Change Order No. 2
Conversion of Spook Hill ADMP DDMS Files to DDMSW Format

McDowell Road Basin and Storm Drain Design

Prepared for:

Flood Control District of Maricopa County
(FCD No. 2004C052)
Change Order No. 2

KHA Project No. 091131012
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Registered Professional Engineer (Civil)
CERTIFICATE NO.
34151
LAURA S.
MARIN
Date Signed 12/21/05
ARIZONA, U.S.A.

KHA Project No. 091131012

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Kimley-Horn
and Associates, Inc.

December 28, 2005

Suite 300
7878 N. 16th Street
Phoenix, Arizona
85020

Mr. Scott Vogel, P.E.
Senior Project Manager
Flood Control District of Maricopa County
2801 W. Durango Street
Phoenix, Arizona 85009

RE: McDowell Road Basin and Storm Drain Design
FCD 2004C052
Change Order No. 2

Dear Scott:

We are submitting for your approval the tasks outlined in Change Order No. 2 for the McDowell Road Basin and Storm Drain Project. The assignment for the change order was to convert the Spook Hill ADMP DDMS files prepared by Wood/Patel to DDMSW format. The conversion was conducted on the entire watershed as defined in the Spook Hill ADMP Update, using the DDMS files provided to Kimley-Horn (KHA) by Wood/Patel on July 27, 2005.

The completion of the tasks for Change Order No. 2 is discussed below:

Task 1: Import DDMS files to DDMSW version 3.2.9 (this version was provided to Kimley-Horn by the District in a meeting on September 15, 2005).

This task was completed, the HEC-1 output file is attached. All DDMSW files are provided on the enclosed CD.

Task 2: Delete the JD records in the ADMPU and let DDMSW populate the fields according to the new version's algorithm.

This task was unnecessary because DDMSW imported all of the files correctly.

TEL 602 944 5500
FAX 602 944 7423

Task 3: Revise stage-storage records at Signal Butte FRS and Apache Junction FRS to match the latest provided to Kimley-Horn by Joe Rumann.

Stage-storage records at Signal Butte FRS and Apache Junction FRS were changed to reflect current stage-storage records. See attached HEC-1 output file.

Task 4: Review times of concentration, Joe Rumann requested this step in a phone conversation 9/27/05. He said that the DDMSW version 3.2.9 may have a bug in it. He requested that KHA check the m and b values used to determine K_b in the time of concentration equation.

*As shown in **Table 1**, the m and b values from the Spook Hill ADMP were used to calculate their corresponding K_b values. These values were then compared to those generated in DDMSW. The K_b values generated with DDMSW are consistent with those in the ADMP.*

Task 5: Prepare a table of flow comparisons for representative areas of the model.

*Flow comparisons were completed for ten representative areas. **Table 2** provides the results of this comparison. All areas match.*

Submitted:

- Table 1. Comparison of K_b Values.
- Table 2. Comparison of Flows Between DDMS and DDMSW.
- Edited subbasin map (11 inch x17 inch)
- Hard copy of HEC-1 output file
- Edited subbasin map (24 inch x 36 inch)
- Electronic copy of HEC-1 input and output files (on CD)
- Electronic copy of DDMSW files (on CD)

Sincerely,

Kimley-Horn and Associates, Inc.

Laurie S. Marin, P.E., CFM
Project Engineer

Registered Professional Engineer (Civil)
CERTIFICATE NO.
34151
LAURA S.
MARIN
Date Signed 12/28/06
ARIZONA, U.S.A.

Table 1. Comparison of K_b value.

Area ID	Area [mi^2]	Area [acres]	From DDMS Files for Spook Hill ADMP			K_b [Generated by DDMSW]	Difference
			m	b	Calculated K_b (1)		
10	0.690	442	-0.01375	0.080	0.044	0.044	0.000
20	1.167	747	-0.01375	0.080	0.040	0.040	0.000
40	2.227	1425	-0.01356	0.079	0.036	0.036	0.000
60	1.751	1121	-0.01352	0.079	0.038	0.038	0.000
80	1.493	956	-0.01374	0.080	0.039	0.039	0.000
100	0.488	312	-0.01362	0.079	0.045	0.045	0.000
120	2.197	1406	-0.01376	0.080	0.037	0.037	0.000
140	0.598	383	-0.01375	0.080	0.044	0.044	0.000
150	0.407	260	-0.01375	0.080	0.047	0.047	0.000
160	0.365	234	-0.01375	0.080	0.047	0.047	0.000
180	1.014	649	-0.01375	0.080	0.041	0.041	0.000
190	0.918	588	-0.01375	0.080	0.042	0.042	0.000
200	0.530	339	-0.01375	0.080	0.045	0.045	0.000
210	0.792	507	-0.01375	0.080	0.043	0.043	0.000
220	0.473	303	-0.01375	0.080	0.046	0.046	0.000
240	1.408	901	-0.01375	0.080	0.039	0.039	0.000
260	0.263	168	-0.01290	0.075	0.046	0.046	0.000
280	0.319	204	-0.01375	0.080	0.048	0.048	0.000
300	0.289	185	-0.01375	0.080	0.049	0.049	0.000
305A	0.316	202	-0.01375	0.080	0.048	0.048	0.000
305B	0.386	247	-0.01375	0.080	0.047	0.047	0.000
310	0.538	344	-0.01375	0.080	0.045	0.045	0.000
320A	0.270	173	-0.01375	0.080	0.049	0.049	0.000
320B1	0.454	291	-0.01375	0.080	0.046	0.046	0.000
320B2	0.220	141	-0.01358	0.079	0.050	0.050	0.000
340A1	1.089	697	-0.01486	0.087	0.045	0.045	0.000
340A2	0.037	24	-0.01014	0.061	0.047	0.047	0.000
340B	0.290	186	-0.01375	0.080	0.049	0.049	0.000
350	0.997	638	-0.01375	0.080	0.041	0.041	0.000
355	0.676	433	-0.01375	0.080	0.044	0.044	0.000
360	0.880	563	-0.01437	0.084	0.044	0.044	0.000
370	0.672	430	-0.01375	0.080	0.044	0.044	0.000

Notes: (1) K_b was calculated using the equation provided in Table 3.1 of the Drainage Design Manual for Maricopa County, $K_b = m\log A + b$.
(2) Sub area altered for the McDowell Road Basin and Storm Drain model.

Table 1. Comparison of K_b value.

Area ID	Area [mi^2]	Area [acres]	From DDMS Files for Spook Hill ADMP			K_b [Generated by DDMSW]	Difference
			m	b	Calculated K_b (1)		
380A	0.261	167	-0.02007	0.121	0.076	0.076	0.000
380B1	0.369	236	-0.01375	0.080	0.047	0.047	0.000
380B2	0.096	61	-0.01375	0.080	0.055	0.055	0.000
380B3	0.123	79	-0.01375	0.080	0.054	0.054	0.000
385A	0.018	12	n/a(2)	n/a(2)	n/a(2)	0.065	n/a(2)
385B	0.077	49	n/a(2)	n/a(2)	n/a(2)	0.057	n/a(2)
385C	0.501	321	n/a(2)	n/a(2)	n/a(2)	0.039	n/a(2)
390A	0.024	15	n/a(2)	n/a(2)	n/a(2)	0.064	n/a(2)
390B	0.101	65	n/a(2)	n/a(2)	n/a(2)	0.055	n/a(2)
390C	0.121	77	n/a(2)	n/a(2)	n/a(2)	0.054	n/a(2)
395	0.199	127	-0.01375	0.080	0.051	0.051	0.000
395A	0.187	120	n/a(2)	n/a(2)	n/a(2)	0.051	n/a(2)
395B	0.004	3	n/a(2)	n/a(2)	n/a(2)	0.074	n/a(2)
400A	0.048	31	-0.02100	0.125	0.094	0.094	0.000
400B1	0.385	246	-0.01626	0.096	0.057	0.057	0.000
400B2	0.194	124	-0.01375	0.080	0.051	0.051	0.000
400B3	0.024	15	-0.01375	0.080	0.064	0.064	0.000
415A	0.280	179	-0.01375	0.080	0.049	0.049	0.000
415B	0.276	177	-0.01375	0.080	0.049	0.048	-0.001
420A1	0.566	362	-0.01348	0.079	0.045	0.044	-0.001
420A2	0.022	14	-0.01375	0.080	0.064	0.064	0.000
420B05	0.040	26	n/a(2)	n/a(2)	n/a(2)	0.061	n/a(2)
420B10	0.025	16	n/a(2)	n/a(2)	n/a(2)	0.063	n/a(2)
420B15	0.011	7	n/a(2)	n/a(2)	n/a(2)	0.068	n/a(2)
420B20	0.014	9	n/a(2)	n/a(2)	n/a(2)	0.067	n/a(2)
420B25	0.084	54	n/a(2)	n/a(2)	n/a(2)	0.056	n/a(2)
420B30	0.055	35	n/a(2)	n/a(2)	n/a(2)	0.059	n/a(2)
420B35	0.034	22	n/a(2)	n/a(2)	n/a(2)	0.062	n/a(2)
420B40	0.005	3	n/a(2)	n/a(2)	n/a(2)	0.073	n/a(2)
420B45	0.007	4	n/a(2)	n/a(2)	n/a(2)	0.071	n/a(2)

Notes: (1) K_b was calculated using the equation provided in Table 3.1 of the Drainage Design Manual for Maricopa County, $K_b = m\log A + b$.
(2) Sub area altered for the McDowell Road Basin and Storm Drain model.

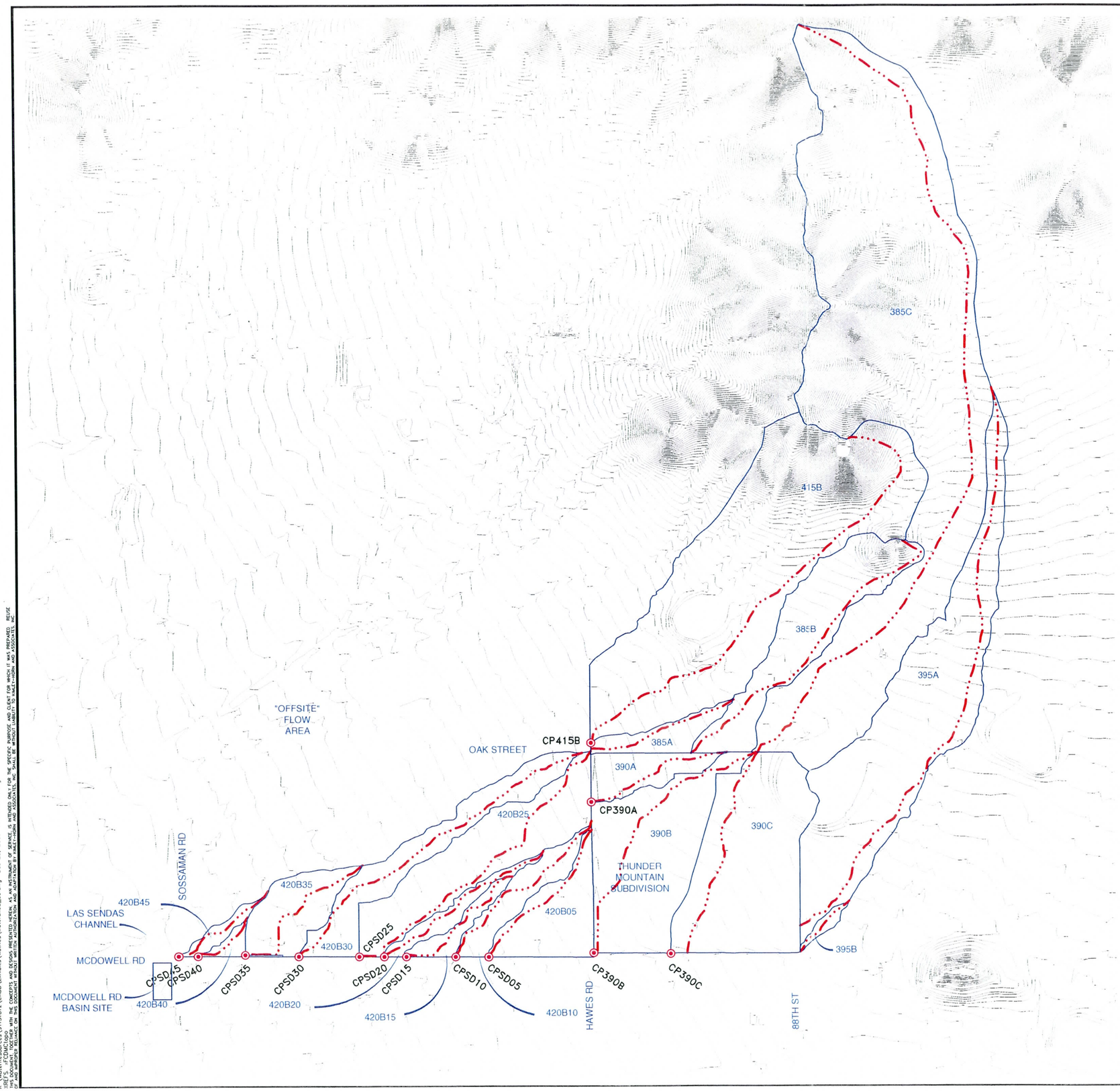
Table 1. Comparison of K_b value.

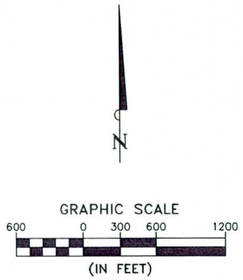
Area ID	Area [mi^2]	Area [acres]	From DDMS Files for Spook Hill ADMP			K_b [Generated by DDMSW]	Difference
			m	b	Calculated K_b (1)		
440	0.080	51	-0.00880	0.054	0.039	0.039	0.000
441	0.010	6	-0.01375	0.080	0.069	0.069	0.000
442	0.100	64	-0.01375	0.080	0.055	0.055	0.000
443	0.080	51	-0.01180	0.070	0.050	0.050	0.000
444	0.040	26	-0.00707	0.044	0.034	0.034	0.000
445	0.190	122	-0.00903	0.055	0.036	0.036	0.000
446	0.040	26	-0.01375	0.080	0.061	0.061	0.000
447	0.090	58	-0.01375	0.080	0.056	0.056	0.000
448	0.045	29	-0.00899	0.055	0.042	0.042	0.000
449	0.050	32	-0.01221	0.072	0.054	0.054	0.000
450	0.070	45	-0.01350	0.079	0.057	0.057	0.000
451	0.025	16	-0.01375	0.080	0.063	0.063	0.000
452	0.040	26	-0.01232	0.072	0.055	0.055	0.000
453	0.060	38	-0.01375	0.080	0.058	0.058	0.000
454	0.180	115	-0.01356	0.079	0.051	0.051	0.000
455	1.111	711	-0.01369	0.080	0.041	0.041	0.000
456	0.260	166	-0.01239	0.073	0.045	0.045	0.000
457	0.190	122	-0.01187	0.070	0.045	0.045	0.000
458	0.190	122	-0.01271	0.074	0.048	0.048	0.000
459	0.030	19	-0.01108	0.066	0.052	0.052	0.000
460	0.140	90	-0.01482	0.087	0.058	0.058	0.000
461	0.120	77	-0.01313	0.077	0.052	0.052	0.000
462	0.301	193	-0.01258	0.074	0.045	0.045	0.000
480	0.731	468	-0.01326	0.077	0.042	0.042	0.000
500	0.930	595	-0.01375	0.080	0.042	0.042	0.000

Notes: (1) K_b was calculated using the equation provided in Table 3.1 of the Drainage Design Manual for Maricopa County, $K_b = m\log A + b$.
(2) Sub area altered for the McDowell Road Basin and Storm Drain model.

Table 2. Comparison of Flows Between DDMS and DDMSW.

Subbasin ID	DDMS			DDMSW			Difference
	Q [cfs]	AREA [mi^2]	Runoff [cfs/mi^2]	Q [cfs]	AREA [mi^2]	Runoff [cfs/mi^2]	Q [cfs]
240	1513	1.41	1073	1513	1.41	1073	0
260	427	0.26	1642	427	0.26	1642	0
300	428	0.29	1476	428	0.29	1476	0
C305	1534	1.19	1289	1534	1.19	1289	0
320A	315	0.27	1167	315	0.27	1167	0
360	840	0.88	955	840	0.88	955	0
CC400B	2957	8.76	338	2957	8.76	338	0
C420A	3728	11.09	336	3728	11.09	336	0
455	1418	1.11	1277	1418	1.11	1277	0
CC480	1107	0.73	1516	1107	0.73	1516	0





Concentration Point	McDowell Road Basin Q [cfs]	Remarks
CP390C	379	Discharge at CP east of TM driveway on McDowell Rd
TOC-H	104	Diversion to Culver-Hawes system
TO390B	275	Discharge west from diversion
390SD1	N/A	Discharge to Storm Drain collector on McDowell
CP390A	210	
CP415B	1205	Runoff to Oak St basin
S415B	55	Discharge from Oak St basin
CP390B	613	Discharge into Thunder Mtn basin
390B	139	Discharge into Thunder Mtn basin
S390B	519	Discharge from Thunder Mtn basin
CP390	N/A	CP at corner of McDowell and Hawes
CPSD05	559	
CPSD10	581	
CPSD15	589	
CPSD20	600	
CPSD25	615	
CPSD30	658	
CPSD35	694	
CPSD40	698	
CPSD45	704	
MCDB	304	Diversion to McDowell Rd Basin
TOLSCH	400	Flow directly to Las Sendas Channel
CP415A	1431	Flow from "offsite" watershed to north & SD bypass
SMCDB	106	Discharge from McDowell Rd Basin
CPLSCH	1515	Discharge in Las Sendas Channel from McDowell Rd basin and bypass and northern "offsite" watershed

Subbasin ID	Q [CFS]	AREA [SQ MI]	Runoff [CFS/SQ MI]
385C	647	0.501	1291
385B	103	0.077	1338
385A	23	0.018	1276
415B	442	0.276	1601
395A	191	0.185	1032
390C	226	0.121	1868
390B	139	0.101	1376
390A	33	0.024	1375
420B05	62	0.040	1550
420B10	26	0.025	1040
420B15	12	0.011	1091
420B20	12	0.014	857
420B25	37	0.084	440
420B30	46	0.055	836
420B35	40	0.034	1176
420B40	6	0.005	1200
420B45	7	0.007	1000

McDowell Basin	
High Water [ft]	10.4
Storage Volume [ac-ft]	9.2
Outlet Pipe	1 - 36-inch

LEGEND

DRAINAGE FLOWPATH

WATERSHED BOUNDARY

SUBBASIN ID NUMBER 395A

CONCENTRATION POINT

CONCENTRATION POINT NUMBER CPSD10

NO.	REVISION	BY	DATE	APPR.

Kimley-Horn and Associates, Inc.

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7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

SCALE (H): 1"=1200'
SCALE (V): NONE

DESIGNED BY: PAC
DRAWN BY: JWH
CHECKED BY: LSM

DATE: DEC. 2005

MCDOWELL ROAD BASIN AND STORM DRAIN DESIGN

FIGURE 1 - HYDROLOGY WATERSHED MAP

PROJECT NO. 91131012

DRAWING NAME WATERSHED

1 OF 1

K:\WaterResources\91131012\CADD\Exhibits\WaiRes\watershed_co.dwg Dec 28, 2005 Joron Hosenbolg
XREF'S: IFCDMCTopo
THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND WITHOUT RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

