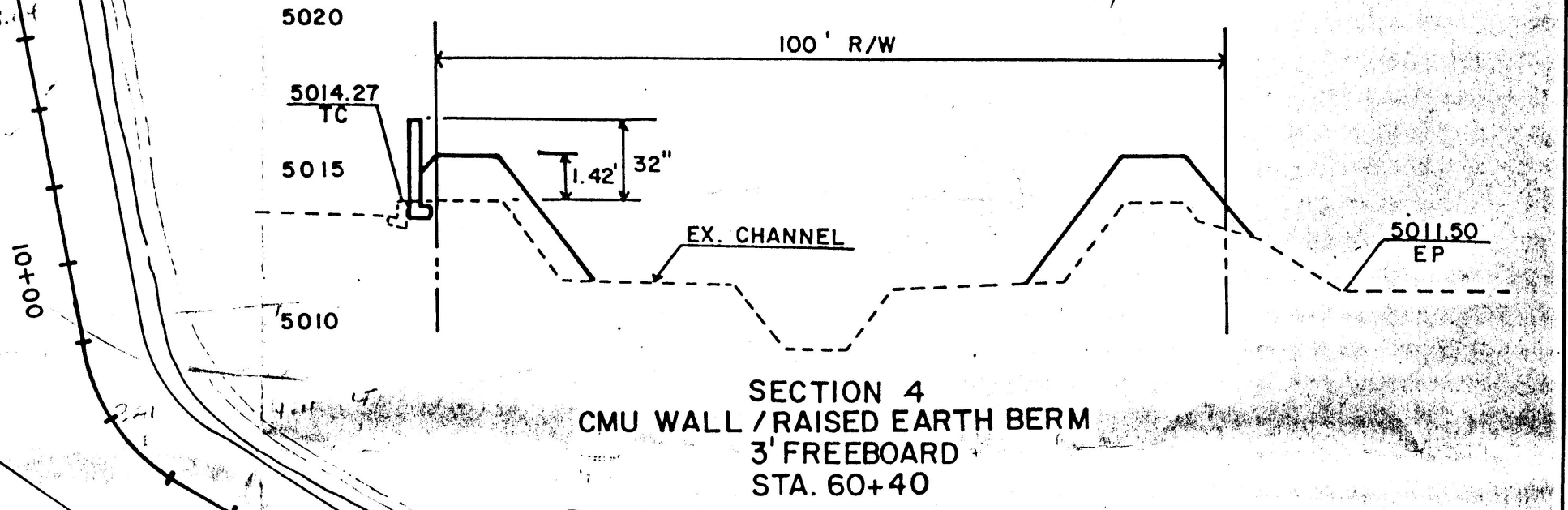
NOTES:

- Hydraulic summary data based on 100 year flow in Cabezón System and 10 year flow in the Rio Grande per original design.
- Conjugate depth per formula $\frac{D_2}{D_1} = \frac{2.48}{1.49} \left(\sqrt{1 + 8F_1^2} - 1 \right)$
- Flow depths, velocities, and Froude no. were determined using the HEC-2 Computer Model Version 4.6.2.
- Available freeboard based on average depth or conjugate depth whichever is greater.

* AS DETERMINED FROM TOP OF TRANSITION WALL OR SLOPE OF BOX CULVERT

AS DETERMINED FROM TOP OF BERM OF LT, RT

Q'S SHOWN REFLECT CURRENT REMOVAL OF A Q 0.01 AT PAGES LESS, CHANGE IN RESULTS IS SIGNIFICANT AND THEREFORE APPEARED FROM WHAT IS SHOWN.

