

**Drainage Review and Analysis
of the
Proposed Detention Pond (Tract 2-B)
located at the NE corner of
Paseo Del Norte and Coors Blvd.
as identified in the**

**“Design Memorandum
for the
North Coors Drainage
Management Plan Middle Area,
La Orilla to Calabacillas,
Hydrology (Fully Developed Conditions)
Hydraulics Sediment Control).
Prepared by Smith Engineering Company,
February 1997”**

Prepared for:

Albuquerque Metropolitan Arroyo Flood Control Authority

Prepared by:

Smith Engineering Company

SEC Project Number 100109E

June 9, 2003

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(located at end of Letter Report)

ALL FIGURES LOCATED IN MAP POCKET

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Figure 2 – AHYMO Modeling Schematic

Figure 3 – Existing Tract 2-B Pond

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Diskette in Pocket that contains all 3 AHYMO models as described in the report
(update1.dat, update2.txt, update3.txt)

APPENDIX 1

AHYMO SUMMARY TABLES FROM:

1. "Design Memorandum for the North Coors Drainage Management Plan Middle Area, La Orilla to Calabacillas, Hydrology (Fully Developed Conditions) Hydraulics Sediment Control). Prepared by Smith Engineering Company, February 1997"

AHYMO model name is update1.dat

2. Revised Model to Correct Problems Discovered during review of the "update1.dat" Model

AHYMO model name is update2.txt (revised May and June 2003)

3. Revised Model update2.txt to include proposed AMAFCA Drainage Management Controls

AHYMO model name is update3.txt (revised June 2003)

APPENDIX 2

PRELIMINARY HYDRAULIC RESULTS FOR THE EXISTING AND PROPOSED 36-INCH CUVLERTS UNDER COORS BLVD. FROM BASIN 504 TO THE PROPOSED TRACT 2-B POND

This Appendix contains the Culvert Master Results for the referenced culverts



EXECUTIVE SUMMARY

This is very brief summary of the results of the drainage analyses conducted and described in more detail in the subsequent Letter Report.

Purpose – The NMSH&TD will soon develop improvements to the Coors Blvd. and Paseo Del Norte Intersection. The anticipated drainage outfall for those improvements and a much greater drainage area, will the Proposed Tract 2-B pond that will be located at the NE intersection of Paseo Del Norte and Coors Blvd. AMAFCA is coordinating the design of the pond and its inflows with the adjacent property owners and the NMSH&TD. The purpose of this analyses is to re-evaluate the drainage assumptions and AHYMO hydrologic model developed for the :

“Design Memorandum for the North Coors Drainage Management Plan Middle Area, La Orilla to Calabacillas, Hydrology (Fully Developed Conditions) Hydraulics Sediment Control). Prepared by Smith Engineering Company, February 1997” .

The peak discharges were determined at key locations with respect to the upcoming NMSH&TD improvements near the Tract 2-B pond.

Results – The analysis results indicate that the intersection of Irving Blvd. and Coors Blvd. will have a flooding problem based on the future development conditions and the limited drainage infrastructure at that location. In addition, the existing 36-inch CMP under Coors Blvd located just north of Paseo Del Norte is also inadequate to convey the 100-yr. peak discharge to the Tract 2-B pond. Therefore, AMAFCA has developed several Proposed Drainage Management Controls to help reduce the flows at the locations described. These proposed controls are as follows:

Proposed Drainage Management Controls – (Proposed by AMAFCA)

Please refer to **Figure 1** (map pocket) for a graphical location of the basins and locations described here. Most of these basins are undeveloped at this time.

1. Basins that must outfall to the existing pond in Basin 303, and/or must be controlled and outfall into the existing Eagle Ranch Road Storm Drain System. No bypass flow on Paradise Blvd. will be allowed.

These Basins include: 302, 303 and 304

2. Basins anticipated to have most runoff outfall to the existing Congress Heights Storm Drain system. Any excess flow towards Irving Blvd. must be controlled to a very small release rate due to limited downstream capacity at the Intersection of Coors and Irving Blvd.

These Basins include: 410 and 411



3. Basins that must outfall to the existing Congress Ave. Storm Drain System and may require controlled release to maintain capacity of the Congress Ave. Storm Drain. No flow from these basins shall be allowed to bypass the Congress Ave. Storm Drain System.

These Basins include: 406 and 407

The following Table is a summary of the 100-yr. Storm Peak Discharge and Runoff Volume Summary from the AHYMO models, without and with the proposed AMAFCA Drainage Management Controls

100-yr. Storm Peak Discharge and Runoff Volume Summary at Key Analysis Points

Location	100-yr. Qp Future Development (update2.txt) and Analysis Point No. ()	100-yr. Qp Future Development with proposed AMAFCA Drainage Management Controls (update3.txt) and Analysis Point No. ()
Irving Blvd. at West Side of Coors Blvd.	85 cfs (AP 501.10)	38 cfs (AP 501.10)
Coors Blvd. & Irving West Side of Intersection without Basin 505A	190 cfs (AP 505.10)	133 cfs (AP 505.10)
Coors Blvd. & Irving Total Discharge at Intersection	Not computed	143 cfs (AP 505A.9)
Detention Pond in Basin 504 – Existing 36-in. CMP outfall under Coors to Tract 2-B Pond	257 cfs (AP 504.10)	161 cfs (AP 504.10)
Proposed Tract 2-B AMAFCA Pond (NE corner of Paseo Del Norte and Coors Blvd.)	469 cfs (AP 506.20) Inflow Volume = 35 ac-ft	333 cfs (AP 506.20) Inflow Volume = 30 ac-ft



LETTER REPORT

June 9, 2003

Ms. Lynn Mazur, P.E.
Albuquerque Metropolitan Arroyo Flood Control Authority
2600 Prospect Avenue NE
Albuquerque, New Mexico 87107

RE: Submittal :

Drainage Review and Analysis of the Proposed Detention Pond (Tract 2-B)
located at the NE corner of Paseo Del Norte and Coors Blvd. as identified in the report titled

"Design Memorandum for the North Coors Drainage Management Plan Middle Area,
La Orilla to Calabacillas, Hydrology (Fully Developed Conditions)
Hydraulics Sediment Control). Prepared by Smith Engineering Company, February 1997"

This is Task Order Number 5 of our 1999 Engineering On-Call
Engineering Services Contract
AMAFCA Contract No. 1999-36, SEC Project Number 100109E

Dear Ms. Mazur,

I have completed the tasks as outlined in Task Order No.'s 3 and 5 for the referenced project. Since both Task orders are on the same project, I will address both together in this document. At your request, I am submitting 5 copies of this document.

Task 1 --

1. Obtain more recent ortho-photo-topography if possible as compared to that used in the original North Coors Drainage Management Plan, 1997.

The 1999 Lidar Mapping for the area was obtained from AMAFCA and is presented on **Figure 1** attached to this submittal.

2. Review the North Coors DMP (Feb. 1997).

I have reviewed the DMP with emphasis on the AHYMO model with respect to the other information prepared for this submittal. I will describe my findings with Task 2.

3. Review the conceptual pond design prepared by Pat Conley for AMAFCA in July 1999.



I reviewed the basic information prepared by Pat Conley regarding the Pond conceptual design, required volume and critical elevations. The information he prepared is still valid with respect to:

- A. The modifications I have made to the DMP AHYMO model that will be described in more detail with Task 2.
- B. The current topographic mapping and survey information recently prepared by Wilson and Company for the property currently under construction on Tract 2-B (interim detention pond) and the commercial properties just north of Tract 2-B. At this time, the site is under construction. This will be described further with Task 4.

Task 2 –

1. Verify basin boundaries and flow paths in the field to determine flow that will reach Coors Blvd from the west, at the proposed 96-in. storm drain (DMP) under Coors Blvd.. That storm drain will cross Coors Blvd. and discharge into the proposed Tract 2-B AMAFCA pond.
2. Resolve the question - "can the 400 cfs as computed with the AHYMO model in the DMP, reach the proposed 96-inch storm drain under Coors Blvd. to the proposed AMAFCA pond.

Response to 1. and 2. and items from Task 1 –

Please note that there is currently a 36-inch CMP under Coors Blvd. at the location of the proposed 96-inch CMP. This 36-inch CMP begins at a vertical stand pipe located in a detention pond built on the west side of Coors Blvd. located in Basin 504. There are also storm drain inlets in Coors Blvd. near this 36-in. CMP however, these inlets appear to drain into another storm drain that outfalls directly into the Corrales Main Box culvert near Paseo Del Norte.

Figure 1 is a drainage basin map was prepared using the 1999 Lidar Mapping and the basins as delineated in the DMP (Feb. 1997). The AHYMO model from the DMP was reviewed in detail to understand which basins were modeled as contributors to the proposed Tract 2-B pond, and which basins will outfall to the inlet of the previously proposed 96-inch storm drain under Coors Blvd from the west side to the proposed Tract 2-B pond.

The DMP model is very complex due to the number of storm drains and associated "DIVIDE HYD" commands used to model flows collected in storm drains and conveyed to other locations that do not correspond with the topographic drainage divides. The model was very difficult to follow, therefore, I prepared an AHYMO Modeling Schematic that is presented as **Figure 2**.

I have delineated the drainage basins on **Figure 1** that I assumed will discharge to the Tract 2-B pond, and those that will end up at the west side of Coors immediately across from the



Tract 2-B pond. I copied the AHYMO model from the DMP - file name update1.txt, into a file named update2.txt, and modified several items as described here:

The following changes were NOTED, AND/OR applied to this model (update2.txt) to correct errors or changes discovered during review of update1.txt

1. The area of basin 504 was 0.0257 sq mi (wrong), correct is 0.0426 sq mi
2. All of Basin 305 was previously added to Tract 2B Pond (proposed AMAFCA pond), however, only 2/3 of that basin will reach proposed AMAFCA pond due to inlets in the Paseo Del Norte on ramp that collect flows that outfall to the NMSH&TD pond at the southwest intersection of PDN and Coors Blvd., therefore, add a DIVIDE HYD command to correct.
3. Detention Pond 502.RES actually outfalls into Detention Pond 503.RES. However, in Update1.txt, it was added after 503.RES. Therefore, it is now added prior to Pond 503.res routing. 503.res is the detention pond located immediately south of the movie theater at the very southern end of basin 503.
4. Basins 409, 410 and 411 were divided and a fraction of those basins were lost (computed but not used) in the update1.txt model. The lost fraction of Basins 410 AND 411 could possibly drain to Tract 2-B AMAFCA Pond. The lost Hyd's and fractional areas and volumes lost are as follows:

HYD NO.'S	410.03	411.03	
DRAINAGE AREAS (sq mi)	0.00016	0.00188	TOTAL = 0.00204
RUNOFF VOLUME (ac-ft)	0.018	0.218	TOTAL = 0.236

Basin 409 drains into Eagle Ranch Blvd. and then north to the Calabacillas Arroyo.

See the AHYMO model schematic – **Figure 2** for these HYD NO's. and **Figure 1**. These lost HYD's have not been added into the model (update2.txt).

Therefore, during the final design of the Tract 2-B pond, an additional 0.236 ac-ft could be added to account for the volume of those basins that may contribute to the pond. Please refer to **Figure 1** for the Drainage Basin Map.

DISCUSSION OF DRAINAGE BASINS AND OUTFALL LOCATIONS -

Tract 2-B Pond - Basins that either fully or partially (divided flow to a storm drain) outfall to the proposed Tract 2-B Pond.

201, 202, 301, 302, 303, 304, 305, 401, 402, 405, 406, 407, 408, 501, 502, 503, 504, 505, 505A, 506, 506A



AHYMO Analysis Point = AP 506.20 into Tract 2-B Pond (update2.txt)
100-yr. 24-hour Q_p = 469 cfs

Tract 2-B Pond Routing Results (update2.txt)
AHYMO Analysis Point = AP 506.res
100-yr. 24-hour Q_p = 30.5 cfs
Maximum storage volume at peak stage = 21.09 ac-ft
Peak water surface elevation = 4998.31

The pond routing results presented here are based on the pond routing data from the original DMP (Feb. 1997, update1.txt) and the results are nearly identical to that previously evaluated by and presented as a conceptual design by Pat Conley (1999).

Basins that the DMP assumed would reach the west side of Coors Blvd. to the proposed 96-inch. Storm Drain.

All basins listed above except 505A, 506, 506A (update1.txt)
AHYMO Analysis Point No. in update1.txt = AP 505.20
100-yr. 24-hour Q_p = 400 cfs

Basins (or fractions of those basins) that this present analysis assumes will reach the location of the proposed 96-inch storm drain on the west side of Coors Blvd. (now there is an existing 36-inch CMP under Coors Blvd)

201, 202, 301, 302, 303, 304, 305, 401, 402, 502, 503, 504,

Analysis Point in update2.txt = AP 504.10 (update2.txt)
100-yr. 24-hour Q_p = 257 (cfs)

Basins that contribute to the Intersection of Coors and Irving and the flow may split.

There are existing catch basins on the northwest and southwest curb returns at the intersection of Coors and Irving Blvd. Those basins connect to 30-inch storm drain across Coors Blvd. at the south side of the intersection of Coors and Irving. That storm drain outfalls to the road side ditch on the west side of Coors just south of Irving. In the near future, that storm drain will discharge to a proposed storm drain 30 to 48-inch storm drain that will begin on the west side of Coors at Irving Blvd. and will continue south and outfall to the Tract 2-B pond. Wilson and Company has designed that storm drain and it is under review by the NMSH&TD.

The following basins will flow down Irving Blvd. from west towards Coors Blvd. or along Coors Blvd. (basins 505 and 505A) and in a 100-yr. storm will most likely split at the intersection of



Coors and Irving, with maybe 50% flowing across Coors (surface flow and in the existing 30-inch storm drain) and 50% flowing south on Coors towards Paseo Del Norte.

501, 405, 406, 407, 408

AHYMO Analysis Point No. = 501.10

(update2.txt)

100-yr. 24-hour Q_p = 85 cfs

At present time, flow from the Coors / Irving Intersection and Coors Blvd. does not enter the existing 36-inch CMP (outfall of Basin 504) under Coors that outfalls to the Tract 2-B pond.

The basins at the Coors / Irving Intersection including basin 505 and the previous basins are:

501, 405, 406, 407, 408, 505, (excluding 505A)

AHYMO Analysis Point No. = AP 505.10

(update2.txt)

100-yr. Q_p = 190 (cfs)

Note that basin 505A although not added into Analysis Point 505.10 would not significantly add to the peak for that analysis point as its time to peak and location will allow it to peak sooner than the other basins that contribute to the analysis point.

Further analysis of the drainage at the intersection of Coors Blvd. and Irving is beyond the scope of this analysis.

Wilson and Company assumed that the 30-inch storm drain at the intersection of Irving and Coors that outfalls to the east side of Coors just south of Irving Blvd., will collect 30 cfs. Consequently, 190 cfs – 30 cfs is 160 cfs that will flow into the intersection of Coors and Irving Blvd.

Therefore, the proposed redesign of Coors Blvd (the NMSH&TD) north of Paseo Del Norte, should plan for collection of flows from AP 505.10, and collection of the flows that will spill from that analysis point into Basin 506A, and conveyance to the Tract 2-B Pond.

AHYMO Summary Tables

Appendix 1 contains the AHYMO Summary Tables from the Original DMP and this revised analysis. In addition, it contains selected pages from the output file that summarize the Tract 2-B proposed pond routing.



DRAINAGE MANAGEMENT OPTIONS PROPOSED BY AMAFCA

Due to the magnitude of the 100-yr. peak discharges that will reach the intersection of Irving and Coors Blvd. and also the existing 36-inch CMP under Coors Blvd. from Basin 504, AMAFCA has proposed several drainage management options to reduce the storm runoff to those locations. The proposed options will limit the storm runoff from basins that are mostly undeveloped at this time, and that contribute to the locations described. The following is a summary of the proposed options.

Proposed Drainage Management of Selected Basins – (Proposed by AMAFCA)

Please refer to **Figure 1** (map pocket) for a graphical location of the basins and locations described here.

1. Basins that must outfall to the existing pond in Basin 303, and/or must be controlled and outfall into the existing Eagle Ranch Road Storm Drain System. No bypass flow on Paradise Blvd. will be allowed.

These Basins include: 302, 303 and 304

2. Basins anticipated to have most runoff outfall to the existing Congress Heights Storm Drain system. Any excess flow towards Irving Blvd. must be controlled to a very small release rate due to limited downstream capacity at the Intersection of Coors and Irving Blvd.

These Basins include: 410 and 411

3. Basins that must outfall to the existing Congress Ave. Storm Drain System and may require controlled release to maintain capacity of the Congress Ave. Storm Drain. No flow from these basins shall be allowed to bypass the Congress Ave. Storm Drain System.

These Basins include: 406 and 407

The proposed drainage management controls were simulated in the update3.txt AHYMO model which was developed from a copy of the update2.txt AHYMO model. **Figure 2** illustrates the changes required to develop the update3.txt model. **Appendix 1** contains a copy of the AHYMO Summary Table.

The following Table is a summary of the 100-yr. Storm Peak Discharge and Runoff Volume Summary without and with the proposed AMAFCA Drainage Management Controls.



100-yr. Storm Peak Discharge and Runoff Volume Summary at Key Analysis Points

Location	100-yr. Qp Future Development (update2.txt) and Analysis Point No. ()	100-yr. Qp Future Development with proposed AMAFCA Drainage Management Controls (update3.txt) and Analysis Point No. ()
Irving Blvd. at West Side of Coors Blvd.	85 cfs (AP 501.10)	38 cfs (AP 501.10)
Coors Blvd. & Irving West Side of Intersection without Basin 505A	190 cfs (AP 505.10)	133 cfs (AP 505.10)
Coors Blvd. & Irving Total Discharge at Intersection	Not computed	143 cfs (AP 505A.9)
Detention Pond in Basin 504 – Existing 36-in. CMP outfall under Coors to Tract 2-B Pond	257 cfs (AP 504.10)	161 cfs (AP 504.10)
Proposed Tract 2-B AMAFCA Pond (NE corner of Paseo Del Norte and Coors Blvd.)	469 cfs (AP 506.20) Inflow Volume = 35 ac-ft	333 cfs (AP 506.20) Inflow Volume = 30 ac-ft

PRELIMINARY HYDRAULIC ANALYSIS OF THE EXISTING 36-INCH AND PROPOSED CULVERTS LOCATED IN THE EXISTING DETENTION POND ON THE WEST SIDE OF COORS ROAD WITHIN BASIN 504.

(Previous DMP Location Of The Proposed 96-Inch Storm Drain)

The culvert hydraulic analyses were completed for two cases that are:

CASE 1.

The proposed drainage management options are not enforced and therefore the future development condition peak discharge of **257 cfs** will reach the 36-inch CMP.

CASE 2.

The proposed drainage management options are enforced and the future development condition peak discharge that will reach the 36-inch CMP is **161 cfs**.

Based on the revised discharge that will reach this location as compared to the original Drainage Management Plan, a preliminary culvert hydraulic analysis was conducted using the



Culvert Master Program. A brief summary is provided here and the complete analysis results are included in **Appendix 2**.

Figure 4 illustrates the cross-section of the existing 36-inch CMP under Coors Blvd. and the Tract 2-B Pond with important elevations. The pertinent information and culvert hydraulic analysis is summarized here:

CASE 1.

The proposed drainage management options are not enforced and therefore the future development condition peak discharge of **257 cfs** will reach the 36-inch CMP.

AHYMO Analysis Point No. = 504.10

100-yr. 24-hour Q_p = 257 cfs

Capacity of 1-36-inch CMP (existing) = 80 cfs with no freeboard at inlet

If additional 36-inch CMP's are installed, $257 \text{ cfs} / 80 \text{ cfs} = 3.2$ culverts with no freeboard

Due the lower Manning's roughness coefficient of RCP compared to CMP, 1-36-inch RCP could pass 125 cfs with no freeboard.

Therefore, to allow for clogging and freeboard, assume the 1-existing 36-inch CMP will remain, and therefore, $257 \text{ cfs} - 80 \text{ cfs} = 177 \text{ cfs}$ to pass through 2 - 36 inch RCP's or 88.5 cfs per culvert. These 36-inch RCP's would easily pass the remaining discharge with approximately 3 feet of freeboard remaining.

Summary of Preliminary Culvert Hydraulic Analysis

1 existing 36-inch CMP (needs to be cleaned out) and 2 proposed 36-inch RCP's will easily convey the 100-yr. Q_p into the Tract 2-B pond including the maximum tail water (100-yr water surface) on the outfall of the pipes within the Tract 2-B pond.

CASE 2.

The proposed drainage management options are enforced and the future development condition peak discharge that will reach the 36-inch CMP is **161 cfs**.

Based on the culvert hydraulic analyses presented for Case 1, the existing 36-inch CMP combined with 1 additional 36-inch RCP would have adequate capacity to convey 161 cfs to the Tract 2-B pond.

If the location of the 36-inch CMP is moved north a few hundred feet, it is possible that one larger diameter pipe may be feasible instead of 2 - 36-inch diameter pipes. The decision to cross Coors Blvd. with additional pipes and or a different location must be determined by or with the NMSH&TD.



Task 3 –

1. Obtain and review existing as-builts for utilities in or near Coors Blvd from PDN north to Irving Blvd. These have been requested from the NMSH&TD but have not been provided at this time.
2. Meet with the NMSH&TD to obtain their preliminary plans for the re-design of Coors Blvd north of Paseo Del Norte.

I have contacted the NMSH&TD and the Dept. has not developed any plans as of this date.

Task 4 –

1. Prepare a map of proposed utilities and conceptual design of proposed Pond as previously prepared by Pat Conley.

Figure 3 is a current topographic map of the temporary pond site (the temporary ponds have been rough graded as of this date) as prepared by Wilson and Company for the development of the Tract 2-B pond site and the properties just north of Tract 2-B. This map also shows the existing utilities adjacent to Tract 2-B.

Figure 4 is a the Tract 2-B pond site with the conceptual pond design as previously prepared by Pat Conley. This map also shows the existing utilities adjacent to Tract 2-B.

An elevation-storage computation was completed based on conceptual pond shown on **Figure 4** to determine if the maximum peak storage volume of 21 ac-ft (as determined in the original DMP) will be available. The elevation – storage computations are listed in **Table 1**.

The following table is a summary of the AHYMO Reservoir Routing Results for the Tract 2-B Pond from the update2.txt model (without AMAFCA's proposed Drainage Management Controls) and from the update3.txt model (includes AMAFCA's proposed Drainage Management Controls).



TRACT 2-B POND AHYMO MODEL ROUTING RESULTS

For 100-yr. Storm and Full Basin Development Conditions

AHYMO model	Pond Invert Elevation	Maximum Water Surface Elevation	Maximum Water Depth	Maximum Storage Volume at Peak Stage	Pond Storage Volume at Elev. 5003	Peak Inflow	Peak Outflow
	(ft a.m.s.l.)	(ft a. m.s.l.)	(ft)	(ac-ft)	(ac-ft)	(cfs)	(cfs)
Update2.txt (without Proposed AMAFCA Controls)	4993	4998.31	5.3	21.1	46.4	469	31
Update3.txt (with Proposed AMAFCA Controls)	4993.73	4997.35	3.6	16.9	44.7	333	28

Therefore, the conceptual pond design as previously determined is more than adequate. The elevations of the proposed storm drains from the property to the north of Tract 2-B appear to fit well with the outlet elevation of the 2-36-inch CMP's that are the outfall from the Tract 2-B pond to the concrete box culvert of the Corrales Main Canal.

CLOSING

I would be glad to discuss this submittal with you at your convenience. You may reach me at 884-0700.

Sincerely,

Pat Stovall, P.E.
Smith Engineering Company

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TABLE 1

ELEVATION-VOLUME CALCULATIONS FOR PROPOSED TRACT 2-B POND

Principal and Emergency Spillway discharge curves were not developed for this Conceptual Analysis
 grey box means must input data

Contour Elevation	Contour Area	Incremental Volume	Incremental Volume	Cumulative Volume	Principal Spillway Discharge	Emergency Spillway Discharge	Total Discharge
	Principal Spillway Orifice Diameter (inches)				0		
	Number of Orifices				0		
(ft)	(sq ft)	(cu ft)	(ac-ft)	(ac-ft)	(cfs)	(cfs)	(cfs)
	0			0.0000	(a)	(b)	
4993.73	0	0	0.0000	0.0000	0.0		0.0
4994	183,250	91625	2.1034	2.1034	0.0		0.0
4995	188,246	185748	4.2642	6.3676	0.0		0.0
4996	193,298	190772	4.3795	10.7471	0.0		0.0
4997	198,407	195853	4.4962	15.2433	0.0		0.0
4998	203,573	200990	4.6141	19.8574	0.0		0.0
4999	208,795	206184	4.7333	24.5907	0.0		0.0
5000	214,073	211434	4.8539	29.4446	0.0		0.0
5001	219,408	216741	4.9757	34.4202	0.0		0.0
5002	224,800	222104	5.0988	39.5191	0.0		0.0
5003	230,248	227524	5.2232	44.7423	0.0		0.0

Total Volume (ft³) = 1,948,974
 Total Volume (ac-ft) = 44.74



APPENDIX 1

AHYMO SUMMARY TABLES FROM :

1.

DESIGN MEMORANDUM FOR THE :

**NORTH COORS DRAINAGE MANAGEMENT PLAN
MIDDLE AREA (La Orilla to Calabacillas), Hydrology (Fully Developed Conditions)
Hydraulics Sediment Control.**

February 1997

Smith Engineering Company

AHYMO model filename update1.dat (run date 11 – 20 – 1996)

2.

**REVISED MODEL TO CORRECT PROBLEMS DISCOVERED DURING REVIEW OF
THE UPDATE1.TXT MODEL**

Smith Engineering Company

AHYMO model filename update2.txt (revised May and June 2003)

3.

**REVISED MODEL UPDATE2.TXT TO INCLUDE PROPOSED AMAFCA DRAINAGE
MANAGEMENT CONTROLS**

Smith Engineering Company

AHYMO model filename update3.txt (revised June 2003)



APPENDIX 1

AHYMO SUMMARY TABLES FROM :

1.

DESIGN MEMORANDUM FOR THE :

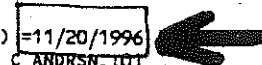
**NORTH COORS DRAINAGE MANAGEMENT PLAN
MIDDLE AREA (La Orilla to Calabacillas), Hydrology (Fully Developed Conditions)
Hydraulics Sediment Control.**

February 1997

Smith Engineering Company

AHYMO model filename update1.dat (run date 11 – 20 – 1996)

RUN DATE (MON/DAY/YR) = 11/20/1996
USER NO. = C ANDRSEN-101



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= 2.650
*S COMPUTED 24-HOUR RAINFALL DIST BASED ON NOAA ATLAS 2 - PEAK AT 1.4+3 HR											
*S SUB-BASIN 8.3E											
*S RIVERFRONTE ESTATES											
COMPUTE NM HYD	8.3W-318	-	3	.05305	59.34	1.922	.67914	1.533	1.748	PER IMP=	10.00
*S** ADD FLOW IN CORRALES MAIN CANAL COMING FROM CALABACILLAS SIPHON ***											
STORE HYD	136.00	-	5	.00010	50.00	96.240	18044.95000	3.950	781.250		
*S BASE FLOW = 38 CFS IRRIGATION + 12 CFS WHICH CAME THROUGH SIPHON											
*S DURING 100 YEAR FLOOD.											
MODIFY TIME	136.00	5	5	.00010	50.00	96.711	18133.27000	3.950	781.250		
S ROUTE BASE FLOW DOWN CANAL TO 8.3 DISCHARGE POINT. **											
ROUTE MCUNGE	12.00	5	6	.00010	49.13	96.708	18132.74000	4.550	767.713	CCODE =	.2
*S BASE FLOW CORRECTION.											
MODIFY TIME	12.00	6	6	.00010	49.13	96.708	18132.74000	4.550	767.713		
ADD HYD	139.00	6 & 3	6	.05315	97.34	67.218	23.71287	1.533	2.862		
*S ROUTE 8.3E DOWN CANAL TO 8.1 DISCHARGE POINT. **											
ROUTE MCUNGE	13.00	6	5	.05315	82.22	67.214	23.71136	1.533	2.417	CCODE =	.2
MODIFY TIME	13.00	5	5	.05315	82.22	67.214	23.71136	1.533	2.417		
*S ROUTE 8.3E DOWN CANAL TO DISCHARGE POINT OF PROPOSED POND AT BLACK RANCH.**											
ROUTE MCUNGE	14.00	5	83	.05315	58.78	67.175	23.69755	1.900	1.728	CCODE =	.2
*S BASE FLOW CORRECTION.											
MODIFY TIME	14.00	83	83	.05315	58.78	67.175	23.69755	1.900	1.728		
*S CONTRIBUTING BASINS FROM PARADISE HILLS GOLF COURSE											
*S SOURCE: EASTERLING & ASSOCIATES, INC.											
*S SINGLE FAMILY RESIDENTIAL, APPROXIMATELY 2 DU'S PER ACRE											
COMPUTE NM HYD	101EA	-	1	.03700	61.63	2.278	1.15431	1.533	2.603	PER IMP=	26.00
*S GOLF COURSE AND SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE											
COMPUTE NM HYD	102.00	-	2	.04470	45.64	1.986	.83306	1.600	1.595	PER IMP=	10.00
S ROUTE THE FLOW FROM 101EA THRU 102EA **											
ROUTE MCUNGE	101EA.1	1	3	.03700	56.98	2.255	1.14293	1.733	2.406	CCODE =	.1
ADD HYD	102EA.1	2 & 3	4	.08170	95.07	4.241	.97340	1.700	1.818		
*S SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE, INCLUDES SMALL PORTION OF LYONS											
COMPUTE NM HYD	103EA	-	5	.00670	12.31	.434	1.21488	1.500	2.871	PER IMP=	30.00
*S SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE											
COMPUTE NM HYD	104EA	-	6	.02480	44.27	1.527	1.15445	1.500	2.789	PER IMP=	26.00
S ROUTE 103EA THRU 104EA **											
ROUTE MCUNGE	103EA.4	5	7	.00670	11.69	.432	1.20828	1.633	2.726	CCODE =	.1

