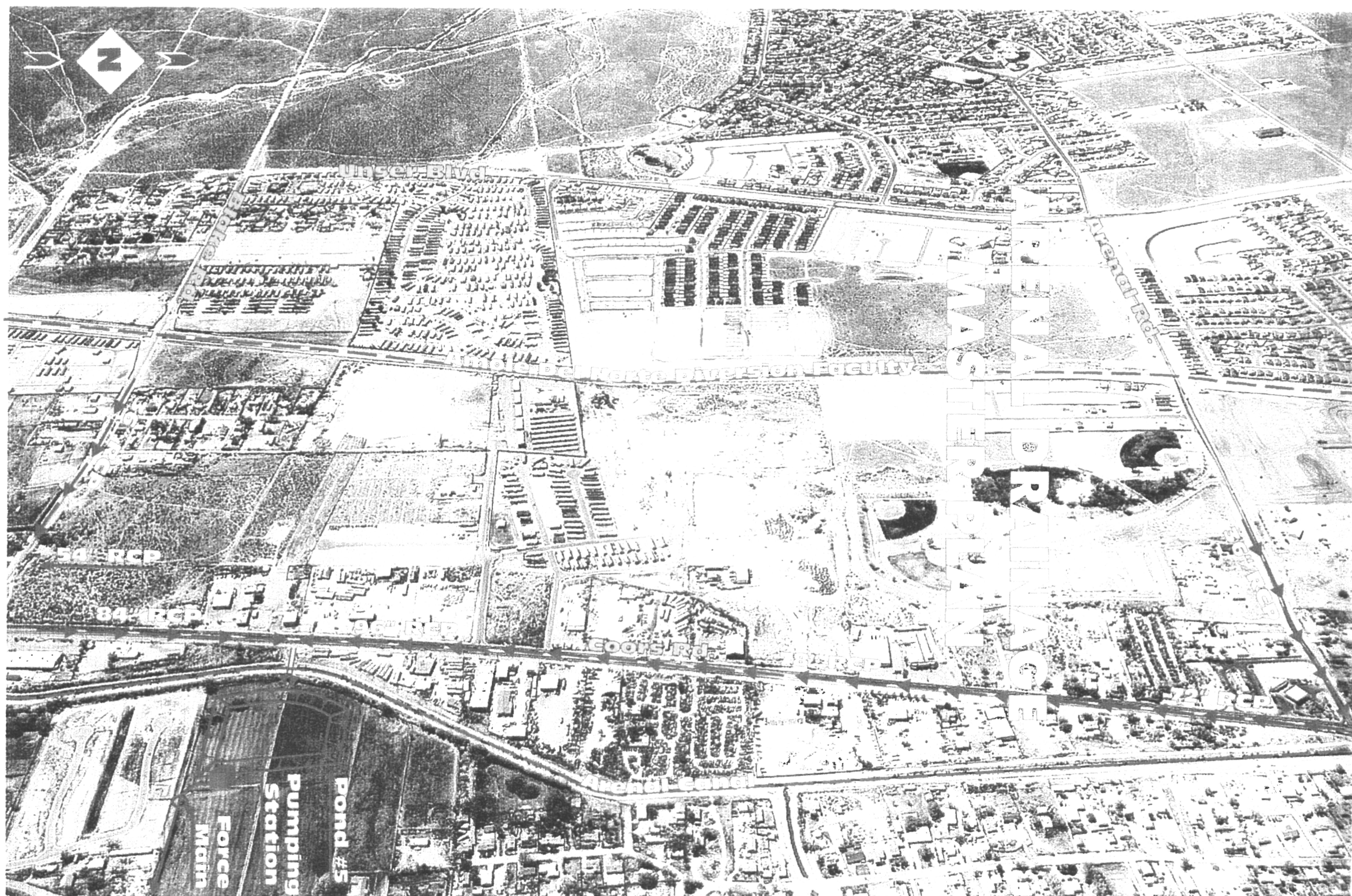




ARENAL DRAINAGE MASTER PLAN

FOR

PUNO DE TIERRA ESTATES SUBDIVISION

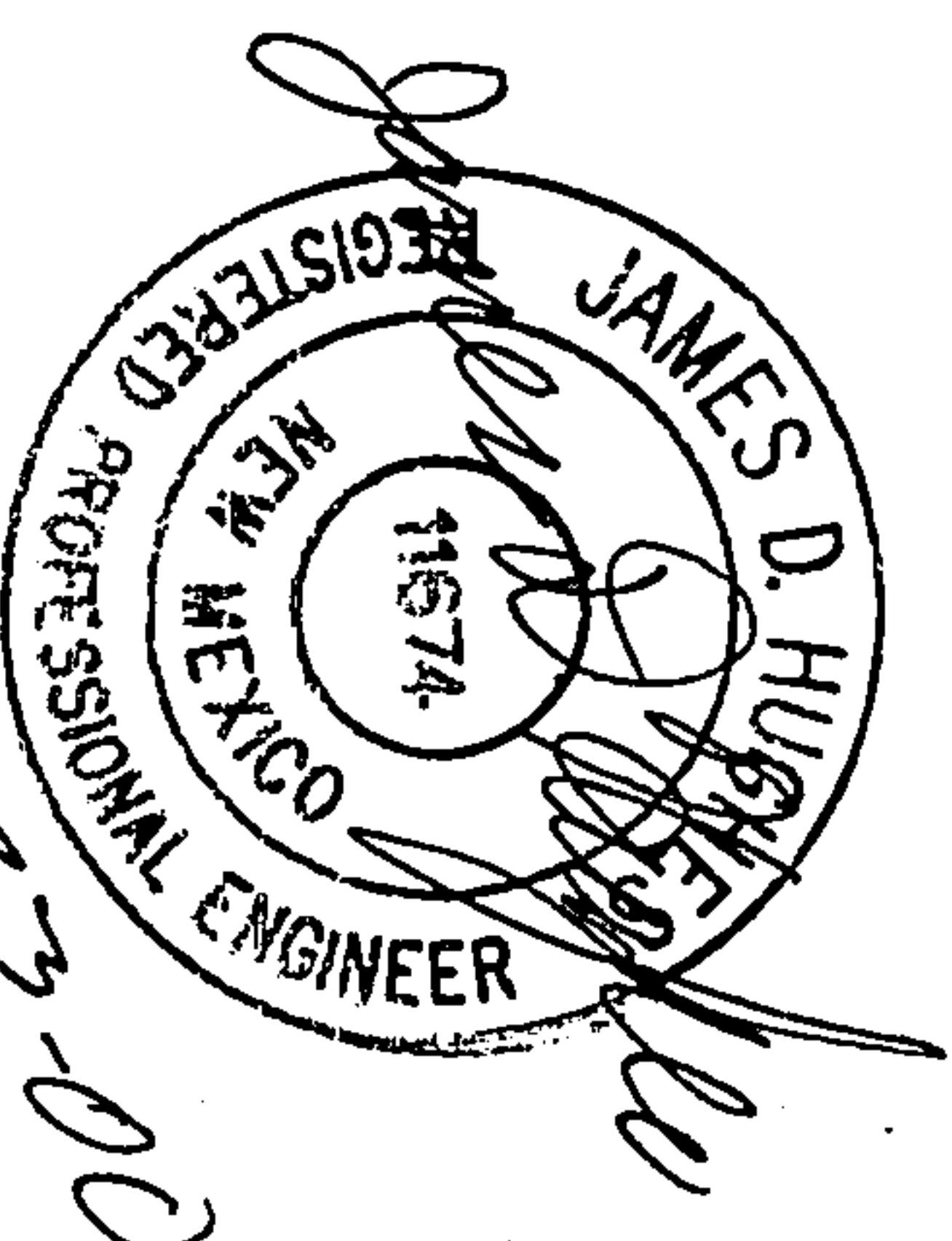
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Prepared for

Bernalillo County
2400 Broadway SE
Albuquerque, NM 87102

Prepared by

Mark Goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199



May 2000

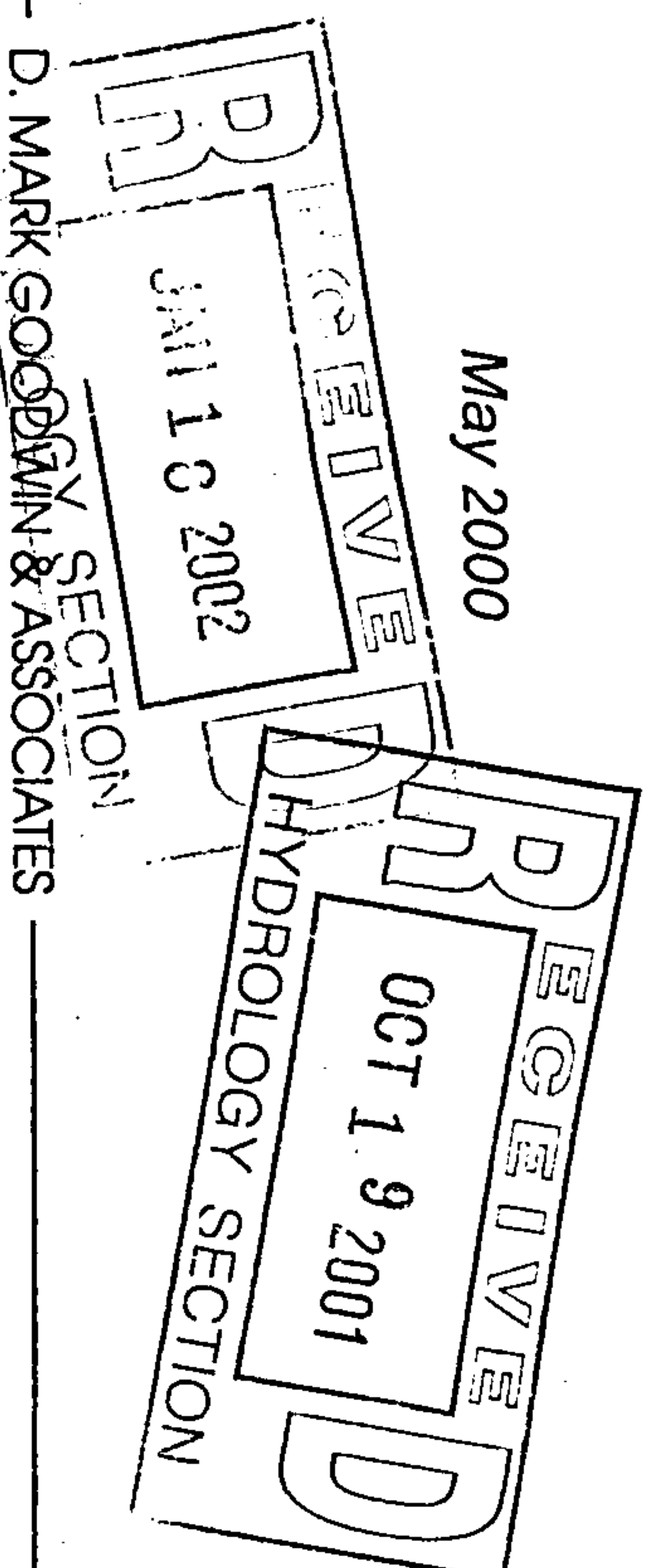


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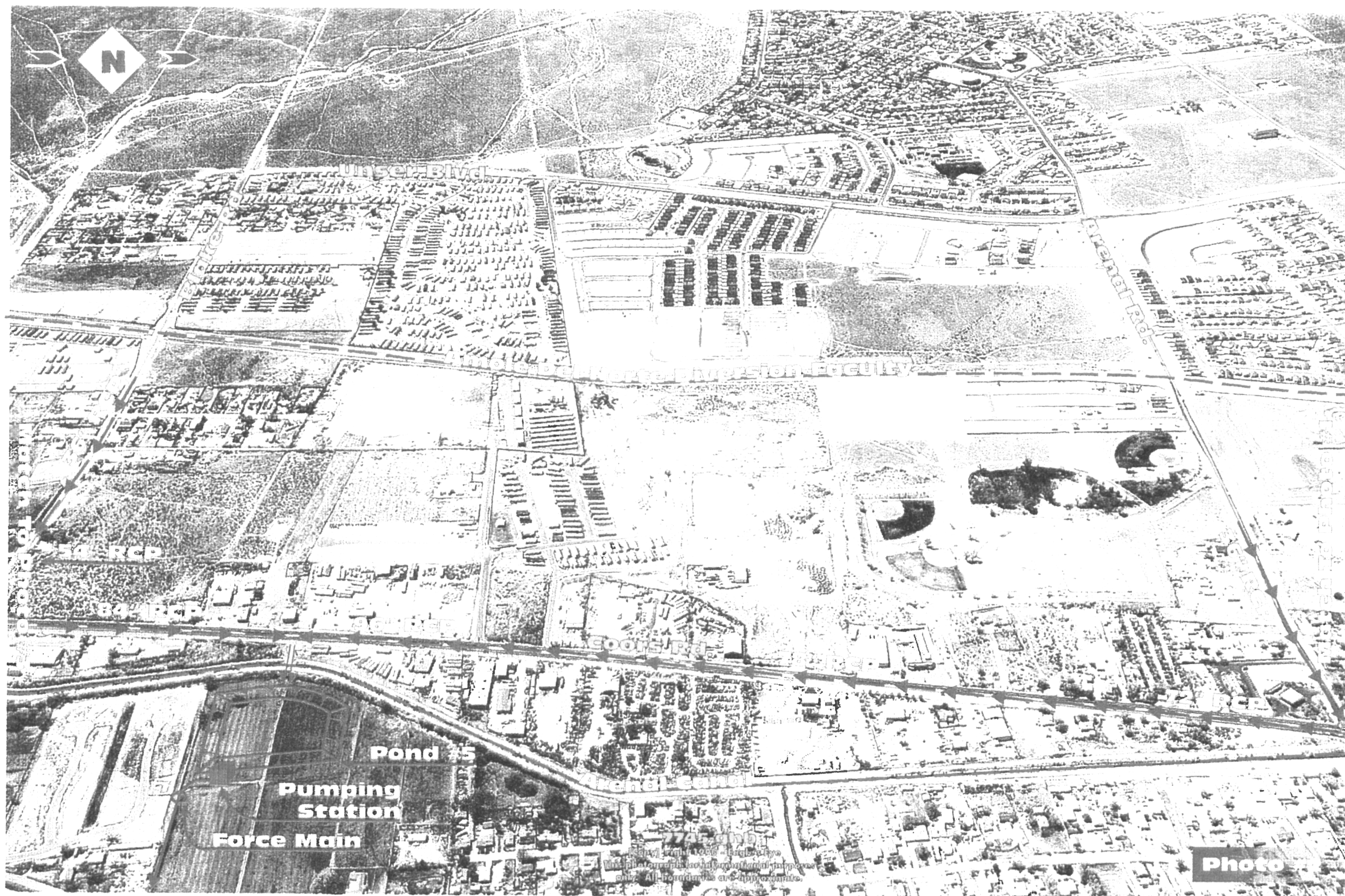
- *Cover Page*
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PURPOSE

The purpose of this report is to identify a general watershed management plan for the area between the Amole del Norte Diversion Facility and Coors Rd from Bridge Blvd to Rio Bravo Blvd so that final design of the storm sewer in Arenal Rd may commence (see aerial photos for limits of study). This report identifies a combination of storm sewers and ponds that will handle 100 yr flows for fully developed conditions.



Photo



HISTORY

An earlier Drainage Plan for Arenal Blvd prepared by Andrews Ashberry & Roberts in 1994 & 1996, which called for permanent ponding on Tenorio Park has been rejected by Bernalillo County Parks and Recreation Department.

That study also identified another pond east of the Arenal Rd/Coors Rd intersection which would ultimately be storm sewered by gravity or by lift station east to the Rio Grande in Arenal Rd. But that study being tightly focused only on Arenal Rd ignored all of the surrounding drainage problems. This report is broader in scope and is coordinated with other studies in the area to present a comprehensive plan.

This study is bounded on the north by a series of City projects which were summarized in the Los Puentes Letter of Map Revision Report as accepted by FEMA. This study is bounded on the west by AMAFCA's Amole Hubbell Drainage Management Plan prepared by Leeds Hill-Herkenhoff, Inc as finally approved in 1999. This study is bounded on the east by the "Corps Southwest Valley Study" of 1999.

Two recent residential subdivisions, Puno de Tierra Estates on Arenal Rd and Sunshine Country Mobile Home Park on Blake Rd, have provided temporary ponds in anticipation of the storm sewer and ponding solution presented in this report.

MANAGEMENT PLAN OVERVIEW

Coors Rd from Eduardo Rd to Rio Bravo Blvd is designated as "Arterial" on the "Long Range Major Street Plan" and so is Arenal Rd. Old Coors and Blake Rd are collectors. All of these streets are currently rural with no curb and gutter, but they are expected to develop to urban standards in the near future. The entire area is served by City of Albuquerque water and sewer and is under pressure to develop densely. So it has been designated as "Developing Urban". Annexation is likely as indicated by plans for neighboring study areas (ie... Southwest Area Plan, Rio Bravo Sector Plan and Tower/Unser Sector Plan). Storm sewers will be required in the major streets in this study area and this report sizes those pipes for the fully developed unattenuated runoff from the 100 yr storm.

Once collected in public storm sewer this drainage has no good place to go. Historically large portions of these flows have been inadvertently diverted by the Arenal Irrigation Ditch to the Isleta Drain which has a history of flooding. During heavy rain, the Arenal Irrigation Ditch Capacity of about 200 cfs is easily exceeded causing shallow flooding east of the ditch.

Without the ponds in this plan the peak 100 yr flow to the irrigation ditch would be more than 2500 cfs. But with the ponds the irrigation ditch capacity is not exceeded (228 cfs max at Basin 905). All of the ponds in this report are sized for total retention of the 100 yr, 10 day storm so they still accomplish their objective even without on outfall.

Five drainage points are identified each with a controlled release rate equal to the 100 yr volume uniformly distributed over a 96 hr period. The five systems leading to these discharge points are:

1. Old Coors Rd System discharging 4.3 cfs by gravity into the Arenal Irrigation Canal.
2. North/South Coors Blvd System discharging 2.7 cfs by gravity into the Arenal Irrigation Canal.
3. Arenal Rd to Blake Rd System discharging 7.0 cfs by pump station either to the Arenal Irrigation Canal, to the Isleta Drain, or to the Rio Grande.
4. Barcelona System discharging 2.7 cfs by pump station to the Isleta Drain.
5. Pond 7 System 96 hr rate = 1.7 cfs with no discharge identified.

Any volume of storm water delivered to the Arenal Irrigation Ditch will make downstream flooding problems worse and may not receive approval from MRGCD. Thus ponds for the first two systems (55 ac•ft) may remain retention ponds. Their emergency overflow, if any, would go into the irrigation ditch. But, regular and frequent discharges into the ditch might not be allowed. The last three systems (90 ac•ft total) are expected to discharge to the Rio Grande through the Isleta Drain.

SUMMARY

The Arenal Rd Storm Sewer can be constructed at anytime but it will not have a permanent outfall until the rest of the first phase of the "Arenal Rd to Blake Rd System" is constructed (ie...all but the pump station with first phase). Until the first phase is complete the pond should remain on Tenorio Park. Any other development along Arenal Rd should provide temporary retention of all its storm water runoff until the downstream system is complete.

Alternatively a temporary pond could be constructed 1000 ft northeast of the Arenal/Coors Intersection though the cost of that alternative is probably prohibitive. No other suitable ponding sites were found except that of the permanent outfall.

SUMMARY OF COST ESTIMATES

SYSTEM NAME	COST	AREA (AC)	UNIT COST (\$/AC)
Old Coors	\$1,042,387.31	172.7	\$6,035.83
North/South Coors	\$342,084.92	85.1	\$4,019.80
Arenal Rd to Blake Rd	\$2,847,957.40	299.4	\$9,510.63
Barcelona Rd	\$1,168,957.40	126.7	\$9,214.25
Pond 7	free	86.2	\$0.00
Average/Total	\$5,401,387.03	770.1	\$28,780.51

All estimates assume that paving will take place simultaneously so pavement removal and replacement costs are not included. Also not included are allowances for NMGRT, Testing, Surveying, Engineering and Inspection. An allowance of 25% should be added to the above costs to cover these including 10% contingency for miscellaneous utility relocations as necessary to complete the drainage portion of the work. Paving is separate and not included herein.

- Ponds are designed for 100 yr volume of retention in case there are problems and/or delay in constructing the outfalls.
- Costs to be covered by private developers in constructing the upper pond on the North/South Coors System are not included in this estimate.
- Pond 7 is sized assuming 100% of the 100 yr, 10 day storm will not go into the Gun Club Lateral. Whether it does or not was not investigated and the combination of that ditch and pond seem to be working. So why fix it if it's not broke? It was included in this analysis to identify the fact that it does not contribute to the Barcelona System.

HYDROLOGY SUMMARY TABLE

INPUT

BASIN	CONTRIBUTING BASINS	AREA		Length (ft.)	Slope (%)	Tp (Hr.)	LAND TREATMENT (%)			
		Acres	Sq. Miles				A	B	C	D
903A	-	8.6	0.0134			0.13	0	25	25	50
770	903A	40.5	0.0633			0.13	15	45	25	15
760	770 & 903A	50.5	0.0789			0.13	40	5	40	15
730	-	11.5	0.0180			0.13	0	25	25	50
780	730-770, & 903A	20.9	0.0327			0.13	15	15	50	20
901	730-780, & 903A	Approximately 15 cfs peak discharge per Bridge Blvd Drainage Report								
902	730-780, 901, & 903A	33.0	0.0516			0.13	0	10	50*	40
903B	All of the above	29.8	0.0466	1500	1.4	0.15	0	41	21	38
110	-	18.4	0.0288	1600	1.0	0.19	0	13	7	80
120	110	96.4	0.1506	2500	1.0	0.25	0	13	7	80
130	110 & 120	36.7	0.0573	1800	1.8	0.15	0	18	9	73
140	110-130	21.2	0.0331	1300	2.5	0.13	0	53	27	20
904	All of the above		0.0000	900	2.5	0.13	0	41	21	38
210	-	16.0	0.0250	1500	0.6	0.19	0	34	18	48
211	210	15.1	0.0236	1300	0.5	0.22	0	62	31	7
212	210-211	35.6	0.0556	2000	1.5	0.17	0	46	24	30
213	210-212	18.4	0.0288	1000	2.0	0.13	0	33	17	50
220	after pond	41.1	0.0642	2200	1.0	0.21	0	42	21	37
221		24.4	0.0381	1200	3.7	0.13	0	31	15	54
222		5.2	0.0081	500	2.4	0.13	0	13	7	80

905	All of the above	18.4	0.0288	500	2.5	0.13	0	21	11	68
906	All of the above	41.3	0.0645	500	2.0	0.13	0	21	10	69
907	All of the above	21.2	0.0331	250	2.4	0.13	0	35	18	47
310	-	17.8	0.0278	1200	1.6	0.13	0	23	12	65
320	-	15.5	0.0242	1800	0.6	0.23	0	33	17	50
321	320	3.1	0.0048	1000	1.0	0.13	0	13	7	80
330		3.3	0.0052	500	0.7	0.13	0	62	31	7
331	320-330	13.5	0.0211	800	1.0	0.13	0	31	15	54
332	310-331	8.0	0.0125	800	1.5	0.13	0	23	11	66
333	310-332	20.9	0.0327	700	2.3	0.13	0	19	10	71
340	310-333	47.1	0.0736	1400	2.8	0.13	0	13	7	80
350	310-350	59.0	0.0922	2200	2.2	0.16	0	13	7	80
410	-	20.2	0.0316	1300	0.6	0.17	0	33	17	50
420	410	30.9	0.0483	1800	1.6	0.15	0	29	15	56
430	410-420	29.2	0.0456	1800	1.2	0.17	0	33	17	50
440	410-430	30.9	0.0483	1500	1.3	0.14	0	30	15	55
total	310-440	-	-				-	-	-	-
510	-	16.6	0.0259	1400	1.3	0.13	0	23	11	66
520	510	77.9	0.1217	3000	1.8	0.20	0	32	16	52
530	510-520	32.3	0.0505	3000	1.8	0.20	0	30	15	55
600	510-530	86.2	0.1347	3000	1.8	0.20	0	33	17	50

100 YEAR PRECIPITATION

(From Figures D, E and F, and Eq. 28 of DPM 22.2)

$P_{60} = 1.92"$, $P_{360} = 2.25"$, $P_{1440} = 2.65"$, $P_{today's} = 10.0[24.9/(2.65)^{1.4}] = 3.64"$

HYDROLOGY SUMMARY TABLE

OUTPUT

BASIN	CONTRIBUTING BASINS	100 YEAR PEAK FLOW		100 YEAR 6hr VOLUME		100 YEAR 10hr VOLUME	
		INCREM	CUMM	INCRE M (ac•ft)	CUMM (ac•ft)	INCREM (ac•ft)	CUMM (ac•ft)
903A	-	30.20	— —	1.030	— —	1.030	— —
770	903A	102.54	112.89	3.136	4.167	3.136	4.166
760	770 & 903A	123.43	186.47	3.794	7.961	3.794	7.960
730	-	40.28	— —	1.374	— —	1.374	— —
780	730-770, & 903A	60.02	209.06	1.873	11.208	1.873	11.207
901	730-780, & 903A	Approximately 15 cfs peak discharge per Bridge Blvd Drainage Report					
902	730-780, 901, & 903A	114.93	216.45	3.826	15.034	3.826	15.033
903B	All of the above	89.17	257.92	3.145	18.179	3.145	18.178
110	-	63.19	— —	2.725	— —	2.725	— —
120	110	282.14	338.79	14.251	16.977	14.251	16.976
130	110 & 120	135.40	447.69	5.160	22.137	5.160	22.136
140	110-130	60.68	500.16	1.849	23.986	1.849	23.985
904	All of the above	31.75	244.13	1.033	19.211	1.033	43.196
210	-	44.84	— —	1.850	— —	1.850	— —
211	210	27.02	70.77	1.119	2.969	1.119	2.969
212	210-211	92.70	163.08	3.468	6.437	3.468	6.437
213	210-212	64.40	220.80	2.167	8.604	2.167	8.604
220	after pond	99.26	Unknown	4.288	?	4.288	?