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1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             JUN   1998               *
*           VERSION 4.1                *
*                                      *
* RUN DATE   28DEC05  TIME  08:11:30   *
*                                      *
****************************************
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****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X               X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

```
1                                    HEC-1 INPUT                                                    PAGE  1

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   1          ID   McDowell Road Basin and Storm Drain Design
   2          ID   This model assumes that the Oak Street detention basin is installed,
   3          ID   and all flows pass through the Thunder Mountain detention basin.
   4          ID
   5          ID   The Spook Hill ADMP model was uded as a base for this model
   6          ID   Return Period = 100 Years, Rainfall Duration = 24 Hours
   7          ID
   8          ID   METHODOLOGY
   9          ID   THE US CORPS OF ENGINEERS FLOW HYDROGRAPH PACKAGE HEC-1 DATED JUNE 1998 V4.1
  10          ID   SCS TYPE II RAINFALL DISTRIBUTION
  11          ID   CLARK UNIT HYDROGRAPH
  12          ID   GREEN AND AMPT INFILTRATION EQUATION USED FOR CALCULATING LOSSES
  13          ID   NORMAL DEPTH STORAGE CHANNEL ROUTING
              *
              *DIAGRAM
  14          IT       2                    2000
  15          IO       5
  16          IN      15
  17          JD    3.81    0.01
  18          PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
  19          PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
  20          PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
  21          PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
  22          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
  23          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
  24          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
  25          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
  26          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
  27          PC    .983    .986    .989    .992    .995    .998   1.000
  28          JD   3.787    1.00
  29          JD   3.677    5.80
  30          JD   3.574   10.66
  31          JD   3.539   13.70
  32          JD   3.467   20.00
  33          JD   3.315   50.00
              *
              * DDM   ***** Updated *****

  34          KK      10
  35          KM   SUB-BASIN 10
  36          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
  37          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
  38          KM     L = 2.00  Kb = .044  Adj. Slope =  165.0
  39          BA    .690
  40          LG    .350    .310   7.600    .090  16.000
  41          UC    .421    .305
  42          UA       0       3       5       8      12      20      43      75      90      96
  43          UA     100
              *
              * DDM   ***** Preserved *****
1                                    HEC-1 INPUT                                                    PAGE  2

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  44          KK     R10
  45          KM   ROUTING OF FLOW FROM SUB-BASIN 10 TO R12
  46          RS       4    FLOW      -1
```

```
47          RC    .045     .03    .045    8700    .021
48          RX       0       1       2      17      27      42      43      44
49          RY       5       5       5       0       0       5       5       5
            * DDM   ***** Preserved *****

50          KK     R12
51          KM   ROUTING OF FLOW FROM R12 TO SUB-BASIN 20
52          RS       7    FLOW      -1
53          RC    .045     .03    .045    4500     .01
54          RX       0       1      45    52.5    72.5      80     124     125
55          RY       4     2.5     2.5       0       0     2.5     2.5       4
            * DDM   ***** Updated *****

56          KK      20
57          KM   SUB-BASIN 20
58          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
59          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
60          KM     L = 2.50  Kb = .040  Adj. Slope =  88.0
61          BA   1.167
62          LG    .310    .290   5.800    .220  11.000
63          UC    .629    .422
64          UA       0       5      16      30      65      77      84      90      94      97
65          UA     100
            * DDM   ***** Preserved *****

66          KK     D20
67          KM        100-YEAR 2-HOUR ONSITE RETENTION BASIN
68          KM        MAXIMUM VOLUME DIVERSION = 47.8 acre-feet
69          DT    BS20    47.8
70          DI       0   10000
71          DQ       0   10000
            * DDM   ***** Preserved *****

72          KK    RT20
73          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
74          DR    BS20
            * DDM   ***** Preserved *****

75          KK     S20
76          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
77          KM   BLEEDOFF FLOW = 17 CFS
78          RS       1    STOR       0
79          SV       0     .01    47.8      70
80          SQ       0     0.5    17.0      50
            * DDM   ***** Preserved *****
                                    HEC-1 INPUT                                          PAGE  3

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

81          KK     C20
82          KM   HYDROGRAPH COMBINATION
83          HC       3
            * DDM   ***** Preserved *****

84          KK     R20
85          KM        ROUTE FLOW THROUGH BULLDOG FLOODWAY FROM APACHE JUNCTION FRS
86          RS       1    FLOW      -1
87          RC    .016    .016    .016     990    .004
88          RX       0       5       7    14.5    34.5      42      44      50
89          RY       4       2       2       0       0       2       2       4
            * DDM   ***** Updated *****

90          KK      40
91          KM   SUB-BASIN 40
92          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
93          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .987
94          KM     L = 3.08  Kb = .036  Adj. Slope =  189.0
95          BA   2.227
96          LG    .320    .300   4.900    .310  11.000
97          UC    .492    .262
98          UA       0       3       5       8      12      20      43      75      90      96
99          UA     100
            * DDM   ***** Preserved *****

100         KK     D40
101         KM        100-YEAR 2-HOUR ONSITE RETENTION BASIN
102         KM        MAXIMUM VOLUME DIVERSION = 39.1 acre-feet
103         DT    BS40    39.1
104         DI       0   10000
105         DQ       0   10000
            * DDM   ***** Preserved *****

106         KK    RT40
107         KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
108         DR    BS40
            * DDM   ***** Preserved *****

109         KK     S40
110         KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
111         KM   BLEEDOFF FLOW = 14 CFS
112         RS       1    STOR       0
113         SV       0     .01    39.1      60
114         SQ       0     0.5    14.0      40
            * DDM   ***** Preserved *****
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115          KK     C40
116          KM   HYDROGRAPH COMBINATION
117          HC       3
             * DDM   ***** Updated *****
                                    HEC-1 INPUT                                          PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


118          KK      60
119          KM   SUB-BASIN 60
120          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
121          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .989
122          KM     L = 4.19  Kb = .038  Adj. Slope =  209.6
123          BA   1.751
124          LG    .320    .340   5.800    .190  10.000
125          UC    .592    .472
126          UA       0       3       5       8      12      20      43      75      90      96
127          UA     100
             *
             * DDM   ***** Preserved *****

128          KK     D60
129          KM        100-YEAR 2-HOUR ONSITE RETENTION BASIN
130          KM        MAXIMUM VOLUME DIVERSION = 4.60 acre-feet
131          DT    BS60     4.6
132          DI       0   10000
133          DQ       0   10000
             * DDM   ***** Preserved *****

134          KK    RT60
135          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
136          DR    BS60
             * DDM   ***** Preserved *****

137          KK    SB60
138          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
139          KM   BLEEDOFF FLOW = 2 CFS
140          RS       1    STOR       0
141          SV       0     .01     4.6      10
142          SQ       0     0.5     2.0      10
             * DDM   ***** Preserved *****

143          KK     C60
144          KM   HYDROGRAPH COMBINATION
145          HC       3
             *
             * DDM   ***** Preserved *****

146          KK     S60
147          KM   APACHE JUNCTION FRS AS-BUILT PLANS 12/19/88
148          KM   OUTLET PIPE=30"RCP; L=136.6'; INLET INV.=1783.5; OUTLET INV.=1783
149          KM   EMERGENCY SPILLWAY ELEV.=1799.77'; PRINCIPAL SPILLWAY ELEV.=1793.5'
150          KM   STORAGE VOLUME BELOW PRINCIPAL SPILLWAY FOR SEDIMENT = 100 ACRE-FEET
             *  ESE = 1799.77 ft; PSE = 1793.5 ft; Sediment Vol. = 130 Ac-Ft.
151          RS       1    STOR       0
152          SV       0    46.8     106     130   161.2   170.7   230.7   322.2     543   812.9
153          SV    1122  1470.1    1865
154          SQ       0    0.01    0.02    26.3    74.4    91.2    96.2   102.4   113.9    1650
155          SQ    7700   15200   26200
156          SE   791.4     793   794.1   794.5     795   795.1     796   797.1   799.4   801.7
157          SE     804   806.3   808.6
             * DDM   ***** Preserved *****
                                    HEC-1 INPUT                                          PAGE  5

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


158          KK     R60
159          KM        ROUTE FLOW THROUGH BULLDOG FLOODWAY FROM APACHE JUNCTION FRS
160          RS       2    FLOW      -1
161          RC    .016    .016    .016    2850    .012
162          RX       0       1       2     2.1     5.6     5.7       6       7
163          RY     4.5     3.5     3.5       0       0     3.5     3.5     4.5
             * DDM   ***** Preserved *****

164          KK    RR60
165          KM   ROUTE FLOW FROM BULLDOG FLOODWAY TO SUB-BASIN 80
166          RS       3    FLOW      -1
167          RC    .016    .016    .016    3500    .005
168          RX       0       1       2     2.1     7.1     7.2       8       9
169          RY     4.5     3.5     3.5       0       0     3.5     3.5     4.5
             * DDM   ***** Updated *****

170          KK      80
171          KM   SUB-BASIN 80
172          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
173          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .991
174          KM     L = 2.69  Kb = .039  Adj. Slope =  229.8
175          BA   1.493
176          LG    .320    .300   5.600    .220   7.000
177          UC    .429    .254
178          UA       0       5      16      30      65      77      84      90      94      97
179          UA     100
             * DDM   ***** Preserved *****
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180          KK     D80
181          KM        100-YEAR 2-HOUR ONSITE RETENTION BASIN
182          KM        MAXIMUM VOLUME DIVERSION = 18.9 acre-feet
183          DT    BS80    18.9
184          DI       0   10000
185          DQ       0   10000
             * DDM   ***** Preserved *****

186          KK    RT80
187          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
188          DR    BS80
             * DDM   ***** Preserved *****

189          KK     S80
190          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
191          KM   BLEEDOFF FLOW =  7 CFS
192          RS       1    STOR       0
193          SV       0     .01    18.9     30
194          SQ       0     1.0     7.0     20
             * DDM   ***** Preserved *****
                                   HEC-1 INPUT                                          PAGE  6

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

195          KK     C80
196          KM   HYDROGRAPH COMBINATION
197          HC       2
             * DDM   ***** Preserved *****

198          KK    CC80
199          KM   HYDROGRAPH COMBINATION FOR FLOW FROM APACHE JUNCTION FRS & SUB-BASIN 80
200          HC       2   1.493
             * DDM   ***** Preserved *****

201          KK     R80
202          KM   ROUTE FLOW FROM SUB-BASIN 80 TO SUB-BASIN 100
203          RS       2    FLOW      -1
204          RC    .025    .016    .025    1200    .003
205          RX       0       2       6     6.1    41.1    41.2    56.2    58.2
206          RY     5.5     4.5     4.5       0       0     4.5     4.5     5.5
             * DDM   ***** Updated *****

207          KK     100
208          KM   SUB-BASIN 100
209          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
210          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
211          KM     L = 1.94  Kb = .045  Adj. Slope =  108.0
212          BA    .488
213          LG    .300    .250   5.100    .280   9.000
214          UC    .517    .455
215          UA       0       5      16      30      65      77      84      90      94      97
216          UA     100
             * DDM   ***** Preserved *****

217          KK    D100
218          KM        100-YEAR 2-HOUR ONSITE RETENTION BASIN
219          KM        MAXIMUM VOLUME DIVERSION = 10.0 acre-feet
220          DT   BS100    10.0
221          DI       0   10000
222          DQ       0   10000
             * DDM   ***** Preserved *****

223          KK   RT100
224          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
225          DR   BS100
             * DDM   ***** Preserved *****

226          KK    S100
227          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
228          KM   BLEEDOFF FLOW =  4 CFS
229          RS       1    STOR       0
230          SV       0     .01    10.0     20
231          SQ       0     1.0     4.0     10
             * DDM   ***** Preserved *****
                                   HEC-1 INPUT                                          PAGE  7

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

232          KK    C100
233          KM   HYDROGRAPH COMBINATION FOR FLOW FROM SUB-BASIN 80 & 100
234          HC       3
             * DDM   ***** Preserved *****

235          KK    R100
236          KM   ROUTE FLOW FROM SUB-BASIN 100 TO SUB-BASIN 120
237          RS       1    FLOW      -1
238          RC    .016    .016    .016     940    .004
239          RX       0       1       2     2.1    52.1    52.2      53      54
240          RY     4.5     4.5     4.5       0       0     4.5     4.5     4.5
             * DDM   ***** Updated *****

241          KK     120
242          KM   SUB-BASIN 120
243          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
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244          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .987
245          KM     L = 3.07  Kb = .037  Adj. Slope =  239.0
246          BA   2.197
247          LG    .330    .280   6.800    .130  12.000
248          UC    .429    .227
249          UA       0       3       5       8      12      20      43      75      90      96
250          UA     100
             * DDM   ***** Preserved *****

251          KK    D120
252          KM        100-YEAR 2-HOUR ONSITE RETENTION BASIN
253          KM        MAXIMUM VOLUME DIVERSION = 5.7 acre-feet
254          DT   BS120     5.7
255          DI       0   10000
256          DQ       0   10000
             * DDM   ***** Preserved *****

257          KK   RT120
258          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
259          DR   BS120
             * DDM   ***** Preserved *****

260          KK    S120
261          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
262          KM   BLEEDOFF FLOW =  2 CFS
263          RS       1    STOR       0
264          SV       0     .01     5.7     15
265          SQ       0     1.0     2.0     10
             * DDM   ***** Preserved *****

266          KK    C120
267          KM   HYDROGRAPH COMBINATION FOR FLOW FROM SUB-BASIN 100 & 120
268          HC       3
             * DDM   ***** Preserved *****
1                                    HEC-1 INPUT                                    PAGE  8

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

269          KK    R120
270          KM   ROUTE FLOW FROM SUB-BASIN 120 TO SIGNAL BUTTE FRS
271          RS       2    FLOW      -1
272          RC    .025    .016    .025    2100    .005
273          RX       0       6      10    10.1    60.1    60.2    74.2    80.2
274          RY       8       5       5       0       0       5       5       8
             * DDM   ***** Updated *****

275          KK     140
276          KM   SUB-BASIN 140
277          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
278          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
279          KM     L = 1.61  Kb = .044  Adj. Slope =  149.0
280          BA    .598
281          LG    .310    .280   4.200    .440   5.000
282          UC    .421    .278
283          UA       0       5      16      30      65      77      84      90      94      97
284          UA     100
             *
             * DDM   ***** Preserved *****

285          KK    D140
286          KM        100-YEAR 2-HOUR ONSITE RETENTION BASIN
287          KM        MAXIMUM VOLUME DIVERSION = 5.9 acre-feet
288          DT   BS140     5.9
289          DI       0   10000
290          DQ       0   10000
             * DDM   ***** Preserved *****

291          KK   RT140
292          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
293          DR   BS140
             * DDM   ***** Preserved *****

294          KK    S140
295          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
296          KM   BLEEDOFF FLOW =  2 CFS
297          RS       1    STOR       0
298          SV       0     .01     5.9     15
299          SQ       0     1.0     2.0     10
             *
             * DDM   ***** Preserved *****

300          KK    C140
301          KM   HYDROGRAPH COMBINATION
302          HC       3
             *
             * DDM   ***** Updated *****
                                     HEC-1 INPUT                                    PAGE  9

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

303          KK     150
304          KM   SUB-BASIN 150
305          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
306          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
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307          KM     L = 1.50  Kb = .047  Adj. Slope =  314.6
308          BA    .407
309          LG    .350    .360   5.100    .260   7.000
310          UC    .296    .221
311          UA       0       3       5       8      12      20      43      75      90      96
312          UA     100
             * DDM   ***** Preserved *****

313          KK    R150
314          KM   ROUTING OF FLOW FROM SUB-BASIN 150 TO R152
315          RS       2    FLOW      -1
316          RC    .045     .04    .045    3100    .032
317          RX       0       1       2      23      33      54      55      56
318          RY       7       7       7       0       0       7       7       7
             * DDM   ***** Preserved *****

319          KK    R152
320          KM   ROUTING OF FLOW FROM R152 TO SUB-BASIN 160
321          RS       3    FLOW      -1
322          RC    .045     .03    .045    5900    .019
323          RX       0       1       2       8      33      39      40      41
324          RY       2       2       2       0       0       2       2       2
             * DDM   ***** Updated *****

325          KK     160
326          KM   SUB-BASIN 160
327          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
328          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
329          KM     L = 2.10  Kb = .047  Adj. Slope =  129.0
330          BA    .365
331          LG    .340    .330   4.150    .440   1.000
332          UC    .587    .659
333          UA       0       3       5       8      12      20      43      75      90      96
334          UA     100
             *
             * DDM   ***** Preserved *****

335          KK    D160
336          KM        100-YEAR 2-HOUR ONSITE RETENTION BASIN
337          KM        MAXIMUM VOLUME DIVERSION = 1.2 acre-feet
338          DT   BS160     1.2
339          DI       0   10000
340          DQ       0   10000
             * DDM   ***** Preserved *****
                                    HEC-1 INPUT                                          PAGE 10

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

341          KK   RT160
342          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
343          DR   BS160
             * DDM   ***** Preserved *****

344          KK    S160
345          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
346          KM   BLEEDOFF FLOW =  1 CFS
347          RS       1    STOR       0
348          SV       0     .01     1.2      10
349          SQ       0     0.5     1.0      10
             * DDM   ***** Preserved *****

350          KK    C160
351          KM   HYDROGRAPH COMBINATION
352          HC       3
             *
             * DDM   ***** Updated *****

353          KK     180
354          KM   SUB-BASIN 180
355          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
356          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .994
357          KM     L = 2.42  Kb = .041  Adj. Slope =  140.0
358          BA   1.014
359          LG    .350    .350   4.150    .430    .000
360          UC    .571    .400
361          UA       0       3       5       8      12      20      43      75      90      96
362          UA     100
             * DDM   ***** Preserved *****

363          KK    C180
364          KM   HYDROGRAPH COMBINATION FOR SIGNAL BUTTE FRS
365          HC       3
             * DDM   ***** Updated *****

366          KK     210
367          KM   SUB-BASIN 210
368          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
369          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .995
370          KM     L = 1.84  Kb = .043  Adj. Slope =  315.0
371          BA    .792
372          LG    .350    .360   6.800    .130   4.000
373          UC    .313    .189
374          UA       0       3       5       8      12      20      43      75      90      96
375          UA     100
             * DDM   ***** Preserved *****
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376          KK    R210
377          KM   ROUTING OF FLOW FROM SUB-BASIN 210 TO SUB-BASIN 220
378          RS       2    FLOW      -1
379          RC    .045     .03    .045    5100    .022
380          RX       0       1       2      14      34      46      47      48
381          RY       4       4       4       0       0       4       4       4
             * DDM   ***** Updated *****
                                        HEC-1 INPUT                                          PAGE 11

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


382          KK     240
383          KM   SUB-BASIN 240
384          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
385          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .992
386          KM     L = 3.50  Kb = .039  Adj. Slope =  298.6
387          BA   1.408
388          LG    .350    .370   5.300    .230   2.000
389          UC    .467    .356
390          UA       0       3       5       8      12      20      43      75      90      96
391          UA     100
             * DDM   ***** Preserved *****

392          KK    C240
393          KM   HYDROGRAPH COMBINATION FOR SUB-BASIN 240 & 220
394          HC       2
             * DDM   ***** Preserved *****

395          KK    S240
396          KM    WEIR GEOMETRY OBTAINED FROM AS-BUILT PLANS @ PASS MTN. DIVERSION.
397          KM   WEIR STORAGE DATA OBTAINED FROM 2' CONTOUR MAPPING.
398          RS       1    STOR       0
399          SA    1.38    14.2    36.5
400          SE     1.7       5      11
401          SS       5      42       3     1.5
             * DDM   ***** Preserved *****

402          KK    R240
403          KM   ROUTE FLOW FROM SUB-BASIN 240 TO SUB-BASIN 220
404          KM   PASS MOUNTAIN DIVERSION
405          RS       1    FLOW      -1
406          RC    .035    .025    .035    1800    .005
407          RX       0      15      30      39      69      81      96     111
408          RY     3.6     3.3       3       0       0       3       3       4
             * DDM   ***** Updated *****

409          KK     220
410          KM   SUB-BASIN 220
411          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
412          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
413          KM     L = 1.92  Kb = .046  Adj. Slope =  315.0
414          BA    .473
415          LG    .350    .350   7.000    .120   5.000
416          UC    .333    .282
417          UA       0       3       5       8      12      20      43      75      90      96
418          UA     100
             * DDM   ***** Preserved *****

419          KK    C220
420          KM   HYDROGRAPH COMBINATION FOR SUB-BASIN 240 & 220
421          HC       2
             * DDM   ***** Preserved *****
                                        HEC-1 INPUT                                          PAGE 12

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


422          KK   SW220
423          KM    WEIR GEOMETRY OBTAINED FROM AS-BUILT PLANS @ PASS MTN. DIVERSION.
424          KM   WEIR STORAGE DATA OBTAINED FROM 2' CONTOUR MAPPING.
425          RS       1    STOR       0
426          SA     .78     4.1    13.7
427          SE       1       3      10
428          SS       3      65       3     1.5
             * DDM   ***** Preserved *****

429          KK    R220
430          KM   ROUTE FLOW FROM SUB-BASIN 220 TO SUB-BASIN 200
431          KM   PASS MOUNTAIN DIVERSION
432          RS       1    FLOW      -1
433          RC    .035    .025    .035    1250    .005
434          RX       0      50     100     109     139     148     178     184
435          RY       5       4       3       0       0       3       3       5
             * DDM   ***** Updated *****

436          KK     190
437          KM   SUB-BASIN 190
438          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
439          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .994
440          KM     L = 1.91  Kb = .042  Adj. Slope =  315.0
441          BA    .918
442          LG    .350    .390   5.800    .190   8.000
443          UC    .321    .185
444          UA       0       3       5       8      12      20      43      75      90      96
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445          UA     100
             * DDM   ***** Preserved *****

446          KK    R190
447          KM   ROUTING OF FLOW FROM SUB-BASIN 190 TO SUB-BASIN 200
448          RS       2    FLOW      -1
449          RC    .045     .03    .045    4740     .03
450          RX       0       1       2      17      37      52      53      54
451          RY       5       5       5       0       0       5       5       5
             * DDM   ***** Preserved *****

452          KK    R192
453          KM   ROUTING OF FLOW FROM SUB-BASIN 190 TO SUB-BASIN 200
454          RS       3    FLOW      -1
455          RC    .045    .035    .045    2200    .018
456          RX       0       1      50      59      79      88     137     138
457          RY     4.5       3       3       0       0       3       3     4.5
             * DDM   ***** Updated *****

458          KK     200
459          KM   SUB-BASIN 200
460          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
461          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
462          KM     L = 1.58  Kb = .045  Adj. Slope =  305.6
463          BA    .530
464          LG    .350    .390   5.700    .200  10.000
465          UC    .300    .201
1                                    HEC-1 INPUT                                                    PAGE 13

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

466          UA       0       3       5       8      12      20      43      75      90      96
467          UA     100
             * DDM   ***** Preserved *****

468          KK    C200
469          KM   HYDROGRAPH COMBINATION FOR SUB-BASIN 220 & 200
470          HC       3
             * DDM   ***** Preserved *****

471          KK   SW200
472          KM    WEIR GEOMETRY OBTAINED FROM AS-BUILT PLANS @ PASS MTN. DIVERSION.
473          KM   WEIR STORAGE DATA OBTAINED FROM 2' CONTOUR MAPPING.
474          RS       1    STOR       0
475          SA    2.56     3.1     9.4
476          SE       0       3      10
477          SS       3     112       3     1.5
             * DDM   ***** Preserved *****

478          KK    R200
479          KM   ROUTE FLOW FROM SUB-BASIN 200 TO SIGNAL BUTTE FRS through storage
480          RS       1    FLOW      -1
481          RC    .035    .025    .035     650    .005
482          RX       0       1       2      17     117     132     133     134
483          RY       5       5       5       0       0       5       5       5
             * DDM   ***** Preserved *****

484          KK   SS200
485          KM    WEIR GEOMETRY OBTAINED FROM AS-BUILT PLANS @ PASS MTN. DIVERSION.
486          KM   WEIR STORAGE DATA OBTAINED FROM 2' CONTOUR MAPPING.
487          RS       1    STOR       0
488          SA       8     9.2     9.2
489          SE       0       7      10
490          SS       7     251       3     1.5
             * DDM   ***** Preserved *****

491          KK   RR200
492          KM   ROUTE FLOW FROM SUB-BASIN 200 TO SIGNAL BUTTE FRS
493          RS       4    FLOW      -1
494          RC    .035    .025    .035    3150    .005
495          RX       0       1       2      17     117     132     133     134
496          RY       5       5       5       0       0       5       5       5
             * DDM   ***** Preserved *****

497          KK   CC180
498          KM   HYDROGRAPH COMBINATION FOR SIGNAL BUTTE FRS
499          HC       2
             * DDM   ***** Preserved *****

500          KK    S180
501          KM   SIGNAL BUTTE FRS DATED 1/28/85
502          KM   OUTLET PIPE=36"RCP; L= 147';  INLET INV.=1690; OUTLET INV.=1687
503          KM   EMERGENCY SPILLWAY ELEV.=1712.4; PRINCIPAL SPILLWAY ELEV.=1701
504          KM   STORAGE VOLUME BELOW PRINCIPAL SPILLWAY FOR SEDIMENT = 250 ACRE-FEET
             *  ESE = 1712.4 ft; PSE = 1701.0 ft; Sediment Vol. = 247 Ac-Ft.
505          RS       1    STOR       0
1                                    HEC-1 INPUT                                                    PAGE 14

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

506          SV       0   172.1   273.3   482.2   871.3  1101.5  1163.5  1294.1  1390.2  1432.1
507          SV  1446.1  1578.8  1733.6  1980.3  2712.2    3121    3530
508          SQ       0    10.2    10.7   121.8   138.4   145.9   147.7   151.4     154     155
509          SQ     156     390     820    1950    6600    9500   12400
510          SE     696     700   701.4     704     708     710   710.5   711.5   712.2   712.5
511          SE   712.6   713.5   714.5     716     720     722     724
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            * DDM   ***** Preserved *****

512         KK    R180
513         KM   Routing length updated using Signal Butte Floodway plans dated March 1983
514         KM   Routing length increased 100' from 1500' to 1600'    12/12/00
515         KM   CHANNEL GEOMETRY FOR SIGNAL BUTTE FRS OBTAINED FROM AS-BUILT PLANS.
516         KM   ROUTE FLOW FROM SIGNAL BUTTE FRS TO SUB-BASIN 260
517         RS       1    FLOW      -1
518         RC    .035    .025    .035    1600    .003
519         RX       0       1       2    22.6    38.6    59.2      60      61
520         RY     9.3     9.3     9.3       0       0     9.3     9.3     9.3
            * DDM   ***** Updated *****

521         KK     260
522         KM   SUB-BASIN 260
523         KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
524         KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
525         KM     L =  .81  Kb = .046  Adj. Slope =   68.0
526         BA    .263
527         LG    .280    .210   6.600    .160  11.000
528         UC    .350    .209
529         UA       0       5      16      30      65      77      84      90      94      97
530         UA     100
            * DDM   ***** Preserved *****

531         KK    C260
532         KM   HYDROGRAPH COMBINATION FOR OUTFLOW OF SIGNAL BUTTE FRS & SUB-BASIN 260
533         HC       2    .263
            * DDM   ***** Preserved *****

534         KK    R260
535         KM   Routing length updated using Signal Butte Floodway plans dated March 1983
536         KM   Routing length unchanged     12/12/00
537         KM   CHANNEL GEOMETRY FOR SIGNAL BUTTE FRS OBTAINED FROM AS-BUILT PLANS.
538         KM   ROUTE FLOW FROM SUB-BASIN 260 TO SUB-BASIN 280
539         RS       3    FLOW      -1
540         RC    .035    .025    .035    2300    .003
541         RX       0       1       2    23.4    43.4    64.8      65      66
542         RY     9.7     9.7     9.7       0       0     9.7     9.7     9.7
            * DDM   ***** Updated *****

543         KK     280
544         KM   SUB-BASIN 280
545         KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
546         KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
547         KM     L =  .77  Kb = .048  Adj. Slope =   84.0
548         BA    .319
549         LG    .300    .250   5.300    .290  15.000
550         UC    .329    .168
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

551         UA       0       5      16      30      65      77      84      90      94      97
552         UA     100
            * DDM   ***** Preserved *****

553         KK    C280
554         KM   HYDROGRAPH COMBINATION FOR SUB-BASIN 260 & SUB-BASIN 280
555         HC       2
            * DDM   ***** Preserved *****

556         KK    R280
557         KM   Routing length updated using Signal Butte Floodway plans dated March 1983
558         KM   Routing length decreased 400' from 2500' to 2100'    12/12/00
559         KM   CHANNEL GEOMETRY FOR SIGNAL BUTTE FRS OBTAINED FROM AS-BUILT PLANS.
560         KM   ROUTE FLOW FROM SUB-BASIN 280 TO SUB-BASIN 300
561         RS       3    FLOW      -1
562         RC    .035    .025    .035    2100    .003
563         RX       0       1       2    23.4    43.4    64.8      65      66
564         RY     9.7     9.7     9.7       0       0     9.7     9.7     9.7
            * DDM   ***** Updated *****

565         KK     300
566         KM   SUB-BASIN 300
567         KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
568         KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
569         KM     L =  .78  Kb = .049  Adj. Slope =  103.0
570         BA    .289
571         LG    .300    .250   4.200    .520  16.000
572         UC    .321    .174
573         UA       0       5      16      30      65      77      84      90      94      97
574         UA     100
            * DDM   ***** Preserved *****

575         KK    C300
576         KM   HYDROGRAPH COMBINATION OF SUB-BASIN 280 & 300
577         HC       2
            *
            * DDM   ***** Preserved *****

578         KK    R300
579         KM   Routing length updated using Signal Butte Floodway plans dated March 1983
580         KM   Routing length increased 300' from 2200' to 2500'    12/12/00
581         KM   CHANNEL GEOMETRY FOR SIGNAL BUTTE FRS OBTAINED FROM AS-BUILT PLANS.
582         KM   ROUTE FLOW FROM SUB-BASIN 300 TO START OF FLOODWAY CONCRETE CHANNEL
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583          RS       2    FLOW      -1
584          RC    .035    .025    .035    2500    .003
585          RX       0       1       2    23.4    55.4    76.8      77      78
586          RY     9.7     9.7     9.7       0       0     9.7     9.7     9.7
             *
             * DDM   ***** Updated *****
1                                   HEC-1 INPUT                                                    PAGE 16

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

587          KK    305A
588          KM   SUB-BASIN 305A
589          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
590          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
591          KM     L =  .98  Kb = .048  Adj. Slope =   82.0
592          BA    .316
593          LG    .340    .320   4.600    .350  12.000
594          UC    .400    .254
595          UA       0       5      16      30      65      77      84      90      94      97
596          UA     100
             *
             * DDM   ***** Preserved *****

597          KK    C305
598          KM   HYDROGRAPH COMBINATION OF SUB-BASIN 300 AND 305A
599          HC       2
             * DDM   ***** Preserved *****

600          KK    R305
601          KM   Routing length updated using Signal Butte Floodway plans dated March 1983
602          KM   CHANNEL GEOMETRY FOR SPOOK HILL FRS OBTAINED FROM AS-BUILTS PLANS.
603          KM   CONTINUE TO ROUTE FLOW WITHIN CONCRETE CHANNEL TO SPOOK HILL FRS
604          RS       2    FLOW      -1
605          RC    .016    .016    .016    4000   .0146
606          RX       0       1       2     2.1    16.1    16.2      17      18
607          RY     7.5     7.5     7.5       0       0     7.5     7.5     7.5
             *
             * DDM   ***** Updated *****

608          KK   320B1
609          KM   SUB-BASIN 320B1
610          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
611          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
612          KM     L = 1.13  Kb = .046  Adj. Slope =  106.0
613          BA    .454
614          LG    .300    .260   4.800    .310  17.000
615          UC    .375    .215
616          UA       0       5      16      30      65      77      84      90      94      97
617          UA     100
             *
             * DDM   ***** Preserved *****

618          KK  D320B1
619          KM        DIVERT FLOW INTO ONLINE  DETENTION BASIN
620          KM   DETENTION/RETENTION BASINS LOCATED WITHIN THREE SUBDIVISIONS
621          KM   SIERRA HEIGHTS       FALCON RIDGE    & MARBLE CREEK
622          KM        MAXIMUM VOLUME DIVERSION =  9.3 acre-feet
623          DT  B320B1    9.30
624          DI       0   10000
625          DQ       0   10000
             * DDM   ***** Preserved *****
1                                   HEC-1 INPUT                                                    PAGE 17

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

626          KK  T320B1
627          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
628          DR  B320B1
             * DDM   ***** Preserved *****

629          KK  S320B1
630          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
631          KM   9.30 ACRE-FEETx43560/36x3600=4.cfs
632          RS       1    STOR       0
633          SV       0     .01     9.3    15.0
634          SQ       0     0.5     4.0    50.0
             * DDM   ***** Preserved *****

635          KK  C320B1
636          KM   HYDROGRAPH COMBINATION FOR SPOOK HILL FRS
637          HC       3
             *
             * DDM   ***** Updated *****

638          KK     350
639          KM   SUB-BASIN 350
640          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
641          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .994
642          KM     L = 2.22  Kb = .041  Adj. Slope =  315.0
643          BA    .997
644          LG    .350    .350   4.550    .340   4.000
645          UC    .363    .227
646          UA       0       3       5       8      12      20      43      75      90      96
647          UA     100
```