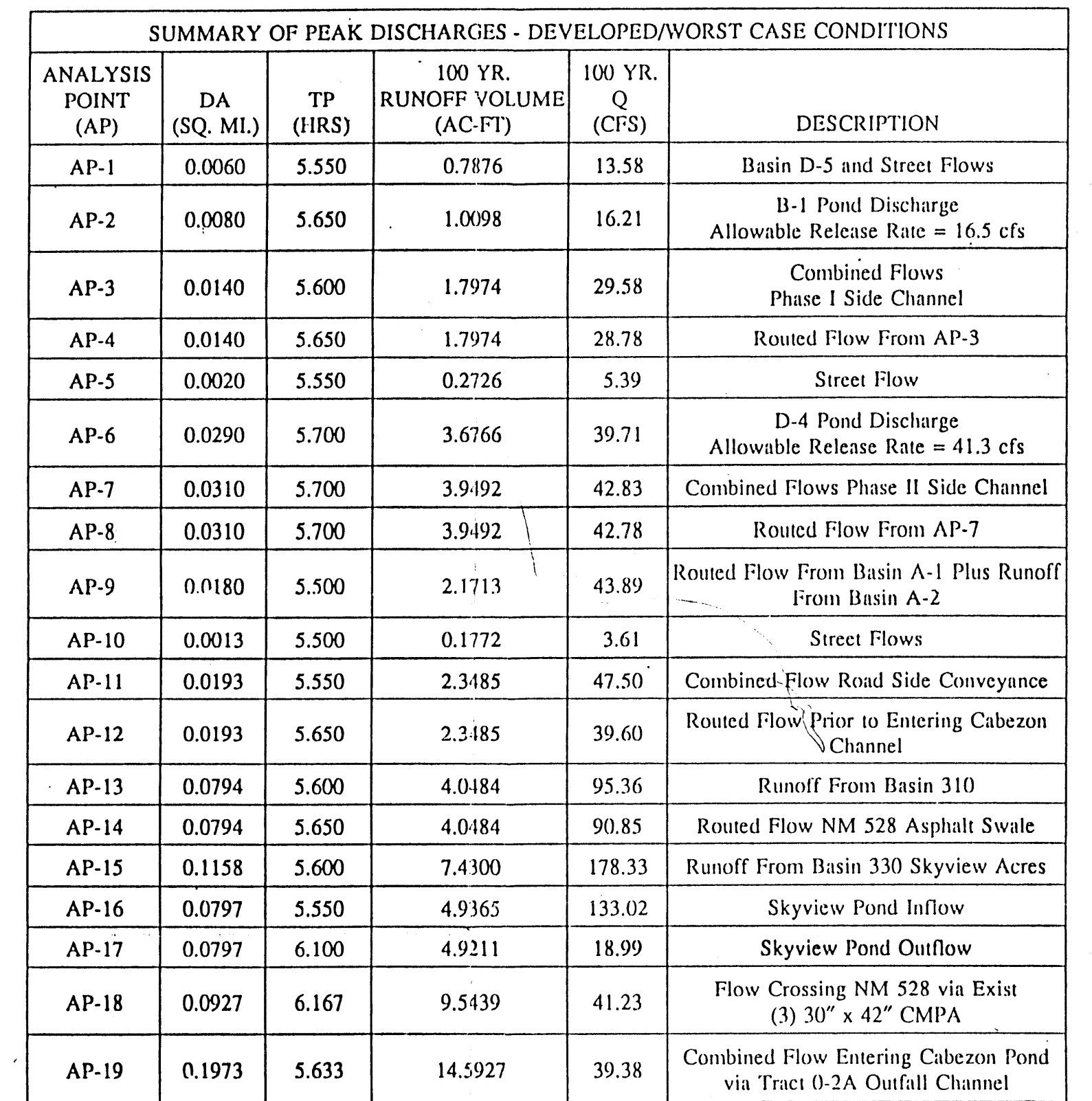


SECTION 4
CMU WALL / RAISED EARTH BERM
3' FREEBOARD
STA. 60+40

DESIGNED BY DSH		DRAWN BY ALM		CHECKED BY DSH		SHEET 3	
JOB NO. 3302.2		DATE APRIL 1993				OF 4	

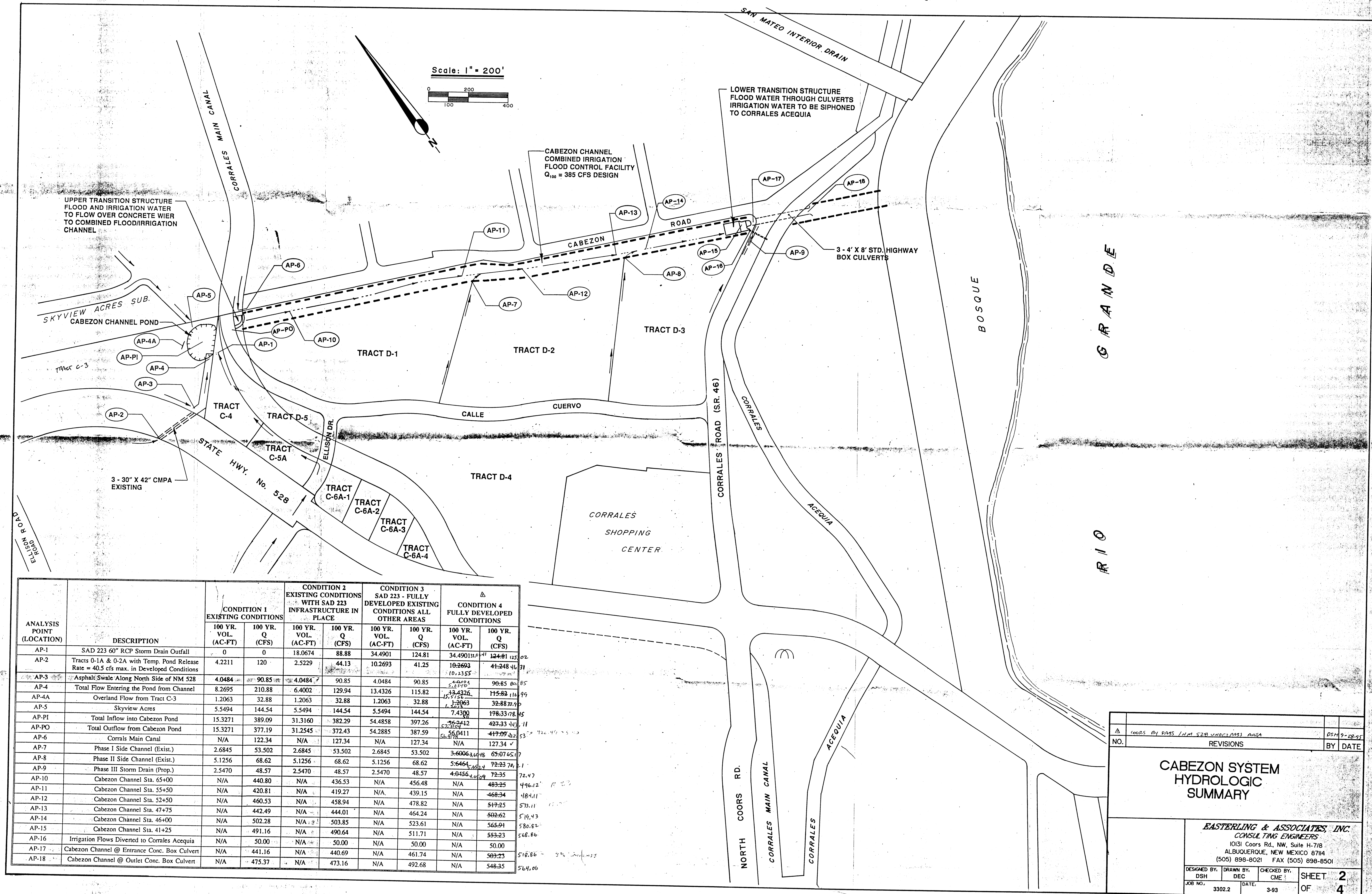
**CABEZON SYSTEM
HYDRAULIC
SUMMARY**

EASTERLING & ASSOCIATES, INC.
CONSULTING ENGINEERS
1031 Coors Rd., NW, Suite 1478
ALBUQUERQUE, NEW MEXICO 87104
(505) 898-8021 FAX (505) 898-8501



