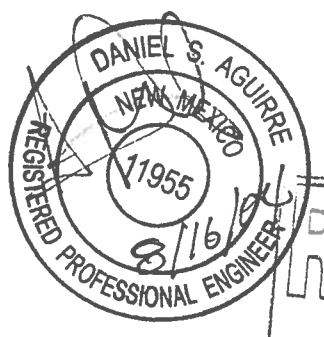
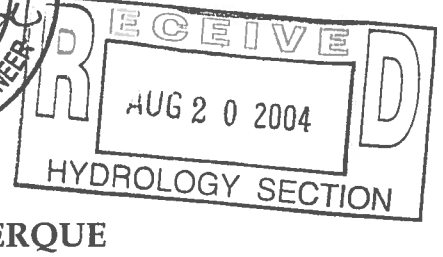
PASEO DEL NORTE
DRAINAGE REPORT

GOLF COURSE ROAD TO KIMMICK DRIVE

16 AUGUST 2004





PREPARED FOR:

CITY OF ALBUQUERQUE
ALBUQUERQUE, NM

PREPARED BY:

WILSON & COMPANY, INC.
4900 LANG AVE., N.E.

I. PURPOSE

The purpose of this drainage report is to establish the design drainage flows for the Paseo del Norte (PdN) Corridor between Golf Course Road and Kimmick Road. This hydrology analysis will evaluate:

1) the developed flows for the PdN Corridor; and
2) the developed and existing flows for the Piedras Marcadas Arroyo PdN crossing.

The existing flows for the Piedras Marcadas Arroyo crossing drains a larger basin than the developed flows. A large portion of the Piedras Marcadas Arroyo upper basin is diverted in the developed conditions with the Chamissa Storm Drain and the Unser Storm Drain. The larger flow (existing or developed) will be used for the design of the Piedras Marcadas Arroyo crossing of PdN.

II. INTRODUCTION

The City of Albuquerque (COA) and the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) are developing a drainage outlet down the PdN Corridor to manage the existing and developed drainage flows across the Petroglyph National Monument (PNM). This drainage corridor will protect the PNM escarpment from damage caused by drainage erosion. The drainage currently drains uncontrolled over the escarpment with the majority of the upstream flows going down the environmentally sensitive Piedras Marcadas Canyon. This report will evaluate the development upstream of the PNM escarpment and establish developed drainage flows.

This report will provide the developed flows to be used in the design for the PdN Corridor. Roadway designers and developers will provide the storm drainage system design and hydraulic analysis.

III. HYDROLOGY

Hydrologic modeling for this project is performed using the 1997 version of The Arid-Lands Hydrologic Model (AHYMO) in accordance with the City of Albuquerque Development Process Manual, Section 22.2, December 1999. Pipes added to the AHYMO input file for routing purposes are sized using Manning's Equation. Appendix A contains the AHYMO files for the analysis of the existing conditions at the Piedras Marcadas Arroyo. Appendix B contains the AHYMO files for the analysis of the developed conditions at the Piedras Marcadas Arroyo.

Existing Conditions

An analysis was done for the existing condition at the Paseo del Norte crossing over the Piedras Marcadas Arroyo immediately west of Golf Course Road since the existing area is greater than the developed conditions. The existing conditions model is comprised of 4 basins. Portions of Basin A and Basin B are developed while Basin C and Basin D remain undeveloped. The basins have been cut off at Universe where the new construction has diverted the minor additional flows west of Universe. The overall existing basin boundaries are shown On Figure 2.

The treatment type percentages for the existing conditions basins are as follows:

Land Use	Type A	Type B	Type C	Type D
Basin A:	0%	32%	28%	40%
Basin B:	90%	2.5%	2.5%	5%
Basin C:	100%	0%	0%	0%
Basin D:	100%	0%	0%	0%

The analysis point at the crossing of PdN and the Piedras Marcadas Arroyo results in a peak discharge of 462 cfs. The input file, summary file and output file are included in Appendix A.

Developed Conditions

WCI is basing the developed conditions analysis on the most current drainage development in the basin and assumes the following drainage improvements will occur:

1. The Chamisa Storm Drain / Detention Pond / Lyon Storm Drain will be constructed to divert the northern upper basin of the Piedras Marcadas Arroyo to the Calabacillas Arroyo to the north.

2. The Unser Boulevard Storm Drain will be constructed with the roadway to divert the western upper basin of the Piedras Marcadas Arroyo to the Boca Negra Arroyo Dam to the south.

3. The Piedras Marcadas Canyon will have controlled drainage flows to maintain the riparian growth in the Canyon.

The area above the escarpment is currently partially built out with the land use in several areas under development. This study assumes the following land uses for the developed sub-basins shown on the Overall Drainage Area Map, Figure 3.

Sub-Basin	Land Use
A	Residential / Town homes
B	Open Space
C	Commercial
D	Commercial
E	Residential
F	Residential
G	Open Space
H	Open Space
Unser1 to PDN 4	Roadway

The treatment type percentages for the developed basins are as follows:

Land Use	Type A	Type B	Type C	Type D
Residential / Town homes:	0%	15%	35%	50%
Residential:	0%	10%	40%	50%

Commercial:	0%	10%	10%	80%
Open Space:	100%	0%	0%	0%
Roadway:	0%	10%	0%	90%

All ponds will be designed using the 100-year, 24-hour storm event. The Storm Drainage systems shall be designed for the 100-year 6-hour event. The drainage area has been divided into developed sub-basins for this report. In addition, Figure 3 shows the conceptual developed conditions flow patterns for the basins adjacent to this project area. Plate 1 located in the back of this report shows a conceptual profile for the future Unser Boulevard roadway and storm drain, which directs flows to the Proposed Boca Negra Multi-purpose Detention Facility.

Future reports addressing more specific layouts of the basins internal to the development are required and will be completed with the development of the area. The proposed PdN crossing of the Piedras Marcadas Arroyo as proposed by the Walmart developer is shown in Appendix C.

IV. SUMMARY

WCI has analyzed the existing and developed conditions models impacting the design of the PdN storm drain system. The assumptions for the developed conditions for the area have been shown graphically on Figure 3. The hydrologic analysis is included in Appendix A for the existing conditions on the Piedras Marcadas Arroyo crossing of PdN and in Appendix B for the developed conditions. The following is a summary of the 100-year design flows which we recommend be used for the design of the PdN system and the crossing of the Piedras Marcadas Arroyo:

Analysis Point	**Location Description**	**100-Year Design Flow**
AP-1	PdN at the Petroglyph National Monument	625.7 c.f.s. developed
AP-2	PdN at Sub-basin B Entry	666.3 c.f.s. developed
AP-3	PdN Xing of Piedras Marcadas Arroyo	462 c.f.s. existing (326 c.f.s. developed)
AP-4	Piedras Marcadas Arroyo below PdN	965.3 c.f.s. developed

The analysis point locations are shown in Figure 3.

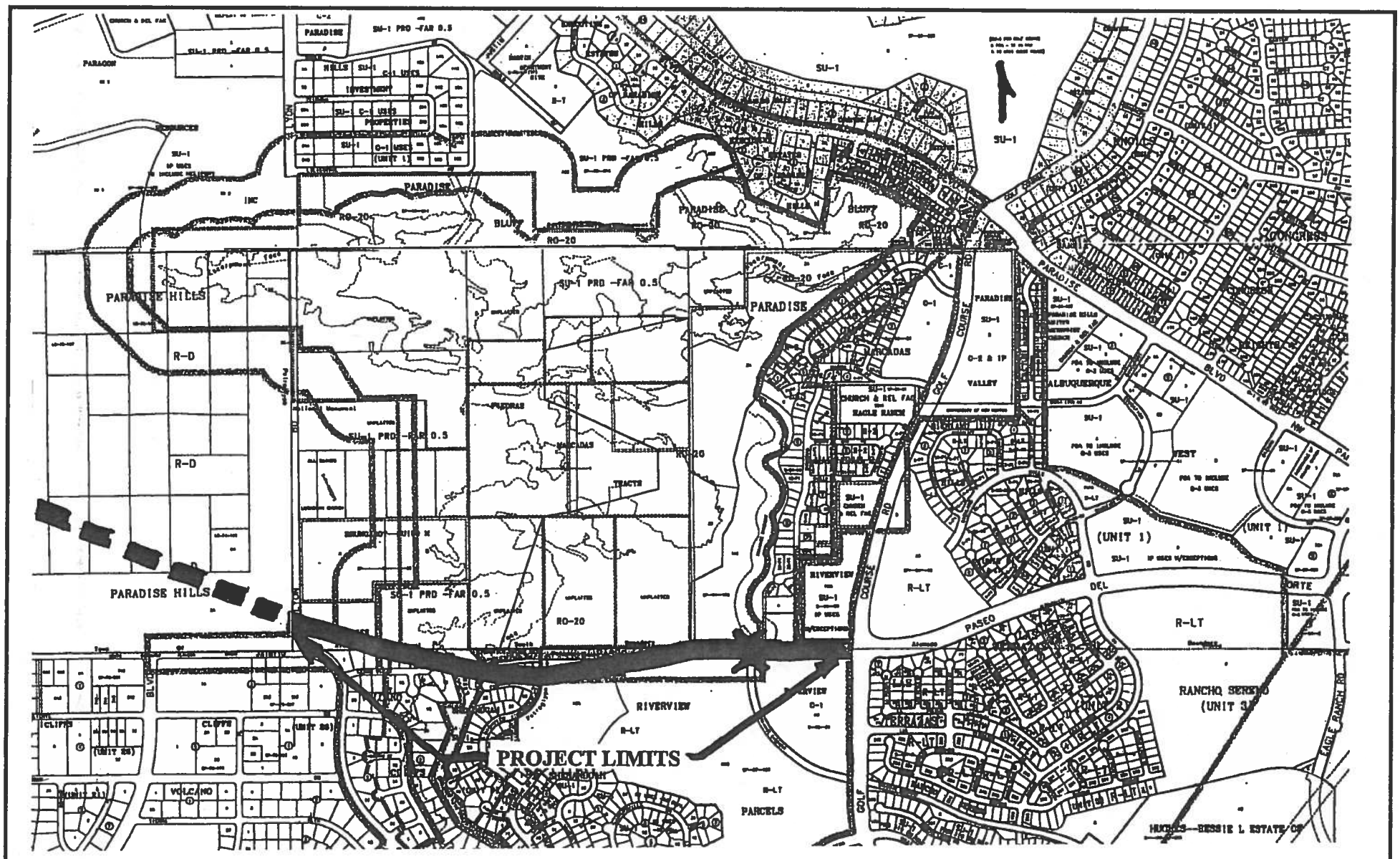
At the Piedras Marcadas Arroyo crossing of PdN, the existing flows should be used since the existing flows are larger than the developed flows due to upstream diversions in the developed conditions.

FIGURES

PLATES

FIGURE 1

LOCATION MAP



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PASEO DEL NORTE
DRAINAGE REPORT

LOCATION MAP

FIGURE 1

FIGURE 2

OVERALL EXISTING DRAINAGE BASIN MAP

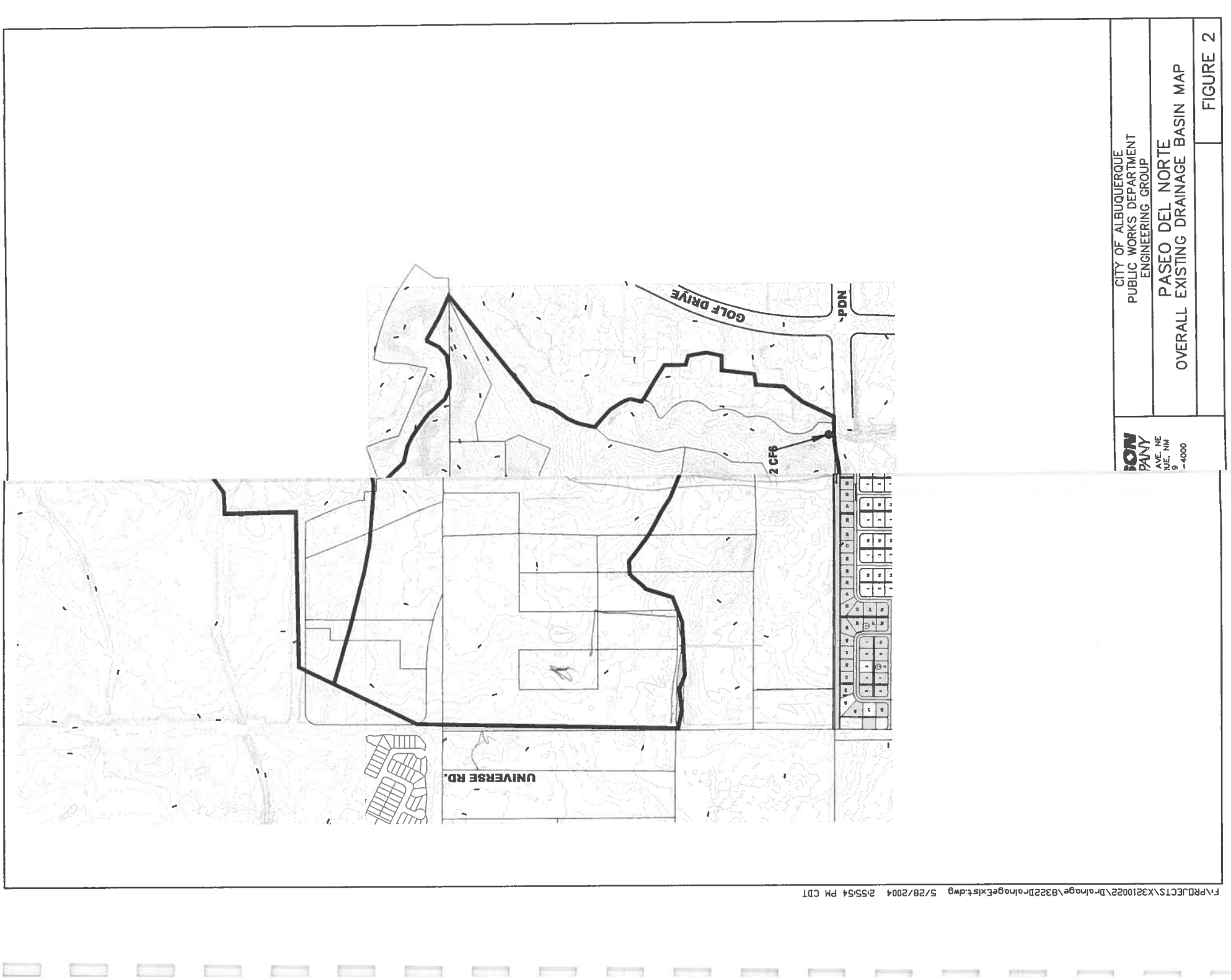
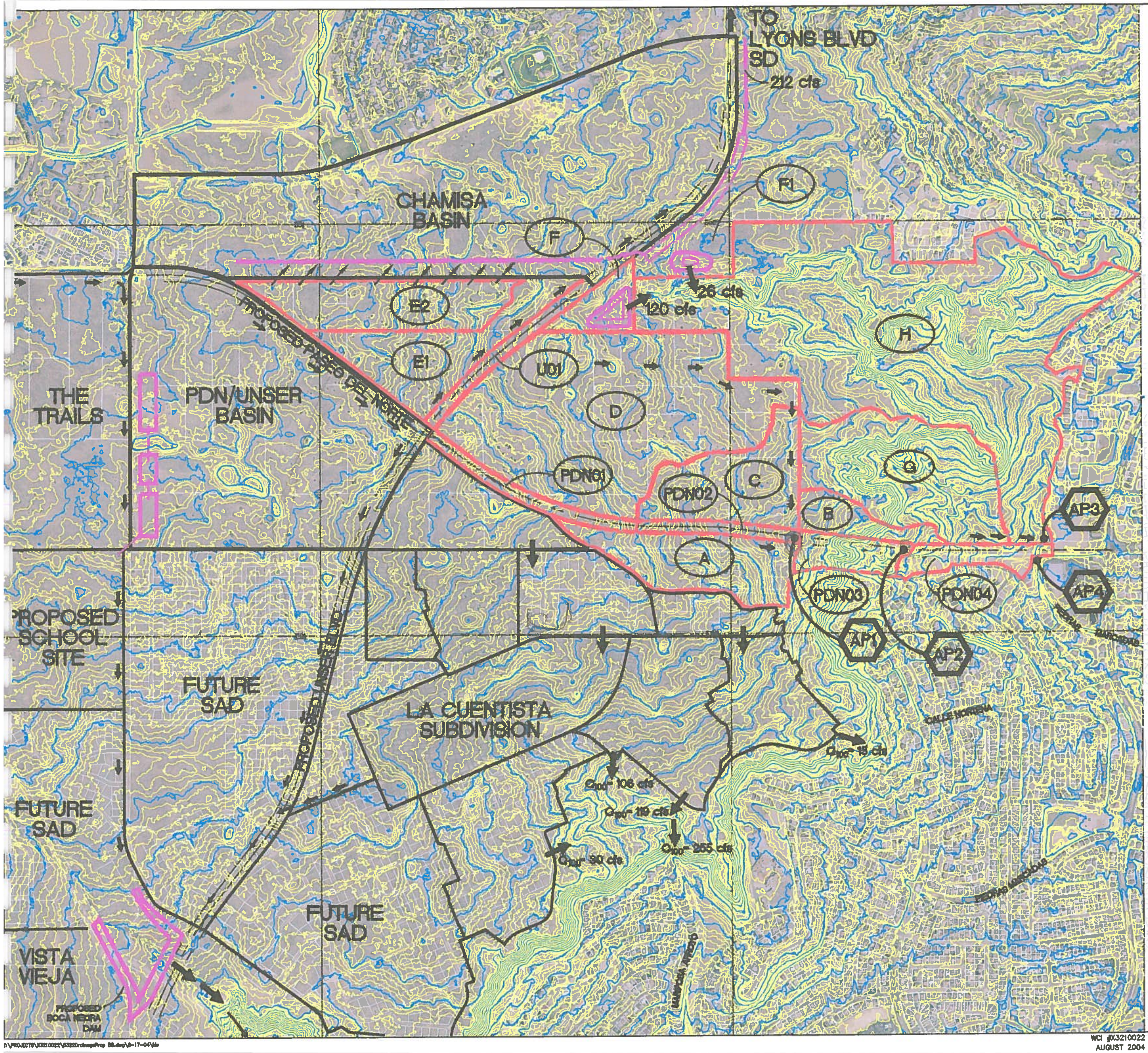

GOLF DRIVE
PDN
2 CFS
UNIVERSE RD.
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP
PASEO DEL NORTE
OVERALL EXISTING DRAINAGE BASIN MAP
FIGURE 2
F:\PROJECTS\X32100022\Dralnage\8322Dralnage Xlst.dwg 5/28/2004 2:55:54 PM CDT

FIGURE 3

OVERALL DEVELOPED DRAINAGE BASIN MAP



GRAPHIC SCALE

1200 0 600 1200 2400

(IN FEET)
1 inch = 1200 ft.