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            * DDM   ***** Preserved *****

            KK    D350
            KM   DIVERT FLOW FROM SUB-BASIN 350. FOR MODELING PURPOSES THE SPLIT FLOW WILL
            KM   BE ROUTED BETWEEN SUB-BASINS 355 & 310. THE MAIN FLOW WILL ROUTED TO 310
            DT   SF350
            DI       0    5000
            DQ       0    2500
            * DDM   ***** Preserved *****

            KK    R350
            KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING
            KM   ROUTING OF MAIN FLOW FROM DIVERSION OF SUB-BASIN 350 TO SUB-BASIN 310
            RS       7    FLOW      -1
            RC    .045    .035    .045    5150    .025
            RX       0       1      40      46      56      62     102     103
            RY       3       2       2       0       0       2       2       3
            * DDM   ***** Updated *****

            KK     310
            KM   SUB-BASIN 310
            KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
            KM     L = 2.70  Kb = .045  Adj. Slope =  283.5
            BA    .538
                                        HEC-1 INPUT                                          PAGE 18

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            LG    .350    .350   3.910    .480    .000
            UC    .483    .520
            UA       0       3       5       8      12      20      43      75      90      96
            UA     100
            * DDM   ***** Preserved *****

            KK    C310
            KM   HYDROGRAPH COMBINATION OF SUB-BASINS 350 & 310
            HC       2    1.04
            * DDM   ***** Preserved *****

            KK    R310
            KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
            KM   ROUTING OF FLOW FROM SUB-BASIN 310 TO 320B
            RS      10    FLOW      -1
            RC    .045    .035    .045    8550    .022
            RX       0       1      40      46      56      62     102     103
            RY       3       2       2       0       0       2       2       3
            *
            * DDM   ***** Updated *****

            KK    305B
            KM   SUB-BASIN 305B
            KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
            KM     L = 1.70  Kb = .047  Adj. Slope =  124.0
            BA    .386
            LG    .350    .350   4.500    .350    .000
            UC    .492    .443
            UA       0       3       5       8      12      20      43      75      90      96
            UA     100
            *
            * DDM   ***** Preserved *****

            KK   R305B
            KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
            KM   ROUTING OF FLOW FROM SUB-BASINS 305B TO SUB-BASIN 320B2.
            RS       3    FLOW      -1
            RC    .045    .035    .045    1700    .016
            RX       0       1      40      46      56      62     102     103
            RY       3       2       2       0       0       2       2       3
            *
            * DDM   ***** Updated *****

            KK   320B2
            KM   SUB-BASIN 320B2
            KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
            KM     L = 1.08  Kb = .050  Adj. Slope =  120.0
            BA    .220
            LG    .300    .270   4.500    .380   9.000
            UC    .375    .314
            UA       0       5      16      30      65      77      84      90      94      97
            UA     100
            *
            * DDM   ***** Preserved *****
                                        HEC-1 INPUT                                          PAGE 19

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            KK  D320B2
            KM        DIVERT FLOW INTO ONLINE  DETENTION BASIN
            KM   DETENTION/RETENTION BASINS LOCATED WITHIN THREE SUBDIVISIONS
            KM   SIERRA HEIGHTS        FALCON RIDGE    & MARBLE CREEK
            KM        MAXIMUM VOLUME DIVERSION =  3.32acre-feet
            DT  B320B2    3.32
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714          DI       0   10000
715          DQ       0   10000
             * DDM   ***** Preserved *****

716          KK  T320B2
717          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
718          DR  B320B2
             * DDM   ***** Preserved *****

719          KK  S320B2
720          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
721          KM   3.32 ACRE-FEETx43560/36x3600=1.2cfs
722          RS       1    STOR       0
723          SV       0     .01     3.3     5.0
724          SQ       0     0.5     1.2    15.0
             *
             * DDM   ***** Preserved *****

725          KK  C320B2
726          KM    Combine R305B, R310 and 320B2
727          HC       4
             *
             * DDM   ***** Preserved *****

728          KK  R320B2
729          KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
730          KM   ROUTING OF FLOW FROM SUB-BASINS 320B2 TO SUB-BASIN 340B.
731          RS       2    FLOW      -1
732          RC    .045    .035    .045    1000    .016
733          RX       0       1      40      46      56      62     102     103
734          RY       5       2       2       0       0       2       2       5
             *
             * DDM   ***** Updated *****

735          KK    340B
736          KM   SUB-BASIN 340B
737          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
738          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
739          KM     L =  .85  Kb = .049  Adj. Slope =  238.5
740          BA    .290
741          LG    .280    .250   4.000    .560  23.000
742          UC    .242    .136
743          UA       0       5      16      30      65      77      84      90      94      97
744          UA     100
             *
             * DDM   ***** Preserved *****
                                    HEC-1 INPUT                                          PAGE 20

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

745          KK   D340B
746          KM        DIVERT FLOW INTO ONLINE  DETENTION BASIN
747          KM   DETENTION/RETENTION BASINS LOCATED WITHIN THREE SUBDIVISIONS
748          KM   GRANDVIEW ESTATES    BOULDER MOUNTAIN & 33% OF MESA HIGHLANDS
749          KM        MAXIMUM VOLUME DIVERSION = 15.6 acre-feet
750          DT  BS340B    15.6
751          DI       0   10000
752          DQ       0   10000
             * DDM   ***** Preserved *****

753          KK  RT340B
754          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
755          DR  BS340B
             * DDM   ***** Preserved *****

756          KK   S340B
757          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
758          KM    15.6 ACRE-FEETx43560/36x3600= 5.2cfs
759          RS       1    STOR       0
760          SV       0     .01    15.6      20
761          SQ       0     1.0     5.2      50
             * DDM   ***** Preserved *****

762          KK   C340B
763          KM   HYDROGRAPH COMBINATION
764          HC       3
             *
             * DDM   ***** Preserved *****

765          KK  DD340B
766          KM   DIVERT FLOW INTO OFFLINE DETENTION BASIN LOCATED WITHIN SUB-BASINS 340B.
767          DT   BS340
768          DI       0     200    1000    2000    5000
769          DQ       0       0     800    1800    4800
             * DDM   ***** Preserved *****

770          KK   RT340
771          KM   RETRIEVE FLOW FROM DIVERSION
772          DR   BS340
             * DDM   ***** Preserved *****

773          KK  SS340B
774          KM   RETRIEVE FLOW INTO OFFLINE BASIN AND BLEED OFF WITHIN 36 HOURS.
775          KM      55 ACRE-FEETx43560/36x3600 = 19cfs
776          RS       1    STOR       0
```

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 777          SV       0     .01      55      60
 778          SQ       0     3.0      50     100
              *
                                   HEC-1 INPUT                                                    PAGE 21

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 779          KK  CD340B
 780          KM   HYDROGRAPH COMBINATION
 781          HC       2
              * DDM   ***** Preserved *****

 782          KK   RT350
 783          KM   RETRIEVE SPLIT FLOW FROM DIVERSION OF SUB-BASIN 350
 784          DR   SF350
              * DDM   ***** Preserved *****

 785          KK   RR350
 786          KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
 787          KM   ROUTING OF FLOW FROM SPLIT OF SUB-BASIN 350 TO 355
 788          RS       7    FLOW      -1
 789          RC    .045    .035    .045    6050    .025
 790          RX       0       1      40      46      56      62     102     103
 791          RY       3       2       2       0       0       2       2       3
              *
              * DDM   ***** Updated *****

 792          KK     355
 793          KM   SUB-BASIN 355
 794          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 795          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
 796          KM     L = 3.00  Kb = .044  Adj. Slope =  284.0
 797          BA    .676
 798          LG    .340    .340   4.450    .370   4.000
 799          UC    .488    .502
 800          UA       0       3       5       8      12      20      43      75      90      96
 801          UA     100
              * DDM   ***** Preserved *****

 802          KK    C355
 803          KM   HYDROGRAPH COMBINATION OF SUB-BASIN 355 AND THE SPLIT FLOW FROM SUB-BASIN 350
 804          HC       2  1.1745
              *
              * DDM   ***** Preserved *****

 805          KK    D355
 806          KM        DIVERT FLOW INTO OFFLINE BASIN
 807          KM        MAXIMUM VOLUME DIVERSION = 18 acre-feet
 808          DT   BS355
 809          DI       0     100     450    1000    2000    5000
 810          DQ       0       0       0     550    1550    4550
              *
              * DDM   ***** Preserved *****

 811          KK   RT355
 812          KM   RETRIEVE FLOW FROM DIVERSION INTO OFFLINE BASIN
 813          DR   BS355
              *
              * DDM   ***** Preserved *****
1                                  HEC-1 INPUT                                                    PAGE 22

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 814          KK    S355
 815          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
 816          KM   18.0 ACRE-FEETx43560/36x3600= 6.0CFS
 817          RS       1    STOR       0
 818          SV       0     .01    18.0    25.0
 819          SQ       0     2.0      40      50
              *
              * DDM   ***** Preserved *****

 820          KK   CC355
 821          KM   HYDROGRAPH COMBINATION
 822          HC       2
              *
              * DDM   ***** Preserved *****

 823          KK    R355
 824          KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
 825          KM   ROUTING OF FLOW FROM SUB-BASIN 355 TO SUB-BASIN 340B
 826          RS       1    FLOW      -1
 827          RC    .045    .035    .045    4000    .025
 828          RX       0       1      40      46      56      62     102     103
 829          RY       3       2       2       0       0       2       2       3
              *
              * DDM   ***** Preserved *****

 830          KK  CC340B
 831          KM   HYDROGRAPH COMBINATION
 832          HC       2
              * DDM   ***** Preserved *****

 833          KK   R340B
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834          KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
835          KM   ROUTING OF FLOW FROM SUB-BASIN 340B TO SUB-BASIN 340A2.
836          RS       2    FLOW      -1
837          RC    .045    .035    .045    1500    .027
838          RX       0       1      40      46      56      62     102     103
839          RY       3       2       2       0       0       2       2       3
             *
             * DDM   ***** Updated *****

840          KK   340A2
841          KM   SUB-BASIN 340A2
842          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
843          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
844          KM     L =  .48  Kb = .047  Adj. Slope =  297.9
845          BA    .037
846          LG    .230    .310   5.300    .250  55.000
847          UC    .158    .174
848          UA       0       5      16      30      65      77      84      90      94      97
849          UA     100
             *
             * DDM   ***** Preserved *****
                                        HEC-1 INPUT                                          PAGE 23

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

850          KK  D340A2
851          KM        DIVERT FLOW INTO ONLINE  DETENTION BASIN
852          KM        MAXIMUM VOLUME DIVERSION = 2.2 acre-feet
853          DT  B340A2     2.2
854          DI       0   10000
855          DQ       0   10000
             * DDM   ***** Preserved *****

856          KK  T340A2
857          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
858          DR  B340A2
             * DDM   ***** Preserved *****

859          KK  S340A2
860          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
861          KM    2.20 ACRE-FEETx43560/36x3600= 1.0cfs
862          RS       1    STOR       0
863          SV       0     .01     2.2     5.0
864          SQ       0     0.5     1.0    10.0
             * DDM   ***** Preserved *****

865          KK  C340A2
866          KM   HYDROGRAPH COMBINATION
867          HC       3
             *
             * DDM   ***** Preserved *****

868          KK  R340A2
869          KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
870          KM   ROUTING OF FLOW FROM SUB-BASIN 340A2 TO SUB-BASIN 320B.
871          RS       5    FLOW      -1
872          RC    .045    .035    .045    4500    .020
873          RX       0       1      40      46      56      62     102     103
874          RY       3       2       2       0       0       2       2       3
             *
             * DDM   ***** Preserved *****

875          KK  CC320B
876          KM   HYDROGRAPH COMBINATION
877          HC       2
             *
             * DDM   ***** Preserved *****

878          KK   R320B
879          KM   Routing Flow from 320B1 to 320A
880          KM   Routing length updated using Signal Butte Floodway plans dated March 1983
881          KM   CHANNEL GEOMETRY FOR SPOOK HILL FRS OBTAINED FROM AS-BUILTS PLANS.
882          KM   CONTINUE TO ROUTE FLOW WITHIN CONCRETE CHANNEL TO SPOOK HILL FRS
883          RS       1    FLOW      -1
884          RC    .016    .016    .016    1500   .0146
885          RX       0       1       2     2.1    16.1    16.2      17      18
886          RY     7.5     7.5     7.5       0       0     7.5     7.5     7.5
             *
             * DDM   ***** Updated *****
                                        HEC-1 INPUT                                          PAGE 24

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

887          KK    320A
888          KM   SUB-BASIN 320A
889          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
890          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
891          KM     L = 1.07  Kb = .049  Adj. Slope =   93.0
892          BA    .270
893          LG    .280    .250   4.300    .490  25.000
894          UC    .404    .301
895          UA       0       5      16      30      65      77      84      90      94      97
896          UA     100
             *
```

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                * DDM   ***** Preserved *****

897             KK   D320A
898             KM        DIVERT FLOW INTO ONLINE  DETENTION BASIN
899             KM   DETENTION/RETENTION BASINS LOCATED WITHIN THREE SUBDIVISIONS
900             KM   GRANDVIEW ESTATES    BOULDER MOUNTAIN & 33% OF MESA HIGHLANDS
901             KM        MAXIMUM VOLUME DIVERSION = 11.8 acre-feet
902             DT  BS320A    11.8
903             DI       0   10000
904             DQ       0   10000
                * DDM   ***** Preserved *****

905             KK  RT320A
906             KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
907             DR  BS320A
                * DDM   ***** Preserved *****

908             KK   S320A
909             KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
910             KM    11.8 ACRE-FEETx43560/36x3600= 4.0cfs
911             RS       1    STOR       0
912             SV       0     .01    11.8      20
913             SQ       0     1.0     4.0    40.0
                * DDM   ***** Preserved *****

914             KK    C320
915             KM   HYDROGRAPH COMBINATION
916             HC       3
                *
                * DDM   ***** Updated *****

917             KK   340A1
918             KM   SUB-BASIN 340A1
919             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
920             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
921             KM     L = 1.80  Kb = .045  Adj. Slope =  117.0
922             BA   1.089
923             LG    .250    .250   4.150    .560  24.000
924             UC    .500    .261
925             UA       0       5      16      30      65      77      84      90      94      97
926             UA     100
                *
                * DDM   ***** Preserved *****
                                        HEC-1 INPUT                                          PAGE 25

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

927             KK  D340A1
928             KM        DIVERT FLOW INTO ONLINE  DETENTION BASIN
929             KM   DETENTION/RETENTION BASINS LOCATED WITHIN THREE SUBDIVISIONS
930             KM   GRANDVIEW ESTATES    BOULDER MOUNTAIN & 33% OF MESA HIGHLANDS
931             KM        MAXIMUM VOLUME DIVERSION = 91.9 acre-feet
932             DT  B340A1    91.9
933             DI       0   10000
934             DQ       0   10000
                * DDM   ***** Preserved *****

935             KK  T340A1
936             KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
937             DR  B340A1
                * DDM   ***** Preserved *****

938             KK  S340A1
939             KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
940             KM    91.9 ACRE-FEETx43560/36x3600=30.9cfs
941             RS       1    STOR       0
942             SV       0     .01    91.9     120
943             SQ       0     3.0    20.9     300
                *
                * DDM   ***** Preserved *****

944             KK  C340A1
945             KM   HYDROGRAPH COMBINATION FOR SPOOK HILL FRS
946             HC       2
                *
                * DDM   ***** Preserved *****

947             KK    C340
948             KM   HYDROGRAPH COMBINATION FOR SPOOK HILL FRS
949             HC       2
                *
                * DDM   ***** Updated *****

950             KK     360
951             KM   SUB-BASIN 360
952             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
953             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .995
954             KM     L = 2.10  Kb = .044  Adj. Slope =  124.0
955             BA    .880
956             LG    .260    .250   4.100    .570  23.000
957             UC    .538    .362
958             UA       0       5      16      30      65      77      84      90      94      97
959             UA     100
                * DDM   ***** Preserved *****
```

```
 960          KK    D360
 961          KM        DIVERT FLOW INTO ONLINE  DETENTION BASIN
 962          KM   DETENTION/RETENTION BASINS LOCATED WITHIN 33% OF MESA HIGHLANDS
 963          KM        MAXIMUM VOLUME DIVERSION = 49.5 acre-feet
 964          DT   BS360    49.5
 965          DI       0   10000
                                        HEC-1 INPUT                                                    PAGE 26

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 966          DQ       0   10000
              * DDM   ***** Preserved *****

 967          KK   RT360
 968          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
 969          DR   BS360
              * DDM   ***** Preserved *****

 970          KK    S360
 971          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
 972          KM    49.5 ACRE-FEETx43560/36x3600=16.6 cfs
 973          RS       1    STOR       0
 974          SV       0     .01    49.5      70
 975          SQ       0     3.0    16.6     150
              * DDM   ***** Preserved *****

 976          KK    C360
 977          KM   HYDROGRAPH COMBINATION FOR SPOOK HILL FRS
 978          HC       3
              *
              * DDM   ***** Updated *****

 979          KK    380A
 980          KM   SUB-BASIN 380A
 981          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 982          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
 983          KM     L =  .66  Kb = .076  Adj. Slope =   91.0
 984          BA    .261
 985          LG    .170    .250   4.100    .710  21.000
 986          UC    .425    .221
 987          UA       0       3       5       8      12      20      43      75      90      96
 988          UA     100
              *
              * DDM   ***** Preserved *****

 989          KK   C380A
 990          KM   HYDROGRAPH COMBINATION FOR SPOOK HILL FRS
 991          HC       2
              *
              * DDM   ***** Updated *****

 992          KK    400A
 993          KM   SUB-BASIN 400A
 994          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 995          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
 996          KM     L =  .28  Kb = .094  Adj. Slope =   71.0
 997          BA    .048
 998          LG    .250    .290   4.000    .640    .000
 999          UC    .317    .211
1000          UA       0       3       5       8      12      20      43      75      90      96
1001          UA     100
              *
              * DDM   ***** Preserved *****
                                        HEC-1 INPUT                                                    PAGE 27

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1002          KK   C400A
1003          KM   HYDROGRAPH COMBINATION FOR SPOOK HILL FRS
1004          HC       2
              *

1005          KK     370
1006          KM   SUB-BASIN 370
1007          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1008          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
1009          KM     L = 1.90  Kb = .044  Adj. Slope =  203.5
1010          BA    .672
1011          LG    .340    .320   4.650    .330   8.000
1012          UC    .404    .284
1013          UA       0       3       5       8      12      20      43      75      90      96
1014          UA     100
              *

1015          KK    S370
1016          KM   Online Detention Basin at Madrid Subdivision
1017          KM   Basin Bottom Elevation = 1822.9 ft
1018          KM   Route through 24" pipe for 404 low flow and
1019          KM   Route through 72" pipe to west along McDowell
1020          KM   2-8'x3' RCBC as emergency spillway
1021          RS       1    STOR       0
1022          SV       0    1.37    3.61    5.97    8.46   11.07   13.81   16.69   19.72
1023          SE     0.9     2.0     3.0     4.0     5.0     6.0     7.0     8.0     9.0
1024          SQ     0.0      98     157     221     270     313     350     380     800
              *
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1025          KK    D370
1026          KM   Split the out flow to pipe along McDowell Road and to Madrid subdivision
1027          DT   B370W
1028          DI     0.0      98     157     221     270     313     350     380     800
1029          DQ       0      89     141     199     243     282     315     340     380
              *

1030          KK   R370S
1031          KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
1032          KM   ROUTING FLOW to SUB-BASINS 380B1
1033          RS      12    FLOW      -1
1034          RC    .045    .035    .045    8800    .023
1035          RX       0       1      40      46      56      62     102     103
1036          RY       3       2       2       0       0       2       2       3
              *

1037          KK   380B1
1038          KM   SUB-BASIN 380B1
1039          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1040          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1041          KM     L = 1.61  Kb = .047  Adj. Slope =  124.0
1042          BA    .369
1043          LG    .300    .250   4.200    .520  16.000
1044          UC    .471    .414
1045          UA       0       5      16      30      65      77      84      90      94      97
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1046          UA     100
              *

1047          KK  D380B1
1048          KM        DIVERT FLOW INTO ONLINE  DETENTION BASIN
1049          KM   DETENTION/RETENTION BASINS LOCATED WITHIN MESA HIGHLANDS
1050          KM        MAXIMUM VOLUME DIVERSION = 10.5 acre-feet
1051          DT  B380B1    10.5
1052          DI       0   10000
1053          DQ       0   10000
              *

1054          KK  T380B1
1055          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
1056          DR  B380B1
              *

1057          KK  S380B1
1058          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
1059          KM    10.5 ACRE-FEETx43560/36x3600=3.5cfs
1060          RS       1    STOR       0
1061          SV       0     .01    10.5    20.0
1062          SQ       0     1.0     3.5    50.0
              *

1063          KK  C380B1
1064          KM   HYDROGRAPH COMBINATION
1065          HC       3
              *

1066          KK  R380B1
1067          KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
1068          KM   ROUTING OF FLOW FROM SUB-BASINS 380B1 TO SUB-BASIN 400B1.
1069          RS       7    FLOW      -1
1070          RC    .045    .035    .045    2600    .023
1071          RX       0       1      40      46      56      62     102     103
1072          RY       3       2       2       0       0       2       2       3
              *
              * DDM   ***** Updated *****

1073          KK   400B1
1074          KM   SUB-BASIN 400B1
1075          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1076          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1077          KM     L =  .93  Kb = .057  Adj. Slope =   91.0
1078          BA    .385
1079          LG    .280    .250   4.100    .590  12.000
1080          UC    .433    .238
1081          UA       0       5      16      30      65      77      84      90      94      97
1082          UA     100
              *
              * DDM   ***** Preserved *****
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1083          KK  D400B1
1084          KM        DIVERT FLOW INTO ONLINE  DETENTION BASIN
1085          KM   DETENTION/RETENTION BASIN LOCATED WITHIN SAGUARO VISTA SUBDIVISION
1086          KM        MAXIMUM VOLUME DIVERSION = 5.6 ACRE-FEET
1087          DT  B400B1     5.6
1088          DI       0   10000
1089          DQ       0   10000
              * DDM   ***** Preserved *****
```

```
1090          KK  T400B1
1091          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
1092          DR  B400B1
              * DDM   ***** Preserved *****

1093          KK  S400B1
1094          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
1095          KM     5.6 ACRE-FEETx43560/36x3600 = 2 cfs
1096          RS       1    STOR       0
1097          SV       0     .01     5.6    10.0
1098          SQ       0       1       2    20.0
              * DDM   ***** Preserved *****

1099          KK  C400B1
1100          KM   HYDROGRAPH COMBINATION FOR SPOOK HILL FRS
1101          HC       2
              * DDM   ***** Preserved *****

1102          KK  CC400B
1103          KM   HYDROGRAPH COMBINATION FOR SPOOK HILL FRS
1104          HC       3
              *
              * DDM   ***** Updated *****

1105          KK   420A2
1106          KM   SUB-BASIN 420A2
1107          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1108          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1109          KM     L =  .26  Kb = .064  Adj. Slope =   96.0
1110          BA    .022
1111          LG    .350    .350   4.150    .430    .000
1112          UC    .208    .194
1113          UA       0       5      16      30      65      77      84      90      94      97
1114          UA     100
              *
              * DDM   ***** Preserved *****

1115          KK  C400A2
1116          KM   HYDROGRAPH COMBINATION FOR SPOOK HILL FRS
1117          HC       2
              *
                                    HEC-1 INPUT                                          PAGE 30

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1118          KK   T370W
1119          KM   RETRIEVE FLOW FROM DIVERSION of ONLINE BASIN
1120          DR   B370W
              *

1121          KK   R370W
1122          KM   ROUTING OF FLOW FROM SUB-BASINS 370W TO Hawes along McDowell.
1123          RS       5    FLOW      -1
1124          RC    .045    .035    .045    3200    .023
1125          RX       0       1      40      46      56      62     102     103
1126          RY       3       2       2       0       0       2       2       3
              *