221		87.09	?	2.961	?	2.961	?
222		21.39	?	0.767	?	0.767	?
905	All of the above	71.36	228.32	2.502	21.713	2.502	62.318
906	All of the above	160.40	209.23	5.638	27.349	5.638	67.956
907	All of the above	72.68	169.37	2.426	29.763	2.426	70.382
310	-	67.76	---	2.361	---	2.361	---
320	-	39.16	---	1.821	---	1.821	---
321	320	12.68	47.87	0.454	2.275	0.454	2.275
330		8.63	---	0.246	---	0.246	---
331	320-330	48.24	100.12	1.640	4.161	1.640	4.161
332	310-331	30.60	195.56	1.068	7.591	1.068	7.590
333	310-332	82.34	277.90	2.904	10.495	2.904	10.494
340	310-333	194.10	472.00	6.965	17.460	6.965	17.459
350	310-350	220.55	681.97	8.725	26.185	8.725	26.184
410	-	60.89	---	2.378	---	2.378	---
420	410	103.63	164.52	3.822	6.199	3.822	6.200
430	410-420	87.86	252.37	3.431	9.631	3.431	9.631
440	410-430	105.91	357.48	3.788	13.418	3.788	13.419
total	310-440	---	1033.82	---	39.603	0.000	39.603
510	-	63.38	---	2.214	---	2.214	---
520	510	216.89	269.14	9.308	11.521	9.308	11.522
530	510-520	91.91	361.04	3.960	15.482	3.960	15.482
600	510-530	236.97	598.02	10.136	25.617	10.136	25.618

100 YEAR PRECIPITATION
 (From Figures D, E and F, and Eq. 28 of DPM 22.2)
 $P_{60} = 1.92''$, $P_{360} = 2.25''$, $P_{1440} = 2.65''$, $P_{10days} = 10.0-[24.9/(2.65'')^{1.4}] = 3.64''$

POND VOLUME CALCULATIONS

ELEVATION (FT)	AREA (SQ. FT.)	AREA (ACRES)	$A1+A2+SQR(A1*A2)$ (ACRES)	VOLUME (ACRE-FT)	VOLUME SUM (ACRE-FT)
POND #1, 2:1 SIDE SLOPES					
58.00	74250	1.705	0.000	0.000	0.000
72.50		2.860	6.773	32.736	32.736
76.00	136746	3.139	7.157	42.942	42.942
REQUIRED VOLUME IS 31.923 AC-FT					
POND #2, 3:1 SIDE SLOPES					
42.00	16000	0.367	0.000	0.000	0.000
47.00		0.597	1.432	2.387	2.387
48.00	28000	0.643	1.859	0.620	3.007
REQUIRED VOLUME IS 2.19 AC-FT					
POND #4, 3:1 SIDE SLOPES					
60.00	23800	0.546	0.000	0.000	0.000
68.80		1.172	2.518	7.387	7.387
72.00	60950	1.399	3.851	4.108	11.495
REQUIRED VOLUME IS 7.275 AC-FT					
POND #5, 3:1 SIDE SLOPES					
23.50	94500	2.169	0.000	0.000	0.000
42.63		3.707	8.713	55.559	55.559
45.00	169796	3.898	11.407	9.011	64.571
REQUIRED VOLUME IS 55.552 AC-FT					

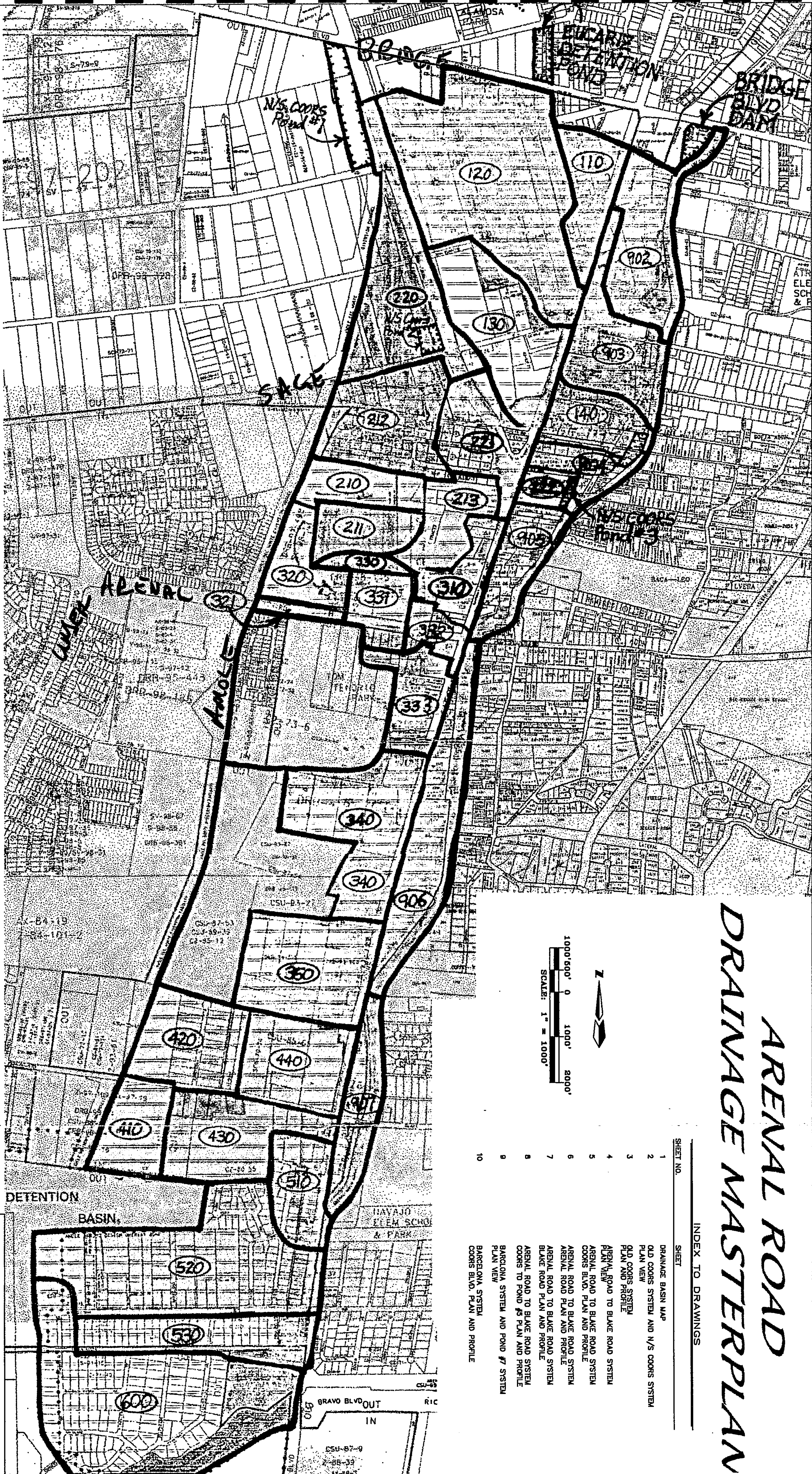
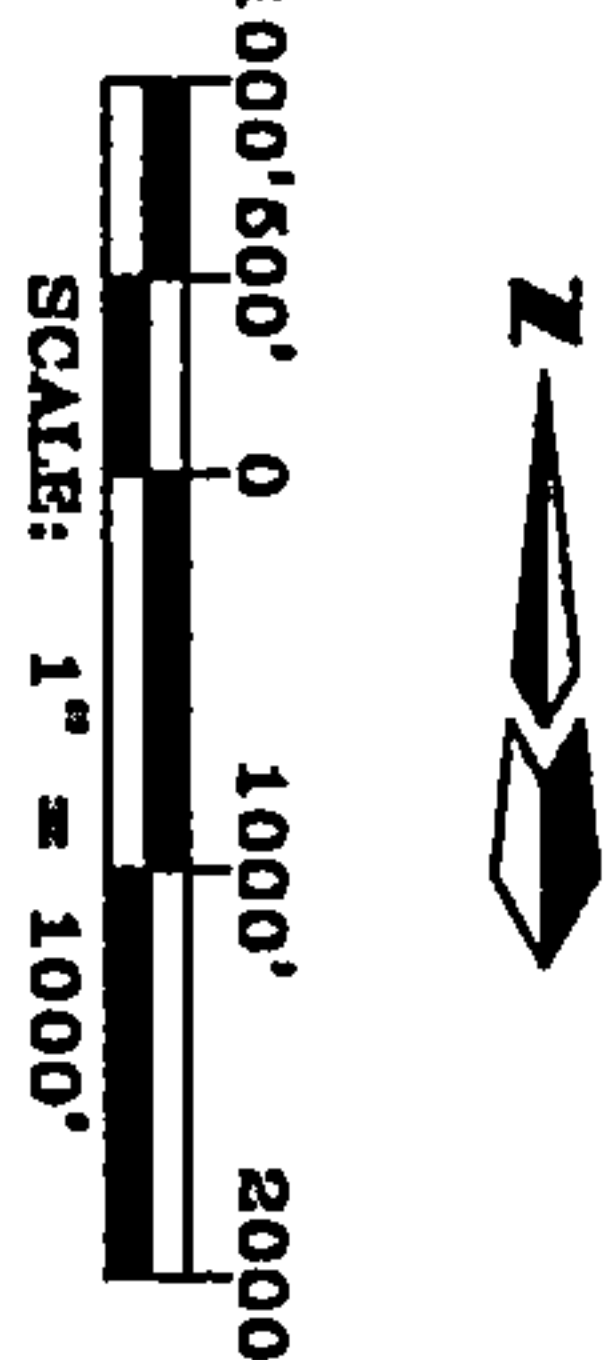
24 24 24

POND #6, 3:1 SIDE SLOPES					
22.50	89800	2.062	0.000	0.000	0.000
31.07		2.913	7.426	21.213	21.213
32.50	133100	3.056	8.953	4.267	25.480
REQUIRED VOLUME IS 21.193 AC-FT					

ARENAL ROAD DRAINAGE MASTERPLAN

INDEX TO DRAWINGS

SHEET NO.	SHEET
1	DRAINAGE BASIN MAP
2	OLD COORS SYSTEM AND N/S COORS SYSTEM PLAN VIEW
3	OLD COORS SYSTEM PLAN AND PROFILE
4	ARENAL ROAD TO BLAKE ROAD SYSTEM PLAN VIEW
5	ARENAL ROAD TO BLAKE ROAD SYSTEM COORS BLVD. PLAN AND PROFILE
6	ARENAL ROAD TO BLAKE ROAD SYSTEM ARENAL ROAD PLAN AND PROFILE
7	ARENAL ROAD TO BLAKE ROAD SYSTEM BLAKE ROAD PLAN AND PROFILE
8	ARENAL ROAD TO BLAKE ROAD SYSTEM COORS TO POND #5 PLAN AND PROFILE
9	BARCELONA SYSTEM AND POND #7 SYSTEM PLAN VIEW
10	BARCELONA SYSTEM COORS BLVD. PLAN AND PROFILE



DRAINAGE BASIN MAP

ARENAL ROAD DRAINAGE MASTER PLAN

GREEN	20%
YELLOW	50%
ORANGE	80%

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Designed: JHY Drawn: MIV Checked: DMO Sheet 1 of 1
Scale: 1" = 20' Date: 4/00 Job: 99075

METHODOLOGY

- I. Hydrology Simplifying assumptions were made on the development densities assuming low density residential in areas that were already developed as such. High density was assumed along Coors and where already developed that way. Relatively high density residential was assumed every where else. Most of the undeveloped property is still zoned agricultural, so zoning was not used as a guide for predicting storm water runoff. Time of concentrations were estimated for each basin hydrographs were simply added together without further routing. These assumptions should be retained at the time of final design (see aerial photos, basin map, and AHYMO).
- II. Hydraulics Each of the major storm sewer systems was profiled and pipe sizes were estimated based on friction slope. Back water effect from ponds was taken into account and the pipe soffits were set at the estimated HGL (Note HGL estimated not calculated).
- III. Cost Estimates include reasonable estimates of land cost that should be verified by independent appraisal. The estimates do not include transportation items because it is assumed all streets with storm sewer will be paved to urban standards at the same time storm sewer is constructed, and pavement considerations are beyond the scope of this report. Curb opening inlets, though not specifically located, were identified and accounted for in the estimate in sufficient quantity to limit the 10 yr spread of water in accordance with arterial street standards, provided that drainage from each of the subbasins is not allowed to surface drain into the arterial streets.

OLD COORS SYSTEM

The upper pond is strategically located on one of the few undeveloped parcels and at the confluence of two large watersheds. It is desirable to get this drainage out of Coors Rd rather than convey the entire peak further south in Coors Rd.

Discharge to the Arenal Irrigation Canal is desirable to reduce storm sewer costs but it must be at significantly reduced rates through a pond in order to prevent the canal's capacity from being exceeded. The lower pond controls basin #140 as necessary to help prevent the capacity of the canal from being exceeded. Most of the land along the canal has already been developed. The lower pond is located on the only remaining parcel that is both large enough for a pond and in the path of the drainage.

The MRGCD may be reluctant to formally allow storm water discharge into the irrigation ditch even though that is where the runoff goes now. This overall storm water management plan will reduce peak storm water flows in the ditch such that even during the 100 yr storm the ditch will not flood.

Another feasible outfall for the Old Coors System may be a small pipe from the upper pond running south in Coors Rd to the Arenal System. As long as the peak flow rate is alternated by the upper pond, the pipe sizes would not change. But the Arenal/Blake Pond cost would increase by about 20%. Costs would be about the same for both options, but this one would not require MRGCD cooperation and it would not prevent Basin #140 from exceeding the capacity of the Arenal Canal.

PROJECT COST ESTIMATE

PROJECT Arenal Drainage
PROJECT NO. SHT. 1 of 7
DATE March 28, 2000

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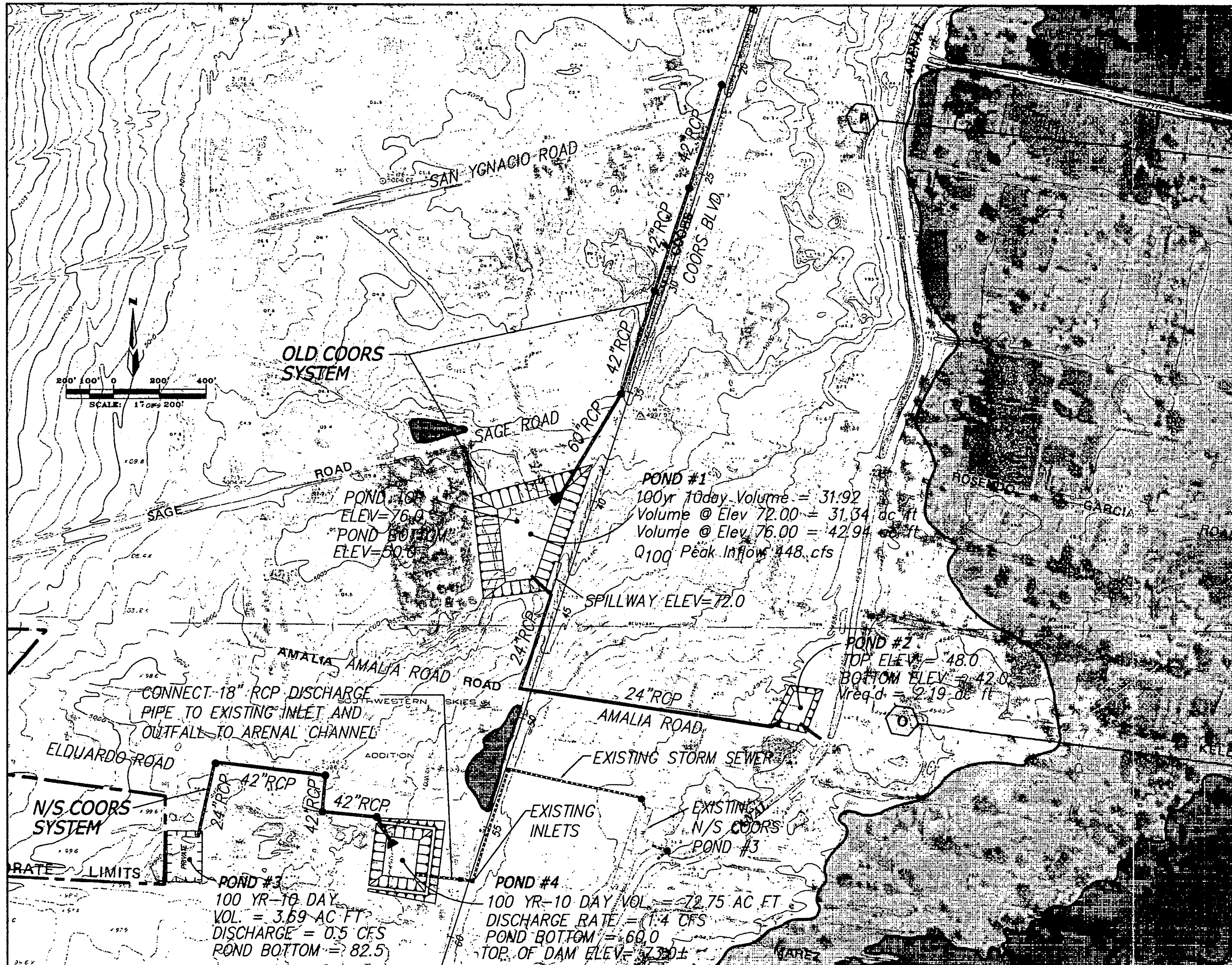
PROJECT COST ESTIMATE

PROJECT Arenal Drainage

PROJECT NO. _____ SHT. 2 of 7

DATE March 28, 2000

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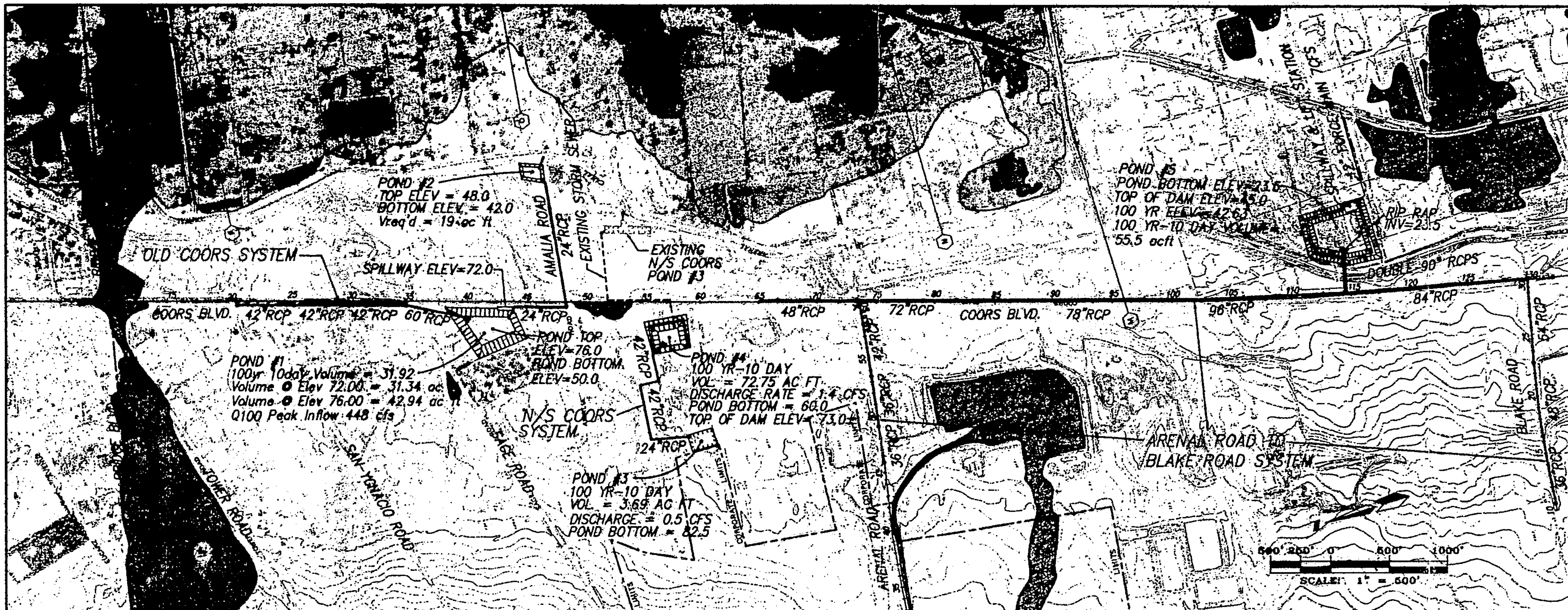


dmg MARK GOODWIN & ASSOCIATES, P.A.
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**BERNALILLO COUNTY
 PUBLIC WORKS DEPARTMENT**

TITLE:
**OLD COORS SYSTEM AND N/S COORS SYSTEM
 PLAN VIEW**

Designed: JGH	Drawn: HLV	Checked: DMG	Sheet: 2 of 10
Scale: 1" = 200'	Date: 4/00	Job: 18075	



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**BERNALILLO COUNTY
 PUBLIC WORKS DEPARTMENT**

TITLE: **OLD COORS SYSTEM
 PLAN AND PROFILE**

Designed: JGH	Drawn: HLV	Checked: DMG	Sheet: 3 of 10
Scale: 1" = 500'	Date: 4/00	Job: 98075	

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NORTH/SOUTH COORS SYSTEM

Drainage from Basin #212 crosses Eduardo Rd west of Coors thereby circumventing the North/South Coors System. Basins #210 and #211 are to be controlled by a Developer Constructed Pond so compared to Basin #212 their peak flow contribution is minimal (ie... 0.5 cfs vs. 92.7 cfs respectively). Storm sewer is required in Eduardo Rd to bring that drainage up to public standards, but there is no readily available outfall for this drainage.

North/South Coors Ponds #2 and #3 currently control Basins #220 and 221 and discharge only a few cubic feet per second into the Arenal Irrigation Canal. The canal does not have capacity for the unattenuated peak flow from Basins #212 and #213 so the lower pond will be used to reduce that flow from about 150 cfs to 1.4 cfs. This rate can probably be released into the North/South Coors System with no modification to that existing system, or it can be storm sewered south in Coors to the Arenal/Blake Pond with perhaps a 10% increase to the cost of the pond.

Three other alternatives for draining Basins #210 and #211 are:

1. Storm sewer south to Arenal Rd (1400 LF, 18" RCP CL-IV at 25' Depth, $Q = 0.4\text{cfs}$).
2. Storm sewer directly through Basin #213 to the east pond by Coors thus avoiding the substandard drainage at Eduardo.
3. Force main and lift station to the Amole del Norte Diversion Facility west of Basin #210. This third alternative is not desirable due to existing capacity problems at the Amole/Hubble Pond, and because the City may not want another lift station to maintain.

PROJECT COST ESTIMATE

PROJECT Arenal Drainage

PROJECT NO. _____ SHT. 3 of 7

DATE March 28, 2000

ITEM NO.	SHORT DESCRIPTION	EST. UNIT PRICE	ESTIMATED QUANTITY	ESTIMATED AMOUNT	AS-BUILT QUANTITY	AS-BUILT AMOUNT
	NORTH/SOUTH COORS SYSTEM 2					
701.100	TRCH, BF, 18-36" SWR, <8'	\$ 12.55	240 LF	\$ 3,012.00		
701.160	TRCH, BF, 42-60" SWR, 8-12'	\$ 27.83	1000 LF	\$ 27,830.00		
910.005	18" RCP, III	\$ 20.83	120 LF	\$ 2,499.60		
910.009	24" RCP, III	\$ 25.81	120 LF	\$ 3,097.20		
910.019	42" RCP, III	\$ 54.71	1000 LF	\$ 54,710.00		
915.040	CTH BSN, C, DG	\$ 3,069.48	10 EA	\$ 30,694.80		
920.150	MH, 6' DIA, C OR E, 10-14' D	\$ 3,254.80	6 EA	\$ 19,528.80		
	STORM SEWER SUBTOTAL			\$ 141,372.40		
	POND #3 - DEVELOPER RESPONSIBILITY			\$ 0.00		
	POND # 3 SUBTOTAL			\$ 0.00		
	POND #4					
	SITE	\$ 50,000.00	2.5 AC	\$ 125,000.00		
201.010	SITE CLEAR & GRUB	\$ 550.63	2.5 AC	\$ 1,376.58		
202.010	EXCAVATION & EMBANKMENT	\$ 4.00	10000 CY	\$ 40,000.00		
340.030	CONC. VALLEY GUTTER	\$ 38.16	270 SY	\$ 10,303.20		
410.010	CHAIN LINK FENCE 6'	\$ 2.05	7920 SF	\$ 16,236.00		
630.030	RIP RAP	\$ 62.34	6 CY	\$ 374.04		
--	SEED AND MULCH (NATIVE)	\$ 1,369.08	2.5 AC	\$ 3,422.70		
--	OUTLET STR. & CHANNEL PENETRATION	\$ 4,000.00	1	\$ 4,000.00		
	POND #4 SUBTOTAL			\$ 200,712.52		
	N/S COORS SYSTEM 2 TOTAL			\$ 342,084.92		

ARENAL RD TO BLAKE RD SYSTEM

This system is not characterized by ponds scattered throughout. The prime ponding sites are already taken by other development. Pipe sizes in Coors could have been reduced with some strategically located ponds, or by imposing limitations on storm water release rates by requiring new development to either pond or develop at lower density. Instead this plan provides storm sewer for developed 100 yr flows including relatively high predictions of future development densities. The area draining to this system is largely undeveloped. Two upstream drainage areas already have permanent retention ponds and are not included within this system. Those two areas are Tenorio Park and the trailer park south of there.

The selected pond site is centrally located. One other pond site may be worth investigating, though such investigation does not serve the purpose of this report. This system might be storm sewered further south and combined with the Barcelona System and that pond expanded. This would have the obvious advantage of only one lift station and may further have the advantage of utilizing land that is already publicly owned. Unfortunately this alternative would require a lot more very big, very expensive pipe, so it may be too expensive.

