LA ORILLA DRAINAGE PLAN

PRELIMINARY PROPOSAL FOR DRAINAGE IMPROVEMENTS JULY 1994

PREPARED FOR: United New Mexico Bank

Special Assets Department

P. O. Box 1081

200 Lomas Boulevard, NW

Albuquerque, NM 87103

and

New Mexico Educators Federal Credit Union
P. O. Box 8530
6501 Indian School Road, NE
Albuquerque, NM 87198

PREPARED BY: Easterling & Associates, Inc.
10131 Coors Road, N.W.
Suite H-7
Albuquerque, NM 87114-4048

REGISTERES

6411

PROFESSIONAL

ENGINEER

I, Charles M. Easterling, do hereby certify that this report was prepared by me or under my direction and that I am a duly registered Professional Engineer under the laws of the State of New Mexico.

Charles M. Easterling, P.E.

NMPE No. 6411

Date

I. INTRODUCTION

A. PURPOSE

The purpose of this report is to propose a plan to provide drainage facilities for a 175 acre watershed on Albuquerque's west side (See MAP 1, red Boundary). This area, though not insignificant, has not been considered in other major drainage planning efforts.

The study was commissioned by a group of unrelated private parties all of whom own land within the affected Basins. Their properties are currently undevelopable as the burden of offsite flow control is too great for any one individual landowner. Additionally, existing structures (See MAP 1) currently receive damaging runoff on a regular basis from this watershed.

A solution is proposed here which would solve both existing drainage problems and allow future development. Both the public and private sectors would be active contributors. This document is intended as a basis for an agreement with the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) to provide coordination for this project.

B. SITE DESCRIPTION

The site under study consists of approximately 175 acres straddling the Coors Boulevard and La Orilla Road Intersection on Albuquerque's West Side (See MAP 1, Red lined Basins).

All property within the six basins is privately owned except for road Rights-of-Way. Property ownership information may be seen on MAP 3.

BASINS 1, 2, AND 3 are part of Alban Hills, a subdivision comprised of 5-acre residential tracts under the jurisdiction of Bernalillo County. The lots are maintained in their natural condition except for single family homes and minimally graded gravel roads. There is presently no control of any storm runoff generated by BASINS 1, 2 AND 3.

BASIN 4 is now vacant and will probably develop in the near future. The whole of BASIN 4 is presently under Bernalillo County's jurisdiction. The northern parcel, BASIN 4A is owned by the La Orilla Partnership. Commercial and multifamily residential development is expected to begin soon. BASIN 4B is comprised of two parcels owned by private individuals. There are no known plans for development at this time.

BASIN 5 is presently divided into nine parcels, seven of which are owned by United New Mexico Bank, one by the New Mexico Educators Federal Credit Union and one by James Shull and other investors. It has already been

annexed by the City in anticipation of development. It presently remains undeveloped in near-natural condition.

BASIN 6 is still under the County's jurisdiction. It is comprised of various tracts owned by the Taylor Family Trust. Now vacant, development is imminent.

The six affected structures shown on MAP 1 are buildings currently or potentially in the floodplain created by runoff from BASINS 1 THROUGH 6. The three buildings to the north belong to the Church of Christ and include a Sanctuary and two homes. The three buildings to the south are private residences.

C. FLOODING PROBLEMS

No private landowners on BASINS 1, 2 OR 3 have reported any flooding problems. The runoff these basins generate, however, is significant and has already caused damage to some existing downstream structures.

Residents of the affected structures shown on MAP 1 report frequent ponding causing impassable roads and restricted access. Although the frequency of reported events has not been estimated, storms for smaller than the 100—year event commonly cause problems in this area.

A scenario of the 100-year event indicates a large area of land on BASINS 4, 5 AND 6 vulnerable to upstream generated runoff. Flows from BASINS 2 AND 3 wash over BASIN 4A in loosely defined channels. They combine with flows generated on BASINS 1 AND 4 in the Coors Boulevard R.O.W. Backwater accumulates in the west R.O.W. as the two pairs of 30" RCP's under Coors are inadequate to convey the peak flows. Water eventually overtops Coors and takes unpredictable paths over BASINS 5 AND 6. Ponding occurs along the eastern boundaries of these Basins and in the vicinity of the six affected structures.

D. DRAINAGE PLANNING HISTORY

Drainage problems on the six drainage basins identified in this report are the result of gaps in westside master drainage planning as it has evolved over the last decade. Originally identified in the North Coors Drainage Management Plan (REFERENCE 5), flow and volume data were developed and outfalls suggested. Sandwiched between the La Orilla Outfall and the Montaño Outfall systems, ensuing planning did not provide outfall connections or capacity for the approximately 175 acres under consideration.