1127          KK    395A
1128          KM   SUB-BASIN 395A
1129          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1130          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1131          KM     L = 1.48  Kb = .051  Adj. Slope =  216.6
1132          BA    .187
1133          LG    .310    .270   4.800    .300   9.000
1134          UC    .358    .421
1135          UA       0       5      16      30      65      77      84      90      94      97
1136          UA     100
              * DDM   ***** Preserved *****

1137          KK  R390C1
1138          KM   Route runoff from subbasin 395A through Thunder Mountain subdivision
1139          KM   to concentration point 390C
1140          KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
1141          RS       3    FLOW      -1
1142          RC   0.045   0.035   0.045    1600   0.032
1143          RX       0       5      10      22      40      45      60      90
1144          RY       4       3       2       0       0       2       3       4
              * DDM   ***** Updated *****

1145          KK    395B
1146          KM   SUB-BASIN 395B
1147          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1148          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1149          KM     L =  .18  Kb = .075  Adj. Slope =  167.0
1150          BA    .004
1151          LG    .300    .250   5.100    .270   5.000
1152          UC    .150    .266
1153          UA       0       5      16      30      65      77      84      90      94      97
1154          UA     100
              * DDM   ***** Preserved *****

1155          KK  R390C2
1156          KM   Route runoff hydrograph from 395B to concentration point 390C in existing
1157          KM   channel along McDowell Road
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1158          KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
1159          RS       3    FLOW      -1
1160          RC   0.045   0.035   0.045    1380   0.027
1161          RX       0       1       3       6      28      31      34      37
                                   HEC-1 INPUT                                          PAGE 31

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1162          RY       2       2       1       0       0       1       2       3
              * DDM   ***** Updated *****

1163          KK    390C
1164          KM   SUB-BASIN 390C
1165          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1166          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1167          KM     L =  .53  Kb = .054  Adj. Slope =  162.0
1168          BA    .121
1169          LG    .300    .250   5.300    .290  20.000
1170          UC    .221    .139
1171          UA       0       5      16      30      65      77      84      90      94      97
1172          UA     100
              * DDM   ***** Preserved *****

1173          KK  CP390C
1174          KM   Combine routed hydrographs from 395A, 395B, with runoff hydrograph from
1175          KM   subbasin 390C
1176          HC       3
              * DDM   ***** Preserved *****

1177          KK   TOC-H
1178          KM   Divert into proposed storm drain for Culver-Hawes detention
1179          KM   basin.  Diversion determined by rating curve.
1180          DT  TO390B
1181          DI       0       8      29      86     244     457    1000
1182          DQ       0       0       0      31     159     342     885
              *
              *

1183          KK    C370
1184          KM   COMBINE FLOWS IN STORMDRAIN ALONG McDOWELL FROM LaMADRID BASIN AND THUNDER
1185          KM   MOUNTAIN BASIN
1186          HC       2    1.30
              *

1187          KK   R390S
1188          KM   Route Flow South to Subbasin 400B3.
1189          RS       2    FLOW      -1
1190          RC    .045    .045    .045    1000    .020
1191          RX       0       1      40      46      56      62     102     103
1192          RY       3       2       2       0       0       2       2       3
              *

1193          KK   400B3
1194          KM   SUB-BASIN 400B3
1195          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1196          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1197          KM     L =  .26  Kb = .064  Adj. Slope =  135.0
1198          BA    .024
1199          LG    .300    .250   4.500    .430    .000
1200          UC    .183    .161
1201          UA       0       5      16      30      65      77      84      90      94      97
1202          UA     100
              *
                                   HEC-1 INPUT                                          PAGE 32

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1203          KK  D400B3
1204          KM        DIVERT FLOW INTO ONLINE  DETENTION BASIN
1205          KM   DETENTION/RETENTION BASIN LOCATED WITHIN SAGUARO VISTA SUBDIVISION
1206          KM        MAXIMUM VOLUME DIVERSION = 1.6 ACRE-FEET
1207          DT  B400B3     1.6
1208          DI       0   10000
1209          DQ       0   10000
              *

1210          KK  T400B3
1211          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
1212          DR  B400B3
              *

1213          KK  S400B3
1214          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
1215          KM     1.6 ACRE-FEETx43560/36x3600 = 1 cfs
1216          RS       1    STOR       0
1217          SV       0     .01     1.6     5.0
1218          SQ       0       1       1    10.0
              *

