ATRISCO BUSINESS PARK

MASTER DRAINAGE PLAN

Prepared For

Westland Development Company, Inc.

JUNE, 1980

Prepared By

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I, Fred Denney, hereby certify that the enclosed documents and drawings were prepared under my supervision and are true and correct to the best of my knowledge and belief.

New Mexico Registered Professional
Engineer and Land Surveyor No. 1967

SEAL

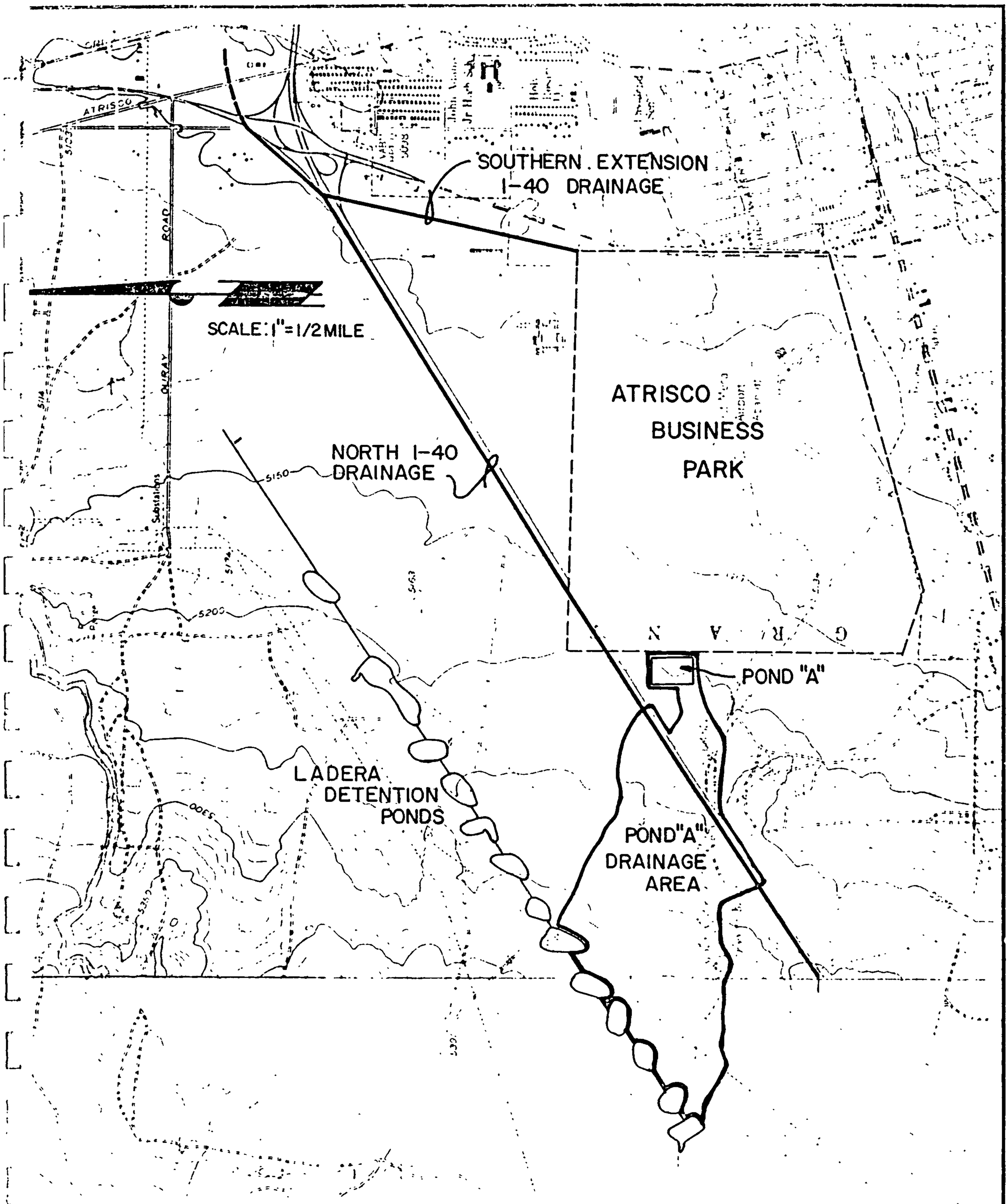

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FIGURE 1
VICINITY MAP

ATRISCO BUSINESS PARK
Master Drainage Plan

I. INTRODUCTION:

The study area included in this report includes the Atrisco Business Park and areas contributing off-site drainage to the Park. The general location of the Park is on the west side of Coors Boulevard between Fortuna Road and Central Avenue. The Park has been partially developed and this consideration has been accounted for in this study.

The soil in the study area consists of a fine sandy loam which is slightly calcareous with an alkalinity which runs from mild to moderate. The soil is moderately permeable with an available water capacity from 7.5 inches to 9.0 inches. Runoff from this type of soil in its native state is slow. The hazard of wind or water erosion is moderate to severe. Depth to the permanent watertable in the Park area is over 100 feet. The native vegetative cover generally consists of black grama, sand dropseed, Indian ricegrass, four wing saltbush and sand sagebrush.

The land slopes generally to the east at approximately 2%. In the off-site contributing watersheds the drainageways are well defined and concentrate into two arroyos which cross under Interstate 40. Within the Park, the arroyos disappear due to the spreading of the storm waters. On the easterly side of the Park several natural playas exist as seen on Plates 1 and 2.

II. PURPOSE:

The purpose of this report is to present a drainage plan for Atrisco Business Park to update a previous plan that was prepared August, 1974. This update considers changes in the development plan for the Park and proposed off-site drainage improvement facilities that would effect the amount of off-site drainage which presently enters the Park.

III. GENERAL:

As in the previous plan, each individual tract or site must be developed so that the tract will contain all of the 6-hour, 100-year rainstorm runoff. The public streets within the Park must be graded in accordance with Plate 3 so that the runoff generated within the street right-of-ways are led to retention ponds sized to contain the total runoff from a 6-hour, 100-year rainstorm.

The street and individual site ponds are to be drained within 72 hours. In order to do this an underground pipe system must be constructed to carry pond waters from the Park to off-site facilities. The off-site facilities, consisting of a drainage structure starting at the northeast corner of the Park and thence north adjacent to Coors Road to Interstate 40, are planned. Only after the structure is in place can the underground pipe system be built. All of the on-site ponds must have a slotted standpipe outlet works, as shown in Figure 1, plugged at the property line until the pipe system

is put into service. In short, the on-site ponds can only be made to drain in 72 hours after the off-site facilities are constructed.

Two arroyos pass under Interstate 40 and enter the Park along the western boundary (see Plate 1). The City of Albuquerque may construct facilities along the north side of Interstate 40 to intercept the two arroyos. However, it is necessary to provide a temporary retention impoundment (Pond A) sized to contain the runoff from a 6-hour, 100-year rainstorm. This may become a permanent facility in the event upstream control works are not constructed. A diversion channel from the arroyos to the impoundment is designed to convey the peak runoff from a 100-year storm.

IV. OFF-SITE RUNOFF:

Pond A is designed to hold 100% of the runoff from a 6-hour, 100-year storm flow in the two major arroyos which enter the Park from the West Both arroyos cross land which adjoins Atrisco Business Park on the west and is owned by Westland Development Company. The diversion channels shown on Plate 3 are designed to carry the peak runoff from a 100-year rainfall. Additional water from a larger than the 100-year peakflow will overflow the diversion and continue in the original channels. The Rational Method has been used to determine the peak flows in the channels. The time of concentration (Tc) is equal to the length from the farthest reach divided by the flow travel time in feet per minute.

The intensity (I) is taken from the Intensity-Duration-Frequency Curves for the Albuquerque Area-1961 prepared by Gordon Herkenhoff and Associates, Inc. For the 100-year storm I = (189/(Tc + 25)). Channels are sized using Manning's Formula $Q = (A)(1.486/n)(R)^{2/3}(S)^{1/2}$.

Computations:

Southern Channel:

Area = 179.43 acres Length = 7,525 ft.

Tc = 7525 ÷ 1.75(60) = 71.7 min.

I = 189 ÷ (71.7 + 25) = 2.0 in/hr

Q = 179.43(2.0)(0.5) = 179.4 cfs

Channel Size:

Q_{REQ} = 179.4 cfs S = 0.0125 n = 0.0225

Bottom Width = 5' Depth = 2.0'

2:1 Side Slope Q = 209.91 cfs O.K.

Combined Channels:

Area = 282.43 acres Length = 8,575 ft.

Tc = 8575 ÷ 1.75(60) = 81.7 min.

I = 189 ÷ (81.7 + 25) = 1.8 in/hr

Q = 282.43(1.8)(0.5) = 254.2 cfs

Channel Size:

Q_{REQ} = 254.2 cfs S = 0.0533 n = 0.0225

Bottom Width = 5' Depth = 1.75'

2:1 Side Slope Q = 319.11 cfs O.K.

Pond A - Required Volume:

Area = 305.58 acres

Volume = 305.52(0.5)(2.2/12) = 28.0 AF

To drain Pond A in 72 hours the required flow is as follows:

$$(28\ AF \times 43{,}560\ \frac{ft^3}{AF})/(72\ hrs. \times 60\ \frac{min}{hr.} \times 60\ \frac{hr.}{sec}) = 4.71\ cfs$$

The water will flow from the pond through a pipe to a small earthen channel then south along the Western porperty line to the Southwest corner of the Park then East to the Honeywell ponds. Should the water from Pond A cause an overflow of the Honeywell ponds provision shall be made for it to continue east in the 75 foot drainage easement along the South boundary of the Park, eventually exiting the site in Unser Boulevard where it historically exited from the site.

V. STREET RUNOFF:

The 6-hour, 100-year rainfall is 2.2 inches. The runoff factors of 0.95 for paved areas and 0.5 for individual areas is used to compute volumes of street runoff. Ponds have been placed as shown on Plate 3 to collect, and are sized to hold, 100% of the street runoff.

Combined Runoff Factors:

106' Rights-of-Way; 88' Paved; 18' Landscaped

((88' x .95) + (18' x .5))/106' = 0.87

60' Rights-of-Way; 48' Paved; 12' Landscaped

((48' x .95) + (12' x .5))/60' = 0.86

Pond 1 - Required Volume:

106' Right-of-Way

= 937.5 x 106 x 0.87 x (2.2/12) = 15,850 ft^3

60' Right-of-Way

= 2325 x 60 x 0.86 x (2.2/12) = 21,995 ft^3

TOTAL 37,845 ft^3

Required Area @ 3 Feet Deep

37,845 ÷ 3' = 12,615 ft^2 = 0.290 acres

Pond 2 - Required Volume:

106' Right-of-Way

3937.5 x 106 x 0.87 x (2.2/12) = 66,571 ft^3

60' Right-of-Way

= 1612.5 x 60 x 0.86 x (2.2/12) = 15,254 ft^3

TOTAL 81,825 ft^3

Required Area @ 3 Feet Deep

81,825 ÷ 3' = 27,275 ft^2 = 0.626 acres

Pond 3 - Required Volume:

60' Right-of-Way

= 2,737.5 x 60 x 0.86 x (2.2/12) = 25,897 ft^3

TOTAL 25,897 ft^3

Required Area @ 3 Feet Deep

25,897 ÷ 3' = 8,632 ft^2 = 0.198 acres

Pond 4 - Required Volume:

106' Right-of-Way

= 637.5 x 106 x 0.87 x (2.2/12) = 10,778 ft^3

60' Right-of-Way

= 1387.5 x 60 x 0.86 x (2.2/12) = 13,126 ft^3

TOTAL 23,904 ft^3

Required Area @ 3 Feet Deep

23,904 ÷ 3' = 7,968 ft^2 = 0.183 acres

Pond 5 - Required Volume:

106' Right-of-Way

= 1575 x 106 x 0.87 x (2.2/12) = 26,629 ft^3

TOTAL 26,629 ft^3

Required Area @ 3 Feet Deep

26,629 ÷ 3' = 8,876 ft^2 = 0.204 acres

Pond 6 - Required Volume:

106' Right-of-Way

= 1,575 x 106 x 0.87 x (2.2/12) = 26,629 ft^3

TOTAL 26,629 ft^3

Required Area @ 3 Feet Deep

26,629 ÷ 3' = 8,876 ft^2 = 0.204 acres

Pond 7 - Required Volume:

106' Right-of-Way

= (½)3,075 x 106 x 0.87 x (2.2/12) = 25,995 ft^3

TOTAL 25,995 ft^3

Required Area @ 3 Feet Deep

25,995 ÷ 3' = 8,665 ft^2 = 0.199 acres

Pond 8 - Required Volume:

106' Right-of-Way

= (½)3,075 x 106 x 0.87 x (2.2/12) = 25,995 ft^3

TOTAL 25,995 ft^3

Required Area @ 3 Feet Deep

25,995 ÷ 3' = 8,665 ft^2 = 0.199 acres

Pond 9 - Required Volume:

60' Right-of-Way

1,950 x 60 x 0.86 x (2.2/12) = 18,447 ft^3

TOTAL 18,447 ft^3

Required Area @ 3 Feet Deep

18,447 ÷ 3' = 6,149 ft^2 = 0.141 acres

Pond 10 - Required Volume:

106' Right-of-Way

= 1,725 x 106 x 0.87 x (2.2/12) = 29,165 ft^3

TOTAL 29,165 ft^3

Required Area @ 3 Feet Deep

29,165 ÷ 3' = 9,722 ft^2 = 0.223 acres

Pond 11 - Required Volume:

60' Right-of-Way

= ((½)2,100 + 675) x 60 x 0.86 x (2.2/12) = 16,319 ft^3

TOTAL 16,319 ft^3

Required Area @ 3 Feet Deep

16,319 ÷ 3' = 5,440 ft^2 = 0.125 acres

Pond 12 - Required Volume:

60' Right-of-Way

= (½)2,100 x 60 x 0.86 x (2.2/12) = 9,933 ft^3

TOTAL 9,933 ft^3

Required Area @ 3 Feet Deep

9,933 ÷ 3 = 3,311 ft^2 = 0.076 acres

Pond 13 - Required Volume:

60' Right-of-Way

= 2,775 x 60 x 0.86 x (2.2/12) = 26,252 ft^3

TOTAL 26,252 ft^3

Required Area @ 3 Feet Deep

26,252 ÷ 3' = 8,751 ft^2 = 0.201 acres

Pond 14 - Required Volume:

60' Right-of-Way

= 1,125 x 60 x 0.86 x (2.2/12) = 10,643 ft^3

TOTAL 10,643 ft^3

Required Area @ 3 Feet Deep

10,643 ÷ 3 = 3,548 ft^2 = 0.081 acres

Totals: Required Volume = 385,478 ft^3

Required Surface Area @ 3 Feet Deep

= 128,493 ft^2 = 2.950 acres

All water from the streets will flow in the streets and through curb cuts and rundowns to the ponding areas. The Rational Method (Q=AIR) is used to find the peak flow. In determining intensities a minimum time of concentration of 10 minutes is used giving an intensity of 5.4 inches per

hour. There is no instance in which the time of concentration will exceed 10 minutes from the farthest reach to a ponding area. (Example: I = 5.4, R = 0.87 (for 106' right-of-way), Right-of-Way Width = 106', Length = 500'; Q = (106 x 500)/43,560 x (5.4)(0.87) = 5.72 cfs.)

PEAK FLOW TO CURB CUTS

POND #	Right-of-Way WIDTH(ft.)	LENGTH(ft.)		PEAK FLOW(cfs)
1	60	2,325		14.9
	106	937.5		10.7
			TOTAL	25.6
2(cc_1)	106	2,062.5		23.6
			TOTAL	23.6
(cc_2)	106	1,425		16.3
	106	450		5.1
			TOTAL	21.4
(cc_3)	60	1,612.5		10.3
			TOTAL	10.3
3	60	675		4.3
	60	2,062.5		13.2
			TOTAL	17.5
4	106	787.5		9.0
	60	1,350		8.6
			TOTAL	17.6
5	106	750		8.6
	106	900		10.3
			TOTAL	18.9
6	106	1,575		18.0
			TOTAL	18.0

POND #	Right-of-Way WIDTH(ft.)	LENGTH(ft.)		PEAK FLOW(cfs)
7	106	(½)1,425		8.1
	106	(½)1,650		9.4
			TOTAL	17.5
8	106	(½)1,425		8.1
	106	(½)1,650		9.4
			TOTAL	17.5
9	60	975		6.2
	60	487.5		3.1
	60	487.5		3.1
			TOTAL	12.4
10	106	900		10.3
	106	825		9.4
			TOTAL	19.7
11	60	(½)2,100		6.7
	60	675		4.3
			TOTAL	11.0
12	60	(½)2,100		6.7
			TOTAL	6.7
13	60	1,425		9.1
	60	375		2.4
	60	975		6.2
			TOTAL	17.7
14	60	1,125		7.2
			TOTAL	7.2

In addition to the curb cuts being sized to contain the peak flow the streets themselves must be capable of carrying the peak flow. The capacities are computed using Manning's Formula for open channel flow.

Street Capacities:

To Pond 1: Width = 88 ft. Area = 22.22 ft^2

WP = 68.00 ft HR = 0.33 Slope = 0.01280

$Q = 22.22(1.486/0.013)(0.33)^{2/3}(0.01280)^{1/2}$

= 137.2 cfs > 25.6 cfs O.K.

To Pond 2: (cc_1): Width = 88 ft. Area = 22.22 ft^2

WP = 68.00 ft HR = 0.33 Slope = 0.00388

$Q = 22.22(1.486/0.013)(0.33)^{2/3}(0.00388)^{1/2}$

= 75.6 cfs > 23.6 cfs O.K.

(cc_2): Width = 88 ft. Area = 22.22 ft^2

WP = 68.00 ft HR = 0.33 Slope = 0.00912

$Q = 22.22(1.486/0.013)(0.33)^{2/3}(0.00912)^{1/2}$

= 115.8 cfs > 21.4 cfs O.K.

(cc_3): Width = 45 ft. Area = 19.88 ft^2

WP = 46.33 ft HR = 0.43 Slope = 0.00372

$Q = 19.88(1.486/0.013)(0.43)^{2/3}(0.00372)^{1/2}$

= 79.0 cfs > 10.3 cfs O.K.

To Pond 3: Width = 45 ft. Area = 19.88 ft^2

WP = 46.33 ft HR = 0.43 Slope = 0.00296

$Q = 19.88(1.486/0.013)(0.43)^{2/3}(0.00296)^{1/2}$

= 70.4 cfs > 17.5 cfs O.K.

To Pond 4: Width = 45 ft. Area = 19.88 ft^2

WP = 46.33 ft HR = 0.43 Slope = 0.00921

$Q = 19.88(1.486/0.013)(0.43)^{2/3}(0.00921)^{1/2}$

= 124.2 cfs > 17.6 cfs O.K.

To Pond 5: Width = 88 ft. Area = 22.22 ft^2

WP = 68.00 ft HR = 0.33 Slope = 0.00800

$Q = 22.22(1.486/0.013)(0.33)^{2/3}(0.00800)^{1/2}$

= 108.5 cfs > 18.9 cfs O.K.

To Pond 6: Width = 88 ft. Area = 22.22 ft^2

QP = 68.00 ft HR = 0.33 Slope = 0.00889

$Q = 22.22(1.486/0.013)(0.33)^{2/3}(0.00889)^{1/2}$

= 114.4 cfs > 18.0 cfs O.K.

To Pond 7: Width = 88 ft. Area = 22.22 ft^2

WP = 68.00 ft HR = 0.33 Slope = 0.01455

$Q = 22.22(1.486/0.013)(0.33)^{2/3}(0.01455)^{1/2}$

= 146.3 cfs > 17.5 cfs O.K.

To Pond 8: Width = 88 ft. Area = 22.22 ft^2

WP = 68.00 ft HR = 0.33 Slope = 0.01455

$Q = 22.22(1.486/0.013)(0.33)^{2/3}(0.01455)^{1/2}$

= 146.3 cfs > 17.5 cfs O.K.

To Pond 9: Width = 45 ft. Area = 19.88 ft^2

WP = 46.33 ft HR = 0.43 Slope = 0.01026

$Q = 19.88(1.486/0.013)(0.43)^{2/3}(0.01026)^{1/2}$

= 131.1 cfs > 12.4 cfs O.K.

To Pond 10: Width = 88 ft. Area = 22.22 ft^2

WP = 68.00 ft HR = 0.33 Slope = 0.01212

$Q = 22.22(1.486/0.013)(0.33)^{2/3}(0.01212)^{1/2}$

= 133.5 cfs > 19.7 cfs O.K.

To Pond 11: Width = 45 ft. Area = 19.88 ft^2

WP = 46.33 ft HR = 0.43 Slope = 0.00741

$Q = 19.88(1.486/0.013)(0.43)^{2/3}(0.00741)^{1/2}$

= 111.4 cfs > 11.0 cfs O.K.

To Pond 12: Width = 45 ft. Area = 19.88 ft^2

WP = 46.33 ft HR = 0.43 Slope = 0.01333

$Q = 19.88(1.486/0.013)(0.43)^{2/3}(0.01333)^{1/2}$

= 149.5 cfs > 6.7 cfs O.K.

To Pond 13: Width = 45 ft Area = 19.88 ft^2

WP = 46.33 ft HR = 0.43 Slope = 0.01128

$Q = 19.88(1.486/0.013)(0.43)^{2/3}(0.01128)^{1/2}$

= 137.5 cfs > 17.7 cfs O.K.

To Pond 14: Width = 45 ft. Area = 19.88 ft^2

WP = 46.33 ft HR = 0.43 Slope = 0.00444

$Q = 19.88(1.486/0.013)(0.43)^{2/3}(0.00444)^{1/2}$

= 86.3 cfs > 7.2 cfs O.K.

VI. POND DRAINAGE:

The great majority of Atrisco Business Park has yet to be developed creating a special problem when trying to locate new storm sewer lines. In Plate 3 we have subdivided the undeveloped parcels and located ponding areas where they could conceivably be placed. We have then extended storm sewer lines to these ponds to allow for their drainage. In each case we have tried to locate the ponds at the low area of each tract where it is most likely to be placed upon development. This is by no means to be held as a final development

plan with ponds to be placed at the locations we have shown, but more to give an estimate of the extent of the storm sewer system needed to drain the ponds wherever they may eventually be located. The storm sewers shown in the street right-of-way are to be put into place between the back of curb and property line.

The construction of the drainage system set forth in this report is dependent upon when or if the City of Albuquerque goes ahead with its plan to build a structure on the north side of Interstate 40 and extend that structure south, adjacent to Coors Road, to Fortuna Road. The entire Atrisco Business Park drainage system will flow to this southern extension of the I-40 structure.

The purpose for providing a drainage system for Atrisco Business Park is to allow all ponding areas on site to be completely drained 72 hours after a rainfall of the magnitude of a 6-hour, 100-year storm. In order to compute the flow per acre of land necessary to meet this demand we multiply the 6-hour storm of 2.2 inches times the number of square feet per acre times the runoff factor:

$$0.86 \times 2.2 \text{ in.} \times (1\text{ft}/12\text{in}) \times 43.560 \text{ ft}^3/\text{acre}$$

$$= 6{,}868 \text{ ft}^3/\text{acre}$$

This is the number of cubic feet per 72 hours per acre which must be drained. This is then reduced to cubic feet per second as follows:

$$6{,}868 \text{ ft}^3/\text{acre} \times (1/72\text{hr})(1\text{hr}/60\text{min})(1\text{min}/60\text{sec})$$

$$= 0.0265(\text{ft}^3/\text{sec})/\text{acre}$$

Using a flow of 0.027 cfs/acre will sufficiently drain the individual ponding areas in the Park. The approximate acreages of the tracts outlined in Plate 3 and the flows required to drain their ponds are listed below.

PLATE 3 TRACT #	APPROXIMATE ACREAGE	72-HOUR DRAIN FLOW (CFS)
1	41.9	1.1
2	56.1	1.5
3	33.3	0.9
4	24.7	0.7
5	22.8	0.6
6	21.3	0.6
7	29.5	0.8
8	23.1	0.6
9	22.1	0.6
10	80.1	2.2
11	42.4	1.1
12	1.3	0.1
13	11.7	0.3
14	7.8	0.2
15	5.9	0.2
16	8.7	0.2
17	15.7	0.4
18	13.5	0.4
19	3.5	0.1
20	22.0	0.6
21	5.1	0.1
22	22.9	0.6
23	17.1	0.5
24	8.6	0.2
25	8.9	0.2
26	16.2	0.4
27	5.0	0.1
28	13.3	0.4
29	13.3	0.4
30	7.6	0.2
31	9.6	0.3
32	15.6	0.4
33	10.1	0.3
34	14.7	0.4
TOTAL	655.4	17.7

To empty the ponds collecting the street runoff in 72 24 hours the following flows are required:

POND #	VOLUME (FT^3)	72-HOUR DRAIN FLOW (CFS)
1	37,845	0.1
2	81,825	0.3
3	25,897	0.1
4	23,904	0.1
5	26,629	0.1
6	26,629	0.1
7	25,995	0.1
8	25,995	0.1
9	18,447	0.1
10	29,165	0.1
11	16,319	0.1
12	9,933	0.1
13	26,252	0.1
14	10,643	0.1
TOTAL	385,478	1.6

Required Pipe Capacities: On Plate 3 the sections of pipe have been lettered A through CC. The peak flows in the various sections are found by determining which tract ponds and street ponds contribute to it as follows:

PIPE SECTION	CONTRIBUTION FLOWS
A	Tract Ponds: 1(1.1) Street Ponds: 6(0.1) Total Flow: 1.2 cfs
B	Tract Ponds: 1(1.1), 2(1.5), ½10(1.1) Street Ponds: 6(0.1), 7(0.1), 8(0.1) Total Flow: 4.0 cfs
C	Tract Ponds: 3(0.9) Street Ponds: None Total Flow: 0.9 cfs
D	Tract Ponds: 1(1.1), 2(1.5), 3(0.9), 4(0.7), 5(0.6), 6(0.6), 7(0.8), 8(0.6), 10(2.2), 12(0.1), 13(0.3), 14(0.2), 15(0.2), 16(0.2) Street Ponds: 1(0.1), 2(0.3), 4(0.1), 5(0.1), 6(0.1), 7(0.1), 8(0.1) Total Flow: 10.9 cfs

PIPE SECTION	CONTRIBUTION FLOWS
E	Tract Ponds: 1(1.1), 2(1.5), 3(0.9), 4(0.7), 5(0.6), ½10(1.1) Street Ponds: 1(0.1), 6(0.1), 7(0.1), 8(0.1) Total Flow: 6.3 cfs
F	Tract Ponds: 1(1.1), 2(1.5), 3(0.9), 4(0.7), 5(0.6), 6(0.6), ½20(1.1) Street Ponds: 1(0.1), 6(0.1), 7(0.1), 8(0.1) Total Flow: 6.9 cfs
G	Tract Ponds: ½32(0.2) Street Ponds: None Total Flow: 0.2 cfs
H	Tract Ponds: 31(0.3), ½32(0.2), ½34(0.2) Street Ponds: None Total Flow: 0.7 cfs
I	Tract Ponds: 30(0.2), 31(0.3), ½32(0.2), ½34(0.2) Street Ponds: 9(0.1) Total Flow: 1.0 cfs
J	Tract Ponds: 29(0.4), 30(0.2), 31(0.3), ½32(0.2), ½34(0.2) Street Ponds: 9(0.1), 10(0.1) Total Flow: 1.5 cfs
K	Tract Ponds: 29(0.4), 30(0.2), 31(0.3), ½32(0.2), ½34(0.2) Street Ponds: 9(0.1), 10(0.1) Total Flow: 1.5 cfs
L	Tract Ponds: ½34(0.2) Street Ponds: None Total Flow: 0.2 cfs
M	Tract Ponds: ½26(0.2), ½34(0.2) Street Ponds: None Total Flow: 0.4 cfs
N	Tract Ponds: ½26(0.2), 27(0.1), 28(0.4), 29(0.4), 30(0.2), 31(0.3), ½32(0.2), 34(0.4) Street Ponds: 9(0.1), 10(0.1), 11(0.1), 12(0.1) Total Flow: 2.6 cfs
O	Tract Ponds: 14(0.2), 16(0.2) Street Ponds: None Total Flow: 0.4 cfs

PIPE SECTION	CONTRIBUTING FLOWS
P	Tract Ponds: ½10(1.1), 13(0.3), 14(0.2), 15(0.2), 16(0.2) Street Ponds: 2(0.3) Total Flow: 2.3 cfs
Q	Tract Ponds: ½10(1.1), 12(0.1), 13(0.3), 14(0.2), 15(0.2), 16(0.2) Street Ponds: 2(0.3) Total Flow: 2.4 cfs
R	Tract Ponds: 1(1.1), 2(1.5), 3(0.9), 4(0.7), 5(0.6), 6(0.6), 7(0.8), ½10(1.1) Street Ponds: 1(0.1), 4(0.1), 6(0.1), 7(0.1), 8(0.1) Total Flow: 7.8 cfs
S	Tract Ponds: 1(1.1), 2(1.5), 3(0.9), 4(0.7), 5(0.6), 6(0.6), 7(0.8), 8(0.6), ½10(1.1) Street Ponds: 1(0.1), 4(0.1), 5(0.1), 6(0.1), 7(0.1), 8(0.1) Total Flow: 8.5 cfs
T	Tract Ponds: 1(1.1), 2(1.5), 3(0.9), 4(0.7), 5(0.6), 6(0.6), 7(0.8), 8(0.6), 10(2.2), 12(0.1), 13(0.3), 14(0.2), 15(0.2), 16(0.2) Street Ponds: 1(0.1), 2(0.3), 4(0.1), 5(0.1), 6(0.1), 7(0.1), 8(0.1), Total Flow: 10.9 cfs
U	Tract Ponds: 1(1.1), 2(1.5), 3(0.9), 4(0.7), 5(0.6), 6(0.6), 7(0.8), 8(0.6), 10(2.2), 11(1.1), 12(0.1), 13(0.3), 14(0.2), 15(0.2), 16(0.2) Street Ponds: 1(0.1), 2(0.3), 4(0.1), 5(0.1), 6(0.1), 7(0.1), 8(0.1) Total Flow: 12.0 cfs
V	Tract Ponds: 1(1.1), 2(1.5), 3(0.9), 4(0.7), 5(0.6), 6(0.6), 7(0.8), 8(0.6), 10(2.2), 11(1.1), 12(0.1), 13(0.3), 14(0.2), 15(0.2), 16(0.2), 17(0.4), 18(0.4), 20(0.6), 21(0.1), 22(0.6), 23(0.5), 24(0.2), 25(0.2), 26(0.4), 27(0.1), 28(0.4), 29(0.4), 30(0.2), 31(0.3), 32(0.4), 33(0.3), 34(0.4), Street Ponds: 1(0.1), 2(0.3), 3(0.1), 4(0.1), 5(0.1), 6(0.1), 7(0.1), 8(0.1), 9(0.1), 10(0.1), 11(0.1), 12(0.1), 13(0.1), 14(0.1) Total Flow: 18.6 cfs

PIPE SECTION	CONTRIBUTING FLOWS
W	Tract Ponds: ½32(0.2) Street Ponds: None Total Flow: 0.2 cfs
X	Tract Ponds: ½32(0.2), 33(0.3) Street Ponds: None Total Flow: 0.5 cfs
Y	Tract Ponds: 25(0.2), ½26(0.2), ½32(0.2), 33(0.3) Street Ponds: 13(0.1) Total Flow: 1.0 cfs
Z	Tract Ponds: 24(0.2), 25(0.2), 26(0.4), 27(0.1), 28(0.4), 29(0.4), 30(0.2), 31(0.3), 32(0.4), 33(0.3), 34(0.4) Street Ponds: 9(0.1), 10(0.1), 11(0.1), 12(0.1), 13(0.1), 14(0.1) Total Flow: 3.9 cfs
AA	Tract Ponds: 23(0.5), 24(0.2), 25(0.2), 26(0.4), 27(0.1), 28(0.4), 29(0.4), 30(0.2), 31(0.3), 32(0.4), 33(0.3), 34(0.4) Street Ponds: 9(0.1), 10(0.1), 11(0.1), 12(0.1), 13(0.1), 14(0.1) Total Flow: 4.4 cfs
BB	Tract Ponds: 20(0.6), 23(0.5), 24(0.2), 25(0.2), 26(0.4), 27(0.1), 28(0.4), 29(0.4), 30(0.2), 31(0.3), 32(0.4), 33(0.3), 34(0.4) Street Ponds: 3(0.2), 9(0.1), 10(0.1), 11(0.1), 12(0.1), 13(0.1), 14(0.1) Total Flow: 5.2 cfs
CC	Tract Ponds: 20(0.6), 21(0.1), 23(0.5), 24(0.2), 25(0.2), 26(0.4), 27(0.1), 28(0.4), 29(0.4), 30(0.2), 31(0.3), 32(0.4), 33(0.3), 34(0.4) Street Ponds: 3(0.2), 9(0.1), 10(0.1), 11(0.1), 12(0.1), 13(0.1), 14(0.1) Total Flow: 5.3 cfs

Pipe Sizes: In determining pipe sizes to handle the flows found in the previous section we have used Figure 2 of the Concrete Pipe Design Manual by the American Concrete

Pipe Association, Flow for Circular Pipe Flowing Full based on Manning's Equation n = 0.010. (Figure 2 of this report). The pipe sizes are listed in Table 1.

VII. CONCLUSION:

Each individual tract within Atrisco Business Park will retain, in designated ponding areas, 100% of the 6-hour, 100-year rainfall after development. All rainfall in the streets will be carried by the streets to on-site ponding areas specifically designed to contain street runoff.

Until such time as the City of Albuquerque constructs the I-40 interceptor channel, 28 acre-feet of runoff will be impounded off-site in Pond A before being allowed to flow into the Park at a manageable rate.

After construction of the I-40 channel and a southern extension to the Northeast corner of the Park, a pond drain system can be put into place. This underground pipe will drain all on-site ponds within a 72 hour period. Pond A will then no longer be required and can be abandoned.

TABLE 1 - Pipe Sizes

PIPE SECTION	REQ. FLOW (CFS)	SLOPE (%)	LENGTH (FT.)	PIPE SIZE (IN.)
A	1.2	1.636	1,650.0	8
B	4.0	1.280	937.5	12
C	0.9	1.600	1,350.0	6
D	10.9	0.211	410.0	24
E	6.3	0.150	720.0	21
F	6.9	0.150	950.0	21
G	0.2	0.627	525.0	6
H	0.7	0.627	550.0	8
I	1.0	1.020	825.0	8
J	1.5	1.020	450.0	8
K	1.5	1.037	775.0	8
L	0.2	1.368	562.5	6
M	0.4	1.368	682.5	6
N	2.6	0.593	625.0	12
O	0.4	0.372	877.5	6
P	2.3	0.635	787.5	10
Q	2.4	1.273	825.0	10
R	7.8	0.650	235.0	18
S	8.5	0.229	1,310.0	21
T	10.9	0.113	1,100.0	27
U	12.0	0.113	710.0	27
V	18.6	0.167	1,150.0	30
W	0.2	1.082	900.0	6
X	0.5	1.082	937.5	6
Y	1.0	1.082	1,125.0	8
Z	3.9	0.921	368.0	12
AA	4.4	0.921	479.0	12
BB	5.2	0.921	405.0	15
CC	5.3	0.921	442.0	15

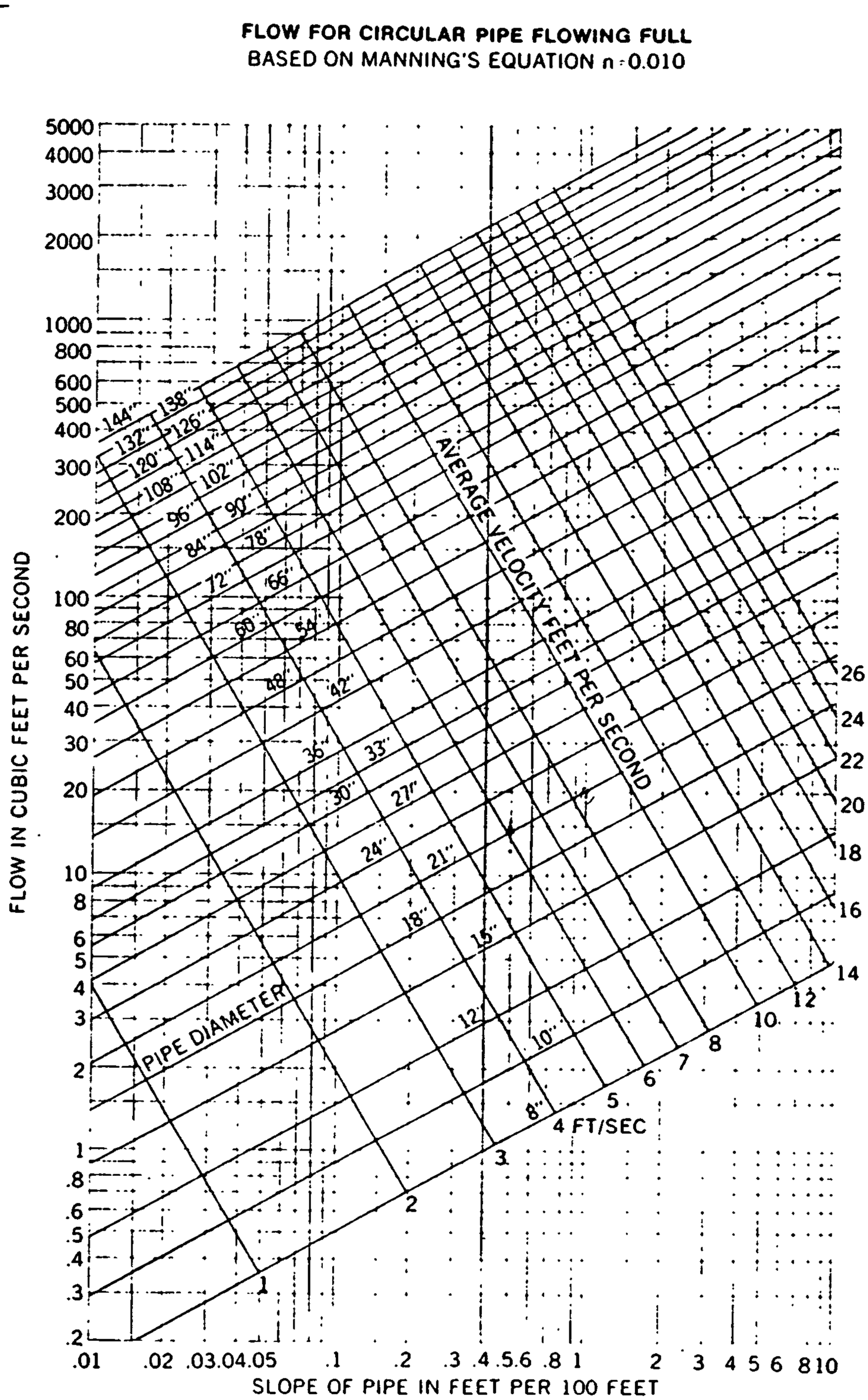
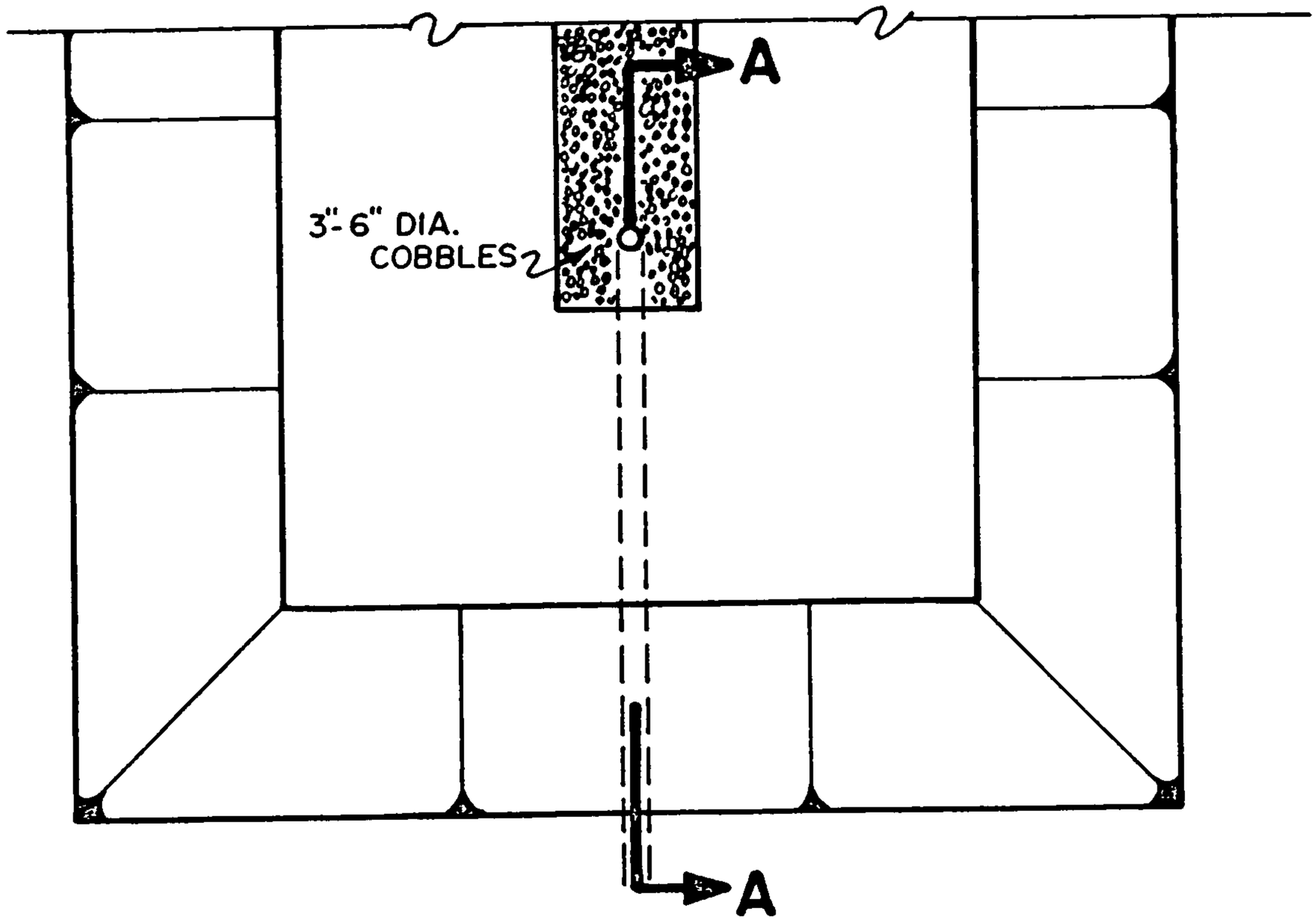
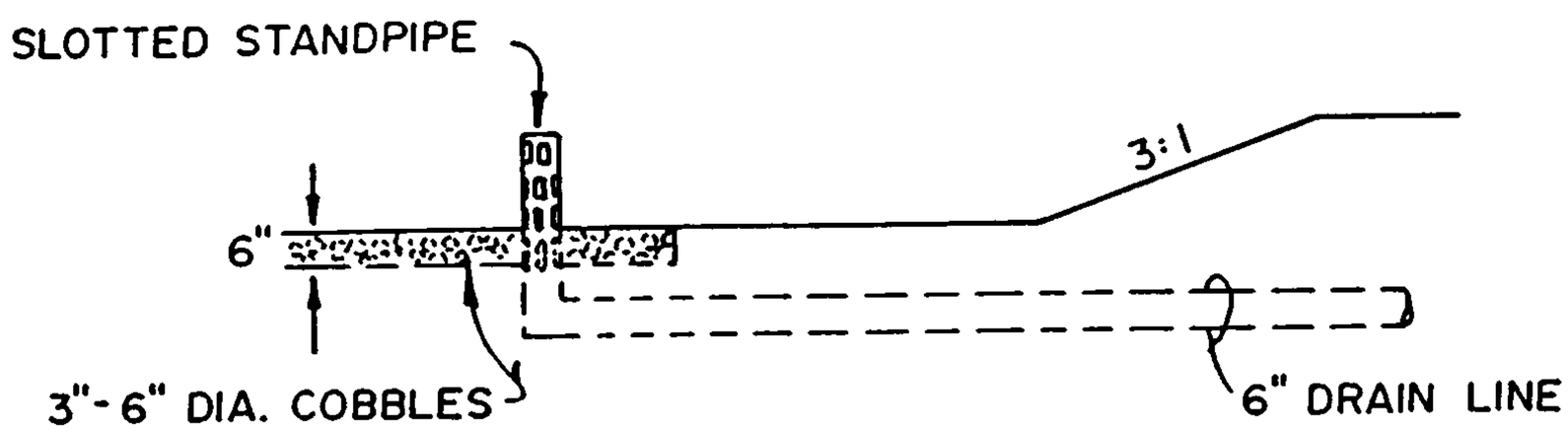

FLOW FOR CIRCULAR PIPE FLOWING FULL
BASED ON MANNING'S EQUATION n = 0.010
FLOW IN CUBIC FEET PER SECOND
SLOPE OF PIPE IN FEET PER 100 FEET
PIPE DIAMETER
AVERAGE VELOCITY FEET PER SECOND
4 FT/SEC

Figure 2



PLAN



SECTION A-A

TYPICAL POND DETAIL

ATRISCO BUSINESS PARK

MEMORANDUM OF UNDERSTANDING

This memorandum describes the terms of an Agreement between the City of Albuquerque and Westland Development Company, Inc. acting through its executive committee. This Agreement covers matters pertaining to drainage within the Atrisco Business Park and adjacent areas. The parties hereto agree as follows:

A. Westland Development Company, Inc. will:

1. Modify its drainage management plan to include provision for a future storm drainage system to be installed in Atrisco Business Park providing for evacuation of ponding areas. This system will be designed to evacuate the 100 year runoff from the streets and developed areas in a period of not more than 72 hours.

2. Construct the drainage system in increments as the Park is developed and at such time as the City provides an outlet for the system as set forth in Paragraphs 1, 2, and 3 of Section B herein.

3. Implement the ponding system now covered in the drainage management plan in increments necessary for the protection of development as the remaining parcels of the Park are developed.

4. Insure by appropriate covenants reviewed by the City of Albuquerque, that future owners or lessees of parcels in the Business Park will be bound by the provisions of this Agreement and the approved drainage management plan.

5. Maintain or cause to be maintained the ponding system now covered in the drainage management plan, including any damage caused by the ponding system which may occur within the public right-of-way.

6. Permit the collection of surface flows from public streets within the Atrisco Business Park in the ponding system now covered in the drainage management plan.

B. The City of Albuuqerque agrees to:

1. Prepare detailed design and construction contract documents for a diversion channel north of I-40 with an outlet to the Rio Grande, together with a branch system to provide an outlet for the future Atrisco Business Park System south of I-40.

2. Recommend that funds for construction of the diversion channel and outlet system be included in the October, 1981, General Obligation Bond Issue.

3. Immediately initiate actions leading to construction of these improvements upon approval by the electorate of the bond issue.

4. Operate and maintain that system upon completion by Westland of the storm drainage system for pond evacuation.

5. Approve the drainage management plan prepared by Westland which plan includes a signed copy of this agreement, and accept phased implementation of that plan.

The foregoing describes in general terms the Agreement between the parties. In executing this instrument each party agrees to cooperate with the other party in an effort to acquire the best possible drainage management plan for the Atrisco Business Park consistent with public need.

Executed this _____day of _____. 1980.

WESTLAND DEVELOPMENT COMPANY, INC.

By: _____
Ramon S. Herrera, President

CITY OF ALBUQUERQUE, NEW MEXICO
OFFICE OF THE MAYOR

By: _____
David Rusk, Mayor

Item # 10

April 10, 1998

J-10/D002

MEMO

To: Board of Directors

Fr: Chris Lackmann
Real Estate Manager

Re: Unser Diversion Channel; Quitclaim of ROW to City

By Agreement dated 7/16/93 (copy attached), AMAFCA and the City, together with various private landowners (Sunwest Bank, The Bell Group, Inc. and Keleher/Van Atta), agreed to acquire property and construct portions of the Unser Diversion Channel. The private parties contributed land, cash and services; the City and AMAFCA contributed cash and constructed the project. During the surveying of the property, AMAFCA's surveyor discovered a problem (that Westland owned some small slivers of land within the project), and the private parties resolved that situation.

Per Section Two, ¶2.1(e), AMAFCA is obligated to quitclaim the right-of-way to the City, since the City will be the agency maintaining the facility.

RECOMMEND: that the Board authorize the Chairman to execute the originals of the attached Quitclaim Deed and Assignment of Easements.

C:\11WP\ltrs\memo\M-O-MEMO\unswer qcd mem
April 10, 1998

Bell Group #21575
pd. 10-18-96
Sunwest #28425
pd. 10-7-96

AGREEMENT
FOR
ATRISCO BUSINESS PARK
STORM WATER IMPROVEMENTS

THIS AGREEMENT is entered as of the 16th day of July, 1993, by and among the City of Albuquerque, a municipal corporation, ("City"), Albuquerque Metropolitan Arroyo Flood Control Authority, a political subdivision of the State of New Mexico ("AMAFCA"), Sunwest Bank of Albuquerque, N.A., a national banking association ("Sunwest"), The Bell Group Inc., a New Mexico corporation ("Bell"), and William B. Keleher, Michael L. Keleher, John G. Keleher, Thomas F. Keleher, Clare Van Atta Oehmke, James Ellis, Mary Van Atta Ellis, Myrle Van Atta Redmond, Margaret Redmond Haughton, and Elizabeth Redmond Allbright (collectively, "KVA").

WHEREAS, Sunwest and Bell own real estate within Unit No. 2, Atrisco Business Park, a subdivision shown on the plat filed for record on June 14, 1972 in the records of Bernalillo County, New Mexico and recorded in Book D-5 Folio 157, a portion of which real estate has since 1973 been replatted (the "Sunwest-Bell Lands"); and

WHEREAS, the Sunwest-Bell Lands are currently partially encumbered by a floodplain as shown on Exhibit "A" attached hereto and incorporated herein by reference, and are therefore in need of storm water drainage facilities to reduce or eliminate the floodplain and address other drainage issues; and

WHEREAS, the reduction or elimination of the floodplain provides a public benefit in that it reduces the flood potential to existing facilities and development which have experienced flood problems in the last several years, and also creates developable land in an area zoned for commercial and industrial uses, and such uses will generate jobs and revenue for the community, and

WHEREAS, KVA owns real estate (The "KVA Lands") to the west of and abutting the Sunwest-Bell Lands, and

WHEREAS, AMAFCA is willing to construct, and for a period following such construction, operate and maintain storm water drainage facilities, desilting basins and sediment storage ponds, earthen swale, diversion dikes, maintenance road and underground culverts at the Los Volcanes and Bluewater Road crossings and appurtances, ("Stormwater Drainage Facilities") all as shown conceptually on Exhibit B, attached hereto and incorporated herein by reference (the "Unser Diversion") to reduce or eliminate the floodplain and address other drainage problems existing upon the Sunwest-Bell Lands, and

WHEREAS, AMAFCA's construction of the Unser Diversion is necessary because the City would be unable to finance such construction for several years, yet such construction is an integral part of a larger AMAFCA and City drainage system identified as Amole del Norte Storm System, and

WHEREAS, the construction of the Unser Diversion facilitates conveyance of drainage to the Amole del Norte watershed and reduces the flows that would reach the Westbluff Outfall, thereby allowing the Westbluff Outfall to carry flows from other areas, and

WHEREAS, although the construction, operation and maintenance of the Unser Diversion will provide no present benefits to the Lands of KVA the Unser Diversion will ultimately provide, at such times as the KVA Lands are developed, benefits to the KVA Lands, and

WHEREAS, the City is willing to assume all responsibility for the operation and maintenance of the Unser Diversion following the expiration of the initial period of operation and maintenance by AMAFCA, and

WHEREAS, conceptual plans for the Unser Diversion have been prepared by Easterling & Associates, Inc., Professional Engineers ("Easterling") as shown on Exhibit "B"; and

WHEREAS, a Drainage Report prepared for Sunwest by Easterling will be approved by City and AMAFCA prior to commencement of construction of the Unser Diversion; and

WHEREAS, the contributions of Sunwest, Bell and KVA towards the construction of regional stormwater facilities necessary to control floodwater will be of material assistance to AMAFCA and the City in constructing regional stormwater and flood control facilities, all as more fully shown on Exhibit C attached hereto and incorporated herein by reference; and

WHEREAS, Sunwest and Bell have each agreed, as described in this Agreement, to make contributions of cash and provide for design work, and Sunwest, Bell and KVA have each agreed to grant to AMAFCA, right-of-way, either in fee or by easement, in order that the design and construction of the proposed Unser Diversion can proceed; and

WHEREAS, Sunwest and City have heretofore entered into Drainage Agreement #4383.82 dated September 14, 1992, and filed with the City Clerk's Office on September 14, 1992 as Document #09291792, for the construction of drains known as the Airport Storm Drain and the Coors Connection Storm Drain; and propose to enter into an agreement for the construction of the Airport Bluewater Storm Drain (the "Airport/Bluewater Storm Drain Agreement"); and

WHEREAS, the estimated right-of-way necessary for AMAFCA to construct the Unser Diversion, and to be granted to AMAFCA, either on a permanent or interim basis, by Sunwest, Bell and KVA is shown on Exhibit "D" attached hereto and incorporated herein by reference; and

WHEREAS, the flow of storm water from the Unser Diversion will require the construction of the Tierra Bayita Storm Drain, and the City has agreed, subject to passage of a bond issue, to

construct the Tierra Bayita Storm Drain with an anticipated construction start date no sooner than January 1, 1994; provided, however, that City funds for the Tierra Bayita Storm Drain are contingent upon passage of a bond issue and sale of the bonds by the City no earlier than November of 1993; and

WHEREAS, AMAFCA's long range plans anticipate that between the years 1995 and 2000 it will commence the construction of a drainage channel presently identified as the West Bluff Channel which is to be located on the north side of I-40 (the "West Bluff Channel"); and

WHEREAS, AMAFCA is currently negotiating with the City of Albuquerque to assume the responsibility for the West Bluff Channel; provided, however, that funds for right-of-way and construction for the West Bluff Channel are contingent upon passage of bond issues and sale of bonds by AMAFCA and the City in the future; and

WHEREAS, conditioned upon the agreement of Sunwest and Bell (i) to contribute funds to AMAFCA and grant right-of-way for the Unser Diversion, and (ii) contribute funds to the City for design modifications to the SAD 214 Pond now located on Parcel A-1 of the replat of the Atrisco Business Park, the connection of the SAD 214 Pond to the Tierra Bayita Storm Drain and the connection of the Unser Diversion to the Tierra Bayita Storm Drain/SAD 214 Pond (the "SAD 214 Pond Improvements"), all as shown conceptually on Exhibit "B", KVA has agreed to contribute right-of-way to AMAFCA in order that AMAFCA can construct the Unser Diversion.

NOW, THEREFORE, THE PARTIES HERETO IN CONSIDERATION OF THE MUTUAL PROMISES AND COVENANTS SET FORTH HEREIN AGREE AS FOLLOWS:

Section One - General:

1.1 The parties to this agreement each agree to the commitments contained herein for the construction of the Unser Diversion and the SAD 214 Pond Improvements.

1.2 Each party to this agreement agrees to timely provide its, his or her contribution as stated herein.

Section Two - AMAFCA Agrees:

2.1 To be responsible for the following regarding the Unser Diversion:

a. Conditioned upon receipt of required right-of-way easements or a quitclaim deed from Sunwest, Bell and KVA, and receipt of the funds required to be contributed by Sunwest and Bell pursuant to Sections 5.1 and 6.1, respectively, hereof, to pay for the construction of the Unser Diversion, currently estimated to be approximately $800,000.00.

b. In conjunction with the City, conduct timely review and approval of designs of the Unser Diversion.

c. Be the contracting agency for construction of the Unser Diversion. As contracting agency, AMAFCA

agrees that its responsibilities include, but are not limited to, the preparation of final construction documents, bid letting, associated activities, construction engineering, surveying and testing services, and final acceptance of the Unser Diversion.

d. Operate and maintain the Unser Diversion for thirty-six (36) months following completion and acceptance by AMAFCA or until completion of the Tierra Bayita Storm Drain by the City, whichever occurs first.

e. Upon acceptance by the City of the operation and maintenance of the Unser Diversion, AMAFCA shall convey the real estate acquired by it and assign the easements and other interests granted to AMAFCA for the Unser Diversion, to the City.

2.2 To request from the Federal Emergency Management Agency ("FEMA") a Conditional Letter of Map Revision ("CLOMR") upon completion of the preliminary design of the Unser Diversion, which request as prepared shall be a joint request of and executed by AMAFCA and the City. Upon receipt of the CLOMR, AMAFCA shall cause the design of the Unser Diversion, to be completed, bids to be let, construction to be commenced, and be completed as soon as possible thereafter.

2.3 As soon as possible following completion of the construction of the Unser Diversion AMAFCA agrees to request, and use its best efforts to obtain, a Letter of Map Revision ("LOMR") issued by FEMA, deleting the Sunwest-Bell lands as a floodplain. Such request shall be a joint request of and executed by AMAFCA and the City.

Section Three - City Agrees:

3.1 To join with AMAFCA in requesting from FEMA a CLOMR upon completion and approval of preliminary design of the Unser Diversion.

3.2 Conditioned upon receipt of funds required to be contributed by Sunwest and Bell, pursuant to Sections 5.1 and 6.1, respectively hereof to design the SAD 214 Pond Improvements.

3.3 To join with AMAFCA, as soon as possible following completion of the construction of the Unser Diversion, in requesting from FEMA, and to use its best efforts to obtain from FEMA, a LOMR.

3.4 Thirty-six (36) months after completion and acceptance by AMAFCA or upon the completion of the Tierra Bayita Storm Drain, whichever occurs first, and upon inspection and acceptance by the City to assume full and complete responsibility for the operation and maintenance of the Unser Diversion.

3.5 To operate and maintain the SAD 214 Pond Improvements after their completion and acceptance by the City.

3.6 Subject to passage of a bond issue and subsequent sale of the bonds, to construct, operate and maintain the SAD 214 Pond Improvements and the Tierra Bayita Storm Drain.

3.7 At such time as the Unser Diversion is funded, to accept from the owners of the Sunwest-Bell Lands applications for development including, but not limited to, subdivision approvals, zone changes and building permits on lands currently encumbered by the flood plan shown on Exhibit "A". The City makes no representation or warranty that the applications will be approved.