LEGEND

- G — BASIN DESIGNATION
- AP2 — ANALYSIS POINT DESIGNATION
- SURROUNDING AREA BASIN BOUNDARY
- PASEO DEL NORTE BASIN BOUNDARY
- FUTURE STORM DRAIN
- FLOW DIRECTION

TABLE A

BASIN SUMMARY

BASIN	AREA (sq mi)	AREA (ac)	%A	%B	%C	%D	Q100 (cfs)	VOL100 (ac-ft)
A	0.060	37.63	0	15	35	50	99.7	4.168
B	0.022	13.53	100	0	0	0	14.8	0.419
C	0.064	40.14	0	10	10	80	139.5	5.550
D	0.235	146.62	0	10	10	80	383.6	20.378
E1	0.068	42.38	0	15	35	50	101.5	4.724
E2	0.064	39.78	0	15	35	50	103.1	4.446
F	0.019	12.18	0	10	40	50	37.3	1.336
F1	0.020	12.50	0	60	40	0	26.0	
G	0.106	66.08	100	0	0	0	72.7	2.019
H	0.391	244.67	100	0	0	0	255.4	7.446
U01	0.015	9.27	0	10	0	90	34.3	1.385
PDN01	0.016	10.08	0	10	0	90	36.6	1.477
PDN02	0.011	7.00	0	10	0	90	25.2	1.015
PDN03	0.020	12.66	0	10	0	90	45.7	1.846
PDN04	0.019	11.82	0	10	0	90	43.4	1.754
TOTAL	1.130	706.34						

TABLE B

ANALYSIS POINT SUMMARY

AP#	Q100 (cfs)
AP1	625.7
AP2	666.3
AP3	326.0
AP4	965.3

WILSON & COMPANY
2600 THE AMERICAN ROAD S.E.
SUITE 100
RIO RANCHO, NEW MEXICO
87124
(505) 898-8021

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

PASEO DEL NORTE
DEVELOPED OVERALL DRAINAGE BASIN MAP

FIGURE 3

APPENDICES

APPENDIX A - EXISTING HYDROLOGICAL ANALYSIS

APPENDIX B - DEVELOPED HYDROLOGICAL ANALYSIS

APPENDIX C - WALMART PIEDRAS MARCADAS ARROYO CROSSING OF PDN

APPENDIX A

EXISTING AHYMO ANALYSIS

```
*S            THE PASEO del NORTE SUBDIVISION DRAINAGE BASIN (EXISTING)
*S            Wilson & Company PROJECT #X3210022

START               TIME=0.0 PUNCH CODE=0  PRINT LINE=-6
LOCATION            BERNALILLO COUNTY
*S100YR RAINFALL
RAINFALL            TYPE=1  RAIN QUARTER=0   RAIN ONE=1.64
                    RAIN SIX=2.11  RAIN DAY=0  DT=0.05

*S COMPUTE BASIN "A"  - BASIN (North of Paradise Blvd) **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=200 FT   SLOPE=0.0020  K=0.7
                    LENGTH=100 FT   SLOPE=0.0020  K=2.0
                    LENGTH=1400 FT  SLOPE=0.0050  K=3.0

COMPUTE NM HYD      ID=1  HYD NO=100  DA=0.08 SQ MI
                    A=0  B=32  C=28  D=40
                    TP=0.0 MASSRAIN=-1

PRINT HYD           ID=1 CODE=1


*S ROUTE "A" THRU "B" in Channel NO.2 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

COMPUTE RATING CURVE    CID=1  VS NO=1   NO SEGS=1
                        MIN ELEV=0       MAX ELEV=4.50
                        CH SLOPE=0.025   FP SLOPE=0.025
                        N=0.038          DIST=42.0
                        DIST ELEV    DIST  ELEV
                         0.0 5.0      6.0  0.0
                        36.0 0.0     42.0  5.0
ROUTE MCUNGE        ID=11    HYD NO=100.1  INFLOW ID=1
                    DT=0.0     L=3500 FT    NS=0   SLOPE=0.025
                    MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

PRINT HYD           ID=11   CODE=1


*S COMPUTE BASIN "B"  - BASIN ************************************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.0200  K=0.7
                    LENGTH=600 FT    SLOPE=0.0200  K=2.0
                    LENGTH=4000 FT   SLOPE=0.0200  K=3.0
                    KN=0.033  CENTROID RATIO=0.0

COMPUTE NM HYD      ID=2   HYD NO=101  DA=0.19 SQ MI
                    A=90  B=2.5  C=2.5  D=5
                    TP=0.0 MASSRAIN=-1

PRINT HYD           ID=2 CODE=1


*S ADD SUB-BASINS (A, & B) +++++++++++++++++++++++++++++++++

ADD HYD     ID=3  HYD NO=200 ID I=11 ID II=2

PRINT HYD           ID=3  CODE=1


*S COMPUTE BASIN "D"  - BASIN ************************************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.0200  K=0.7
                    LENGTH=1600 FT   SLOPE=0.0200  K=2.0
                    LENGTH=4000 FT   SLOPE=0.0200  K=3.0
                    KN=0.033  CENTROID RATIO=0.0

COMPUTE NM HYD      ID=4   HYD NO=300  DA=0.55 SQ MI
                    A=100  B=0  C=0  D=0
                    TP=0.0 MASSRAIN=-1

PRINT HYD           ID=4 CODE=1


*S ADD SUB-BASINS (A, B & D) +++++++++++++++++++++++++++++++++
ADD HYD     ID=44  HYD NO=400 ID I=3 ID II=4

PRINT HYD           ID=44  CODE=1


*S ROUTE THRU "C" in Channel NO.2 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

COMPUTE RATING CURVE    CID=1  VS NO=1   NO SEGS=1
                        MIN ELEV=0       MAX ELEV=4.50
                        CH SLOPE=0.020   FP SLOPE=0.020
                        N=0.038          DIST=52.0
```

```
                        DIST ELEV    DIST  ELEV
                         0.0 5.0      6.0  0.0
                        46.0 0.0     52.0  5.0
ROUTE MCUNGE          ID=5    HYD NO=400.1  INFLOW ID=44
                      DT=0.0     L=4900 FT    NS=0   SLOPE=0.020
                      MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

PRINT HYD             ID=5   CODE=1


*S COMPUTE BASIN "C"  - BASIN ***************************************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.0200  K=0.7
                      LENGTH=3600 FT   SLOPE=0.0200  K=2.0
                      LENGTH=4000 FT   SLOPE=0.0200  K=3.0
                      KN=0.033  CENTROID RATIO=0.0

COMPUTE NM HYD        ID=6   HYD NO=500  DA=0.82 SQ MI
                      A=100  B=0  C=0  D=0
                      TP=0.0 MASSRAIN=-1

PRINT HYD             ID=6 CODE=1


*S ADD ALL SUB-BASINS (AP-1) ++++++++++++++++++++++++++++++++++

ADD HYD      ID=55  HYD NO=600 ID I=5 ID II=6

PRINT HYD             ID=55  CODE=1


FINISH
```

▯(s16.67h8.5v0T▯&l8D

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AHYMO-C-9803c01UNMLIB-AH

COMMAND NOTATION	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
*S	THE PASEO del NORTE SUBDIVISION DRAINAGE BASIN (EXISTING)								
*S	Wilson & Company PROJECT #X3210022								
START									
TIME= .00									
LOCATION	BERNALILLO COUNTY								
*S100YR RAINFALL									
RAINFALL TYPE= 1									
RAIN6= 2.110									
*S COMPUTE BASIN "A"	- BASIN (North of Paradise Blvd) **********								
COMPUTE NM HYD	100.00	-	1	.08000	94.34	4.903	1.14914	1.650	1.843
PER IMP= 40.00									
*S ROUTE "A" THRU "B"	in Channel NO.2 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>								
ROUTE MCUNGE	100.10	1	11	.08000	92.50	4.874	1.14225	2.000	1.807
CCODE = .1									
*S COMPUTE BASIN "B"	- BASIN **********								
COMPUTE NM HYD	101.00	-	2	.19000	87.82	4.499	.44394	1.650	.722
PER IMP= 5.00									
*S ADD SUB-BASINS (A, & B)	++++++++++								
ADD HYD	200.00	11& 2	3	.27000	128.95	9.372	.65084	1.950	.746
*S COMPUTE BASIN "D"	- BASIN **********								
COMPUTE NM HYD	300.00	-	4	.55000	197.62	10.474	.35708	1.650	.561
PER IMP= .00									
*S ADD SUB-BASINS (A, B & D)	++++++++++								
ADD HYD	400.00	3& 4	44	.82000	289.11	19.846	.45380	1.650	.551
*S ROUTE THRU "C"	in Channel NO.2 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>								
ROUTE MCUNGE	400.10	44	5	.82000	285.35	19.760	.45183	2.000	.544
CCODE = .1									
*S COMPUTE BASIN "C"	- BASIN **********								
COMPUTE NM HYD	500.00	-	6	.82000	250.44	15.616	.35708	1.750	.477
PER IMP= .00									
*S ADD ALL SUB-BASINS (AP-1)	++++++++++								
ADD HYD	600.00	5& 6	55	1.64000	461.32	35.376	.40445	1.950	.440
FINISH									

▯(sOp10h4099T▯&l6D

```
▯(s16.67h8.5v0T▯&l8D

        AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02c
             RUN DATE (MON/DAY/YR) = 08/16/2004
             START TIME (HR:MIN:SEC) = 14:58:26     USER NO.= AHYMO-C-9803c01UNMLIB-AH
             INPUT FILE = c:\AHYMO_97\PdNinE1.txt

    *S            THE PASEO del NORTE SUBDIVISION DRAINAGE BASIN (EXISTING)
    *S            Wilson & Company PROJECT #X3210022

    START               TIME=0.0 PUNCH CODE=0  PRINT LINE=-6
    LOCATION            BERNALILLO COUNTY
         Bernalillo County soil infiltration values (LAND FACTORS) used for computations.
         Land Treatment     Initial Abstr.(in)    Unif. Infilt.(in/hour)
               A            0.65                  1.67
               B            0.50                  1.25
               C            0.35                  0.83
               D            0.10                  0.04

    *S100YR RAINFALL
    RAINFALL            TYPE=1  RAIN QUARTER=0   RAIN ONE=1.64
                        RAIN SIX=2.11  RAIN DAY=0  DT=0.05


                    COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                    DT =    .050000 HOURS       END TIME =     6.000000 HOURS
                       .0000   .0055   .0112   .0171   .0231   .0294   .0359
                       .0426   .0496   .0568   .0644   .0723   .0805   .0892
                       .0983   .1079   .1180   .1289   .1404   .1528   .1663
                       .1732   .1808   .2030   .2553   .3452   .4843   .6846
                       .9584  1.1744  1.2720  1.3535  1.4248  1.4886  1.5464
                     1.5992  1.6475  1.6921  1.7332  1.7711  1.8063  1.8151
                     1.8234  1.8312  1.8386  1.8457  1.8525  1.8590  1.8652
                     1.8712  1.8771  1.8827  1.8882  1.8935  1.8986  1.9037
                     1.9086  1.9134  1.9181  1.9226  1.9271  1.9315  1.9358
                     1.9400  1.9442  1.9483  1.9523  1.9562  1.9601  1.9639
                     1.9676  1.9713  1.9749  1.9785  1.9821  1.9855  1.9890
                     1.9924  1.9957  1.9990  2.0023  2.0055  2.0087  2.0119
                     2.0150  2.0181  2.0211  2.0241  2.0271  2.0301  2.0330
                     2.0359  2.0388  2.0416  2.0444  2.0472  2.0500  2.0527
                     2.0554  2.0581  2.0608  2.0635  2.0661  2.0687  2.0713
                     2.0738  2.0764  2.0789  2.0814  2.0839  2.0863  2.0888
                     2.0912  2.0936  2.0960  2.0984  2.1007  2.1031  2.1054
                     2.1077  2.1100

    *S COMPUTE BASIN "A"  - BASIN (North of Paradise Blvd) ***********************

    COMPUTE LT TP           LCODE=1  NK=3  ISLOPE=-1
                                LENGTH=200 FT   SLOPE=0.0020  K=0.7
                            LENGTH=100 FT   SLOPE=0.0020  K=2.0
                                LENGTH=1400 FT  SLOPE=0.0050  K=3.0


         Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

         SCS UPLAND METHOD FACTORS
                                    LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
         SHEET FLOW PORTION           200.0            .002000             .7000
         SHALLOW FLOW PORTION         100.0            .002000            2.0000
         CHANNEL FLOW PORTION        1400.0            .005000            3.0000
         TOTAL BASIN                 1700.0            .004471            1.8024


         TIME OF CONCENTRATION (HRS)=   .3918     TIME TO PEAK (HRS)=   .2612     LAG TIME (HRS)=   .2939

    COMPUTE NM HYD      ID=1  HYD NO=100  DA=0.08 SQ MI
                        A=0  B=32  C=28  D=40
                                TP=0.0 MASSRAIN=-1

         TIME TO PEAK (hrs)=   .2612

         K =   .143338HR    TP =   .261231HR    K/TP RATIO =   .548702     SHAPE CONSTANT, N =  7.045113
         UNIT PEAK =   64.113    CFS   UNIT VOLUME =    .9997       B =   523.39      P60 = 1.6400
         AREA =      .032000 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


         K =   .236101HR    TP =   .261231HR    K/TP RATIO =   .903801     SHAPE CONSTANT, N =  3.920258
         UNIT PEAK =   64.278    CFS   UNIT VOLUME =    1.000       B =   349.82      P60 = 1.6400
         AREA =      .048000 SQ MI    IA =    .43000 INCHES    INF =   1.05400 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    PRINT HYD           ID=1 CODE=1

                                    PARTIAL HYDROGRAPH   100.00


        RUNOFF VOLUME =     1.14914 INCHES     =       4.9030 ACRE-FEET
```

PEAK DISCHARGE RATE = 94.34 CFS AT 1.650 HOURS BASIN AREA = .0800 SQ. MI.

*S ROUTE "A" THRU "B" in Channel NO.2 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=4.50
CH SLOPE=0.025 FP SLOPE=0.025
N=0.038 DIST=42.0
DIST ELEV DIST ELEV
0.0 5.0 6.0 0.0
36.0 0.0 42.0 5.0

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	30.00
.24	7.17	16.81	30.57
.47	14.48	53.35	31.14
.71	21.92	104.85	31.71
.95	29.50	169.38	32.27
1.18	37.21	245.78	32.84
1.42	45.05	333.22	33.41
1.66	53.04	431.14	33.98
1.89	61.15	539.08	34.55
2.13	69.40	656.67	35.12
2.37	77.78	783.64	35.68
2.61	86.30	919.75	36.25
2.84	94.96	1064.80	36.82
3.08	103.74	1218.65	37.39
3.32	112.67	1381.15	37.96
3.55	121.72	1552.21	38.53
3.79	130.92	1731.72	39.09
4.03	140.24	1919.62	39.66
4.26	149.70	2115.83	40.23
4.50	159.30	2320.32	40.80

ROUTE MCUNGE ID=11 HYD NO=100.1 INFLOW ID=1
DT=0.0 L=3500 FT NS=0 SLOPE=0.025
MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