1219          KK  C400B3
1220          KM   HYDROGRAPH COMBINATION
1221          HC       2
              *

1222          KK   C390S
```

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1223          KM   HYDROGRAPH COMBINATION of flow fron north of the Basin
1224          HC       2
              *

1225          KK   380B3
1226          KM   SUB-BASIN 380B3
1227          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1228          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1229          KM     L =  .69  Kb = .054  Adj. Slope =  138.0
1230          BA    .123
1231          LG    .300    .250   4.350    .480  16.000
1232          UC    .279    .220
1233          UA       0       5      16      30      65      77      84      90      94      97
1234          UA     100
              *

1235          KK  D380B3
1236          KM        DIVERT FLOW INTO ONLINE  DETENTION BASIN
1237          KM        MAXIMUM VOLUME DIVERSION = 4.0 acre-feet
1238          DT  B380B3     4.0
1239          DI       0   10000
1240          DQ       0   10000
              *
                                        HEC-1 INPUT                                          PAGE 33

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1241          KK  T380B3
1242          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
1243          DR  B380B3
              *

1244          KK  S380B3
1245          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
1246          KM     4.0 ACRE-FEETx43560/36x3600= 2.cfs
1247          RS       1    STOR       0
1248          SV       0     .01     4.0     6.0
1249          SQ       0     0.5     2.0    20.0
              *

1250          KK  C380B3
1251          KM   HYDROGRAPH COMBINATION
1252          HC       2
              *

1253          KK  D380B3
1254          KM   Subbasin 380B3 is Divided into 3 Smaller Areas
1255          KM   38% to 380B3a, 35% to 380B3b, and 27% to 380B3c
1256          DT  380B3c
1257          DI       0    1000
1258          DQ       0     270
              *

1259          KK  380B3b
1260          KM   Subbasin 380B3 is Divided into 3 Smaller Areas
1261          KM   38% to 380B3a, 35% to 380B3b, and 27% to 380B3c
1262          DT  380B3a
1263          DI       0    1000
1264          DQ       0     520
              *

1265          KK  C380BB
1266          KM   Total Basin Inflows from North and East Areas
1267          HC       2
              *

1268          KK   D380B
1269          KM   DIVERT FLOW INTO OFFLINE DETENTION BASIN LOCATED WITHIN SUB-BASINS
1270          KM   380B3b - Culver/Hawes basin
1271          DT  B38B3b
1272          DI       0      70    5000
1273          DQ       0       0    4930
              *

1274          KK  RT380B
1275          KM   RETRIEVE FLOW FROM DIVERSION
1276          DR  B38B3b
              *
                                        HEC-1 INPUT                                          PAGE 34

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1277          KK   S380B
1278          KM   RETRIEVE FLOW INTO OFFLINE BASIN AND BLEED OFF WITHIN 36 HOURS.
1279          RS       1    STOR       0
1280          SV       0     2.5     5.1    11.0    18.7    28.0    32.0
1281          SE       0     1.0     2.0     4.0     6.0     8.0     9.0
1282          SQ       0     6.2     8.8    15.3    20.0      25     250
              *

1283          KK  CC380B
1284          KM   HYDROGRAPH COMBINATION at outlet of Basin "S380B"
1285          HC       2
              *
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1286          KK  R38B3b
1287          KM   ROUTING OF FLOW FROM BASIN TO SUB-BASIN 380B3c
1288          RS       3    FLOW      -1
1289          RC    .045    .035    .045    1300    .020
1290          RX       0       1      40      46      56      62     102     103
1291          RY       3       2       2       0       0       2       2       3
              *

1292          KK  T38B3a
1293          KM   RETRIEVE FLOW FROM DIVERSION of 380B3a
1294          DR  380B3a
              *

1295          KK  R38B3a
1296          KM   ROUTING OF FLOW FROM SUB-BASINS 380B3a TO SUB-BASIN 380B3c.
1297          RS       3    FLOW      -1
1298          RC    .045    .035    .045    1800    .020
1299          RX       0       1      40      46      56      62     102     103
1300          RY       3       2       2       0       0       2       2       3
              *

1301          KK  T38B3c
1302          KM   RETRIEVE FLOW FROM DIVERSION of 380B3c
1303          DR  380B3c
              *

1304          KK  C38B3c
1305          KM   HYDROGRAPH COMBINATION of 380B3c, 380B3a and flow from the Basin
1306          HC       3
              *

1307          KK  R380B3
1308          KM   ROUTING OF FLOW FROM SUB-BASINS 380B3c TO SUB-BASIN 380B2.
1309          RS       4    FLOW      -1
1310          RC    .045    .035    .045    2500    .020
1311          RX       0       1      40      46      56      62     102     103
1312          RY       3       2       2       0       0       2       2       3
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1313          KK   380B2
1314          KM   SUB-BASIN 380B2
1315          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1316          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1317          KM     L =  .55  Kb = .055  Adj. Slope =  136.0
1318          BA    .096
1319          LG    .300    .250   3.950    .580  15.000
1320          UC    .250    .187
1321          UA       0       5      16      30      65      77      84      90      94      97
1322          UA     100
              *

1323          KK  C380B2
1324          KM   HYDROGRAPH COMBINATION
1325          HC       2
              *

1326          KK  R380B2
1327          KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
1328          KM   ROUTING OF FLOW FROM SUB-BASINS 380B2 TO SUB-BASIN 400B2.
1329          RS       9    FLOW      -1
1330          RC    .045    .035    .045    4000    .018
1331          RX       0       1      40      46      56      62     102     103
1332          RY       3       2       2       0       0       2       2       3
              *

1333          KK   400B2
1334          KM   SUB-BASIN 400B2
1335          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1336          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1337          KM     L =  .93  Kb = .051  Adj. Slope =  118.0
1338          BA    .194
1339          LG    .300    .250   4.150    .530    .000
1340          UC    .363    .288
1341          UA       0       5      16      30      65      77      84      90      94      97
1342          UA     100
              *

1343          KK  C400B2
1344          KM   HYDROGRAPH COMBINATION
1345          HC       2
              *

1346          KK  R400B2
1347          KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
1348          KM   ROUTING OF FLOW FROM SUB-BASINS 400B2 TO SUB-BASIN 420A1.
1349          RS       3    FLOW      -1
1350          RC    .045    .035    .045    1800    .018
1351          RX       0       1      40      46      56      62     102     103
1352          RY       3       2       2       0       0       2       2       3
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1353          KK   420A1
1354          KM   SUB-BASIN 420A1
1355          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1356          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1357          KM     L = 1.20  Kb = .044  Adj. Slope =  108.0
1358          BA    .566
1359          LG    .300    .270   4.250    .480  17.000
1360          UC    .387    .207
1361          UA       0       5      16      30      65      77      84      90      94      97
1362          UA     100
              *

1363          KK  D420A1
1364          KM        DIVERT FLOW INTO ONLINE  DETENTION BASIN
1365          KM   DETENTION/RETENTION BASINS LOCATED WITHIN GRAY FOX SUBDIVISION
1366          KM        MAXIMUM VOLUME DIVERSION = 11.2 acre-feet
1367          DT  B420A1    11.2
1368          DI       0   10000
1369          DQ       0   10000
              *

1370          KK  T420A1
1371          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
1372          DR  B420A1
              *

1373          KK  S420A1
1374          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
1375          KM    11.2 ACRE-FEETx43560/36x3600= 4cfs
1376          RS       1    STOR       0
1377          SV       0     .01    11.2      20
1378          SQ       0     1.0     4.0      40
              *

1379          KK   C420A
1380          KM   HYDROGRAPH COMBINATION FOR SPOOK HILL FRS
1381          HC       4
              * DDM   ***** Preserved *****

1382          KK   R390B
1383          KM   Retrive Flows diverted from CP390C to existing Thunder Mountain detention
1384          KM   basin
1385          DR  TO390B

1386          KK  R390B1
1387          KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
1388          RS       3    FLOW      -1
1389          RC   0.020   0.020   0.020     430   0.019
1390          RX       0       3       6       9      26      30      34      38
1391          RY       3       2       1       0       0       1       2       3
              * DDM   ***** Updated *****
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1392          KK    385C
1393          KM   SUB-BASIN 385C
1394          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1395          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .997
1396          KM     L = 2.16  Kb = .039  Adj. Slope =  303.2
1397          BA    .501
1398          LG    .280    .380   5.600    .200  13.000
1399          UC    .333    .300
1400          UA       0       5      16      30      65      77      84      90      94      97
1401          UA     100
              * DDM   ***** Updated *****

1402          KK    385B
1403          KM   SUB-BASIN 385B
1404          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1405          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1406          KM     L =  .82  Kb = .057  Adj. Slope =  280.2
1407          BA    .077
1408          LG    .340    .330   5.200    .250   6.000
1409          UC    .242    .281
1410          UA       0       5      16      30      65      77      84      90      94      97
1411          UA     100
              * DDM   ***** Updated *****

1412          KK    385A
1413          KM   SUB-BASIN 385A
1414          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1415          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1416          KM     L =  .37  Kb = .065  Adj. Slope =  207.0
1417          BA    .018
1418          LG    .300    .250   4.150    .530  15.000
1419          UC    .196    .270
1420          UA       0       5      16      30      65      77      84      90      94      97
1421          UA     100
              * DDM   ***** Updated *****
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```
1422        KK    415B
1423        KM   SUB-BASIN 415B
1424        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1425        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
1426        KM     L = 1.20  Kb = .049  Adj. Slope =  303.2
1427        BA    .276
1428        LG    .300    .250   5.000    .330  24.000
1429        UC    .262    .202
1430        UA       0       5      16      30      65      77      84      90      94      97
1431        UA     100

1432        KK  CP415B
1433        KM   Combine hydrographs from 385C and 385B with runoff hydrographs from 385A
1434        KM   and 415B
1435        HC       4
            *
                                        HEC-1 INPUT                                          PAGE 38

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1436        KK   D415B
1437        KM   DIVERT FLOW INTO OFFLINE DETENTION BASIN
1438        KM   MAXIMUM STORAGE VOLUME FOR DIVERSION = 32 AC-FT @ 5' DEPTH.
1439        DT  BS415B
1440        DI       0     150    5000
1441        DQ       0       0    4850
            *
            * DDM   ***** Preserved *****

1442        KK  RT415B
1443        KM   RETRIEVE FLOW FROM DIVERSION INTO OFFLINE BASIN
1444        DR  BS415B
            *
            * DDM   ***** Preserved *****

1445        KK   S415B
1446        KM   RETRIEVE FLOW INTO OFFLINE BASIN AND BLEED OFF WITHIN 36 HOURS.
1447        KM      32 ACRE-FEETx43560/36x3600 = 11cfs
1448        RS       1    STOR       0
1449        SV       0     .01      32      40
1450        SQ       0       5      50      60
            * DDM   ***** Preserved *****

1451        KK  CC415B
1452        KM   HYDROGRAPH COMBINATION OF 415 DIVERSION.
1453        HC       2
            * DDM   ***** Preserved *****

1454        KK  R390A1
1455        KM   Route runoff hydrograph from subbasin 385B to CP390A
1456        KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
1457        RS       3    FLOW      -1
1458        RC   0.045   0.035   0.045    1700   0.033
1459        RX       0      14      22      29      36      44      52     109
1460        RY       4       2       1       0       0       1       2       4
            * DDM   ***** Updated *****

1461        KK    390A
1462        KM   SUB-BASIN 390A
1463        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1464        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1465        KM     L =  .36  Kb = .064  Adj. Slope =  164.0
1466        BA    .024
1467        LG    .300    .250   4.000    .560  15.000
1468        UC    .204    .235
1469        UA       0       5      16      30      65      77      84      90      94      97
1470        UA     100
            * DDM   ***** Preserved *****
                                        HEC-1 INPUT                                          PAGE 39

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1471        KK  CP390A
1472        KM   Combine routed hydrographs from the Oak Street detention basin with
1473        KM   runoff hydrograph from subbasin 390A
1474        HC       2
            * DDM   ***** Preserved *****

1475        KK  R390B2
1476        KM   Route combined hydrograph from CP390A to existing Thunder Mountain detention
1477        KM   basin
1478        KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING
1479        RS       3    FLOW      -1
1480        RC   0.020   0.020   0.020    1610   0.019
1481        RX       0       2       3       4      17      19      23      30
1482        RY     3.5       2       1       0       0       1       2     3.5
            * DDM   ***** Updated *****

1483        KK    390B
1484        KM   SUB-BASIN 390B
1485        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1486        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1487        KM     L =  .68  Kb = .055  Adj. Slope =  153.0
1488        BA    .101
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1489          LG    .300    .250   4.450    .450  15.000
1490          UC    .267    .232
1491          UA       0       5      16      30      65      77      84      90      94      97
1492          UA     100
              * DDM   ***** Preserved *****

1493          KK  CP390B
1494          KM   Combine routed hydrographs from CP390C and CP390A with runoff hydrograph from
1495          KM   subbasin 390B
1496          HC       3   1.31
              * DDM   ***** Preserved *****

1497          KK   S390B
1498          KM   Thunder Mountain Detention Basin, with 78-inch outlet pipe, discharge from
1499          KM   the basin can be through the pipe and out of 32-6 ft x 0.65 ft holes in
1500          KM   the wall at the southwest corner of the basin the lowest hole is at
1501          KM   elevation 1759.27 feet
1502          RS       1    STOR       0
1503          SV       0    0.01    0.45    1.77    4.38    8.09   12.61   18.16   24.98
1504          SQ       0     325     400     460     676    1450    1958    2321    2615
1505          SE    1753    1754    1756    1758    1760    1762    1764    1766    1768
              * DDM   ***** Updated *****

1506          KK  420B05
1507          KM   SUB-BASIN 420B05
1508          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1509          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1510          KM     L =  .41  Kb = .061  Adj. Slope =  159.0
1511          BA    .040
1512          LG    .300    .250   4.650    .390  15.000
1513          UC    .213    .204
1514          UA       0       5      16      30      65      77      84      90      94      97
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1515          UA     100
              * DDM   ***** Preserved *****

1516          KK  CPSD05
1517          KM   Combine routed flow in storm drain from Thunder Mountain Detention basin
1518          KM   with runoff from subbasin 420B05
1519          HC       2
              * DDM   ***** Updated *****

1520          KK  420B10
1521          KM   SUB-BASIN 420B10
1522          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1523          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1524          KM     L =  .49  Kb = .063  Adj. Slope =  159.0
1525          BA    .025
1526          LG    .300    .250   3.850    .620  15.000
1527          UC    .242    .354
1528          UA       0       5      16      30      65      77      84      90      94      97
1529          UA     100
              * DDM   ***** Preserved *****

1530          KK  CPSD10
1531          KM   Combine routed flow in storm drain from CPSD05 with runoff from subbasin
1532          KM   420B10
1533          HC       2
              * DDM   ***** Updated *****

1534          KK  420B15
1535          KM   SUB-BASIN 420B15
1536          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1537          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1538          KM     L =  .36  Kb = .068  Adj. Slope =  133.0
1539          BA    .011
1540          LG    .300    .250   3.850    .620  15.000
1541          UC    .229    .416
1542          UA       0       5      16      30      65      77      84      90      94      97
1543          UA     100
              * DDM   ***** Preserved *****

1544          KK  CPSD15
1545          KM   Combine routed flow in storm drain from CPSD10 with runoff from subbasin
1546          KM   420B15
1547          HC       2
              * DDM   ***** Updated *****

1548          KK  420B20
1549          KM   SUB-BASIN 420B20
1550          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1551          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1552          KM     L =  .48  Kb = .067  Adj. Slope =  144.0
1553          BA    .014
1554          LG    .300    .250   4.200    .520  15.000
1555          UC    .254    .512
1556          UA       0       5      16      30      65      77      84      90      94      97
1557          UA     100
              * DDM   ***** Preserved *****
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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1558          KK  CPSD20
1559          KM   Combine routed flow in storm drain from CPSD15 with runoff from subbasin
1560          KM   420B20
1561          HC       2
              * DDM   ***** Updated *****

1562          KK  420B25
1563          KM   SUB-BASIN 420B25
1564          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1565          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1566          KM     L = 1.90  Kb = .056  Adj. Slope =  203.5
1567          BA    .084
1568          LG    .300    .250   3.880    .610  15.000
1569          UC    .496   1.165
1570          UA       0       3       5       8      12      20      43      75      90      96
1571          UA     100

1572          KK  SFIRES
1573          KM   Detention basin at Mesa Fire Station #16 at NW corner of McDowell Rd. and
1574          KM   80th Street.  Detention volumes taken from as-built plans dated 5/22/00,
1575          KM   prepared by AGRA Infrastructure, Inc.
1576          RS       1    STOR       0
1577          SV       0    0.03    0.14    0.37    0.53    0.73
1578          SQ       0       7      17      25      27      31
1579          SE      92      93      94      95      96      97
              * DDM   ***** Preserved *****

1580          KK  CPSD25
1581          KM   Combine routed flow in storm drain from CPSD20 with runoff from subbasin
1582          KM   420B25
1583          HC       2
              * DDM   ***** Updated *****

1584          KK  420B30
1585          KM   SUB-BASIN 420B30
1586          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1587          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1588          KM     L =  .87  Kb = .059  Adj. Slope =  144.0
1589          BA    .055
1590          LG    .300    .250   4.400    .460  15.000
1591          UC    .342    .525
1592          UA       0       5      16      30      65      77      84      90      94      97
1593          UA     100
              * DDM   ***** Preserved *****

1594          KK  CPSD30
1595          KM   Combine routed flow in storm drain from CPSD25 with runoff from subbasin
1596          KM   420B30
1597          HC       2
              * DDM   ***** Updated *****
                                        HEC-1 INPUT                                          PAGE 42

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1598          KK  420B35
1599          KM   SUB-BASIN 420B35
1600          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1601          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1602          KM     L =  .40  Kb = .062  Adj. Slope =  112.0
1603          BA    .035
1604          LG    .300    .260   3.530    .770  15.000
1605          UC    .246    .253
1606          UA       0       5      16      30      65      77      84      90      94      97
1607          UA     100

1608          KK  SCHRCH
1609          KM   Detention basin at Falcon Hill Ward Church of Jesus Christ of Latter-
1610          KM   Day Saints at NW corner of McDowell Rd. and 78th Street.  Detention
1611          KM   volumes taken from as-built plans dated 7-22-03, prepared by Rosendahl
1612          KM   & Associates, Inc.
1613          RS       1    STOR       0
1614          SV       0    0.09    0.23    0.49    0.66    0.71    0.84
1615          SQ       0     1.4     2.2     5.5     6.0     6.4     157
1616          SE    1663    1664    1665    1666  1666.5    1667    1668
              * DDM   ***** Preserved *****

1617          KK  CPSD35
1618          KM   Combine routed flow in storm drain from CPSD30 with runoff from subbasin
1619          KM   420B35
1620          HC       2
              * DDM   ***** Updated *****

1621          KK  420B40
1622          KM   SUB-BASIN 420B40
1623          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1624          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1625          KM     L =  .17  Kb = .073  Adj. Slope =  118.0
1626          BA    .005
1627          LG    .300    .260   3.700    .680  15.000
1628          UC    .171    .258
1629          UA       0       5      16      30      65      77      84      90      94      97
1630          UA     100
              * DDM   ***** Preserved *****
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1631          KK  CPSD40
1632          KM   Combine routed flow in storm drain from CPSD35 with runoff from subbasin
1633          KM   420B40
1634          HC       2
              * DDM   ***** Updated *****

1635          KK  420B45
1636          KM   SUB-BASIN 420B45
1637          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1638          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1639          KM     L =  .25  Kb = .071  Adj. Slope =  120.0
1640          BA    .007
1641          LG    .300    .260   3.630    .710  15.000
1642          UC    .204    .354
                                   HEC-1 INPUT                                          PAGE 43

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1643          UA       0       5      16      30      65      77      84      90      94      97
1644          UA     100
              * DDM   ***** Preserved *****

1645          KK  CPSD45
1646          KM   Combine routed flow in storm drain from CPSD40 with runoff from subbasin
1647          KM   420B45
1648          HC       2
              * DDM   ***** Preserved *****

1649          KK  TOLSCH
1650          KM   Divert out of storm drain through splitter structure.  Divert flow amount
1651          KM   such that the flow at CP415A is less than or equal to 1528 cfs, the
1652          KM   capacity of LasSendas channel.
1653          DT    MCDB
1654          DI       0     142     252     383     538     727
1655          DQ       0       6      48     111     198     319
              * DDM   ***** Updated *****

1656          KK     440
1657          KM   SUB-BASIN 440
1658          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1659          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1660          KM     L =  .40  Kb = .039  Adj. Slope =  315.0
1661          BA    .080
1662          LG    .190    .380   6.400    .140  13.000
1663          UC    .129    .077
1664          UA       0       3       5       8      12      20      43      75      90      96
1665          UA     100
              * DDM   ***** Preserved *****

1666          KK     R70
1667          KM   ROUTE FLOW FROM SUB-BASIN 440 TO C108
1668          RS       2    FLOW      -1
1669          RC     .05    .035     .05    2250     .08
1670          RX    1000    1025    1050    1070    1075    1095    1120    1145
1671          RY      30    22.9    15.7      10      10    15.7    22.9      30
              * DDM   ***** Updated *****

1672          KK     441
1673          KM   SUB-BASIN 441
1674          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1675          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1676          KM     L =  .28  Kb = .069  Adj. Slope =  315.0
1677          BA    .010
1678          LG    .300    .250   5.600    .220   5.000
1679          UC    .150    .225
1680          UA       0       5      16      30      65      77      84      90      94      97
1681          UA     100
              * DDM   ***** Preserved *****
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1682          KK    C108
1683          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 440 & 441
1684          HC       2
              * DDM   ***** Preserved *****

1685          KK      D4
1686          KM        SPLIT FLOW WITH TWO 42 INCH PIPES TO WEST AND SOUTH
1687          DT   SPLIT
1688          DI       0      14      40      82     120     154     180
1689          DQ       0       7      20      41      60      77      90
              * DDM   ***** Preserved *****

1690          KK    R108
1691          KM        ROUTE FLOW FROM SUB-BASIN C108 TO C67
1692          RS       2    FLOW      -1
1693          RC     .05    .035     .05    3200      .1
1694          RX    1000    1025    1050    1070    1075    1095    1120    1145
1695          RY      30    22.9    15.7      10      10    15.7    22.9      30
              * DDM   ***** Updated *****

1696          KK     442
1697          KM   SUB-BASIN 442
1698          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
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1699          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1700          KM     L =  .83  Kb = .055  Adj. Slope =  274.2
1701          BA    .100
1702          LG    .300    .270   3.290    .770   5.000
1703          UC    .258    .264
1704          UA       0       5      16      30      65      77      84      90      94      97
1705          UA     100
              * DDM   ***** Preserved *****

1706          KK     C67
1707          KM   COMBINE FLOW FROM SUB-BASIN 442 & DIV4
1708          HC       2
              * DDM   ***** Preserved *****

1709          KK      D6
1710          KM        OFFLINE BASIN WITH 25 FOOT WEIR SET AT 2.5 FEET ABOVE BOTTOM OF CHANNEL
1711          KM        FLOW CONTINUES BEYOND BASIN THROUGH 2-30" PIPES
1712          DT  BASIN4     3.3
1713          DI       0      10      32      44    79.9   132.5     198   272.9   356.8
1714          DQ       0       0       0       0    23.9    67.5     124   190.9   266.8
              * DDM   ***** Preserved *****

1715          KK    RTD6
1716          KM   RETRIEVE FLOW FROM DIVERSION INTO OFFLINE BASIN
1717          DR  BASIN4
              * DDM   ***** Preserved *****
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1718          KK     SD6
1719          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
1720          KM     3.3 ACRE-FEETx43560/36x3600=1.1cfs
1721          RS       1    STOR       0
1722          SV       0     .01     3.3
1723          SQ       0     0.2     1.1
              * DDM   ***** Preserved *****

1724          KK     CD6
1725          KM   HYDROGRAPH COMBINATION FOR OFFLINE BASIN BLEEDOFF
1726          HC       2
              * DDM   ***** Updated *****

1727          KK     443
1728          KM   SUB-BASIN 443
1729          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1730          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1731          KM     L =  .71  Kb = .050  Adj. Slope =  315.0
1732          BA    .080
1733          LG    .250    .190   8.000    .080  10.000
1734          UC    .196    .194
1735          UA       0       5      16      30      65      77      84      90      94      97
1736          UA     100
              * DDM   ***** Preserved *****

1737          KK     D66
1738          KM        DIVERT FLOW INTO 3 NATURAL WASHES WITH ONE 24" PIPE IN EACH WASH.
1739          KM        EACH PIPE CAPACITY BASED ON 4 FEET OF HEAD
1740          DT   WSH66
1741          DI       0      78     100     200
1742          DQ       0      78      78      78
              * DDM   ***** Preserved *****

1743          KK    R113
1744          KM        ROUTE FLOW FROM C113 TO C114
1745          RS       1    FLOW      -1
1746          RC    .019    .019    .019    1300    .029
1747          RX    1000    1004    1008    1012    1018    1022    1026    1030
1748          RY      17   15.33   12.67      10      10   12.67   15.33      17
              * DDM   ***** Preserved *****

1749          KK    C114
1750          KM        COMBINE HYDROGRAPHS FROM SUB-BASIN 67 AND C113
1751          HC       2
              * DDM   ***** Updated *****

1752          KK     444
1753          KM   SUB-BASIN 444
1754          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1755          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1756          KM     L =  .33  Kb = .034  Adj. Slope =  315.0
1757          BA    .040
1758          LG    .130    .350   4.450    .320   1.000
1759          UC    .112    .084
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1760          UA       0       3       5       8      12      20      43      75      90      96
1761          UA     100
              * DDM   ***** Preserved *****

1762          KK     R58
1763          KM   ROUTE FLOW FROM SUB-BASIN 444 TO C107
1764          RS       2    FLOW      -1
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1765          RC     .05    .035     .05    2370   .0516
1766          RX    1000    1010    1020    1050    1055    1085    1095    1105
1767          RY      19      18      17      10      10      17      18      19
              * DDM   ***** Updated *****

1768          KK     445
1769          KM   SUB-BASIN 445
1770          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1771          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1772          KM     L =  .82  Kb = .036  Adj. Slope =  315.0
1773          BA    .190
1774          LG    .170    .320   3.470    .590   3.000
1775          UC    .192    .130
1776          UA       0       5      16      30      65      77      84      90      94      97
1777          UA     100
              * DDM   ***** Preserved *****

1778          KK    C107
1779          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 444 & 445
1780          HC       2
              * DDM   ***** Preserved *****

1781          KK    R107
1782          KM        ROUTE FLOW FROM C107 TO C109
1783          RS       2    FLOW      -1
1784          RC     .05    .035     .05     700   .0516
1785          RX    1000    1010    1020    1050    1055    1085    1095    1105
1786          RY      19      18      17      10      10      17      18      19
              * DDM   ***** Preserved *****

1787          KK    RTB2
1788          KM        RETRIEVE DIVERTED FLOW FROM BASIN 1
1789          DR   SPLIT
              * DDM   ***** Preserved *****

1790          KK  RSPLIT
1791          KM        ROUTE FLOW FROM SPLIT TO C109
1792          RS       1    FLOW      -1
1793          RC     .05    .035     .05     800     .05
1794          RX    1000    1025    1050    1070    1075    1095    1120    1145
1795          RY      30    22.9    15.7      10      10    15.7    22.9      30
              * DDM   ***** Updated *****
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1796          KK     446
1797          KM   SUB-BASIN 446
1798          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1799          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1800          KM     L =  .46  Kb = .061  Adj. Slope =  303.9
1801          BA    .040
1802          LG    .270    .250   4.500    .400  19.000
1803          UC    .183    .189
1804          UA       0       5      16      30      65      77      84      90      94      97
1805          UA     100
              * DDM   ***** Preserved *****

1806          KK    C109
1807          KM        COMBINE HYDROGRAPHS FROM COMBINES C107 AND C108
1808          HC       3
              * DDM   ***** Preserved *****

1809          KK      D5
1810          KM        DIVERT FLOW INTO WASHES TOWARDS WEST
1811          KM        DIVERSION THROUGH 36" PIPE WITH 3 FEET OF HEAD
1812          DT  WSH404
1813          DI       0    40.7    71.2   121.6     190     276   379.4   500.6
1814          DQ       0      35      35      35      35      35      35      35
              * DDM   ***** Preserved *****

1815          KK    R109
1816          KM        ROUTE FLOW FROM C109 TO C110
1817          RS       1    FLOW      -1
1818          RC    .019    .019    .019    3080     .05
1819          RX    1000    1005    1010    1015    1025    1030    1035    1040
1820          RY   13.75    12.5   11.25      10      10   11.25    12.5   13.75
              * DDM   ***** Updated *****

1821          KK     447
1822          KM   SUB-BASIN 447
1823          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1824          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1825          KM     L =  .49  Kb = .056  Adj. Slope =  221.0
1826          BA    .090
1827          LG    .250    .270   3.350    .870  30.000
1828          UC    .208    .145
1829          UA       0       5      16      30      65      77      84      90      94      97
1830          UA     100
              * DDM   ***** Preserved *****

1831          KK   RT404
1832          KM        RETRIEVE DIVERTED FLOW FOR WASH 109
1833          DR  WSH404
              * DDM   ***** Preserved *****
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1834          KK    R404
1835          KM        ROUTE FLOW FROM C110 TO C110
1836          RS       6    FLOW      -1
1837          RC    .019    .019    .019    3540     .03
1838          RX    1000    1012    1016    1020    1025    1029    1033    1045
1839          RY      15      12      11      10      10      11      12      15
              * DDM   ***** Preserved *****

1840          KK    C110
1841          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 447 AND R404
1842          HC       3
              * DDM   ***** Preserved *****

1843          KK    R110
1844          KM        ROUTE FLOW FROM C110 TO C115
1845          RS       1    FLOW      -1
1846          RC    .019    .019    .019     580   .0291
1847          RX    1000    1012    1016    1020    1035    1039    1043    1055
1848          RY      15      12      11      10      10      11      12      15
              * DDM   ***** Preserved *****

1849          KK    C115
1850          KM        COMBINE HYDROGRAPHS FROM C114 AND C110
1851          HC       2
              * DDM   ***** Preserved *****

1852          KK    R115
1853          KM        ROUTE FLOW FROM C115 TO Sub 453
1854          RS       1    FLOW      -1
1855          RC    .019    .019    .019    2125    .029
1856          RX    1000    1012    1016    1020    1035    1039    1043    1055
1857          RY      15      12      11      10      10      11      12      15
              * DDM   ***** Updated *****

1858          KK     448
1859          KM   SUB-BASIN 448
1860          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1861          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1862          KM     L =  .36  Kb = .042  Adj. Slope =  315.0
1863          BA    .045
1864          LG    .170    .310   4.200    .390  11.000
1865          UC    .133    .102
1866          UA       0       5      16      30      65      77      84      90      94      97
1867          UA     100
              * DDM   ***** Updated *****

1868          KK     449
1869          KM   SUB-BASIN 449
1870          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1871          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1872          KM     L =  .40  Kb = .054  Adj. Slope =  315.0
1873          BA    .050
1874          LG    .260    .280   3.500    .640   6.000
1875          UC    .167    .134
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1876          UA       0       5      16      30      65      77      84      90      94      97
1877          UA     100
              * DDM   ***** Preserved *****

1878          KK   C6364
1879          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 448 & 449
1880          HC       2
              * DDM   ***** Preserved *****

1881          KK   R6364
1882          KM   ROUTE FLOW FROM C116 AND SUB-BASINS 448 AND 449
1883          RS       5    FLOW      -1
1884          RC     .05    .035     .05    4375   .0333
1885          RX    1000    1027    1053    1080    1090    1117    1143    1170
1886          RY      15   13.33   11.67      10      10   11.67   13.33      15
              * DDM   ***** Updated *****

1887          KK     450
1888          KM   SUB-BASIN 450
1889          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1890          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1891          KM     L =  .85  Kb = .057  Adj. Slope =  210.5
1892          BA    .070
1893          LG    .340    .350   3.630    .570   4.000
1894          UC    .296    .383
1895          UA       0       3       5       8      12      20      43      75      90      96
1896          UA     100
              * DDM   ***** Updated *****

1897          KK     451
1898          KM   SUB-BASIN 451
1899          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1900          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
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1901          KM     L =  .57  Kb = .063  Adj. Slope =  175.0
1902          BA    .025
1903          LG    .340    .340   3.290    .750   3.000
1904          UC    .271    .453
1905          UA       0       3       5       8      12      20      43      75      90      96
1906          UA     100
              * DDM   ***** Preserved *****

1907          KK    C451
1908          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 450 & 451
1909          HC       2
              * DDM   ***** Preserved *****

1910          KK    RT66
1911          KM        RETRIEVE DIVERTED FLOW FROM SUB-BASIN 66
1912          DR   WSH66
              * DDM   ***** Updated *****
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1913          KK     452
1914          KM   SUB-BASIN 452
1915          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1916          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1917          KM     L =  .43  Kb = .055  Adj. Slope =  315.0
1918          BA    .040
1919          LG    .260    .280   3.700    .550   9.000
1920          UC    .171    .166
1921          UA       0       5      16      30      65      77      84      90      94      97
1922          UA     100
              * DDM   ***** Preserved *****

1923          KK   C6465
1924          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 443 AND 452
1925          HC       2
              * DDM   ***** Preserved *****

1926          KK   R6566
1927          KM        ROUTE FLOW FROM DIVERSIONS 65 AND 66 TO C116
1928          RS       3    FLOW      -1
1929          RC     .05    .035     .05    2435   .0282
1930          RX    1000    1045    1090    1150    1160    1220    1265    1310
1931          RY      25      23      20      10      10      20      23      25
              * DDM   ***** Preserved *****

1932          KK    C116
1933          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 450 & 451 AND R6364 & R6465
1934          HC       3
              * DDM   ***** Preserved *****

1935          KK  BASIN5
1936          KM        RESERVOIR WITHIN PARCEL 31      2-48 INCH PIPES AT OUTFALL
1937          KM        BASIN 5 FEET DEEP
1938          RS       1    ELEV       0
1939          SV       0     4.5     9.9
1940          SQ       0      69     190
1941          SE       0     2.5       5
              * DDM   ***** Preserved *****

1942          KK    R116
1943          KM   ROUTE FLOW FROM C116 TO C117
1944          RS       2    FLOW      -1
1945          RC     .05    .035     .05    1300   .0333
1946          RX    1000    1100    1200    1300    1320    1420    1520    1620
1947          RY      13      12      11      10      10      11      12      13
              * DDM   ***** Updated *****

1948          KK     453
1949          KM   SUB-BASIN 453
1950          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1951          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
1952          KM     L =  .58  Kb = .058  Adj. Slope =  138.0
1953          BA    .060
1954          LG    .290    .300   3.290    .820  18.000
1                                       HEC-1 INPUT                                                    PAGE 51

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1955          UC    .275    .284
1956          UA       0       5      16      30      65      77      84      90      94      97
1957          UA     100
              * DDM   ***** Preserved *****

1958          KK    C117
1959          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 453 AND R116
1960          HC       2
              * DDM   ***** Preserved *****

1961          KK    C118
1962          KM   COMBINE HYDROGRAPHS FROM R115 AND C117
1963          HC       2
              * DDM   ***** Preserved *****

1964          KK    R118
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1965          KM        ROUTE FLOW FROM C118 TO  DIV7
1966          RS       1    FLOW      -1
1967          RC    .019    .019    .019    1500    .024
1968          RX    1000    1012    1016    1020    1035    1039    1043    1055
1969          RY      15      12      11      10      10      11      12      15
              * DDM   ***** Preserved *****

1970          KK      D7
1971          KM        OFFLINE BASIN AT NORTH MOUNTAIN RIDGE   FLOWS ENTER BASIN OVER
1972          KM        30' WEIR SET AT 5.3' ABOVE THE CHANNEL BOTTOM, Vol = 3.6 A-F
1973          DT  BASIN6     3.6
1974          DI       0     363     487     563     645     900
1975          DQ       0       2      10      15      25     260
              * DDM   ***** Preserved *****

1976          KK    RTD7
1977          KM   RETRIEVE FLOW FROM DIVERSION INTO OFFLINE BASIN
1978          DR  BASIN6
              * DDM   ***** Preserved *****

1979          KK     SD7
1980          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
1981          KM     3.6 ACRE-FEETx43560/36x3600=1.2cfs
1982          RS       1    STOR       0
1983          SV       0     .01     3.6     4.0
1984          SQ       0     0.2     1.2     1.5
              * DDM   ***** Preserved *****

1985          KK     CD7
1986          KM   HYDROGRAPH COMBINATION FOR OFFLINE BASIN BLEEDOFF
1987          HC       2
              * DDM   ***** Updated *****

1988          KK     454
1989          KM   SUB-BASIN 454
1990          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1991          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
1992          KM     L = 1.23  Kb = .051  Adj. Slope =  163.0
1993          BA    .180
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1994          LG    .300    .310   3.780    .560  14.000
1995          UC    .379    .395
1996          UA       0       5      16      30      65      77      84      90      94      97
1997          UA     100
              *
              * DDM   ***** Preserved *****

1998          KK    C454
1999          KM        COMBINE HYDROGRAPHS FROM SUB-BASIN 454 AND CDIV7
2000          HC       2
              * DDM   ***** Preserved *****

2001          KK    R454
2002          KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
2003          KM   ROUTE FLOW FROM C454 TO 415C
2004          RS       3    FLOW      -1
2005          RC    .045    .035    .045    2200    .009
2006          RX       0      .5       1      33      42      67    67.5      68
2007          RY       5       4       4       0       0       6       6       6
              * DDM   ***** Updated *****

2008          KK    415A
2009          KM   SUB-BASIN 415A
2010          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
2011          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
2012          KM     L = 1.21  Kb = .049  Adj. Slope =  140.0
2013          BA    .280
2014          LG    .300    .260   3.630    .710  15.000
2015          UC    .400    .322
2016          UA       0       5      16      30      65      77      84      90      94      97
2017          UA     100
              * DDM   ***** Preserved *****

2018          KK  CP415A
2019          KM   Combine contributing hydrographs to the Las Sendas channel.  This
2020          KM   includes routed hydrographs from 415B and R454, flow diverted directly into
2021          KM   the channel from CPSD45, and the runoff hydrograph from subbasin 415A
2022          HC       3
              *
              * DDM   ***** Preserved *****

2023          KK   RMCDB
2024          KM   Retrieve flow that remained in the storm drain and goes to the McDowell Road
2025          KM   detention basin
2026          DR    MCDB
              * DDM   ***** Preserved *****

2027          KK   SMCDB
2028          KM   McDowell Road Basin - outlet is a 36-inch storm drain to the Las Sendas
2029          KM   channel
2030          RS       1    STOR       0
2031          SV       0     0.3     0.7     1.1     1.7     2.3     3.1     4.0     5.0     6.1
2032          SV     7.4     8.9    10.4    12.2    14.1
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2033          SQ       0       5      20      35      48      60      70      80      85      92
2034          SQ     100     105     110     115     120
                                          HEC-1 INPUT                                                PAGE 53

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2035          SE    1630    1631    1632    1633    1634    1635    1636    1637    1638    1639
2036          SE    1640    1641    1642    1643    1644
              *
              * DDM   ***** Preserved *****

2037          KK  CPLSCH
2038          KM   Combine discharge from McDowell Road basin with the flows in the Las Sendas
2039          KM   channel
2040          HC       2
              *
              * DDM   ***** Preserved *****

2041          KK   R415A
2042          KM   CHANNEL GEOMETRY OBTAINED FROM 2' CONTOUR MAPPING.
2043          KM   ROUTING OF FLOW FROM C415A TO 455C
2044          RS       2    FLOW      -1
2045          RC    .045     .03    .045    4100    .024
2046          RX       0      .5       1       8      16      23    23.5      24
2047          RY       8       8       8       0       0       8       8       8
              * DDM   ***** Updated *****

2048          KK     455
2049          KM   SUB-BASIN 455
2050          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
2051          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .993
2052          KM     L = 1.70  Kb = .041  Adj. Slope =  146.0
2053          BA   1.111
2054          LG    .270    .280   3.700    .640  24.000
2055          UC    .421    .204
2056          UA       0       5      16      30      65      77      84      90      94      97
2057          UA     100
              * DDM   ***** Preserved *****

2058          KK    D455
2059          KM        DIVERT FLOW INTO ONLINE  DETENTION BASIN
2060          KM   DETENTION/RETENTION BASINS LOCATED WITHIN LAS SENDAS ADDENDUM III
2061          KM   FOR BASIN #: 30      34      43      47&58
2062          KM        MAXIMUM VOLUME DIVERSION = 74.1 acre-feet
2063          DT   BS455    74.1
2064          DI       0   10000
2065          DQ       0   10000
              * DDM   ***** Preserved *****

2066          KK   RT455
2067          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
2068          DR   BS455
              * DDM   ***** Preserved *****

2069          KK    S455
2070          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
2071          KM    74.1 ACRE-FEETx43560/36x3600=25cfs
2072          RS       1    STOR       0
2073          SV       0     .01    74.1   100.0
2074          SQ       0     3.0      25   250.0
              * DDM   ***** Preserved *****
                                          HEC-1 INPUT                                                PAGE 54

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2075          KK    C455
2076          KM   HYDROGRAPH COMBINATION FOR SUB-BASIN 455 AND DIVERTED BASIN STORAGE OF 455
2077          HC       2
              *

2078          KK   CC455
2079          KM  HYDROGRAPH COMBINATION OF 420A, R415A AND C455
2080          HC       3
              * DDM   ***** Preserved *****

2081          KK    S440
2082          KM   SPOOK HILL FRS PLANS DATED 6/15/77
2083          KM   OUTLET PIPE=7'x7.5'RCBC; L=70 INLET INV.=1566; OUTLET INV.=1566
2084          KM   EMERGENCY SPILLWAY ELEV.=1582; PRINCIPLE SPILLWAY ELEV.=1577.5
2085          KM   STORAGE VOLUME BELOW PRINCIPLE SPILLWAY FOR SEDIMENT = 271 ACRE-FEET
2086          RS       1    STOR       0
2087          SV     0.0      81   211.0  265.72  692.96  896.16  1120.0 1630.34  2230.9 3311.68
2088          SQ     0.0     1.0     3.0     8.0  515.00  780.00  825.00  3184.7  7426.0 16007.3
2089          SE   577.0  578.00  579.00  579.36  581.86  582.86  583.86  585.86  587.86  590.86
              * DDM   ***** Preserved *****

2090          KK    R455
2091          KM   ROUTE FLOW FROM SPOOK HILL FRS TO SUB-BASIN 480
2092          RS      15    FLOW      -1
2093          RC    .035    .025    .035    7000   .0002
2094          RX       0       1       2      28      58      84      85      86
2095          RY    13.5    13.5    13.5       0       0    13.5    13.5    13.5
              * DDM   ***** Updated *****

2096          KK     480
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2097          KM   SUB-BASIN 480
2098          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
2099          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .996
2100          KM     L = 1.21  Kb = .042  Adj. Slope =  165.0
2101          BA    .731
2102          LG    .270    .270   3.580    .730  27.000
2103          UC    .325    .148
2104          UA       0       5      16      30      65      77      84      90      94      97
2105          UA     100
              * DDM   ***** Preserved *****

2106          KK    D480
2107          KM        DIVERT FLOW INTO ONLINE  DETENTION BASIN
2108          KM   DETENTION/RETENTION BASINS LOCATED WITHIN LAS SENDAS ADDENDUM III
2109          KM   FOR BASIN #: 18 & 26
2110          KM        MAXIMUM VOLUME DIVERSION = 16.5 acre-feet
2111          DT   BS480    16.5
2112          DI       0   10000
2113          DQ       0   10000
              * DDM   ***** Preserved *****
                                        HEC-1 INPUT                                          PAGE 55

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2114          KK   RT480
2115          KM   RETRIEVE FLOW FROM DIVERSION INTO ONLINE BASIN
2116          DR   BS480
              * DDM   ***** Preserved *****

2117          KK    S480
2118          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
2119          KM    16.5 ACRE-FEETx43560/36x3600=5.5cfs
2120          RS       1    STOR       0
2121          SV       0     .01    16.5    30.0
2122          SQ       0     3.0     5.6    50.0
              * DDM   ***** Preserved *****

2123          KK    C480
2124          KM   HYDROGRAPH COMBINATION FOR SPOOK HILL FRS
2125          HC       2
              * DDM   ***** Preserved *****

2126          KK   CC480
2127          KM   HYDROGRAPH COMBINATION AT SUBBASIN 480
2128          HC       2   0.731
              * DDM   ***** Preserved *****

2129          KK    R480
2130          KM   ROUTE FLOW FROM SUB-BASIN 480 TO SUBBASIN 462
2131          RS       7    FLOW      -1
2132          RC    .035    .025    .035    2800   .0002
2133          RX       0       1       2      28      58      84      85      86
2134          RY    13.5    13.5    13.5       0       0    13.5    13.5    13.5
              * DDM   ***** Updated *****

2135          KK     456
2136          KM   SUB-BASIN 456
2137          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
2138          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
2139          KM     L =  .94  Kb = .045  Adj. Slope =  315.0
2140          BA    .260
2141          LG    .300    .380   5.600    .200  12.000
2142          UC    .217    .139
2143          UA       0       5      16      30      65      77      84      90      94      97
2144          UA     100
              * DDM   ***** Preserved *****

2145          KK      D1
2146          KM        DIVERT FLOW INTO OFFLINE DETENTION BASIN
2147          KM        WEIR FOR BASIN SET AT 4 FEET ABOVE CHANNEL BOTTOM
2148          DT  BASIN1     4.0
2149          DI       0    11.1   127.9   234.4   577.7   789.9  1025.5  1280.9  1555.7
2150          DQ       0       0       0    47.7     248   381.8   533.6   701.5     884
              * DDM   ***** Preserved *****
                                        HEC-1 INPUT                                          PAGE 56

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2151          KK     CD2
2152          KM        SPLIT OUT FLOW FOR WASHES THAT FLOW TO THE SOUTH FROM
2153          KM        WASHES THAT DRAIN TO THE WES, SOUTHERN WASHES FED BY 30" & 24" PIPE
2154          DT    WA30
2155          DI       0    11.1   127.9   189.6   329.7     408   491.9   579.4   671.7
2156          DQ       0    11.1    38.4    48.2      63    69.5      76      81      86
              * DDM   ***** Preserved *****

2157          KK    R456
2158          KM        ROUTE FLOW FROM SUB-BASIN 51 TO C101
2159          RS       2    FLOW      -1
2160          RC     .05    .035     .05    3800    .044
2161          RX    1000    1010    1020    1036    1041    1057    1067    1077
2162          RY   14.88   14.44      14      10      10      14   14.44   14.88
              * DDM   ***** Updated *****
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2163          KK     457
2164          KM   SUB-BASIN 457
2165          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
2166          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
2167          KM     L = 1.01  Kb = .045  Adj. Slope =  308.8
2168          BA    .190
2169          LG    .270    .330   3.950    .460   6.000
2170          UC    .237    .195
2171          UA       0       5      16      30      65      77      84      90      94      97
2172          UA     100
              * DDM   ***** Preserved *****

2173          KK    C101
2174          KM        COMBINE HYDROGRAPHS FROM SUB-BASINS 50 AND 51
2175          HC       2
              * DDM   ***** Preserved *****

2176          KK      D3
2177          KM        RESERVOIR AT THE EDGE OF THE PROPERTY   FLOW FROM CHANNEL
2178          KM        DIVERTED  INTO OFFLINE BASIN A 25' WEIR SET AT ELEVATION 1808 FT
2179          DT  BASIN2     5.0
2180          DI       0      36      70     110     180   313.5     402   500.9
2181          DQ       0       0       0       0       0    67.5     124   190.9
              * DDM   ***** Preserved *****

2182          KK    RTD3
2183          KM   RETRIEVE FLOW FROM DIVERSION INTO OFFLINE BASIN
2184          DR  BASIN2
              * DDM   ***** Preserved *****

2185          KK     SD3
2186          KM   RETRIEVE FLOW INTO FICTICIOUS BASIN AND BLEED OFF WITHIN 36 HOURS.
2187          KM     5.0 ACRE-FEETx43560/36x3600=1.7cfs
2188          RS       1    STOR       0
2189          SV       0     .01       5
2190          SQ       0     0.7     1.7
              * DDM   ***** Preserved *****
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2191          KK     CD3
2192          KM   HYDROGRAPH COMBINATION FOR OFFLINE BASIN BLEEDOFF
2193          HC       2
              * DDM   ***** Preserved *****

2194          KK    R101
2195          KM        ROUTE FLOW FROM SUBBASIN C101 TO C103
2196          RS       1    FLOW      -1
2197          RC     .05    .035     .05    1450     .05
2198          RX    1000    1010    1020    1036    1041    1057    1067    1077
2199          RY      15    14.5      14      10      10      14    14.5      15
              * DDM   ***** Updated *****

2200          KK     458
2201          KM   SUB-BASIN 458
2202          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
2203          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
2204          KM     L =  .76  Kb = .048  Adj. Slope =  299.0
2205          BA    .190