Section Four - City and AMAFCA jointly agree:

4.1 To work with each other in order to expedite the Unser Diversion, the SAD 214 Pond Improvements and the related improvements.

4.2 To keep Sunwest and Bell advised of the progress of the application for the CLOMR and the LOMR.

4.3 That (i) prior to the completion of the Unser Diversion, the SAD 214 Pond Improvements, the Tierra Bayita Storm Drain and the West Bluff Channel, the discharge of storm water from the KVA Lands shall be limited by the City Drainage Ordinance, and (ii) upon completion of the Unser Diversion, the SAD 214 Pond Improvements, the Tierra Bayita Storm Drain and the West Bluff Channel, stormwater discharge from the KVA Lands, following construction of improvements upon the KVA Lands, shall be permitted at a minimum of a design rate of 1.3 cubic feet per second per gross acre of KVA Lands.

4.4 To continue to plan for the construction of West Bluff Channel.

4.5 AMAFCA and the City make no representation or warranty that the application for CLOMR or the LOMR will be approved, it being understood only that AMAFCA and the City will use best efforts to seek approval of the applications.

4.6 Until the Unser Diversion is accepted by the City, AMAFCA shall be solely responsible for maintaining the premises upon which the Unser Diversion is being constructed in a safe condition. Until the Unser Diversion is accepted by the City, AMAFCA agrees to defend, indemnify and hold harmless the City and its officials, agents, and employees from any claims, actions, suits or other proceedings arising from or out of the negligent acts or omissions of its agents, representatives, contractors or subcontractors or arising from the failure of AMAFCA, its agents, representatives, contractors or subcontractors to

perform any act or duty required herein. After the Unser Diversion is accepted by the City, the City shall be solely responsible for maintaining the premises upon which the Unser Diversion has been constructed in a safe condition. After the Unser Diversion is accepted by the City, the City agrees to defend, indemnify and hold harmless AMAFCA and its officials, agents and employees from any claims, actions, suits or other proceedings arising from or out of the negligent acts or omissions of its agents, representatives, contractors or subcontractors or arising from the failure of the City, its agents, representatives contractors or subcontractors to perform any act or duty required herein. Provided, however, to the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications, by the indemnitee, or the agents or employees of the indemnitee; or (2) the giving of or the failure to give directions or instructions by the indemnitee, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property. The indemnification required hereunder shall not be limited as a result of any applicable insurance coverage. Nothing herein is intended to impair any right or immunity under the laws of the State of New Mexico.

Section Five - Sunwest Agrees:

5.1 To contribute, (i) by quitclaim deed from land owned by Sunwest, land for the Unser Diversion, (ii) design services as described in paragraph 7.1 hereof at a cost presently estimated to be Forty-Seven Thousand One Hundred Eighty Six Dollars ($47,186), (iii) the costs described in Section 5.2 hereof, (iv) pay to AMAFCA Twenty-Eight Thousand Four Hundred Twenty-Five Dollars ($28,425) for the Unser Diversion, and (v) pay to the City an amount not to exceed Five Thousand Six Hundred Eighty-Five Dollars ($5,685) for the design of the SAD 214 Pond Improvements. The present estimate of the size of the land parcel required from Sunwest for the Unser Diversion has been estimated by Easterling at 8.4 acres, as shown on Exhibit "D." The exact size of the land area to be contributed by Sunwest is to be determined, subject to Sunwest's approval, when final design of the Unser Diversion has been completed.

5.2 Said land shall be granted by Sunwest to AMAFCA (and its successors and assigns) by quitclaim deed, prior to the commencement of the construction of the Unser Diversion. Costs of necessary surveys, title searches, plat preparations and filings shall be paid by Sunwest and Bell in such proportions as they have agreed. Sunwest will retain the right to landscape the areas contributed by it in order to help meet landscaping or other requirements that may be imposed on other land by the City of Albuquerque, County of Bernalillo, or other regulatory authorities, so long as (a) in the opinion of AMAFCA and the City, such landscaping does not interfere with or increase the flow of storm water or adversely affect the operation, maintenance and integrity of the Unser Diversion and (b) such landscaping is consistent with applicable City Ordinances then in effect; however, Sunwest shall have no obligation whatsoever to landscape such right-of-way. City does not, by this Agreement agree that any applicable zoning code requirements for landscaping or detached open space will be met by reason of the retained right to landscape the right-of-way.

5.3 To the extent any portion of the land granted by quitclaim deed is, from time to time, no longer used for Stormwater Drainage Facilities, in the opinion of the City, then all of the right, title and interests of AMAFCA, the City, and their successors and assigns will revert to the Grantor, its successors and assigns; provided, however, that if there has been constructed within such land utilities, (including but not limited to water or sanitary sewer facilities) the City will retain an easement for such utilities.

5.4 That so long as Sunwest is the owner of all or any part of the Sunwest-Bell Land, it will not object to rezoning or special use applications of KVA for all, or any portion of, the KVA Lands.

Section Six - Bell Agrees:

6.1 To contribute, (i) by quitclaim deed from land owned by Bell land for the Unser Diversion, (ii) design services as described in paragraph 7.1 hereof at a cost presently estimated to be Thirty-Five Thousand Eight Hundred Fifteen Dollars ($35,815), (iii) the costs described in Section 6.2 hereof, (iv) pay to AMAFCA Twenty-One Thousand Five Hundred Seventy-Five Dollars ($21,575) for the Unser Diversion, and (v) pay to the City an amount not to exceed Four Thousand Three Hundred Fifteen Dollars ($4,315) for the design of the SAD 214 Pond Improvements. The present estimate of the size of the land parcel required from Bell for the Unser Diversion has been estimated by Easterling as 1.8 acres, as shown

on Exhibit "D." The exact land area is to be determined, subject to Bell's approval, when design of the Unser Diversion has been completed.

6.2 Said land shall be granted by Bell to AMAFCA (and its successors and assigns) by quitclaim deed, prior to the commencement of the Unser Diversion. Costs of necessary surveys, title searches, plat preparations and filings shall be paid by Bell and Sunwest in such proportions as they have agreed. Bell will retain the right to landscape the areas contributed by it in order to help meet landscaping or other requirements that may be imposed on other land by the City of Albuquerque, County of Bernalillo or other regulatory authorities so long as (a) in the opinion of AMAFCA and the City, such landscaping does not interfere with or increase the flow of storm water, or adversely affect the operation, maintenance, and integrity of the Unser Diversion, and (b) such landscaping is consistent with applicable City ordinances then in effect; however, Bell shall have no obligation whatsoever to landscape such right of way. City does not by this Agreement agree that any applicable zoning code requirements for landscaping or detached open space will be met by reason of the retained right to landscape the right-of-way.

6.3 To the extent any portion of the land granted by quitclaim deed is, from time to time, no longer used for Stormwater Drainage Facilities, in the opinion of the City, then all of the right, title and interests of AMAFCA, the City, and their successors and assigns will revert to the Grantor, its successors and assigns; provided, however, that if there has been constructed within such land utilities (including but not limited to water or sanitary sewer facilities) the City will retain an easement for such utilities.

Section Seven - Sunwest and Bell Jointly Agree:

7.1 Sunwest and Bell agree to jointly engage. a professional engineering firm (the "Engineer"), to prepare a comprehensive drainage report and to design the Unser Diversion. Such drainage report and design shall meet professional standards and code requirements, and shall be approved by AMAFCA and the City in advance of any construction. All of the costs of the Engineer, the cost of necessary surveys, title searches, plat preparations, filing fees for all easements contributed by KVA, the services of the Engineer in providing all technical data and reports and review fees required for the CLOMR and LOMR to be issued by FEMA shall be paid for by Sunwest and Bell.

7.2 Sunwest and Bell each agree that it will not enter into any agreement, or execute, or permit to be executed on its behalf, any replat of lands owned by it which would cause either Bluewater Road NW or Los Volcanes Road NW to be realigned between the KVA Lands and the present intersection of such roads with Unser Boulevard NW. Each acknowledges that a material consideration in the agreement of KVA to contribute a disproportionate quantity of land to AMAFCA is access to the KVA Lands from Unser Boulevard by both Bluewater Road NW and Los Volcanes Road NW.

7.3 That all water and sewer extensions within Bluewater or Los Volcanes Road designed or constructed to serve the Sunwest-Bell Lands shall be (i) designed so as to permit such facilities to be extended to the KVA Lands and (ii) at such time as water and sewer facilities are constructed to serve a lot or tract within the Sunwest-Bell Lands, if such lot or tract is contiguous to the KVA Lands such water and sewer facilities shall be constructed within the public right-of-way to the east-west boundary line between the Sunwest-Bell Lands and the KVA Lands.

Section Eight - KVA Agrees:

8.1 To contribute from land owned by KVA right-of-way to AMAFCA for the Unser Diversion. The present size of the land parcel required has been estimated by Easterling as a permanent requirement of 6.4 acres and an interim requirement of 7.2 acres, as shown on Exhibit "D". An exact description of the land to be contributed for the right-of-way, not to exceed 13.6 acres, is to be determined when design of the Unser Diversion has been completed. The land required for the permanent area shall be granted by quitclaim deed. The land required for the interim area shall be granted by easement.

8.2 No cost of surveys, title searches, plat preparations, or filings for the easements from KVA shall be paid by KVA and such costs shall be paid by Sunwest and Bell. KVA will retain the right to landscape the areas contributed by quitclaim deed, in order to help meet landscaping or other requirements that may be imposed on other land by the City of Albuquerque, County of Bernalillo or other regulatory authorities as long as (a) in the opinion of AMAFCA and the City, such landscaping does not interfere with or increase the flow of storm waters or adversely affect the operation, maintenance, and integrity of the Unser Diversion and (b) such landscaping is consistent with applicable City ordinances then in effect; however, KVA shall have no obligation whatsoever to landscape such right of way.

City does not by this agreement agree that any applicable zoning code requirements for landscaping or detached open space will be met by reason of the retained right to landscape the right-of-way.

8.3 To the extent any portion of the land granted by quitclaim deed or easement is, from time to time, no longer necessary for Stormwater Drainage Facilities, in the opinion of the City, then all the right, title and interests of AMAFCA, the City and their successors and assigns will revert to the Grantors, their heirs, successors and assigns (and not to adjoining or abutting property owners) in the proportion of the ownership interests of KVA, as Grantors at the date of the execution of such quitclaim deed or easement.

Section Nine - All Parties Further Agree:

9.1 All parties will strive for prompt action and timely response.

9.2 If any situation arises which adversely affects a party's participating in the Agreement, said party will immediately, and in writing, notify the other parties.

9.3 Any circumstance, including the above, which materially affects this Agreement will be promptly and equitably resolved by all parties, and if necessary, an amendment to this Agreement shall be executed.

9.4 Unresolvable differences shall be referred to binding arbitration under the provisions of the New Mexico Uniform Arbitration Act; however, KVA shall not be required to increase its contribution by reason of such arbitration.

9.5 All storm drainage facilities will be designed and constructed to City, AMAFCA and professional standards and as constructed shall meet all applicable codes and professional standards.

9.6 AMAFCA shall consult with City regarding the execution of change orders and resolve contract claims relating to design and construction of the Unser Diversion. AMAFCA shall assume financial commitments resulting from any change order or resolution of a contract claim from construction of the Unser Diversion, unless such change order or claim is the result of actions by another party to this Agreement.

9.7 The Agreement shall not be assignable by any of the parties to this agreement without the written consent of the other parties to the Agreement, which shall not be unreasonably withheld.

9.8 Any future alteration to the Unser Diversion or any change or modification in operation which affects the Unser Diversion's capacity or functioning shall be agreed to, in writing, and in advance of such change or alteration, by all parties to this agreement.

9.9 Strict accountability shall be required for all funds received and disbursed under the terms of this agreement and upon request, any party shall furnish to the other an accounting of expenditures.

9.10 This agreement may be modified only by mutual written agreement of the parties hereto.

9.11 The parties understand and agree that the obligation of each party under this agreement shall be performed in compliance with all applicable laws, statutes and ordinances. Nothing herein is intended to constitute any agreement for the parties to perform any activity in violation of the Constitution or Laws of the State of New Mexico or the Ordinances of the City of Albuquerque.

9.12 If any clause or provision in this agreement is illegal, invalid, or unenforceable, under present or future laws effective during the term of this agreement, then and in that event, it is the intention of the parties hereto that the remainder of this agreement shall not be affected thereby.

9.13 No landowner granting a quitclaim deed or easement, nor any successor or assign of such landowner, shall have any responsibility for the design, construction, maintenance or operation of any improvements constructed pursuant to this agreement. All such responsibilities are acknowledged to be the responsibility of the City and AMAFCA.

9.14 It is specifically agreed between the parties executing this agreement that this agreement does not and is not intended to create in the public, or any member thereof, any rights whatsoever, such as, but not limited to, the rights of a third party beneficiary, or to authorize anyone not a party to the agreement to maintain a suit(s) for wrongful death(s), bodily and/or personal injury(ies) to person(s), damage(s), and/or any other claim(s) whatsoever pursuant to the provisions of this agreement.

9.15 That City and AMAFCA are expressly not committed to expenditure of any funds until such time as they are authorized by bond issue, budgeted, appropriated by their respective public bodies, and approved for expenditure.

9.16 Sunwest, Bell, and KVA are expressly not committed to contribute any right-of-way, execute any easements or expend any funds as otherwise required by this agreement, until such time as the City and AMAFCA are authorized to expend funding as herein provided and have notified Sunwest, Bell and KVA that such entity is fully authorized to proceed with construction.

9.17 Said right-of-way shall be conveyed to AMAFCA (and its successors and assigns) by quitclaim deed or easement,

in a form containing appropriate reversionary language, prior to construction of the Unser Diversion. The form of quitclaim deed and easement shall be substantially in the form shown on Exhibits "E" and "F", respectively attached hereto and incorporated herein by reference.

9.18 Each individual who is a co-owner of KVA Lands, in lieu of granting right-of-way by easement for the interim area, may, at his or her respective option, convey all or part of such right-of-way by quitclaim deed, and the balance of such right-of-way, if any, by easement. Such quitclaim deed shall contain reversionary language consistent with this agreement.

Section 10 - NOTICES:

Notices to the extent and the notices required or others as necessary under this agreement shall mailed first class mail, postage prepaid, or sent by fax as follows:

To AMAFCA:

Attn: Larry Blair
Executive Engineer
2600 Prospect Ave., NE
Albuquerque, NM 87107

To City:

Attn: Chief Administrative Officer
P.O. Box 1293
Albuquerque, NM 87103

To KVA:

William B. Keleher
Michael L. Keleher
Thomas F. Keleher
Attn: Michael L. Keleher
P.O. Drawer AA
Albuquerque, NM 87103
FAX (505) 247-4429

John G. Keleher
P. O. Box 2412
Aspen, CO 81612

Clare Van Atta Oehmke
2629 Pajarito Road, SW
Albuquerque, NM 87105

James Ellis
Mary Van Atta Ellis
3009 Colonnade Ct, NW
Albuquerque, NM 87107

Myrle Van Atta Redmond
Margaret Redmond Haughton
Elizabeth Redmond Allbright
3220 Texas, NE
Albuquerque, NM 87110

To Sunwest:

Attn: Patrick J. Romo
P.O. Box 25500
Albuquerque, NM 87125-0500
FAX (505) 765-2590

To Bell:

Hugh Bell
The Bell Group
6901 Washington, NE
Albuquerque, NM 87109

A party may designate by notice to the other parties a new address to which any notice may thereafter be given.

Section 11 - SUCCESSORS AND ASSIGNS:
The Agreement and the rights, interests, and obligation hereunder shall be binding upon and shall inure to the benefit of the parties hereto and their respective successors and assigns.

IN WITNESS WHEREOF, the undersigned have caused this agreement to be executed as of the day and year set forth above.

ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY

By _____
Its Chairman, Board of Directors
and
By _____
Its Secretary
Dated July 27, 1993

CITY OF ALBUQUERQUE

By _____
Its Chief Administrative Officer
Dated ~~July~~ __, 1993.
July 23

SUNWEST BANK OF ALBUQUERQUE, N.A., a National Banking Association

By _____
Its _____
Dated July 16 1993

THE BELL GROUP INC., a New Mexico corporation

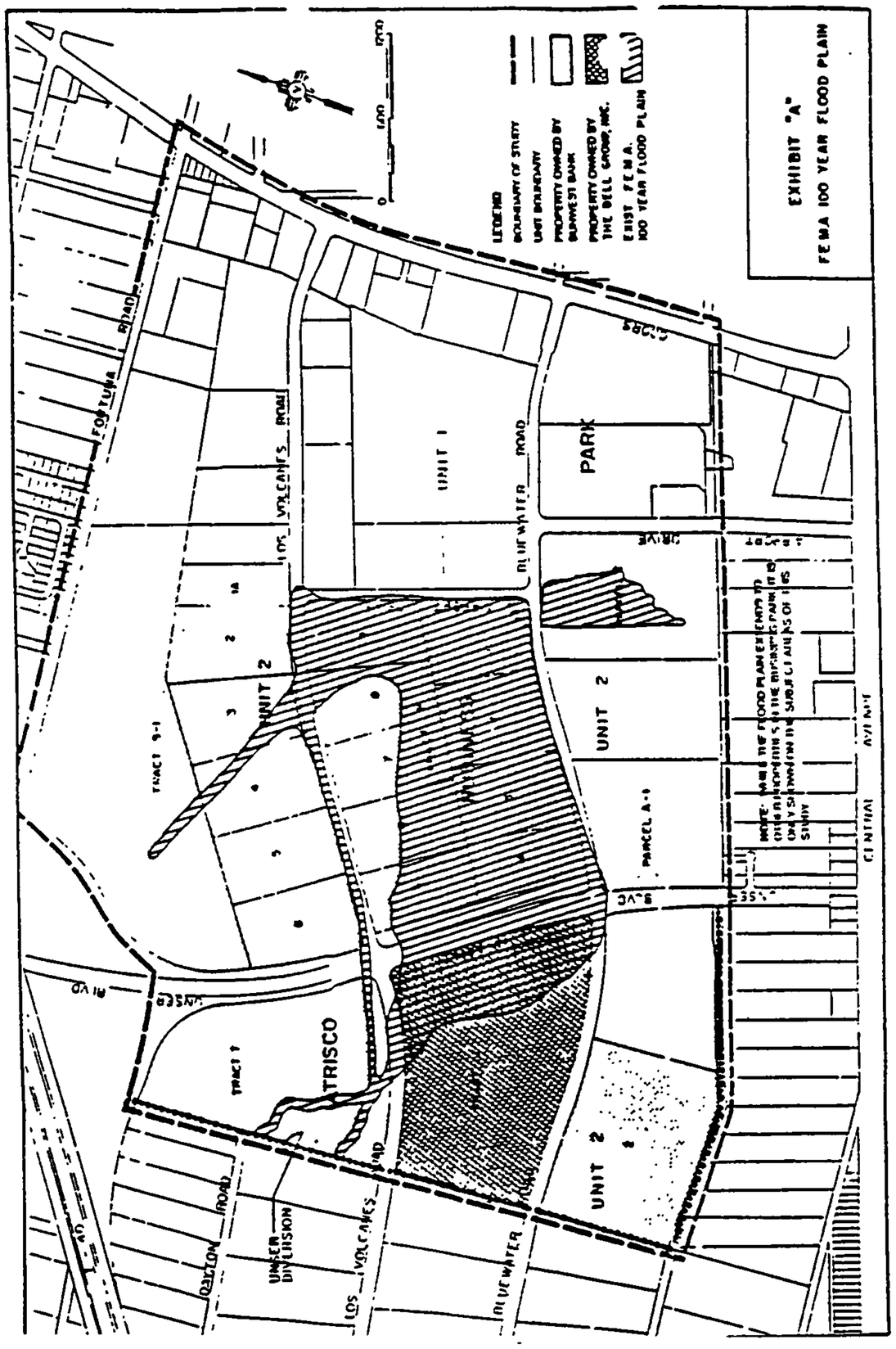
By _____
Its PRESIDENT
Dated July 19, 1993

_____
William B. Keleher
Dated July 16, 1993

_____
Michael L. Keleher
Dated July 19th 1993

_____
John G. Keleher
Dated July 21, 1993

_____
Thomas F. Keleher
Dated July 16th 1993



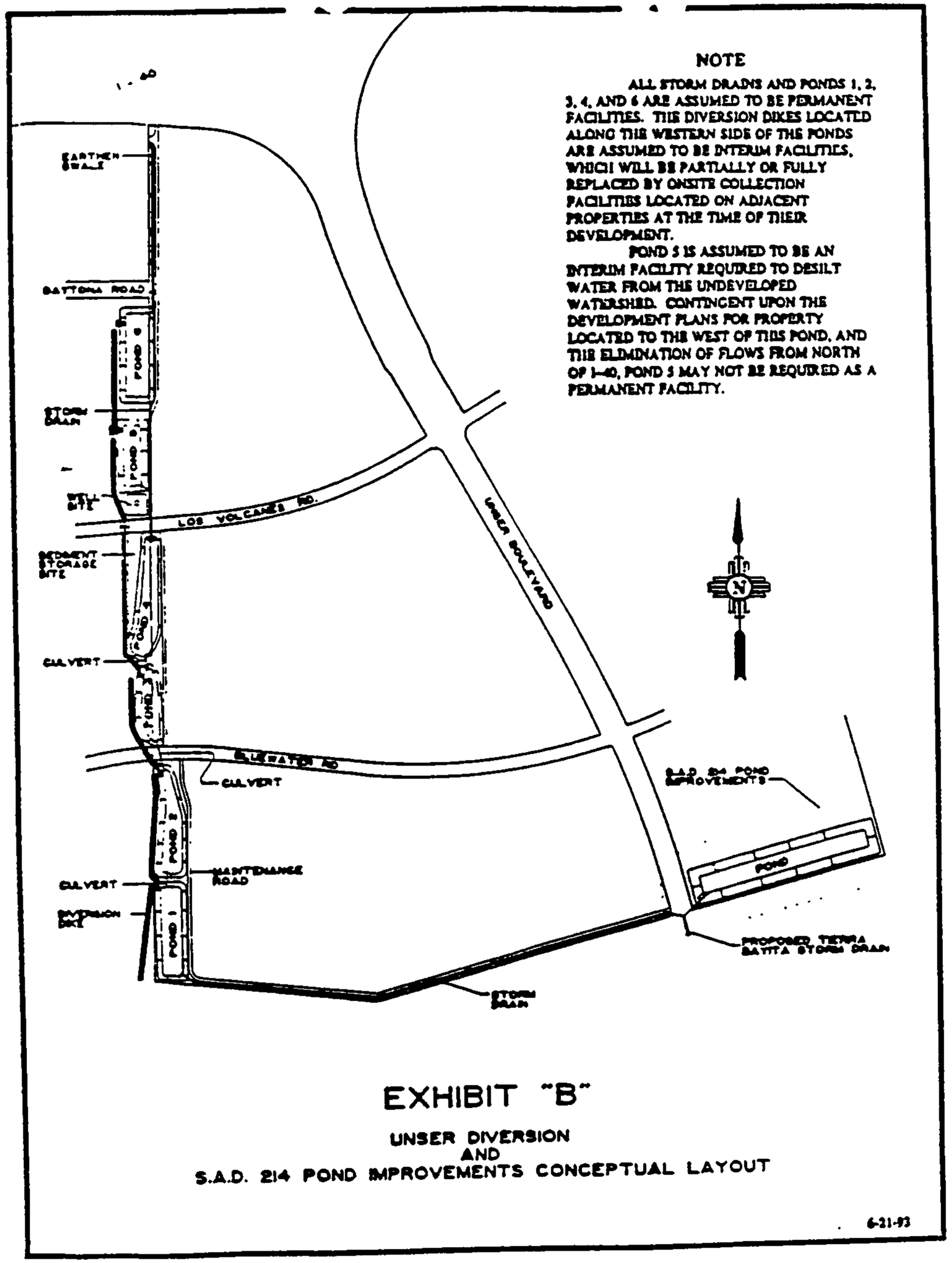


EXHIBIT "B"

UNSER DIVERSION
AND
S.A.D. 214 POND IMPROVEMENTS CONCEPTUAL LAYOUT

6-21-93

EXHIBIT "C" - Atrisco Business Park Off-Site Proposed Drainage Expenditures Participation Matrix

	Estimated Date for Start Of Construction	Proposed Contribution Summit Bank Of Albuquerque	Proposed Contribution The Bell Group Inc.	Proposed Contribution Kelsher - Van Alto	Proposed Contribution Change Brunelid	Proposed Contribution City of Albuq Econ Devlp	Proposed Contribution City of Albuq Drainage	Proposed Contribution AMAFCA	TOTAL ESTIMATED COSTS	TOTAL PERCENTAGE
#1 - Airport Drive Storm Drain	03/01/93									
Improvement Cost		$175,000				$274,100			$474,100	
Engineering Design Cost		4,500							4,500	
Total Estimated Project Cost		$179,500				$274,100			$478,600	100.00%
Project Participation Percentage		37.06%				46.85%				
#2 - Unser Diversion	10/01/93									
Value of Contributed Land (1)		$385,904	$70,408	$444,317				$753,854	$1,654,674	
Improvement Cost		28,475	21,575						803,858	
Engineering Design Cost		47,100	35,015						83,000	
Survey, Tabs, Plats, and Filings		8,520	8,473						15,000	
Total Estimated Project Cost		$469,847	$143,370	$444,312				$753,854	$1,780,282	
Project Participation Percentage		26.16%	7.98%	24.82%				42.10%		100.00%
#3 - Tierra Bayita Storm Drain (2)	01/01/94									
Improvement Cost							$1,078,000		$1,078,000	
S.A.D. 214 Pond Modification Cost										
S.D. (214 Pond to Tierra Bayita S.D.) Cost					28,887				28,887	
S.D. (Unser to Tierra Bayita S.D.) Cost					36,497				36,497	
Engineering Design Cost		$5,885	$4,315		19,143				19,143	
Total Estimated Project Cost		$5,885	$4,315				$1,078,000		$1,162,527	
Project Participation Percentage		0.48%	0.37%				91.86%			
#4 - Coors Connection Storm Drain	06/01/93									
Improvement Cost		$134,843							$134,843	
Engineering Design Cost		20,000							20,000	
Total Estimated Project Cost		$154,843							$154,843	
Project Participation Percentage		100.00%								100.00%
#6 - Airport/University Storm Drain	06/01/93									
Improvement Cost		$55,210			$250,000				$305,210	
Engineering Design Cost		23,000							23,000	
Total Estimated Project Cost		$78,210			$250,000				$328,210	
Project Participation Percentage					76.17%					76.17%
TOTAL ESTIMATED COSTS		$810,000	$140,608	$444,312	$436,527		$1,302,199	$753,854	$3,928,271	
TOTAL PARTICIPATION PERCENTAGE		20.64%	3.73%	11.32%	11.10%		33.17%	19.20%		100.00%

(1) Value of Contributed Land	Acreage	Value/Acre	Total Value
Summit Bank	8.4	$43,560	$365,904
The Bell Group Inc	1.6	43,560	$70,408
Kelsher-Van Alto	13.6	32,670	$444,312
TOTAL	23.6		$880,624

(2) Total Private Sector Cash, Land, and Engineering Design and Analysis Contribution Equals $1,433,977.00 or 36.53% of Total Estimated Costs
(3) Tierra Bayita Storm Drain, SAD 214 modifications, and all connections to Tierra Bayita Storm Drain are assumed to be funded by City of Albuquerque 1993 Bond Issue
(4) All of the above figures represent cash contributions, unless noted otherwise and do not include New Mexico Gross Receipts Tax @ 5.8125%, C.O.A. Plan Review Fee @ 0.65%, Testing Fee @ 7%, Staking Fee @ 3%, and Inspection Fee @ 4%
(5) The figures above represent approximate cost estimates based on conceptual design

EXHIBIT "C"

EXHIBIT "D"

EXHIBIT "D"
6-8-93
UNSER DIVERSION ESTIMATED EASEMENT AREAS

PROPERTY OWNER	AREA 1 (ACRES)	AREA 2 (ACRES)	AREA 3 (ACRES)	TOTAL (ACRES)	TOTAL (PERCENT)
Sunwest Bank (Permanent)①	2.5	--	5.9	8.4	35.3
(Total)	2.5	--	5.9	8.4	35.3
Kelcher-Van Atta (Permanent)①	2.3	3.6	0.5	6.4	26.9
(Interim)②	3.6	1.8	1.8	7.2	30.3
(Total)	5.9	5.4	2.3	13.6	57.1
The Bell Group	--	1.8	--	1.8	7.6
Total	8.4	7.2	8.2	23.8	100.0

Area 1 = North of Los Volcanes Road
Area 2 = Between Los Volcanes Road and Bluewater Road
Area 3 = South of Bluewater to the east line of Lot 2, Unit 2, Airisco Business Park

① Estimated permanent easement area required to contain and facilitate maintenance of the permanent diversion facilities.

② Estimated easement area required to contain and facilitate maintenance of interim collection facilities and temporary sedimentation/retention ponds. These facilities will be required until the upstream watershed becomes developed. Subject to future drainage plans for the upstream watershed, some or all of the land required for these facilities has potential to be reclaimed for development.

EXHIBIT "E"

QUITCLAIM DEED

_____ for consideration paid, quitclaims to ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY, a political subdivision of the State of New Mexico, Grantee, and its successors and assigns; whose address is 2600 Prospect Avenue, Albuquerque, New Mexico 87107, the following described real estate in Bernalillo County, New Mexico:

[DESCRIPTION TO BE FURNISHED]

Grantors Reserve all oil, gas and other minerals.

Title to the above described real estate, or portions thereof shall revert to the Grantors, their successors and assigns (and not to adjoining property owners) as and to the extent such real estate, or portion thereof, are from time to time declared unnecessary for drainage, flood control or stormwater facilities by the Board of Directors of Grantee, or, if the rights of Grantee have been assigned to the City of Albuquerque, by the City of Albuquerque.

IN WITNESS whereas this Quitclaim Deed has been executed this ____ day of _____, 1993.

[Execute by Landowners with appropriate acknowledgements.]

GRANT OF EASEMENT
WITH REVERSIONARY CLAUSE ON ABANDONMENT

FLOODWAY AND STORM DRAINAGE WORKS
UNSER DIVERSION

The undersigned Grantors, for good and valuable consideration, the receipt of which is hereby acknowledged, does hereby convey unto the ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY, a political subdivision of the State of New Mexico, Grantee, and its successors and assigns; an easement for the purpose of constructing, reconstructing, operating, and maintaining drainage, flood control, and storm water facilities, on, in, under, over and across the following described real estate:

[DESCRIPTION TO BE FURNISHED]

TO HAVE AND TO HOLD the said easement for the uses and purposes aforesaid, unto the Grantee, its successors and assigns, forever; PROVIDED, HOWEVER, that such portions of the easement granted herein shall, from time to time, revert to the Grantor, its successors or assigns, (and not to adjoining property owners) as and to the extent such real estate or portion thereof is declared unnecessary for drainage, flood control or stormwater facilities by the Board of Directors of Grantee, or, if the rights of Grantee have been assigned to the City of Albuquerque, by the City of Albuquerque.

IN WITNESS, Whereof this Grant of Easement has been executed this ____ day of _____, 1993.

[Execution by Landowners with appropriate acknowledgements.]

EXHIBIT "F"

Clare Van Atta Oehmke
Clare Van Atta Oehmke
Dated July 17, 1993

Mary Van Atta Ellis
Mary Van Atta Ellis
Dated July 19, 1993

Myrle Van Atta Redmond
Myrle Van Atta Redmond
Dated ~~July~~ Aug. 6, 1993

James Ellis
James Ellis
Dated July 20, 1993

Elizabeth Redmond Allbright
Elizabeth Redmond Allbright
Dated ~~July~~ ___, ~~1993~~ August 2, 1993

Margaret Redmond Haughton
Margaret Redmond Haughton
Dated July 4, 1993 Aug

1741

ASSIGNMENT OF EASEMENTS

THIS ASSIGNMENT OF EASEMENTS is made this _____ day of _____, by the Albuquerque Metropolitan Flood Control Authority (AMAFCA), a political subdivision of the State of New Mexico, to the City of Albuquerque (CITY), a municipal corporation.

WITNESSETH:

That for and in consideration of the mutual promises and covenants contained in, and as required by the terms of, the Agreement for Atrisco Business Park Storm Water Improvements, between AMAFCA and CITY and dated July 16, 1993, AMAFCA does hereby irrevocably assign and transfer unto CITY all of its right, title, claim and interest in and to those certain easement agreements listed below:

GRANT OF SLOPE EASEMENT FOR FLOODWAY AND STORM DRAINAGE WORKS Unser Diversion, between AMAFCA as Grantee, and The Bell Group, Inc. as Grantor, dated October 11, 1995, recorded in the Office of the County Clerk of Bernalillo County, New Mexico, on November 15, 1996, in Book 96-30, pages 6206-6209, document NO. 96124870;

GRANT OF SLOPE EASEMENT FOR FLOODWAY AND STORM DRAINAGE WORKS Unser Diversion, between AMAFCA as Grantee, and Helen Mary Van Atta Ellis and James Ellis, her husband, John G. Keleher and Linda B. Keleher, his wife, Michael L. Keleher and Margaret W. Keleher, his wife, Thomas F. Keleher and Gretchen C. Keleher, his wife, William B. Keleher and Jan R. Keleher, his wife, Myrle Amanda Van Atta Redmond, a married person, Elizabeth Redmond Allbright, a married person, Margaret Amanda Redmond, F/K/A Margaret Redmond Haughton, a single person, Kirby H. Oehmke, as Personal Representative of the Estate of Rebecca Clare Van Atta Spence Oehmke and Kirby H. Oehmke, a widower, as Grantors, dated October 26, 1995, recorded in the Office of the County Clerk of Bernalillo County, New Mexico, on November 15, 1996, in Book 96-30, pages 6210-17, document NO. 96124871;

GRANT OF SLOPE EASEMENT FOR FLOODWAY AND STORM DRAINAGE WORKS Unser Diversion, between AMAFCA as Grantee, and Helen Mary Van Atta Ellis and James Ellis, her husband, John G. Keleher and Linda B. Keleher, his wife, Michael L. Keleher and Margaret W. Keleher, his wife, Thomas F. Keleher and Gretchen C. Keleher, his wife, William B. Keleher and Jan R.

Keleher, his wife, Myrle Amanda Van Atta Redmond, a married person, Elizabeth Redmond Allbright, a married person, Margaret Amanda Redmond, F/K/A Margaret Redmond Haughton, a single person, Kirby H. Oehmke, as Personal Representative of the Estate of Rebecca Clare Van Atta Spence Oehmke and Kirby H. Oehmke, a widower, as Grantors, dated October 26, 1995, recorded in the Office of the County Clerk of Bernalillo County, New Mexico, on November 15, 1996, in Book 96-30, pages 6218-25, document NO. 96124872;

GRANT OF SLOPE EASEMENT FOR FLOODWAY AND STORM DRAINAGE WORKS Unser Diversion, between AMAFCA as Grantee, and Helen Mary Van Atta Ellis and James Ellis, her husband, John G. Keleher and Linda B. Keleher, his wife, Michael L. Keleher and Margaret W. Keleher, his wife, Thomas F. Keleher and Gretchen C. Keleher, his wife, William B. Keleher and Jan R. Keleher, his wife, Myrle Amanda Van Atta Redmond, a married person, Elizabeth Redmond Allbright, a married person, Margaret Amanda Redmond, F/K/A Margaret Redmond Haughton, a single person, Kirby H. Oehmke, as Personal Representative of the Estate of Rebecca Clare Van Atta Spence Oehmke and Kirby H. Oehmke, a widower, as Grantors, dated October 26, 1995, recorded in the Office of the County Clerk of Bernalillo County, New Mexico, on November 15, 1996, in Book 96-30, pages 6226-34, document NO. 96124873;

GRANT OF SLOPE EASEMENT FOR FLOODWAY AND STORM DRAINAGE WORKS Unser Diversion, between AMAFCA as Grantee, and Sunwest Bank of Albuquerque, N.A., as Grantor, dated November 7, 1995, recorded in the Office of the County Clerk of Bernalillo County, New Mexico, on November 15, 1996, in Book 96-30, pages 6235-38, document NO. 96124874; and,

GRANT OF SLOPE EASEMENT FOR FLOODWAY AND STORM DRAINAGE WORKS Unser Diversion, between AMAFCA as Grantee, and Sunwest Bank of Albuquerque, N.A., as Grantor, dated November 7, 1995, recorded in the Office of the County Clerk of Bernalillo County, New Mexico, on November 15, 1996, in Book 96-30, pages 6239-43, document NO. 96124875.

This Assignment is subject to all the conditions, stipulations and covenants contained in the aforesaid Grants of Slope Easement.

IN WITNESS WHEREOF, the undersigned have caused this Assignment to be executed as of the day and year set forth above.

Albuquerque Metropolitan Arroyo Flood Control Authority

_____
Michael Murphy, Chairman

Attest:

_____
Linda Olmsted, Secretary/Treasurer

ACKNOWLEDGMENT

STATE OF NEW MEXICO)
)s.s.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on _____, 1998, by Michael Murphy, Chairman of the Board of Directors, Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), a political subdivision of the State of New Mexico.

_____
Notary Public

My commission expires:
_____.

City of Albuquerque

_____
Lawrence Rael,
Chief Administrative Officer

Attest:

_____
City Clerk

ACKNOWLEDGMENT

STATE OF NEW MEXICO)
) s.s.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on _____, 1998, by Lawrence Rael, Chief Administrative Officer for the City of Albuquerque, New Mexico, a municipal corporation.

_____
Notary Public

My commission expires:

_____.

Approved:

_____
Larry A. Blair, Director,
Public Works Department

Reviewed by Legal Department

_____
City Attorney

Easterling & Associates, Inc.

MASTER DRAINAGE PLAN
for the
ATRISCO BUSINESS PARK

SEPTEMBER 1992
REVISED
MARCH 1993
OCTOBER 1993
REDLINE COPY

Re-Date

REC 23

INTRODUCTION

This is an updated version of the Master Drainage Plan for the Atrisco Business Park. Since the time that the March 1993 version was approved, some of the planned facilities have been constructed and the concepts for other facilities have changed. The purpose of this revision is to update the plan to reflect these changes.

Changes found in this revision include the following:

Coors connection Storm Drain Watershed

- *The area of required conservation treatment has been reduced.*
- *The conservation treatment plan has been modified.*
- *The proposed Conservation Treatment for Tract "M," Unit 2 consists of perimeter dikes only.*
- *Airport Drive Storm Drain and Airport Drive Storm Drain Outfall are constructed.*

Tierra Bayita Storm Drain Watershed

- *The proposed Unser Diversion has been modified from sedimentation/detention ponds with a lined channel outfall to a series of ponds connected by storm drains with a storm drain outfall.*
- *The design outflow from the Unser Diversion is reduced; therefore it is no longer routed through the S.A.D. 214 Pond.*
- *The design inflow to the S.A.D. 214 Pond is reduced; therefore the need for conservation treatment in the 214 Pond watershed has been eliminated. The need for the S.A.D. 214 Pond to be expanded is greatly reduced. Modifications to the pond to convert it from a retention facility to a detention facility are required to serve the developed condition. The proposed pond modification to be constructed with the Tierra Bayita Storm Drain will result in a small increase in pond volume.*
- *The AHYMO model of the watershed has been updated to incorporate the changes noted above. The data tables have been updated to reflect the revised output from the updated model.*

MASTER DRAINAGE PLAN

for the

ATRISCO BUSINESS PARK

SEPTEMBER 1992

REVISED

MARCH 1993
OCTOBER 1993

PREPARED FOR:

SUNWEST BANK
SPECIAL ASSETS DEPARTMENT
303 Roma Avenue, N.W.
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I, Charles M. Easterling, do hereby certify that this report and all revisions included herein were 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

OCT 22, 1993
Date

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ATRISCO BUSINESS PARK
MASTER DRAINAGE PLAN

I. GENERAL

A. Purpose and Authorization

This document has been prepared by Easterling & Associates, Inc. under contract to Sunwest Bank. Its purpose is to provide a drainage solution conducive to removal of the Flood Plain included in the subject area and to provide drainage criteria for subsequent development in the area.

B. Description of the Plan Area

Drainage areas which are discussed in this plan are illustrated in Figure 1. The focus of this plan is on the tracts of land identified as the onsite watershed in Figure 1. The onsite watershed more specifically includes the following tracts of land within the Atrisco Business Park; Unit 2 Subdivision:

Parcel	Acres
Tract T	40.5
Lot 2	33.1
Parcel A–1	26.1
Parcel C	28.6
Tract M	88.1
Tract L–1	4.5
Tract S–1	133.2
Total	354.1

In addition to the onsite area, an offsite area of approximately 794 acres contributes flow either directly to the onsite area or to proposed drainage outfalls for the onsite area. These offsite areas are illustrated on Figure 1. These offsite areas were included in the analysis performed for this plan for the purpose of verifying capacity in existing and proposed storm drainage facilities and equitably distributing the system capacity throughout the watershed. This document is not intended to serve as a master plan for these offsite areas but does identify potential storm water discharge constraints for these areas.

In the existing condition there is no outfall for storm water generated upstream of or on the onsite area. Much of this flow sheet flows across the property and eventually is ponded in natural depressions located in the onsite area. Due to this, a portion of the area is within a 100 Year FEMA Flood Plain as shown on Figure 3. This plan proposes to divide this area into two watersheds as shown on Figure 1. The dividing line is primarily the east right–of–way line of Unser

Boulevard. The west watershed will outfall to the future Tierra Bayita Storm Drain in Unser Boulevard. This watershed includes parcel A–1 located east of Unser Boulevard. The east watershed will outfall to the existing North/South Coors Connection Storm Drain via the ~~future~~ Airport Drive Storm Drain *(Constructed in 1993)*. Both of the outfalls identified here outfall to the Amole del Norte Channel.

C. Methodology for Analysis

Hydrologic analysis was performed based on the August 1991, Section 22.2, Volume 2, DPM Drainage Criteria for the City of Albuquerque. Hydrologic Modeling was performed utilizing AMAFCA's AHYMO, March 1992 version. Model runs for the 100 year and 10 year storms were performed in order to verify street capacities and satisfy drainage ordinance criteria. A copy of the model input data is included in Appendix B of this report. Output summary tables are included in Appendix A.

Flow depths in the streets were determined from D.P.M. nomographs for street flow where typical street sections were analyzed and from Manning equation elsewhere.

D. Responsibility for Infrastructure

All of the land in the onsite watershed is included in the 1992 "Atrisco Business Park Master Development Plan for IP Uses." Developer responsibilities and phasing for future infrastructure construction are defined in the Master Development Plan.

II. TIERRA BAYITA STORM DRAIN WATERSHED

A. Background Information

The existing condition watershed is primarily undeveloped as shown by the photo based background on Plates 1 and 2. Existing street and drainage improvements within the onsite watershed were constructed by S.A.D. 214. These improvements include a portion of Unser Boulevard, a portion of Bluewater Road, a storm drain in Unser Boulevard, and a 9.5 ac–ft retention pond located on Tract A–1.

1. Existing Constraints

- Development of the property requires drainage improvements to be constructed along the western edge of the Business Park to intercept the flows from the large offsite watershed located west of the Business Park.

- Discharge of flow from the property limited in volume by lack of a drainage outfall from the area and in rate by the size of the existing Unser Storm Drain.

- F.E.M.A. Flood Plain covers a portion of the area.

2. Previous Studies

Several previous studies have been prepared which have referenced this watershed. The previous studies which have pertinence to the drainage plan proposed here are listed and discussed below.

a. Drainage Plan for the Design of S.A.D. 214 Unser Boulevard by Scanlon and Associates dated February 14, 1983.

- Established discharge criteria for property discharging into the Unser Storm Drain.

b. West Bluff Drainage Plan Phase III by Andrews, Asbury, and Roberts, Inc. dated January 1987.

- Delineated the boundaries of the offsite watershed.

- Proposed the I–40 interceptor channel be constructed north of I-40. This project which will reduce the size of the offsite watershed.

- Proposed the Unser Diversion Channel be constructed along the western and southern boundaries of the Business Park to intercept flow from the offsite watershed to the west and convey it to Unser Boulevard.

- Proposed flow from the Unser Diversion Channel and the Unser Storm Drain be conveyed in a storm drain facility down Unser Boulevard from the south boundary of the Business Park to the Amole del Norte Channel.

c. Preliminary Analysis Report for Amole del Norte Storm Diversion Facilities/Tierra Bayita Drainage Facilities by Greiner, Inc. dated October 31, 1990.

- Proposed expansion and conversion of the existing S.A.D. 214 pond from a 9.5 ac–ft retention pond to a permanent 19 ac–ft detention pond.

The design concept analyzed in the report assumed the flow from the Unser Diversion would be routed through the S.A.D. 214

Pond. The current plan for the Unser Diversion makes this routing unnecessary. Thus, the pond volume expansion is also unnecessary. Conversion to a detention pond is required in the current drainage plan.

- Established the design flow rate for the S.A.D. 214 pond outfall (the Tierra Bayita Storm Drain) in Unser Boulevard at 311 cfs.

B. Drainage Schemes

Plates 1 and 2 illustrate the drainage schemes for the interim and the fully developed conditions in the watershed.

1. Interim Condition

The interim condition illustrated on Plate 1 shows the facilities required to remove the FEMA Flood Plain from the onsite watershed. These facilities include:

- The Unser Diversion ~~Channel,~~ a series of collection facilities and detention/retention/sedimentation ponds to be located along the western boundary of the Atrisco Business Park. These facilities will collect and treat runoff from the offsite watershed located north and west of the Business Park.

- ~~Expansion of the S.A.D. 214 Pond to 21.0 ac-ft capacity.~~

- ~~The Tierra Bayita Storm Drain Outfall or temporary facilities to retain runoff from the watershed. Specific information regarding these facilities will be provided in the Design Analysis Report for Unser Diversion Channel.~~

- ~~Conservation treatment and/or desiltation basins in portions of the undeveloped watershed to reduce sediment load and peak flow rates contributed to the drainage facilities.~~

2. Fully Developed Condition

The Fully Developed condition illustrated on Plate 2 shows the watershed in the fully developed condition and assumes the I–40 Interceptor will be constructed. The public drainage infrastructure requirements ~~are essentially the same as noted for the Interim Condition except that the Tierra Bayita storm will be required to support this level of development.~~ *include:*

- *The Tierra Bayita Storm Drain in Unser Boulevard to provide an outfall for the S.A.D. 214 Pond and the Unser Diversion.*

- *Modification of the S.A.D. 214 Pond to convert it from a retention facility to a detention facility.*

C. Developed Condition Constraints

- Lots discharging flow to the existing Unser Storm Drain must control peak flow rates to those established by the Drainage Plan for the Design of S.A.D. 214 Unser Boulevard, by Scanlon & Associates dated February 14, 1983.

- A master drainage plan should be developed for the watershed west of the Unser Diversion ~~Channel~~ prior to discharge of developed flow from that area. This future drainage plan should determine allowable release rates from the area based on downstream capacity. ~~The analysis performed for this report indicates the maximum allowable discharge from the gross area is 1.3 cfs/Ac.~~ *The "Agreement for Atrisco Business Park Storm Water Improvements", filed with the City of Albuquerque Clerk's office on August 25, 1993 as document #93093160, establishes the discharge constraint for this property to not be less than 1.3 cfs/acre.* A higher discharge rate may be possible depending upon how drainage facilities are configured within the area. *The modeling performed for this plan assumed flow rates from the developed condition Unser Diversion Watershed of 2.2 to 2.5 cfs per acre. A multiple basin detention facility is very sensitive to the timing of inflow, therefore, future detailed drainage planning for the developed condition Unser Diversion Watershed should include modeling of the entire Unser Diversion System and Watershed.*

- ~~Peak 100 year flow rates from lot 1, Unit 2, Atrisco Business Park are restricted to a maximum of 1.3 cfs per acre.~~

- Lot ~~1~~ *2*, Unit 2 is allowed free discharge into the Unser Diversion ~~Channel~~ *Storm Drain.*

- Parcel A-1 *and Lot 1*, Unit 2 ~~is~~ *are* allowed free discharge into the ~~expander~~ *modified* S.A.D. 214 pond.

- Peak 100 year flow rates corresponding to the above criteria are noted on Plate 2.

- ~~The Unser Diversion Channel should be routed directly to the Tierra Bayita Storm Drain with excess flow routed to the expanded S.A.D. 214 Pond in order to accommodate the 100 year peak allowable discharge rates noted above. Modeling demonstrated that due to the wide peak in~~

~~the hydrograph created by detention in the upstream watershed, 21.0 ac-ft is not sufficient volume to control outflow from the S.A.D. 214 Pond to 311 cfs (the design capacity of the future outfall) if conventional reservoir routing is used. A schematic drawing Figure 2 illustrates a possible configuration of the connection to the Tierra Bayita Storm Drain. This configuration is beneficial in that the full capacity of the storm drain can be utilized earlier in the storm than normal routing through the pond would allow.~~

- *In regard to the S.A.D. 214 Pond modifications, it is recommended that the invert of the outfall for the S.A.D. 214 Pond be designed as low as possible in order to provide the opportunity for future expansion of the pond capacity.*

III. COORS CONNECTION STORM DRAIN WATERSHED

A. Background Information

As illustrated on the photo based background of Plate 1, the existing condition watershed is largely undeveloped. Paved streets within the onsite watershed include the following:

- Bluewater Road from Unser Boulevard to Airport Drive.
- Airport Road from Los Volcanes to Bluewater Road.
- Airport Drive from Bluewater to the south line of the Business Park.
- No drainage facilities are constructed within the onsite watershed.

1. Existing Constraints

- ~~No drainage outfall or collector system currently exists.~~
- *At the time of the first draft of this report, no drainage outfall or collector system existed. The Airport Drive Storm Drain was constructed in early 1993 to provide an outfall.*
- FEMA Flood plain covers much of the onsite watershed. This Flood plain is caused by sheet flow from the large offsite watershed west of Unser. The existing Unser Boulevard and the Unser Boulevard Storm drain were designed to handle flows from the on-site area west of Unser. Therefore, the additional flow from the offsite area west of Unser Boulevard is in excess of the design capacity of existing Unser Boulevard improvements.

- Lots in the lower portion of the watershed receive sheet flow from lots in the upper portion of the watershed.

2. Previous Studies

Several previous studies have included all of or portions of this watershed. Some of the most recent and pertinent studies are listed and discussed below.

a. West Bluff Drainage Plan Phase III by Andrews, Asbury and Roberts, Inc. dated January 1987.

- Proposed the onsite watershed outfall to the West Bluff Outfall via the Future I–40 Interceptor, and the Future West Mesa Diversion.

- Due to the fact that completion of the projects listed above will be very costly and not expected to occur in the near future, another outfall for the onsite area is proposed in the plan presented here.

b. Drainage Management Study for the North/South Coors Connection by Denny–Gross and Associates dated June 1983.

- Hydrologic and hydraulic analysis pertaining to the existing Coors Connection Storm Drain established the peak discharge rate from the entire Coors Connection Storm Drain at 138 cfs.

  As–built drawings of the Coors Connection Storm Drain show a larger storm drain than the one analyzed in the study. A hydrologic analysis coinciding with the higher peak flow rates associated with the upsized storm drain could not be located. The analysis done for the Drainage Plan presented here includes the Coors Connection Storm Drain per the as–built drawings for the Project. The Watershed assumed for the Coors Connection Storm Drain includes the area which contributes flow to the storm drain in the existing condition. The allowable discharge rates, determined by this analysis, for the area currently discharging to the Coors Connection Storm Drain are in excess of 138 cfs.

c. Letter/Report RE: North/South Coors Connection/Airport Drive Storm Drain Capacity by Easterling & Associates, Inc., dated April 7, 1992.

- Presented preliminary modeling of the watersheds of the subject storm drains and preliminary hydraulic analysis of the subject storm drains.

d. Design Analysis Report for Airport Drive Storm Drain Outfall by Easterling & Associates, Inc., dated October 1992.

e. Design Analysis Report for Airport Drive/Bluewater Storm Drain by Easterling & Associates, Inc., dated February 1993.

B. Drainage Schemes

Plates 1 and 2 illustrate the drainage schemes and associated peak flow rates for the interim and the fully developed conditions in the watershed.

1. The interim condition illustrated on Plate 1 shows the facilities required to remove the FEMA flood plain from the onsite watershed and address local drainage problems. These facilities include:

Facilities required for FEMA Flood Plain removal

- The Unser Diversion, a series of collection facilities and detention/retention/sedimentation pond to be located along the western boundary of the Atrisco Business Park. These facilities will collect and treat runoff from the offsite watershed located north and west of the Atrisco Business Park.

Facilities required to address local drainage problems

- Airport Drive Storm Drain Outfall, approximately 780 LF of 48″ diameter storm drain to be located in the median of Coors Boulevard downstream of Airport Drive. This storm drain will parallel existing 24″ and 30″ diameter segments of the existing Coors Connection Storm Drain and will connect to an existing 54″ segment of the same. ~~(PLANNED)~~ *(CONSTRUCTED 1993)*

- Airport Drive Storm Drain, a 48″ diameter storm drain to be located in Airport Drive extending from the Coors Connection Storm Drain to the south line of the Atrisco Business Park. ~~(Currently under construction.)~~ *(CONSTRUCTED 1993)*

- Airport Drive/Bluewater Road Storm Drain, a 48″ diameter storm drain extending from the Airport Drive Storm Drain to the intersection of Airport Road and Bluewater Road. (PLANNED *FOR LATE 1993 CONSTRUCTION*)

- Conservation treatment as illustrated on Plate 1, Plate 5 and Plate 6 applied to the *indicated* portions of onsite undeveloped tracts to retain runoff and thus sediment onsite. ~~The~~ *This* conservation treatment or other retention or detention facilities ~~must~~ *should* be in place prior to the extension of the Airport Drive Storm Drain into the Business Park. This is due to the fact that the existing condition flow rate is greater than the developed condition flow rates proposed for the onsite area by this Plan.

  In addition to providing protection for the Airport Drive storm drain, the conservation treatment can be modified in the future to protect individual developing lots from the sheet flow generated on undeveloped lots located upstream.

  A drainage covenant to facilitate the maintenance of the interim drainage facilities will be required to be in place prior to the issuance of building permits within the onsite area of the Coors Connection Storm Drain Watershed.

2. The fully developed condition illustrated in Plate 2 requires the public storm drain facilities as listed for the interim condition and the additional public facilities listed below.

   - Airport Road Storm Drain, a 30″ to 36″ diameter storm drain extending north along Airport Road from the Airport/Bluewater Storm Drain to the intersection of Airport Road and Los Volcanes Road.

   - Bluewater Road Storm Drain, a 24″ diameter storm drain extending west along Bluewater Road from the Airport Drive/Bluewater Road Storm Drain to the eastern boundary of Tract L–1. The purpose of this storm drain is to provide an outfall for the proposed private detention ponds along Bluewater Road.

   - Tract "M" Storm Drain, a 24″ diameter storm drain extending down the back lot line of the lots in Tract "M." The purpose of this storm drain is to provide an outfall from the proposed private detention ponds located in the northern portion of Tract "M."

   - Los Volcanes Storm Drain, a 24″ diameter storm drain extending west from the Airport Road Storm Drain to the east lot line of Lot 6, Tract S–1. The purpose of this storm drain is to provide

an outfall for the proposed private detention ponds to be located along Los Volcanes Road.

C. Developed Condition Drainage Constraints

1. Onsite Watershed

The maximum allowable peak 100 year discharge rates from lots in the onsite watershed are limited to the following:

- 0.1 cfs per acre except as provided below.

- Small areas of those lots located on the uphill side of a street may discharge uncontrolled to the street where required to facilitate grading. This provision is subject to the following criteria.

  - The total area allowed free discharge from the lot shall not be larger than an area equivalent to a strip 10 feet wide along the total street frontage of the lot.

  - Impervious areas allowed free discharge to the street shall not be larger than an equivalent area two feet wide along the total street frontage of the lot.

  - The free discharge from the small areas defined above shall not be considered a part of the 0.1 cfs allowable discharge from the lot.

Pond areas outside of the parking areas shall be fully landscaped. A minimum of 85% of the surface area of the pond area shall consist of pervious ground treatments. Bark or other landscape materials which are prone to float under submerged conditions shall not be allowed as a surface treatment material within the limits of pond areas.

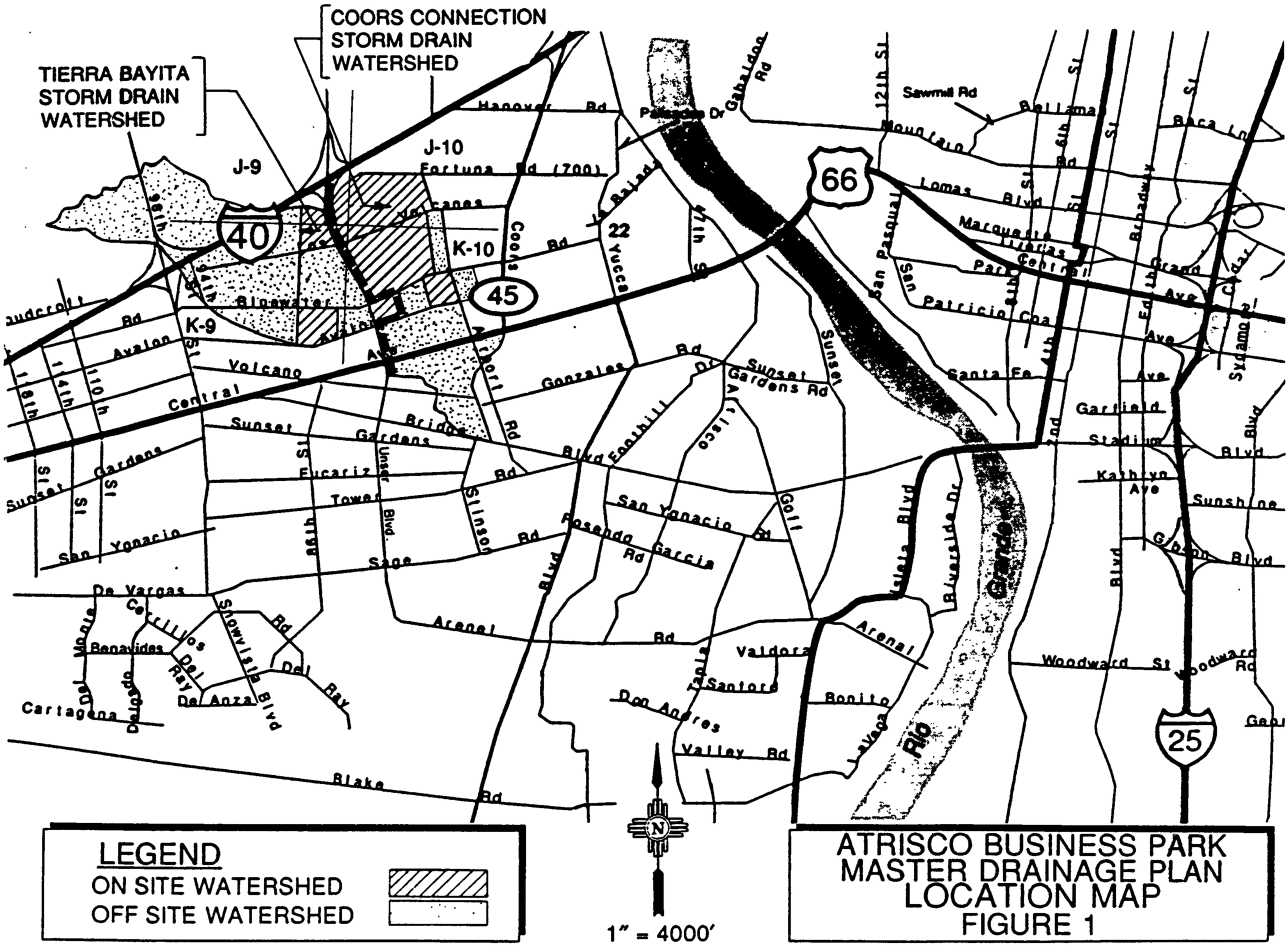
Low flow channels shall connect all inlets to the outlet in the detention pond(s). Low flow channels shall be constructed with durable, erosion resistant materials which facilitate long term maintenance of the pond area.