INFLOW END= 172 TABLE PTS= 20
DT= .050000 QMED= 47.17 CKMED= 5.0005
WIDTH MED= 31.04 NREACH= 8 DX= 437.50

C1-M	DEPTH C2-M	AREA C3-M	Q	TRAVEL	WIDTH	ck	VEL	C	D	C1	C2	C3	Q-M
	(FT)	(SQ FT)	(CFS)	TIME(HR)	(FT)	(FPS)	(FPS)						(CFS)
	.00	.0	.0	.566	30.0	2.43	1.09	1.000	.000	1.000	.000	.000	.0
1.000	.000	.000											
	.24	7.2	16.8	.415	30.6	3.87	2.34	1.592	.013	.990	.232	-.222	5.3
.994	.009	-.003											
	.47	14.5	53.3	.264	31.1	6.03	3.68	2.483	.026	.985	.430	-.415	33.0
.987	.352	-.339											
	.71	21.9	104.9	.203	31.7	7.77	4.78	3.195	.039	.982	.528	-.509	77.4
.983	.485	-.468											
	.95	29.5	169.4	.169	32.3	9.25	5.74	3.804	.052	.979	.588	-.567	135.6
.980	.561	-.541											
	1.18	37.2	245.8	.147	32.8	10.55	6.61	4.342	.065	.976	.630	-.606	206.2
.977	.611	-.588											
	1.42	45.1	333.2	.131	33.4	11.73	7.40	4.826	.078	.974	.661	-.635	288.2
.975	.647	-.621											
	1.66	53.0	431.1	.120	34.0	12.80	8.13	5.268	.091	.972	.685	-.657	381.0
.973	.674	-.646											
	1.89	61.2	539.1	.110	34.5	13.79	8.82	5.675	.103	.969	.705	-.674	484.0
.970	.696	-.666											
	2.13	69.4	656.7	.103	35.1	14.71	9.46	6.054	.116	.968	.721	-.689	596.8
.968	.713	-.682											
	2.37	77.8	783.6	.097	35.7	15.57	10.07	6.407	.129	.966	.735	-.700	719.1
.967	.728	-.695											
	2.61	86.3	919.7	.091	36.3	16.38	10.66	6.740	.142	.964	.746	-.710	850.7
.965	.741	-.705											
	2.84	95.0	1064.8	.087	36.8	17.15	11.21	7.054	.154	.962	.756	-.719	991.3
.963	.751	-.715											
	3.08	103.7	1218.6	.083	37.4	17.87	11.75	7.352	.167	.961	.765	-.726	1140.8
.962	.761	-.722											
	3.32	112.7	1381.2	.079	38.0	18.56	12.26	7.636	.179	.959	.773	-.732	1299.0
.960	.769	-.729											
	3.55	121.7	1552.2	.076	38.5	19.22	12.75	7.906	.192	.958	.780	-.738	1465.8
.959	.777	-.735											
	3.79	130.9	1731.7	.073	39.1	19.85	13.23	8.165	.204	.956	.787	-.743	1641.1
.957	.783	-.740											
	4.03	140.2	1919.6	.071	39.7	20.45	13.69	8.414	.216	.955	.792	-.747	1824.8
.956	.789	-.745											
	4.26	149.7	2115.8	.069	40.2	21.03	14.13	8.653	.229	.954	.798	-.751	2016.9

```
.954   .795  -.749
         4.50  159.3   2320.3    .067   40.8    21.49  14.57    8.843   .242   .952   .802  -.754   2217.3
.953   .800  -.753
    MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) =    6 OCCURRED        1 TIMES.  AVERAGE NUMBER ITERATIONS =
1.1049
        DEPTH    AREA      Q     TRAVEL  WIDTH     ck       VEL       C        D       C1      C2      C3      Q-M
C1-M    C2-M    C3-M
         (FT)   (SQ FT)  (CFS)  TIME(HR) (FT)     (FPS)    (FPS)                                             (CFS)
          .00      .0       .0      .566   30.0     2.43    1.09     1.000    .000  1.000    .000    .000       .0
1.000    .000    .000
          .24     7.2      16.8     .415   30.6     2.48    2.34     1.020    .020   .980    .020    .000      5.3
.994     .006    .000
          .47    14.5      53.3     .264   31.1     2.58    3.68     1.061    .061   .943    .057    .000     33.0
.963     .037    .000
          .71    21.9     104.9     .203   31.7     2.70    4.78     1.112    .112   .899    .101    .000     77.4
.921     .079    .000
          .95    29.5     169.4     .169   32.3     2.84    5.74     1.169    .169   .856    .144    .000    135.6
.877     .123    .000
         1.18    37.2     245.8     .147   32.8     2.99    6.61     1.229    .229   .814    .186    .000    206.2
.834     .166    .000
         1.42    45.1     333.2     .131   33.4     3.14    7.40     1.291    .291   .775    .225    .000    288.2
.794     .206    .000
         1.66    53.0     431.1     .120   34.0     3.29    8.13     1.353    .353   .739    .261    .000    381.0
.757     .243    .000
         1.89    61.2     539.1     .110   34.5     3.44    8.82     1.415    .415   .707    .293    .000    484.0
.723     .277    .000
         2.13    69.4     656.7     .103   35.1     3.59    9.46     1.476    .476   .677    .323    .000    596.8
.692     .308    .000
         2.37    77.8     783.6     .097   35.7     3.74   10.07     1.537    .537   .650    .350    .000    719.1
.664     .336    .000
         2.61    86.3     919.7     .091   36.3     3.88   10.66     1.597    .597   .626    .374    .000    850.7
.638     .362    .000
         2.84    95.0    1064.8     .087   36.8     4.03   11.21     1.657    .657   .604    .396    .000    991.3
.615     .385    .000
         3.08   103.7    1218.6     .083   37.4     4.17   11.75     1.715    .715   .583    .417    .000   1140.8
.593     .407    .000
         3.32   112.7    1381.2     .079   38.0     4.31   12.26     1.772    .772   .564    .436    .000   1299.0
.573     .427    .000
         3.55   121.7    1552.2     .076   38.5     4.44   12.75     1.829    .829   .547    .453    .000   1465.8
.555     .445    .000
         3.79   130.9    1731.7     .073   39.1     4.58   13.23     1.884    .884   .531    .469    .000   1641.1
.539     .461    .000
         4.03   140.2    1919.6     .071   39.7     4.71   13.69     1.939    .939   .516    .484    .000   1824.8
.523     .477    .000
         4.26   149.7    2115.8     .069   40.2     4.84   14.13     1.993    .993   .502    .498    .000   2016.9
.509     .491    .000
         4.50   159.3    2320.3     .067   40.8     4.97   14.57     2.046   1.046   .489    .511    .000   2217.3
.495     .505    .000
    MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) =    3 OCCURRED       10 TIMES.  AVERAGE NUMBER ITERATIONS =
1.0842
    Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction
to C1, C2 and C3

    PRINT HYD           ID=11   CODE=1

                                    PARTIAL HYDROGRAPH   100.10


        RUNOFF VOLUME =      1.14225 INCHES     =        4.8736 ACRE-FEET
        PEAK DISCHARGE RATE =       92.50 CFS  AT   2.000 HOURS   BASIN AREA =    .0800 SQ. MI.



    *S COMPUTE BASIN "B"  - BASIN ****************************************

    COMPUTE LT TP           LCODE=1  NK=3  ISLOPE=-1
                         LENGTH=400 FT    SLOPE=0.0200  K=0.7
                                  LENGTH=600 FT    SLOPE=0.0200  K=2.0
                                  LENGTH=4000 FT   SLOPE=0.0200  K=3.0
                                  KN=0.033  CENTROID RATIO=0.0


        BASIN LONGER THAN 4000.0 FT AND ALL BASIN LAG FACTORS NOT SPECIFIED
        USE Kn=   .0330 AND Lca/L=  .50000


        Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

        SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
        SHEET FLOW PORTION           400.0            .020000             .7000
        SHALLOW FLOW PORTION         600.0            .020000            2.0000
        CHANNEL FLOW PORTION        4000.0            .020000            3.0000
        TOTAL BASIN                 5000.0            .020000            2.2678
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      LAG EQUATION FACTORS:     Kn=   .0330     TOTAL BASIN LENGTH (FT)=      5000.0
      TOTAL BASIN SLOPE (FT/FT)=    .020000     CENTROUD LENGTH (FT)=         2500.0

      TIME OF CONCENTRATION (HRS)=   .3938     TIME TO PEAK (HRS)=   .2625     LAG TIME (HRS)=   .2953

COMPUTE NM HYD       ID=2   HYD NO=101  DA=0.19 SQ MI
                     A=90  B=2.5  C=2.5  D=5
                           TP=0.0 MASSRAIN=-1

      TIME TO PEAK (hrs)=   .2625

      K =   .150160HR    TP =   .262532HR    K/TP RATIO =   .571969     SHAPE CONSTANT, N =  6.682867
      UNIT PEAK =   18.311    CFS   UNIT VOLUME =    .9994      B =   506.03      P60 = 1.6400
      AREA =      .009500 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


      K =   .302747HR    TP =   .262532HR    K/TP RATIO =  1.153182     SHAPE CONSTANT, N =  3.072543
      UNIT PEAK =   197.79    CFS   UNIT VOLUME =    .9998      B =   287.68      P60 = 1.6400
      AREA =      .180500 SQ MI    IA =    .63816 INCHES    INF =   1.63684 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD            ID=2 CODE=1

                                 PARTIAL HYDROGRAPH   101.00

    RUNOFF VOLUME =      .44394 INCHES     =       4.4986 ACRE-FEET
    PEAK DISCHARGE RATE =      87.82 CFS  AT   1.650 HOURS   BASIN AREA =   .1900 SQ. MI.



*S ADD SUB-BASINS (A, & B) +++++++++++++++++++++++++++++++++

ADD HYD                 ID=3  HYD NO=200 ID I=11 ID II=2

PRINT HYD               ID=3  CODE=1

                                  PARTIAL HYDROGRAPH   200.00

    RUNOFF VOLUME =      .65084 INCHES     =       9.3721 ACRE-FEET
    PEAK DISCHARGE RATE =     128.95 CFS  AT   1.950 HOURS   BASIN AREA =   .2700 SQ. MI.



*S COMPUTE BASIN "D"  - BASIN ***************************************

COMPUTE LT TP           LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.0200  K=0.7
                                LENGTH=1600 FT   SLOPE=0.0200  K=2.0
                                LENGTH=4000 FT   SLOPE=0.0200  K=3.0
                                KN=0.033  CENTROID RATIO=0.0


      BASIN LONGER THAN 4000.0 FT AND ALL BASIN LAG FACTORS NOT SPECIFIED
      USE Kn=   .0330 AND Lca/L=  .50000


      Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

      SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
      SHEET FLOW PORTION           400.0           .020000             .7000
      SHALLOW FLOW PORTION        1600.0           .020000            2.0000
      CHANNEL FLOW PORTION        4000.0           .020000            3.0000
      TOTAL BASIN                 6000.0           .020000            2.2183


      LAG EQUATION FACTORS:     Kn=   .0330     TOTAL BASIN LENGTH (FT)=      6000.0
      TOTAL BASIN SLOPE (FT/FT)=    .020000     CENTROUD LENGTH (FT)=         3000.0


      TIME OF CONCENTRATION (HRS)=   .4469     TIME TO PEAK (HRS)=   .2980     LAG TIME (HRS)=   .3352

COMPUTE NM HYD       ID=4   HYD NO=300  DA=0.55 SQ MI
                     A=100  B=0  C=0  D=0
                           TP=0.0 MASSRAIN=-1

      TIME TO PEAK (hrs)=   .2980

      K =   .318247HR    TP =   .297966HR    K/TP RATIO =  1.068064     SHAPE CONSTANT, N =  3.306636
      UNIT PEAK =   564.71    CFS   UNIT VOLUME =    1.000      B =   305.94      P60 = 1.6400
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      AREA =      .550000 SQ MI    IA =     .65000 INCHES    INF =    1.67000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .050000

PRINT HYD              ID=4 CODE=1

                                    HYDROGRAPH FROM AREA    300.00


    RUNOFF VOLUME =       .35708 INCHES     =      10.4742 ACRE-FEET
    PEAK DISCHARGE RATE =     197.62 CFS  AT   1.650 HOURS    BASIN AREA =    .5500 SQ. MI.



*S ADD SUB-BASINS (A, B & D) ++++++++++++++++++++++++++++++++++
ADD HYD                ID=44  HYD NO=400 ID I=3 ID II=4

PRINT HYD              ID=44  CODE=1

                                    HYDROGRAPH FROM AREA    400.00


    RUNOFF VOLUME =       .45380 INCHES     =      19.8463 ACRE-FEET
    PEAK DISCHARGE RATE =     289.11 CFS  AT   1.650 HOURS    BASIN AREA =    .8200 SQ. MI.



*S ROUTE THRU "C" in Channel NO.2 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

COMPUTE RATING CURVE   CID=1  VS NO=1   NO SEGS=1
                       MIN ELEV=0       MAX ELEV=4.50
                     CH SLOPE=0.020   FP SLOPE=0.020
                     N=0.038          DIST=52.0
                     DIST ELEV    DIST  ELEV
                      0.0 5.0      6.0  0.0
                     46.0 0.0     52.0  5.0

                              RATING CURVE VALLEY SECTION  1.0
                                  WATER       FLOW        FLOW        TOP
                                 SURFACE      AREA        RATE        WIDTH
                                  ELEV        SQ FT       CFS         FT
                                    .00         .00          .00       40.00
                                    .24        9.54        20.05       40.57
                                    .47       19.22        63.63       41.14
                                    .71       29.03       125.05       41.71
                                    .95       38.97       201.97       42.27
                                   1.18       49.05       292.99       42.84
                                   1.42       59.27       397.11       43.41
                                   1.66       69.61       513.59       43.98
                                   1.89       80.10       641.88       44.55
                                   2.13       90.72       781.50       45.12
                                   2.37      101.47       932.08       45.68
                                   2.61      112.36      1093.31       46.25
                                   2.84      123.38      1264.92       46.82
                                   3.08      134.53      1446.68       47.39
                                   3.32      145.82      1638.40       47.96
                                   3.55      157.25      1839.92       48.53
                                   3.79      168.81      2051.09       49.09
                                   4.03      180.51      2271.78       49.66
                                   4.26      192.34      2501.88       50.23
                                   4.50      204.30      2741.30       50.80

      ROUTE MCUNGE         ID=5    HYD NO=400.1  INFLOW ID=44
                           DT=0.0     L=4900 FT    NS=0   SLOPE=0.020
                           MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

          INFLOW END= 216            TABLE PTS= 20
          DT=  .050000               QMED=      144.56  CKMED=      7.7352
          WIDTH MED=       41.85     NREACH=  7         DX=       700.00

       DEPTH   AREA      Q     TRAVEL  WIDTH     ck       VEL      C       D       C1      C2      C3     Q-M
C1-M   C2-M   C3-M
         (FT)  (SQ FT)  (CFS)  TIME(HR) (FT)     (FPS)    (FPS)                                          (CFS)
          .00     .0      .0     .884   40.0      3.89      .98    1.000   .000  1.000   .000    .000       .0
1.000   .000   .000
          .24    9.5     20.0     .648   40.6      3.85     2.10     .991   .009   .991   .000    .009      6.3
.997    .000   .003
          .47   19.2     63.6     .411   41.1      5.45     3.31    1.400   .020   .983   .174   -.157     39.4
.986    .082  -.068
          .71   29.0    125.0     .316   41.7      7.04     4.31    1.810   .030   .979   .296   -.274     92.3
.981    .242  -.222
          .95   39.0    202.0     .263   42.3      8.41     5.18    2.163   .041   .975   .376   -.350    161.7
.977    .339  -.316
         1.18   49.1    293.0     .228   42.8      9.63     5.97    2.477   .051   .971   .433   -.404    245.8
.973    .406  -.379
         1.42   59.3    397.1     .203   43.4     10.74     6.70    2.763   .061   .968   .477   -.445    343.5
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 .970   .456  -.426
          1.66   69.6    513.6    .184   44.0    11.76   7.38    3.025   .071   .965   .512  -.477    453.9
 .967   .495  -.462
          1.89   80.1    641.9    .170   44.5    12.71   8.01    3.267   .081   .963   .540  -.503    576.4
 .964   .526  -.490
          2.13   90.7    781.5    .158   45.1    13.59   8.61    3.494   .091   .960   .564  -.524    710.4
 .961   .552  -.514
          2.37  101.5    932.1    .148   45.7    14.42   9.19    3.707   .101   .958   .584  -.542    855.5
 .959   .574  -.533
          2.61  112.4   1093.3    .140   46.3    15.20   9.73    3.908   .111   .956   .602  -.557   1011.5
 .957   .593  -.550
          2.84  123.4   1264.9    .133   46.8    15.94  10.25    4.099   .121   .954   .617  -.570   1177.9
 .955   .609  -.564
          3.08  134.5   1446.7    .127   47.4    16.64  10.75    4.280   .131   .952   .630  -.582   1354.7
 .953   .624  -.576
          3.32  145.8   1638.4    .121   48.0    17.32  11.24    4.453   .141   .950   .642  -.592   1541.4
 .951   .637  -.587
          3.55  157.3   1839.9    .116   48.5    17.96  11.70    4.618   .151   .948   .653  -.601   1738.1
 .949   .648  -.597
          3.79  168.8   2051.1    .112   49.1    18.58  12.15    4.776   .161   .946   .663  -.609   1944.5
 .947   .658  -.605
          4.03  180.5   2271.8    .108   49.7    19.17  12.59    4.929   .170   .944   .672  -.616   2160.4
 .945   .668  -.613
          4.26  192.3   2501.9    .105   50.2    19.74  13.01    5.075   .180   .942   .680  -.623   2385.8
 .943   .676  -.619
          4.50  204.3   2741.3    .101   50.8    20.21  13.42    5.198   .191   .940   .687  -.627   2620.6
 .941   .684  -.626
     MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) =    6 OCCURRED       1 TIMES.  AVERAGE NUMBER ITERATIONS =
1.1370
       DEPTH    AREA      Q     TRAVEL  WIDTH     ck       VEL       C       D       C1      C2      C3      Q-M
C1-M   C2-M   C3-M
        (FT)  (SQ FT)  (CFS)  TIME(HR) (FT)     (FPS)    (FPS)                                                (CFS)
         .00      .0      .0     .884   40.0      3.89      .98    1.000   .000   1.000   .000    .000       .0
1.000   .000   .000
         .24     9.5     20.0     .648   40.6      3.85     2.10     .991   .009   .991   .000    .009       6.3
 .997   .000   .003
         .47    19.2     63.6     .411   41.1      4.00     3.31    1.028   .028   .973   .027    .000      39.4
 .983   .017   .000
         .71    29.0    125.0     .316   41.7      4.09     4.31    1.052   .052   .950   .050    .000      92.3
 .962   .038   .000
         .95    39.0    202.0     .263   42.3      4.20     5.18    1.081   .081   .925   .075    .000     161.7
 .938   .062   .000
        1.18    49.1    293.0     .228   42.8      4.33     5.97    1.113   .113   .899   .101    .000     245.8
 .912   .088   .000
        1.42    59.3    397.1     .203   43.4      4.46     6.70    1.147   .147   .872   .128    .000     343.5
 .885   .115   .000
        1.66    69.6    513.6     .184   44.0      4.59     7.38    1.182   .182   .846   .154    .000     453.9
 .859   .141   .000
        1.89    80.1    641.9     .170   44.5      4.73     8.01    1.217   .217   .821   .179    .000     576.4
 .834   .166   .000
        2.13    90.7    781.5     .158   45.1      4.88     8.61    1.254   .254   .798   .202    .000     710.4
 .809   .191   .000
        2.37   101.5    932.1     .148   45.7      5.02     9.19    1.290   .290   .775   .225    .000     855.5
 .786   .214   .000
        2.61   112.4   1093.3     .140   46.3      5.16     9.73    1.327   .327   .753   .247    .000    1011.5
 .764   .236   .000
        2.84   123.4   1264.9     .133   46.8      5.30    10.25    1.364   .364   .733   .267    .000    1177.9
 .743   .257   .000
        3.08   134.5   1446.7     .127   47.4      5.45    10.75    1.400   .400   .714   .286    .000    1354.7
 .724   .276   .000
        3.32   145.8   1638.4     .121   48.0      5.59    11.24    1.437   .437   .696   .304    .000    1541.4
 .705   .295   .000
        3.55   157.3   1839.9     .116   48.5      5.73    11.70    1.473   .473   .679   .321    .000    1738.1
 .687   .313   .000
        3.79   168.8   2051.1     .112   49.1      5.87    12.15    1.509   .509   .663   .337    .000    1944.5
 .671   .329   .000
        4.03   180.5   2271.8     .108   49.7      6.00    12.59    1.544   .544   .648   .352    .000    2160.4
 .655   .345   .000
        4.26   192.3   2501.9     .105   50.2      6.14    13.01    1.579   .579   .633   .367    .000    2385.8
 .640   .360   .000
        4.50   204.3   2741.3     .101   50.8      6.28    13.42    1.614   .614   .620   .380    .000    2620.6
 .626   .374   .000
     MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) =    3 OCCURRED      24 TIMES.  AVERAGE NUMBER ITERATIONS =
1.1067
     Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction
to C1, C2 and C3

     PRINT HYD            ID=5   CODE=1

                                        HYDROGRAPH FROM AREA   400.10


          RUNOFF VOLUME =       .45183 INCHES     =       19.7599 ACRE-FEET
          PEAK DISCHARGE RATE =     285.35 CFS  AT    2.000 HOURS   BASIN AREA =    .8200 SQ. MI.
```

```
 *S COMPUTE BASIN "C"  - BASIN ****************************************

 COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT     SLOPE=0.0200  K=0.7
                                 LENGTH=3600 FT    SLOPE=0.0200  K=2.0
                                 LENGTH=4000 FT    SLOPE=0.0200  K=3.0
                                 KN=0.033  CENTROID RATIO=0.0


      BASIN LONGER THAN 4000.0 FT AND ALL BASIN LAG FACTORS NOT SPECIFIED
      USE Kn=   .0330 AND Lca/L=  .50000


      Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

      SCS UPLAND METHOD FACTORS
           NOTE: Upland factor input values have been adjusted to meet Upland/Lag Time requirements.
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
      SHEET FLOW PORTION           400.0            .020000             .7000
      SHALLOW FLOW PORTION        1600.0            .020000            2.0000
      CHANNEL FLOW PORTION        6000.0            .020000            3.0000
      TOTAL BASIN                 8000.0            .020000            2.3729


      LAG EQUATION FACTORS:     Kn=   .0330     TOTAL BASIN LENGTH (FT)=      8000.0
      TOTAL BASIN SLOPE (FT/FT)=    .020000     CENTROUD LENGTH (FT)=         4000.0


      TIME OF CONCENTRATION (HRS)=   .5282     TIME TO PEAK (HRS)=   .3521     LAG TIME (HRS)=   .3961

 COMPUTE NM HYD       ID=6   HYD NO=500  DA=0.82 SQ MI
                      A=100  B=0  C=0  D=0
                             TP=0.0 MASSRAIN=-1

      TIME TO PEAK (hrs)=   .3521

      K =   .376091HR    TP =   .352124HR    K/TP RATIO =  1.068064     SHAPE CONSTANT, N =  3.306636
      UNIT PEAK =   712.44    CFS   UNIT VOLUME =    1.000      B =   305.94      P60 = 1.6400
      AREA =      .820000 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

 PRINT HYD            ID=6 CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   500.00

      RUNOFF VOLUME =      .35708 INCHES     =      15.6160 ACRE-FEET
      PEAK DISCHARGE RATE =     250.44 CFS  AT   1.750 HOURS   BASIN AREA =   .8200 SQ. MI.


 *S ADD ALL SUB-BASINS (AP-1) +++++++++++++++++++++++++++++++++

 ADD HYD              ID=55  HYD NO=600 ID I=5 ID II=6

 PRINT HYD            ID=55  CODE=1

                                     HYDROGRAPH FROM AREA   600.00

      RUNOFF VOLUME =      .40445 INCHES     =      35.3759 ACRE-FEET
      PEAK DISCHARGE RATE =     461.32 CFS  AT   1.950 HOURS   BASIN AREA =  1.6400 SQ. MI.


 FINISH

      NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 14:58:26
(sOp10h4099T&16D
```