2206          LG    .290    .330   5.800    .190   6.000
2207          UC    .204    .131
2208          UA       0       5      16      30      65      77      84      90      94      97
2209          UA     100
              * DDM   ***** Preserved *****

2210          KK    C103
2211          KM        COMBINE HYDROGRAPHS FROM SUB-BASIN 55 AND C101
2212          HC       2
              * DDM   ***** Preserved *****

2213          KK    R103
2214          KM        ROUTE FLOW FROM SUBBASIN C103 TO C106
2215          RS       1    FLOW      -1
2216          RC     .05    .035     .05     900     .03
2217          RX    1000    1010    1020    1030    1050    1060    1070    1080
2218          RY   13.16   12.83    12.5      10      10    12.5   12.83   13.16
              * DDM   ***** Preserved *****

2219          KK    RT30
2220          KM        RETRIEVE DIVERTED FLOW FOR WASH BELOW 30 INCH PIPE
2221          DR    WA30
              * DDM   ***** Preserved *****

2222          KK     R30
2223          KM        ROUTE FLOW FROM WASH DIVERSION TO COMBINE C52
2224          RS       1    FLOW      -1
2225          RC     .05    .035     .05    1630     .05
2226          RX    1000    1010    1020    1036    1041    1057    1067    1077
2227          RY      15    14.5      14      10      10      14    14.5      15
              * DDM   ***** Preserved *****
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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2228          KK    RTB1
2229          KM        RETRIEVE DIVERTED FLOW FROM BASIN 1
2230          DR  BASIN1
              * DDM   ***** Preserved *****

2231          KK      B1
2232          KM        ROUTE FLOW THROUGH OFFLINE DETENTION BASIN
2233          KM        FLOW OUTLETS THROUGH A 30 INCH OUTLET PIPE
2234          RS       1    ELEV       0
2235          SV              .7     1.4     2.3     2.7     4.0
2236          SQ       0       5      16      28    32.5      37
2237          SE       0       1       2       3     3.5       4
              * DDM   ***** Preserved *****

2238          KK     RB1
2239          KM        ROUTE FLOW FROM BASIN DIVERSION TO COMBINE C52
2240          RS       3    FLOW      -1
2241          RC     .05    .035     .05    1720     .05
2242          RX    1000    1010    1020    1036    1041    1057    1067    1077
2243          RY      15    14.5      14      10      10      14    14.5      15
              * DDM   ***** Preserved *****

2244          KK    CDIV
2245          KM        COMBINE FLOWS FROM WA30 AND BASIN 1
2246          HC       2     .12
              * DDM   ***** Updated *****

2247          KK     459
2248          KM   SUB-BASIN 459
2249          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
2250          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF 1.000
2251          KM     L =  .35  Kb = .052  Adj. Slope =  251.6
2252          BA    .030
2253          LG    .220    .300   3.330    .710   8.000
2254          UC    .162    .157
2255          UA       0       5      16      30      65      77      84      90      94      97
2256          UA     100
              * DDM   ***** Preserved *****

2257          KK     C52
2258          KM        COMBINE FLOWS FROM SUB-BASIN 52 WA30 AND BASIN 1
2259          HC       2
              * DDM   ***** Preserved *****

2260          KK     R52
2261          KM        ROUTE FLOW FROM SUBBASIN 52 TO C102
2262          RS       3    FLOW      -1
2263          RC     .05    .035     .05    2000     .05
2264          RX    1000    1010    1020    1036    1041    1057    1067    1077
2265          RY      15    14.5      14      10      10      14    14.5      15
              * DDM   ***** Updated *****
                                    HEC-1 INPUT                                          PAGE 59

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2266          KK     460
2267          KM   SUB-BASIN 460
2268          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
2269          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
2270          KM     L =  .62  Kb = .058  Adj. Slope =  194.0
2271          BA    .140
2272          LG    .250    .260   3.740    .690  27.000
2273          UC    .242    .160
2274          UA       0       5      16      30      65      77      84      90      94      97
2275          UA     100
              * DDM   ***** Preserved *****

2276          KK    C102
2277          KM        COMBINE HYDROGRAPHS FROM SUB-BASINS 52 AND 53
2278          HC       2
              * DDM   ***** Preserved *****

2279          KK  BASIN3
2280          KM        RESERVOIR AT CLUBHOUSE LOCATION 1-30 INCH PIPE AT OUTFALL
2281          KM        BOTTOM OF BASIN AT 6 FEET ABOVE 1795 ELEVATION
2282          RS       1    ELEV       0
2283          SA       0       0       0       0     .34    1.59    1.81    1.96    2.13     2.3
2284          SQ       0      22      45    47.4      48      51      57      62      67      73
2285          SE    1795  1797.5    1800  1800.4  1800.5    1801    1802    1803    1804  1805.5
              * DDM   ***** Preserved *****

2286          KK      R3
2287          KM        ROUTE FLOW FROM C102 to C106
2288          RS       5    FLOW      -1
2289          RC     .05     .03     .05    2750   .0375
2290          RX    1000    1010    1020    1052    1086    1118    1128    1138
2291          RY    19.2    18.4      18      10      10      18    18.4    19.2
              * DDM   ***** Updated *****

2292          KK     461
2293          KM   SUB-BASIN 461
2294          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
2295          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .999
2296          KM     L =  .83  Kb = .052  Adj. Slope =  181.0
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2297          BA    .120
2298          LG    .270    .250   4.250    .450  21.000
2299          UC    .271    .250
2300          UA       0       5      16      30      65      77      84      90      94      97
2301          UA     100
              * DDM   ***** Preserved *****

2302          KK    C104
2303          KM        COMBINE HYDROGRAPHS FROM SUB-BASIN 54 AND R102
2304          HC       2
              * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                          PAGE 60

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


2305          KK    C106
2306          KM        COMBINE HYDROGRAPHS FROM SUB-BASIN C103 AND C104
2307          HC       2
              * DDM   ***** Preserved *****

2308          KK    R106
2309          KM        ROUTE FLOW FROM C106 TO C49
2310          RS       2    FLOW      -1
2311          RC     .05    .035     .05    3950    .033
2312          RX    1000    1010    1020    1030    1050    1060    1070    1080
2313          RY   13.16   12.83    12.5      10      10    12.5   12.83   13.16
              * DDM   ***** Updated *****

2314          KK     462
2315          KM   SUB-BASIN 462
2316          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
2317          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .998
2318          KM     L =  .97  Kb = .045  Adj. Slope =  297.7
2319          BA    .301
2320          LG    .300    .330   5.300    .240  12.000
2321          UC    .225    .137
2322          UA       0       5      16      30      65      77      84      90      94      97
2323          UA     100
              * DDM   ***** Preserved *****

2324          KK     C56
2325          KM        COMBINE HYDROGRAPHS FROM SUB-BASIN 56 AND C106
2326          HC       2
              * DDM   ***** Preserved *****

2327          KK    C462
2328          KM        COMBINE HYDROGRAPHS AT SUBBASIN 462
2329          HC       2    2.09
              * DDM   ***** Preserved *****

2330          KK    R462
2331          KM   ROUTE FLOW FROM SUB-BASIN 462 TO SUB-BASIN 500 (First Channel Reach)
2332          RS       1    FLOW      -1
2333          RC    .025    .025    .025    1800    .005
2334          RX       0       1      20      32      62      74      93      94
2335          RY      13      12      12       0       0      12      12      13
              *
              * DDM   ***** Preserved *****

2336          KK   RR462
2337          KM   ROUTE FLOW FROM SUB-BASIN 462 TO SUB-BASIN 500 (Second Natural Wash Reach)
2338          RS       3    FLOW      -1
2339          RC    .055     .05    .055    4700     .05
2340          RX       0       1       2      28      58      84      85      86
2341          RY    13.5    13.5    13.5       0       0    13.5    13.5    13.5
              * DDM   ***** Updated *****
1                                        HEC-1 INPUT                                          PAGE 61

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


2342          KK     500
2343          KM   SUB-BASIN 500
2344          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
2345          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .994
2346          KM     L = 2.77  Kb = .042  Adj. Slope =  286.8
2347          BA    .930
2348          LG    .350    .400   6.000    .170   9.000
2349          UC    .421    .333
2350          UA       0       3       5       8      12      20      43      75      90      96
2351          UA     100
              * DDM   ***** Preserved *****

2352          KK    C500
2353          KM   HYDROGRAPH COMBINATION FOR THE ENTIRE WATERSHED AT THE SALT RIVER
2354          HC       2    3.02
2355          ZZ
1
        SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   34        10
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                V
                V
 44           R10
                V
                V
 50           R12
                .
                .
 56             .          20
                .           .
                .           .
 69             .           .-------->    BS20
 66             .         D20
                .           .
                .           .
 74             .           .           .<-------    BS20
 72             .           .        RT20
                .           .           V
                .           .           V
 75             .           .         S20
                .           .           .
                .           .           .
 81           C20........................
                V
                V
 84           R20
                .
                .
 90             .          40
                .           .
                .           .
103             .           .-------->    BS40
100             .         D40
                .           .
                .           .
108             .           .           .<-------    BS40
106             .           .        RT40
                .           .           V
                .           .           V
109             .           .         S40
                .           .           .
                .           .           .
115           C40........................
                .
                .
118             .          60
                .           .
                .           .
131             .           .-------->    BS60
128             .         D60
                .           .
                .           .
136             .           .           .<-------    BS60
134             .           .        RT60
                .           .           V
                .           .           V
137             .           .        SB60
                .           .           .
                .           .           .
143           C60........................
                V
                V
146           S60
                V
                V
158           R60
                V
                V
164          RR60
                .
                .
170             .          80
                .           .
                .           .
183             .           .-------->    BS80
180             .         D80
                .           .
                .           .
188             .           .           .<-------    BS80
186             .           .        RT80
                .           .           V
                .           .           V
189             .           .         S80
                .           .           .
                .           .           .
195             .         C80............
                .           .
                .           .
198          CC80............
                V
                V
201           R80
                .
                .
207             .         100
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                .           .
220             .           .-------->   BS100
217             .       D100
                .           .
                .           .
225             .           .           .<-------   BS100
223             .           .       RT100
                .           .           V
                .           .           V
226             .           .        S100
                .           .           .
                .           .           .
232         C100.......................
                V
                V
235         R100
                .
                .
241             .        120
                .           .
                .           .
254             .           .-------->   BS120
251             .       D120
                .           .
                .           .
259             .           .           .<-------   BS120
257             .           .       RT120
                .           .           V
                .           .           V
260             .           .        S120
                .           .           .
                .           .           .
266         C120.......................
                V
                V
269         R120
                .
                .
275             .        140
                .           .
                .           .
288             .           .-------->   BS140
285             .       D140
                .           .
                .           .
293             .           .           .<-------   BS140
291             .           .       RT140
                .           .           V
                .           .           V
294             .           .        S140
                .           .           .
                .           .           .
300         C140.......................
                .
                .
303             .        150
                .           V
                .           V
313             .       R150
                .           V
                .           V
319             .       R152
                .           .
                .           .
325             .           .         160
                .           .           .
                .           .           .
338             .           .           .-------->   BS160
335             .           .        D160
                .           .           .
                .           .           .
343             .           .           .           .<-------   BS160
341             .           .           .       RT160
                .           .           .           V
                .           .           .           V
344             .           .           .        S160
                .           .           .           .
                .           .           .           .
350             .       C160.......................
                .           .
                .           .
353             .           .         180
                .           .           .
                .           .           .
363         C180.......................
                .
                .
366             .        210
                .           V
                .           V
376             .       R210
                .           .
                .           .
382             .           .         240
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392          .        C240............
             .           V
             .           V
395          .        S240
             .           V
             .           V
402          .        R240
             .           .
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409          .           .         220
             .           .           .
             .           .           .
419          .        C220............
             .           V
             .           V
422          .       SW220
             .           V
             .           V
429          .        R220
             .           .
             .           .
436          .           .         190
             .           .           V
             .           .           V
446          .           .        R190
             .           .           V
             .           .           V
452          .           .        R192
             .           .           .
             .           .           .
458          .           .           .         200
             .           .           .           .
             .           .           .           .
468          .        C200........................
             .           V
             .           V
471          .       SW200
             .           V
             .           V
478          .        R200
             .           V
             .           V
484          .       SS200
             .           V
             .           V
491          .       RR200
             .           .
             .           .
497       CC180............
             V
             V
500        S180
             V
             V
512        R180
             .
             .
521          .         260
             .           .
             .           .
531        C260............
             V
             V
534        R260
             .
             .
543          .         280
             .           .
             .           .
553        C280............
             V
             V
556        R280
             .
             .
565          .         300
             .           .
             .           .
575        C300............
             V
             V
578        R300
             .
             .
587          .        305A
             .           .
             .           .
597        C305............
             V
             V
600        R305
             .
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608          .       320B1
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623          .          .-------> B320B1
618          .      D320B1
             .          .
             .          .
628          .          .          .<-------  B320B1
626          .          .      T320B1
             .          .          V
             .          .          V
629          .          .      S320B1
             .          .          .
             .          .          .
635     C320B1.......................
             .
             .
638          .        350
             .          .
             .          .
651          .          .------->  SF350
648          .       D350
             .          V
             .          V
654          .       R350
             .          .
             .          .
661          .          .        310
             .          .          .
             .          .          .
671          .       C310............
             .          V
             .          V
674          .       R310
             .          .
             .          .
681          .          .       305B
             .          .          V
             .          .          V
691          .          .      R305B
             .          .          .
             .          .          .
698          .          .          .      320B2
             .          .          .          .
             .          .          .          .
713          .          .          .          .-------> B320B2
708          .          .          .     D320B2
             .          .          .          .
             .          .          .          .
718          .          .          .          .          .<-------  B320B2
716          .          .          .          .     T320B2
             .          .          .          .          V
             .          .          .          .          V
719          .          .          .          .     S320B2
             .          .          .          .          .
             .          .          .          .          .
725          .      C320B2...................................
             .          V
             .          V
728          .      R320B2
             .          .
             .          .
735          .          .       340B
             .          .          .
             .          .          .
750          .          .          .-------> BS340B
745          .          .      D340B
             .          .          .
             .          .          .
755          .          .          .          .<-------  BS340B
753          .          .          .     RT340B
             .          .          .          V
             .          .          .          V
756          .          .          .      S340B
             .          .          .          .
             .          .          .          .
762          .       C340B........................
             .          .
             .          .
767          .          .------->  BS340
765          .      DD340B
             .          .
             .          .
772          .          .          .<-------   BS340
770          .          .      RT340
             .          .          V
             .          .          V
773          .          .     SS340B
             .          .          .
             .          .          .
779          .      CD340B............
             .          .
             .          .
784          .          .          .<-------   SF350
782          .          .      RT350
             .          .          V
             .          .          V
785          .          .      RR350
             .          .          .
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792          .           .           .        355
             .           .           .          .
             .           .           .          .
802          .           .       C355.......
             .           .           .
             .           .           .
808          .           .           .-------> BS355
805          .           .       D355
             .           .           .
             .           .           .
813          .           .           .          .<------- BS355
811          .           .           .      RT355
             .           .           .          V
             .           .           .          V
814          .           .           .       S355
             .           .           .          .
             .           .           .          .
820          .           .      CC355.......
             .           .          V
             .           .          V
823          .           .       R355
             .           .           .
             .           .           .
830          .      CC340B.......
             .           V
             .           V
833          .       R340B
             .           .
             .           .
840          .           .      340A2
             .           .           .
             .           .           .
853          .           .           .-------> B340A2
850          .           .     D340A2
             .           .           .
             .           .           .
858          .           .           .          .<------- B340A2
856          .           .           .     T340A2
             .           .           .          V
             .           .           .          V
859          .           .           .     S340A2
             .           .           .          .
             .           .           .          .
865          .      C340A2.......................
             .           V
             .           V
868          .      R340A2
             .           .
             .           .
875     CC320B.......
            V
            V
878      R320B
            .
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887          .        320A
             .           .
             .           .
902          .           .-------> BS320A
897          .       D320A
             .           .
             .           .
907          .           .           .<------- BS320A
905          .           .     RT320A
             .           .          V
             .           .          V
908          .           .      S320A
             .           .           .
             .           .           .
914       C320........................
             .
             .
917          .       340A1
             .           .
             .           .
932          .           .-------> B340A1
927          .      D340A1
             .           .
             .           .
937          .           .           .<------- B340A1
935          .           .     T340A1
             .           .          V
             .           .          V
938          .           .     S340A1
             .           .           .
             .           .           .
944          .      C340A1.......
             .           .
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947       C340........
             .
             .
950          .         360
             .           .
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 964          .           .-------->   BS360
 960          .        D360
              .           .
              .           .
 969          .           .           .<-------   BS360
 967          .           .       RT360
              .           .           V
              .           .           V
 970          .           .        S360
              .           .           .
              .           .           .
 976       C360........................
              .
              .
 979          .        380A
              .           .
              .           .
 989      C380A............
              .
              .
 992          .        400A
              .           .
              .           .
1002      C400A............
              .
              .
1005          .         370
              .           V
              .           V
1015          .        S370
              .           .
              .           .
1027          .           .-------->   B370W
1025          .        D370
              .           V
              .           V
1030          .       R370S
              .           .
              .           .
1037          .           .       380B1
              .           .           .
              .           .           .
1051          .           .           .-------->  B380B1
1047          .           .      D380B1
              .           .           .
              .           .           .
1056          .           .           .           .<-------  B380B1
1054          .           .           .      T380B1
              .           .           .           V
              .           .           .           V
1057          .           .           .      S380B1
              .           .           .           .
              .           .           .           .
1063          .      C380B1........................
              .           V
              .           V
1066          .      R380B1
              .           .
              .           .
1073          .           .       400B1
              .           .           .
              .           .           .
1087          .           .           .-------->  B400B1
1083          .           .      D400B1
              .           .           .
              .           .           .
1092          .           .           .           .<-------  B400B1
1090          .           .           .      T400B1
              .           .           .           V
              .           .           .           V
1093          .           .           .      S400B1
              .           .           .           .
              .           .           .           .
1099          .           .      C400B1............
              .           .           .
              .           .           .
1102      CC400B........................
              .
              .
1105          .       420A2
              .           .
              .           .
1115      C400A2............
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              .
1120          .           .<-------   B370W
1118          .       T370W
              .           V
              .           V
1121          .       R370W
              .           .
              .           .
1127          .           .        395A
              .           .           V
              .           .           V
1137          .           .      R390C1
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1145            .           .           .        395B
                .           .           .           V
                .           .           .           V
1155            .           .           .      R390C2
                .           .           .           .
                .           .           .           .
1163            .           .           .           .        390C
                .           .           .           .           .
                .           .           .           .           .
1173            .           .      CP390C.......................
                .           .           .
                .           .           .
1180            .           .           .-------> TO390B
1177            .           .       TOC-H
                .           .           .
                .           .           .
1183            .        C370............
                .           V
                .           V
1187            .       R390S
                .           .
                .           .
1193            .           .       400B3
                .           .           .
                .           .           .
1207            .           .           .-------> B400B3
1203            .           .      D400B3
                .           .           .
                .           .           .
1212            .           .           .           .<-------  B400B3
1210            .           .           .      T400B3
                .           .           .           V
                .           .           .           V
1213            .           .           .      S400B3
                .           .           .           .
                .           .           .           .
1219            .           .      C400B3............
                .           .           .
                .           .           .
1222            .       C390S............
                .           .
                .           .
1225            .           .       380B3
                .           .           .
                .           .           .
1238            .           .           .-------> B380B3
1235            .           .      D380B3
                .           .           .
                .           .           .
1243            .           .           .           .<-------  B380B3
1241            .           .           .      T380B3
                .           .           .           V
                .           .           .           V
1244            .           .           .      S380B3
                .           .           .           .
                .           .           .           .
1250            .           .      C380B3............
                .           .           .
                .           .           .
1256            .           .           .-------> 380B3c
1253            .           .      D380B3
                .           .           .
                .           .           .
1262            .           .           .-------> 380B3a
1259            .           .      380B3b
                .           .           .
                .           .           .
1265            .       C380BB............
                .           .
                .           .
1271            .           .-------> B38B3b
1268            .       D380B
                .           .
                .           .
1276            .           .           .<-------  B38B3b
1274            .           .      RT380B
                .           .           V
                .           .           V
1277            .           .       S380B
                .           .           .
                .           .           .
1283            .       CC380B............
                .           V
                .           V
1286            .       R38B3b
                .           .
                .           .
1294            .           .           .<-------  380B3a
1292            .           .      T38B3a
                .           .           V
                .           .           V
1295            .           .      R38B3a
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1303          .           .           .           .<-------  380B3c
1301          .           .           .      T38B3c
              .           .           .           .
              .           .           .           .
1304          .      C38B3c.......................
              .           V
              .           V
1307          .      R380B3
              .           .
              .           .
1313          .           .       380B2
              .           .           .
              .           .           .
1323          .      C380B2............
              .           V
              .           V
1326          .      R380B2
              .           .
              .           .
1333          .           .       400B2
              .           .           .
              .           .           .
1343          .      C400B2............
              .           V
              .           V
1346          .      R400B2
              .           .
              .           .
1353          .           .       420A1
              .           .           .
              .           .           .
1367          .           .           .-------> B420A1
1363          .           .      D420A1
              .           .           .
              .           .           .
1372          .           .           .           .<-------  B420A1
1370          .           .           .      T420A1
              .           .           .           V
              .           .           .           V
1373          .           .           .      S420A1
              .           .           .           .
              .           .           .           .
1379       C420A...................................
              .
              .
1385          .           .<-------  TO390B
1382          .       R390B
              .           V
              .           V
1386          .      R390B1
              .           .
              .           .
1392          .           .        385C
              .           .           .
              .           .           .
1402          .           .           .        385B
              .           .           .           .
              .           .           .           .
1412          .           .           .           .        385A
              .           .           .           .           .
              .           .           .           .           .
1422          .           .           .           .           .        415B
              .           .           .           .           .           .
              .           .           .           .           .           .
1432          .           .      CP415B...................................
              .           .           .
              .           .           .
1439          .           .           .-------> BS415B
1436          .           .       D415B
              .           .           .
              .           .           .
1444          .           .           .           .<-------  BS415B
1442          .           .           .      RT415B
              .           .           .           V
              .           .           .           V
1445          .           .           .       S415B
              .           .           .           .
              .           .           .           .
1451          .           .      CC415B............
              .           .           V
              .           .           V
1454          .           .      R390A1
              .           .           .
              .           .           .
1461          .           .           .        390A
              .           .           .           .
              .           .           .           .
1471          .           .      CP390A............
              .           .           V
              .           .           V
1475          .           .      R390B2
              .           .           .
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1483          .           .           .        390B
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1493          .      CP390B.......................
              .           V
              .           V
1497          .       S390B
              .           .
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1506          .           .      420B05
              .           .           .
              .           .           .
1516          .      CPSD05............
              .           .
              .           .
1520          .           .      420B10
              .           .           .
              .           .           .
1530          .      CPSD10............
              .           .
              .           .
1534          .           .      420B15
              .           .           .
              .           .           .
1544          .      CPSD15............
              .           .
              .           .
1548          .           .      420B20
              .           .           .
              .           .           .
1558          .      CPSD20............
              .           .
              .           .
1562          .           .      420B25
              .           .           V
              .           .           V
1572          .           .      SFIRES
              .           .           .
              .           .           .
1580          .      CPSD25............
              .           .
              .           .
1584          .           .      420B30
              .           .           .
              .           .           .
1594          .      CPSD30............
              .           .
              .           .
1598          .           .      420B35
              .           .           V
              .           .           V
1608          .           .      SCHRCH
              .           .           .
              .           .           .
1617          .      CPSD35............
              .           .
              .           .
1621          .           .      420B40
              .           .           .
              .           .           .
1631          .      CPSD40............
              .           .
              .           .
1635          .           .      420B45
              .           .           .
              .           .           .
1645          .      CPSD45............
              .           .
              .           .
1653          .           .-------->    MCDB
1649          .      TOLSCH
              .           .
              .           .
1656          .           .         440
              .           .           V
              .           .           V
1666          .           .         R70
              .           .           .
              .           .           .
1672          .           .           .         441
              .           .           .           .
              .           .           .           .
1682          .           .        C108............
              .           .           .
              .           .           .
1687          .           .           .-------->   SPLIT
1685          .           .          D4
              .           .           V
              .           .           V
1690          .           .        R108
              .           .           .
              .           .           .
1696          .           .           .         442
              .           .           .           .
              .           .           .           .
1706          .           .         C67............
              .           .           .
              .           .           .
1712          .           .           .-------->  BASIN4
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1709          .           .          D6
              .           .           .
              .           .           .
1717          .           .           .          .<-------  BASIN4
1715          .           .           .        RTD6
              .           .           .           V
              .           .           .           V
1718          .           .           .         SD6
              .           .           .           .
              .           .           .           .
1724          .           .         CD6............
              .           .           .
              .           .           .
1727          .           .           .         443
              .           .           .           .
              .           .           .           .
1740          .           .           .           .------->   WSH66
1737          .           .           .         D66
              .           .           .           V
              .           .           .           V
1743          .           .           .        R113
              .           .           .           .
              .           .           .           .
1749          .           .       C114............
              .           .           .
              .           .           .
1752          .           .           .         444
              .           .           .           V
              .           .           .           V
1762          .           .           .         R58
              .           .           .           .
              .           .           .           .
1768          .           .           .           .         445
              .           .           .           .           .
              .           .           .           .           .
1778          .           .           .        C107............
              .           .           .           V
              .           .           .           V
1781          .           .           .        R107
              .           .           .           .
              .           .           .           .
1789          .           .           .           .           .<-------   SPLIT
1787          .           .           .           .        RTB2
              .           .           .           .           V
              .           .           .           .           V
1790          .           .           .           .      RSPLIT
              .           .           .           .           .
              .           .           .           .           .
1796          .           .           .           .           .         446
              .           .           .           .           .           .
              .           .           .           .           .           .
1806          .           .           .        C109........................
              .           .           .           .
              .           .           .           .
1812          .           .           .           .-------> WSH404
1809          .           .           .         D5
              .           .           .           V
              .           .           .           V
1815          .           .           .        R109
              .           .           .           .
              .           .           .           .
1821          .           .           .           .         447
              .           .           .           .           .
              .           .           .           .           .
1833          .           .           .           .           .           .<-------  WSH404
1831          .           .           .           .           .       RT404
              .           .           .           .           .           V
              .           .           .           .           .           V
1834          .           .           .           .           .        R404
              .           .           .           .           .           .
              .           .           .           .           .           .
1840          .           .           .        C110........................
              .           .           .           V
              .           .           .           V
1843          .           .           .        R110
              .           .           .           .
              .           .           .           .
1849          .           .       C115............
              .           .         V
              .           .         V
1852          .           .       R115
              .           .           .
              .           .           .
1858          .           .           .         448
              .           .           .           .
              .           .           .           .
1868          .           .           .           .         449
              .           .           .           .           .
              .           .           .           .           .
1878          .           .           .      C6364............
              .           .           .           V
              .           .           .           V
1881          .           .           .      R6364
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1887          .           .           .           .         450
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1897                                                                  451
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1907                                                          C451............
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1912                                                                   .<-------   WSH66
1910                                                                RT66
                                                                       .
                                                                       .
1913                                                                   .         452
                                                                       .           .
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1923                                                                C6465............
                                                                       V
                                                                       V
1926                                                                R6566
                                                                       .
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1932                                                     C116......................
                                                            V
                                                            V
1935                                                   BASIN5
                                                            V
                                                            V
1942                                                     R116
                                                            .
                                                            .
1948                                                            453
                                                                .
                                                                .
1958                                                     C117............
                                                            .
                                                            .
1961                                            C118............
                                                   V
                                                   V
1964                                            R118
                                                   .
                                                   .
1973                                               .-------> BASIN6
1970                                             D7
                                                   .
                                                   .
1978                                                        .<-------  BASIN6
1976                                                     RTD7
                                                            V
                                                            V
1979                                                      SD7
                                                            .
                                                            .
1985                                             CD7............
                                                   .
                                                   .
1988                                                      454
                                                            .
                                                            .
1998                                            C454............
                                                   V
                                                   V
2001                                            R454
                                                   .
                                                   .
2008                                                     415A
                                                            .
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2018                                 CP415A......................
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                                        .
2026                                               .<-------    MCDB
2023                                         RMCDB
                                                   V
                                                   V
2027                                         SMCDB
                                                   .
                                                   .
2037                                 CPLSCH............
                                          V
                                          V
2041                                  R415A
                                        .
                                        .
2048                                             455
                                                   .
                                                   .
2063                                               .-------> BS455
2058                                            D455
                                                   .
                                                   .
2068                                                        .<-------   BS455
2066                                                     RT455
                                                            V
                                                            V
2069                                                      S455
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2075            .           .       C455............
                .           .           .
                .           .           .
2078        CC455........................
                V
                V
2081         S440
                V
                V
2090         R455
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2096            .        480
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2111            .           .-------->   BS480
2106            .       D480
                .           .
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2116            .           .           .<-------   BS480
2114            .           .       RT480
                .           .           V
                .           .           V
2117            .           .       S480
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2123            .       C480............
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                .           .
2126        CC480............
                V
                V
2129         R480
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2135            .        456
                .           .
                .           .
2148            .           .-------->  BASIN1
2145            .         D1
                .           .
                .           .
2154            .           .-------->    WA30
2151            .        CD2
                .          V
                .          V
2157            .       R456
                .           .
                .           .
2163            .           .        457
                .           .           .
                .           .           .
2173            .       C101............
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                .           .
2179            .           .-------->  BASIN2
2176            .         D3
                .           .
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2184            .           .           .<-------  BASIN2
2182            .           .       RTD3
                .           .           V
                .           .           V
2185            .           .        SD3
                .           .           .
                .           .           .
2191            .        CD3............
                .          V
                .          V
2194            .       R101
                .           .
                .           .
2200            .           .        458
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                .           .           .
2210            .       C103............
                .          V
                .          V
2213            .       R103
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                .           .
2221            .           .           .<-------    WA30
2219            .           .       RT30
                .           .           V
                .           .           V
2222            .           .        R30
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2230            .           .           .           .<-------  BASIN1
2228            .           .           .       RTB1
                .           .           .          V
                .           .           .          V
2231            .           .           .         B1
                .           .           .          V
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2238            .          .          .        RB1
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2244            .          .       CDIV...........
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2247            .          .          .        459
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2257            .          .        C52...........
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2260            .          .        R52
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2266            .          .          .        460
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2276            .          .       C102...........
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2279            .          .     BASIN3
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2286            .          .         R3
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2292            .          .          .        461
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2302            .          .       C104...........
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2305            .       C106...........
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2308            .       R106
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2314            .          .        462
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2324            .        C56...........
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2327       C462...........
              V
              V
2330       R462
              V
              V
2336      RR462
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              .
2342            .        500
                .          .
                .          .
2352       C500...........
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(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   28DEC05  TIME  08:11:30  *
*                                      *
****************************************
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```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

McDowell Road Basin and Storm Drain Design
This model assumes that the Oak Street detention basin is installed,
and all flows pass through the Thunder Mountain detention basin.

The Spook Hill ADMP model was uded as a base for this model
Return Period = 100 Years, Rainfall Duration = 24 Hours

METHODOLOGY
THE US CORPS OF ENGINEERS FLOW HYDROGRAPH PACKAGE HEC-1 DATED JUNE 1998 V4.1
SCS TYPE II RAINFALL DISTRIBUTION
CLARK UNIT HYDROGRAPH
GREEN AND AMPT INFILTRATION EQUATION USED FOR CALCULATING LOSSES
NORMAL DEPTH STORAGE CHANNEL ROUTING