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 = 2	NOTATION
*S	0.045	2.70	5245.5								
*S	0.05	3.96	5246.0								
*S	14.00	4.19	5246.1								
*S	27.00	4.41	5246.2								
*S	52.00	4.64	5246.3								
*S	76.00	4.86	5246.4								
*S	108.00	5.08	5246.5								
*S	139.00	5.30	5246.6								
*S	177.00	5.53	5246.7								
*S	215.00	5.75	5246.8								
*S	258.00	5.98	5246.9								
*S	300.00	6.20	5247.0								
*S	500.00	9.00	5250.0								
*S	1000.00	12.00	5255.0								
*S											
*S GOLF COURSE, AND OTHER RECREATION											
COMPUTE NM HYD	109EA	-	10	.00900	14.67	.502	1.04606	1.500	2.547 PER IMP=	23.00	
S ROUTE FLOW COMING FROM RESERVOIR THRU 109EA **											
ROUTE MCUNGE	109EA.78	9	11	.23140	146.31	7.731	.62646	2.033	.988 CCODE =	.1	
ADD HYD	109EA.87	10	12	.24040	148.41	8.234	.64217	2.033	.965		
*S PKG LOT, CLUBHOUSE, ENTR. RD, PROSHOP, BED & BRKFST											
COMPUTE NM HYD	110EA	-	13	.00600	14.45	.594	1.85495	1.500	3.764 PER IMP=	70.00	
ADD HYD	110EA.1	12	14	.24640	151.41	8.827	.67170	2.033	.960		
ROUTE MCUNGE	103.22	14	3	.24640	145.61	8.745	.66547	2.200	.923 CCODE =	.1	
*S RESIDENTIAL											
COMPUTE NM HYD	104.00	-	1	.06720	106.53	5.455	1.52211	1.600	2.477 PER IMP=	50.00	
ADD HYD	104.10	1	2	.31360	167.55	14.200	.84903	2.166	.835		
*S ROUTING 104.1 ON CADDIE RD											
ROUTE MCUNGE	104.12	2	3	.31360	164.38	14.161	.84670	2.266	.819 CCODE =	.1	
COMPUTE NM HYD	105.00	-	1	.10270	203.07	8.343	1.52320	1.533	3.090 PER IMP=	50.00	
*S*** HYD 105.1 IS AP #2 *****											
ADD HYD	105.10	1	2	.41630	263.42	22.504	1.01359	1.567	.989		
*S ROUTING 105.1 ON CONGRESS AVE TO EXISTING DETENTION POND											
ROUTE MCUNGE	105.12	2	4	.41630	261.17	22.488	1.01285	1.600	.980 CCODE =	.2	
*S SUB-BASIN 106 IS NORTH OF CONGRESS AVE - RESIDENTIAL											
COMPUTE NM HYD	106.00	-	1	.09540	189.50	7.750	1.52323	1.533	3.104 PER IMP=	50.00	
*S SUB-BASIN 106A IS SKY CREST ESTATES											
COMPUTE NM HYD	106A1	-	7	.00846	18.13	.678	1.50231	1.500	3.349 PER IMP=	44.52	
*S ROUTING RESERVOIR WITH 21" DIAM ORIFACE											
*S EXISTING POND AT SW CORNER OF ARROWHEAD AVE AND CHANTILLY RD											
ROUTE RESERVOIR	106A1.RES	7	9	.00846	14.30	.677	1.50088	1.567	2.642 AC-FT=	.126	
*S											
*S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)											
*S	0	0	5057								
*S	4.675	0.062	5058								
*S	16.379	0.140	5059								
*S	22.510	0.235	5060								
*S	27.298	0.349	5061	EXISTING TOP OF POND							
*S											
*S ROUTING 106A1.RES ON EXISTING ASPHALT SWALE DOWN CHANTILLY ROAD TO CONGRESS											
ROUTE MCUNGE	106A.1	9	10	.00846	14.30	.676	1.49818	1.600	2.642 CCODE =	.1	
*S SUB-BASIN 107 IS SOUTH OF CONGRESS AVE - RESIDENTIAL											
COMPUTE NM HYD	107.00	-	2	.02910	59.13	2.256	1.45384	1.500	3.175 PER IMP=	45.80	
*S ROUTING 107 ON CONGRESS AVE TO EXISTING DETENTION POND											
ROUTE MCUNGE	107.02	2	3	.02910	56.56	2.251	1.45067	1.600	3.037 CCODE =	.1	
ADD HYD	107.10	4	3	.44540	317.73	24.739	1.04145	1.600	1.115		
ADD HYD	107.20	1	3	.54080	487.26	32.490	1.12644	1.567	1.408		
ADD HYD	107.30	3	11	.54926	500.79	33.166	1.13217	1.567	1.425		
*S RESIDENTIAL											
COMPUTE NM HYD	108.00	-	1	.02400	49.43	1.899	1.48367	1.500	3.218 PER IMP=	47.60	
*S ROUTING 108 ON STONE HILLS RD TO EXISTING DETENTION POND											
*S THRU CACTUS HILLS											
ROUTE MCUNGE	108.02	1	2	.02400	48.32	1.897	1.48175	1.567	3.146 CCODE =	.1	
ADD HYD	108.10	2	4	.57326	549.11	35.062	1.14680	1.567	1.497		
*S SUB-BASIN 109 IS PART OF CACTUS HILLS AND EXISTING DET BASIN											
COMPUTE NM HYD	109.00	-	1	.02070	39.89	1.514	1.37182	1.500	3.011 PER IMP=	42.50	
*S*** HYD 109.1 IS AP #3 *****											
ADD HYD	109.10	1	2	.59396	583.48	36.577	1.15465	1.567	1.535		
*S FUTURE DETENTION BASIN IN BASIN 109											
ROUTE RESERVOIR	109.RES	2	66	.59396	176.73	36.164	1.14161	2.033	.465 AC-FT=	13.437	
*S											
*S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(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 = 3	NOTATION
*S	0	0		5069							
*S	7	0.98		5070							
*S	25	2.41		5071							
*S	52	3.97		5072							
*S	82	5.65		5073							
*S	112	7.45		5074							
*S	140	9.37		5075							
*S	160	11.42		5076							
*S	178	13.59		5077							
*S	195	15.89		5078							
*S											
COMPUTE NH HYD	201.00	-	1	.02580	54.08	2.096	1.52345	1.500	3.275	PER IMP=	50.00
*S ROUTING 201 ON CROYDEN ST TO EXISTING DETENTION POND											
ROUTE MCUNGE	201.02	1	2	.02580	51.37	2.083	1.51381	1.600	3.111	CCODE =	.1
COMPUTE NH HYD	202.00	-	1	.02880	59.18	2.271	1.47869	1.500	3.211	PER IMP=	47.30
*S*** HYD 202.1 IS AP #4 *****											
ADD HYD	202.10	18	2	.05460	99.41	4.354	1.49529	1.567	2.845		
*S EXISTING DROP INLET IN BASIN 202											
ROUTE RESERVOIR	202.RES1	4	2	.05460	86.55	4.354	1.49528	1.633	2.477	AC-FT=	.149
*S											
*S	OUTFLOW(CFS)	STORAGE(AC-FT)		ELEV(FT)							
*S	0	0		5138.7							
*S	20.12	0.0009		5139.7							
*S	24.07	0.0019		5140.7							
*S	41.69	0.0028		5141.7							
*S	53.82	0.0037		5142.7							
*S	63.69	0.0047		5143.7							
*S	70.59	0.0054		5144.5							
*S	74.58	0.0111		5145.0							
*S	81.98	0.0603		5146.0							
*S	83.46	0.1024		5146.2							
*S	87.97	0.1700		5146.5							
*S	94.77	0.2611		5147.0							
*S											
*S EXISTING DETENTION BASIN IN BASIN 401											
*S ROUTING RESERVOIR WITH 21" ORIFACE											
ROUTE RESERVOIR	202.RES2	2	4	.05460	73.37	4.363	1.49836	1.733	2.100	AC-FT=	1.099
*S											
*S	OUTFLOW(CFS)	STORAGE(AC-FT)		ELEV(FT)							
*S	0	0		5114							
*S	11.58	0.0026		5115							
*S	16.38	0.0052		5116							
*S	20.06	0.0078		5117							
*S	23.16	0.0091		5118							
*S	25.89	0.0521		5119							
*S	28.37	0.1097		5120							
*S	30.64	0.1829		5121							
*S	32.75	0.2747		5122							
*S	34.74	0.3856		5123							
*S	36.62	0.5174		5124							
*S	38.41	0.6717		5125							
*S	40.11	0.8496		5126							
*S	41.76	1.03		5127							
*S	61	1.08		5127.25							
*S	94	1.13		5127.5							
*S	136	1.18		5127.75							
*S	185	1.23		5128							
*S											
DIVIDE HYD	202.03	4	8	.05217	41.76	4.169	1.49836	1.700	1.251		
	OLF.2 AND	11		.00243	31.61	.194	1.49836	1.733	20.364		
*S ROUTE 202.RES2 THRU ASSUMED 36" PIPE IN PARADISE BLVD											
ROUTE MCUNGE	202.02	8	6	.05217	41.76	4.168	1.49785	1.766	1.251	CCODE =	.1
*S RESIDENTIAL											
COMPUTE NH HYD	301.00	-	1	.01820	34.94	1.478	1.52307	1.533	3.000	PER IMP=	50.00
*S ROUTING 301 ON PARADISE BLVD TO SUB-BASIN 304											
ROUTE MCUNGE	301.02	1	2	.01820	33.06	1.472	1.51609	1.667	2.839	CCODE =	.1
*S METHODIST CHURCH PROPERTY											
COMPUTE NH HYD	302.00	-	1	.00430	11.56	.498	2.17219	1.500	4.202	PER IMP=	90.00
*S ROUTING 302 ON PARADISE BLVD TO SUB-BASIN 304											
ROUTE MCUNGE	302.02	1	5	.00430	10.63	.495	2.15810	1.667	3.862	CCODE =	.1
ADD HYD	302.10	28	5	.02250	43.69	1.967	1.63879	1.667	3.034		
*S COMMERCIAL											

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 = 4 NOTATION
COMPUTE NM HYD	303.00	-	1	.06690	156.35	7.746	2.17094	1.533	3.652	PER IMP= 90.00
*S EXISTING DETENTION BASIN IN BASIN 303										
*S ROUTING RESERVOIR WITH 21" OUTLET WITH 2.6% SLOPE OF PIPE										
ROUTE RESERVOIR	303.RES	1	5	.06690	124.69	7.736	2.16812	1.667	2.912	AC-FT= 2.227
*S										
*S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)										
*S	0	0		5099						
*S	11.58	0.15		5100						
*S	16.37	0.30		5101						
*S	20.06	0.45		5102						
*S	23.16	0.60		5103						
*S	25.89	0.75		5104						
*S	26.00	0.91		5105						
*S	27.00	1.07		5106						
*S	28.00	1.23		5107						
*S	29.00	1.39		5108						
*S	30.00	1.55		5109						
*S	31.00	1.71		5110						
*S	32.00	1.87		5111						
*S	33.00	2.03		5112						
*S	34.00	2.11		5112.5	EXISTING TOP OF POND					
*S	53.00	2.15		5112.75						
*S	86.00	2.19		5113						
*S	128.0	2.23		5113.25						
*S										
DIVIDE HYD	303.03	5	8	.05430	34.00	6.279	2.16812	1.633	.978	
	OLF.3	AND	12	.01260	90.69	1.456	2.16812	1.667	11.251	
*S ROUTE 303.RES THRU 304 IN ASSUMED 36" PIPE										
ROUTE MCUNGE	303.02	8	2	.05430	34.00	6.274	2.16633	1.733	.978	CCODE = .1
ROUTE MCUNGE	OLF.32	12	16	.01260	70.28	1.432	2.13116	1.766	8.718	CCODE = .1
*S INCLUDES AREA FROM PARADISE BLVD - COMMERCIAL										
COMPUTE NM HYD	304.00	-	1	.03490	93.74	4.043	2.17217	1.500	4.197	PER IMP= 90.00
ADD HYD	304.10	1& 4	7	.05740	111.27	6.010	1.96309	1.533	3.029	
ADD HYD	304.20	7&16	5	.07000	138.52	7.441	1.99333	1.766	3.092	
*S DIVIDE AT MH# S-702										
DIVIDE HYD	CB1	5	4	.02868	20.00	3.049	1.99333	1.333	1.090	
	304.13	AND	7	.04131	118.52	4.392	1.99333	1.766	4.482	
ADD HYD	CB1.1	2& 4	5	.08299	54.00	9.323	2.10654	1.733	1.017	
ADD HYD	CB1.2	5& 6	2	.13516	95.76	13.491	1.87158	1.766	1.107	
*S DOES NOT INCLUDE AREA FROM PARADISE BLVD - COMMERCIAL										
COMPUTE NM HYD	305.00	-	17	.03910	102.46	4.529	2.17200	1.500	4.094	PER IMP= 90.00
*S CACTUS RIDGE										
COMPUTE NM HYD	401.00	-	1	.02360	50.44	1.974	1.56819	1.500	3.340	PER IMP= 52.70
ADD HYD	401.10	1&11	3	.02603	51.99	2.168	1.56169	1.733	3.121	
*S DIVIDE HYD 401.1 BY MAXIMUM INFLOW OF CATCH BASINS, WEST OF										
*S SUB-BASIN 401,ALONG PARADISE ROAD (7 CB AT 10 CFS EACH)										
DIVIDE HYD	CB2	3	4	.02603	51.99	2.168	1.56169	1.733	3.121	
	401.13	AND	5	.00000	.00	.000	.00000	.033	.000	
*S SUB-BASIN 402 IS PART OF WEST PARK APARTMENTS										
COMPUTE NM HYD	402.00	-	1	.00880	18.66	.692	1.47507	1.500	3.314	PER IMP= 42.70
ADD HYD	402.10	5& 1	6	.00880	18.66	.692	1.47507	1.500	3.314	
*S OLF HYD 402.2 CONTINUES SOUTH EAST ON PARADISE ROAD										
*S**** OLF HYD 402.2 IS AP #5 *****										
ADD HYD	402.20	6& 7	18	.05011	125.15	5.084	1.90232	1.766	3.902	
*S ROUTING 402.2 TO DETENTION POND IN 503										
ROUTE MCUNGE	402.23	18	20	.05011	115.63	5.065	1.89487	1.833	3.605	CCODE = .1
ADD HYD	305.10	17&20	19	.08921	190.61	9.594	2.01633	1.567	3.338	
*S**** PIPE HYD CB2.1 IS AP #6 *****										
ADD HYD	CB2.1	2& 4	6	.16119	147.75	15.659	1.82154	1.733	1.432	
*S SUB-BASIN 403 IS PART OF WEST PARK APARTMENTS										
COMPUTE NM HYD	403.00	-	1	.01440	32.61	1.266	1.64809	1.500	3.538	PER IMP= 54.20
*S DIVIDE HYD 403 BY MAXIMUM INFLOW OF POND INLET IN WEST PARK APARTMENTS										
*S OLF HYD 403.13 IS A NONCONTRIBUTING POND										
DIVIDE HYD	CB3	1	2	.00551	3.00	.484	1.64809	1.300	.851	
	403.13	AND	99	.00889	29.61	.782	1.64809	1.500	5.201	
ADD HYD	CB3.1	6& 2	5	.16669	150.75	16.143	1.81581	1.733	1.413	
*S ROUTE CB3.1 IN 48" AND 54" PIPE BETWEEN MH # S-702 AND MH # S-732										
*S Q(CAP) = 144 CFS, AT SLOPE=0.005										
ROUTE MCUNGE	CB3.13	5	2	.16669	139.38	16.112	1.81238	1.800	1.306	CCODE = .2
*S LESLIE HOMES										
COMPUTE NM HYD	404.00	-	1	.01610	33.73	1.307	1.52179	1.500	3.273	PER IMP= 49.90

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 = 5. NOTATION
ADD HYD	CB4.1	18	2	5	.18279	158.31	17.419	1.78678	1.567	1.353
*S ROUTE CB4.1 IN 60" PIPE BETWEEN MH # S-732 AND MH # S-531										
*S Q(CAP) = 184 CFS, AT SLOPE=0.005										
ROUTE MCUNGE	CB4.13	5	2		.18279	156.59	17.392	1.78396	1.600	1.339 CCODE = .2
*S SUB-BASIN 405 IS PART OF CACTUS HILLS										
COMPUTE NM HYD	405.00	-	1		.02700	50.96	1.887	1.31061	1.500	2.949 PER IMP= 38.00
*S DIVIDE SUB-BASIN 405 BY REMAINING MAXIMUM PIPE CAPACITY *										
DIVIDE HYD	CB5	1	6		.02581	40.00	1.804	1.31061	1.467	2.422
	405.03	AND	7		.00119	10.96	.083	1.31061	1.500	14.335
*S ROUTING 405.03 TO CONGRESS AVE										
ROUTE MCUNGE	405.02	7	15		.00119	10.13	.084	1.32313	1.600	13.244 CCODE = .2
*S SUB-BASIN 405 HAS TRANSVERSE DRAIN WITH 36" PIPE TO 60" SD										
ADD HYD	CB5.1	68	2	5	.20860	195.35	19.195	1.72540	1.567	1.463
*S ROUTE CB5.1 IN 60" PIPE BETWEEN MH # S-531 AND MH # S-932										
*S Q(CAP) = 184 CFS, AT SLOPE=0.005										
ROUTE MCUNGE	CB5.13	5	2		.20860	194.89	19.182	1.72424	1.600	1.460 CCODE = .2
*S ROUTE CB5.2 IN 60" PIPE UNTIL CUBBY HOLE DET POND										
*S Q(CAP) = 233 CFS, AT SLOPE=0.008										
ROUTE MCUNGE	CB5.23	2	25		.20860	194.58	19.172	1.72334	1.600	1.457 CCODE = .2
*S SUB-BASIN 406 IS NORTH OF CONGRESS AVE - RESIDENTIAL										
COMPUTE NM HYD	406.00	-	1		.01070	22.44	.869	1.52345	1.500	3.276 PER IMP= 50.00
ADD HYD	406.10	158	1	6	.01189	28.81	.954	1.50330	1.567	3.785
*S ROUTING 406.1 ON CONGRESS AVE TO IRVING AND EAGLE RANCH ROAD										
ROUTE MCUNGE	406.12	6	3		.01189	27.86	.956	1.50735	1.633	3.659 CCODE = .2
*S SUB-BASIN 407 IS NORTH OF CONGRESS AVE - COMMERCIAL										
COMPUTE NM HYD	407.00	-	1		.02240	60.17	2.595	2.17217	1.500	4.197 PER IMP= 90.00
*S CUBBY HOLE DETENTION BASIN										
*S ROUTING RESERVOIR WITH 12" ORIFACE										
ROUTE RESERVOIR	407.RES	1	5		.02240	67.98	2.592	2.16995	1.500	4.742 AC-FT= .176
*S										
*S	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)							
*S	0	0	5063							
*S	3.78	0.0387	5064							
*S	5.35	0.0597	5065							
*S	6.55	0.0808	5066							
*S	7.56	0.1019	5067							
*S	8.46	0.1230	5068							
*S	9.26	0.1440	5069							
*S	10.00	0.1651	5070							
*S	29	0.170	5070.25							
*S	62	0.175	5070.5							
*S	104	0.180	5070.75							
*S	153	0.185	5071							
*S										
DIVIDE HYD	407.03	5	89		.01270	10.00	1.470	2.16995	1.433	1.230
	OLF.4	AND	13		.00970	57.98	1.123	2.16995	1.500	9.339
*S ROUTE CB5.3 IN 60" PIPE UNTIL BETWEEN MH # S-951 TO MH # S-962										
*S Q(CAP) = 260 CFS, AT SLOPE=0.01										
ROUTE MCUNGE	CB5.33	25	85		.20860	193.86	19.169	1.72306	1.633	1.452 CCODE = .2
ADD HYD	407.10	38	13	17	.02159	76.91	2.079	1.80499	1.500	5.564
*S SUB-BASIN 408 IS STATE FARM INSURANCE										
*S OLF GOING TO THE EAST AND DOES NOT EFFECT EAGLE RANCH SD										
COMPUTE NM HYD	408.00	-	14		.00660	17.74	.765	2.17218	1.500	4.200 PER IMP= 90.00
*S EXISTING DETENTION BASIN IN SUB-BASIN 408										
*S ROUTING RESERVOIR WITH 12" WEIR										
ROUTE RESERVOIR	408.RES	14	18		.00660	3.71	.747	2.12308	2.066	.878 AC-FT= .441
*S										
*S	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)							
*S	0	0	5050.8							
*S	1.08	0.2198	5052.3	EXISTING TOP OF POND						
*S	1.66	0.2931	5052.8							
*S	2.31	0.3663	5053.3							
*S	3.02	0.4396	5053.8							
*S	22	0.4763	5054.05							
*S										
ADD HYD	408.10	178	18	14	.02819	77.78	2.826	1.87945	1.500	4.310
*S SUB-BASIN 409 IS EAST OF IRVING, TRACT D										
COMPUTE NM HYD	409.00	-	1		.00980	26.33	1.135	2.17218	1.500	4.199 PER IMP= 90.00
*S DIVIDE HYD 409 BY 36" STUB OUT PIPE CAPACITY *										
DIVIDE HYD	CB6	1	28		.00977	25.00	1.131	2.17218	1.500	4.000
	409.03	AND	15		.00003	1.33	.004	2.17220	1.500	61.149
*S SUB-BASIN 411 IS EAST OF IRVING, TRACT B										

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 = 6	NOTATION
COMPUTE NM HYD	411.00	-	1	.00920	24.72	1.066	2.17218	1.500	4.199	PER IMP=	90.00
*S DIVIDE HYD 411 BY INLET CAPACITY *											
DIVIDE HYD	CB7	1	2	.00732	10.00	.848	2.17218	1.367	2.135		
	411.03	AND	7	.00188	14.72	.218	2.17218	1.500	12.221		
*S SUB-BASIN 410 IS EAST OF IRVING, TRACT A											
COMPUTE NM HYD	410.00	-	1	.00470	12.64	.544	2.17219	1.500	4.201	PER IMP=	90.00
*S DIVIDE HYD 410 BY INLET CAPACITY *											
DIVIDE HYD	CB8	1	9	.00454	10.00	.526	2.17219	1.467	3.440		
	410.03	AND	16	.00016	2.64	.018	2.17219	1.500	26.014		
ADD HYD	411.10	7816	3	.00204	17.36	.236	2.17218	1.500	13.292		
*S ASSUME OLF HYD 411.2 PONDS											
ADD HYD	411.20	3815	16	.00207	18.69	.240	2.17218	1.500	14.078		
ADD HYD	CB7.1	2885	21	.21591	203.86	20.017	1.73828	1.633	1.475		
ADD HYD	CB8.1	218	2	.22046	211.48	20.543	1.74722	1.600	1.499		
*S ROUTE CB8.1 IN 60" PIPE TO SUB-BASIN 411 (JUST BEFORE											
*S CALABACILLAS ARROYO OUTFALL)											
*S Q(CAP) = 184 CFS, AT SLOPE=0.005											
ROUTE MCUNGE	CB8.12	2	9	.22046	210.87	20.521	1.74534	1.633	1.495	CCODE =	.2
*S SUB-BASIN 412 IS EAST OF IRVING, TRACT C-2 and C-3											
COMPUTE NM HYD	412.00	-	1	.01330	34.03	1.541	2.17185	1.500	3.998	PER IMP=	90.00
*S HYD CB9.1 IS TOTAL PIPE FLOW TO CALAB. ARROYO											
*S*** HYD CB9.1 IS AP #9 *****											
ADD HYD	CB9.1	18	9	.23376	233.00	22.062	1.76961	1.633	1.557		
ADD HYD	OUT.1	98899	99	.24265	250.79	22.844	1.76515	1.600	1.615		
*S SAD 224-PROJECT INCLUDES ENLARGING POND ON CONGRESS AVE											
*S INSTALLATION OF 66" OUTLET PIPE FROM POND-FLOWS ROUTED TO											
*S CALABACILLAS ARROYO											
*S Q(CAP) =233 CFS, AT SLOPE = 0.008											
ROUTE MCUNGE	CB6.23	66	2	.59396	176.68	36.150	1.14118	2.066	.465	CCODE =	1.0
ADD HYD	CB6.33	2889	86	.60666	186.68	37.620	1.16272	2.066	.481		
*S** ROUTE PROPOSED PIPE UNTIL IT REACHES EAGLE RANCH ROAD AGAIN ***											
*S Q(CAP) =233 CFS AT SLOPE = 0.008											
ROUTE MCUNGE	CB6.33	86	8	.60666	186.64	37.611	1.16243	2.066	.481	CCODE =	1.0
ADD HYD	CB6.43	288	8	.61643	192.36	38.742	1.17842	2.033	.488		
S SUB-BASIN 413 IS WEST OF EAGLE RANCH COMMERCIAL											
COMPUTE NM HYD	413.00	-	3	.01560	41.95	1.807	2.17218	1.500	4.202	PER IMP=	90.00
S SUB-BASIN 414 IS WEST OF EAGLE RANCH COMMERCIAL											
COMPUTE NM HYD	414.00	-	10	.00297	8.00	.344	2.17220	1.500	4.209	PER IMP=	90.00
ADD HYD	CB6.53	3810	5	.01857	49.96	2.151	2.17219	1.500	4.203		
ADD HYD	CB6.63	58	9	.63500	204.18	40.893	1.20749	1.966	.502		
*S SUB-BASIN 415 IS WEST OF EAGLE RANCH - COMMERCIAL *											
COMPUTE NM HYD	415.00	-	1	.01190	32.01	1.379	2.17218	1.500	4.203	PER IMP=	90.00
ADD HYD	OUT.2	1811	98	.64690	212.50	42.272	1.22523	1.933	.513		
ADD HYD	OUT.3	98899	99	.88955	429.17	65.115	1.37251	1.667	.754		
*S EAGLE RANCH ROAD											
*S 86 FT ROW											
COMPUTE NM HYD	501.00	-	1	.01000	17.39	1.156	2.16736	1.700	2.718	PER IMP=	90.00
ADD HYD	501.10	148	1	.03819	86.04	3.982	1.95483	1.500	3.520		
*S ROUTE OLF 501.1 THRU 505 IN IRVING BLVD **											
ROUTE MCUNGE	501.12	3	7	.03819	84.97	3.975	1.95120	1.600	3.476	CCODE =	.2
*S COMMERCIAL											
COMPUTE NM HYD	502.00	-	1	.04350	116.84	5.039	2.17217	1.500	4.197	PER IMP=	90.00
*S DIVIDE HYD 305.1 IN PARADISE BLVD BY ASSUMED 18" CAPACITY *											
DIVIDE HYD	402.24	19	2	.02639	20.00	2.838	2.01633	1.333	1.184		
	402.25	AND	3	.06282	170.61	6.756	2.01633	1.567	4.243		
ADD HYD	502.10	28	1	.06989	136.84	7.877	2.11333	1.500	3.059		
*S EXISTING DETENTION BASIN IN SUB-BASIN 502											
*S ROUTING RESERVOIR WITH 24" RCP AND 6'2" HIGH 18" STANDPIPE											
ROUTE RESERVOIR	502.RES	5	.8	.06989	78.74	7.820	2.09783	1.667	1.760	AC-FT=	2.311
*S											
*S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)											
*S 0 0 5030											
*S 38.9526 2.1993 5038											
*S 58 2.268 5038.25											
*S 91 2.337 5038.5											
*S											
*S COMMERCIAL											
COMPUTE NM HYD	503.00	-	1	.02350	48.51	2.719	2.16951	1.600	3.225	PER IMP=	90.00
ADD HYD	503.10	18	3	.08632	217.63	9.475	2.05803	1.567	3.939		
*S EXISTING DETENTION BASIN IN SUB-BASIN 503											
*S ROUTING RESERVOIR WITH 24" RCP AND 9'3" HIGH 18" STANDPIPE											
ROUTE RESERVOIR	503.RES	2	5	.08632	152.55	9.206	1.99958	1.866	2.761	AC-FT=	4.697
*S											

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	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)							
*S	0	0	5000							
*S	10.1924	4.2712	5010							
*S	29	4.378	5010.25							
*S	62	4.485	5010.5							
*S	104	4.592	5010.75							
*S	153	4.698	5011							
*S	209	4.805	5011.25							
*S										
ADD HYD	503.10	58 8 10	.15621	211.81	17.026	2.04354	1.833	2.119		
*S COMMERCIAL										
COMPUTE NM HYD	504.00	- 1	.02570	56.52	2.975	2.17024	1.567	3.436 PER IMP=	90.00	
*S EXISTING DETENTION BASIN IN SUB-BASIN 504										
*S ROUTING RESERVOIR WITH 36" RCP AND 5'2" HIGH 18" STANDPIPE										
ROUTE RESERVOIR	504.RES	1 3	.02570	29.03	2.966	2.16363	1.800	1.765 AC-FT=	.875	
*S										
*S	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)							
*S	0	0	5001							
*S	38.9526	1.1742	5007							
*S										
ADD HYD	504.10	38 10 11	.18191	240.76	19.991	2.06051	1.833	2.068		
*S EAST OF IRVING BLVD, NORTH OF COORS BLVD - COMMERCIAL										
COMPUTE NM HYD	505.00	- 1	.04970	107.89	5.752	2.17012	1.567	3.392 PER IMP=	90.00	
ADD HYD	505.10	18 7 2	.08789	191.55	9.727	2.07499	1.600	3.405		
*S COORS BOULEVARD ROW										
COMPUTE NM HYD	505A	- 1	.00560	15.06	.649	2.17219	1.500	4.201 PER IMP=	90.00	
*S ROUTE 505A IN FUTURE STORM DRAIN THROUGH 506A										
*S ASSUME PIPE SIZE OF 48" AND SLOPE=0.008 FT/FT										
ROUTE MCUNGE	505A.1	1 31	.00560	14.41	.648	2.16799	1.567	4.021 CCODE =	1.0	
*S ROUTE OLF HYD 505.1 THRU 506 ON COORS BLVD **										
ROUTE MCUNGE	505.12	2 9	.08789	181.55	9.663	2.06133	1.733	3.227 CCODE =		
ADD HYD	505.20	118 9 2	.26981	399.75	29.654	2.06077	1.766	2.315		
*S ASSUME A FUTURE PIPE SIZE AND SLOPE: 96" AND 0.009 FT/FT										
ROUTE MCUNGE	505.22	2 3	.26981	397.98	29.638	2.05968	1.800	2.305 CCODE =		
*S EAST OF COORS BLVD - RESIDENTIAL AND STATE HWY DEPT ROW										
COMPUTE NM HYD	506.00	- 1	.05590	80.04	3.683	1.23538	1.600	2.237 PER IMP=	30.1	
*S COORS BOULEVARD ROW										
COMPUTE NM HYD	506A	- 29	.00800	18.31	.926	2.17069	1.567	3.576 PER IMP=	90.1	
ADD HYD	506.10	18 3 2	.32571	442.08	33.321	1.91821	1.800	2.121		
ADD HYD	506.12	2831 27	.33131	448.49	33.969	1.92243	1.800	2.115		
ADD HYD	506.20	27829 2	.33931	457.20	34.895	1.92828	1.800	2.105		
*S PROPOSED DETENTION BASIN WITHIN EXISTING STATE HWY DEPT R-O-W										
*S ROUTING RESERVOIR WITH 36" DIAM ORIFACE										
*S MAXIMUM: HIGH ELEV = 5001, LOW ELEV = 4992.8, OUTFLOW = 38 CFS										
ROUTE RESERVOIR	506.RES	2 10	.33931	30.53	34.362	1.89882	3.266	.141 AC-FT=	21.17	
*S										
*S	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)							
*S	0	0	4993							
*S	13.2	1.1324	4994							
*S	18.7	4.4968	4995							
*S	22.9	9.3777	4996							
*S	26.5	14.3639	4997							
*S	29.6	19.4554	4998							
*S	32.4	24.6522	4999							
*S	35.0	29.9543	5000							
*S	37.5	35.3617	5001							
*S	39.7	40.8744	5002							
*S	41.9	46.4318	5003							
*S	43.9	52.1551	5004							
ADD HYD	900.00	838 10 20	.39246	84.55	101.537	4.85099	2.033	.337		
ROUTE MCUNGE	901.00	20 7	.39246	84.49	101.515	4.84997	2.066	.336 CCODE =	.2	
*S THE ALBUQUERQUE WEST COMMERCIAL DEVELOPMENT AREA										
*S INCLUDES SECTIONS OF PASEO DEL NORTE AND STATE HIGHWAY DEPT. ROW										
*S BASIN 11.1W										
COMPUTE NM HYD	11.1W	- 1	.04607	114.38	4.869	1.98167	1.500	3.879 PER IMP=	80.00	
*S ROUTE RESERVOIR THROUGH NMSH&TD POND AT SW CORNER OF PDM AND COORS										
*S ROUTE RESERVOIR WITH 2 30" CULVERT PIPES UNDER COORS BLVD.										
ROUTE RESERVOIR	11.1W.RES	1 2	.04607	42.57	4.847	1.97259	1.766	1.444 AC-FT=	1.821	
*S										
*S	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)							
*S	0	0	4996							
*S	28	1.30	4998							