APPENDIX B

DEVELOPED AHYMO ANALYSIS

```
*S            THE PASEO del NORTE SUBDIVISION DRAINAGE BASIN (PROPOSED)
*S            Wilson & Company PROJECT #X3210022

START              TIME=0.0 PUNCH CODE=0  PRINT LINE=-6
LOCATION           BERNALILLO COUNTY
*S100YR RAINFALL
RAINFALL           TYPE=1  RAIN QUARTER=0   RAIN ONE=1.64
                   RAIN SIX=2.11  RAIN DAY=0  DT=0.05



*S COMPUTE BASIN "E1"  - BASIN ****************************************

COMPUTE LT TP      LCODE=1  NK=3  ISLOPE=-1
                   LENGTH=400 FT   SLOPE=0.0300  K=0.7
                   LENGTH=1200 FT   SLOPE=0.0300  K=2.0
                   LENGTH=2400 FT   SLOPE=0.0300  K=3.0

COMPUTE NM HYD     ID=10   HYD NO=100  DA=0.068 SQ MI
                   A=0  B=15  C=35  D=50
                   TP=0.0 MASSRAIN=-1

PRINT HYD          ID=10 CODE=1


*S COMPUTE BASIN "E2"  - BASIN ****************************************

COMPUTE LT TP      LCODE=1  NK=3  ISLOPE=-1
                   LENGTH=400 FT   SLOPE=0.0300  K=0.7
                   LENGTH=600 FT   SLOPE=0.0300  K=2.0
                   LENGTH=2200 FT  SLOPE=0.0300  K=3.0

COMPUTE NM HYD     ID=11   HYD NO=100.1  DA=0.064 SQ MI
                   A=0  B=15  C=35  D=50
                   TP=0.0 MASSRAIN=-1

PRINT HYD          ID=11 CODE=1


*s  DIVIDE BASIN E2 TO ALLOW 5CFS PER LOT TO THE CHAMISA STORM DRAIN  ******

DIVIDE HYD         ID=11     Q=45  ID I=99    HYD=999
                                   ID II=2    HYD=100.2

PRINT HYD          ID=99   CODE=1
PRINT HYD          ID=2    CODE=1


*s ADD SUB-BASINS "E1" & "E2"    ****************************************

ADD HYD            ID=11  HYD NO=100.3   ID I=10   ID II=2

PRINT HYD          ID=11  CODE=1


*S COMPUTE BASIN "U01" (UNSER BOULEVARD)  - BASIN **************************

COMPUTE LT TP      LCODE=1  NK=3  ISLOPE=-1
                   LENGTH=50 FT    SLOPE=0.0200  K=0.7
                   LENGTH=350 FT    SLOPE=0.0200  K=2.0
                   LENGTH=2200 FT   SLOPE=0.0200  K=3.0

COMPUTE NM HYD     ID=12   HYD NO=101  DA=0.015 SQ MI
                   A=0  B=10  C=0  D=90
                   TP=0.0 MASSRAIN=-1

PRINT HYD          ID=12 CODE=1


*S COMPUTE BASIN "F"  - BASIN *****************************************

COMPUTE LT TP      LCODE=1  NK=1  ISLOPE=-1
                   LENGTH=400 FT   SLOPE=0.0200  K=0.7


COMPUTE NM HYD     ID=14   HYD NO=102  DA=0.019 SQ MI
                   A=0  B=10  C=40  D=50
                   TP=0.0 MASSRAIN=-1

PRINT HYD          ID=14 CODE=1
```

```
*S COMPUTE BASIN "F1"  - BASIN ********************************************

COMPUTE LT TP         LCODE=1  NK=1  ISLOPE=-1
                      LENGTH=400 FT   SLOPE=0.0200  K=0.7

COMPUTE NM HYD        ID=2   HYD NO=102  DA=0.02 SQ MI
                      A=0  B=60  C=40  D=0
                      TP=0.0 MASSRAIN=-1

PRINT HYD             ID=2 CODE=1


*s ADD SUB-BASINS "E" & "U01"    ++++++++++++++++++++++++++++++++++++++++

ADD HYD               ID=15  HYD NO=102.1    ID I=11  ID II=12

PRINT HYD             ID=15  CODE=1


*s ADD SUB-BASINS "E", "U01" & "F"   ++++++++++++++++++++++++++++++++++++

ADD HYD               ID=16  HYD NO=102.2    ID I=14  ID II=15

PRINT HYD             ID=16  CODE=1


*S ROUTE THRU POND-1      outlet pipe >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

ROUTE RESERVOIR      ID=9  HYD=500 INFLOW ID=16

                           OUTFLOW(CFS)  STORAGE (AC FT)
                                 0             0
                                40.0           2.0
                                60.0           4.0
                                80.0           6.0
                                100.0          8.0
                                120.0          10.00

PRINT HYD             ID=9  CODE=1


*s ADD SUB-BASINS "POND" & "F1"    ++++++++++++++++++++++++++++++++++++++++

ADD HYD               ID=10  HYD NO=102.1    ID I=9  ID II=2

PRINT HYD             ID=10  CODE=1


*S COMPUTE BASIN "H"  - BASIN ********************************************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT   SLOPE=0.0400  K=0.7
                      LENGTH=2100 FT   SLOPE=0.0600  K=2.0
                      LENGTH=4000 FT   SLOPE=0.0600  K=3.0

COMPUTE NM HYD        ID=18   HYD NO=103  DA=0.391 SQ MI
                      A=100  B=0  C=0  D=0
                      TP=0.0 MASSRAIN=-1

PRINT HYD             ID=18 CODE=1


*S ROUTE THRU "H" in Channel H TO AP-1  >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

COMPUTE RATING CURVE     CID=1  VS NO=1   NO SEGS=1
                         MIN ELEV=0       MAX ELEV=4.50
                         CH SLOPE=0.020   FP SLOPE=0.020
                         N=0.038          DIST=52.0
                         DIST ELEV    DIST  ELEV
                          0.0 5.0      6.0  0.0
                         46.0 0.0     52.0  5.0
ROUTE MCUNGE          ID=50    HYD NO=100.01  INFLOW ID=10
                      DT=0.0     L=6500 FT    NS=0   SLOPE=0.020
                      MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

PRINT HYD             ID=50   CODE=1


*s ADD SUB-BASINS "E", "UNSER-1", "F" & "H"  ++++++++++++++++++++++++++++
```

```
ADD HYD             ID=20  HYD NO=300 ID I=50  ID II=18

PRINT HYD           ID=20  CODE=1


*S COMPUTE BASIN "G"  - BASIN ****************************************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT   SLOPE=0.0600  K=0.7
                    LENGTH=350 FT   SLOPE=0.0600  K=2.0
                    LENGTH=1050 FT   SLOPE=0.0600  K=3.0

COMPUTE NM HYD      ID=22   HYD NO=400  DA=0.106 SQ MI
                    A=100  B=0  C=0  D=0
                    TP=0.0 MASSRAIN=-1

PRINT HYD           ID=22 CODE=1


*S ROUTE "G" in Channel to AP1 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

COMPUTE RATING CURVE    CID=1  VS NO=1   NO SEGS=1
                        MIN ELEV=0       MAX ELEV=3.80
                        CH SLOPE=0.038   FP SLOPE=0.038
                        N=0.038          DIST=32.0
                        DIST ELEV    DIST  ELEV
                         0.0 5.0      6.0  0.0
                        26.0 0.0     32.0  5.0
ROUTE MCUNGE        ID=40    HYD NO=400.01  INFLOW ID=22
                    DT=0.0     L=250 FT    NS=0   SLOPE=0.020
                    MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

PRINT HYD           ID=40   CODE=1


*s ADD SUB-BASINS "E", "UNSER-1", "F","H" & "G" (AP-1) ++++++++++++++++++++++++++++++++

ADD HYD             ID=42  HYD NO=600 ID I=20  ID II=40

PRINT HYD           ID=42  CODE=1


*S ROUTE AP-1 TO AP-4 in Channel PDN >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

COMPUTE RATING CURVE    CID=1  VS NO=1   NO SEGS=1
                        MIN ELEV=0       MAX ELEV=3.80
                        CH SLOPE=0.038   FP SLOPE=0.038
                        N=0.038          DIST=32.0
                        DIST ELEV    DIST  ELEV
                         0.0 5.0      6.0  0.0
                        26.0 0.0     32.0  5.0
ROUTE MCUNGE        ID=44    HYD NO=600.01  INFLOW ID=42
                    DT=0.0     L=200 FT    NS=0   SLOPE=0.020
                    MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

PRINT HYD           ID=44   CODE=1


*S COMPUTE BASIN "D"  - BASIN ****************************************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT   SLOPE=0.0200  K=0.7
                    LENGTH=400 FT   SLOPE=0.0200 K=2.0
                    LENGTH=3600 FT   SLOPE=0.0200  K=3.0

COMPUTE NM HYD      ID=50  HYD NO=700  DA=0.235 SQ MI
                    A=0  B=10  C=10  D=80
                    TP=0.0 MASSRAIN=-1

PRINT HYD           ID=50 CODE=1


*S ROUTE "D" THRU "C" THROUGH PIPE TO AP-2 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

COMPUTE RATING CURVE    CID=1   VS NO=1 CODE=-1 SLP=0.0100
                        DIA=7.0 FT      N=0.013

ROUTE MCUNGE        ID=51     HYD NO=700.1  INFLOW ID=50
                    DT=0.0     L=1200    NS=0   SLOPE=0.0100
                    MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

PRINT HYD           ID=51  CODE=1
```

```
*S COMPUTE BASIN "C"  - BASIN ******************************************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT   SLOPE=0.0200  K=0.7
                     LENGTH=400 FT   SLOPE=0.0200  K=2.0
                     LENGTH=820 FT   SLOPE=0.0200  K=3.0

COMPUTE NM HYD       ID=60  HYD NO=700.2  DA=0.064 SQ MI
                     A=0  B=10  C=10  D=80
                     TP=0.0 MASSRAIN=-1

PRINT HYD            ID=60 CODE=1


*s ADD SUB-BASIN "D", & "C"  ++++++++++++++++++++++++++++++++++

ADD HYD              ID=62  HYD NO=700.3 ID I=51  ID II=60

PRINT HYD            ID=62  CODE=1


*S COMPUTE BASIN "PDN01"  - BASIN *************************************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=50 FT     SLOPE=0.0200   K=0.7
                     LENGTH=250 FT    SLOPE=0.0200  K=2.0
                     LENGTH=2400 FT   SLOPE=0.0200  K=3.0

COMPUTE NM HYD       ID=70  HYD NO=700.4  DA=0.016 SQ MI
                     A=0  B=10  C=0  D=90
                     TP=0.0 MASSRAIN=-1

PRINT HYD            ID=70 CODE=1


*S ROUTE PDN-1 THRU PDN-2 in ROADWAY GUTTER NO.6 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

COMPUTE RATING CURVE     CID=1  VS NO=1   NO SEGS=1
                         MIN ELEV=0       MAX ELEV=3.80
                         CH SLOPE=0.038   FP SLOPE=0.038
                         N=0.038          DIST=32.0
                         DIST ELEV    DIST  ELEV
                          0.0 10.0      0.0  0.0
                         26.0 5.0     32.0  10.0
ROUTE MCUNGE         ID=71    HYD NO=700.5  INFLOW ID=70
                     DT=0.0     L=1620 FT    NS=0   SLOPE=0.038
                     MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

PRINT HYD            ID=71   CODE=1


*S COMPUTE BASIN "PDN02"  - BASIN *************************************

COMPUTE LT TP        LCODE=1  NK=1  ISLOPE=-1
                     LENGTH=50 FT     SLOPE=0.0200  K=0.7
                     LENGTH=250 FT    SLOPE=0.0200  K=2.0
                     LENGTH=1700 FT   SLOPE=0.0200  K=3.0

COMPUTE NM HYD       ID=80  HYD NO=700.6  DA=0.011 SQ MI
                     A=0  B=10  C=0  D=90
                     TP=0.0 MASSRAIN=-1

PRINT HYD            ID=80 CODE=1


*s ADD SUB-BASINs "PDN-1", & "PDN-2"  ++++++++++++++++++++++++++++++++++

ADD HYD              ID=82  HYD NO=700.61 ID I=71  ID II=80

PRINT HYD            ID=82  CODE=1


*s ADD SUB-BASINs "D","C", "PDN-1", & "PDN-2"  ++++++++++++++++++++++++++++++++++

ADD HYD              ID=91  HYD NO=700.73 ID I=62  ID II=82

PRINT HYD            ID=91  CODE=1
```

```
*S COMPUTE BASIN "A"  - BASIN ********************************************

COMPUTE LT TP        LCODE=1  NK=2  ISLOPE=-1
                     LENGTH=400 FT   SLOPE=0.0300  K=0.7
                     LENGTH=2500 FT   SLOPE=0.0300  K=2.0

COMPUTE NM HYD       ID=95  HYD NO=700.74  DA=0.06 SQ MI
                     A=0  B=15  C=35  D=50
                     TP=0.0 MASSRAIN=-1

PRINT HYD            ID=95 CODE=1


*s ADD SUB-BASINs "D","C", "PDN-1", "PDN-2" & "A" (AP-2) ++++++++++++++++++++++++++++++++

ADD HYD              ID=96  HYD NO=700.75 ID I=91  ID II=95

PRINT HYD            ID=96  CODE=1


*S ROUTE AP-2 THRU "PDN03" THROUGH PIPE TO AP-3 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

COMPUTE RATING CURVE    CID=1   VS NO=1 CODE=-1 SLP=0.0100
                        DIA=7.0 FT      N=0.013

ROUTE MCUNGE         ID=97     HYD NO=105  INFLOW ID=96
                     DT=0.0     L=1500    NS=0   SLOPE=0.0100
                     MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

PRINT HYD            ID=97  CODE=1


*S COMPUTE BASIN "PDN03"  - BASIN ********************************************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=50 FT     SLOPE=0.0200  K=0.7
                     LENGTH=250 FT    SLOPE=0.0200  K=2.0
                     LENGTH=900 FT    SLOPE=0.0200  K=3.0

COMPUTE NM HYD       ID=90  HYD NO=700.76  DA=0.02 SQ MI
                     A=0  B=10  C=0  D=90
                     TP=0.0 MASSRAIN=-1

PRINT HYD            ID=90 CODE=1


*s ADD SUB-BASINs "D","C", "PDN-1", "PDN-2", "A" & "PDN-3"  ++++++++++++++++++++++++++++++++

ADD HYD              ID=96  HYD NO=700.85 ID I=97  ID II=90

PRINT HYD            ID=96  CODE=1


*S COMPUTE BASIN "B"  - BASIN ********************************************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=200 FT   SLOPE=0.0300  K=0.7
                     LENGTH=200 FT   SLOPE=0.0200  K=2.0
                     LENGTH=1000 FT   SLOPE=0.0300  K=3.0

COMPUTE NM HYD       ID=98  HYD NO=700.90  DA=0.022 SQ MI
                     A=100  B=0  C=0  D=0
                     TP=0.0 MASSRAIN=-1

PRINT HYD            ID=98 CODE=1


*s ADD SUB-BASINs "D","C", "PDN-1", "PDN-2", "A","PDN-3"& "B" (AP-3) ++++++++++++++++++++++++++++++++

ADD HYD              ID=97  HYD NO=700.85 ID I=96  ID II=98

PRINT HYD            ID=97  CODE=1


*S ROUTE THRU PDN04 THROUGH PIPE TO AP-4 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

COMPUTE RATING CURVE    CID=1   VS NO=1 CODE=-1 SLP=0.0104
                        DIA=7.0 FT      N=0.013

ROUTE MCUNGE         ID=10     HYD NO=800  INFLOW ID=97
```

```
                    DT=0.0      L=1000     NS=0    SLOPE=0.0100
                    MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

PRINT HYD           ID=10  CODE=1


*S COMPUTE BASIN PDN04  - BASIN *******************************************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=50 FT      SLOPE=0.0200  K=0.7
                    LENGTH=250 FT     SLOPE=0.0200  K=2.0
                    LENGTH=1200 FT    SLOPE=0.0200  K=3.0

COMPUTE NM HYD      ID=20  HYD NO=800.2  DA=0.019 SQ MI
                    A=0  B=10  C=0  D=90
                    TP=0.0 MASSRAIN=-1

PRINT HYD           ID=20 CODE=1


*s ADD SUB-BASINs D C pdn-1, pdn-2, A & B( to AP-4) ++++++++++++++++++++++++++++++++

ADD HYD             ID=90  HYD NO=800.5 ID I=10  ID II=20

PRINT HYD           ID=90  CODE=1


*s ADD ALL SUB-BASINs (AP-4) ++++++++++++++++++++++++++++++++

ADD HYD             ID=97  HYD NO=900 ID I=44  ID II=90

PRINT HYD           ID=97  CODE=1


FINISH
```

```
 (s16.67h8.5v0T&l8D
  AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                       - VERSION:  1997.02c      RUN DATE
(MON/DAY/YR) =08/16/2004
  INPUT FILE = c:\AHYMO_97\PdNinP1.txt                                                      USER NO.=
AHYMO-C-9803c01UNMLIB-AH

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

    *S          THE PASEO del NORTE SUBDIVISION DRAINAGE BASIN (PROPOSED)
    *S          Wilson & Company PROJECT #X3210022
    START
 TIME=        .00
    LOCATION                          BERNALILLO COUNTY
    *S100YR RAINFALL
    RAINFALL  TYPE= 1
 RAIN6=     2.110
    *S COMPUTE BASIN "E1"  - BASIN *****************************************
    COMPUTE NM HYD        100.00   -    10        .06800      101.52        4.724      1.30258     1.600      2.333
 PER IMP=  50.00
    *S COMPUTE BASIN "E2"  - BASIN *****************************************
    COMPUTE NM HYD        100.10   -    11        .06400      108.10        4.446      1.30258     1.550      2.639
 PER IMP=  50.00
    *s  DIVIDE BASIN E2 TO ALLOW 5CFS PER LOT TO THE CHAMISA STORM DRAIN  ******
    DIVIDE HYD            999.00   11   99        .04793       45.00        3.329      1.30258     1.400      1.467
                          100.20  and    2        .01607       63.10        1.117      1.30258     1.550      6.134
    *s ADD SUB-BASINS "E1" & "E2"     *****************************************
    ADD HYD               100.30 10& 2  11        .08407      164.07        5.841      1.30258     1.550      3.049
    *S COMPUTE BASIN "U01" (UNSER BOULEVARD)  - BASIN **************************
    COMPUTE NM HYD        101.00   -    12        .01500       34.30        1.385      1.73082     1.500      3.573
 PER IMP=  90.00
    *S COMPUTE BASIN "F"   - BASIN ******************************************
    COMPUTE NM HYD        102.00   -    14        .01900       37.25        1.336      1.31879     1.500      3.063
 PER IMP=  50.00
    *S COMPUTE BASIN "F1"  - BASIN *****************************************
    COMPUTE NM HYD        102.00   -     2        .02000       25.94         .700       .65637     1.500      2.026
 PER IMP=    .00
    *s ADD SUB-BASINS "E" & "U01"     +++++++++++++++++++++++++++++++++++++++++
    ADD HYD               102.10 11&12  15        .09907      194.01        7.225      1.36741     1.550      3.060
    *s ADD SUB-BASINS "E", "U01" & "F"     ++++++++++++++++++++++++++++++++++++
    ADD HYD               102.20 14&15  16        .11807      226.89        8.562      1.35959     1.550      3.003
    *S ROUTE THRU POND-1      outlet pipe >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
    ROUTE RESERVOIR       500.00  16     9        .11807       63.42        8.562      1.35958     1.850       .839
    *s ADD SUB-BASINS "POND" & "F1"     +++++++++++++++++++++++++++++++++++++++
    ADD HYD               102.10  9& 2  10        .13807       70.30        9.262      1.25772     1.650       .796
    *S COMPUTE BASIN "H"   - BASIN *****************************************
    COMPUTE NM HYD        103.00   -    18        .39100      255.36        7.446       .35708     1.550      1.020
 PER IMP=    .00
    *S ROUTE THRU "H" in Channel H TO AP-1   >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
    ROUTE MCUNGE          100.01  10    50        .13807       69.92        9.227      1.25296     2.400       .791
 CCODE =        .1
    *s ADD SUB-BASINS "E", "UNSER-1", "F" & "H"   +++++++++++++++++++++++++++
    ADD HYD               300.00 50&18  20        .52907      255.36       16.673       .59088     1.550       .754
    *S COMPUTE BASIN "G"   - BASIN *****************************************
    COMPUTE NM HYD        400.00   -    22        .10600       72.65        2.019       .35708     1.500      1.071
 PER IMP=    .00
    *S ROUTE "G" in Channel to AP1 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
    ROUTE MCUNGE          400.01  22    40        .10600       71.24        2.021       .35752     1.500      1.050
 CCODE =        .2
    *s ADD SUB-BASINS "E", "UNSER-1", "F","H" & "G" (AP-1) +++++++++++++++++++++++++
    ADD HYD               600.00 20&40  42        .63507      325.95       18.694       .55193     1.550       .802
    *S ROUTE AP-1 TO AP-4 in Channel PDN >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
    ROUTE MCUNGE          600.01  42    44        .63507      325.95       18.694       .55193     1.550       .802
 CCODE =        .0
    *S COMPUTE BASIN "D"   - BASIN *****************************************
    COMPUTE NM HYD        700.00   -    50        .23500      383.58       20.378      1.62589     1.600      2.550
 PER IMP=  80.00
    *S ROUTE "D" THRU "C" THROUGH PIPE TO AP-2 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
    ROUTE MCUNGE          700.10  50    51        .23500      381.38       20.377      1.62581     1.600      2.536
 CCODE =        .2
    *S COMPUTE BASIN "C"   - BASIN *****************************************
    COMPUTE NM HYD        700.20   -    60        .06400      139.54        5.550      1.62589     1.500      3.407
 PER IMP=  80.00
    *s ADD SUB-BASIN "D", & "C"  ++++++++++++++++++++++++++++++++++++
    ADD HYD               700.30 51&60  62        .29900      478.67       25.927      1.62583     1.600      2.501
    *S COMPUTE BASIN "PDN01"  - BASIN ******************************************
    COMPUTE NM HYD        700.40   -    70        .01600       36.58        1.477      1.73082     1.500      3.573
 PER IMP=  90.00
    *S ROUTE PDN-1 THRU PDN-2 in ROADWAY GUTTER NO.6 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
    ROUTE MCUNGE          700.50  70    71        .01600       36.24        1.478      1.73155     1.550      3.539
 CCODE =        .2
    *S COMPUTE BASIN "PDN02"  - BASIN ******************************************
    COMPUTE NM HYD        700.60   -    80        .01100       25.15        1.015      1.73082     1.500      3.573
 PER IMP=  90.00
    *s ADD SUB-BASINs "PDN-1", & "PDN-2"  +++++++++++++++++++++++++++++++++++
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    ADD HYD              700.61 71&80  82      .02700      58.19      2.493     1.73122   1.550    3.368
    *S ADD SUB-BASINS "D","C", "PDN-1", & "PDN-2"  ++++++++++++++++++++++++++++++++++++
    ADD HYD              700.73 62&82  91      .32600     529.95     28.419     1.63456   1.600    2.540
    *S COMPUTE BASIN "A"  - BASIN ********************************************
    COMPUTE NM HYD       700.74   -    95      .06000      99.73      4.168     1.30258   1.550    2.597
PER IMP=  50.00
    *S ADD SUB-BASINS "D","C", "PDN-1", "PDN-2" & "A" (AP-1) +++++++++++++++++++++++
    ADD HYD              700.75 91&95  96      .38600     625.72     32.588     1.58295   1.550    2.533
    *S ROUTE AP-1 THRU "PDN03" THROUGH PIPE TO AP-2 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
    ROUTE MCUNGE         105.00  96    97      .38600     624.08     32.527     1.58000   1.600    2.526
CCODE =      .1
    *S COMPUTE BASIN "PDN03"  - BASIN *********************************************
    COMPUTE NM HYD       700.76   -    90      .02000      45.73      1.846     1.73082   1.500    3.572
PER IMP=  90.00
    *S ADD SUB-BASINS "D","C", "PDN-1", "PDN-2", "A" & "PDN-3"  +++++++++++++++++++
0
                                  FROM   TO                PEAK      RUNOFF               TIME TO   CFS
  PAGE =   2
                     HYDROGRAPH    ID    ID      AREA    DISCHARGE   VOLUME    RUNOFF      PEAK     PER
   COMMAND         IDENTIFICATION  NO.   NO.   (SQ MI)     (CFS)    (AC-FT)   (INCHES)   (HOURS)   ACRE
  NOTATION

    ADD HYD              700.85 97&90  96      .40600     654.94     34.373     1.58743   1.600    2.521
    *S COMPUTE BASIN "B"  - BASIN ********************************************
    COMPUTE NM HYD       700.90   -    98      .02200      14.78       .419      .35708   1.500    1.050
PER IMP=    .00
    *S ADD SUB-BASINS "D","C", "PDN-1", "PDN-2", "A","PDN-3"& "B" (AP-2) +++++++++++
    ADD HYD              700.85 96&98  97      .42800     666.27     34.792     1.52419   1.600    2.432
    *S ROUTE THRU PDN04 THROUGH PIPE TO AP-4 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
    ROUTE MCUNGE         800.00  97    10      .42800     657.34     34.776     1.52348   1.600    2.400
CCODE =      .2
    *S COMPUTE BASIN PDN04  - BASIN **********************************************
    COMPUTE NM HYD       800.20   -    20      .01900      43.44      1.754     1.73082   1.500    3.572
PER IMP=  90.00
    *S ADD SUB-BASINS D C pdn-1, pdn-2, A & B( to AP-4) +++++++++++++++++++++++++++++
    ADD HYD              800.50 10&20  90      .44700     686.66     36.530     1.53229   1.600    2.400
    *S ADD ALL SUB-BASINS (AP-4) ++++++++++++++++++++++++++++++++++
    ADD HYD              900.00 44&90  97     1.08207     965.27     55.224      .95691   1.600    1.394
    FINISH
0(s0p10h4099T0&l6D
```