In 1986, the original "Taylor Ranch Drainage Management Plan" was completed by Community Sciences Corporation (REFERENCE 3). It proposed

two hydraulically connected detention ponds straddling Montaño Plaza Drive. They were to drain the area outlined in yellow on MAP 1. La Orilla Drainage BASINS 1 THROUGH 4, although physically capable of gravity flow to the Coors Ponds, were not included in the study. Constructed in 1987, the ponds continue to serve most of the originally designated area plus an additional basin bounded roughly by Taylor Ranch Drive, Golf Course Road and Homestead Trail. Discharge from the ponds passes under Coors Boulevard, down a storm sewer through the Montaño Shopping Plaza and eventually to the Rio Grande via the Montaño Outfall provided by AMAFCA.

Shortly after the construction of the Montaño Outfall, the La Orilla Outfall was built by AMAFCA. It, however was constructed too far north and at too high an elevation to allow discharge of drainage from BASINS 1 THROUGH 6.

A plat and accompanying drainage plan for BASIN 5 was approved by the City of Albuquerque in 1990. Unfortunately, the drainage study was in error as it significantly underestimated offsite flows. Additionally, the only practical outfall was the Riverside Drain for which maximum allowable discharge is 42 l cfs. It became economically infeasible to develop BASIN 5 due to the unreasonably large area needed for ponding in order to choke outflows to acceptable release levels. Ownership reverted by default to the respective mortgage holders. Two of these, United New Mexico Bank and the New Mexico Educators Federal Credit Union, have been actively seeking solutions to the drainage problem since 1991.

(12"pipe)

In 1990 Easterling & Associates, Inc. (EAI) was engaged to attempt to solve the drainage dilemma. It became clear that no one on BASINS 4, 5 OR 6 could develop their property alone unless they sacrificed an unreasonably large area for ponding offsite flows. The most logical solution appeared to be a cooperative one.

In 1991, EAI modeled the entire Coors Pond Basin using AHYMO with the "new" City Hydrology (See MAP 1, green boundary). A regional drainage implementation plan was proposed. It was based on sending all discharge from BASINS 1 THROUGH 4 to the Coors Ponds. The La Orilla Road Storm Sewer which discharges to the Coors Ponds was to accept reduced—peak outflow from BASINS 2 AND 3. BASINS 1 AND 4 were to detain water in strip ponds in and along the Coors Boulevard right-of-way and also discharge to the Coors Ponds. BASINS 5 AND 6 would then be able to handle their own detention requirements without the additional burden of providing storage for flow coming over and under Coors Boulevard.

As work progressed on this scheme, U.S. West and other communication companies commenced placement of fiber optics in the Coors Boulevard and La Orilla Road Rights-of-Way. Relocation costs for fiber optics would have nearly doubled the original construction cost estimate making the first scheme impractical.

The most recent proposal coincided with the willingness of the BASIN 6 owners to become active participants. A description of this proposal may be found in the following section.

E. DESCRIPTION OF PROPOSED SOLUTION

The plan proposed for final design is shown in schematic form on MAP 2. It is based on dividing the flow between two outfalls to the Rio Grande. The Montaño Outfall is already in place while a new outfall is proposed to cross the Riverside Drain near the extension of Montaño Plaza Drive.

Montaño Outfall

All water generated on BASINS 2 AND 3 will be detained in a hydraulically connected pond straddling via Corta del Sur. Damped peak flows will be carried under La Orilla Road to join the existing La Orilla Road Storm Sewer System at Manhole S-42. Flow will eventually end up in the Coors Ponds and be shuttled to the river via the Montaño Outfall.

The two southern tracts on BASIN 4, (BASIN 4B), will discharge to the existing Coors Ponds. An approximately 1.5 acre extension of the existing north pond onto BASIN 4B will allow that basin free discharge to the system. Onsite detention may serve to decrease the extension's size depending on the future developer's plans. Construction of this facility is not a part of the La Orilla Drainage Plan.

PLAZA DRIVE OUTFALL

Stormwater from BASIN 1 and BASIN 4A will utilize the existing two pairs of 30" RCP's to cross Coors Boulevard. BASIN 1 will be allowed free discharge to the 24" RCP under La Orilla Road. Some detention will be achieved via berming near the culvert inlet. BASIN 4A contributions will combine with flow from BASIN 1 in the New Mexico State Highway and Transportation Department R.O.W. before flowing under Coors.