TRACT 2-B POND
PROPOSED

COMMAND	HYDROGRAPH IDENTIFICATION	FROM NO.	TO NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 8 NOTATION
*S	66	2.66		5000						
*S DIVIDE HYD 11.1W.RES BY MAXIMUM PIPE OUTFLOW *										
DIVIDE HYD	11.1W.RES1	2	18	.04607	42.57	4.847	1.97259	1.766	1.444	
	OLF.5 AND	30		.00000	.00	.000	.00000	-.033	.000	
*S ROUTE THE FLOW FROM THE POND THROUGH CULVERT PIPES UNDER COORS **										
ROUTE MCUNGE	903.00	18	8	.04607	42.45	4.842	1.97067	1.800	1.440	CCODE = 1.0
ADD HYD	904.00	8& 7	9	.43853	123.93	106.357	4.54748	1.933	.442	
MODIFY TIME	904.00	9	9	.43853	123.93	106.357	4.54748	1.933	.442	
*S ROUTE FLOW DOWN CANAL TO AREA 11.2 DISCHARGE POINT. **										
ROUTE MCUNGE	18.00	9	3	.43853	123.85	106.341	4.54680	1.966	.441	CCODE = .2
*S BASE FLOW CORRECTION										
MODIFY TIME	18.00	3	3	.43853	123.85	106.341	4.54680	1.966	.441	
*S AREAS 8.1W TO 11.1W ROUTED DOWN CANAL TO NEXT AP WITH BASE FLOW										
*S CORRECTED TO 38 CFS MIN.										
*S INCLUDES SECTION OF COORS AND PASEO DEL NORTE										
COMPUTE NM HYD	11.2E-325	-	7	.02769	74.38	3.208	2.17217	1.500	4.197	PER IMP= 90.00
ADD HYD	326.00	3& 7	5	.46622	145.43	109.549	4.40576	1.833	.487	
*S EAGLE RIDGE APARTMENT COMPLEX/UPPER HALF THAT DRAINS DIRECTLY										
*S TO THE CORRALES MAIN CANAL VIA FUTURE STORM DRAIN										
COMPUTE NM HYD	12.1W	-	3	.04399	96.66	3.852	1.64198	1.500	3.433	PER IMP= 58.00
*S ROUTE FLOW FROM 12.1W THROUGH FUTURE DETENTION POND **										
ROUTE RESERVOIR	12.1W.RES	3	9	.04399	11.95	3.801	1.62000	2.133	.425	AC-FT= 2.392
*S	OUTFLOW(CFS)			STORAGE(AC-FT)						ELEV(FT)
*S	0			0						0
*S	4			0.59						1.0
*S	9			1.29						2.0
*S	12			2.41						2.5
*S ROUTE FLOW IN CANAL TO AREA 12.1W DISCHARGE POINT. **										
ROUTE MCUNGE	19.00	5	10	.46622	132.52	109.292	4.39541	1.900	.444	CCODE = .2
*S BASE FLOW CORRECTION										
MODIFY TIME	19.00	10	10	.46622	132.52	109.292	4.39541	1.900	.444	
ADD HYD	12.1W.1	10& 9	11	.51021	144.09	113.093	4.15612	1.900	.441	
*S EAGLE RIDGE APARTMENT COMPLEX/LOWER HALF THAT										
*S DRAINS TO THE SWALE ALONG COORS BOULEVARD										
COMPUTE NM HYD	12.2W	-	1	.00691	15.20	.605	1.64199	1.500	3.436	PER IMP= 58.00
*S DIVIDE HYD NO BY ALLOWABLE DISCHARGE SWALE ALONG COORS **										
*S HYD NO 603.01 IS THE Q THAT REACHES THE SWALE										
DIVIDE HYD	12.2W.1	1	5	.00691	15.20	.605	1.64199	1.500	3.436	
	OLF.7 AND	31		.00000	.00	.000	.00000	-.033	.000	
*S ROUTE THE FLOW LEAVING THE LOWER HALF OF THE EAGLE RIDGE APARTMENT										
*S SITE THROUGH A NATURAL SWALE THAT FLOWS SOUTH ALONG THE WEST										
*S SIDE OF COORS BOULEVARD.										
ROUTE MCUNGE	12.2W.2	5	8	.00691	14.57	.603	1.63753	1.567	3.296	CCODE = .1
*S ROUTE FLOW DOWN CANAL TO AREA 12.3 DISCHARGE POINT. **										
ROUTE MCUNGE	22.00	11	9	.51021	128.97	112.747	4.14342	2.033	.395	CCODE = .2
*S BASE FLOW CORRECTION.										
MODIFY TIME	22.00	9	9	.51021	128.97	112.747	4.14342	2.033	.395	
ADD HYD	12.1W.3	8& 9	12	.51712	132.61	113.350	4.10993	2.000	.401	
COMPUTE NM HYD	12.3E	-	1	.02616	62.41	2.684	1.92349	1.500	3.728	PER IMP= 75.00
*S FLOW FROM 12.3E ENTERS FUTURE DETENTION BASIN										
*S ROUTING RESERVOIR WITH 15" DIAMETER ORIFACE										
ROUTE RESERVOIR	12.3E.RES	1	15	.02616	10.14	2.649	1.89869	2.100	.606	AC-FT= 1.558
*S	OUTFLOW(CFS)			STORAGE(AC-FT)						ELEV(FT)
*S	0			0						100
*S	3			0.39						101
*S	6			0.77						102
*S	7			1.16						103
*S	10			1.54						104
ADD HYD	330.00	15&12	2	.54328	142.60	116.000	4.00345	2.033	.410	
*S ROUTE FLOW IN CANAL FROM 8.1W TO 12.3E TO AREA 13 DISCHARGE POINT.**										
ROUTE MCUNGE	23.00	2	5	.54328	133.30	115.751	3.99489	2.033	.383	CCODE = .2
MODIFY TIME	23.00	5	5	.54328	133.30	115.751	3.99489	2.033	.383	
*S FUTURE COMMERCIAL AREA										
COMPUTE NM HYD	13.1W	-	10	.01020	20.67	.833	1.53060	1.500	3.167	PER IMP= 55.00
*S FLOW FROM 13.1W ENTERS FUTURE DETENTION BASIN										
*S ROUTING RESERVOIR WITH 15" DIAMETER ORIFACE										
ROUTE RESERVOIR	13.1W.RES	10	11	.01020	8.06	.830	1.52544	1.733	1.234	AC-FT= .303
*S	OUTFLOW(CFS)			STORAGE(AC-FT)						ELEV(FT)
*S	0			0						100
*S	2.6			0.1						101
*S	6.0			0.2						102
*S	8.0			0.3						103

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 9	NOTATION
*S BOSQUE DEL PUEBLO COMMERCIAL AREA											
COMPUTE NM HYD	13.2E-332	-	1	.01480	34.12	1.424	1.80359	1.500	3.602	PER IMP=	70.00
ADD HYD	333.00	1811	12	.02500	38.97	2.253	1.69010	1.500	2.436		
ADD HYD	334.00	5812	2	.56828	149.96	118.005	3.89350	1.567	.412		
*S SUB-BASIN 14.1W											
*S ALBAN HILLS											
COMPUTE NM HYD	14.1W-335	-	3	.05117	66.95	2.233	.81824	1.500	2.044	PER IMP=	15.00
ROUTE MCUNGE	25.00	3	5	.05117	65.96	2.229	.81662	1.567	2.014	CCODE =	.1
*S ROUTE 8.1W TO 13.2E DOWN CANAL TO AREA 14 DISCHARGE POINT. **											
ROUTE MCUNGE	26.00	2	10	.56828	138.67	117.743	3.88486	2.033	.381	CCODE =	.2
MODIFY TIME	26.00	10	10	.56828	138.67	117.743	3.88486	2.033	.381		
ADD HYD	338.00	5810	2	.61945	198.38	119.972	3.63141	1.567	.500		
*S ROUTE AREA 8.1W TO 14.1W DOWN CANAL TO AREA 15 DISCHARGE POINT. **											
ROUTE MCUNGE	27.00	2	7	.61945	173.59	119.637	3.62128	1.567	.438	CCODE =	.2
MODIFY TIME	27.00	7	7	.61945	173.59	119.637	3.62128	1.567	.438		
*S AREA 8.1W TO 14.2E ROUTED DOWN CANAL TO AREA 15 DISCH. POINT WITH											
*S BASE FLOW CORRECTED.											
COMPUTE NM HYD	15.1W	-	3	.02560	30.05	.936	.68537	1.533	1.834	PER IMP=	8.00
ROUTE MCUNGE	28.00	3	10	.02560	28.87	.932	.68233	1.600	1.762	CCODE =	.1
*S SUB-BASIN 15.2W											
*S ALBAN HILLS											
COMPUTE NM HYD	15.2W-340	-	3	.06380	74.90	2.332	.68537	1.533	1.834	PER IMP=	8.00
ROUTE MCUNGE	29.00	3	5	.06380	73.97	2.327	.68373	1.567	1.812	CCODE =	.1
ADD HYD	186.00	108	5	.08940	100.22	3.258	.68333	1.567	1.752		
*S SUB-BASIN 15.3E											
*S FUTURE COMMERCIAL DEVELOPMENT											
COMPUTE NM HYD	15.3E	-	10	.01230	30.23	1.262	1.92365	1.500	3.840	PER IMP=	75.00
ADD HYD	342.00	3810	5	.10170	125.43	4.520	.83334	1.567	1.927		
ADD HYD	343.00	58	7	.72115	299.01	124.157	3.22811	1.567	.648		
*S SUB-BASIN 16.1W											
*S ALBAN HILLS											
COMPUTE NM HYD	16.1W	-	3	.03330	39.08	1.217	.68537	1.533	1.834	PER IMP=	8.00
*S BOSQUE MEADOWS SUBDIVISION											
COMPUTE NM HYD	16.3NRTH	-	1	.01565	31.37	1.186	1.42116	1.500	3.132	PER IMP=	44.00
ADD HYD	16.3N.1	18	3	.04895	70.22	2.403	.92061	1.500	2.242		
*S ROUTE AREA 8.1W TO 15.3W DOWN CANAL TO BUSHEL ROAD DISCHARGE POINT. **											
ROUTE MCUNGE	27.10	10	32	.72115	255.73	123.621	3.21418	1.567	.554	CCODE =	.2
MODIFY TIME	27.10	32	32	.72115	255.73	123.621	3.21418	1.567	.554		
ADD HYD	16.3N.1	32830	33	.77010	318.57	126.025	3.06839	1.567	.646		
*S SUB-BASIN 16.2W											
*S ALBAN HILLS											
COMPUTE NM HYD	16.2W	-	3	.06650	78.14	2.431	.68537	1.533	1.836	PER IMP=	8.00
*S FUTURE RESIDENTIAL DEVELOPMENT											
COMPUTE NM HYD	16.3E	-	5	.01120	26.18	1.037	1.73544	1.500	3.652	PER IMP=	60.00
*S BOSQUE MEADOWS SUBDIVISION											
COMPUTE NM HYD	16.3STH	-	1	.03122	72.24	2.865	1.72082	1.500	3.616	PER IMP=	59.80
ADD HYD	16.3STH.1	18	3	.09772	149.92	5.296	1.01619	1.500	2.397		
*S ROUTE 16.2 AND 16.3STH THROUGH FUTURE DETENTION POND @ BOSQUE MEADOWS											
ROUTE RESERVOIR	16.3STH.RES	34	35	.09772	35.48	5.308	1.01849	1.866	.567	AC-FT=	2.380
*S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)											
*S	0.00	0.00000									
*S	18.53	0.01074									
*S	20.96	0.01407									
*S	23.53	0.32155									
*S	25.85	0.62903									
*S	27.97	0.93650									
*S	29.95	1.24398									
*S	31.80	1.55145									
*S	33.55	1.85893									
*S	35.22	2.16641									
*S	35.60	2.47388									
ADD HYD	16.3STH.2	358	36	.10892	54.69	6.345	1.09221	1.533	.785		
COMPUTE NM HYD	17.1W	-	3	.01030	11.44	.354	.64407	1.533	1.735	PER IMP=	7.00
COMPUTE NM HYD	17.4E	-	1	.03843	87.32	3.532	1.72317	1.500	3.550	PER IMP=	62.90
ADD HYD	17.4E.1	18	3	.04873	98.66	3.886	1.49508	1.500	3.164		
*S ROUTE 8.1W TO 16.2NRTH FROM BUSHEL ROAD DOWN CANAL TO FINAL DISCHARGE POINT.											
ROUTE MCUNGE	32.00	33	5	.77010	236.52	125.079	3.04536	1.567	.480	CCODE =	.2
MODIFY TIME	32.00	5	5	.77010	236.52	125.079	3.04536	1.567	.480		
ADD HYD	348.00	5836	40	.87902	289.93	131.424	2.80334	1.567	.515		
ADD HYD	353.00	37840	41	.92775	380.22	135.309	2.73463	1.533	.640		
FINISH											



APPENDIX 1

AHYMO SUMMARY TABLES FROM :

2.

**REVISED MODEL TO CORRECT PROBLEMS DISCOVERED DURING REVIEW OF
THE UPDATE1.TXT MODEL**

Smith Engineering Company

AHYMO model filename update2.txt (revised May and June 2003)

UPDATE2.TXT

MAY 21

* 24 HOUR ALB. DPM RAINFALL DISTRIBUTION (DPM.RAINTABLE) LAG 3.0 HOURS 2003

START TIME=0.00 HR PUNCH CODE=0 PRINT LINES=-6

*S FILENAME - UPDATE2.TXT (a copy of update1.txt)

*S

*S DESCRIPTION - This model update2.txt (prepared 5-20-03)

*S is a copy of file update1.txt (11-20-1996)

*S that was prepared for:

*S *****

*S * NORTH COORS DRAINAGE MANAGEMENT PLAN *

*S * 100 YEAR STORM - 24 HOUR DURATION *

*S * IMPROVED CORRALES MAIN CANAL *

*S * MIDDLE AREA *

*S * CALABACILLAS ARROYO TO LA ORILLA OUTLET *

*S * UPDATED FOR 1996 DRAINAGE CRITERIA *

*S *****

*S IMPORTANT CHANGES :

*S The following changes were applied to this model (update2.txt) to

*S correct for errors or changes discovered during review of update1.txt

*S

*S 1. The area of basin 504 was 0.0257 sq mi (wrong), correct is 0.0426 sq mi

*S

*S 2. All of Basin 305 was previously added to Tract 2B Pond (proposed

*S AMAFCA pond), however, only 2/3 of that basin will reach proposed

*S AMAFCA pond, therefore, add a DIVIDE HYD command to correct

*S

*S 3. Detention Pond 502.RES actually outfalls into Detention Pond 503.RES

*S However, in Update1.txt, it was added after 503.RES. Therefore,

*S it is now added prior to Pond 503.res routing.

*S

*S 4. Basins 409, 410 and 411 were divided and a fraction of those basins

*S were lost in the update1.txt model. A the lost fraction of Basins

*S 410 AND 411 could possibly drain to Tract 2-B AMAFCA Pond. The lost

*S Hyd's and fractional areas and volumes lost are as follows:

*S HYD NO.'S 410.03 and 411.03

*S DRAINAGE AREAS (sq mi) 0.00016 0.00188 TOTAL = 0.00204

*S RUNOFF VOLUME (ac-ft) 0.018 0.218 TOTAL = 0.236

*S

*S THESE LOST HYD'S HAVE NOT BEEN ADDED INTO THIS MODEL.

*S

* SMITH ENGINEERING COMPANY

* 6400 UPTOWN BLVD SUITE 500E

* ALBUQUERQUE, NEW MEXICO 87112

* (505) 884-0700

*

* THE MODEL IS BROKEN UP INTO DIFFERENT SEGMENTS BASED UPON THE

* NUMBER OF ASTERISKS. THE CODING IS AS FOLLOWS:

* * * * * MAJOR BASIN * * *

* ***** ANALYSIS POINT *****

* ***** SUB-BASIN *****

* *** ADD HYDROGRAPHS ***

* ** ROUTING **

* * DIVIDE HYDROGRAPHS *

*

* THE LAND TREATMENT CLASSIFICATIONS IS AS FOLLOWS:

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =05/21/2003
INPUT FILE = Z:\Projects\100109-1\ahymo\update2.txt USER NO.= AHYMO-S-9702c01SEC01A-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM TO		AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
		ID	NO.								

TIME= .00

START
*S FILENAME -- UPDATE2.TXT (a copy of update1.txt)

*S DESCRIPTION -- This model update2.txt (prepared 5-20-03)
is a copy of file update1.txt (11-20-1996)
that was prepared for:

- *S *****
- *S * NORTH COORS DRAINAGE MANAGEMENT PLAN *
- *S * 100 YEAR STORM - 24 HOUR DURATION *
- *S * IMPROVED CORRALES MAIN CANAL *
- *S * MIDDLE AREA *
- *S * CALABACILLAS ARROYO TO LA ORILLA OUTLET *
- *S * UPDATED FOR 1996 DRAINAGE CRITERIA *
- *S *****

*S IMPORTANT CHANGES :

*S The following changes were NOTED, AND/OR applied to this model(update2.txt)

- *S 1. The area of basin 504 was 0.0257 sq mi (wrong), correct is 0.0426 sq mi
- *S 2. All of Basin 305 was previously added to Tract 2B Pond (proposed AMAFCA pond), however, only 2/3 of that basin will reach proposed AMAFCA pond, therefore, add a DIVIDE HYD command to correct
- *S 3. Detention Pond 502.RES actually outfalls into Detention Pond 503.RES However, in Update1.txt, it was added after 503.RES. Therefore, it is now added prior to Pond 503.res routing.

- *S 4. Basins 409, 410 and 411 were divided and a fraction of those basins were lost in the update1.txt model. A the lost fraction of Basins 410 AND 411 could possibly drain to Tract 2-B AMAFCA Pond. The lost Hyd's and fractional areas and volumes lost are as follows:

HYD NO.'S	410.03 and 411.03
DRAINAGE AREAS (sq mi)	0.00016 0.00188 TOTAL = 0.00204
RUNOFF VOLUME (ac-ft)	0.018 0.218 TOTAL = 0.236

*S THESE LOST HYD'S HAVE NOT BEEN ADDED INTO THIS MODEL.

*S RAINFALL TYPE= 2

*S COMPUTED 24-HOUR RAINFALL DIST BASED ON NOAA ATLAS 2 - PEAK AT 1.4+3 HR

*S SUB-BASIN 8.3E

*S RIVERFRONTE ESTATES

COMPUTE NM HYD	8.3W-318	-	3	.05305	59.34	1.922
*S** ADD FLOW IN CORRALES MAIN CANAL COMING FROM CALABACILLAS SIPHON ***						
STORE HYD	136.00	-	5	.00010	50.00	96.240

*S BASE FLOW = 38 CFS IRRIGATION + 12 CFS WHICH CAME THROUGH SIPHON

RAIN24= 2.650

1.533	1.748	PER IMP=	10.00
3.950	781.250		

18044.95000

*S DURING 100 YEAR FLOOD.
 MODIFY TIME 136.00 5 5 .00010 50.00 18133.27000 3.950 781.250 SHIFT= .000
 S ROUTE BASE FLOW DOWN CANAL TO 8.3 DISCHARGE POINT. **
 ROUTE MCUNGE 12.00 5 6 .00010 49.14 18132.75000 4.550 767.839 CCODE = .2
 *S BASE FLOW CORRECTION.
 MODIFY TIME 12.00 6 6 .00010 49.14 18132.75000 4.550 767.839 SHIFT= .000
 ADD HYD 139.00 6& 3 6 .05315 97.34 23.71289 1.533 2.862
 *S ROUTE 8.3E DOWN CANAL TO 8.1 DISCHARGE POINT. **
 ROUTE MCUNGE 13.00 6 5 .05315 82.02 23.70470 1.533 2.411 CCODE = .2
 MODIFY TIME 13.00 5 5 .05315 82.02 23.70470 1.533 2.411 SHIFT= .000
 *S ROUTE 8.3E DOWN CANAL TO DISCHARGE POINT OF PROPOSED POND AT BLACK RANCH. **
 ROUTE MCUNGE 14.00 5 83 .05315 58.60 23.69172 1.900 1.723 CCODE = .2
 *S BASE FLOW CORRECTION.
 MODIFY TIME 14.00 83 83 .05315 58.60 23.69172 1.900 1.723 SHIFT= .000
 *S CONTRIBUTING BASINS FROM PARADISE HILLS GOLF COURSE
 *S SOURCE: EASTERLING & ASSOCIATES, INC.
 *S SINGLE FAMILY RESIDENTIAL, APPROXIMATELY 2 DU'S PER ACRE
 COMPUTE NM HYD 101EA - 1 .03700 61.63 1.15431 1.533 2.603 PER IMP= 26.00
 *S GOLF COURSE AND SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE
 COMPUTE NM HYD 102.00 - 2 .04470 45.64 1.986 1.600 1.595 PER IMP= 10.00
 *S ROUTE THE FLOW FROM 101EA THRU 102EA **
 ROUTE MCUNGE 101EA.1 1 3 .03700 58.58 1.14312 1.766 2.474 CCODE = .1
 ADD HYD 102EA.1 2& 3 4 .08170 92.25 1.97348 1.733 1.764
 *S SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE, INCLUDES SMALL PORTION OF LYONS

COMMAND	HYDROGRAPH IDENTIFICATION	FROM TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
COMPUTE NM HYD	103EA	- 5	.00670	12.31	.434	1.21488	1.500	2.871 PER IMP= 30.00		
*S SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE	104EA	- 6	.02480	44.27	1.527	1.15445	1.500	2.789 PER IMP= 26.00		
S ROUTE 103EA THRU 104EA **	103EA.4	5 7	.00670	12.32	.434	1.21466	1.567	2.872 CCODE = .2		
ROUTE MCUNGE	103EA.4	7& 6 9	.03150	53.91	1.961	1.16726	1.533	2.674		
ADD HYD	105EA	- 10	.02360	35.41	1.453	1.15411	1.567	2.344 PER IMP= 26.00		
*S SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE	104EA.5	9 11	.03150	53.77	1.961	1.16698	1.567	2.667 CCODE = .2		
S ROUTE FLOW COMING FROM 103EA.4 THRU 105EA **	104EA.5	10&11 12	.05510	89.18	3.413	1.16146	1.567	2.529		
ROUTE MCUNGE	106EA	- 13	.02630	27.56	1.088	.77549	1.567	1.637 PER IMP= 7.00		
*S GOLF COURSE AND SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE	101EA.1	12 14	.05510	88.49	3.411	1.16085	1.633	2.509 CCODE = .2		
S ROUTE FLOW COMING FROM 104EA.55 THRU 106EA **	104EA.5	14&13 15	.08140	115.07	4.499	1.03634	1.600	2.209		
ROUTE MCUNGE	102EA.6	4 16	.08170	92.19	4.240	.97316	1.766	1.763 CCODE = .2		
ADD HYD	106EA.25	15&16 17	.16310	174.33	8.739	1.00469	1.700	1.670		
*S SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE	107EA	- 19	.02130	23.18	.856	.75365	1.567	1.701 PER IMP= 6.00		
S ROUTE FLOW COMING FROM 106EA.25 THRU 107EA **	107EA.6	17 2	.16310	173.29	8.740	1.00479	1.766	1.660 CCODE = .2		
ROUTE MCUNGE	107EA.6	2&19 3	.18440	189.31	9.596	.97578	1.700	1.604		
ADD HYD										

*S GOLF COURSE, PARKING LOT AND SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE
 COMPUTE NM HYD 108EA - 7 .04700 43.68 2.177 1.633 1.452 PER IMP= 12.00
 ADD HYD 107EA.8 3& 7 8 .23140 230.91 11.774 1.700 1.559
 S ROUTE COMBINED 107EA.8 THRU RESERVOIR (DUCK POND & EMPTY HOLE) **
 ROUTE RESERVOIR 107EA.8 8 9 .23140 145.75 7.807 1.933 .984 AC-FT= 5.341

*S OUTFLOW(CFS) STORAGE(AF) ELEV(FT)
 *S 0.00 0.00 5241.0
 *S 0.01 0.22 5242.0
 *S 0.02 0.54 5243.0
 *S 0.03 0.95 5244.0
 *S 0.035 1.20 5244.5
 *S 0.04 1.44 5245.0
 *S 0.045 2.70 5245.5
 *S 0.05 3.96 5246.0
 *S 14.00 4.19 5246.1
 *S 27.00 4.41 5246.2
 *S 52.00 4.64 5246.3
 *S 76.00 4.86 5246.4
 *S 108.00 5.08 5246.5
 *S 139.00 5.30 5246.6
 *S 177.00 5.53 5246.7
 *S 215.00 5.75 5246.8
 *S 258.00 5.98 5246.9
 *S 300.00 6.20 5247.0
 *S 500.00 9.00 5250.0
 *S 1000.00 12.00 5255.0
 *S

*S GOLF COURSE, AND OTHER RECREATION
 COMPUTE NM HYD 109EA - 10 .00900
 S ROUTE FLOW COMING FROM RESERVOIR THRU 109EA **
 ROUTE MCUNGE 109EA.78 9 11 .23140 145.35 7.812 1.933 .981 CCODE = .2
 ADD HYD 109EA.87 10&11 12 .24040 148.00 8.315 1.933 .962
 *S PKG LOT, CLUBHOUSE, ENTR. RD, PRDSHOP, BED & BRKFST
 COMPUTE NM HYD 110EA - 13 .00600
 ADD HYD 110EA.1 12&13 14 .24640 151.64 8.908 1.933 .962
 ROUTE MCUNGE 103.22 14 3 .24640 149.72 8.851 2.166 .949 CCODE = .1
 *S RESIDENTIAL
 COMPUTE NM HYD 104.00 - 1 .06720 106.53 5.455 1.600 2.477 PER IMP= 50.00
 ADD HYD 104.10 1& 3 2 .31360 173.11 14.306 2.166 .863
 *S ROUTING 104.1 ON CADDIE RD
 ROUTE MCUNGE 104.12 2 3 .31360 172.57 14.293 2.266 .860 CCODE = .1
 COMPUTE NM HYD 105.00 - 1 .10270 203.07 8.343 1.533 3.090 PER IMP= 50.00
 *S*** HYD 105.1 IS AP #2 *****
 ADD HYD 105.10 1& 3 2 .41630 250.61 22.636 1.567 .941
 *S ROUTING 105.1 ON CONGRESS AVE TO EXISTING DETENTION POND
 ROUTE MCUNGE 105.12 2 4 .41630 249.96 22.610 1.667 .938 CCODE = .1
 *S SUB-BASIN 106 IS NORTH OF CONGRESS AVE - RESIDENTIAL

COMMAND	HYDROGRAPH IDENTIFICATION	FROM TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3	NOTATION
*S GOLF COURSE, PARKING LOT AND SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE										
*S OUTFLOW(CFS) STORAGE(AF) ELEV(FT)										
*S 0.00 0.00 5241.0										
*S 0.01 0.22 5242.0										
*S 0.02 0.54 5243.0										
*S 0.03 0.95 5244.0										
*S 0.035 1.20 5244.5										
*S 0.04 1.44 5245.0										
*S 0.045 2.70 5245.5										
*S 0.05 3.96 5246.0										
*S 14.00 4.19 5246.1										
*S 27.00 4.41 5246.2										
*S 52.00 4.64 5246.3										
*S 76.00 4.86 5246.4										
*S 108.00 5.08 5246.5										
*S 139.00 5.30 5246.6										
*S 177.00 5.53 5246.7										
*S 215.00 5.75 5246.8										
*S 258.00 5.98 5246.9										
*S 300.00 6.20 5247.0										
*S 500.00 9.00 5250.0										
*S 1000.00 12.00 5255.0										
*S										
*S GOLF COURSE, AND OTHER RECREATION										
COMPUTE NM HYD 109EA - 10 .00900										
S ROUTE FLOW COMING FROM RESERVOIR THRU 109EA **										
ROUTE MCUNGE 109EA.78 9 11 .23140 145.35 7.812 1.933 .981 CCODE = .2										
ADD HYD 109EA.87 10&11 12 .24040 148.00 8.315 1.933 .962										
*S PKG LOT, CLUBHOUSE, ENTR. RD, PRDSHOP, BED & BRKFST										
COMPUTE NM HYD 110EA - 13 .00600										
ADD HYD 110EA.1 12&13 14 .24640 151.64 8.908 1.933 .962										
ROUTE MCUNGE 103.22 14 3 .24640 149.72 8.851 2.166 .949 CCODE = .1										
*S RESIDENTIAL										
COMPUTE NM HYD 104.00 - 1 .06720 106.53 5.455 1.600 2.477 PER IMP= 50.00										
ADD HYD 104.10 1& 3 2 .31360 173.11 14.306 2.166 .863										
*S ROUTING 104.1 ON CADDIE RD										
ROUTE MCUNGE 104.12 2 3 .31360 172.57 14.293 2.266 .860 CCODE = .1										
COMPUTE NM HYD 105.00 - 1 .10270 203.07 8.343 1.533 3.090 PER IMP= 50.00										
*S*** HYD 105.1 IS AP #2 *****										
ADD HYD 105.10 1& 3 2 .41630 250.61 22.636 1.567 .941										
*S ROUTING 105.1 ON CONGRESS AVE TO EXISTING DETENTION POND										
ROUTE MCUNGE 105.12 2 4 .41630 249.96 22.610 1.667 .938 CCODE = .1										
*S SUB-BASIN 106 IS NORTH OF CONGRESS AVE - RESIDENTIAL										