Pond sites are rapidly disappearing as this area is developed. The public trunk lines and major infrastructure are missing in this area. Sites need to be selected and a plan needs to be adopted before the alternatives are narrowed to such a point that the only remaining solution is cost prohibitive.

The selected pond sites for both this and the Barcelona Pond can be easily constructed with balanced earthwork and can be very economical from that standpoint. But they may both require lift stations depending on the final designs of the Isleta Drain. Both ponds are close to being able to gravity drain there and will contribute only very small peak flows. This to needs further investigation. This plan calls for over sizing the ponds so the outfalls may be deferred till later dates.

PROJECT COST ESTIMATE

PROJECT Arenal Drainage
PROJECT NO. SHT. 4 of 7
DATE March 28, 2000

[illegible]

PROJECT COST ESTIMATE

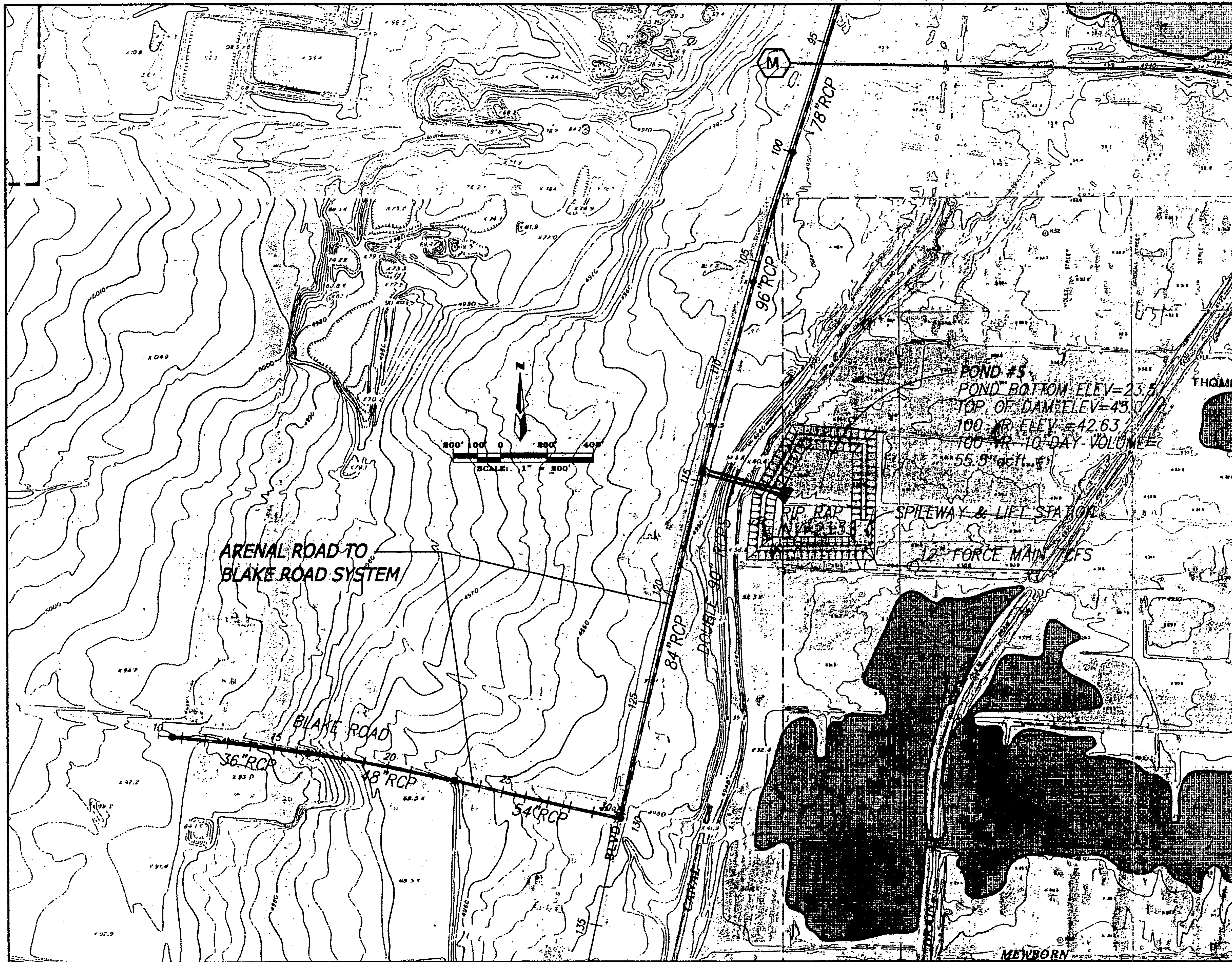
PROJECT Arenal Drainage

PROJECT NO. SHT. 5 of 7

DATE March 28, 2000

[illegible]

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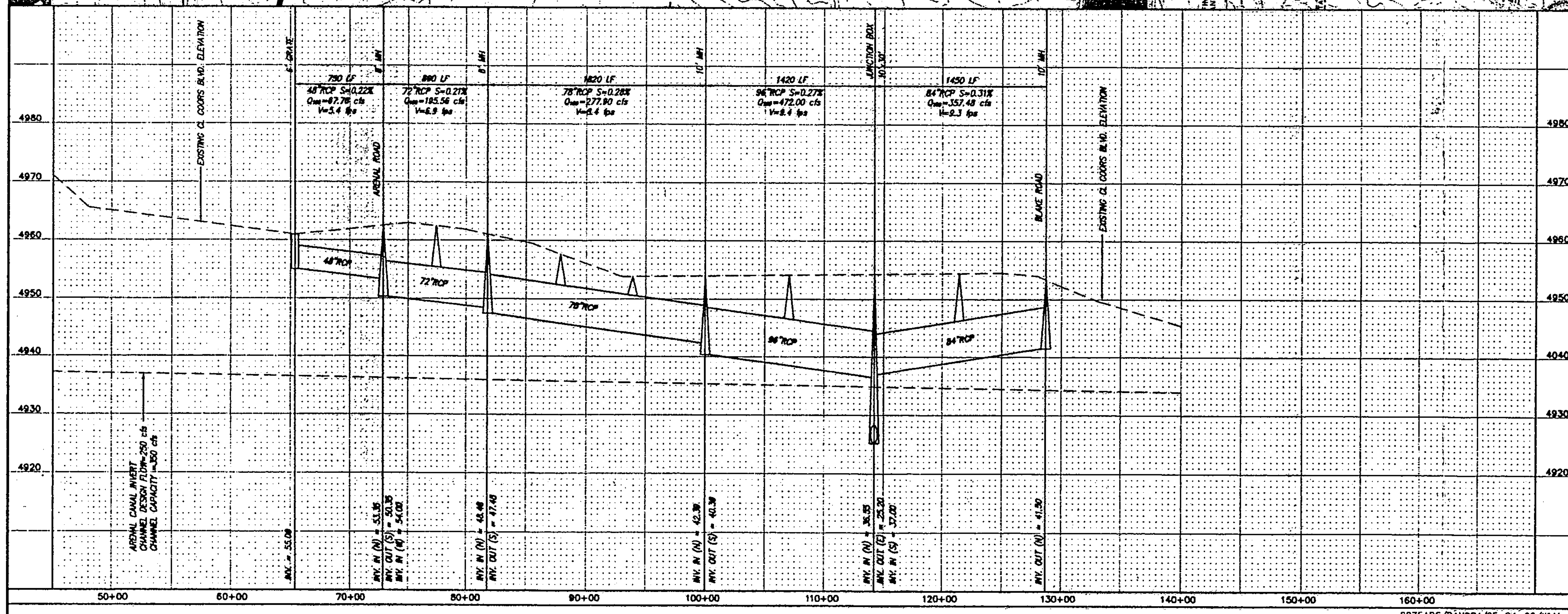
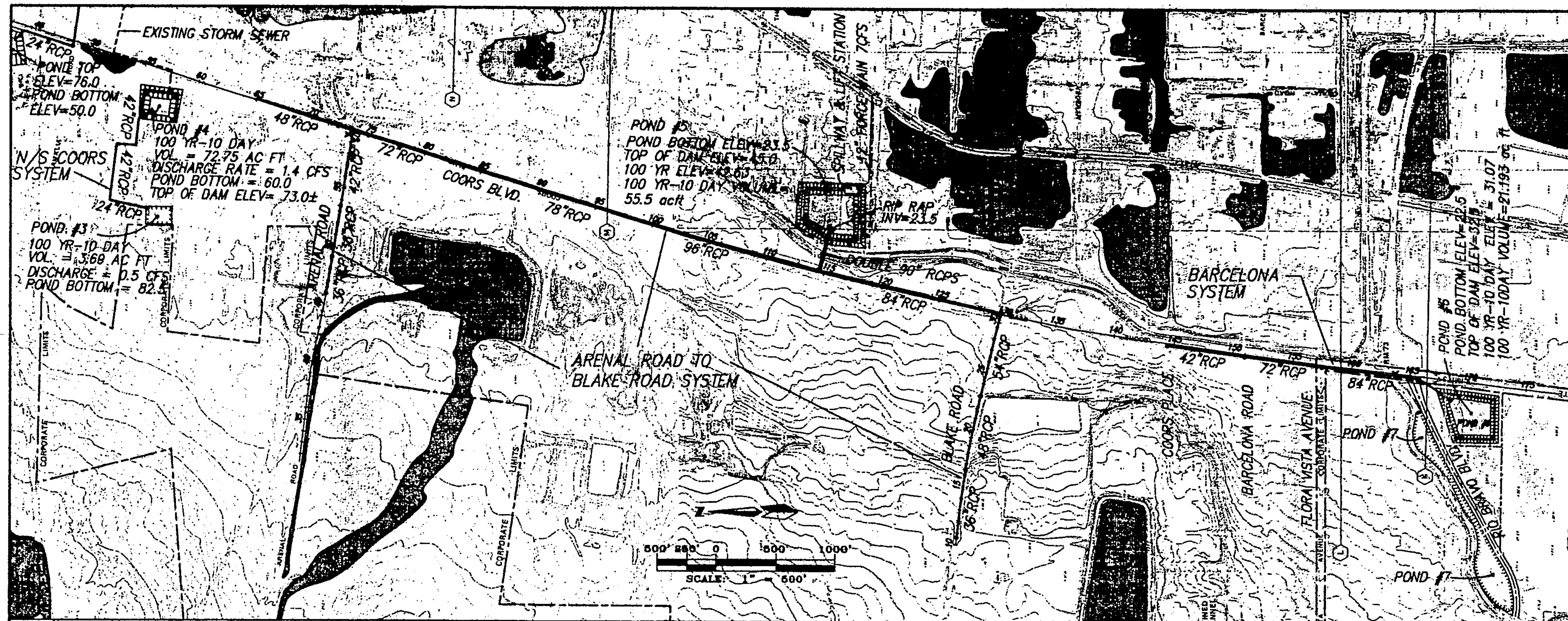
dmg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

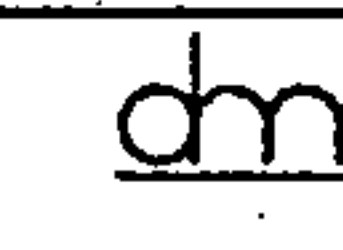
BERNALILLO COUNTY
PUBLIC WORKS DEPARTMENT

TITLE:
ARENAL ROAD TO BLAKE ROAD SYSTEM
PLAN VIEW

Designed: JH	Drawn: MLV	Checked: DMG	Sheet 4 of 10
Scale: 1" = 200'	Date: 4/00	Job: 18075	

8075ADS/PLAN1/05-05-00/MLV

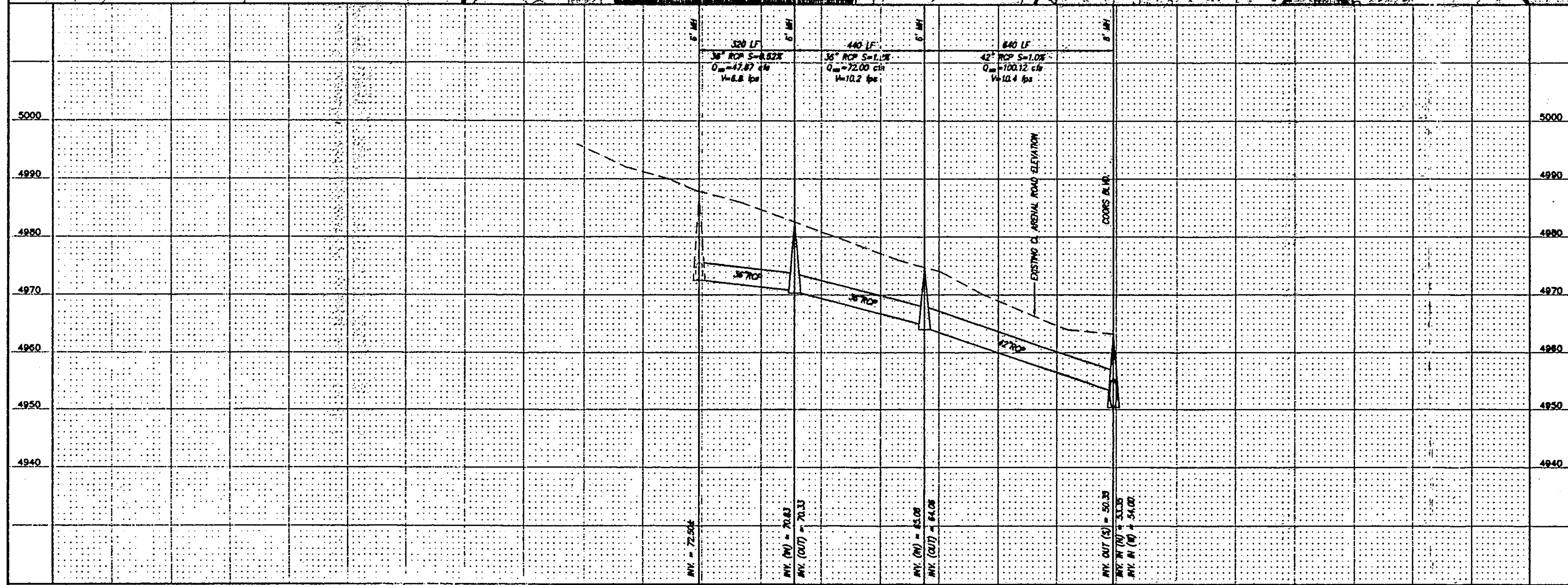
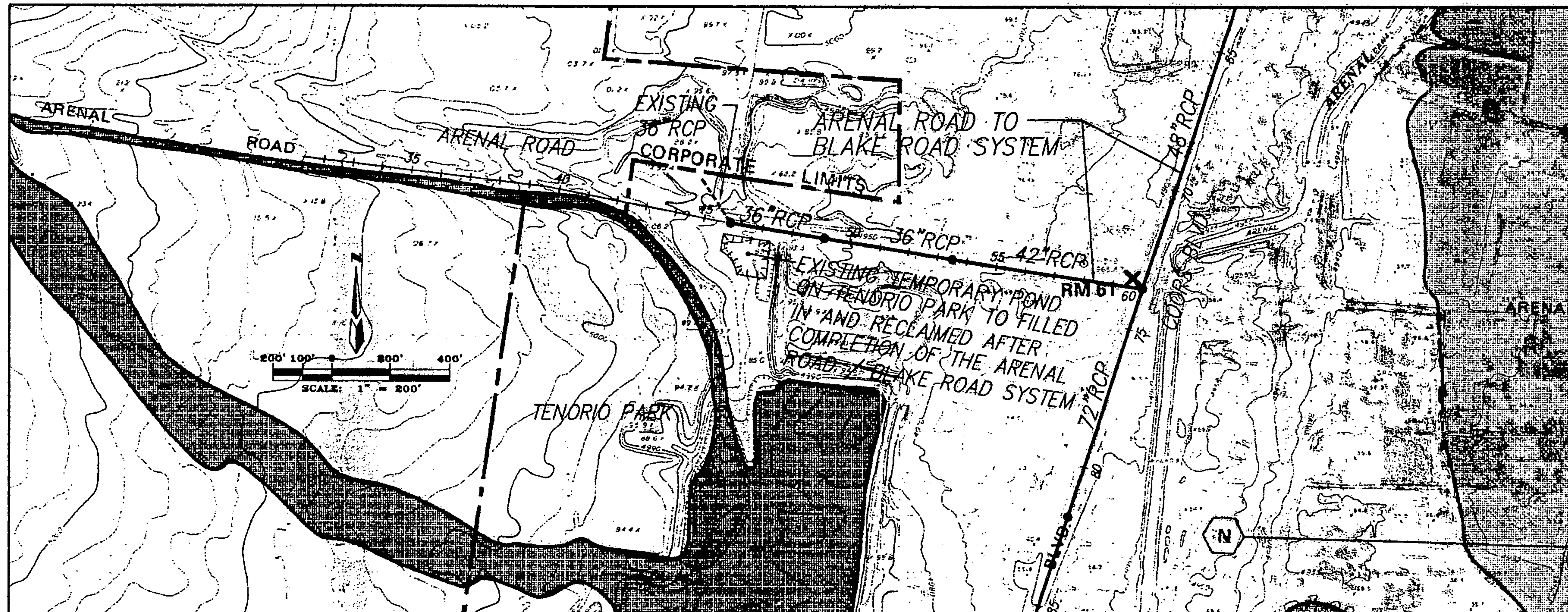



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BERNALILLO COUNTY
 PUBLIC WORKS DEPARTMENT

TITLE:
 ARENAL ROAD TO BLAKE ROAD SYSTEM
 COORS BLVD. PLAN AND PROFILE

Designed: JGH Drawn: MLV Checked: DMC Sheet 5 of 10
 Scale: 1" = 500' Date: 4/00 Job: 18075



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**BERNALILLO COUNTY
PUBLIC WORKS DEPARTMENT**

TITLE:
**ARENAL ROAD TO BLAKE ROAD SYSTEM
ARENAL ROAD PLAN AND PROFILE**

Designed: JGH

Drawn: MLV

Checked: DMG

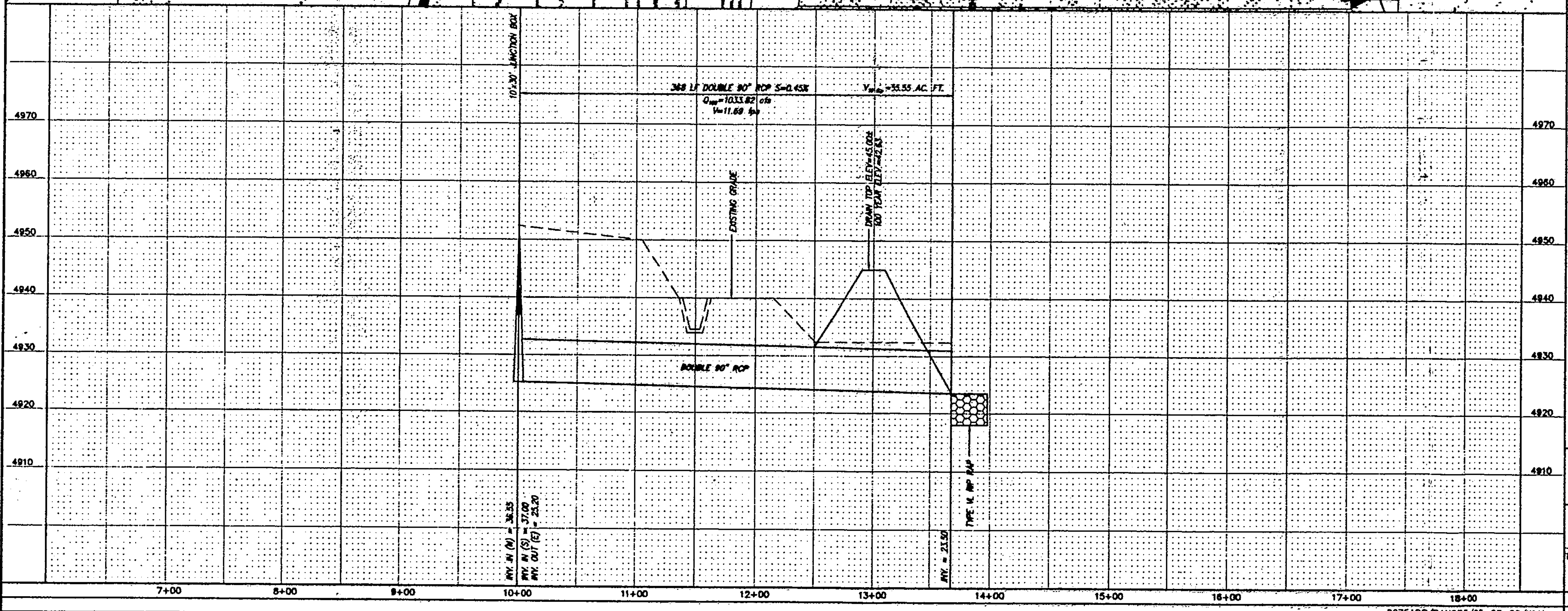
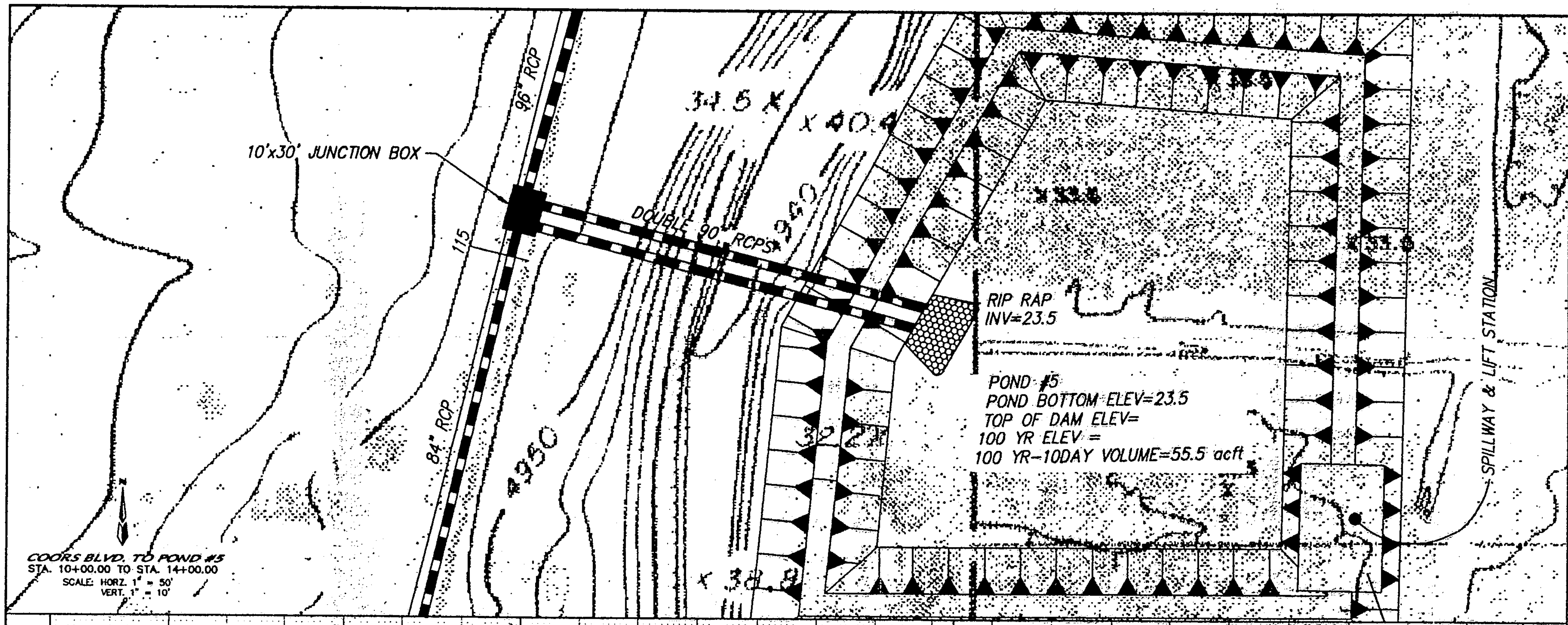
Scale: 1" = 200'

Date: 4/00

Job: 98075

Sheet: 6 of 10

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dmg MARK GOODWIN & ASSOCIATES, P.A.
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**BERNALILLO COUNTY
PUBLIC WORKS DEPARTMENT**

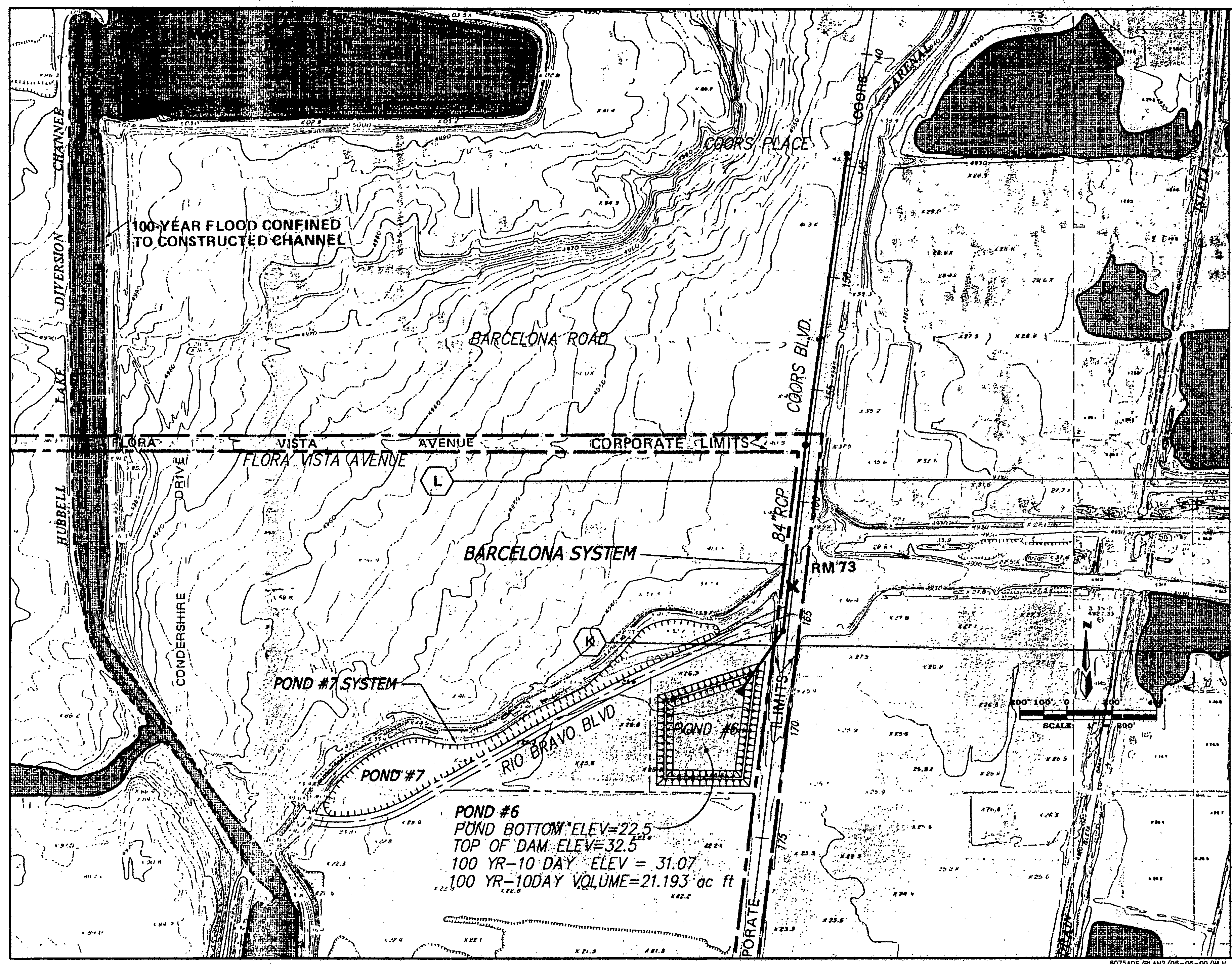
**TITLE: ARENAL ROAD TO BLAKE ROAD SYSTEM
COORS BLVD. TO POND 5
PLAN AND PROFILE**

Designed: JGH	Drawn: MLV	Checked: DMG	Sheet 8 of 10
Scale: 1" = 50'	Date: 4/00	Job: 18075	

8075ADS/PANDPS/05-05-00/MLV

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C:\UNGS\B075ADS\PLAN2.dwg Fr:1 May 05 12:20:07 2000 PLOTTED BY WILLIAM





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(505) 828-2200, FAX (505) 797-9539

BERNALILLO COUNTY
PUBLIC WORKS DEPARTMENT

TITLE:
BARCELONA SYSTEM AND POND 7 SYSTEM
PLAN VIEW

Designed: JGH	Drawn: MLV	Checked: DMG	Sheet 9 of 10
Scale: 1" = 200'	Date: 4/00	Job: 98075	

BARCELONA SYSTEM

The area draining to this system is mostly developed. Storm water should be intercepted just before it enters Coors Blvd in sump inlets. Coors is fairly steep in this area so conveyance of flows south is accomplished efficiently in small pipes. The pond site has extra capacity and is bordered to the south by more agricultural land that could easily be used for ponding.