A covenant insuring the perpetuity and the maintenance of the required detention facilities on individual lots will be required to replace the interim condition drainage covenant at the time of development of individual lots.

2. Offsite Watershed

- Peak 100 year discharge from lots discharging into the Airport Drive Storm Drain is limited to 0.1 cfs per acre. This includes Basins 200.6, 210.4, 211.1, 220.2, 220.4 and 220.5 as shown on Plate 2.

- Peak 100 year discharge rates from all other lots contributing flow to the Coors Connection Storm Drain should be limited to rates which will not cause the aggregate flow rate at the point of connection to the Coors Connection Storm Drain to exceed the aggregate existing condition flow rates established by this Plan.



LEGEND

ON SITE WATERSHED

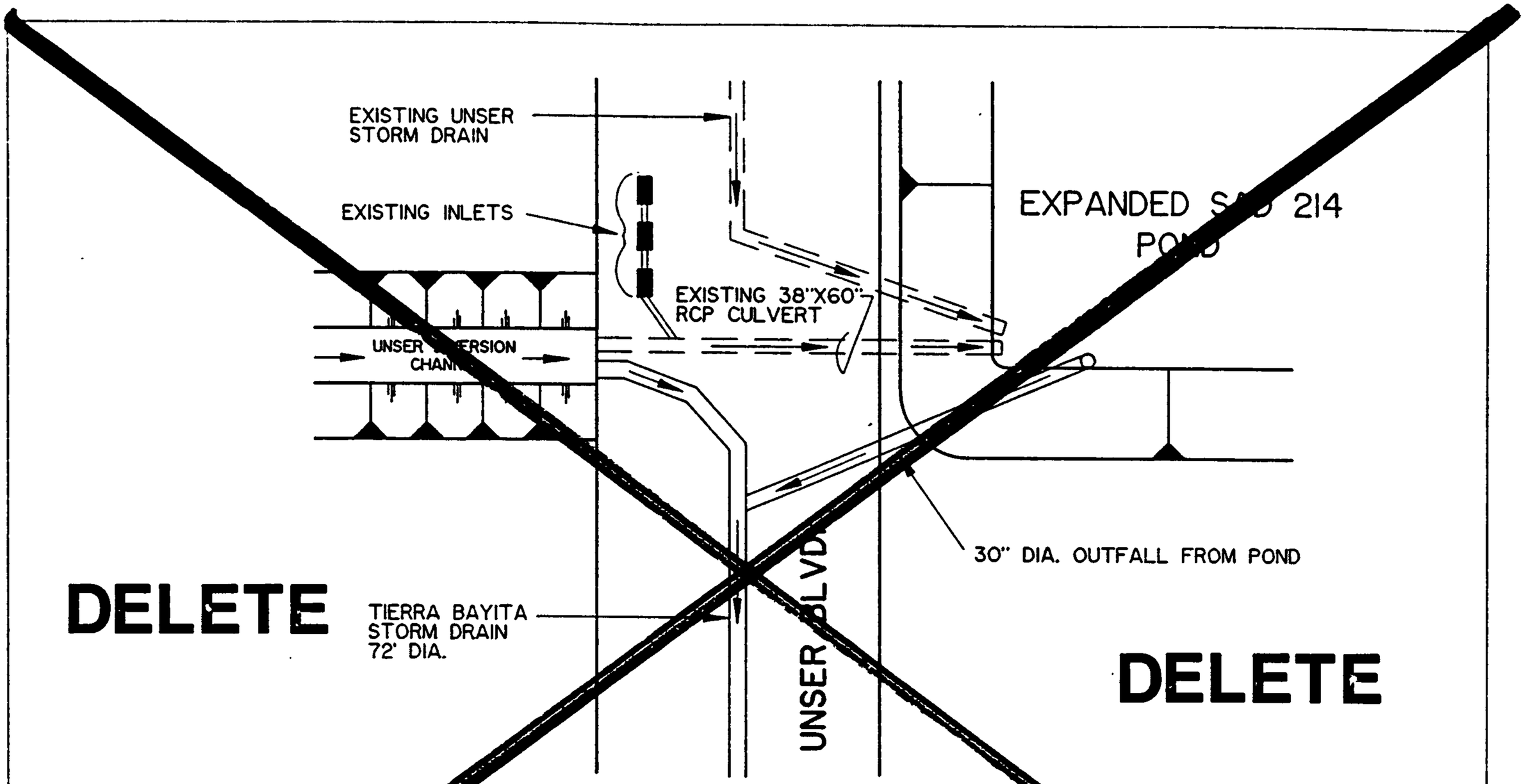
OFF SITE WATERSHED

1" = 4000'

ATRISCO BUSINESS PARK MASTER DRAINAGE PLAN LOCATION MAP FIGURE 1

FIGURES

Figure 1 – Location Map
~~Figure 2 – Connection Schematic~~
Figure 3 – F.E.M.A. Flood Plain Map



CONNECTION TO TIERRA BAYITA STORM DRAIN

NOTE: INVERT OF TIERRA BAYITA STORM DRAIN CONNECTION TO THE CHANNEL IS LOWER THAN THE EXISTING CULVERT INVERT. LOW FLOWS ARE DIVERTED DIRECTLY TO THE TIERRA BAYITA STORM DRAIN. FLOWS IN EXCESS OF THE TIERRA BAYITA STORM DRAIN CAPACITY ARE ROUTED THROUGH THE EXISTING 38" X 60" CULVERT TO BE DETAINED IN THE EXPANDED SAD 214 POND.

EASTERLING & ASSOCIATES, INC.

ATRISCO BUSINESS PARK
MASTER DRAINAGE PLAN
SCHEMATIC

FIGURE NO. 2 DATE: MARCH 199

NATIONAL FLOOD INSURANCE PROGRAM
FLOODWAY
FLOOD BOUNDARY AND FLOODWAY MAP
CITY OF
ALBUQUERQUE, NEW MEXICO
BERNALILLO COUNTY
PANEL 27 OF 50
COMMUNITY-PANEL NUMBER
350002 0027
EFFECTIVE DATE:
Federal Emergency Management Agency
LEGEND
FLOOD BOUNDARY
PROJECT AREA
INTERSTATE
40
CORPORATE LIMITS
LOS VOLCANES ROAD
CLOUDCROFT
BLUEWATER ROAD
AVALON ROAD
AIRPORT
EASTERLING & ASSOCIATES, INC.
ATRISCO BUSINESS PARK
MASTER DRAINAGE PLAN
FEMA FLOOD PLAINS
FIGURE NO. 3
DATE: SEPT. 19

APPENDIX A

AHYMO SUMMARY TABLES

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100 Year 24 Hour Storm Interim Condition A–1
100 Year 24 Hour Storm Developed Condition A–4
10 Year 24 Hour Storm Interim Condition A–8
10 Year 24 Hour Storm Developed Condition A–11

TIERRA BAYITA STORM DRAIN WATERSHED *(Model Updated 10-93)*

100 Year 6 Hour Storm Interim Condition A–15
100 Year 6 Hour Storm Developed Condition A–18
10 Year 6 Hour Storm Interim Condition A–20
10 Year 6 Hour Storm Developed Condition A–23

COORS CONNECTION STORM DRAIN WATERSHED (INTERIM) 100 YEAR 24 HOUR STORM

AHYMO SUMMARY TABLE (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992 RUN DATE (MON/DAY/YR) =09/22/1992

INPUT FILE = ccsdui.hmi USER NO.= D_HARRIS.S92

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	NOTATION
START										TIME= .00
RAINFALL TYPE= 2										RAIN24= 2.660
*S BEGIN THE WATERSHED FOR THE AIRPORT ROAD STORM DRAIN **********										
COMPUTE NM HYD	200.10	-	2	.20810	201.15	5.307	.47815	1.500	1.510	PER IMP= .00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF										
*S LEAVES THE SITE										
COMPUTE NM HYD	200.40	-	3	.00420	10.40	.469	2.09267	1.500	3.868	PER IMP= 81.00
ROUTE	200.45	3	11	.00420	7.01	.469	2.09280	1.600	2.606	
COMPUTE NM HYD	200.50	-	4	.00350	8.67	.391	2.09267	1.500	3.869	PER IMP= 81.00
ADD HYD	200.51	11& 4	3	.00770	14.30	.859	2.09259	1.550	2.903	
ROUTE	200.66	3	11	.00770	11.60	.859	2.09269	1.650	2.354	
COMPUTE NM HYD	210.10	-	2	.07480	67.68	1.908	.47815	1.500	1.414	PER IMP= .00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF										
*S LEAVES THE SITE										
COMPUTE NM HYD	210.30	-	2	.00250	6.19	.279	2.09268	1.500	3.871	PER IMP= 81.00
ADD HYD	210.31	11& 2	12	.01020	15.71	1.138	2.09257	1.600	2.407	
ROUTE	210.47	12	11	.01020	13.77	1.138	2.09263	1.700	2.110	
COMPUTE NM HYD	210.50	-	2	.00240	5.95	.268	2.09267	1.500	3.871	PER IMP= 81.00
ADD HYD	210.51	2&11	11	.01260	16.65	1.406	2.09254	1.650	2.065	
COMPUTE NM HYD	210.60	-	3	.07000	63.19	1.785	.47815	1.500	1.411	PER IMP= .00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF										
*S LEAVES THE SITE										
COMPUTE NM HYD	210.70	-	2	.00330	8.17	.368	2.09267	1.500	3.869	PER IMP= 81.00
ROUTE	210.71	2	12	.00330	4.83	.368	2.09282	1.600	2.285	
COMPUTE NM HYD	210.80	-	3	.00280	6.94	.313	2.09267	1.500	3.871	PER IMP= 81.00
ADD HYD	210.81	3&12	12	.00610	10.56	.681	2.09252	1.550	2.706	
COMPUTE NM HYD	210.90	-	2	.00170	4.22	.190	2.09267	1.500	3.876	PER IMP= 81.00
ADD HYD	210.91	12& 2	12	.00780	14.64	.870	2.09251	1.500	2.933	
ADD HYD	210.92	12&11	11	.02040	29.41	2.277	2.09253	1.550	2.253	
ROUTE	211.13	11	10	.02040	26.71	2.277	2.09257	1.650	2.046	
*S BEGIN THE AREA SOUTH OF BLUEWATER ROAD										
COMPUTE NM HYD	220.10	-	2	.00350	8.67	.391	2.09267	1.500	3.869	PER IMP= 81.00
COMPUTE NM HYD	220.20	-	3	.03130	77.77	3.488	2.08937	1.500	3.882	PER IMP= 80.00
ROUTE RESERVOIR	220.21	3	4	.03130	2.01	3.162	1.89413	2.550	.100	AC-FT= 2.528
ROUTE	220.22	4	5	.03130	2.01	3.158	1.89148	2.650	.100	
ADD HYD	220.23	2& 5	3	.03480	9.29	3.548	1.91170	1.500	.417	
COMPUTE NM HYD	220.30	-	2	.04470	40.21	1.140	.47815	1.500	1.406	PER IMP= .00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF										
*S LEAVES THE SITE										
ADD HYD	220.53	10& 3	2	.05520	32.95	5.825	1.97853	1.600	.933	
ROUTE	220.54	2	10	.05520	32.91	5.823	1.97806	1.600	.931	
*S BEGIN THE AREA SOUTH OF THE ATRISCO BUSINESS PARK										
COMPUTE NM HYD	220.60	-	2	.01980	49.20	2.206	2.08937	1.500	3.883	PER IMP= 80.00
ROUTE RESERVOIR	220.61	2	3	.01980	1.27	1.992	1.88671	2.550	.100	AC-FT= 1.599
COMPUTE NM HYD	220.70	-	4	.00270	6.69	.301	2.09267	1.500	3.871	PER IMP= 81.00
ADD HYD	220.71	4& 3	5	.02250	7.40	2.294	1.91141	1.500	.514	
ADD HYD	220.72	10& 5	2	.07770	38.42	8.117	1.95876	1.600	.773	
ROUTE	220.73	2	10	.07770	36.34	8.100	1.95467	1.700	.731	

COORS CONNECTION STORM DRAIN WATERSHED (INTERIM) 100 YEAR 24 HOUR STORM (CONTINUED)

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	NOTATION
*S BEGIN AREA SOUTH OF CENTRAL BOULEVARD										
COMPUTE NM HYD	230.10	-	2	.00100	3.00	.137	1.42332	1.500	3.294	PER IMP= 30.00
ROUTE	230.11	2	3	.00100	3.14	.137	1.42350	1.550	2.724	
COMPUTE NM HYD	230.20	-	2	.00520	10.93	.395	1.42332	1.500	3.205	PER IMP= 30.00
ADD HYD	230.21	2& 3	4	.00700	13.54	.531	1.42325	1.500	3.023	
ROUTE	230.22	4	11	.00700	13.40	.531	1.42336	1.500	2.990	
COMPUTE NM HYD	230.30	-	2	.00240	6.09	.277	2.16311	1.500	3.963	PER IMP= 85.00
ADD HYD	230.31	2&11	1	.00940	19.40	.808	1.61212	1.500	3.239	
ADD HYD	230.32	1&10	3	.00710	49.29	8.908	1.91770	1.600	.884	
ROUTE	230.33	3	10	.00710	49.32	8.907	1.91742	1.600	.885	
*S END OF AIRPORT ROAD STORM DRAIN										
*S BEGIN COORS CONNECTION STORM DRAIN										
COMPUTE NM HYD	230.60	-	2	.00230	6.13	.280	2.20382	1.500	4.162	PER IMP= 90.00
ROUTE	230.61	2	3	.00230	4.53	.280	2.20404	1.600	3.080	
COMPUTE NM HYD	230.70	-	2	.00500	14.69	.669	2.16311	1.500	3.950	PER IMP= 85.00
ADD HYD	230.71	3& 2	4	.00810	18.45	.949	2.19732	1.500	3.559	
COMPUTE NM HYD	230.50	-	2	.00660	6.49	.183	.52015	1.500	1.536	PER IMP= .00
ADD HYD	230.51	2& 4	5	.01470	24.94	1.132	1.44430	1.500	2.651	
ROUTE	230.52	5	4	.01470	24.72	1.132	1.44435	1.500	2.627	
COMPUTE NM HYD	230.80	-	2	.01120	15.84	.532	.89042	1.500	2.210	PER IMP= 15.00
ADD HYD	230.82	2& 4	5	.02590	40.56	1.664	1.20477	1.500	2.447	
ROUTE	230.83	5	2	.02590	39.99	1.664	1.20480	1.500	2.413	
ADD HYD	230.84	2&10	11	.11300	86.64	10.571	1.75408	1.550	1.198	
ROUTE	230.85	11	10	.11300	86.71	10.570	1.75395	1.550	1.199	
ROUTE	230.86	10	11	.11300	86.96	10.569	1.75375	1.550	1.202	
*S BEGIN THE AREA NORTH OF CENTRAL AVENUE BETWEEN UNSER AND THE WEST 66										
*S ADDITION										
COMPUTE NM HYD	240.10	-	2	.03330	58.74	2.655	1.49503	1.550	2.756	PER IMP= 35.00
ROUTE	240.11	2	3	.03330	56.78	2.655	1.49504	1.600	2.664	
COMPUTE NM HYD	240.20	-	4	.01250	25.65	1.319	1.97801	1.550	3.206	PER IMP= 71.00
ADD HYD	240.21	4& 3	5	.04580	80.95	3.974	1.62683	1.550	2.762	
ROUTE	240.22	5	15	.04580	80.73	3.974	1.62685	1.600	2.754	
COMPUTE NM HYD	240.30	-	3	.00800	12.85	.577	1.35161	1.550	2.509	PER IMP= 25.00
ROUTE	240.31	3	4	.00800	12.27	.577	1.35166	1.600	2.397	
ADD HYD	240.32	4&15	16	.05380	93.00	4.550	1.58590	1.600	2.701	
COMPUTE NM HYD	240.40	-	2	.02310	42.45	2.260	1.83425	1.600	2.871	PER IMP= 60.00
ROUTE RESERVOIR	240.41	2	3	.02310	29.29	1.074	.87164	1.850	1.981	AC-FT= 1.190
ADD HYD	240.42	3&16	15	.07690	93.00	5.624	1.37135	1.600	1.890	
COMPUTE NM HYD	240.50	-	4	.00930	24.26	1.133	2.28382	1.500	4.075	PER IMP= 90.00
ADD HYD	240.51	4&15	16	.08620	110.29	6.757	1.46979	1.600	1.999	
ROUTE RESERVOIR	240.52	16	15	.08620	92.22	6.757	1.46979	1.700	1.672	AC-FT= .499
ROUTE	240.53	15	5	.08620	92.27	6.757	1.46978	1.700	1.672	
COMPUTE NM HYD	240.60	-	2	.00650	16.96	.792	2.28382	1.500	4.076	PER IMP= 90.00
*S BEGIN AREA SOUTH OF CENTRAL AVENUE BETWEEN UNSER AND AIRPORT										
ADD HYD	240.61	2& 5	3	.09270	100.86	7.549	1.52686	1.650	1.700	
ROUTE	240.62	3	4	.09270	87.46	7.549	1.52680	1.800	1.474	
COMPUTE NM HYD	250.10	-	2	.02470	33.20	1.650	1.25219	1.600	2.100	PER IMP= 30.00
ADD HYD	250.11	4& 2	3	.11740	110.19	9.198	1.46902	1.750	1.466	
COMPUTE NM HYD	250.20	-	2	.00790	14.90	.599	1.42095	1.500	2.946	PER IMP= 35.00
ADD HYD	250.21	3& 2	4	.12530	117.95	9.797	1.46599	1.700	1.471	
ROUTE	250.22	4	3	.12530	117.24	9.797	1.46597	1.750	1.462	

COORS CONNECTION STORM DRAIN WATERSHED (INTERIM) 100 YEAR 24 HOUR STORM (CONTINUED)

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	NOTATION
COMPUTE NM HYD	260.10	-	2	.03980	33.14	1.099	.51796	1.550	1.301	PER IMP= 2.00
ADD HYD	260.11	36 2	4	.16510	134.74	10.896	1.23743	1.700	1.275	
ROUTE	260.12	4	2	.16510	134.85	10.896	1.23743	1.700	1.276	
ROUTE	260.13	2	4	.16510	135.33	10.896	1.23743	1.700	1.281	
COMPUTE NM HYD	270.10	-	3	.02220	21.27	.637	.53787	1.500	1.497	PER IMP= 3.00
ADD HYD	270.11	36 4	4	.18730	145.68	11.533	1.15451	1.650	1.215	
ADD HYD	260.13	4611	10	.30030	222.15	22.102	1.38000	1.650	1.156	
COMPUTE NM HYD	270.20	-	3	.00710	17.98	.819	2.16311	1.500	3.957	PER IMP= 85.00
ADD HYD	270.23	106 3	4	.30740	231.82	22.921	1.39809	1.650	1.170	
ROUTE	270.24	4	10	.30740	232.17	22.920	1.39800	1.650	1.180	
COMPUTE NM HYD	280.10	-	2	.00660	6.59	.203	.57760	1.500	1.560	PER IMP= 5.00
ADD HYD	280.11	106 2	3	.31400	236.11	23.123	1.38075	1.650	1.175	
COMPUTE NM HYD	280.20	-	4	.00250	6.34	.288	2.16311	1.500	3.963	PER IMP= 85.00
ADD HYD	280.21	36 4	5	.31650	239.52	23.411	1.38693	1.650	1.182	
COMPUTE NM HYD	280.30	-	6	.00450	8.64	.359	1.49614	1.500	2.998	PER IMP= 50.00
ADD HYD	280.31	56 6	7	.32100	244.30	23.771	1.38846	1.650	1.189	
ROUTE	280.32	7	10	.32100	244.86	23.768	1.38834	1.650	1.192	
COMPUTE NM HYD	290.10	-	2	.03144	28.78	.848	.50557	1.500	1.430	PER IMP= 2.00
ADD HYD	290.12	106 2	3	.35244	262.22	24.616	1.30959	1.650	1.163	
ROUTE	290.13	3	4	.35244	262.97	24.615	1.30955	1.650	1.166	
ROUTE	290.14	4	10	.35244	263.41	24.614	1.30946	1.650	1.168	
COMPUTE NM HYD	290.20	-	2	.00690	17.48	.796	2.16311	1.500	3.950	PER IMP= 85.00
ADD HYD	290.21	106 2	3	.35934	272.98	25.410	1.32585	1.600	1.187	
ROUTE	290.22	3	4	.35934	273.04	25.409	1.32582	1.650	1.187	
ROUTE	290.23	4	5	.35934	273.70	25.408	1.32576	1.650	1.190	
FINISH										

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 100 YEAR 24 HOUR STORM
AHYMO SUMMARY TABLE (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992 RUN DATE (MON/DAY/YR) =09/22/1992
INPUT FILE = ccsdwd.hmi USER NO.= D_HARRIS.S92

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										TIME= .00
RAINFALL TYPE= 2										RAIN24= 2.660
*S BEGIN THE WATERSHED FOR THE AIRPORT ROAD STORM DRAIN **********										
COMPUTE NM HYD	200.10	-	2	.20810	513.44	23.189	2.08937	1.500	3.855	PER IMP= 80.00
ROUTE RESERVOIR	200.11	2	3	.20810	13.32	21.211	1.91113	2.600	.100	AC-FT= 16.792
COMPUTE NM HYD	200.20	-	2	.00420	10.15	.453	2.02224	1.500	3.777	PER IMP= 77.00
ADD HYD	200.21	3& 2	4	.21230	18.01	21.664	1.91333	1.500	.133	
COMPUTE NM HYD	200.30	-	2	.00760	17.97	.820	2.02224	1.500	3.696	PER IMP= 77.00
COMPUTE NM HYD	200.40	-	3	.00420	10.40	.469	2.09267	1.500	3.868	PER IMP= 81.00
ADD HYD	200.41	2& 3	5	.01180	28.37	1.288	2.04726	1.500	3.756	
ROUTE	200.45	5	11	.01180	21.24	1.288	2.04731	1.600	2.813	
COMPUTE NM HYD	200.50	-	3	.00350	8.67	.391	2.09267	1.500	3.869	PER IMP= 81.00
ADD HYD	200.51	11& 3	3	.01530	28.34	1.679	2.05761	1.550	2.894	
COMPUTE NM HYD	200.60	-	1	.00700	17.40	.780	2.08937	1.500	3.885	PER IMP= 80.00
ROUTE RESERVOIR	200.61	1	2	.00700	.45	.713	1.90867	2.550	.100	AC-FT= .566
ADD HYD	200.62	4& 2	1	.21930	18.31	22.377	1.91318	1.550	.130	
ROUTE	200.65	1	10	.21930	18.17	22.361	1.91184	1.550	.129	
ROUTE	200.66	3	11	.01530	24.28	1.679	2.05766	1.650	2.480	
COMPUTE NM HYD	210.10	-	2	.07480	185.71	8.335	2.08937	1.500	3.879	PER IMP= 80.00
ROUTE RESERVOIR	210.11	2	3	.07480	4.78	7.510	1.88246	2.600	.100	AC-FT= 6.043
ADD HYD	210.12	10& 3	10	.29410	21.38	29.871	1.90437	1.600	.114	
COMPUTE NM HYD	210.20	-	2	.00780	18.09	.841	2.02224	1.500	3.623	PER IMP= 77.00
DIVIDE HYD	210.21	2	3	.00705	11.00	.760	2.02219	1.450	2.440	
	210.22	AND	6	.00075	7.09	.081	2.02219	1.500	14.670	
ADD HYD	210.23	10& 3	10	.30115	32.38	30.630	1.90712	1.600	.168	
COMPUTE NM HYD	210.30	-	2	.00250	6.19	.279	2.09268	1.500	3.871	PER IMP= 81.00
ADD HYD	210.31	11& 2	11	.01780	27.66	1.958	2.06251	1.600	2.428	
COMPUTE NM HYD	210.40	-	2	.01170	29.08	1.304	2.08937	1.500	3.883	PER IMP= 80.00
ROUTE RESERVOIR	210.41	2	4	.01170	.73	1.179	1.88920	2.600	.098	AC-FT= .946
ADD HYD	210.42	10& 4	13	.31285	32.93	31.809	1.90645	1.600	.164	
ADD HYD	210.43	6&11	12	.01855	31.08	2.039	2.06087	1.550	2.617	
ROUTE	210.46	13	10	.31285	32.84	31.789	1.90521	1.600	.164	
ROUTE	210.47	12	11	.01855	26.75	2.039	2.06091	1.650	2.253	
COMPUTE NM HYD	210.50	-	2	.00240	5.95	.268	2.09267	1.500	3.871	PER IMP= 81.00
ADD HYD	210.51	2&11	11	.02095	29.96	2.307	2.06449	1.650	2.234	
COMPUTE NM HYD	210.60	-	3	.07000	173.84	7.800	2.08937	1.500	3.880	PER IMP= 80.00
ROUTE RESERVOIR	210.61	3	4	.07000	4.45	7.167	1.91968	2.600	.099	AC-FT= 5.652
ADD HYD	210.62	4&10	10	.38285	36.25	38.955	1.90786	1.600	.148	
COMPUTE NM HYD	210.70	-	2	.00330	8.17	.368	2.09267	1.500	3.869	PER IMP= 81.00
ROUTE	210.71	2	12	.00330	4.83	.368	2.09282	1.600	2.285	
COMPUTE NM HYD	210.80	-	3	.00280	6.94	.313	2.09267	1.500	3.871	PER IMP= 81.00
ADD HYD	210.81	3&12	12	.00610	10.56	.681	2.09252	1.550	2.706	
COMPUTE NM HYD	210.90	-	2	.00170	4.22	.190	2.09267	1.500	3.876	PER IMP= 81.00
ADD HYD	210.91	12& 2	12	.00780	14.64	.870	2.09251	1.500	2.933	
ADD HYD	210.92	12&11	11	.02875	41.59	3.178	2.07209	1.600	2.260	
ADD HYD	210.93	11&10	10	.41160	77.84	42.133	1.91933	1.600	.295	
COMPUTE NM HYD	211.10	-	2	.01170	29.08	1.304	2.08937	1.500	3.883	PER IMP= 80.00
ROUTE RESERVOIR	211.11	2	3	.01170	.74	1.185	1.89842	2.600	.098	AC-FT= .947
ADD HYD	211.12	3&10	11	.42330	78.38	43.318	1.91875	1.600	.289	

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 100 YEAR 24 HOUR STORM (CONTINUED)

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	NOTATION
ROUTE	211.13	11	10	.42330	73.25	43.248	1.91567	1.700	.270	
*S BEGIN THE AREA SOUTH OF BLUEWATER ROAD										
COMPUTE NM HYD	220.10	-	2	.00350	8.67	.391	2.09267	1.500	3.869	PER IMP= 81.00
COMPUTE NM HYD	220.20	-	3	.03130	77.77	3.488	2.08937	1.500	3.882	PER IMP= 80.00
ROUTE RESERVOIR	220.21	3	4	.03130	2.01	3.162	1.89413	2.550	.100	AC-FT= 2.528
ROUTE	220.22	4	5	.03130	2.01	3.158	1.89148	2.650	.100	
ADD HYD	220.23	2& 5	3	.03480	9.29	3.548	1.91170	1.500	.417	
COMPUTE NM HYD	220.30	-	2	.04470	111.05	4.981	2.08937	1.500	3.882	PER IMP= 80.00
ROUTE RESERVOIR	220.31	2	4	.04470	2.87	4.490	1.88324	2.550	.100	AC-FT= 3.611
ADD HYD	220.32	3& 4	2	.07950	10.90	8.038	1.89570	1.500	.214	
COMPUTE NM HYD	220.40	-	4	.00180	4.36	.194	2.02224	1.500	3.784	PER IMP= 77.00
ADD HYD	220.41	2& 4	1	.08130	15.26	8.232	1.89850	1.500	.293	
COMPUTE NM HYD	220.50	-	3	.03130	77.77	3.488	2.08937	1.500	3.882	PER IMP= 80.00
ROUTE RESERVOIR	220.51	3	4	.03130	2.01	3.162	1.89413	2.550	.100	AC-FT= 2.528
ADD HYD	220.52	4& 1	3	.11260	16.42	11.394	1.89728	1.500	.228	
ADD HYD	220.53	10& 3	2	.53590	84.94	54.642	1.91181	1.650	.248	
ROUTE	220.54	2	10	.53590	84.82	54.632	1.91147	1.700	.247	
*S BEGIN THE AREA SOUTH OF THE ATRISCO BUSINESS PARK										
COMPUTE NM HYD	220.60	-	2	.01980	49.20	2.206	2.08937	1.500	3.883	PER IMP= 80.00
ROUTE RESERVOIR	220.61	2	3	.01980	1.27	1.992	1.88671	2.550	.100	AC-FT= 1.599
COMPUTE NM HYD	220.70	-	4	.00270	6.69	.301	2.09267	1.500	3.871	PER IMP= 81.00
ADD HYD	220.71	4& 3	5	.02250	7.40	2.294	1.91141	1.500	.514	
ADD HYD	220.72	10& 5	2	.55840	89.29	56.926	1.91147	1.650	.250	
ROUTE	220.73	2	10	.55840	86.34	56.848	1.90885	1.750	.242	
*S BEGIN AREA SOUTH OF CENTRAL BOULEVARD										
COMPUTE NM HYD	230.10	-	2	.00180	4.49	.201	2.08937	1.500	3.896	PER IMP= 80.00
ROUTE RESERVOIR	230.11	2	20	.00180	3.56	.201	2.08922	1.550	3.084	AC-FT= .017
ROUTE	230.12	20	3	.00180	3.34	.201	2.08965	1.650	2.899	
COMPUTE NM HYD	230.20	-	2	.00520	12.93	.579	2.08937	1.500	3.886	PER IMP= 80.00
ROUTE RESERVOIR	230.21	2	20	.00520	10.88	.579	2.08931	1.550	3.269	AC-FT= .040
ADD HYD	230.22	20& 3	4	.00700	13.81	.780	2.08930	1.600	3.083	
ROUTE	230.23	4	11	.00700	13.89	.780	2.08941	1.600	3.100	
COMPUTE NM HYD	230.30	-	2	.00240	6.09	.277	2.16311	1.500	3.963	PER IMP= 85.00
ADD HYD	230.31	2&11	3	.00940	19.03	1.057	2.10812	1.550	3.164	
ADD HYD	230.32	10& 3	1	.56780	99.75	57.906	1.91215	1.700	.274	
ROUTE	230.33	1	10	.56780	99.79	57.901	1.91203	1.700	.275	
*S END OF AIRPORT ROAD STORM DRAIN										
*S BEGIN COORS CONNECTION STORM DRAIN										
COMPUTE NM HYD	230.50	-	2	.00660	16.59	.741	2.10487	1.500	3.927	PER IMP= 80.00
ROUTE RESERVOIR	530.51	2	20	.00660	6.52	.741	2.10483	1.750	1.544	AC-FT= .225
ROUTE	230.52	20	4	.00660	6.52	.741	2.10490	1.750	1.544	
COMPUTE NM HYD	230.60	-	2	.00230	6.13	.280	2.28382	1.500	4.162	PER IMP= 90.00
ROUTE	230.61	2	3	.00230	4.53	.280	2.28404	1.600	3.080	
COMPUTE NM HYD	230.70	-	2	.00580	14.69	.669	2.16311	1.500	3.958	PER IMP= 85.00
ADD HYD	230.71	3& 2	1	.00810	18.45	.949	2.19732	1.500	3.559	
ADD HYD	230.72	4& 1	5	.01470	23.53	1.690	2.15577	1.500	2.501	
ROUTE	230.73	5	4	.01470	23.56	1.690	2.15582	1.550	2.503	
COMPUTE NM HYD	230.80	-	2	.01120	28.14	1.257	2.10487	1.500	3.926	PER IMP= 80.00
ROUTE RESERVOIR	230.81	2	20	.01120	15.80	1.257	2.10485	1.650	2.205	AC-FT= .249
ADD HYD	230.82	20& 4	5	.02590	38.39	2.947	2.13375	1.550	2.316	
ROUTE	230.83	5	2	.02590	38.60	2.947	2.13378	1.550	2.328	
ADD HYD	230.84	2&10	11	.59370	133.12	60.849	1.92170	1.650	.350	

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 100 YEAR 24 HOUR STORM (CONTINUED)

PAGE = 3

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	NOTATION
ROUTE	230.85	11	10	.59370	132.96	60.844	1.92155	1.650	.350	
ROUTE	230.86	10	11	.59370	133.07	60.837	1.92133	1.700	.350	
*S BEGIN THE AREA NORTH OF CENTRAL AVENUE BETWEEN UNSER AND THE WEST 66										
*S ADDITION										
COMPUTE NM HYD	240.10	-	2	.03330	81.24	3.581	2.01648	1.500	3.812	PER IMP= 75.00
ROUTE RESERVOIR	240.11	2	20	.03330	58.81	3.581	2.01647	1.600	2.760	AC-FT= .416
ROUTE	240.12	20	3	.03330	58.37	3.581	2.01649	1.600	2.739	
COMPUTE NM HYD	240.20	-	4	.01250	25.65	1.319	1.97801	1.550	3.206	PER IMP= 71.00
ADD HYD	240.21	4& 3	5	.04580	82.53	4.900	2.00597	1.600	2.815	
ROUTE	240.22	5	15	.04580	81.93	4.900	2.00599	1.600	2.795	
COMPUTE NM HYD	240.30	-	3	.00800	20.10	.898	2.10487	1.500	3.926	PER IMP= 80.00
ROUTE RESERVOIR	240.31	3	20	.00800	12.49	.898	2.10483	1.600	2.439	AC-FT= .151
ROUTE	240.32	20	4	.00800	12.28	.898	2.10492	1.650	2.398	
ADD HYD	240.33	4&15	16	.05380	93.78	5.798	2.02068	1.600	2.724	
COMPUTE NM HYD	240.40	-	2	.02310	42.45	2.260	1.83425	1.600	2.871	PER IMP= 60.00
ROUTE RESERVOIR	240.41	2	3	.02310	29.29	1.074	.87164	1.850	1.981	AC-FT= 1.190
ADD HYD	240.42	3&16	15	.07690	93.79	6.872	1.67552	1.600	1.906	
COMPUTE NM HYD	240.50	-	4	.00930	24.26	1.133	2.28382	1.500	4.075	PER IMP= 90.00
ADD HYD	240.51	4&15	16	.08620	111.07	8.005	1.74114	1.600	2.013	
ROUTE RESERVOIR	240.52	16	15	.08620	96.76	8.005	1.74114	1.700	1.754	AC-FT= .552
ROUTE	240.53	15	5	.08620	97.17	8.005	1.74114	1.700	1.761	
COMPUTE NM HYD	240.60	-	2	.00650	16.96	.792	2.28382	1.500	4.076	PER IMP= 90.00
*S BEGIN AREA SOUTH OF CENTRAL AVENUE BETWEEN UNSER AND AIRPORT										
ADD HYD	240.61	2& 5	3	.09270	105.09	8.796	1.77919	1.700	1.771	
ROUTE	240.62	3	4	.09270	104.46	8.796	1.77918	1.700	1.761	
COMPUTE NM HYD	250.10	-	2	.02470	62.04	2.773	2.10488	1.500	3.925	PER IMP= 80.00
ADD HYD	250.11	4& 2	3	.11740	146.40	11.569	1.84770	1.500	1.948	
COMPUTE NM HYD	250.20	-	2	.00790	14.90	.599	1.42095	1.500	2.946	PER IMP= 35.00
ADD HYD	250.21	3& 2	4	.12530	161.30	12.168	1.82079	1.500	2.011	
ROUTE	250.22	4	3	.12530	164.12	12.168	1.82079	1.550	2.047	
COMPUTE NM HYD	260.10	-	2	.03980	97.10	4.280	2.01648	1.500	3.812	PER IMP= 75.00
ADD HYD	260.11	2& 3	4	.16510	256.28	16.448	1.86796	1.500	2.425	
ROUTE	260.12	4	2	.16510	257.18	16.448	1.86795	1.550	2.434	
COMPUTE NM HYD	270.10	-	3	.02220	54.17	2.388	2.01648	1.500	3.812	PER IMP= 75.00
ADD HYD	270.11	3& 2	4	.18730	304.84	18.836	1.88565	1.550	2.543	
ROUTE RESERVOIR	270.12	4	20	.18730	145.37	18.836	1.88553	2.000	1.213	AC-FT= 5.010
ADD HYD	270.13	20&11	10	.78100	267.15	79.672	1.91274	1.750	.534	
COMPUTE NM HYD	270.20	-	3	.00710	17.98	.819	2.16311	1.500	3.957	PER IMP= 85.00
DIVIDE HYD	270.21	3	2	.00326	2.00	.376	2.16307	1.300	.958	
	270.22	AND	4	.00384	15.98	.443	2.16307	1.500	6.504	
ADD HYD	270.23	10& 2	3	.78426	269.15	80.048	1.91378	1.750	.536	
ROUTE	270.24	3	10	.78426	269.53	80.039	1.91357	1.750	.537	
ROUTE	270.25	4	3	.00384	15.18	.443	2.16508	1.500	6.178	
ADD HYD	270.26	10& 3	4	.78810	275.09	80.483	1.91479	1.750	.545	
COMPUTE NM HYD	280.10	-	2	.00660	16.11	.710	2.01647	1.500	3.815	PER IMP= 75.00
ROUTE RESERVOIR	280.11	2	20	.00660	6.51	.710	2.01643	1.750	1.540	AC-FT= .213
ADD HYD	280.12	4&20	3	.79470	281.60	81.192	1.91564	1.750	.554	
COMPUTE NM HYD	280.20	-	4	.00250	6.34	.288	2.16311	1.500	3.963	PER IMP= 85.00
ADD HYD	280.21	3& 4	5	.79720	284.08	81.481	1.91641	1.750	.557	
COMPUTE NM HYD	280.30	-	6	.00450	8.64	.359	1.49614	1.500	2.998	PER IMP= 50.00
ADD HYD	280.31	5& 6	7	.80170	287.31	81.840	1.91405	1.750	.560	
ROUTE	280.32	7	10	.80170	287.38	81.825	1.91371	1.700	.560	

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 100 YEAR 24 HOUR STORM (CONTINUED)

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	NOTATION
COMPUTE NM HYD	290.10	-	2	.03144	67.47	2.789	1.66330	1.500	3.353	PER IMP= 56.00
ROUTE RESERVOIR	290.11	2	20	.03144	28.20	2.789	1.66329	1.700	1.402	AC-FT= .836
ADD HYD	290.12	10&20	3	.83314	315.58	84.614	1.90426	1.700	.592	
ROUTE	290.13	3	4	.83314	315.84	84.607	1.90410	1.700	.592	
ROUTE	290.14	4	10	.83314	315.86	84.595	1.90383	1.700	.592	
COMPUTE NM HYD	290.20	-	2	.00690	17.48	.796	2.16311	1.500	3.958	PER IMP= 85.00
ADD HYD	290.21	10& 2	3	.84004	323.70	85.391	1.90596	1.700	.602	
ROUTE	290.22	3	4	.84004	323.72	85.388	1.90589	1.700	.602	
ROUTE	290.23	4	5	.84004	324.01	85.380	1.90570	1.700	.603	
FINISH										

COORS CONNECTION STORM DRAIN WATERSHED (INTERIM) 10 YEAR 24 HOUR STORM
AHYMO SUMMARY TABLE (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992 RUN DATE (MON/DAY/YR) =09/22/1992
INPUT FILE = ccsdwi.hmi USER NO.= D_HARRIS.S92

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	NOTATION
										PAGE = 1
START										TIME= .00
RAINFALL TYPE= 2										RAIN24= 1.650
*S BEGIN THE WATERSHED FOR THE AIRPORT ROAD STORM DRAIN **********										
COMPUTE NM HYD	200.10	-	2	.20810	41.20	1.124	.10130	1.550	.309	PER IMP= .00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF										
*S LEAVES THE SITE										
COMPUTE NM HYD	200.40	-	3	.00420	6.56	.267	1.19139	1.500	2.440	PER IMP= 81.00
ROUTE	200.45	3	11	.00420	4.09	.267	1.19149	1.600	1.523	
COMPUTE NM HYD	200.50	-	4	.00350	5.47	.222	1.19139	1.500	2.441	PER IMP= 81.00
ADD HYD	200.51	11& 4	3	.00770	8.61	.489	1.19128	1.550	1.746	
ROUTE	200.66	3	11	.00770	6.71	.489	1.19138	1.650	1.362	
COMPUTE NM HYD	210.10	-	2	.07480	14.47	.404	.10130	1.550	.302	PER IMP= .00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF										
*S LEAVES THE SITE										
COMPUTE NM HYD	210.30	-	2	.00250	3.91	.159	1.19139	1.500	2.442	PER IMP= 81.00
ADD HYD	210.31	11& 2	12	.01020	9.11	.648	1.19126	1.600	1.395	
ROUTE	210.47	12	11	.01020	7.79	.648	1.19133	1.750	1.194	
COMPUTE NM HYD	210.50	-	2	.00240	3.75	.152	1.19139	1.500	2.442	PER IMP= 81.00
ADD HYD	210.51	2&11	11	.01260	9.42	.801	1.19124	1.700	1.168	
COMPUTE NM HYD	210.60	-	3	.07000	13.53	.378	.10130	1.550	.302	PER IMP= .00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF										
*S LEAVES THE SITE										
COMPUTE NM HYD	210.70	-	2	.00330	5.15	.210	1.19139	1.500	2.441	PER IMP= 81.00
ROUTE	210.71	2	12	.00330	2.76	.210	1.19151	1.600	1.307	
COMPUTE NM HYD	210.80	-	3	.00280	4.38	.178	1.19139	1.500	2.441	PER IMP= 81.00
ADD HYD	210.81	3&12	12	.00610	6.34	.388	1.19121	1.550	1.624	
COMPUTE NM HYD	210.90	-	2	.00170	2.66	.108	1.19139	1.500	2.444	PER IMP= 81.00
ADD HYD	210.91	12& 2	12	.00780	8.93	.496	1.19121	1.500	1.788	
ADD HYD	210.92	12&11	11	.02040	17.08	1.296	1.19123	1.550	1.308	
ROUTE	211.13	11	10	.02040	15.15	1.296	1.19126	1.700	1.160	
*S BEGIN THE AREA SOUTH OF BLUEWATER ROAD										
COMPUTE NM HYD	220.10	-	2	.00350	5.47	.222	1.19139	1.500	2.441	PER IMP= 81.00
COMPUTE NM HYD	220.20	-	3	.03130	49.09	1.984	1.18860	1.500	2.450	PER IMP= 80.00
ROUTE RESERVOIR	220.21	3	4	.03130	1.57	1.857	1.11233	2.450	.078	AC-FT= 1.525
ROUTE	220.22	4	5	.03130	1.57	1.854	1.11092	2.500	.078	
ADD HYD	220.23	2& 5	3	.03480	5.76	2.077	1.11900	1.500	.259	
COMPUTE NM HYD	220.30	-	2	.04470	8.63	.242	.10130	1.550	.302	PER IMP= .00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF										
*S LEAVES THE SITE										
ADD HYD	220.53	10& 3	2	.05520	18.97	3.373	1.14569	1.650	.537	
ROUTE	220.54	2	10	.05520	19.00	3.372	1.14551	1.650	.538	
*S BEGIN THE AREA SOUTH OF THE ATRISCO BUSINESS PARK										
COMPUTE NM HYD	220.60	-	2	.01980	31.06	1.255	1.18860	1.500	2.451	PER IMP= 80.00
ROUTE RESERVOIR	220.61	2	3	.01980	1.01	1.168	1.10617	2.450	.080	AC-FT= .965
COMPUTE NM HYD	220.70	-	4	.00270	4.22	.172	1.19139	1.500	2.442	PER IMP= 81.00
ADD HYD	220.71	4& 3	5	.02250	4.64	1.340	1.11638	1.500	.322	
ADD HYD	220.72	10& 5	2	.07770	22.30	4.712	1.13707	1.600	.448	
ROUTE	220.73	2	10	.07770	20.96	4.705	1.13532	1.750	.422	

COORS CONNECTION STORM DRAIN WATERSHED (INTERIM) 10 YEAR 24 HOUR STORM (CONTINUED)

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	NOTATION
*S BEGIN AREA SOUTH OF CENTRAL BOULEVARD										
COMPUTE NM HYD	230.10	-	2	.00180	2.17	.070	.72693	1.500	1.883	PER IMP= 30.00
ROUTE	230.11	2	3	.00180	1.68	.070	.72727	1.600	1.456	
COMPUTE NM HYD	230.20	-	2	.00520	6.25	.202	.72693	1.500	1.878	PER IMP= 30.00
ADD HYD	230.21	2& 3	4	.00700	7.53	.271	.72686	1.500	1.682	
ROUTE	230.22	4	11	.00700	7.50	.271	.72697	1.550	1.675	
COMPUTE NM HYD	230.30	-	2	.00240	3.88	.159	1.23955	1.500	2.527	PER IMP= 85.00
ADD HYD	230.31	2&11	1	.00940	11.29	.430	.85772	1.500	1.876	
ADD HYD	230.32	1&10	3	.08710	27.45	5.135	1.10536	1.600	.492	
ROUTE	230.33	3	10	.08710	27.49	5.134	1.10523	1.650	.493	
*S END OF AIRPORT ROAD STORM DRAIN										
*S BEGIN COORS CONNECTION STORM DRAIN										
COMPUTE NM HYD	230.60	-	2	.00230	3.99	.162	1.32112	1.500	2.709	PER IMP= 90.00
ROUTE	230.61	2	3	.00230	2.80	.162	1.32130	1.600	1.905	
COMPUTE NM HYD	230.70	-	2	.00580	9.37	.383	1.23955	1.500	2.524	PER IMP= 85.00
ADD HYD	230.71	3& 2	4	.00810	11.54	.545	1.26262	1.500	2.225	
COMPUTE NM HYD	230.50	-	2	.00660	1.60	.044	.12523	1.500	.379	PER IMP= .00
ADD HYD	230.51	2& 4	5	.01470	13.14	.590	.75195	1.500	1.396	
ROUTE	230.52	5	4	.01470	12.96	.590	.75200	1.500	1.377	
COMPUTE NM HYD	230.80	-	2	.01120	6.73	.223	.37289	1.500	.938	PER IMP= 15.00
ADD HYD	230.82	2& 4	5	.02590	19.68	.812	.58802	1.500	1.187	
ROUTE	230.83	5	2	.02590	19.69	.812	.58805	1.550	1.188	
ADD HYD	230.84	2&10	11	.11300	45.23	5.946	.98668	1.550	.625	
ROUTE	230.85	11	10	.11300	45.50	5.946	.98663	1.550	.629	
ROUTE	230.86	10	11	.11300	45.47	5.946	.98655	1.550	.629	
*S BEGIN THE AREA NORTH OF CENTRAL AVENUE BETWEEN UNSER AND THE WEST 66										
*S ADDITION										
COMPUTE NM HYD	240.10	-	2	.03330	33.58	1.379	.77645	1.550	1.576	PER IMP= 35.00
ROUTE	240.11	2	3	.03330	32.47	1.379	.77646	1.600	1.523	
COMPUTE NM HYD	240.20	-	4	.01250	15.90	.740	1.11053	1.550	1.987	PER IMP= 71.00
ADD HYD	240.21	4& 3	5	.04580	47.48	2.119	.86761	1.600	1.620	
ROUTE	240.22	5	15	.04580	46.76	2.119	.86763	1.600	1.595	
COMPUTE NM HYD	240.30	-	3	.00800	7.08	.289	.67742	1.600	1.383	PER IMP= 25.00
ROUTE	240.31	3	4	.00800	6.59	.289	.67745	1.600	1.287	
ADD HYD	240.32	4&15	16	.05380	53.35	2.408	.83932	1.600	1.549	
COMPUTE NM HYD	240.40	-	2	.02310	25.81	1.245	1.01075	1.600	1.746	PER IMP= 60.00
ROUTE RESERVOIR	240.41	2	3	.02310	.14	.060	.04833	17.500	.010	AC-FT= 1.190
ADD HYD	240.42	3&16	15	.07690	53.35	2.468	.60172	1.600	1.084	
COMPUTE NM HYD	240.50	-	4	.00930	15.78	.655	1.32112	1.500	2.651	PER IMP= 90.00
ADD HYD	240.51	4&15	16	.06620	64.57	3.123	.67933	1.600	1.170	
ROUTE RESERVOIR	240.52	16	15	.06620	61.33	3.123	.67932	1.650	1.112	AC-FT= .142
ROUTE	240.53	15	5	.06620	61.27	3.123	.67932	1.650	1.111	
COMPUTE NM HYD	240.60	-	2	.00650	11.03	.458	1.32112	1.500	2.652	PER IMP= 90.00
*S BEGIN AREA SOUTH OF CENTRAL AVENUE BETWEEN UNSER AND AIRPORT										
ADD HYD	240.61	2& 5	3	.09270	68.95	3.581	.72432	1.600	1.162	
ROUTE	240.62	3	4	.09270	51.35	3.581	.72426	1.750	.866	
COMPUTE NM HYD	250.10	-	2	.02470	17.22	.809	.61449	1.600	1.089	PER IMP= 30.00
ADD HYD	250.11	4& 2	3	.11740	64.59	4.390	.70116	1.700	.860	
COMPUTE NM HYD	250.20	-	2	.00790	8.24	.306	.72659	1.500	1.629	PER IMP= 35.00
ADD HYD	250.21	3& 2	4	.12530	68.68	4.696	.70276	1.700	.856	
ROUTE	250.22	4	3	.12530	67.26	4.696	.70274	1.750	.839	
COMPUTE NM HYD	260.10	-	2	.03980	7.96	.272	.12815	1.550	.312	PER IMP= 2.00

COORS CONNECTION STORM DRAIN WATERSHED (INTERIM) 10 YEAR 24 HOUR STORM (CONTINUED)

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	NOTATION
ADD HYD	260.11	3& 2	4	.16510	71.01	4.968	.56423	1.750	.672	
ROUTE	260.12	4	2	.16510	70.66	4.968	.56422	1.750	.669	
ROUTE	260.13	2	4	.16510	70.58	4.968	.56422	1.750	.668	
COMPUTE NM HYD	270.10	-	3	.02220	5.32	.168	.14157	1.500	.374	PER IMP= 3.00
ADD HYD	270.11	3& 4	4	.18730	72.56	5.136	.51412	1.750	.605	
ADD HYD	260.13	4&11	10	.30030	107.68	11.081	.69189	1.750	.560	
COMPUTE NM HYD	270.20	-	3	.00710	11.47	.469	1.23955	1.500	2.524	PER IMP= 85.00
ADD HYD	270.23	10& 3	4	.30740	112.14	11.551	.70454	1.750	.570	
ROUTE	270.24	4	10	.30740	112.25	11.550	.70450	1.750	.571	
COMPUTE NM HYD	280.10	-	2	.00660	1.81	.059	.16841	1.500	.428	PER IMP= 5.00
ADD HYD	280.11	10& 2	3	.31400	112.93	11.609	.69324	1.750	.562	
COMPUTE NM HYD	280.20	-	4	.00250	4.04	.165	1.23955	1.500	2.527	PER IMP= 85.00
ADD HYD	280.21	3& 4	5	.31650	114.50	11.775	.69755	1.750	.565	
COMPUTE NM HYD	280.30	-	6	.00450	4.79	.189	.78701	1.500	1.663	PER IMP= 50.00
ADD HYD	280.31	5& 6	7	.32100	116.34	11.964	.69880	1.750	.566	
ROUTE	280.32	7	10	.32100	116.52	11.963	.69875	1.750	.567	
COMPUTE NM HYD	290.10	-	2	.03144	6.55	.203	.12120	1.550	.325	PER IMP= 2.00
ADD HYD	290.12	10& 2	3	.35244	119.01	12.166	.64723	1.750	.528	
ROUTE	290.13	3	4	.35244	119.01	12.166	.64722	1.750	.528	
ROUTE	290.14	4	10	.35244	119.17	12.165	.64718	1.750	.528	
COMPUTE NM HYD	290.20	-	2	.00690	11.15	.456	1.23955	1.500	2.524	PER IMP= 85.00
ADD HYD	290.21	10& 2	3	.35934	123.51	12.621	.65855	1.750	.537	
ROUTE	290.22	3	4	.35934	123.50	12.621	.65854	1.750	.537	
ROUTE	290.23	4	5	.35934	123.45	12.620	.65851	1.750	.537	
FINISH										

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 10 YEAR 24 HOUR STORM
AHYMO SUMMARY TABLE (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992 RUN DATE (MON/DAY/YR) =09/22/1992
INPUT FILE = ccsdwd.hmi USER NO.= D_HARRIS.S92

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	NOTATION
START										TIME= .00
RAINFALL TYPE= 2										RAIN24= 1.650
*S BEGIN THE WATERSHED FOR THE AIRPORT ROAD STORM DRAIN **********										
COMPUTE NM HYD	200.10	-	2	.20810	313.99	13.192	1.18860	1.500	2.358	PER IMP= 80.00
ROUTE RESERVOIR	200.11	2	3	.20810	10.61	12.457	1.12234	2.450	.080	AC-FT= 10.061
COMPUTE NM HYD	200.20	-	2	.00420	6.33	.256	1.14323	1.500	2.355	PER IMP= 77.00
ADD HYD	200.21	3& 2	4	.21230	12.14	12.713	1.12275	1.550	.089	
COMPUTE NM HYD	200.30	-	2	.00760	11.21	.463	1.14323	1.500	2.304	PER IMP= 77.00
COMPUTE NM HYD	200.40	-	3	.00420	6.56	.267	1.19139	1.500	2.440	PER IMP= 81.00
ADD HYD	200.41	2& 3	5	.01180	17.77	.730	1.16032	1.500	2.353	
ROUTE	200.45	5	11	.01180	12.57	.730	1.16038	1.600	1.664	
COMPUTE NM HYD	200.50	-	3	.00350	5.47	.222	1.19139	1.500	2.441	PER IMP= 81.00
ADD HYD	200.51	11& 3	3	.01530	16.74	.953	1.16739	1.550	1.709	
COMPUTE NM HYD	200.60	-	1	.00700	10.98	.444	1.18860	1.500	2.452	PER IMP= 80.00
ROUTE RESERVOIR	200.61	1	2	.00700	.35	.419	1.12128	2.450	.079	AC-FT= .341
ADD HYD	200.62	4& 2	1	.21930	12.37	13.131	1.12271	1.550	.088	
ROUTE	200.65	1	10	.21930	12.26	13.123	1.12202	1.600	.087	
ROUTE	200.66	3	11	.01530	13.89	.953	1.16744	1.650	1.418	
COMPUTE NM HYD	210.10	-	2	.07480	116.91	4.742	1.18860	1.500	2.442	PER IMP= 80.00
ROUTE RESERVOIR	210.11	2	3	.07480	3.73	4.408	1.10498	2.450	.078	AC-FT= 3.646
ADD HYD	210.12	10& 3	10	.29410	15.50	17.531	1.11769	2.050	.082	
COMPUTE NM HYD	210.20	-	2	.00780	11.28	.476	1.14323	1.500	2.259	PER IMP= 77.00
DIVIDE HYD	210.21	2	3	.00778	11.00	.474	1.14318	1.500	2.209	
	210.22	AND	6	.00002	.28	.001	1.14318	1.500	23.054	
ADD HYD	210.23	10& 3	10	.30188	24.28	18.006	1.11834	1.550	.126	
COMPUTE NM HYD	210.30	-	2	.00250	3.91	.159	1.19139	1.500	2.442	PER IMP= 81.00
ADD HYD	210.31	11& 2	11	.01780	15.97	1.111	1.17074	1.650	1.402	
COMPUTE NM HYD	210.40	-	2	.01170	18.35	.742	1.18859	1.500	2.451	PER IMP= 80.00
ROUTE RESERVOIR	210.41	2	4	.01170	.58	.694	1.11191	2.450	.077	AC-FT= .571
ADD HYD	210.42	10& 4	13	.31358	24.64	18.700	1.11810	1.550	.123	
ADD HYD	210.43	6&11	12	.01782	15.97	1.113	1.17071	1.650	1.400	
ROUTE	210.46	13	10	.31358	24.22	18.689	1.11745	1.600	.121	
ROUTE	210.47	12	11	.01782	14.24	1.113	1.17074	1.750	1.249	
COMPUTE NM HYD	210.50	-	2	.00240	3.75	.152	1.19139	1.500	2.442	PER IMP= 81.00
ADD HYD	210.51	2&11	11	.02022	15.70	1.265	1.17314	1.750	1.213	
COMPUTE NM HYD	210.60	-	3	.07000	109.55	4.437	1.18859	1.500	2.445	PER IMP= 80.00
ROUTE RESERVOIR	210.61	3	4	.07000	3.57	4.214	1.12866	2.450	.080	AC-FT= 3.401
ADD HYD	210.62	4&10	10	.38358	26.88	22.902	1.11960	1.600	.109	
COMPUTE NM HYD	210.70	-	2	.00330	5.15	.210	1.19139	1.500	2.441	PER IMP= 81.00
ROUTE	210.71	2	12	.00330	2.76	.210	1.19151	1.600	1.307	
COMPUTE NM HYD	210.80	-	3	.00280	4.38	.178	1.19139	1.500	2.441	PER IMP= 81.00
ADD HYD	210.81	3&12	12	.00610	6.34	.388	1.19121	1.550	1.624	
COMPUTE NM HYD	210.90	-	2	.00170	2.66	.108	1.19139	1.500	2.444	PER IMP= 81.00
ADD HYD	210.91	12& 2	12	.00780	8.93	.496	1.19121	1.500	1.788	
ADD HYD	210.92	12&11	11	.02802	21.22	1.761	1.17817	1.700	1.183	
ADD HYD	210.93	11&10	10	.41160	47.22	24.663	1.12349	1.600	.179	
COMPUTE NM HYD	211.10	-	2	.01170	18.35	.742	1.18859	1.500	2.451	PER IMP= 80.00
ROUTE RESERVOIR	211.11	2	3	.01170	.57	.700	1.12165	2.450	.076	AC-FT= .571
ADD HYD	211.12	3&10	11	.42330	47.66	25.363	1.12344	1.600	.176	