COMPUTE NM HYD	106.00	-	1	.09540	189.50	7.750	1.52323	1.533	3.104 PER IMP=	50.00
*S SUB-BASIN 106A IS SKY CREST ESTATES										
COMPUTE NM HYD	106A1	-	7	.00846	18.13	.678	1.50231	1.500	3.349 PER IMP=	44.52
*S ROUTING RESERVOIR WITH 21" DIAM ORIFACE										
*S EXISTING POND AT SW CORNER OF ARROWHEAD AVE AND CHANTILLY RD										
ROUTE RESERVOIR	106A1.RES	7	9	.00846	14.30	.677	1.50088	1.567	2.642 AC-FT=	.126
*S										
*S	OUTFLOW(CFS)	STORAGE(AC-FT)		ELEV(FT)						
*S	0	0		5057						
*S	4.675	0.062		5058						
*S	16.379	0.140		5059						
*S	22.510	0.235		5060						
*S	27.298	0.349		5061	EXISTING TOP OF POND					
*S										
*S ROUTING 106A1.RES ON EXISTING ASPHALT SWALE DOWN CHANTILLY ROAD TO CONGRESS										
ROUTE MCUNGE	106A.1	9	10	.00846	14.30	.677	1.50053	1.600	2.642 CCODE =	.1
*S SUB-BASIN 107 IS SOUTH OF CONGRESS AVE - RESIDENTIAL										
COMPUTE NM HYD	107.00	-	2	.02910	59.13	2.256	1.45384	1.500	3.175 PER IMP=	45.80
*S ROUTING 107 ON CONGRESS AVE TO EXISTING DETENTION POND										
ROUTE MCUNGE	107.02	2	3	.02910	58.73	2.253	1.45137	1.600	3.154 CCODE =	.1
ADD HYD	107.10	4& 3	2	.44540	303.44	24.863	1.04665	1.633	1.064	
ADD HYD	107.20	1& 2	3	.54080	440.42	32.613	1.13072	1.600	1.272	
ADD HYD	107.30	3&10	11	.54926	454.72	33.290	1.13642	1.600	1.294	
*S RESIDENTIAL										
COMPUTE NM HYD	108.00	-	1	.02400	49.43	1.899	1.48367	1.500	3.218 PER IMP=	47.60
*S ROUTING 108 ON STONE HILLS RD TO EXISTING DETENTION POND										
*S THRU CACTUS HILLS										
ROUTE MCUNGE	108.02	1	2	.02400	49.36	1.898	1.48268	1.567	3.214 CCODE =	.1
ADD HYD	108.10	2&11	4	.57326	502.39	35.188	1.15091	1.600	1.369	
*S SUB-BASIN 109 IS PART OF CACTUS HILLS AND EXISTING DET BASIN										
COMPUTE NM HYD	109.00	-	1	.02070	39.89	1.514	1.37182	1.500	3.011 PER IMP=	42.50
*S*** HYD 109.1 IS AP #3										
ADD HYD	109.10	1& 4	2	.59396	531.62	36.702	1.15861	1.600	1.399	
*S FUTURE DETENTION BASIN IN BASIN 109										
ROUTE RESERVOIR	109.RES	2	66	.59396	177.30	36.290	1.14560	2.066	.466 AC-FT=	13.505
*S										
*S	OUTFLOW(CFS)	STORAGE(AC-FT)		ELEV(FT)						
*S	0	0		5069						
*S	7	0.98		5070						
*S	25	2.41		5071						
*S	52	3.97		5072						
*S	82	5.65		5073						
*S	112	7.45		5074						
*S	140	9.37		5075						
*S	160	11.42		5076						
*S	178	13.59		5077						
*S	195	15.89		5078						
*S										
COMPUTE NM HYD	201.00	-	1	.02580	54.08	2.096	1.52345	1.500	3.275 PER IMP=	50.00
*S ROUTING 201 ON CROYDEN ST TO EXISTING DETENTION POND										
ROUTE MCUNGE	201.02	1	2	.02580	54.04	2.095	1.52261	1.533	3.273 CCODE =	.2
COMPUTE NM HYD	202.00	-	1	.02880	59.18	2.271	1.47869	1.500	3.211 PER IMP=	47.30
*S*** HYD 202.1 IS AP #4										

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ADD HYD          202.10 1& 2 4          .05460          111.38          4.366          1.49944          1.533          3.188
*S EXISTING DROP INLET IN BASIN 202
ROUTE RESERVOIR  202.RES1 4 2          .05460          90.73          4.366          1.49944          1.600          2.597 AC-FT= .207
*S
*S   OUTFLOW(CFS)  STORAGE(AC-FT)      ELEV(FT)
*S   0              0                  5138.7
*S   20.12          0.0009              5139.7
*S   24.07          0.0019              5140.7
*S   41.69          0.0028              5141.7
*S   53.82          0.0037              5142.7
*S   63.69          0.0047              5143.7
*S   70.59          0.0054              5144.5
*S   74.58          0.0111              5145.0
*S   81.98          0.0603              5146.0
*S   83.46          0.1024              5146.2
*S   87.97          0.1700              5146.5
*S   94.77          0.2611              5147.0
*S
*S EXISTING DETENTION BASIN IN BASIN 401

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COMMAND          FROM TO  HYDROGRAPH ID ID  AREA  PEAK  RUNOFF  TIME TO  CFS  PAGE =
                  IDENTIFICATION NO. NO. (SQ MI) (CFS) VOLUME (AC-FT) (HOURS) PER ACRE NOTATION

*S ROUTING RESERVOIR WITH 21" ORIFACE
ROUTE RESERVOIR  202.RES2 2 4          .05460          78.86          4.367          1.49949          1.733          2.257 AC-FT= 1.107
*S
*S   OUTFLOW(CFS)  STORAGE(AC-FT)      ELEV(FT)
*S   0              0                  5114
*S   11.58          0.0026              5115
*S   16.38          0.0052              5116
*S   20.06          0.0078              5117
*S   23.16          0.0091              5118
*S   25.89          0.0521              5119
*S   28.37          0.1097              5120
*S   30.64          0.1829              5121
*S   32.75          0.2747              5122
*S   34.74          0.3856              5123
*S   36.62          0.5174              5124
*S   38.41          0.6717              5125
*S   40.11          0.8496              5126
*S   41.76          1.03              5127
*S   61             1.08              5127.25
*S   94             1.13              5127.5
*S   136            1.18              5127.75
*S   185            1.23              5128
*S
EXISTING TOP OF POND

DIVIDE HYD       202.03 4 8          .05163          41.76          4.129          1.49949          1.700          1.264
OLF.2 and 11    .00297          37.10          .238          1.49949          1.733          19.519
*S ROUTE 202.RES2 THRU ASSUMED 36" PIPE IN PARADISE BLVD
ROUTE MCUNGE    202.02 8 6          .05163          41.76          4.127          1.49888          1.733          1.264 CCODE = .1
*S RESIDENTIAL
COMPUTE NM HYD  301.00 - 1          .01820          34.94          1.478          1.52307          1.533          3.000 PER IMP= 50.00

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*S ROUTING 301 ON PARADISE BLVD TO SUB-BASIN 304										
ROUTE MCUNGE	301.02	1	2	.01820	34.78	1.476	1.52068	1.700	2.986	CCODE = .1
*S METHODIST CHURCH PROPERTY										
COMPUTE NM HYD	302.00	-	1	.00430	11.56	.498	2.17219	1.500	4.202	PER IMP= 90.00
*S ROUTING 302 ON PARADISE BLVD TO SUB-BASIN 304										
ROUTE MCUNGE	302.02	1	5	.00430	11.51	.497	2.16698	1.733	4.182	CCODE = .1
ADD HYD	302.10	2& 5	4	.02250	45.44	1.973	1.64420	1.700	3.155	
*S COMMERCIAL										
COMPUTE NM HYD	303.00	-	1	.06690	156.35	7.746	2.17094	1.533	3.652	PER IMP= 90.00
*S EXISTING DETENTION BASIN IN BASIN 303										
*S ROUTING RESERVOIR WITH 21" OUTLET WITH 2.6% SLOPE OF PIPE										
ROUTE RESERVOIR	303.RES	1	5	.06690	124.69	7.736	2.16812	1.667	2.912	AC-FT= 2.227
*S										
*S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)										
*S	0	0		5099						
*S	11.58	0.15		5100						
*S	16.37	0.30		5101						
*S	20.06	0.45		5102						
*S	23.16	0.60		5103						
*S	25.89	0.75		5104						
*S	26.00	0.91		5105						
*S	27.00	1.07		5106						
*S	28.00	1.23		5107						
*S	29.00	1.39		5108						
*S	30.00	1.55		5109						
*S	31.00	1.71		5110						
*S	32.00	1.87		5111						
*S	33.00	2.03		5112						
*S	34.00	2.11		5112.5	EXISTING TOP OF POND					
*S	53.00	2.15		5112.75						
*S	86.00	2.19		5113						
*S	128.0	2.23		5113.25						
*S										
DIVIDE HYD										
	303.03	5	8	.05430	34.00	6.279	2.16812	1.633	.978	
	OLF.3	and	12	.01260	90.69	1.456	2.16812	1.667	11.251	
*S ROUTE 303.RES THRU 304 IN ASSUMED 36" PIPE										
ROUTE MCUNGE	303.02	8	2	.05430	34.00	6.273	2.16592	1.700	.978	CCODE = .1
ROUTE MCUNGE	OLF.32	12	16	.01260	80.47	1.436	2.13837	1.800	9.983	CCODE = .1
*S INCLUDES AREA FROM PARADISE BLVD - COMMERCIAL										
COMPUTE NM HYD	304.00	-	1	.03490	93.74	4.043	2.17217	1.500	4.197	PER IMP= 90.00
ADD HYD	304.10	1& 4	7	.05740	101.20	6.016	1.96521	1.533	2.755	
ADD HYD	304.20	7&16	5	.07000	148.50	7.453	1.99637	1.800	3.315	
*S DIVIDE AT MH# S-702										
COMMAND HYDROGRAPH FROM TO										
	IDENTIFICATION	NO.	NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 5
NOTATION										
DIVIDE HYD										
	CB1	5	4	.02872	20.00	3.058	1.99637	1.333	1.088	
	304.13	and	7	.04127	128.50	4.394	1.99637	1.800	4.865	
ADD HYD	CB1.1	2& 4	5	.08303	54.00	9.331	2.10726	1.700	1.016	
ADD HYD	CB1.2	5& 6	2	.13466	95.76	13.459	1.87400	1.733	1.111	
*S DOES NOT INCLUDE AREA FROM PARADISE BLVD - COMMERCIAL										

COMPUTE NM HYD	305.00	-	17	.03910	102.46	4.529			
*S DIVIDE HYD 305 BY 67 PERCENT THAT WILL REACH PROPOSED TRACT 2B AMAFCA POND									
DIVIDE HYD	305.69	17	17	.02620	68.64	3.035			
	305.68	and	57	.01290	33.81	1.495			
*S							2.17200	1.500	4.094 PER IMP= 90.00
*S 305.69 IS THE REVISED AREA OF BASIN 305 (67%) THAT WILL REACH									
TRACT 2-B PROPOSED AMAFCA POND									
*S							2.17200	1.500	4.094
*S							2.17200	1.500	4.094
*S 305.68 IS THE REVISED AREA OF BASIN 305 (33%) THAT WILL FLOW TO THE									
EXISTING NMSH&TD POND AT THE SW CORNER OF PDN AND COORS									
*S									
*S note - HAVE NOT MODIFIED THIS MODEL TO ACTUALLY ADD 305.68 TO THE									
NMSH&TD POND									
*S CACTUS RIDGE									
COMPUTE NM HYD	401.00	-	1	.02360	50.44	1.974			
ADD HYD	401.10	1&11	3	.02657	57.48	2.211			
*S DIVIDE HYD 401.1 BY MAXIMUM INFLOW OF CATCH BASINS, WEST OF							1.56819	1.500	3.340 PER IMP= 52.70
*S SUB-BASIN 401, ALONG PARADISE ROAD (7 CB AT 10 CFS EACH)							1.56051	1.733	3.380
DIVIDE HYD	CB2	3	4	.02657	57.48	2.211			
	401.13	and	5	.00000	.00	.000			
*S SUB-BASIN 402 IS PART OF WEST PARK APARTMENTS							1.56051	1.733	3.380
CDMPUTE NM HYD	402.00	-	1	.00860	18.66	.692			
ADD HYD	402.10	5&1	6	.00880	18.66	.692			
*S OLF HYD 402.2 CONTINUES SOUTH EAST ON PARADISE ROAD							1.47507	1.500	3.314 PER IMP= 42.70
*S*** OLF HYD 402.2 IS AP #5 *****							1.47507	1.500	3.314
ADD HYD	402.20	6&7	18	.05007	134.44	5.087			
*S ROUTING 402.2 TO DETENTION POND IN 503							1.90475	1.800	4.195
ROUTE MCUNGE	402.23	18	20	.05007	133.77	5.085			
ADD HYD	305.10	17&20	19	.07627	158.74	8.120			
*S*** PIPE HYD CB2.1 IS AP #6 *****							1.99621	1.866	4.174 CCODE = .1
ADD HYD	CB2.1	2&4	6	.16123	153.24	15.670			
*S SUB-BASIN 403 IS PART OF WEST PARK APARTMENTS							1.82234	1.733	1.485
COMPUTE NM HYD	403.00	-	1	.01440	32.61	1.266			
*S DIVIDE HYD 403 BY MAXIMUM INFLOW OF POND INLET IN WEST PARK APARTMENTS							1.64809	1.500	3.538 PER IMP= 54.20
*S OLF HYD 403.13 IS A NONCONTRIBUTING POND									
DIVIDE HYD	CB3	1	2	.00551	3.00	.484			
	403.13	and	99	.00889	29.61	.782			
ADD HYD	CB3.1	6&2	5	.16673	156.24	16.154			
*S ROUTE CB3.1 IN 48" AND 54" PIPE BETWEEN MH # S-702 AND MH # S-732							1.64809	1.300	.851
*S Q(CAP) = 144 CFS, AT SLOPE=0.005							1.64809	1.500	5.201
ROUTE MCUNGE	CB3.13	5	2	.16673	139.83	16.079			
*S LESLIE HOMES							1.80815	1.766	1.310 CCODE = .2
COMPUTE NM HYD	404.00	-	1	.01610	33.73	1.307			
ADD HYD	CB4.1	1&2	5	.18283	156.27	17.386			
*S ROUTE CB4.1 IN 60" PIPE BETWEEN MH # S-732 AND MH # S-531							1.52179	1.500	3.273 PER IMP= 49.90
*S Q(CAP) = 184 CFS, AT SLOPE=0.005							1.78293	1.567	1.336
ROUTE MCUNGE	CB4.13	5	2	.18283	153.87	17.354			
*S SUB-BASIN 405 IS PART OF CACTUS HILLS							1.77973	1.600	1.315 CCODE = .2
COMPUTE NM HYD	405.00	-	1	.02700	50.96	1.887			
*S DIVIDE SUB-BASIN 405 BY REMAINING MAXIMUM PIPE CAPACITY *							1.31061	1.500	2.949 PER IMP= 38.00
DIVIDE HYD	CB5	1	6	.02581	40.00	1.804			
	405.03	and	7	.00119	10.96	.083			
*S ROUTING 405.03 TO CONGRESS AVE							1.31061	1.467	2.422
							1.31061	1.500	14.335

ROUTE MCUNGE	405.02	7	15	.00119	10.31	.086	1.34366	1.600	13.489	CCODE =	.2
*S SUB-BASIN 405 HAS TRANSVERSE DRAIN WITH 36" PIPE TO 60" SD											
ADD HYD	CB5.1	6	2	.20864	191.44	19.158	1.72171	1.600	1.434		
*S ROUTE CB5.1 IN 60" PIPE BETWEEN MH # S-531 AND MH # S-932											
*S Q(CAP) = 184 CFS, AT SLOPE=0.005											
ROUTE MCUNGE	CB5.13	5	2	.20864	191.16	19.145	1.72056	1.600	1.432	CCODE =	.2
*S ROUTE CB5.2 IN 60" PIPE UNTIL CUBBY HOLE DET POND											
*S Q(CAP) = 233 CFS, AT SLOPE=0.008											
ROUTE MCUNGE	CB5.23	2	25	.20864	189.59	19.135	1.71966	1.600	1.420	CCODE =	.2
*S SUB-BASIN 406 IS NORTH OF CONGRESS AVE - RESIDENTIAL											
COMPUTE NM HYD	406.00	-	1	.01070	22.44	.869	1.52345	1.500	3.276	PER IMP=	50.00
ADD HYD	406.10	15	1	.01189	28.59	.955	1.50595	1.567	3.756		
*S ROUTING 406.1 ON CONGRESS AVE TO IRVING AND EAGLE RANCH ROAD											
COMMAND	HYDROGRAPH	FROM TO	ID	NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 6 NOTATION
ROUTE MCUNGE	406.12	6	3	.01189	27.80	.954	1.50443	1.633	3.652	CCODE =	.2
*S SUB-BASIN 407 IS NORTH OF CONGRESS AVE - COMMERCIAL											
COMPUTE NM HYD	407.00	-	1	.02240	60.17	2.595	2.17217	1.500	4.197	PER IMP=	90.00
*S CUBBY HOLE DETENTION BASIN											
*S ROUTING RESERVOIR WITH 12" ORIFACE											
ROUTE RESERVOIR	407.RES	1	5	.02240	67.98	2.592	2.16995	1.500	4.742	AC-FT=	.176
*S	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)								
*S	0	0	5063								
*S	3.78	0.0387	5064								
*S	5.35	0.0597	5065								
*S	6.55	0.0808	5066								
*S	7.56	0.1019	5067								
*S	8.46	0.1230	5068								
*S	9.26	0.1440	5069								
*S	10.00	0.1651	5070								
*S	29	0.170	5070.25								
*S	62	0.175	5070.5								
*S	104	0.180	5070.75								
*S	153	0.185	5071								
DIVIOE HYD	407.03	5	89	.01270	10.00	1.470	2.16995	1.433	1.230		
*S ROUTE CB5.3 IN 60" PIPE UNTIL BETWEEN MH # S-951 TO MH # S-962	OLF.4	and	13	.00970	57.98	1.123	2.16995	1.500	9.339		
*S Q(CAP) = 260 CFS, AT SLOPE=0.01											
ROUTE MCUNGE	CB5.33	25	85	.20864	189.56	19.118	1.71813	1.633	1.420	CCODE =	.1
ADD HYD	407.10	38	13	.02159	76.03	2.077	1.80338	1.500	5.501		
*S SUB-BASIN 408 IS STATE FARM INSURANCE											
*S OLF GOING TO THE EAST AND DOES NOT EFFECT EAGLE RANCH SO											
COMPUTE NM HYD	408.00	-	14	.00660	17.74	.765	2.17218	1.500	4.200	PER IMP=	90.00
*S EXISTING DETENTION BASIN IN SUB-BASIN 408											
*S ROUTING RESERVOIR WITH 12" WEIR											
ROUTE RESERVOIR	408.RES	14	18	.00660	3.71	.747	2.12308	2.066	.878	AC-FT=	.441
*S	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)								

*S SUB-BASIN 413 IS WEST OF EAGLE RANCH COMMERCIAL *
 COMPUTE NM HYD 413.00 - 3 .01560 41.95 1.807 2.17218 1.500 4.202 PER IMP= 90.00
 *S SUB-BASIN 414 IS WEST OF EAGLE RANCH COMMERCIAL *
 COMPUTE NM HYD 414.00 - 10 .00297 8.00 .344 2.17220 1.500 4.209 PER IMP= 90.00
 ADD HYD CB6.53 3&10 5 .01857 49.96 2.151 2.17219 1.500 4.203
 ADD HYD CB6.63 5& 9 11 .63500 203.81 41.029 1.21149 2.000 .502
 *S SUB-BASIN 415 IS WEST OF EAGLE RANCH - COMMERCIAL *
 COMPUTE NM HYD 415.00 - 1 .01190 32.01 1.379 2.17218 1.500 4.203 PER IMP= 90.00
 ADD HYD OUT.2 1&11 98 .64690 211.53 42.407 1.22916 1.966 .511
 ADD HYD OUT.3 98&99 99 .88959 421.23 65.197 1.37417 1.700 .740
 *S EAGLE RANCH ROAD
 *S 86 FT ROW
 COMPUTE NM HYD 501.00 - 1 .01000 17.39 1.156 2.16736 1.700 2.718 PER IMP= 90.00
 ADD HYD 501.10 14& 1 3 .03819 85.16 3.980 1.95392 1.500 3.484
 *S ROUTE OLF 501.1 THRU 505 IN IRVING BLVD **
 ROUTE MCUNGE 501.12 3 7 .03819 83.27 3.972 1.95007 1.600 3.407 CCODE = .1
 *S COMMERCIAL
 COMPUTE NM HYD 502.00 - 1 .04350 116.84 5.039 2.17217 1.500 4.197 PER IMP= 90.00
 *S DIVIDE HYD 305.1 IN PARADISE BLVD BY ASSUMED 18" CAPACITY *
 DIVIDE HYD 402.24 19 2 .02307 20.00 2.456 1.99621 1.367 1.355
 402.25 and 3 .05320 138.74 5.664 1.99621 1.567 4.075
 502.10 2& 1 5 .06657 136.84 7.496 2.11119 1.500 3.212
 ADD HYD
 *S EXISTING DETENTION BASIN IN SUB-BASIN 502
 *S ROUTING RESERVOIR WITH 24" RCP AND 6'2" HIGH 18" STANDPIPE
 ROUTE RESERVOIR 502.RES 5 8 .06657 76.87 7.446 2.09734 1.667 1.804 AC-FT= 2.307
 *S
 *S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)
 *S 0 0 5030
 *S 38.9526 2.1993 5038
 *S 58 2.268 5038.25
 *S 91 2.337 5038.5
 *S
 *S COMMERCIAL
 COMPUTE NM HYD 503.00 - 1 .02350 48.51 2.719 2.16951 1.600 3.225 PER IMP= 90.00
 ADD HYD 503.10 1& 3 2 .07670 185.76 8.383 2.04931 1.567 3.784
 *S
 *S NOTE - THE FOLLOWING IS A CHANGE FROM UPDATE1.TXT
 *S
 *S 502.RES ACTUALLY DISCHARGES INTO 503.RES, SO NEED TO ADD IT HERE
 *S
 ADD HYD 503.19 2& 8 2 .14327 222.37 15.829 2.07163 1.667 2.425
 *S
 *S EXISTING DETENTION BASIN IN SUB-BASIN 503
 *S ROUTING RESERVOIR WITH 24" RCP AND 9'3" HIGH 18" STANDPIPE
 ROUTE RESERVOIR 503.RES 2 5 .14327 209.53 15.098 1.97589 1.866 2.285 AC-FT= 4.806
 *S
 *S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)
 *S 0 0 5000
 *S 10.1924 4.2712 5010
 *S 29 4.378 5010.25
 *S 62 4.485 5010.5
 *S 104 4.592 5010.75
 *S 153 4.698 5011

FLOW
 AT INTERSECTION
 OF IRVING
 AND COORS
 EXCLUDING
 BASINS
 505, 505A

209

* ADD HYD 502.RES TO HYD 503.RES

CODE=1

FROM TO

ADD HYD 503.1 TO HYD 504.RES

CODE=1

504.10 3& 5 11

18587

OF COORS BLVD - COMMERCIAL

107.89

189.85

1

15.06

14.58

33

180.28

415.28

0.009 FT/FT

→ INCLUDING BASIN
505 AND EXCLUDING

505A



ROUTE MCUNGE 505.22 2 3 .27376 413.22 29.669 2.03200 1.866 2.358 CCODE = .1
 *S EAST OF COORS BLVD - RESIDENTIAL AND STATE HWY DEPT ROW
 COMPUTE NM HYD 506.00 1 .05590 80.04 3.683 1.23538 1.600 2.237 PER IMP= 30.00
 *S COORS BOULEVARD ROW
 COMPUTE NM HYD 506A - 29 .00800 18.31 .926 2.17069 1.567 3.576 PER IMP= 90.00
 ADD HYD 506.10 1& 3 2 .32966 454.08 33.352 1.89692 1.800 2.152
 ADD HYD 506.12 2& 3 27 .33526 460.67 33.998 1.90140 1.800 2.147
 ADD HYD 506.20 27& 29 2 .34326 469.38 34.924 1.90767 1.800 2.137

*S PROPOSED DETENTION BASIN WITHIN EXISTING STATE HWY DEPT R-O-W

*S ROUTING RESERVOIR WITH 36" DIAM ORIFACE

*S MAXIMUM: HIGH ELEV = 5001 , LOW ELEV = 4992.8 , OUTFLOW = 38 CFS

ROUTE RESERVOIR 506.RES 2 10 .34326 30.48 34.337 1.87560 3.166 .139 AC-FT= 214090

TRACT 2-B Pond

*S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)

*S 0 0 4993

*S 13.2 1.1324 4994

*S 18.7 4.4968 4995

*S 22.9 9.3777 4996

*S 26.5 14.3639 4997

*S 29.6 19.4554 4998

*S 32.4 24.6522 4999

*S 35.0 29.9543 5000

*S 37.5 35.3617 5001

*S 39.7 40.8744 5002

*S 41.9 46.4318 5003

*S 43.9 52.1551 5004

ADD HYD 900.00 83&10 20 .39641 83.89 101.495

ROUTE MCUNGE 901.00 20 7 .39641 83.83 101.471

*S THE ALBUQUERQUE WEST COMMERCIAL DEVELOPMENT AREA

*S INCLUDES SECTIONS OF PASEO DEL NORTE AND STATE HIGHWAY DEPT. ROW

*S BASIN 11.1W

COMPUTE NM HYD 147.00 1 .04607 114.38 4.869 1.98167 1.500 3.879 PER IMP= 80.00

*S ROUTE RESERVOIR THROUGH NMS&TD POND AT SW CORNER OF PON AND COORS

COMMAND HYDROGRAPH ID ID FROM TO PEAK DISCHARGE
 IDENTIFICATION NO. NO. (SQ MI) (CFS)
 TIME TO CFS PAGE = 9
 PEAK PER ACRE NOTATION
 RUNOFF (INCHES)
 RUNOFF VOLUME (AC-FT)

*S ROUTE RESERVOIR WITH 2 30" CULVERT PIPES UNDER COORS BLVD.

ROUTE RESERVOIR 147.RES 1 2 .04607 42.57 4.847 1.97259 1.766 1.444 AC-FT= 1.821

*S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)

*S 0 0 4996

*S 28 1.30 4998

*S 66 2.66 5000

*S DIVIDE HYD 147.RES BY MAXIMUM PIPE OUTFLOW *

DIVIDE HYD 147.RES1 2 18 .04607 42.57 4.847 1.97259 1.766 1.444

OLF.5 and 30 .00000 .000

*S ROUTE THE FLOW FROM THE POND THROUGH CULVERT PIPES UNDER COORS **

ROUTE MCUNGE 903.00 18 8 .04607 42.19 4.834 1.96754 1.833 1.431 CCODE = 1.0

ADD HYD 904.00 8& 7 9 .44248 122.97 106.306 4.50466 1.966 .434

*S SECTION OF BASIN 11.1W THAT DRAINS TO CULVERT UNDER COORS

COMPUTE NM HYD 147A - 18 .00528 4.48 .126 1.533 1.328 PER IMP= .00

*S ROUTE 11.1A THROUGH A 24" CMP PIPE UNDER COORS TO CANAL CBC **
 ROUTE MCUNGE 147A.1 18 12 .00528 4.40
 ** ADD THE FLOW FROM 11.1A TO CANAL **
 ADD HYD 147.12 9&12 9 .44776 123.61 106.431 1.567 1.303 CCODE = 1.0
 *S BASE FLOW CORRECTION
 MODIFY TIME 147.12 9 9 .44776 123.61 106.431 1.933 .431
 *S ROUTE FLOW DOWN CANAL TO AREA 11.2 DISCHARGE POINT. **
 ROUTE MCUNGE 18.00 9 3 .44776 123.55 106.413 1.966 .431 CCODE = .2
 *S BASE FLOW CORRECTION
 MODIFY TIME 18.00 3 3 .44776 123.55 106.413 1.966 .431 SHIFT= .000
 *S AREAS 8.1W TO 11.1AW ROUTED DOWN CANAL TO NEXT AP WITH BASE FLOW
 *S CORRECTED TO 38 CFS MIN.
 *S INCLUDES SECTION OF COORS AND PASEO DEL NORTE
 COMPUTE NM HYD 11.2E-325 - 7 .02769 74.38
 ADD HYD 326.00 3&7 5 .47545 145.22
 *S EAGLE RIDGE APARTMENT COMPLEX/UPPER HALF THAT DRAINS DIRECTLY
 *S TO THE CORRALES MAIN CANAL VIA FUTURE STORM DRAIN
 COMPUTE NM HYD 12.1W - 3 .04399 96.66
 *S ROUTE FLOW FROM 12.1W THROUGH FUTURE DETENTION POND **
 ROUTE RESERVOIR 12.1W.RES 3 9 .04399 11.95
 *S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)
 *S 0 0
 *S 4 0.59 1.0
 *S 9 1.29 2.0
 *S 12 2.41 2.5
 *S ROUTE FLOW IN CANAL TO AREA 12.1AW DISCHARGE POINT. **
 ROUTE MCUNGE 19.00 5 10 .47545 132.34
 *S BASE FLOW CORRECTION
 MODIFY TIME 19.00 10 10 .47545 132.34
 ADD HYD 12.1W.1 10&9 11 .51944 143.92
 *S EAGLE RIDGE APARTMENT COMPLEX/LOWER HALF THAT
 *S DRAINS TO THE SWALE ALONG COORS BOULEVARD
 COMPUTE NM HYD 12.2W - 1 .00691 15.20
 *S DIVIDE HYD NO BY ALLOWABLE DISCHARGE SWALE ALONG COORS **
 *S HYD NO 603.01 IS THE Q THAT REACHES THE SWALE
 DIVIDE HYD 12.2W.1 1 5 .00691 15.20
 OLF.7 and 31 .00000 .00
 *S ROUTE THE FLOW LEAVING THE LOWER HALF OF THE EAGLE RIDGE APARTMENT
 *S SITE THROUGH A NATURAL SWALE THAT FLOWS SOUTH ALONG THE WEST
 *S SIDE OF COORS BOULEVARD.
 ROUTE MCUNGE 12.2W.2 5 8 .00691 14.91
 *S ROUTE FLOW DOWN CANAL TO AREA 12.3 DISCHARGE POINT. **
 ROUTE MCUNGE 22.00 11 9 .51944 129.04
 *S BASE FLOW CORRECTION.
 MODIFY TIME 22.00 9 9 .51944 129.04
 ADD HYD 12.1W.3 8&9 12 .52635 132.54
 COMPUTE NM HYD 12.3E - 1 .02616 62.41
 *S FLOW FROM 12.3E ENTERS FUTURE DETENTION BASIN
 *S ROUTING RESERVOIR WITH 15" DIAMETER ORIFACE
 ROUTE RESERVOIR 12.3E.RES 1 15 .02616 10.14
 *S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)
 *S 0 0
 *S 3 0.39 101