PROJECT COST ESTIMATE

PROJECT Arenal Drainage
 PROJECT NO. _____ SHT. 6 of 7
 DATE March 28, 2000

ITEM NO.	SHORT DESCRIPTION	EST. UNIT PRICE	ESTIMATED QUANTITY	ESTIMATED AMOUNT	AS-BUILT QUANTITY	AS-BUILT AMOUNT
BARCELONA SYSTEM 4						
701.100	TRCH, BF, 18-36" SWR, <8'	\$ 12.55	600 LF	\$ 7,530.00		
701.150	TRCH, BF, 42-60" SWR, <8'	\$ 24.63	800 LF	\$ 19,704.00		
701.210	TRCH, BF, >60", SWR, 12-16'	\$ 46.15	1660 LF	\$ 76,609.00		
910.005	18" RCP, III	\$ 20.83	360 LF	\$ 7,498.80		
910.009	24" RCP, III	\$ 25.81	240 LF	\$ 6,194.40		
910.019	42" RCP, III	\$ 54.71	800 LF	\$ 43,768.00		
910.029	72" RCP, III	\$ 140.47	460 LF	\$ 64,616.20		
910.032	84" RCP, III	\$ 165.31	1200 LF	\$ 198,372.00		
915.040	CTH BSN, C, DG	\$ 3,069.48	24 EA	\$ 73,667.52		
920.070	MH 4' DIA, C OR E, 6-10' D	\$ 1,420.53	6 EA	\$ 8,523.18		
920.140	MH 6' DIA, C OR E, 6-10' D	\$ 2,672.50	1 EA	\$ 2,672.50		
920.220	MH 8' DIA, C OR E, 10-14' D	\$ 5,712.84	3 EA	\$ 17,138.52		
	STORM SEWER SUBTOTAL			\$ 526,294.12		
	POND #6					
	SITE	\$ 20,000.00	6.9 AC	\$ 138,000.00		
201.010	SITE CLEAR & GRUB	\$ 550.63	6.9 AC	\$ 3,799.35		
202.010	EXCAVATION & EMBANKMENT	\$ 2.00	14000 CY	\$ 28,000.00		
340.030	CONC. VALLEY GUTTER	\$ 38.16	900 SY	\$ 34,344.00		
410.010	CHAIN LINK FENCE 6'	\$ 2.05	13500 SF	\$ 27,675.00		
630.030	RIP RAP	\$ 62.34	10 CY	\$ 623.40		
	LIFT STATION & FORCE MAIN	\$400,000.00	1 LS	\$ 400,000.00		
	SEED AND MULCH (NATIVE)	\$ 1,369.08	6.9 AC	\$ 9,446.65		
	POND #6 SUBTOTAL			\$ 641,888.40		
	BARCELONA SYSTEM 4 TOTAL			\$1,168,182.52		

POND #7 SYSTEM

This area is included in the hydrology portion of this study just to make sure that it does not contribute to Coors Blvd and the Arenal Canal. The drainage area is mostly developed and may drain into the Gun Club Lateral, or the drainage may be ponded between Rio Bravo Blvd and the lateral. This area does not contribute to the Coors Blvd storm sewer and was not studied further.

Summary Output

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994

RUN DATE (MON/DAY/YR) =03/07/2000
USER NO.= M_GOODWIN.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START	RAINFALL TYPE= 1										
COMPUTE NM HYD	ROUTE	903.00	-	.01345	30.20	1.030	1.43653	1.499	3.509 PER IMP=	2.250	TIME=
COMPUTE NM HYD	ROUTE	903.20	3	.01345	13.30	1.030	1.43655	1.598	1.545	50.00	RAINF=
ADD HYD	ROUTE	770.00	-	.06322	102.54	3.136	.93013	1.499	2.534 PER IMP=	15.00	
COMPUTE NM HYD	ROUTE	770.10	14 2	.07667	112.89	4.167	1.01895	1.532	2.301		
COMPUTE NM HYD	ROUTE	770.20	3	.07667	72.03	4.167	1.01896	1.598	1.468		
ADD HYD	ROUTE	760.00	-	.07891	123.43	3.794	.90162	1.499	2.444 PER IMP=	15.00	
COMPUTE NM HYD	ROUTE	760.10	14 2	.15558	186.47	7.961	.95944	1.532	1.873		
COMPUTE NM HYD	ROUTE	760.20	3	.15558	127.21	7.961	.95944	1.598	1.278		
COMPUTE NM HYD	ROUTE	730.00	-	.01794	40.28	1.374	1.43653	1.499	3.508 PER IMP=	50.00	
ADD HYD	ROUTE	780.00	-	.03273	60.02	1.873	1.07281	1.499	2.866 PER IMP=	20.00	
COMPUTE NM HYD	ROUTE	730.10	24 3	.05067	100.31	3.247	1.20158	1.499	3.093		
ADD HYD	ROUTE	780.10	14 2	.20625	209.06	11.208	1.01892	1.665	1.584		
COMPUTE NM HYD	ROUTE	780.20	3	.20625	135.41	11.208	1.01892	1.665	1.026		
ADD HYD	ROUTE	902.00	-	.05156	114.93	3.826	1.39119	1.499	3.483 PER IMP=	40.00	
COMPUTE NM HYD	ROUTE	902.10	14 2	.25781	216.45	15.034	1.09337	1.565	1.312		
ROUTE	ROUTE	903.00	3	.25781	182.31	15.034	1.09337	1.632	1.105		
COMPUTE NM HYD	ROUTE	903.10	14 2	.04660	89.17	3.145	1.26546	1.532	2.990 PER IMP=	38.00	
ADD HYD	ROUTE	904.30	3	.30441	257.92	18.179	1.11971	1.565	1.324		
COMPUTE NM HYD	ROUTE	110.00	-	.30441	221.42	18.179	1.11971	1.598	1.137		
COMPUTE NM HYD	ROUTE	120.00	-	.02880	63.19	2.725	1.77433	1.565	3.429 PER IMP=	80.00	
ADD HYD	ROUTE	120.10	24 3	.15060	282.14	14.251	1.77433	1.632	2.927 PER IMP=	80.00	
COMPUTE NM HYD	ROUTE	130.00	-	.17940	338.79	16.977	1.77433	1.598	2.951		
ADD HYD	ROUTE	130.10	24 3	.05730	135.40	5.160	1.68845	1.532	3.692 PER IMP=	73.00	
COMPUTE NM HYD	ROUTE	140.00	-	.23670	447.69	22.137	1.75354	1.565	2.955		
ADD HYD	ROUTE	140.10	24 3	.03310	60.68	1.849	1.04737	1.499	2.864 PER IMP=	20.00	
COMPUTE NM HYD	ROUTE	904.00	-	.26980	500.16	23.986	1.66690	1.565	2.897		
ADD HYD	ROUTE	904.10	14 2	.01530	31.75	1.033	1.26546	1.499	3.243 PER IMP=	38.00	
COMPUTE NM HYD	ROUTE	904.20	3	.31971	244.13	19.211	1.12668	1.598	1.193		
COMPUTE NM HYD	ROUTE	210.00	-	.31971	191.97	19.211	1.12668	1.698	.938		
ADD HYD	ROUTE	211.00	-	.02500	44.84	1.850	1.38769	1.565	2.803 PER IMP=	48.00	
COMPUTE NM HYD	ROUTE	211.10	24 3	.02360	27.02	1.119	.88879	1.598	1.789 PER IMP=	7.00	
ADD HYD	ROUTE	212.00	-	.04860	70.77	2.969	1.14541	1.565	2.275		
COMPUTE NM HYD	ROUTE	212.10	24 3	.05560	92.70	3.468	1.16960	1.532	2.605 PER IMP=	30.00	
ADD HYD	ROUTE	213.00	-	.10420	163.08	6.437	1.15832	1.565	2.445		
COMPUTE NM HYD	ROUTE	213.10	24 3	.02880	64.40	2.167	1.41085	1.499	3.494 PER IMP=	50.00	
ADD HYD	ROUTE	220.00	-	.13300	220.80	8.604	1.21300	1.532	2.594		
COMPUTE NM HYD	ROUTE	221.00	-	.06420	99.26	4.288	1.25227	1.598	2.416 PER IMP=	37.00	
COMPUTE NM HYD	ROUTE	222.00	-	.03810	87.09	2.961	1.45718	1.499	3.571 PER IMP=	54.00	
COMPUTE NM HYD	ROUTE	905.00	-	.00810	21.39	.767	1.77433	1.499	4.125 PER IMP=	80.00	
ADD HYD	ROUTE	905.10	14 2	.02880	71.36	2.502	1.62894	1.499	3.871 PER IMP=	68.00	
COMPUTE NM HYD	ROUTE	906.20	3	.34851	228.32	21.713	1.16818	1.632	1.024		
COMPUTE NM HYD	ROUTE	906.00	-	.34851	150.73	21.711	1.16808	1.798	.676		
COMPUTE NM HYD	ROUTE	-	2	.06450	160.40	5.638	1.63892	1.499	3.886 PER IMP=	69.00	

ADD HYD	906.10	14 2	3	.41301	209.23	27.349	1.24161	1.565	.792	
ROUTE	907.20	3	1	.41301	146.62	27.337	1.24104	1.798	.555	
COMPUTE NM HYD	907.00	-	2	.03310	72.68	2.426	1.37450	1.499	3.431	PER IMP=
ADD HYD	907.10	14 2	1	.44611	169.37	29.763	1.25095	1.798	.593	47.00

[illegible]

ATHYMO Input Data

START TIME=0.0
***** ARENAL CANAL BETWEEN RIO GRANDE RIVER AND RIO BRAVO ROAD FOR
***** PUNO DE TIERRA ESTATES SUBDIVISION
***** 100-YEAR 6-HOUR STORM EVENT
***** MARCH 6, 2000
RAINFALL

TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.92 IN RAIN SIX=2.25 IN
RAIN DAY=2.65 IN DT=0.0333 HR
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PER A=0 PER B=25 PER C=25 PER D=50
TP=0.1333 HR MASS RAINFALL=-1
ID=3 CODE=1

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FRICTION SLOPE=.0005 'n'=.013 LAST STA=25
DIST ELEV
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10 0
15 0
25 5

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ROUTE ID=1 HYD NO=903.2 INFLOW ID=3 DT=0 HR
PRINT HYD ID=1 CODE=1
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PER A=15 PER B=45 PER C=25 PER D=15
TP=0.1333 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=3 HYD NO=770.1 ID=1 & 2
ID=3 CODE=1

PRINT HYD
ADD HYD
PRINT HYD
COMPUTE RATING CURVE CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=5.0 FT SLOPE=.0005
FRICTION SLOPE=.0005 'n'=.013 LAST STA=25
DIST ELEV
0 5
10 0
15 0
25 5

COMPUTE TRAVEL TIME ID=1 REACH NO=1 NO VS=1 L=2250 FT SLP=.0005
ROUTE ID=1 HYD NO=770.2 INFLOW ID=3 DT=0 HR
PRINT HYD ID=1 CODE=1
COMPUTE NM HYD ID=2 HYD NO=760.0 AREA=0.07891 SQ MI
PER A=40 PER B=5 PER C=40 PER D=15
TP=0.1333 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=3 HYD NO=760.1 ID=1 & 2
ID=3 CODE=1

PRINT HYD
ADD HYD
PRINT HYD
COMPUTE RATING CURVE CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=5.0 FT SLOPE=.0005
FRICTION SLOPE=.0005 'n'=.013 LAST STA=25
DIST ELEV
0 5
10 0
15 0
25 5

COMPUTE TRAVEL TIME ID=1 REACH NO=1 NO VS=1 L=2250 FT SLP=.0005

ROUTE
PRINT HYD
COMPUTE NM HYD

PRINT HYD
COMPUTE NM HYD

PRINT HYD
ADD HYD
PRINT HYD
ADD HYD
PRINT HYD
COMPUTE RATING CURVE

CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=5.0 FT SLOPE=.0003
FRICTION SLOPE=.0003 'n'=.013 LAST STA=25

DIST	ELEV
0	5
10	0
15	0
25	5

COMPUTE TRAVEL TIME
ROUTE
PRINT HYD
COMPUTE NM HYD

PRINT HYD
ADD HYD
PRINT HYD
COMPUTE RATING CURVE

CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=8.0 FT SLOPE=.0003
FRICTION SLOPE=.0003 'n'=.013 LAST STA=37

DIST	ELEV
0	8
16	0
21	0
37	8

COMPUTE TRAVEL TIME
ROUTE
PRINT HYD
COMPUTE NM HYD

PRINT HYD
ADD HYD
PRINT HYD
COMPUTE RATING CURVE

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FRICTION SLOPE=.0003 'n'=.013 LAST STA=37

DIST	ELEV
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16	0
21	0

37
8
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PRINT HYD ID=1 CODE=1

COMPUTE NM HYD ID=3 HYD NO=110.0 AREA=0.0288 SQ MI
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PRINT HYD ID=3 CODE=1
COMPUTE NM HYD ID=2 HYD NO=120.0 AREA=0.1506 SQ MI
PER A=0 PER B=13 PER C=7 PER D=80
TP=0.25 HR MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1
COMPUTE NM HYD ID=3 HYD NO=120.1 SUM IDS 2 3
ID=3 CODE=1
ID=2 HYD NO=130.0 AREA=0.0573 SQ MI
PER A=0 PER B=18 PER C=9 PER D=73
TP=0.15 HR MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1
COMPUTE NM HYD ID=3 HYD NO=130.1 SUM IDS 2 3
ID=3 CODE=1
ID=2 HYD NO=140.0 AREA=0.0331 SQ MI
PER A=0 PER B=53 PER C=27 PER D=20
TP=0.13 HR MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1
COMPUTE NM HYD ID=3 HYD NO=140.1 SUM IDS 2 3
ID=3 CODE=1
ID=2 HYD NO=904.0 AREA=0.0153 SQ MI
PER A=0 PER B=41 PER C=21 PER D=38
TP=0.13 HR MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1
COMPUTE NM HYD ID=3 HYD NO=904.1 SUM IDS 1 2
ID=3 CODE=1

PRINT HYD ID=3 HYD NO=904.1 SUM IDS 1 2
ADD HYD ID=3 CODE=1
PRINT HYD ID=3 CODE=1
COMPUTE RATING CURVE CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=8.0 FT SLOPE=.0003
FRICTION SLOPE=.0003 'n'=.013 LAST STA=37
DIST ELEV
0 8
16 0
21 0
37 8

COMPUTE TRAVEL TIME ID=1 REACH NO=1 NO VS=1 L=1870 FT SLP=.0003
ROUTE ID=1 HYD NO=905.2 INFLOW ID=3 DT=0 HR
PRINT HYD ID=1 CODE=1
COMPUTE NM HYD ID=3 HYD NO=210.0 AREA=0.0250 SQ MI
PER A=0 PER B=34 PER C=18 PER D=48
TP=0.19 HR MASS RAINFALL=-1
PRINT HYD ID=3 CODE=1
COMPUTE NM HYD ID=2 HYD NO=211.0 AREA=0.0236 SQ MI
PER A=0 PER B=62 PER C=31 PER D=7
TP=0.22 HR MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1
ADD HYD ID=3 HYD NO=211.1 SUM IDS 2 3

PRINT HYD
COMPUTE NM HYD

ID=3 CODE=1

ID=2 HYD NO=212.0 AREA=0.0556 SQ MI

PER A=0 PER B=46 PER C=24 PER D=30

TP=0.17 HR MASS RAINFALL=-1

ID=2 CODE=1

ID=3 HYD NO=212.1 SUM IDS 2 3

ID=3 CODE=1

ID=2 HYD NO=213.0 AREA=0.0288 SQ MI

PER A=0 PER B=33 PER C=17 PER D=50

TP=0.13 HR MASS RAINFALL=-1

ID=2 CODE=1

ID=3 HYD NO=213.1 SUM IDS 2 3

ID=3 CODE=1

ID=2 HYD NO=220.0 AREA=0.0642 SQ MI

PER A=0 PER B=42 PER C=21 PER D=37

TP=0.21 HR MASS RAINFALL=-1

ID=2 CODE=1

ID=2 HYD NO=221.0 AREA=0.0381 SQ MI

PER A=0 PER B=31 PER C=15 PER D=54

TP=0.13 HR MASS RAINFALL=-1

ID=2 CODE=1

ID=2 HYD NO=222.0 AREA=0.0081 SQ MI

PER A=0 PER B=13 PER C=7 PER D=80

TP=0.13 HR MASS RAINFALL=-1

ID=2 CODE=1

ID=2 HYD NO=905.0 AREA=0.0288 SQ MI

PER A=0 PER B=21 PER C=11 PER D=68

TP=0.13 HR MASS RAINFALL=-1

ID=2 CODE=1

ID=3 HYD NO=905.1 SUM IDS 1 2

ID=3 CODE=1

PRINT HYD
ADD HYD
PRINT HYD
COMPUTE RATING CURVE CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=8.0 FT SLOPE=.0003
FRICTION SLOPE=.0003 'n'=.013 LAST STA=37
DIST ELEV

ID=3 CODE=1

ID=2 HYD NO=905.0 AREA=0.0288 SQ MI

PER A=0 PER B=21 PER C=11 PER D=68

TP=0.13 HR MASS RAINFALL=-1

ID=2 CODE=1

ID=2 HYD NO=906.0 AREA=0.0645 SQ MI

PER A=0 PER B=21 PER C=10 PER D=69

TP=0.13 HR MASS RAINFALL=-1

ID=2 CODE=1

ID=3 HYD NO=906.1 SUM IDS 1 2

ID=3 CODE=1

PRINT HYD
ADD HYD
PRINT HYD
COMPUTE RATING CURVE CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=8.0 FT SLOPE=.0003
FRICTION SLOPE=.0003 'n'=.013 LAST STA=37
DIST ELEV

ID=3 CODE=1

ID=2 HYD NO=906.0 AREA=0.0645 SQ MI

PER A=0 PER B=21 PER C=10 PER D=69

TP=0.13 HR MASS RAINFALL=-1

ID=2 CODE=1

ID=3 HYD NO=906.1 SUM IDS 1 2

ID=3 CODE=1

ID=2 HYD NO=906.0 AREA=0.0645 SQ MI

PER A=0 PER B=21 PER C=10 PER D=69

TP=0.13 HR MASS RAINFALL=-1

ID=2 CODE=1

ID=3 HYD NO=906.1 SUM IDS 1 2

ID=3 CODE=1

ID=2 HYD NO=906.0 AREA=0.0645 SQ MI

PER A=0 PER B=21 PER C=10 PER D=69

TP=0.13 HR MASS RAINFALL=-1

ID=2 CODE=1

ID=3 HYD NO=906.1 SUM IDS 1 2

ID=3 CODE=1

```

21      0
37      8
COMPUTE TRAVEL TIME ID=1 REACH NO=1 NO VS=1 L=4500 FT SLP=.0003
ROUTE ID=1 HYD NO=907.2 INFLOW ID=3 DT=0 HR
PRINT HYD ID=1 CODE=1
COMPUTE NM HYD ID=2 HYD NO=907.0 AREA=0.0331 SQ MI
PER A=0 PER B=35 PER C=18 PER D=47
TP=0.13 HR MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1
ADD HYD ID=1 HYD NO=907.1 SUM IDS 1 2
PRINT HYD ID=1 CODE=1
COMPUTE NM HYD ID=2 HYD NO=310.0 AREA=0.0278 SQ MI
PER A=0 PER B=23 PER C=12 PER D=65
TP=0.13 HR MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1
ADD HYD ID=3 HYD NO=320.0 AREA=0.0242 SQ MI
PER A=0 PER B=33 PER C=17 PER D=50
TP=0.23 HR MASS RAINFALL=-1
PRINT HYD ID=3 CODE=1
COMPUTE NM HYD ID=4 HYD NO=321.0 AREA=0.0048 SQ MI
PER A=0 PER B=13 PER C=7 PER D=80
TP=0.13 HR MASS RAINFALL=-1
PRINT HYD ID=4 CODE=1
ADD HYD ID=3 HYD NO=321.1 SUM IDS 3 4
PRINT HYD ID=3 CODE=1
COMPUTE NM HYD ID=4 HYD NO=330.0 AREA=0.0052 SQ MI
PER A=0 PER B=62 PER C=31 PER D=7
TP=0.13 HR MASS RAINFALL=-1
PRINT HYD ID=4 CODE=1
ADD HYD ID=5 HYD NO=331.0 AREA=0.0211 SQ MI
PER A=0 PER B=31 PER C=15 PER D=54
TP=0.13 HR MASS RAINFALL=-1
PRINT HYD ID=5 CODE=1
COMPUTE NM HYD ID=4 HYD NO=331.1 SUM IDS 4 5
PRINT HYD ID=4 CODE=1
ADD HYD ID=3 HYD NO=331.2 SUM IDS 3 4
PRINT HYD ID=3 CODE=1
COMPUTE NM HYD ID=2 HYD NO=331.3 SUM IDS 2 3
PRINT HYD ID=2 CODE=1
ADD HYD ID=3 HYD NO=332.0 AREA=0.0125 SQ MI
PER A=0 PER B=23 PER C=11 PER D=66
TP=0.13 HR MASS RAINFALL=-1
PRINT HYD ID=3 CODE=1
ADD HYD ID=2 HYD NO=332.1 SUM IDS 3 2
PRINT HYD ID=2 CODE=1
COMPUTE NM HYD ID=3 HYD NO=333.0 AREA=0.0327 SQ MI
PER A=0 PER B=19 PER C=10 PER D=71
TP=0.13 HR MASS RAINFALL=-1
PRINT HYD ID=3 CODE=1
ADD HYD ID=2 HYD NO=333.1 SUM IDS 2 3
PRINT HYD ID=2 CODE=1
COMPUTE NM HYD ID=3 HYD NO=340.0 AREA=0.0736 SQ MI

```

PRINT HYD
ADD HYD
PRINT HYD
COMPUTE NM HYD
PER A=0 PER B=13 PER C=7 PER D=80
TP=0.13 HR MASS RAINFALL=-1
ID=3 CODE=1
ID=2 HYD NO=340.1 SUM IDS 2 3
ID=2 CODE=1
ID=3 HYD NO=350.0 AREA=0.0922 SQ MI
PER A=0 PER B=13 PER C=7 PER D=80
TP=0.16 HR MASS RAINFALL=-1
ID=3 CODE=1
ID=3 HYD NO=350.1 SUM IDS 2 3
ID=3 CODE=1

PRINT HYD
ADD HYD
PRINT HYD
COMPUTE NM HYD
ID=1 HYD NO=410.0 AREA=0.0316 SQ MI
PER A=0 PER B=33 PER C=17 PER D=50
TP=0.17 HR MASS RAINFALL=-1
ID=1 CODE=1
ID=2 HYD NO=420.0 AREA=0.0483 SQ MI
PER A=0 PER B=29 PER C=15 PER D=56
TP=0.15 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=1 HYD NO=420.1 SUM IDS 1 2
ID=1 CODE=1

PRINT HYD
COMPUTE NM HYD
ID=2 HYD NO=430.0 AREA=0.0456 SQ MI
PER A=0 PER B=33 PER C=17 PER D=50
TP=0.17 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=1 HYD NO=430.1 SUM IDS 1 2
ID=1 CODE=1