Discharge from the two pairs of culverts will be combined on the east side of Coors in a conveyance running along the BASIN 5/BASIN 6 boundary. This conveyance will collect water from BASIN 5 which will also be allowed free discharge. It will continue along the eastern boundary of BASIN 6 collecting runoff from that basin also. All flow discharged from this conveyance will be detained in a pond adjacent to the Riverside Drain. It will cross over the Drain and enter the Bosque where it will be directed to the River. Conveyance to the Rio Grande may be accomplished via a channel shaped from native materials. Another option may take the form of dispersal within the Bosque encouraging the creation of pre-Conservancy style wetlands.

Several acres on the southeast corner of BASIN 5 and northeast corner of BASIN 6 may have difficulty draining by gravity to the described system. An additional small detention area may be necessary here to damp flows which may be discharged to the Riverside Drain under an existing Middle Rio Grande Conservancy District license.

II. DETAILS OF PLAN

A. HYDROLOGY

1. Montaño Outfall

All hydrology was completed using AHYMO version 392 (REFERENCES 1 AND 4). Input and a summary run are printed in APPENDIX A.

Fully developed conditions were assumed for all subbasins. The 100-year 24-hour storm was used. Subbasin boundaries and parameters for those areas outside the La Orilla Plan are on file at the office of Easterling & Associates.

This run is comprised of all subbasins within the green boundaries on MAP 1 plus BASINS 2, 3 AND 4B. (BASINS 202, 203 AND 204B in AHYMO run.) The run terminates with the Coors Pond outflow, however hydraulic calculations were completed to ensure the additional peak flow could be handled by the downstream system.

All flow from BASINS 202 AND 203 will be collected in a hydraulically connected detention pond straddling Via Corta del Sur. Peak 100-year flows will be damped to less than 5 cfs before being conveyed under La Orilla Road via RCP. They will be discharged to existing Manhole S-42 of the La Orilla Storm sewer system. They will then travel to the Coors Ponds and eventually enter the River via the Montaño outfall.

According to the proposed plan, BASIN 4B (204B in AHYMO run) will also have discharge rights to the Coors Ponds. This run suggests an extension of the northern Coors Pond onto BASIN 4B property. Various combinations of onsite detention and pond extension could be employed by the future developer of BASIN 4B.

2. PLAZA DRIVE OUTFALL

All hydrology was completed using AHYMO Version 392 (REFERENCES 1 AND 4). Input and a summary run are printed in APPENDIX B.

Fully developed conditions were assumed for all subbasins. The 100-year, 24-hour storm was used.

This run is comprised of BASINS 1, 4A, 5 AND 6. (BASINS 201, 204A, 205 AND 206 in AHYMO run.) The run terminates on the east side of the Lower Corrales Riverside Drain Extension.

LA ORILLA DRAINAGE PLAN HYDROLOGY SUMMARY July 1994

			_ 1	Land Use Types (%)				Runoff	Tr., Senerated 100-Yr., nt P = 2.65"	Deter	nmended tion and charge		
ALL	ID (#)	Area (mi²)	Tp (hrs)	A	В	С	D	Q _{p100} (cfs)	Vol ₁₀₀ (Ac–ft)	Q _{p100} (cfs)	Storage _{max} (Ac-ft)	Notes	
OUTFALL	2 (202)	0.033	0.13	70	20	5	5	35	1.1	3		Both Basins 2 + 3 will be detained in a hydraulically connected pond, will	
NTAÑO	(203)	0.087	0.13	80	10	5	5	90	2.7			discharge < 5 cfs to La Orilla Road Storm Drain.	
MON													
	4B (204B)	0.016	0.13	0	10	10	80	41	1.8	N/A	N/A	Runoff from Basin 4B to be collected in extension of existing Coors Ponds. Work to be done when Basin 4B develops.	