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 =
*S 6	0.77									10
*S 7	1.16									
*S 10	1.54									
ADD HYD	330.00 15&12	2		.55251	142.50	116.061	3.93866	2.000	.403	
*S ROUTE FLOW IN CANAL FROM 8.1W TO 12.3E TO AREA 13					DISCHARGE POINT. **					
ROUTE MCUNGE	23.00 2	5		.55251	133.25	115.810	3.93013	2.033	.377 CCODE =	.2
MODIFY TIME	23.00 5	5		.55251	133.25	115.810	3.93013	2.033	.377 SHIFT=	.000
*S FUTURE COMMERCIAL AREA										
COMPUTE NM HYD	13.1W -	10		.01020	20.67	.833	1.53060	1.500	3.167 PER IMP=	55.00
*S FLOW FROM 13.1W ENTERS FUTURE DETENTION BASIN										
*S ROUTING RESERVOIR WITH 15" DIAMETER ORIFACE										
ROUTE RESERVOIR	13.1W.RES	10	11	.01020	8.06	.830	1.52544	1.733	1.234 AC-FT=	.303
*S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)										
*S 0	0									
*S 2.6	0.1									
*S 6.0	0.2									
*S 8.0	0.3									
*S BOSQUE DEL PUEBLO COMMERCIAL AREA										
COMPUTE NM HYD	13.2E-332	-	1	.01480	34.12	1.424	1.80359	1.500	3.602 PER IMP=	70.00
ADD HYD	333.00 1&11	12		.02500	38.97	2.253	1.69010	1.500	2.436	
ADD HYD	334.00 5&12	2		.57751	151.53	118.063	3.83316	1.567	.410	
*S SUB-BASIN 14.1W										
*S ALBAN HILLS										
COMPUTE NM HYD	14.1W-335	-	3	.05117	66.95	2.233	.81824	1.500	2.044 PER IMP=	15.00
ROUTE MCUNGE	25.00 3	5		.05117	66.55	2.227	.81589	1.567	2.032 CCODE =	.1
*S ROUTE B.1W TO 13.2E DOWN CANAL TO AREA 14					DISCHARGE POINT. **					
ROUTE MCUNGE	26.00 2	10		.57751	138.73	117.804	3.82474	2.033	.375 CCODE =	.2
MODIFY TIME	26.00 10	10		.57751	138.73	117.804	3.82474	2.033	.375 SHIFT=	.000
ADD HYD	338.00 5&10	2		.62868	200.39	120.030	3.57984	1.567	.498	
*S ROUTE AREA 8.1W TO 14.1W DOWN CANAL TO AREA 15					DISCHARGE POINT. **					
ROUTE MCUNGE	27.00 2	7		.62868	175.46	119.716	3.57047	1.567	.436 CCODE =	.2
MODIFY TIME	27.00 7	7		.62868	175.46	119.716	3.57047	1.567	.436 SHIFT=	.000
*S AREA 8.1W TO 14.2E ROUTED DOWN CANAL TO AREA 15					DISCH. POINT WITH					
*S BASE FLOW CORRECTED.										
COMPUTE NM HYD	15.1W -	3		.02560	30.05	.936	.68537	1.533	1.834 PER IMP=	8.00
ROUTE MCUNGE	28.00 3	10		.02560	29.23	.930	.68080	1.633	1.784 CCODE =	.1
*S SUB-BASIN 15.2W										
*S ALBAN HILLS										
COMPUTE NM HYD	15.2W-340	-	3	.06380	74.90	2.332	.68537	1.533	1.834 PER IMP=	8.00
ROUTE MCUNGE	29.00 3	5		.06380	74.46	2.327	.68384	1.567	1.824 CCODE =	.1
ADD HYD	186.00 10& 5	3		.08940	101.72	3.256	.68297	1.600	1.778	
*S SUB-BASIN 15.3E										
*S FUTURE COMMERCIAL DEVELOPMENT										
COMPUTE NM HYD	15.3E -	10		.01230	30.23	1.262	1.92365	1.500	3.840 PER IMP=	75.00
*S FLOW FROM 15.3E ENTERS FUTURE DETENTION BASIN										
*S ROUTING RESERVOIR WITH 15" DIAMETER ORIFACE										
ADD HYD	342.00 3&10	5		.10170	123.45	4.518	.83302	1.567	1.897	
ADD HYD	343.00 5& 7	10		.73038	298.91	124.234	3.18930	1.567	.639	

```

*S SUB-BASIN 16.1W
*S ALBAN HILLS
  COMPUTE NM HYD      16.1W      3      .03330      39.08      1.217      .68537      1.533      1.834 PER IMP=      8.00
*S BOSQUE MEADOWS SUBDIVISION
  COMPUTE NM HYD      16.3NRTH      1      .01565      31.37      1.186      1.42116      1.500      3.132 PER IMP=      44.00
  ADD HYD      16.3N.1 1& 3 30      .04895      70.22      2.403      .92061      1.500      2.242
*S ROUTE 16.1W AND 16.3NRTH THROUGH FUTURE DETENTION POND
*S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)
*S 0      0      100
*S 5      0.60      101
*S 13      1.10      102
*S 25      1.59      103
*S ROUTE AREA 8.1W TO 15.3W DOWN CANAL TO BUSHEL ROAD DISCHARGE POINT. **
  ROUTE MCUNGE      27.10 10 32      .73038      255.73      123.665      3.17467      1.567      .547 CCODE =      .2
  MODIFY TIME      27.10 32 32      .73038      255.73      123.665      3.17467      1.567      .547 SHIFT=      .000
  ADD HYD      16.3N.1 32&30 33      .77933      318.58      126.068      3.03310      1.567      .639
*S SUB-BASIN 16.2W
*S ALBAN HILLS
  COMPUTE NM HYD      16.2W      3      .06650      78.14      2.431      .68537      1.533      1.836 PER IMP=      8.00
*S FUTURE RESIDENTIAL DEVELOPMENT
  COMPUTE NM HYD      16.3E      5      .01120      26.18      1.037      1.73544      1.500      3.652 PER IMP=      60.00
*S FUTURE DETENTION POND AT BASIN 16.3E
*S ROUTING RESERVOIR WITH 18" DIAMETER ORIFACE
*S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)
*S 0      0      100
*S 3      0.35      101
*S 8      0.82      102
*S BOSQUE MEADOWS SUBDIVISION

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COMMAND      HYDROGRAPH      FROM TO      ID NO.      AREA      PEAK      RUNOFF      TIME TO      CFS      PAGE =
IDENTIFICATION      NO.      (SQ MI)      DISCHARGE      (AC-FT)      PEAK      (HOURS)      PER      NOTATION
                                NO.      NO.
COMPUTE NM HYD      16.3STH      -      1      .03122      72.24      2.865      1.500      3.616 PER IMP=      59.80
ADD HYD      16.3STH.1 1& 3 34      .09772      149.92      5.296      1.500      2.397
*S ROUTE 16.2 AND 16.3STH THROUGH FUTURE DETENTION POND @ BOSQUE MEADOWS
  ROUTE RESERVOIR      16.3STH.RES 34 35      .09772      35.48      5.308      1.866      .567 AC-FT=      2.380
*S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)
*S 0.00      0.00000      488.58
*S 18.53      0.01074      4991.08
*S 20.96      0.01407      4991.50
*S 23.53      0.32155      4992.00
*S 25.85      0.62903      4992.50
*S 27.97      0.93650      4993.00
*S 29.95      1.24398      4993.50
*S 31.80      1.55145      4994.00
*S 33.55      1.85893      4994.50
*S 35.22      2.16641      4995.00
*S 35.60      2.47388      4995.50
  ADD HYD      16.3STH.2 35& 5 36      .10892      54.69      6.345      1.533      .785
COMPUTE NM HYD      17.1W      -      3      .01030      11.44      .354      1.533      1.735 PER IMP=      7.00
  COMPUTE NM HYD      17.4E      -      1      .03843      87.32      3.532      1.500      3.550 PER IMP=      62.90
  ADD HYD      17.4E.1 1& 3 37      .04873      98.66      3.886      1.500      3.164

```

*S FUTURE DETENTION POND AT COORS 8-PAC SITE									
*S ROUTING RESERVOIR WITH 48" DIAMETER ORIFACE									
*S	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)						
*S	0	0	100						
*S	15	0.20	101						
*S	21	0.60	102						
*S	43	1.05	103						
*S	70	1.20	103.8						
*S ROUTE 8.1W TO 16.2NRTH FROM BUSHEL ROAD DOWN CANAL TO FINAL DISCHARGE POINT.									
ROUTE MCUNGE	32.00	33	5	.77933	236.50	125.173	3.01156	1.567	.474 CCODE =
MODIFY TIME	32.00	5	5	.77933	236.50	125.173	3.01156	1.567	.474 SHIFT=
ADD HYD	348.00	5&36	40	.88825	289.91	131.518	2.77620	1.567	.510
ADD HYD	353.00	37&40	41	.93698	375.57	135.403	2.70957	1.533	.626
FINISH									

*** ADD HYD 506.12 TO HYD 506A ***

ADD HYD ID=2 HYD NO=506.2 ID I=27 ID II=29
PRINT HYD ID=2 CODE=1

DUTFLOW HYDROGRAPH RESERVOIR 506.20

RUNOFF VOLUME = 1.90767 INCHES = 34.9243 ACRE-FEET
PEAK DISCHARGE RATE = 469.38 CFS AT 1.800 HOURS BASIN AREA = .3433 SQ. MI.

*S PROPOSED DETENTION BASIN WITHIN EXISTING STATE HWY DEPT R-O-W
*S ROUTING RESERVOIR WITH 36" DIAM ORIFACE
*S MAXIMUM: HIGH ELEV = 5001, LOW ELEV = 4992.8, OUTFLOW = 38 CFS
* AREA ORIFACE IS 2.75 SF
ROUTE RESERVOIR ID=10

OUTFLOW(CFS)	HYD NO=506.RES	STORAGE(AC-FT)	INFLOW=2	CODE=1
				ELEV(FT)
0		0		4993
13.2		1.1324		4994
18.7		4.4968		4995
22.9		9.3777		4996
26.5		14.3639		4997
29.6		19.4554		4998
32.4		24.6522		4999
35.0		29.9543		5000
37.5		35.3617		5001
39.7		40.8744		5002
41.9		46.4318		5003
43.9		52.1551		5004

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	4993.00	.000	.00
.03	.00	4993.00	.000	.00
.07	.00	4993.00	.000	.00
.10	.00	4993.00	.000	.00
.13	.00	4993.00	.000	.00
.17	.00	4993.00	.000	.00
.20	.00	4993.00	.000	.00
.23	.00	4993.00	.000	.00
.27	.00	4993.00	.000	.00
.30	.00	4993.00	.000	.00
.33	.00	4993.00	.000	.00
.37	.00	4993.00	.000	.00
.40	.00	4993.00	.000	.00
.43	.00	4993.00	.000	.00
.47	.00	4993.00	.000	.00

UPDATE 2. TXT

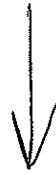
OUT PUT
FILE

TRACT 2-B
POND

RESEAVOIR
ROUTING
OUT PUT

UPDATE 2. TX

2 OF 2



(HRS)	(CFS)	(FEET)	(AC-FT)	(CFS)
18.66	3.73	4994.05	1.291	13.46
18.70	3.72	4994.04	1.264	13.42
18.73	3.72	4994.03	1.238	13.37
18.76	3.71	4994.02	1.211	13.33
18.80	3.70	4994.02	1.185	13.29
18.83	3.69	4994.01	1.158	13.24
18.86	3.69	4994.00	1.132	13.20
18.90	3.68	4993.98	1.106	12.90
18.93	3.68	4993.96	1.081	12.60
18.96	3.67	4993.93	1.057	12.32
19.00	3.66	4993.91	1.034	12.05
19.03	3.65	4993.89	1.011	11.78
19.06	3.64	4993.87	.989	11.53
19.10	3.64	4993.85	.967	11.28
19.13	3.63	4993.84	.947	11.04
19.16	3.63	4993.82	.927	10.80
19.20	3.62	4993.80	.907	10.57
19.23	3.61	4993.78	.888	10.35
19.26	3.60	4993.77	.870	10.14
19.30	3.60	4993.75	.852	9.93
19.33	3.59	4993.74	.835	9.73
19.36	3.58	4993.72	.818	9.54
19.40	3.58	4993.71	.802	9.35
19.43	3.57	4993.69	.787	9.17
19.46	3.57	4993.68	.771	8.99
19.50	3.56	4993.67	.757	8.82
19.53	3.55	4993.66	.742	8.65
19.56	3.55	4993.64	.729	8.49
19.60	3.54	4993.63	.715	8.34
19.63	3.54	4993.62	.702	8.18
19.66	3.53	4993.61	.690	8.04
19.70	3.52	4993.60	.677	7.90
19.73	3.52	4993.59	.665	7.76
19.76	3.51	4993.58	.654	7.62
19.80	3.50	4993.57	.643	7.49
19.83	3.50	4993.56	.632	7.37
19.86	3.49	4993.55	.621	7.24
19.90	3.49	4993.54	.611	7.13
19.93	3.48	4993.53	.601	7.01
19.96	3.48	4993.52	.592	6.90
PEAK DISCHARGE = 30.481 CFS - PEAK OCCURS AT HOUR 3.17 MAXIMUM WATER SURFACE ELEVATION = 4998.314 MAXIMUM STORAGE = 21.0900 AC-FT INCREMENTAL TIME= .033330HRS				
*S	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)	
*S	0	0	4993	
*S	13.2	1.1324	4994	
*S	18.7	4.4968	4995	
*S	22.9	9.3777	4996	
*S	26.5	14.3639	4997	



APPENDIX 1

AHYMO SUMMARY TABLES FROM :

3.

**REVISED MODEL UPDATE2.TXT TO INCLUDE PROPOSED AMAFCA DRAINAGE
MANAGEMENT CONTROLS**

Smith Engineering Company

AHYMO model filename update3.txt (revised June 2003)

3

AHYMO PROGRAM SUMMARY TABLE (AHYMO 97) -
INPUT FILE = Z:\Projects\100109-1\ahymo\update3.txt
START

VERSION: 1997.02c

RUN DATE (MON/DAY/YR) = 06/04/2003
USER NO. = AHYMO-S-9702c01SEC01A-AH
TIME = .00

***S FILENAME - UPDATE3.TXT**

***S (a copy of update2.txt, which is a copy of update1.txt)**

*S DESCRIPTION - This model update3.txt (prepared 6-3 and 6-4-03)
*S is a copy of original file update1.txt (11-20-1996)
*S that was prepared for:

*S *****
*S * DESIGN MEMORANDUM FOR THE REVISION TO *
*S * NORTH COORS DRAINAGE MANAGEMENT PLAN *
*S * MIDDLE AREA (La Orilla to Calabacillas) *
*S * HYDROLOGY (FULLY DEVELOPED CONDITIONS) *
*S * HYDRAULICS SEDIMENT CONTROL *
*S * FEBRUARY 1997. SMITH ENGINEERING COMPANY*
*S * SEC Proj. No. 195104
*S * 100 YEAR STORM - 24 HOUR DURATION *
*S * IMPROVED CORRALES MAIN CANAL *
*S * MIDDLE AREA *
*S * CALABACILLAS ARROYO TO LA ORILLA OUTLET *
*S * UPDATED FOR 1996 DRAINAGE CRITERIA *
*S *****

*S CURRENT SEC PROJECT ND. = 100109C (June 2003)

*S UPDATE3.TXT is a model that includes the following proposed drainage
*S management decisions by AMAFCA (JUNE 2003)
*S after AMAFCA's review of the UPDATE2.TXT model, due to the large
*S discharges in that model at the intersection of Irving and Coors Blvd.
*S and the large discharge at the detention pond on the west side of Coors
*S near the movie theater in basin 504. That pond outfalls to a
*S 36"cmp that flows east to
*S the Tract 2-B Pond site located at the northeast corner of Coors and
*S Paseo Del Norte. These proposed drainage management decisions could be
*S enforced by the City of Albuquerque as development begins in the basins
*S described below. The basins are currently undeveloped, therefore, these
*S management decisions could be imposed on the developments because the
*S downstream drainage capacities are inadequate to take the flows from these
*S basins.

*S ***S IMPORTANT CHANGES TO MODEL UPDATE3.TXT (update3.txt also contains the**
*S **corrections as described below for model update2.txt)**

*S **PROPOSED DRAINAGE MANAGEMENT LIMITATIONS (PROPOSED BY AMAFCA JUNE 2003)**

*S **1. NO RUNOFF FROM BASINS 406 AND 407 WILL BE ALLOWED TO DISCHARGE**
*S **INTO IRVING BLVD. AS STREET FLOW. ALL FLOW FROM THESE BASINS**
*S **SHOULD BE COLLECTED AS REQUIRED AND DISCHARGE INTO THE CONGRESS**
*S **AVE. STORM DRAIN SYSTEM THAT OUTFALLS TO THE CALABACILLAS ARROYO**

2. MOST OF THE RUNOFF FROM BASINS 410 AND 411 ARE ANTICIPATED TO DISCHARGE INTO THE CONGRESS AVE. STORM DRAIN THAT PASSES THROUGH BASIN 411 ALONG THE REAR LOT LINE. IF ANY FLOWS FROM THESE BASINS MUST DISCHARGE TO IRVING BLVD., THESE MUST BE LIMITED TO A VERY SMALL RELEASE RATE DUE TO LIMITED DOWNSTREAM CAPACITY AT THE INTERSECTION OF IRVING AND COORS BLVD.

3. ALL RUNOFF FROM BASINS 302, 303 AND 304 SHOULD BE COLLECTED IN THE DETENTION POND LOCATED NEAR THE BOTTOM OF BASIN 303, AND THE ENTIRE VOLUME SHALL OUTFALL TO THE EXISTING STORM DRAIN SYSTEM FROM THAT POND TO THE EAGLE RANCH BLVD. STORM DRAIN SYSTEM

*S IMPORTANT CHANGES TO MODEL UPDATE2.TXT:

*S The following changes were NOTED, AND/OR applied to this model(update2.txt)

1. The area of basin 504 was 0.0257 sq mi (wrong), correct is 0.0426 sq mi

2. All of Basin 305 was previously added to Tract 2B Pond (proposed AMAFCA pond), however, only 2/3 of that basin will reach proposed AMAFCA pond, therefore, add a DIVIDE HYD command to correct

3. Detention Pond 502.RES actually outfalls into Detention Pond 503.RES. However, in Update1.txt, it was added after 503.RES. Therefore, it is now added prior to Pond 503.res routing.

4. Basins 409, 410 and 411 were divided and a fraction of those basins were lost in the update1.txt model. A the lost fraction of Basins 410 AND 411 could possibly drain to Tract 2-B AMAFCA Pond. The lost Hyd's and fractional areas and volumes lost are as follows:

HYD NO.'S	410.03 and 411.03	
DRAINAGE AREAS (sq mi)	0.00016	0.00188
RUNOFF VOLUME (ac-ft)	0.018	0.218
		TOTAL = 0.00204
		TOTAL = 0.236

THESE LOST HYD'S HAVE NOT BEEN ADDED INTO THIS MODEL.

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 = 2	NOTATION
RAINFALL TYPE= 2											
*S COMPUTED 24-HOUR RAINFALL DIST BASED ON NOAA ATLAS 2 - PEAK AT 1.4+3 HR											
*S SUB-BASIN 8.3E											
*S RIVERFRONTE ESTATES											
COMPUTE NM HYD	8.3W-318	-	3	.05305	59.34	1.922	.67914	1.533	1.748 PER IMP=	10.00	
*S** ADD FLOW IN CORRALES MAIN CANAL COMING FROM CALABACILLAS SIPHON ***											
STORE HYD	136.00	-	5	.00010	50.00	96.240	18044.95000	3.950	781.250		
*S BASE FLOW = 38 CFS IRRIGATION + 12 CFS WHICH CAME THROUGH SIPHON											
*S DURING 100 YEAR FLOOD.											
MODIFY TIME	136.00	5	5	.00010	50.00	96.711	18133.27000	3.950	781.250 SHIFT=	.000	
S ROUTE BASE FLOW DOWN CANAL TO 8.3 DISCHARGE POINT. **											
ROUTE MCUNGE	12.00	5	6	.00010	49.14	96.708	18132.75000	4.550	767.839 CCODE =	.2	
*S BASE FLOW CORRECTION.											
MODIFY TIME	12.00	6	6	.00010	49.14	96.708	18132.75000	4.550	767.839 SHIFT=	.000	
ADD HYD	139.00	6&3	6	.05315	97.34	67.218	23.71289	1.533	2.862		
*S ROUTE 8.3E DOWN CANAL TO 8.1 DISCHARGE POINT. **											
ROUTE MCUNGE	13.00	6	5	.05315	82.02	67.195	23.70470	1.533	2.411 CCODE =	.2	
MODIFY TIME	13.00	5	5	.05315	82.02	67.195	23.70470	1.533	2.411 SHIFT=	.000	
*S ROUTE 8.3E DOWN CANAL TO DISCHARGE POINT OF PROPOSED POND AT BLACK RANCH. **											
ROUTE MCUNGE	14.00	5	83	.05315	59.60	67.158	23.69172	1.900	1.723 CCODE =	.2	
*S BASE FLOW CORRECTION.											
MODIFY TIME	14.00	83	83	.05315	58.60	67.158	23.69172	1.900	1.723 SHIFT=	.000	
*S CONTRIBUTING BASINS FROM PARADISE HILLS GOLF COURSE											
*S SOURCE: EASTERLING & ASSOCIATES, INC.											
*S SINGLE FAMILY RESIDENTIAL, APPROXIMATELY 2 DU'S PER ACRE											
COMPUTE NM HYD	101EA	-	1	.03700	61.63	2.278	1.15431	1.533	2.603 PER IMP=	26.00	
*S GOLF COURSE AND SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE											
COMPUTE NM HYD	102.00	-	2	.04470	45.64	1.986	.83306	1.600	1.595 PER IMP=	10.00	
S ROUTE THE FLOW FROM 101EA THRU 102EA **											
ROUTE MCUNGE	101EA.1	1	3	.03700	58.58	2.256	1.14312	1.766	2.474 CCODE =	.1	
ADD HYD	102EA.1	2&3	4	.08170	92.25	4.242	.97348	1.733	1.764		
*S SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE, INCLUDES SMALL PORTION OF LYONS											
COMPUTE NM HYD	103EA	-	5	.00670	12.31	.434	1.21488	1.500	2.871 PER IMP=	30.00	
*S SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE											
COMPUTE NM HYD	104EA	-	6	.02480	44.27	1.527	1.15445	1.500	2.789 PER IMP=	26.00	
S ROUTE 103EA THRU 104EA **											
ROUTE MCUNGE	103EA.4	5	7	.00670	12.32	.434	1.21466	1.567	2.872 CCODE =	.2	
ADD HYD	103EA.4	7&6	9	.03150	53.91	1.961	1.16726	1.533	2.674		
*S SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE											
COMPUTE NM HYD	105EA	-	10	.02360	35.41	1.453	1.15411	1.567	2.344 PER IMP=	26.00	
S ROUTE FLOW COMING FROM 103EA.4 THRU 105EA **											
ROUTE MCUNGE	104EA.5	9	11	.03150	53.77	1.961	1.16698	1.567	2.667 CCODE =	.2	
ADD HYD	104EA.5	10&11	12	.05510	89.18	3.413	1.16146	1.567	2.529		
*S GOLF COURSE AND SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE											
COMPUTE NM HYD	106EA	-	13	.02630	27.56	1.088	.77549	1.567	1.637 PER IMP=	7.00	
S ROUTE FLOW COMING FROM 104EA.55 THRU 106EA **											
ROUTE MCUNGE	101EA.1	12	14	.05510	88.49	3.411	1.16085	1.633	2.509 CCODE =	.2	
ADD HYD	104EA.5	14&13	15	.08140	115.07	4.499	1.03634	1.600	2.209		

RAIN24= 2.650

** ROUTE FLOW COMING FROM 102EA THRU 106EA **
 ROUTE MCUNGE 102EA.6 4 16 .08170 92.19 4.240 1.766 1.763 CCODE = .2
 ADD HYD 106EA.25 15&16 17 .16310 174.33 8.739 1.700 1.670
 ** S SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE
 COMPUTE NM HYD 107EA - 19 .02130 23.18 .856 1.567 1.701 PER IMP= 6.00
 ** ROUTE FLOW COMING FROM 106EA.25 THRU 107EA **

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 =	NOTATION
ROUTE MCUNGE	107EA.6	17	2	.16310	173.29	8.740	1.00479	1.766	1.660	3	.2
ADD HYD	107EA.6	2&19	3	.18440	189.31	9.596	.97578	1.700	1.604		
** S GOLF COURSE, PARKING LOT AND SINGLE FAMILY RESIDENTIAL @ 2 DU PER ACRE											
COMPUTE NM HYD	108EA -	7		.04700	43.68	2.177	.86868	1.633	1.452		12.00
ADD HYD	107EA.8	3&7	8	.23140	230.91	11.774	.95403	1.700	1.559		
** ROUTE COMBINED 107EA.8 THRU RESERVOIR (DUCK POND & EMPTY HOLE) **											
ROUTE RESERVOIR	107EA.8	8	9	.23140	145.75	7.807	.63257	1.933	.984		5.341

** S
 ** S OUTFLOW(CFS) STORAGE(AF) ELEV(FT)
 ** S 0.00 0.00 5241.0
 ** S 0.01 0.22 5242.0
 ** S 0.02 0.54 5243.0
 ** S 0.03 0.95 5244.0
 ** S 0.035 1.20 5244.5
 ** S 0.04 1.44 5245.0
 ** S 0.045 2.70 5245.5
 ** S 0.05 3.96 5246.0
 ** S 14.00 4.19 5246.1
 ** S 27.00 4.41 5246.2
 ** S 52.00 4.64 5246.3
 ** S 76.00 4.86 5246.4
 ** S 108.00 5.08 5246.5
 ** S 139.00 5.30 5246.6
 ** S 177.00 5.53 5246.7
 ** S 215.00 5.75 5246.8
 ** S 258.00 5.98 5246.9
 ** S 300.00 6.20 5247.0
 ** S 500.00 9.00 5250.0
 ** S 1000.00 12.00 5255.0
 ** S

** S GOLF COURSE, AND OTHER RECREATION
 COMPUTE NM HYD 109EA - 10 .00900 14.67 .502 1.500 2.547 PER IMP= 23.00
 ** ROUTE FLOW COMING FROM RESERVOIR THRU 109EA **
 ROUTE MCUNGE 109EA.78 9 11 .23140 145.35 7.812 1.933 .981 CCODE = .2
 ADD HYD 109EA.87 10&11 12 .24040 148.00 8.315 1.933 .962
 ** S PKG LOT, CLUBHOUSE, ENTR. RD, PROSHOP, BED & BRKFST
 COMPUTE NM HYD 110EA - 13 .00600 14.45 .594 1.500 3.764 PER IMP= 70.00
 ADD HYD 110EA.1 12&13 14 .24640 151.64 8.908 1.933 .962
 ROUTE MCUNGE 103.22 14 3 .24640 149.72 8.851 2.166 .949 CCODE = .1
 ** S RESIDENTIAL

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 = 4	NOTATION
COMPUTE NM HYD	104.00	-	1	.06720	106.53	5.455	1.52211	1.600	2.477 PER IMP=	50.00	
ADD HYD	104.10	1& 3	2	.31360	173.11	14.306	.85537	2.166	.863		
*S ROUTING 104.1 ON CADDIE RD											
ROUTE MCUNGE	104.12	2	3	.31360	172.57	14.293	.85458	2.266	.860 CCODE =	.1	
COMPUTE NM HYD	105.00	-	1	.10270	203.07	8.343	1.52320	1.533	3.090 PER IMP=	50.00	
*S**** HYD 105.1 IS AP #2		****									
ADD HYD	105.10	1& 3	2	.41630	250.61	22.636	1.01953	1.567	.941		
*S ROUTING 105.1 ON CONGRESS AVE TO EXISTING DETENTION POND											
ROUTE MCUNGE	105.12	2	4	.41630	249.96	22.610	1.01836	1.667	.938 CCODE =	.1	
*S SUB-BASIN 106 IS NORTH OF CONGRESS AVE - RESIDENTIAL											
COMPUTE NM HYD	106.00	-	1	.09540	189.50	7.750	1.52323	1.533	3.104 PER IMP=	50.00	
*S SUB-BASIN 106A IS SKY CREST ESTATES											
CDMPUTE NM HYD	106A1	-	7	.00846	18.13	.678	1.50231	1.500	3.349 PER IMP=	44.52	
*S ROUTING RESERVOIR WITH 21" DIAM ORIFACE											
*S EXISTING POND AT SW CORNER OF ARROWHEAD AVE AND CHANTILLY RD											
ROUTE RESERVOIR	106A1.RES	7	9	.00846	14.30	.677	1.50088	1.567	2.642 AC-FT=	.126	
*S											
*S	OUTFLOW(CFS)			ELEV(FT)							
*S	0		0	5057							
*S	4.675		0.062	5058							
*S	16.379		0.140	5059							
*S	22.510		0.235	5060							
*S	27.298		0.349	5061							
*S					EXISTING TOP OF PDND						
*S ROUTING 106A1.RES ON EXISTING ASPHALT SWALE DOWN CHANTILLY ROAD TO CONGRESS											
ROUTE MCUNGE	106A.1	9	10	.00846	14.30	.677	1.50053	1.600	2.642 CCODE =	.1	
*S SUB-BASIN 107 IS SOUTH OF CONGRESS AVE - RESIDENTIAL											
COMPUTE NM HYD	107.00	-	2	.02910	59.13	2.256	1.45384	1.500	3.175 PER IMP=	45.80	
*S ROUTING 107 ON CONGRESS AVE TO EXISTING DETENTION POND											
ROUTE MCUNGE	107.02	2	3	.02910	58.73	2.253	1.45137	1.600	3.154 CCODE =	.1	
ADD HYD	107.10	4& 3	2	.44540	303.44	24.863	1.04665	1.633	1.064		
ADD HYD	107.20	1& 2	3	.54080	440.42	32.613	1.13072	1.600	1.272		
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 = 4	NOTATION
ADD HYD	107.30	3&10	11	.54926	454.72	33.290	1.13642	1.600	1.294		
*S RESIDENTIAL											
COMPUTE NM HYD	108.00	-	1	.02400	49.43	1.899	1.48367	1.500	3.218 PER IMP=	47.60	
*S ROUTING 108 ON STONE HILLS RD TO EXISTING DETENTION POND											
*S THRU CACTUS HILLS											
ROUTE MCUNGE	108.02	1	2	.02400	49.36	1.698	1.48268	1.567	3.214 CCODE =	.1	
ADD HYD	108.10	2&11	4	.57326	502.39	35.188	1.15091	1.600	1.369		
*S SUB-BASIN 109 IS PART OF CACTUS HILLS AND EXISTING DET BASIN											
COMPUTE NM HYD	109.00	-	1	.02070	39.89	1.514	1.37182	1.500	3.011 PER IMP=	42.50	
*S**** HYD 109.1 IS AP #3		****									
ADD HYD	109.10	1& 4	2	.59396	531.62	36.702	1.15861	1.600	1.399		
*S FUTURE DETENTION BASIN IN BASIN 109											
ROUTE RESERVOIR	109.RES	2	66	.59396	177.30	36.290	1.14560	2.066	.466 AC-FT=	13.505	
*S											