PRINT HYD
ADD HYD
PRINT HYD
COMPUTE NM HYD
ID=2 HYD NO=440.0 AREA=0.0483 SQ MI
PER A=0 PER B=30 PER C=15 PER D=55
TP=0.14 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=1 HYD NO=440.1 SUM IDS 1 2
ID=1 CODE=1
ID=2 HYD NO=440.0 AREA=0.0483 SQ MI
PER A=0 PER B=30 PER C=15 PER D=55
TP=0.14 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=1 HYD NO=440.1 SUM IDS 1 2
ID=1 CODE=1

PRINT HYD
ADD HYD
PRINT HYD
COMPUTE NM HYD
ID=1 HYD NO=510.0 AREA=0.0259 SQ MI
PER A=0 PER B=23 PER C=11 PER D=66
TP=0.13 HR MASS RAINFALL=-1
ID=1 CODE=1
ID=2 HYD NO=520.0 AREA=0.1217 SQ MI
PER A=0 PER B=32 PER C=16 PER D=52
TP=0.20 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=1 HYD NO=520.1 SUM IDS 1 2
ID=1 CODE=1
ID=2 HYD NO=530.0 AREA=0.0505 SQ MI
PER A=0 PER B=30 PER C=15 PER D=55
TP=0.20 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=1 HYD NO=530.1 SUM IDS 1 2
ID=1 CODE=1
ID=2 HYD NO=600.0 AREA=0.1347 SQ MI

PRINT HYD
ADD HYD
PRINT HYD
ADD HYD
PRINT HYD
COMPUTE NM HYD
ID=1 HYD NO=510.0 AREA=0.0259 SQ MI
PER A=0 PER B=23 PER C=11 PER D=66
TP=0.13 HR MASS RAINFALL=-1
ID=1 CODE=1
ID=2 HYD NO=520.0 AREA=0.1217 SQ MI
PER A=0 PER B=32 PER C=16 PER D=52
TP=0.20 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=1 HYD NO=520.1 SUM IDS 1 2
ID=1 CODE=1
ID=2 HYD NO=530.0 AREA=0.0505 SQ MI
PER A=0 PER B=30 PER C=15 PER D=55
TP=0.20 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=1 HYD NO=530.1 SUM IDS 1 2
ID=1 CODE=1
ID=2 HYD NO=600.0 AREA=0.1347 SQ MI

PRINT HYD
ADD HYD
PRINT HYD
COMPUTE NM HYD
ID=1 HYD NO=510.0 AREA=0.0259 SQ MI
PER A=0 PER B=23 PER C=11 PER D=66
TP=0.13 HR MASS RAINFALL=-1
ID=1 CODE=1
ID=2 HYD NO=520.0 AREA=0.1217 SQ MI
PER A=0 PER B=32 PER C=16 PER D=52
TP=0.20 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=1 HYD NO=520.1 SUM IDS 1 2
ID=1 CODE=1
ID=2 HYD NO=530.0 AREA=0.0505 SQ MI
PER A=0 PER B=30 PER C=15 PER D=55
TP=0.20 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=1 HYD NO=530.1 SUM IDS 1 2
ID=1 CODE=1
ID=2 HYD NO=600.0 AREA=0.1347 SQ MI

PRINT HYD
ADD HYD
PRINT HYD
COMPUTE NM HYD
ID=1 HYD NO=510.0 AREA=0.0259 SQ MI
PER A=0 PER B=23 PER C=11 PER D=66
TP=0.13 HR MASS RAINFALL=-1
ID=1 CODE=1
ID=2 HYD NO=520.0 AREA=0.1217 SQ MI
PER A=0 PER B=32 PER C=16 PER D=52
TP=0.20 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=1 HYD NO=520.1 SUM IDS 1 2
ID=1 CODE=1
ID=2 HYD NO=530.0 AREA=0.0505 SQ MI
PER A=0 PER B=30 PER C=15 PER D=55
TP=0.20 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=1 HYD NO=530.1 SUM IDS 1 2
ID=1 CODE=1
ID=2 HYD NO=600.0 AREA=0.1347 SQ MI

PRINT HYD
ADD HYD
PRINT HYD
COMPUTE NM HYD
ID=1 HYD NO=510.0 AREA=0.0259 SQ MI
PER A=0 PER B=23 PER C=11 PER D=66
TP=0.13 HR MASS RAINFALL=-1
ID=1 CODE=1
ID=2 HYD NO=520.0 AREA=0.1217 SQ MI
PER A=0 PER B=32 PER C=16 PER D=52
TP=0.20 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=1 HYD NO=520.1 SUM IDS 1 2
ID=1 CODE=1
ID=2 HYD NO=530.0 AREA=0.0505 SQ MI
PER A=0 PER B=30 PER C=15 PER D=55
TP=0.20 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=1 HYD NO=530.1 SUM IDS 1 2
ID=1 CODE=1
ID=2 HYD NO=600.0 AREA=0.1347 SQ MI

ID=2 HYD NO=600.0 AREA=0.1347 SQ MI

PRINT HYD
ADD HYD
PRINT HYD
FINISH

PER A=0 PER B=33 PER C=17 PER D=50
TP=0.20 HR MASS RAINFALL=-1
ID=2 CODE=1
ID=1 HYD NO=600.1 SUM IDS 1 2
ID=1 CODE=1

AHYMO Detailed Output

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 05/23/2000
START TIME (HR:MIN:SEC) = 16:03:29 USER NO. = M_GOODWIN.101
INPUT FILE = aren99.dat

START TIME=0.0
***** ARENAL CANAL BETWEEN RIO GRANDE RIVER AND RIO BRAVO ROAD FOR
***** PUÑO DE TIERRA ESTATES SUBDIVISION
***** 100-YEAR 6-HOUR STORM EVENT
***** MARCH 6, 2000
RAINFALL

TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.92 IN RAIN SIX=2.25 IN
RAIN DAY=2.65 IN DT=0.0333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.

DT =	.033300 HOURS	END TIME =	5.994000 HOURS
.0000	.0016	.0032	.0049
.0118	.0137	.0156	.0175
.0259	.0281	.0304	.0328
.0432	.0460	.0489	.0520
.0658	.0697	.0739	.0791
.1320	.1762	.2399	.3268
.9911	1.2043	1.2918	1.3654
1.5957	1.6431	1.6876	1.7294
1.8749	1.9066	1.9367	1.9653
2.0112	2.0165	2.0215	2.0264
2.0439	2.0479	2.0518	2.0556
2.0697	2.0729	2.0762	2.0793
2.0912	2.0940	2.0967	2.0994
2.1098	2.1122	2.1147	2.1171
2.1263	2.1285	2.1307	2.1328
2.1411	2.1432	2.1451	2.1471
2.1547	2.1566	2.1584	2.1602
2.1673	2.1690	2.1707	2.1724
2.1789	2.1805	2.1821	2.1837
2.1898	2.1913	2.1928	2.1943
2.2001	2.2015	2.2029	2.2043
2.2098	2.2112	2.2125	2.2138
2.2190	2.2203	2.2216	2.2229
2.2278	2.2290	2.2303	2.2315
2.2362	2.2374	2.2385	2.2397
2.2443	2.2454	2.2465	2.2476

COMPUTE NM HYD ID=3 HYD NO=903.0 AREA=0.01345 SQ MI
PER A=0 PER B=25 PER C=25 PER D=50
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 26.551 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.9200
AREA = .006725 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118716HR TP = .133300HR K/TP RATIO = .890595 SHAPE CONSTANT, N = 3.982164
UNIT PEAK = 17.858 CFS UNIT VOLUME = .9997 B = 353.98 P60 = 1.9200
AREA = .006725 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 903.00

RUNOFF VOLUME = 1.43653 INCHES = 1.0305 ACRE-FEET
PEAK DISCHARGE RATE = 30.20 CFS AT 1.499 HOURS BASIN AREA = .0135 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=5.0 FT SLOPE=.0005
FRICTION SLOPE=.0005 'n'=.013 LAST STA=25

DIST	ELEV
0	5
10	0
15	0
25	5

RATING CURVE VALLEY SECTION 4.0				
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT	
.00	.00	.00	.00	
.26	1.45	1.42	6.05	
.53	3.19	4.66	7.11	
.79	5.19	9.54	8.16	
1.05	7.48	16.07	9.21	
1.32	10.04	24.32	10.26	
1.58	12.88	34.40	11.32	
1.84	16.00	46.39	12.37	
2.11	19.39	60.40	13.42	
2.37	23.06	76.52	14.47	
2.63	27.01	94.85	15.53	
2.89	31.23	115.51	16.58	
3.16	35.73	138.57	17.63	
3.42	40.51	164.14	18.68	
3.68	45.57	192.32	19.74	
3.95	50.90	223.19	20.79	
4.21	56.51	256.85	21.84	
4.47	62.40	293.39	22.89	
4.74	68.56	332.90	23.95	
5.00	75.00	375.47	25.00	

COMPUTE TRAVEL TIME ID=1 REACH NO=1 NO VS=1 L=2875 FT SLP=.0005

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.263	1.454	1.42	.8194
.526	3.186	4.66	.5457
.789	5.194	9.54	.4349
1.053	7.479	16.07	.3718
1.316	10.042	24.32	.3297
1.579	12.881	34.40	.2990
1.842	15.997	46.39	.2754
2.105	19.391	60.40	.2564
2.368	23.061	76.52	.2407
2.632	27.008	94.85	.2274
2.895	31.233	115.51	.2159
3.158	35.734	138.57	.2059
3.421	40.512	164.14	.1971
3.684	45.568	192.32	.1892
3.947	50.900	223.19	.1821
4.211	56.510	256.85	.1757
4.474	62.396	293.39	.1698
4.737	68.560	332.90	.1645
5.000	75.000	375.47	.1595

ROUTE
ID=1 HYD NO=903.2 INFLOW ID=3 DT=0 HR
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 903.20

RUNOFF VOLUME = 1.43655 INCHES = 1.0305 ACRE-FEET
PEAK DISCHARGE RATE = 13.30 CFS AT 1.598 HOURS BASIN AREA = .0135 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=770.0 AREA=0.06322 SQ MI
PER A=15 PER B=45 PER C=25 PER D=15
TP=0.1333 HR MASS RAINFALL=-1

K = .072659HR TP = .133300HR K/TP RATIO = .545081 SHAPE CONSTANT, N = 7.105075
UNIT PEAK = 37.435 CFS UNIT VOLUME = .9991 B = 526.21 P60 = 1.9200
AREA = .009483 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .129282HR TP = .133300HR K/TP RATIO = .969859 SHAPE CONSTANT, N = 3.642056
UNIT PEAK = 133.26 CFS UNIT VOLUME = 1.000 B = 330.55 P60 = 1.9200
AREA = .053737 SQ MI IA = .48235 INCHES INF = 1.20059 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 770.00

RUNOFF VOLUME = .93013 INCHES = 3.1361 ACRE-FEET
PEAK DISCHARGE RATE = 102.54 CFS AT 1.499 HOURS BASIN AREA = .0632 SQ. MI.

ADD HYD ID=3 HYD NO=770.1 ID=1 & 2
PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 770.10

RUNOFF VOLUME = 1.01895 INCHES = 4.1665 ACRE-FEET
PEAK DISCHARGE RATE = 112.89 CFS AT 1.532 HOURS BASIN AREA = .0767 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=5.0 FT SLOPE=.0005
FRICTION SLOPE=.0005 'n'=.013 LAST STA=25

DIST	ELEV
0	5
10	0
15	0
25	5

RATING CURVE VALLEY SECTION 4.0				
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT	
.00	.00	.00	.00	
.26	1.45	1.42	6.05	
.53	3.19	4.66	7.11	
.79	5.19	9.54	8.16	
1.05	7.48	16.07	9.21	
1.32	10.04	24.32	10.26	
1.58	12.88	34.40	11.32	
1.84	16.00	46.39	12.37	
2.11	19.39	60.40	13.42	
2.37	23.06	76.52	14.47	
2.63	27.01	94.85	15.53	
2.89	31.23	115.51	16.58	
3.16	35.73	138.57	17.63	
3.42	40.51	164.14	18.68	
3.68	45.57	192.32	19.74	
3.95	50.90	223.19	20.79	
4.21	56.51	256.85	21.84	
4.47	62.40	293.39	22.89	
4.74	68.56	332.90	23.95	
5.00	75.00	375.47	25.00	

COMPUTE TRAVEL TIME ID=1 REACH NO=1 NO VS=1 L=2250 FT SLP=.0005

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.263	1.454	1.42	.6413
.526	3.186	4.66	.4271
.789	5.194	9.54	.3404
1.053	7.479	16.07	.2910
1.316	10.042	24.32	.2580
1.579	12.881	34.40	.2340
1.842	15.997	46.39	.2155
2.105	19.391	60.40	.2007
2.368	23.061	76.52	.1884
2.632	27.008	94.85	.1780
2.895	31.233	115.51	.1690
3.158	35.734	138.57	.1612
3.421	40.512	164.14	.1543
3.684	45.568	192.32	.1481
3.947	50.900	223.19	.1425
4.211	56.510	256.85	.1375
4.474	62.396	293.39	.1329
4.737	68.560	332.90	.1287
5.000	75.000	375.47	.1248

ROUTE
ID=1 HYD NO=770.2 INFLOW ID=3 DT=0 HR
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 770.20

RUNOFF VOLUME = 1.01896 INCHES = 4.1666 ACRE-FEET
PEAK DISCHARGE RATE = 72.03 CFS AT 1.598 HOURS BASIN AREA = .0767 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=760.0 AREA=0.07891 SQ MI
PER A=40 PER B=5 PER C=40 PER D=15
TP=0.1333 HR MASS RAINFALL=-1

K = .072895HR TP = .133300HR K/TP RATIO = .546848 SHAPE CONSTANT, N = 7.075690
UNIT PEAK = 46.603 CFS UNIT VOLUME = .9991 B = 524.83 P60 = 1.9200
AREA = .011837 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .133153HR TP = .133300HR K/TP RATIO = .998894 SHAPE CONSTANT, N = 3.534255
UNIT PEAK = 162.44 CFS UNIT VOLUME = 1.000 B = 322.82 P60 = 1.9200
AREA = .067074 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 760.00

RUNOFF VOLUME = .90162 INCHES = 3.7945 ACRE-FEET
PEAK DISCHARGE RATE = 123.43 CFS AT 1.499 HOURS BASIN AREA = .0789 SQ. MI.

ADD HYD ID=3 HYD NO=760.1 ID=1 & 2
PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 760.10

RUNOFF VOLUME = .95944 INCHES = 7.9610 ACRE-FEET
PEAK DISCHARGE RATE = 186.47 CFS AT 1.532 HOURS BASIN AREA = .1556 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=5.0 FT SLOPE=.00045
FRICTION SLOPE=.00045 'n'=.013 LAST STA=25

DIST ELEV
0 5
10 0
15 0
25 5

RATING CURVE VALLEY SECTION 4.0				
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT	
.00	.00	.00	.00	
.26	1.45	1.34	6.05	
.53	3.19	4.42	7.11	
.79	5.19	9.05	8.16	
1.05	7.48	15.24	9.21	
1.32	10.04	23.08	10.26	
1.58	12.88	32.63	11.32	
1.84	16.00	44.01	12.37	
2.11	19.39	57.30	13.42	
2.37	23.06	72.59	14.47	
2.63	27.01	89.99	15.53	
2.89	31.23	109.58	16.58	
3.16	35.73	131.46	17.63	
3.42	40.51	155.72	18.68	
3.68	45.57	182.45	19.74	
3.95	50.90	211.74	20.79	
4.21	56.51	243.67	21.84	
4.47	62.40	278.34	22.89	
4.74	68.56	315.82	23.95	
5.00	75.00	356.21	25.00	

COMPUTE TRAVEL TIME ID=1 REACH NO=1 NO VS=1 L=2250 FT SLP=.00045

TRAVEL TIME TABLE
REACH= 1.0

ROUTE	WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
	.263	1.454	1.34	.6760
	.526	3.186	4.42	.4502
	.789	5.194	9.05	.3588
	1.053	7.479	15.24	.3067
	1.316	10.042	23.08	.2720
	1.579	12.881	32.63	.2467
	1.842	15.997	44.01	.2272
	2.105	19.391	57.30	.2115
	2.368	23.061	72.59	.1986
	2.632	27.008	89.99	.1876
	2.895	31.233	109.58	.1781
	3.158	35.734	131.46	.1699
	3.421	40.512	155.72	.1626
	3.684	45.568	182.45	.1561
	3.947	50.900	211.74	.1502
	4.211	56.510	243.67	.1449
	4.474	62.396	278.34	.1401
	4.737	68.560	315.82	.1357
	5.000	75.000	356.21	.1316

ROUTE ID=1 HYD NO=760.2 INFLOW ID=3 DT=0 HR
 PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 760.20

RUNOFF VOLUME = .95944 INCHES = 7.9610 ACRE-Feet
 PEAK DISCHARGE RATE = 127.21 CFS AT 1.598 HOURS BASIN AREA = .1556 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=730.0 AREA=0.01794 SQ MI
 PER A=0 PER B=25 PER C=25 PER D=50
 TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 35.414 CFS UNIT VOLUME = .9990 B = 526.28 P60 = 1.9200
 AREA = .008970 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118716HR TP = .133300HR K/TP RATIO = .890595 SHAPE CONSTANT, N = 3.982164
 UNIT PEAK = 23.820 CFS UNIT VOLUME = .9999 B = 353.98 P60 = 1.9200
 AREA = .008970 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 730.00

RUNOFF VOLUME = 1.43653 INCHES = 1.3745 ACRE-FEET
PEAK DISCHARGE RATE = 40.28 CFS AT 1.499 HOURS BASIN AREA = .0179 SQ. MI.

COMPUTE NM HYD

ID=3 HYD NO=780.0 AREA=0.03273 SQ MI
PER A=15 PER B=15 PER C=50 PER D=20
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 25.844 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.9200
AREA = .006546 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .121536HR TP = .133300HR K/TP RATIO = .911751 SHAPE CONSTANT, N = 3.884075
UNIT PEAK = 68.233 CFS UNIT VOLUME = 1.000 B = 347.37 P60 = 1.9200
AREA = .026184 SQ MI IA = .43437 INCHES INF = 1.06625 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD

ID=3 CODE=1

HYDROGRAPH FROM AREA 780.00

RUNOFF VOLUME = 1.07281 INCHES = 1.8727 ACRE-FEET
PEAK DISCHARGE RATE = 60.02 CFS AT 1.499 HOURS BASIN AREA = .0327 SQ. MI.

ADD HYD ID=2 HYD NO=730.1 ID=2 & 3
PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 730.10

RUNOFF VOLUME = 1.20158 INCHES = 3.2471 ACRE-FEET
PEAK DISCHARGE RATE = 100.31 CFS AT 1.499 HOURS BASIN AREA = .0507 SQ. MI.

ADD HYD ID=3 HYD NO=780.1 ID=1 & 2
PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 780.10

RUNOFF VOLUME = 1.01892 INCHES = 11.2081 ACRE-FEET
PEAK DISCHARGE RATE = 209.06 CFS AT 1.565 HOURS BASIN AREA = .2063 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=5.0 FT SLOPE=.0003
FRICTION SLOPE=.0003 'n'=.013 LAST STA=25

DIST	ELEV
0	5
10	0
15	0
25	5

RATING CURVE VALLEY SECTION 4.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.26	1.45	1.10	6.05
.53	3.19	3.61	7.11
.79	5.19	7.39	8.16
1.05	7.48	12.44	9.21
1.32	10.04	18.84	10.26
1.58	12.88	26.65	11.32
1.84	16.00	35.93	12.37
2.11	19.39	46.78	13.42
2.37	23.06	59.27	14.47
2.63	27.01	73.47	15.53
2.89	31.23	89.47	16.58
3.16	35.73	107.34	17.63
3.42	40.51	127.14	18.68
3.68	45.57	148.97	19.74
3.95	50.90	172.88	20.79
4.21	56.51	198.96	21.84
4.47	62.40	227.26	22.89
4.74	68.56	257.87	23.95
5.00	75.00	290.84	25.00

COMPUTE TRAVEL TIME ID=1 REACH NO=1 NO VS=1 L=2750 FT SLP=.0003

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.263	1.454	1.10	1.0119
.526	3.186	3.61	.6739
.789	5.194	7.39	.5371
1.053	7.479	12.44	.4591
1.316	10.042	18.84	.4071
1.579	12.881	26.65	.3693
1.842	15.997	35.93	.3401
2.105	19.391	46.78	.3166
2.368	23.061	59.27	.2972
2.632	27.008	73.47	.2808
2.895	31.233	89.47	.2667
3.158	35.734	107.34	.2543

ROUTE
PRINT HYD ID=1 HYD NO=780.2 INFLOW ID=3 DT=0 HR
ID=1 CODE=1

3.421	40.512	127.14	.2434
3.684	45.568	148.97	.2337
3.947	50.900	172.88	.2249
4.211	56.510	198.96	.2170
4.474	62.396	227.26	.2097
4.737	68.560	257.87	.2031
5.000	75.000	290.84	.1970

HYDROGRAPH FROM AREA 780.20

RUNOFF VOLUME = 1.01892 INCHES = 11.2081 ACRE-FEET
PEAK DISCHARGE RATE = 135.41 CFS AT 1.665 HOURS BASIN AREA = .2063 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=902.0 AREA=0.05156 SQ MI
PER A=0 PER B=10 PER C=50 PER D=40
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 81.425 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 1.9200
AREA = .020624 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .110526HR TP = .133300HR K/TP RATIO = .829152 SHAPE CONSTANT, N = 4.303392
UNIT PEAK = 87.010 CFS UNIT VOLUME = 1.000 B = 374.92 P60 = 1.9200
AREA = .030936 SQ MI IA = .37500 INCHES INF = .90000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 902.00

RUNOFF VOLUME = 1.39119 INCHES = 3.8256 ACRE-FEET
PEAK DISCHARGE RATE = 114.93 CFS AT 1.499 HOURS BASIN AREA = .0516 SQ. MI.

ADD HYD ID=3 HYD NO=902.1 ID=1 & 2
PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 902.10

RUNOFF VOLUME = 1.09337 INCHES = 15.0335 ACRE-FEET
PEAK DISCHARGE RATE = 216.45 CFS AT 1.565 HOURS BASIN AREA = .2578 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=8.0 FT SLOPE=.0003
FRICTION SLOPE=.0003 'n'=.013 LAST STA=37

DIST	ELEV
0	8
16	0
21	0
37	8

RATING CURVE VALLEY SECTION 4.0						
WATER SURFACE ELEV		FLOW AREA SQ FT		FLOW RATE CFS		TOP WIDTH FT
.00	.00	.00	.00	.00	.00	.00
.42	2.46	2.46	2.45	2.45	6.68	
.84	5.63	5.63	8.29	8.29	8.37	
1.26	9.51	9.51	17.45	17.45	10.05	
1.68	14.09	14.09	30.18	30.18	11.74	
2.11	19.39	19.39	46.78	46.78	13.42	
2.53	25.40	25.40	67.58	67.58	15.11	
2.95	32.11	32.11	92.89	92.89	16.79	
3.37	39.53	39.53	123.02	123.02	18.47	
3.79	47.67	47.67	158.28	158.28	20.16	
4.21	56.51	56.51	198.96	198.96	21.84	
4.63	66.06	66.06	245.34	245.34	23.53	
5.05	76.32	76.32	297.73	297.73	25.21	
5.47	87.29	87.29	356.38	356.38	26.89	
5.89	98.97	98.97	421.57	421.57	28.58	
6.32	111.36	111.36	493.57	493.57	30.26	
6.74	124.45	124.45	572.64	572.64	31.95	
7.16	138.26	138.26	659.04	659.04	33.63	
7.58	152.78	152.78	753.02	753.02	35.32	
8.00	168.00	168.00	854.82	854.82	37.00	

COMPUTE TRAVEL TIME ID=1 REACH NO=1 NO VS=1 L=1213 FT SLP=.0003

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.421	2.460	2.45	.3379
.842	5.629	8.29	.2287
1.263	9.507	17.45	.1836
1.684	14.094	30.18	.1574
2.105	19.391	46.78	.1397
2.526	25.396	67.58	.1266
2.947	32.111	92.89	.1165
3.368	39.535	123.02	.1083
3.789	47.668	158.28	.1015
4.211	56.510	198.96	.0957
4.632	66.061	245.34	.0907

[illegible]

[illegible]

PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 162 RATE = 6.71
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 163 RATE = 6.60
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 165 RATE = 6.75
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 166 RATE = 6.62
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 167 RATE = 6.49
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 168 RATE = 6.37
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 169 RATE = 6.25
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 170 RATE = 6.13
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 171 RATE = 6.01
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 172 RATE = 5.90
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 173 RATE = 5.79
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 174 RATE = 5.68
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 175 RATE = 5.57
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 176 RATE = 5.47
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 177 RATE = 5.37
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 178 RATE = 5.27
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 179 RATE = 5.17
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 180 RATE = 5.08
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 181 RATE = 4.99
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 182 RATE = 4.90
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 183 RATE = 4.81
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 184 RATE = 4.73
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 185 RATE = 4.64
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 186 RATE = 4.55
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 187 RATE = 4.46
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 188 RATE = 4.37
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 189 RATE = 4.28
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 190 RATE = 4.19
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 191 RATE = 4.10
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 192 RATE = 4.02
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 194 RATE = 2.99
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 195 RATE = 2.95
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 197 RATE = 2.87
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 198 RATE = 2.84
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 199 RATE = 2.80
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 200 RATE = 2.76
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 201 RATE = 2.73
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 202 RATE = 2.69
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 204 RATE = 2.74
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 205 RATE = 2.70
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 207 RATE = 1.75
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 227 RATE = 2.43
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 903.20

RUNOFF VOLUME = 1.09337 INCHES = 15.0336 ACRE-FEET
PEAK DISCHARGE RATE = 182.41 CFS AT 1.632 HOURS BASIN AREA = .2578 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=903.0 AREA=0.0466 SQ MI
PER A=0 PER B=41 PER C=21 PER D=38
TP=0.15 HR MASS RAINFALL=-1

K = .081750HR TP = .150000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 62.129 CFS UNIT VOLUME = .9999 B = 526.28 P60 = 1.9200
AREA = .017708 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .138049HR TP = .150000HR K/TP RATIO = .920326 SHAPE CONSTANT, N = 3.845939
UNIT PEAK = 66.406 CFS UNIT VOLUME = 1.000 B = 344.76 P60 = 1.9200
AREA = .028892 SQ MI IA = .44919 INCHES INF = 1.10774 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 903.00

RUNOFF VOLUME = 1.26546 INCHES = 3.1451 ACRE-FEET
PEAK DISCHARGE RATE = 89.17 CFS AT 1.532 HOURS BASIN AREA = .0466 SQ. MI.