 FLOW DIRECTION
 EXISTING CONVEYANCE STRUCTURE
 PROPOSED CONVEYANCE STRUCTURE
 EXISTING DETENTION FACILITY
 PROPOSED DETENTION FACILITY
 BASIN BOUNDARY
 PROPOSED / EXPANDED BASIN
 AREAS ASSUMED TO MAKE NO CONTRIBUTION TO RUNOFF (IE 100% RETENTION / PHYSICALLY NOT ABLE TO ENTER THE SYSTEM)
 BASIN NUMBERS CORRESPONDING TO CABEZON CHANNEL TRIBUTARY WATERSHED
 BASIN NUMBERS CORRESPONDING TO CABEZON CHANNEL HEADWATER WATERSHED

NO.	REVISIONS	BY	DATE
CABEZON CHANNEL WATERSHED DRAINAGE BASIN DATA SUPPLEMENT			
<i>EASTERLING & ASSOCIATES, INC.</i> <i>CONSULTING ENGINEERS</i> 10131 Coors Rd., NW, Suite H-718 ALBUQUERQUE, NEW MEXICO 87114 (505) 898-8021 FAX (505) 898-8501			
DESIGNED BY: DSH	DRAWN BY: DEC	CHECKED BY: CME	SHEET 1 OF 4
JOB NO., 3302.2	DATE, 3-93		



ANALYSIS POINT (LOCATION)	DESCRIPTION	CONDITION 1 EXISTING CONDITIONS		CONDITION 2 EXISTING CONDITIONS WITH SAD 223 INFRASTRUCTURE IN PLACE		CONDITION 3 SAD 223 - FULLY DEVELOPED EXISTING CONDITIONS ALL OTHER AREAS		CONDITION 4 FULLY DEVELOPED CONDITIONS	
		100 YR. VOL. (AC-FT)	100 YR. Q (CFS)	100 YR. VOL. (AC-FT)	100 YR. Q (CFS)	100 YR. VOL. (AC-FT)	100 YR. Q (CFS)	100 YR. VOL. (AC-FT)	100 YR. Q (CFS)
AP-1	SAD 223 60" RCP Storm Drain Outfall	0	0	18.0674	88.88	34.4901	124.81	34.4901	124.81
AP-2	Tracts 0-1A & 0-2A with Temp. Pond Release Rate = 40.5 cfs max. in Developed Conditions	4.2211	120	2.5229	44.13	10.2693	41.25	10.2693	41.25
AP-3	Asphalt Swale Along North Side of NM 528	4.0484	90.85	4.0484	90.85	4.0484	90.85	4.0484	90.85
AP-4	Total Flow Entering the Pond from Channel	8.2695	210.88	6.4002	129.94	13.4326	115.82	13.4326	115.82
AP-4A	Overland Flow from Tract C-3	1.2063	32.88	1.2063	32.88	1.2063	32.88	1.2063	32.88
AP-5	Skyview Acres	5.5494	144.54	5.5494	144.54	5.5494	144.54	5.5494	144.54
AP-PI	Total Inflow into Cabezon Pond	15.3271	389.09	31.3160	382.29	54.4858	397.26	54.4858	397.26
AP-PO	Total Outflow from Cabezon Pond	15.3271	377.19	31.2545	372.43	54.2885	387.59	54.2885	387.59
AP-6	Corrales Main Canal	N/A	122.34	N/A	127.34	N/A	127.34	N/A	127.34
AP-7	Phase I Side Channel (Exist.)	2.6845	53.502	2.6845	53.502	2.6845	53.502	2.6845	53.502
AP-8	Phase II Side Channel (Exist.)	5.1256	68.62	5.1256	68.62	5.1256	68.62	5.1256	68.62
AP-9	Phase III Storm Drain (Prop.)	2.5470	48.57	2.5470	48.57	2.5470	48.57	2.5470	48.57
AP-10	Cabezon Channel Sta. 65+00	N/A	440.80	N/A	436.53	N/A	456.48	N/A	483.25
AP-11	Cabezon Channel Sta. 55+50	N/A	420.81	N/A	419.27	N/A	439.15	N/A	468.34
AP-12	Cabezon Channel Sta. 52+50	N/A	460.53	N/A	458.94	N/A	478.82	N/A	517.25
AP-13	Cabezon Channel Sta. 47+75	N/A	442.49	N/A	444.01	N/A	464.24	N/A	502.62
AP-14	Cabezon Channel Sta. 46+00	N/A	502.28	N/A	503.85	N/A	523.61	N/A	565.91
AP-15	Cabezon Channel Sta. 41+25	N/A	491.16	N/A	490.64	N/A	511.71	N/A	553.23
AP-16	Irrigation Flows Diverted to Corrales Acequia	N/A	50.00	N/A	50.00	N/A	50.00	N/A	50.00
AP-17	Cabezon Channel @ Entrance Conc. Box Culvert	N/A	441.16	N/A	440.69	N/A	461.74	N/A	503.23
AP-18	Cabezon Channel @ Outlet Conc. Box Culvert	N/A	475.37	N/A	473.16	N/A	492.68	N/A	548.35