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LA ORILLA DRAINAGE PLAN HYDROLOGY SUMMARY July 1994

PLAZA DRIVE OUTFALL	Basin		Time to Peak,					1	enerated 100-Yr., nt P = 2.65"	Deten	nmended tion and charge	
	ID (#)	Area (mi²)	Tp (hrs)	A	В	С	D	Q_{p100} (cfs)	Vol ₁₀₀ (Ac–ft)	Q _{p100} (cfs)	Storage _{max} (Ac-ft)	Notes
	1 (201)	0.045	0.13	70	20	5	5	48	1.5	29	0.3	All collected runoff to be
	4A (204N & 204S)	0.023	0.13	0	10	10	80	60	2.6	60	0	detained in pond, max. storage = 3.2 Ac-ft, max Q _{out} = 110 cfs. Discharge
	5 (205)	0.018	0.13	0	10	10	80	46	2.0	46	0	will cross over Riverside Drain to Bosque where it will be conveyed to Rio
	6 (206N & 206S)	0.046	0.13	5	5	5	85	117	5.3	117	0	Grande or dispersed to create wetland area.

B. LAND ISSUES

1. BASINS 2 AND 3

BASINS 2 AND 3 are wholly within Alban Hills Subdivision, a community of privately owned 5-acre residential lots. This plan would require easements on or ownership of portions of 2 lots within this subdivision as detention pond locations. The affected lots are located on the northeast and northwest corners, respectively, of the La Orilla Road/Via Corta del Sur intersection. Land requirements are estimated at 1.5 acres on the northwest corner and 1.1 acres on the northeast corner.

2. BASIN 6

RCP storm drain, the preferred form of conveyance east of Coors, would not require additional easement. If conveyance takes the form of channel, additional easement in BASIN 6 would be required.

It is also possible that additional easement will be required for a pond on the northeast corner of BASIN 6. This would allow some mitigated flow to the Riverside Drain.

3. OUTLET TO RIO GRANDE

A new outlet to the Rio Grande will be required in the vicinity of the extension of Montaño Plaza Drive toward the river. Approximately 1.5 acres of easement will be required in this area for a detention and water quality control pond just west of and adjacent to the Riverside Drain. Additionally, easement through the Bosque will be needed for dispersal or conveyance of flows to the river. All of these land requirements are on property owned by several Taylor Family Trusts or the Albuquerque Christian Childrens Home.

C. COST SHARING

As discussed earlier, the areas identified in this report are plagued by drainage problems due to exclusion from other public facilities. Although the private sector has made many serious efforts to solve these problems on their own, all solutions have been too costly to implement without public support.

The private sector is presently composed of the following parties:

Party	<u>Ownership</u>
United New Mexico Bank	4.5 Acres, Basin 5
New Mexico Educators Federal Credit Union	2 Acres, Basin 5
La Orilla Partnership	15 Acres, Basin 4A
Jim Shull and others	5 Acres, Basin 5
Taylor Family Trusts	30 Acres, Basin 6

The above mentioned parties are prepared to make cash and/or in-kind (land) contributions toward the design and construction of the proposed facilities.

D. PRELIMINARY COST ESTIMATE

The following cost estimate is based on preliminary information only. It is provided to present a cost base from which to start negotiations.