ADD HYD ID=3 HYD NO=903.1 SUM IDS 1 2
PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 903.10

RUNOFF VOLUME = 1.11971 INCHES = 18.1786 ACRE-FEET
PEAK DISCHARGE RATE = 257.96 CFS AT 1.565 HOURS BASIN AREA = .3044 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=8.0 FT SLOPE=.0003
FRICTION SLOPE=.0003 'n'=.013 LAST STA=37

DIST	ELEV
0	8
16	0
21	0
37	8

RATING CURVE VALLEY SECTION 4.0				
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT	
.00	.00	.00	.00	
.42	2.46	2.45	6.68	
.84	5.63	8.29	8.37	
1.26	9.51	17.45	10.05	

1.68 14.09 30.18 11.74
2.11 19.39 46.78 13.42
2.53 25.40 67.58 15.11
2.95 32.11 92.89 16.79
3.37 39.53 123.02 18.47
3.79 47.67 158.28 20.16
4.21 56.51 198.96 21.84
4.63 66.06 245.34 23.53
5.05 76.32 297.73 25.21
5.47 87.29 356.38 26.89
5.89 98.97 421.57 28.58
6.32 111.36 493.57 30.26
6.74 124.45 572.64 31.95
7.16 138.26 659.04 33.63
7.58 152.78 753.02 35.32
8.00 168.00 854.82 37.00

COMPUTE TRAVEL TIME ID=1 REACH NO=1 NO VS=1 L=1100 FT SLP=.0003

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.421	2.460	2.45	.3065
.842	5.629	8.29	.2074
1.263	9.507	17.45	.1665
1.684	14.094	30.18	.1427
2.105	19.391	46.78	.1266
2.526	25.396	67.58	.1148
2.947	32.111	92.89	.1056
3.368	39.535	123.02	.0982
3.789	47.668	158.28	.0920
4.211	56.510	198.96	.0868
4.632	66.061	245.34	.0823
5.053	76.321	297.73	.0783
5.474	87.291	356.38	.0748
5.895	98.970	421.57	.0717
6.316	111.357	493.57	.0689
6.737	124.454	572.64	.0664
7.158	138.260	659.04	.0641
7.579	152.776	753.02	.0620
8.000	168.000	854.82	.0601

ROUTE ID=1 HYD NO=904.3 INFLOW ID=3 DT=0 HR

PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 54 RATE = 202.30

PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 56 RATE = 110.41

PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 57 RATE = 115.63

PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 59 RATE = 104.68

PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 60 RATE = 105.26

PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 61 RATE = 106.14

PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 62 RATE = 107.11

PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 63 RATE = 107.96

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 367 RATE = .85
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 368 RATE = .83
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 370 RATE = .39
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 372 RATE = .62
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 904.30

RUNOFF VOLUME = 1.11971 INCHES = 18.1786 ACRE-FEET
PEAK DISCHARGE RATE = 221.63 CFS AT 1.632 HOURS BASIN AREA = .3044 SQ. MI.

COMPUTE NM HYD

ID=3 HYD NO=110.0 AREA=0.0288 SQ MI
PER A=0 PER B=13 PER C=7 PER D=80
TP=0.19 HR MASS RAINFALL=-1

K = .103550HR TP = .190000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 63.818 CFS UNIT VOLUME = .9999 B = 526.28 P60 = 1.9200
AREA = .023040 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .174466HR TP = .190000HR K/TP RATIO = .918245 SHAPE CONSTANT, N = 3.855113
UNIT PEAK = 10.471 CFS UNIT VOLUME = .9988 B = 345.39 P60 = 1.9200
AREA = .005760 SQ MI IA = .44750 INCHES INF = 1.10300 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD

ID=3 CODE=1

PARTIAL HYDROGRAPH 110.00

RUNOFF VOLUME = 1.77433 INCHES = 2.7254 ACRE-FEET
PEAK DISCHARGE RATE = 63.19 CFS AT 1.565 HOURS BASIN AREA = .0288 SQ. MI.

COMPUTE NM HYD

ID=2 HYD NO=120.0 AREA=0.1506 SQ MI
PER A=0 PER B=13 PER C=7 PER D=80
TP=0.25 HR MASS RAINFALL=-1

K = .138730HR TP = .250000HR K/TP RATIO = .554922 SHAPE CONSTANT, N = 6.944435
UNIT PEAK = 249.93 CFS UNIT VOLUME = .9999 B = 518.62 P60 = 1.9200
AREA = .120480 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .223242HR TP = .250000HR K/TP RATIO = .892967 SHAPE CONSTANT, N = 3.970875
UNIT PEAK = 42.556 CFS UNIT VOLUME = .9997 B = 353.22 P60 = 1.9200

AREA = .030120 SQ MI IA = .44750 INCHES INF = 1.10300 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 120.00

RUNOFF VOLUME = 1.77433 INCHES = 14.2513 ACRE-FEET
PEAK DISCHARGE RATE = 282.14 CFS AT 1.632 HOURS BASIN AREA = .1506 SQ. MI.

ADD HYD ID=3 HYD NO=120.1 SUM IDS 2 3
PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 120.10

RUNOFF VOLUME = 1.77433 INCHES = 16.9767 ACRE-FEET
PEAK DISCHARGE RATE = 338.79 CFS AT 1.598 HOURS BASIN AREA = .1794 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=130.0 AREA=0.0573 SQ MI
PER A=0 PER B=18 PER C=9 PER D=73
TP=0.15 HR MASS RAINFALL=-1

K = .081750HR TP = .150000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 146.76 CFS UNIT VOLUME = 1.000 B = 526.28 P60 = 1.9200
AREA = .041829 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .138198HR TP = .150000HR K/TP RATIO = .921317 SHAPE CONSTANT, N = 3.841587
UNIT PEAK = 35.528 CFS UNIT VOLUME = .9999 B = 344.47 P60 = 1.9200
AREA = .015471 SQ MI IA = .45000 INCHES INF = 1.11000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 130.00

RUNOFF VOLUME = 1.68845 INCHES = 5.1599 ACRE-FEET
PEAK DISCHARGE RATE = 135.40 CFS AT 1.532 HOURS BASIN AREA = .0573 SQ. MI.

ADD HYD ID=3 HYD NO=130.1 SUM IDS 2 3
PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 130.10

RUNOFF VOLUME = 1.75354 INCHES = 22.1365 ACRE-FEET
 PEAK DISCHARGE RATE = 447.69 CFS AT 1.565 HOURS BASIN AREA = .2367 SQ. MI.

COMPUTE NM HYD

ID=2 HYD NO=140.0 AREA=0.0331 SQ MI
 PER A=0 PER B=53 PER C=27 PER D=20
 TP=0.13 HR MASS RAINFALL=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 26.800 CFS UNIT VOLUME = .9996 B = 526.28 P60 = 1.9200
 AREA = .006620 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .119671HR TP = .130000HR K/TP RATIO = .920549 SHAPE CONSTANT, N = 3.844956
 UNIT PEAK = 70.212 CFS UNIT VOLUME = 1.000 B = 344.70 P60 = 1.9200
 AREA = .026480 SQ MI IA = .44938 INCHES INF = 1.10825 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD

ID=2 CODE=1

PARTIAL HYDROGRAPH 140.00

RUNOFF VOLUME = 1.04737 INCHES = 1.8490 ACRE-FEET
 PEAK DISCHARGE RATE = 60.68 CFS AT 1.499 HOURS BASIN AREA = .0331 SQ. MI.

ADD HYD
 PRINT HYD

ID=3 HYD NO=140.1 SUM IDS 2 3
 ID=3 CODE=1

PARTIAL HYDROGRAPH 140.10

RUNOFF VOLUME = 1.66690 INCHES = 23.9855 ACRE-FEET
 PEAK DISCHARGE RATE = 500.16 CFS AT 1.565 HOURS BASIN AREA = .2698 SQ. MI.

COMPUTE NM HYD

ID=2 HYD NO=904.0 AREA=0.0153 SQ MI
 PER A=0 PER B=41 PER C=21 PER D=38
 TP=0.13 HR MASS RAINFALL=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 23.537 CFS UNIT VOLUME = .9995 B = 526.28 P60 = 1.9200
 AREA = .005814 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .119642HR TP = .130000HR K/TP RATIO = .920326 SHAPE CONSTANT, N = 3.845939
UNIT PEAK = 25.157 CFS UNIT VOLUME = 1.000 B = 344.76 P60 = 1.9200
AREA = .009486 SQ MI IA = .44919 INCHES INF = 1.10774 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 904.00

RUNOFF VOLUME = 1.26546 INCHES = 1.0326 ACRE-FEET
PEAK DISCHARGE RATE = 31.75 CFS AT 1.499 HOURS BASIN AREA = .0153 SQ. MI.

ADD HYD ID=3 HYD NO=904.1 SUM IDS 1 2
PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 904.10

RUNOFF VOLUME = 1.12668 INCHES = 19.2112 ACRE-FEET
PEAK DISCHARGE RATE = 244.03 CFS AT 1.598 HOURS BASIN AREA = .3197 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=8.0 FT SLOPE=.0003
FRICTION SLOPE=.0003 'n'=.013 LAST STA=37

DIST	ELEV
0	8
16	0
21	0
37	8

RATING CURVE VALLEY SECTION 4.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.42	2.46	2.45	6.68
.84	5.63	8.29	8.37
1.26	9.51	17.45	10.05
1.68	14.09	30.18	11.74
2.11	19.39	46.78	13.42
2.53	25.40	67.58	15.11
2.95	32.11	92.89	16.79
3.37	39.53	123.02	18.47
3.79	47.67	158.28	20.16
4.21	56.51	198.96	21.84
4.63	66.06	245.34	23.53
5.05	76.32	297.73	25.21

5.47	87.29	356.38	26.89
5.89	98.97	421.57	28.58
6.32	111.36	493.57	30.26
6.74	124.45	572.64	31.95
7.16	138.26	659.04	33.63
7.58	152.78	753.02	35.32
8.00	168.00	854.82	37.00

COMPUTE TRAVEL TIME ID=1 REACH NO=1 NO VS=1 L=1870 FT SLP=.0003

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.421	2.460	2.45	.5210
.842	5.629	8.29	.3525
1.263	9.507	17.45	.2830
1.684	14.094	30.18	.2426
2.105	19.391	46.78	.2153
2.526	25.396	67.58	.1952
2.947	32.111	92.89	.1796
3.368	39.535	123.02	.1669
3.789	47.668	158.28	.1564
4.211	56.510	198.96	.1475
4.632	66.061	245.34	.1399
5.053	76.321	297.73	.1332
5.474	87.291	356.38	.1272
5.895	98.970	421.57	.1219
6.316	111.357	493.57	.1172
6.737	124.454	572.64	.1129
7.158	138.260	659.04	.1090
7.579	152.776	753.02	.1054
8.000	168.000	854.82	.1021

ROUTE ID=1 HYD NO=905.2 INFLOW ID=3 DT=0 HR

PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	55	RATE =	183.01
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	57	RATE =	65.86
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	58	RATE =	70.32
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	59	RATE =	73.86
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	61	RATE =	25.42
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	62	RATE =	27.66
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	63	RATE =	29.85
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	65	RATE =	119.43
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	66	RATE =	118.17
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	67	RATE =	116.78
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	68	RATE =	115.29
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	69	RATE =	113.71
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	70	RATE =	111.96
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	72	RATE =	78.77
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	73	RATE =	78.89
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	74	RATE =	78.65
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED.	OUTFLOW NUMBER =	75	RATE =	78.21

[illegible]

[illegible]

PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 195 RATE = 14.40
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 196 RATE = 14.19
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 197 RATE = 13.98
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 198 RATE = 13.77
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 200 RATE = 14.07
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 201 RATE = 13.83
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 202 RATE = 13.60
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 204 RATE = 10.75
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 206 RATE = 11.60
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 207 RATE = 11.44
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 208 RATE = 11.29
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 209 RATE = 11.05
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 210 RATE = 10.75
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 212 RATE = 6.41
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 214 RATE = 5.36
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 216 RATE = 8.49
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 218 RATE = 6.21
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 219 RATE = 6.12
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 220 RATE = 6.03
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 222 RATE = 6.67
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 223 RATE = 6.56
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 224 RATE = 6.45
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 225 RATE = 6.34
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 227 RATE = 6.23
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 228 RATE = 6.13
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 229 RATE = 6.03
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 230 RATE = 5.94
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 232 RATE = 6.06
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 234 RATE = 3.34
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 236 RATE = 5.61
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 238 RATE = 3.98
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 239 RATE = 3.95
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 241 RATE = 2.85
PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 243 RATE = 3.44
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 905.20

RUNOFF VOLUME = 1.12668 INCHES = 19.2112 ACRE-FEET
PEAK DISCHARGE RATE = 191.67 CFS AT 1.698 HOURS BASIN AREA = .3197 SQ. MI.

COMPUTE NM HYD ID=3 HYD NO=210.0 AREA=0.0250 SQ MI
PER A=0 PER B=34 PER C=18 PER D=48
TP=0.19 HR MASS RAINFALL=-1

K = .103550HR TP = .190000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 33.238 CFS UNIT VOLUME = .9998 B = 526.28 P60 = 1.9200
AREA = .012000 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .174601HR TP = .190000HR K/TP RATIO = .918954 SHAPE CONSTANT, N = 3.851978
UNIT PEAK = 23.617 CFS UNIT VOLUME = .9996 B = 345.18 P60 = 1.9200
AREA = .013000 SQ MI IA = .44808 INCHES INF = 1.10462 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 210.00

RUNOFF VOLUME = 1.38769 INCHES = 1.8502 ACRE-FEET
PEAK DISCHARGE RATE = 44.84 CFS AT 1.565 HOURS BASIN AREA = .0250 SQ. MI.

COMPUTE NM HYD

ID=2 HYD NO=211.0 AREA=0.0236 SQ MI
PER A=0 PER B=62 PER C=31 PER D=7
TP=0.22 HR MASS RAINFALL=-1

K = .119900HR TP = .220000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.9518 CFS UNIT VOLUME = .9971 B = 526.28 P60 = 1.9200
AREA = .001652 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .202690HR TP = .220000HR K/TP RATIO = .921317 SHAPE CONSTANT, N = 3.841587
UNIT PEAK = 34.365 CFS UNIT VOLUME = .9997 B = 344.47 P60 = 1.9200
AREA = .021948 SQ MI IA = .45000 INCHES INF = 1.11000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 211.00

RUNOFF VOLUME = .88879 INCHES = 1.1187 ACRE-FEET
PEAK DISCHARGE RATE = 27.02 CFS AT 1.598 HOURS BASIN AREA = .0236 SQ. MI.

ADD HYD ID=3 HYD NO=211.1 SUM IDS 2 3
PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 211.10

RUNOFF VOLUME = 1.14541 INCHES = 2.9689 ACRE-FEET
PEAK DISCHARGE RATE = 70.77 CFS AT 1.565 HOURS BASIN AREA = .0486 SQ. MI.

COMPUTE NM HYD

ID=2 HYD NO=212.0 AREA=0.0556 SQ MI
PER A=0 PER B=46 PER C=24 PER D=30
TP=0.17 HR MASS RAINFALL=-1

K = .092650HR TP = .170000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 51.637 CFS UNIT VOLUME = 1.000 B = 526.28 P60 = 1.9200
AREA = .016680 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .156325HR TP = .170000HR K/TP RATIO = .919561 SHAPE CONSTANT, N = 3.849309
UNIT PEAK = 78.983 CFS UNIT VOLUME = 1.000 B = 344.99 P60 = 1.9200
AREA = .038920 SQ MI IA = .44857 INCHES INF = 1.10600 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD

ID=2 CODE=1

PARTIAL HYDROGRAPH 212.00

RUNOFF VOLUME = 1.16960 INCHES = 3.4682 ACRE-FEET
PEAK DISCHARGE RATE = 92.70 CFS AT 1.532 HOURS BASIN AREA = .0556 SQ. MI.

ADD HYD
PRINT HYD

ID=3 HYD NO=212.1 SUM IDS 2 3
ID=3 CODE=1

PARTIAL HYDROGRAPH 212.10

RUNOFF VOLUME = 1.15832 INCHES = 6.4371 ACRE-FEET
PEAK DISCHARGE RATE = 163.08 CFS AT 1.565 HOURS BASIN AREA = .1042 SQ. MI.

COMPUTE NM HYD

ID=2 HYD NO=213.0 AREA=0.0288 SQ MI
PER A=0 PER B=33 PER C=17 PER D=50
TP=0.13 HR MASS RAINFALL=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 58.295 CFS UNIT VOLUME = .9998 B = 526.28 P60 = 1.9200
AREA = .014400 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .119611HR TP = .130000HR K/TP RATIO = .920088 SHAPE CONSTANT, N = 3.846988
UNIT PEAK = 38.197 CFS UNIT VOLUME = 1.000 B = 344.84 P60 = 1.9200
AREA = .014400 SQ MI IA = .44900 INCHES INF = 1.10720 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD

ID=2 CODE=1

PARTIAL HYDROGRAPH 213.00

RUNOFF VOLUME = 1.41085 INCHES = 2.1671 ACRE-FEET
PEAK DISCHARGE RATE = 64.40 CFS AT 1.499 HOURS BASIN AREA = .0288 SQ. MI.

ADD HYD ID=3 HYD NO=213.1 SUM IDS 2 3
PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 213.10

RUNOFF VOLUME = 1.21300 INCHES = 8.6042 ACRE-FEET
PEAK DISCHARGE RATE = 220.80 CFS AT 1.532 HOURS BASIN AREA = .1330 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=220.0 AREA=0.0642 SQ MI
PER A=0 PER B=42 PER C=21 PER D=37
TP=0.21 HR MASS RAINFALL=-1

K = .114490HR TP = .210000HR K/TP RATIO = .545191 SHAPE CONSTANT, N = 7.103224
UNIT PEAK = 59.512 CFS UNIT VOLUME = .9998 B = 526.13 P60 = 1.9200
AREA = .023754 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .193372HR TP = .210000HR K/TP RATIO = .920820 SHAPE CONSTANT, N = 3.843768
UNIT PEAK = 66.373 CFS UNIT VOLUME = .9999 B = 344.62 P60 = 1.9200
AREA = .040446 SQ MI IA = .45000 INCHES INF = 1.11000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 220.00

RUNOFF VOLUME = 1.25227 INCHES = 4.2878 ACRE-FEET
PEAK DISCHARGE RATE = 99.26 CFS AT 1.598 HOURS BASIN AREA = .0642 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=221.0 AREA=0.0381 SQ MI
PER A=0 PER B=31 PER C=15 PER D=54
TP=0.13 HR MASS RAINFALL=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 83.289 CFS UNIT VOLUME = .9999 B = 526.28 P60 = 1.9200
AREA = .020574 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .119945HR TP = .130000HR K/TP RATIO = .922653 SHAPE CONSTANT, N = 3.835746
UNIT PEAK = 46.385 CFS UNIT VOLUME = 1.000 B = 344.07 P60 = 1.9200
AREA = .017526 SQ MI IA = .45109 INCHES INF = 1.11304 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 221.00

RUNOFF VOLUME = 1.45718 INCHES = 2.9610 ACRE-FEET
PEAK DISCHARGE RATE = 87.09 CFS AT 1.499 HOURS BASIN AREA = .0381 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=222.0 AREA=0.0081 SQ MI
PER A=0 PER B=13 PER C=7 PER D=80
TP=0.13 HR MASS RAINFALL=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 26.233 CFS UNIT VOLUME = .9996 B = 526.28 P60 = 1.9200
AREA = .006480 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .119372HR TP = .130000HR K/TP RATIO = .918245 SHAPE CONSTANT, N = 3.855108
UNIT PEAK = 4.3041 CFS UNIT VOLUME = .9975 B = 345.39 P60 = 1.9200
AREA = .001620 SQ MI IA = .44750 INCHES INF = 1.10300 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 222.00

RUNOFF VOLUME = 1.77433 INCHES = .7665 ACRE-FEET
PEAK DISCHARGE RATE = 21.39 CFS AT 1.499 HOURS BASIN AREA = .0081 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=905.0 AREA=0.0288 SQ MI
PER A=0 PER B=21 PER C=11 PER D=68
TP=0.13 HR MASS RAINFALL=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 79.281 CFS UNIT VOLUME = .9999 B = 526.28 P60 = 1.9200
AREA = .019584 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .119522HR TP = .130000HR K/TP RATIO = .919397 SHAPE CONSTANT, N = 3.850032

UNIT PEAK = 24.461 CFS UNIT VOLUME = .9999 B = 345.04 P60 = 1.9200
AREA = .009216 SQ MI IA = .44844 INCHES INF = 1.10563 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 905.00

RUNOFF VOLUME = 1.62894 INCHES = 2.5020 ACRE-FEET
PEAK DISCHARGE RATE = 71.36 CFS AT 1.499 HOURS BASIN AREA = .0288 SQ. MI.

ADD HYD ID=3 HYD NO=905.1 SUM IDS 1 2
PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 905.10

RUNOFF VOLUME = 1.16819 INCHES = 21.7132 ACRE-FEET
PEAK DISCHARGE RATE = 228.64 CFS AT 1.632 HOURS BASIN AREA = .3485 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=8.0 FT SLOPE=.0003
FRICTION SLOPE=.0003 'n'=.013 LAST STA=37

DIST	ELEV
0	8
16	0
21	0
37	8

RATING CURVE VALLEY SECTION 4.0				
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT	
.00	.00	.00	.00	
.42	2.46	2.45	6.68	
.84	5.63	8.29	8.37	
1.26	9.51	17.45	10.05	
1.68	14.09	30.18	11.74	
2.11	19.39	46.78	13.42	
2.53	25.40	67.58	15.11	
2.95	32.11	92.89	16.79	
3.37	39.53	123.02	18.47	
3.79	47.67	158.28	20.16	
4.21	56.51	198.96	21.84	
4.63	66.06	245.34	23.53	
5.05	76.32	297.73	25.21	
5.47	87.29	356.38	26.89	
5.89	98.97	421.57	28.58	

6.32	111.36	493.57	30.26
6.74	124.45	572.64	31.95
7.16	138.26	659.04	33.63
7.58	152.78	753.02	35.32
8.00	168.00	854.82	37.00

COMPUTE TRAVEL TIME ID=1 REACH NO=1 NO VS=1 L=4300 FT SLP=.0003

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.421	2.460	2.45	1.1980
.842	5.629	8.29	.8106
1.263	9.507	17.45	.6507
1.684	14.094	30.18	.5578
2.105	19.391	46.78	.4951
2.526	25.396	67.58	.4489
2.947	32.111	92.89	.4129
3.368	39.535	123.02	.3838
3.789	47.668	158.28	.3597
4.211	56.510	198.96	.3393
4.632	66.061	245.34	.3216
5.053	76.321	297.73	.3062
5.474	87.291	356.38	.2926
5.895	98.970	421.57	.2804
6.316	111.357	493.57	.2695
6.737	124.454	572.64	.2596
7.158	138.260	659.04	.2506
7.579	152.776	753.02	.2423
8.000	168.000	854.82	.2347

ROUTE ID=1 HYD NO=906.2 INFLOW ID=3 DT=0 HR
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 906.20

RUNOFF VOLUME = 1.16814 INCHES = 21.7122 ACRE-FEET
PEAK DISCHARGE RATE = 149.73 CFS AT 1.798 HOURS BASIN AREA = .3485 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=906.0 AREA=0.0645 SQ MI
PER A=0 PER B=21 PER C=10 PER D=69
TP=0.13 HR MASS RAINFALL=-1

K = .070879HR TP = .130000HR K/TP RATIO = .545225 SHAPE CONSTANT, N = 7.102679
UNIT PEAK = 180.11 CFS UNIT VOLUME = 1.000 B = 526.10 P60 = 1.9200
AREA = .044505 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .119952HR TP = .130000HR K/TP RATIO = .922708 SHAPE CONSTANT, N = 3.835500
UNIT PEAK = 52.917 CFS UNIT VOLUME = 1.000 B = 344.05 P60 = 1.9200
AREA = .019995 SQ MI IA = .45161 INCHES INF = 1.11452 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 906.00

RUNOFF VOLUME = 1.63892 INCHES = 5.6378 ACRE-FEET
PEAK DISCHARGE RATE = 160.40 CFS AT 1.499 HOURS BASIN AREA = .0645 SQ. MI.

ADD HYD ID=3 HYD NO=906.1 SUM IDS 1 2
PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 906.10

RUNOFF VOLUME = 1.24166 INCHES = 27.3501 ACRE-FEET
PEAK DISCHARGE RATE = 209.07 CFS AT 1.565 HOURS BASIN AREA = .4130 SQ. MI.