```
 15 IO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN          2  MINUTES IN COMPUTATION INTERVAL
```

```
        IDATE       1    0  STARTING DATE
        ITIME         0000  STARTING TIME
           NQ         2000  NUMBER OF HYDROGRAPH ORDINATES
       NDDATE       3    0  ENDING DATE
       NDTIME         1838  ENDING TIME
        ICENT           19  CENTURY MARK

    COMPUTATION INTERVAL      .03 HOURS
         TOTAL TIME BASE    66.63 HOURS

ENGLISH UNITS
     DRAINAGE AREA          SQUARE MILES
     PRECIPITATION DEPTH    INCHES
     LENGTH, ELEVATION      FEET
     FLOW                   CUBIC FEET PER SECOND
     STORAGE VOLUME         ACRE-FEET
     SURFACE AREA           ACRES
     TEMPERATURE            DEGREES FAHRENHEIT

17 JD          INDEX STORM NO. 1
                 STRM       3.81  PRECIPITATION DEPTH
                 TRDA        .01  TRANSPOSITION DRAINAGE AREA

18 PI            PRECIPITATION PATTERN
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28 JD        INDEX STORM NO. 2
                STRM       3.79  PRECIPITATION DEPTH
                TRDA       1.00  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
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29 JD        INDEX STORM NO. 3
                STRM       3.68  PRECIPITATION DEPTH
                TRDA       5.80  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
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30 JD          INDEX STORM NO. 4
                    STRM        3.57  PRECIPITATION DEPTH
                    TRDA       10.66  TRANSPOSITION DRAINAGE AREA

 0 PI            PRECIPITATION PATTERN
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31 JD INDEX STORM NO. 5

STRM 3.54 PRECIPITATION DEPTH
TRDA 13.70 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

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32 JD INDEX STORM NO. 6

STRM	3.47	PRECIPITATION DEPTH
TRDA	20.00	TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

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33 JD INDEX STORM NO. 7
STRM 3.32 PRECIPITATION DEPTH
TRDA 50.00 TRANSPOSITION DRAINAGE AREA

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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			

HYDROGRAPH AT	10	972.	12.27	119.	33.	12.	.69
ROUTED TO	R10	903.	12.40	119.	33.	12.	.69
ROUTED TO	R12	845.	12.60	118.	33.	12.	.69
HYDROGRAPH AT	20	1103.	12.23	165.	45.	16.	1.17
DIVERSION TO	BS20	1103.	12.23	92.	24.	9.	1.17
HYDROGRAPH AT	D20	839.	12.50	79.	21.	8.	1.17
HYDROGRAPH AT	RT20	1103.	12.23	92.	24.	9.	1.17
ROUTED TO	S20	16.	12.50	15.	12.	7.	1.17
3 COMBINED AT	C20	1554.	12.57	207.	63.	26.	1.86
ROUTED TO	R20	1554.	12.57	207.	63.	26.	1.86
HYDROGRAPH AT	40	2753.	12.30	286.	79.	28.	2.23
DIVERSION TO	BS40	1789.	12.13	72.	20.	7.	2.23
HYDROGRAPH AT	D40	2753.	12.30	227.	59.	21.	2.23
HYDROGRAPH AT	RT40	1789.	12.13	72.	20.	7.	2.23
ROUTED TO	S40	13.	12.20	12.	10.	6.	2.23
3 COMBINED AT	C40	3088.	12.33	437.	129.	52.	4.08
HYDROGRAPH AT	60	1654.	12.40	244.	66.	24.	1.75
DIVERSION TO	BS60	11.	9.17	7.	2.	1.	1.75
HYDROGRAPH AT	D60	1654.	12.40	244.	64.	23.	1.75
HYDROGRAPH AT	RT60	11.	9.17	7.	2.	1.	1.75
ROUTED TO	SB60	2.	9.33	2.	1.	1.	1.75
3 COMBINED AT	C60	4599.	12.33	665.	190.	75.	5.84
ROUTED TO	S60	101.	14.77	101.	98.	54.	5.84
ROUTED TO	R60	101.	14.77	101.	98.	53.	5.84
ROUTED TO	RR60	101.	14.87	101.	98.	53.	5.84
HYDROGRAPH AT	80	1951.	12.13	199.	53.	19.	1.49
DIVERSION TO	BS80	945.	11.93	35.	10.	3.	1.49
HYDROGRAPH AT	D80	1951.	12.13	170.	43.	16.	1.49
HYDROGRAPH AT	RT80	945.	11.93	35.	10.	3.	1.49
ROUTED TO	S80	7.	12.00	6.	5.	3.	1.49
2 COMBINED AT	C80	1958.	12.13	176.	48.	19.	1.49
2 COMBINED AT	CC80	1958.	12.13	264.	144.	75.	1.49

ROUTED TO	R80	1950.	12.17	263.	144.	75.	1.49
HYDROGRAPH AT	100	453.	12.20	66.	18.	6.	.49
DIVERSION TO	BS100	422.	12.13	19.	5.	2.	.49
HYDROGRAPH AT	D100	453.	12.20	50.	13.	5.	.49
HYDROGRAPH AT	RT100	422.	12.13	19.	5.	2.	.49
ROUTED TO	S100	4.	12.20	3.	3.	2.	.49
3 COMBINED AT	C100	2352.	12.20	314.	159.	80.	1.98
ROUTED TO	R100	2303.	12.23	313.	159.	80.	1.98
HYDROGRAPH AT	120	3345.	12.27	342.	93.	34.	2.20
DIVERSION TO	BS120	13.	7.50	10.	3.	1.	2.20
HYDROGRAPH AT	D120	3345.	12.27	342.	90.	33.	2.20
HYDROGRAPH AT	RT120	13.	7.50	10.	3.	1.	2.20
ROUTED TO	S120	2.	8.00	2.	2.	1.	2.20
3 COMBINED AT	C120	5561.	12.23	633.	242.	112.	4.18
ROUTED TO	R120	5512.	12.27	633.	242.	111.	4.18
HYDROGRAPH AT	140	665.	12.13	67.	18.	6.	.60
DIVERSION TO	BS140	369.	11.97	11.	3.	1.	.60
HYDROGRAPH AT	D140	665.	12.13	58.	15.	5.	.60
HYDROGRAPH AT	RT140	369.	11.97	11.	3.	1.	.60
ROUTED TO	S140	2.	12.03	2.	2.	1.	.60
3 COMBINED AT	C140	6028.	12.27	687.	257.	117.	4.78
HYDROGRAPH AT	150	593.	12.17	51.	14.	5.	.41
ROUTED TO	R150	567.	12.23	51.	14.	5.	.41
ROUTED TO	R152	513.	12.33	51.	14.	5.	.41
HYDROGRAPH AT	160	224.	12.40	36.	9.	3.	.37
DIVERSION TO	BS160	82.	12.13	2.	1.	0.	.37
HYDROGRAPH AT	D160	224.	12.40	34.	9.	3.	.37
HYDROGRAPH AT	RT160	82.	12.13	2.	1.	0.	.37
ROUTED TO	S160	1.	12.20	1.	1.	0.	.37
3 COMBINED AT	C160	732.	12.37	86.	23.	8.	.77
HYDROGRAPH AT	180	851.	12.37	98.	25.	9.	1.01
3 COMBINED AT	C180	7186.	12.27	850.	298.	131.	6.56

HYDROGRAPH AT	210	1322.	12.17	111.	29.	10.	.79
ROUTED TO	R210	1246.	12.23	111.	29.	10.	.79
HYDROGRAPH AT	240	1513.	12.30	167.	42.	15.	1.41
2 COMBINED AT	C240	2684.	12.27	273.	70.	25.	2.20
ROUTED TO	S240	799.	12.70	226.	59.	21.	2.20
ROUTED TO	R240	795.	12.77	225.	59.	21.	2.20
HYDROGRAPH AT	220	676.	12.20	68.	18.	6.	.47
2 COMBINED AT	C220	955.	12.60	288.	75.	27.	2.67
ROUTED TO	SW220	895.	12.80	280.	73.	26.	2.67
ROUTED TO	R220	893.	12.87	280.	73.	26.	2.67
HYDROGRAPH AT	190	1471.	12.17	123.	33.	12.	.92
ROUTED TO	R190	1415.	12.23	123.	33.	12.	.92
ROUTED TO	R192	1359.	12.30	123.	33.	12.	.92
HYDROGRAPH AT	200	831.	12.17	72.	20.	7.	.53
3 COMBINED AT	C200	2264.	12.30	459.	122.	44.	4.12
ROUTED TO	SW200	2144.	12.37	454.	119.	43.	4.12
ROUTED TO	R200	2135.	12.37	454.	119.	43.	4.12
ROUTED TO	SS200	1364.	12.73	333.	88.	32.	4.12
ROUTED TO	RR200	1343.	12.83	331.	88.	32.	4.12
2 COMBINED AT	CC180	7186.	12.27	1159.	382.	161.	10.68
ROUTED TO	S180	124.	24.43	124.	124.	88.	10.68
ROUTED TO	R180	124.	24.47	124.	124.	88.	10.68
HYDROGRAPH AT	260	427.	12.10	42.	11.	4.	.26
2 COMBINED AT	C260	428.	12.10	139.	130.	102.	.26
ROUTED TO	R260	411.	12.20	139.	130.	102.	.26
HYDROGRAPH AT	280	527.	12.10	46.	13.	5.	.32
2 COMBINED AT	C280	893.	12.13	180.	140.	106.	.58
ROUTED TO	R280	870.	12.20	179.	140.	106.	.58
HYDROGRAPH AT	300	428.	12.10	37.	11.	4.	.29
2 COMBINED AT	C300	1235.	12.17	213.	149.	110.	.87
ROUTED TO	R300	1189.	12.23	212.	149.	109.	.87
HYDROGRAPH AT	305A	394.	12.13	41.	11.	4.	.32

2 COMBINED AT	C305	1534.	12.20	249.	158.	113.	1.19
ROUTED TO	R305	1520.	12.23	249.	158.	113.	1.19
HYDROGRAPH AT	320B1	659.	12.13	66.	19.	7.	.45
DIVERSION TO	B320B1	364.	11.93	16.	5.	2.	.45
HYDROGRAPH AT	D320B1	659.	12.13	54.	14.	5.	.45
HYDROGRAPH AT	T320B1	364.	11.93	16.	5.	2.	.45
ROUTED TO	S320B1	4.	12.00	3.	3.	2.	.45
3 COMBINED AT	C320B1	2042.	12.20	303.	174.	118.	1.64
HYDROGRAPH AT	350	1315.	12.20	112.	29.	11.	1.00
DIVERSION TO	SF350	658.	12.20	56.	15.	5.	1.00
HYDROGRAPH AT	D350	658.	12.20	56.	15.	5.	1.00
ROUTED TO	R350	593.	12.40	56.	15.	5.	1.00
HYDROGRAPH AT	310	381.	12.33	50.	13.	5.	.54
2 COMBINED AT	C310	950.	12.37	106.	27.	10.	1.04
ROUTED TO	R310	865.	12.67	106.	27.	10.	1.04
HYDROGRAPH AT	305B	333.	12.33	40.	10.	4.	.39
ROUTED TO	R305B	317.	12.43	40.	10.	4.	.39
HYDROGRAPH AT	320B2	251.	12.13	27.	7.	3.	.22
DIVERSION TO	B320B2	177.	12.00	6.	2.	1.	.22
HYDROGRAPH AT	D320B2	251.	12.13	22.	6.	2.	.22
HYDROGRAPH AT	T320B2	177.	12.00	6.	2.	1.	.22
ROUTED TO	S320B2	1.	12.03	1.	1.	1.	.22
4 COMBINED AT	C320B2	1150.	12.63	167.	43.	16.	1.65
ROUTED TO	R320B2	1144.	12.67	167.	43.	16.	1.65
HYDROGRAPH AT	340B	497.	12.07	41.	12.	4.	.29
DIVERSION TO	BS340B	497.	12.07	29.	8.	3.	.29
HYDROGRAPH AT	D340B	286.	12.20	15.	4.	2.	.29
HYDROGRAPH AT	RT340B	497.	12.07	29.	8.	3.	.29
ROUTED TO	S340B	5.	12.20	5.	4.	3.	.29
3 COMBINED AT	C340B	1166.	12.67	185.	50.	20.	1.94
DIVERSION TO	BS340	966.	12.67	113.	28.	10.	1.94
HYDROGRAPH AT	DD340B	200.	12.10	71.	22.	10.	1.94

HYDROGRAPH AT	RT340	966.	12.67	113.	28.	10.	1.94
ROUTED TO	SS340B	48.	13.40	41.	24.	10.	1.94
2 COMBINED AT	CD340B	248.	13.40	109.	46.	20.	1.94
HYDROGRAPH AT	RT350	658.	12.20	56.	15.	5.	1.00
ROUTED TO	RR350	570.	12.43	56.	15.	5.	1.00
HYDROGRAPH AT	355	546.	12.33	75.	19.	7.	.68
2 COMBINED AT	C355	1061.	12.40	130.	34.	12.	1.17
DIVERSION TO	BS355	611.	12.40	40.	10.	4.	1.17
HYDROGRAPH AT	D355	450.	12.13	90.	24.	9.	1.17
HYDROGRAPH AT	RT355	611.	12.40	40.	10.	4.	1.17
ROUTED TO	S355	40.	12.77	26.	10.	4.	1.17
2 COMBINED AT	CC355	490.	12.77	115.	34.	12.	1.17
ROUTED TO	R355	478.	12.77	115.	34.	12.	1.17
2 COMBINED AT	CC340B	707.	12.77	220.	78.	31.	3.11
ROUTED TO	R340B	703.	12.80	219.	78.	31.	3.11
HYDROGRAPH AT	340A2	72.	12.03	8.	3.	1.	.04
DIVERSION TO	B340A2	64.	11.97	4.	1.	0.	.04
HYDROGRAPH AT	D340A2	72.	12.03	5.	1.	1.	.04
HYDROGRAPH AT	T340A2	64.	11.97	4.	1.	0.	.04
ROUTED TO	S340A2	1.	12.03	1.	1.	0.	.04
3 COMBINED AT	C340A2	710.	12.80	225.	80.	32.	3.15
ROUTED TO	R340A2	703.	12.93	225.	80.	32.	3.15
2 COMBINED AT	CC320B	2211.	12.23	516.	250.	147.	4.79
ROUTED TO	R320B	2204.	12.23	515.	250.	147.	4.79
HYDROGRAPH AT	320A	315.	12.13	40.	12.	4.	.27
DIVERSION TO	BS320A	315.	12.13	22.	6.	2.	.27
HYDROGRAPH AT	D320A	267.	12.27	22.	6.	2.	.27
HYDROGRAPH AT	RT320A	315.	12.13	22.	6.	2.	.27
ROUTED TO	S320A	4.	12.27	3.	3.	2.	.27
3 COMBINED AT	C320	2378.	12.30	538.	258.	151.	5.06
HYDROGRAPH AT	340A1	1254.	12.17	154.	46.	17.	1.09
DIVERSION TO	B340A1	1254.	12.17	154.	46.	17.	1.09

HYDROGRAPH AT	D340A1	0.	.00	0.	0.	0.	1.09
HYDROGRAPH AT	T340A1	1254.	12.17	154.	46.	17.	1.09
ROUTED TO	S340A1	18.	15.30	18.	16.	12.	1.09
2 COMBINED AT	C340A1	18.	15.30	18.	16.	12.	1.09
2 COMBINED AT	C340	2378.	12.30	552.	273.	161.	6.15
HYDROGRAPH AT	360	840.	12.20	122.	36.	13.	.88
DIVERSION TO	BS360	840.	12.20	93.	25.	9.	.88
HYDROGRAPH AT	D360	366.	12.67	40.	12.	4.	.88
HYDROGRAPH AT	RT360	840.	12.20	93.	25.	9.	.88
ROUTED TO	S360	15.	12.67	15.	12.	8.	.88
3 COMBINED AT	C360	2378.	12.30	596.	294.	172.	7.03
HYDROGRAPH AT	380A	322.	12.27	33.	10.	4.	.26
2 COMBINED AT	C380A	2639.	12.30	617.	299.	173.	7.29
HYDROGRAPH AT	400A	56.	12.20	4.	1.	0.	.05
2 COMBINED AT	C400A	2676.	12.30	621.	300.	173.	7.34
HYDROGRAPH AT	370	817.	12.23	83.	22.	8.	.67
ROUTED TO	S370	374.	12.53	83.	22.	8.	.67
DIVERSION TO	B370W	335.	12.53	74.	20.	7.	.67
HYDROGRAPH AT	D370	39.	12.53	8.	2.	1.	.67
ROUTED TO	R370S	38.	12.90	8.	2.	1.	.67
HYDROGRAPH AT	380B1	329.	12.20	47.	14.	5.	.37
DIVERSION TO	B380B1	329.	12.20	19.	5.	2.	.37
HYDROGRAPH AT	D380B1	312.	12.27	31.	8.	3.	.37
HYDROGRAPH AT	T380B1	329.	12.20	19.	5.	2.	.37
ROUTED TO	S380B1	3.	12.27	3.	3.	2.	.37
3 COMBINED AT	C380B1	315.	12.27	42.	13.	6.	1.04
ROUTED TO	R380B1	287.	12.43	42.	13.	6.	1.04
HYDROGRAPH AT	400B1	440.	12.13	45.	13.	5.	.38
DIVERSION TO	B400B1	239.	11.97	10.	3.	1.	.38
HYDROGRAPH AT	D400B1	440.	12.13	37.	10.	3.	.38
HYDROGRAPH AT	T400B1	239.	11.97	10.	3.	1.	.38
ROUTED TO	S400B1	2.	12.03	2.	2.	1.	.38