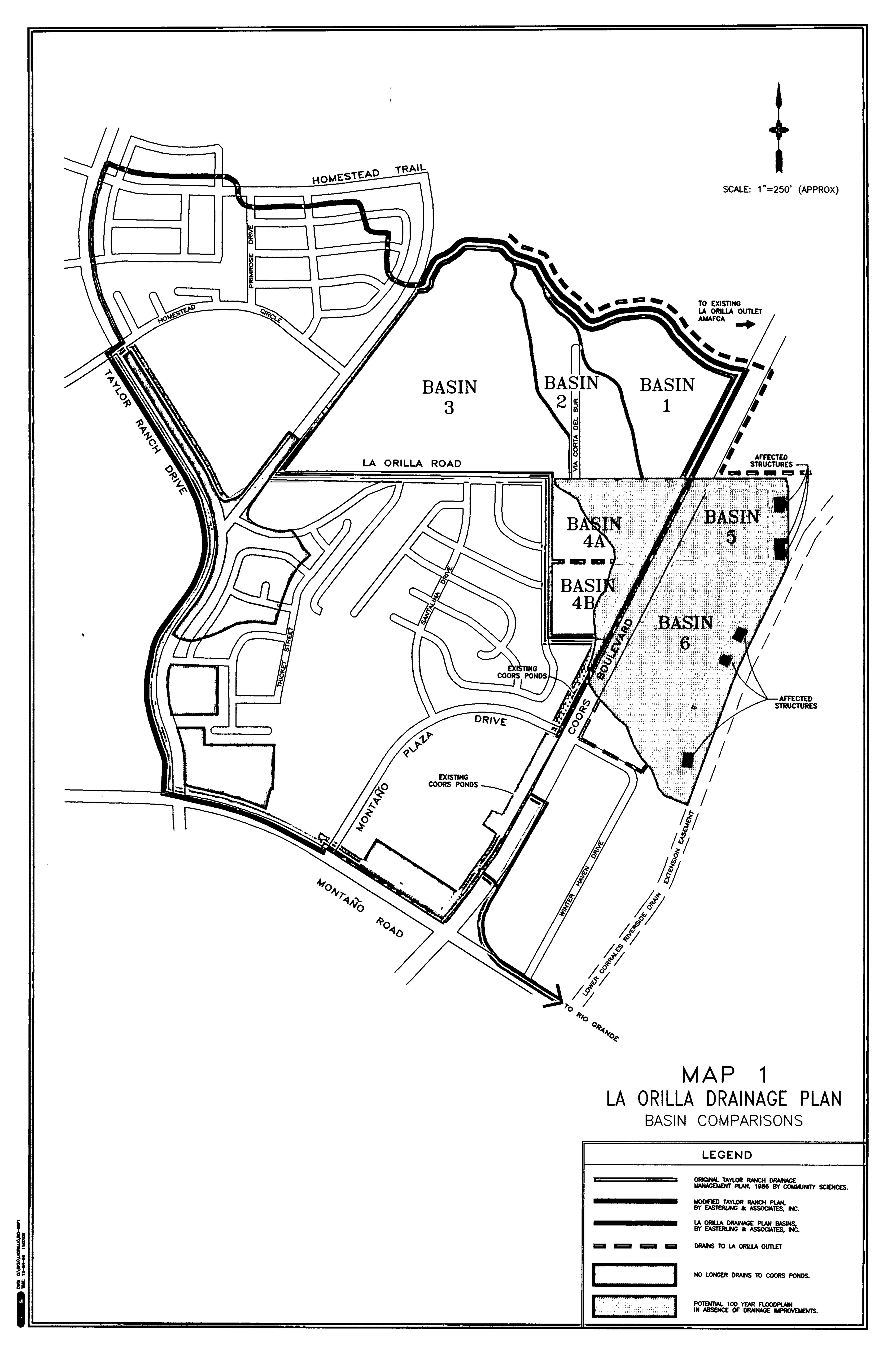
Note that the estimate is divided according to river outlet. The first page details work required on Basins 2, 3 and 4B which all drain to the existing Coors Ponds and ultimately to the Montaño Outfall. Dollar amounts were not estimated for Basin 4B as pond placement and type can best be decided when 4B is to be developed. It will also be paid for directly by the owners/developers of 4B.