*S	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)
*S	0	0	5069
*S	7	0.98	5070
*S	25	2.41	5071
*S	52	3.97	5072
*S	82	5.65	5073
*S	112	7.45	5074
*S	140	9.37	5075
*S	160	11.42	5076
*S	178	13.59	5077
*S	195	15.89	5078
*S			
COMPUTE NM HYD	201.00	-	.02580
*S ROUTING 201 ON CROYDEN ST TO EXISTING DETENTION POND			
ROUTE MCUNGE	201.02	1	.02580
COMPUTE NM HYD	202.00	-	.02880
*S*** HYD 202.1 IS AP #4 *****			
ADD HYD	202.10	1& 2	.05460
*S EXISTING DROP INLET IN BASIN 202			
ROUTE RESERVOIR	202.RES1	4	.05460
*S			
OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)	
*S	0	5138.7	
*S	20.12	5139.7	
*S	24.07	5140.7	
*S	41.69	5141.7	
*S	53.82	5142.7	
*S	63.69	5143.7	
*S	70.59	5144.5	
*S	74.58	5145.0	
*S	81.98	5146.0	
*S	83.46	5146.2	
*S	87.97	5146.5	
*S	94.77	5147.0	
*S			
S S EXISTING DETENTION BASIN IN BASIN 401			
*S ROUTING RESERVOIR WITH 21" ORIFACE			
ROUTE RESERVOIR	202.RES2	2	.05460
*S			
OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)	
*S	0	5114	
*S	11.58	5115	
*S	16.38	5116	
*S	20.06	5117	
*S	23.16	5118	
*S	25.89	5119	
*S	28.37	5120	
*S	30.64	5121	
*S	32.75	5122	
*S	34.74	5123	
*S	36.62	5124	
*S	38.41	5125	
*S	40.11	5126	
*S			
COMPUTE NM IMP=	2.096	1.52345	54.08
*S ROUTING 201 ON CROYDEN ST TO EXISTING DETENTION POND			
ROUTE MCUNGE	201.02	1	.02580
COMPUTE NM HYD	202.00	-	.02880
*S*** HYD 202.1 IS AP #4 *****			
ADD HYD	202.10	1& 2	.05460
*S EXISTING DROP INLET IN BASIN 202			
ROUTE RESERVOIR	202.RES1	4	.05460
*S			
OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)	
*S	0	5138.7	
*S	20.12	5139.7	
*S	24.07	5140.7	
*S	41.69	5141.7	
*S	53.82	5142.7	
*S	63.69	5143.7	
*S	70.59	5144.5	
*S	74.58	5145.0	
*S	81.98	5146.0	
*S	83.46	5146.2	
*S	87.97	5146.5	
*S	94.77	5147.0	
*S			
S S EXISTING DETENTION BASIN IN BASIN 401			
*S ROUTING RESERVOIR WITH 21" ORIFACE			
ROUTE RESERVOIR	202.RES2	2	.05460
*S			
OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)	
*S	0	5114	
*S	11.58	5115	
*S	16.38	5116	
*S	20.06	5117	
*S	23.16	5118	
*S	25.89	5119	
*S	28.37	5120	
*S	30.64	5121	
*S	32.75	5122	
*S	34.74	5123	
*S	36.62	5124	
*S	38.41	5125	
*S	40.11	5126	
*S			
COMPUTE NM IMP=	2.096	1.52345	54.08
*S ROUTING 201 ON CROYDEN ST TO EXISTING DETENTION POND			
ROUTE MCUNGE	201.02	1	.02580
COMPUTE NM HYD	202.00	-	.02880
*S*** HYD 202.1 IS AP #4 *****			
ADD HYD	202.10	1& 2	.05460
*S EXISTING DROP INLET IN BASIN 202			
ROUTE RESERVOIR	202.RES1	4	.05460
*S			
OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)	
*S	0	5138.7	
*S	20.12	5139.7	
*S	24.07	5140.7	
*S	41.69	5141.7	
*S	53.82	5142.7	
*S	63.69	5143.7	

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID	TO ID	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE =
*S	41.76	1.03		5127						5
*S	61	1.08		5127.25						
*S	94	1.13		5127.5						
*S	136	1.18		5127.75						
*S	185	1.23		5128						
*S										
DIVIDE HYD	202.03	4	8	.05163	41.76	4.129	1.49949	1.700	1.264	
	DLF.2 and	11		.00297	37.10	.238	1.49949	1.733	19.519	
*S ROUTE 202.RES2 THRU ASSUMED 36" PIPE IN PARADISE BLVD	202.02	8	6	.05163	41.76	4.127	1.49888	1.733	1.264	.1
ROUTE MCUNGE										
*S RESIDENTIAL										
*S										
*S UPDATE3.txt REVISION - FOR BASIN 301, change IO TO ID=33										
*S										
COMPUTE NM HYD	301.00	-	33	.01820	34.94	1.478	1.52307	1.533	3.000	PER IMP= 50.00
*S ROUTING 301 ON PARADISE BLVD TO SUB-BASIN 304										
ROUTE MCUNGE	301.02	1	2	.02880	59.05	2.268	1.47685	1.633	3.204	CCODE = .1
*S METHODIST CHURCH PROPERTY										
COMPUTE NM HYD	302.00	-	1	.00430	11.56	.498	2.17219	1.500	4.202	PER IMP= 90.00
*S ROUTING 302 ON PARADISE BLVD TO SUB-BASIN 304										
ROUTE MCUNGE	302.02	1	5	.00430	11.51	.497	2.16698	1.733	4.182	CCODE = .1
ADD HYD	302.10	2& 5	4	.03310	65.72	2.765	1.56650	1.633	3.103	
*S COMMERCIAL										
COMPUTE NM HYD	303.00	-	1	.06690	156.35	7.746	2.17094	1.533	3.652	PER IMP= 90.00
*S EXISTING DETENTION BASIN IN BASIN 303										
*S ROUTING RESERVOIR WITH 21" OUTLET WITH 2.6% SLOPE OF PIPE										
ROUTE RESERVOIR	303.RES	1	5	.06690	124.69	7.736	2.16812	1.667	2.912	AC-FT= 2.227
*S										
OUTFLOW(CFS)	STORAGE(AC-FT)			ELEV(FT)						
*S	0			5099						
*S										
*S	11.58	0.15		5100						
*S	16.37	0.30		5101						
*S	20.06	0.45		5102						
*S	23.16	0.60		5103						
*S	25.89	0.75		5104						
*S	26.00	0.91		5105						
*S	27.00	1.07		5106						
*S	28.00	1.23		5107						
*S	29.00	1.39		5108						
*S	30.00	1.55		5109						
*S	31.00	1.71		5110						
*S	32.00	1.87		5111						
*S	33.00	2.03		5112						
*S	34.00	2.11		5112.5	EXISTING TOP OF POND					
*S	53.00	2.15		5112.75						
*S	86.00	2.19		5113						
*S	128.0	2.23		5113.25						

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*S
DIVIDE HYD      303.03      5      8      .05430      34.00      6.279      2.16812      1.633      .978
OLF.3 and 12      .01260      90.69      1.456
*S ROUTE 303.RES THRU 304 IN ASSUMED 36" PIPE
ROUTE MCUNGE    303.02      8      2      .05430      34.00      6.273      2.16592      1.700      .978 CCODE = .1
ROUTE MCUNGE    OLF.32     12     16     .01260      80.47      1.436      2.13837      1.800      9.983 CCODE = .1
*S INCLUDES AREA FROM PARADISE BLVD - COMMERCIAL
COMPUTE NM HYD   304.00      -      1      .03490      93.74      4.043      2.17217      1.500      4.197 PER IMP= 90.00
ADD HYD          304.10     1&4     7      .06800      123.16     6.809      1.87735      1.600      2.830
ADD HYD          304.20     7&16    5      .08060      153.94     8.245      1.91814      1.800      2.984
*S DIVIDE AT MH# S-702
DIVIDE HYD      CB1      5      4      .03103      20.00      3.175      1.91814      1.333      1.007
304.13 and 7      .04956      133.94     5.070      1.91814      1.800      4.222
ADD HYD          CB1.1     2&4     5      .08534      54.00      9.448      2.07582      1.700      .989
ADD HYD          CB1.2     5&6     2      .13697      95.76     13.575      1.85834      1.733      1.092
*S DOES NOT INCLUDE AREA FROM PARADISE BLVD - COMMERCIAL
COMPUTE NM HYD   305.00      -      17     .03910      102.46     4.529      2.17200      1.500      4.094 PER IMP= 90.00
*S DIVIDE HYD 305 BY 67 PERCENT THAT WILL REACH PROPOSED TRACT 2B AMAFCA POND
DIVIDE HYD      305.69     17     17     .02620      68.64      3.035      2.17200      1.500      4.094
305.68 and 57     .01290      33.81      2.17200      1.500      4.094
*S
*S 305.69 IS THE REVISED AREA OF BASIN 305 (67%) THAT WILL REACH
TRACT 2-B PROPOSED AMAFCA POND
*S
*S 305.68 IS THE REVISED AREA OF BASIN 305 (33%) THAT WILL FLOW TO THE
EXISTING NWSH&TD POND AT THE SW CORNER OF PDN AND COORS
*S
*S note -- HAVE NOT MODIFIED THIS MODEL TO ACTUALLY ADD 305.68 TO THE
NWSH&TD POND
*S CACTUS RIDGE

COMMAND          HYDROGRAPH ID NO. FROM TO ID NO. PEAK DISCHARGE (CFS) RUNOFF VOLUME (AC-FT) TIME TO PEAK (HOURS) CFS PER ACRE PAGE = 6 NOTATION
COMPUTE NM HYD   401.00      -      1      .02360      50.44      1.974      1.56819      1.500      3.340 PER IMP= 52.70
ADD HYD          401.10     1&11    3      .02657      57.48      2.211      1.56051      1.733      3.380
*S DIVIDE HYD 401.1 BY MAXIMUM INFLOW OF CATCH BASINS, WEST OF
TRACT 2-B
SUB-BASIN 401,ALONG PARADISE ROAD (7 CB AT 10 CFS EACH)
DIVIDE HYD      CB2      3      4      .02657      57.48      2.211      1.56051      1.733      3.380
401.13 and 5      .00000      .000      .00000      -.033      .000
*S SUB-BASIN 402 IS PART OF WEST PARK APARTMENTS
COMPUTE NM HYD   402.00      -      1      .00880      18.66     .692      1.47507      1.500      3.314 PER IMP= 42.70
ADD HYD          402.10     5&1     6      .00880      18.66     .692      1.47507      1.500      3.314
*S
*S UPDATE3.txt proposed drainage management change
*S
*S commented out HYD 402.2 in update3.txt to remove all flow
from basins 302, 303 and 304 from reaching the detention
pond in Basin 504 that outfalls to the proposed Tract 2-B Pond
*S

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*S UPDATES.TXT REVISION - ADD BASIN 301 TO APPROPRIATE FRACTION
 *S OF BASIN 401 AND ALL OF BASIN 402

ADD HYD	402.66	6&33	18	.02700	53.01	2.171	1.50742	1.533	3.068
*S ROUTING 402.2 TO DETENTION POND IN 503									
ROUTE MCUNGE	402.23	18	20	.02700	52.85	2.169	1.50613	1.633	3.059 CCODE =
ADD HYD	305.10	17&20	19	.05320	104.37	5.203	1.83404	1.567	3.066
*S*** PIPE HYD CB2.1 IS AP #6									
ADD HYD	CB2.1	2& 4	6	.16354	153.24	15.786	1.80995	1.733	1.484
*S SUB-BASIN 403 IS PART OF WEST PARK APARTMENTS									
COMPUTE NM HYD	403.00	-	1	.01440	32.61	1.266	1.64809	1.500	3.538 PER IMP=
*S DIVIDE HYD 403 BY MAXIMUM INFLOW OF POND INLET IN WEST PARK APARTMENTS									54.20
*S OLF HYD 403.13 IS A NONCONTRIBUTING POND									
DIVIDE HYD	CB3	1	2	.00551	3.00	.484	1.64809	1.300	.851
ADD HYD	403.13	and	99	.00889	29.61	.782	1.64809	1.500	5.201
*S ROUTE CB3.1 IN 48" AND 54" PIPE BETWEEN MH # S-702 AND MH # S-732				.16904	156.24	16.270	1.80468	1.733	1.444
*S Q(CAP) = 144 CFS, AT SLOPE=0.005									
ROUTE MCUNGE	CB3.13	5	2	.16904	139.83	16.195	1.79632	1.766	1.292 CCODE =
*S LESLIE HOMES									.2
COMPUTE NM HYD	404.00	-	1	.01610	33.73	1.307	1.52179	1.500	3.273 PER IMP=
ADD HYD	CB4.1	1& 2	5	.18514	156.27	17.502	1.77245	1.567	1.319
*S ROUTE CB4.1 IN 60" PIPE BETWEEN MH # S-732 AND MH # S-531									
*S Q(CAP) = 184 CFS, AT SLOPE=0.005									
ROUTE MCUNGE	CB4.13	5	2	.18514	153.87	17.470	1.76926	1.600	1.299 CCODE =
*S SUB-BASIN 405 IS PART OF CACTUS HILLS									.2
COMPUTE NM HYD	405.00	-	1	.02700	50.96	1.887	1.31061	1.500	2.949 PER IMP=
*S DIVIDE SUB-BASIN 405 BY REMAINING MAXIMUM PIPE CAPACITY *									38.00
DIVIDE HYD	CB5	1	6	.02581	40.00	1.804	1.31061	1.467	2.422
*S ROUTING 405.03 TO CONGRESS AVE				.00119	10.96	.083	1.31061	1.500	14.335
ROUTE MCUNGE	405.03	and	7						
*S SUB-BASIN 405 HAS TRANSVERSE DRAIN WITH 36" PIPE TO 60" SD				.00119	10.31	.086	1.34366	1.600	13.489 CCODE =
ADD HYD	CB5.1	6& 2	5	.21095	191.44	19.274	1.71315	1.600	1.418
*S ROUTE CB5.1 IN 60" PIPE BETWEEN MH # S-531 AND MH # S-932									
*S Q(CAP) = 184 CFS, AT SLOPE=0.005									
ROUTE MCUNGE	CB5.13	5	2	.21095	191.16	19.261	1.71200	1.600	1.416 CCODE =
*S ROUTE CB5.2 IN 60" PIPE UNTIL CUBBY HOLE DET POND									.2
*S Q(CAP) = 233 CFS, AT SLOPE=0.008									
ROUTE MCUNGE	CB5.23	2	25	.21095	189.59	19.251	1.71110	1.600	1.404 CCODE =
*S SUB-BASIN 406 IS NORTH OF CONGRESS AVE - RESIDENTIAL									.2
COMPUTE NM HYD	406.00	-	1	.01070	22.44	.869	1.52345	1.500	3.276 PER IMP=
ADD HYD	406.10	15& 1	6	.01189	28.59	.955	1.50535	1.567	3.756
*S ROUTING 406.1 ON CONGRESS AVE TO IRVING AND EAGLE RANCH ROAD									
ROUTE MCUNGE	406.12	6	3	.01189	27.80	.954	1.50443	1.633	3.652 CCODE =
*S SUB-BASIN 407 IS NORTH OF CONGRESS AVE - COMMERCIAL									.2
COMPUTE NM HYD	407.00	-	1	.02240	60.17	2.595	2.17217	1.500	4.197 PER IMP=
*S CUBBY HOLE DETENTION BASIN									90.00
*S ROUTING RESERVOIR WITH 12" ORIFACE									
ROUTE RESERVOIR	407.RES	1	5	.02240	67.98	2.592	2.16995	1.500	4.742 AC -FT=
*S									.176
*S	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)						

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	PAGE =	NOTATION
*S	0	0		5063						7	
*S	3.78	0.0387		5064							
*S	5.35	0.0597		5065							
DIVIDE HYD 407.03 5 89 .01270 10.00 1.470 1.230 OLF.4 and 13 .00970 57.98 1.123 9.339 *S ROUTE CB5.3 IN 60" PIPE UNTIL BETWEEN MH # S-951 TO MH # S-962 *S Q(CAP) = 260 CFS, AT SLOPE=0.01 ROUTE MCUNGE CB5.33 25 85 .21095 189.56 19.234 1.70957 1.633 1.404 CCODE = .1 ADD HYD 407.10 3&13 17 .02159 76.03 2.077 1.80338 1.500 5.501 *S SUB-BASIN 408 IS STATE FARM INSURANCE *S OLF GOING TO THE EAST AND DOES NOT EFFECT EAGLE RANCH SD COMPUTE NM HYD 408.00 - 14 .00660 17.74 .765 2.17218 1.500 4.200 PER IMP= 90.00 *S EXISTING DETENTION BASIN IN SUB-BASIN 408 *S ROUTING RESERVOIR WITH 12" WEIR ROUTE RESERVOIR 408.RES 14 18 .00660 3.71 .747 2.12308 2.066 .878 AC-FT= .441											
*S	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)								
*S	0	0	5050.8								
*S	1.08	0.2198	5052.3	EXISTING TOP OF POND							
*S	1.66	0.2931	5052.8								
*S	2.31	0.3663	5053.3								
*S	3.02	0.4396	5053.8								
*S	22	0.4763	5054.05								
UPDATE3.TXT - COMMENT OUT HYD 408.10 TO REMOVE ANY FRACTIONS OF BASINS 406 AND 407 FROM REACHING THE INTERSECTION OF IRVING AND COORS BLVD.											
UPDATE3.TXT REVISION - ADD BASIN 408 WITH THE EXCESS FLOW FROM BASIN 405 THAT IS NOT COLLECTED BY THE EAGLE RANCH BLVD. STORM DRAIN THIS FLOW WILL DRAIN EAST ON IRVING											
ADD HYD	408.66	14&15	14	.00779	24.08	.850	2.04515	1.567	4.828		
*S											
*S	SUB-BASIN 409 IS EAST OF IRVING, TRACT D										

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COMPUTE NM HYD 409.00 - 1 .00980
*S DIVIDE HYD 409 BY 36" STUB OUT PIPE CAPACITY *
DIVIDE HYD CB6 1 28 .00977
409.03 and 15 .00003
*S SUB-BASIN 411 IS EAST OF IRVING, TRACT B
COMPUTE NM HYD 411.00 - 1 .00920
*S DIVIDE HYD 411 BY INLET CAPACITY *
DIVIDE HYD CB7 1 2 .00732
411.03 and 7 .00188
*S SUB-BASIN 410 IS EAST OF IRVING, TRACT A
COMPUTE NM HYD 410.00 - 1 .00470
*S DIVIDE HYD 410 BY INLET CAPACITY *
DIVIDE HYD CB8 1 9 .00454
410.03 and 16 .00016
411.10 7&16 3 .00204
ADD HYD *S ASSUME OLF HYD 411.2 PONDS
411.20 3&15 16 .00207
ADD HYD CB7.1 2&85 21 .21826
ADD HYD CB8.1 21& 9 2 .22281
*S ROUTE CB8.1 IN 60" PIPE TO SUB-BASIN 411 ( JUST BEFORE
*S CALABACILLAS ARROYO OUTFALL)
*S Q(CAP) = 184 CFS, AT SLOPE=0.005
ROUTE MCUNGE CB8.12 2 9 .22281
*S SUB-BASIN 412 IS EAST OF IRVING, TRACT C-2 and C-3
COMPUTE NM HYD 412.00 - 1 .01390
*S HYD CB8.1 IS TOTAL PIPE FLOW TO CALAB. ARROYO
*S**** HYD CB8.1 IS AP #9

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COMMAND	HYDROGRAPH IDENTIFICATION	FROM TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 8	NOTATION
ADD HYD	CB9.1	1& 9 98	.23611	225.50	22.123	1.75685	1.633	1.492		
ADD HYD	OUT.1	98&99 99	.24500	242.23	22.905	1.75290	1.633	1.545		
*S SAD 224-PROJECT INCLUDES ENLARGING POND ON CONGRESS AVE										
*S INSTALLATION OF 66" OUTLET PIPE FROM POND-FLOWS ROUTED TO										
*S CALABACILLAS ARROYO										
*S Q(CAP) =233 CFS, AT SLOPE = 0.008										
ROUTE MCUNGE	CB6.23	66 2	.59396	177.28	36.276	1.14516	2.100	.466	CCODE =	1.0
ADD HYD	CB6.33	2&89 86	.60666	187.28	37.746	1.16662	2.100	.482		
*S** ROUTE PROPOSED PIPE UNTIL IT REACHES EAGLE RANCH ROAD AGAIN ***										
*S Q(CAP) =233 CFS AT SLOPE = 0.008										
ROUTE MCUNGE	CB6.33	86 8	.60666	187.28	37.746	1.16662	2.100	.482	CCODE =	.0
ADD HYD	CB6.43	28& 8 9	.61643	192.52	38.877	1.18255	2.066	.488		
*S SUB-BASIN 413 IS WEST OF EAGLE RANCH COMMERCIAL *										
COMPUTE NM HYD	413.00	- 3	.01560	41.95	1.807	2.17218	1.500	4.202	PER IMP=	90.00
*S SUB-BASIN 414 IS WEST OF EAGLE RANCH COMMERCIAL *										
COMPUTE NM HYD	414.00	- 10	.00297	8.00	.344	2.17220	1.500	4.209	PER IMP=	90.00
ADD HYD	CB6.53	3&10 5	.01857	49.96	2.151	2.17219	1.500	4.203		
ADD HYD	CB6.63	5& 9 11	.63500	203.81	41.029	1.21149	2.000	.502		
*S SUB-BASIN 415 IS WEST OF EAGLE RANCH - COMMERCIAL *										
COMPUTE NM HYD	415.00	- 1	.01190	32.01	1.379	2.17218	1.500	4.203	PER IMP=	90.00

3

ADD HYD	OUT.2	1&11	98	.64690	211.53	42.407	1.22916	1.966	.511
ADD HYD	OUT.3	98&99	99	.89190	421.23	65.312	1.37303	1.700	.738
*S EAGLE RANCH ROAD									
*S 86 FT RDW									
COMPUTE NM HYD	501.00	-	1	.01000	17.39	1.156	2.16736	1.700	2.718 PER IMP= 90.00
*S									
*S UPDATES.TXT REVISION - HYD. 501.1 IS THE FLOW ON IRVING BLVD. THAT WILL REACH THE WEST SIDE OF INTERSECTION OF COORS BLVD. (DOES NOT YET INCLUDE BASINS 505 AND 505A)									
ADD HYD	501.10	14&1	3	.01779	37.83	2.006	2.11383	1.600	3.322
*S ROUTE 01F 501.1 THRU 505 IN IRVING BLVD **									
ROUTE MCUNGE	501.12	3	7	.01779	37.36	2.004	2.11134	1.667	3.280 CCODE = .1
*S COMMERCIAL									
COMPUTE NM HYD	502.00	-	1	.04350	116.84	5.039	2.17217	1.500	4.197 PER IMP= 90.00
*S DIVIDE HYD 305.1 IN PARADISE BLVD BY ASSUMED 18" CAPACITY *									
DIVIDE HYD	402.24	19	2	.02778	20.00	2.717	1.83404	1.367	1.125
	402.25	and	3	.02542	84.37	2.486	1.83404	1.567	5.187
	502.10	2&1	5	.07128	136.84	7.757	2.04039	1.500	3.000
ADD HYD									
*S EXISTING DETENTION BASIN IN SUB-BASIN 502									
*S ROUTING RESERVOIR WITH 24" RCP AND 6'2" HIGH 18" STANDPIPE									
ROUTE RESERVOIR	502.RES	5	8	.07128	76.78	7.701	2.02568	1.667	1.683 AC-FT= 2.307
*S									
*S	OUTFLOW(CFS)	STORAGE(AC-FT)		ELEV(FT)					
*S	0	0		5030					
*S	38.9526	2.1993		5038					
*S	58	2.268		5038.25					
*S	91	2.337		5038.5					
*S									
*S COMMERCIAL									
COMPUTE NM HYD	503.00	-	1	.02350	48.51	2.719	2.16951	1.600	3.225 PER IMP= 90.00
ADD HYD	503.10	1&3	2	.04892	131.39	5.205	1.99520	1.567	4.197
*S									
*S NOTE - THE FOLLOWING IS A CHANGE FROM UPDATE1.TXT									
*S									
*S	502.RES	ACTUALLY DISCHARGES INTO 503.RES,	SO NEED TO ADD IT HERE						
ADD HYD	503.19	2&8	2	.12020	186.60	12.906	2.01328	1.667	2.426
*S									
*S EXISTING DETENTION BASIN IN SUB-BASIN 503									
*S ROUTING RESERVOIR WITH 24" RCP AND 9'3" HIGH 18" STANDPIPE									
ROUTE RESERVOIR	503.RES	2	5	.12020	113.04	12.116	1.89008	1.833	1.469 AC-FT= 4.612
*S									
*S	OUTFLOW(CFS)	STORAGE(AC-FT)		ELEV(FT)					
*S	0	0		5000					
*S	10.1924	4.2712		5010					
*S	29	4.378		5010.25					
*S	62	4.485		5010.5					
*S	104	4.592		5010.75					
*S	153	4.698		5011					
*S	209	4.805		5011.25					
*S									
*S DON'T NEED FOLLOWING ADD DUE TO PREVIOUS ADD OF 503.19									

*S
 ADD HYD 505.10 1 & 7 45 .06749 132.96 7.756 2.15462 1.600 3.078
 *S
 *S
 *S COORS BOULEVARD ROW OF WAY BASIN 505A
 COMPUTE NM HYD 505A - 1 .00560 15.06 .649 2.17219 1.500 4.201 PER IMP= 90.00
 *S
 *S NOTE - ACTUALLY 1 / 2 OF BASIN 505A WILL FLOW TO THE WEST SIDE OF
 COORS AT IRVING AND THE OTHER HALF TO THE EAST SIDE OF COORS
 *S AND IRVING BLVD.
 *S

*S UPDATE3.TXT REVISION - ADD 505.1 IN AN ALTERNATE ID NO.
 *S TO 505A TO FIND TOTAL Q
 *S AT THE INTERSECTION OF IRVING AND COORS BLVD.
 *S AT AP 505A.9 (includes Irving Q, basins 505 and 505a)
 *S

ADD HYD 505A.9 1&45 46 .07309 143.35 8.405 2.15597 1.600 3.064
 *S

*S ROUTE 505A IN FUTURE STORM DRAIN THROUGH 506A
 *S ASSUME PIPE SIZE OF 48" AND SLOPE=0.008 FT/FT
 ROUTE MCUNGE 505A.1 1 31 .00560 14.58 .647 2.16519 1.600 4.068 CCODE = 1.0
 *S ROUTE OLF HYD 505.1 THRU 506 ON COORS BLVD **
 ROUTE MCUNGE 505.12 2 9 .06749 131.21 7.729 2.14712 1.766 3.038 CCODE = .1
 ADD HYD 505.20 11& 9 2 .23029 288.04 24.761 2.01602 1.833 1.954
 *S ASSUME A FUTURE PIPE SIZE AND SLOPE; 96" AND 0.009 FT/FT

COMMAND	HYDROGRAPH IDENTIFICATION	FROM TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 10	NOTATION
ROUTE MCUNGE	505.22	2 3	.23029	284.66	24.743	2.01452	1.866	1.931	CCODE =	.1
*S EAST OF COORS BLVD - RESIDENTIAL AND STATE HWY DEPT ROW	506.00	- 1	.05590	80.04	3.683	1.23538	1.600	2.237	PER IMP=	30.00
COMPUTE NM HYD	506A	- 29	.00800	18.31	.926	2.17069	1.567	3.576	PER IMP=	90.00
*S COORS BOULEVARD ROW	506.10	1& 3 2	.28619	319.54	28.426	1.86233	1.866	1.745		
ADD HYD	506.12	2&31 27	.29179	325.14	29.072	1.86815	1.866	1.741		
ADD HYD	506.20	27&29 2	.29979	332.58	29.999	1.87622	1.866	1.733		

*S
 *S PROPOSED TRACT 2-B DETENTION BASIN WITHIN AMAFCA R-O-W
 *S ROUTING RESERVOIR WITH 1- 36" DIAM ORIFICE (THERE ARE NOW 2 PIPES)
 *S MAXIMUM: HIGH ELEV = 5003 , LOW ELEV = 4993.73 , OUTFLOW = 38 CFS
 *S AREA ORIFICE IS 2.75 SF
 *S

*S The following "STORAGE & ELEVATION" DATA ARE FROM THE CONCEPTUAL DESIGN
 *S AS PREPARED BY SMITH ENGINEERING, JUNE 2003 AND SHOWN ON FIGURE 4 OF
 *S THE REPORT BY SMITH ENGINEERING REGARDING THE TRACT 2-B POND PREPARED
 *S IN JUNE 2003. THE OUTFLOW DATA ARE FROM THE ORIGINAL DMP MODEL AND WERE
 *S APPARENTLY BASED ON ONLY 1-36- INCH CMP.
 *S

ROUTE RESERVOIR 506.RES 2 10 .29979 27.59 29.085 1.81906 3.200 .144 AC-FT= 16.868

USED IN
 THIS
 RESERVOIR ROUTING

*S HYD 506.RES IS THE RESULT OF THE TRACT 2-B CONCEPTUAL RESERVOIR ROUTING
 *S STORAGE - ELEV. DATA AS PREPARED FOR THE JUNE 2003 POND CONCEPTUAL DESIGN
 *S THE FOLLOWING DATA ARE FROM THE ORIGINAL UPDATE1.DAT MODEL
 *S THE ELEVATION - STORAGE DATA IS VERY CLOSE TO THAT OF THE CONCEPTUAL
 *S DESIGN DATA OF JUNE 2003

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)
0	0	4993
13.2	1.1324	4994
18.7	4.4968	4995
22.9	9.3777	4996
26.5	14.3639	4997
29.6	19.4554	4998
32.4	24.6522	4999
35.0	29.9543	5000
37.5	35.3617	5001
39.7	40.8744	5002
41.9	46.4318	5003
43.9	52.1551	5004
ADD HYD	900.00 83&10 20	.35294
ROUTE MCUNGE	901.00 20 7	.35294

*S THE ALBUQUERQUE WEST COMMERCIAL DEVELOPMENT AREA
 *S INCLUDES SECTIONS OF PASEO DEL NORTE AND STATE HIGHWAY DEPT. ROW
 *S BASIN 11.1W
 COMPUTE NM HYD 147.00 - 1 .04607 114.38
 *S ROUTE RESERVOIR THROUGH NMSH&TD POND AT SW CORNER OF PDN AND COORS
 *S ROUTE RESERVOIR WITH 2 30" CULVERT PIPES UNDER COORS BLVD.
 ROUTE RESERVOIR 147.RES 1 2 .04607 42.57
 *S