COMPUTE RATING CURVE CID=1 VS NO=4 CODE=1 EL MIN=0 EL MAX=8.0 FT SLOPE=.0003
FRICTION SLOPE=.0003 'n'=.013 LAST STA=37

DIST	ELEV
0	8
16	0
21	0
37	8

RATING CURVE VALLEY SECTION 4.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.42	2.46	2.45	6.68
.84	5.63	8.29	8.37
1.26	9.51	17.45	10.05
1.68	14.09	30.18	11.74
2.11	19.39	46.78	13.42
2.53	25.40	67.58	15.11
2.95	32.11	92.89	16.79
3.37	39.53	123.02	18.47
3.79	47.67	158.28	20.16
4.21	56.51	198.96	21.84
4.63	66.06	245.34	23.53
5.05	76.32	297.73	25.21
5.47	87.29	356.38	26.89

5.89	98.97	421.57	28.58
6.32	111.36	493.57	30.26
6.74	124.45	572.64	31.95
7.16	138.26	659.04	33.63
7.58	152.78	753.02	35.32
8.00	168.00	854.82	37.00

COMPUTE TRAVEL TIME ID=1 REACH NO=1 NO VS=1 L=4500 FT SLP=.0003

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.421	2.460	2.45	1.2537
.842	5.629	8.29	.8483
1.263	9.507	17.45	.6810
1.684	14.094	30.18	.5838
2.105	19.391	46.78	.5181
2.526	25.396	67.58	.4697
2.947	32.111	92.89	.4321
3.368	39.535	123.02	.4017
3.789	47.668	158.28	.3765
4.211	56.510	198.96	.3550
4.632	66.061	245.34	.3366
5.053	76.321	297.73	.3204
5.474	87.291	356.38	.3062
5.895	98.970	421.57	.2935
6.316	111.357	493.57	.2820
6.737	124.454	572.64	.2717
7.158	138.260	659.04	.2622
7.579	152.776	753.02	.2536
8.000	168.000	854.82	.2457

ROUTE ID=1 HYD NO=907.2 INFLOW ID=3 DT=0 HR
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 907.20

RUNOFF VOLUME = 1.24134 INCHES = 27.3430 ACRE-FEET
PEAK DISCHARGE RATE = 146.36 CFS AT 1.798 HOURS BASIN AREA = .4130 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=907.0 AREA=0.0331 SQ MI
PER A=0 PER B=35 PER C=18 PER D=47
TP=0.13 HR MASS RAINFALL=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 62.979 CFS UNIT VOLUME = .9998 B = 526.28 P60 = 1.9200
AREA = .015557 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .119620HR TP = .130000HR K/TP RATIO = .920157 SHAPE CONSTANT, N = 3.846685
UNIT PEAK = 46.531 CFS UNIT VOLUME = 1.000 B = 344.82 P60 = 1.9200
AREA = .017543 SQ MI IA = .44906 INCHES INF = 1.10736 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 907.00

RUNOFF VOLUME = 1.37450 INCHES = 2.4264 ACRE-FEET
PEAK DISCHARGE RATE = 72.68 CFS AT 1.499 HOURS BASIN AREA = .0331 SQ. MI.

ADD HYD ID=1 HYD NO=907.1 SUM IDS 1 2
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 907.10

RUNOFF VOLUME = 1.25122 INCHES = 29.7694 ACRE-FEET
PEAK DISCHARGE RATE = 169.10 CFS AT 1.798 HOURS BASIN AREA = .4461 SQ. MI.

COMPUTE NM HYD

ID=2 HYD NO=310.0 AREA=0.0278 SQ MI
PER A=0 PER B=23 PER C=12 PER D=65
TP=0.13 HR MASS RAINFALL=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 73.152 CFS UNIT VOLUME = .9999 B = 526.28 P60 = 1.9200
AREA = .018070 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .119543HR TP = .130000HR K/TP RATIO = .919561 SHAPE CONSTANT, N = 3.849309
UNIT PEAK = 25.822 CFS UNIT VOLUME = 1.000 B = 344.99 P60 = 1.9200
AREA = .009730 SQ MI IA = .44857 INCHES INF = 1.10600 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 310.00

RUNOFF VOLUME = 1.59259 INCHES = 2.3613 ACRE-FEET
PEAK DISCHARGE RATE = 67.76 CFS AT 1.499 HOURS BASIN AREA = .0278 SQ. MI.

COMPUTE NM HYD ID=3 HYD NO=320.0 AREA=0.0242 SQ MI
PER A=0 PER B=33 PER C=17 PER D=50
TP=0.23 HR MASS RAINFALL=-1

K = .125350HR TP = .230000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106437
UNIT PEAK = 27.687 CFS UNIT VOLUME = .9995 B = 526.28 P60 = 1.9200
AREA = .012100 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .211620HR TP = .230000HR K/TP RATIO = .920088 SHAPE CONSTANT, N = 3.846988
UNIT PEAK = 18.141 CFS UNIT VOLUME = .9993 B = 344.84 P60 = 1.9200
AREA = .012100 SQ MI IA = .44900 INCHES INF = 1.10720 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 320.00

RUNOFF VOLUME = 1.41085 INCHES = 1.8209 ACRE-FEET
PEAK DISCHARGE RATE = 39.16 CFS AT 1.598 HOURS BASIN AREA = .0242 SQ. MI.

COMPUTE NM HYD ID=4 HYD NO=321.0 AREA=0.0048 SQ MI
PER A=0 PER B=13 PER C=7 PER D=80
TP=0.13 HR MASS RAINFALL=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 15.545 CFS UNIT VOLUME = .9993 B = 526.28 P60 = 1.9200
AREA = .003840 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .119372HR TP = .130000HR K/TP RATIO = .918245 SHAPE CONSTANT, N = 3.855108
UNIT PEAK = 2.5506 CFS UNIT VOLUME = .9952 B = 345.39 P60 = 1.9200
AREA = .000960 SQ MI IA = .44750 INCHES INF = 1.10300 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=4 CODE=1

HYDROGRAPH FROM AREA 321.00

RUNOFF VOLUME = 1.77433 INCHES = .4542 ACRE-FEET
PEAK DISCHARGE RATE = 12.68 CFS AT 1.499 HOURS BASIN AREA = .0048 SQ. MI.

ADD HYD ID=3 HYD NO=321.1 SUM IDS 3 4
PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 321.10

RUNOFF VOLUME = 1.47099 INCHES = 2.2751 ACRE-FEET
 PEAK DISCHARGE RATE = 47.87 CFS AT 1.565 HOURS BASIN AREA = .0290 SQ. MI.

COMPUTE NM HYD

ID=4 HYD NO=330.0 AREA=0.0052 SQ MI
 PER A=0 PER B=62 PER C=31 PER D=7
 TP=0.13 HR MASS RAINFALL=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 1.4736 CFS UNIT VOLUME = .9925 B = 526.28 P60 = 1.9200
 AREA = .000364 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .119771HR TP = .130000HR K/TP RATIO = .921317 SHAPE CONSTANT, N = 3.841587
 UNIT PEAK = 12.814 CFS UNIT VOLUME = .9995 B = 344.47 P60 = 1.9200
 AREA = .004836 SQ MI IA = .45000 INCHES INF = 1.11000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD

ID=4 CODE=1

HYDROGRAPH FROM AREA 330.00

RUNOFF VOLUME = .88879 INCHES = .2465 ACRE-FEET
 PEAK DISCHARGE RATE = 8.63 CFS AT 1.499 HOURS BASIN AREA = .0052 SQ. MI.

COMPUTE NM HYD

ID=5 HYD NO=331.0 AREA=0.0211 SQ MI
 PER A=0 PER B=31 PER C=15 PER D=54
 TP=0.13 HR MASS RAINFALL=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 46.126 CFS UNIT VOLUME = .9998 B = 526.28 P60 = 1.9200
 AREA = .011394 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .119945HR TP = .130000HR K/TP RATIO = .922653 SHAPE CONSTANT, N = 3.835746
 UNIT PEAK = 25.689 CFS UNIT VOLUME = 1.000 B = 344.07 P60 = 1.9200
 AREA = .009706 SQ MI IA = .45109 INCHES INF = 1.11304 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD

ID=5 CODE=1

HYDROGRAPH FROM AREA 331.00

RUNOFF VOLUME = 1.45718 INCHES = 1.6398 ACRE-FEET
PEAK DISCHARGE RATE = 48.24 CFS AT 1.499 HOURS BASIN AREA = .0211 SQ. MI.

ADD HYD ID=4 HYD NO=331.1 SUM IDS 4 5
PRINT HYD ID=4 CODE=1

HYDROGRAPH FROM AREA 331.10

RUNOFF VOLUME = 1.34478 INCHES = 1.8863 ACRE-FEET
PEAK DISCHARGE RATE = 56.86 CFS AT 1.499 HOURS BASIN AREA = .0263 SQ. MI.

ADD HYD ID=3 HYD NO=331.2 SUM IDS 3 4
PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 331.20

RUNOFF VOLUME = 1.41096 INCHES = 4.1614 ACRE-FEET
PEAK DISCHARGE RATE = 100.12 CFS AT 1.532 HOURS BASIN AREA = .0553 SQ. MI.

ADD HYD ID=2 HYD NO=331.3 SUM IDS 2 3
PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 331.30

RUNOFF VOLUME = 1.47172 INCHES = 6.5226 ACRE-FEET
PEAK DISCHARGE RATE = 164.97 CFS AT 1.499 HOURS BASIN AREA = .0831 SQ. MI.

COMPUTE NM HYD ID=3 HYD NO=332.0 AREA=0.0125 SQ MI
PER A=0 PER B=23 PER C=11 PER D=66
TP=0.13 HR MASS RAINFALL=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 33.398 CFS UNIT VOLUME = .9997 B = 526.28 P60 = 1.9200
AREA = .008250 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .120006HR TP = .130000HR K/TP RATIO = .923124 SHAPE CONSTANT, N = 3.833687
UNIT PEAK = 11.244 CFS UNIT VOLUME = .9993 B = 343.92 P60 = 1.9200
AREA = .004250 SQ MI IA = .45147 INCHES INF = 1.11412 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 332.00

RUNOFF VOLUME = 1.60257 INCHES = 1.0684 ACRE-FEET
PEAK DISCHARGE RATE = 30.60 CFS AT 1.499 HOURS BASIN AREA = .0125 SQ. MI.

ADD HYD ID=2 HYD NO=332.1 SUM IDS 3 2
PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 332.10

RUNOFF VOLUME = 1.48883 INCHES = 7.5910 ACRE-FEET
PEAK DISCHARGE RATE = 195.56 CFS AT 1.499 HOURS BASIN AREA = .0956 SQ. MI.

COMPUTE NM HYD ID=3 HYD NO=333.0 AREA=0.0327 SQ MI
PER A=0 PER B=19 PER C=10 PER D=71
TP=0.13 HR MASS RAINFALL=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 93.989 CFS UNIT VOLUME = .9999 B = 526.28 P60 = 1.9200
AREA = .023217 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .119496HR TP = .130000HR K/TP RATIO = .919198 SHAPE CONSTANT, N = 3.850909
UNIT PEAK = 25.174 CFS UNIT VOLUME = 1.000 B = 345.10 P60 = 1.9200
AREA = .009483 SQ MI IA = .44828 INCHES INF = 1.10517 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 333.00

RUNOFF VOLUME = 1.66529 INCHES = 2.9042 ACRE-FEET
PEAK DISCHARGE RATE = 82.34 CFS AT 1.499 HOURS BASIN AREA = .0327 SQ. MI.

ADD HYD ID=2 HYD NO=333.1 SUM IDS 2 3
PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 333.10

RUNOFF VOLUME = 1.53380 INCHES = 10.4952 ACRE-FEET
PEAK DISCHARGE RATE = 277.90 CFS AT 1.499 HOURS BASIN AREA = .1283 SQ. MI.

COMPUTE NM HYD

ID=3 HYD NO=340.0 AREA=0.0736 SQ MI
PER A=0 PER B=13 PER C=7 PER D=80
TP=0.13 HR MASS RAINFALL=-1

K = .071013HR TP = .130000HR K/TP RATIO = .546250 SHAPE CONSTANT, N = 7.085588
UNIT PEAK = 237.92 CFS UNIT VOLUME = .9999 B = 525.30 P60 = 1.9200
AREA = .058880 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118958HR TP = .130000HR K/TP RATIO = .915060 SHAPE CONSTANT, N = 3.869256
UNIT PEAK = 39.218 CFS UNIT VOLUME = 1.000 B = 346.36 P60 = 1.9200
AREA = .014720 SQ MI IA = .44750 INCHES INF = 1.10300 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD

ID=3 CODE=1

HYDROGRAPH FROM AREA 340.00

RUNOFF VOLUME = 1.77433 INCHES = 6.9648 ACRE-FEET
PEAK DISCHARGE RATE = 194.10 CFS AT 1.499 HOURS BASIN AREA = .0736 SQ. MI.

ADD HYD
PRINT HYD

ID=2 HYD NO=340.1 SUM IDS 2 3
ID=2 CODE=1

HYDROGRAPH FROM AREA 340.10

RUNOFF VOLUME = 1.62148 INCHES = 17.4600 ACRE-FEET
PEAK DISCHARGE RATE = 472.00 CFS AT 1.499 HOURS BASIN AREA = .2019 SQ. MI.

COMPUTE NM HYD

ID=3 HYD NO=350.0 AREA=0.0922 SQ MI
PER A=0 PER B=13 PER C=7 PER D=80
TP=0.16 HR MASS RAINFALL=-1

K = .087735HR TP = .160000HR K/TP RATIO = .548345 SHAPE CONSTANT, N = 7.050965
UNIT PEAK = 241.41 CFS UNIT VOLUME = .9995 B = 523.67 P60 = 1.9200
AREA = .073760 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .145556HR TP = .160000HR K/TP RATIO = .909723 SHAPE CONSTANT, N = 3.893234

UNIT PEAK = 40.106 CFS UNIT VOLUME = .9999 B = 347.99 P60 = 1.9200
AREA = .018440 SQ MI IA = .44750 INCHES INF = 1.10300 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 350.00

RUNOFF VOLUME = 1.77433 INCHES = 8.7249 ACRE-FEET
PEAK DISCHARGE RATE = 220.55 CFS AT 1.532 HOURS BASIN AREA = .0922 SQ. MI.

ADD HYD ID=3 HYD NO=350.1 SUM IDS 2 3
PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 350.10

RUNOFF VOLUME = 1.66940 INCHES = 26.1849 ACRE-FEET
PEAK DISCHARGE RATE = 681.97 CFS AT 1.499 HOURS BASIN AREA = .2941 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=410.0 AREA=0.0316 SQ MI
PER A=0 PER B=33 PER C=17 PER D=50
TP=0.17 HR MASS RAINFALL=-1

K = .092650HR TP = .170000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 48.913 CFS UNIT VOLUME = .9999 B = 526.28 P60 = 1.9200
AREA = .015800 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .156415HR TP = .170000HR K/TP RATIO = .920088 SHAPE CONSTANT, N = 3.846980
UNIT PEAK = 32.049 CFS UNIT VOLUME = .9999 B = 344.84 P60 = 1.9200
AREA = .015800 SQ MI IA = .44900 INCHES INF = 1.10720 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 410.00

RUNOFF VOLUME = 1.41085 INCHES = 2.3777 ACRE-FEET
PEAK DISCHARGE RATE = 60.89 CFS AT 1.532 HOURS BASIN AREA = .0316 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=420.0 AREA=0.0483 SQ MI
PER A=0 PER B=29 PER C=15 PER D=56

TP=0.15 HR MASS RAINFALL=-1

K = .081750HR TP = .150000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 94.898 CFS UNIT VOLUME = 1.000 B = 526.28 P60 = 1.9200
AREA = .027048 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .137988HR TP = .150000HR K/TP RATIO = .919920 SHAPE CONSTANT, N = 3.847727
UNIT PEAK = 48.864 CFS UNIT VOLUME = 1.000 B = 344.89 P60 = 1.9200
AREA = .021252 SQ MI IA = .44886 INCHES INF = 1.10682 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 420.00

RUNOFF VOLUME = 1.48355 INCHES = 3.8216 ACRE-FEET
PEAK DISCHARGE RATE = 103.63 CFS AT 1.532 HOURS BASIN AREA = .0483 SQ. MI.

ADD HYD ID=1 HYD NO=420.1 SUM IDS 1 2
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 420.10

RUNOFF VOLUME = 1.45479 INCHES = 6.1993 ACRE-FEET
PEAK DISCHARGE RATE = 164.52 CFS AT 1.532 HOURS BASIN AREA = .0799 SQ. MI.

COMPUTE NM HYD

ID=2 HYD NO=430.0 AREA=0.0456 SQ MI
PER A=0 PER B=33 PER C=17 PER D=50
TP=0.17 HR MASS RAINFALL=-1

K = .092650HR TP = .170000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 70.583 CFS UNIT VOLUME = 1.000 B = 526.28 P60 = 1.9200
AREA = .022800 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .156415HR TP = .170000HR K/TP RATIO = .920088 SHAPE CONSTANT, N = 3.846980
UNIT PEAK = 46.248 CFS UNIT VOLUME = .9999 B = 344.84 P60 = 1.9200
AREA = .022800 SQ MI IA = .44900 INCHES INF = 1.10720 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 430.00

RUNOFF VOLUME = 1.41085 INCHES = 3.4312 ACRE-FEET
PEAK DISCHARGE RATE = 87.86 CFS AT 1.532 HOURS BASIN AREA = .0456 SQ. MI.

ADD HYD ID=1 HYD NO=430.1 SUM IDS 1 2
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 430.10

RUNOFF VOLUME = 1.43882 INCHES = 9.6305 ACRE-FEET
PEAK DISCHARGE RATE = 252.37 CFS AT 1.532 HOURS BASIN AREA = .1255 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=440.0 AREA=0.0483 SQ MI
PER A=0 PER B=30 PER C=15 PER D=55
TP=0.14 HR MASS RAINFALL=-1

K = .076300HR TP = .140000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 99.861 CFS UNIT VOLUME = 1.000 B = 526.28 P60 = 1.9200
AREA = .026565 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .128984HR TP = .140000HR K/TP RATIO = .921317 SHAPE CONSTANT, N = 3.841584
UNIT PEAK = 53.478 CFS UNIT VOLUME = 1.000 B = 344.47 P60 = 1.9200
AREA = .021735 SQ MI IA = .45000 INCHES INF = 1.11000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 440.00

RUNOFF VOLUME = 1.47036 INCHES = 3.7876 ACRE-FEET
PEAK DISCHARGE RATE = 105.91 CFS AT 1.499 HOURS BASIN AREA = .0483 SQ. MI.

ADD HYD ID=1 HYD NO=440.1 SUM IDS 1 2
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 440.10

RUNOFF VOLUME = 1.44759 INCHES = 13.4181 ACRE-FEET
PEAK DISCHARGE RATE = 357.48 CFS AT 1.532 HOURS BASIN AREA = .1738 SQ. MI.

ADD HYD ID=1 HYD NO=350.9 SUM IDS 1 3
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 350.90

RUNOFF VOLUME = 1.58701 INCHES = 39.6030 ACRE-FEET
PEAK DISCHARGE RATE = 1033.82 CFS AT 1.532 HOURS BASIN AREA = .4679 SQ. MI.

COMPUTE NM HYD ID=1 HYD NO=510.0 AREA=0.0259 SQ MI
PER A=0 PER B=23 PER C=11 PER D=66
TP=0.13 HR MASS RAINFALL=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 69.201 CFS UNIT VOLUME = .9998 B = 526.28 P60 = 1.9200
AREA = .017094 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .120006HR TP = .130000HR K/TP RATIO = .923124 SHAPE CONSTANT, N = 3.833687
UNIT PEAK = 23.297 CFS UNIT VOLUME = .9998 B = 343.92 P60 = 1.9200
AREA = .008806 SQ MI IA = .45147 INCHES INF = 1.11412 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=1 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 510.00

RUNOFF VOLUME = 1.60257 INCHES = 2.2137 ACRE-FEET
PEAK DISCHARGE RATE = 63.38 CFS AT 1.499 HOURS BASIN AREA = .0259 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=520.0 AREA=0.1217 SQ MI
PER A=0 PER B=32 PER C=16 PER D=52
TP=0.20 HR MASS RAINFALL=-1

K = .110333HR TP = .200000HR K/TP RATIO = .551667 SHAPE CONSTANT, N = 6.996748
UNIT PEAK = 164.89 CFS UNIT VOLUME = .9998 B = 521.10 P60 = 1.9200
AREA = .063284 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .180806HR TP = .200000HR K/TP RATIO = .904030 SHAPE CONSTANT, N = 3.919204
UNIT PEAK = 102.15 CFS UNIT VOLUME = 1.000 B = 349.75 P60 = 1.9200
AREA = .058416 SQ MI IA = .45000 INCHES INF = 1.11000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 520.00

RUNOFF VOLUME = 1.43401 INCHES = 9.3076 ACRE-FEET
PEAK DISCHARGE RATE = 216.89 CFS AT 1.565 HOURS BASIN AREA = .1217 SQ. MI.

ADD HYD ID=1 HYD NO=520.1 SUM IDS 1 2
PRINT HYD ID=1 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 520.10

RUNOFF VOLUME = 1.46359 INCHES = 11.5213 ACRE-FEET
PEAK DISCHARGE RATE = 269.14 CFS AT 1.565 HOURS BASIN AREA = .1476 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=530.0 AREA=0.0505 SQ MI
PER A=0 PER B=30 PER C=15 PER D=55
TP=0.20 HR MASS RAINFALL=-1

K = .109000HR TP = .200000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 73.087 CFS UNIT VOLUME = .9996 B = 526.28 P60 = 1.9200
AREA = .027775 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .184263HR TP = .200000HR K/TP RATIO = .921317 SHAPE CONSTANT, N = 3.841587
UNIT PEAK = 39.140 CFS UNIT VOLUME = .9997 B = 344.47 P60 = 1.9200
AREA = .022725 SQ MI IA = .45000 INCHES INF = 1.11000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 530.00

RUNOFF VOLUME = 1.47036 INCHES = 3.9602 ACRE-FEET
PEAK DISCHARGE RATE = 91.91 CFS AT 1.565 HOURS BASIN AREA = .0505 SQ. MI.

ADD HYD ID=1 HYD NO=530.1 SUM IDS 1 2
PRINT HYD ID=1 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 530.10

RUNOFF VOLUME = 1.46531 INCHES = 15.4814 ACRE-FEET
PEAK DISCHARGE RATE = 361.04 CFS AT 1.565 HOURS BASIN AREA = .1981 SQ. MI.

COMPUTE NM HYD

ID=2 HYD NO=600.0 AREA=0.1347 SQ MI
PER A=0 PER B=33 PER C=17 PER D=50
TP=0.20 HR MASS RAINFALL=-1

K = .110626HR TP = .200000HR K/TP RATIO = .553131 SHAPE CONSTANT, N = 6.973115
UNIT PEAK = 175.10 CFS UNIT VOLUME = .9998 B = 519.98 P60 = 1.9200
AREA = .067350 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .179830HR TP = .200000HR K/TP RATIO = .899152 SHAPE CONSTANT, N = 3.941793
UNIT PEAK = 118.29 CFS UNIT VOLUME = 1.000 B = 351.27 P60 = 1.9200
AREA = .067350 SQ MI IA = .44900 INCHES INF = 1.10720 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD

ID=2 CODE=1

HYDROGRAPH FROM AREA 600.00

RUNOFF VOLUME = 1.41085 INCHES = 10.1355 ACRE-FEET
PEAK DISCHARGE RATE = 236.97 CFS AT 1.565 HOURS BASIN AREA = .1347 SQ. MI.

ADD HYD
PRINT HYD

ID=1 HYD NO=600.1 SUM IDS 1 2
ID=1 CODE=1

HYDROGRAPH FROM AREA 600.10

RUNOFF VOLUME = 1.44327 INCHES = 25.6169 ACRE-FEET
PEAK DISCHARGE RATE = 598.02 CFS AT 1.565 HOURS BASIN AREA = .3328 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 16:03:32

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**BERNALILLO COUNTY GRANT OF TEMPORARY
PUBLIC MAINTENANCE EASEMENT FOR DRAINAGE FACILITY
TO THE CITY OF ALBUQUERQUE #594081
(5-17-99)**

Pursuant to the County of Bernalillo and City of Albuquerque, New Mexico Master Utility Easement and Right-of-Way Agreement dated August 20, 1990;

THIS AGREEMENT is made and entered into this 14th day of July, 1998, by and between the County of Bernalillo, a political subdivision of the State of New Mexico, hereinafter referred to as the "County", and the City of Albuquerque, a New Mexico Municipal Corporation, hereinafter referred to as the "City".

Section 1. Grant of Easement. There is hereby granted to the City an exclusive right, license, privilege, and easement to maintain, repair, replace and remove a temporary drainage facility for the diversion and/or storage of water along, under, across, on and about the real property described in **Exhibit 1** attached hereto "Easement", together with the right to remove trees, bushes, and undergrowth and any other obstacles upon said easement with the consent of the County.

A. A temporary easement within Section 24, township 10 North, Range 2 East, N.M.P.M. Bernalillo County, New Mexico, being within LANDS OF BERNALILLO COUNTY (TOM TENORIO PARK) as the same described in the WARRANTY DEED filed in the Office of the County Clerk of Bernalillo County, New Mexico as document number 7374075 and being more particularly described on the attached EXHIBIT 1.

Section 2. Binding of County's Property. This Grant and other provisions of this Easement constitute covenants running with title to the property shown on Exhibit 1 for the benefit of the City and its successors and assigns until terminated pursuant to Section 5 herein.

Section 3. Quiet Enjoyment. This Grant of Easement is subject to the County's reserved right to full use and enjoyment of the property. In the event the City's exercise of its rights granted herein result in damage to any of the County's uses of the property and improvements thereon, the City shall restore the uses or improvements to the condition which existed immediately prior to said damage.

Section 4. Liability. As part of consideration for the Grant of this Easement, the City agrees, subject to the immunities and limitations of the New Mexico Tort Claims Act §41-4-1 et. seq., to be liable for any event or action arising from the City's use of said easement for the purpose herein set forth.

rpdc21a1

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FNSF
Bern. Co.
Judy D. Woodward

Section 5. Termination. At such time as the permanent drainage facilities are constructed this Temporary Drainage Easement shall be terminated by the City Engineer subject to the concurrence of the City Hydrologist.

Done this 14 day of July, 1998.