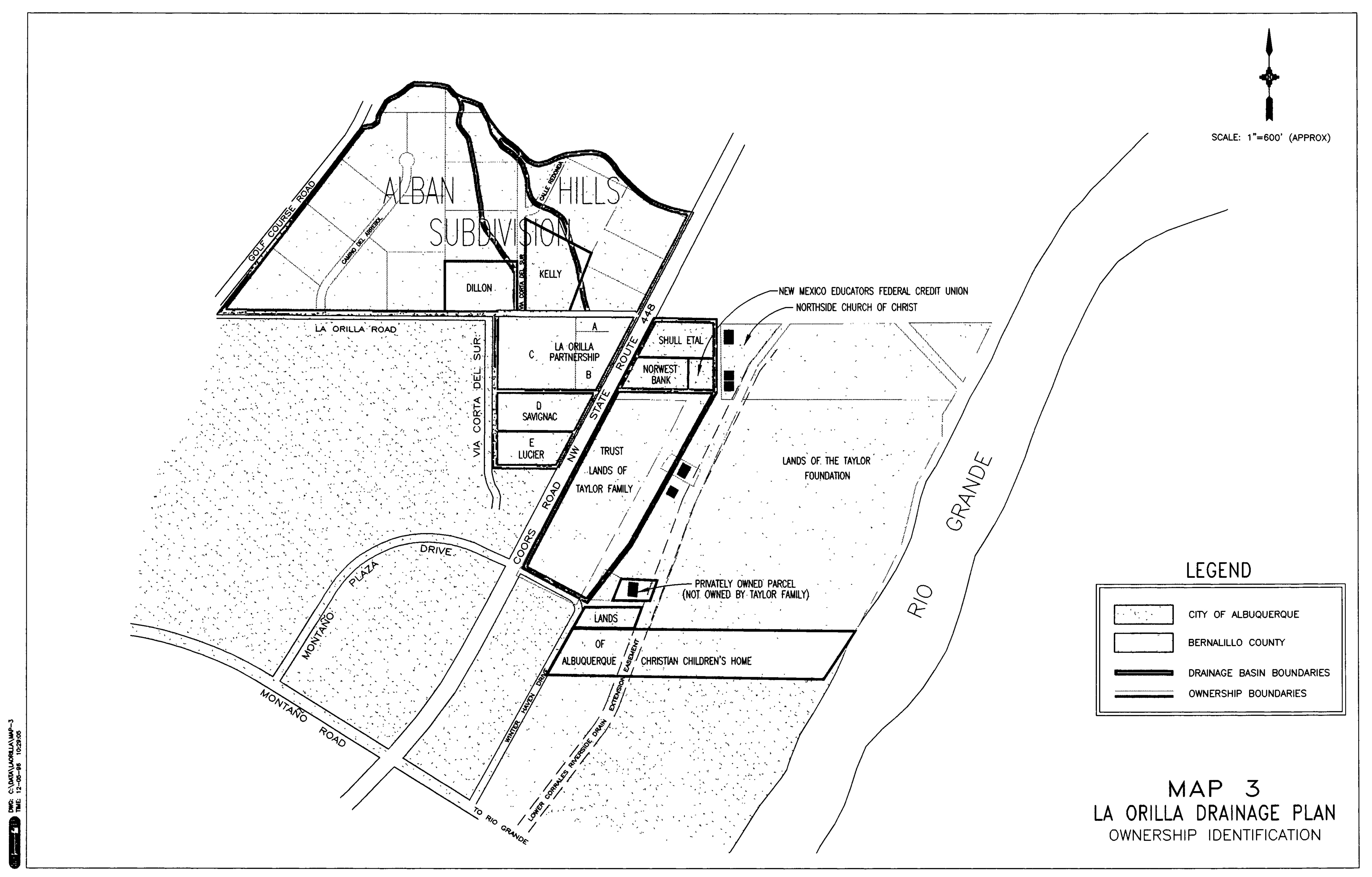
The second page details construction of a new outfall at Montaño Plaza Drive and the associated conveyance facilities.

E. PHASING

All proposed major structural features are immediately buildable and will be designed to carry both existing and built—out flows. The major phasing transition will be caused by sediment entering the system. Consideration has been given to bulking factors in preliminary sizing of design ponds. Actual sediment calculations will be performed during final design.

Some additional ponds excavated only for the purpose of trapping sediment may be necessary, temporarily. They may be located on BASINS 4A, 5 AND/OR BASIN 6 at selected entrances to the system if development has not been completed on those basins prior to construction of the drainage facility.





AHYMO SUMMARY TABLE (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992 INPUT FILE = or95.hmi