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)
0	0	4996
28	1.30	4998
66	2.66	5000
*S DIVIDE HYD 147.RES BY MAXIMUM PIPE OUTFLOW *		
DIVIDE HYD	147.RES1 2 18 .04607	42.57
	OLF.5 and 30 .00000	.00

*S ROUTE THE FLOW FROM THE POND THROUGH CULVERT PIPES UNDER COORS **
 ROUTE MCUNGE 903.00 18 8 .04607 42.19
 ADD HYD 904.00 8&7 9 .39901 119.66
 *S SECTION OF BASIN 11.1W THAT DRAINS TO CULVERT UNDER COORS
 COMPUTE NM HYD 147A - 18 .00528 4.48
 *S ROUTE 11.1A THROUGH A 24" CMP PIPE UNDER COORS TO CANAL CBC **
 ROUTE MCUNGE 147A.1 18 12 .00528 4.40
 *S** ADD THE FLOW FROM 11.1A TO CANAL **
 ADD HYD 147.12 9&12 9 .40429 120.37
 *S BASE FLOW CORRECTION
 MODIFY TIME 147.12 9 9 .40429 120.37
 *S ROUTE FLOW DOWN CANAL TO AREA 11.2 DISCHARGE POINT. **

SEE
 TABLE 1
 IN
 REPEAT
 FOR
 COMPARISON

5.11290	2.033	.356
5.11183	2.100	.356 CCODE =
1.98167	1.500	3.879 PER IMP= 80.00
1.97259	1.766	1.444 AC-FT= 1.821
1.97259	1.766	1.444
.00000	-.033	.000
1.96754	1.833	1.431 CCODE = 1.0
4.74879	1.933	.469
.44920	1.533	1.328 PER IMP= .00
.44640	1.567	1.303 CCODE = 1.0
4.69265	1.933	.465
4.69265	1.933	.465 SHIFT= .000

3

COMMAND	FROM TO HYDROGRAPH IDENTIFICATION	ID NO.	ID NO.	PEAK AREA (SQ MI)	DISCHARGE (CFS)	RUNOFF (AC-FT)	TIME TO RUNOFF (INCHES)	CFS PEAK (HOURS)	PAGE = PER ACRE	11 NOTATION
ROUTE MCUNGE	18.00	9	3	.40429	120.27	101.167	4.69194	1.966	.465	CCODE = .2
*S BASE FLOW CORRECTION	18.00	3	3	.40429	120.27	101.167	4.69194	1.966	.465	SHIFT= .000
MODIFY TIME	18.00	3	3	.40429	120.27	101.167	4.69194	1.966	.465	SHIFT= .000
*S AREAS 8.1W TO 11.1AW ROUTED DOWN CANAL TO NEXT AP WITH BASE FLOW	18.00	3	3	.40429	120.27	101.167	4.69194	1.966	.465	SHIFT= .000
*S CORRECTED TO 38 CFS MIN.	18.00	3	3	.40429	120.27	101.167	4.69194	1.966	.465	SHIFT= .000
*S INCLUDES SECTION OF COORS AND PASEO DEL NORTE	18.00	3	3	.40429	120.27	101.167	4.69194	1.966	.465	SHIFT= .000
COMPUTE NM HYD	11.2E-325	-	7	.02769	74.38	3.208	2.17217	1.500	4.197	PER IMP= 90.00
ADD HYD	326.00	3& 7	5	.43198	142.60	104.375	4.53042	1.800	.516	
*S EAGLE RIDGE APARTMENT COMPLEX/UPPER HALF THAT DRAINS DIRECTLY	326.00	3& 7	5	.43198	142.60	104.375	4.53042	1.800	.516	
*S TO THE CORRALES MAIN CANAL VIA FUTURE STORM DRAIN	326.00	3& 7	5	.43198	142.60	104.375	4.53042	1.800	.516	
COMPUTE NM HYD	12.1W	-	3	.04399	96.66	3.852	1.64198	1.500	3.433	PER IMP= 58.00
*S ROUTE FLOW FROM 12.1W THROUGH FUTURE DETENTION POND **	12.1W	-	3	.04399	96.66	3.852	1.64198	1.500	3.433	PER IMP= 58.00
ROUTE RESERVOIR	12.1W.RES	3	9	.04399	11.95	3.801	1.62000	2.133	.425	AC-FT= 2.392
*S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)	12.1W.RES	3	9	.04399	11.95	3.801	1.62000	2.133	.425	AC-FT= 2.392
*S	0	0	0	0	0	0	0	0	0	0
*S	4	0.59	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
*S	9	1.29	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
*S	12	2.41	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
*S ROUTE FLOW IN CANAL TO AREA 12.1AW DISCHARGE POINT. **	12.1W	-	3	.04399	96.66	3.852	1.64198	1.500	3.433	PER IMP= 58.00
ROUTE MCUNGE	19.00	5	10	.43198	129.62	104.162	4.52117	1.900	.469	CCODE = .2
*S BASE FLOW CORRECTION	19.00	5	10	.43198	129.62	104.162	4.52117	1.900	.469	CCODE = .2
MODIFY TIME	19.00	10	10	.43198	129.62	104.162	4.52117	1.900	.469	CCODE = .2
ADD HYD	12.1W.1 10& 9	11	11	.47597	141.20	107.963	4.52117	1.900	.469	SHIFT= .000
*S EAGLE RIDGE APARTMENT COMPLEX/LOWER HALF THAT	12.1W.1 10& 9	11	11	.47597	141.20	107.963	4.52117	1.900	.469	SHIFT= .000
*S DRAINS TO THE SWALE ALONG COORS BOULEVARD	12.2W	-	1	.00691	15.20	.605	1.64199	1.500	3.436	PER IMP= 58.00
COMPUTE NM HYD	12.2W	-	1	.00691	15.20	.605	1.64199	1.500	3.436	PER IMP= 58.00
*S DIVIDE HYD NO BY ALLOWABLE DISCHARGE SWALE ALONG COORS **	12.2W	-	1	.00691	15.20	.605	1.64199	1.500	3.436	PER IMP= 58.00
*S HYD NO 603.01 IS THE Q THAT REACHES THE SWALE	12.2W.1	1	5	.00691	15.20	.605	1.64199	1.500	3.436	PER IMP= 58.00
DIVIDE HYD	12.2W.1	1	5	.00691	15.20	.605	1.64199	1.500	3.436	PER IMP= 58.00
*S ROUTE THE FLOW LEAVING THE LOWER HALF OF THE EAGLE RIDGE APARTMENT	12.2W.1	1	5	.00691	15.20	.605	1.64199	1.500	3.436	PER IMP= 58.00
*S SITE THROUGH A NATURAL SWALE THAT FLOWS SOUTH ALONG THE WEST	12.2W.1	1	5	.00691	15.20	.605	1.64199	1.500	3.436	PER IMP= 58.00
*S SIDE OF COORS BOULEVARD.	12.2W.1	1	5	.00691	15.20	.605	1.64199	1.500	3.436	PER IMP= 58.00
ROUTE MCUNGE	12.2W.2	5	8	.00691	14.91	.604	1.63947	1.533	3.372	CCODE = .2
*S ROUTE FLOW DOWN CANAL TO AREA 12.3 DISCHARGE POINT. **	12.2W.2	5	8	.00691	14.91	.604	1.63947	1.533	3.372	CCODE = .2
ROUTE MCUNGE	22.00	11	9	.47597	126.43	107.676	4.24174	2.033	.415	CCODE = .2
*S BASE FLOW CORRECTION.	22.00	11	9	.47597	126.43	107.676	4.24174	2.033	.415	CCODE = .2
MODIFY TIME	22.00	9	9	.47597	126.43	107.676	4.24174	2.033	.415	CCODE = .2
ADD HYD	12.1W.3 8& 9	12	12	.48288	129.99	108.280	4.24174	2.033	.415	CCODE = .2
COMPUTE NM HYD	12.3E	-	1	.02616	62.41	2.684	4.24174	2.033	.415	CCODE = .2
*S FLOW FROM 12.3E ENTERS FUTURE DETENTION BASIN	12.3E	-	1	.02616	62.41	2.684	4.24174	2.033	.415	CCODE = .2
*S ROUTING RESERVOIR WITH 15" DIAMETER ORIFACE	12.3E	-	1	.02616	62.41	2.684	4.24174	2.033	.415	CCODE = .2
ROUTE RESERVOIR	12.3E.RES	1	15	.02616	10.14	2.649	4.24174	2.033	.415	CCODE = .2
*S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)	12.3E.RES	1	15	.02616	10.14	2.649	4.24174	2.033	.415	CCODE = .2
*S	0	0	100	100	100	100	100	100	100	100
*S	3	0.39	101	101	101	101	101	101	101	101
*S	6	0.77	102	102	102	102	102	102	102	102
*S	7	1.16	103	103	103	103	103	103	103	103

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	NOTATION
*S 10	1.54										
ADD HYD	330.00 15&12	2	104	.50904	139.94	110.929	4.08600	2.000	.430		
*S ROUTE FLOW IN CANAL FROM 8.1W TO 12.3E TO AREA 13					DISCHARGE POINT. **						
ROUTE MCUNGE	23.00 2	5		.50904	130.88	110.724	4.07844	2.033	.402 CCODE =		.2
MODIFY TIME	23.00 5	5		.50904	130.88	110.724	4.07844	2.033	.402 SHIFT=		.000
*S FUTURE COMMERCIAL AREA											
COMPUTE NM HYD	13.1W	10		.01020	20.67	.833	1.53060	1.500	3.167 PER IMP=		55.00
*S FLOW FROM 13.1W ENTERS FUTURE DETENTION BASIN											
*S ROUTING RESERVOIR WITH 15" DIAMETER ORIFACE											
ROUTE RESERVOIR	13.1W.RES	10	11	.01020	8.06	.830	1.52544	1.733	1.234 AC -FT=		.303
*S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)											
*S 0	0			100							
*S 2.6	0.1			101							
*S 6.0	0.2			102							
*S 8.0	0.3			103							
*S BOSQUE DEL PUEBLO COMMERCIAL AREA											
COMPUTE NM HYD	13.2E-332	1		.01480	34.12	1.424	1.80359	1.500	3.602 PER IMP=		70.00
ADD HYD	333.00 1&11	12		.02500	38.97	2.253	1.69010	1.500	2.436		
ADD HYD	334.00 5&12	2		.53404	149.64	112.978	3.96664	1.533	.438		
*S SUB-BASIN 14.1W											
*S ALBAN HILLS											
COMPUTE NM HYD	14.1W-335	3		.05117	66.95	2.233	.81824	1.500	2.044 PER IMP=		15.00
ROUTE MCUNGE	25.00 3	5		.05117	66.55	2.227	.81589	1.567	2.032 CCODE =		.1
*S ROUTE 8.1W TO 13.2E DOWN CANAL TO AREA 14 DISCHARGE POINT. **											
ROUTE MCUNGE	26.00 2	10		.53404	136.58	112.766	3.95921	2.033	.400 CCODE =		.2
MODIFY TIME	26.00 10	10		.53404	136.58	112.766	3.95921	2.033	.400 SHIFT=		.000
ADD HYD	338.00 5&10	2		.58521	198.56	114.993	3.68436	1.567	.530		
*S ROUTE AREA 8.1W TO 14.1W DOWN CANAL TO AREA 15 DISCHARGE POINT. **											
ROUTE MCUNGE	27.00 2	7		.58521	173.87	114.727	3.67584	1.567	.464 CCODE =		.2
MODIFY TIME	27.00 7	7		.58521	173.87	114.727	3.67584	1.567	.464 SHIFT=		.000
*S AREA 8.1W TO 14.2E ROUTED DOWN CANAL TO AREA 15 DISCH. POINT WITH											
*S BASE FLOW CORRECTED.											
COMPUTE NM HYD	15.1W	3		.02560	30.05	.936	.68537	1.533	1.834 PER IMP=		8.00
ROUTE MCUNGE	28.00 3	10		.02560	29.23	.930	.68080	1.633	1.784 CCODE =		.1
*S SUB-BASIN 15.2W											
*S ALBAN HILLS											
COMPUTE NM HYD	15.2W-340	3		.06380	74.90	2.332	.68537	1.533	1.834 PER IMP=		8.00
ROUTE MCUNGE	29.00 3	5		.06380	74.46	2.327	.68384	1.567	1.824 CCODE =		.1
ADD HYD	186.00 10& 5	3		.08940	101.72	3.256	.68297	1.600	1.778		
*S SUB-BASIN 15.3E											
*S FUTURE COMMERCIAL DEVELOPMENT											
COMPUTE NM HYD	15.3E	10		.01230	30.23	1.262	1.92365	1.500	3.840 PER IMP=		75.00
*S FLOW FROM 15.3E ENTERS FUTURE DETENTION BASIN											
*S ROUTING RESERVOIR WITH 15" DIAMETER ORIFACE											
ADD HYD	342.00 3&10	5		.10170	123.45	4.518	.83302	1.567	1.897		
ADD HYD	343.00 5& 7	10		.68691	297.32	119.245	3.25495	1.567	.676		
*S SUB-BASIN 16.1W											
*S ALBAN HILLS											

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COMPUTE NM HYD      16.1W      -      3      .03330      39.08      1.217      1.533      1.834 PER IMP= 8.00
*S BOSQUE MEADOWS SUBDIVISION
COMPUTE NM HYD      16.3NRTH      -      1      .01565      31.37      1.186      1.500      3.132 PER IMP= 44.00
ADD HYD      16.3N.1 1& 3 30      .04895      70.22      2.403
*S ROUTE 16.1W AND 16.3NRTH THROUGH FUTURE DETENTION POND
*S S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)
*S 0      0      100
*S 5      0.60      101
*S 13      1.10      102
*S 25      1.59      103
*S ROUTE AREA 8.1W TO 15.3W DOWN CANAL TO BUSHEL ROAD DISCHARGE POINT. **
ROUTE MCUNGE      27.10 10 32      .68691      254.35      118.740      .2
MODIFY TIME      27.10 32 32      .68691      254.35      118.740      .000
ADD HYD      16.3N.1 32&30 33      .73586      317.19      121.143
*S SUB-BASIN 16.2W
*S ALBAN HILLS
COMPUTE NM HYD      16.2W      -      3      .06650      78.14      2.431      1.533      1.836 PER IMP= 8.00
*S FUTURE RESIDENTIAL DEVELOPMENT
COMPUTE NM HYD      16.3E      -      5      .01120      26.18      1.037      1.500      3.652 PER IMP= 60.00
*S FUTURE DETENTION POND AT BASIN 16.3E
*S ROUTING RESERVOIR WITH 18" DIAMETER ORIFACE
*S S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)
*S 0      0      100
*S 3      0.35      101
*S 8      0.82      102
*S BOSQUE MEADOWS SUBDIVISION
COMPUTE NM HYD      16.3STH      -      1      .03122      72.24      2.865      1.500      3.616 PER IMP= 59.80
ADD HYD      16.3STH.1 1& 3 34      .09772      149.92      5.296
*S ROUTE 16.2 AND 16.3STH THROUGH FUTURE DETENTION POND @ BOSQUE MEADOWS
ROUTE RESERVOIR 16.3STH.RES 34 35      .09772      35.48      5.308
*S S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)
*S 0.00      0.00000      4988.58
*S 18.53      0.01074      4991.08
*S 20.96      0.01407      4991.50
*S 23.53      0.32155      4992.00
*S 25.85      0.62903      4992.50
*S 27.97      0.93650      4993.00
*S 29.95      1.24398      4993.50
*S 31.80      1.55145      4994.00
*S 33.55      1.85893      4994.50
*S 35.22      2.16641      4995.00
*S 35.60      2.47388      4995.50
ADD HYD      16.3STH.2 35& 5 36      .10892      54.69      6.345      1.533      .785
COMPUTE NM HYD      17.1W      -      3      .01030      11.44      .354      1.533      1.735 PER IMP= 7.00
COMPUTE NM HYD      17.4E      -      1      .03843      87.32      3.532      1.500      3.550 PER IMP= 62.90
ADD HYD      17.4E.1 1& 3 37      .04873      98.66      3.886
*S FUTURE DETENTION POND AT COORS 8-PAC SITE
*S ROUTING RESERVOIR WITH 48" DIAMETER ORIFACE

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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 = 13	NOTATION
COMPUTE NM HYD	16.1W	-	3	.03330	39.08	1.217	.68537	1.533	1.834 PER IMP= 8.00		
COMPUTE NM HYD	16.3NRTH	-	1	.01565	31.37	1.186	1.42116	1.500	3.132 PER IMP= 44.00		
ADD HYD	16.3N.1 1& 3 30			.04895	70.22	2.403	.92061	1.500	2.242		
*S ROUTE 16.1W AND 16.3NRTH THROUGH FUTURE DETENTION POND											
*S S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)											
*S 0	0			100							
*S 5	0.60			101							
*S 13	1.10			102							
*S 25	1.59			103							
*S ROUTE AREA 8.1W TO 15.3W DOWN CANAL TO BUSHEL ROAD DISCHARGE POINT. **											
ROUTE MCUNGE	27.10 10 32			.68691	254.35	118.740	3.24116	1.567	.579 CCODE = .2		
MODIFY TIME	27.10 32 32			.68691	254.35	118.740	3.24116	1.567	.579 SHIFT= .000		
ADD HYD	16.3N.1 32&30 33			.73586	317.19	121.143	3.08679	1.567	.674		
*S SUB-BASIN 16.2W											
*S ALBAN HILLS											
COMPUTE NM HYD	16.2W	-	3	.06650	78.14	2.431	.68537	1.533	1.836 PER IMP= 8.00		
*S FUTURE RESIDENTIAL DEVELOPMENT											
COMPUTE NM HYD	16.3E	-	5	.01120	26.18	1.037	1.73544	1.500	3.652 PER IMP= 60.00		
*S FUTURE DETENTION POND AT BASIN 16.3E											
*S ROUTING RESERVOIR WITH 18" DIAMETER ORIFACE											
*S S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)											
*S 0	0			100							
*S 3	0.35			101							
*S 8	0.82			102							
*S BOSQUE MEADOWS SUBDIVISION											
COMPUTE NM HYD	16.3STH	-	1	.03122	72.24	2.865	1.72082	1.500	3.616 PER IMP= 59.80		
ADD HYD	16.3STH.1 1& 3 34			.09772	149.92	5.296	1.01619	1.500	2.397		
*S ROUTE 16.2 AND 16.3STH THROUGH FUTURE DETENTION POND @ BOSQUE MEADOWS											
ROUTE RESERVOIR 16.3STH.RES 34 35				.09772	35.48	5.308	1.01849	1.866	.567 AC-FT= 2.380		
*S S OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)											
*S 0.00	0.00000			4988.58							
*S 18.53	0.01074			4991.08							
*S 20.96	0.01407			4991.50							
*S 23.53	0.32155			4992.00							
*S 25.85	0.62903			4992.50							
*S 27.97	0.93650			4993.00							
*S 29.95	1.24398			4993.50							
*S 31.80	1.55145			4994.00							
*S 33.55	1.85893			4994.50							
*S 35.22	2.16641			4995.00							
*S 35.60	2.47388			4995.50							
ADD HYD	16.3STH.2 35& 5 36			.10892	54.69	6.345	1.09221	1.533	.785		
COMPUTE NM HYD	17.1W	-	3	.01030	11.44	.354	.64407	1.533	1.735 PER IMP= 7.00		
COMPUTE NM HYD	17.4E	-	1	.03843	87.32	3.532	1.72317	1.500	3.550 PER IMP= 62.90		
ADD HYD	17.4E.1 1& 3 37			.04873	98.66	3.886	1.49508	1.500	3.164		
*S FUTURE DETENTION POND AT COORS 8-PAC SITE											
*S ROUTING RESERVOIR WITH 48" DIAMETER ORIFACE											

TRACT 2-B
POND
RESERVOIR
ROUTING
OUTPUT

UPDATE 3.TXT

*S THE REPORT BY SMITH ENGINEERING REGARDING THE TRACT 2-B POND PREPARED
 *S IN JUNE 2003. THE OUTFLOW DATA ARE FROM THE ORIGINAL DMP MODEL AND WERE
 *S APPARENTLY BASED ON ONLY 1.36-INCH CMP.



ROUTE RESERVOIR ID=10 HYD NO=506.RES INFLOW=2 CODE=1
 OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)
 0 0 4993.73
 13.2 2.1034 4994
 18.7 6.3676 4995
 22.9 10.7471 4996
 26.5 15.2433 4997
 29.6 19.8574 4998
 32.4 24.5907 4999
 35.0 29.4446 5000
 37.5 34.4202 5001
 39.7 39.5191 5002
 41.9 44.7423 5003

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	4993.73	.000	.00
.03	.00	4993.73	.000	.00
.07	.00	4993.73	.000	.00
.10	.00	4993.73	.000	.00
.13	.00	4993.73	.000	.00
.17	.00	4993.73	.000	.00
.20	.00	4993.73	.000	.00
.23	.00	4993.73	.000	.00
.27	.00	4993.73	.000	.00
.30	.00	4993.73	.000	.00
.33	.00	4993.73	.000	.00
.37	.00	4993.73	.000	.00
.40	.00	4993.73	.000	.00
.43	.00	4993.73	.000	.00
.47	.00	4993.73	.000	.00
.50	.00	4993.73	.000	.00
.53	.00	4993.73	.000	.00
.57	.00	4993.73	.000	.00
.60	.00	4993.73	.000	.00
.63	.00	4993.73	.000	.00
.67	.00	4993.73	.000	.00
.70	.00	4993.73	.000	.00
.73	.00	4993.73	.000	.00
.77	.00	4993.73	.000	.00
.80	.00	4993.73	.000	.00
.83	.00	4993.73	.000	.00
.87	.00	4993.73	.000	.00
.90	.00	4993.73	.000	.00
.93	.00	4993.73	.000	.00
.97	.00	4993.73	.000	.00

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19.10	3.70	4993.87	1.111	6.97
19.13	3.69	4993.87	1.102	6.92
19.16	3.69	4993.87	1.093	6.86
19.20	3.68	4993.87	1.084	6.81
19.23	3.67	4993.87	1.076	6.75
19.26	3.66	4993.87	1.068	6.70
19.30	3.66	4993.87	1.059	6.65
19.33	3.65	4993.86	1.051	6.60
19.36	3.65	4993.86	1.043	6.55
19.40	3.64	4993.86	1.035	6.50
19.43	3.63	4993.86	1.027	6.45
19.46	3.62	4993.86	1.020	6.40
19.50	3.62	4993.86	1.012	6.35
19.53	3.61	4993.86	1.005	6.30
19.56	3.61	4993.86	.997	6.26
19.60	3.60	4993.86	.990	6.21
19.63	3.60	4993.86	.983	6.17
19.66	3.59	4993.86	.976	6.12
19.70	3.58	4993.85	.969	6.08
19.73	3.58	4993.85	.962	6.04
19.76	3.57	4993.85	.955	5.99
19.80	3.56	4993.85	.949	5.95
19.83	3.56	4993.85	.942	5.91
19.86	3.55	4993.85	.936	5.87
19.90	3.55	4993.85	.929	5.83
19.93	3.54	4993.85	.923	5.79
19.96	3.54	4993.85	.917	5.75

PEAK DISCHARGE = 27.592 CFS - PEAK OCCURS AT HOUR 3.20
 MAXIMUM WATER SURFACE ELEVATION = 4997.352
 MAXIMUM STORAGE = 16.8682 AC-FT INCREMENTAL TIME= .033330HRS

*S
 *S HYD 506.RES IS THE RESULT OF THE TRACT 2-B CONCEPTUAL RESERVOIR ROUTING
 *S STORAGE - ELEV. DATA AS PREPARED FOR THE JUNE 2003 POND CONCEPTUAL DESIGN
 *S
 *S THE FOLLOWING DATA ARE FROM THE ORIGINAL UPDATE1.DAT MODEL
 *S THE ELEVATION - STORAGE DATA IS VERY CLOSE TO THAT OF THE CONCEPTUAL
 *S DESIGN DATA OF JUNE 2003
 *S

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)
0	0	4993
13.2	1.1324	4994
18.7	4.4968	4995
22.9	9.3777	4996
26.5	14.3639	4997
29.6	19.4554	4998
32.4	24.6522	4999
35.0	29.9543	5000
37.5	35.3617	5001
39.7	40.8744	5002
41.9	46.4318	5003
43.9	52.1551	5004



APPENDIX 2

PRELIMINARY HYDRAULIC RESULTS

FOR THE EXISTING AND PROPOSED

36-INCH CULVERTS UNDER COORS BLVD.

FROM BASIN 504 TO THE PROPOSED TRACT 2-B POND

This Appendix Contains the Culvert Master Preliminary Results for the referenced culverts.



N. COORD DMD REVIEW
PROJECT PROPOSED PIPE SUMMARY SHEET NO. 1 OF 2
SUBJECT Basin 504 - Detention Pond PROJECT NO. _____
BY PS DATE 5/20/03 CHECKED BY _____ DATE 1/1

PURPOSE - COMPUTE THE NUMBER OF
ADDITIONAL 36" CULVERTS
REQUIRED TO PASS 100-YR. QP FROM
WEST SIDE OF COORS (NEAR MOVIE
THEATER) TO EAST SIDE OF COORS
TO THE ^{PROPOSED} AMAFCA POND (Tract 2-B)

ANYMO AP = 504.10 100-YR. QP = 257 cfs

CAPACITY OF EXIST 36" CMP = 80 cfs
AT MAX. AVAIL. HEADWATER
(Culvert MASTER Results)

CAPACITY OF PROPOSED 36" RCP = 125 cfs
(Culvert MASTER Results) 30" RCP = 52 cfs

DETERMINE NO. OF PIPES REQUIRED = 257 TOTAL

$$\begin{array}{r} \text{Q Remaining} \Rightarrow = 177 \\ - 125 \\ \hline 52 \\ - 52 \\ \hline = 0 \end{array}$$

CONCLUSION -

1. Keep 1-36-in. EXISTING CMP (no Freeboard)
2. INSTALL 1-36-in. RCP (no Freeboard)
3. INSTALL 1-30-in RCP (WITH 3' Freeboard)

RECOMMENDATION -



PROJECT _____ SHEET NO. 2 OF 2
SUBJECT _____ PROJECT NO. _____
BY _____ DATE / / CHECKED BY _____ DATE / /

RECOMMENDATION -

TO PROVIDE FOR FREEBOARD AND CLOGGING.

$$\begin{array}{r} 257 \text{ Total} \\ - 80 \\ \hline 177 \end{array}$$

Remaining

ASSUME $177 \text{ gals} / 2 \text{ } 36" \text{ RCP's}$
 $= 88.50 \text{ gals} / \text{pipe}$
WITH $\approx 3 \text{ FT}$ freeboard on each
pipe

Therefore
1 EX. $36" \text{ CMP}$
2 Proposed $36" \text{ RCP's}$



PROJECT N. CORA DIMP SHEET NO. 1 OF 1
SUBJECT SURVEY OF 36" CMP UNDER CORA TO AMMA FCA POND PROJECT NO. 5120103
BY JIM SPENTZ CHECKED BY PS DATE 5/20/03

SEC - TOPO SURVEY OF EXISTING 36-INCH CMP
UNDER CORAS TO TRACT-B POND

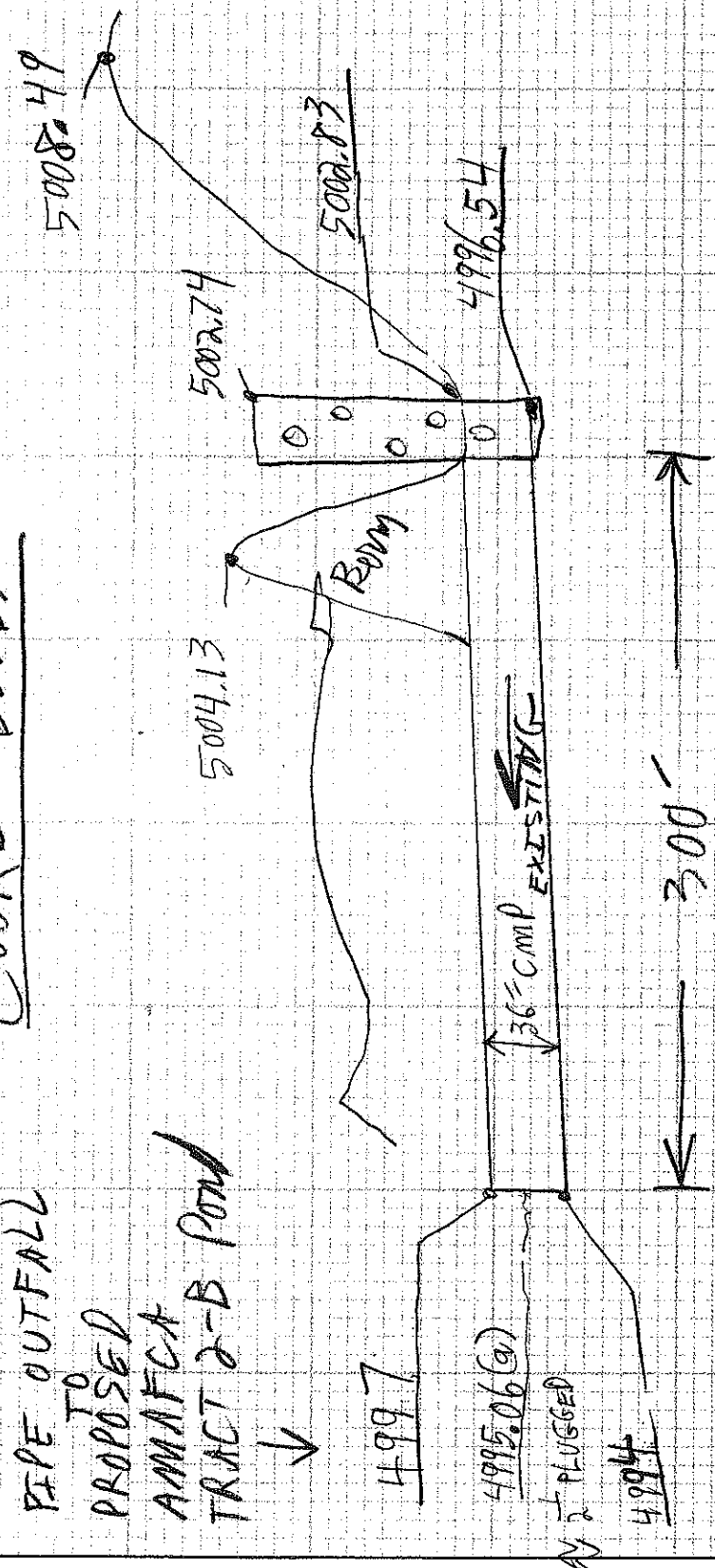
+	HI	-	ELEV	REM
1210	11210 5009.10		4997 (a) 10000	T.O.P. (E SIDE)
		1256 (63 TOP OF GATE)	3954 4996.54	INV (W SIDE)
		497	10713 5004.13	TOP OF LOWER BEAM
		627	10583 5002.83	INV SWALE (N)
		061	11149 5008.49	TOP OF C/G (W)
		487	10723 5004.23	INV SWALE (S)

(a) See Cross-Section Sketch (NEXT PAGE)
THIS ELEV. ASSUMED BASED ON
WILSON'S SURVEY

PROJECT N. COR. DMP
 SUBJECT 36" PIPE UNDER CONSTRUCTION
 BY Based on Survey
 CHECKED BY NMS
 DATE 5/20/13
 SHEET NO. 15
 PROJECT NO. 15
 ON AMATEA TRACT 2-B POND



PIPE OUTFALL
 PROPOSED
 AMATEA
 TRACT 2-B POND
 COORS BLVD.