▯(s16.67h8.5v0T▯&l8D

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      AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02c
            RUN DATE (MON/DAY/YR) = 08/16/2004
            START TIME (HR:MIN:SEC) = 16:36:03      USER NO.= AHYMO-C-9803c01UNMLIB-AH
            INPUT FILE = c:\AHYMO_97\PdNinP1.txt

   *S            THE PASEO del NORTE SUBDIVISION DRAINAGE BASIN (PROPOSED)
   *S            Wilson & Company PROJECT #X3210022

   START              TIME=0.0 PUNCH CODE=0  PRINT LINE=-6
   LOCATION           BERNALILLO COUNTY
        Bernalillo County soil infiltration values (LAND FACTORS) used for computations.
        Land Treatment     Initial Abstr.(in)    Unif. Infilt.(in/hour)
              A            0.65                  1.67
              B            0.50                  1.25
              C            0.35                  0.83
              D            0.10                  0.04

   *S100YR RAINFALL
   RAINFALL           TYPE=1  RAIN QUARTER=0   RAIN ONE=1.64
                      RAIN SIX=2.11  RAIN DAY=0  DT=0.05



                  COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                  DT =     .050000 HOURS       END TIME =     6.000000 HOURS
                     .0000   .0055   .0112   .0171   .0231   .0294   .0359
                     .0426   .0496   .0568   .0644   .0723   .0805   .0892
                     .0983   .1079   .1180   .1289   .1404   .1528   .1663
                     .1732   .1808   .2030   .2553   .3452   .4843   .6846
                     .9584  1.1744  1.2720  1.3535  1.4248  1.4886  1.5464
                   1.5992  1.6475  1.6921  1.7332  1.7711  1.8063  1.8151
                   1.8234  1.8312  1.8386  1.8457  1.8525  1.8590  1.8652
                   1.8712  1.8771  1.8827  1.8882  1.8935  1.8986  1.9037
                   1.9086  1.9134  1.9181  1.9226  1.9271  1.9315  1.9358
                   1.9400  1.9442  1.9483  1.9523  1.9562  1.9601  1.9639
                   1.9676  1.9713  1.9749  1.9785  1.9821  1.9855  1.9890
                   1.9924  1.9957  1.9990  2.0023  2.0055  2.0087  2.0119
                   2.0150  2.0181  2.0211  2.0241  2.0271  2.0301  2.0330
                   2.0359  2.0388  2.0416  2.0444  2.0472  2.0500  2.0527
                   2.0554  2.0581  2.0608  2.0635  2.0661  2.0687  2.0713
                   2.0738  2.0764  2.0789  2.0814  2.0839  2.0863  2.0888
                   2.0912  2.0936  2.0960  2.0984  2.1007  2.1031  2.1054
                   2.1077  2.1100

   *S COMPUTE BASIN "E1"  - BASIN ****************************************

   COMPUTE LT TP           LCODE=1  NK=3  ISLOPE=-1
                                 LENGTH=400 FT   SLOPE=0.0300  K=0.7
                                  LENGTH=1200 FT   SLOPE=0.0300  K=2.0
                                 LENGTH=2400 FT   SLOPE=0.0300  K=3.0


        Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

        SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
        SHEET FLOW PORTION           400.0            .030000             .7000
        SHALLOW FLOW PORTION        1200.0            .030000            2.0000
        CHANNEL FLOW PORTION        2400.0            .030000            3.0000
        TOTAL BASIN                 4000.0            .030000            2.0290


        TIME OF CONCENTRATION (HRS)=   .3162     TIME TO PEAK (HRS)=   .2108     LAG TIME (HRS)=   .2371

   COMPUTE NM HYD      ID=10   HYD NO=100  DA=0.068 SQ MI
                       A=0  B=15  C=35  D=50
                            TP=0.0 MASSRAIN=-1

        TIME TO PEAK (hrs)=   .2108

        K =   .115120HR    TP =   .210779HR    K/TP RATIO =   .546163     SHAPE CONSTANT, N =  7.087031
        UNIT PEAK =   84.745    CFS   UNIT VOLUME =    1.000       B =   525.36      P60 = 1.6400
        AREA =      .034000 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


        K =   .179361HR    TP =   .210779HR    K/TP RATIO =   .850946     SHAPE CONSTANT, N =  4.182737
        UNIT PEAK =   59.228    CFS   UNIT VOLUME =    1.000       B =   367.18      P60 = 1.6400
        AREA =      .034000 SQ MI    IA =    .39500 INCHES    INF =    .95600 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

   PRINT HYD          ID=10 CODE=1

                                   PARTIAL HYDROGRAPH   100.00
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```
      RUNOFF VOLUME =     1.30258 INCHES      =       4.7240 ACRE-FEET
      PEAK DISCHARGE RATE =    101.52 CFS  AT    1.600 HOURS   BASIN AREA =    .0680 SQ. MI.



 *S COMPUTE BASIN "E2"  - BASIN ***************************************

 COMPUTE LT TP           LCODE=1  NK=3  ISLOPE=-1
                              LENGTH=400 FT   SLOPE=0.0300  K=0.7
                               LENGTH=600 FT   SLOPE=0.0300  K=2.0
                         LENGTH=2200 FT  SLOPE=0.0300  K=3.0


      Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

      SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
      SHEET FLOW PORTION           400.0            .030000             .7000
      SHALLOW FLOW PORTION         600.0            .030000            2.0000
      CHANNEL FLOW PORTION        2200.0            .030000            3.0000
      TOTAL BASIN                 3200.0            .030000            1.9941


      TIME OF CONCENTRATION (HRS)=   .2574     TIME TO PEAK (HRS)=   .1716     LAG TIME (HRS)=   .1930

 COMPUTE NM HYD       ID=11   HYD NO=100.1  DA=0.064 SQ MI
                      A=0  B=15  C=35  D=50
                           TP=0.0 MASSRAIN=-1

      TIME TO PEAK (hrs)=   .1716

      K =   .093563HR    TP =   .171576HR    K/TP RATIO =   .545317     SHAPE CONSTANT, N =  7.101122
      UNIT PEAK =   98.107    CFS   UNIT VOLUME =    .9997       B =   526.03      P60 = 1.6400
      AREA =      .032000 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


      K =   .145971HR    TP =   .171576HR    K/TP RATIO =   .850764     SHAPE CONSTANT, N =  4.183712
      UNIT PEAK =   68.492    CFS   UNIT VOLUME =    1.000       B =   367.24      P60 = 1.6400
      AREA =      .032000 SQ MI    IA =    .39500 INCHES    INF =    .95600 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

 PRINT HYD            ID=11 CODE=1

                                   PARTIAL HYDROGRAPH   100.10

     RUNOFF VOLUME =     1.30258 INCHES      =       4.4461 ACRE-FEET
     PEAK DISCHARGE RATE =    108.10 CFS  AT    1.550 HOURS   BASIN AREA =    .0640 SQ. MI.



 *s  DIVIDE BASIN E2 TO ALLOW 5CFS PER LOT TO THE CHAMISA STORM DRAIN  ******

 DIVIDE HYD           ID=11     Q=45  ID I=99    HYD=999
                                      ID II=2    HYD=100.2

 PRINT HYD               ID=99   CODE=1

                                       HYDROGRAPH FROM AREA   999.00

     RUNOFF VOLUME =     1.30258 INCHES      =       3.3294 ACRE-FEET
     PEAK DISCHARGE RATE =     45.00 CFS  AT    1.400 HOURS   BASIN AREA =    .0479 SQ. MI.


 PRINT HYD               ID=2    CODE=1

                                   PARTIAL HYDROGRAPH   100.20

     RUNOFF VOLUME =     1.30258 INCHES      =       1.1167 ACRE-FEET
     PEAK DISCHARGE RATE =     63.10 CFS  AT    1.550 HOURS   BASIN AREA =    .0161 SQ. MI.
```

```
*s ADD SUB-BASINS "E1" & "E2"    ******************************************

ADD HYD                    ID=11  HYD NO=100.3   ID I=10   ID II=2
PRINT HYD                  ID=11  CODE=1

                                PARTIAL HYDROGRAPH   100.30

     RUNOFF VOLUME =      1.30258 INCHES      =        5.8407 ACRE-FEET
     PEAK DISCHARGE RATE =      164.07 CFS  AT    1.550 HOURS    BASIN AREA =    .0841 SQ. MI.




*S COMPUTE BASIN "U01" (UNSER BOULEVARD)  - BASIN ************************

COMPUTE LT TP              LCODE=1  NK=3  ISLOPE=-1
                                LENGTH=50 FT    SLOPE=0.0200  K=0.7
                           LENGTH=350 FT    SLOPE=0.0200  K=2.0
                                LENGTH=2200 FT   SLOPE=0.0200  K=3.0


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)       SLOPE (FT/FT)        COMPOSITE K
     SHEET FLOW PORTION            50.0             .020000              .7000
     SHALLOW FLOW PORTION         350.0             .020000             2.0000
     CHANNEL FLOW PORTION        2200.0             .020000             3.0000
     TOTAL BASIN                 2600.0             .020000             2.6537


     TIME OF CONCENTRATION (HRS)=    .1924     TIME TO PEAK (HRS)=    .1283     LAG TIME (HRS)=    .1443


     TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
     REVISED VALUES: TIME OF CONCENTRATION (HRS)=    .2000     TIME TO PEAK (HRS)=    .1333     LAG TIME
(HRS)=    .1500

COMPUTE NM HYD        ID=12   HYD NO=101  DA=0.015 SQ MI
                      A=0  B=10  C=0  D=90
                           TP=0.0 MASSRAIN=-1

     TIME TO PEAK (hrs)=    .1333

     K =    .072666HR    TP =    .133333HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =    53.286    CFS   UNIT VOLUME =     .9989       B =    526.28      P60 = 1.6400
     AREA =       .013500 SQ MI    IA =     .10000 INCHES    INF =     .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .050000


     K =    .135072HR    TP =    .133333HR    K/TP RATIO =  1.013045     SHAPE CONSTANT, N =  3.484507
     UNIT PEAK =    3.5910    CFS   UNIT VOLUME =     .9971       B =    319.20      P60 = 1.6400
     AREA =       .001500 SQ MI    IA =     .50000 INCHES    INF =    1.25000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .050000

PRINT HYD             ID=12 CODE=1

                                PARTIAL HYDROGRAPH   101.00

     RUNOFF VOLUME =      1.73082 INCHES      =        1.3846 ACRE-FEET
     PEAK DISCHARGE RATE =       34.30 CFS  AT    1.500 HOURS    BASIN AREA =    .0150 SQ. MI.




*S COMPUTE BASIN "F"  - BASIN ************************************************

COMPUTE LT TP              LCODE=1  NK=1  ISLOPE=-1
                                LENGTH=400 FT    SLOPE=0.0200  K=0.7


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)       SLOPE (FT/FT)        COMPOSITE K
     SHEET FLOW PORTION           400.0             .020000              .7000
     SHALLOW FLOW PORTION           .0              .000000              .0000
     CHANNEL FLOW PORTION           .0              .000000              .0000
     TOTAL BASIN                  400.0             .020000              .7000
```

TIME OF CONCENTRATION (HRS)= .1122 TIME TO PEAK (HRS)= .0748 LAG TIME (HRS)= .0842

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=14 HYD NO=102 DA=0.019 SQ MI
A=0 B=10 C=40 D=50
TP=0.0 MASSRAIN=-1

TIME TO PEAK (hrs)= .1333

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 37.497 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.6400
AREA = .009500 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .110333HR TP = .133333HR K/TP RATIO = .827502 SHAPE CONSTANT, N = 4.312851
UNIT PEAK = 26.756 CFS UNIT VOLUME = 1.001 B = 375.52 P60 = 1.6400
AREA = .009500 SQ MI IA = .38000 INCHES INF = .91400 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=14 CODE=1

PARTIAL HYDROGRAPH 102.00

RUNOFF VOLUME = 1.31879 INCHES = 1.3364 ACRE-FEET
PEAK DISCHARGE RATE = 37.25 CFS AT 1.500 HOURS BASIN AREA = .0190 SQ. MI.

*S COMPUTE BASIN "F1" - BASIN **********

COMPUTE LT TP LCODE=1 NK=1 ISLOPE=-1
LENGTH=400 FT SLOPE=0.0200 K=0.7

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.020000	.7000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	.0	.000000	.0000
TOTAL BASIN	400.0	.020000	.7000

TIME OF CONCENTRATION (HRS)= .1122 TIME TO PEAK (HRS)= .0748 LAG TIME (HRS)= .0842

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=2 HYD NO=102 DA=0.02 SQ MI
A=0 B=60 C=40 D=0
TP=0.0 MASSRAIN=-1

TIME TO PEAK (hrs)= .1333

K = .122703HR TP = .133333HR K/TP RATIO = .920274 SHAPE CONSTANT, N = 3.846169
UNIT PEAK = 51.717 CFS UNIT VOLUME = 1.001 B = 344.78 P60 = 1.6400
AREA = .020000 SQ MI IA = .44000 INCHES INF = 1.08200 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 102.00

RUNOFF VOLUME = .65637 INCHES = .7001 ACRE-FEET
PEAK DISCHARGE RATE = 25.94 CFS AT 1.500 HOURS BASIN AREA = .0200 SQ. MI.

```
*s ADD SUB-BASINS "E" & "U01"    ++++++++++++++++++++++++++++++++++++++++

ADD HYD                    ID=15  HYD NO=102.1    ID I=11  ID II=12

PRINT HYD                ID=15  CODE=1

                                PARTIAL HYDROGRAPH   102.10

    RUNOFF VOLUME =     1.36741 INCHES      =       7.2253 ACRE-FEET
    PEAK DISCHARGE RATE =     194.01 CFS  AT   1.550 HDURS    BASIN AREA =    .0991 SQ. MI.



*s ADD SUB-BASINS "E", "U01" & "F"   ++++++++++++++++++++++++++++++++++++++

ADD HYD                     ID=16  HYD NO=102.2    ID I=14  ID II=15

PRINT HYD                ID=16  CODE=1

                                PARTIAL HYDROGRAPH   102.20

    RUNOFF VOLUME =     1.35959 INCHES      =       8.5617 ACRE-FEET
    PEAK DISCHARGE RATE =     226.89 CFS  AT   1.550 HOURS    BASIN AREA =    .1181 SQ. MI.



*S ROUTE THRU POND-1      outlet pipe >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

ROUTE RESERVOIR          ID=9  HYD=500 INFLOW ID=16

                                OUTFLOW(CFS)  STORAGE (AC FT)
                                      0              0

                                     40.0            2.0
                                     60.0            4.0
                                     80.0            6.0
                                    100.0            8.0
                                    120.0            10.00



PRINT HYD                ID=9  CODE=1

                                OUTFLOW HYDROGRAPH RESERVOIR   500.00

    RUNOFF VOLUME =     1.35958 INCHES      =       8.5617 ACRE-FEET
    PEAK DISCHARGE RATE =      63.42 CFS  AT   1.850 HOURS    BASIN AREA =    .1181 SQ. MI.



*s ADD SUB-BASINS "POND" & "F1"    ++++++++++++++++++++++++++++++++++++++++

ADD HYD                     ID=10  HYD NO=102.1    ID I=9  ID II=2

PRINT HYD                ID=10  CODE=1

                                PARTIAL HYDROGRAPH   102.10

    RUNOFF VOLUME =     1.25772 INCHES      =       9.2617 ACRE-FEET
    PEAK DISCHARGE RATE =      70.30 CFS  AT   1.650 HOURS    BASIN AREA =    .1381 SQ. MI.