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 10 YEAR 24 HOUR STORM (CONTINUED)

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	NOTATION
ROUTE	211.13	11	10	.42330	44.98	25.327	1.12187	1.700	.166	
*S BEGIN THE AREA SOUTH OF BLUEWATER ROAD										
COMPUTE NM HYD	220.10	-	2	.00350	5.47	.222	1.19139	1.500	2.441	PER IMP= 81.00
COMPUTE NM HYD	220.20	-	3	.03130	49.09	1.984	1.18860	1.500	2.450	PER IMP= 80.00
ROUTE RESERVOIR	220.21	3	4	.03130	1.57	1.857	1.11233	2.450	.078	AC-FT= 1.525
ROUTE	220.22	4	5	.03130	1.57	1.854	1.11092	2.500	.078	
ADD HYD	220.23	2& 5	3	.03480	5.76	2.077	1.11900	1.500	.259	
COMPUTE NM HYD	220.30	-	2	.04470	70.10	2.834	1.18859	1.500	2.450	PER IMP= 80.00
ROUTE RESERVOIR	220.31	2	4	.04470	2.25	2.633	1.10441	2.450	.079	AC-FT= 2.179
ADD HYD	220.32	3& 4	2	.07950	6.71	4.710	1.11080	1.500	.132	
COMPUTE NM HYD	220.40	-	4	.00180	2.72	.110	1.14323	1.500	2.359	PER IMP= 77.00
ADD HYD	220.41	2& 4	1	.08130	9.43	4.820	1.11151	1.500	.181	
COMPUTE NM HYD	220.50	-	3	.03130	49.09	1.984	1.18860	1.500	2.450	PER IMP= 80.00
ROUTE RESERVOIR	220.51	3	4	.03130	1.57	1.857	1.11233	2.450	.078	AC-FT= 1.525
ADD HYD	220.52	4& 1	3	.11260	10.12	6.676	1.11174	1.500	.140	
ADD HYD	220.53	10& 3	2	.53590	52.83	32.004	1.11975	1.700	.154	
ROUTE	220.54	2	10	.53590	52.79	31.999	1.11957	1.700	.154	
*S BEGIN THE AREA SOUTH OF THE ATRISCO BUSINESS PARK										
COMPUTE NM HYD	220.60	-	2	.01980	31.06	1.255	1.18860	1.500	2.451	PER IMP= 80.00
ROUTE RESERVOIR	220.61	2	3	.01980	1.01	1.168	1.10617	2.450	.080	AC-FT= .965
COMPUTE NM HYD	220.70	-	4	.00270	4.22	.172	1.19139	1.500	2.442	PER IMP= 81.00
ADD HYD	220.71	4& 3	5	.02250	4.64	1.340	1.11638	1.500	.322	
ADD HYD	220.72	10& 5	2	.55840	55.47	33.338	1.11944	1.700	.155	
ROUTE	220.73	2	10	.55840	54.30	33.298	1.11807	1.800	.152	
*S BEGIN AREA SOUTH OF CENTRAL BOULEVARD										
COMPUTE NM HYD	230.10	-	2	.00180	2.83	.114	1.18859	1.500	2.458	PER IMP= 80.00
ROUTE RESERVOIR	230.11	2	20	.00180	2.50	.114	1.18842	1.550	2.171	AC-FT= .007
ROUTE	230.12	20	3	.00180	2.20	.114	1.18899	1.600	1.909	
COMPUTE NM HYD	230.20	-	2	.00520	8.16	.330	1.18859	1.500	2.453	PER IMP= 80.00
ROUTE RESERVOIR	230.21	2	20	.00520	7.40	.330	1.18854	1.550	2.223	AC-FT= .016
ADD HYD	230.22	20& 3	4	.00700	9.37	.444	1.18856	1.550	2.092	
ROUTE	230.23	4	11	.00700	9.25	.444	1.18866	1.550	2.065	
COMPUTE NM HYD	230.30	-	2	.00240	3.88	.159	1.23955	1.500	2.527	PER IMP= 85.00
ADD HYD	230.31	2&11	3	.00940	12.65	.602	1.20154	1.550	2.102	
ADD HYD	230.32	10& 3	1	.56780	60.53	33.900	1.11945	1.750	.167	
ROUTE	230.33	1	10	.56780	60.53	33.898	1.11939	1.750	.167	
*S END OF AIRPORT ROAD STORM DRAIN										
*S BEGIN COORS CONNECTION STORM DRAIN										
COMPUTE NM HYD	230.50	-	2	.00660	10.51	.422	1.19856	1.500	2.489	PER IMP= 80.00
ROUTE RESERVOIR	530.51	2	20	.00660	5.04	.422	1.19851	1.700	1.194	AC-FT= .118
ROUTE	230.52	20	4	.00660	5.06	.422	1.19859	1.700	1.196	
COMPUTE NM HYD	230.60	-	2	.00230	3.99	.162	1.32112	1.500	2.709	PER IMP= 90.00
ROUTE	230.61	2	3	.00230	2.80	.162	1.32130	1.600	1.906	
COMPUTE NM HYD	230.70	-	2	.00580	9.37	.383	1.23955	1.500	2.524	PER IMP= 85.00
ADD HYD	230.71	3& 2	1	.00810	11.54	.545	1.26262	1.500	2.225	
ADD HYD	230.72	4& 1	5	.01470	15.41	.967	1.23382	1.550	1.638	
ROUTE	230.73	5	4	.01470	15.70	.967	1.23387	1.550	1.669	
COMPUTE NM HYD	230.80	-	2	.01120	17.83	.716	1.19856	1.500	2.488	PER IMP= 80.00
ROUTE RESERVOIR	230.81	2	20	.01120	11.77	.716	1.19853	1.600	1.642	AC-FT= .121
ADD HYD	230.82	20& 4	5	.02590	27.07	1.683	1.21856	1.550	1.633	
ROUTE	230.83	5	2	.02590	27.02	1.683	1.21859	1.550	1.630	
ADD HYD	230.84	2&10	11	.59370	83.32	35.581	1.12371	1.700	.219	

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 10 YEAR 24 HOUR STORM (CONTINUED)

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	NOTATION
ROUTE	230.85	11	10	.59370	83.29	35.579	1.12363	1.650	.219	
ROUTE	230.86	10	11	.59370	83.41	35.575	1.12351	1.700	.220	
*S BEGIN THE AREA NORTH OF CENTRAL AVENUE BETWEEN UNSER AND THE WEST 66										
*S ADDITION										
COMPUTE NM HYD	240.10	-	2	.03330	50.75	2.021	1.13800	1.500	2.381	PER IMP= 75.00
ROUTE RESERVOIR	240.11	2	20	.03330	41.75	2.021	1.13799	1.550	1.959	AC-FT= .176
ROUTE	240.12	20	3	.03330	41.09	2.021	1.13802	1.600	1.928	
COMPUTE NM HYD	240.20	-	4	.01250	15.90	.740	1.11053	1.550	1.987	PER IMP= 71.00
ADD HYD	240.21	4& 3	5	.04580	56.11	2.761	1.13050	1.600	1.914	
ROUTE	240.22	5	15	.04580	55.57	2.761	1.13051	1.600	1.896	
COMPUTE NM HYD	240.30	-	3	.00800	12.74	.511	1.19856	1.500	2.489	PER IMP= 80.00
ROUTE RESERVOIR	240.31	3	20	.00800	9.14	.511	1.19851	1.600	1.784	AC-FT= .073
ROUTE	240.32	20	4	.00800	8.87	.511	1.19860	1.650	1.732	
ADD HYD	240.33	4&15	16	.05380	64.29	3.273	1.14062	1.600	1.867	
COMPUTE NM HYD	240.40	-	2	.02310	25.81	1.245	1.01075	1.600	1.746	PER IMP= 60.00
ROUTE RESERVOIR	240.41	2	3	.02310	.14	.060	.04833	17.500	.010	AC-FT= 1.190
ADD HYD	240.42	3&16	15	.07690	64.30	3.332	.81250	1.600	1.306	
COMPUTE NM HYD	240.50	-	4	.00930	15.78	.655	1.32112	1.500	2.651	PER IMP= 90.00
ADD HYD	240.51	4&15	16	.08620	75.52	3.988	.86737	1.600	1.369	
ROUTE RESERVOIR	240.52	16	15	.08620	68.82	3.988	.86737	1.650	1.248	AC-FT= .229
ROUTE	240.53	15	5	.08620	69.06	3.988	.86736	1.650	1.252	
COMPUTE NM HYD	240.60	-	2	.00650	11.03	.458	1.32112	1.500	2.652	PER IMP= 90.00
*S BEGIN AREA SOUTH OF CENTRAL AVENUE BETWEEN UNSER AND AIRPORT										
ADD HYD	240.61	2& 5	3	.09270	75.23	4.446	.89918	1.650	1.268	
ROUTE	240.62	3	4	.09270	74.99	4.446	.89917	1.600	1.264	
COMPUTE NM HYD	250.10	-	2	.02470	39.32	1.579	1.19856	1.500	2.488	PER IMP= 80.00
ADD HYD	250.11	4& 2	3	.11740	107.60	6.024	.96216	1.550	1.432	
COMPUTE NM HYD	250.20	-	2	.00790	8.24	.306	.72659	1.500	1.629	PER IMP= 35.00
ADD HYD	250.21	3& 2	4	.12530	115.76	6.331	.94730	1.550	1.443	
ROUTE	250.22	4	3	.12530	115.99	6.330	.94730	1.550	1.446	
COMPUTE NM HYD	260.10	-	2	.03980	60.66	2.416	1.13800	1.500	2.381	PER IMP= 75.00
ADD HYD	260.11	2& 3	4	.16510	169.39	8.746	.99327	1.550	1.603	
ROUTE	260.12	4	2	.16510	165.53	8.746	.99326	1.550	1.567	
COMPUTE NM HYD	270.10	-	3	.02220	33.84	1.347	1.13800	1.500	2.382	PER IMP= 75.00
ADD HYD	270.11	3& 2	4	.18730	195.32	10.093	1.01041	1.550	1.629	
ROUTE RESERVOIR	270.12	4	20	.18730	107.70	10.093	1.01040	1.850	.898	AC-FT= 2.542
ADD HYD	270.13	20&11	10	.78100	188.02	45.668	1.09638	1.750	.376	
COMPUTE NM HYD	270.20	-	3	.00710	11.47	.469	1.23955	1.500	2.524	PER IMP= 85.00
DIVIDE HYD	270.21	3	2	.00367	2.00	.242	1.23950	1.350	.853	
	270.22	AND	4	.00343	9.47	.227	1.23950	1.500	4.307	
ADD HYD	270.23	10& 2	3	.78467	190.02	45.910	1.09705	1.750	.378	
ROUTE	270.24	3	10	.78467	190.13	45.905	1.09693	1.800	.379	
ROUTE	270.25	4	3	.00343	8.90	.227	1.24176	1.550	4.047	
ADD HYD	270.26	10& 3	4	.78810	192.82	46.133	1.09756	1.700	.382	
COMPUTE NM HYD	280.10	-	2	.00660	10.07	.401	1.13800	1.500	2.383	PER IMP= 75.00
ROUTE RESERVOIR	280.11	2	20	.00660	4.94	.401	1.13795	1.650	1.170	AC-FT= .110
ADD HYD	280.12	4&20	3	.79470	197.76	46.533	1.09790	1.700	.389	
COMPUTE NM HYD	280.20	-	4	.00250	4.04	.165	1.23955	1.500	2.527	PER IMP= 85.00
ADD HYD	280.21	3& 4	5	.79720	199.55	46.698	1.09834	1.700	.391	
COMPUTE NM HYD	280.30	-	6	.00450	4.79	.189	.78701	1.500	1.663	PER IMP= 50.00
ADD HYD	280.31	5& 6	7	.80170	201.68	46.887	1.09659	1.700	.393	
ROUTE	280.32	7	10	.80170	201.34	46.880	1.09642	1.750	.392	

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 10 YEAR 24 HOUR STORM (CONTINUED)

PAGE = 4

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	NOTATION
COMPUTE NM HYD	290.10	-	2	.03144	39.30	1.504	.89678	1.500	1.953	PER IMP= 56.00
ROUTE RESERVOIR	290.11	2	20	.03144	20.80	1.504	.89677	1.650	1.034	AC-FT= .386
ADD HYD	290.12	10&20	3	.83314	221.81	48.384	1.08888	1.700	.416	
ROUTE	290.13	3	4	.83314	221.96	48.381	1.08882	1.750	.416	
ROUTE	290.14	4	10	.83314	222.12	48.375	1.08868	1.750	.417	
COMPUTE NM HYD	290.20	-	2	.00690	11.15	.456	1.23955	1.500	2.524	PER IMP= 85.00
ADD HYD	290.21	10& 2	3	.84004	226.46	48.831	1.08992	1.750	.421	
ROUTE	290.22	3	4	.84004	226.45	48.829	1.08988	1.750	.421	
ROUTE	290.23	4	5	.84004	226.70	48.824	1.08978	1.750	.422	
FINISH										

AHYMO SUMMARY TABLE (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992 RUN DATE (MON/DAY/YR) =10/01/1993

INPUT FILE = tbsdw1.hmi USER NO.= D_HARRIS.892

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 = NOTATIO
START										TIME=
*S 100 YEAR STORM										
RAINFALL TYPE= 2										RAIN24=
*S BEGIN UNSER DIVERSION WATERSHED										
COMPUTE NM HYD	120.10	-	1	.02590	21.31	.607	.43936	1.500	1.286	PER IMP=
COMPUTE NM HYD	120.20	-	2	.05450	32.28	1.277	.43936	1.600	.925	PER IMP=
ADD HYD	120.21	1& 2	3	.08040	52.81	1.884	.43936	1.550	1.026	
ROUTE	120.22	3	4	.08040	44.95	1.884	.43937	1.650	.874	
COMPUTE NM HYD	120.30	-	1	.01990	16.38	.466	.43936	1.500	1.286	PER IMP=
ADD HYD	120.31	1& 4	10	.10030	57.56	2.350	.43936	1.600	.897	
COMPUTE NM HYD	130.10	-	3	.07430	36.76	1.741	.43936	1.600	.773	PER IMP=
COMPUTE NM HYD	130.20	-	4	.04890	30.09	1.146	.43936	1.550	.962	PER IMP=
COMPUTE NM HYD	130.30	-	5	.00470	12.93	.608	2.42724	1.500	4.298	PER IMP= 1
ADD HYD	130.21	4& 3	6	.12320	66.48	2.887	.43936	1.600	.843	
ADD HYD	130.31	5& 6	1	.12790	75.17	3.495	.51241	1.600	.918	
ROUTE	130.32	1	11	.12790	72.32	3.495	.51241	1.650	.884	
COMPUTE NM HYD	130.40	-	1	.06120	46.64	1.434	.43936	1.550	1.191	PER IMP=
ADD HYD	130.41	1&11	12	.18910	111.03	4.929	.48876	1.600	.917	
COMPUTE NM HYD	130.60	-	11	.07100	42.71	1.664	.43936	1.550	.940	PER IMP=
ROUTE	130.61	11	15	.07100	42.83	1.664	.43938	1.600	.943	
ROUTE	130.62	15	11	.07100	43.40	1.664	.43938	1.600	.955	
ROUTE	130.42	12	1	.18910	110.96	4.929	.48877	1.600	.917	
COMPUTE NM HYD	130.50	-	3	.01040	18.39	.784	1.41342	1.500	2.762	PER IMP=
ADD HYD	130.51	1& 3	4	.19950	123.89	5.713	.53697	1.600	.970	
COMPUTE NM HYD	130.70	-	1	.01696	15.02	.425	.46988	1.500	1.384	PER IMP=
COMPUTE NM HYD	130.90	-	2	.00954	8.45	.239	.46988	1.500	1.385	PER IMP=
ADD HYD	130.91	1& 2	1	.02650	23.48	.664	.46988	1.500	1.384	
ROUTE	130.52	4	3	.19950	123.01	5.713	.53697	1.600	.963	
ADD HYD	130.72	1& 3	4	.22600	141.78	6.377	.52910	1.600	.980	
ADD HYD	130.73	4&11	2	.29700	185.18	8.041	.50765	1.600	.974	
COMPUTE NM HYD	130.80	-	1	.03270	25.40	.766	.43936	1.550	1.214	PER IMP=
ROUTE	130.74	2	3	.29700	180.78	8.041	.50765	1.650	.951	
ADD HYD	130.81	3& 1	11	.32970	197.70	8.807	.50088	1.650	.937	
ROUTE	120.32	10	3	.10030	57.13	2.350	.43937	1.600	.890	
COMPUTE NM HYD	120.40	-	1	.00910	16.09	.686	1.41342	1.500	2.763	PER IMP=
ADD HYD	120.41	3& 1	2	.10940	68.44	3.036	.52038	1.600	.978	
ROUTE	120.42	2	1	.10940	63.84	3.036	.52039	1.650	.912	
COMPUTE NM HYD	120.50	-	2	.01620	13.33	.380	.43936	1.500	1.286	PER IMP=
ADD HYD	120.51	2& 1	3	.12560	71.98	3.416	.50993	1.650	.896	
DIVIDE HYD	120.52	3	15	.12560	75.58	3.587	.53543	1.650	.940	
	120.53	AND	16	.12560	3.60	.171	.02550	1.650	.045	
COMPUTE NM HYD	120.60	-	6	.03280	28.25	.838	.47912	1.500	1.346	PER IMP=
DIVIDE HYD	120.61	6	17	.03280	28.53	.846	.48390	1.500	1.359	
	120.62	AND	16	.03280	.28	.008	.00479	1.500	.013	
ADD HYD	120.63	15&17	18	.15840	93.65	4.433	.52476	1.600	.924	
STORE HYD	120.64	-	15	.00010	2.93	.242	45.40292	5.000	45.781	
MODIFY TIME	120.64	15	15	.00010	5.86	.242	45.39693	4.900	91.550	
ADD HYD	120.65	15&18	7	.15850	93.65	4.675	.55307	1.600	.923	
ROUTE RESERVOIR	120.66	7	5	.15850	.01	.034	.00406	24.400	.000	AC-FT=

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 = NOTATIO
DIVIDE HYD	130.82	11	17	.32970	211.53	9.424	.53594	1.650	1.002	
	130.83	AND	16	.32970	13.84	.617	.03506	1.650	.066	
STORE HYD	130.84	-	15	.00010	5.87	.485	90.96078	5.000	91.719	
MODIFY TIME	130.84	15	15	.00010	11.74	.485	90.94878	4.900	183.413	
ADD HYD	130.85	15&17	7	.32980	211.53	9.909	.56335	1.650	1.002	
ROUTE RESERVOIR	130.86	7	5	.32980	142.68	8.726	.49608	1.800	.676	AC-FT=
ROUTE	130.87	5	11	.32980	142.34	8.726	.49607	1.850	.674	
ROUTE RESERVOIR	130.88	11	5	.32980	75.56	5.468	.31088	2.100	.358	AC-FT=
ROUTE	130.89	5	10	.32980	78.05	5.468	.31088	2.100	.370	
COMPUTE NM HYD	140.10	-	1	.01960	18.50	.522	.49901	1.500	1.475	PER IMP=
ROUTE	140.11	1	12	.01960	17.17	.522	.49908	1.550	1.368	
ROUTE	140.12	12	15	.01960	17.47	.522	.49909	1.600	1.393	
COMPUTE NM HYD	140.20	-	1	.08920	78.50	2.196	.46166	1.500	1.375	PER IMP=
ADD HYD	140.21	15& 1	2	.10880	92.62	2.718	.46840	1.550	1.330	
DIVIDE HYD	140.22	2	17	.10880	100.03	2.935	.50587	1.550	1.437	
	140.23	AND	16	.10880	7.41	.217	.03747	1.550	.106	
ADD HYD	140.24	17&10	2	.43860	100.03	8.404	.35925	1.550	.356	
ROUTE RESERVOIR	140.25	2	4	.43860	68.61	6.433	.27502	2.250	.244	AC-FT=
ROUTE	140.26	4	10	.43860	68.47	6.433	.27502	2.250	.244	
ROUTE RESERVOIR	140.27	10	5	.43860	3.22	.557	.02380	5.650	.011	AC-FT=
ROUTE	130.28	5	10	.43860	3.23	.557	.02380	5.650	.011	
COMPUTE NM HYD	150.10	-	1	.15250	85.35	3.692	.45390	1.600	.874	PER IMP=
DIVIDE HYD	150.11	1	17	.15250	89.62	3.876	.47660	1.600	.918	
	150.12	AND	16	.15250	4.27	.185	.02270	1.600	.044	
ADD HYD	150.13	10&17	10	.59110	89.62	4.433	.14062	1.600	.237	
ROUTE RESERVOIR	150.14	10	5	.59110	.02	.038	.00122	29.950	.000	AC-FT=
ROUTE	150.15	5	10	.59110	.02	.038	.00121	29.950	.000	
ROUTE	150.16	10	2	.59110	.02	.038	.00121	29.900	.000	
ROUTE	160.17	3	2	.59110	.00	.000	.00000	.000	.000	
ROUTE	160.18	2	19	.59110	.00	.000	.00000	.000	.000	
*S BEGIN UNSER BOULEVARD STORM DRAIN SYSTEM BETWEEN I-40 AND THE FUTURE TIERRA										
*S 100 YEAR STORM										
RAINFALL TYPE= 2										RAIN24=
COMPUTE NM HYD	170.10	-	2	.06330	43.97	1.549	.45893	1.567	1.085	PER IMP=
COMPUTE NM HYD	170.30	-	3	.00370	10.01	.436	2.21010	1.500	4.226	PER IMP=
ADD HYD	170.31	2& 3	2	.06700	52.21	1.985	.55564	1.533	1.218	
COMPUTE NM HYD	170.20	-	3	.00770	14.60	.550	1.33850	1.500	2.962	PER IMP=
ADD HYD	170.21	3& 2	2	.07470	66.40	2.535	.63633	1.533	1.389	
COMPUTE NM HYD	170.40	-	3	.00600	12.73	.509	1.59017	1.500	3.315	PER IMP=
ADD HYD	170.41	2& 3	5	.08070	78.68	3.044	.70725	1.533	1.523	
DIVIDE HYD	170.42	5	2	.06602	41.00	2.490	.70725	1.433	.970	
	170.43	AND	11	.01468	37.68	.554	.70725	1.533	4.011	
ROUTE	170.44	2	1	.06602	42.07	2.490	.70708	1.467	.996	
ROUTE	170.45	1	3	.06602	41.99	2.489	.70695	1.467	.994	
COMPUTE NM HYD	170.50	-	2	.00290	7.25	.311	2.00962	1.500	3.907	PER IMP=
ADD HYD	170.51	2& 3	4	.06892	48.74	2.800	.76177	1.500	1.105	
ROUTE	170.52	11	2	.01468	33.70	.554	.70760	1.567	3.588	
ADD HYD	170.52	4& 2	1	.08360	80.84	3.354	.75225	1.567	1.511	
ROUTE	170.55	1	3	.08360	79.51	3.353	.75204	1.600	1.486	
COMPUTE NM HYD	170.60	-	2	.00180	4.51	.193	2.00964	1.500	3.912	PER IMP=
ADD HYD	170.61	2& 3	4	.08540	83.20	3.546	.77855	1.567	1.522	
COMPUTE NM HYD	170.70	-	1	.08590	51.38	2.048	.44708	1.600	.935	PER IMP=

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 = NOTATIO
COMPUTE NM HYD	170.80	-	2	.00540	14.60	.637	2.21009	1.500	4.224	PER IMP=
ADD HYD	170.81	1& 2	5	.09130	62.87	2.685	.55135	1.567	1.076	
ADD HYD	170.82	4& 5	2	.17670	146.07	6.231	.66116	1.567	1.292	
COMPUTE NM HYD	170.90	-	3	.00470	11.74	.504	2.00961	1.500	3.904	PER IMP=
ADD HYD	170.91	3& 2	4	.18140	155.81	6.734	.69610	1.567	1.342	
DIVIDE HYD	170.92	4	2	.15473	92.00	5.745	.69610	1.467	.929	
	170.93	AND	10	.02667	63.81	.990	.69610	1.567	3.739	
DIVIDE HYD	170.95	10	11	.02369	48.00	.880	.69610	1.533	3.165	
	170.94	AND	3	.00297	15.81	.110	.69610	1.567	8.316	
ROUTE	170.96	3	4	.00297	10.43	.111	.69783	1.600	5.486	
ROUTE	170.97	2	3	.15473	92.90	5.743	.69589	1.500	.938	
COMPUTE NM HYD	171.10	-	2	.00210	5.57	.244	2.17741	1.500	4.145	PER IMP=
ADD HYD	171.11	4& 2	5	.00507	14.27	.354	1.31046	1.600	4.398	
ADD HYD	171.12	3& 5	2	.15981	106.27	6.097	.71539	1.600	1.039	
DIVIDE HYD	171.13	2	3	.15890	100.00	6.063	.71539	1.567	.983	
	171.14	AND	9	.00091	6.27	.035	.71539	1.600	10.789	
ROUTE	171.15	3	10	.15890	100.17	6.062	.71534	1.600	.985	
COMPUTE NM HYD	171.00	-	3	.00220	5.84	.255	2.17741	1.500	4.145	PER IMP=
ROUTE	171.01	11	4	.02369	46.92	.880	.69631	1.633	3.094	
ADD HYD	171.02	3& 4	2	.02589	50.33	1.135	.82213	1.633	3.037	
DIVIDE HYD	171.03	2	3	.01614	20.00	.708	.82213	1.533	1.936	
	171.04	AND	6	.00975	30.33	.427	.82213	1.633	4.861	
COMPUTE NM HYD	160.10	-	1	.05170	47.24	1.321	.47911	1.533	1.428	PER IMP=
COMPUTE NM HYD	160.20	-	2	.03500	59.72	2.247	1.20361	1.500	2.666	PER IMP=
ADD HYD	160.21	1& 2	4	.08670	106.03	3.568	.77159	1.500	1.911	
ADD HYD	160.22	4& 3	2	.10284	125.55	4.276	.77952	1.533	1.907	
ROUTE	160.23	2	1	.10284	126.38	4.276	.77949	1.533	1.920	
ADD HYD	160.24	1&10	2	.26174	224.26	10.338	.74055	1.533	1.339	
COMPUTE NM HYD	180.10	-	1	.03380	34.23	1.135	.62982	1.533	1.582	PER IMP=
ADD HYD	180.11	2& 1	3	.29554	258.50	11.473	.72789	1.533	1.367	
ROUTE RESERVOIR	180.12	3	10	.29554	89.48	11.473	.72790	1.900	.473	AC-FT=
ROUTE	180.13	10	2	.29554	89.47	11.472	.72784	1.900	.473	
ADD HYD	180.15	6& 9	1	.01066	35.65	.462	.81304	1.600	5.227	
ADD HYD	180.16	2& 1	2	.30620	114.62	11.935	.73080	1.633	.585	
FINISH										

AHYMO SUMMARY TABLE (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992 RUN DATE (MON/DAY/YR) =10/01/1993
INPUT FILE = tbsdwd.hmi USER NO.= D_HARRIS.S92

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 = NOTATIO
START										TIME=
*S 100 YEAR STORM										
RAINFALL TYPE= 2										RAIN24=
*S BEGIN UNSER DIVERSION WATERSHED										
COMPUTE NM HYD	120.00	-	1	.11250	273.85	12.099	2.01648	1.500	3.803	PER IMP=
COMPUTE NM HYD	120.00	-	1	.11250	188.65	12.099	2.01647	1.650	2.620	PER IMP=
ROUTE RESERVOIR	120.02	1	5	.11250	65.22	12.101	2.01688	2.150	.906	AC-FT=
ROUTE	120.03	5	1	.11250	65.23	12.101	2.01689	2.150	.906	
ROUTE	120.04	1	11	.11250	65.22	12.101	2.01689	2.150	.906	
COMPUTE NM HYD	130.00	-	1	.06880	167.77	7.399	2.01648	1.500	3.810	PER IMP=
COMPUTE NM HYD	130.00	-	1	.06880	115.74	7.399	2.01648	1.650	2.629	PER IMP=
ADD HYD	130.02	1&11	10	.18130	161.44	19.500	2.01672	1.650	1.391	
ROUTE RESERVOIR	130.03	10	5	.18130	98.61	19.500	2.01672	2.200	.850	AC-FT=
ROUTE	130.04	5	10	.18130	98.70	19.500	2.01673	2.200	.851	
ROUTE RESERVOIR	130.05	10	5	.18130	93.19	19.500	2.01673	2.400	.803	AC-FT=
ROUTE	130.06	5	10	.18130	93.07	19.500	2.01674	2.450	.802	
COMPUTE NM HYD	140.00	-	1	.14840	284.06	15.960	2.01648	1.600	2.991	PER IMP=
COMPUTE NM HYD	140.00	-	1	.14840	212.35	15.960	2.01648	1.750	2.236	PER IMP=
ADD HYD	140.02	10& 1	12	.32970	234.80	35.460	2.01661	1.750	1.113	
ROUTE RESERVOIR	140.03	12	5	.32970	144.35	35.460	2.01663	2.400	.684	AC-FT=
ROUTE	140.04	5	10	.32970	144.33	35.460	2.01663	2.400	.684	
COMPUTE NM HYD	150.00	-	1	.04300	104.90	4.624	2.01648	1.500	3.812	PER IMP=
COMPUTE NM HYD	150.00	-	1	.04300	72.39	4.624	2.01647	1.650	2.630	PER IMP=
ADD HYD	150.02	10& 1	10	.37270	158.40	40.085	2.01661	2.150	.664	
ROUTE RESERVOIR	150.03	10	5	.37270	125.02	40.085	2.01661	2.750	.524	AC-FT=
ROUTE	150.04	5	10	.37270	124.95	40.085	2.01661	2.750	.524	
ROUTE	150.05	10	2	.37270	124.93	40.085	2.01661	2.750	.524	
COMPUTE NM HYD	160.10	-	1	.05170	126.11	5.560	2.01648	1.500	3.811	PER IMP=
ADD HYD	160.12	1& 2	11	.42440	147.57	45.645	2.01659	1.500	.543	
ROUTE	160.13	11	2	.42440	147.38	45.645	2.01659	1.500	.543	
ROUTE	160.14	2	19	.42440	144.67	45.645	2.01659	1.550	.533	
*S BEGIN UNSER BOULEVARD STORM DRAIN SYSTEM BETWEEN I-40 AND THE FUTURE TIERRA										
*S BAYITA STORM DRAIN										
COMPUTE NM HYD	170.10	-	2	.06330	160.19	7.303	2.16311	1.500	3.954	PER IMP=
ROUTE RESERVOIR	170.15	2	6	.06330	47.17	7.303	2.16310	1.900	1.164	AC-FT=
COMPUTE NM HYD	170.20	-	3	.00770	14.44	.563	1.37071	1.500	2.929	PER IMP=
COMPUTE NM HYD	170.30	-	4	.00370	9.65	.444	2.25115	1.500	4.074	PER IMP=
ADD HYD	170.31	6& 4	5	.06700	50.35	7.747	2.16795	1.800	1.174	
ADD HYD	170.32	3& 5	2	.07470	61.91	8.310	2.08577	1.550	1.295	
COMPUTE NM HYD	170.40	-	3	.00600	12.57	.523	1.63484	1.500	3.273	PER IMP=
ADD HYD	170.43	2& 3	5	.08070	73.11	8.833	2.05224	1.550	1.416	
DIVIDE HYD	170.44	5	2	.06936	41.00	7.591	2.05224	1.400	.924	
	170.45	AND	11	.01134	32.11	1.242	2.05224	1.550	4.423	
ROUTE	170.46	2	1	.06936	42.95	7.591	2.05225	1.450	.968	
ROUTE	170.47	1	3	.06936	43.50	7.591	2.05225	1.450	.980	
COMPUTE NM HYD	170.50	-	2	.00290	7.14	.321	2.07506	1.500	3.848	PER IMP=
ADD HYD	170.51	2& 3	4	.07226	49.76	7.912	2.05315	1.450	1.076	
ROUTE	170.48	11	2	.01134	29.01	1.242	2.05292	1.600	3.996	
ADD HYD	170.52	4& 2	2	.08360	75.18	9.154	2.05312	1.600	1.405	

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 = NOTATIO
ROUTE	170.55	2	3	.08360	75.48	9.154	2.05312	1.600	1.411	
COMPUTE NM HYD	170.60	-	2	.00180	4.44	.199	2.07507	1.500	3.853	PER IMP=
ADD HYD	170.61	2& 3	4	.08540	78.51	9.353	2.05357	1.600	1.437	
COMPUTE NM HYD	170.70	-	2	.08590	217.10	9.910	2.16311	1.500	3.949	PER IMP=
ROUTE RESERVOIR	170.71	2	3	.08590	56.59	9.910	2.16310	1.950	1.029	AC-FT=
COMPUTE NM HYD	170.80	-	2	.00540	14.07	.648	2.25115	1.500	4.072	PER IMP=
ADD HYD	170.81	3& 2	5	.09130	60.85	10.558	2.16830	1.800	1.041	
ADD HYD	170.82	4& 5	2	.17670	138.92	19.912	2.11285	1.600	1.228	
COMPUTE NM HYD	170.90	-	3	.00470	11.56	.520	2.07507	1.500	3.844	PER IMP=
ADD HYD	170.91	3& 2	4	.18140	146.81	20.432	2.11187	1.600	1.265	
DIVIDE HYD	170.92	4	2	.15976	92.00	17.994	2.11187	1.450	.900	
	170.93	AND	10	.02164	54.81	2.438	2.11187	1.600	3.957	
DIVIDE HYD	170.95	10	11	.02113	48.00	2.380	2.11187	1.550	3.549	
	170.94	AND	3	.00051	6.81	.058	2.11187	1.600	20.715	
ROUTE	170.96	3	4	.00051	4.18	.058	2.12695	1.650	12.711	
ROUTE	170.97	2	3	.15976	92.91	17.994	2.11188	1.500	.909	
COMPUTE NM HYD	171.10	-	2	.00210	5.48	.252	2.25115	1.500	4.078	PER IMP=
ADD HYD	171.11	4& 2	5	.00261	7.35	.310	2.22638	1.600	4.396	
ADD HYD	171.12	3& 5	2	.16237	99.43	18.304	2.11372	1.600	.957	
DIVIDE HYD	171.13	2	3	.16237	99.43	18.304	2.11372	1.600	.957	
	171.14	AND	9	.00000	.00	.000	.00000	-.050	.000	
ROUTE	171.15	3	10	.16237	99.34	18.304	2.11372	1.600	.956	
COMPUTE NM HYD	171.00	-	3	.00220	5.74	.264	2.25115	1.500	4.078	PER IMP=
ROUTE	171.01	11	4	.02113	47.97	2.380	2.11224	1.650	3.547	
ADD HYD	171.02	3& 4	2	.02333	51.05	2.645	2.12530	1.650	3.419	
DIVIDE HYD	171.03	2	3	.01407	20.00	1.595	2.12530	1.500	2.221	
	171.04	AND	6	.00926	31.05	1.049	2.12530	1.650	5.240	
COMPUTE NM HYD	160.20	-	1	.03500	85.38	3.764	2.01648	1.500	3.812	PER IMP=
ADD HYD	160.21	1& 3	2	.04907	105.38	5.359	2.04768	1.500	3.355	
ROUTE	160.22	2	1	.04907	104.56	5.359	2.04769	1.500	3.329	
ADD HYD	160.23	1&10	2	.21144	203.02	23.663	2.09839	1.500	1.500	
COMPUTE NM HYD	180.10	-	1	.03380	77.86	3.380	1.87475	1.500	3.599	PER IMP=
ADD HYD	180.11	1& 2	3	.24524	280.88	27.043	2.06757	1.500	1.790	
ROUTE RESERVOIR	180.12	3	10	.24524	100.80	27.076	2.07009	2.450	.642	AC-FT=
ROUTE	180.13	10	2	.24524	100.80	27.076	2.07009	2.450	.642	
ADD HYD	180.14	19& 2	3	.66964	226.80	72.721	2.03618	2.750	.529	
ADD HYD	180.15	6& 9	1	.00926	31.05	1.049	2.12530	1.650	5.240	
ADD HYD	180.16	3& 1	2	.67890	248.30	73.770	2.03740	1.550	.571	
FINISH										

AHYMO SUMMARY TABLE (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992 RUN DATE (MON/DAY/YR) =10/01/1993

INPUT FILE = tbsdwi.hmi USER NO.= D_HARRIS.S92

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 = NOTATIO
START										TIME=
*S 10 YEAR STORM										
RAINFALL TYPE= 2										RAIN24=
*S BEGIN UNSER DIVERSION WATERSHED										
COMPUTE NM HYD	120.10	-	1	.02590	4.08	.116	.08362	1.550	.246	PER IMP=
COMPUTE NM HYD	120.20	-	2	.05450	5.99	.243	.08362	1.600	.172	PER IMP=
ADD HYD	120.21	16 2	3	.08040	9.81	.359	.08361	1.550	.191	
ROUTE	120.22	3	4	.08040	6.80	.359	.08362	1.700	.132	
COMPUTE NM HYD	120.30	-	1	.01990	3.13	.089	.08362	1.550	.246	PER IMP=
ADD HYD	120.31	16 4	10	.10030	8.57	.447	.08361	1.650	.134	
COMPUTE NM HYD	130.10	-	3	.07430	6.66	.331	.08362	1.650	.140	PER IMP=
COMPUTE NM HYD	130.20	-	4	.04890	5.57	.218	.08362	1.600	.178	PER IMP=
COMPUTE NM HYD	130.30	-	5	.00470	8.56	.386	1.53972	1.500	2.846	PER IMP= 1
ADD HYD	130.21	46 3	6	.12320	12.11	.549	.08362	1.600	.154	
ADD HYD	130.31	56 6	1	.12790	18.64	.935	.13712	1.550	.228	
ROUTE	130.32	1	11	.12790	14.93	.935	.13713	1.700	.182	
COMPUTE NM HYD	130.40	-	1	.06120	8.94	.273	.08362	1.550	.228	PER IMP=
ADD HYD	130.41	1611	12	.18910	21.68	1.208	.11981	1.600	.179	
COMPUTE NM HYD	130.60	-	11	.07100	7.93	.317	.08362	1.600	.174	PER IMP=
ROUTE	130.61	11	15	.07100	7.96	.317	.08363	1.600	.175	
ROUTE	130.62	15	11	.07100	8.10	.317	.08363	1.600	.178	
ROUTE	130.42	12	1	.18910	21.63	1.208	.11981	1.600	.179	
COMPUTE NM HYD	130.50	-	3	.01040	10.08	.442	.79711	1.500	1.515	PER IMP=
ADD HYD	130.51	16 3	4	.19950	28.58	1.650	.15511	1.600	.224	
COMPUTE NM HYD	130.70	-	1	.01696	3.27	.092	.10184	1.550	.301	PER IMP=
COMPUTE NM HYD	130.90	-	2	.00954	1.84	.052	.10184	1.550	.301	PER IMP=
ADD HYD	130.91	16 2	1	.02650	5.11	.144	.10183	1.550	.301	
ROUTE	130.52	4	3	.19950	27.71	1.650	.15512	1.650	.217	
ADD HYD	130.72	16 3	4	.22600	31.01	1.794	.14887	1.650	.214	
ADD HYD	130.73	4611	2	.29700	39.02	2.111	.13327	1.600	.205	
COMPUTE NM HYD	130.80	-	1	.03270	4.91	.146	.08362	1.550	.235	PER IMP=
ROUTE	130.74	2	3	.29700	36.28	2.111	.13327	1.700	.191	
ADD HYD	130.81	36 1	11	.32970	38.97	2.257	.12834	1.700	.185	
ROUTE	120.32	10	3	.10030	8.47	.447	.08362	1.700	.132	
COMPUTE NM HYD	120.40	-	1	.00910	8.82	.387	.79711	1.500	1.515	PER IMP=
ADD HYD	120.41	36 1	2	.10940	13.97	.834	.14296	1.550	.200	
ROUTE	120.42	2	1	.10940	11.57	.834	.14297	1.750	.165	
COMPUTE NM HYD	120.50	-	2	.01620	2.55	.072	.08362	1.550	.246	PER IMP=
ADD HYD	120.51	26 1	3	.12560	12.71	.906	.13531	1.700	.158	
DIVIDE HYD	120.52	3	15	.12560	13.34	.952	.14207	1.700	.166	
	120.53	AND	16	.12560	.64	.045	.00677	1.700	.008	
COMPUTE NM HYD	120.60	-	6	.03280	6.10	.197	.11274	1.550	.291	PER IMP=
DIVIDE HYD	120.61	6	17	.03280	6.16	.199	.11386	1.550	.294	
	120.62	AND	16	.03280	.06	.002	.00113	1.550	.003	
ADD HYD	120.63	1517	18	.15840	17.75	1.151	.13623	1.600	.175	
STORE HYD	120.64	-	15	.00010	2.93	.242	45.40292	5.000	45.781	
MODIFY TIME	120.64	15	15	.00010	5.86	.242	45.39693	4.900	91.550	
ADD HYD	120.65	1518	7	.15850	17.75	1.393	.16478	1.600	.175	
ROUTE RESERVOIR	120.66	7	5	.15850	.01	.027	.00320	24.350	.000	AC-FT=

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 = NOTATIO
DIVIDE HYD	130.82	11	17	.32970	41.70	2.415	.13733	1.700	.198	
	130.83	AND	16	.32970	2.73	.158	.00898	1.700	.013	
STORE HYD	130.84	-	15	.00010	5.87	.485	90.96078	5.000	91.719	
MODIFY TIME	130.84	15	15	.00010	11.74	.485	90.94878	4.900	183.413	
ADD HYD	130.85	15&17	7	.32980	41.70	2.900	.16486	1.700	.198	
ROUTE RESERVOIR	130.86	7	5	.32980	16.57	1.717	.09759	2.150	.078	AC-FT=
ROUTE	130.87	5	11	.32980	16.68	1.717	.09759	2.150	.079	
ROUTE RESERVOIR	130.88	11	5	.32980	.01	.028	.00161	29.950	.000	AC-FT=
ROUTE	130.89	5	10	.32980	.01	.028	.00161	29.950	.000	
COMPUTE NM HYD	140.10	-	1	.01960	4.43	.124	.11841	1.550	.353	PER IMP=
ROUTE	140.11	1	12	.01960	3.65	.124	.11845	1.600	.291	
ROUTE	140.12	12	15	.01960	3.62	.124	.11845	1.650	.289	
COMPUTE NM HYD	140.20	-	1	.08920	16.45	.462	.09721	1.550	.288	PER IMP=
ADD HYD	140.21	15& 1	2	.10880	18.54	.586	.10103	1.550	.266	
DIVIDE HYD	140.22	2	17	.10880	20.02	.633	.10911	1.550	.288	
	140.23	AND	16	.10880	1.48	.047	.00808	1.550	.021	
ADD HYD	140.24	17&10	2	.43860	20.02	.661	.02828	1.550	.071	
ROUTE RESERVOIR	140.25	2	4	.43860	.01	.026	.00113	29.950	.000	AC-FT=
ROUTE	140.26	4	10	.43860	.01	.026	.00113	29.950	.000	
ROUTE RESERVOIR	140.27	10	5	.43860	.01	.023	.00100	29.950	.000	AC-FT=
ROUTE	130.28	5	10	.43860	.01	.023	.00100	29.950	.000	
COMPUTE NM HYD	150.10	-	1	.15250	16.02	.753	.09263	1.650	.164	PER IMP=
DIVIDE HYD	150.11	1	17	.15250	16.82	.791	.09726	1.650	.172	
	150.12	AND	16	.15250	.80	.038	.00463	1.650	.008	
ADD HYD	150.13	10&17	10	.59110	16.82	.814	.02583	1.650	.044	
ROUTE RESERVOIR	150.14	10	5	.59110	.01	.028	.00089	8.350	.000	AC-FT=
ROUTE	150.15	5	10	.59110	.01	.028	.00088	8.450	.000	
ROUTE	150.16	10	2	.59110	.01	.028	.00088	8.450	.000	
ROUTE	160.17	3	2	.59110	.00	.000	.00000	.000	.000	
ROUTE	160.18	2	19	.59110	.00	.000	.00000	.000	.000	
*S BEGIN UNSER BOULEVARD STORM DRAIN SYSTEM BETWEEN I-40 AND THE FUTURE TIERRA										
*S 10 YEAR STORM										
RAINFALL TYPE= 2										RAIN24=
RAINFALL TYPE= 2										RAIN24=
COMPUTE NM HYD	170.10	-	2	.06330	43.97	1.549	.45893	1.567	1.085	PER IMP=
COMPUTE NM HYD	170.30	-	3	.00370	10.01	.436	2.21010	1.500	4.226	PER IMP=
ADD HYD	170.31	2& 3	2	.06700	52.21	1.985	.55564	1.533	1.218	
COMPUTE NM HYD	170.20	-	3	.00770	14.60	.550	1.33850	1.500	2.962	PER IMP=
ADD HYD	170.21	3& 2	2	.07470	66.40	2.535	.63633	1.533	1.389	
COMPUTE NM HYD	170.40	-	3	.00600	12.73	.509	1.59017	1.500	3.315	PER IMP=
ADD HYD	170.41	2& 3	5	.08070	78.68	3.044	.70725	1.533	1.523	
DIVIDE HYD	170.42	5	2	.06602	41.00	2.490	.70725	1.433	.970	
	170.43	AND	11	.01468	37.68	.554	.70725	1.533	4.011	
ROUTE	170.44	2	1	.06602	42.07	2.490	.70708	1.467	.996	
ROUTE	170.45	1	3	.06602	41.99	2.489	.70695	1.467	.994	
COMPUTE NM HYD	170.50	-	2	.00290	7.25	.311	2.00962	1.500	3.907	PER IMP=
ADD HYD	170.51	2& 3	4	.06892	48.74	2.800	.76177	1.500	1.105	
ROUTE	170.52	11	2	.01468	33.70	.554	.70760	1.567	3.588	
ADD HYD	170.52	4& 2	1	.08360	80.84	3.354	.75225	1.567	1.511	
ROUTE	170.55	1	3	.08360	79.51	3.353	.75204	1.600	1.486	
COMPUTE NM HYD	170.60	-	2	.00180	4.51	.193	2.00964	1.500	3.912	PER IMP=
ADD HYD	170.61	2& 3	4	.08540	83.20	3.546	.77855	1.567	1.522	

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 = NOTATIO
COMPUTE NM HYD	170.70	-	1	.08590	51.38	2.048	.44708	1.600	.935	PER IMP=
COMPUTE NM HYD	170.80	-	2	.00540	14.60	.637	2.21009	1.500	4.224	PER IMP=
ADD HYD	170.81	1& 2	5	.09130	62.87	2.685	.55135	1.567	1.076	
ADD HYD	170.82	4& 5	2	.17670	146.07	6.231	.66116	1.567	1.292	
COMPUTE NM HYD	170.90	-	3	.00470	11.74	.504	2.00961	1.500	3.904	PER IMP=
ADD HYD	170.91	3& 2	4	.18140	155.81	6.734	.69610	1.567	1.342	
DIVIDE HYD	170.92	4	2	.15473	92.00	5.745	.69610	1.467	.929	
	170.93	AND	10	.02667	63.81	.990	.69610	1.567	3.739	
DIVIDE HYD	170.95	10	11	.02369	48.00	.880	.69610	1.533	3.165	
	170.94	AND	3	.00297	15.81	.110	.69610	1.567	8.316	
ROUTE	170.96	3	4	.00297	10.43	.111	.69783	1.600	5.486	
ROUTE	170.97	2	3	.15473	92.90	5.743	.69589	1.500	.938	
COMPUTE NM HYD	171.10	-	2	.00210	5.57	.244	2.17741	1.500	4.145	PER IMP=
ADD HYD	171.11	4& 2	5	.00507	14.27	.354	1.31046	1.600	4.398	
ADD HYD	171.12	3& 5	2	.15981	106.27	6.097	.71539	1.600	1.039	
DIVIDE HYD	171.13	2	3	.15890	100.00	6.063	.71539	1.567	.983	
	171.14	AND	9	.00091	6.27	.035	.71539	1.600	10.789	
ROUTE	171.15	3	10	.15890	100.17	6.062	.71534	1.600	.985	
COMPUTE NM HYD	171.00	-	3	.00220	5.84	.255	2.17741	1.500	4.145	PER IMP=
ROUTE	171.01	11	4	.02369	46.92	.880	.69631	1.633	3.094	
ADD HYD	171.02	3& 4	2	.02589	50.33	1.135	.82213	1.633	3.037	
DIVIDE HYD	171.03	2	3	.01614	20.00	.708	.82213	1.533	1.936	
	171.04	AND	6	.00975	30.33	.427	.82213	1.633	4.861	
COMPUTE NM HYD	160.10	-	1	.05170	47.24	1.321	.47911	1.533	1.428	PER IMP=
COMPUTE NM HYD	160.20	-	2	.03500	59.72	2.247	1.20361	1.500	2.666	PER IMP=
ADD HYD	160.21	1& 2	4	.08670	106.03	3.568	.77159	1.500	1.911	
ADD HYD	160.22	4& 3	2	.10284	125.55	4.276	.77952	1.533	1.907	
ROUTE	160.23	2	1	.10284	126.38	4.276	.77949	1.533	1.920	
ADD HYD	160.24	1&10	2	.26174	224.26	10.338	.74055	1.533	1.339	
COMPUTE NM HYD	180.10	-	1	.03380	34.23	1.135	.62982	1.533	1.582	PER IMP=
ADD HYD	180.11	2& 1	3	.29554	258.50	11.473	.72789	1.533	1.367	
ROUTE RESERVOIR	180.12	3	10	.29554	89.48	11.473	.72790	1.900	.473	AC-FT=
ROUTE	180.13	10	2	.29554	89.47	11.472	.72784	1.900	.473	
ADD HYD	180.15	6& 9	1	.01066	35.65	.462	.81304	1.600	5.227	
ADD HYD	180.16	2& 1	2	.30620	114.62	11.935	.73080	1.633	.585	
FINISH										

AHYMO SUMMARY TABLE (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992 RUN DATE (MON/DAY/YR) =10/01/1993
INPUT FILE = tbsdwd.hmi USER NO.= D_HARRIS.S92

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 = NOTATIO
START										TIME=
*S 10 YEAR STORM										
RAINFALL TYPE= 2										RAIN24=
*S BEGIN UNSER DIVERSION WATERSHED										
COMPUTE NM HYD	120.00	-	1	.11250	169.74	7.375	1.22911	1.500	2.357	PER IMP=
COMPUTE NM HYD	120.00	-	1	.11250	115.71	7.375	1.22911	1.650	1.607	PER IMP=
ROUTE RESERVOIR	120.02	1	5	.11250	48.58	7.378	1.22965	2.050	.675	AC-FT=
ROUTE	120.03	5	1	.11250	48.58	7.378	1.22967	2.050	.675	
ROUTE	120.04	1	11	.11250	48.58	7.378	1.22967	2.050	.675	
COMPUTE NM HYD	130.00	-	1	.06880	105.01	4.510	1.22911	1.500	2.385	PER IMP=
COMPUTE NM HYD	130.00	-	1	.06880	71.96	4.510	1.22911	1.650	1.634	PER IMP=
ADD HYD	130.02	1&11	10	.18130	106.61	11.888	1.22945	1.700	.919	
ROUTE RESERVOIR	130.03	10	5	.18130	57.75	11.892	1.22989	2.350	.498	AC-FT=
ROUTE	130.04	5	10	.18130	57.75	11.892	1.22990	2.350	.498	
ROUTE RESERVOIR	130.05	10	5	.18130	49.28	11.903	1.23103	3.000	.425	AC-FT=
ROUTE	130.06	5	10	.18130	49.26	11.903	1.23103	3.000	.425	
COMPUTE NM HYD	140.00	-	1	.14840	173.65	9.728	1.22911	1.600	1.828	PER IMP=
COMPUTE NM HYD	140.00	-	1	.14840	128.42	9.728	1.22911	1.750	1.352	PER IMP=
ADD HYD	140.02	10& 1	12	.32970	146.84	21.631	1.23016	1.750	.696	
ROUTE RESERVOIR	140.03	12	5	.32970	67.31	21.631	1.23017	2.400	.319	AC-FT=
ROUTE	140.04	5	10	.32970	67.34	21.631	1.23017	2.400	.319	
COMPUTE NM HYD	150.00	-	1	.04300	65.75	2.819	1.22911	1.500	2.389	PER IMP=
COMPUTE NM HYD	150.00	-	1	.04300	45.09	2.819	1.22911	1.650	1.638	PER IMP=
ADD HYD	150.02	10& 1	10	.37270	85.98	24.450	1.23004	1.700	.360	
ROUTE RESERVOIR	150.03	10	5	.37270	68.94	24.450	1.23004	2.700	.289	AC-FT=
ROUTE	150.04	5	10	.37270	68.94	24.450	1.23004	2.700	.289	
ROUTE	150.05	10	2	.37270	68.94	24.450	1.23004	2.700	.289	
COMPUTE NM HYD	160.10	-	1	.05170	79.05	3.389	1.22911	1.500	2.389	PER IMP=
ADD HYD	160.12	1& 2	11	.42440	97.31	27.839	1.22993	1.500	.358	
ROUTE	160.13	11	2	.42440	97.52	27.839	1.22993	1.500	.359	
ROUTE	160.14	2	19	.42440	96.24	27.839	1.22993	1.550	.354	
*S BEGIN UNSER BOULEVARD STORM DRAIN SYSTEM BETWEEN I-40 AND THE FUTURE TIERRA										
*S BAYITA STORM DRAIN										
COMPUTE NM HYD	170.10	-	2	.06330	102.43	4.531	1.34207	1.500	2.528	PER IMP=
ROUTE RESERVOIR	170.15	2	6	.06330	36.67	4.531	1.34207	1.800	.905	AC-FT=
COMPUTE NM HYD	170.20	-	3	.00770	7.79	.308	.74912	1.500	1.582	PER IMP=
COMPUTE NM HYD	170.30	-	4	.00370	6.25	.278	1.40796	1.500	2.637	PER IMP=
ADD HYD	170.31	6& 4	5	.06700	39.05	4.809	1.34569	1.700	.911	
ADD HYD	170.32	3& 5	2	.07470	44.00	5.116	1.28419	1.550	.920	
COMPUTE NM HYD	170.40	-	3	.00600	7.29	.303	.94677	1.500	1.898	PER IMP=
ADD HYD	170.43	2& 3	5	.08070	50.47	5.419	1.25910	1.550	.977	
DIVIDE HYD	170.44	5	2	.07795	41.00	5.234	1.25910	1.500	.822	
	170.45	AND	11	.00275	9.47	.185	1.25910	1.550	5.374	
ROUTE	170.46	2	1	.07795	42.01	5.234	1.25911	1.500	.842	
ROUTE	170.47	1	3	.07795	42.12	5.234	1.25911	1.500	.844	
COMPUTE NM HYD	170.50	-	2	.00290	4.51	.197	1.27619	1.500	2.428	PER IMP=
ADD HYD	170.51	2& 3	4	.08085	46.63	5.432	1.25971	1.500	.901	
ROUTE	170.48	11	2	.00275	6.88	.185	1.26192	1.600	3.906	
ADD HYD	170.52	4& 2	2	.08360	50.68	5.617	1.25978	1.600	.947	

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 = NOTATIO
ROUTE	170.55	2	3	.08360	50.58	5.617	1.25979	1.650	.945	
COMPUTE NM HYD	170.60	-	2	.00180	2.80	.123	1.27619	1.500	2.430	PER IMP=
ADD HYD	170.61	2& 3	4	.08540	52.48	5.739	1.26012	1.550	.960	
COMPUTE NM HYD	170.70	-	2	.08590	138.16	6.148	1.34207	1.500	2.513	PER IMP=
ROUTE RESERVOIR	170.71	2	3	.08590	44.26	6.148	1.34207	1.850	.805	AC-FT=
COMPUTE NM HYD	170.80	-	2	.00540	9.11	.405	1.40796	1.500	2.636	PER IMP=
ADD HYD	170.81	3& 2	5	.09130	47.41	6.554	1.34595	1.750	.811	
ADD HYD	170.82	4& 5	2	.17670	98.99	12.293	1.30447	1.650	.875	
COMPUTE NM HYD	170.90	-	3	.00470	7.30	.320	1.27619	1.500	2.426	PER IMP=
ADD HYD	170.91	3& 2	4	.18140	103.98	12.613	1.30374	1.550	.896	
DIVIDE HYD	170.92	4	2	.17727	92.00	12.326	1.30374	1.500	.811	
	170.93	AND	10	.00413	11.98	.287	1.30374	1.550	4.532	
DIVIDE HYD	170.95	10	11	.00413	11.98	.287	1.30374	1.550	4.532	
	170.94	AND	3	.00000	.00	.000	.00000	-.050	.000	
ROUTE	170.96	3	4	.00000	.00	.000	.00000	-.050	.000	
ROUTE	170.97	2	3	.17727	93.28	12.326	1.30374	1.550	.822	
COMPUTE NM HYD	171.10	-	2	.00210	3.55	.158	1.40796	1.500	2.639	PER IMP=
ADD HYD	171.11	4& 2	5	.00210	3.55	.158	1.40781	1.500	2.639	
ADD HYD	171.12	3& 5	2	.17937	96.37	12.484	1.30495	1.550	.840	
DIVIDE HYD	171.13	2	3	.17937	96.37	12.484	1.30495	1.550	.840	
	171.14	AND	9	.00000	.00	.000	.00000	-.050	.000	
ROUTE	171.15	3	10	.17937	96.49	12.484	1.30496	1.550	.841	
COMPUTE NM HYD	171.00	-	3	.00220	3.72	.165	1.40795	1.500	2.639	PER IMP=
ROUTE	171.01	11	4	.00413	10.58	.288	1.30561	1.650	4.002	
ADD HYD	171.02	3& 4	2	.00633	12.56	.453	1.34102	1.650	3.099	
DIVIDE HYD	171.03	2	3	.00633	12.56	.453	1.34102	1.650	3.099	
	171.04	AND	6	.00000	.00	.000	.00000	-.050	.000	
COMPUTE NM HYD	160.20	-	1	.03500	53.52	2.294	1.22911	1.500	2.389	PER IMP=
ADD HYD	160.21	1& 3	2	.04133	57.86	2.747	1.24625	1.500	2.187	
ROUTE	160.22	2	1	.04133	57.80	2.747	1.24627	1.500	2.185	
ADD HYD	160.23	1&10	2	.22070	151.90	15.231	1.29396	1.550	1.075	
COMPUTE NM HYD	180.10	-	1	.03380	47.54	2.029	1.12536	1.500	2.198	PER IMP=
ADD HYD	180.11	1& 2	3	.25450	197.33	17.259	1.27157	1.500	1.212	
ROUTE RESERVOIR	180.12	3	10	.25450	87.80	17.287	1.27363	2.200	.539	AC-FT=
ROUTE	180.13	10	2	.25450	87.80	17.287	1.27364	2.200	.539	
ADD HYD	180.14	19& 2	3	.67890	164.80	45.126	1.24631	2.050	.379	
ADD HYD	180.15	6& 9	1	.00000	.00	.000	.00000	-.050	.000	
ADD HYD	180.16	3& 1	2	.67890	164.80	45.126	1.24631	2.050	.379	
FINISH										