DESIGNED BY: DSH
JOB NO.: 3302.2

DRAWN BY: DEC
DATE: 3-93

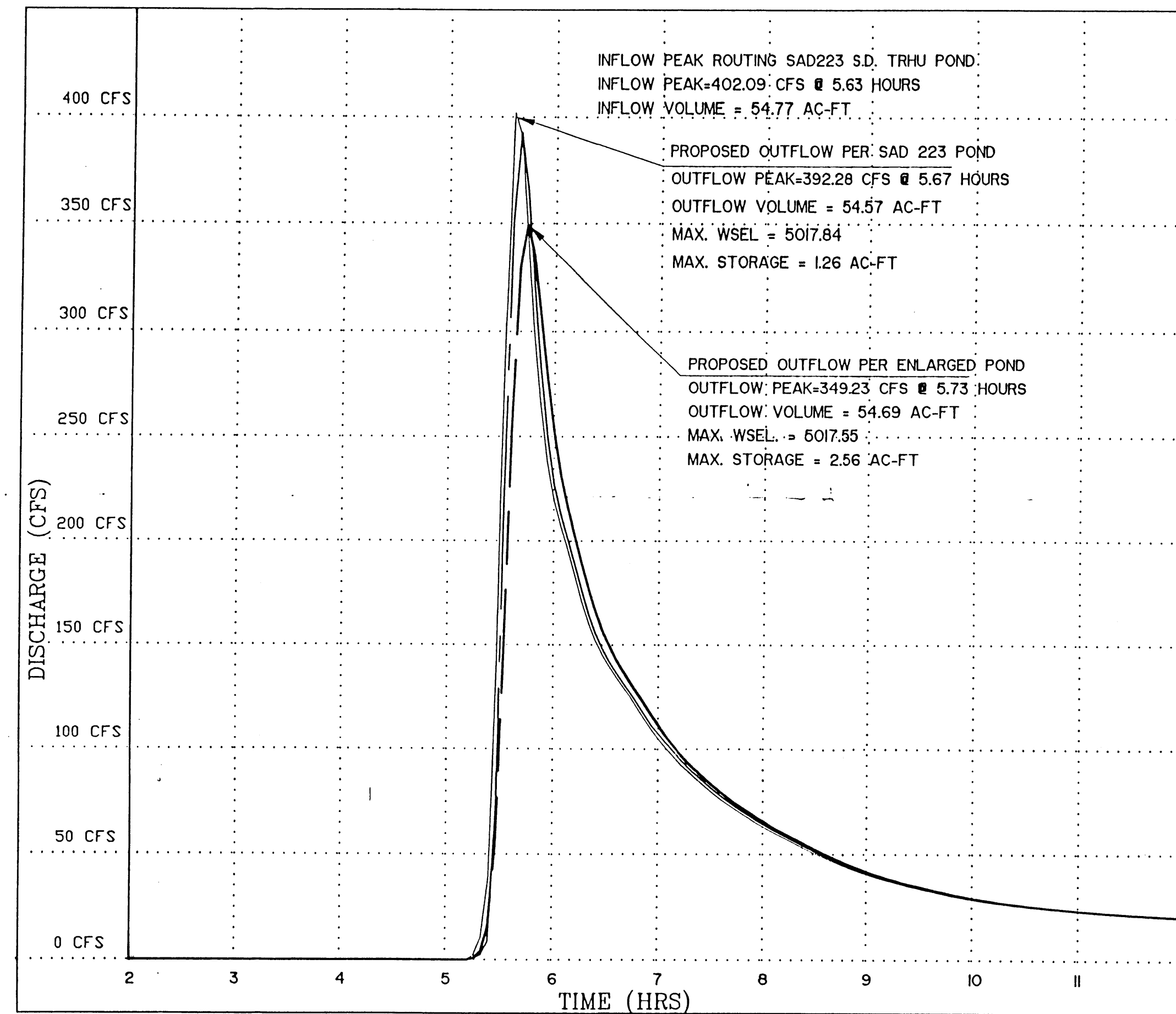
CHECKED BY: CME
DATE: 3-93

SHEET 2 OF 4

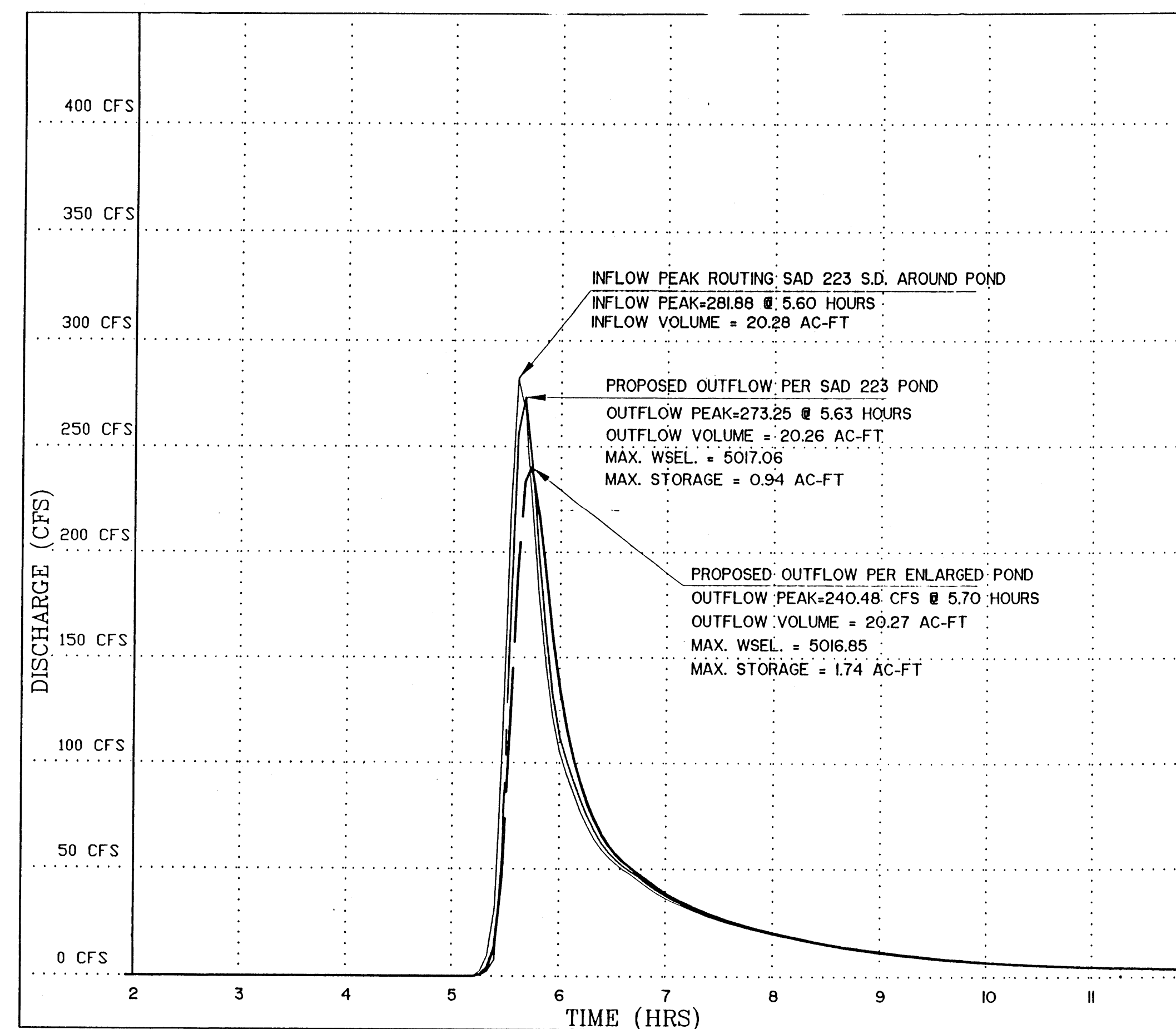
NO. REVISIONS BY DATE