*S COMPUTE BASIN "H"  - BASIN ******************************************

COMPUTE LT TP            LCODE=1  NK=3  ISLOPE=-1
                               LENGTH=400 FT   SLOPE=0.0400  K=0.7
                                LENGTH=2100 FT   SLOPE=0.0600  K=2.0
                               LENGTH=4000 FT   SLOPE=0.0600  K=3.0
```

BASIN LONGER THAN 4000.0 FT AND ALL BASIN LAG FACTORS NOT SPECIFIED
USE Kn= .0160 AND Lca/L= .50000

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
NOTE: Upland factor input values have been adjusted to meet Upland/Lag Time requirements.

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.040000	.7000
SHALLOW FLOW PORTION	1600.0	.060000	2.0000
CHANNEL FLOW PORTION	4500.0	.060000	3.0000
TOTAL BASIN	6500.0	.058769	2.1893

LAG EQUATION FACTORS: Kn= .0160 TOTAL BASIN LENGTH (FT)= 6500.0
TOTAL BASIN SLOPE (FT/FT)= .058769 CENTROUD LENGTH (FT)= 3250.0

TIME OF CONCENTRATION (HRS)= .2359 TIME TO PEAK (HRS)= .1573 LAG TIME (HRS)= .1769

COMPUTE NM HYD ID=18 HYD NO=103 DA=0.391 SQ MI
A=100 B=0 C=0 D=0
TP=0.0 MASSRAIN=-1

TIME TO PEAK (hrs)= .1573

K = .167979HR TP = .157274HR K/TP RATIO = 1.068064 SHAPE CONSTANT, N = 3.306636
UNIT PEAK = 760.59 CFS UNIT VOLUME = 1.000 B = 305.94 P60 = 1.6400
AREA = .391000 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=18 CODE=1

PARTIAL HYDROGRAPH 103.00

RUNOFF VOLUME = .35708 INCHES = 7.4462 ACRE-FEET
PEAK DISCHARGE RATE = 255.36 CFS AT 1.550 HOURS BASIN AREA = .3910 SQ. MI.

*S ROUTE THRU "H" in Channel H TO AP-1 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=4.50
CH SLOPE=0.020 FP SLOPE=0.020
N=0.038 DIST=52.0
DIST ELEV DIST ELEV
0.0 5.0 6.0 0.0
46.0 0.0 52.0 5.0

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	40.00
.24	9.54	20.05	40.57
.47	19.22	63.63	41.14
.71	29.03	125.05	41.71
.95	38.97	201.97	42.27
1.18	49.05	292.99	42.84
1.42	59.27	397.11	43.41
1.66	69.61	513.59	43.98
1.89	80.10	641.88	44.55
2.13	90.72	781.50	45.12
2.37	101.47	932.08	45.68
2.61	112.36	1093.31	46.25
2.84	123.38	1264.92	46.82
3.08	134.53	1446.68	47.39
3.32	145.82	1638.40	47.96
3.55	157.25	1839.92	48.53
3.79	168.81	2051.09	49.09
4.03	180.51	2271.78	49.66
4.26	192.34	2501.88	50.23
4.50	204.30	2741.30	50.80

ROUTE MCUNGE ID=50 HYD NO=100.01 INFLOW ID=10
DT=0.0 L=6500 FT NS=0 SLOPE=0.020
MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

INFLOW END= 217 TABLE PTS= 20
DT= .050000 QMED= 35.15 CKMED= 4.5042
WIDTH MED= 40.77 NREACH= 16 DX= 406.25

DEPTH	AREA	Q	TRAVEL	WIDTH	ck	VEL	C	D	C1	C2	C3	Q-M

C1-M	C2-M	C3-M	DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)
			.00	.0	.0	1.173	40.0	2.26	.98	1.000	.000	1.000	.000	.000	.0
1.000	.000	.000													
			.24	9.5	20.0	.859	40.6	3.48	2.10	1.541	.017	.986	.218	-.205	6.3
.996	.069	-.064													
			.47	19.2	63.6	.545	41.1	5.45	3.31	2.413	.035	.980	.420	-.400	39.4
.983	.340	-.323													
			.71	29.0	125.0	.419	41.7	7.04	4.31	3.118	.052	.975	.520	-.495	92.3
.977	.477	-.454													
			.95	39.0	202.0	.348	42.3	8.41	5.18	3.727	.070	.971	.583	-.554	161.7
.973	.555	-.527													
			1.18	49.1	293.0	.302	42.8	9.63	5.97	4.269	.087	.967	.627	-.594	245.8
.969	.606	-.575													
			1.42	59.3	397.1	.269	43.4	10.74	6.70	4.760	.105	.964	.659	-.623	343.5
.966	.644	-.609													
			1.66	69.6	513.6	.245	44.0	11.76	7.38	5.212	.122	.961	.684	-.646	453.9
.963	.672	-.635													
			1.89	80.1	641.9	.225	44.5	12.71	8.01	5.630	.140	.959	.705	-.663	576.4
.960	.695	-.655													
			2.13	90.7	781.5	.210	45.1	13.59	8.61	6.021	.157	.956	.721	-.678	710.4
.957	.713	-.671													
			2.37	101.5	932.1	.197	45.7	14.42	9.19	6.388	.174	.954	.736	-.689	855.5
.955	.729	-.684													
			2.61	112.4	1093.3	.186	46.3	15.20	9.73	6.734	.191	.952	.748	-.699	1011.5
.953	.742	-.695													
			2.84	123.4	1264.9	.176	46.8	15.94	10.25	7.063	.209	.950	.758	-.708	1177.9
.951	.753	-.704													
			3.08	134.5	1446.7	.168	47.4	16.64	10.75	7.375	.226	.948	.767	-.715	1354.7
.948	.763	-.711													
			3.32	145.8	1638.4	.161	48.0	17.32	11.24	7.673	.243	.946	.776	-.721	1541.4
.946	.772	-.718													
			3.55	157.3	1839.9	.154	48.5	17.96	11.70	7.957	.260	.944	.783	-.727	1738.1
.945	.779	-.724													
			3.79	168.8	2051.1	.149	49.1	18.58	12.15	8.230	.277	.942	.790	-.731	1944.5
.943	.786	-.729													
			4.03	180.5	2271.8	.143	49.7	19.17	12.59	8.493	.294	.940	.796	-.736	2160.4
.941	.793	-.733													
			4.26	192.3	2501.9	.139	50.2	19.74	13.01	8.745	.311	.938	.801	-.739	2385.8
.939	.798	-.737													
			4.50	204.3	2741.3	.135	50.8	20.21	13.42	8.956	.329	.936	.806	-.742	2620.6
.937	.804	-.741													

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 5 OCCURRED 3 TIMES. AVERAGE NUMBER ITERATIONS = 1.1432

C1-M	C2-M	C3-M	DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)
			.00	.0	.0	1.173	40.0	2.26	.98	1.000	.000	1.000	.000	.000	.0
1.000	.000	.000													
			.24	9.5	20.0	.859	40.6	2.32	2.10	1.026	.026	.974	.026	.000	6.3
.992	.008	.000													
			.47	19.2	63.6	.545	41.1	2.43	3.31	1.078	.078	.927	.073	.000	39.4
.952	.048	.000													
			.71	29.0	125.0	.419	41.7	2.58	4.31	1.143	.143	.875	.125	.000	92.3
.901	.099	.000													
			.95	39.0	202.0	.348	42.3	2.74	5.18	1.215	.215	.823	.177	.000	161.7
.849	.151	.000													
			1.18	49.1	293.0	.302	42.8	2.91	5.97	1.289	.289	.776	.224	.000	245.8
.799	.201	.000													
			1.42	59.3	397.1	.269	43.4	3.08	6.70	1.365	.365	.732	.268	.000	343.5
.753	.247	.000													
			1.66	69.6	513.6	.245	44.0	3.25	7.38	1.442	.442	.694	.306	.000	453.9
.712	.288	.000													
			1.89	80.1	641.9	.225	44.5	3.43	8.01	1.518	.518	.659	.341	.000	576.4
.676	.324	.000													
			2.13	90.7	781.5	.210	45.1	3.60	8.61	1.593	.593	.628	.372	.000	710.4
.643	.357	.000													
			2.37	101.5	932.1	.197	45.7	3.76	9.19	1.667	.667	.600	.400	.000	855.5
.613	.387	.000													
			2.61	112.4	1093.3	.186	46.3	3.93	9.73	1.741	.741	.575	.425	.000	1011.5
.587	.413	.000													
			2.84	123.4	1264.9	.176	46.8	4.09	10.25	1.813	.813	.552	.448	.000	1177.9
.563	.437	.000													
			3.08	134.5	1446.7	.168	47.4	4.25	10.75	1.884	.884	.531	.469	.000	1354.7
.541	.459	.000													
			3.32	145.8	1638.4	.161	48.0	4.41	11.24	1.954	.954	.512	.488	.000	1541.4
.521	.479	.000													
			3.55	157.3	1839.9	.154	48.5	4.56	11.70	2.022	1.022	.494	.506	.000	1738.1
.503	.497	.000													
			3.79	168.8	2051.1	.149	49.1	4.72	12.15	2.090	1.090	.478	.522	.000	1944.5
.486	.514	.000													
			4.03	180.5	2271.8	.143	49.7	4.87	12.59	2.157	1.157	.464	.536	.000	2160.4
.471	.529	.000													
			4.26	192.3	2501.9	.139	50.2	5.02	13.01	2.222	1.222	.450	.550	.000	2385.8
.457	.543	.000													
			4.50	204.3	2741.3	.135	50.8	5.16	13.42	2.287	1.287	.437	.563	.000	2620.6
.444	.556	.000													

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 12 TIMES. AVERAGE NUMBER ITERATIONS =

1.1145

Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3

```
     PRINT HYD            ID=50   CODE=1

                                    PARTIAL HYDROGRAPH   100.01

          RUNOFF VOLUME =      1.25296 INCHES      =        9.2267 ACRE-FEET
          PEAK DISCHARGE RATE =       69.92 CFS  AT   2.400 HOURS   BASIN AREA =    .1381 SQ. MI.



     *s ADD SUB-BASINS "E", "UNSER-1", "F" & "H"  ++++++++++++++++++++++++++

     ADD HYD                          ID=20  HYD NO=300 ID I=50  ID II=18

     PRINT HYD                ID=20  CODE=1

                                         HYDROGRAPH FROM AREA   300.00

          RUNOFF VOLUME =       .59088 INCHES      =       16.6729 ACRE-FEET
          PEAK DISCHARGE RATE =     255.36 CFS  AT   1.550 HOURS   BASIN AREA =    .5291 SQ. MI.



     *S COMPUTE BASIN "G"  - BASIN ******************************************

     COMPUTE LT TP            LCODE=1  NK=3  ISLOPE=-1
                                    LENGTH=400 FT   SLOPE=0.0600  K=0.7
                                     LENGTH=350 FT   SLOPE=0.0600  K=2.0
                                    LENGTH=1050 FT   SLOPE=0.0600  K=3.0


          Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

          SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)       SLOPE (FT/FT)       COMPOSITE K
          SHEET FLOW PORTION         400.0             .060000             .7000
          SHALLOW FLOW PORTION       350.0             .060000            2.0000
          CHANNEL FLOW PORTION      1050.0             .060000            3.0000
          TOTAL BASIN               1800.0             .060000            1.6417


          TIME OF CONCENTRATION (HRS)=   .1243     TIME TO PEAK (HRS)=   .0829     LAG TIME (HRS)=   .0933


          TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
          REVISED VALUES: TIME OF CONCENTRATION (HRS)=   .2000     TIME TO PEAK (HRS)=   .1333     LAG TIME
(HRS)=   .1500

     COMPUTE NM HYD       ID=22   HYD NO=400  DA=0.106 SQ MI
                          A=100  B=0  C=0  D=0
                                TP=0.0 MASSRAIN=-1

          TIME TO PEAK (hrs)=   .1333

          K =   .164806HR    TP =   .133333HR    K/TP RATIO =  1.236047     SHAPE CONSTANT, N =  2.882567
          UNIT PEAK =   216.32    CFS   UNIT VOLUME =    .9983       B =   272.10      P60 = 1.6400
          AREA =      .106000 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

     PRINT HYD            ID=22 CODE=1

                                         HYDROGRAPH FROM AREA   400.00

          RUNOFF VOLUME =       .35708 INCHES      =        2.0187 ACRE-FEET
          PEAK DISCHARGE RATE =       72.65 CFS  AT   1.500 HOURS   BASIN AREA =    .1060 SQ. MI.



     *S ROUTE "G" in Channel to AP1 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

     COMPUTE RATING CURVE     CID=1  VS NO=1   NO SEGS=1
                                    MIN ELEV=0        MAX ELEV=3.80
                              CH SLOPE=0.038   FP SLOPE=0.038
```

N=0.038 DIST=32.0

DIST	ELEV	DIST	ELEV
0.0	5.0	6.0	0.0
26.0	0.0	32.0	5.0

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	10.42	20.48
.40	8.19	33.08	20.96
.60	12.43	65.02	21.44
.80	16.77	105.07	21.92
1.00	21.20	152.51	22.40
1.20	25.73	206.87	22.88
1.40	30.35	267.81	23.36
1.60	35.07	335.06	23.84
1.80	39.89	408.42	24.32
2.00	44.80	487.74	24.80
2.20	49.81	572.90	25.28
2.40	54.91	663.81	25.76
2.60	60.11	760.37	26.24
2.80	65.41	862.54	26.72
3.00	70.80	970.27	27.20
3.20	76.29	1083.52	27.68
3.40	81.87	1202.26	28.16
3.60	87.55	1326.48	28.64
3.80	93.33	1456.17	29.12

ROUTE MCUNGE ID=40 HYD NO=400.01 INFLOW ID=22
DT=0.0 L=250 FT NS=0 SLOPE=0.020
MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

INFLOW END= 116 TABLE PTS= 20
DT= .050000 QMED= 36.33 CKMED= 7.5343
WIDTH MED= 21.01 NREACH= 1 DX= 250.00

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.037	20.0	1.39	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.027	20.5	4.24	2.57	3.053	.024	.988	.509	-.498	3.3	.992	.324	-.316
.40	8.2	33.1	.017	21.0	6.59	4.04	4.741	.048	.983	.655	-.638	20.5	.986	.599	-.584
.60	12.4	65.0	.013	21.4	8.44	5.23	6.076	.072	.980	.720	-.700	48.0	.982	.692	-.673
.80	16.8	105.1	.011	21.9	10.01	6.27	7.207	.096	.977	.759	-.736	84.1	.978	.741	-.720
1.00	21.2	152.5	.010	22.4	11.39	7.19	8.198	.120	.974	.785	-.760	127.9	.976	.773	-.749
1.20	25.7	206.9	.009	22.9	12.62	8.04	9.084	.143	.972	.804	-.776	178.9	.973	.795	-.768
1.40	30.4	267.8	.008	23.4	13.73	8.82	9.889	.167	.970	.819	-.789	236.6	.971	.812	-.783
1.60	35.1	335.1	.007	23.8	14.76	9.55	10.627	.190	.968	.831	-.799	300.7	.969	.825	-.794
1.80	39.9	408.4	.007	24.3	15.71	10.24	11.310	.214	.966	.840	-.806	371.1	.967	.836	-.802
2.00	44.8	487.7	.006	24.8	16.59	10.89	11.946	.237	.964	.848	-.812	447.4	.965	.844	-.809
2.20	49.8	572.9	.006	25.3	17.42	11.50	12.543	.260	.962	.855	-.817	529.7	.963	.852	-.815
2.40	54.9	663.8	.006	25.8	18.20	12.09	13.106	.283	.961	.861	-.822	617.8	.961	.858	-.820
2.60	60.1	760.4	.005	26.2	18.94	12.65	13.639	.306	.959	.866	-.825	711.5	.960	.864	-.823
2.80	65.4	862.5	.005	26.7	19.65	13.19	14.145	.329	.958	.871	-.828	810.9	.958	.868	-.827
3.00	70.8	970.3	.005	27.2	20.32	13.70	14.629	.351	.956	.875	-.831	915.8	.957	.873	-.830
3.20	76.3	1083.5	.005	27.7	20.96	14.20	15.091	.374	.955	.879	-.833	1026.3	.955	.877	-.832
3.40	81.9	1202.3	.005	28.2	21.58	14.68	15.535	.396	.953	.882	-.835	1142.4	.954	.880	-.834
3.60	87.6	1326.5	.005	28.6	22.17	15.15	15.962	.418	.952	.885	-.837	1263.8	.953	.883	-.836
3.80	93.3	1456.2	.004	29.1	22.62	15.60	16.283	.442	.950	.887	-.837	1390.8	.951	.886	-.838

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 4 OCCURRED 2 TIMES. AVERAGE NUMBER ITERATIONS = 1.0855

Equations solved using the Ponce correction to C2

PRINT HYD ID=40 CODE=1

HYDROGRAPH FROM AREA 400.01

RUNOFF VOLUME = .35752 INCHES = 2.0212 ACRE-FEET
PEAK DISCHARGE RATE = 71.24 CFS AT 1.500 HOURS BASIN AREA = .1060 SQ. MI.

*s ADD SUB-BASINS "E", "UNSER-1", "F","H" & "G" (AP-1) ++++++++++++++++++++++++++

ADD HYD ID=42 HYD NO=600 ID I=20 ID II=40

PRINT HYD ID=42 CODE=1

HYDROGRAPH FROM AREA 600.00

RUNOFF VOLUME = .55193 INCHES = 18.6940 ACRE-FEET
PEAK DISCHARGE RATE = 325.95 CFS AT 1.550 HOURS BASIN AREA = .6351 SQ. MI.

*S ROUTE AP-1 TO AP-4 in Channel PDN >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=3.80
CH SLOPE=0.038 FP SLOPE=0.038
N=0.038 DIST=32.0
DIST ELEV DIST ELEV
0.0 5.0 6.0 0.0
26.0 0.0 32.0 5.0

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	10.42	20.48
.40	8.19	33.08	20.96
.60	12.43	65.02	21.44
.80	16.77	105.07	21.92
1.00	21.20	152.51	22.40
1.20	25.73	206.87	22.88
1.40	30.35	267.81	23.36
1.60	35.07	335.06	23.84
1.80	39.89	408.42	24.32
2.00	44.80	487.74	24.80
2.20	49.81	572.90	25.28
2.40	54.91	663.81	25.76
2.60	60.11	760.37	26.24
2.80	65.41	862.54	26.72
3.00	70.80	970.27	27.20
3.20	76.29	1083.52	27.68
3.40	81.87	1202.26	28.16
3.60	87.55	1326.48	28.64
3.80	93.33	1456.17	29.12

ROUTE MCUNGE ID=44 HYD NO=600.01 INFLOW ID=42
DT=0.0 L=200 FT NS=0 SLOPE=0.020
MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0
ZERO VALUE HYDROGRAPH OR SHORT ROUTE - ROUTING BYPASSED

PRINT HYD ID=44 CODE=1

HYDROGRAPH FROM AREA 600.01

RUNOFF VOLUME = .55193 INCHES = 18.6940 ACRE-FEET
PEAK DISCHARGE RATE = 325.95 CFS AT 1.550 HOURS BASIN AREA = .6351 SQ. MI.

*S COMPUTE BASIN "D" - BASIN **

COMPUTE LT TP LCODE=1 NK=3 ISLOPE=-1
LENGTH=400 FT SLOPE=0.0200 K=0.7
LENGTH=400 FT SLOPE=0.0200 K=2.0
LENGTH=3600 FT SLOPE=0.0200 K=3.0

BASIN LONGER THAN 4000.0 FT AND ALL BASIN LAG FACTORS NOT SPECIFIED
USE Kn= .0160 AND Lca/L= .50000

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.020000	.7000
SHALLOW FLOW PORTION	400.0	.020000	2.0000
CHANNEL FLOW PORTION	3600.0	.020000	3.0000
TOTAL BASIN	4400.0	.020000	2.2319

LAG EQUATION FACTORS: Kn= .0160 TOTAL BASIN LENGTH (FT)= 4400.0
TOTAL BASIN SLOPE (FT/FT)= .020000 CENTROUD LENGTH (FT)= 2200.0

TIME OF CONCENTRATION (HRS)= .3520 TIME TO PEAK (HRS)= .2347 LAG TIME (HRS)= .2640

COMPUTE NM HYD ID=50 HYD NO=700 DA=0.235 SQ MI
A=0 B=10 C=10 D=80
TP=0.0 MASSRAIN=-1

TIME TO PEAK (hrs)= .2347

K = .136457HR TP = .234669HR K/TP RATIO = .581487 SHAPE CONSTANT, N = 6.545360
UNIT PEAK = 400.00 CFS UNIT VOLUME = .9997 B = 499.30 P60 = 1.6400
AREA = .188000 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .208778HR TP = .234669HR K/TP RATIO = .889667 SHAPE CONSTANT, N = 3.986602
UNIT PEAK = 70.955 CFS UNIT VOLUME = 1.000 B = 354.28 P60 = 1.6400
AREA = .047000 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=50 CODE=1

HYDROGRAPH FROM AREA 700.00

RUNOFF VOLUME = 1.62589 INCHES = 20.3777 ACRE-FEET
PEAK DISCHARGE RATE = 383.58 CFS AT 1.600 HOURS BASIN AREA = .2350 SQ. MI.

*S ROUTE "D" THRU "C" THROUGH PIPE TO AP-2 >>

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.0100
DIA=7.0 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.36	.76	3.35	3.11
.73	2.13	14.55	4.28
1.09	3.84	33.82	5.08
1.46	5.81	60.82	5.69
1.82	7.97	94.97	6.15
2.19	10.28	135.50	6.49
2.55	12.70	181.53	6.74
2.92	15.19	232.10	6.90
3.28	17.72	286.12	6.99
3.65	20.28	342.43	7.00
4.01	22.82	399.77	7.00
4.38	25.32	456.77	7.00
4.74	27.75	511.95	7.00
5.11	30.08	563.63	7.00
5.47	32.27	609.88	7.00
5.84	34.28	648.35	7.00
6.20	36.05	675.88	7.00
6.57	37.49	687.20	7.00
7.00	38.48	687.20	7.00

ROUTE MCUNGE ID=51 HYD NO=700.1 INFLOW ID=50
DT=0.0 L=1200 NS=0 SLOPE=0.0100
MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

INFLOW END= 184 TABLE PTS= 19
DT= .050000 QMED= 191.79 CKMED= 20.3020
WIDTH MED= 6.77 NREACH= 1 DX= 1200.00

DEPTH	AREA	Q	TRAVEL	WIDTH	ck	VEL	C	D	C1	C2	C3	Q-M	C1-M	C2-M	C3-M

(FT)	(SQ FT)	(CFS)	TIME(HR)	(FT)	(FPS)	(FPS)						(CFS)
.00	.0	.0	.103	.0	6.67	2.07	1.000	.000	1.000	.000	.000	.0
1.000	.000	.000										
.36	.8	3.4	.076	3.1	7.21	4.38	1.081	.012	.988	.045	-.033	.5
.998	.007	-.005										
.73	2.1	14.5	.049	4.3	9.95	6.84	1.492	.028	.977	.207	-.184	8.0
.981	.115	-.095										
1.09	3.8	33.8	.038	5.1	12.59	8.80	1.889	.044	.970	.318	-.288	23.3
.973	.266	-.239										
1.46	5.8	60.8	.032	5.7	14.83	10.46	2.224	.060	.963	.391	-.354	46.6
.966	.357	-.324										
1.82	8.0	95.0	.028	6.1	16.73	11.91	2.509	.077	.957	.442	-.399	77.2
.960	.419	-.379										
2.19	10.3	135.5	.025	6.5	18.34	13.18	2.751	.095	.951	.480	-.431	114.6
.954	.463	-.417										
2.55	12.7	181.5	.023	6.7	19.70	14.30	2.955	.114	.944	.508	-.452	158.0
.947	.496	-.443										
2.92	15.2	232.1	.022	6.9	20.81	15.28	3.122	.135	.937	.530	-.467	206.4
.941	.521	-.461										
3.28	17.7	286.1	.021	7.0	21.69	16.14	3.253	.157	.929	.547	-.475	258.7
.933	.540	-.473										
3.65	20.3	342.4	.020	7.0	22.29	16.89	3.344	.183	.919	.558	-.477	314.0
.924	.554	-.478										
4.01	22.8	399.8	.019	7.0	22.44	17.52	3.365	.212	.907	.563	-.470	370.8
.914	.562	-.476										
4.38	25.3	456.8	.018	7.0	22.02	18.04	3.303	.247	.891	.560	-.452	428.1
.900	.563	-.463										
4.74	27.8	512.0	.018	7.0	20.97	18.45	3.146	.291	.869	.549	-.418	484.2
.882	.556	-.438										
5.11	30.1	563.6	.018	7.0	19.22	18.74	2.884	.349	.835	.527	-.363	537.7
.855	.540	-.395										
5.47	32.3	609.9	.018	7.0	16.63	18.90	2.495	.437	.778	.491	-.269	586.8
.812	.512	-.324										
5.84	34.3	648.4	.018	7.0	12.95	18.91	1.943	.596	.663	.435	-.098	629.2
.735	.468	-.203										
6.20	36.1	675.9	.018	7.0	7.59	18.75	1.138	1.061	.337	.375	.289	662.2
.563	.403	.034										
6.57	37.5	687.2	.018	7.0	4.32	18.33	.648	1.892	-.069	.435	.634	681.6
.131	.405	.463										

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 24 TIMES. AVERAGE NUMBER ITERATIONS = 1.1812

Equations solved using the Ponce correction to C2

PRINT HYD ID=51 CODE=1

HYDROGRAPH FROM AREA 700.10

RUNOFF VOLUME = 1.62581 INCHES = 20.3767 ACRE-FEET
PEAK DISCHARGE RATE = 381.38 CFS AT 1.600 HOURS BASIN AREA = .2350 SQ. MI.

*S COMPUTE BASIN "C" - BASIN **********

COMPUTE LT TP LCODE=1 NK=3 ISLOPE=-1
LENGTH=400 FT SLOPE=0.0200 K=0.7
LENGTH=400 FT SLOPE=0.0200 K=2.0
LENGTH=820 FT SLOPE=0.0200 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.020000	.7000
SHALLOW FLOW PORTION	400.0	.020000	2.0000
CHANNEL FLOW PORTION	820.0	.020000	3.0000
TOTAL BASIN	1620.0	.020000	1.5506

TIME OF CONCENTRATION (HRS)= .2052 TIME TO PEAK (HRS)= .1368 LAG TIME (HRS)= .1539

COMPUTE NM HYD ID=60 HYD NO=700.2 DA=0.064 SQ MI
A=0 B=10 C=10 D=80
TP=0.0 MASSRAIN=-1

TIME TO PEAK (hrs)= .1368

K = .074603HR TP = .136807HR K/TP RATIO = .545317 SHAPE CONSTANT, N = 7.101122
UNIT PEAK = 196.86 CFS UNIT VOLUME = .9987 B = 526.03 P60 = 1.6400
AREA = .051200 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