APPENDIX B

AHYMO INPUT DATA

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COORS CONNECTION STORM DRAIN WATERSHED — Page

Interim Condition . . . . . B–1 to B–14

Developed Condition . . . . . B–15 to B–34

TIERRA BAYITA STORM DRAIN WATERSHED *(Model Updated 10-93)*

Interim Condition . . . . . B–35 to B–~~49~~ *52*

Developed Condition . . . . . B–~~50~~ *53* to B–~~61~~ *64*

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START                0.0 HOURS ****ONE HUNDRED YEAR TWENTY FOUR HOUR STORM ****
** FILE NAME : CCSDWI.HMI (COORS CONNECTION STORM DRAIN WATERSHED INTERIM)****
** ANALYSIS FOR THE ATRISCO BUSINESS PARK MASTER DRAINAGE PLAN ***************
** INCLUDES THE WATERSHED OF THE AIRPORT DRIVE AND COORS BLVD S.D.SYSTEM *****
** INTERIM CONDITION ******************************************************
** AREAS OUTSIDE OF THE ATRISCO BUSINESS PARK INCLUDED TO DETERMINE TOTAL
** POTENTIAL FLOWS TO THE AIRPORT DRIVE AND COORS CONNECTION STORM DRAINS*****
*************************************************************************
** ANALYSIS ASSUMPTIONS:
*************************************************************************
** FLOW FROM ALL PRIVATE LAND DIRECTLY CONTRIBUTING FLOW TO THE AIRPORT ROAD
** STORM DRAIN IS RESTRICTED TO 0.1cfs PER ACRE.*********************************
** PUBLIC STREETS CONTRIBUTING FLOW TO THE AIRPORT DRIVE STORM DRAIN HAVE
** FREE DISCHARGE INTO THE SYSTEM *****************************************
** PUBLIC PLATTED STREETS IN THE ATRISCO BUSINESS PARK ASSUMED TO BE FULLY
** DEVELOPED.*************************************************************
** PRIVATE PROPERTY WITHIN THE BUSINESS PARK WHICH HAS THE POTENTIAL TO
** DISCHARGE FLOW TO THE AIRPORT ROAD STORM DRAIN SYSTEM WILL HAVE
** CONSERVATION TREATMENT APPLIED TO IT AND SO WILL CONTRIBUTE NO FLOW TO THE
** STORM DRAIN SYSTEM IN THE INTERIM CONDITION.**********************************
** IN AREAS OF THE ATRISCO BUSINESS PARK WHERE THE POTENTIAL EXISTS FOR SOME OF
** OF THE PROPERTY ADJACENT TO THE STREETS TO DISCHARGE TO THE STREETS
** UNCONTROLLED DUE TO GRADE CONSTRAINTS, APPOXIMATELY 10 ADDITIONAL FEET OF
** WIDTH WAS USED IN CALCULATING STREET AREAS ************************************
** THE EXISTING CONDITION LAND TREATMENTS WERE USED IN AREAS OUTSIDE OF THE
** THE ATRISCO BUSINESS PARK AND THE WATERSHED OF THE AIRPORT DRIVE STORM
** DRAIN. ASSUMPTIONS WERE MADE AS TO WHERE FLOW FROM THESE AREAS WILL ENTER
** THE STORM DRAIN SYSTEM IN THE DEVELOPED CONDITION AND THE BASINS WERE
** MODELED ASSUMING THESE CONNECTIONS WERE IN PLACE. THIS WAS DONE TO VERIFY
** CAPACITY FOR THE EXISTING CONDITION FLOWS WAS AVAILABLE IN THE STORM DRAIN
** SYSTEM.
** UPDATED   9-14-92
**RAINFALL            TYPE=2  0.0  1.25  1.45  1.65
RAINFALL            TYPE=2  0.0  1.87  2.20  2.66 DT=0.05
*************************************************************************
*************************************************************************
*S BEGIN THE WATERSHED FOR THE AIRPORT ROAD STORM DRAIN ************************
*************************************************************************
*************************************************************************
** COMPUTE HYDROGRAPH FOR TRACT  "S-1"
** AREA = 133.2 ACRES
COMPUTE NM HYD      ID=2  HYD=200.1  DA==0.2081 SM
                    %A=90.0  %B=0.0  %C=10.0  %D=0.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO  RUNOFF
*S LEAVES THE SITE
** COMPUTE HYDROGRAPH FOR LOS VOLCANES BETWEEN UNSER BLVD AND 1250 LF WEST
** OF AIRPORT ROAD
COMPUTE NM HYD      ID=3  HYD=200.4  DA==0.0042
                    %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=3 CODE=1
** ROUTE THE FLOW IN THE STREET FROM 1250' WEST OF AIRPORT IN THE STREET TO
```

```
** THE INTERSECTION WITH AIRPORT
COMPUTE RATING CURVECID=1  VS NO=1  NUMBER OF SEGS=3
                    MINIMUM ELEV=100.00  MAXIMUM ELEV=100.87
                    CHANNEL SLOPE=0.0082 FLOOD PLAIN SLOPE=0.0082
                    N=0.025  DIST=10.0  N=-0.017  DIST=58.0  N=0.025  DIST=68.0
                    DIST    ELEV   DIST    ELEV    DIST   ELEV    DIST   ELEV
                    0.0     100.87  10.00  100.67  10.05  100.00  12.0  100.13
                    34.0    100.57  56.00  100.13  57.95  100.00  58.00 100.67
                    68.00   100.87
COMPUTE TRAVEL TIME ID=11 REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=1250 FT  SLOPE=0.0082
ROUTE               ID=11  HYDROGRAPH NO=200.45  INFLOW ID=3  DT=0.0
PRINT HYD           ID=11  CODE=1
** COMPUTE HYDROGRAPH FOR LOS VOLCANES BETWEEN  1250 LF WEST OF AIRPORT ROAD
** AND AIRPORT ROAD
COMPUTE NM HYD      ID=4  HYD=200.5  DA=-0.0035
                    %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=4 CODE=1
** ADD THE FLOW FROM THE EASTERN SEGMENT OF LOS VOLCANES TO THE ROUTED FLOW
** IN THE STREET AT THE INTERSECTION OF LOS VOLCANES AND AIRPORT ROAD
ADD HYD             ID=3  HYDROGRAPH NO=200.51  ID I=11  ID II=4
PRINT HYD           ID=3  CODE=1
** ROUTE THE FLOW IN THE STREET DOWN AIRPORT ROAD FROM LOS VOLCANES TO THE
** BACK LOT LINE OF LOT 9, TRACT "M"
COMPUTE RATING CURVECID=1  VS NO=1  NUMBER OF SEGS=3
                    MINIMUM ELEV=100.00  MAXIMUM ELEV=100.87
                    CHANNEL SLOPE=0.0048 FLOOD PLAIN SLOPE=0.0048
                    N=0.025  DIST=10.0  N=-0.017  DIST=58.0  N=0.025  DIST=68.0
                    DIST    ELEV   DIST    ELEV    DIST   ELEV    DIST   ELEV
                    0.0     100.87  10.00  100.67  10.05  100.00  12.0  100.13
                    34.0    100.57  56.00  100.13   57.95  100.00  58.00 100.67
                    68.00   100.87
COMPUTE TRAVEL TIME ID=11 REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=850 FT  SLOPE=0.0048
ROUTE               ID=11  HYDROGRAPH NO=200.66  INFLOW ID=3  DT=0.0
PRINT HYD           ID=11  CODE=1
** COMPUTE HYDROGRAPH FOR THE NORTHERN PART OF TRACT "M" ATRISCO BUSINESS PARK
** LOTS 5 TO 9.  AREA = 47.9 ACRES
COMPUTE NM HYD      ID=2  HYD=210.1  DA=-0.0748 SM
                    %A=90.0  %B=0.0  %C=10.0  %D=0.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO  RUNOFF
*S LEAVES THE SITE
** COMPUTE HYDROGRAPH FOR AIRPORT RD. FROM THE INTERSECTION OF LOS VOLCANES TO
** THE INTERSECTION WITH THE BACK LOT LINE OF LOT 9 TRACT "M"
COMPUTE NM HYD      ID=2  HYD=210.3  DA=-0.0025
                    %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ADD THE FLOW FROM THE NORTHERN PORTION OF AIRPORT RD. TO THE ROUTED FLOW IN
** THE STREET
ADD HYD             ID=12  HYDROGRAPH NO=210.31  ID I=11  ID II=2
```

```
PRINT HYD            ID=12  CODE=1
** ROUTE THE FLOW IN THE STREET DOWN AIRPORT ROAD FROM THE BACK LOT LINE OF LOT
** OF LOT 9 TRACT "M" TO THE INTERSECTION WITH BLUEWATER ROAD
COMPUTE RATING CURVECID=1  VS NO=1  NUMBER OF SEGS=3
                     MINIMUM ELEV=100.00  MAXIMUM ELEV=100.87
                     CHANNEL SLOPE=0.0048 FLOOD PLAIN SLOPE=0.0048
                     N=0.025  DIST=10.0  N=-0.017  DIST=58.0  N=0.025  DIST=68.0
                     DIST    ELEV   DIST    ELEV    DIST   ELEV    DIST   ELEV
                     0.0     100.87  10.00  100.67  10.05  100.00  12.0  100.13
                     34.0    100.57  56.00  100.13  57.95  100.00  58.00 100.67
                     68.00   100.87
COMPUTE TRAVEL TIME ID=11 REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=850 FT  SLOPE=0.0048
ROUTE                ID=11  HYDROGRAPH NO=210.47  INFLOW ID=12 DT=0.0
PRINT HYD            ID=11  CODE=1
** COMPUTE HYDROGRAPH FOR AIRPORT RD. FROM THE INTERSECTION WITH THE BACK
** LOT LINE OF LOT 9 TRACT "M" TO THE INTERSECTION WITH BLUEWATER ROAD
COMPUTE NM HYD       ID=2  HYD=210.5  DA==0.0024
                     %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** ADD THE ROUTED FLOW IN THE STREET TO THE FLOW FROM THE SOUTHERN SEGMENT OF
** AIRPORT ROAD AT THE INTERSECTION AIRPORT ROAD AND BLUEWATER
ADD HYD              ID=11  HYDROGRAPH NO=210.51  ID I=2  ID II=11
PRINT HYD            ID=11  CODE=1
** COMPUTE HYDROGRAPH FOR THE SOUTHERN PART OF TRACT "M" ATRISCO BUSINESS PARK
* LOTS 1 TO 4 AND TRACT "L-1".  AREA = 44.8 ACRES
COMPUTE NM HYD       ID=3  HYD=210.6  DA==0.0700 SM
                     %A=90.0  %B=0.0  %C=10.0  %D=0.0  TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=3 CODE=1
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO  RUNOFF
*S LEAVES THE SITE
** COMPUTE HYDROGRAPH FOR BLUEWATER RD. FROM THE INTERSECTION OF UNSER BLVD. TO
** 1050 LF WEST OF THE INTERSECTION WITH AIRPORT ROAD
COMPUTE NM HYD       ID=2  HYD=210.7  DA==0.0033
                     %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** ROUTE FLOW FROM WESTERN PORTION OF BLUEWATER RD.DOWN THE STREET FROM 1050 LF
** WEST OF AIRPORT ROAD TO THE INTERSECTION WITH AIRPORT ROAD
COMPUTE RATING CURVECID=1  VS NO=1  NUMBER OF SEGS=3
                     MINIMUM ELEV=100.00  MAXIMUM ELEV=100.87
                     CHANNEL SLOPE=0.0030 FLOOD PLAIN SLOPE=0.0030
                     N=0.025  DIST=10.0  N=-0.017  DIST=58.0  N=0.025  DIST=68.0
                     DIST    ELEV   DIST    ELEV    DIST   ELEV    DIST   ELEV
                     0.0     100.87  10.00  100.67  10.05  100.00  12.0  100.13
                     34.0    100.57  56.00  100.13  57.95  100.00  58.00 100.67
                     68.00   100.87
COMPUTE TRAVEL TIME ID=12  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=1050 FT  SLOPE=0.0030
ROUTE                ID=12  HYDROGRAPH NO=210.71 INFLOW ID=2  DT=0.0
PRINT HYD            ID=12  CODE=1
** COMPUTE HYDROGRAPH FOR BLUEWATER RD. FROM 1050 LF WEST OF AIRPORT TO THE
```

```
** INTERSECTION WITH AIRPORT ROAD
COMPUTE NM HYD       ID=3  HYD=210.8  DA=-0.0028
                     %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=3 CODE=1
** ADD THE ROUTED FLOW FROM THE BLUEWATER RD.TO THE FLOW FROM THE EASTERN
** SEGMENT OF BLUEWATER AT THE INTERSECTION OF AIRPORT AND  BLUEWATER
ADD HYD              ID=12  HYDROGRAPH NO=210.81  ID I=3  ID II=12
PRINT HYD            ID=12  CODE=1
** COMPUTE HYDROGRAPH FOR BLUEWATER RD. FROM THE INTERSECTION WITH AIRPORT
** ROAD TO THE GRADE BREAK EAST OF THE INTERSECTION WITH AIRPORT DRIVE
COMPUTE NM HYD       ID=2  HYD=210.9  DA=-0.0017
                     %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** ADD THE FLOW FROM THE FAR EAST SEGMENT OF BLUEWATER RD TO THE BLUEWATER
** FLOW FROM THE WEST AT THE INTERSECTION OF AIRPORT AND  BLUEWATER
ADD HYD              ID=12  HYDROGRAPH NO=210.91  ID I=12  ID II=2
PRINT HYD            ID=12  CODE=1
** ADD THE FLOW FROM  BLUEWATER RD TO THE FLOW IN THE STREET AT THE
** INTERSECTION OF AIRPORT AND  BLUEWATER
ADD HYD              ID=11  HYDROGRAPH NO=210.92 ID I=12  ID II=11
PRINT HYD            ID=11  CODE=1
** ROUTE FLOW IN A STORM DRAIN FROM THE INTERSECTION OF BLUEWATER AND AIRPORT
** DOWN AIRPORT RD. TO THE SOUTH LINE OF ATRISCO BUSINESS PARK
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0027
                     PIPE DIA=4.0  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=1850 FT  SLOPE=0.0027
ROUTE                ID=10  HYDROGRAPH NO=211.13  INFLOW ID=11  DT=0.0
PRINT HYD            ID=10  CODE=1
*****************************************************************************
*S BEGIN THE AREA SOUTH OF BLUEWATER ROAD
*****************************************************************************
** COMPUTE HYDROGRAPH FOR AIRPORT ROAD SOUTH OF BLUEWATER TO THE SOUTH LINE OF
** THE ATRISCO BUSINESS PARK
COMPUTE NM HYD       ID=2  HYD=220.1 DA=-0.0035
                     %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** COMPUTE HYDROGRAPH FOR TRACT B, UNIT 2, A.B.P. AREA = 20.0 ACRES
COMPUTE NM HYD       ID=3  HYD=220.2  DA=-0.0313
                     %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=3 CODE=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A DISCHARGE OF .1 CFS PER ACRE
** ALLOWABLE RELEASE RATE=2.0cfs
ROUTE RESERVOIR      ID=4  HYDROGRAPH NO=220.21  INFLOW ID=3  CODE=20
                     OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0              0              100.0
                          1.12          0.80            101.0
                          1.68          1.70            102.0
                          2.04          2.60            103.0
                          4.00          3.50            104.0
```

```
PRINT HYD            ID=4  CODE=1
** ROUTE FLOW IN A STORM DRAIN FROM THE TRACT "B", UNIT 2 POND TO THE AIRPORT
** ROAD STORM DRAIN
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.007
                     PIPE DIA=1.5  N=0.013
COMPUTE TRAVEL TIME ID=5  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=1100 FT  SLOPE=0.007
ROUTE                ID=5  HYDROGRAPH NO=220.22  INFLOW ID=4  DT=0.0
PRINT HYD            ID=5  CODE=1
** ADD THE ROUTED FLOW FROM PARCEL "B", UNIT 2 TO THE FLOW FROM AIRPORT ROAD
ADD HYD              ID=3  HYDROGRAPH NO=220.23  ID I=2 ID= II=5
PRINT HYD            ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR PARCEL "C", UNIT 2, A.B.P. AREA = 28.6 ACRES
COMPUTE NM HYD       ID=2  HYD=220.3   DA=-0.0447
                     %A=90.0  %B=0.0  %C10.0  %D=0.0  TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO  RUNOFF
*S LEAVES THE SITE
** ADD THE ROUTED FLOW FROM THE NORTH IN THE AIRPORT ROAD STORM DRAIN TO THE
** TOTAL FLOW IN AIRPORT ROAD AT THE SOUTH LINE OF THE ATRISCO BUSINESS PARK
ADD HYD              ID=2  HYDROGRAPH NO=220.53  ID I=10 ID= II=3
PRINT HYD            ID=2  CODE=1
** ROUTE FLOW IN A STORM DRAIN FROM THE SOUTH LINE OF THE BUSINESS PARK
** TO AIRPORT RD STORM DRAIN STA 28+80 THE JUNCTION WITH FLOW FROM THE
** WEST 66 ADDITION
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0040
                     PIPE DIA=4.0  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=250 FT  SLOPE=0.0037
ROUTE                ID=10  HYDROGRAPH NO=220.54  INFLOW ID=2  DT=0.0
PRINT HYD            ID=10  CODE=1
*****************************************************************************
*S BEGIN THE AREA SOUTH OF THE ATRISCO BUSINESS PARK
*****************************************************************************
** COMPUTE HYDROGRAPH FOR THE WEST 66 ADDITION  AREA = 12.7 ACRES
COMPUTE NM HYD       ID=2  HYD=220.6  DA=-0.0198
                     %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A DISCHARGE OF .1 CFS PER ACRE
** ALLOWABLE RELEASE RATE=1.27 cfs
ROUTE RESERVOIR      ID=3  HYDROGRAPH NO=220.61  INFLOW ID=2  CODE=20
                     OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0              0              100.0
                          0.70           0.52           101.0
                          1.06           1.04           102.0
                          1.29           1.65           103.0
                          2.00           2.55           104.0
PRINT HYD            ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR AIRPORT ROAD SOUTH OF THE SOUTH LINE OF
** THE ATRISCO BUSINESS PARK TO CENTRAL AVE.
COMPUTE NM HYD       ID=4  HYD=220.7 DA=-0.0027
                     %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.1333
```

```
                    MASS RAINFALL=-1
PRINT HYD           ID=4 CODE=1
** ADD CONTROLED DISCHARGE FROM POND TO FLOW FROM AIRPORT ROAD
ADD HYD             ID=5  HYDROGRAPH NO=220.71  ID I=4  ID II=3
PRINT HYD           ID=5  CODE=1
** ADD FLOWS TO THE AIRPORT ROAD STORM DRAIN AT STA 28+80
ADD HYD             ID=2  HYDROGRAPH NO=220.72  ID I=10 ID II=5
PRINT HYD           ID=2  CODE=1
** ROUTE FLOW DOWN AIRPORT ROAD STORM DRAIN FROM STA 28+80 TO STA 9+85
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0037
                    PIPE DIA=4.0  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=1895 FT  SLOPE=0.0037
ROUTE               ID=10  HYDROGRAPH NO=220.73  INFLOW ID=2  DT=0.0
PRINT HYD           ID=10  CODE=1
*****************************************************************************
*S BEGIN AREA SOUTH OF CENTRAL BOULEVARD
*****************************************************************************
** COMPUTE HYDROGRAPH FOR LOT 59, UNIT 6, TOWN OF ATRISCO GRANT
COMPUTE NM HYD      ID=2  HYD=230.1 DA=-0.0018
                    %A=0.0  %B=0.0  %C=70.0  %D=30.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ROUTE THE FLOW FROM LOT 59, UNIT 6 DOWN AIRPORT ROAD
** USE AVERAGE STREET SLOPE
COMPUTE RATING CURVECID=1  VS NO=1  NUMBER OF SEGS=3
                    MINIMUM ELEV=100.00  MAXIMUM ELEV=100.87
                    CHANNEL SLOPE=0.0097 FLOOD PLAIN SLOPE=0.0097
                    N=0.025  DIST=10.0  N=-0.017  DIST=58.0  N=0.025  DIST=68.0
                    DIST    ELEV   DIST    ELEV    DIST   ELEV    DIST   ELEV
                    0.0     100.87  10.00  100.67  10.05  100.00  12.0  100.13
                    34.0    100.57  56.00  100.13  57.95  100.00  58.00 100.67
                    68.00   100.87
COMPUTE TRAVEL TIME ID=3 REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=550 FT  SLOPE=0.0097
ROUTE               ID=3  HYDROGRAPH NO=230.11  INFLOW ID=2  DT=0.0
PRINT HYD           ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR TRACT "B", TOWN OF ATRISCO GRANT
COMPUTE NM HYD      ID=2  HYD=230.2  DA=-0.0052
                    %A=0.0  %B=0.0  %C=70.0  %D=30.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ADD THE FLOW FROM TRACT "B", TOWN OF ATRISCO GRANT TO THE  ROUTED FLOW
** IN THE STREET
ADD HYD             ID=4  HYDROGRAPH NO=230.21 ID I=2  ID II=3
PRINT HYD           ID=4  CODE=1
** ROUTE THE COMBINED FLOW IN THE STREET DOWN AIRPORT ROAD TO THE INLET AT THE
** END OF AIRPORT ROAD
COMPUTE RATING CURVECID=1  VS NO=1  NUMBER OF SEGS=3
                    MINIMUM ELEV=100.00  MAXIMUM ELEV=100.87
                    CHANNEL SLOPE=0.014 FLOOD PLAIN SLOPE=0.014
                    N=0.025  DIST=10.0  N=-0.017  DIST=58.0  N=0.025  DIST=68.0
                    DIST    ELEV   DIST    ELEV    DIST   ELEV    DIST   ELEV
                    0.0     100.87  10.00  100.67  10.05  100.00  12.0  100.13
```

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                    34.0    100.57  56.00  100.13  57.95  100.00  58.00 100.67
                    68.00   100.87
COMPUTE TRAVEL TIME ID=11 REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=100 FT  SLOPE=0.0097
ROUTE               ID=11  HYDROGRAPH NO=230.22 INFLOW ID=4  DT=0.0
PRINT HYD           ID=11  CODE=1
** COMPUTE HYDROGRAPH FOR AIRPORT ROAD SOUTH OF CENTRAL TO THE SOUTH END OF
** AIRPORT ROAD
COMPUTE NM HYD      ID=2  HYD=230.3   DA=-0.0024
                    %A=0.0  %B=15.0  %C=0.0  %D=85.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ADD THE FLOW FROM AIRPORT DRIVE TO THE ROUTED FLOW IN THE STREET AT
** THE SOUTH END OF AIRPORT ROAD
ADD HYD             ID=1  HYDROGRAPH NO=230.31 ID I=2  ID II=11
PRINT HYD           ID=1  CODE=1
** ADD THE FLOW IN THE STREET TO THE STORM DRAIN AT THE SOUTH END OF AIRPORT
** DRIVE
ADD HYD             ID=3  HYDROGRAPH NO=230.32  ID I=1 ID II=10
PRINT HYD           ID=3  CODE=1
** ROUTE FLOW DOWN AIRPORT ROAD STORM DRAIN FROM STA 10+50 TO M.H ON
** COORS STORM DRAIN AT STA 82+30
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0040
                    PIPE DIA=3.5  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=150 FT  SLOPE=0.0202
ROUTE               ID=10  HYDROGRAPH NO=230.33  INFLOW ID=3  DT=0.050
PRINT HYD           ID=10  CODE=1
*****************************************************************************
*S END OF AIRPORT ROAD STORM DRAIN
*S BEGIN COORS CONNECTION STORM DRAIN
*****************************************************************************
** COMPUTE HYDROGRAPH FOR THE SOUTH HALF OF CENTRAL AVE R.W. BETWEEN AIRPORT
** AND COORS
COMPUTE NM HYD      ID=2  HYD=230.6   DA=0.0023
                    %A=0.0  %B=0.0  %C=10.00  %D=90.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ROUTE FLOW DOWN THE WEST SIDE OF COORS BLVD.
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=99.31 FT  MAXIMUM ELEV=100.62 FT
                    CHANNEL SLOPE=0.005 FLOOD PLAIN SLOPE=0.005
                    N=0.017  DIST=34
                    DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                      0   100.0    1     99.98  1.01   99.31  34.0   100.67
                    34.01  101.17
COMPUTE TRAVEL TIME ID=3  REACH NO=1  VALLEY SECTIONS=1
                    LENGTH=1000  SLOPE=0.005
ROUTE               ID=3  HYDROGRAPH NO=230.61  INFLOW ID=2  DT=0.0
PRINT HYD           ID=3  CODE=1
** COMPUTE HYDOGRAPH FOR COORS BLVD R.W. FROM CENTRAL TO STA 89+20 COORS
COMPUTE NM HYD      ID=2  HYD=230.7 DA=0.0058
                    %A=0.0  %B=15.0  %C=0.0  %D=85.0  TP=0.13333
                    MASS RAINFALL=-1
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PRINT HYD            ID=2 CODE=1
** ADD  FLOW FROM COORS TO THE ROUTED FLOW AT COORS STA. 89+20
ADD HYD              ID=4  HYDROGRAPH NO=230.71  ID I=3  ID II=2
PRINT HYD            ID=4  CODE=1
** COMPUTE HYDOGRAPH FOR THE AREA S.& W. OF THE INTERSECTION OF COORS BLVD
** AND CENTRAL BOULEVARD. ASSUME ALL FLOW IS ROUTED TO THE SOUTH TO COORS
COMPUTE NM HYD       ID=2  HYD=230.5  DA=0.0066
                     %A=80.0  %B=0.0  %C=20.0  %0.0          TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** ADD BASIN 230.5  FLOW TO ROUTED FLOW IN COORS BOULEVARD
ADD HYD              ID=5  HYDROGRAPH NO=230.51  ID I=2  ID II=4
PRINT HYD            ID=5  CODE=1
** ROUTE FLOW IN COORS STORM DRAIN FROM STA 89+00 TO STA 85+70
** USE FRICTION SLOPE
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0111
                     PIPE DIA=2.5  N=0.013
COMPUTE TRAVEL TIME ID=4  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=330 FT  SLOPE=0.0111
ROUTE                ID=4  HYDROGRAPH NO=230.52  INFLOW ID=5  DT=0.0
PRINT HYD            ID=4  CODE=1
** COMPUTE HYDOGRAPH FOR AREA 230.8. ASSUME ALL FLOW FROM THIS AREA WILL BE
** ROUTED TO THE SOUTH TO COORS
COMPUTE NM HYD       ID=2  HYD=230.8  DA=0.0112
                     %A=50.0  %B=0.0  %C=35.0  %15.0         TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** ADD BASIN 230.8  FLOW TO THE ROUTED FLOW IN COORS BOULEVARD STORM DRAIN
** AT THE MANHOLE AT STA. 85+70
ADD HYD              ID=5  HYDROGRAPH NO=230.82  ID I=2  ID II=4
PRINT HYD            ID=5  CODE=1
** ROUTE FLOW IN COORS STORM DRAIN FROM STA 85+70 TO STA 82+33
** PRESUURE FLOW USE FRICTION SLOPE
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0111
                     PIPE DIA=2.5  N=0.013
COMPUTE TRAVEL TIME ID=2  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=337 FT  SLOPE=0.0111
ROUTE                ID=2  HYDROGRAPH NO=230.83  INFLOW ID=5  DT=0.0
PRINT HYD            ID=2  CODE=1
** ADD FLOW FROM AIRPORT STORM DRAIN TO COORS STORM DRAIN AT STA 82+33
ADD HYD              ID=11  HYDROGRAPH NO=230.84  ID I=2  ID II=10
PRINT HYD            ID=11  CODE=1
** ROUTE FLOW IN COORS STORM DRAIN FROM STA 82+33 TO STA 79+32
** NOTE THE EXISTING PIPE IS A 24" RCP PIPE. UPGRADE TO 48"
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0550
                     PIPE DIA=4.0  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=301 FT  SLOPE=0.0550
ROUTE                ID=10  HYDROGRAPH NO=230.85 INFLOW ID=11  DT=0.0
PRINT HYD            ID=10  CODE=1
** ROUTE FLOW IN COORS STORM DRAIN FROM STA 79+32 TO STA 75+80
** NOTE THE EXISTING PIPE IS A 30" DIA RCP PIPE . UPGRADE TO 48"
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.03
                     PIPE DIA=4.0  N=0.013
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COMPUTE TRAVEL TIME ID=11  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=352 FT  SLOPE=0.066
ROUTE               ID=11  HYDROGRAPH NO=230.86  INFLOW ID=10  DT=0.0
PRINT HYD           ID=11  CODE=1
*****************************************************************************
*S BEGIN THE AREA NORTH OF CENTRAL AVENUE BETWEEN UNSER AND THE WEST 66
*S ADDITION
*****************************************************************************
** COMPUTE HYDROGRAPH FOR AREA 240.1
COMPUTE NM HYD      ID=2  HYD=240.1  DA=0.0333
                    %A=0.0  %B=0.0  %C=65.0  %D=35.0  TP=0.19
                    MASS RAINFALL=-1
PRINT HYD           ID=2   CODE=1
** ROUTE FLOW DOWN SWALE NORTH OF CENTRAL AVE
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=102 FT
                    CHANNEL SLOPE=0.0025 FLOOD PLAIN SLOPE=0.0025
                    N=0.025  DIST=22
                    DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                      0   102.0    1     101.9  11.0   100.0  15.0  100.1
                     25   101.9   26     102.0
COMPUTE TRAVEL TIME ID=3  REACH NO=1  VALLEY SECTIONS=1
                    LENGTH=320  SLOPE=0.0025
ROUTE               ID=3  HYDROGRAPH NO=240.11 INFLOW ID=2  DT=0.0
PRINT HYD           ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 240.2
COMPUTE NM HYD      ID=4  HYD=240.2  DA=0.0125
                    %A=0.0  %B=9.0  %C=20.0  %D=71.0  TP=0.19
                    MASS RAINFALL=-1
PRINT HYD           ID=4   CODE=1
** ADD  FLOW FROM AREA 240.2 TO ROUTED FLOW IN SWALE NORTH OF CENTRAL
ADD HYD             ID=5  HYDROGRAPH NO=240.21  ID I=4  ID II=3
PRINT HYD           ID=5  CODE=1
** ROUTE FLOW DOWN SWALE NORTH OF CENTRAL AVE TO CULVERTS CROSSING CENTRAL
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=102 FT
                    CHANNEL SLOPE=0.0025 FLOOD PLAIN SLOPE=0.0025
                    N=0.025  DIST=22
                    DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                      0   102.0    1     101.9  11.0   100.0  15.0  100.1
                     25   101.9   26     102.0
COMPUTE TRAVEL TIME ID=15  REACH NO=1  VALLEY SECTIONS=1
                    LENGTH=300  SLOPE=0.0025
ROUTE               ID=15  HYDROGRAPH NO=240.22 INFLOW ID=5  DT=0.0
PRINT HYD           ID=15  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 240.3
COMPUTE NM HYD      ID=3  HYD=240.3   DA=0.0080
                    %A=0.0  %B=0.0  %C=75.00  %D=25.0  TP=0.20
                    MASS RAINFALL=-1
PRINT HYD           ID=3   CODE=1
** ROUTE FLOW DOWN SWALE NORTH OF CENTRAL AVE
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=102 FT
                    CHANNEL SLOPE=0.0025 FLOOD PLAIN SLOPE=0.0025
```

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                    N=0.025  DIST=22
                    DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                      0   102.0    1     101.9  11.0   100.0  21.0  101.9
                    22.0  102.0
COMPUTE TRAVEL TIME ID=4  REACH NO=1  VALLEY SECTIONS=1
                    LENGTH=350  SLOPE=0.0025
ROUTE               ID=4  HYDROGRAPH NO=240.31  INFLOW ID=3  DT=0.050
PRINT HYD           ID=4  CODE=1
** ADD  ROUTED FLOW IN THE SWALE FROM THE EAST TO ROUTED FLOW FROM THE WEST AT
** ENTRANCE TO THE 3 - 36" DIA CULVERTS
ADD HYD             ID=16  HYDROGRAPH NO=240.32 ID I=4  ID II=15
PRINT HYD           ID=16  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 240.4
COMPUTE NM HYD      ID=2  HYD=240.4   DA=0.0231
                    %A=0.0  %B=5.0  %C=35.00  %D=60.0  TP=0.21
                    MASS RAINFALL=-1
PRINT HYD           ID=2  CODE=1
** ROUTE FLOW THROUGH THE EXISTING RETENTION POND ON THE CHURCH PROPERTY.
** POND VOLUME TAKEN FROM DRAINAGE PLAN FOR CHURCH SITE. ASSUME FREE DISCHARGE
** OF FLOW FROM POND AFTER POND STAGE REACHES ELEV. 5088
ROUTE RESERVOIR     ID=3  HYDROGRAPH NO=240.41  INFLOW ID=2  CODE=5
                    OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                         0              0              5083.0
                         0.01          1.19            5088.0
                       100.00          1.191           5088.01
                       100.01          1.192           5089.0
PRINT HYD           ID=3  CODE=1
** ADD  ROUTED FLOW IN THE SWALE TO FLOW FROM AREA 240.4
ADD HYD             ID=15  HYDROGRAPH NO=240.42  ID I=3  ID II=16
PRINT HYD           ID=15  CODE=1
** COMPUTE HYDROGRAPH FOR THE NORTH SIDE OF CENTRAL AVE BETWEEN UNSER & AIRPORT
COMPUTE NM HYD      ID=4  HYD=240.5  DA=0.0093
                    %A=0.0  %B=0.0  %C=10.0  %D=90.0  TP=0.14
                    MASS RAINFALL=-1
PRINT HYD           ID=4  code=1
** ADD FLOW FROM THE NORTH SIDE OF CENTRAL AVE. TO FLOW IN SWALE AT THE NORTH
** SIDE OF CENTRAL AVE. THIS IS THE TOTAL FLOW AT THE ENTRANCE TO THE 3 - 36"
** CULVERTS WHICH CROSS CENTRAL
ADD HYD             ID=16  HYDROGRAPH NO=240.51 ID I=4  ID II=15
PRINT HYD           ID=16  CODE=1
** ROUTE FLOW THROUGH THE SWALE AND THE VOLUME OF THE RETENTION POND AND
** PARKING AREA WHICH IS LOCATED ABOVE ELEVATION 5088 . ASSUME FLOW FROM THIS
** AREA IS CONTROLED BY THE ENTRANCE OF THE 3 - 36" CULVERTS
ROUTE RESERVOIR     ID=15  HYDROGRAPH NO=240.52  INFLOW ID=16 CODE=5
                    OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                         0              0              5085.9
                        21             0.046           5087.0
                        60             0.127           5088.0
                       105             0.647           5089.0
                       150             1.437           5090.0
PRINT HYD           ID=15  CODE=1
** ROUTE FLOW FROM THE NORTH SIDE OF CENTRAL THROUGH 3 EXISTING 36" CULVERTS TO
** THE SOUTH SIDE OF CENTRAL.  SLOPE UNKNOWN ASSUME 0.005. USE 1 54" PIPE AS
** EQUIVILANT CONVEYANCE.
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COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.005
                     PIPE DIA=4.5  N=0.013
COMPUTE TRAVEL TIME ID=5  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=140 FT  SLOPE=0.005
ROUTE                ID=5  HYDROGRAPH NO=240.53  INFLOW ID=15  DT=0.0
PRINT HYD            ID=5  CODE=1
** COMPUTE HYDROGRAPH FOR THE SOUTH SIDE OF CENTRAL AVE BETWEEN UNSER & AIRPORT
COMPUTE NM HYD       ID=2  HYD=240.6  DA=0.0065
                     %A=0.0  %B=0.0  %C=10.0  %D=90.0  TP=0.14
                     MASS RAINFALL=-1
PRINT HYD            ID=2  code=1
*****************************************************************************
*S BEGIN AREA SOUTH OF CENTRAL AVENUE BETWEEN UNSER AND AIRPORT
** ASSUME A CHANNEL WILL BE CONSTRUCTED BETWEEN THE CULVERTS AT CENTRAL AVE
** AND THE COORS CONNECTION STORM DRAIN
*****************************************************************************
** ADD FLOW FROM THE SOUTH SIDE OF CENTRAL TO THE ROUTED FLOW FROM THE NORTH
** SIDE OF CENTRAL
ADD HYD              ID=3  HYDROGRAPH NO=240.61  ID I=2  ID II=5
PRINT HYD            ID=3  CODE=1
** NOTE: NO WELL DEFINED FLOW PATH IS APPARENT IN THE FOLLOWING REACH
** ROUTE FLOW DOWN AN ASSUMED WIDE DEPRESSION SECTION FROM THE SOUTH SIDE OF
** CENTRAL TO THE SOUTH EAST CORNER OF AREA 250.1
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=105.1FT
                     CHANNEL SLOPE=0.003 FLOOD PLAIN SLOPE=0.003
                     N=0.055  DIST=122
                     DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                       0   102      30    100     100    100    130    102
COMPUTE TRAVEL TIME ID=4  REACH NO=1  VALLEY SECTIONS=1
                     LENGTH=700  SLOPE=0.003
ROUTE                ID=4  HYDROGRAPH NO=240.62  INFLOW ID=3  DT=0.0
PRINT HYD            ID=4  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 250.1
COMPUTE NM HYD       ID=2  HYD=250.1   DA=0.0247
                     %A=20.0  %B=10.0  %C=40.0  %D=30.0  TP=0.22
                     MASS RAINFALL=-1
PRINT HYD            ID=2  code=1
** ADD FLOW FROM AREA 250.1 TO FLOW IN THE ASSUMED CHANNEL AT SOUTH EAST CORNER OF AREA
** OF AREA 250.1
ADD HYD              ID=3  HYDROGRAPH NO=250.11  ID I=4  ID II=2
PRINT HYD            ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 250.2
COMPUTE NM HYD       ID=2  HYD=250.2  DA=0.0079
                     %A=0.0  %B=20.0  %C=45.0  %D=35.0  TP=0.15
                     MASS RAINFALL=-1
PRINT HYD            ID=2  code=1
** NOTE: NO WELL DEFINED FLOW PATH IS APPARENT IN THE FOLLOWING REACH
** ADD FLOW FROM AREA 250.2 TO FLOW IN ASSUMED CHANNEL AT SOUTH WEST CORNER OF
** AREA 260.1
ADD HYD              ID=4  HYDROGRAPH NO=250.21 ID I=3  ID II=2
PRINT HYD            ID=4  CODE=1
** ROUTE FLOW DOWN ASSUMED CHANNEL SECTION FROM THE SOUTH EAST CORNER OF
** OF AREA 250.1 TO THE SOUTH LINE OF AREA 260.1
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COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=102 FT
                     CHANNEL SLOPE=0.011  FLOOD PLAIN SLOPE=0.011
                     N=0.045  DIST=102
                     DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                       0   102      30    100     80    100     110   102
COMPUTE TRAVEL TIME ID=3  REACH NO=1  VALLEY SECTIONS=1
                     LENGTH=450  SLOPE=0.011
ROUTE                ID=3  HYDROGRAPH NO=250.22  INFLOW ID=4  DT=0.0
PRINT HYD            ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 260.1
COMPUTE NM HYD       ID=2  HYD=260.1  DA=0.0398
                     %A=88.0  %B=0.0  %C=10.0  %D=2.0  TP=0.1555
                     MASS RAINFALL=-1
PRINT HYD            ID=2  code=1
** ADD FLOW FROM AREA 260.1 TO FLOW IN ASSUMED CHANNEL AT SOUTH LINE OF
** AREA 260.1
ADD HYD              ID=4  HYDROGRAPH NO=260.11 ID I=3  ID II=2
PRINT HYD            ID=4  CODE=1
** ROUTE FLOW DOWN ASSUMED CHANNEL SECTION FROM THE SOUTH LINE
** OF AREA 260.1 TO THE START OF INCISED CHANNEL
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=105.1FT
                     CHANNEL SLOPE=0.027 FLOOD PLAIN SLOPE=0.027
                     N=0.040  DIST=102
                     DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                       0   102      30    100     80    100     110   102
COMPUTE.TRAVEL TIME ID=2  REACH NO=1  VALLEY SECTIONS=1
                     LENGTH=450  SLOPE=0.027
ROUTE                ID=2  HYDROGRAPH NO=260.12  INFLOW ID=4  DT=0.0
PRINT HYD            ID=2  CODE=1
** ROUTE FLOW DOWN ASSUMED CHANNEL SECTION FROM THE START OF THE INCISED
** CHANNEL TO THE S.E. CORNER OF AREA 270.1
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=105.1FT
                     CHANNEL SLOPE=0.05 FLOOD PLAIN SLOPE=0.05
                     N=0.035  DIST=31
                     DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                       0   105.12    1     105.0  10    100.1.  20    100.0
                      30   105.0     31    105.1
COMPUTE TRAVEL TIME ID=2  REACH NO=1  VALLEY SECTIONS=1
                     LENGTH=400  SLOPE=0.050
ROUTE                ID=4  HYDROGRAPH NO=260.13  INFLOW ID=2  DT=0.0
PRINT HYD            ID=4  CODE=1
** COMPUTE HYDOGRAPH FOR AREA 270.1. ASSUME ALL FLOW FROM THIS AREA WILL BE
** ROUTED TO THE SOUTH TO COORS STORM DRAIN
COMPUTE NM HYD       ID=3  HYD=270.1  DA=0.0222
                     %A=87.0  %B=0.0  %C=10.0  %D=3.0          TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=3 CODE=1
** ADD BASIN 270.1 FLOW TO THE ROUTED FLOW IN THE ASSUMED CHANNEL
** AT THE SOUTHEAST CORNER OF BASIN 270.1
ADD HYD              ID=4  HYDROGRAPH NO=270.11  ID I=3  ID II=4
PRINT HYD            ID=4  CODE=1
```

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** ADD FLOW FROM THE ASSSUMED CHANNEL TO THE COORS STORM DRAIN AT STA 75+79
ADD HYD              ID=10  HYDROGRAPH NO=260.13  ID I=4  ID II=11
PRINT HYD            ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 270.2 COORS BLVD R.W. STA 89+20 TO STA 76+15
COMPUTE NM HYD       ID=3  HYD=270.2  DA=0.0071
                     %A=0.0  %B=15.0  %C=0.0  %D=85.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=3  code=1
** ADD FLOW FROM AREA 270.2 TO FLOW IN COORS S.D MANHOLE  AT STA. 75+80
ADD HYD              ID=4  HYDROGRAPH NO=270.23 ID I=10 ID II=3
PRINT HYD            ID=4  CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 75+80
** TO COORS S.D. MANHOLE AT STA 71+29 PRESURE FLOW USE FRICTION SLOPE
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0303
                     PIPE DIA=4.5  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=450 FT  SLOPE=0.0303
ROUTE                ID=10  HYDROGRAPH NO=270.24  INFLOW ID=4  DT=0.0
PRINT HYD            ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 280.1
COMPUTE NM HYD       ID=2  HYD=280.1  DA=0.0066
                     %A=85.0  %B=0.0  %C=10.0  %D=5.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=2  code=1
** ADD FLOW FROM AREA 280.1 TO FLOW IN COORS S.D MANHOLE  AT STA. 71+29
ADD HYD              ID=3  HYDROGRAPH NO=280.11 ID I=10  ID II=2
PRINT HYD            ID=3  CODE=1
** COMPUTE HYD. FOR  AREA 280.2 COORS BLVD R.W. FROM STA 76+15 TO STA 71+70
COMPUTE NM HYD       ID=4  HYD=280.2  DA=0.0025
                     %A=0.0  %B=15.0  %C=0.0  %D=85.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=4  code=1
** ADD FLOW FROM AREA 280.2 TO FLOW IN COORS S.D AT MANHOLE  AT STA. 71+29
ADD HYD              ID=5  HYDROGRAPH NO=280.21 ID I=3  ID II=4
PRINT HYD            ID=5  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 280.3 A PORTION OF AIRPORT DRIVE
COMPUTE NM HYD       ID=6  HYD=280.3  DA=0.0045
                     %A=20.0  %B=30.0  %C=0.0  %D=50.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=6  code=1
** ADD FLOW FROM AREA 280.3 TO FLOW IN COORS S.D AT MANHOLE  AT STA. 71+29
ADD HYD              ID=7  HYDROGRAPH NO=280.31 ID I=5  ID II=6
PRINT HYD            ID=7  CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 71+29
** TO COORS S.D. MANHOLE AT STA 66+79
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.010
                     PIPE DIA=6.0  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=450   SLOPE=0.010
ROUTE                ID=10  HYDROGRAPH NO=280.32  INFLOW ID=7  DT=0.0
PRINT HYD            ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 290.1
COMPUTE NM HYD       ID=2  HYD=290.1  DA=0.03144
                     %A=90.0  %B=2.0  %C=6.0  %D=2.0  TP=0.1333
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                    MASS RAINFALL=-1
PRINT HYD           ID=2  code=1
** ADD FLOW FROM AREA 290.1 TO FLOW IN COORS S.D MANHOLE  AT STA. 66+79
ADD HYD             ID=3  HYDROGRAPH NO=290.12 ID I=10  ID II=2
PRINT HYD           ID=3  CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 66+79
** TO COORS S.D. MANHOLE AT STA 62+29
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.075
                    PIPE DIA=6.0  N=0.013
COMPUTE TRAVEL TIME ID=4  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=450   SLOPE=0.075
ROUTE               ID=4  HYDROGRAPH NO=290.13 INFLOW ID=3  DT=0.0
PRINT HYD           ID=4  CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 62.29
** TO COORS S.D. MANHOLE AT STA 58+89
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0075
                    PIPE DIA=6.0  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=340   SLOPE=0.0075
ROUTE               ID=10  HYDROGRAPH NO=290.14  INFLOW ID=4  DT=0.
PRINT HYD           ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 290.2 COORS BLVD.RW FROM STA. 71+70 TO STA 59+40
COMPUTE NM HYD      ID=2  HYD=290.2  DA=0.0069
                    %A=0.0  %B=15.0  %C=0.0  %D=85.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=2  code=1
** ADD FLOW FROM AREA 290.2 TO FLOW IN COORS S.D MANHOLE  AT STA. 58+89
ADD HYD             ID=3  HYDROGRAPH NO=290.21 ID I=10  ID II=2
PRINT HYD           ID=3  CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 58+89
** TO COORS S.D. MANHOLE AT STA 58+00
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0075
                    PIPE DIA=6.0  N=0.013
COMPUTE TRAVEL TIME ID=4  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=89  SLOPE=0.0075
ROUTE               ID=4  HYDROGRAPH NO=290.22  INFLOW ID=3  DT=0.050
PRINT HYD           ID=4  CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 58+00
** TO OUTLET AT POND AT STA 56+10 (170' LEFT)
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0075
                    PIPE DIA=6.0  N=0.013
COMPUTE TRAVEL TIME ID=5  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=248  SLOPE=0.0075
ROUTE               ID=5  HYDROGRAPH NO=290.23  INFLOW ID=4  DT=0.050
PRINT HYD           ID=5  CODE=1
FINISH
```