MAX. ALLOW. HEADWATER

$$\begin{array}{r} 5004.13 \\ - 4996.54 \\ \hline 7.59 \text{ Ft.} \end{array}$$

(a) From Wilson & Co. Survey

Culvert Calculator Report

Ex. 36-in. CMP under Coors Blvd.

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	7.59 ft	Headwater Depth/ Height	7.39
Computed Headwater Elevation	5,018.70 ft	Discharge	80.00 cfs
Inlet Control HW Elev	5,003.45 ft	Tailwater Elevation	5,001.00 ft
Outlet Control HW Elev	5,018.70 ft	Control Type	Outlet Control
Grades			
Upstream Invert	4,996.54 ft	Downstream Invert	4,994.00 ft
Length	300.00 ft	Constructed Slope	0.008467 ft/ft
Hydraulic Profile			
Profile	Pressure	Depth, Downstream	7.00 ft
Slope Type	N/A	Normal Depth	N/A ft
Flow Regime	N/A	Critical Depth	2.77 ft
Velocity Downstream	11.32 ft/s	Critical Slope	0.042506 ft/ft
Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev	5,018.70 ft	Upstream Velocity Head	1.99 ft
Ke	0.50	Entrance Loss	1.00 ft
Inlet Control Properties			
Inlet Control HW Elev	5,003.45 ft	Flow Control	Submerged
Inlet Type	Headwall	Area Full	7.1 ft ²
K	0.00780	HDS 5 Chart	2
M	2.00000	HDS 5 Scale	1
C	0.03790	Equation Form	1
Y	0.69000		

ANYMO ANALYSIS POINT = 504.10

THIS IS WEST SIDE OF COOR BLVD AT INLET
TO THE EXISTING 36" CMP UNDER COORS TO
TRACT 2-B (AMAFCA PROPOSED ROAD)

100-YR. QP = 257 cfs

NO. OF 36" CMPs
REQUIRED = $\frac{257}{80 \text{ 36" CMP}}$
= 3.2 CULVERTS

Culvert Calculator Report
PROPOSED Ex. 36-in. ~~CMP~~ under Coors Blvd.
RCP

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	7.59 ft	Headwater Depth/ Height	4.47
Computed Headwater Elevation	5,009.94 ft	Discharge	88.50 cfs
Inlet Control HW Elev	5,004.78 ft	Tailwater Elevation	5,001.00 ft
Outlet Control HW Elev	5,009.94 ft	Control Type	Outlet Control

$$= \frac{177 \text{ CFS}}{2}$$

Grades			
Upstream Invert	4,996.54 ft	Downstream Invert	4,994.00 ft
Length	300.00 ft	Constructed Slope	0.008467 ft/ft

Hydraulic Profile			
Profile	Pressure	Depth, Downstream	7.00 ft
Slope Type	N/A	Normal Depth	N/A ft
Flow Regime	N/A	Critical Depth	2.84 ft
Velocity Downstream	12.52 ft/s	Critical Slope	0.015230 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev	5,009.94 ft	Upstream Velocity Head	2.44 ft
Ke	0.50	Entrance Loss	1.22 ft

Inlet Control Properties			
Inlet Control HW Elev	5,004.78 ft	Flow Control	Submerged
Inlet Type	Square edge w/headwall	Area Full	7.1 ft²
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

Culvert Calculator Report
PROPOSED Ex. 36-in. ~~CMP~~ under Coors Blvd.
RCP

Solve For: Headwater Elevation

Culvert Summary

Allowable HW Elevation	7.59 ft	Headwater Depth/ Height	7.43
Computed Headwater Elevation	5,018.83 ft	Discharge	125.00 cfs
Inlet Control HW Elev	5,010.98 ft	Tailwater Elevation	5,001.00 ft
Outlet Control HW Elev	5,018.83 ft	Control Type	Outlet Control

Grades

Upstream Invert	4,996.54 ft	Downstream Invert	4,994.00 ft
Length	300.00 ft	Constructed Slope	0.008467 ft/ft

Hydraulic Profile

Profile	Pressure	Depth, Downstream	7.00 ft
Slope Type	N/A	Normal Depth	N/A ft
Flow Regime	N/A	Critical Depth	2.96 ft
Velocity Downstream	17.68 ft/s	Critical Slope	0.031867 ft/ft

Section

Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	1		

Outlet Control Properties

Outlet Control HW Elev	5,018.83 ft	Upstream Velocity Head	4.86 ft
Ke	0.50	Entrance Loss	2.43 ft

Inlet Control Properties

Inlet Control HW Elev	5,010.98 ft	Flow Control	Submerged
Inlet Type	Square edge w/headwall	Area Full	7.1 ft²
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

Culvert Calculator Report

Ex. 36-in. CMP under Coors Blvd.

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	7.59 ft	Headwater Depth/ Height	10.70
Computed Headwater Elevation	5,028.65 ft	Discharge	100.00 cfs
Inlet Control HW Elev	5,006.18 ft	Tailwater Elevation	5,001.00 ft
Outlet Control HW Elev	5,028.65 ft	Control Type	Outlet Control
Grades			
Upstream Invert	4,996.54 ft	Downstream Invert	4,994.00 ft
Length	300.00 ft	Constructed Slope	0.008467 ft/ft
Hydraulic Profile			
Profile	Pressure	Depth, Downstream	7.00 ft
Slope Type	N/A	Normal Depth	N/A ft
Flow Regime	N/A	Critical Depth	2.90 ft
Velocity Downstream	14.15 ft/s	Critical Slope	0.067076 ft/ft
Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev	5,028.65 ft	Upstream Velocity Head	3.11 ft
Ke	0.50	Entrance Loss	1.56 ft
Inlet Control Properties			
Inlet Control HW Elev	5,006.18 ft	Flow Control	Submerged
Inlet Type	Headwall	Area Full	7.1 ft ²
K	0.00780	HDS 5 Chart	2
M	2.00000	HDS 5 Scale	1
C	0.03790	Equation Form	1
Y	0.69000		

) FAILS

Culvert Calculator Report

PROPOSED Ex. 36-in. CMP under Coors Blvd.
RCP

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	7.59 ft	Headwater Depth/ Height	3.92
Computed Headwater Elevation	5,008.30 ft	Discharge	80.00 cfs
Inlet Control HW Elev	5,003.64 ft	Tailwater Elevation	5,001.00 ft
Outlet Control HW Elev	5,008.30 ft	Control Type	Outlet Control

Grades			
Upstream Invert	4,996.54 ft	Downstream Invert	4,994.00 ft
Length	300.00 ft	Constructed Slope	0.008467 ft/ft

Hydraulic Profile			
Profile	Pressure	Depth, Downstream	7.00 ft
Slope Type	N/A	Normal Depth	N/A ft
Flow Regime	N/A	Critical Depth	2.77 ft
Velocity Downstream	11.32 ft/s	Critical Slope	0.012471 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev	5,008.30 ft	Upstream Velocity Head	1.99 ft
Ke	0.50	Entrance Loss	1.00 ft

Inlet Control Properties			
Inlet Control HW Elev	5,003.64 ft	Flow Control	Submerged
Inlet Type	Square edge w/headwall	Area Full	7.1 ft²
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

PROPOSED **Ex. 36-in. CMP under Coors Blvd.**
30 RCP

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	7.59 ft	Headwater Depth/ Height	4.76
Computed Headwater Elevation	5,008.44 ft	Discharge	52.00 cfs
Inlet Control HW Elev	5,002.67 ft	Tailwater Elevation	5,001.00 ft
Outlet Control HW Elev	5,008.44 ft	Control Type	Outlet Control
Grades			
Upstream Invert	4,996.54 ft	Downstream Invert	4,994.00 ft
Length	300.00 ft	Constructed Slope	0.008467 ft/ft
Hydraulic Profile			
Profile	Pressure	Depth, Downstream	7.00 ft
Slope Type	N/A	Normal Depth	N/A ft
Flow Regime	N/A	Critical Depth	2.32 ft
Velocity Downstream	10.59 ft/s	Critical Slope	0.013906 ft/ft
Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	2.50 ft
Section Size	30 inch	Rise	2.50 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev	5,008.44 ft	Upstream Velocity Head	1.74 ft
Ke	0.50	Entrance Loss	0.87 ft
Inlet Control Properties			
Inlet Control HW Elev	5,002.67 ft	Flow Control	Submerged
Inlet Type	Square edge w/headwall	Area Full	4.9 ft ²
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M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

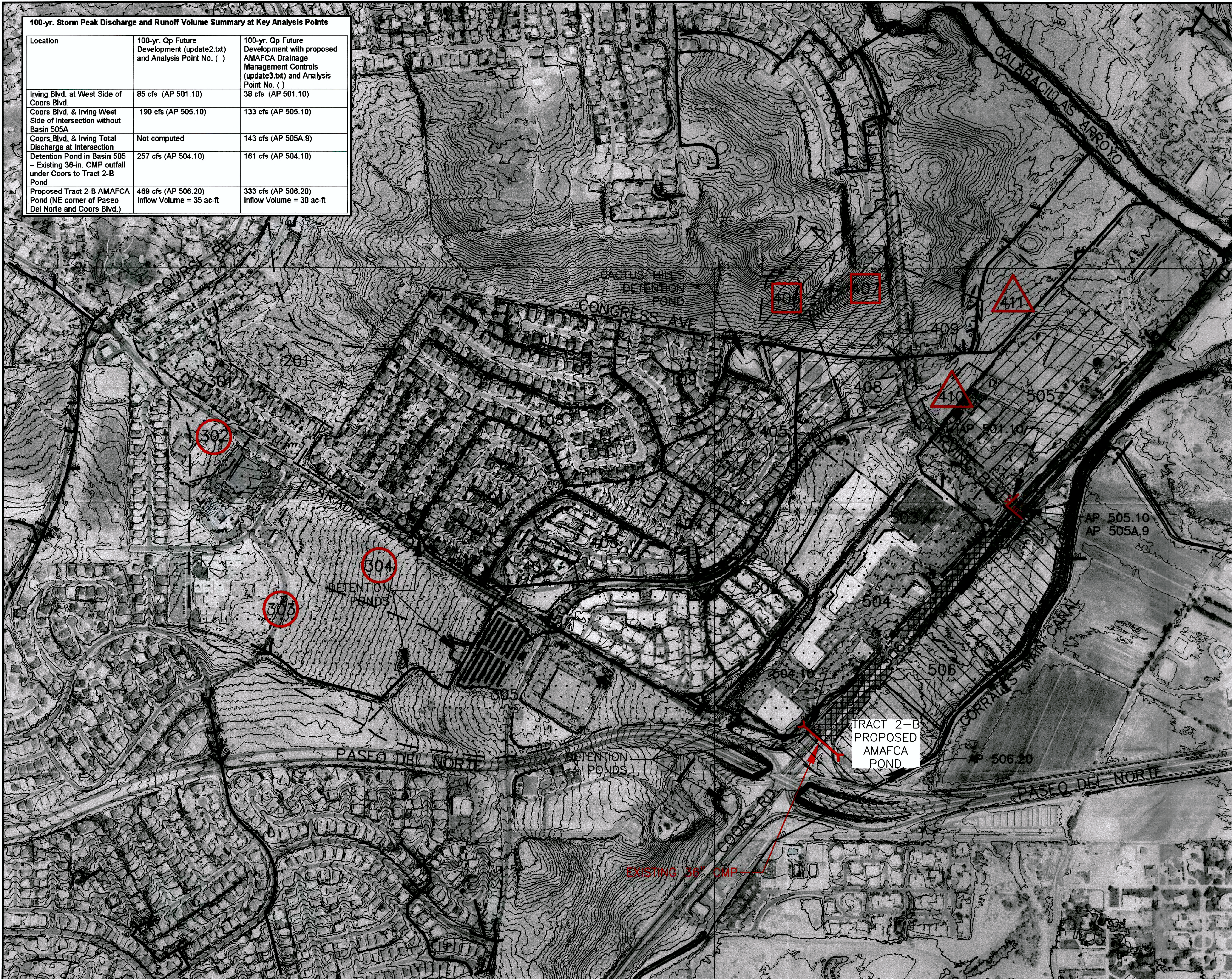
PROPOSED

Culvert Calculator Report
Ex. 36-in. CMP under Coors Blvd.
24 RCP

Solve For: Headwater Elevation

Culvert Summary			
Allowable HW Elevation	7.59 ft	Headwater Depth/ Height	13.35
Computed Headwater Elevation	5,023.24 ft	Discharge	52.00 cfs
Inlet Control HW Elev	5,008.78 ft	Tailwater Elevation	5,001.00 ft
Outlet Control HW Elev	5,023.24 ft	Control Type	Outlet Control
Grades			
Upstream Invert	4,996.54 ft	Downstream Invert	4,994.00 ft
Length	300.00 ft	Constructed Slope	0.008467 ft/ft
Hydraulic Profile			
Profile	Pressure	Depth, Downstream	7.00 ft
Slope Type	N/A	Normal Depth	N/A ft
Flow Regime	N/A	Critical Depth	1.98 ft
Velocity Downstream	16.55 ft/s	Critical Slope	0.048931 ft/ft
Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	2.00 ft
Section Size	24 inch	Rise	2.00 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev	5,023.24 ft	Upstream Velocity Head	4.26 ft
Ke	0.50	Entrance Loss	2.13 ft
Inlet Control Properties			
Inlet Control HW Elev	5,008.78 ft	Flow Control	Submerged
Inlet Type	Square edge w/headwall	Area Full	3.1 ft ²
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

100-yr. Storm Peak Discharge and Runoff Volume Summary at Key Analysis Points		
Location	100-yr. Qp Future Development (update2.txt) and Analysis Point No. ()	100-yr. Qp Future Development with proposed AMAFCA Drainage Management Controls (update3.txt) and Analysis Point No. ()
Irving Blvd. at West Side of Coors Blvd.	85 cfs (AP 501.10)	38 cfs (AP 501.10)
Coors Blvd. & Irving West Side of Intersection without Basin 505A	190 cfs (AP 505.10)	133 cfs (AP 505.10)
Coors Blvd. & Irving Total Discharge at Intersection	Not computed	143 cfs (AP 505A.9)
Detention Pond in Basin 505 - Existing 36-in. CMP outfall under Coors to Tract 2-B Pond	257 cfs (AP 504.10)	161 cfs (AP 504.10)
Proposed Tract 2-B AMAFCA Pond (NE corner of Paseo Del Norte and Coors Blvd.)	469 cfs (AP 506.20) Inflow Volume = 35 ac-ft	333 cfs (AP 506.20) Inflow Volume = 30 ac-ft



Map Source:

1999 Lidar Mapping
Obtained from AMAFCA

LEGEND

- Existing basins that partially drain to the existing 36-inch CMP in Basin 504 (outfall to Tract 2-B Pond)
- Existing basins that partially drain to the intersection of Irving Blvd. and Coors Blvd.
- Existing basins that partially drain directly to Tract 2-B Pond
- Existing Coors Blvd basin between Irving Blvd and Paseo Del Norte

AP = AHYMO Analysis Point Number in model "update2.txt" & "update3.txt"

EXISTING STORM DRAINS
Obtained from COA GIS Data

Proposed Drainage Management Controls - (Proposed by AMAFCA)

- Basins that must outfall to the existing pond in Basin 303, and/or must be controlled and outfall into the existing Eagle Ranch Road Storm Drain System. No bypass flow on Paradise Blvd. will be allowed.
- Basins anticipated to have most runoff outfall to the existing Congress Heights Storm Drain system. Any excess flow towards Irving Blvd. must be controlled to a very small release rate due to limited downstream capacity at the intersection of Coors and Irving Blvd.
- Basins that must outfall to the existing Congress Ave. Storm Drain System and may require controlled release to maintain capacity of the Congress Ave. Storm Drain. No flow from these basins shall be allowed to bypass the Congress Ave. Storm Drain System.

North

SCALE
1" = 300'

ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY (AMAFCA)

DRAINAGE BASIN MAP

FIGURE 1

Revisions to the :
Design Memorandum for the
North Coors Drainage
Management Plan Middle
Area (La Orilla to
Calabacillas), February 1997.
Prepared by Smith
Engineering Company

BY	
DATE	
REVISION	
DESCRIPTION	
NO.	
1	
2	
3	

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Smith Engineering Company
A Full Service Engineering Company
Albuquerque, NM Rowell, NM Santa Fe, NM Rio Rancho, NM

JOB NO:
100109C

DATE:
6-04-03

SHEET NO:

FIGURE 2

AHYMO MODELING SCHEMATIC for:

Model update1.txt (11/20/1996)
Model update2.txt (5/20/2003)
Model update3.txt (6/4/2003)
Model 5up100.txt (6/4/2003)

For a portion of the model prepared for:

DESIGN MEMORANDUM FOR THE revision to:
NORTH COORS DRAINAGE MANAGEMENT PLAN
MIDDLE AREA (La Orilla to Calabacillas)

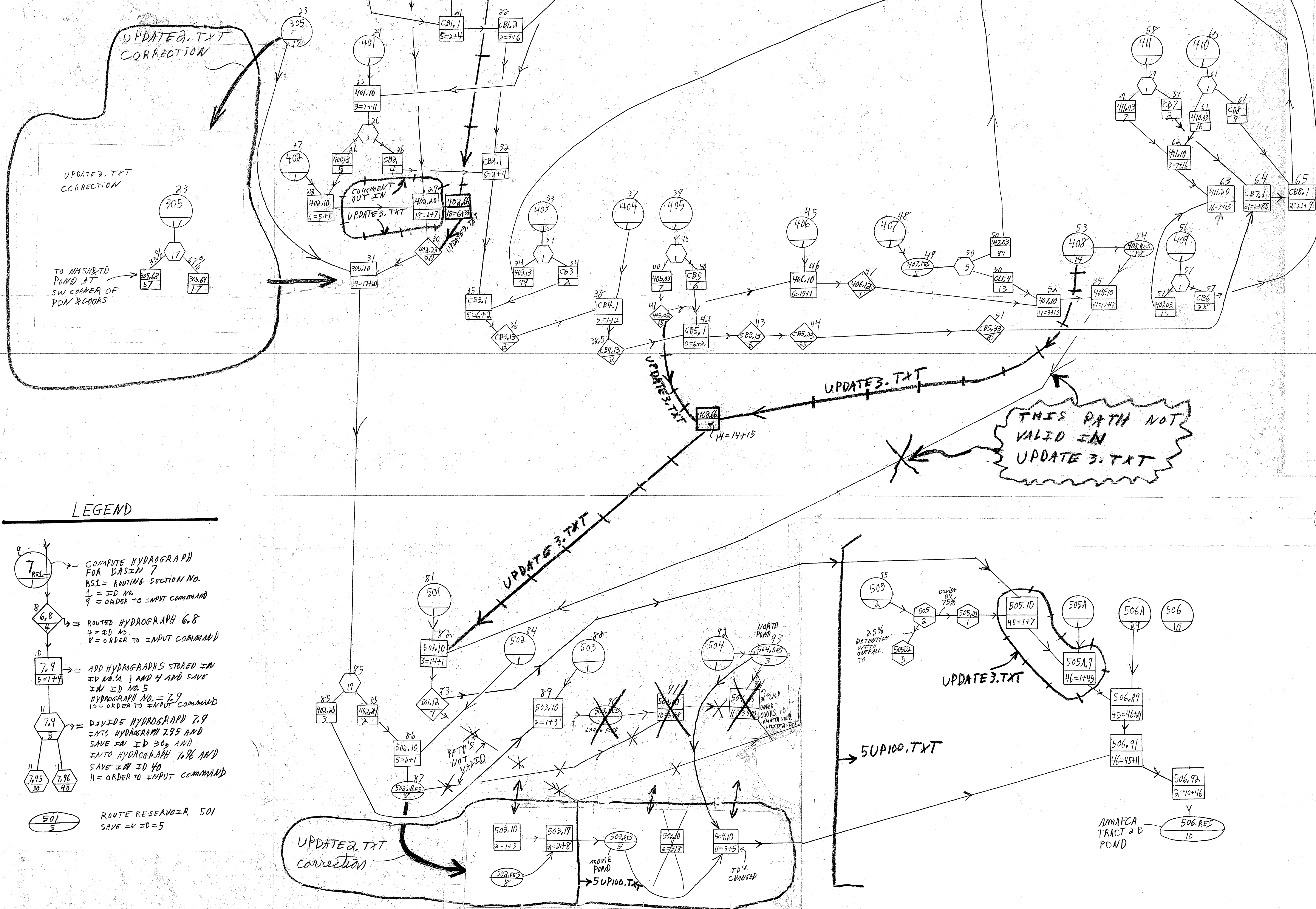
February 1997

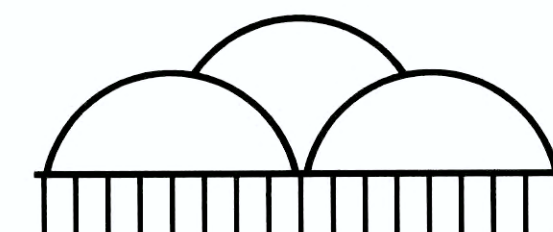
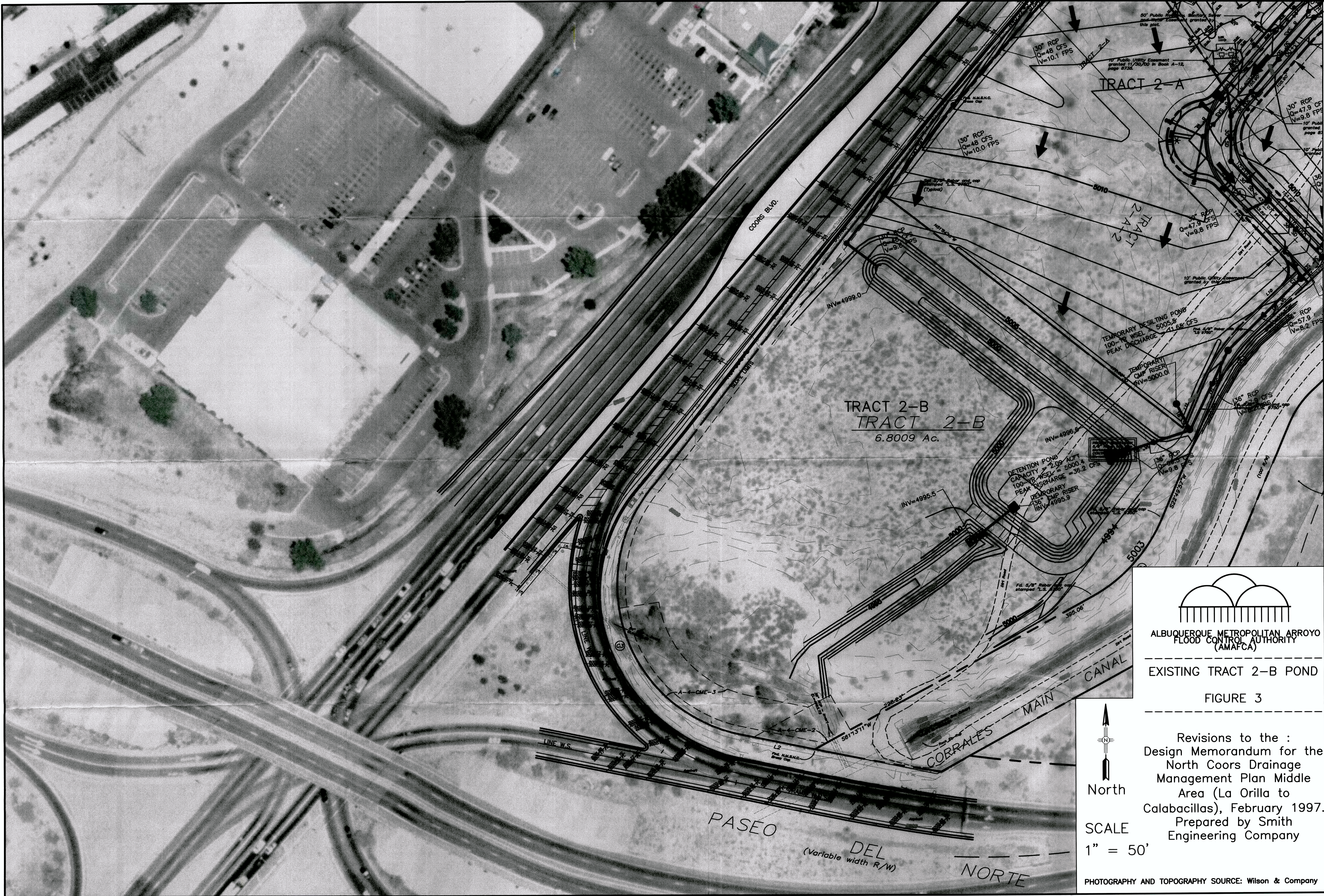
Smith Engineering Company

NOTE - All of this schematic was developed from update1.txt,

This is not the entire model, only the portion of the model that will
Contribute to the Tract 2-B pond, the proposed AMAFCA pond
located at the northeast intersection of Paseo Del Norte
and Coors Blvd.

This schematic was developed in May & June 2003, & May 2004.

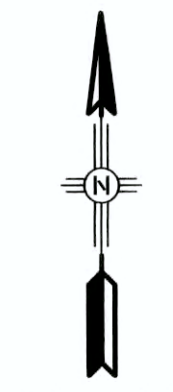




ALBUQUERQUE METROPOLITAN ARROYO
FLOOD CONTROL AUTHORITY
(AMAFCA)

EXISTING TRACT 2-B POND

FIGURE 3



SCALE
1" = 50'

PHOTOGRAPHY AND TOPOGRAPHY SOURCE: Wilson & Company

Revisions to the :
Design Memorandum for the
North Coors Drainage
Management Plan Middle
Area (La Orilla to
Calabacillas), February 1997.
Prepared by Smith
Engineering Company

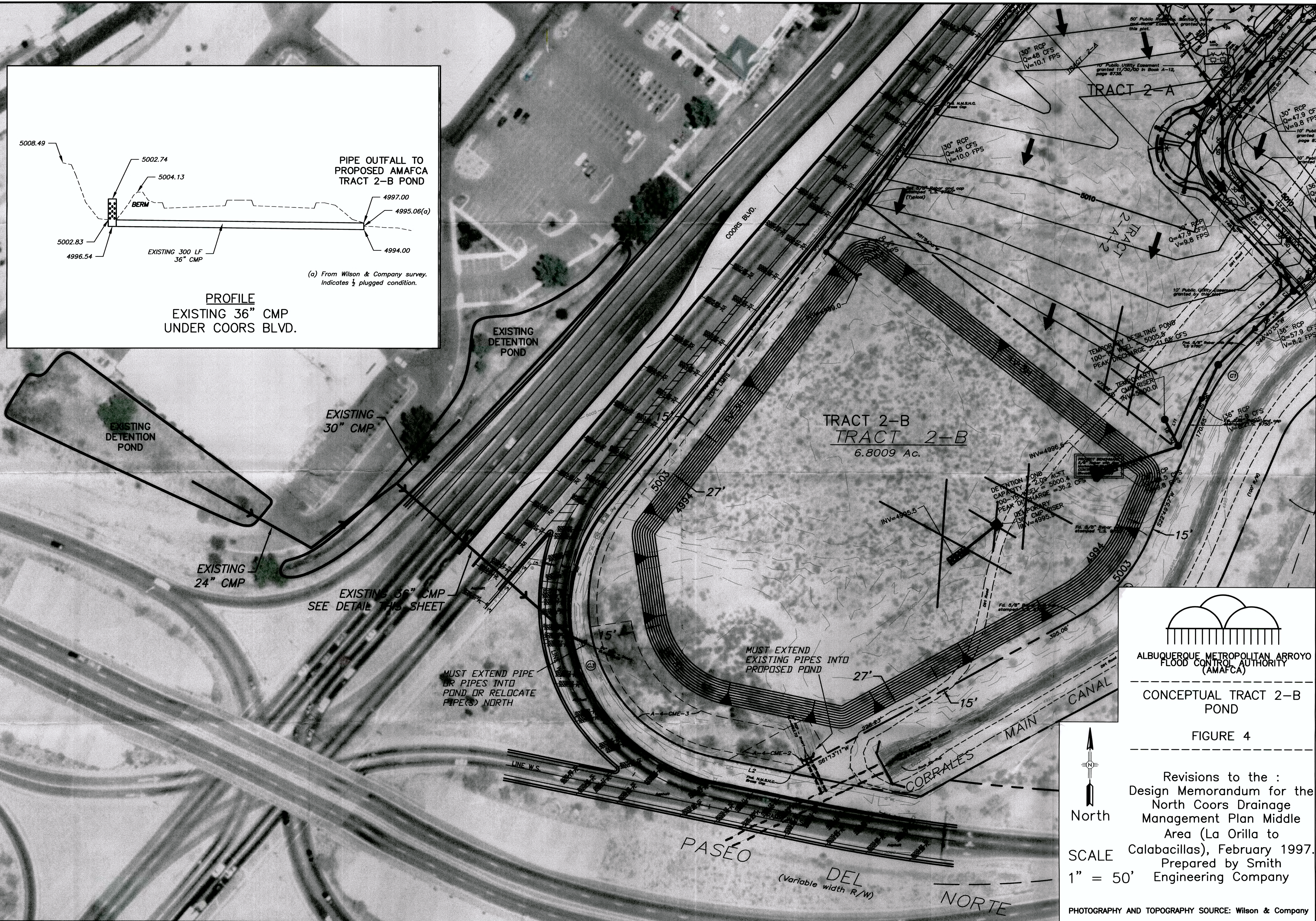
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3			
2			
1			
NO.			

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Smith Engineering Company		Albuquerque, NM	Roswell, NM	Santa Fe, NM	Rio Rancho, NM
A Full Service Engineering Company					



JOB NO:
100109C
DATE:
6-04-03
SHEET NO:



	Smith Engineering Company			
	A Full Service Engineering Company			
	Albuquerque, NM Roswell, NM Santa Fe, NM Rio Rancho, NM			
	JOB NO: 100109C			
DATE: 6-04-03				
SHEET			NO.	
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		1		
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