```
K =   .122718HR    TP =   .136807HR    K/TP RATIO =   .897016     SHAPE CONSTANT, N =  3.951773
UNIT PEAK =   32.929    CFS   UNIT VOLUME =    1.001      B =   351.94      P60 = 1.6400
AREA =      .012800 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD           ID=60 CODE=1

                                        HYDROGRAPH FROM AREA   700.20

    RUNOFF VOLUME =     1.62589 INCHES     =       5.5497 ACRE-FEET
    PEAK DISCHARGE RATE =     139.54 CFS  AT   1.500 HOURS   BASIN AREA =   .0640 SQ. MI.



*s ADD SUB-BASIN "D", & "C"  ++++++++++++++++++++++++++++++++++

ADD HYD                          ID=62  HYD NO=700.3 ID I=51  ID II=60

PRINT HYD               ID=62  CODE=1

                                        HYDROGRAPH FROM AREA   700.30

    RUNOFF VOLUME =     1.62583 INCHES     =      25.9264 ACRE-FEET
    PEAK DISCHARGE RATE =     478.67 CFS  AT   1.600 HOURS   BASIN AREA =   .2990 SQ. MI.



*S COMPUTE BASIN "PDN01"  - BASIN ******************************************

COMPUTE LT TP           LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=50 FT     SLOPE=0.0200   K=0.7
                    LENGTH=250 FT    SLOPE=0.0200  K=2.0
                              LENGTH=2400 FT   SLOPE=0.0200  K=3.0

    Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

    SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
    SHEET FLOW PORTION           50.0            .020000             .7000
    SHALLOW FLOW PORTION        250.0            .020000            2.0000
    CHANNEL FLOW PORTION       2400.0            .020000            3.0000
    TOTAL BASIN                2700.0            .020000            2.7097

    TIME OF CONCENTRATION (HRS)=   .1957     TIME TO PEAK (HRS)=   .1305     LAG TIME (HRS)=   .1468


    TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
    REVISED VALUES: TIME OF CONCENTRATION (HRS)=   .2000     TIME TO PEAK (HRS)=   .1333     LAG TIME
(HRS)=   .1500

COMPUTE NM HYD      ID=70  HYD NO=700.4  DA=0.016 SQ MI
                    A=0  B=10  C=0  D=90
                         TP=0.0 MASSRAIN=-1

    TIME TO PEAK (hrs)=   .1333

    K =   .072666HR    TP =   .133333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   56.838    CFS   UNIT VOLUME =    .9989      B =   526.28      P60 = 1.6400
    AREA =      .014400 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


    K =   .135072HR    TP =   .133333HR    K/TP RATIO =  1.013045     SHAPE CONSTANT, N =  3.484507
    UNIT PEAK =   3.8304    CFS   UNIT VOLUME =    .9971      B =   319.20      P60 = 1.6400
    AREA =      .001600 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD           ID=70 CODE=1

                                        HYDROGRAPH FROM AREA   700.40

    RUNOFF VOLUME =     1.73082 INCHES     =       1.4770 ACRE-FEET
    PEAK DISCHARGE RATE =      36.58 CFS  AT   1.500 HOURS   BASIN AREA =   .0160 SQ. MI.
```

*S ROUTE PDN-1 THRU PDN-2 in ROADWAY GUTTER NO.6 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=3.80
CH SLOPE=0.038 FP SLOPE=0.038
N=0.038 DIST=32.0
DIST ELEV DIST ELEV
0.0 10.0 0.0 0.0
26.0 5.0 32.0 10.0

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.20	.10	.15	1.04
.40	.42	.95	2.08
.60	.94	2.81	3.12
.80	1.66	6.06	4.16
1.00	2.60	10.99	5.20
1.20	3.74	17.87	6.24
1.40	5.10	26.96	7.28
1.60	6.66	38.49	8.32
1.80	8.42	52.70	9.36
2.00	10.40	69.79	10.40
2.20	12.58	89.99	11.44
2.40	14.98	113.49	12.48
2.60	17.58	140.50	13.52
2.80	20.38	171.20	14.56
3.00	23.40	205.78	15.60
3.20	26.62	244.42	16.64
3.40	30.06	287.31	17.68
3.60	33.70	334.62	18.72
3.80	37.54	386.51	19.76

ROUTE MCUNGE ID=71 HYD NO=700.5 INFLOW ID=70
DT=0.0 L=1620 FT NS=0 SLOPE=0.038
MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

INFLOW END= 143 TABLE PTS= 20
DT= .050000 QMED= 18.29 CKMED= 6.7216
WIDTH MED= 6.29 NREACH= 3 DX= 540.00

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.426	.0	3.00	.67	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	.1	.2	.311	1.0	2.99	1.45	.998	.002	.998	.000	.002	.0	1.000	.000	.000
.40	.4	1.0	.196	2.1	3.19	2.30	1.064	.007	.993	.034	-.028	.4	.996	.013	-.009
.60	.9	2.8	.150	3.1	4.10	3.01	1.366	.011	.991	.158	-.149	1.8	.991	.086	-.078
.80	1.7	6.1	.124	4.2	4.92	3.64	1.641	.014	.989	.247	-.236	4.3	.990	.197	-.187
1.00	2.6	11.0	.106	5.2	5.69	4.23	1.896	.018	.988	.314	-.301	8.4	.988	.277	-.265
1.20	3.7	17.9	.094	6.2	6.41	4.77	2.135	.022	.986	.367	-.353	14.3	.987	.338	-.324
1.40	5.1	27.0	.085	7.3	7.09	5.29	2.363	.025	.985	.410	-.395	22.2	.985	.386	-.372
1.60	6.7	38.5	.078	8.3	7.74	5.78	2.580	.029	.984	.446	-.430	32.5	.984	.427	-.411
1.80	8.4	52.7	.072	9.4	8.37	6.26	2.789	.033	.983	.477	-.460	45.4	.983	.460	-.443
2.00	10.4	69.8	.067	10.4	8.97	6.71	2.991	.036	.982	.503	-.485	61.0	.982	.489	-.471
2.20	12.6	90.0	.063	11.4	9.56	7.15	3.185	.040	.981	.527	-.508	79.7	.981	.514	-.496
2.40	15.0	113.5	.059	12.5	10.12	7.58	3.375	.044	.980	.547	-.528	101.5	.980	.536	-.517
2.60	17.6	140.5	.056	13.5	10.68	7.99	3.559	.047	.979	.566	-.545	126.7	.980	.556	-.536
2.80	20.4	171.2	.054	14.6	11.21	8.40	3.738	.051	.979	.582	-.561	155.6	.979	.574	-.553
3.00	23.4	205.8	.051	15.6	11.74	8.79	3.913	.055	.978	.597	-.575	188.2	.978	.590	-.568
3.20	26.6	244.4	.049	16.6	12.25	9.18	4.085	.058	.977	.611	-.588	224.8	.978	.604	-.582
3.40	30.1	287.3	.047	17.7	12.76	9.56	4.253	.062	.977	.624	-.600	265.6	.977	.617	-.594
3.60	33.7	334.6	.045	18.7	13.25	9.93	4.418	.066	.976	.635	-.611	310.7	.976	.629	-.606
3.80	37.5	386.5	.044	19.8	13.45	10.29	4.482	.071	.974	.640	-.614	360.3	.976	.640	-.616

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 22 TIMES. AVERAGE NUMBER ITERATIONS = 1.0826

Equations solved using the Ponce correction to C2

PRINT HYD ID=71 CODE=1

HYDROGRAPH FROM AREA 700.50

RUNOFF VOLUME = 1.73155 INCHES = 1.4776 ACRE-FEET
PEAK DISCHARGE RATE = 36.24 CFS AT 1.550 HOURS BASIN AREA = .0160 SQ. MI.

*S COMPUTE BASIN "PDN02" - BASIN **********

COMPUTE LT TP LCODE=1 NK=1 ISLOPE=-1
LENGTH=50 FT SLOPE=0.0200 K=0.7
LENGTH=250 FT SLOPE=0.0200 K=2.0
LENGTH=1700 FT SLOPE=0.0200 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	50.0	.020000	.7000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	.0	.000000	.0000
TOTAL BASIN	50.0	.020000	.7000

TIME OF CONCENTRATION (HRS)= .0140 TIME TO PEAK (HRS)= .0094 LAG TIME (HRS)= .0105

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=80 HYD NO=700.6 DA=0.011 SQ MI
A=0 B=10 C=0 D=90
TP=0.0 MASSRAIN=-1

TIME TO PEAK (hrs)= .1333

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 39.076 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.6400
AREA = .009900 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .135072HR TP = .133333HR K/TP RATIO = 1.013045 SHAPE CONSTANT, N = 3.484507
UNIT PEAK = 2.6334 CFS UNIT VOLUME = .9955 B = 319.20 P60 = 1.6400
AREA = .001100 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=80 CODE=1

HYDROGRAPH FROM AREA 700.60

RUNOFF VOLUME = 1.73082 INCHES = 1.0154 ACRE-FEET
PEAK DISCHARGE RATE = 25.15 CFS AT 1.500 HOURS BASIN AREA = .0110 SQ. MI.

*s ADD SUB-BASINs "PDN-1", & "PDN-2" ++++++++++++++++++++++++++++++++++

ADD HYD ID=82 HYD NO=700.61 ID I=71 ID II=80

PRINT HYD ID=82 CODE=1

HYDROGRAPH FROM AREA 700.61

RUNOFF VOLUME = 1.73122 INCHES = 2.4929 ACRE-FEET
PEAK DISCHARGE RATE = 58.19 CFS AT 1.550 HOURS BASIN AREA = .0270 SQ. MI.

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*s ADD SUB-BASINs "D","C", "PDN-1", & "PDN-2"  ++++++++++++++++++++++++++++++++

ADD HYD                         ID=91  HYD NO=700.73 ID I=62  ID II=82

PRINT HYD               ID=91  CODE=1

                                      HYDROGRAPH FROM AREA    700.73

     RUNOFF VOLUME =      1.63456 INCHES      =       28.4193 ACRE-FEET
     PEAK DISCHARGE RATE =      529.95 CFS  AT    1.600 HOURS    BASIN AREA =    .3260 SQ. MI.




*S COMPUTE BASIN "A"  - BASIN *********************************************

COMPUTE LT TP           LCODE=1  NK=2  ISLOPE=-1
                              LENGTH=400 FT   SLOPE=0.0300  K=0.7
                              LENGTH=2500 FT   SLOPE=0.0300  K=2.0


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
          NOTE: Upland factor input values have been adjusted to meet Upland/Lag Time requirements.
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0            .030000             .7000
     SHALLOW FLOW PORTION       1600.0            .030000            2.0000
     CHANNEL FLOW PORTION        900.0            .030000            3.0000
     TOTAL BASIN                2900.0            .030000            1.7350

     TIME OF CONCENTRATION (HRS)=   .2681     TIME TO PEAK (HRS)=   .1787     LAG TIME (HRS)=   .2010

COMPUTE NM HYD       ID=95  HYD NO=700.74  DA=0.06 SQ MI
                     A=0  B=15  C=35  D=50
                               TP=0.0 MASSRAIN=-1

     TIME TO PEAK (hrs)=   .1787

     K =   .097393HR    TP =   .178704HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   88.349    CFS   UNIT VOLUME =    .9997       B =   526.28       P60 = 1.6400
     AREA =      .030000 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .152022HR    TP =   .178704HR    K/TP RATIO =   .850695     SHAPE CONSTANT, N =  4.184074
     UNIT PEAK =   61.654    CFS   UNIT VOLUME =    1.000       B =   367.26       P60 = 1.6400
     AREA =      .030000 SQ MI    IA =    .39500 INCHES    INF =    .95600 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD           ID=95 CODE=1

                                      HYDROGRAPH FROM AREA    700.74

    RUNOFF VOLUME =      1.30258 INCHES      =       4.1682 ACRE-FEET
    PEAK DISCHARGE RATE =       99.73 CFS  AT    1.550 HOURS    BASIN AREA =    .0600 SQ. MI.




*s ADD SUB-BASINs "D","C", "PDN-1", "PDN-2" & "A" (AP-2) ++++++++++++++++++++++

ADD HYD                         ID=96  HYD NO=700.75 ID I=91  ID II=95

PRINT HYD               ID=96  CODE=1

                                      HYDROGRAPH FROM AREA    700.75

    RUNOFF VOLUME =      1.58295 INCHES      =       32.5875 ACRE-FEET
    PEAK DISCHARGE RATE =      625.72 CFS  AT    1.550 HOURS    BASIN AREA =    .3860 SQ. MI.




*S ROUTE AP-2 THRU "PDN03" THROUGH PIPE TO AP-3 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
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COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.0100
DIA=7.0 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.36	.76	3.35	3.11
.73	2.13	14.55	4.28
1.09	3.84	33.82	5.08
1.46	5.81	60.82	5.69
1.82	7.97	94.97	6.15
2.19	10.28	135.50	6.49
2.55	12.70	181.53	6.74
2.92	15.19	232.10	6.90
3.28	17.72	286.12	6.99
3.65	20.28	342.43	7.00
4.01	22.82	399.77	7.00
4.38	25.32	456.77	7.00
4.74	27.75	511.95	7.00
5.11	30.08	563.63	7.00
5.47	32.27	609.88	7.00
5.84	34.28	648.35	7.00
6.20	36.05	675.88	7.00
6.57	37.49	687.20	7.00
7.00	38.48	687.20	7.00

ROUTE MCUNGE ID=97 HYD NO=105 INFLOW ID=96
DT=0.0 L=1500 NS=0 SLOPE=0.0100
MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

INFLOW END= 185 TABLE PTS= 19
DT= .050000 QMED= 312.86 CKMED= 22.0632
WIDTH MED= 6.99 NREACH= 1 DX= 1500.00

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.129	.0	8.33	2.07	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.36	.8	3.4	.095	3.1	8.26	4.38	.991	.009	.991	.000	.009	.5	.999	.000	.001
.73	2.1	14.5	.061	4.3	9.95	6.84	1.194	.023	.979	.098	-.077	8.0	.983	.004	.014
1.09	3.8	33.8	.047	5.1	12.59	8.80	1.511	.035	.972	.215	-.187	23.3	.975	.160	-.135
1.46	5.8	60.8	.040	5.7	14.83	10.46	1.779	.048	.966	.293	-.259	46.6	.969	.257	-.225
1.82	8.0	95.0	.035	6.1	16.73	11.91	2.007	.062	.960	.348	-.308	77.2	.963	.323	-.286
2.19	10.3	135.5	.032	6.5	18.34	13.18	2.201	.076	.954	.390	-.343	114.6	.957	.371	-.328
2.55	12.7	181.5	.029	6.7	19.70	14.30	2.364	.091	.947	.421	-.368	158.0	.951	.407	-.358
2.92	15.2	232.1	.027	6.9	20.81	15.28	2.497	.108	.940	.445	-.385	206.4	.944	.435	-.379
3.28	17.7	286.1	.026	7.0	21.69	16.14	2.602	.126	.932	.464	-.396	258.7	.937	.456	-.393
3.65	20.3	342.4	.025	7.0	22.29	16.89	2.675	.146	.923	.477	-.400	314.0	.928	.472	-.400
4.01	22.8	399.8	.024	7.0	22.44	17.52	2.692	.170	.912	.482	-.394	370.8	.918	.481	-.399
4.38	25.3	456.8	.023	7.0	22.02	18.04	2.642	.198	.897	.479	-.376	428.1	.905	.482	-.388
4.74	27.8	512.0	.023	7.0	20.97	18.45	2.517	.232	.876	.467	-.343	484.2	.888	.475	-.362
5.11	30.1	563.6	.022	7.0	19.22	18.74	2.307	.279	.844	.442	-.287	537.7	.863	.457	-.319
5.47	32.3	609.9	.022	7.0	16.63	18.90	1.996	.349	.791	.402	-.193	586.8	.823	.426	-.248
5.84	34.3	648.4	.022	7.0	12.95	18.91	1.554	.477	.685	.340	-.026	629.2	.752	.376	-.128
6.20	36.1	675.9	.022	7.0	7.59	18.75	.910	.849	.385	.275	.340	662.2	.594	.305	.101
6.57	37.5	687.2	.023	7.0	4.32	18.33	.519	1.514	.002	.341	.658	681.6	.022	.333	.645

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 4 OCCURRED 3 TIMES. AVERAGE NUMBER ITERATIONS = 1.1812

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.129	.0	8.33	2.07	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.36	.8	3.4	.095	3.1	8.26	4.38	.991	.009	.991	.000	.009	.5	.999	.000	.001
.73	2.1	14.5	.061	4.3	8.55	6.84	1.027	.027	.974	.026	.000	8.0	.983	.004	.014