RUN DATE (MON/DAY/YR) =08/15/1994 USER NO.= D_HARRIS.S92

										_
	•	FROM	TO		PEAK	RUNOFF		TIME TO	CFS PAG	SE = 1
COLGENITO	HYDROGRAPH	· -	ID	AREA	DISCHARGE	VOLUME	RUNOFF	PEAK	PER	, <u> </u>
COMMAND	IDENTIFICATION	NO.	NO.	(SQ MI)	(CFS)	(AC-FT)	(INCHES)	(HOURS)		ATION
C.M.V.D.M.							•	•		
START	¬								TIME=	.00
	PE=2								RAIN24	
COMPUTE NM H			1	.02810	68.31	2.911	1.94222	1.500	3.798 PER IM	
COMPUTE NM H			2	.02720	64.48	2.702	1.86288	1.500	3.704 PER IM	
COMPUTE NM H			3	.01470	23.38	1.237	1.57787	1.600	2.486 PER IM	
ROUTE	103.30		20	.01470	21.00	1.237	1.57789	1.650	2.232	u – 50.00
COMPUTE NM H			6	.02500	56.76	2.413	1.80983	1.500	3.548 PER IM	P= 65.00
ADD HYD	103.23	20& 6	3	.03970	66.49	3.650	1.72392	1.500	2.617	u – 05.00
ROUTE	103.23	3	18	.03970	62.38	3.650	1.72394	1.550	2.455	
COMPUTE NM H	TD 103.40	-	6	.02360	35.68	1.845	1.46618	1.600	2.433 2.362 PER IM	D- 40 00
ROUTE	103.30	6	19	.02360	34.90	1.845	1.46619	1.650	2.302 FER IN	P= 40.00
ROUTE	103.14	19	20	.02360	33.14	1.845	1.46619	1.700	2.311	
COMPUTE NM HY	TD 103.10	-	7	.04420	100.34	4.266	1.80983	1.500		T)_
ADD HYD	103.14	20& 7	8	.06780	109.49	6.112	1.69020	1.500		P= 65.00
ADD HYD	103.00	8&18	4	.10750	168.90	9.762	1.70265	1.550	— —	
ROUTE	103.00	4	3	.10750	169.51	9.762	1.70266	1.550	· — — —	
COMPUTE NM HY		-	4	.04090	84.59	3.198	1.46618	1.500	2.464 2.221 DED TV	D 40 00
COMPUTE NM HY	D 105.70		5	.08340	107.67	6.522	1.46618	1.650	3.231 PER IM	
ROUTE RESERVO	IR 105.70	5	6	.08340	8.91	6.121	1.37602		2.017 PER IM	
ROUTE	105.70	6	7	.08340	8.91	6.119	1.37579	2.650	.167 AC-FT=	4.530
COMPUTE NM HY	D 105.60	-	8	.00800	14.78	.575	1.34832	2.650	.167	
ADD HYD	105.67	8& 7	9	.09140	15.09	6.695	1.34632	1.500	2.887 PER IM	P= 40.00
STORE HYD	105.50	_	10	.07280	1.40	2.041		1.500	.258	
ROUTE	105.50	10	11	.07280	1.40	2.023	.52575	2.000	.030	
ROUTE	105.67	9	12	.09140	14.80	6.693	1 27202	2.050	.030	
ADD HYD	105.57	12&11	•	.16420	16.08	8.716	1.37303	1.500	. 253	
ROUTE	105.57	13	14	.16420	15.40		.99530	1.500	.153	
COMPUTE NM HY			15	.01260	29.88	8.711	.99468	1.550	.147	
ROUTE RESERVO		15	16	.01260	1.10	1.252	1.86288	1.500	3.705 PER IM	
ADD HYD	105.47	— —	16	.17680	15.92	1.141	1.69827	2.400	.137 AC-FT=	.919
COMPUTE NM HY		_	17	.00670	14.21	9.852	1.04482	1.550	.141	
COMPUTE NM HY			18	.00970	20.07	.585	1.63599	1.500	3.315 PER IM	
ROUTE	105.20	18	19	.00970		.759	1.46618	1.500	3.233 PER IM	P= 40.00
COMPUTE NM HY		_	20	.00880	16.21	.759	1.46623	1.550	2.611	
ROUTE	105.10	20	6	.00880	18.21	.688	1.46618	1.500	3.234 PER IM	2= 40.00
ADD HYD	105.12	6&19	7	.01850	16.00	.688	1.46624	1.550	2.841	
ROUTE	105.47	16	8	.17680	32.21	1.447	1.46617	1.550	2.720	
ROUTE	105.47	8	9		15.86	9.851	1.04469	1.550	.140	
ADD HYD	105.17	9& 7	10	.17680	16.07	9.848	1.04435	1.600	.142	
COMPUTE NM HY		Ja /	20	.19530	47.34	11.294	1.08431	1.550	.379	
ROUTE	105.00	10	_	.05340	77.59	4.176	1.46618	1.600	2.270 PER IM	2 = 40.00
COMPUTE NM HY		10	6 7	.19530	47.40	11.294	1.08427	1.600	.379	
ROUTE	202.00	7	0	.03320	35.27	1.078	.60867	1.500	1.660 PER IM	P= 5.00
COMPUTE NM HY		_	8	.03320	35.16	1.078	.60868	1.500	1.655	
ADD HYD	202.20	- o	10	.08700	89.56	2.727	.58774	1.500	1.609 PER IM	P= 5.00
ROUTE RESERVO		9& 8 10	10	.12020	124.72	3.805	.59351	1.500	1.621	
ROUTE	202.20	10 11	11	.12020	2.78	3.760	. 58659	2.650	.036 AC-FT=	3.267
ADD HYD		11 75. 6	/ C	.12020	2.78	3.760	. 58657	2.650	.036	
ROUTE	105.20	7& 6	8	.31550	49.96	15.054	.89465	1.600	. 247	
	105.20	0	b	.31550	50.56	15.052	.89451	1.600	.250	

Are these Land Treatments reasonable Considering fully developed Conditions?