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START                0.0 HOURS ****ONE HUNDRED YEAR TWENTY FOUR HOUR STORM ****
** FILE NAME : CCSDWD.HMI (COORS CONNECTION STORM DRAIN WATERSHED DEVELOPED)**
** ANALYSIS FOR THE ATRISCO BUSINESS PARK MASTER DRAINAGE PLAN ***************
** INCLUDES THE WATERSHED OF THE AIRPORT DRIVE AND COORS BLVD S.D.SYSTEM *****
** FULLY DEVELOPED CONNDITION ************************************************
** AREAS OUTSIDE OF THE ATRISCO BUSINESS PARK INCLUDED TO DETERMINE TOTAL
** POTENTIAL FLOWS TO THE AIRPORT DRIVE AND COORS CONNECTION STORM DRAINS*****
*****************************************************************************
** ANALYSIS ASSUMPTIONS:
*****************************************************************************
** FLOW FROM ALL PRIVATE LAND NORTH OF CENTRAL AVE. CONTRIBUTING FLOW TO THE
** AIRPORT ROAD STORM DRAIN IS RESTRICTED TO 0.1cfs PER ACRE.*****************
** LOTS SOUTH OF CENTRAL AVE. LOCATED ALONG THE EAST SIDE OF AIRPORT DRIVE
** ARE ASSUMED TO DISCHARGE AT THE EXISTING CONDITION FLOW RATE INTO AIRPORT
** DRIVE AND THEN flow IS ROUTED IN THE STREET TO THE CUL-DE-SAC BEFORE
** ENTERING THE STORM DRAIN ***********************************************
** PUBLIC STREETS CONTRIBUTING FLOW TO THE AIRPORT DRIVE STORM DRAIN HAVE
** FREE DISCHARGE INTO THE SYSTEM *****************************************
** IN AREAS OF THE ATRISCO BUSINESS PARK WHERE THE POTENTIAL EXISTS FOR SOME OF
** OF THE PROPERTY ADJACENT TO THE STREETS TO DISCHARGE TO THE STREETS
** UNCONTROLLED DUE TO GRADE CONSTRAINTS, APPOXIMATELY 10 ADDITIONAL FEET OF
** WIDTH WAS USED IN CALCULATING STREET AREAS *****************************
** FLOW FROM THE AREAS OUTSIDE OF THE ATRISCO BUSINESS PARK AND THE WATERSHED
** OF THE AIRPORT DRIVE STORM DRAIN LIMITED TO THE EXISTING CONDITION FLOW
** RATE AT THE POINT WHERE THE FLOW ENTERS THE COORS STORM DRAIN **************
** UPDATED   9-14-92
**RAINFALL            TYPE=2  0.0  1.25  1.45  1.65
RAINFALL            TYPE=2  0.0  1.87  2.20  2.66 DT=0.05
*****************************************************************************
*****************************************************************************
*S BEGIN THE WATERSHED FOR THE AIRPORT ROAD STORM DRAIN ************************
*****************************************************************************
*****************************************************************************
** COMPUTE HYDROGRAPH FOR TRACT "S-1"********
** AREA = 133.2 ACRES
COMPUTE NM HYD      ID=2  HYD=200.1  DA==0.2081 SM
                    %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ROUTE FLOW FROM TRACT "S-1"THRU A POND WITH A MAX.  DISCHARGE RATE OF .1 CFS
** PER ACRE. ALLOWABLE RELEASE RATE=13.32 cfs
ROUTE RESERVOIR     ID=3  HYDROGRAPH NO=200.11  INFLOW ID=2  CODE=20
                    OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0             0              100.0
                         7.46           5.0            101.0
                        11.18          11.0            102.0
                        13.58          17.5            103.0
                        22.91          24.0            104.0
PRINT HYD           ID=3  CODE=1
** COMPUTE A HYDROGRAPH FOR FUTURE PUBLIC STREETS IN THE EASTERN PORTION OF
** TRACT  "S-1"
COMPUTE NM HYD      ID=2  HYD=200.2  DA==0.0042
                    %A=0.0  %B=23.0  %C=0.0  %D=77.0  TP=0.1333
                    MASS RAINFALL=-1
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PRINT HYD            ID=2 CODE=1
** ADD THE FLOW FROM THE FUTURE STREETS TO THE CONTROLLED FLOW FROM TRACT"S-1"
** AT THE INTERSECTION OF LOS VOLCANES AND AIRPORT ASSUME FLOW TO BE ROUTED TO
** THE AIRPORT ROAD STORM DRAIN
ADD HYD              ID=4  HYDROGRAPH NO=200.21  ID I=3  ID II=2
PRINT HYD            ID=4  CODE=1
** COMPUTE A HYDROGRAPH FOR FUTURE PUBLIC STREETS IN THE WESTERN PORTION OF
** OF TRACT "S-1"
COMPUTE NM HYD       ID=2  HYD=200.3  DA=-0.0076
                     %A=0.0  %B=23.0  %C=0.0  %D=77.0  TP=0.1400
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** COMPUTE HYDROGRAPH FOR LOS VOLCANES BETWEEN UNSER BLVD AND 1250 LF WEST
** OF AIRPORT ROAD
COMPUTE NM HYD       ID=3  HYD=200.4  DA=-0.0042
                     %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=3 CODE=1
** ADD THE FLOW FROM THE FUTURE STREETS IN THE WEST PORTION OF TRACT "S-1" TO
** THE FLOW FROM THE WESTERN SEGMENT OF LOS VOLCANES 1250 WEST OF AIRPORT RD.
ADD HYD              ID=5  HYDROGRAPH NO=200.41  ID I=2  ID II=3
PRINT HYD            ID=5  CODE=1
** ROUTE THE FLOW IN THE STREET FROM 1250' WEST OF AIRPORT IN THE STREET TO
** THE INTERSECTION WITH AIRPORT
COMPUTE RATING CURVECID=1  VS NO=1  NUMBER OF SEGS=3
                     MINIMUM ELEV=100.00  MAXIMUM ELEV=100.87
                     CHANNEL SLOPE=0.0082 FLOOD PLAIN SLOPE=0.0082
                     N=0.025  DIST=10.0  N=-0.017  DIST=58.0  N=0.025  DIST=68.0
                     DIST    ELEV   DIST    ELEV    DIST   ELEV    DIST   ELEV
                     0.0     100.87  10.00  100.67  10.05  100.00  12.0  100.13
                     34.0    100.57  56.00  100.13  57.95  100.00  58.00 100.67
                     68.00   100.87
COMPUTE TRAVEL TIME ID=11 REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=1250 FT  SLOPE=0.0082
ROUTE                ID=11  HYDROGRAPH NO=200.45  INFLOW ID=5  DT=0.0
PRINT HYD            ID=11  CODE=1
** COMPUTE HYDROGRAPH FOR LOS VOLCANES BETWEEN  1250 LF WEST OF AIRPORT ROAD
** AND AIRPORT ROAD
COMPUTE NM HYD       ID=3  HYD=200.5  DA=-0.0035
                     %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=3 CODE=1
** ADD THE FLOW FROM THE EASTERN SEGMENT OF LOS VOLCANES TO THE ROUTED FLOW
** IN THE STREET AT THE INTERSECTION OF LOS VOLCANES AND AIRPORT ROAD
ADD HYD              ID=3  HYDROGRAPH NO=200.51  ID I=11  ID II=3
PRINT HYD            ID=3  CODE=1
** COMPUTE A HYDROGRAPH FOR THE WESTERN PORTION OF LOT 2, TRACT "N", A.B.P.
** AREA = 4.5 ACRES
COMPUTE NM HYD       ID=1  HYD=200.6  DA=-0.0070
                     %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
** ROUTE FLOW FROM THE WESTERN PORTION OF LOT 2,  TRACT "N", A.B.P. THRU A
** POND TO CONTROL DISCHARGE TO A MAX. OF 0.1 CFS PER ACRE. ALLOWABLE RELEASE
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** RATE = .45 CFS
ROUTE RESERVOIR      ID=2  HYDROGRAPH NO=200.61  INFLOW ID=1  CODE=20
                     OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0              0              100.0
                          0.252          0.17           101.0
                          0.378          0.38           102.0
                          0.459          0.59           103.0
                          0.774          0.90           104.0
PRINT HYD            ID=2  CODE=1
** ADD THE CONTROLED FLOW FROM LOT 2, TRACT "N", A.B.P. TO THE FLOW AT
** FROM TRACT "S-1" AT THE INTERSECTION OF LOS VOLCANES AND AIRPORT ALL OF
** THIS FLOW TO BE ROUTED IN THE AIRPORT RD. S.D.
ADD HYD              ID=1  HYDROGRAPH NO=200.62  ID I=4  ID II=2
PRINT HYD            ID=1  CODE=1
** ROUTE FLOW IN A STORM DRAIN FROM THE INTERSECTION OF LOS VOLCANES AND
** AIRPORT DOWN AIRPORT RD. TO A POINT APPROXIMATELY 850 LF. SOUTH OF
** LOS VOLCANES
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0050
                     PIPE DIA=2.5  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=850 FT  SLOPE=0.0050
ROUTE                ID=10  HYDROGRAPH NO=200.65  INFLOW ID=1  DT=0.0
PRINT HYD            ID=10  CODE=1
** ROUTE THE FLOW IN THER STREET DOWN AIRPORT ROAD FROM LOS VOLCANES TO THE
** BACK LOT LINE OF LOT 9, TRACT "M"
COMPUTE RATING CURVECID=1  VS NO=1  NUMBER OF SEGS=3
                     MINIMUM ELEV=100.00  MAXIMUM ELEV=100.87
                     CHANNEL SLOPE=0.0048 FLOOD PLAIN SLOPE=0.0048
                     N=0.025  DIST=10.0  N=-0.017  DIST=58.0  N=0.025  DIST=68.0
                     DIST    ELEV   DIST    ELEV    DIST   ELEV    DIST   ELEV
                     0.0     100.87  10.00  100.67  10.05  100.00  12.0  100.13
                     34.0    100.57  56.00  100.13   57.95  100.00  58.00 100.67
                     68.00   100.87
COMPUTE TRAVEL TIME ID=11 REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=850 FT  SLOPE=0.0048
ROUTE                ID=11  HYDROGRAPH NO=200.66  INFLOW ID=3  DT=0.0
PRINT HYD            ID=11  CODE=1
** COMPUTE HYDROGRAPH FOR THE NORTHERN PART OF TRACT "M" ATRISCO BUSINESS PARK
** LOTS 5 TO 9.  AREA = 47.9 ACRES
COMPUTE NM HYD       ID=2  HYD=210.1  DA==0.0748 SM
                     %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** ROUTE FLOW FROM TRACT "M" LOTS 5 - 9 THRU A THEORETICAL POND WITH A
** MAX. DISCHARGE OF 0.1 CFS PER ACRE. ALLOWABLE RELEASE RATE=4.79 cfs
ROUTE RESERVOIR      ID=3  HYDROGRAPH NO=210.11  INFLOW ID=2  CODE=5
                     OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0              0              100.0
                          2.68           2.00           101.0
                          4.02           4.10           102.0
                          4.88           6.30           103.0
                          6.00           7.00           104.0
PRINT HYD            ID=3  CODE=1
** ADD CONTROLLED DISCHARGE FROM TRACT "M" LOTS 5 - 9 TO THE ROUTED FLOW IN THE
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** AIRPORT ROAD STORM DRAIN
ADD HYD              ID=10  HYDROGRAPH NO=210.12  ID I=10  ID II=3
PRINT HYD            ID=10  CODE=1
** COMPUTE A HYDROGRAPH FOR FUTURE PUBLIC STREETS IN TRACT "M"
COMPUTE NM HYD       ID=2  HYD=210.2  DA=0.0078 SM
                     %A=0.0  %B=23.0  %C=0.0  %D=77.0  TP=0.1450
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** ASSUME TWO TYPE DOUBLE "C" INLETS INTERCEPT FLOW FROM THE FUTURE PUBLIC
** STREETS IN TRACT "M" DIVIDE OUT THE APPROXIMATE FLOW INTERCEPTED BY THE
** INLETS  Q10=8cfs  Q100=11cfs
** HYD 210.21 = FLOW TO THE AIRPORT ROAD STORM DRAIN
** HYD 210.22 = FLOW TO REMAIN IN THE STREET
DIVIDE HYD           ID=2  Q=11.00  ID I=3  HYD I=210.21
                                   ID II=6 HYD II=210.22
PRINT HYD            ID=3 CODE=1
PRINT HYD            ID=6  CODE=1
** ADD THE INTERCEPTED FLOW FROM THE FUTURE STREETS TO THE AIRPORT RD. S.D.
ADD HYD              ID=10  HYDROGRAPH NO=210.23  ID I=10  ID II=3
PRINT HYD            ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR AIRPORT RD. FROM THE INTERSECTION OF LOS VOLCANES TO
** THE INTERSECTION WITH THE BACK LOT LINE OF LOT 9 TRACT "M"
COMPUTE NM HYD       ID=2  HYD=210.3  DA=-0.0025
                     %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** ADD THE FLOW FROM THE NORTHERN PORTION OF AIRPORT RD. TO THE ROUTED FLOW IN
** THE STREET
ADD HYD              ID=11  HYDROGRAPH NO=210.31  ID I=11  ID II=2
PRINT HYD            ID=11  CODE=1
** COMPUTE A HYDROGRAPH FOR LOT 1, TRACT "A", A.B.P.
** AREA = 7.5 ACRES
COMPUTE NM HYD       ID=2  HYD=210.4  DA=-0.0117
                     %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** ROUTE FLOW FROM LOT 1, TRACT "A", A.B.P. THRU A POND TO CONTROL THE
** DISCHARGE TO A MAX. OF 0.1 CFS PER ACRE. ALLOWABLE RELEASE RATE
** = .75 CFS
ROUTE RESERVOIR      ID=4  HYDROGRAPH NO=210.41  INFLOW ID=2  CODE=20
                     OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0              0              100.0
                          0.42           0.30           101.0
                          0.63           0.66           102.0
                          0.76           1.02           103.0
                          1.00           1.50           104.0
PRINT HYD            ID=4  CODE=1
** ADD THE CONTROLLED FLOW FROM LOT 1, TRACT "A", A.B.P. TO THE STORM DRAIN AT
** THE INTERSECTION OF THE BACK LOT LINE OF LOT 9, TRACT "M" AND AIRPORT RD.
ADD HYD              ID=13  HYDROGRAPH NO=210.42  ID I=10  ID II=4
PRINT HYD            ID=13  CODE=1
** ADD THE FLOW FROM THE FUTURE STREETS IN TRACT "M" THAT BYPASSES THE INLETS
** TO THE ROUTED FLOW IN THE STREET AT THE INTERSECTION OF THE BACK LOT
** LOT LINE OF LOT 9, TRACT "M" AND AIRPORT ROAD
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ADD HYD                ID=12  HYDROGRAPH NO=210.43  ID I=6  ID II=11
PRINT HYD              ID=12  CODE=1
** ROUTE FLOW IN A STORM DRAIN FROM THE INTERSECTION OF THE BACK LOT LINE
** OF LOT 9, TRACT "M" AND AIRPORT ROAD
** DOWN AIRPORT RD. TO A THE INTERSECTION WITH BLUEWATER ROAD
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0048
                       PIPE DIA=3.0  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                       LENGTH=850 FT  SLOPE=0.0048
ROUTE                  ID=10  HYDROGRAPH NO=210.46  INFLOW ID=13  DT=0.0
PRINT HYD              ID=10  CODE=1
** ROUTE THE FLOW IN THE STREET DOWN AIRPORT ROAD FROM THE BACK LOT LINE OF LOT
** OF LOT 9 TRACT "M" TO THE INTERSECTION WITH BLUEWATER ROAD
COMPUTE RATING CURVECID=1  VS NO=1  NUMBER OF SEGS=3
                       MINIMUM ELEV=100.00  MAXIMUM ELEV=100.87
                       CHANNEL SLOPE=0.0048 FLOOD PLAIN SLOPE=0.0048
                       N=0.025  DIST=10.0  N=-0.017  DIST=58.0  N=0.025  DIST=68.0
                       DIST    ELEV   DIST    ELEV    DIST   ELEV    DIST   ELEV
                       0.0     100.87  10.00  100.67  10.05  100.00  12.0  100.13
                       34.0    100.57  56.00  100.13  57.95  100.00  58.00 100.67
                       68.00   100.87
COMPUTE TRAVEL TIME ID=11 REACH=1  NUMBER OF VALLEY SECTIONS=1
                       LENGTH=850 FT  SLOPE=0.0048
ROUTE                  ID=11  HYDROGRAPH NO=210.47  INFLOW ID=12 DT=0.0
PRINT HYD              ID=11  CODE=1
** COMPUTE HYDROGRAPH FOR AIRPORT RD. FROM THE INTERSECTION WITH THE BACK
** LOT LINE OF LOT 9 TRACT "M" TO THE INTERSECTION WITH BLUEWATER ROAD
COMPUTE NM HYD         ID=2  HYD=210.5  DA=-0.0024
                       %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.13333
                       MASS RAINFALL=-1
PRINT HYD              ID=2 CODE=1
** ADD THE ROUTED FLOW IN THE STREET TO THE FLOW FROM THE SOUTHERN SEGMENT OF
** AIRPORT ROAD AT THE INTERSECTION AIRPORT ROAD AND BLUEWATER
ADD HYD                ID=11  HYDROGRAPH NO=210.51  ID I=2  ID II=11
PRINT HYD              ID=11  CODE=1
** COMPUTE HYDROGRAPH FOR THE SOUTHERN PART OF TRACT "M" ATRISCO BUSINESS PARK
* LOTS 1 TO 4 AND TRACT "L-1".  AREA = 44.8 ACRES
COMPUTE NM HYD         ID=3  HYD=210.6  DA=-0.0700 SM
                       %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.13333
                       MASS RAINFALL=-1
PRINT HYD              ID=3 CODE=1
** ROUTE FLOW FROM TRACT "M" LOTS 1 - 4  AND TRACT "L-1" THRU A POND WITH A
** MAX. DISCHARGE OF 0.1 CFS PER ACRE. ALLOWABLE RELEASE RATE=4.48 cfs
ROUTE RESERVOIR        ID=4  HYDROGRAPH NO=210.61  INFLOW ID=3  CODE=20
                       OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                             0             0             100.0
                             2.5           1.60          101.0
                             3.75          3.70          102.0
                             4.50          5.80          103.0
                             6.00          8.00          104.0
PRINT HYD              ID=4  CODE=1
** ADD THE ROUTED FLOW IN THE AIRPORT ROAD STORM DRAIN TO THE CONTROLLED FLOW
** FROM THE SOUTHERN PART OF TRACT "M" AT THE WEST INTERSECTION OF BLUEWATER
** AND AIRPORT ROAD
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ADD HYD              ID=10  HYDROGRAPH NO=210.62  ID I=4  ID II=10
PRINT HYD            ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR BLUEWATER RD. FROM THE INTERSECTION OF UNSER BLVD. TO
** 1050 LF WEST OF THE INTERSECTION WITH AIRPORT ROAD
COMPUTE NM HYD       ID=2  HYD=210.7  DA=-0.0033
                     %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** ROUTE FLOW FROM WESTERN PORTION OF BLUEWATER RD.DOWN THE STREET FROM 1050 LF
** WEST OF AIRPORT ROAD TO THE INTERSECTION WITH AIRPORT ROAD
COMPUTE RATING CURVECID=1  VS NO=1  NUMBER OF SEGS=3
                     MINIMUM ELEV=100.00  MAXIMUM ELEV=100.87
                     CHANNEL SLOPE=0.0030 FLOOD PLAIN SLOPE=0.0030
                     N=0.025  DIST=10.0  N=-0.017  DIST=58.0  N=0.025  DIST=68.0
                     DIST    ELEV   DIST    ELEV    DIST   ELEV    DIST   ELEV
                     0.0     100.87  10.00  100.67  10.05  100.00  12.0  100.13
                     34.0    100.57  56.00  100.13  57.95  100.00  58.00 100.67
                     68.00   100.87
COMPUTE TRAVEL TIME ID=12  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=1050 FT  SLOPE=0.0030
ROUTE                ID=12  HYDROGRAPH NO=210.71 INFLOW ID=2  DT=0.0
PRINT HYD            ID=12  CODE=1
** COMPUTE HYDROGRAPH FOR BLUEWATER RD. FROM 1050 LF WEST OF AIRPORT TO THE
** WEST INTERSECTION WITH AIRPORT ROAD
COMPUTE NM HYD       ID=3  HYD=210.8  DA=-0.0028
                     %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=3 CODE=1
** ADD THE ROUTED FLOW FROM THE BLUEWATER RD.TO THE FLOW FROM THE EASTERN
** SEGMENT OF BLUEWATER AT THE INTERSECTION OF AIRPORT AND  BLUEWATER
ADD HYD              ID=12  HYDROGRAPH NO=210.81  ID I=3  ID II=12
PRINT HYD            ID=12  CODE=1
** COMPUTE HYDROGRAPH FOR BLUEWATER RD. FROM THE INTERSECTION WITH AIRPORT
** ROAD TO THE GRADE BREAK EAST OF THE INTERSECTION WITH AIRPORT DRIVE
COMPUTE NM HYD       ID=2  HYD=210.9  DA=-0.0017
                     %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** ADD THE FLOW FROM THE FAR EAST SEGMENT OF BLUEWATER RD TO THE BLUEWATER
** FLOW FROM THE WEST AT THE INTERSECTION OF AIRPORT AND  BLUEWATER
ADD HYD              ID=12  HYDROGRAPH NO=210.91  ID I=12  ID II=2
PRINT HYD            ID=12  CODE=1
** ADD THE FLOW FROM  BLUEWATER RD TO THE FLOW IN THE STREET AT THE
** INTERSECTION OF AIRPORT ROAD AND  BLUEWATER ROAD
ADD HYD              ID=11  HYDROGRAPH NO=210.92 ID I=12  ID II=11
PRINT HYD            ID=11  CODE=1
** ADD THE TOTAL FLOW IN THE STREET TO THE STORM DRAIN FLOW AT THE INTERSECTION
** OF BLUEWATER ROAD AND AIRPORT ROAD
ADD HYD              ID=10  HYDROGRAPH NO=210.93  ID I=11  ID II=10
PRINT HYD            ID=10  CODE=1
** COMPUTE A HYDROGRAPH FOR LOT 2, TRACT "A", A.B.P.
** AREA = 7.5 ACRES
COMPUTE NM HYD       ID=2  HYD=211.10  DA=-0.0117
                     %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.13333
```

```
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ROUTE FLOW FROM LOT 2, TRACT "A", A.B.P. THRU A POND TO CONTROL THE
** DISCHARGE TO A MAX. OF 0.1 CFS PER ACRE. ALLOWABLE RELEASE RATE
** = .75 CFS
ROUTE RESERVOIR     ID=3  HYDROGRAPH NO=211.11  INFLOW ID=2  CODE=20
                    OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0              0              100.0
                          0.42          0.28            101.0
                          0.60          0.64            102.0
                          0.75          0.98            103.0
                          1.00          1.50            104.0
PRINT HYD           ID=3    CODE=1
** ADD THE CONTROLLED FLOW FROM LOT 2, TRACT "A", A.B.P. TO THE TOTAL FLOW IN
** THE STORM DRAIN AT THE INTERSECTION OF BLUEWATER RD.AND AIRPORT RD.
ADD HYD             ID=11  HYDROGRAPH NO=211.12  ID I=3  ID II=10
PRINT HYD           ID=11  CODE=1
** ROUTE FLOW IN A STORM DRAIN FROM THE INTERSECTION OF BLUEWATER AND AIRPORT
** DOWN AIRPORT RD. TO THE SOUTH LINE OF ATRISCO BUSINESS PARK
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0027
                    PIPE DIA=4.0  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=1850 FT  SLOPE=0.0027
ROUTE               ID=10  HYDROGRAPH NO=211.13  INFLOW ID=11  DT=0.0
PRINT HYD           ID=10  CODE=1
*****************************************************************************
*S BEGIN THE AREA SOUTH OF BLUEWATER ROAD
*****************************************************************************
** COMPUTE HYDROGRAPH FOR AIRPORT ROAD SOUTH OF BLUEWATER TO THE SOUTH LINE OF
** THE ATRISCO BUSINESS PARK
COMPUTE NM HYD      ID=2  HYD=220.1 DA=-0.0035
                    %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** COMPUTE HYDROGRAPH FOR TRACT B, UNIT 2, A.B.P. AREA = 20.0 ACRES
COMPUTE NM HYD      ID=3  HYD=220.2  DA=-0.0313
                    %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=3 CODE=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A DISCHARGE OF .1 CFS PER ACRE
** ALLOWABLE RELEASE RATE=2.0cfs
ROUTE RESERVOIR     ID=4  HYDROGRAPH NO=220.21  INFLOW ID=3  CODE=20
                    OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0              0              100.0
                          1.12          0.80            101.0
                          1.68          1.70            102.0
                          2.04          2.60            103.0
                          4.00          3.50            104.0
PRINT HYD           ID=4  CODE=1
** ROUTE FLOW IN A STORM DRAIN FROM THE TRACT "B", UNIT 2 POND TO THE AIRPORT
** ROAD STORM DRAIN
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.007
                    PIPE DIA=1.5  N=0.013
COMPUTE TRAVEL TIME ID=5  REACH=1  NUMBER OF VALLEY SECTIONS=1
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                    LENGTH=1100 FT  SLOPE=0.007
ROUTE               ID=5  HYDROGRAPH NO=220.22  INFLOW ID=4  DT=0.0
PRINT HYD           ID=5  CODE=1
** ADD THE ROUTED FLOW FROM PARCEL "B", UNIT 2 TO THE FLOW FROM AIRPORT ROAD
ADD HYD             ID=3  HYDROGRAPH NO=220.23  ID I=2 ID= II=5
PRINT HYD           ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR PARCEL "C", UNIT 2, A.B.P. AREA = 28.6 ACRES
COMPUTE NM HYD      ID=2  HYD=220.3   DA=-0.0447
                    %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A DISCHARGE OF .1 CFS PER ACRE
** ALLOWABLE RELEASE RATE=2.86 cfs
ROUTE RESERVOIR     ID=4  HYDROGRAPH NO=220.31  INFLOW ID=2  CODE=20
                    OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0              0              100.0
                          1.60           1.20           101.0
                          2.40           2.40           102.0
                          2.90           3.70           103.0
                          3.50           5.00           104.0
PRINT HYD           ID=4  CODE=1
** ADD THE CONTROLLED FLOW FROM TRACT "C", UNIT 2 TO THE TOTAL FLOW IN AIRPORT
** ROAD AT THE SOUTH LINE OF THE ATRISCO BUSINESS PARK
ADD HYD             ID=2  HYDROGRAPH NO=220.32  ID I=3 ID= II=4
PRINT HYD           ID=2  CODE=1
** COMPUTE HYDROGRAPH FOR FUTURE STREETS IN PARCEL "C"
COMPUTE NM HYD      ID=4  HYD=220.40  DA=-0.0018
                    %A=0.0  %B=23.0  %C=0.0  %D=77.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=4 CODE=1
** ADD THE FLOW FROM FUTURE STREETS IN PARCEL "C" TO THE TOTAL FLOW IN AIRPORT
** ROAD AT THE SOUTH LINE OF THE ATRISCO BUSINESS PARK
ADD HYD             ID=1  HYDROGRAPH NO=220.41  ID I=2 ID= II=4
PRINT HYD           ID=1  CODE=1
** COMPUTE HYDROGRAPH FOR TRACT "B", UNIT 1, A.B.P. AREA = 20.0 ACRES
COMPUTE NM HYD      ID=3  HYD=220.50   DA=-0.0313
                    %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=3 CODE=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A DISCHARGE OF .1 CFS PER ACRE
** ALLOWABLE RELEASE RATE=2.00 cfs
ROUTE RESERVOIR     ID=4  HYDROGRAPH NO=220.51  INFLOW ID=3  CODE=20
                    OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0              0              100.0
                          1.12          0.80            101.0
                          1.68          1.70            102.0
                          2.04          2.60            103.0
                          4.00          3.50            104.0
PRINT HYD           ID=4  CODE=1
** ADD THE CONTROLLED FLOW FROM TRACT "B", UNIT 1 TO THE TOTAL FLOW IN AIRPORT
** ROAD AT THE SOUTH LINE OF THE ATRISCO BUSINESS PARK
ADD HYD             ID=3  HYDROGRAPH NO=220.52  ID I=4 ID= II=1
PRINT HYD           ID=3  CODE=1
** ADD THE ROUTED FLOW FROM THE NORTH IN THE AIRPORT ROAD STORM DRAIN TO THE
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** TOTAL FLOW IN AIRPORT ROAD AT THE SOUTH LINE OF THE ATRISCO BUSINESS PARK
ADD HYD              ID=2  HYDROGRAPH NO=220.53  ID I=10 ID= II=3
PRINT HYD            ID=2  CODE=1
** ROUTE FLOW IN A STORM DRAIN FROM THE SOUTH LINE OF THE BUSINESS PARK
** TO AIRPORT RD STORM DRAIN STA 28+80 THE JUNCTION WITH FLOW FROM THE
** WEST 66 ADDITION
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0040
                     PIPE DIA=4.0  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=250 FT  SLOPE=0.0037
ROUTE                ID=10  HYDROGRAPH NO=220.54  INFLOW ID=2  DT=0.0
PRINT HYD            ID=10  CODE=1
*****************************************************************************
*S BEGIN THE AREA SOUTH OF THE ATRISCO BUSINESS PARK
*****************************************************************************
** COMPUTE HYDROGRAPH FOR THE WEST 66 ADDITION  AREA = 12.7 ACRES
COMPUTE NM HYD       ID=2  HYD=220.6  DA=-0.0198
                     %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A DISCHARGE OF .1 CFS PER ACRE
** ALLOWABLE RELEASE RATE=1.27 cfs
ROUTE RESERVOIR      ID=3  HYDROGRAPH NO=220.61  INFLOW ID=2  CODE=20
                     OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0              0              100.0
                          0.70           0.52           101.0
                          1.06           1.04           102.0
                          1.29           1.65           103.0
                          2.00           2.55           104.0
PRINT HYD            ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR AIRPORT ROAD SOUTH OF THE SOUTH LINE OF
** THE ATRISCO BUSINESS PARK TO CENTRAL AVE.
COMPUTE NM HYD       ID=4  HYD=220.7 DA=-0.0027
                     %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=4 CODE=1
** ADD CONTROLED DISCHARGE FROM POND TO FLOW FROM AIRPORT ROAD
ADD HYD              ID=5  HYDROGRAPH NO=220.71  ID I=4  ID II=3
PRINT HYD            ID=5  CODE=1
** ADD FLOWS TO THE AIRPORT ROAD STORM DRAIN AT STA 28+80
ADD HYD              ID=2  HYDROGRAPH NO=220.72  ID I=10 ID II=5
PRINT HYD            ID=2  CODE=1
** ROUTE FLOW DOWN AIRPORT ROAD STORM DRAIN FROM STA 28+80 TO STA 9+85
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0037
                     PIPE DIA=4.0  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=1895 FT  SLOPE=0.0037
ROUTE                ID=10  HYDROGRAPH NO=220.73  INFLOW ID=2  DT=0.0
PRINT HYD            ID=10  CODE=1
*****************************************************************************
*S BEGIN AREA SOUTH OF CENTRAL BOULEVARD
*****************************************************************************
** COMPUTE HYDROGRAPH FOR LOT 59, UNIT 6, TOWN OF ATRISCO GRANT
COMPUTE NM HYD       ID=2  HYD=230.1 DA=-0.0018
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                    %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A MAX. DISCHARGE OF 3.80 CFS
ROUTE RESERVOIR     ID=20 HYDROGRAPH NO=230.11 INFLOW ID=2  CODE=20
                    OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0             0              100.0
                          2.20          0.005           101.0
                          3.11          0.012           102.0
                          3.80          0.02           103.0
                          5.00          1.00           104.0
PRINT HYD           ID=20  CODE=1
** ROUTE THE FLOW FROM LOT 59, UNIT 6 DOWN AIRPORT ROAD
** USE AVERAGE STREET SLOPE
COMPUTE RATING CURVECID=1  VS NO=1  NUMBER OF SEGS=3
                    MINIMUM ELEV=100.00  MAXIMUM ELEV=100.87
                    CHANNEL SLOPE=0.0097 FLOOD PLAIN SLOPE=0.0097
                    N=0.025  DIST=10.0  N=-0.017  DIST=58.0  N=0.025  DIST=68.0
                    DIST    ELEV   DIST    ELEV    DIST   ELEV    DIST   ELEV
                    0.0     100.87  10.00  100.67  10.05  100.00  12.0  100.13
                    34.0    100.57  56.00  100.13  57.95  100.00  58.00 100.67
                    68.00   100.87
COMPUTE TRAVEL TIME ID=3 REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=550 FT  SLOPE=0.0097
ROUTE               ID=3  HYDROGRAPH NO=230.12  INFLOW ID=20  DT=0.0
PRINT HYD           ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR TRACT "B", TOWN OF ATRISCO GRANT
COMPUTE NM HYD      ID=2  HYD=230.2  DA=-0.0052
                    %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A PEAK DISCHARGE OF 10.93 CFS
ROUTE RESERVOIR     ID=20  HYDROGRAPH NO=230.21 INFLOW ID=2  CODE=20
                    OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0             0              100.0
                          6.34          0.01           101.0
                          8.96          0.024           102.0
                         10.93          0.04           103.0
                         15.00          1.50           104.0
PRINT HYD           ID=20  CODE=1
** ADD THE FLOW FROM TRACT "B", TOWN OF ATRISCO GRANT TO THE  ROUTED FLOW
** IN THE STREET
ADD HYD             ID=4  HYDROGRAPH NO=230.22 ID I=20 ID II=3
PRINT HYD           ID=4  CODE=1
** ROUTE THE COMBINED FLOW IN THE STREET DOWN AIRPORT ROAD TO THE INLET AT THE
** END OF AIRPORT ROAD
COMPUTE RATING CURVECID=1  VS NO=1  NUMBER OF SEGS=3
                    MINIMUM ELEV=100.00  MAXIMUM ELEV=100.87
                    CHANNEL SLOPE=0.014 FLOOD PLAIN SLOPE=0.014
                    N=0.025  DIST=10.0  N=-0.017  DIST=58.0  N=0.025  DIST=68.0
                    DIST    ELEV   DIST    ELEV    DIST   ELEV    DIST   ELEV
                    0.0     100.87  10.00  100.67  10.05  100.00  12.0  100.13
                    34.0    100.57  56.00  100.13  57.95  100.00  58.00 100.67
                    68.00   100.87
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COMPUTE TRAVEL TIME ID=11 REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=100 FT  SLOPE=0.0097
ROUTE               ID=11  HYDROGRAPH NO=230.23 INFLOW ID=4  DT=0.0
PRINT HYD           ID=11  CODE=1
** COMPUTE HYDROGRAPH FOR AIRPORT ROAD SOUTH OF CENTRAL TO THE SOUTH END OF
** AIRPORT ROAD
COMPUTE NM HYD      ID=2  HYD=230.30  DA=-0.0024
                    %A=0.0  %B=15.0  %C=0.0  %D=85.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ADD AIRPORT DRIVE FLOWS TO THE ROUTED FLOWS IN AIRPORT DRIVE
ADD HYD             ID=3  HYDROGRAPH NO=230.31  ID I=2 ID II=11
PRINT HYD           ID=3  CODE=1
** ADD THE FLOW IN THE STREET TO THE ROUTED FLOW IN THE STORM DRAIN AT
** THE SOUTH END OF AIRPORT ROAD
ADD HYD             ID=1  HYDROGRAPH NO=230.32  ID I=10  ID II=3
PRINT HYD           ID=1  CODE=1
** ROUTE FLOW DOWN AIRPORT ROAD STORM DRAIN FROM STA 9+85 TO M.H ON
** COORS STORM DRAIN AT STA 82+30
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.01
                    PIPE DIA=4.0  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=130 FT  SLOPE=0.01
ROUTE               ID=10  HYDROGRAPH NO=230.33  INFLOW ID=1  DT=0.050
PRINT HYD           ID=10  CODE=1
*****************************************************************************
*S END OF AIRPORT ROAD STORM DRAIN
*S BEGIN COORS CONNECTION STORM DRAIN
*****************************************************************************
** COMPUTE HYDOGRAPH FOR THE AREA S.& W. OF THE INTERSECTION OF COORS BLVD.
** AND CENTRAL BOULEVARD. ASSUME ALL FLOW IS ROUTED TO THE SOUTH TO COORS
COMPUTE NM HYD      ID=2  HYD=230.5  DA=0.0066
                    %A=0.0  %B=10.0  %C=10.0  %80.0          TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A PEAK DISCHARGE OF 6.49 CFS
ROUTE RESERVOIR     ID=20  HYDROGRAPH NO=530.51 INFLOW ID=2  CODE=20
                    OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                         0              0              100.0
                         3.75           0.06           101.0
                         5.32           0.13           102.0
                         6.49           0.22           103.0
                        15.00           1.50           104.0
PRINT HYD           ID=20  CODE=1
** ROUTE FLOW IN COORS STORM DRAIN FROM STA 91+38 TO STA 89+00
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0059
                    PIPE DIA=2.0  N=0.013
COMPUTE TRAVEL TIME ID=4  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=330 FT  SLOPE=0.0059
ROUTE               ID=4  HYDROGRAPH NO=230.52  INFLOW ID=20  DT=0.0
PRINT HYD           ID=4  CODE=1
** COMPUTE HYDROGRAPH FOR THE SOUTH HALF OF CENTRAL AVE R.W. BETWEEN AIRPORT
** AND COORS
COMPUTE NM HYD      ID=2  HYD=230.6   DA=0.0023
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                    %A=0.0  %B=0.0  %C=10.00  %D=90.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ROUTE FLOW DOWN THE WEST SIDE OF COORS BLVD.
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=99.31 FT  MAXIMUM ELEV=100.62 FT
                    CHANNEL SLOPE=0.005 FLOOD PLAIN SLOPE=0.005
                    N=0.017  DIST=34
                    DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                      0   100.0    1     99.98  1.01   99.31  34.0   100.67
                    34.01  101.17
COMPUTE TRAVEL TIME ID=3  REACH NO=1  VALLEY SECTIONS=1
                    LENGTH=1000  SLOPE=0.005
ROUTE               ID=3  HYDROGRAPH NO=230.61  INFLOW ID=2  DT=0.0
PRINT HYD           ID=3  CODE=1
** COMPUTE HYDOGRAPH FOR COORS BLVD R.W. FROM CENTRAL TO STA 89+20 COORS
COMPUTE NM HYD      ID=2  HYD=230.7 DA=0.0058
                    %A=0.0  %B=15.0  %C=0.0  %D=85.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ADD  FLOW FROM COORS TO THE ROUTED FLOW AT COORS STA. 89+20
ADD HYD             ID=1  HYDROGRAPH NO=230.71  ID I=3  ID II=2
PRINT HYD           ID=1  CODE=1
** ADD THE FLOW IN COORS BOULEVARD TO THE ROUTED FLOW IN THE STORM DRAIN
** AT STA 89+00
ADD HYD             ID=5  HYDROGRAPH NO=230.72  ID I=4  ID II=1
PRINT HYD           ID=5  CODE=1
** ROUTE FLOW IN COORS STORM DRAIN FROM STA 89+00 TO STA 85+70
** USE FRICTION SLOPE
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0111
                    PIPE DIA=2.5  N=0.013
COMPUTE TRAVEL TIME ID=4  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=330 FT  SLOPE=0.0111
ROUTE               ID=4  HYDROGRAPH NO=230.73  INFLOW ID=5  DT=0.0
PRINT HYD           ID=4  CODE=1
** COMPUTE HYDOGRAPH FOR AREA 230.8. ASSUME ALL FLOW FROM THIS AREA WILL BE
** ROUTED TO THE SOUTH TO COORS
COMPUTE NM HYD      ID=2  HYD=230.8  DA=0.0112
                    %A=0.0  %B=10.0  %C=10.0  %D80.0          TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A PEAK DISCHARGE OF 15.84 CFS
ROUTE RESERVOIR     ID=20  HYDROGRAPH NO=230.81 INFLOW ID=2  CODE=20
                    OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                         0              0              100.0
                         9.18           0.06           101.0
                        12.99           0.15           102.0
                        15.84           0.25           103.0
                        25.00           2.00           104.0
PRINT HYD           ID=20  CODE=1
** ADD BASIN 230.8  FLOW TO THE ROUTED FLOW IN COORS BOULEVARD STORM DRAIN
** AT THE MANHOLE AT STA. 85+70
ADD HYD             ID=5  HYDROGRAPH NO=230.82  ID I=20  ID II=4
PRINT HYD           ID=5  CODE=1
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** ROUTE FLOW IN COORS STORM DRAIN FROM STA 85+70 TO STA 82+33
** PRESUURE FLOW USE FRICTION SLOPE
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0111
                     PIPE DIA=2.5  N=0.013
COMPUTE TRAVEL TIME ID=2  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=337 FT  SLOPE=0.0111
ROUTE                ID=2  HYDROGRAPH NO=230.83  INFLOW ID=5  DT=0.0
PRINT HYD            ID=2  CODE=1
** ADD FLOW FROM AIRPORT STORM DRAIN TO COORS STORM DRAIN AT STA 82+33
ADD HYD              ID=11  HYDROGRAPH NO=230.84  ID I=2  ID II=10
PRINT HYD            ID=11  CODE=1
** ROUTE FLOW IN COORS STORM DRAIN FROM STA 82+33 TO STA 79+32
** NOTE THE EXISTING PIPE IS A 24" RCP PIPE. UPGRADE TO 48"
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0550
                     PIPE DIA=4.0  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=301 FT  SLOPE=0.0550
ROUTE                ID=10  HYDROGRAPH NO=230.85 INFLOW ID=11  DT=0.0
PRINT HYD            ID=10  CODE=1
** ROUTE FLOW IN COORS STORM DRAIN FROM STA 79+32 TO STA 75+80
** NOTE THE EXISTING PIPE IS A 30" DIA RCP PIPE . UPGRADE TO 48"
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.03
                     PIPE DIA=4.0  N=0.013
COMPUTE TRAVEL TIME ID=11  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=352 FT  SLOPE=0.066
ROUTE                ID=11  HYDROGRAPH NO=230.86  INFLOW ID=10  DT=0.0
PRINT HYD            ID=11  CODE=1
*****************************************************************************
*S BEGIN THE AREA NORTH OF CENTRAL AVENUE BETWEEN UNSER AND THE WEST 66
*S ADDITION
*****************************************************************************
** COMPUTE HYDROGRAPH FOR AREA 240.1
COMPUTE NM HYD       ID=2  HYD=240.1  DA=0.0333
                     %A=0.0  %B=15.0  %C=10.0  %D=75.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=2   CODE=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A PEAK DISCHARGE OF 58.74CFS
ROUTE RESERVOIR      ID=20  HYDROGRAPH NO=240.11  INFLOW ID=2  CODE=20
                     OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0              0              100.0
                         34.00          0.10            101.0
                         48.20          0.24            102.0
                         58.74          0.40            103.0
                         75.00          4.00            104.0
PRINT HYD            ID=20  CODE=1
** ROUTE FLOW DOWN SWALE NORTH OF CENTRAL AVE
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=102 FT
                     CHANNEL SLOPE=0.0025 FLOOD PLAIN SLOPE=0.0025
                     N=0.025  DIST=22
                     DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                       0   102.0    1     101.9  11.0   100.0  15.0  100.1
                      25   101.9   26     102.0
COMPUTE TRAVEL TIME ID=3  REACH NO=1  VALLEY SECTIONS=1
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                    LENGTH=320  SLOPE=0.0025
ROUTE               ID=3  HYDROGRAPH NO=240.12 INFLOW ID=20  DT=0.0
PRINT HYD           ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 240.2
COMPUTE NM HYD      ID=4  HYD=240.2  DA=0.0125
                    %A=0.0  %B=9.0  %C=20.0  %D=71.0  TP=0.19
                    MASS RAINFALL=-1
PRINT HYD           ID=4   CODE=1
** ADD  FLOW FROM AREA 240.2 TO ROUTED FLOW IN SWALE NORTH OF CENTRAL
ADD HYD             ID=5  HYDROGRAPH NO=240.21  ID I=4  ID II=3
PRINT HYD           ID=5  CODE=1
** ROUTE FLOW DOWN SWALE NORTH OF CENTRAL AVE TO CULVERTS CROSSING CENTRAL
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=102 FT
                    CHANNEL SLOPE=0.0025 FLOOD PLAIN SLOPE=0.0025
                    N=0.025  DIST=22
                    DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                      0   102.0    1     101.9  11.0   100.0  15.0  100.1
                     25   101.9   26     102.0
COMPUTE TRAVEL TIME ID=15  REACH NO=1  VALLEY SECTIONS=1
                    LENGTH=300  SLOPE=0.0025
ROUTE               ID=15  HYDROGRAPH NO=240.22 INFLOW ID=5  DT=0.0
PRINT HYD           ID=15  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 240.3
COMPUTE NM HYD      ID=3  HYD=240.3   DA=0.0080
                    %A=0.0  %B=10.0  %C=10.00  %D=80.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=3   CODE=1
** ROUTE FLOW THRU AN  ASSUMED POND WITH A PEAK DISCHARGE OF 12.85 CFS
ROUTE RESERVOIR     ID=20  HYDROGRAPH NO=240.31  INFLOW ID=3  CODE=20
                    OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                         0              0              100.0
                         7.45           0.04           101.0
                        10.54           0.10           102.0
                        12.85           0.16           103.0
                        20.00           1.50           104.0
PRINT HYD           ID=20  CODE=1
** ROUTE FLOW DOWN SWALE NORTH OF CENTRAL AVE
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=102 FT
                    CHANNEL SLOPE=0.0025 FLOOD PLAIN SLOPE=0.0025
                    N=0.025  DIST=22
                    DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                      0   102.0    1     101.9  11.0   100.0  21.0  101.9
                    22.0  102.0
COMPUTE TRAVEL TIME ID=4  REACH NO=1  VALLEY SECTIONS=1
                    LENGTH=350  SLOPE=0.0025
ROUTE               ID=4  HYDROGRAPH NO=240.32  INFLOW ID=20  DT=0.0
PRINT HYD           ID=4  CODE=1
** ADD  ROUTED FLOW IN THE SWALE FROM THE EAST TO ROUTED FLOW FROM THE WEST AT
** ENTRANCE TO THE 3 - 36" DIA CULVERTS
ADD HYD             ID=16  HYDROGRAPH NO=240.33 ID I=4  ID II=15
PRINT HYD           ID=16  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 240.4
```

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COMPUTE NM HYD       ID=2  HYD=240.4   DA=0.0231
                     %A=0.0  %B=5.0  %C=35.00  %D=60.0  TP=0.21
                     MASS RAINFALL=-1
PRINT HYD            ID=2  CODE=1
** ROUTE FLOW THROUGH THE EXISTING RETENTION POND ON THE CHURCH PROPERTY.
** POND VOLUME TAKEN FROM DRAINAGE PLAN FOR CHURCH SITE. ASSUME FREE DISCHARGE
** OF FLOW FROM POND AFTER POND STAGE REACHES ELEV. 5088
ROUTE RESERVOIR      ID=3  HYDROGRAPH NO=240.41  INFLOW ID=2  CODE=5
                     OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0              0              5083.0
                          0.01          1.19            5088.0
                        100.00          1.191           5088.01
                        100.01          1.192           5089.0
PRINT HYD            ID=3  CODE=1
** ADD  ROUTED FLOW IN THE SWALE TO FLOW FROM AREA 240.4
ADD HYD              ID=15  HYDROGRAPH NO=240.42  ID I=3  ID II=16
PRINT HYD            ID=15  CODE=1
** COMPUTE HYDROGRAPH FOR THE NORTH SIDE OF CENTRAL AVE BETWEEN UNSER & AIRPORT
COMPUTE NM HYD       ID=4  HYD=240.5  DA=0.0093
                     %A=0.0  %B=0.0  %C=10.0  %D=90.0  TP=0.14
                     MASS RAINFALL=-1
PRINT HYD            ID=4  code=1
** ADD FLOW FROM THE NORTH SIDE OF CENTRAL AVE. TO FLOW IN SWALE AT THE NORTH
** SIDE OF CENTRAL AVE. THIS IS THE TOTAL FLOW AT THE ENTRANCE TO THE 3 - 36"
** CULVERTS WHICH CROSS CENTRAL
ADD HYD              ID=16  HYDROGRAPH NO=240.51 ID I=4  ID II=15
PRINT HYD            ID=16  CODE=1
** ROUTE FLOW THROUGH THE SWALE AND THE VOLUME OF THE RETENTION POND AND
** PARKING AREA WHICH IS LOCATED ABOVE ELEVATION 5088 . ASSUME FLOW FROM THIS
** AREA IS CONTROLED BY THE ENTRANCE OF THE 3 - 36" CULVERTS
ROUTE RESERVOIR      ID=15  HYDROGRAPH NO=240.52  INFLOW ID=16 CODE=5
                     OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0              0              5085.9
                         21            0.046           5087.0
                         60            0.127           5088.0
                        105            0.647           5089.0
                        150            1.437           5090.0
PRINT HYD            ID=15  CODE=1
** ROUTE FLOW FROM THE NORTH SIDE OF CENTRAL THROUGH 3 EXISTING 36" CULVERTS TO
** THE SOUTH SIDE OF CENTRAL.  SLOPE UNKNOWN ASSUME 0.005. USE 1 54" PIPE AS
** EQUIVILANT CONVEYANCE.
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.005
                     PIPE DIA=4.5  N=0.013
COMPUTE TRAVEL TIME ID=5  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=140 FT  SLOPE=0.005
ROUTE                ID=5  HYDROGRAPH NO=240.53  INFLOW ID=15  DT=0.0
PRINT HYD            ID=5  CODE=1
** COMPUTE HYDROGRAPH FOR THE SOUTH SIDE OF CENTRAL AVE BETWEEN UNSER & AIRPORT
COMPUTE NM HYD       ID=2  HYD=240.6  DA=0.0065
                     %A=0.0  %B=0.0  %C=10.0  %D=90.0  TP=0.14
                     MASS RAINFALL=-1
PRINT HYD            ID=2  code=1
*****************************************************************************
*S BEGIN AREA SOUTH OF CENTRAL AVENUE BETWEEN UNSER AND AIRPORT
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** ASSUME A CHANNEL WILL BE CONSTRUCTED BETWEEN THE CULVERTS AT CENTRAL AVE
** AND THE COORS CONNECTION STORM DRAIN
*****************************************************************************
** ADD FLOW FROM THE SOUTH SIDE OF CENTRAL TO THE ROUTED FLOW FROM THE NORTH
** SIDE OF CENTRAL
ADD HYD              ID=3  HYDROGRAPH NO=240.61  ID I=2  ID II=5
PRINT HYD            ID=3  CODE=1
** ROUTE FLOW DOWN AN ASSUMED CHANNEL FROM THE SOUTH SIDE OF CENTRAL
** TO THE SOUTH EAST CORNER OF AREA 250.1
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=100.0  MAXIMUM ELEV=106.0
                     CHANNEL SLOPE=0.0070  FLOOD PLAIN SLOPE=0.0070
                     N=0.013  DIST=50.0
                     DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                       0   106.2    2.0   106.0  20.0   100.0  30.0   100.01
                     48.0  106.0   50.0   106.2
COMPUTE TRAVEL TIME ID=4  REACH NO=1  VALLEY SECTIONS=1
                     LENGTH=700  SLOPE=0.0070
ROUTE                ID=4  HYDROGRAPH NO=240.62  INFLOW ID=3  DT=0.0
PRINT HYD            ID=4  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 250.1
COMPUTE NM HYD       ID=2  HYD=250.1   DA=0.0247
                     %A=0.0  %B=10.0  %C=10.0  %D=80.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=2  code=1
** ADD FLOW FROM AREA 250.1 TO FLOW IN THE ASSUMED CHANNEL AT THE SOUTH EAST
** CORNER OF AREA 250.1
ADD HYD              ID=3  HYDROGRAPH NO=250.11  ID I=4  ID II=2
PRINT HYD            ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 250.2
COMPUTE NM HYD       ID=2  HYD=250.2  DA=0.0079
                     %A=0.0  %B=20.0  %C=45.0  %D=35.0  TP=0.15
                     MASS RAINFALL=-1
PRINT HYD            ID=2  code=1
** ADD FLOW FROM AREA 250.2 TO FLOW IN THE ASSUMED CHANNEL AT SOUTH EAST
** CORNER OF AREA 250.1
ADD HYD              ID=4  HYDROGRAPH NO=250.21 ID I=3  ID II=2
PRINT HYD            ID=4  CODE=1
** ROUTE FLOW DOWN ASSUMED CHANNEL FROM THE SOUTH EAST CORNER OF
** OF AREA 250.1 TO THE SOUTH LINE OF AREA 260.1
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=100.0  MAXIMUM ELEV=106.0
                     CHANNEL SLOPE=0.0070  FLOOD PLAIN SLOPE=0.0070
                     N=0.013  DIST=50.0
                     DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                       0   106.2    2.0   106.0  20.0   100.0  30.0   100.01
                     48.0  106.0   50.0   106.2
COMPUTE TRAVEL TIME ID=3  REACH NO=1  VALLEY SECTIONS=1
                     LENGTH=350  SLOPE=0.007
ROUTE                ID=3  HYDROGRAPH NO=250.22  INFLOW ID=4  DT=0.0
PRINT HYD            ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 260.1
COMPUTE NM HYD       ID=2  HYD=260.1  DA=0.0398
                     %A=0.0  %B=15.0  %C=10.0  %D=75.0  TP=0.1333
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                    MASS RAINFALL=-1
PRINT HYD           ID=2  code=1
** ADD FLOW FROM AREA 260.1 TO FLOW IN ASSUMED CHANNEL AT THE SOUTH LINE OF
** AREA 260.1
ADD HYD             ID=4  HYDROGRAPH NO=260.11 ID I=2  ID II=3
PRINT HYD           ID=4  CODE=1
** ROUTE FLOW DOWN ASSUMED CHANNEL FROM THE SOUTH LINE
** OF AREA 260.1 TO THE SOUTH EAST CORNER OF AREA 270.1
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100.0  MAXIMUM ELEV=106.0
                    CHANNEL SLOPE=0.0025  FLOOD PLAIN SLOPE=0.0025
                    N=0.013  DIST=50.0
                    DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                      0   106.2    2.0   106.0  20.0   100.0  30.0   100.01
                    48.0  106.0   50.0   106.2
COMPUTE TRAVEL TIME ID=2  REACH NO=1  VALLEY SECTIONS=1
                    LENGTH=800  SLOPE=0.025
ROUTE               ID=2  HYDROGRAPH NO=260.12  INFLOW ID=4  DT=0.0
PRINT HYD           ID=2  CODE=1
** COMPUTE HYDOGRAPH FOR AREA 270.1. ASSUME ALL FLOW FROM THIS AREA WILL BE
** ROUTED TO THE SOUTH TO COORS STORM DRAIN
COMPUTE NM HYD      ID=3  HYD=270.1  DA=0.0222
                    %A=0.0  %B=15.0  %C=10.0  %D=75.0          TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=3 CODE=1
** ADD BASIN 270.1 FLOW TO THE ROUTED FLOW IN THE ASSUMED CHANNEL FROM THE WEST
** AT THE SOUTHEAST CORNER OF BASIN 270.1
ADD HYD             ID=4  HYDROGRAPH NO=270.11  ID I=3  ID II=2
PRINT HYD           ID=4  CODE=1
** ROUTE THE TOTAL FLOW IN THE ASSUMED CHANNEL FROM THE WEST THRU AN
** ASSUMED DETENTION BASIN
ROUTE RESERVOIR     ID=20  HYDROGRAPH NO=270.12 INFLOW ID=4  CODE=20
                    OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0             0             100.0
                         87.0           1.40          101.0
                        116.0           3.00          102.0
                        145.0           5.00          103.0
                        200.0           6.50          104.0
PRINT HYD           ID=20  CODE=1
** ADD THE DETAINED FLOW FROM THE CHANNEL FROM THE WEST TO THE COORS STORM
** DRAIN AT STATION 75+79
ADD HYD             ID=10  HYDROGRAPH NO=270.13  ID I=20  ID II=11
PRINT HYD           ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 270.2 COORS BLVD R.W. STA 89+20 TO STA 76+15
COMPUTE NM HYD      ID=3  HYD=270.2  DA=0.0071
                    %A=0.0  %B=15.0  %C=0.0  %D=85.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=3  code=1
** ASSMUME HGL AT STREET LEVEL IN THE 100 YEAR STORM. MOST FLOW FROM AREA
** 270.2 BYPASSSES INLETS AND FLOWS IN STREET
** HYD 270.21 = FLOW TO THE COORS STORM DRAIN
** HYD 270.22 = FLOW TO REMAIN IN COORS
DIVIDE HYD          ID=3  Q=2.00   ID I=2  HYD I=270.21
                                  ID II=4 HYD II=270.22
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PRINT HYD            ID=2 CODE=1
PRINT HYD            ID=4  CODE=1
** ADD A PORTION OF THE AREA 270.3 FLOW TO THE STORM DRAIN AT THE MANHOLE  AT
** STA. 75+80
ADD HYD              ID=3  HYDROGRAPH NO=270.23 ID I=10 ID II=2
PRINT HYD            ID=3  CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 75+80
** TO COORS S.D. MANHOLE AT STA 71+29 PRESURE FLOW USE FRICTION SLOPE
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0303
                     PIPE DIA=4.5  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=450 FT  SLOPE=0.0303
ROUTE                ID=10  HYDROGRAPH NO=270.24  INFLOW ID=3  DT=0.0
PRINT HYD            ID=10  CODE=1
** ROUTE THE REMAINING FLOW FROM AREA 270.2  DOWN COORS BLVD FROM STA 75+80 TO
** STA 71+29
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=99.31 FT  MAXIMUM ELEV=101.17 FT
                     CHANNEL SLOPE=0.0215 FLOOD PLAIN SLOPE=0.0215
                     N=0.017  DIST=117.00
                     DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                       0   100.0    1     99.98  1.01   99.31  34.0   100.67
                     34.01  101.17  81.98 101.17 82.00 100.67  116.00 99.31
                     116.02  99.98  117.0  100.00
COMPUTE TRAVEL TIME ID=3  REACH NO=1  VALLEY SECTIONS=1
                     LENGTH=450  SLOPE=0.0215
ROUTE                ID=3  HYDROGRAPH NO=270.25  INFLOW ID=4  DT=0.0
PRINT HYD            ID=3  CODE=1
** ADD THE ROUTED FLOW IN THE STREET TO THE FLOW IN THE STORM DRAIN AT STA
** STA. 71+29
ADD HYD              ID=4  HYDROGRAPH NO=270.26 ID I=10 ID II=3
PRINT HYD            ID=4  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 280.1
COMPUTE NM HYD       ID=2  HYD=280.1  DA=0.0066
                     %A=0.0  %B=15.0  %C=10.0  %D=75.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=2  code=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A PEAK DISCHARGE OF 6.59 CFS
ROUTE RESERVOIR      ID=20  HYDROGRAPH NO=280.11  INFLOW ID=2  CODE=20
                     OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0              0              100.0
                          3.8           0.06           101.0
                          5.4           0.13           102.0
                          6.6           0.22           103.0
                         10.00          1.50           104.0
PRINT HYD            ID=20  CODE=1
** ADD FLOW FROM AREA 280.1 TO FLOW IN COORS S.D MANHOLE  AT STA. 71+29
ADD HYD              ID=3  HYDROGRAPH NO=280.12 ID I=4  ID II=20
PRINT HYD            ID=3  CODE=1
** COMPUTE HYD. FOR  AREA 280.2 COORS BLVD R.W. FROM STA 76+15 TO STA 71+70
COMPUTE NM HYD       ID=4  HYD=280.2  DA=0.0025
                     %A=0.0  %B=15.0  %C=0.0  %D=85.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=4  code=1
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** ADD FLOW FROM AREA 280.2 TO FLOW IN COORS S.D AT MANHOLE  AT STA. 71+29
ADD HYD              ID=5  HYDROGRAPH NO=280.21 ID I=3  ID II=4
PRINT HYD            ID=5  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 280.3 A PORTION OF AIRPORT DRIVE
COMPUTE NM HYD       ID=6  HYD=280.3  DA=0.0045
                     %A=20.0  %B=30.0  %C=0.0  %D=50.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=6  code=1
** ADD FLOW FROM AREA 280.3 TO FLOW IN COORS S.D AT MANHOLE  AT STA. 71+29
ADD HYD              ID=7  HYDROGRAPH NO=280.31 ID I=5  ID II=6
PRINT HYD            ID=7  CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 71+29
** TO COORS S.D. MANHOLE AT STA 66+79
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.010
                     PIPE DIA=6.0  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=450   SLOPE=0.010
ROUTE                ID=10  HYDROGRAPH NO=280.32  INFLOW ID=7  DT=0.0
PRINT HYD            ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 290.1
COMPUTE NM HYD       ID=2  HYD=290.1  DA=0.03144
                     %A=0.0  %B=35.00  %C=10.0  %D=55.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=2  code=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A PEAK DISCHARGE OF 28.8 CFS
ROUTE RESERVOIR      ID=20  HYDROGRAPH NO=290.11 INFLOW ID=2  CODE=20
                     OUTFLOW(cfs)  STORAGE(ac ft)     ELEV(ft)
                          0              0              100.0
                         16.7           0.22            101.0
                         23.6           0.50            102.0
                         28.8           0.88            103.0
                         35.0           4.00            104.0
PRINT HYD            ID=20  CODE=1
** ADD FLOW FROM AREA 290.1 TO FLOW IN COORS S.D MANHOLE  AT STA. 66+79
ADD HYD              ID=3  HYDROGRAPH NO=290.12 ID I=10  ID II=20
PRINT HYD            ID=3  CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 66+79
** TO COORS S.D. MANHOLE AT STA 62+29
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.075
                     PIPE DIA=6.0  N=0.013
COMPUTE TRAVEL TIME ID=4  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=450   SLOPE=0.075
ROUTE                ID=4  HYDROGRAPH NO=290.13 INFLOW ID=3  DT=0.0
PRINT HYD            ID=4  CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 62.29
** TO COORS S.D. MANHOLE AT STA 58+89
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0075
                     PIPE DIA=6.0  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=340   SLOPE=0.0075
ROUTE                ID=10  HYDROGRAPH NO=290.14  INFLOW ID=4  DT=0.
PRINT HYD            ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 290.2 COORS BLVD.RW FROM STA. 71+70 TO STA 59+40
COMPUTE NM HYD       ID=2  HYD=290.2  DA=0.0069
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                    %A=0.0  %B=15.0  %C=0.0  %D=85.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=2  code=1
** ADD FLOW FROM AREA 290.2 TO FLOW IN COORS S.D MANHOLE  AT STA. 58+89
ADD HYD             ID=3  HYDROGRAPH NO=290.21 ID I=10  ID II=2
PRINT HYD           ID=3  CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 58+89
** TO COORS S.D. MANHOLE AT STA 58+00
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0075
                    PIPE DIA=6.0  N=0.013
COMPUTE TRAVEL TIME ID=4  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=89  SLOPE=0.0075
ROUTE               ID=4  HYDROGRAPH NO=290.22  INFLOW ID=3  DT=0.050
PRINT HYD           ID=4  CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 58+00
** TO OUTLET AT POND AT STA 56+10 (170' LEFT)
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0075
                    PIPE DIA=6.0  N=0.013
COMPUTE TRAVEL TIME ID=5  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=248  SLOPE=0.0075
ROUTE               ID=5  HYDROGRAPH NO=290.23  INFLOW ID=4  DT=0.050
PRINT HYD           ID=5  CODE=1
FINISH
```

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*****************************************************************************
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** FILE NAME: TBSDI.HMI(TIERRA BAYITA STORM DRAIN (WATERSHED) INTERIM)
** CURRENT FILE UPDATED:  9-29-93
** ANALYSIS FOR ATRISCO BUSINESS PARK MASTER DRAINAGE PLAN
** UPPER WATERSHED OF THE FUTURE TIERRA BAYITA STORM DRAIN
** INCLUDES THE PROPOSED UNSER DIVERSION WATERSHED, THE UNSER STORM
** DRAIN WATERSHED AND TRACT A-1 OF ATRISCO BUSINESS PARK
** INTERIM CONDITION
** 24 HOUR STORM DT=0.05 HOURS IS THE BASE STORM FOR THE UNSER DIVERSION
** SYSTEM WATERSHED. ADDITIONAL VOLUME WAS ADDED TO HYDROGRAPHS WHERE
** APPROPRIATE TO SIMULATE THE 10 DAY STORM FOR POND ROUTING PURPOSES
** 24 HOUR STORM DT=0.03333 IS THE STORM USED IN THE UNSER BOULEVARD WATERSHED
** THE SHORTER TIME STEPS WERE USED TO ELIMINATE PROBLEMS IN SOME ROUTING
** ROUTINES USED IN THE MODEL. SOME OF THE DIVIDE HYD ROUTINES DID NOT PRODUCE
** ENOUGH TIME STEPS WITH FLOW TO SATISFY THE REQUIREMENTS OF THE ROUTING
** ROUTING ROUTINES WHEN THE LONGER TIME STEP WAS USED.
*****************************************************************************
*****************************************************************************
START                 0.0 HOURS ***** 24-HOUR STORM******
** 100 YEAR STORM
RAINFALL              TYPE=2  0.0  1.87  2.20  2.66    DT=0.0500
** 50 YEAR STORM
**RAINFALL            TYPE=2  0.0  1.70  1.98  2.39    DT=0.0500
** 25 YEAR STORM
**RAINFALL            TYPE=2  0.0  1.51  1.76  2.12    DT=0.0500
**  10 YEAR STORM
**RAINFALL            TYPE=2  0.0  1.25  1.47  1.77    DT=0.0500
**  5 YEAR STORM
**RAINFALL            TYPE=2  0.0  1.04  1.24  1.51    DT=0.0500
**  2 YEAR STORM
**RAINFALL            TYPE=2  0.0  0.74  0.95  1.15    DT=0.0500
*****************************************************************************
*S BEGIN UNSER DIVERSION WATERSHED
*****************************************************************************
** WATERSHED CONDITION)
** ANALYSIS OF THE UNSER DIVERSION SYSTEM IN THE INTERIN CONDITION IN WHICH THE
** WATERSHED IS IN THE EXISTING, MOSTLY UNDEVELOPED CONDITION
** 10 DAY STORM IS MODELED BY ADDING A HYDROGRAPH REPRESENTING THE ADDITIONAL
** VOLUME OF THE STORM WHICH OCCURS AFTER THE 24 HOUR BASE STORM
*****************************************************************************
*****************************************************************************
** ANALYSIS ASSUMPTIONS: OFFSITE WATERSHED IN EXISTING CONDITON
** THE UNSER DIVERSION IS ASSUMED TO HAVE NO OUTFALL IN THE INTERIM CONDITION
** AN OUTFALL IS PLANNED FOR THE SYSTEM BUT MAY NOT BE IN PLACE WHEN THE SYSTEM
** IS PUT INTO OPERATION THEREFORE THE SYSTEM IS DESIGNED TO RETAIN THE 100 YR.
** 10 DAY STORM.
*****************************************************************************
** BEGIN WATERSHED NORTH OF THE FUTURE PROPOSED INTERSTATE 40
** INTERCEPTOR CHANNEL
*****************************************************************************
** COMPUTE  HYDROGRAPH BASIN 120.1 ***********************************************
COMPUTE NM HYD        ID=1  HYDROGRAPH NO=120.1  DA=0.0259
                      %A=100.0  %B=0.0  %C=0.0  %D=0.0  TP=0.1333
                      MASS RAINFALL=-1
PRINT HYD             ID=1  CODE=1
```