CABEZON SYSTEM HYDROLOGIC SUMMARY

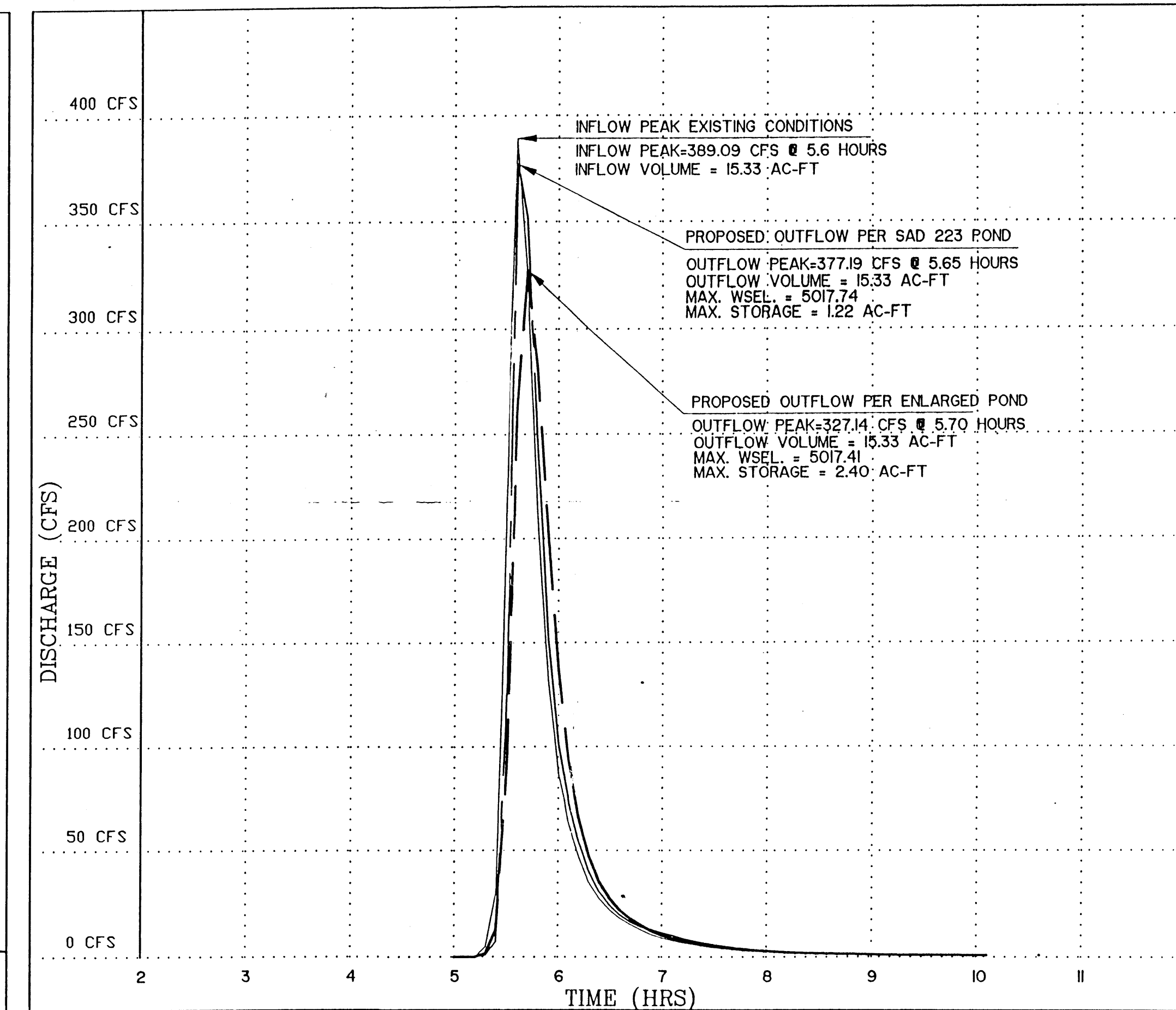
EASTERLING & ASSOCIATES, INC.
CONSULTING ENGINEERS
10131 Coors Rd., NW, Suite H-718
ALBUQUERQUE, NEW MEXICO 87114
(505) 898-8021 FAX (505) 898-8501