COMMAND	HYDROGRAPH IDENTIFICATION		TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE =	
ROUTE ROUTE ADD HYD ROUTE NM HYD ADD HYD ROUTE RESERVOR	100.12 100.13 100.14 100.15 100.24	15 - 1& 2 1& 3 1& 4 1& 5	13 14 15 1 1 1 1 1 2	.31550 .31550 .36890 .36890 .01590 .05530 .16280 .20370 .57260 .58850 .58850	51.08 51.09 128.68 128.16 40.58 132.79 290.66 375.25 462.22 497.79 67.07	15.047 15.045 19.220 19.214 1.782 5.613 15.375 18.573 37.787 39.569 38.134	.89421 .89410 .97691 .97658 2.10090 1.90319 1.77077 1.70961 1.23736 1.26068 1.21498	1.600 1.600 1.650 1.500 1.500 1.500 1.550 1.550 2.300	.253 .253 .545 .543 3.988 3.752 2.790 2.878 1.261 1.322 .178	PER IMP=	

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AHYMO SUMMARY TABLE (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992 RUN DATE (MON/DAY/YR) =08/15/1994
INPUT FILE = orilla.hmi USER NO.= D_HARRIS.S92

	HYDROGRAPH	FROM	TO ID	AREA	PEAK DISCHARGE	RUNOFF VOLUME	RUNOFF	TIME TO PEAK	CFS PER	PAGE =	1
COMMAND	IDENTIFICATION	NO.	NO.	(SQ MI)	(CFS)	(AC-FT)	(INCHES)	(HOURS)	ACRE	NOTATI	ON
START										TIME=	.00
RAINFALL T	YPE= 2									RAIN24=	2.650
COMPUTE NM	HYD 201.00	_	1	.04510	47.91	1.464	.60867	1.500	1.660	PER IMP=	5.00
ROUTE RESER	VOIR 201.00	1	2	.04510	28.99	1.464	.60866	1.650		AC-FT=	.357
ROUTE	201.00	2	3	.04510	28.96	1.464	.60868	1.650	1.003		, ,
COMPUTE NM	HYD 204.00	_	4	.02340	59.72	2.622	2.10090	1.500		PER IMP=	80.00
DIVIDE HYD	204.00	4	5	.00772	19.71	.865	2.10089	1.500	3.988		
	204.00	AND	6	.01568	40.01	1.757	2.10089	1.500	3.988		
ADD HYD	204.10	5& 3	7	.05282	42.64	2.329	.82681	1.550	1.261		
ROUTE RESER	VOIR 204.10	7	8	.05282	42.89	2.329	.82681	1.550	1.269	AC-FT=	.041
ROUTE RESER	VOIR 204.00	6	9	.01568	39.41	1.757	2.10089	1.500	3.928	AC-FT=	.038
ADD HYD	204.10	8& 9	10	.06850	79.75	4.086	1.11841	1.550	1.819		
ROUTE RESER	VOIR 204.10	10	11	.06850	65.98	4.086	1.11841	1.650	1.505	AC-FT=	.551
ROUTE	205.10	11	12	.06850	66.24	4.086	1.11842	1.650	1.511		
COMPUTE NM	HYD 205.00	-	13	.01800	45.90	2.017	2.10090	1.500	3.985	PER IMP=	80.00
DIVIDE HYD	205.00	13	14	.00900	22.95	1.008	2.10088	1.500	3.985		
	205.00	AND	15	.00900	22.95	1.008	2.10088	1.500	3.985		
ADD HYD	204.15	12&15	16	.07750	80.63	5.094	1.23250	1.600	1.626		
ROUTE	204.15	16	17	.07750	80.71	5.094	1.23251	1.600	1.627		
ADD HYD	204.15	14&17	18	.08650	9 6.37	6.103	1.32285	1.600	1.741		
ROUTE	206.15	18	19	.08650	94.76	6.103	1.32286	1.600	1.712		
COMPUTE NM	HYD 206.00	-	20	.02560	65.72	2.946	2.15751	1.500	4.011	PER IMP=	85.00
ADD HYD	206.15	20&19	1	.11210	143.63	9.048	1.51346	1.550	2.002		
ROUTE	206.16	1	2	.11210	142.27	9.049	1.51347	1.600	1.983		
COMPUTE NM	HYD 206.00	-	3	.02050	52.63	2.359	2.15751	1.500	4.011	PER IMP=	85.00
ADD HYD	206.16	2& 3	4	.13260	186.33	11.407	1.61303	1.550	2.196		
ROUTE RESER	VOIR 200.00	4	5	.13260	106.44	11.407	1.61303	1.900	1.254	AC-FT=	3.174
FINISH											