BOARD OF COUNTY COMMISSIONERS: APPROVED AS TO FORM ONLY:

EXCUSED

Steve D. Gallegos Chairman

Steve D. Gallegos
County Attorney

Ken Sanchez, Vice Chairman

ATTEST:

Les Houston, Member

Judy D. Woodward
County Clerk

Tom Rutherford, Member

Barbara J. Seward
Barbara J. Seward, Member

CITY OF ALBUQUERQUE:

ACCEPTED:

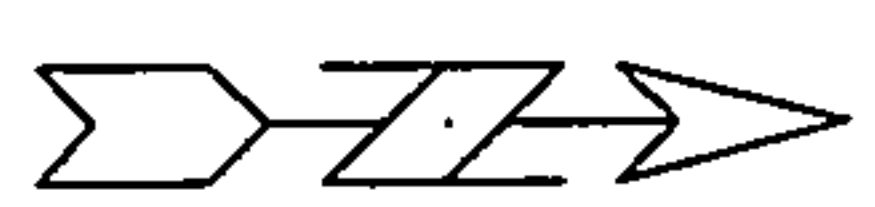
City Engineer

Dated: 5/17/98

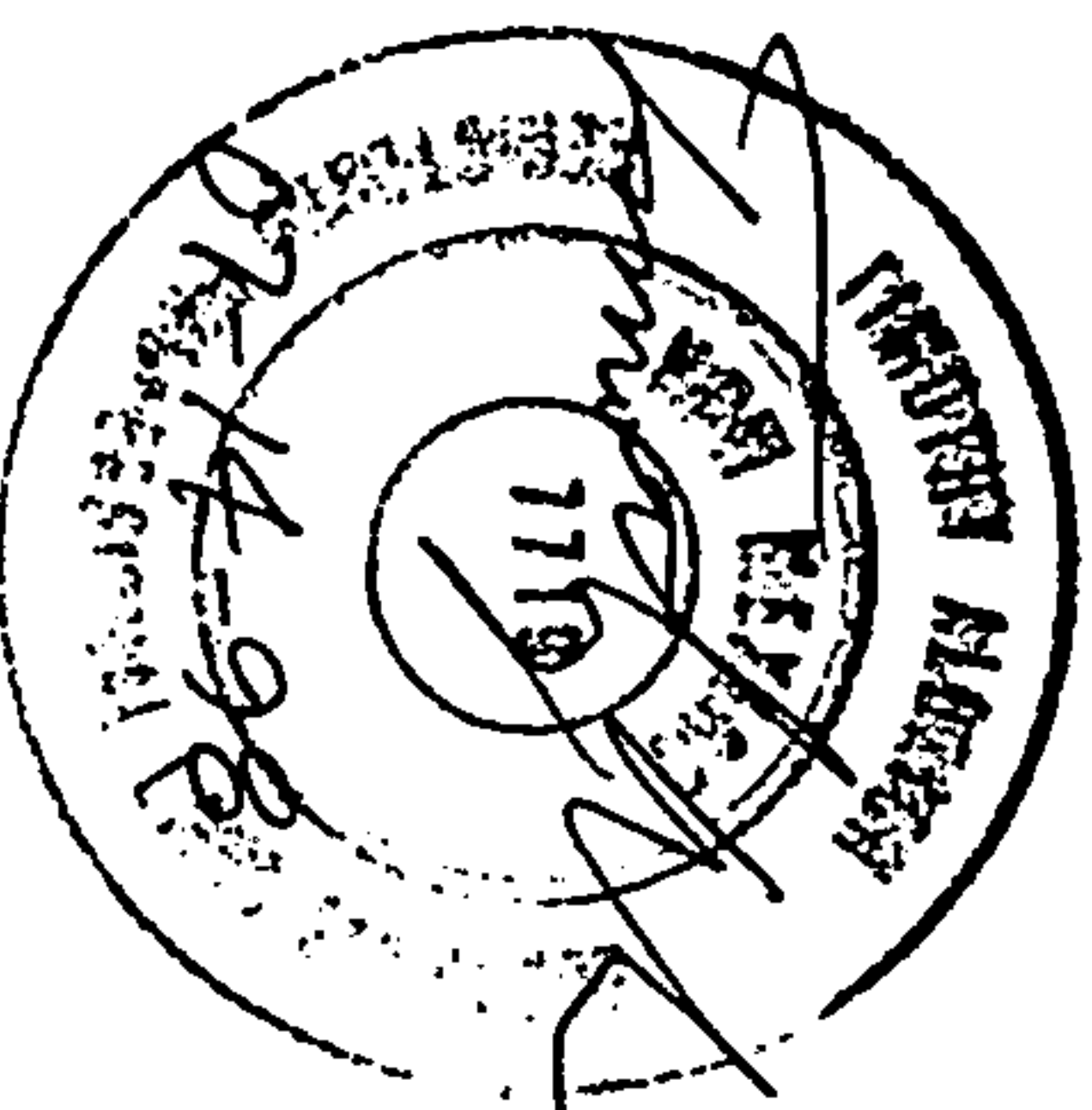
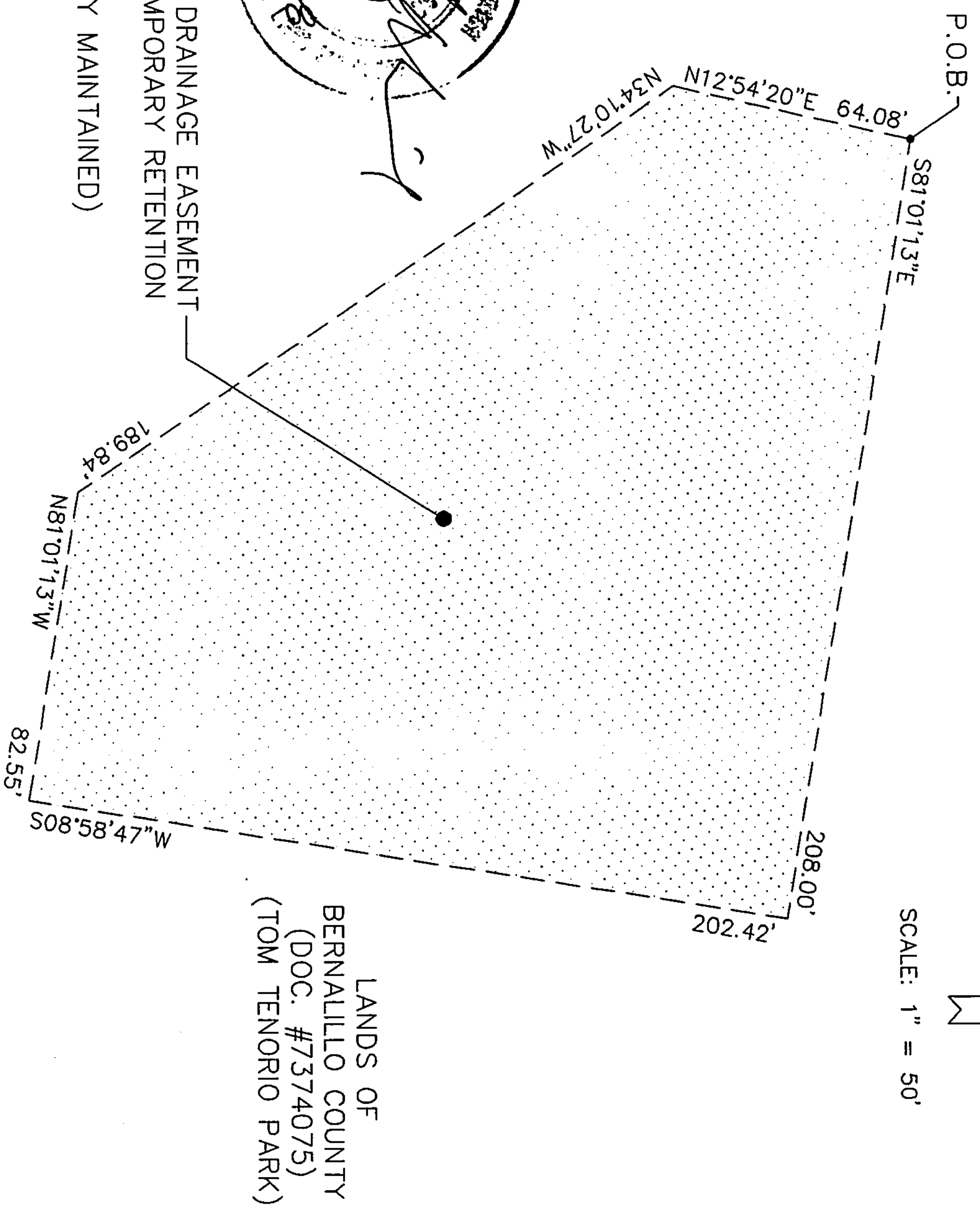
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ORIGINAL

"EXHIBIT FOR"
PUBLIC DRAINAGE EASEMENT
FOR
TEMPORARY RETENTION POND
(COUNTY MAINTAINED)



SCALE: 1" = 50'



DESCRIPTION

A Public Drainage Easement for temporary retention pond within the Town of Atrisco Grant, projected Section 34, Township 10 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico being within LANDS OF BERNALILLO COUNTY, (TOM TENORIO PARK) as the same is described in WARRANTY DEED filed for record in the office of the County Clerk of Bernalillo County, New Mexico as Document #7374075 and being more particularly described as follows:

BEGINNING at the northwest corner of the herein described tract from whence the Albuquerque Control Survey Monument "1-M10" bears N 52°30'27" W, 3810.70 feet;

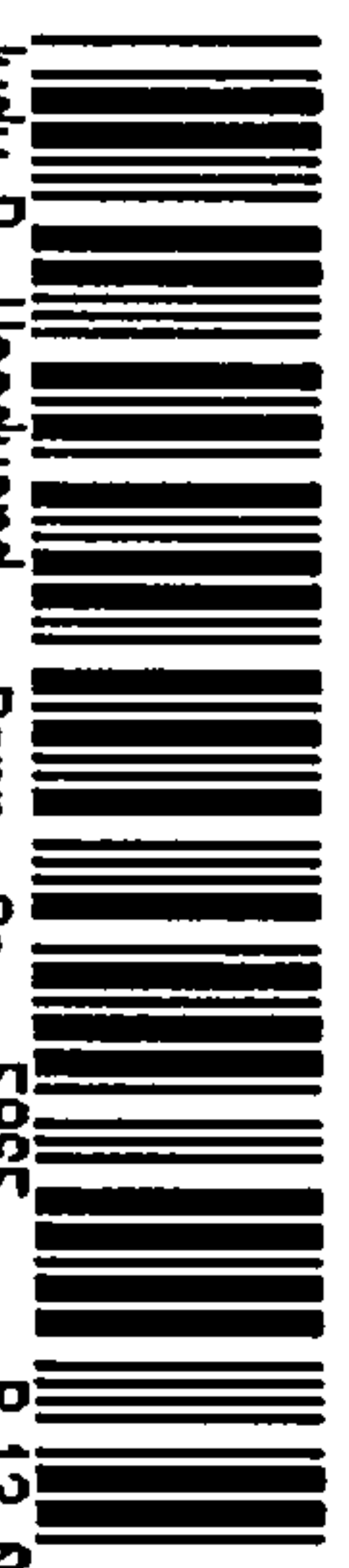
THENCE S 81°01'13" E, 208.00 feet to the northeast corner;

THENCE S 08°58'47" W, 202.42 feet to the southeast corner

THENCE N 81°01'13" W, 82.55 feet to a point;

THENCE N 34°10'27" W, 189.84 feet to a point;

THENCE N 12°54'20" E, 64.08 feet to the point of beginning and containing 0.7773 acres more or less.



Judy D. Woodward Bernalillo Co. ERSE

R 13.00

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Page: 3 of 4
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Exhibit 1 page 1 of 2

ORIGINAL

"EXHIBIT FOR"
30' PUBLIC DRAINAGE EASEMENT
FOR
TEMPORARY STORM SEWER
(CITY MAINTAINED)

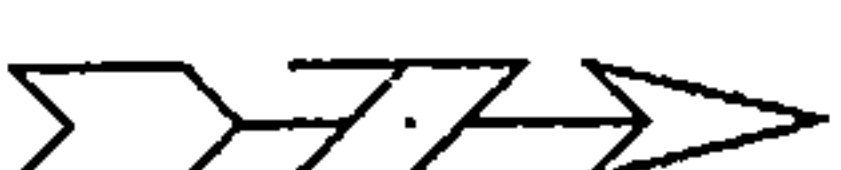


Judy D. Woodward

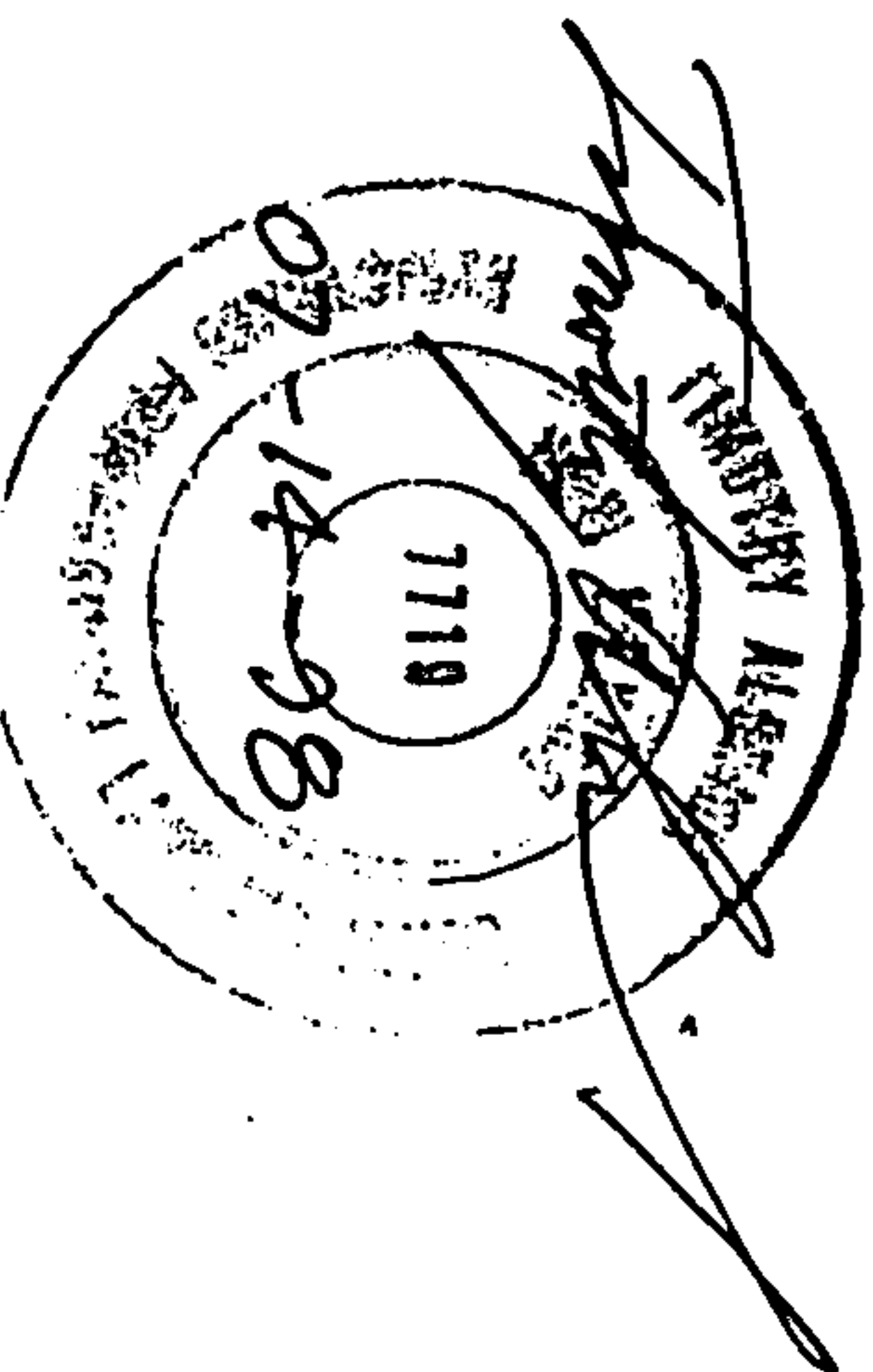
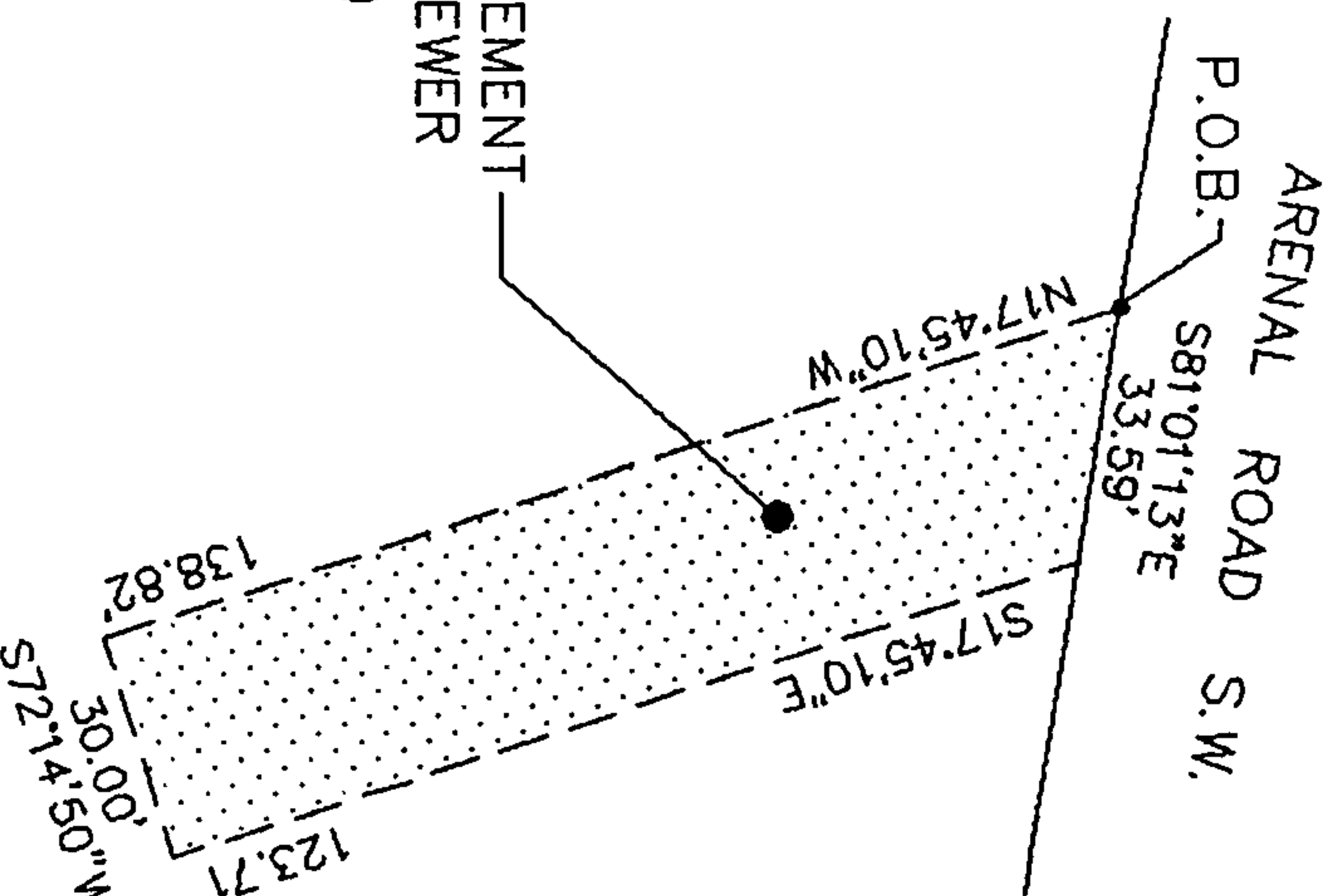
Bern. Co. ERSE

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Page: 4 of 4
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SCALE: 1" = 50'



LANDS OF
BERNALILLO COUNTY
(DOC. #7374075)
(TOM TENORIO PARK)

DESCRIPTION

A 30' Public Drainage Easement for temporary storm sewer within the Town of Atrisco Grant, projected Section 34, Township 10 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico being within LANDS OF BERNALILLO COUNTY, (TOM TENORIO PARK) as the same is described in WARRANTY DEED filed for record in the office of the County Clerk of Bernalillo County, New Mexico as Document #7374075 and being more particularly described as follows:

BEGINNING at the northwest corner of the herein described tract, said point being on the southerly right-of-way line of Arenal Road S.W. from whence the Albuquerque Control Survey Monument "1-M10" bears N 53°20'28" W, 3789.89 feet;

THENCE along said southerly right-of-way line S 81°01'13" E, 33.59 feet to the northeast corner;

THENCE leaving said southerly right-of-way line S 17°45'10" W, 123.71 feet to the southeast corner;

THENCE S 72°14'50" W, 30.00 feet to the southwest corner;

THENCE N 17°45'10" W, 138.82 feet to the point of beginning and containing 0.0904 acres more or less.

Exhibit 1 page 2 of 2

PRELIMINARY REVIEW

Project # 594081

CON # 9901119

Contract Person Shen

Phone No. 924-3996

Type of Agreement: Public Maintenance Agreement

Description/Project: Pinos de Terner Estates
Bill to Work/Div.: Eng. House
Developer: _____
Contract Amount \$ -0- SIA Contract Period: 5-12-99 - Permanent
Contract Amount \$ _____ SWIS Contract Period: _____
Project Completed Date: _____

APT CONTRACT:
Bid by Legal: _____ Rejected/Returned to Dept.: /
Returned to Legal: _____ Approved: _____ Initials: _____

FINANCIAL GUARANTY:
Type of Credit No.: _____ Date: _____ Attached: Yes _____ No _____ Initials: _____
Type: _____ Date: _____ Attached: Yes _____ No _____ Initials: _____

FINAL CONTRACT REVIEW

COPIES REQUIRED:

	Date Delivered	Returned to Dept.	Approved By	Approval Date
Shen	<u>9-21-98 TSL</u>			
City Attorney	<u>9-21-98 TSL</u>		<u>KF</u>	<u>9/21/98 CSE</u>
Attorney				<u>Yella</u>
				<u>Arde</u>
EC No.		Approved		Date

CONTRACTOR:
Department: _____ Date: _____ By: _____
Clock: 5/22/99 TSL
City: 2/5/2019

ADDENDUM TO COVER PAGE

9-21-98
(Date)

TO: Kevin Curran, Assistant City Attorney, Legal Department

FROM: Project Administrator, Project Review Sec., PWD

SUBJECT: PROJECT TITLE: Pinco de Terra Estates PROJECT # 594081

The attached documents have been review, approved, initialed and/or signed by Billy Goolsby, DRC Chairman and are submitted for your action as noted.

ITEM	Review & Approval	ACTION	Reference
Procedure "A"			
Procedure "B"			
Procedure "B" Modified			
Procedure "C"			
Procedure "C" Modified			
Special Agreement			
Sidewalk Deferral Agreement			
Amendment			
Financial Guarantee			
Construction Paperwork:			
Contractors Proposal			
Performance/Marranty Bonds			
Labor/Material Bonds			
Certificate of Insurance			
Engineers Cost Estimate			
Extension			
Release/Agreement			
Release/Financial Guarantee			
Calling Notice			
Letter of Commitment			
Reduction Letter			
License Agreement			
Easement			
Monitoring Well Permit			
Agreement & Covenant			
Drainage Covenant			
Revocable Permit			
Encroachment			
Permanent Easement			

Other:

- 1
- 2
- 3

Please Call Phyllis at 924 if you have any questions regarding the above or when the documents are ready to be picked up. 3996

ATTACHMENTS (1)

MAINTENANCE AGREEMENT
FOR DRAINAGE FACILITY EASEMENT

THIS AGREEMENT is made and entered into this Arch day of May , 1999, by and between the County of Bernalillo, a political subdivision of the State of New Mexico, and Asl Es, Inc., the developer of Puno de Tierra Estates Subdivision.

WHEREAS, Puno de Tierra Estates Subdivision developed by Asl Es, Inc. is located within the City of Albuquerque; and

WHEREAS, the County of Bernalillo has granted easements to the City of Albuquerque in order to allow drainage at Tom Tenorio Park from Asl Es, Inc. and other subdivisions on a temporary basis pursuant to the Master Utility and Right-of-Way Agreement between the City of Albuquerque and the County of Bernalillo dated August 20, 1990; and

WHEREAS, Asl Es, Inc. desires the drainage facility easement to be cleaned and maintained for the benefit of the residents of Puno de Tierra Estates Subdivision; and

WHEREAS, the County of Bernalillo must maintain the major portion of the drainage facility easement for the benefit of its residents; and

WHEREAS, it is more efficient for all parties if one entity maintains the drainage facility located at Tom Tenorio Park; and

WHEREAS, Asl Es, Inc. is willing to pay for its portion of the drainage facility easement located at Tom Tenorio Park for the temporary period.

IT IS HEREBY AGREED AS FOLLOWS:

1. **COST.** That Asl Es, Inc. agrees to pay the County of Bernalillo the sum of Two Thousand Seven Hundred Dollars (\$2,700)

CONTINUATION PAGE 2, MAINTENANCE AGREEMENT FOR DRAINAGE FACILITY EASEMENT

per year for the County of Bernalillo's maintenance of the ponding facility easement described on Exhibit A attached hereto and incorporated herein by reference. This maintenance does not include the storm sewer piping and outfall structure. The initial Two Thousand Seven Hundred Dollars (\$2,700) shall be due on the date of the signing of this Agreement and continue on each anniversary thereafter until termination of this Maintenance Agreement.

In the event of termination of this Agreement on other than the anniversary date of the Agreement, any funds due or paid shall be pro-rated to the date of termination.

2. Term. The term of this Maintenance Agreement will continue until such time as permanent drainage facilities are constructed and the Grant of Temporary Public Maintenance Easement for Drainage Facility is terminated by the City of Albuquerque subject to the concurrence of the City Hydrologist as stated in the Grant of Temporary Public Maintenance Easement for Drainage Facility dated July 14, 1998, attached hereto and incorporated by reference as Exhibit B.

DONE THIS 8th day of May, 1999.

ASI ES, INC.

COUNTY OF BERNALILLO

BY Steven S. Huleatt

BY Frank M. Vigil
Frank R. Vigil, County Manager
CP TC 4/8/99

APPROVED AS TO FORM:

John P. Chavez
Bernalillo County Legal Dept.