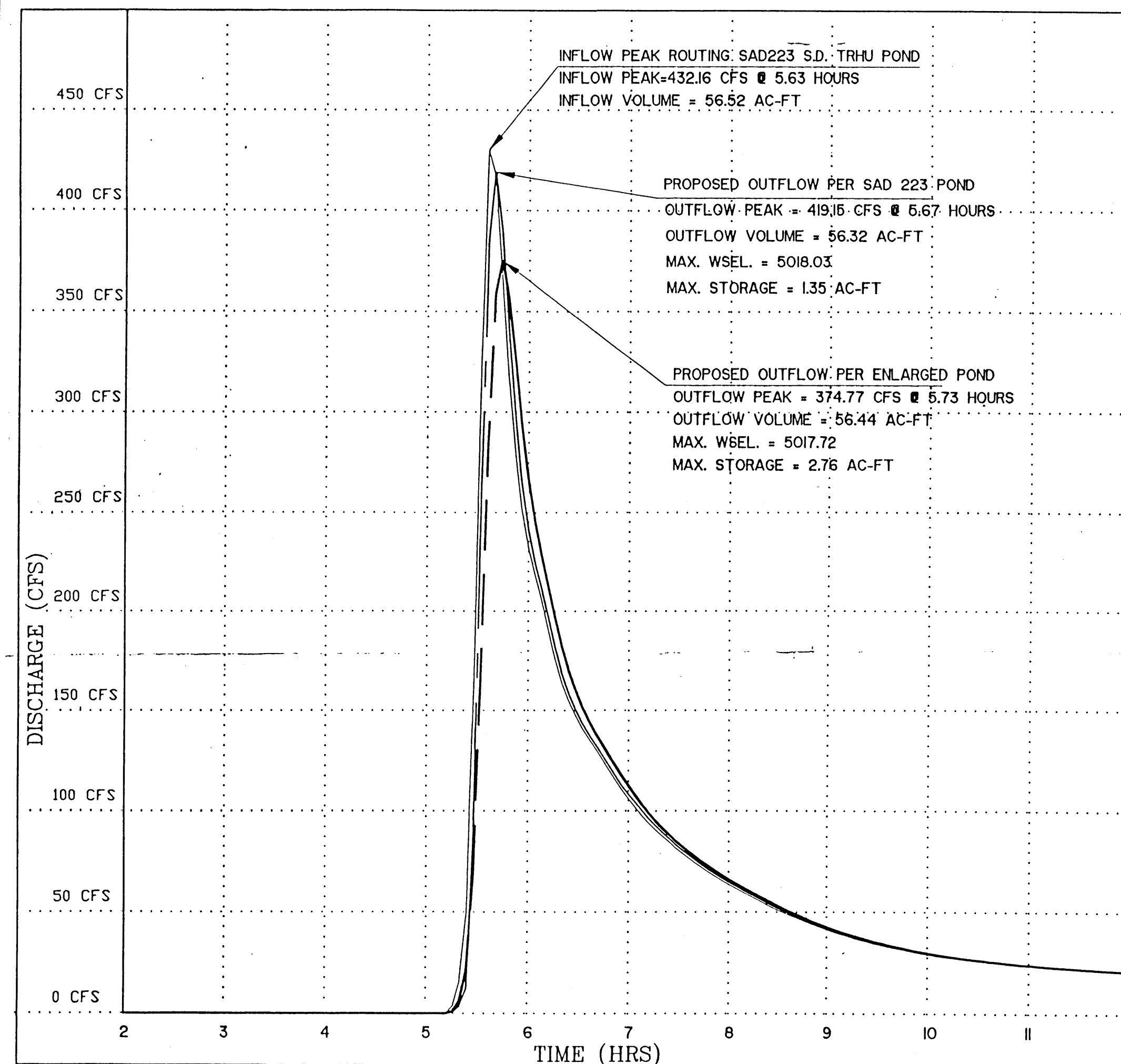
CONDITION NO. 3



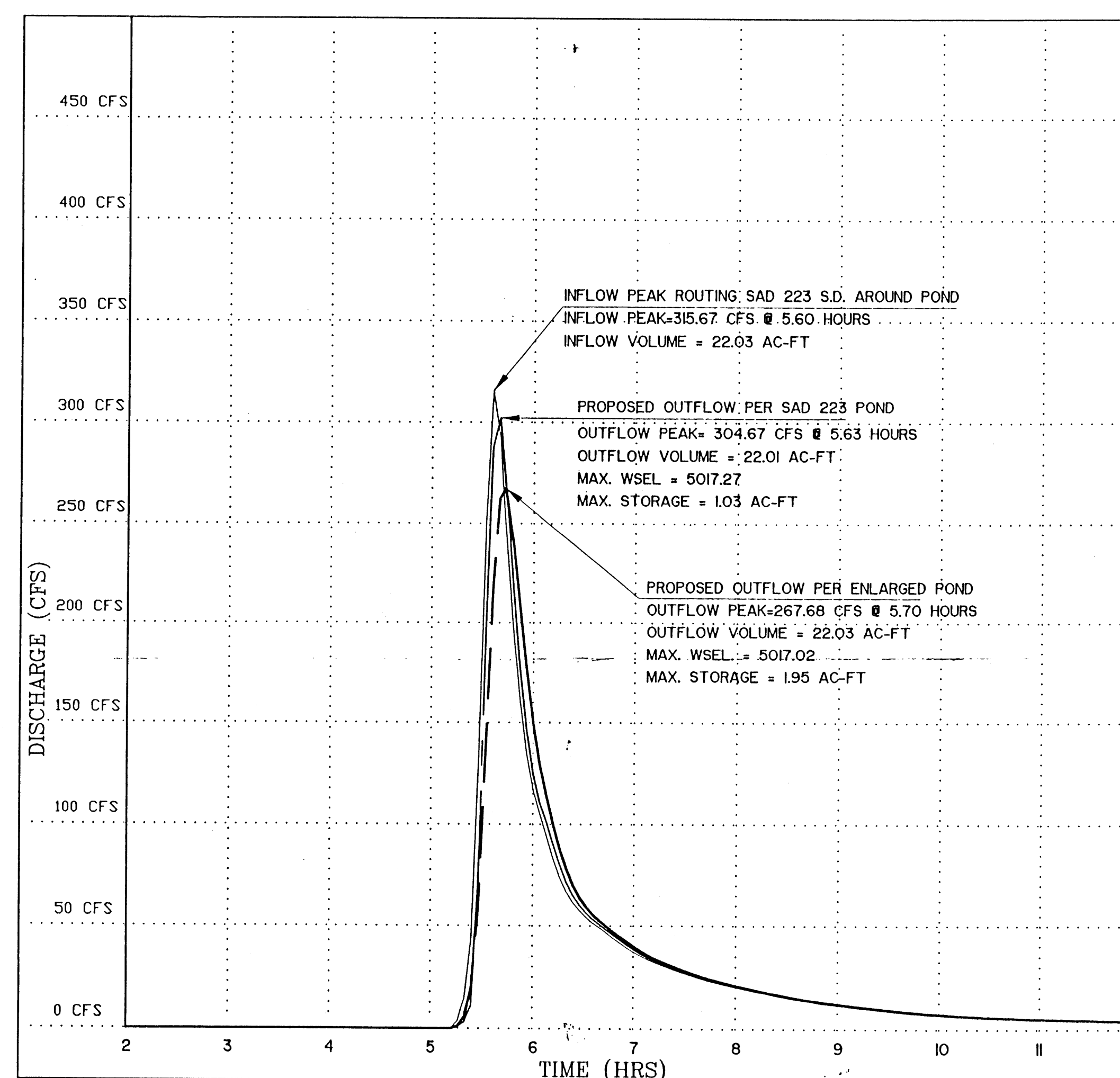
CONDITION NO.3A



CONDITION NO.1



CONDITION NO.4



CONDITION NO.4A

CONDITION NO.1 =====> EXISTING CONDITIONS