```
** COMPUTE  HYDROGRAPH BASIN 120.2 ***********************************************
COMPUTE NM HYD        ID=2  HYDROGRAPH NO=120.2 DA=0.0545
                      %A=100.0  %B=0.0  %C=0.0  %D=0.0  TP=0.193
                      MASS RAINFALL=-1
PRINT HYD             ID=2  CODE=1
** ADD HYDROGRAPHS FOR BASIN 120.1 AND BASIN 120.2
ADD HYD               ID=3  HYDROGRAPH NO=120.21 ID I=1  ID II=2
PRINT HYD             ID=3  CODE=1
** ROUTE FLOW DOWN MIREHAVEN ARROYO "B" TO THE NORTH SIDE OF I-40
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                      MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=106.0 FT
                      CHANNEL SLOPE=0.0229  FLOOD PLAIN SLOPE=0.0256
                      N=0.035  DIST=47
                      DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                        0   106.0    20    105.0   30    100.0   40    100.0
                       45   105.0    47    106.0
COMPUTE TRAVEL TIME ID=4  REACH NO=1  VALLEY SECTIONS=1
                      LENGTH=1750 FT  SLOPE=0.0229
ROUTE                 ID=4  HYDROGRAPH NO=120.22 INFLOW ID=3  DT=0.0
PRINT HYD             ID=4  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 120.3 ***********************************************
COMPUTE NM HYD        ID=1  HYDROGRAPH NO=120.3  DA=0.0199
                      %A=100.0  %B=0.0  %C=0.0  %D=0.0  TP=0.1333
                      MASS RAINFALL=-1
PRINT HYD             ID=1  CODE=1
** ADD HYDROGRAPH FOR BASIN 120.3 TO ROUTED FLOW IN MIREHAVEN ARROYO "B" NORTH
** OF I-40
ADD HYD               ID=10  HYDROGRAPH NO=120.31 ID I=1  ID II=4
PRINT HYD             ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 130.1 ***********************************************
COMPUTE NM HYD        ID=3  HYDROGRAPH NO=130.1   DA=0.0743
                      %A=100.0  %B=0.0  %C=0.0  %D=0.0  TP=0.237
                      MASS RAINFALL=-1
PRINT HYD             ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 130.2 ***********************************************
COMPUTE NM HYD        ID=4  HYDROGRAPH NO=130.2  DA=0.0489
                      %A=100.0  %B=0.0  %C=0.0  %D=0.0  TP=0.1856
                      MASS RAINFALL=-1
PRINT HYD             ID=4  CODE=1
**COMPUTE HYDOGRAPH FOR BASIN 130.3 (SEGMENT OF NOLASCO STREET)****************
COMPUTE NM HYD        ID=5  HYDROGRAPH NO=130.3  DA=0.0047
                      %A=0.0  %B=0.0  %C=0.0  %D=100.0  TP=0.133333
                      MASS RAINFALL=-1
PRINT HYD             ID=5  CODE=1
** ADD BASINS 130.1 AND 130.2 HYDROGRAPHS*******************************************
ADD HYD               ID=6  HYDROGRAPH NO=130.21 ID I=4  ID II=3
PRINT HYD             ID=6  CODE=1
** ADD BASIN 130.3 HYDROGRAPH TO BASIN 130.1 AND 130.2 COMBINED HYDRGRAPH *****
ADD HYD               ID=1  HYDROGRAPH NO=130.31 ID I=5  ID II=6
PRINT HYD             ID=1  CODE=1
** ROUTE FLOW FROM BASINS 130.1,130.2 AND 130.3 DOWN MIREHAVEN ARROYO "C" TO
** THE NORTH SIDE OF I-40 ***********************************************************
COMPUTE RATING CURVE CID=2  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                      MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=106.0 FT
                      CHANNEL SLOPE=0.0310  FLOOD PLAIN SLOPE=0.0310
                      N=0.035  DIST=47
                      DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
```

```
                        0   106.0    20    105.0   30    100.0   40    100.0
                       45   105.0    47    106.0
COMPUTE TRAVEL TIME ID=11  REACH NO=2  VALLEY SECTIONS=1
                    LENGTH=1500 FT  SLOPE=0.0310
ROUTE               ID=11  HYDROGRAPH NO=130.32  INFLOW ID=1  DT=0.0
PRINT HYD           ID=11  CODE=1
**COMPUTE HYDROGRAPH FOR BASIN 130.4 ******************************************
COMPUTE NM HYD      ID=1  HYDROGRAPH NO=130.4  DA=0.0612
                    %A=100.0  %B=0.0  %C=0.0  %D=0.0  TP=0.1454
                    MASS RAINFALL=-1
PRINT HYD           ID=1  CODE=1
** ADD THE HYDOGRAPH FOR BASIN 130.4 TO MIREHAVEN ARROYO "C" NORTH OF I-40*****
ADD HYD             ID=12  HYDROGRAPH NO=130.41  ID I=1  ID II=11
PRINT HYD           ID=12  CODE=1
**COMPUTE HYDROGRAPH FOR BASIN 130.6 ******************************************
COMPUTE NM HYD      ID=11  HYDROGRAPH NO=130.6  DA=0.0710
                    %A=100.0  %B=0.0  %C=0.0  %D=0.0  TP=0.1902
                    MASS RAINFALL=-1
PRINT HYD           ID=11  CODE=1
*****************************************************************************
** BEGIN  WATERSHED SOUTH OF FUTURE PROPOSED INTERSTATE 40
** INTERCEPTOR CHANNEL
*****************************************************************************
**ROUTE THE FLOW FROM BASIN 130.6 THROUGH AN EXISTING 30" CULVERT UNDER I-40
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.015
                    PIPE DIA=30  N=0.013
COMPUTE TRAVEL TIME ID=15  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=237 FT  SLOPE=0.015
ROUTE               ID=15  HYDROGRAPH NO=130.61  INFLOW ID=11 DT=0.0
PRINT HYD           ID=15  CODE=1
** ROUTE FLOWS DOWN EXISTING INCISED TRAIL FROM THE SOUTH SIDE OF I-40 TO SOUTH
** SIDE OF BASIN 130.7*****************************************************
COMPUTE RATING CURVE CID=4  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100 FT  MAXIMUM ELEV=101.5 FT
                    CHANNEL SLOPE=0.025  FLOOD PLAIN SLOPE=0.025
                    N=0.035  DIST=16
                    DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                      0   101.5     4    100.0   12    100.0   16    101.5
COMPUTE TRAVEL TIME ID=11  REACH NO=2  VALLEY SECTIONS=1
                    LENGTH=550 FT  SLOPE=0.025
ROUTE               ID=11 HYDROGRAPH NO=130.62 INFLOW ID=15 DT=0.0
PRINT HYD           ID=11  CODE=1
** ROUTE FLOWS FROM BASIN 130.4 AND ABOVE THROUGH  BOX CULVERT UNDER I-40******
COMPUTE RATING CURVE CID=3  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100 FT  MAXIMUM ELEV=112 FT
                    CHANNEL SLOPE=0.031  FLOOD PLAIN SLOPE=0.031
                    N=-0.015  DIST=20.1
                    DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                      0   108     0.10   100    10.1   100   10.15   108
                     11   108     11.1   100    20.0   100   20.1    108
COMPUTE TRAVEL TIME ID=1  REACH NO=3  VALLEY SECTIONS=1
                    LENGTH=350  FT  SLOPE=0.020
ROUTE               ID=1  HYDROGRAPH NO=130.42 INFLOW ID=12  DT=0.0
PRINT HYD           ID=1  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 130.5 (PORTION OF I-40)*************************
COMPUTE NM HYD      ID=3  HYDROGRAPH NO=130.5  DA=0.0104
                    %A=51.0  %B=0.0  %C=0.0  %D=49.0  TP=0.133333
```

```
                    MASS RAINFALL=-1
PRINT HYD           ID=3  CODE=1
** ADD BASIN 130.5 HYDROGRAPH TO MIREHAVEN ARROYO "C" FLOW SOUTH OF I-40******
ADD HYD             ID=4  HYDROGRAPH NO=130.51 ID I=1  ID II=3

PRINT HYD           ID=4  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 130.7*********************************************
COMPUTE NM HYD      ID=1  HYDROGRAPH NO=130.70  DA=0.01696
                    %A=86.0  %B=12.0  %C=2.0  %D=0.0  TP=0.133333
                    MASS RAINFALL=-1
PRINT HYD           ID=1  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 130.9*********************************************
COMPUTE NM HYD      ID=2  HYDROGRAPH NO=130.90  DA=0.00954
                    %A=86.0  %B=12.0  %C=2.0  %D=0.0  TP=0.133333
                    MASS RAINFALL=-1
PRINT HYD           ID=2  CODE=1
** ADD BASIN 130.7 HYDROGRAPH TO BASIN 130.9 HYDROGRAPH*********************
ADD HYD             ID=1  HYDROGRAPH NO=130.91 ID I=1  ID II=2
PRINT HYD           ID=1  CODE=1
** ROUTE FLOWS DOWN MIREHAVEN ARROYO "C" FROM THE SOUTH SIDE OF I-40 TO SOUTH
** BOUNDARY OF BASIN 130.9*******************************************************
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100 FT  MAXIMUM ELEV=106 FT
                    CHANNEL SLOPE=0.025  FLOOD PLAIN SLOPE=0.025
                    N=0.032  DIST=44
                    DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                      0   105.0     20   104.0   26    100.0   36    100.0
                     42   104.0     44   105.0
COMPUTE TRAVEL TIME ID=3  REACH NO=4  VALLEY SECTIONS=1
                    LENGTH=1000 FT  SLOPE=0.025
ROUTE               ID=3  HYDROGRAPH NO=130.52 INFLOW ID=4  DT=0.0
PRINT HYD           ID=3  CODE=1
** ADD THE HYDROGRAPH FOR BASIN 130.7 TO THE MIREHAVEN ARROYO "C" FLOW********
ADD HYD             ID=4  HYDROGRAPH NO=130.72 ID I=1  ID II=3
PRINT HYD           ID=4  CODE=1
** ADD THE ROUTED FLOW IN THE INCISED TRAIL TO THE MIREHAVEN ARROYO "C" FLOW
** AT THE SOUTHERN BOUNDARY OF BASIN 130.7
ADD HYD             ID=2  HYDROGRAPH NO=130.73 ID I=4  ID II=11
PRINT HYD           ID=2  CODE=1
**COMPUTE HYDROGRAPH FOR BASIN 130.8*********************************************
COMPUTE NM HYD      ID=1  HYDROGRAPH NO=130.8  DA=0.0327
                    %A=100.0  %B=0.0  %C=0.0  %D=0.0  TP=0.1410
                    MASS RAINFALL=-1
PRINT HYD           ID=1  CODE=1
** ROUTE FLOWS IN ARROYO FROM BASIN 130.7 TO POND No. 5 OF THE PROPOSED
** UNSER DIVERSION
COMPUTE RATING CURVE CID=5  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100 FT  MAXIMUM ELEV=105 FT
                    CHANNEL SLOPE=0.023  FLOOD PLAIN SLOPE=0.023
                    N=0.032  DIST=42
                    DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                      0   105.0     20   104.0   24    100.0   36    100.0
                     40   104.0     42.0  105.0
COMPUTE TRAVEL TIME ID=3  REACH NO=5  VALLEY SECTIONS=1
                    LENGTH=1600 FT  SLOPE=0.023
ROUTE               ID=3  HYDROGRAPH NO=130.74  INFLOW ID=2  DT=0.0
PRINT HYD           ID=3  CODE=1
```

```
** ADD HYDROGRAPH FOR BASIN 130.8 TO FLOW IN THE MIREHAVEN ARROYO "C" AT POND
** No. 5 OF THE PROPOSED UNSER DIVERSION
ADD HYD              ID=11  HYDROGRAPH NO=130.81 ID I=3  ID II=1
PRINT HYD            ID=11  CODE=1
*****************************************************************************
**PICKUP MIREHAVEN ARROYO "B" FLOWS ON THE NORTH SIDE OF I-40
*****************************************************************************
** ROUTE FLOWS IN MIREHAVEN ARROYO "B" FROM THE NORTH SIDE OF I-40 THROUGH
** 3x6x4' BOX CULVERT TO THE SOUTH SIDE OF I-40
COMPUTE RATING CURVE CID=6  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=104FT
                     CHANNEL SLOPE=0.022 FLOOD PLAIN SLOPE=0.022
                     N=-0.013  DIST=20.1
                     DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                       0   104      0.1   100     6.0   100     6.1   104
                       7   104      7.1   100    13.0   100    13.1   104
                      14   104     14.1   100    20.0   100    20.1   104
COMPUTE TRAVEL TIME ID=3  REACH NO=6  VALLEY SECTIONS=1
                     LENGTH=306 FT  SLOPE=0.022
ROUTE                ID=3  HYDROGRAPH NO=120.32 INFLOW ID=10  DT=0.0
PRINT HYD            ID=3  CODE=1
** COMPUTE HYDROGRAPH BASIN 120.4 (A SEGMENT OF I-40)***************************
COMPUTE NM HYD       ID=1  HYDROGRAPH NO=120.4 DA=0.0091
                     %A=51.0  %B=0.0  %C=0.0  %D=49.0  TP=0.133333
                     MASS RAINFALL=-1
PRINT HYD            ID=1  CODE=1
** ADD HYDROGRAPH FOR BASIN 120.4 TO THE FLOW IN THE MIREHAVEN ARROYO "B"*****
ADD HYD              ID=2  HYDROGRAPH NO=120.41  ID I=3   ID II=1
PRINT HYD            ID=2  CODE=1
** ROUTE FLOWS IN MIREHAVEN ARROYO "B" TO POND No. 6 OF THE PROPOSED UNSER
** DIVERSION
COMPUTE RATING CURVE CID=6  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=100 FT  MAXIMUM ELEV=106 FT
                     CHANNEL SLOPE=0.023 FLOOD PLAIN SLOPE=0.023
                     N=0.030  DIST=34
                     DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                       0   106.0     2   105.0    12    100.0   22    100.0
                      32   105.0    34   106.0
COMPUTE TRAVEL TIME ID=1  REACH NO=7  VALLEY SECTIONS=1
                     LENGTH=1700 FT  SLOPE=0.023
ROUTE                ID=1  HYDROGRAPH NO=120.42 INFLOW ID=2  DT=0.0
PRINT HYD            ID=1  CODE=1
**COMPUTE HYDROGRAPH FOR BASIN 120.5 ******************************************
COMPUTE NM HYD       ID=2  HYDROGRAPH NO=120.5  DA=0.0162
                     %A=100.0  %B=0.0  %C=0.0  %D=0.0  TP=0.133333
                     MASS RAINFALL=-1
PRINT HYD            ID=2    CODE=1
** ADD HYDROGRAPH FOR BASIN 120.5 TO MIREHAVEN ARROYO "B" FLOW AT POND No. 6 OF
** THE PROPOSED UNSER DIVERSION PROJECT
ADD HYD              ID=3  HYDROGRAPH NO=120.51  ID I=2  ID II=1
PRINT HYD            ID=3  CODE=1
** BULK THE FLOW IN MIREHAVEN ARROYO "B" TO REFLECT THE AVERAGE BULKING FACTOR
** COMPUTED BY THE SEDIMENT TRANSPORT MODEL FOR THE IMEDIATE UPSTREAM REACH
DIVIDE HYD           ID=3  PER=-105    ID=15      HYD=120.52
                                        ID=16      HYD=120.53
PRINT HYD            ID=15  CODE=1
PRINT HYD            ID=16  CODE=1
```

```
**COMPUTE HYDROGRAPH FOR BASIN 120.6*********************************************
COMPUTE NM HYD        ID=6  HYDROGRAPH NO=120.6  DA=0.0328
                      %A=98.0  %B=0.0  %C=0.0  %D=2.0  TP=0.133333
                      MASS RAINFALL=-1
PRINT HYD             ID=6    CODE=1
** BULK THE FLOW FROM BASIN 120.6 TO REFLECT THE AVERAGE BULKING FACTOR
** COMPUTED BY THE SEDIMENT TRANSPORT MODEL FOR THE EARTHEN CHANNEL FROM BASIN
** 120.6
DIVIDE HYD            ID=6  PER=-101    ID=17      HYD=120.61
                                         ID=16      HYD=120.62
PRINT HYD             ID=17  CODE=1
PRINT HYD             ID=16  CODE=1
** ADD HYDROGRAPH FOR BASIN 120.6 TO MIREHAVEN ARROYO "B" FLOW AT POND No. 6
** OF THE PROPOSED UNSER DIVERSION
ADD HYD               ID=18  HYDROGRAPH NO=120.63  ID I=15  ID II=17
PRINT HYD             ID=18  CODE=24
** STORE A HYDROGRAPH TO REPRESENT THE ADDITIONAL VOLUME OF FLOW WHICH IS
** DEVELOPED AFTER THE 24 HR STORM. THIS FLOW COMES FROM THE IMPERVIOUS AREAS
** ONLY. THE VOLUME CALCULATED PER SECTION 22.2 OF COA DPM IS AS FOLLOWS:
** 0.0045*640*(3.67-2.66)*.0833=0.242ac*ft
** THIS FLOW SHOULD BE ADDED TO THE HYDROGRAPH AFTER THE PEAK FLOW HAS PASSED
STORE HYD             ID=15  HYD=120.64   DT=1 HR     DA=.0001
                      FLOW RATES = 0  0  0  0  0  2.93  0
PRINT HYD             ID=15  CODE=24
MODIFY TIME           ID=15     DT=0.05 HR      CODE=3
PRINT HYD             ID=15  CODE=1
** ADD THE HYDROGRAPH REPRESENTING THE ADDITIONAL INFLOW VOLUME TO THE INFLOW
** TO UNSER DIVERSION POND No. 6
ADD HYD               ID=7  HYDROGRAPH NO=120.65  ID I=15  ID II=18
PRINT HYD             ID=7  CODE=1
*****************************************************************************
** BEGIN PROPOSED UNSER DIVERSION  APPROXIMENTLY 1000 LF NORTH OF LOS
** VOLCANES ROAD
*****************************************************************************
**ROUTE THE BULKED COMBINED FLOW FROM MIREHAVEN  ARROYO "B" AND BASIN 120.6
**THROUGH UNSER DIVERSION POND #6 LOCATED SOUTH OF DAYTONA ROAD
**IN THE INTERIM CONDITION THIS POND WILL RETAIN ALL OF THE FLOWS FROM THE
**CONTRIBUTING WATERSHED IN THE 100 YEAR 10 DAY STORM.
**A SMALL INSIGNIFICANT RATE OF OUTFLOW IS INPUT IN TO THE MODEL IN ORDER TO
**SATISFY THE INPUT DATA REQUIREMENTS OF THE MODEL
**.09 ACRE*FT OF VOLUME WHICH REPRESENTS 5 X THE ESTIMATED ANNUAL AVERAGE
**SEDIMENT YIELD IS OMITED  FROM THE STAGE STORAGE CURVE
ROUTE RESERVOIR       ID=5 HYDROGRAPH NO=120.66  INFLOW ID=7  CODE=24
                       OUTFLOW(cfs)     STORAGE(ac ft)     ELEV(ft)
                              0             0.0           70.0
                              0.01          0.1416        71.0
                              0.011         0.8272        72.0
                              0.012         1.7707        73.0
                              0.013         2.7859        74.0
                              0.014         3.8744        75.0
                              0.015         5.0362        76.0  TOP OF OUTLET STR
                             66.0           6.2749        77.0
                             91.4           7.4619        77.9  EMERGENCY SPILLWAY
                            100.0           7.5982        78.0
                            409.0           9.0118        79.0
PRINT HYD             ID=5  CODE=1
** BULK THE FLOW IN MIREHAVEN  ARROYO "C" TO REFLECT THE BULKING FACTOR
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** COMPUTED BY THE SEDIMENT TRANSPORT MODEL FOR THE IMEDIATE UPSTREAM REACH
DIVIDE HYD          ID=11 PER=-107     ID=17      HYD=130.82
                                       ID=16      HYD=130.83
PRINT HYD           ID=17  CODE=1
PRINT HYD           ID=16  CODE=1
** STORE A HYDROGRAPH TO REPRESENT THE ADDITIONAL VOLUME OF FLOW WHICH IS
** DEVELOPED AFTER THE 6 HR STORM. THIS FLOW COMES FROM THE IMPERVIOUS AREAS
** ONLY. THE VOLUME CALCULATED PER SECTION 22.2 OF COA DPM IS AS FOLLOWS:
** 0.0090*640*(3.67-2.66)*.0833=0.4846ac*ft
** THIS FLOW SHOULD BE ADDED TO THE HYDROGRAPH AFTER THE PEAK FLOW HAS PASSED
STORE HYD           ID=15  HYD=130.84   DT=1 HR     DA=.0001
                    FLOW RATES = 0  0  0  0  0  5.87  0
PRINT HYD           ID=15  CODE=1
MODIFY TIME         ID=15     DT=0.05 HR      CODE=3
PRINT HYD           ID=15  CODE=1
** ADD THE HYDROGRAPH REPRESENTING THE ADDITIONAL INFLOW VOLUME TO THE INFLOW
** TO UNSER DIVERSION POND No. 5
ADD HYD             ID=7  HYDROGRAPH NO=130.85  ID I=15  ID II=17
PRINT HYD           ID=7  CODE=1
**ROUTE THE FLOW FROM MIREHAVEN ARROYO "C" THROUGH POND No. 5 OF THE UNSER
**DIVERSION. THIS POND IS INTENDED TO SERVE AS A SEDIMENTATION AND PARTIAL
**RETENTION POND. THE UPPER PORTION OF THE POND WILL BE USED FOR DETENTION
**OUTFLOW STRUCTURE IS AN 8' X 8' CONCRETE BOX SOLID TO 4.0' DEPTH
**FLOW IS CONTROLLED BY WEIR FLOW OVER THE TOP OF THE CONCRETE BOX TO 5.5'
** DEPTH. FLOWS => 5.5'ARE BASED ON ORIFICE CONTROL OF A 48" DIA OUTLET PIPE
** C=0.59  INVERT AT 59.0
**.29 ACRE*FT OF VOLUME WHICH REPRESENTS 5 X THE ESTIMATED ANNUAL AVERAGE
**SEDIMENT YIELD IS OMITED  FROM THE STAGE STORAGE CURVE
ROUTE RESERVOIR     ID=5 HYDROGRAPH NO=130.86  INFLOW ID=7  CODE=24
                    OUTFLOW(cfs)    STORAGE(ac ft)    ELEV(ft)
                            0.00          0.00          60.0
                            0.01          0.0204        61.0
                            0.011         0.3695        62.0
                            0.012         0.7585        63.0
                            0.013         1.1886        64.0 TOP OF OUTLET STR
                           23.3           1.4249        64.5
                           66.0           1.6611        65.0
                          121.3           1.8892        65.5
                          133.1           2.1173        66.0
                          145.7           2.7385        67.0
                          157.4           3.3458        68.0
                          165.6           3.8689        68.8 EMERGENCY SPILLWAY
                          190.1           4.0055        69.0
                          522.0           4.7259        70.0
PRINT HYD           ID=5  CODE=1
**ROUTE THE OUTFLOW FROM THE POND THROUGH A 48" DIA STORM DRAIN
**TO POND 4 ON THE SOUTH SIDE OF LOS VOLCANES
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.026
                    PIPE DIA=48  N=0.013
COMPUTE TRAVEL TIME ID=11  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=305 FT  SLOPE=0.026
ROUTE               ID=11 HYDROGRAPH NO=130.87  INFLOW ID=5  DT=0.0
PRINT HYD           ID=11 CODE=1
**ROUTE THE FLOW FROM THE STORM DRAIN
**THROUGH UNSER DIVERSION POND NO. 4  LOCATED SOUTH OF LOS VOLCANES ROAD
**IN THE INTERIM CONDITION THE LOWER PORTION OF THIS POND WILL BE USED FOR
**RETENTION. THE UPPER PORTION OF THE POND WILL BE USED FOR DETENTION
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**OUTFLOW STRUCTURE IS AN 8' X 8' CONCRETE BOX SOLID TO ELEV 51.9
**FLOW IS CONTROLLED BY WEIR FLOW OVER THE CONCRETE STRUCTURE BETWEEN
**ELEV. 51.9 AND 53.0 FLOW IS THEN CONTROLLED BY THE ENTRANCE OF THE 42"
**DIA OUTLET PIPE
ROUTE RESERVOIR      ID=5 HYDROGRAPH NO=130.88  INFLOW ID=11  CODE=24
                     OUTFLOW(cfs)    STORAGE(ac ft)    ELEV(ft)
                              0              0.0          47.0
                              0.01           0.0823       48.0
                              0.011          0.5114       49.0
                              0.012          1.2988       50.0
                              0.013          2.2910       51.0
                              0.014          3.2577       51.9 TOP OF OUTLET STR
                              2.1            3.3651       52.0
                             30.7            3.9439       52.5
                             76.1            4.5226       53.0
                            111.1            5.7648       54.0
                            120.1            7.1829       55.1 EMERGENCY SPILLWAY
                            359.0            8.5077       56.0
PRINT HYD            ID=5  CODE=1
**ROUTE THE OUTFLOW FROM THE POND THROUGH A 42" DIA S.D. TO UNSER DIVERSION
**POND NO. 3
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.013
                     PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=139FT  SLOPE=0.013
ROUTE                ID=10  HYDROGRAPH NO=130.89  INFLOW ID=5  DT=0.0
PRINT HYD            ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 140.1 ******************************************
COMPUTE NM HYD       ID=1  HYDROGRAPH NO=140.1 DA=0.0196
                     %A=74.0  %B=22.0  %C=4.0  %D=0.0  TP=0.133333
                     MASS RAINFALL=-1
PRINT HYD            ID=1  CODE=1
** ROUTE FLOWS FROM BASIN 140.1 DOWN EXISTING INSISED TRAIL FROM THE SOUTH SIDE
** OF BASIN 140.1 TO LOS VOLCANES ROAD ******************************************
COMPUTE RATING CURVE CID=4  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=100 FT  MAXIMUM ELEV=101.0 FT
                     CHANNEL SLOPE=0.026  FLOOD PLAIN SLOPE=0.026
                     N=0.035  DIST=16
                     DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                       0   101.0     4    100.0   12    100.0   16    101.0
COMPUTE TRAVEL TIME ID=12  REACH NO=2  VALLEY SECTIONS=1
                     LENGTH=1800 FT  SLOPE=0.026
ROUTE                ID=12 HYDROGRAPH NO=140.11 INFLOW ID=1 DT=0.0
PRINT HYD            ID=12  CODE=1
** ROUTE FLOWS FROM BASIN 140.1 ALONG THE DIVERSION DIKE TO A
** DETENTION AND SEDIMENTATION BASIN NORTH OF BLUEWATER ROAD
COMPUTE RATING CURVE CID=4  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=100 FT  MAXIMUM ELEV=101.0 FT
                     CHANNEL SLOPE=0.015  FLOOD PLAIN SLOPE=0.015
                     N=0.035  DIST=48
                     DIST  ELEV    DIST   ELEV   DIST   ELEV
                       0   101.0     3    100.0   48    101.0
COMPUTE TRAVEL TIME ID=15  REACH NO=2  VALLEY SECTIONS=1
                     LENGTH=660 FT  SLOPE=0.015
ROUTE                ID=15 HYDROGRAPH NO=140.12 INFLOW ID=12 DT=0.0
PRINT HYD            ID=15  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 140.2 ******************************************
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COMPUTE NM HYD        ID=1  HYDROGRAPH NO=140.2 DA=0.0892
                      %A=92.0  %B=4.0  %C=4.0  %D=0.0  TP=0.133333
                      MASS RAINFALL=-1
PRINT HYD             ID=1  CODE=1
** ADD FLOWS FROM BASIN 140.2 TO THE ROUTED FLOW FROM BASIN 140.1
ADD HYD               ID=2  HYDROGRAPH NO=140.21  ID I=15  ID II=1
PRINT HYD             ID=2  CODE=1
** BULK THE COMBINED FLOW FROM BASINS 140.1 & 140.2 TO REFLECT THE ESTIMATED
** SEDIMENT YIELD FROM THE BASIN
DIVIDE HYD            ID=2 PER=-108       ID=17       HYD=140.22
                                          ID=16       HYD=140.23
PRINT HYD             ID=17  CODE=1
PRINT HYD             ID=16  CODE=1
** ADD THE BULKED FLOW FROM BASIN 140 TO THE ROUTED FLOW FROM UNSER DIVERSION
** POND NO.4.
ADD HYD               ID=2  HYDROGRAPH NO=140.24  ID I=17  ID II=10
PRINT HYD             ID=2  CODE=1
**ROUTE THE COMBINED FLOW THROUGH UNSER DIVERSION POND NO.3.
**IN THE INTERIM CONDITION THE LOWER PORTION OF THIS POND WILL BE USED FOR
**RETENTION. THE UPPER PORTION OF THE POND WILL BE USED FOR DETENTION
**ASSUME OUTFLOW STRUCTURE IS AN 8' X 8' CONCRETE BOX SOLID TO ELEVATION 47.5
**FLOW IS CONTROLLED BY WIER FLOW OVER THE TOP OF THE CONCRETE BOX TO
**ELEVATION 48.5. AT ELEVATIONS GREATER THAN 48.5 THE FLOW IS CONTROLLED
**BY ORIFICE CONTROL AT THE ENTRANCE TO THE 42" DIA. OUTLET PIPE.
**.10 ACRE*FT OF VOLUME WHICH REPRESENTS 5 X THE ESTIMATED ANNUAL AVERAGE
**SEDIMENT YIELD IS OMITED  FROM THE STAGE STORAGE CURVE
ROUTE RESERVOIR       ID=4 HYDROGRAPH NO=140.25  INFLOW ID=2  CODE=24
                      OUTFLOW(cfs)    STORAGE(ac ft)    ELEV(ft)
                              0              0.00         43.0
                              0.01           0.0688       44.0
                              0.011          0.4970       45.0
                              0.012          1.0426       46.0
                              0.013          1.6424       47.0
                              0.014          1.9702       47.5 TOP OF OUTLET STRUC
                             23.3            2.2979       48.0
                             66.0            2.6543       48.5
                             78.5            3.0106       49.0
                             85.3            3.7821       50.0
                             91.7            4.6138       51.0
                             93.2            4.7875       51.2 EMERGENCY SPILLWAY
                            194.2            5.5069       52.0
PRINT HYD             ID=4  CODE=1
**ROUTE THE OUTFLOW FROM THE POND THROUGH A 42" DIA STORM DRAIN UNDER BLUEWATER
**ROAD
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.010
                      PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                      LENGTH=168 FT  SLOPE=0.010
ROUTE                 ID=10  HYDROGRAPH NO=140.26  INFLOW ID=4  DT=0.0
PRINT HYD             ID=10  CODE=1
**ROUTE THE OUTFLOW THROUGH UNSER DIVERSION POND NO. 2
**IN THE INTERIM CONDITION THE LOWER PORTION OF THIS POND WILL BE USED FOR
**RETENTION. THE UPPER PORTION OF THE POND WILL BE USED FOR DETENTION
**ASSUME OUTFLOW STRUCTURE IS AN 8' X 8' CONCRETE BOX SOLID TO ELEV 44.8
**FLOW IS CONTROLLED BY WEIR FLOW BETWEEN ELEV 44.8 AND 46.0  THEN IT IS
**CONTROLLED BY THE ENTRANCE OF THE 48" DIA OUTLET PIPE
ROUTE RESERVOIR       ID=5 HYDROGRAPH NO=140.27  INFLOW ID=10  CODE=24
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                    OUTFLOW(cfs)     STORAGE(ac ft)     ELEV(ft)
                             0            0.0000        37.9
                             0.01         0.0003        38.0
                             0.011        0.1818        39.0
                             0.012        0.7343        40.0
                             0.013        1.5680        41.0
                             0.014        2.4956        42.0
                             0.015        3.5621        43.0
                             0.016        4.6788        44.0
                             0.017        5.8772        44.8 TOP OF OUTLET STR
                            38.6          6.5179        45.5
                            86.8          7.1586        46.0
                           169.3          8.5245        47.0
                           178.5          9.8262        47.9 EMERGENCY SPILLWAY
                           500.5         11.5100        49.0
PRINT HYD           ID=5  CODE=1
**ROUTE THE OUTFLOW FROM THE POND THROUGH A 48" DIA STORM DRAIN TO UNSER
**DIVERSION POND NO 1
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0125
                    PIPE DIA=48  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=128 FT  SLOPE=0.0125
ROUTE               ID=10  HYDROGRAPH NO=130.28  INFLOW ID=5  DT=0.0
PRINT HYD           ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 150.1
COMPUTE NM HYD      ID=1  HYDROGRAPH NO=150.1 DA=0.1525
                    %A=96.0  %B=0.0  %C=4.0  %D=0.0  TP=0.2285
                    MASS RAINFALL=-1
PRINT HYD           ID=1  CODE=1
** BULK THE FLOW FROM BASIN 150.1 TO REFLECT THE ESTIMATED SEDIMENT YIELD
** FROM THE BASIN
DIVIDE HYD          ID=1 PER=-105      ID=17      HYD=150.11
                                       ID=16      HYD=150.12
PRINT HYD           ID=17  CODE=1
PRINT HYD           ID=16  CODE=1
** ADD THE OUTFLOW FROM POND 2 TO THE BULKED FLOW FROM BASIN 150.1
ADD HYD             ID=10  HYDROGRAPH NO=150.13 ID I=10  ID II=17
PRINT HYD           ID=10  CODE=1
**ROUTE THE FLOW THROUGH UNSER DIVERSION POND #1
**IN THE INTERIM CONDITION THIS POND WILL RETAIN ALL OF THE 100 YEAR 10 DAY
**FLOW THAT REACHES IT. OUTFLOW CURVE ABOVE OUTLET BASED ON WIER FLOW OVER THE
**TOP OF THE STRUCTURE AND ORIFICE CONTROL BY THE ENTRANCE OF THE 42" DIA
**OUTLET PIPE
**.07 ACRE*FT OF VOLUME WHICH REPRESENTS 5 X THE ESTIMATED ANNUAL AVERAGE
**SEDIMENT YIELD IS OMITED  FROM THE STAGE STORAGE CURVE
ROUTE RESERVOIR     ID=5 HYDROGRAPH NO=150.14  INFLOW ID=10  CODE=24
                    OUTFLOW(cfs)     STORAGE(ac ft)     ELEV(ft)
                             0             0.00          33.5
                             0.01          0.0001        34
                             0.011         0.2932        35
                             0.012         0.8646        36
                             0.013         1.5370        37
                             0.014         2.2720        38
                             0.015         3.0712        39
                             0.016         3.9358        40
                             0.017         4.8673        41 TOP OF OUTLET STR
                            66.0           5.8673        42
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                                134.8            6.9372      43
                                142.2            7.9609      43.9 EMERGENCY SPILLWAY
                                460.0            9.2922      45
PRINT HYD                ID=5  CODE=1
**NOTE:UNDER EXISTING 100 YEAR 10 DAY STORM CONDITIONS NO OUT FLOW IS REQUIRED
**FROM THE UNSER DIVERSION PONDS. A 42" DIA.STORM DRAIN OUTFALL IS PLANNED TO
**BE CONSTRUCTED WITH THE UNSER DIVERSION PONDS TO SERVE THE SYSTEM AS THE
**WATERSHED DEVELOPS. IN THE FUTURE AS DOWNSTREAM DRAINAGE OUTFALLS ARE
**COMPLETED IT IS LIKELY THAT THE SYSTEM  SERVING THE EXISTING CONDITION
**WATERSHED WILL BE CONVERTED TO EXTENDED DETENTION. THIS WILL BE ACCOMPLISHED
**BY MODIFYING THE OUTLET STRUCTURES TO ALLOW VERY LOW RATES OF DISCHARGE TO
**OCCUR FROM THE INVERTS OF THE PONDS.
*****************************************************************************
**ROUTE THE OUTFLOW FROM THE POND THROUGH A 42" DIA STORM DRAIN LOCATED ALONG
**THE BACK LOT LINE OF LOT 2, UNIT 2, ATRISCO BUSINESS PARK
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0165
                     PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=994 FT  SLOPE=0.0165
ROUTE                ID=10  HYDROGRAPH NO=150.15  INFLOW ID=5  DT=0.0
PRINT HYD            ID=10  CODE=1
**ROUTE THE STORM DRAIN FLOW TO EAST LINE OF LOT 2, UNIT 2, ATRISCO BUSINESS
**PARK IN A 42" STORM DRAIN
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.019
                     PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=2  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=246 FT  SLOPE=0.019
ROUTE                ID=2  HYDROGRAPH NO=150.16  INFLOW ID=10  DT=0.0
PRINT HYD            ID=2  CODE=1
**ROUTE THE FLOW DOWN A 48" DIA. STORM DRAIN
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.019
                     PIPE DIA=48  N=0.013
COMPUTE TRAVEL TIME ID=2  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=382 FT  SLOPE=0.019
ROUTE                ID=2  HYDROGRAPH NO=160.17  INFLOW ID=2  DT=0.0
PRINT HYD            ID=2  CODE=1
**ROUTE THE FLOW DOWN A 48" DIA. STORM DRAIN TO THE TIERRA BAYITA STORM DRAIN
**IN UNSER BOULEVARD
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.015
                     PIPE DIA=48  N=0.013
COMPUTE TRAVEL TIME ID=19  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=880 FT  SLOPE=0.015
ROUTE                ID=19  HYDROGRAPH NO=160.18  INFLOW ID=2  DT=0.0
PRINT HYD            ID=19  CODE=1
*************************************
*****************************************************************************
*****************************************************************************
*S BEGIN UNSER BOULEVARD STORM DRAIN SYSTEM BETWEEN I-40 AND THE FUTURE TIERRA
** BAYITA STORM DRAIN
*****************************************************************************
** ASSUMPTIONS: ALL WATER ON EAST SIDE OF UNSER IS INTERCEPTED BY THE STORM
** DRAIN EXCEPT THE FLOW WHICH IS IN EXCESS OF THE S.D. CAPACITY BELOW THE
** INLETS ADJACENT TO THE SAD 214 POND.
** FLOW IN EXCESS OF THE STORM DRAIN CAPACITY IN OTHER AREAS IS ASSUMED TO BE
** CARRIED IN THE WEST SIDE OF UNSER WITH A SMALL PORTION OF THE FLOW CROSSING
** OVER TO THE EAST SIDE AT THE INTERSECTION WITH BLUEWATER RD.
** LOS VOLCANES ROAD AND BLUEWATER ROAD ARE ASSUMED TO BE IN PLACE BETWEEN
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** UNSER BOULEVARD AND THE WEST LINE OF THE ATRISCO BUSINESS PARK.
** FLOWS FROM TRACT "T" ARE ADDED TO THE FLOW IN UNSER BLVD. AT LOS VOLCANES.
** FLOWS FROM TRACTS "J" AND TRACT "K" ARE ADDED TO THE FLOW IN UNSER AT
** BLUEWATER. FLOW FROM LOTS 1 AND 2 SOUTH OF BLUEWATER ARE ASSUMED TO FLOW TO
** THE EXISTING CULVERT UNDER UNSER BOULEVARD AND ARE ROUTED TO THE SAD 214
** POND.
*****************************************************************************
** CHANGE THE TIME STEP TO 0.033333 HOURS
**  10 YEAR STORM
**RAINFALL            TYPE=2  0.0  1.25  1.47  1.77    DT=0.03333
*S 100 YEAR STORM
RAINFALL              TYPE=2  0.0  1.87  2.20  2.66    DT=0.033333
*****************************************************************************
** COMPUTE A HYDROGRAPH FOR BASIN 170.1 TRACT "T"(UNDEVELOPED CONDITION)
COMPUTE NM HYD       ID=2  HYD=170.1  DA==0.0633
                     %A=95.0  %B=00.0  %C=05.0  %D=00.0  TP=0.1738
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.3 LOS VOLCANES WEST OF UNSER
COMPUTE NM HYD       ID=3  HYD=170.3  DA==0.0037
                     %A=0.0  %B=0.0  %C=10.0  %D=90.0  TP=0.13333
                     MASS RAINFALL=-1
PRINT HYD            ID=3 CODE=1
** ADD THE HYDROGRAPHS FROM BASIN 170.1 AND 170.3
ADD HYD              ID=2  HYDROGRAPH NO=170.31  ID I=2  ID II=3
PRINT HYD            ID=2  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.2 THE WEST PORTION OF UNSER BOULEVARD
** AND HIGHWAY RIGHT OF WAY NORTH OF LOS VOLCANES
** ASSUME ALL WATER ABOVE THIS BASIN IS INTERCEPTED BY THE INLETS IN UNSER AND
** ROUTED TO THE HIGHWAY INTERCHANGE POND
COMPUTE NM HYD       ID=3  HYD=170.2  DA==0.0077
                     %A=0.0  %B=60.0  %C=0.0  %D=40.0  TP=0.133333
                     MASS RAINFALL=-1
PRINT HYD            ID=3 CODE=1
** ADD THE HYDROGRAPH FROM BASIN 170.2 TO THE HYDROGRRPH FROM BASINS 170.1
** AND 170.3 AT THE INTERSECTION OF LOS VOLCANES AND UNSER
ADD HYD              ID=2  HYDROGRAPH NO=170.21  ID I=3  ID II=2
PRINT HYD            ID=2  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.4 THE EAST PORTION OF UNSER BOULEVARD
** AND HIGHWAY RIGHT OF WAY NORTH OF LOS VOLCANES
** ASSUME ALL WATER ABOVE THIS BASIN IS INTERCEPTED BY THE INLETS IN UNSER AND
** ROUTED TO THE HIGHWAY INTERCHANGE POND
COMPUTE NM HYD       ID=3  HYD=170.4  DA==0.0060
                     %A=0.0  %B=45.0  %C=0.0  %D=55.0  TP=0.133333
                     MASS RAINFALL=-1
PRINT HYD            ID=3 CODE=1
** ADD THE FLOW FROM THE EAST SIDE OF UNSER TO THE TOTAL FLOW ON THE WEST
** SIDE OF UNSER
ADD HYD              ID=5  HYDROGRAPH NO=170.41 ID I=2  ID II=3
PRINT HYD            ID=5  CODE=1
** ASSUME INLET CAPACITY IS SUFFICIENT TO INTERCEPT FLOW UP TO THE NON PRESSURE
** FLOW CAPACITY OF THE UNSER BLVD. STORM DRAIN
** DIVIDE OUT FLOW WHICH EXCEEDS THE NON PRESSURE PIPE CAPACITY OF THE DOWN
** STREAM PORTION OF UNSER BLVD STORM DRAIN. S.D.= 30" RCP MIN SLOPE = 0.01
** HYD 170.42 = FLOW TO UNSER STORM DRAIN
** HYD 170.43= FLOW TO REMAIN IN STREET
DIVIDE HYD           ID=5  Q=41.0  ID I=2   HYD I=170.42
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                                        ID II=11  HYD II=170.43
PRINT HYD              ID=2  CODE=2
PRINT HYD              ID=11  CODE=1
** ROUTE THE FLOW IN THE UNSER BLVD STORM DRAIN FROM THE INTERSECTION OF
** LOS VOLCANES AND UNSER TO THE SECOND MANHOLE SOUTH OF THE INTERSECTION
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.010
                       PIPE DIA=30  N=0.013
COMPUTE TRAVEL TIME ID=1  REACH=1  NUMBER OF VALLEY SECTIONS=1
                       LENGTH=447 FT  SLOPE=0.010
ROUTE                  ID=1  HYDROGRAPH NO=170.44  INFLOW ID=2  DT=0.0
PRINT HYD              ID=1  CODE=1
** ROUTE THE FLOW DOWN UNSER BLVD. STORM DRAIN FROM THE SECOND M.H. SOUTH OF
** LOS VOLCANES TO THE THIRD MANHOLE SOUTH OF LOS VOLCANES
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.01744
                       PIPE DIA=30  N=0.013
COMPUTE TRAVEL TIME ID=3  REACH=1  NUMBER OF VALLEY SECTIONS=1
                       LENGTH=450 FT  SLOPE=0.01744
ROUTE                  ID=3  HYDROGRAPH NO=170.45  INFLOW ID=1  DT=0.0
PRINT HYD              ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.5 THE WEST HALF OF UNSER BOULEVARD BETWEEN
** LOS VOLCANES AND THE THIRD MANHOLE SOUTH OF THE INTERSECTION
COMPUTE NM HYD         ID=2  HYD=170.5  DA==0.0029
                       %A=0.0  %B=20.0  %C=0.0  %D=80.0  TP=0.13333
                       MASS RAINFALL=-1
PRINT HYD              ID=2 CODE=1
** ADD THE HYDROGRAPH FROM BASINS 170.5 TO THE ROUTED UNSER STORM DRAIN FLOW
ADD HYD                ID=4  HYDROGRAPH NO=170.51  ID I=2  ID II=3
PRINT HYD              ID=4  CODE=1
** ROUTE THE FLOW IN THE STREET FROM THE LOS VOLCANES & UNSER INTERSECTION TO
** THE THIRD MANHOLE SOUTH OF THE INTERSECTION. USE AVERAGE SLOPE.USE FUTURE
** CROSS SECTION AS SHOWN ON SAD 214 DRAINAGE PLAN SHEET. ADD EXISTING SIDEWALK
** ALONG CURB. ASSUME ALL FLOW THAT COULD NOT ENTER THE STORM DRAIN AT
** LOS VOLCANES REMAINS ON THE WEST SIDE OF THE STREET.
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=3
                       MINIMUM ELEV=100.00 FT  MAXIMUM ELEV=100.87 FT
                       CHANNEL SLOPE=0.0130  FLOOD PLAIN SLOPE=0.0130
                       N=0.035  DIST=5  N=0.017  DIST=10  N=-0.017  DIST=46.15
                       DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                         0   100.87   5     100.77  10    100.67  10.15 100.00
                        12    100.13  46    100.81  46.15 100.31
COMPUTE TRAVEL TIME ID=2  REACH NO=1  VALLEY SECTIONS=1
                       LENGTH=700 FT  SLOPE=0.0130
ROUTE                  ID=2  HYDROGRAPH NO=170.52  INFLOW ID=11  DT=0.0
PRINT HYD              ID=2  CODE=1
** ADD THE ROUTED FLOW IN THE STREET TO THE TOTAL FLOW ON THE WEST SIDE OF
** UNSER BOULEVARD @ THE THIRD MANHOLE SOUTH OF LOS VOLCANES
ADD HYD                ID=1  HYDROGRAPH NO=170.52  ID I=4  ID II=2
PRINT HYD              ID=1  CODE=1
** ROUTE THE FLOW IN THE UNSER BLVD STORM DRAIN FROM THE THIRD MANHOLE SOUTH
** OF LOS VOLCANES TO THE FIRST MANHOLE SOUTH OF THE INTERSECTION OF BLUEWATER
** AND UNSER. USE AVERAGE SLOPE.
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.016
                       PIPE DIA=36  N=0.013
COMPUTE TRAVEL TIME ID=3  REACH=1  NUMBER OF VALLEY SECTIONS=1
                       LENGTH=795 FT  SLOPE=0.016
ROUTE                  ID=3  HYDROGRAPH NO=170.55  INFLOW ID=1  DT=0.0
PRINT HYD              ID=3  CODE=1
```

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** COMPUTE HYDROGRAPH FOR BASIN 170.6 THE WEST PORTION OF UNSER BOULEVARD
** BETWEEN THE THIRD MANHOLE SOUTH OF LOS VOLCANES AND THE INTERSECTION OF
** BLUEWATER AND UNSER
COMPUTE NM HYD        ID=2  HYD=170.6  DA==0.0018
                      %A=0.0  %B=20.0  %C=0.0  %D=80.0  TP=0.13333
                      MASS RAINFALL=-1
PRINT HYD             ID=2  CODE=1
** ADD THE HYDROGRAPH FROM BASINS 170.6 TO THE UNSER STORM DRAIN FLOW
ADD HYD               ID=4  HYDROGRAPH NO=170.61  ID I=2  ID II=3
PRINT HYD             ID=4  CODE=1
**COMPUTE A HYDROGRAPH FOR TRACTS "J" AND "K", THE RIO GRANDE ALBUQUERQUE SITE
**EXISTING CONDITION
COMPUTE NM HYD        ID=1  HYD=170.7  DA==0.0859
                      %A= 98.0  %B=0.0  %C=02.0  %D=0.0  TP=0.2001
                      MASS RAINFALL=-1
PRINT HYD             ID=1  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.8 BLUEWATER RD.FROM THE WEST BOUNDARY OF
** ATRISCO BUSINESS PARK TO UNSER BOULEVARD
COMPUTE NM HYD        ID=2  HYD=170.8  DA==0.0054 SQ MI
                      %A=0.0  %B=0.0  %C=10.0  %D=90.0  TP=0.13333
                      MASS RAINFALL=-1
PRINT HYD             ID=2 CODE=1
** ADD THE FLOW FROM BLUEWATER RD. TO THE FLOW FROM TRACTS "J" & "K"
ADD HYD               ID=5  HYDROGRAPH NO=170.81  ID I=1  ID II=2
PRINT HYD             ID=5  CODE=1
** ADD THE COMBINED FLOW FROM TRACTS "J" AND "K" & BLUEWATER ROAD TO THE FLOW
** IN STORM DRAIN AT THE UNSER &  BLUEWATER INTERSECTION
ADD HYD               ID=2  HYDROGRAPH NO=170.82  ID I=4  ID II=5
PRINT HYD             ID=2  CODE=1
** COMPUTE A HYDROGRAPH FOR THE EAST SIDE OF UNSER BLVD. BETWEEN LOS VOLCANES
** AND BLUWATER
COMPUTE NM HYD        ID=3  HYD=170.9  DA==0.0047 SQ MI
                      %A=0.0  %B=20.0  %C=0.0  %D=80.0  TP=0.13333
                      MASS RAINFALL=-1
PRINT HYD             ID=3 CODE=1
** ADD THE FLOW FROM THE EAST SIDE OF UNSER TO THE TOTAL FLOW IN THE STORM
** DRAIN AND IN THE STREET AT THE INTERSECTION OF BLUEWATER AND UNSER
ADD HYD               ID=4  HYDROGRAPH NO=170.91  ID I=3  ID II=2
PRINT HYD             ID=4  CODE=1
** DIVIDE OUT FLOW WHICH EXCEEDS THE NON PRESSURE PIPE CAPACITY OF THE DOWN
** STREAM PORTION OF UNSER BLVD STORM DRAIN. S.D.= 42" RCP MIN. SLOPE = 0.00842
** HYD 170.92= FLOW TO UNSER STORM DRAIN
** HYD 170.93= FLOW TO REMAIN IN STREET
DIVIDE HYD            ID=4  Q=92      ID I=2   HYD I=170.92
                                     ID II=10  HYD II=170.93
PRINT HYD             ID=2  CODE=1
PRINT HYD             ID=10  CODE=1
** DIVIDE OUT THE STREET FLOW WHICH MAY CROSS FROM THE WEST SIDE TO THE EAST
** SIDE OF UNSER BOULEVARD AT THE INTERSECTION WITH BLUEWATER. PLANS FOR
** UNSER BOULEVARD SHOW 0.3' DIFFERENTIAL BETWEEN THE FLOW LINE ELEVATION AND
** THE CROWN ELEVATION AT THE CENTER OF THE INTERSECTION. ESTIMATE CROSSOVER
** FLOW UTILIZING A BROAD CRESTED WIER FORMULA.
** HYD 170.94= FLOW TO CROSS OVER TO EAST SIDE OF STREET
** HYD 170.95= FLOW TO REMAIN ON WEST SIDE OF STREET
DIVIDE HYD            ID=10  Q=48.0  ID I=11   HYD I=170.95
                                     ID II=3  HYD II=170.94
PRINT HYD             ID=3  CODE=1
```

```
PRINT HYD              ID=11  CODE=1
** ROUTE THE STREET FLOW ON THE EAST SIDE OF UNSER BLVD. FROM THE INTERSECTION
** WITH BLUEWATER TO THE INLETS ADJACENT TO THE SAD  214 POND. USE THE FUTURE
** STREET SECTION AS SHOWN ON SAD 214 DRAINAGE PLAN SHEET. ADD EXISTING
** SIDEWALK ALONG CURB. USE AN AVERAGE STREET SLOPE
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=3
                     MINIMUM ELEV=100.00 FT  MAXIMUM ELEV=100.87 FT
                     CHANNEL SLOPE=0.0130  FLOOD PLAIN SLOPE=0.0130
                     N=0.035  DIST=5  N=0.017  DIST=10  N=-0.017  DIST=46.15
                     DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                       0   100.87   5     100.77  10    100.67  10.15 100.00
                      12    100.13  46    100.81  46.15 100.31
COMPUTE TRAVEL TIME ID=4  REACH NO=1  VALLEY SECTIONS=1
                     LENGTH=700 FT  SLOPE=0.0130
ROUTE                ID=4  HYDROGRAPH NO=170.96  INFLOW ID=3 DT=0.0
PRINT HYD            ID=4  CODE=1
** ROUTE FLOW DOWN UNSER STORM DRAIN FROM THE INTERSECTION OF UNSER AND
** BLUEWATER TO THE JUNCTION WITH THE INLETS NEAR THE SAD 214 POND
** USE AVERAGE SLOPE
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0093
                     PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=3  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=688 FT  SLOPE=0.0093
ROUTE                ID=3  HYDROGRAPH NO=170.97  INFLOW ID=2  DT=0.0
PRINT HYD            ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR THE EAST SIDE OF UNSER BOULEVARD BETWEEN BLUEWATER
** ROAD AND THE INLETS ADJACENT TO THE SAD 214 POND
COMPUTE NM HYD       ID=2  HYD=171.1 DA=0.0021
                     %A=0.0  %B=10.0  %C=0.0  %D=90.0  TP=0.133333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** ADD THE FLOW FROM BASIN 171.1 TO THE ROUTED STREET FLOW ON THE EAST SIDE OF
** UNSER AT THE INLETS ADJACENT TO THE SAD 214 POND
ADD HYD              ID=5  HYDROGRAPH NO=171.11 ID I=4  ID II=2
PRINT HYD            ID=5  CODE=1
** ADD THE TOTAL STREET FLOW ON THE EAST SIDE OF UNSER TO THE ROUTED FLOW IN
** UNSER STORM DRAIN
ADD HYD              ID=2  HYDROGRAPH NO=171.12 ID I=3  ID II=5
PRINT HYD            ID=2  CODE=1
** DIVIDE OUT FLOW WHICH EXCEEDS THE FULL PIPE CAPACITY OF THE DOWN
** STREAM PORTION OF UNSER BLVD STORM DRAIN. S.D.= 42" RCP MIN SLOPE = 0.00993
** HYD 171.13 = FLOW TO UNSER STORM DRAIN
** HYD 171.14 = FLOW TO REMAIN IN STREET
DIVIDE HYD           ID=2   Q=100  ID I=3    HYD I=171.13
                                   ID II=9   HYD II=171.14
PRINT HYD            ID=3  CODE=1
PRINT HYD            ID=9  CODE=1                                            *
** ROUTE FLOW DOWN UNSER STORM DRAIN FROM THE JUNCTION WITH THE INLETS ADJACENT
** TO THE SAD 214 POND TO THE SAD 214 POND
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.00993
                     PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=150 FT  SLOPE=0.00993
ROUTE                ID=10 HYDROGRAPH NO=171.15  INFLOW ID=3  DT=0.0
PRINT HYD            ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR THE WEST SIDE OF UNSER BOULEVARD BETWEEN BLUEWATER
** ROAD AND THE INLETS ADJACENT TO THE SAD 214 POND
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COMPUTE NM HYD        ID=3  HYD=171.0 DA=0.0022
                      %A=0.0  %B=10.0  %C=0.0  %D=90.0  TP=0.133333
                      MASS RAINFALL=-1
PRINT HYD             ID=3 CODE=1
** ROUTE THE STREET FLOW ON THE WEST SIDE OF UNSER BLVD. FROM THE INTERSECTION
** WITH BLUEWATER TO THE INLETS ADJACENT TO THE SAD  214 POND. USE THE FUTURE
** STREET SECTION AS SHOWN ON SAD 214 DRAINAGE PLAN SHEET. ADD EXISTING
** SIDEWALK ALONG CURB. USE AN AVERAGE STREET SLOPE
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=3
                      MINIMUM ELEV=100.00 FT  MAXIMUM ELEV=100.87 FT
                      CHANNEL SLOPE=0.0130  FLOOD PLAIN SLOPE=0.0130
                      N=0.035  DIST=5  N=0.017  DIST=10  N=-0.017  DIST=46.15
                      DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                        0   100.87   5     100.77  10    100.67  10.15 100.00
                       12    100.13  46    100.81  46.15 100.31
COMPUTE TRAVEL TIME ID=4  REACH NO=1  VALLEY SECTIONS=1
                      LENGTH=800 FT  SLOPE=0.0130
ROUTE                 ID=4  HYDROGRAPH NO=171.01  INFLOW ID=11 DT=0.0
PRINT HYD             ID=4  CODE=1
** ADD THE ROUTED STREET FLOW ON THE WEST SIDE OF UNSER TO THE FLOW FROM BASIN
** 171.0
ADD HYD               ID=2  HYDROGRAPH NO=171.02 ID I=3  ID II=4
PRINT HYD             ID=2  CODE=1
** DIVIDE OUT FLOW WHICH EXCEEDS THE CAPACITY OF THE CONNECTOR PIPE BETWEEN THE
** INLETS AND THE CULVERT CROSSING UNSER TO THE SAD 214 POND. PIPE IS AN 18"
** RCP. ESTIMATE CAPACITY ASSUMINING PRESSURE PIPE FLOW WITH HGL AT THE SOFFIT
** AT THE OUTLET END OF THE 18" PIPE
** HYD 171.03 = FLOW TO THE CULVERT CROSSING UNSER BLVD.
** HYD 171.04 = FLOW TO REMAIN IN STREET
DIVIDE HYD            ID=2   Q=20   ID I=3    HYD I=171.03
                                   ID II=6    HYD II=171.04
PRINT HYD             ID=3  CODE=1
PRINT HYD             ID=6  CODE=1
** COMPUTE HYDROGRAPH FOR LOT 2 (UNDEVELOPED CONDITION)************************
** FLOWS FROM LOT 2 IN THE UNDEVELOPED CONDITION WILL NOT BE INTERCEPTED BY THE
** UNSER STORM DRAIN. MOST OF THESE FLOWS WILL CROSS THE SOUTHERN PART OF LOT 1
** THE HONEYWELL SITE AND BE ROUTED THROUGH THE EXISTING CULVERT UNDER UNSER TO
** THE SAD 214 POND
COMPUTE NM HYD        ID=1  HYDROGRAPH NO=160.1  DA=0.0517
                      %A=90.0  %B=0.0  %C=10.0  %D=0.0  TP=0.13333
                      MASS RAINFALL=-1
PRINT HYD             ID=1  CODE=1
** COMPUTE HYDROGRAPH FOR LOT 1 (THE HONEYWELL SITE) EXISTING, PARTIALLY
** DEVELOPED CONDITION
COMPUTE NM HYD        ID=2  HYDROGRAPH NO=160.2  DA=0.0350
                      %A=40.0  %B=5.0  %C=20.0  %D=35.0  TP=0.13333
                      MASS RAINFALL=-1
PRINT HYD             ID=2  CODE=1
** ADD THE HYDROGRAPH FROM LOT 1 TO THE HYDROGRAPH FROM LOT 2
ADD HYD               ID=4  HYDROGRAPH NO=160.21  ID I=1  ID II=2
PRINT HYD             ID=4  CODE=1
** ADD THE INTERCEPTED STREET FLOW FROM THE WEST SIDE OF UNSER TO THE FLOW
** FROM LOT 1 AND LOT 2
ADD HYD               ID=2  HYDROGRAPH NO=160.22 ID I=4  ID II=3
PRINT HYD             ID=2  CODE=1
** ROUTE FLOW FROM THE INLETS ON THE WEST SIDE OF UNSER AND THE FLOW
** FROM THE UNSER DIVERSION
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** THROUGH THE EXISTING 38" X 68" CULVERT EQUIV. SIZE = 48"
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.01
                     PIPE DIA=48  N=0.013
COMPUTE TRAVEL TIME ID=1  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=100 FT  SLOPE=0.005
ROUTE                ID=1 HYDROGRAPH NO=160.23 INFLOW ID=2 DT=0.0
PRINT HYD            ID=1  CODE=1
** ADD THE FLOW IN EXISTING CULVERT TO THE FLOW FROM THE UNSER STORM DRAIN AT
** THE SAD 214 POND
ADD HYD              ID=2  HYDROGRAPH NO=160.24 ID I=1  ID II=10
PRINT HYD            ID=2  CODE=1
** COMPUTE A HYDROGRAPH FOR PARCEL A-1
COMPUTE NM HYD       ID=1  HYD=180.1  DA=0.0338
                     %A=90.0  %B=0.0  %C=0.0  %D=10.0  TP=0.133333
                     MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
** ADD THE FLOW FROM PARCAEL A-1 DIRECTLY TO THE MODIFIED SAD 214 POND
ADD HYD              ID=3  HYDROGRAPH NO=180.11 ID I=2  ID II=1
PRINT HYD            ID=3  CODE=1
*****************************************************************************
** ROUTE THE FLOW THROUGH THE SAD 214 POND.
** ASSUME OUTFLOW IS CONTROLLED BY ENTRANCE CONTROL OF A 42" STORM DRAIN TO
** ELEVATION 5096 THEN ASSUME HGL IN TIERRA BAYITA S.D. IS AT 5093.4 AND THE
** 42" STORM DRAINS FLOWS FULL WITH A SUBMERGED OUTLET.
** THE INVERT OF THE OUTLET PIPE IS ASSUMED TO BE DEPRESSED 2' BELOW THE INVERT
** OF THE POND TO 5091.0.
** VOLUME ESTIMATED FROM E.A.I. PROPOSED POND MODIFICATION CONTOURS
** ASSUMES THE POND BOTTOM IS RESTORED TO THE ORIGINAL DESIGN ELEV. OF 5095.
** ALSO ASSUMES A DEPRESSED AREA IS CONSTRUCTED AT THE WEST END OF THE POND
** WITH A INVERT ELEVATION OF 5093. THIS DEPRESSED AREA WILL PREVENT FREQUENT
** FLOWS FROM ENTERING THE LARGE FLAT AREA OF THE POND BOTTOM.
*****************************************************************************
ROUTE RESERVOIR      ID=10 HYDROGRAPH NO=180.12  INFLOW ID=3  CODE=24
                     OUTFLOW(cfs)     STORAGE(ac ft)     ELEV(ft)
                        0.00             0.00              5093.0
                       42.0             0.017              5094.0
                       56.0             0.088              5095.0
                       76.0             2.093              5096.0
                       89.0             4.238              5097.0
                       99.0             6.539              5098.0
                      109.0             9.007              5099.0
                      114.0            10.564              5099.6
                      120.0            11.653              5100.0
PRINT HYD            ID=10  CODE=1
** ROUTE THE OUTFLOW FROM THE POND TO THE TIERRA BAYITA STORM DRAIN IN UNSER
** BOULEVARD. THE FRICTION SLOPE @ THE PEAK Q IS INPUT AS THE PIPE SLOPE
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0104
                     PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=2  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=220 FT  SLOPE=0.0135
ROUTE                ID=2 HYDROGRAPH NO=180.13  INFLOW ID=10  DT=0.0
PRINT HYD            ID=2  CODE=1

**ADD THE ROUTED OUTFLOW FROM THE SAD 214 POND TO THE FLOW FROM THE
**THE UNSER DIVERSION STORM DRAIN AT THE TIERRA BAYITA STORM DRAIN
**NO FLOW IS IN THE UNSER STORM DRAIN IN THIS CONDITION
**ADD HYD              ID=3  HYDROGRAPH NO=180.14 ID I=19  ID II=2
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**PRINT HYD              ID=3  CODE=1
**ADD THE FLOW LEFT IN THE STREET ON THE EAST AND WEST SIDES OF UNSER BLVD. AS
**IT EXITS THE ATRISCO BUSINESS PARK
ADD HYD                ID=1  HYDROGRAPH NO=180.15 ID I=6  ID II=9
PRINT HYD              ID=1  CODE=1
** ASSUME INLETS WILL BE CONSTRUCTED TO INTERCEPT THE FLOW LEFT IN UNSER BLVD
** ADD THE FLOW IN THE STREET TO THE TIERRA BAYITA STORM DRAIN
ADD HYD                ID=2   HYDROGRAPH NO=180.16 ID I=2  ID II=1
PRINT HYD              ID=2  CODE=3
FINISH
```