2 COMBINED AT	C400B1	442.	12.13	39.	11.	5.	.38
3 COMBINED AT	CC400B	2957.	12.30	684.	319.	180.	8.76
HYDROGRAPH AT	420A2	31.	12.07	2.	1.	0.	.02
2 COMBINED AT	C400A2	2967.	12.30	685.	319.	180.	8.78
HYDROGRAPH AT	T370W	335.	12.53	74.	20.	7.	.67
ROUTED TO	R370W	331.	12.73	74.	20.	7.	.67
HYDROGRAPH AT	395A	191.	12.13	25.	7.	2.	.19
ROUTED TO	R390C1	189.	12.20	25.	7.	2.	.19
HYDROGRAPH AT	395B	6.	12.03	1.	0.	0.	.00
ROUTED TO	R390C2	5.	12.23	1.	0.	0.	.00
HYDROGRAPH AT	390C	226.	12.07	18.	5.	2.	.12
3 COMBINED AT	CP390C	379.	12.10	44.	12.	4.	.31
DIVERSION TO	TO390B	275.	12.10	22.	6.	2.	.31
HYDROGRAPH AT	TOC-H	104.	12.10	21.	7.	2.	.31
2 COMBINED AT	C370	383.	12.67	95.	26.	10.	1.30
ROUTED TO	R390S	382.	12.70	95.	26.	10.	1.30
HYDROGRAPH AT	400B3	39.	12.03	3.	1.	0.	.02
DIVERSION TO	B400B3	39.	12.03	3.	1.	0.	.02
HYDROGRAPH AT	D400B3	0.	.00	0.	0.	0.	.02
HYDROGRAPH AT	T400B3	39.	12.03	3.	1.	0.	.02
ROUTED TO	S400B3	1.	11.67	1.	1.	0.	.02
2 COMBINED AT	C400B3	1.	11.67	1.	1.	0.	.02
2 COMBINED AT	C390S	383.	12.70	96.	27.	10.	1.32
HYDROGRAPH AT	380B3	171.	12.10	16.	5.	2.	.12
DIVERSION TO	B380B3	170.	12.07	7.	2.	1.	.12
HYDROGRAPH AT	D380B3	162.	12.13	10.	3.	1.	.12
HYDROGRAPH AT	T380B3	170.	12.07	7.	2.	1.	.12
ROUTED TO	S380B3	2.	12.13	2.	1.	1.	.12
2 COMBINED AT	C380B3	164.	12.13	11.	4.	2.	.12
DIVERSION TO	380B3c	44.	12.13	3.	1.	0.	.12
HYDROGRAPH AT	D380B3	120.	12.13	8.	3.	1.	.12
DIVERSION TO	380B3a	62.	12.13	4.	1.	1.	.12

HYDROGRAPH AT	380B3b	57.	12.13	4.	1.	1.	.12
2 COMBINED AT	C380BB	390.	12.70	99.	28.	10.	1.45
DIVERSION TO	B38B3b	320.	12.70	65.	16.	6.	1.45
HYDROGRAPH AT	D380B	70.	11.90	34.	12.	4.	1.45
HYDROGRAPH AT	RT380B	320.	12.70	65.	16.	6.	1.45
ROUTED TO	S380B	61.	13.63	25.	15.	6.	1.45
2 COMBINED AT	CC380B	131.	13.63	56.	26.	10.	1.45
ROUTED TO	R38B3b	131.	13.67	56.	26.	10.	1.45
HYDROGRAPH AT	T38B3a	62.	12.13	4.	1.	1.	.12
ROUTED TO	R38B3a	50.	12.23	4.	1.	1.	.12
HYDROGRAPH AT	T38B3c	44.	12.13	3.	1.	0.	.12
3 COMBINED AT	C38B3c	156.	12.23	63.	28.	11.	1.45
ROUTED TO	R380B3	151.	12.33	63.	28.	11.	1.45
HYDROGRAPH AT	380B2	140.	12.07	12.	3.	1.	.10
2 COMBINED AT	C380B2	208.	12.27	74.	31.	13.	1.54
ROUTED TO	R380B2	205.	12.40	74.	31.	13.	1.54
HYDROGRAPH AT	400B2	205.	12.13	19.	5.	2.	.19
2 COMBINED AT	C400B2	394.	12.17	91.	36.	14.	1.74
ROUTED TO	R400B2	377.	12.27	91.	36.	14.	1.74
HYDROGRAPH AT	420A1	759.	12.13	74.	21.	8.	.57
DIVERSION TO	B420A1	477.	11.97	20.	6.	2.	.57
HYDROGRAPH AT	D420A1	759.	12.13	60.	16.	6.	.57
HYDROGRAPH AT	T420A1	477.	11.97	20.	6.	2.	.57
ROUTED TO	S420A1	4.	12.03	3.	3.	2.	.57
4 COMBINED AT	C420A	3728.	12.23	812.	364.	197.	11.09
HYDROGRAPH AT	R390B	275.	12.10	22.	6.	2.	.31
ROUTED TO	R390B1	277.	12.10	22.	6.	2.	.31
HYDROGRAPH AT	385C	647.	12.13	72.	20.	7.	.50
HYDROGRAPH AT	385B	103.	12.07	10.	3.	1.	.08
HYDROGRAPH AT	385A	23.	12.07	2.	1.	0.	.02
HYDROGRAPH AT	415B	442.	12.07	43.	13.	5.	.28
4 COMBINED AT	CP415B	1205.	12.10	127.	36.	13.	.87

DIVERSION TO	BS415B	1055.	12.10	79.	20.	7.	.87
HYDROGRAPH AT	D415B	150.	11.70	48.	16.	6.	.87
HYDROGRAPH AT	RT415B	1055.	12.10	79.	20.	7.	.87
ROUTED TO	S415B	55.	12.70	42.	20.	7.	.87
2 COMBINED AT	CC415B	205.	12.70	85.	34.	13.	.87
ROUTED TO	R390A1	205.	12.73	85.	34.	13.	.87
HYDROGRAPH AT	390A	33.	12.07	3.	1.	0.	.02
2 COMBINED AT	CP390A	210.	12.47	88.	35.	13.	.90
ROUTED TO	R390B2	210.	12.50	88.	35.	13.	.90
HYDROGRAPH AT	390B	139.	12.07	13.	4.	1.	.10
3 COMBINED AT	CP390B	613.	12.10	122.	44.	16.	1.31
ROUTED TO	S390B	519.	12.23	122.	44.	16.	1.31
HYDROGRAPH AT	420B05	62.	12.07	5.	2.	1.	.04
2 COMBINED AT	CPSD05	559.	12.20	127.	45.	17.	1.35
HYDROGRAPH AT	420B10	26.	12.10	3.	1.	0.	.03
2 COMBINED AT	CPSD10	581.	12.20	130.	46.	17.	1.37
HYDROGRAPH AT	420B15	10.	12.10	1.	0.	0.	.01
2 COMBINED AT	CPSD15	589.	12.20	131.	46.	17.	1.39
HYDROGRAPH AT	420B20	12.	12.10	2.	1.	0.	.01
2 COMBINED AT	CPSD20	600.	12.20	133.	47.	18.	1.40
HYDROGRAPH AT	420B25	37.	12.37	10.	3.	1.	.08
ROUTED TO	SFIRES	27.	12.80	10.	3.	1.	.08
2 COMBINED AT	CPSD25	615.	12.20	143.	49.	19.	1.48
HYDROGRAPH AT	420B30	46.	12.13	7.	2.	1.	.05
2 COMBINED AT	CPSD30	658.	12.20	149.	51.	19.	1.54
HYDROGRAPH AT	420B35	40.	12.07	4.	1.	0.	.04
ROUTED TO	SCHRCH	42.	12.17	4.	1.	0.	.04
2 COMBINED AT	CPSD35	694.	12.17	153.	52.	20.	1.57
HYDROGRAPH AT	420B40	6.	12.07	1.	0.	0.	.00
2 COMBINED AT	CPSD40	698.	12.17	154.	52.	20.	1.58
HYDROGRAPH AT	420B45	7.	12.07	1.	0.	0.	.01
2 COMBINED AT	CPSD45	704.	12.17	154.	53.	20.	1.59

DIVERSION TO	MCDB	304.	12.17	36.	10.	4.	1.59
HYDROGRAPH AT	TOLSCH	400.	12.17	118.	43.	16.	1.59
HYDROGRAPH AT	440	184.	12.03	12.	3.	1.	.08
ROUTED TO	R70	181.	12.07	12.	3.	1.	.08
HYDROGRAPH AT	441	16.	12.03	1.	0.	0.	.01
2 COMBINED AT	C108	197.	12.07	14.	4.	1.	.09
DIVERSION TO	SPLIT	98.	12.07	7.	2.	1.	.09
HYDROGRAPH AT	D4	98.	12.07	7.	2.	1.	.09
ROUTED TO	R108	92.	12.13	7.	2.	1.	.09
HYDROGRAPH AT	442	105.	12.10	9.	2.	1.	.10
2 COMBINED AT	C67	195.	12.10	16.	4.	2.	.19
DIVERSION TO	BASIN4	121.	12.10	6.	2.	1.	.19
HYDROGRAPH AT	D6	74.	12.10	10.	3.	1.	.19
HYDROGRAPH AT	RTD6	121.	12.10	6.	2.	1.	.19
ROUTED TO	SD6	1.	12.47	1.	1.	0.	.19
2 COMBINED AT	CD6	74.	12.10	10.	3.	1.	.19
HYDROGRAPH AT	443	151.	12.07	15.	4.	1.	.08
DIVERSION TO	WSH66	78.	11.87	12.	3.	1.	.08
HYDROGRAPH AT	D66	73.	12.07	3.	1.	0.	.08
ROUTED TO	R113	71.	12.07	3.	1.	0.	.08
2 COMBINED AT	C114	144.	12.07	13.	4.	2.	.27
HYDROGRAPH AT	444	83.	12.03	5.	1.	0.	.04
ROUTED TO	R58	79.	12.07	5.	1.	0.	.04
HYDROGRAPH AT	445	307.	12.03	19.	5.	2.	.19
2 COMBINED AT	C107	382.	12.03	23.	6.	2.	.23
ROUTED TO	R107	382.	12.07	23.	6.	2.	.23
HYDROGRAPH AT	RTB2	98.	12.07	7.	2.	1.	.09
ROUTED TO	RSPLIT	98.	12.07	7.	2.	1.	.09
HYDROGRAPH AT	446	66.	12.03	6.	2.	1.	.04
3 COMBINED AT	C109	545.	12.07	36.	10.	3.	.27
DIVERSION TO	WSH404	35.	11.70	8.	2.	1.	.27
HYDROGRAPH AT	D5	510.	12.07	28.	7.	3.	.27

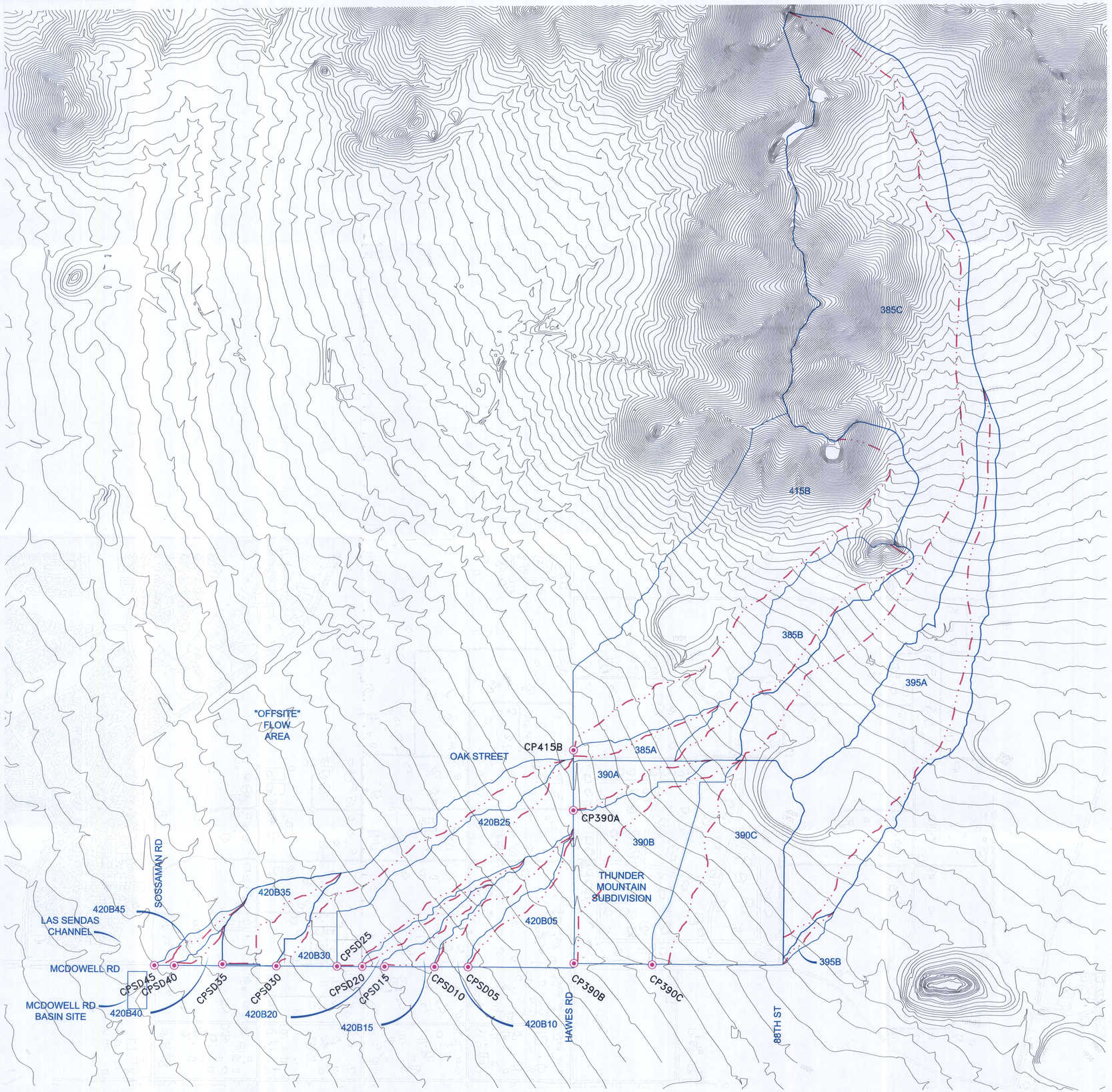
ROUTED TO	R109	493.	12.10	28.	7.	3.	.27
HYDROGRAPH AT	447	141.	12.07	12.	4.	1.	.09
HYDROGRAPH AT	RT404	35.	11.70	8.	2.	1.	.27
ROUTED TO	R404	35.	11.83	8.	2.	1.	.27
3 COMBINED AT	C110	666.	12.07	48.	13.	5.	.36
ROUTED TO	R110	663.	12.10	48.	13.	5.	.36
2 COMBINED AT	C115	805.	12.07	61.	17.	7.	.63
ROUTED TO	R115	799.	12.10	61.	17.	7.	.63
HYDROGRAPH AT	448	89.	12.03	6.	2.	1.	.05
HYDROGRAPH AT	449	81.	12.03	5.	1.	0.	.05
2 COMBINED AT	C6364	170.	12.03	11.	3.	1.	.09
ROUTED TO	R6364	145.	12.17	11.	3.	1.	.09
HYDROGRAPH AT	450	63.	12.20	7.	2.	1.	.07
HYDROGRAPH AT	451	18.	12.17	2.	1.	0.	.03
2 COMBINED AT	C451	80.	12.20	9.	2.	1.	.09
HYDROGRAPH AT	RT66	78.	11.87	12.	3.	1.	.08
HYDROGRAPH AT	452	63.	12.03	5.	1.	0.	.04
2 COMBINED AT	C6465	141.	12.03	17.	4.	2.	.04
ROUTED TO	R6566	137.	12.10	17.	4.	2.	.04
3 COMBINED AT	C116	357.	12.17	36.	10.	3.	.23
ROUTED TO	BASIN5	159.	12.47	36.	10.	3.	.23
ROUTED TO	R116	157.	12.53	36.	10.	3.	.23
HYDROGRAPH AT	453	63.	12.10	7.	2.	1.	.06
2 COMBINED AT	C117	177.	12.47	43.	12.	4.	.29
2 COMBINED AT	C118	892.	12.10	104.	29.	11.	.92
ROUTED TO	R118	887.	12.13	104.	29.	11.	.92
DIVERSION TO	BASIN6	248.	12.13	7.	2.	1.	.92
HYDROGRAPH AT	D7	639.	12.13	97.	27.	10.	.92
HYDROGRAPH AT	RTD7	248.	12.13	7.	2.	1.	.92
ROUTED TO	SD7	1.	12.67	1.	1.	1.	.92
2 COMBINED AT	CD7	640.	12.13	97.	28.	11.	.92
HYDROGRAPH AT	454	162.	12.13	21.	6.	2.	.18

2 COMBINED AT	C454	801.	12.13	118.	34.	13.	1.10
ROUTED TO	R454	793.	12.23	118.	34.	13.	1.10
HYDROGRAPH AT	415A	267.	12.17	32.	9.	3.	.28
3 COMBINED AT	CP415A	1431.	12.20	262.	84.	32.	2.97
HYDROGRAPH AT	RMCDB	304.	12.17	36.	10.	4.	1.59
ROUTED TO	SMCDB	106.	12.63	36.	10.	4.	1.59
2 COMBINED AT	CPLSCH	1515.	12.20	297.	93.	35.	2.97
ROUTED TO	R415A	1500.	12.27	297.	93.	35.	2.97
HYDROGRAPH AT	455	1418.	12.13	150.	45.	16.	1.11
DIVERSION TO	BS455	1418.	12.13	139.	37.	13.	1.11
HYDROGRAPH AT	D455	145.	12.80	24.	8.	3.	1.11
HYDROGRAPH AT	RT455	1418.	12.13	139.	37.	13.	1.11
ROUTED TO	S455	23.	12.80	22.	18.	11.	1.11
2 COMBINED AT	C455	169.	12.80	46.	26.	14.	1.11
3 COMBINED AT	CC455	5081.	12.23	1089.	460.	237.	15.16
ROUTED TO	S440	296.	22.80	294.	267.	172.	15.16
ROUTED TO	R455	296.	23.53	294.	267.	170.	15.16
HYDROGRAPH AT	480	1102.	12.10	100.	31.	11.	.73
DIVERSION TO	BS480	487.	11.90	27.	8.	3.	.73
HYDROGRAPH AT	D480	1102.	12.10	83.	23.	8.	.73
HYDROGRAPH AT	RT480	487.	11.90	27.	8.	3.	.73
ROUTED TO	S480	5.	11.97	5.	4.	3.	.73
2 COMBINED AT	C480	1107.	12.10	88.	27.	11.	.73
2 COMBINED AT	CC480	1107.	12.10	357.	318.	206.	.73
ROUTED TO	R480	907.	12.33	357.	317.	205.	.73
HYDROGRAPH AT	456	483.	12.07	37.	10.	4.	.26
DIVERSION TO	BASIN1	193.	12.07	8.	2.	1.	.26
HYDROGRAPH AT	D1	290.	12.07	29.	8.	3.	.26
DIVERSION TO	WA30	59.	12.07	10.	3.	1.	.26
HYDROGRAPH AT	CD2	231.	12.07	19.	5.	2.	.26
ROUTED TO	R456	218.	12.13	19.	5.	2.	.26
HYDROGRAPH AT	457	273.	12.07	21.	6.	2.	.19

2 COMBINED AT	C101	480.	12.10	40.	10.	4.	.45
DIVERSION TO	BASIN2	177.	12.10	8.	2.	1.	.45
HYDROGRAPH AT	D3	303.	12.10	32.	8.	3.	.45
HYDROGRAPH AT	RTD3	177.	12.10	8.	2.	1.	.45
ROUTED TO	SD3	1.	12.40	1.	1.	1.	.45
2 COMBINED AT	CD3	304.	12.10	33.	9.	4.	.45
ROUTED TO	R101	302.	12.10	33.	9.	4.	.45
HYDROGRAPH AT	458	366.	12.03	26.	7.	2.	.19
2 COMBINED AT	C103	655.	12.07	59.	16.	6.	.64
ROUTED TO	R103	651.	12.07	59.	16.	6.	.64
HYDROGRAPH AT	RT30	59.	12.07	10.	3.	1.	.26
ROUTED TO	R30	58.	12.10	10.	3.	1.	.26
HYDROGRAPH AT	RTB1	193.	12.07	8.	2.	1.	.26
ROUTED TO	B1	35.	12.20	8.	2.	1.	.26
ROUTED TO	RB1	35.	12.27	8.	2.	1.	.26
2 COMBINED AT	CDIV	87.	12.20	18.	5.	2.	.12
HYDROGRAPH AT	459	45.	12.03	3.	1.	0.	.03
2 COMBINED AT	C52	117.	12.10	21.	6.	2.	.15
ROUTED TO	R52	116.	12.17	21.	6.	2.	.15
HYDROGRAPH AT	460	221.	12.07	20.	6.	2.	.14
2 COMBINED AT	C102	323.	12.07	40.	12.	4.	.29
ROUTED TO	BASIN3	71.	12.63	40.	12.	4.	.29
ROUTED TO	R3	71.	12.77	40.	12.	4.	.29
HYDROGRAPH AT	461	165.	12.10	17.	5.	2.	.12
2 COMBINED AT	C104	220.	12.10	57.	17.	6.	.41
2 COMBINED AT	C106	866.	12.07	115.	33.	12.	1.05
ROUTED TO	R106	828.	12.13	115.	33.	12.	1.05
HYDROGRAPH AT	462	557.	12.07	42.	12.	4.	.30
2 COMBINED AT	C56	1306.	12.10	156.	44.	16.	1.35
2 COMBINED AT	C462	1633.	12.30	397.	340.	217.	2.09
ROUTED TO	R462	1601.	12.33	396.	340.	217.	2.09
ROUTED TO	RR462	1563.	12.40	395.	340.	216.	2.09

HYDROGRAPH AT	500	1126.	12.27	128.	35.	12.	.93
2 COMBINED AT	C500	2472.	12.33	505.	366.	226.	3.02

*** NORMAL END OF HEC-1 ***



N

GRAPHIC SCALE

600 0 300 600 1200

(IN FEET)

Concentration Point	McDowell Road Basin Q [cfs]	Remarks
CP390C	379	Discharge at CP east of TM driveway on McDowell Rd
TOC-H	104	Diversion to Culver-Hawes system
TO390B	275	Discharge west from diversion
390SD1	N/A	Discharge to Storm Drain collector on McDowell
CP390A	210	
CP415B	1205	Runoff to Oak St basin
S415B	55	Discharge from Oak St basin
CP390B	613	Discharge into Thunder Mtn basin
390B	139	Discharge into Thunder Mtn basin
S390B	519	Discharge from Thunder Mtn basin
CP390	N/A	CP at corner of McDowell and Hawes
CPSD05	559	
CPSD10	581	
CPSD15	589	
CPSD20	600	
CPSD25	615	
CPSD30	658	
CPSD35	694	
CPSD40	698	
CPSD45	704	
MCDB	304	Diversion to McDowell Rd Basin
TOLSCH	400	Flow directly to Las Sendas Channel
CP415A	1431	Flow from "offsite" watershed to north & SD bypass
SMCDB	106	Discharge from McDowell Rd Basin
CPLSCH	1515	Discharge in Las Sendas Channel from McDowell Rd basin and bypass and northern "offsite" watershed

Subbasin ID	Q [CFS]	AREA [SQ MI]	Runoff [CFS/SQ MI]
385C	647	0.501	1291
385B	103	0.077	1338
385A	23	0.018	1278
415B	442	0.276	1601
395A	191	0.185	1032
390C	226	0.121	1868
390B	139	0.101	1376
390A	33	0.024	1375
420B05	62	0.040	1550
420B10	26	0.025	1040
420B15	12	0.011	1091
420B20	12	0.014	857
420B25	37	0.084	440
420B30	46	0.055	836
420B35	40	0.034	1176
420B40	6	0.005	1200
420B45	7	0.007	1000

McDowell Basin	
High Water [ft]	10.4
Storage Volume [ac-ft]	9.2
Outlet Pipe	1 - 36-inch

LEGEND

DRAINAGE FLOWPATH

WATERSHED BOUNDARY

SUBBASIN ID NUMBER — 395A

CONCENTRATION POINT

CONCENTRATION POINT NUMBER — CPSD10

NO.	REVISION	BY	DATE	APPR.

Kimley-Horn and Associates, Inc.

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SCALE (H): 1"=600'
SCALE (V): NONE

DESIGNED BY: PAC
DRAWN BY: JWH
CHECKED BY: LSM

DATE: DEC, 2005

MCDOWELL ROAD BASIN AND STORM DRAIN DESIGN
FIGURE 1 - HYDROLOGY WATERSHED MAP

PROJECT NO. 91131012

DRAWING NAME WATERSHED

K:\WaterResources\91131012\CADD\Exhibits\WotRes\watershed_co.dwg Dec 28, 2005 Jaron.Hasenbalg
XREFS: CTOWN
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