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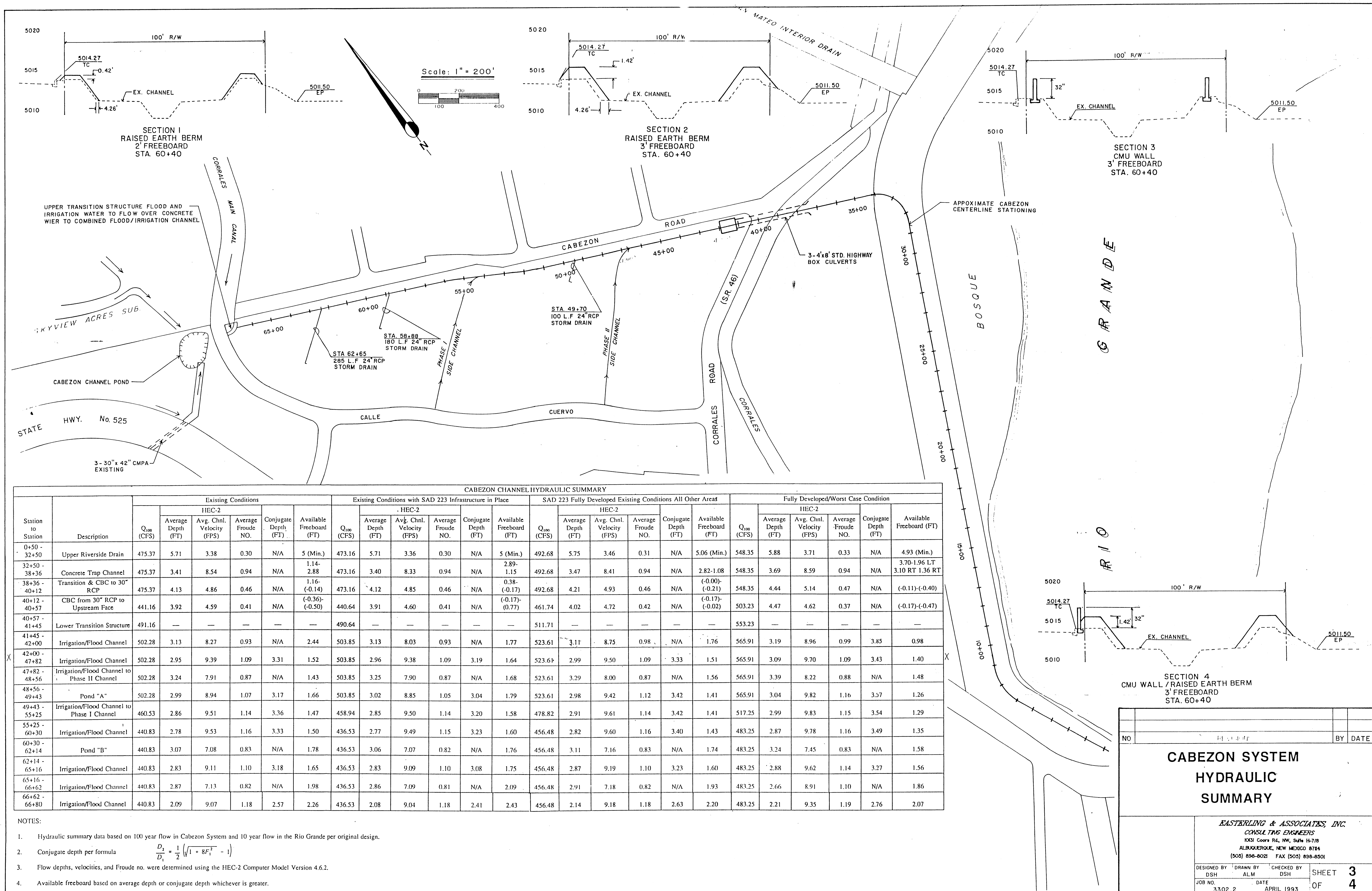
CONDITION NO.3 =====> EXISTING CONDITIONS WITH FULLY DEVELOPED
SAD 223 AND STORM DRAIN OUTFALL IN POND
(FILE : CCISAD1A.HMI/HMO CCISAD1B.HMI/HMO)