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*****************************************************************************
*****************************************************************************
** FILE NAME: TBSDWD.HMI (TIERRA BAYITA STORM DRAIN WATERSHED DEVELOPED)
** CURRENT FILE UPDATED:  9-27-93
** ANALYSIS FOR ATRISCO BUSINESS MASTER DRAINAGE PLAN
** UPPER WATERSHED OF THE FUTURE TIERRA BAYITA STORM DRAIN
** INCLUDES THE PROPOSED UNSER DIVERSION  WATERSHED, THE UNSER STORM
** DRAIN WATERSHED AND TRACT A-1 OF ATRISCO BUSINESS PARK
** ANALYSIS ASSUMPTIONS:
** FLOWS NORTH OF I-40 ARE CUT OFF BY FUTURE I-40 INTERCEPTER CHANNEL
** THE UNSER DIVERSION WATERSHED IS FULLY DEVELOPED
** ALL OF THE PROPERTY IN ATRISCO BUSINESS PARK IS FULLY DEVELOPED
** LAND TREATMENT FACTORS SIMILAR TO THE LAND USES REFLECTED IN THE CURVE
** NUMBERS USED IN THE WEST BLUFF STUDY.*****************************************
*****************************************************************************
*****************************************************************************
START                 0.0 HOURS ***** TWENTY FOUR HOUR STORM******
*S 100 YEAR STORM
RAINFALL              TYPE=2  0.0  1.87  2.20  2.66    DT=0.0500
** 50 YEAR STORM
**RAINFALL            TYPE=2  0.0  1.70  1.98  2.39    DT=0.0500
** 25 YEAR STORM
**RAINFALL            TYPE=2  0.0  1.51  1.76  2.12    DT=0.0500
** 10 YEAR STORM
**RAINFALL            TYPE=2  0.0  1.25  1.47  1.77    DT=0.0500
** 5 YEAR STORM
**RAINFALL            TYPE=2  0.0  1.04  1.24  1.51    DT=0.0500
**  2 YEAR STORM
**RAINFALL            TYPE=2  0.0  0.74  0.95  1.15    DT=0.0500
*****************************************************************************
*S BEGIN UNSER DIVERSION WATERSHED
*****************************************************************************
*****************************************************************************
** THE UNSER DIVERSION SYSTEM WAS MODELED USING DESIGN POND VOLUMES REDUCED
** BY A QUANTITY ROUGHLY EQUIVALENT TO .5 cf PER sf OF POND BOTTOM. THIS
** REDUCTION WAS MADE TO ACCOUNT FOR ANTICIPATED GRADING MODIFICATIONS TO THE
** POND BOTTOMS TO CHANNELIZE THE FREQUENT FLOWS EXPECTED FROM THE WATERSHED
** AS IT IS DEVELOPED IN THE FUTURE.
** INITIAL MODEL RUNS INDICATED THAT IF THE DEVELOPED CONDITION WATERSHED WERE
** ALLOWED TO DISCHARGE TO THE PONDS UNCONTROLLED FREEBOARD BELOW THE EMERGENCY
** SPILLWAY WOULD BE BETWEEN ONE AND TWO FEET. BECAUSE THE GOAL OF THE DESIGN
** IS TO PROVIDE 2 FEET OF FREEBOARD IN THE 100 YEAR STORM THE RUNOFF FROM
** THE WATERSHED WAS MODELED TO SIMULATE DETENTION IN WATERSHED ABOVE THE
** SYSTEM. IT WAS ASSUMED THAT RUNOFF FROM THE PUBLIC STREETS WILL DISCHARGE
** UNCONTROLLED TO THE SYSTEM. DETENTION OF FLOWS WILL OCCUR ON INDIVIDUAL
** TRACTS. TO APPROXIMATE THIS CONDITION THE TIMES TO PEAK IN INDIVIDUAL BASINS
** WERE INCREASED BY A UNIFORM AMOUNT OF TIME ABOVE THE CALULATED TIME TO PEAK.
** IT WAS FOUND THAT INCREASING THE TIMES TO PEAK BY 0.14 HOURS REDUCED THE
** PEAK FLOW RATES FROM THE WATERSHED TO ABOUT 2.6 cfs PER ac AND ALLOWED
** APPROXIMATELY 2' OF FREEBOARD IN ALL OF THE PONDS. THEREFORE .14 hrs WAS
** WAS ADDED TO THE TIMES TO PEAK IN BASIN 120, 130, 140, & 150 TO CALCULATE
** THE HYDROGRAPHS USED IN POND ROUTING. A SECOND HYDROGRAPH WAS CALCULATED FOR
** EACH BASIN UTILIZING THE CALCULATED TIME TO PEAK FOR THE BASIN.
** BECAUSE THE SYSTEM IS SENSITIVE TO TIMING DETAILED MODELING OF THE WATERSHED
** AND THE PONDS SHOULD BE DONE AS A PART OF PLANS FOR DEVELOPMENT IN THE
** WATERSHED
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** FUTURE PLANNERS MAY FIND THAT IT IS MORE DESIREABLE TO ENLARGE THE PONDS OF
** THE UNSER DIVERSION SYSTEM THAN TO PROVIDE DETENTION ON INDIVIDUAL TRACTS.
*************************************************************************
*************************************************************************
** COMPUTE HYDROGRAPH FOR BASIN 120.0 (BASIN ABOVE DAYTONA) FOR UNCONTROLLED
** FLOW CONDITION
COMPUTE NM HYD        ID=1  HYDROGRAPH NO=120.0 DA=0.1125
                      %A=0.0  %B=15.0  %C=10.0  %D=75.0  TP=0.1333
                      MASS RAINFALL=-1
PRINT HYD             ID=1  CODE=1
** COMPUTE HYDROGRAPH BASIN 120.0 (BASIN ABOVE DAYTONA) ASSUME DETENTION OCCURS
** IN THE BASIN
COMPUTE NM HYD        ID=1  HYDROGRAPH NO=120.0 DA=0.1125
                      %A=0.0  %B=15.0  %C=10.0  %D=75.0  TP=0.2733
                      MASS RAINFALL=-1
PRINT HYD             ID=1  CODE=1
**ROUTE THE FLOW FROM BASIN 120.0
**THROUGH UNSER DIVERSION  POND NO. 6 LOCATED IMEDIATELY SOUTH OF DAYTONA ROAD
**ASSUME ORIFICE CONTROL AT THE ENTRANCE TO THE  36" DIA OUTLET PIPE AND
**THROUGH 9 10" DIA HOLES CORED THROUGH THE CONCRETE OUTLET STRUCTURE
**TOP OF OUTLET STRUCTURE AT ELEV 76.0
**OUTFLOW CURVE DOES NOT INCLUDE EMERGENCY SPILLWAY CAPACITY
ROUTE RESERVOIR       ID=5 HYDROGRAPH NO=120.02 INFLOW ID=1  CODE=24
                      OUTFLOW(cfs)     STORAGE(ac ft)     ELEV(ft)
                              0              0.00          70
                           10.3              0.0001        71
                           23.4              0.5072        72
                           38.6              1.4507        73
                           50.0              2.4659        74
                           59.0              3.5544        75
                           66.6              4.7162        76 TOP OF OUTLET STRCTR
                           85.3              5.9549        77
                           91.7              7.2782        77.9 EMERGENCY SPILLWAY
                           97.6              8.6918        79
PRINT HYD             ID=5  CODE=2
**ROUTE THE OUTFLOW FROM THE POND THROUGH A 36" DIA STORM DRAIN
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.027
                      PIPE DIA=36  N=0.013
COMPUTE TRAVEL TIME ID=1  REACH=1  NUMBER OF VALLEY SECTIONS=1
                      LENGTH=429 FT  SLOPE=0.027
ROUTE                 ID=1  HYDROGRAPH NO=120.03  INFLOW ID=5  DT=0.0
PRINT HYD             ID=1  CODE=1
**ROUTE THE STORM DRAIN FLOW THROUGH A 48" DIA STORM DRAIN
**TO UNSER DIVERSION POND #4
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.028
                      PIPE DIA=48  N=0.013
COMPUTE TRAVEL TIME ID=11  REACH=1  NUMBER OF VALLEY SECTIONS=1
                      LENGTH=253 FT  SLOPE=0.028
ROUTE                 ID=11 HYDROGRAPH NO=120.04  INFLOW ID=1  DT=0.0
PRINT HYD             ID=11 CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 130.0 (THE BASIN BETWEEN LAS VOLCANES AND
** DAYTONA RD) FOR UNCONTROLLED FLOW CONDITION.
COMPUTE NM HYD        ID=1  HYDROGRAPH NO=130.0   DA=0.0688
                      %A=0.0  %B=15.0  %C=10.0  %D75.0  TP=0.13333
                      MASS RAINFALL=-1
PRINT HYD             ID=1  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 130.0 (THE BASIN BETWEEN LAS VOLCANES AND
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** DAYTONA RD) ASSUME DETENTION OCCURS IN THE BASIN
COMPUTE NM HYD        ID=1  HYDROGRAPH NO=130.0   DA=0.0688
                      %A=0.0  %B=15.0  %C=10.0  %D75.0  TP=0.273333
                      MASS RAINFALL=-1
PRINT HYD             ID=1  CODE=1
** ADD THE FLOW FROM BASIN 130.0 TO THE FLOW IN THE STORM DRAIN
ADD HYD               ID=10  HYDROGRAPH NO=130.02 ID I=1  ID II=11
PRINT HYD             ID=10  CODE=1
**ROUTE THE FLOW IN THE  STORM DRAIN THROUGH UNSER DIVERSION POND #4
**OUTFLOW BASED ON ORIFICE CONTROL AT THE ENTRANCE TO THE 42" DIA OUTLET PIPE
**AND 12 10" DIA HOLES CORED THROUGH THE CONCRETE OUTLET STRUCTURE
**IMEDIATELY HIGHER THAN THE OUTLET STRUCTURE FLOW IS ALSO CONTROLLED BY WIER
**FLOW OVER THE TOP OF THE STRUCTURE.
**OUTFLOW CURVE DOES NOT INCLUDE EMERGENCY SPILLWAY CAPACITY
ROUTE RESERVOIR       ID=5 HYDROGRAPH NO=130.03  INFLOW ID=10  CODE=24
                      OUTFLOW(cfs)     STORAGE(ac ft)     ELEV(ft)
                              0              0.0         47
                              8.6            0.0001      48
                             20.2            0.0914      49
                             29.2            0.8788      50
                             47.0            1.8710      51
                             57.4            2.7303      51.9 TOP OF OUTLET STR
                             58.5            2.9451      52
                            101.4            4.1026      53
                            111.0            5.3448      54
                            120.1            6.6728      55.1 EMERGENCY SPILLWAY
                            128.4            8.0877      56
PRINT HYD             ID=5  CODE=2
**ROUTE THE OUTFLOW FROM THE POND THROUGH A 42" DIA STORM DRAIN TO UNSER
**DIVERSION POND #3
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.013
                      PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                      LENGTH=139 FT  SLOPE=0.013
ROUTE                 ID=10  HYDROGRAPH NO=130.04  INFLOW ID=5  DT=0.0
PRINT HYD             ID=10  CODE=1
**ROUTE FLOW THROUGH UNSER DIVERSION POND # 3 NORTH OF BLUEWATER ROAD
**OUTFLOW IS BASED ON ORIFICE CONTROL AT THE ENTRANCE OF THE 42" DIA. OUTLET
**PIPE AND THROUGH 9 10" DIA HOLES CORED THROUGH THE CONCRETE OUTLET STRUCTURE
**OUTFLOW CURVE DOES NOT INCLUDE EMERGENCY SPILLWAY CAPACITY
ROUTE RESERVOIR       ID=5 HYDROGRAPH NO=130.05 INFLOW ID=10  CODE=24
                      OUTFLOW(cfs)     STORAGE(ac ft)     ELEV(ft)
                              0              0.00        43
                              7.7            0.0001      44
                             17.5            0.3570      45
                             28.9            0.9026      46
                             36.5            1.5024      47
                             40.0            2.1579      47.5 TOP OF OUTLET STRCT
                             65.7            2.5143      48
                             98.3            2.6925      48.5
                            103.4            2.8706      49
                            113.9            3.6421      50
                            123.0            4.4738      51.2 EMERGENCY SPILLWAY
                            130.8            5.3669      52
PRINT HYD             ID=5  CODE=2
**ROUTE THE OUTFLOW FROM THE POND THROUGH A 42" DIA S.D. UNDER BLUWATER RD
**TO UNSER DIVERSION POND #2
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COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.015
                     PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=168 FT  SLOPE=0.010
ROUTE                ID=10  HYDROGRAPH NO=130.06  INFLOW ID=5  DT=0.0
PRINT HYD            ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 140.0(BASIN BETWEEN LOS VOLCANES AND BLUEWATER)
** FOR UNCONTROLLED FLOW CONDITION
COMPUTE NM HYD       ID=1  HYDROGRAPH NO=140.0   DA=0.1484
                     %A=0.0  %B=15.0  %C=10.0  %D75.0  TP=0.2098
                     MASS RAINFALL=-1
PRINT HYD            ID=1  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 140.0(BASIN BETWEEN LOS VOLCANES AND BLUEWATER)
** ASSUME DETENTION OCCURS IN THE BASIN
COMPUTE NM HYD       ID=1  HYDROGRAPH NO=140.0   DA=0.1484
                     %A=0.0  %B=15.0  %C=10.0  %D75.0  TP=0.3498
                     MASS RAINFALL=-1
PRINT HYD            ID=1  CODE=1
**ADD THE FLOWS FROM BASIN 140.0 TO THE FLOW FROM THE UPSTREAM POND
ADD HYD              ID=12  HYDROGRAPH NO=140.02  ID I=10 ID II=1
PRINT HYD            ID=12  CODE=1
**ROUTE THE COMBINED FLOW THROUGH UNSER DIVERSION POND #2 SOUTH OF BLUEWATER RD
**OUTFLOW BASED ON INLET CONTROL THE 48" DIA OUTLET PIPE AND 9 10" DIA HOLES
**CORED IN THE CONCRETE OUTLET STRUCTURE. THE FLOW THROUGH THE 10" DIA  HOLES
**AND OVER THE TOP OF THE OUTLET STRUCTURE IS THE CONTROL FOR A SHORT DISTANCE
**OVER THE TOP OF THE OUTLET STRUCTURE.
**OUTFLOW CURVE DOES NOT INCLUDE EMERGENCY SPILLWAY CAPACITY
ROUTE RESERVOIR      ID=5 HYDROGRAPH NO=140.03  INFLOW ID=12  CODE=24
                     OUTFLOW(cfs)    STORAGE(ac ft)    ELEV(ft)
                              0.0            0.0         37.9
                             10.8            0.0001      39
                             24.3            0.3643      40
                             39.9            1.1980      41
                             50.0            2.1556      42
                             58.8            3.1921      43
                             67.3            4.3088      44
                             77.0            5.2675      44.8 TOP OF OUTLET STR
                             79.0            5.5072      45
                            156.5            6.7886      46
                            167.3            8.1545      47
                            179.5            9.4600      47.9 EMERGENCY SPILLWAY
                            189.0           11.1410      49
PRINT HYD            ID=5  CODE=2
**ROUTE THE OUTFLOW FROM THE POND THROUGH  1  48" DIA CULVERT UNDER A CHECK
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.025
                     PIPE DIA=48  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=128 FT  SLOPE=0.0125
ROUTE                ID=10  HYDROGRAPH NO=140.04  INFLOW ID=5  DT=0.0
PRINT HYD            ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 150.0 (THE AREA SOUTH OF BLUEWATER) FOR
** UNCONTROLLED FLOW CONDITION
COMPUTE NM HYD       ID=1  HYDROGRAPH NO=150.0 DA=0.0430
                     %A=0.0  %B=15.0  %C=10.0  %D=75.0  TP=0.1333
                     MASS RAINFALL=-1
PRINT HYD            ID=1  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 150.0 (THE AREA SOUTH OF BLUEWATER) ASSUME
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** DETENTION OCCURS IN THE BASIN
COMPUTE NM HYD        ID=1  HYDROGRAPH NO=150.0 DA=0.0430
                      %A=0.0  %B=15.0  %C=10.0  %D=75.0  TP=0.2733
                      MASS RAINFALL=-1
PRINT HYD             ID=1  CODE=1
** ADD THE OUTFLOW FROM THE POND TO THE FLOW FROM BASIN 150.0
ADD HYD               ID=10  HYDROGRAPH NO=150.02 ID I=10  ID II=1
PRINT HYD             ID=10  CODE=1
**ROUTE THE COMBINED FLOW THROUGH UNSER DIVERSION POND #1 NORTH OF THE
**SOUTH BOUNDARY LINE OF THE ATRISCO BUSINESS PARK
**OUTFLOW BASED ON INLET CONTROL OF THE 42" DIA OUTLET PIPE AND 12 10" DIA
**HOLES CORED IN THE CONCRETE OUTLET STRUCTURE. THE FLOW THROUGH 10" DIA  HOLES
**AND OVER THE TOP OF THE OUTLET STRUCTURE IS THE CONTROL FOR A SHORT DISTANCE
**OVER THE TOP OF THE OUTLET STRUCTURE.
**OUTFLOW CURVE DOES NOT INCLUDE EMERGENCY SPILLWAY CAPACITY
ROUTE RESERVOIR       ID=5 HYDROGRAPH NO=150.03  INFLOW ID=10  CODE=24
                      OUTFLOW(cfs)    STORAGE(ac ft)    ELEV(ft)
                              0             0.00        33.5
                           15.7             0.0932      35.0
                           34.6             0.6646      36.0
                           56.0             1.3370      37.0
                           68.4             2.0720      38.0
                           78.6             2.8712      39.0
                           87.6             3.7358      40.0
                           95.7             4.6673      41.0 TOP OF OUTLET
                          126.8             5.6673      42.0
                          134.8             6.7372      43.0
                          142.2             7.7642      43.9 EMERGENCY SPILLWAY
                          427.0             9.0922      45.0
PRINT HYD             ID=5  CODE=2
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**************************************
**ROUTE THE OUTFLOW FROM THE POND THROUGH A 42" DIA STORM DRAIN LOCATED ALONG
**THE BACK LOT LINE OF LOT 2, UNIT 2, ATRISCO BUSINESS PARK
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0165
                      PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                      LENGTH=994 FT  SLOPE=0.0165
ROUTE                 ID=10  HYDROGRAPH NO=150.04  INFLOW ID=5  DT=0.0
PRINT HYD             ID=10  CODE=1
**ROUTE THE STORM DRAIN FLOW TO EAST LINE OF LOT 2, UNIT 2, ATRISCO BUSINESS
**PARK IN A 42" STORM DRAIN
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.019
                      PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=2  REACH=1  NUMBER OF VALLEY SECTIONS=1
                      LENGTH=246 FT  SLOPE=0.019
ROUTE                 ID=2  HYDROGRAPH NO=150.05  INFLOW ID=10  DT=0.0
PRINT HYD             ID=2  CODE=1
** COMPUTE HYDROGRAPH FOR LOT 2 (DEVELOPED CONDITION)*************************
COMPUTE NM HYD        ID=1  HYDROGRAPH NO=160.1  DA=0.0517
                      %A=0.0  %B=15.0  %C=10.0  %D=75.0  TP=0.13333
                      MASS RAINFALL=-1
PRINT HYD             ID=1  CODE=1
** ADD FLOWS FROM LOT 2 TO THE STORM DRAIN *******************
ADD HYD               ID=11 HYDROGRAPH NO=160.12  ID I=1  ID II=2
PRINT HYD             ID=11  CODE=1
**ROUTE THE FLOW DOWN A 48" DIA. STORM DRAIN
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COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.019
                     PIPE DIA=48  N=0.013
COMPUTE TRAVEL TIME ID=2  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=382 FT  SLOPE=0.019
ROUTE                ID=2  HYDROGRAPH NO=160.13  INFLOW ID=11  DT=0.0
PRINT HYD            ID=2  CODE=1
**ROUTE THE FLOW DOWN A 48" DIA. STORM DRAIN TO THE TIERRA BAYITA STORM DRAIN
**IN UNSER BOULEVARD
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.015
                     PIPE DIA=48  N=0.013
COMPUTE TRAVEL TIME ID=19  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=880 FT  SLOPE=0.015
ROUTE                ID=19  HYDROGRAPH NO=160.14  INFLOW ID=2  DT=0.0
PRINT HYD            ID=19  CODE=1
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*************************************
*****************************************************************************
*S BEGIN UNSER BOULEVARD STORM DRAIN SYSTEM BETWEEN I-40 AND THE FUTURE TIERRA
*S BAYITA STORM DRAIN
*****************************************************************************
** ASSUMPTIONS: ALL WATER ON EAST SIDE OF UNSER IS INTERCEPTED BY THE STORM
** DRAIN EXCEPT THE FLOW WHICH IS IN EXCESS OF THE S.D. CAPACITY BELOW THE
** INLETS ADJACENT TO THE SAD 214 POND.*****************************************
** FLOW IN EXCESS OF THE STORM DRAIN CAPACITY IN OTHER AREAS IS ASSUMED TO BE
** CARRIED IN THE WEST SIDE OF UNSER WITH A SMALL PORTION OF THE FLOW CROSSING
** OVER TO THE EAST SIDE AT THE INTERSECTION WITH BLUWATER. FLOWS FROM TRACT
** "T" ARE ASSUMED TO ENTER THE STORM DRAIN AT THE INTERSECTION OF LOS VOLCANES
** AND UNSER. FLOWS FROM TRACTS "J" AND TRACT "K" ARE ASSUMED TO ENTER THE
** STORM DRAIN AT THE INTERSECTION OF BLUEWATER AND UNSER. FLOW FROM
** THE HONEYWELL SITE ARE ASSUMED TO DISCHARGE DIRECTLY INTO THE S.A.D. 214
** POND. FLOW FROM PARCEL A-1, UNIT 2 ATRISCO BUSINESS PARK IS ASSUMED TO
** DISCHARGE DIRECTLY TO THE S.A.D. 214 POND
** FLOW FROM TRACTS "T", "J",AND "K" ARE RESTRICTED TO THE UNDEVELOPED FLOW
** RATES AS REPORTED IN THE DRAINAGE REPORT FOR SAD 214. THIS RESTRICTION IS
** DUE TO LIMITED CAPACITY AVAILABLE IN THE EXISTING UNSER BOULEVARD STORM
** DRAIN.
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** COMPUTE HYDROGRAPH FOR BASIN 170.1 TRACT "T"
COMPUTE NM HYD       ID=2  HYD=170.1  DA==0.0633
                     %A=0.0  %B=15.0  %C=0.0  %D=85.0  TP=0.133333
                     MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** ROUTE FLOW FROM BASIN 170.1 THRU AN ASSUMED POND
** ALLOWABLE RELEASE RATE=47.2cfs PER THE SAD 214 DRAINAGE PLAN
ROUTE RESERVOIR      ID=6 HYDROGRAPH NO=170.15  INFLOW ID=2  CODE=24
                     OUTFLOW(cfs)     STORAGE(ac ft)     ELEV(ft)
                        0.00             0.00              100.00
                       25.96             0.70              101.00
                       38.70             1.68              102.00
                       47.20             2.78              103.00
                       54.00             4.00              104.00
PRINT HYD            ID=6  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.2 THE WEST PORTION OF UNSER BOULEVARD
** AND HIGHWAY RIGHT OF WAY NORTH OF LOS VOLCANES
** ASSUME ALL WATER ABOVE THIS BASIN IS INTERCEPTED BY THE INLETS IN UNSER AND
** ROUTED TO THE HIGHWAY INTERCHANGE POND
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COMPUTE NM HYD        ID=3  HYD=170.2  DA==0.0077
                      %A=0.0  %B=60.0  %C=0.0  %D=40.0  TP=0.133333
                      MASS RAINFALL=-1
PRINT HYD             ID=3 CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.3 LOS VOLCANES WEST OF UNSER
COMPUTE NM HYD        ID=4  HYD=170.3  DA==0.0037
                      %A=0.0  %B=10.0  %C=0.0  %D=90.0  TP=0.13333
                      MASS RAINFALL=-1
PRINT HYD             ID=4 CODE=1
** ADD THE HYDROGRAPHS FROM BASINS 170.1 AND 170.3
ADD HYD               ID=5  HYDROGRAPH NO=170.31  ID I=6  ID II=4
PRINT HYD             ID=5  CODE=1
** ADD THE COMBINED HYDROGRAPH FROM BASINS 170.2 AND 170.3 TO BASIN 170.1 HYD.
** AT THE INTERSECTION OF LOS VOLCANES AND UNSER
ADD HYD               ID=2  HYDROGRAPH NO=170.32  ID I=3  ID II=5
PRINT HYD             ID=2  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.4 THE EAST PORTION OF UNSER BOULEVARD
** AND HIGHWAY RIGHT OF WAY NORTH OF LOS VOLCANES
** ASSUME ALL WATER ABOVE THIS BASIN IS INTERCEPTED BY THE INLETS IN UNSER AND
** ROUTED TO THE HIGHWAY INTERCHANGE POND
COMPUTE NM HYD        ID=3  HYD=170.4  DA==0.0060
                      %A=0.0  %B=45.0  %C=0.0  %D=55.0  TP=0.133333
                      MASS RAINFALL=-1
PRINT HYD             ID=3 CODE=1
** ADD THE FLOW FROM THE EAST SIDE OF UNSER TO THE TOTAL FLOW ON THE WEST
** SIDE OF UNSER
ADD HYD               ID=5  HYDROGRAPH NO=170.43 ID I=2  ID II=3
PRINT HYD             ID=5  CODE=1
** DIVIDE OUT FLOW WHICH EXCEEDS THE NON PRESSURE PIPE CAPACITY OF THE DOWN
** STREAM PORTION OF UNSER BLVD STORM DRAIN. S.D.= 30" RCP, MIN SLOPE = 0.01
** HYD 170.44 = FLOW TO UNSER STORM DRAIN
** HYD 170.45= FLOW TO REMAIN IN STREET
DIVIDE HYD            ID=5  Q=41.0  ID I=2    HYD I=170.44
                                   ID II=11  HYD II=170.45
PRINT HYD             ID=2  CODE=1
PRINT HYD             ID=11  CODE=1
** ROUTE THE FLOW IN THE UNSER BLVD STORM DRAIN FROM THE INTERSECTION OF
** LOS VOLCANES AND UNSER TO THE SECOND MANHOLE SOUTH OF THE INTERSECTION
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.010
                      PIPE DIA=30  N=0.013
COMPUTE TRAVEL TIME ID=1  REACH=1  NUMBER OF VALLEY SECTIONS=1
                      LENGTH=447 FT  SLOPE=0.010
ROUTE                 ID=1  HYDROGRAPH NO=170.46  INFLOW ID=2  DT=0.0
PRINT HYD             ID=1  CODE=1
** ROUTE THE FLOW DOWN UNSER STORM DRAIN FROM THE SECOND M.H. SOUTH OF
** LOS VOLCANES TO THE THIRD MANHOLE SOUTH OF LOS VOLCANES
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.01744
                      PIPE DIA=30  N=0.013
COMPUTE TRAVEL TIME ID=3  REACH=1  NUMBER OF VALLEY SECTIONS=1
                      LENGTH=450 FT  SLOPE=0.01744
ROUTE                 ID=3  HYDROGRAPH NO=170.47  INFLOW ID=1  DT=0.0
PRINT HYD             ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.5 THE WEST HALF OF UNSER BOULEVARD BETWEEN
** LOS VOLCANES AND THE THIRD MANHOLE SOUTH OF THE INTERSECTION
COMPUTE NM HYD        ID=2  HYD=170.5  DA==0.0029
                      %A=0.0  %B=20.0  %C=0.0  %D=80.0  TP=0.13333
                      MASS RAINFALL=-1
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PRINT HYD              ID=2 CODE=1
** ADD THE HYDROGRAPH FROM BASIN 170.5 TO THE ROUTED UNSER STORM DRAIN FLOW
ADD HYD                ID=4  HYDROGRAPH NO=170.51  ID I=2  ID II=3
PRINT HYD              ID=4  CODE=1
** ROUTE THE FLOW IN THE STREET FROM THE LOS VOLCANES & UNSER INTERSECTION TO
** THE THIRD MANHOLE SOUTH OF THE INTERSECTION. USE AVERAGE SLOPE.USE FUTURE
** CROSS SECTION AS SHOWN ON SAD 214 DRAINAGE PLAN SHEET. ADD EXISTING SIDEWALK
** ALONG CURB. ASSUME ALL FLOW THAT COULD NOT ENTER THE STORM DRAIN AT
** LOS VOLCANES REMAINS ON THE WEST SIDE OF THE STREET.
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=3
                       MINIMUM ELEV=100.00 FT  MAXIMUM ELEV=100.87 FT
                       CHANNEL SLOPE=0.013  FLOOD PLAIN SLOPE=0.0129
                       N=0.035  DIST=5  N=0.017  DIST=10  N=-0.017  DIST=46.15
                       DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                         0   100.87   5     100.77  10    100.67  10.15 100.00
                        12    100.13  46    100.81  46.15 100.31
COMPUTE TRAVEL TIME ID=2  REACH NO=1  VALLEY SECTIONS=1
                       LENGTH=950 FT  SLOPE=0.0129
ROUTE                  ID=2  HYDROGRAPH NO=170.48  INFLOW ID=11 DT=0.0
PRINT HYD              ID=2  CODE=1
** ASSUME THE FLOW IN THE STREET IS INTERCEPTED BY EXISTING INLETS LOCATED
** ALONG UNSER BOULEVARD
** ADD THE ROUTED FLOW IN THE STREET TO THE STORM DRAIN FLOW
** @ THE THIRD MANHOLE SOUTH OF LOS VOLCANES
ADD HYD                ID=2  HYDROGRAPH NO=170.52  ID I=4  ID II=2
PRINT HYD              ID=2  CODE=1
** ROUTE THE FLOW IN THE UNSER BLVD STORM DRAIN FROM THE THIRD MANHOLE SOUTH
** OF LOS VOLCANES TO THE FIRST MANHOLE SOUTH OF THE INTERSECTION OF BLUEWATER
** AND UNSER. USE AVERAGE SLOPE.
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.016
                       PIPE DIA=36  N=0.013
COMPUTE TRAVEL TIME ID=3  REACH=1  NUMBER OF VALLEY SECTIONS=1
                       LENGTH=795 FT  SLOPE=0.016
ROUTE                  ID=3  HYDROGRAPH NO=170.55  INFLOW ID=2  DT=0.0
PRINT HYD              ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.6 THE WEST PORTION OF UNSER BOULEVARD
** BETWEEN THE THIRD MANHOLE SOUTH OF LOS VOLCANES AND THE INTERSECTION OF
** BLUEWATER AND UNSER
COMPUTE NM HYD         ID=2  HYD=170.6  DA==0.0018
                       %A=0.0  %B=20.0  %C=0.0  %D=80.0  TP=0.13333
                       MASS RAINFALL=-1
PRINT HYD              ID=2  CODE=1
** ASSUME THE FLOW IS INTERCEPTED BY INLETS LOCATED ALONG UNSER BOULEVARD
** ADD THE HYDROGRAPH FROM BASINS 170.6 TO THE UNSER STORM DRAIN FLOW
ADD HYD                ID=4  HYDROGRAPH NO=170.61  ID I=2  ID II=3
PRINT HYD              ID=4  CODE=1
**COMPUTE A HYDROGRAPH FOR TRACTS "J" AND "K", THE BELL GROUP SITE
COMPUTE NM HYD         ID=2  HYD=170.7  DA==0.0859
                       %A=0.0  %B=15.0  %C=0.0  %D=85.0  TP=0.13333
                       MASS RAINFALL=-1
PRINT HYD              ID=2  CODE=1
** ROUTE FLOW FROM TRACTS "J" AND "K" THRU AN ASSUMED POND
** ALLOWABLE RELEASE RATE=56.6 cfs PER THE SAD 214 DRAINAGE PLAN
ROUTE RESERVOIR        ID=3 HYDROGRAPH NO=170.71  INFLOW ID=2  CODE=24
                       OUTFLOW(cfs)     STORAGE(ac ft)     ELEV(ft)
                          0.00             0.00              100.00
                         31.13             1.03              101.00
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                    46.41            2.46            102.00
                    56.60            4.10            103.00
                    65.00            6.00            104.00
PRINT HYD           ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.8 BLUEWATER RD.FROM THE WEST BOUNDARY OF
** ATRISCO BUSINESS PARK TO UNSER BOULEVARD
COMPUTE NM HYD      ID=2  HYD=170.8  DA==0.0054 SQ MI
                    %A=0.0  %B=10.0  %C=0.0  %D=90.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ADD THE FLOW FROM BLUEWATER RD. TO THE CONTROLLED FLOW FROM TRACTS "J" & "K"
ADD HYD             ID=5  HYDROGRAPH NO=170.81  ID I=3  ID II=2
PRINT HYD           ID=5  CODE=1
** ADD THE COMBINED FLOW FROM TRACTS "J" AND "K" & BLUEWATER ROAD TO THE FLOW
** IN THE STORM DRAIN AT THE UNSER &  BLUEWATER INTERSECTION
ADD HYD             ID=2  HYDROGRAPH NO=170.82  ID I=4  ID II=5
PRINT HYD           ID=2  CODE=1
** COMPUTE A HYDROGRAPH FOR THE EAST SIDE OF UNSER BLVD. BETWEEN LOS VOLCANES
** AND BLUEWATER
COMPUTE NM HYD      ID=3  HYD=170.9  DA==0.0047 SQ MI
                    %A=0.0  %B=20.0  %C=0.0  %D=80.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=3 CODE=1
** ADD THE FLOW FROM THE EAST SIDE OF UNSER TO THE TOTAL FLOW IN THE STORM
** DRAIN AND IN THE STREET AT THE INTERSECTION OF BLUEWATER AND UNSER
ADD HYD             ID=4  HYDROGRAPH NO=170.91  ID I=3  ID II=2
PRINT HYD           ID=4  CODE=1
** DIVIDE OUT FLOW WHICH EXCEEDS THE NON PRESSURE PIPE CAPACITY OF THE DOWN
** STREAM PORTION OF UNSER BLVD STORM DRAIN. S.D.= 42" RCP, MIN SLOPE = 0.00842
** HYD 170.92= FLOW TO UNSER STORM DRAIN
** HYD 170.93= FLOW TO REMAIN IN STREET
DIVIDE HYD          ID=4  Q=92     ID I=2   HYD I=170.92
                                  ID II=10  HYD II=170.93
PRINT HYD           ID=2  CODE=1
PRINT HYD           ID=10  CODE=1
** DIVIDE OUT THE STREET FLOW WHICH MAY CROSS FROM THE WEST SIDE TO THE EAST
** SIDE OF UNSER BOULEVARD AT THE INTERSECTION WITH BLUEWATER. PLANS FOR
** UNSER BOULEVARD SHOW 0.3′ DIFFERENTIAL BETWEEN THE FLOW LINE ELEVATION AND
** THE CROWN ELEVATION AT THE CENTER OF THE INTERSECTION. ESTIMATE CROSSOVER
** FLOW UTILIZING A BROAD CRESTED WEIR FORMULA.
** HYD 170.94= FLOW TO CROSS OVER TO EAST SIDE OF STREET
** HYD 170.95= FLOW TO REMAIN ON WEST SIDE OF STREET
DIVIDE HYD          ID=10  Q=48.0  ID I=11   HYD I=170.95
                                  ID II=3  HYD II=170.94
PRINT HYD           ID=3  CODE=1
PRINT HYD           ID=11  CODE=1
** ROUTE THE STREET FLOW ON THE EAST SIDE OF UNSER BLVD. FROM THE INTERSECTION
** WITH BLUEWATER TO THE INLETS ADJACENT TO THE SAD  214 POND. USE THE FUTURE
** STREET SECTION AS SHOWN ON SAD 214 DRAINAGE PLAN SHEET. ADD EXISTING
** SIDEWALK ALONG CURB. USE AN AVERAGE STREET SLOPE
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=3
                    MINIMUM ELEV=100.00 FT  MAXIMUM ELEV=100.87 FT
                    CHANNEL SLOPE=0.0130  FLOOD PLAIN SLOPE=0.0130
                    N=0.035  DIST=5  N=0.017  DIST=10  N=-0.017  DIST=46.15
                    DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                      0   100.87   5     100.77  10    100.67  10.15 100.00
                     12    100.13  46    100.81  46.15 100.31
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COMPUTE TRAVEL TIME ID=4  REACH NO=1  VALLEY SECTIONS=1
                    LENGTH=700 FT  SLOPE=0.0130
ROUTE               ID=4  HYDROGRAPH NO=170.96  INFLOW ID=3 DT=0.0
PRINT HYD           ID=4  CODE=1
** ROUTE FLOW DOWN UNSER STORM DRAIN FROM THE INTERSECTION OF UNSER AND
** BLUEWATER TO THE JUNCTION WITH THE INLETS NEAR THE SAD 214 POND
** USE AVERAGE SLOPE
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0093
                    PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=3  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=688 FT  SLOPE=0.0093
ROUTE               ID=3  HYDROGRAPH NO=170.97  INFLOW ID=2  DT=0.0
PRINT HYD           ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR THE EAST SIDE OF UNSER BOULEVARD BETWEEN BLUEWATER
** ROAD AND THE INLETS ADJACENT TO THE SAD 214 POND
COMPUTE NM HYD      ID=2  HYD=171.1 DA=0.0021
                    %A=0.0  %B=10.0  %C=0.0  %D=90.0  TP=0.133333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ADD THE FLOW FROM BASIN 171.1 TO THE ROUTED STREET FLOW ON THE EAST SIDE OF
** UNSER AT THE INLETS ADJACENT TO THE SAD 214 POND
ADD HYD             ID=5  HYDROGRAPH NO=171.11 ID I=4  ID II=2
PRINT HYD           ID=5  CODE=1
** ADD THE TOTAL STREET FLOW ON THE EAST SIDE OF UNSER TO THE ROUTED FLOW IN
** UNSER STORM DRAIN
ADD HYD             ID=2  HYDROGRAPH NO=171.12 ID I=3  ID II=5
PRINT HYD           ID=2  CODE=1
** DIVIDE OUT FLOW WHICH EXCEEDS THE FULL PIPE CAPACITY OF THE DOWN
** STREAM PORTION OF UNSER BLVD STORM DRAIN. S.D.= 42" RCP, MIN SLOPE = 0.00993
** HYD 171.13 = FLOW TO UNSER STORM DRAIN
** HYD 171.14 = FLOW TO REMAIN IN STREET
DIVIDE HYD          ID=2   Q=100  ID I=3    HYD I=171.13
                                 ID II=9    HYD II=171.14
PRINT HYD           ID=3  CODE=1
PRINT HYD           ID=9  CODE=1
** ROUTE FLOW DOWN UNSER STORM DRAIN TO THE SAD 214 POND FROM THE
** INLETS ADJACENT TO THE SAD 214 POND.
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.00993
                    PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=56 FT  SLOPE=0.00993
ROUTE               ID=10 HYDROGRAPH NO=171.15  INFLOW ID=3  DT=0.0
PRINT HYD           ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR THE WEST SIDE OF UNSER BOULEVARD BETWEEN BLUEWATER
** ROAD AND THE INLETS ADJACENT TO THE SAD 214 POND
COMPUTE NM HYD      ID=3  HYD=171.0 DA=0.0022
                    %A=0.0  %B=10.0  %C=0.0  %D=90.0  TP=0.133333
                    MASS RAINFALL=-1
PRINT HYD           ID=3 CODE=1
** ROUTE THE STREET FLOW ON THE WEST SIDE OF UNSER BLVD. FROM THE INTERSECTION
** WITH BLUEWATER TO THE INLETS ADJACENT TO THE SAD  214 POND. USE THE FUTURE
** STREET SECTION AS SHOWN ON SAD 214 DRAINAGE PLAN SHEET. ADD EXISTING
** SIDEWALK ALONG CURB. USE AN AVERAGE STREET SLOPE
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=3
                    MINIMUM ELEV=100.00 FT  MAXIMUM ELEV=100.87 FT
                    CHANNEL SLOPE=0.0130  FLOOD PLAIN SLOPE=0.0130
                    N=0.035  DIST=5  N=0.017  DIST=10  N=-0.017  DIST=46.15
```

```
                    DIST  ELEV    DIST   ELEV   DIST   ELEV   DIST   ELEV
                      0   100.87   5     100.77  10    100.67  10.15 100.00
                     12    100.13  46    100.81  46.15 100.31
COMPUTE TRAVEL TIME ID=4  REACH NO=1  VALLEY SECTIONS=1
                    LENGTH=800 FT  SLOPE=0.0130
ROUTE               ID=4  HYDROGRAPH NO=171.01  INFLOW ID=11 DT=0.0
PRINT HYD           ID=4  CODE=1
** ADD THE ROUTED STREET FLOW ON THE WEST SIDE OF UNSER TO THE FLOW FROM BASIN
** 171.0
ADD HYD             ID=2  HYDROGRAPH NO=171.02 ID I=3  ID II=4
PRINT HYD           ID=2  CODE=1
** DIVIDE OUT FLOW WHICH EXCEEDS THE CAPACITY OF THE CONNECTOR PIPE BETWEEN THE
** INLETS AND THE CULVERT CROSSING UNSER TO THE SAD 214 POND. PIPE IS AN 18"
** RCP. ESTIMATE CAPACITY ASSUMINING PRESSURE PIPE FLOW WITH HGL AT THE SOFFIT
** AT THE OUTLET END OF THE 18" PIPE
** HYD 171.03 = FLOW TO THE CULVERT CROSSING UNSER BLVD.
** HYD 171.04 = FLOW TO REMAIN IN STREET
DIVIDE HYD          ID=2   Q=20   ID I=3    HYD I=171.03
                                 ID II=6    HYD II=171.04
PRINT HYD           ID=3  CODE=1
PRINT HYD           ID=6  CODE=1
** COMPUTE HYDROGRAPH FOR LOT 1 (THE HONEYWELL SITE) ***************************
COMPUTE NM HYD      ID=1  HYDROGRAPH NO=160.2  DA=0.0350
                    %A=0.0  %B=15.0  %C=10.0  %D=75.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=1  CODE=1
** ADD THE INTERCEPTED FLOW FROM THE WEST SIDE OF UNSER TO THE FLOW FROM LOT 1
ADD HYD             ID=2  HYDROGRAPH NO=160.21 ID I=1  ID II=3
PRINT HYD           ID=2  CODE=1
** ROUTE THE COMBINED FLOW FROM THE INLETS ON THE WEST SIDE AND LOT 1
** THROUGH THE EXISTING 38" X 68" CULVERT EQUIV. SIZE = 48"
** UNDER UNSER BOULEVARD TO THE S.A.D. 214 POND
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.005
                    PIPE DIA=48  N=0.013
COMPUTE TRAVEL TIME ID=1  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=100 FT  SLOPE=0.005
ROUTE               ID=1 HYDROGRAPH NO=160.22 INFLOW ID=2 DT=0.0
PRINT HYD           ID=1  CODE=1
** ADD THE FLOW IN EXISTING CULVERT TO THE FLOW FROM THE UNSER STORM DRAIN AT
** THE EXPANDED SAD 214 POND
ADD HYD             ID=2  HYDROGRAPH NO=160.23 ID I=1  ID II=10
PRINT HYD           ID=2  CODE=1
** COMPUTE A HYDROGRAPH FOR PARCEL A-1, UNIT 2, ATRISCO BUSINESS PARK
** THIS HYDROGRAPH INCLUDES THE SAD 214 POND AREA
COMPUTE NM HYD      ID=1  HYD=180.1  DA=0.0338
                    %A=0.0  %B=28.0  %C=4.0  %D=68.0  TP=0.133333
                    MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
** ADD THE FLOW FROM PARCEL A-1 DIRECTLY TO THE MODIFIED SAD 214 POND
** THIS HYDROGRAPH REPRESENTS THE TOTAL INFLOW TO THE POND
ADD HYD             ID=3  HYDROGRAPH NO=180.11 ID I=1  ID II=2
PRINT HYD           ID=3  CODE=3
*******************************************************************************
** ROUTE THE FLOW THROUGH SAD 214 POND.
** ASSUME OUTFLOW IS CONTROLLED BY ENTRANCE CONTROL OF A 42" STORM DRAIN TO
** ELEVATION 5096 THEN ASSUME HGL IN TIERRA BAYITA S.D. IS AT 5093.4 AND THE
** 42" STORM DRAINS FLOWS FULL WITH A SUBMERGED OUTLET.
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** THE INVERT OF THE OUTLET PIPE IS ASSUMED TO BE DEPRESSED 2' BELOW THE INVERT
** OF THE POND TO 5091.0.
** VOLUME ESTIMATED FROM E.A.I. PROPOSED POND MODIFICATION CONTOURS
** ASSUMES THE POND BOTTOM IS RESTORED TO THE ORIGINAL DESIGN ELEV. OF 5095.
** ALSO ASSUMES A DEPRESSED AREA IS CONSTRUCTED AT THE WEST END OF THE POND
** WITH A INVERT ELEVATION OF 5093. THIS DEPRESSED AREA WILL PREVENT FREQUENT
** FLOWS FROM ENTERING THE LARGE FLAT AREA OF THE POND BOTTOM.
*****************************************************************************
ROUTE RESERVOIR      ID=10 HYDROGRAPH NO=180.12  INFLOW ID=3  CODE=10
                     OUTFLOW(cfs)     STORAGE(ac ft)     ELEV(ft)
                        0.00             0.00              5093.0
                       42.0              0.017             5094.0
                       56.0              0.088             5095.0
                       76.0              2.093             5096.0
                       89.0              4.238             5097.0
                       99.0              6.539             5098.0
                      109.0              9.007             5099.0
                      114.0             10.564             5099.6
                      120.0             11.653             5100.0
PRINT HYD            ID=10  CODE=1
** ROUTE THE OUTFLOW FROM THE POND TO THE TIERRA BAYITA STORM DRAIN IN UNSER
** BOULEVARD. THE FRICTION SLOPE @ THE PEAK Q IS INPUT AS THE PIPE SLOPE
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0104
                     PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=2  REACH=1  NUMBER OF VALLEY SECTIONS=1
                     LENGTH=220 FT  SLOPE=0.0135
ROUTE                ID=2 HYDROGRAPH NO=180.13  INFLOW ID=10  DT=0.0
PRINT HYD            ID=2  CODE=1
**ADD THE ROUTED OUTFLOW FROM THE SAD 214 POND TO THE FLOW FROM THE
**THE UNSER DIVERSION STORM DRAIN AT THE TIERRA BAYITA STORM DRAIN
ADD HYD              ID=3  HYDROGRAPH NO=180.14 ID I=19  ID II=2
PRINT HYD            ID=3  CODE=1
**ADD THE FLOW LEFT IN THE STREET ON THE EAST AND WEST SIDES OF UNSER BLVD. AS
**IT EXITS THE ATRISCO BUSINESS PARK
ADD HYD              ID=1  HYDROGRAPH NO=180.15 ID I=6  ID II=9
PRINT HYD            ID=1  CODE=1
** ASSUME INLETS WILL BE CONSTRUCTED TO INTERCEPT THE FLOW LEFT IN UNSER BLVD
** ADD THE FLOW IN THE STREET TO THE TIERRA BAYITA STORM DRAIN
ADD HYD              ID=2   HYDROGRAPH NO=180.16 ID I=3  ID II=1
PRINT HYD            ID=2  CODE=3
FINISH
```

DELETE APPENDIX C

REPLACE WITH PLATES 5 AND 6

APPENDIX C

CONSERVATION TREATMENT PLAN

APPENDIX C

CONSERVATION TREATMENT PLAN
Supplement to the
Master Drainage Plan
for the
Atrisco Business Park

INTRODUCTION

Conservation Treatment is one of the alternatives proposed to treat flows from the undeveloped portion of the onsite watershed. The conservation treatment as proposed consists of constructing level terraces and earthen plugs throughout the undeveloped watershed. The purpose of the proposed treatment is to collect and impound runoff from the watershed.

Use of conservation treatment to control runoff from the undeveloped watershed has merit due to the following:

1. System is easily modified to property lines as development occurs to provide protection from the upstream offsite watershed. Conversely when conventional diversion and detention or retention ponds are utilized, major reconstruction of facilities may be required as portions of the watershed develop.

2. Runoff is retained on the watershed where it contributes to vegetation growth. This vegetation reduces the potential for wind and water erosion.

3. Sediment and erosion reach lengths are shortened to the point that flow concentration and thus erosion is practically eliminated.

4. Eliminates large concentrated flows in the watershed thus reduces the potential for erosion and damage due to structure failure.

5. Soil used for construction of dikes remains close to the borrow area thus facilitating regrading as development occurs.

6. More cost effective to construct than conventional conveyance and pond systems.

7. Reduces the potential for sediment to enter the storm drain system thus improving overall runoff water quality.

Plates 5 and 6 illustrate level terrace locations based on two sizes of terraces. Plate 5 titled "Conservation Treatment Plan Alternate 'A'", illustrates approximate locations of terraces if 1.5′ high terrace sections are utilized. Plate 6 titled "Conservation Treatment Plan Alternate 'B'" illustrates approximate locations of terraces if 1′ high terrace sections are utilized as the primary treatment.

The maximum average spacing between terraces for the 1′ high and 1.5′ high terrace section was determined to be 200 LF and 500 LF respectively.

Calculations

Calculations were performed to verify maximum average spacing between terraces based on the following assumptions:

1. Average natural slopes range from 2 to 2.5%. Calculations use the upper value of 2.5%.

2. Average land treatment in the undeveloped watershed consists of 90% uncompacted soil with native vegetation (D.P.M. Type A) and 10% compacted soil with minimal vegetation (D.P.M. Type C).

3. Settling and erosion caused by natural processes and vehicle traffic may reduce the effective height of the terraces between maintenance intervals so a minimum of 0.5′ of freeboard should be provided.

4. Required runoff and sediment storage volumes based on 20 years of average annual water induced soil loss volume plus the volume of clear water runoff produced by the 100 year frequency, 24 hour duration storm.

5. Average ditch volume assumed to be equal to average dike fill volume.

For simplicity the width of watershed contributing to a 1′ length of level terrace was assumed to be 1′.

1′ High Terraces @ 200 LF spacing

- 100 Year 24 hour runoff per C.O.A. DPM Section 22.2
  V = (((0.90 X 0.4[illegible]) + (0.10 X 0.99)) ÷ 12) X 200 = 8.3 cf

- 20 Years of average annual soil loss per the Universal Soil Loss Equation (Vs = RLSKCP)

  Estimated average factor values:
  R = 25 LS = 0.30 K = 0.32 C = 0.35 P = 1
  $Vs_{(annual)}$ = 25 X 0.30 X 0.32 X 0.35 X 1 = 0.84 Ton/Acre
  $Vs_{(20\ yrs.)}$ = 0.84 X 20 (yrs.) X 200/43,560 = 0.0771 Tons
  Assume unit weight of deposited sediment = 95 lb./cf
  0.0771 Tons = (0.0771 X 2000) ÷ 95 = 1.6 cf

- Total estimated water and sediment to be stored = 8.3 + 1.6 = 9.9 cf/LF

- Depth of ponded water and sediment behind dike:

  ((Total Volume to be stored = Volume of the ditch) X 2 X S)$^{0.5}$ = Pond depth from natural ground. ((9.9 - 5.0) X 2 X 0.025)$^{0.5}$ = 0.50′

- Freeboard:
  1′ (Dike design height) - 0.5′ (Pond depth) = 0.5′ (freeboard)
  0.5′ of freeboard will be provided for the 100 year runoff on 2.5% slopes.

1.5′ High Terraces @ 500 LF spacing

- 100 Year 24 hour runoff per C.O.A. DPM Section 22.2
  V = (((0.90 X 0.44) + (0.10 X 0.99)) ÷ 12) X 500 = 20.6 cf

  20 Years of average annual soil loss per the Universal Soil Loss Equation (Vs = RLSKCP)

  Estimated average factor values:
  R= 25 LS = 0.38 K = 0.32 C = 0.35 P = 1
  $Vs_{(annual)}$ = 25 X 0.38 X 0.32 X 0.35 X 1 = 1.064 Tons/Acre
  $Vs_{(20\ yrs.)}$ = 1.064 X 20 (yrs.) X 500/43,560 = 0.2443 Tons
  Assume unit weight of deposited sediment = 95 lb./cf
  0.2443 Tons = (0.2443 X 2000) ÷ 95 = 5.2 cf

- Total estimated water and sediment to be stored = 20.6 + 5.2 = 25.8 cf/LF

- Depth of ponded water and sediment behind dike:

  ((Total Volume to be stored - Volume of the ditch) X 2 X S)$^{0.5}$ = Pond depth from natural ground. ((25.8 - 9.5) X 2 X 0.025)$^{0.5}$ = 0.9′

- Freeboard:
  1.5′ (Dike design height) - 0.9 (Pond depth) = 0.6′
  0.6′ of freeboard will be provided for the 100 year runoff on 2.5% slopes.

CONCLUSIONS

The application of conservation treatment is a practical solution for controlling runoff in the undeveloped onsite watershed of Atrisco Business Park. Construction of the treatment in the watershed will provide protection of downstream drainage facilities until development of the watershed occurs. As development occurs, the treatment can be modified at upstream lot lines of developing properties to provide protection from offsite flows.

A covenant between property owners in the watershed which facilitates maintenance and modifications of the treatment will be required prior to the issuance of building permits in the treated watershed.