```
         1.09    3.8     33.8    .047    5.1     8.76   8.80    1.051   .051   .952   .048   .000     23.3
.963   .037   .000
         1.46    5.8     60.8    .040    5.7     8.99  10.46    1.079   .079   .927   .073   .000     46.6
.939   .061   .000
         1.82    8.0     95.0    .035    6.1     9.26  11.91    1.111   .111   .900   .100   .000     77.2
.913   .087   .000
         2.19   10.3    135.5    .032    6.5     9.55  13.18    1.146   .146   .873   .127   .000    114.6
.886   .114   .000
         2.55   12.7    181.5    .029    6.7     9.85  14.30    1.182   .182   .846   .154   .000    158.0
.859   .141   .000
         2.92   15.2    232.1    .027    6.9    10.17  15.28    1.220   .220   .819   .181   .000    206.4
.832   .168   .000
         3.28   17.7    286.1    .026    7.0    10.50  16.14    1.260   .260   .794   .206   .000    258.7
.806   .194   .000
         3.65   20.3    342.4    .025    7.0    10.84  16.89    1.301   .301   .769   .231   .000    314.0
.781   .219   .000
         4.01   22.8    399.8    .024    7.0    11.17  17.52    1.341   .341   .746   .254   .000    370.8
.757   .243   .000
         4.38   25.3    456.8    .023    7.0    11.49  18.04    1.379   .379   .725   .275   .000    428.1
.735   .265   .000
         4.74   27.8    512.0    .023    7.0    11.78  18.45    1.414   .414   .707   .293   .000    484.2
.716   .284   .000
         5.11   30.1    563.6    .022    7.0    12.05  18.74    1.446   .446   .692   .308   .000    537.7
.699   .301   .000
         5.47   32.3    609.9    .022    7.0    12.28  18.90    1.473   .473   .679   .321   .000    586.8
.685   .315   .000
         5.84   34.3    648.4    .022    7.0    12.46  18.91    1.495   .495   .669   .331   .000    629.2
.674   .326   .000
         6.20   36.1    675.9    .022    7.0     7.59  18.75     .910   .849   .385   .275   .340    662.2
.594   .305   .101
         6.57   37.5    687.2    .023    7.0     4.32  18.33     .519  1.514   .002   .341   .658    681.6
.022   .333   .645
     MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) =   3 OCCURRED      13 TIMES.  AVERAGE NUMBER ITERATIONS =
1.1487
     Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction
to C1, C2 and C3

     PRINT HYD               ID=97  CODE=1

                                    PARTIAL HYDROGRAPH   105.00

         RUNOFF VOLUME =     1.58000 INCHES      =      32.5268 ACRE-FEET
         PEAK DISCHARGE RATE =     624.08 CFS  AT   1.600 HOURS   BASIN AREA =    .3860 SQ. MI.




     *S COMPUTE BASIN "PDN03"  - BASIN ******************************************

     COMPUTE LT TP           LCODE=1  NK=3  ISLOPE=-1
                                    LENGTH=50 FT     SLOPE=0.0200  K=0.7
                                    LENGTH=250 FT    SLOPE=0.0200  K=2.0
                                    LENGTH=900 FT    SLOPE=0.0200  K=3.0


          Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

          SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
          SHEET FLOW PORTION          50.0            .020000             .7000
          SHALLOW FLOW PORTION       250.0            .020000            2.0000
          CHANNEL FLOW PORTION       900.0            .020000            3.0000
          TOTAL BASIN               1200.0            .020000            2.4173

          TIME OF CONCENTRATION (HRS)=   .0975     TIME TO PEAK (HRS)=   .0650     LAG TIME (HRS)=   .0731


          TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
          REVISED VALUES: TIME OF CONCENTRATION (HRS)=   .2000     TIME TO PEAK (HRS)=   .1333     LAG TIME
(HRS)=   .1500

     COMPUTE NM HYD      ID=90  HYD NO=700.76  DA=0.02 SQ MI
                         A=0  B=10  C=0  D=90
                                    TP=0.0 MASSRAIN=-1

          TIME TO PEAK (hrs)=   .1333

          K =   .072666HR    TP =   .133333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   71.047    CFS   UNIT VOLUME =    .9989       B =   526.28      P60 = 1.6400
          AREA =      .018000 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000
```

K = .135072HR TP = .133333HR K/TP RATIO = 1.013045 SHAPE CONSTANT, N = 3.484507
UNIT PEAK = 4.7880 CFS UNIT VOLUME = .9979 B = 319.20 P60 = 1.6400
AREA = .002000 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=90 CODE=1

HYDROGRAPH FROM AREA 700.76

RUNOFF VOLUME = 1.73082 INCHES = 1.8462 ACRE-FEET
PEAK DISCHARGE RATE = 45.73 CFS AT 1.500 HOURS BASIN AREA = .0200 SQ. MI.

*s ADD SUB-BASINS "D","C", "PDN-1", "PDN-2", "A" & "PDN-3" ++++++++++++++++++++

ADD HYD ID=96 HYD NO=700.85 ID I=97 ID II=90

PRINT HYD ID=96 CODE=1

HYDROGRAPH FROM AREA 700.85

RUNOFF VOLUME = 1.58743 INCHES = 34.3729 ACRE-FEET
PEAK DISCHARGE RATE = 654.94 CFS AT 1.600 HOURS BASIN AREA = .4060 SQ. MI.

*S COMPUTE BASIN "B" - BASIN **********

COMPUTE LT TP LCODE=1 NK=3 ISLOPE=-1
LENGTH=200 FT SLOPE=0.0300 K=0.7
LENGTH=200 FT SLOPE=0.0200 K=2.0
LENGTH=1000 FT SLOPE=0.0300 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	200.0	.030000	.7000
SHALLOW FLOW PORTION	200.0	.020000	2.0000
CHANNEL FLOW PORTION	1000.0	.030000	3.0000
TOTAL BASIN	1400.0	.028571	1.9346

TIME OF CONCENTRATION (HRS)= .1189 TIME TO PEAK (HRS)= .0793 LAG TIME (HRS)= .0892

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=98 HYD NO=700.90 DA=0.022 SQ MI
A=100 B=0 C=0 D=0
TP=0.0 MASSRAIN=-1

TIME TO PEAK (hrs)= .1333

K = .169524HR TP = .133333HR K/TP RATIO = 1.271433 SHAPE CONSTANT, N = 2.810713
UNIT PEAK = 43.891 CFS UNIT VOLUME = .9977 B = 266.01 P60 = 1.6400
AREA = .022000 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=98 CODE=1

HYDROGRAPH FROM AREA 700.90

RUNOFF VOLUME = .35708 INCHES = .4190 ACRE-FEET
PEAK DISCHARGE RATE = 14.78 CFS AT 1.500 HOURS BASIN AREA = .0220 SQ. MI.

*s ADD SUB-BASINS "D","C", "PDN-1", "PDN-2", "A","PDN-3"& "B" (AP-3) ++++++++++++

ADD HYD ID=97 HYD NO=700.85 ID I=96 ID II=98

PRINT HYD ID=97 CODE=1

HYDROGRAPH FROM AREA 700.85

RUNOFF VOLUME = 1.52419 INCHES = 34.7919 ACRE-FEET
PEAK DISCHARGE RATE = 666.27 CFS AT 1.600 HOURS BASIN AREA = .4280 SQ. MI.

*S ROUTE THRU PDN04 THROUGH PIPE TO AP-4 >>

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.0104
DIA=7.0 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.36	.76	3.42	3.11
.73	2.13	14.84	4.28
1.09	3.84	34.49	5.08
1.46	5.81	62.03	5.69
1.82	7.97	96.85	6.15
2.19	10.28	138.18	6.49
2.55	12.70	185.13	6.74
2.92	15.19	236.69	6.90
3.28	17.72	291.78	6.99
3.65	20.28	349.21	7.00
4.01	22.82	407.68	7.00
4.38	25.32	465.82	7.00
4.74	27.75	522.09	7.00
5.11	30.08	574.79	7.00
5.47	32.27	621.95	7.00
5.84	34.28	661.19	7.00
6.20	36.05	689.27	7.00
6.57	37.49	700.80	7.00
7.00	38.48	700.80	7.00

ROUTE MCUNGE ID=10 HYD NO=800 INFLOW ID=97
DT=0.0 L=1000 NS=0 SLOPE=0.0100
MATCODE=0 REGCODE=0 CCODE=0 MM CODE=0

INFLOW END= 186 TABLE PTS= 19
DT= .050000 QMED= 333.13 CKMED= 22.5002
WIDTH MED= 7.00 NREACH= 1 DX= 1000.00

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.085	.0	5.56	2.11	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.36	.8	3.4	.062	3.1	7.35	4.47	1.323	.015	.987	.145	-.132	.5	.998	.023	-.021
.73	2.1	14.8	.040	4.3	10.14	6.97	1.826	.034	.976	.301	-.277	8.2	.979	.213	-.192
1.09	3.8	34.5	.031	5.1	12.84	8.97	2.312	.053	.969	.406	-.374	23.8	.972	.357	-.329
1.46	5.8	62.0	.026	5.7	15.12	10.67	2.721	.072	.962	.473	-.435	47.5	.965	.442	-.407
1.82	8.0	96.8	.023	6.1	17.06	12.14	3.070	.092	.956	.520	-.475	78.8	.959	.498	-.457
2.19	10.3	138.2	.021	6.5	18.70	13.44	3.367	.114	.949	.554	-.503	116.9	.952	.538	-.491
2.55	12.7	185.1	.019	6.7	20.09	14.58	3.616	.137	.942	.579	-.522	161.1	.946	.568	-.514
2.92	15.2	236.7	.018	6.9	21.22	15.58	3.820	.162	.935	.599	-.534	210.5	.939	.590	-.529
3.28	17.7	291.8	.017	7.0	22.12	16.46	3.981	.189	.927	.613	-.540	263.8	.931	.607	-.538
3.65	20.3	349.2	.016	7.0	22.73	17.22	4.092	.219	.917	.623	-.541	320.2	.923	.619	-.542
4.01	22.8	407.7	.016	7.0	22.88	17.87	4.118	.255	.905	.628	-.533	378.2	.912	.627	-.539
4.38	25.3	465.8	.015	7.0	22.45	18.40	4.041	.296	.889	.625	-.514	436.6	.898	.628	-.526
4.74	27.8	522.1	.015	7.0	21.39	18.81	3.850	.349	.866	.615	-.481	493.8	.879	.622	-.501
5.11	30.1	574.8	.015	7.0	19.61	19.11	3.529	.419	.831	.596	-.426	548.4	.851	.607	-.458
5.47	32.3	622.0	.014	7.0	16.96	19.27	3.053	.524	.771	.563	-.334	598.4	.807	.582	-.389
5.84	34.3	661.2	.014	7.0	13.21	19.29	2.377	.715	.650	.511	-.162	641.6			

```
.726   .542  -.268
         6.20    36.1     689.3     .015     7.0      7.74  19.12     1.392  1.273    .305    .454    .240     675.3
.545   .481  -.026
         6.57    37.5     700.8     .015     7.0      4.41  18.69      .794  2.271   -.117    .508    .610     695.1
.091   .481   .427
     MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) =   4 OCCURRED       5 TIMES.  AVERAGE NUMBER ITERATIONS =
1.2291
     Equations solved using the Ponce correction to C2

     PRINT HYD              ID=10  CODE=1

                                          HYDROGRAPH FROM AREA   800.00


         RUNOFF VOLUME =     1.52348 INCHES      =      34.7757 ACRE-FEET
         PEAK DISCHARGE RATE =     657.34 CFS  AT   1.600 HOURS   BASIN AREA =    .4280 SQ. MI.




     *S COMPUTE BASIN PDN04  - BASIN *******************************************

     COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                                LENGTH=50 FT     SLOPE=0.0200  K=0.7
                           LENGTH=250 FT    SLOPE=0.0200  K=2.0
                                LENGTH=1200 FT   SLOPE=0.0200  K=3.0


          Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

          SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
          SHEET FLOW PORTION          50.0            .020000             .7000
          SHALLOW FLOW PORTION       250.0            .020000            2.0000
          CHANNEL FLOW PORTION      1200.0            .020000            3.0000
          TOTAL BASIN               1500.0            .020000            2.5150


          TIME OF CONCENTRATION (HRS)=   .1171     TIME TO PEAK (HRS)=   .0781     LAG TIME (HRS)=   .0879


          TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
          REVISED VALUES: TIME OF CONCENTRATION (HRS)=   .2000     TIME TO PEAK (HRS)=   .1333     LAG TIME
(HRS)=   .1500

     COMPUTE NM HYD       ID=20  HYD NO=800.2  DA=0.019 SQ MI
                          A=0  B=10  C=0  D=90
                               TP=0.0 MASSRAIN=-1

          TIME TO PEAK (hrs)=   .1333

          K =   .072666HR    TP =   .133333HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   67.495    CFS   UNIT VOLUME =    .9989       B =   526.28      P60 = 1.6400
          AREA =      .017100 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


          K =   .135072HR    TP =   .133333HR    K/TP RATIO = 1.013045     SHAPE CONSTANT, N =  3.484507
          UNIT PEAK =   4.5486    CFS   UNIT VOLUME =    .9979       B =   319.20      P60 = 1.6400
          AREA =      .001900 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

     PRINT HYD           ID=20 CODE=1

                                          HYDROGRAPH FROM AREA   800.20


         RUNOFF VOLUME =     1.73082 INCHES      =       1.7539 ACRE-FEET
         PEAK DISCHARGE RATE =      43.44 CFS  AT   1.500 HOURS   BASIN AREA =    .0190 SQ. MI.




     *s ADD SUB-BASINs D C pdn-1, pdn-2, A & B( to AP-4) ++++++++++++++++++++++++++++

     ADD HYD                         ID=90  HYD NO=800.5 ID I=10  ID II=20

     PRINT HYD              ID=90  CODE=1

                                          HYDROGRAPH FROM AREA   800.50


         RUNOFF VOLUME =     1.53229 INCHES      =      36.5295 ACRE-FEET
```

PEAK DISCHARGE RATE = 686.66 CFS AT 1.600 HOURS BASIN AREA = .4470 SQ. MI.

*s ADD ALL SUB-BASINs (AP-4) ++++++++++++++++++++++++++++++++

ADD HYD ID=97 HYD NO=900 ID I=44 ID II=90

PRINT HYD ID=97 CODE=1

HYDROGRAPH FROM AREA 900.00

RUNOFF VOLUME = .95691 INCHES = 55.2235 ACRE-FEET
PEAK DISCHARGE RATE = 965.27 CFS AT 1.600 HOURS BASIN AREA = 1.0821 SQ. MI.

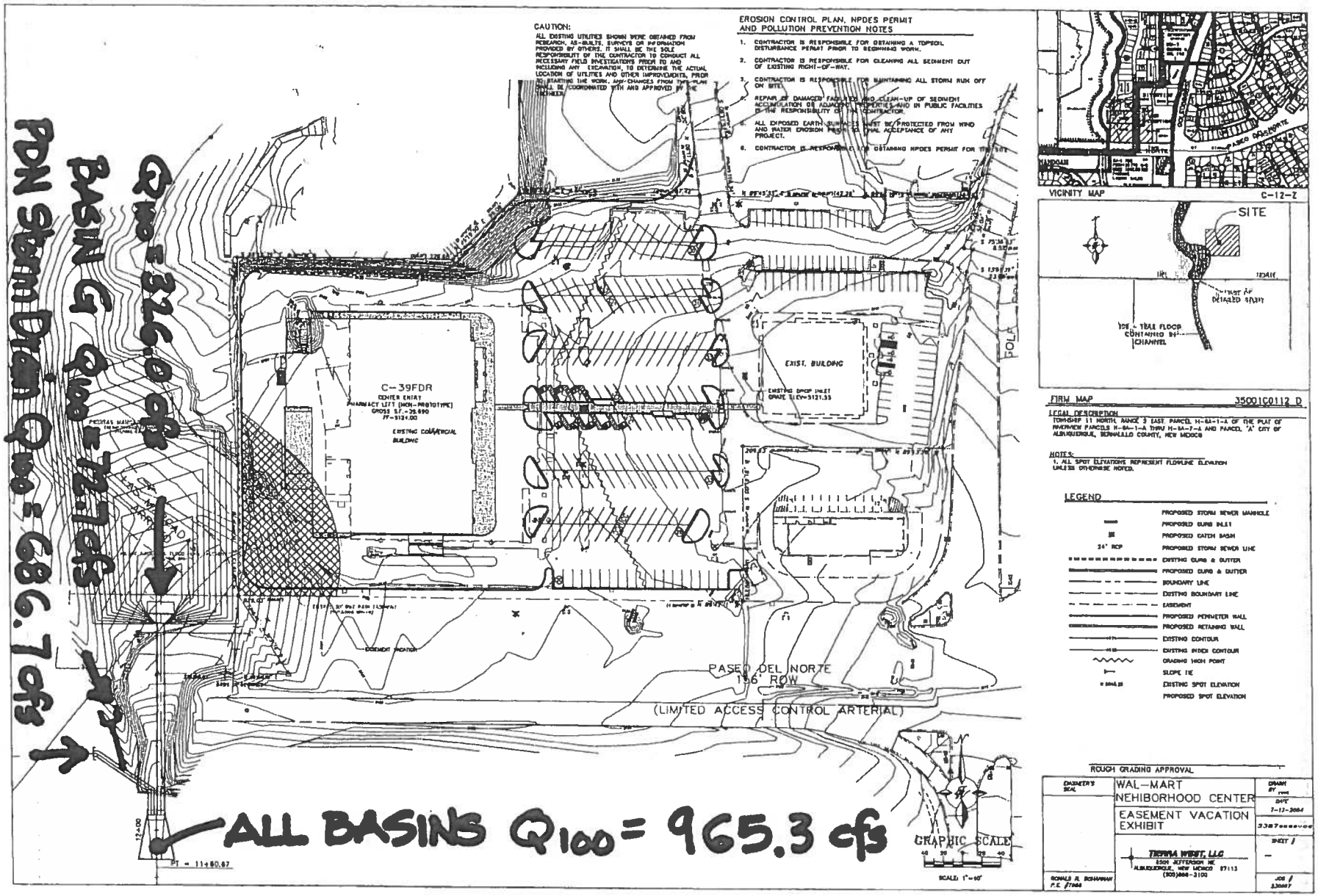
FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 16:36:04

(s0p10h4099T&16D

APPENDIX C

WALMART PIEDRAS MARCADAS ARROYO CROSSING OF PDN



WALMART PIEDRAS MARCADAS
ARROYO CROSSING OF PDN