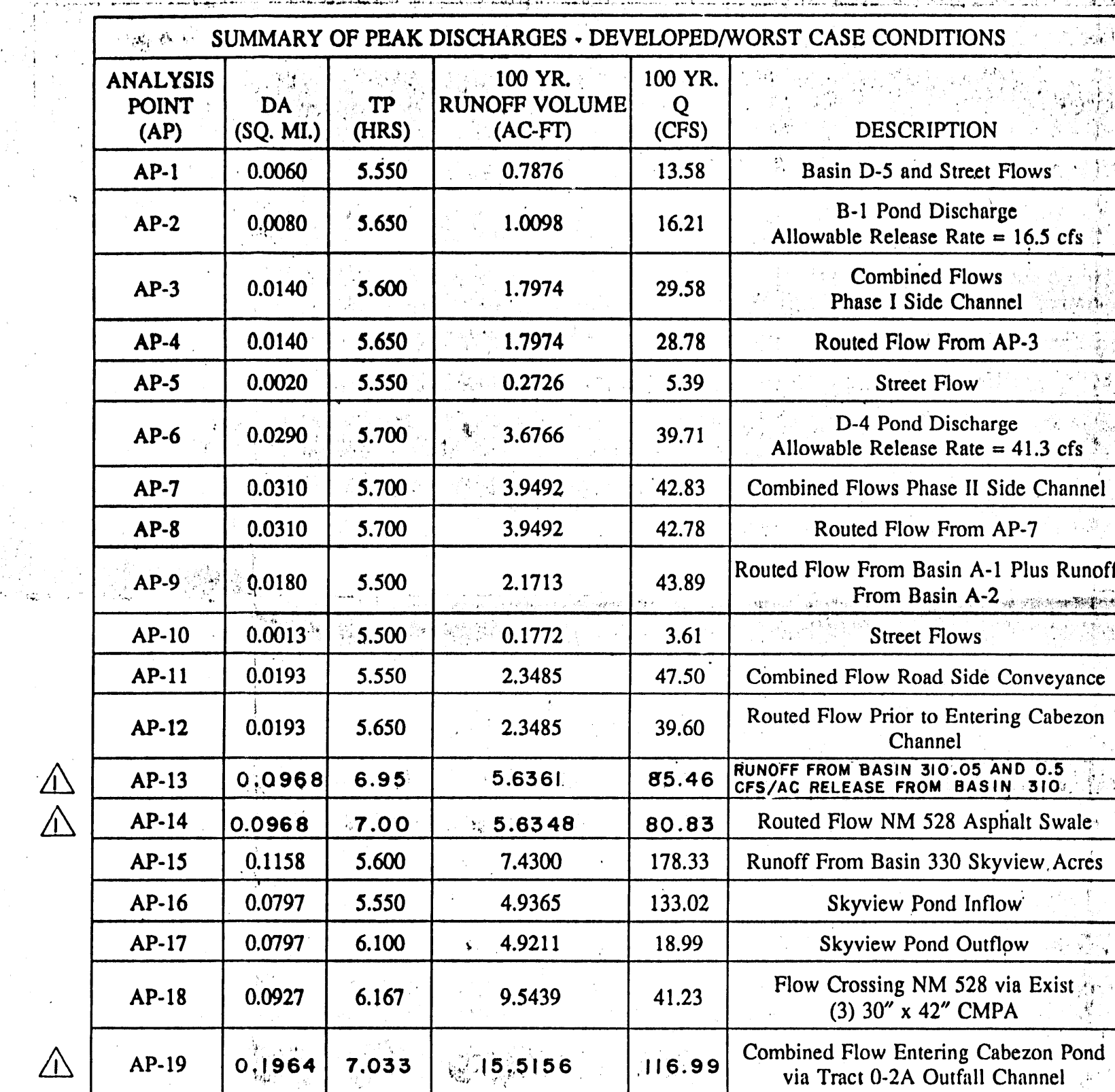
CONDITION NO.3A =====> EXISTING CONDITIONS WITH FULLY DEVELOPED
SAD 223 AND S.D. BY-PASSING THE POND
(FILE : CCISAD1C.HMI/HMO CCISAD1D.HMI/HMO)

CONDITION NO.4 =====> WORST CASE RUNOFF CONDITION WITH FULLY
DEVELOPED SAD 223 AND S.D. OUTFALL IN POND
(FILE : CCIFUT1A.HMI/HMO CCIFUT1B.HMI/HMO)

CONDITION NO.4A =====> WORST CASE RUNOFF CONDITION WITH FULLY
DEVELOPED SAD 223 AND S.D. BY-PASSING THE POND
(FILE : CCIFUT1C.HMI/HMO CCIFUT1D.HMI/HMO)

NO.	REVISIONS	BY	DATE
CABEZON POND INFLOW / OUTFLOW HYDROGRAPHS			
EASTERLING & ASSOCIATES, INC. CONSULTING ENGINEERS 10131 Coors Rd., NW, Suite H-7/B ALBUQUERQUE, NEW MEXICO 87114 (505) 898-8021 FAX (505) 898-8501			
DESIGNED BY: DSH	DRAWN BY: DSH	CHECKED BY: DSH/CME	SHEET 4
JOB NO.: 3302.2	DATE: 5/93		OF 4





 FLOW DIRECTION
 EXISTING CONVEYANCE STRUCTURE
 PROPOSED CONVEYANCE STRUCTURE
 EXISTING DETENTION FACILITY
 PROPOSED DETENTION FACILITY
 BASIN BOUNDARY
 PROPOSED / EXPANDED BASIN
 AREAS ASSUMED TO MAKE NO CONTRIBUTION TO RUNOFF
 (IE 100 % RETENTION / PHYSICALLY NOT ABLE TO ENTER
 THE SYSTEM)
 BASIN NUMBERS CORRESPONDING TO CABEZON CHANNEL
 TRIBUTARY WATERSHED
 BASIN NUMBERS CORRESPONDING TO CABEZON CHANNEL
 HEADWATER WATERSHED
 OLD BASIN BOUNDARY

	COORS BYPASS - NM 528 UNDERPASS REVISIONS		DSH	9/28/9
	NO.	REVISIONS	BY	DATE
CABEZON CHANNEL WATERSHED DRAINAGE BASIN DATA SUPPLEMENT				
<i>EASTERLING & ASSOCIATES, INC.</i> <i>CONSULTING ENGINEERS</i> 10131 Coors Rd., NW, Suite H-718 ALBUQUERQUE, NEW MEXICO 87114 (505) 898-0821 FAX (505) 898-8501				
DESIGNED BY: DSH	DRAWN BY: DEC	CHECKED BY: CME	SHEET 1 OF 4	
JOB NO. 3302.2	DATE: 3-93			